DISCOVER-AQ Acoustics

Measurement and Data Report

Final Report —September 2015

DOT-VNTSC-FAA-15-09
DOT/FAA/AEE/2015-11

Prepared for:
U.S. Department of Transportation
Federal Aviation Administration
Office of Environment and Energy, AEE-100
Washington, DC 20591

U.S. Department of Transportation
John A. Volpe National Transportation Systems Center

Notice

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	September 2015	Final Report

4. TITLE AND SUBTITLE
DISCOVER-AQ Acoustics: Measurement and Data Report

5a. FUNDING NUMBERS
FA4SCQ NTC70

6. AUTHOR(S)
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5b. CONTRACT NUMBER
DTRT57-10-D-30023

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Department of Transportation
John A. Volpe National Transportation Systems Center
Environmental Measurement and Modeling Division, V-324
Cambridge, MA 02142-1093

8. PERFORMING ORGANIZATION REPORT NUMBER
DOT-VNTSC-FAA-15-09

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Department of Transportation
Federal Aviation Administration
Office of Environment and Energy, AEE-100
Washington, DC 20591

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
DOT/FAA/AEE/2015-11

11. SUPPLEMENTARY NOTES
FAA Program Managers: Rebecca Cointin, Hua He (AEE, Office of Environment and Energy, Noise Division)

12a. DISTRIBUTION/AVAILABILITY STATEMENT

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

The following report documents the acoustic measurements that supplemented the September 2013 NASA DISCOVER-AQ flight tests in Houston, Texas and the corresponding data set developed from those measurements. These data include aircraft performance and position, meteorological and acoustic data of various aircraft events flown by two test aircraft at a range of altitudes. These data are supplemented by aircraft source data, measurement site location data, observations, and onboard acoustic data. The intended use of this data set is to validate the accuracy of aircraft acoustic modeling methods.

14. SUBJECT TERMS
Aircraft Noise, Noise Prediction, Noise Model, Integrated Noise Model, Aviation Environmental Design Tool, DISCOVER-AQ, flight test, overflight, atmospheric profile, Federal Aviation Administration, FAA, National Aeronautics and Space Administration, NASA, database

15. NUMBER OF PAGES
276

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18
298-102

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	G
lb	pounds	0.454	kilograms	Kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
oz	ounces	28.35	grams	G
		TEMPERATURE (exact degrees)		
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
mL	milliliters	0.034	fluid ounces	fl oz
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
g	grams	0.035	ounces	oz
		TEMPERATURE (exact degrees)		
°C	Celsius	1.8C+32	Fahrenheit	°F
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m^2	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	poundforce	lbf
kPa	Kilopascals	0.145	poundforce per square inch	lbf/in^2

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003)

Acknowledgments

The authors of this report wish to express their sincere gratitude to all who helped make this a successful study, including:

1. FAA AEE: Hua He, Becky Cointin, Fabio Grandi
2. NASA: Kevin Shepherd, Jake Klos, Jim Crawford, Luci Crittenden, Rick Yasky, Mike Wusk, Gerrit Everson, Mike Singer, Mike Anderson, Scott Farley, Jeff Chandler, Martin Nowicki and the rest of the NASA DISCOVER-AQ team
3. USDOT Volpe Center: Andrea Goldstein, Peter Herzig, Lauren Jackson, Clay Reherman, Christopher Roof, Chris Scarpone, Bob Samiljan, Roger Wayson
4. Measurement site contacts:
    a. Millersville University: Rich Clark
    b. W. G. Jones State Forest: John Warner, Shannon Holmes, Penny Bartley, Justin Branch, Debbie Johnson, Justin Kearse, Mike Adams, Raymond Uballe
    c. Candy Cain Abshier Wildlife Management Area: James Sutherlin, Andrew Peters, Chad August
    d. Boy Scouts of America Camp Strake: Lynda Sanders
    e. Lake Houston Wilderness Park: Paul Hendrix

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List of Abbreviations and Acronyms

Abbreviation	Term
AEDT	Aviation Environmental Design Tool
AGL	Above Ground Level
B&K	Brüel & Kjær
BPF	Blade-pass Frequency
CSV	Comma separated values
dB	Decibel
DNL	Day-night sound pressure level
DISCOVER-AQ	Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality
EARS	Environmental Acoustics Research System
FAA AEE	Federal Aviation Administration Office of Environment and Energy
FAR	Federal Aviation Regulation
GMT	Greenwich Mean Time
GPS	Global Positioning System
Hz	Hertz
ICAO	International Civil Aviation Organization
IEPE	Integrated electronic piezoelectric
INM	Integrated Noise Model
IRIG-B	Inter-range instrumentation group (time code B)
kHz	Kilohertz
KIAS	Knots-indicated air speed
kts	Knots
LD	Larson Davis
MSL	Mean sea level
NASA	National Aeronautics and Space Administration
NOAA	National Oceanographic and Atmospheric Administration
NPD	Noise-power-distance
RH	Relative Humidity
RPM	Rotations per minute
SDHC	Secure Digital High Capacity
SEL	Sound Exposure Level
SHP	Shaft horsepower
SODAR	SOnic Detection And Ranging
SPL	Sound Pressure Level
SQL	Structured Query Language
SRD	Solar Radiation
UTC	Coordinated Universal Time
VDC	Volts, DC
WAV	WAVeform audio format
WD	Wind Direction
WS	Wind Speed

Executive Summary

The National Aeronautics and Space Administration (NASA) conducted a month-long flight test in 2013 in Houston, Texas. This flight test was in support of the "Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality" (DISCOVER-AQ) research effort, with the goal of furthering NASA's air quality measurement and analysis capabilities. An opportunity arose to provide supplemental acoustic measurements during this flight test. Up to this point, there has been a lack of high quality aircraft acoustic validation data sets that include detailed acoustic, meteorology, and aircraft position and performance data, representing a wide range of conditions. Given the detailed aircraft performance, position and meteorological data collected as a part of this effort, this proved to be a unique opportunity to develop such a validation data set.

In support of the Federal Aviation Administration (FAA), the Volpe Center deployed acoustic and meteorological instrumentation at eight sites throughout the Houston metropolitan area, to collect data from the flight tests. This resulted in a comprehensive data set that enables the investigation, validation and improvement of the aircraft acoustic and performance methods and modeling capabilities used in the FAA's Aviation Environmental Design Tool (AEDT) and other aircraft acoustic research efforts. These high-quality data included 95 aircraft events from a variety of test aircraft operations at a range of altitudes. These data were further supplemented by aircraft source noise data, which were measured during the DISCOVER-AQ pre-flight checks. This report provides descriptions of the acoustic and meteorological measurements, data processing, example validation data, and potential uses of those data.

1. Introduction

The Federal Aviation Administration's Office of Environment and Energy's (FAA AEE) Aviation Environmental Design Tool (AEDT) is FAA's next generation environmental noise, air quality and fuel burn modeling tool [1]. A common recommendation from recent AEDT-related research and development efforts is to collect high quality data for the purpose of validating the accuracy of AEDT, including new modeling capabilities. Such a data set would need to represent a variety of different atmospheric and aircraft operational conditions, in order to be beneficial for validating a wide range of aircraft noise and performance modeling capabilities.

In a separate research effort, the National Aeronautics and Space Administration (NASA) has been investigating methods to better distinguish between pollution high in the atmosphere and that near the surface through the use of Earth-observing satellites measuring air quality [2]. This multi-year research effort is known as "Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality" (DISCOVER-AQ) [3]. Through a series of four month-long flight tests, the DISCOVER-AQ project will assess the improved ability of satellites to monitor pollution levels, to more accurately determine the sources of pollutants in the air and to more closely determine the fluctuations in emissions levels. These flight tests will result in a pollution data set collected simultaneously from satellite-, aircraft- and ground-based emissions monitoring systems, which can then be compared and correlated. Detailed atmospheric and meteorological data will also be collected during the course of these flight tests.

An opportunity arose to undertake supplemental acoustic measurements during the third NASA DISCOVER-AQ flight test in September 2013 in the vicinity of Houston, Texas. While the focus of the NASA effort is atmospheric and air quality research, the John A. Volpe National Transportation Systems Center (Volpe), in support of FAA AEE, was tasked with measuring in situ acoustic level data from the flight tests that could then be coupled with corresponding aircraft performance, aircraft position and meteorological data. To further supplement these data, additional aircraft source data were measured at another location. The combined data sets could then be used to investigate, validate and improve the aircraft acoustic propagation modeling methods in AEDT and other FAA research efforts.

The following report documents the acoustic measurements that supplemented the September 2013 NASA DISCOVER-AQ flight tests and the corresponding validation data set developed from those measurements. Chapter 2 provides the background on the DISCOVER-AQ program and the opportunity for supplemental acoustic measurements. Chapter 3 presents the goals for the project, as well as the scope of the acoustic measurements and data set development. The test aircraft are described in Chapter 4. Two separate sets of acoustic measurements took place for this project. First, NASA led acoustic source measurements during the pre-flight testing of the aircraft; the resulting data are described in Chapter 5. Second, the Volpe lead acoustic validation measurements during the DISCOVER-AQ Houston flight test; the resulting data are described in Chapter 6. Considerations for using the data for model validation recommendations are presented in Chapter 7. Finally, conclusions are presented in

Chapter 8. In addition, the appendices include detailed descriptions of the data presented in this report.

2. Background

Since 2011, NASA has been assessing and improving the capabilities of measuring air quality by satellite through the DISCOVER-AQ research effort. This effort consists of four month-long flight tests where pollution data are simultaneously collected by satellite, two aircraft flying fixed flight patterns around a study area, and multiple group monitoring stations scattered across the study area. These air quality measurements are supplemented by aircraft performance data, and detailed meteorological data collected aboard the aircraft, from weather balloons, and from various ground-based meteorological measurement systems (LIDAR, SODAR, etc.). The flight tests took place in the following locations [2]:

1. Baltimore, MD and Washington, DC from June 27, 2011 through July 31, 2011;
2. San Joaquin Valley (Palmdale, CA) from January 16, 2013 through February 6, 2013;
3. Houston, TX from September 4, 2013 through September 28, 2013; and
4. Denver, CO in 2014 (July 16, 2014 through August 14, 2014).

Although the flight paths for the month-long flight tests were predetermined, individual flight days were dependent on meteorological and air quality conditions. The Baltimore flight test consisted of 14 flight days, San Joaquin Valley 12 days, Houston 10 days, and Denver 18 days. Through these four flight tests, the DISCOVER-AQ project will assess the ability of satellites to monitor pollution levels, to more accurately determine the sources of pollutants in the air and to more closely determine the fluctuations in air quality levels through the comparison and correlation of the atmospheric pollution data set collected simultaneously from satellite-, aircraft- and ground-based emissions monitoring systems. Detailed information on the overall DISCOVER-AQ air quality research effort can be found on the NASA DISCOVER-AQ web-site [2].

The FAA is continuously assessing and improving its analysis tools. A need was identified to develop a comprehensive aircraft acoustic data set. Such a data set could be used to investigate, validate and improve the aircraft acoustic propagation modeling methods used in the FAA's Aviation Environmental Design Tool (AEDT) and other aircraft acoustic research efforts [1]. The third NASA DISCOVER-AQ flight test in September 2013 in the vicinity of Houston, Texas provided an opportunity to measure an aircraft acoustic validation data set, where corresponding in situ acoustic level, aircraft performance, aircraft position and meteorological data could be measured.

3. Scope and Goals

The scope of the DISCOVER-AQ acoustic research effort was to measure in situ acoustic level data from the two aircraft performing controlled flight operations as part of the DISCOVER-AQ research effort and to develop the corresponding acoustic, meteorological, aircraft position and performance data into a comprehensive aircraft acoustic model validation data set. Acoustic level measurements were made in areas with relatively low ambient noise levels, minimal outside transportation noise sources and at a variety of different distances and elevation angles from the nominal aircraft flight paths, in order to measure noise data that reflect a wide range of aircraft operational parameters, orientations and

propagation distances. Supplemental meteorological data were collected at each acoustic measurement site, and this data set measured by the Volpe team was then coupled with corresponding aircraft performance, aircraft position and meteorological data measured by NASA and other collaborating research organizations. These data were then data processed, and a final validation data set was accumulated.

4. Flight Test Aircraft

Two aircraft were flown for the DISCOVER-AQ flight tests: the Lockheed P-3B Orion (Section 4.1) and the Beechcraft B-200 Super King Air (Section 4.2). It is important to note that the Houston airspace is very active with thousands of daily aircraft operations; many other aircraft events that occurred in vicinity of the measurement sites were captured in the acoustic data. However, only the Lockheed P-3B Orion and the Beechcraft B-200 Super King Air were dedicated to the DISCOVER-AQ flight tests, and they are the only two aircraft, whose flight events were captured with combined acoustic, performance, position and meteorological measurements.

4.1 Lockheed P-3B Orion

The NASA P-3B Orion aircraft is a former U.S. Navy patrol aircraft that has been extensively modified by NASA for use as an airborne science laboratory [10]. It is owned by NASA and operated by the NASA Goddard Space Flight Center's Wallops Flight Facility Aircraft Office at Wallops Island, Virginia. The P-3B is considered a "core" platform for the NASA Airborne Science Program. The aircraft can carry several instrument payloads at once while supporting scientific studies all over the globe.

Figure 1. NASA P-3B in a typical mission configuration layout during a check flight. (Photo Credit: NASA)

Table 1. Characteristics of NASA's Lockheed P-3B Orion Airborne Laboratory

Aircraft Manufacturer	Lockheed
Aircraft Model	P-3B Orion
Aircraft Type	Four-engine turboprop
Maximum Gross Take-off Weight (lb)	135,000
Number and Type of Engine(s)	(4) Allison T56-A-14 turboprop
Engine Horse Power (HP)	4,100 shp (x4)
Blade Manufacturer / Model Number	Hamilton Standard 4-bladed constant speed propeller (Model # 54H60)
Number of Passengers	24*

During the Houston flight tests, the P-3B flew dynamic flight tracks that included level flight around 15,000 ft above ground level (AGL), level flight at 1,000 ft , level flight at 500 ft , upward spiraling flight from 500 ft or 1,000 ft to 15,000 ft, and downward spiraling flight from 15,000 ft to 1,000 ft or 500 ft (see Section 6.1). The P-3B was heavily instrumented with atmospheric pollutant and meteorological measurement equipment, as well as acoustic measurement equipment inside the aircraft cabin (see Section 6.3).

* Note: NASA's P-3B is fully instrumented as a flying laboratory, which may not be able to accommodate 24 passengers.

4.2 Beechcraft B-200 Super King Air

The NASA Beechcraft B-200 Super King Air is a smaller plane that originally carried up to a dozen passengers, but has been modified into a flying science platform for studying the Earth's atmosphere [11]. Its payload capacity and flexibility make it an excellent instrument platform; the aircraft is equipped with a suite of state-of-the-art active and passive sensors, to help scientists better understand our atmosphere and air quality. It is based at NASA's Langley Research Center in Hampton, Virginia.

Figure 2. NASA Beechcraft B-200 Super King Air (Photo Credit: NASA)

Table 2. Characteristics of NASA's Beechcraft King Air Airborne Laboratory

Aircraft Manufacturer	Beechcraft
Aircraft Model	B-200 Super King Air
Aircraft Type	Twin-engine turboprop
Maximum Gross Take-off Weight (lb)	13,500
Number and Type of Engine(s)	Pratt & Whitney of Canada (2) PT6A-42
Engine Horse Power (HP)	850 shp
Blade Manufacturer / Model Number	Hartzell 3 bladed constant speed propeller
Number of Passengers	13*

During the Houston flight tests, the B-200 flew control flight tracks that included level flight around 20,000 ft AGL (see Section 6.1). The P-3B was also instrumented with atmospheric pollutant and meteorological measurement equipment, as well as acoustic measurement equipment inside the aircraft cabin (see Section 6.3).

* Note: NASA's B-200 is fully instrumented as a flying laboratory, which may not be able to accommodate 13 passengers.

5. NASA Supplemental Source Noise Measurements

The following supplemental aircraft source acoustic measurements were performed by NASA during the DISCOVER-AQ preliminary flight tests: (1) P3-B Orion on August 27, 2013 at Wallops Flight Facility; and (2) B-200 King Air on August 23, 2013 at Langley Research Center. The goal of the supplemental source measurements was to measure acoustic level data for a series of controlled level flyovers that could be used to characterize the acoustic source characteristics of each aircraft. These data could then be used to investigate acoustic propagation methodologies, when coupled with the propagated acoustic levels measured in situ during the DISCOVER-AQ flight tests.

The initial plan was to measure approach, departure and level flight operations for each aircraft over a range of speeds and altitudes. Such a data set would be sufficient to develop the noise-power-distance (NPD) database in AEDT for each aircraft. Unfortunately, due to constraints on the availability of the aircraft, only source noise data from level flight operations for each aircraft were measured during the source measurements. Because both the P-3B and King Air are NASA-owned aircraft, a complete set of acoustic source data for each aircraft could be measured and the corresponding AEDT database submittals developed at a time in the future, if the opportunity arises.

5.1 Source Measurement Site Descriptions

The supplemental P3-B Orion source data measurements were made during DISCOVER-AQ check flight procedures at the aircraft's home base, the Wallops Flight Facility (WAL) at the Goddard Space Flight Center. These measurements were made by NASA personnel, led by Dr. Kevin Shepherd. Three microphones were placed in an open area adjacent to a taxiway; one at 4 ft above the local ground surface, and two at ground level atop a square ground board with an edge length of 2 ft. The runway was directly underneath the flight path of the flight tests, and the microphone locations were positioned approximately 100 ft offset. The locations of these microphones are further described in Table 3.

Table 3. Measurement Locations for the Supplemental P-3B Source Measurements

Measurement Location	Longitude	Latitude	Elevation (ft)	Microphone height (ft)
1	-75.472122	37.932058	101.1	4.0
2	-75.472153	37.932072	105.6	0.0
3	-75.472117	37.932203	111.9	0.0

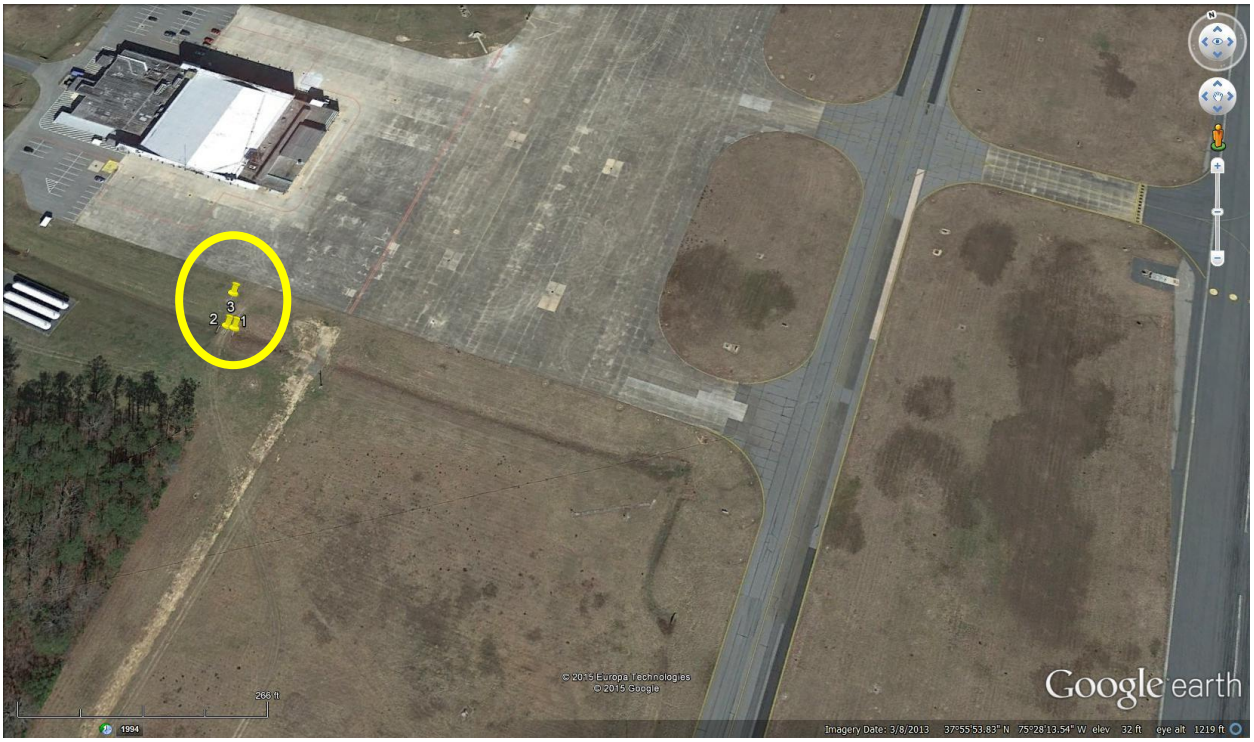

Figure 3. Measurement Locations Relative to the Taxiway for the Supplemental P-3B Source Measurements

The supplemental King Air source data measurements were made during the second DISCOVER-AQ check flight procedures test. The King Air check took place at the aircraft's home base, the Langley Research Center (LFI) in Hampton, Virginia. These measurements were made by NASA personnel, also led by Dr. Kevin Shepherd. Two microphones were placed in an open area near the airport; one at 4 ft above the local ground surface, and one at ground level atop a square ground board with an edge length of 2 ft. Unfortunately, detailed tracking data were not available for the King Air, but the microphone locations were positioned approximately underneath the flight path of the flight tests. The locations of these microphones are further described in Table 4.

Table 4. Measurement Locations for the Supplemental B-200 King Air Source Measurements

Measurement Location	Longitude	Latitude	Elevation (ft)	Microphone height (ft)
1	-76.378158	37.104208	14.0	4.0
2	-76.378164	37.104275	14.0	0.0

Figure 4. Measurement Locations for the Supplemental B-200 King Air Course Measurements

5.2 Source Measurement Instrumentation

In both supplemental source noise measurement flight tests, GRAS model 40AQ microphones with model 26CA preamplifiers were used. The microphones were calibrated in-situ both pre- and post-measurement with a Brüel & Kjær Type 4231 calibrator using a 1 kHz calibration tone at a level of 94.0 dB. The deviation in sensitivity between pre- and post-test calibrations was less than 0.1 dB.

National Instruments PXI-4472B data acquisition hardware was used to measure and log the voltage time history of the fielded microphones. The PXI-4472B digital to analog converters are 24-bit, with 110 dB dynamic range, and provided the required IEPE power supply for the microphones and preamplifiers. In addition to the microphones, the output of an IRIG-B time code generator was also recorded. The microphone time histories (in Pascal), the un-decoded IRIG-B time history (in Volts), and the decoded IRIG-B (seconds past midnight UTC) were saved to CSV files and distributed post-test. The sample rate for the time histories contained in the raw CSV data files is 44.1 kHz.

5.3 Source Measurement Flight Test Overview

Due to limited aircraft availability, the supplemental source data measurements were planned to coincide with the final check flights before the two aircraft were relocated to Ellington Field for the duration of the measurement. Due to the tight time constraints of these flight tests, only level flight

operations were performed over the acoustic measurement systems. Meteorological data were not taken on-site during these flight tests, so National Oceanic and Atmospheric Administration (NOAA) data were documented for use with these aircraft source data. NOAA data are presented in Appendix A.1.2 and A.2.2.

The King Air check flights took place at the Langley Research Center in Hampton, Virginia, and consisted of six acceptable flight events. Unfortunately, aircraft tracking data were not available for this check flight, so approximate altitudes and positions of the aircraft were gathered from information provided by the NASA test pilots. Pass 1 occurred at approximately 10,000 ft. Passes 2, 3, and 4 were nominally 1000 ft altitude. Passes 5, 6, and 7 were at approximately 500 ft. All King Air flight events were at the approximately the same power setting (1700 RPM, 93% N1), which were power setting similar to that used during the Houston flight tests. Flight issues were encountered during Pass 6, so those data were not analyzed. Detailed flight event data for the King Air are presented in Appendix A.2.3.

The P-3B check flights took place at the Wallops Flight Facility at the Goddard Space Flight Center, and consisted of five acceptable flight events. Aircraft tracking data were available for these flight events, and these tracking data are presented in Appendix A.1.3 *Aircraft Position and Performance Data*. All P-3B flight events were approximately 1,000 – 1,100 ft altitude. Passes 1 and 2 were at a slightly lower power setting (2100 shaft horsepower), whereas Passes 3, 4, and 5 were at a power setting similar to that used during the Houston flight testes (2500 shaft horsepower). Detailed flight event data for the P-3B are presented in Appendix Section A.1.3 *Aircraft Position and Performance Data*.

Figure 5. P-3B Check Flight Paths near Wallops Flight Facility

5.4 Measured Data and Data Processing from the Supplemental Source Measurements

NASA-developed code was used to compute the A-weighted level versus time, the C-weighted level versus time, and the one-third-octave band level versus time (for bands ranging from 25 Hz to 16 kHz) for each pass of the King Air and P-3B. These data were computed for both "fast" and "slow" (exponential) averaging, which corresponds to a time constant of 0.125 and 1.0 seconds, respectively. The maximum A-weighted noise levels versus time for each flyover event are presented in Figure 6 and Figure 7. The un-weighted one-third octave-band spectra associated with the maximum A-weighted sound pressure level with slow averaging for each flyover event are presented in Figure 8 through Figure 11, as well as Appendices A.1.1 *Acoustic Data* and A.2.1 *Acoustic Data*.

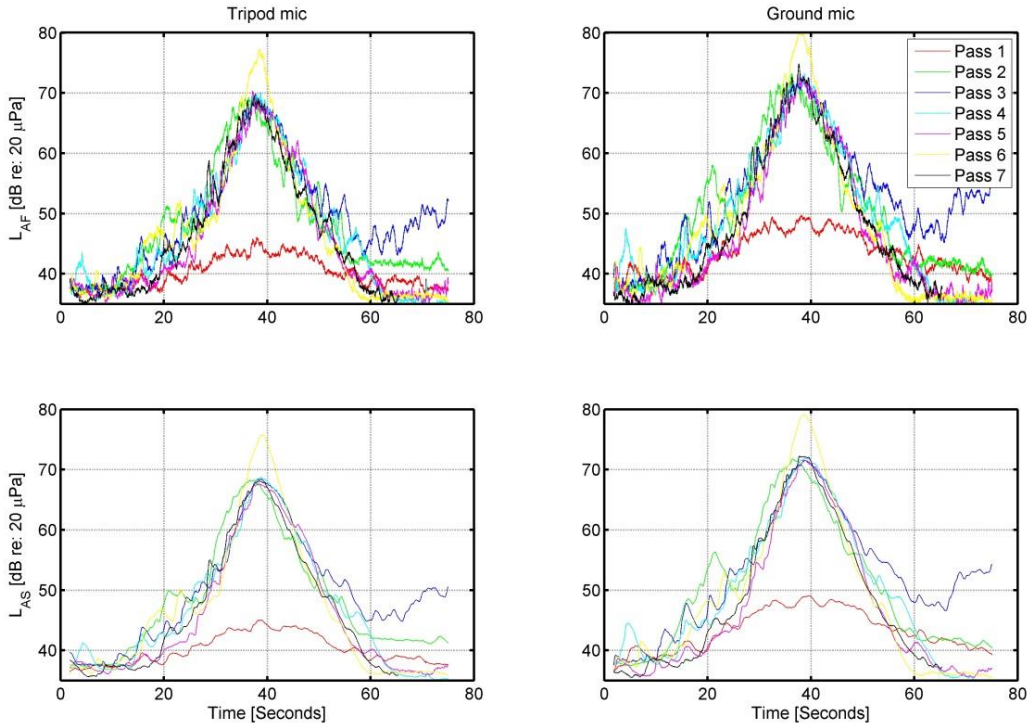

Figure 6. Acoustic Data from NASA Pre-Flight Measurements of the B-200 (Tripod Mic is Mic 1, and Ground Mic is Mic 2). (Graphic Credit: NASA)

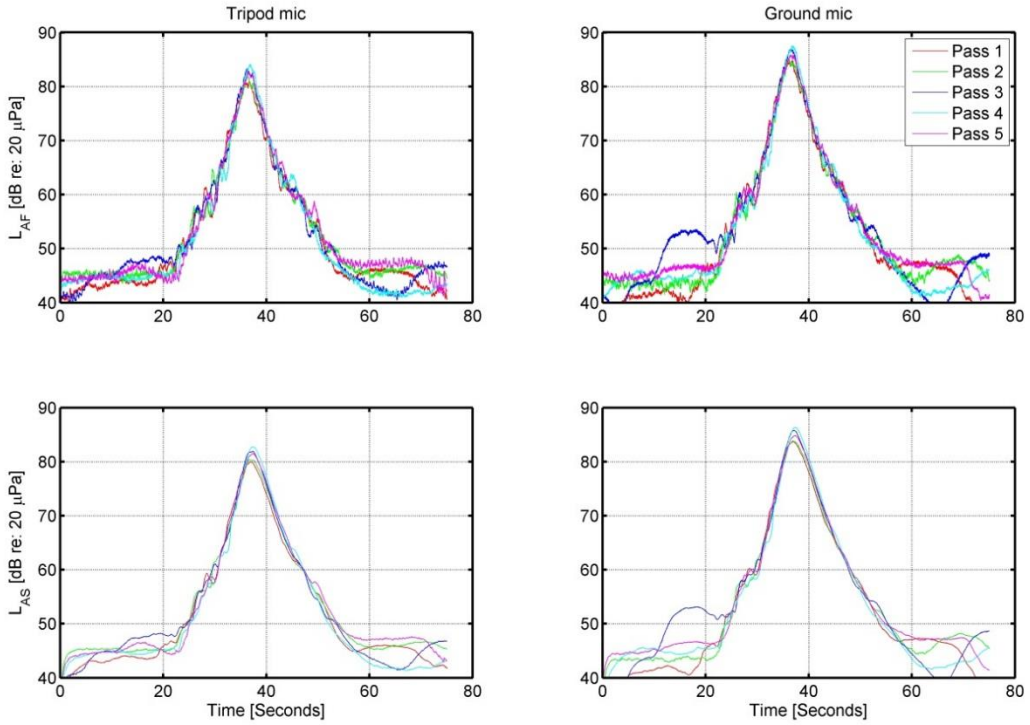

Figure 7. Acoustic Data from NASA Pre-Flight Measurements of the P-3B (Tripod Mic is Mic 1, and Ground Mic is Mic 2). (Graphic Credit: NASA)

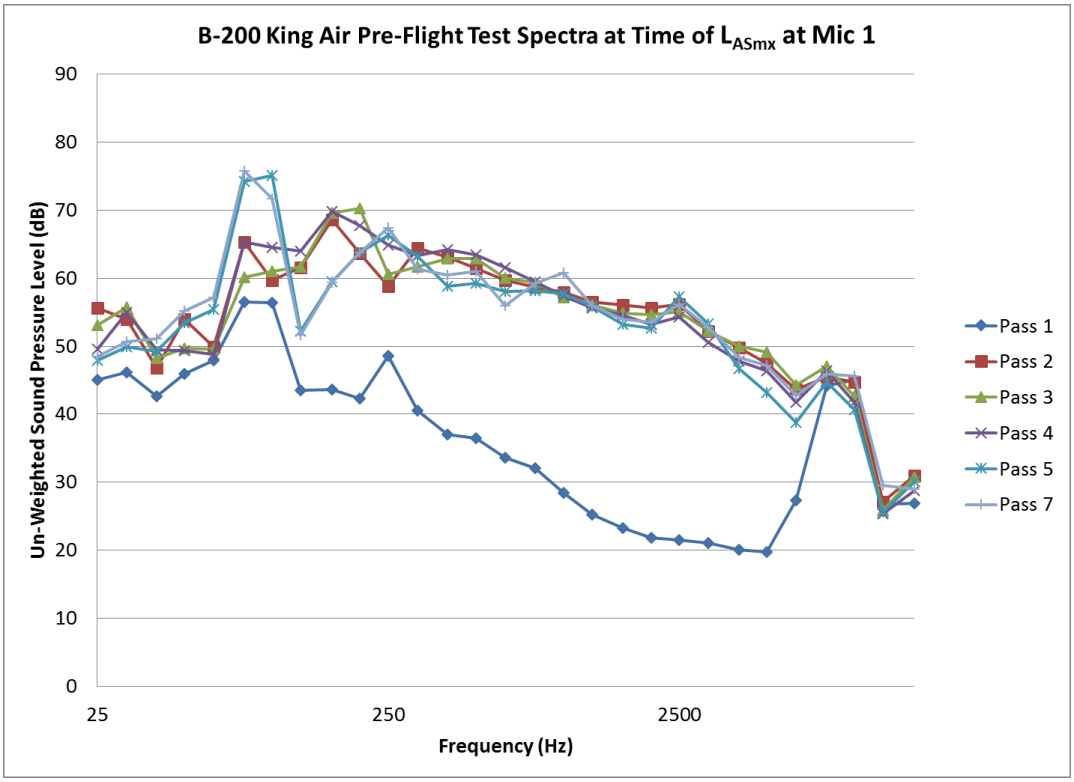

Figure 8. Spectra at the Time of L_{ASmx} at Mic 1 for Each Pass during the B-200 King Air Pre-Flight Test

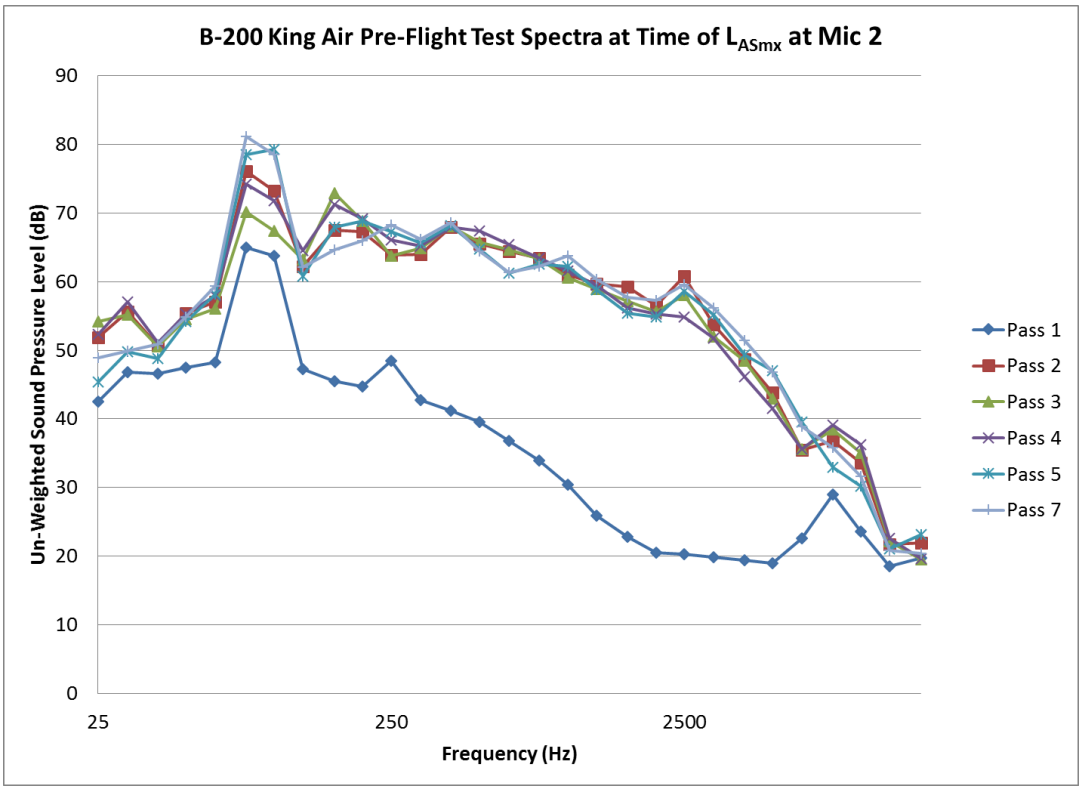

Figure 9. Spectra at the Time of L_{ASmx} at Mic 2 for Each Pass during the B-200 King Air Pre-Flight Test

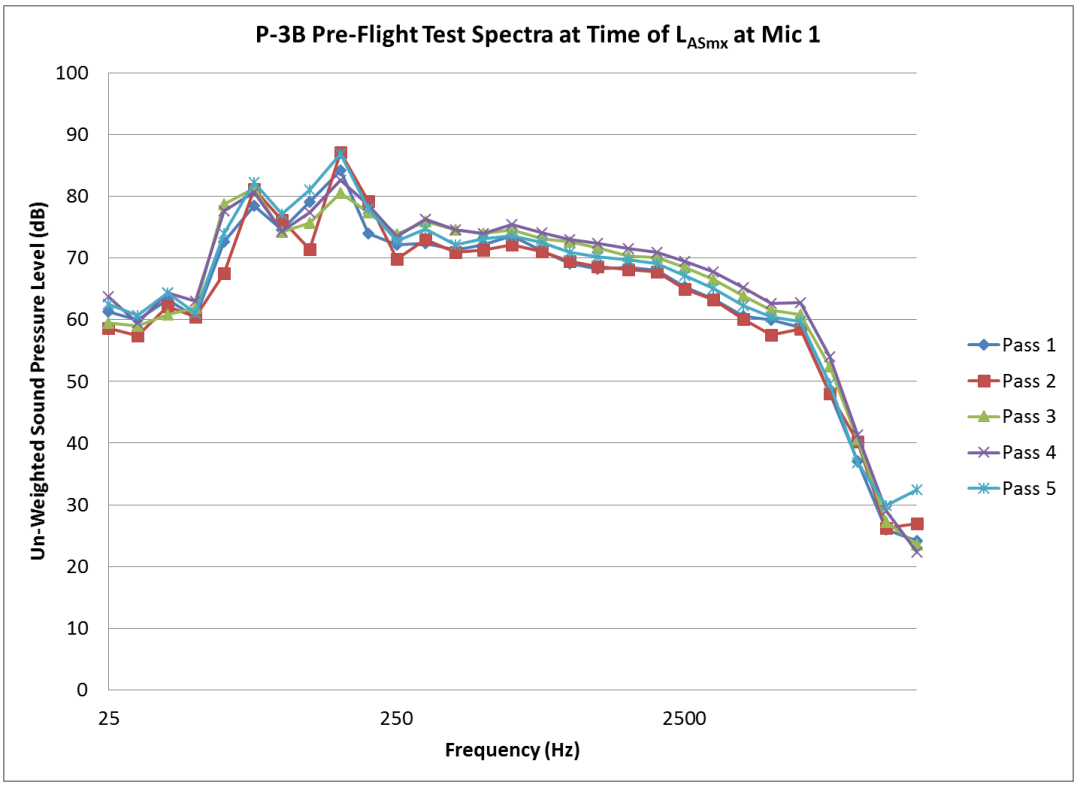

Figure 10. Spectra at the Time of L_{ASmx} at Mic 1 for Each Pass during the P-3B Pre-Flight Test

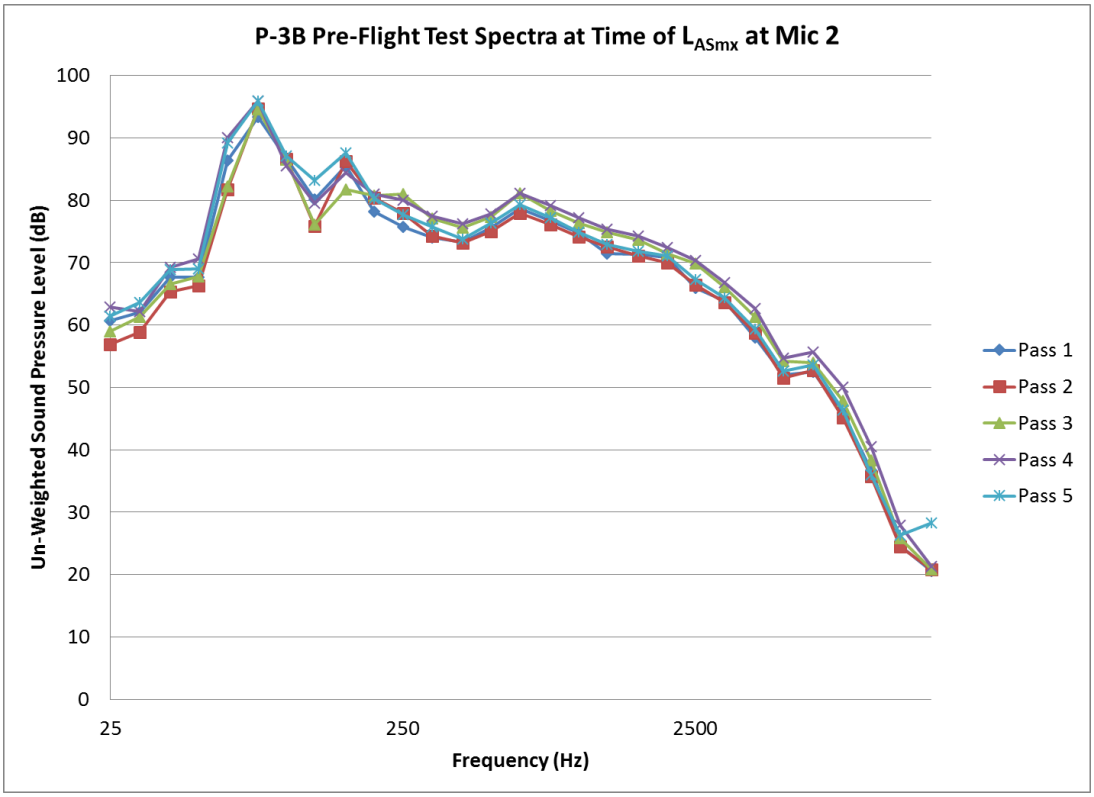

Figure 11. Spectra at the Time of L_{ASmx} at Mic 2 for Each Pass during the P-3B Pre-Flight Test

5.5 Supplemental Source Data Set

A noise model is only as good as its computational algorithms and input data. When developing a model validation data set, it is important to have high quality data for all model inputs, as well as high quality data at the measurement locations to compare against modeled results. AEDT and the FAA's Integrated Noise Model (INM) require a comprehensive set of aircraft noise and performance data that include data for approach and departure operations. Unfortunately, approach and departure data could not be collected as part of the source data measurements, and therefore the measured P-3B and Kind Air data could not be modeled in AEDT and INM.

However, substitution aircraft for the P-3B and King Air can be found in AEDT and INM. Substitution aircraft are proxy aircraft that represent aircraft which are not directly included in the system. These aircraft have a complete set of noise and performance data, and they have similar aircraft equipment (engine type, number of engines, engine installation, airframe), operational criteria (maximum take-off weight, thrust-to-weight ratio) and certified noise levels. Therefore, the P-3B Orion was modeled with a P-3C Orion substitution aircraft in AEDT/INM (P3C), and the Beechcraft B-200 King Air was modeled with the Cessna 441 Conquest II substitution aircraft in AEDT/INM (CNA441). Table 5 and

Table 6 describe the comparison of the design feature of these aircraft.

In order to ensure that the AEDT/INM substitution aircraft adequately represent the NASA DISCOVER-AQ aircraft, the NASA source measurement flight tests were modeled in INM version 7.0d (service

update 1) and presented in Figure 12 and Figure 13, as well as a comparison between the aircraft at different altitudes in Figure 14. INM spectral class data for the aircraft are presented in Figure 15. When an overflight operation is modeled in INM, aircraft-specific approach noise data are used, unless level flight data are available (which was not the case for these substitution aircraft). Since INM is an integrated model and does not take into account the time history of the aircraft events, receivers were modeled at regular spacing to the side of the flight tracks, in order to capture the approximate drop off of L_{ASmx} with distance from the source*. These modeled results were compared against the corresponding measured source data as shown in Table 7.

Table 5. Comparison of Aircraft Characteristics, Beechcraft B-200 and AEDT's Cessna Conquest 441 II

Aircraft Manufacturer	Beechcraft	Cessna
Aircraft Model	B-200 Super King Air	Conquest 441 II
Aircraft Type	Twin-engine turboprop	Twin-engine turboprop
AEDT Aircraft ID	N/A	CNA441
Maximum Gross Take-off Weight (lb)	13,500	9,900
Number and Type of Engine(s)	Pratt & Whitney of Canada (2) PT6A-42	Pratt & Whitney of Canada (2) PT6A-41
Engine Horse Power (HP)	850 shp (x2)	850 shp (x2)
Blade Manufacturer / Model Number	Hartzell 3 bladed constant speed propeller	McCauley 3-bladed constant speed propeller
Number of Passengers	13	8-10

Table 6. Comparison of Aircraft Characteristics, Lockheed P-3B and AEDT's P-3C Orion

Aircraft Manufacturer	Lockheed	Lockheed
Aircraft Model	P-3B Orion	P-3C Orion
Aircraft Type	Four-engine turboprop	Four-engine turboprop
AEDT Aircraft ID	N/A	P3C
Maximum Gross Take-off Weight (lb)	135,000	135,000
Number and Type of Engine(s)	(4) Allison T56-A-14 turboprop	(4) Allison T56-A-15 engines
Engine Horse Power (HP)	4,100 shp (x4)	4,100 shp (x4)
Blade Manufacturer / Model Number	Hamilton Standard 4-bladed constant speed propeller (Model # 54H60)	Hamilton Standard 4-bladed constant speed propeller
Number of Passengers	24	24

* It is important to note that the INM results do include lateral directivity effects (aircraft shielding and soft ground absorption] that are not expressly captured in the measured data, which flew directly over the measurement locations. While this difference can be significant at farther propagation distances, it should have minimal effects at shorter distances in closer proximity to the aircraft flight tracks, which are the focus of this comparison.

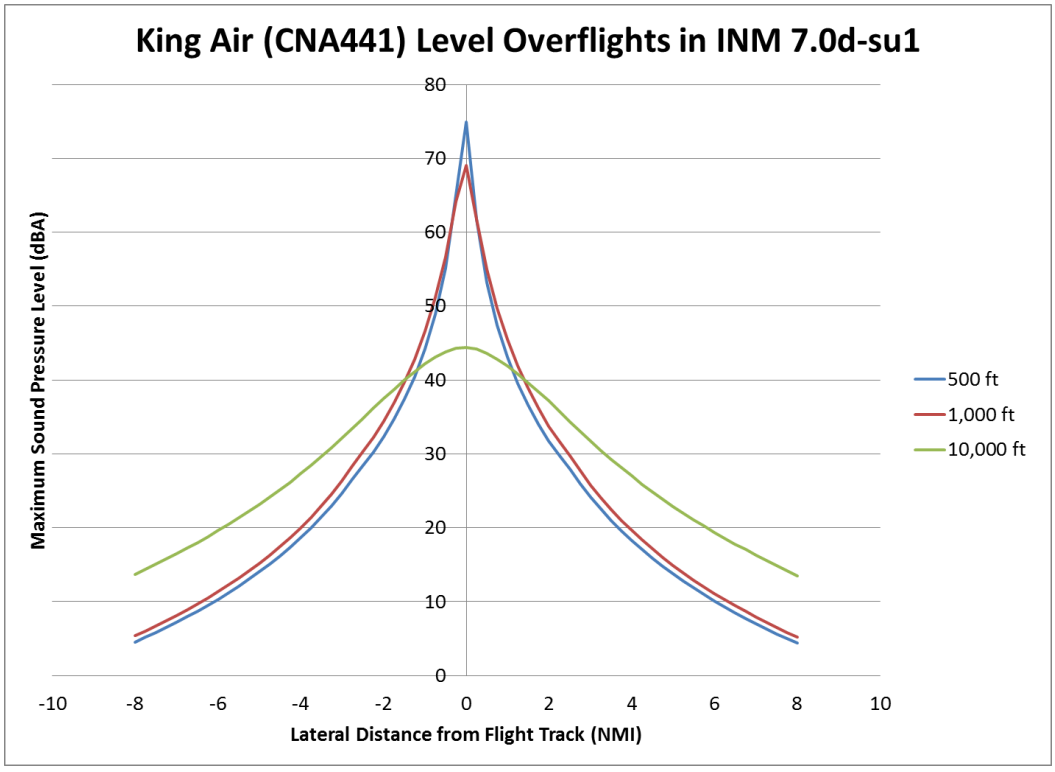

Figure 12. King Air Modeled with Cessna 441 Substitution Aircraft in INM Version 7.0d (Service Update 1)

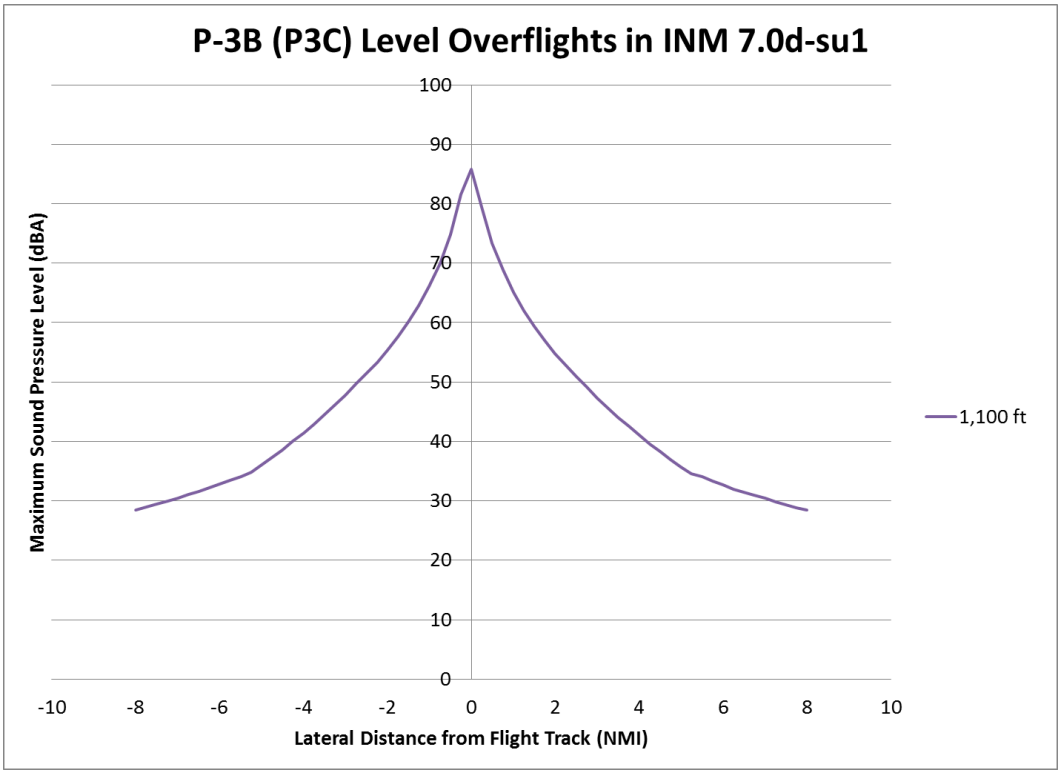

Figure 13. P-3B Modeled with P3C Substitution Aircraft in INM Version 7.0d (Service Update 1)

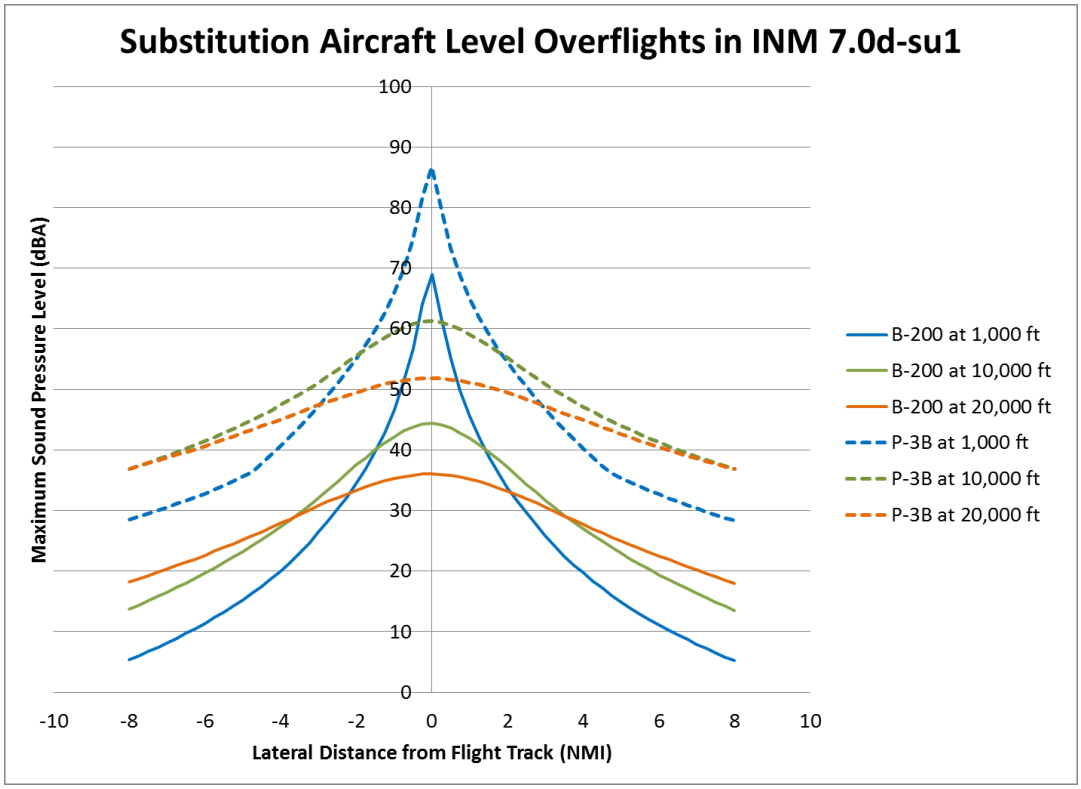

Figure 14. Modeled Substitution Aircraft at Different Altitudes in INM Version 7.0d (Service Update 1)

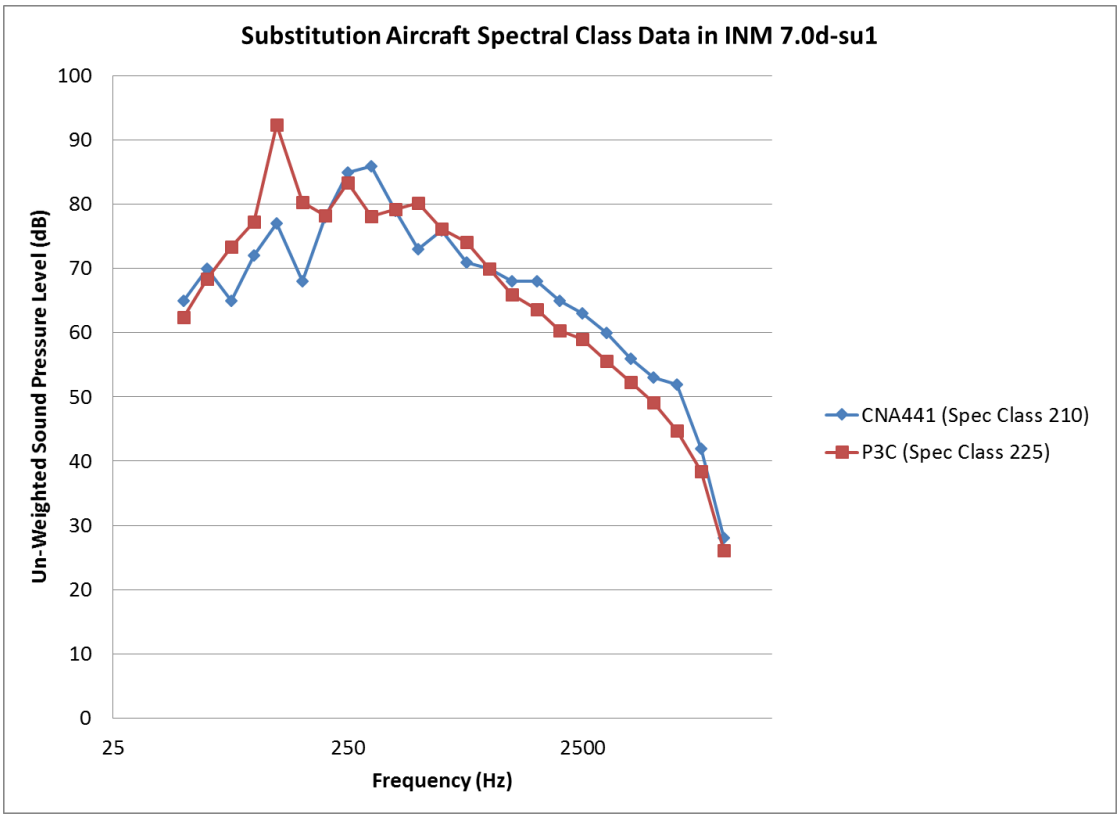

Figure 15. Substitution Aircraft Spectral Class Data in INM

Table 7. Comparison of NASA Source Data (Tripod Data) and Corresponding INM Modeled Data

		L_{ASmx} (dB)					
Aircraft	**Altitude (ft)**	**Mic 1 Average**	**INM**	**Difference (Mic 1 -INM)**	**Mic 2 Average**	**INM**	**Difference (Mic 2 -INM)**
B-200 King Air	10000	47.9	44.4	3.5	49.0	44.4	4.6
B-200 King Air	1000	68.5	69.0	-0.5	71.6	69.0	2.6
B-200 King Air	500	67.9	74.9	-7.0	71.8	74.9	-3.1
P-3B	1100	82.1	85.8	-3.7	85.6	85.8	-0.2

Although not exact matches, the measured and modeled noise levels are within 3 to 7 dB and follow similar trends when comparing Figure 6 and Figure 7 with Figure 12 and Figure 13. It is expected that with more detailed aircraft performance and position information, these results would be in closer agreement. In the absence of a more complete data set, the AEDT/INM substitution data are recommended as adequate source data to supplement the DISCOVER-AQ acoustic data set.

6. Validation Measurements

The validation measurements consist of the acoustic measurements of the DISCOVER-AQ flight tests in September 2013 in the vicinity of Houston, TX. The flight tests occurred over several 2-4 day periods during the month of September, with the goal of measuring around 10 days total, in order to capture data for different atmospheric conditions.

Chapter 6 describes the entire data measurement and processing effort that produced the aircraft acoustic validation data set from the DISCOVER-AQ Houston flight test. First, the flight test preparations are discussed, including a description of the expected flight tracks (Section 6.1) and the measurement site scoping effort (Section 6.2). Next, the measurements during the flight test are described, including the measurement instrumentation (Section 6.3), an overview of the flight test (Section 6.4) and the measurement procedures (Section 6.5). Finally, the data processing methods are presented (Section 6.6), along with a description of the final aircraft acoustic model validation data set (Section 6.6.3).

6.1 Expected Flight Tracks for Site Scoping

For each measurement day, the two aircraft were scheduled to fly fixed patterns over the measurement area. Figure 16 presents the planned flight patterns. The Beechcraft B-200 Super King Air would continuously loop at a constant 20,000 ft altitude; the Lockheed P-3B would spiral up from 1,000 ft to 15,000 ft at one measurement point, then fly level at 15,000 ft to the next measurement point, spiral down to 1,000 ft, fly to the next measurement point, spiral up to 15,000 ft, etc. (Note: for the flight legs

over the water, the P-3 flew at 500 ft AFE.) The King Air would fly its pattern four times each day, and the P-3 flew its pattern three times each day. Both aircraft were based out of Ellington Field (KEFD) for the duration of the DISCOVER-AQ flight test.

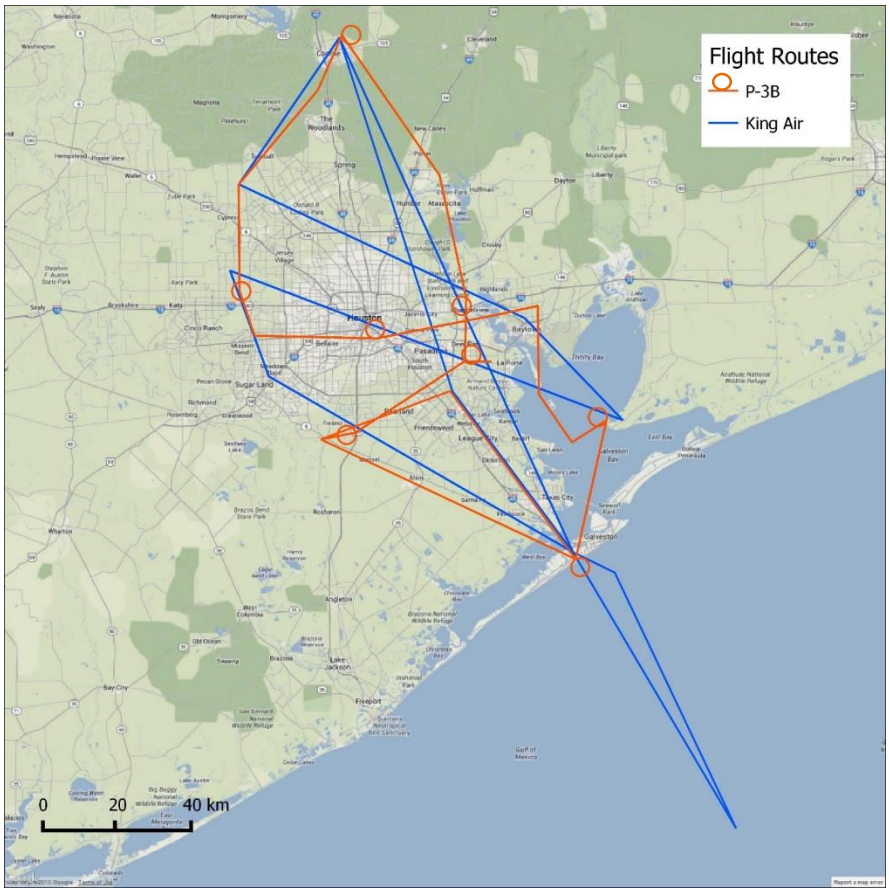

Figure 16. Overview of Measurement Area with planned flight tracks.

The NASA DISCOVER-AQ flight test can be broken down into six types of aircraft Level Flyover events. Acoustic measurement sites were chosen in order to measure noise from these events at a range of distances from the flight tracks. The types of events are:

1. Level flight at 20,000 ft AGL (B-200 King Air);
2. Level flight at 500 ft AGL (P-3B, over water only);
3. Level flight at 1,000 ft AGL (P-3B);
4. Level flight at 15,000 ft AGL (P-3B);
5. Spiral up from 500 ft or 1,000 ft to 15,000 ft AGL (P-3B); and
6. Spiral down from 15,000 ft to 500 ft or 1,000 ft AGL (P-3B).

These event types are visualized in Figure 17. In addition, the P-3 flew several missed approaches during each loop, and both aircraft took off and landed from KEFD. Due to the unpredictability of these other events (runway changes, other aircraft events, etc.) as well as personnel and equipment limitations, acoustic data were not intentionally measured from these other event types.

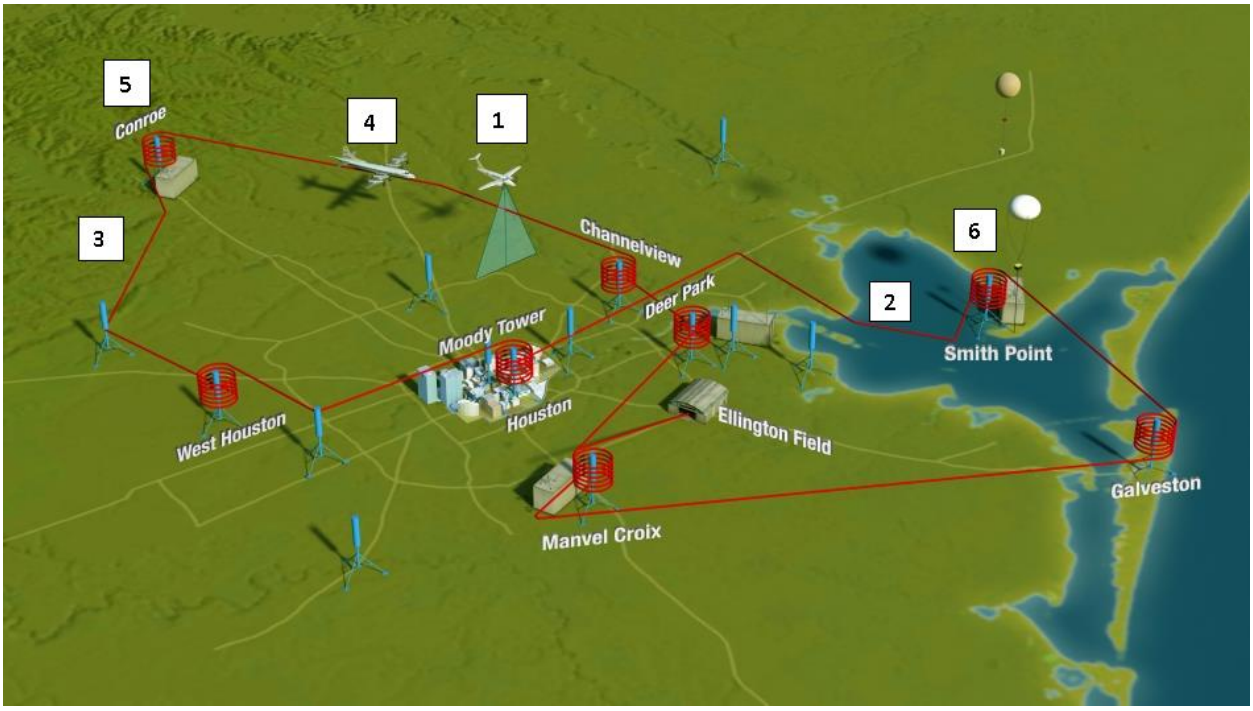

Figure 17. Examples of Different Event Types during the Houston DISCOVER-AQ Flight test (Graphic Credit: NASA)

6.2 Site Scoping and Site Descriptions

The identification of suitable measurement sites in the Houston metro-area was dependent on the test aircraft flight plan, as well as several other factors, including local acoustic conditions, land accessibility during the study period, and site security for measurement system deployment. In order to identify potential acoustic measurement sites, the expected DISCOVER-AQ flight tracks were imported into Google Earth. The number of acoustic measurement sites is limited primarily by ambient noise and project resources. Since over half of the aircraft operations were at or above 15,000 ft AGL altitude, low ambient noise at the measurement sites was required to prevent masking of the aircraft noise. The following factors may result in loud ambient noise and were avoided during the initial site scoping process:

1. Major roadways and rail lines;
2. Heavy concentration of flight tracks from nearby airports (KEFD, KIAH, KHOU, etc.);
3. Industrial areas (depending on the industry); and
4. Densely populated residential areas.

The initial site-scoping resulted in 19 potential acoustic measurement sites (see Table 8 and Figure 18).

Table 8. Potential Acoustic Measurement Sites in Houston

Site Code	Nearest Aircraft	Horizontal Distance to P-3 (ft)	Horizontal Distance to King Air (ft)	Site Class	Latitude	Longitude	P-3 Altitude (ft)
NB-1*	King Air	330	8,200	Centerline	30.272549	-95.488707	1,000
NB-2	King Air	8,200	3,280	Sideline	30.230186	-95.359463	15,000
NP-1*	P-3	6,890	0	Centerline	30.2245	-95.495889	1,000
NP-2 *	P-3	0	6,560	Centerline	30.265862	-95.468267	1,000
NP-3	P-3	330	20,010	Centerline	30.129828	-95.24885	15,000
NP-4*	P-3	0	15,420	Centerline	30.193734	-95.298649	15,000
NP-5	P-3	0	18,370	Centerline	30.154581	-95.266941	15,000
NP-6	P-3	0	5,580	Centerline	30.164353	-95.552805	1,000
NP-7	P-3	660	4,590	Centerline	30.153564	-95.566079	1,000
NP-8 *	P-3	2,620	3,940	Sideline	30.063842	-95.639764	1,000
NP-9†	P-3	26,570	48,880	Sideline	30.137760	-95.152702	15,000
NP-10	P-3	580	3,580	Sideline	30.221931	-95.490065	1,000
NP-11	P-3	1,300	4,300	Sideline	30.217784	-95.485429	1,000
NP-12	P-3	1,100	4,100	Sideline	30.221669	-95.483993	1,000
SB-1*	King Air	12,470	0	Centerline	29.546197	-94.747498	500
SB-2 *	King Air	19,690	0	Centerline	29.673722	-94.888535	15,000 to 500
SP-1*	P-3	0	4,590	Spiral	29.546244	-94.786969	15,000 to 500
SP-2 *	P-3	8,530	8,530	Sideline	29.526219	-94.764366	15,000
SP-3 †	P-3	42,320	31,170	Sideline	29.573088	-94.654718	15,000

* Indicates site met initial scoping criteria.

† No initial site scoping visit was conducted.

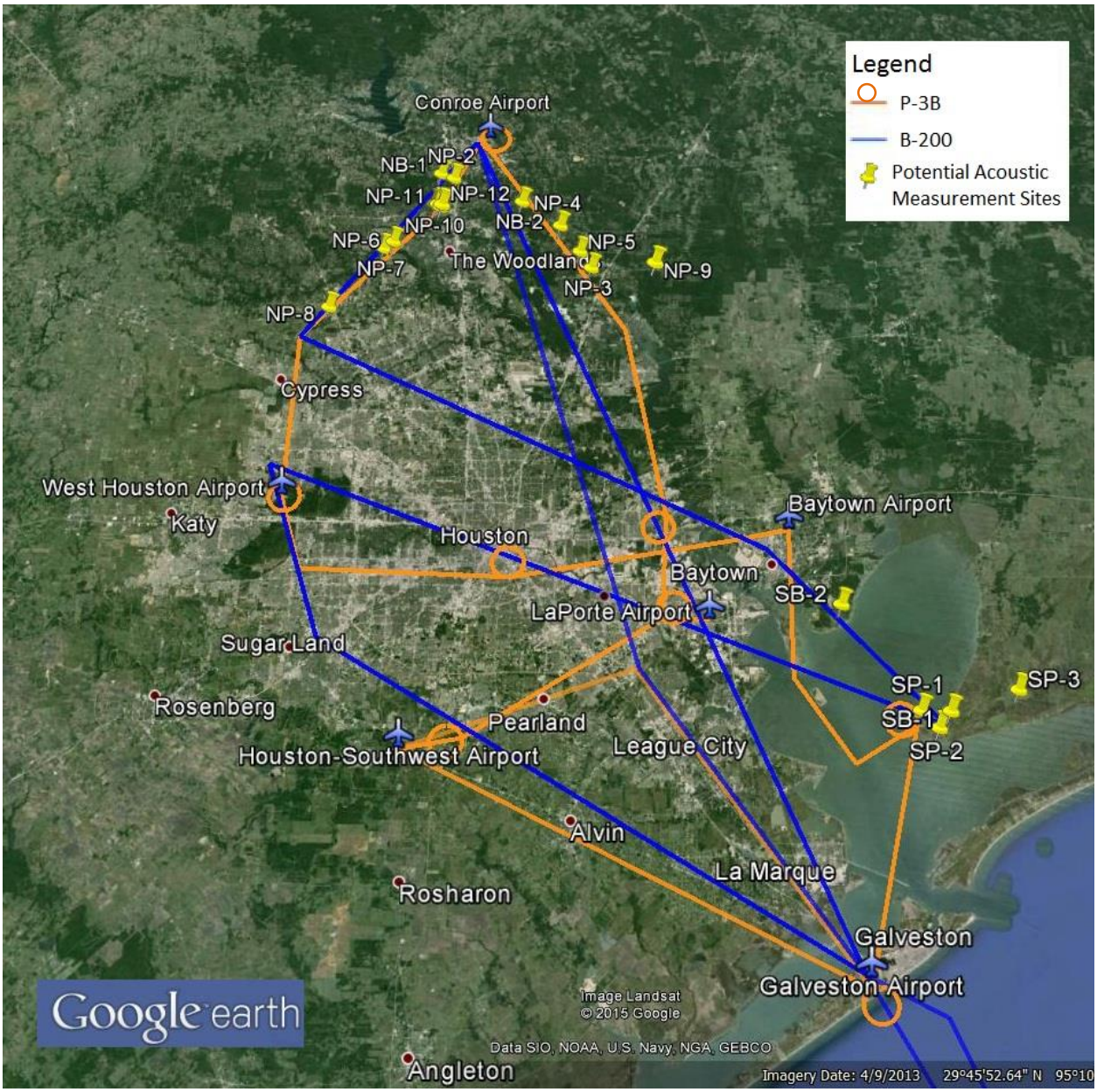

Figure 18. Potential Acoustic Measurement Sites in Houston (with Planned Flight Tracks)

Following the initial site scoping process, Volpe personnel traveled to Houston to perform site scoping on site in order to narrow down the number of potential acoustic measurement sites. At each site, the following factors were noted:

1. Ambient noise level;
2. Accessibility;
3. Security;
4. Safety;
5. Noticeable noise sources; and

6. Land cover (in relation to the line-of-site to the flight tracks).

Sites with noticeably loud noise sources or ambient noise levels greater than 55 dB(A) were excluded. Site accessibility and security issues were factored into the site deployment and staffing decisions, and 8 acoustic measurement sites were decided upon for the validation measurements (see Table 9 and Figure 19).

Table 9. Final Acoustic Measurement Sites

Site Code	Meas. Location ID	Nearest Aircraft	Horizontal Distance to P-3 (ft)*	Horizontal Distance to King Air (ft)*	Site Class	Latitude	Longitude	P-3 Altitude (ft)
NB-1	1	King Air	2,500	20,000	Centerline	30.277533	-95.484000	1,000†
NP-1	2	P-3	7,500	32,000	Sideline	30.223933	-95.495383	1,000†
NP-2	3	P-3	0	22,000	Centerline	30.273200	-95.476367	1,000†
NP-10	4	P-3	9,600	34,400	Sideline	30.222083	-95.489783	1,000†
NP-11	5	P-3	11,900	35,800	Sideline	30.217633	-95.485417	1,000†
NP-12	6	P-3	11,600	36,800	Sideline	30.221567	-95.483517	1,000†
SP-1	7	P-3	2,500	1,300	Spiral	29.544517	-94.779250	15,000 to 500
SP-2	8	P-3	10,000	2,800	Sideline	29.527333	-94.766100	500

* Estimated distance to actual point of aircraft closest approach, 9/6/2013 operational day

† In addition to the direct, 1,000 ft overflights, parts of each P-3B upward spiral from 1,000 ft to 15,000 ft at Conroe airport could be heard at each Northern acoustic measurement site.

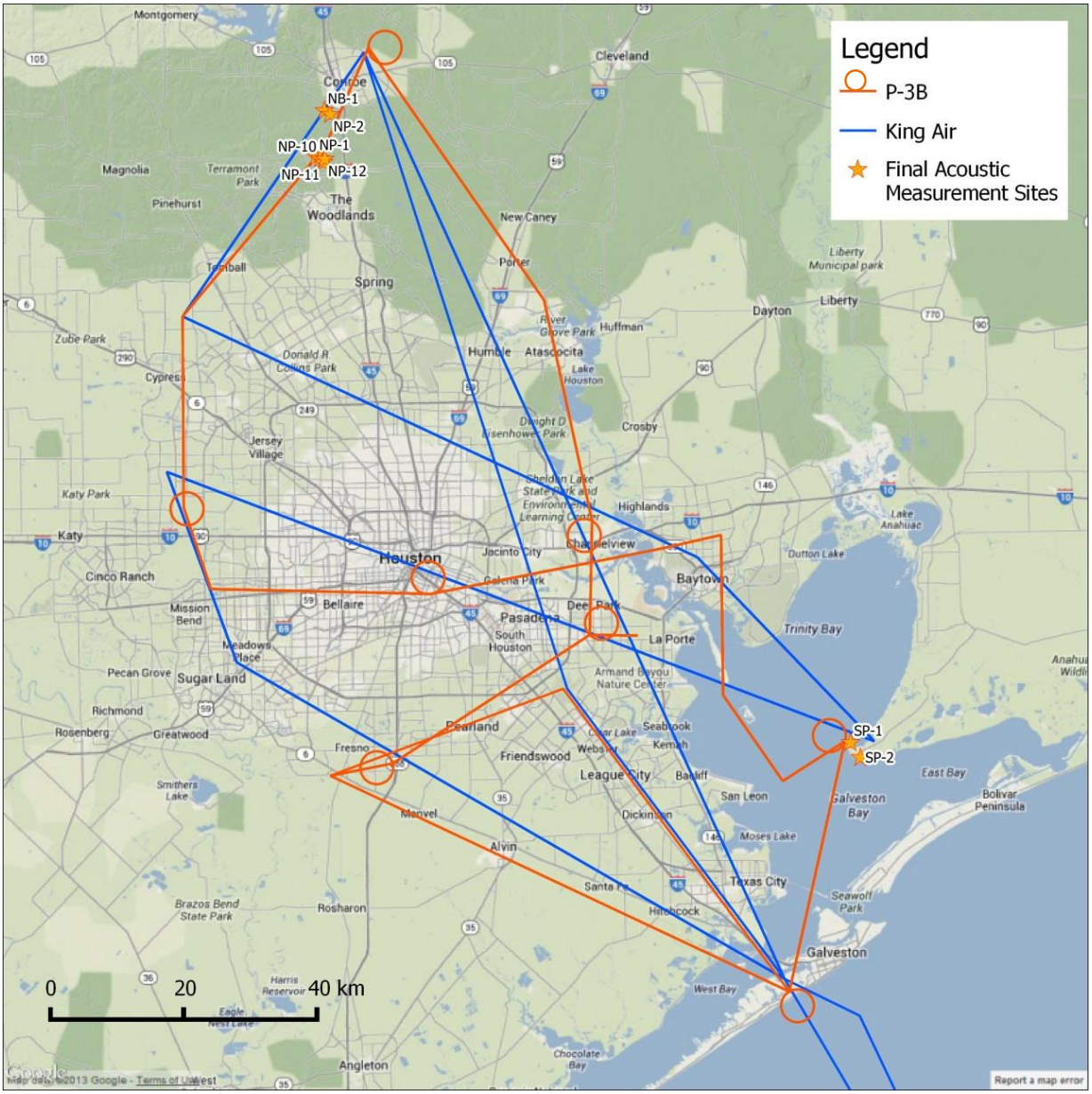

Figure 19. Planned aircraft flight tracks and final Volpe measurement sites,

6.2.1 Site Descriptions

6.2.1.1 *NB-1*

Site NB-1 was a large grassy clearing with sandy ground surrounded by a heavily forested area. It was located in a relatively secluded portion of Boy Scouts of America Camp Strake. Low level highway and some non-project aircraft noise was audible from this site, with a typical ambient level of 40-50 dB(A). Some insect noise was also audible at this site. This was a very secluded site on private property that required permission to enter, so there was very little chance of the measurement instrumentation getting disturbed.

Figure 20. Site NB-1

Figure 21. Measurement System at NB-1

Table 10. Site Description for NB-1

Site ID	NB-1
Site Name	Boy Scouts of America Camp Strake – NB-1
Latitude (degrees)	30.27753
Longitude (degrees)	-95.4840
Elevation (ft)	158
Nearest Aircraft Flight Path	King Air
Minimum Distance Relative to the Aircraft (km)	0.76945
Measurement Dates	9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	9/13/2013

6.2.1.2 *NP-1*

Site NB-1 was a grassy clearing in a moderately forested area, surrounded by tall pines with a pond nearby. It was located in W. Goodrich Jones State Forest, which includes a network of recreational trails. Faint highway and some non-project aircraft noise was audible from this site, with a typical ambient level of 40-50 dB(A). Some insect noise was also audible at this site. Because of the recreational trails, there was a small chance of the measurement instrumentation getting disturbed, so it was located as far away from the trail as possible (approximately 100 ft). In general, the traffic on the recreational trails was infrequent, and therefore they minimally impacted the measurements.

Figure 22. Measurement System at NP-1

Figure 23. Observer Logging at NP-1

Figure 24. View from NP-1 of Nearby Road and Recreational Trail (Approximately 100 ft Away)

Table 11. Site Description for NP-1

Site ID	NP-1
Site Name	W. Goodrich Jones State Forest – NP-1
Latitude (degrees)	30.22393
Longitude (degrees)	-95.49538
Elevation (ft)	176.00
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	0.73867
Measurement Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	9/4/2013, 9/6/2013

6.2.1.3 *NP-2*

Site NP-2 was a large clearing with short grass and shrubs surrounded by a moderately forested area. It was located in Boy Scouts of America Camp Strake near a pavilion, a network of recreational trails and a small road. Faint highway and some non-project aircraft noise was audible from this site, with a typical ambient level of 40-50 dB(A). The measurements took place during a time of inactivity at the camp, so there was very little chance of the measurement instrumentation getting disturbed. However, some lawn-mowing and insect noise was periodically audible at this site. To be on the safe side, NP-2 was located as far away from the trails and road as possible. Not only was the P-3B 1,000 ft overflight audible and visible at NP-2, but so were the top 2-3 loops of the upward spiral at nearby Conroe Airport.

Figure 25. Measurement System at NP-2

Figure 26. P-3B Overflight at 1,000 ft Visible from NP-2

Table 12. Site Description for NP-2

Site ID	NP-2
Site Name	Boy Scouts of America Camp Strake – NP-2
Latitude (degrees)	30.27320
Longitude (degrees)	-95.47636
Elevation (ft)	128.28
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	0.31836
Measurement Dates	9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	9/11/2013, 9/12/2013, 9/13/2013

6.2.1.4 *NP-10*

Site NP-10 was a large clearing with tall grasses and shrubs, surrounded by a heavily forested area. It was located in W. Goodrich Jones State Forest [6], which includes a network of recreational trails. Faint highway and some non-project aircraft noise was audible from this site, with a typical ambient level of 40-50 dB(A). Some insect noise was also audible at this site. Although there were recreational trails nearby, Site NP-10 was in a relatively secluded portion of the State Forest, so there was only a small chance of the measurement instrumentation getting disturbed. As a precaution, the measurement system was located as far away from the trail as possible.

Figure 27. Measurement System at NP-10

Table 13. Site Description for NP-10

Site ID	NP-10
Site Name	W. Goodrich Jones State Forest – NP-10
Latitude (degrees)	30.22208
Longitude (degrees)	-95.48978
Elevation (ft)	86
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	0.35277
Measurement Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	None

6.2.1.5 *NP-11*

Site NP-11 was located in a small clearing with tall grasses and shrubs, surrounded by a heavily forested area. It was inside W. Goodrich Jones State Forest, which includes a network of recreational trails. Faint highway and some non-project aircraft noise was audible from this site, with a typical ambient level of 40-50 dB(A). Some insect noise was also audible at this site. Although there were recreational trails

nearby, Site NP-11 was in a secluded portion of the State Forest, so there was only a small chance of the measurement instrumentation getting disturbed. As a precaution, the measurement system was located as far away from the trail as possible.

Figure 28. Measurement System at NP-11

Table 14. Site Description for NP-11

Site ID	NP-11
Site Name	W. Goodrich Jones State Forest – NP-11
Latitude (degrees)	30.21763
Longitude (degrees)	-95.48541
Elevation (ft)	173
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	0.59156
Measurement Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	9/14/2013

6.2.1.6 *NP-12*

Site NP12 included a large grassy clearing surrounded by a heavily forested area. It was located in W. Goodrich Jones State Forest, which includes a network of recreational trails. Faint highway and some non-project aircraft noise was audible from this site, with a typical ambient level of 40-50 dB(A). Some insect noise was also audible at this site, as there was significant mosquito activity, at times. Although there were recreational trails nearby, Site NP-12 was in a very secluded portion of the State Forest, so there was only a small chance of the measurement instrumentation getting disturbed. As a precaution, the measurement system was located as far away from the trail as possible.

Figure 29. Measurement System at NP-12

Figure 30. Acoustic System Calibration at NP-12

Table 15. Site Description for NP-12

Site ID	NP-12
Site Name	W. Goodrich Jones State Forest – NP-12
Latitude (degrees)	30.22157
Longitude (degrees)	-95.48351
Elevation (ft)	168
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	0.43833
Measurement Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	None

6.2.1.7 *SP-1*

Site SP-1 consisted of a sandy dirt clearing surrounded by short grass and near bodies of water. It was located in relatively close proximity to a small trailer park, a boat dock, and one of the weather balloon launch sites (approximately 200-300 ft). This site was directly adjacent to one of the P3-B downward spirals. Faint and infrequent watercraft and non-project aircraft noise was audible from this site, with a

typical ambient level of 40 dB(A). Ambient noise levels rose to around 50 dB(A) in areas of high activity at the trailer park, such as during a weather balloon launch. Some low level, periodic signaling was also audible from the nearby LIDAR system and some periodic bird activity. The measurement system was located as far away from these potential noise sources as possible.

Figure 31. Measurement System at SP-1

Figure 32. Weather Balloon Launch Site and Lidar System Visible from SP-1

Figure 33. P-3B Completing a Downward Spiral at Smith Point Visible from SP-1

Table 16. Site Description for SP-1

Site ID	SP-1
Site Name	Smith Point - SP-1
Latitude (degrees)	29.54452
Longitude (degrees)	-94.77925
Elevation (ft)	36.42
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	0.38544
Measurement Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/13/2013

6.2.1.8 *SP-2*

Site SP-2 was located in a large open area with tall grasses and some small patches of trees, close to a few houses and bodies of water. It was located within Candy Abshier Wildlife Management Area [7], about 500-600 ft from a hawk observation area and the associated road and parking lot. Faint and infrequent watercraft and aircraft noise was audible from this site, with a typical ambient level of 40

dB(A). Ambient noise levels rose to around 50 dB(A) at times of high activity at the hawk observation, which was periodically manned by a biologist. Some insect noise was also audible, as there was significant mosquito activity at this site. Some low level noise due to the air-conditioning units of the nearby houses was also periodically audible. The measurement system was located as far away from these potential noise sources as possible.

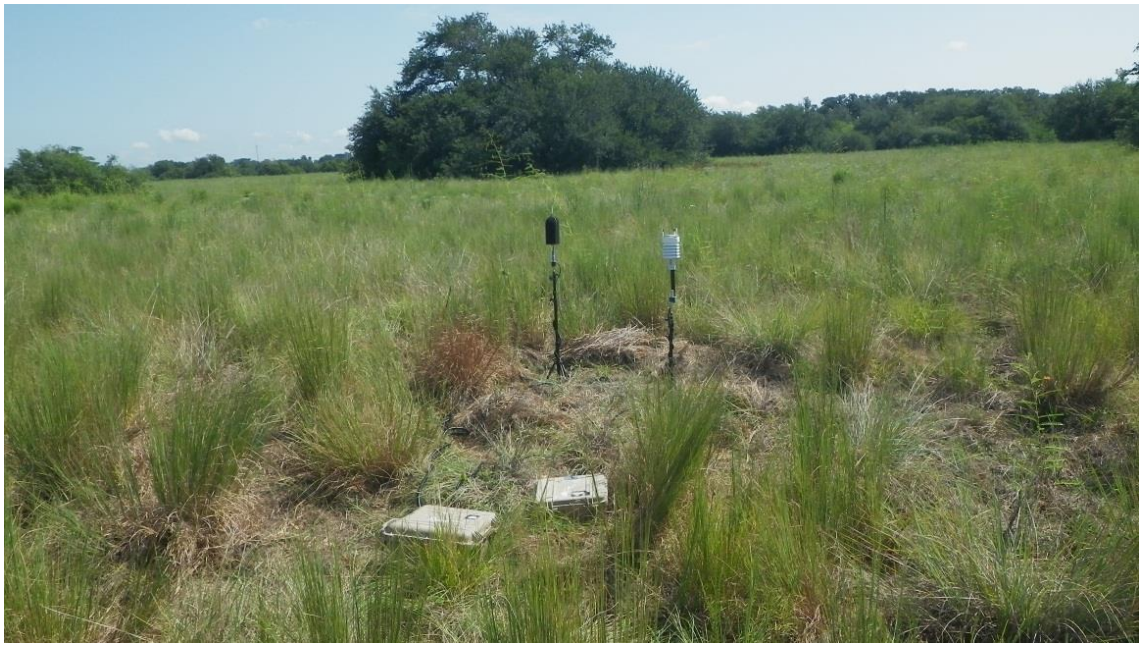

Figure 34. Measurement System at SP-2

Figure 35. Proximity of Nearby Homes and Road to SP-2

Figure 36. Hawk Observation Station and Parking Lot near SP-2

Table 17. Site Description for SP-2

Site ID	SP-2
Site Name	Candy Abshier Wildlife Management Area – SP-2
Latitude (degrees)	29.52733
Longitude (degrees)	-94.76610
Elevation (ft)	32.15
Nearest Aircraft Flight Path	P-3B
Minimum Distance Relative to the Aircraft (km)	2.5378
Measurement Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/12/2103, 9/13/2013, 9/14/2013
Observer Logging Dates	9/4/2013, 9/6/2013, 9/11/2013, 9/13/2013, 9/14/2013

6.2.1.9 *HQ-WP*

It should be noted that an additional day's worth of measurements were made in a woodpecker habitat located within the W. Goodrich Jones State Forest, at the request of the State Forest staff. This measurement site was located near the W. Goodrich Jones State Forest headquarters building, as was in the vicinity of a parking lot and a highway. Highway and some non-project aircraft noise was audible from this site, along with woodpecker birdsong and other natural sounds. These acoustic data were not included in this report or analysis, but they have been archived, in case further review is necessary.

Table 18. Site Description for HQ-WP

Site ID	HQ-WP
Site Name	W. Goodrich Jones State Forest – Woodpecker Habitat – HQ-WP
Latitude (degrees)	30.23766
Longitude (degrees)	-95.48463
Elevation (ft)	18.5
Measurement Dates	9/6/2013

6.3 Measurement Instrumentation

6.3.1 Volpe Acoustic and Meteorological Equipment

Volpe deployed two kinds of acoustic measurement systems: in-aircraft systems and field measurement systems. The purpose of the in-aircraft systems was to collect in-aircraft noise levels to help determine if any changes to aircraft operational state occur during the flight tests, especially at higher altitudes (see Figure 37). The in-aircraft systems consisted of:

a. Larson Davis 831 sound level meter
b. Larson Davis PRM831 preamplifier
c. G.R.A.S. 40 AQ microphone
d. Larson Davis windscreen
e. Portable tripod and mounting clamps
f. B&K 4231 calibrator

The measurement system was placed as close to the planes of the propellers as is possible without interfering with the flight crews.

Figure 37. In-Aircraft Acoustic Measurement System

The purpose of the field measurement systems was to collect the primary acoustic validation data. The field measurement systems were based on the Volpe Environmental Acoustics Research System (EARS) data collection system (see Figure 38). The EARS system is a robust and portable acoustic, meteorological, and audio data collection system. The EARS system was originally developed for long term noise measurements in remote locations (e.g., National Parks); it was modified to meet the requirements for DISCOVER-AQ data collection (see Figure 39). The field system deployed during the Houston DISCOVER-AQ flight tests included:

1. EARS Instrument Case:
    a. Larson Davis 831 sound level meter
    b. Larson Davis PRM831 preamplifier
    c. G.R.A.S. 40 AQ microphone
    d. Vaisala WXT-520 weather sensor
    e. Roland R-05 audio recorder
    f. Microphone holder/desiccant chamber assembly (with desiccant capsules)
    g. Bird spikes for Vaisala WXT-520 and mounting apparatus
        a. Larson Davis Environmental Windscreen with bird spikes
2. Calibration Kit (Figure 38 shown):
    a. B&K 4231 calibrator
    b. Larson Davis microphone simulator
    c. GPS receiver
3. Associated tripods, cabling, batteries and data storage media.

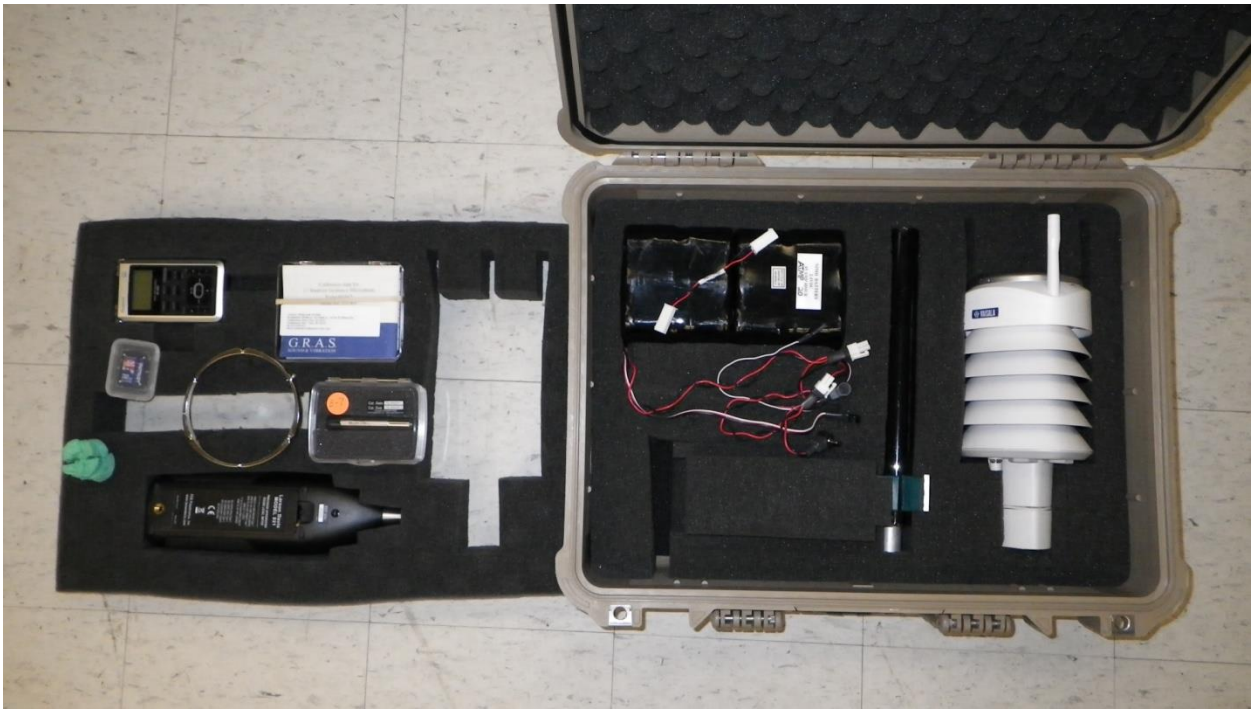

Figure 38. EARS Instrument Case Components.

Figure 39. Measurement System Case Deployed in the Field

Figure 40. Measurement System Deployed in the Field

The following data were measured by the Larson Davis 831 analyzers during the flight tests:

1. 0.5 second time history acoustic data, including:
    a. A-weighted sound pressure level with slow response (L_{AS});
    b. Un-weighted sound pressure level with slow response (L_{ZS});
    1. Un-weighted, one-third octave-band sound pressure levels;
2. Overall acoustic metrics, including:
    a. A-weighted, equivalent sound pressure level with slow response over the measurement time period (L_{Aeq});
    b. A-weighted, exceedance levels (L_N: e.g., L_{90});
3. 0.5 second time history meteorological data, including:
    a. Wind speed (mph);
    b. Wind direction (degrees);
    c. Average temperature (˚F);
    d. Average relative humidity (% RH);
4. 0.5 second time history device diagnostic data, including:
    a. External power (VDC); and
    b. Internal temperature (˚F).

The 831 has a GPS receiver, which calibrates the device with UTC time stamp and position information including latitude, longitude and altitude.

The Roland digital audio recorder collected continuous audio (time history data) for the duration of the

acoustic measurements, with a sampling rate of 44.1 kHz/ 16 bit. The Roland is manually time synchronized with the Larson Davis 831.

6.3.2 NASA Meteorological Equipment

In addition to the Volpe field measurement systems, the NASA flight tests were supported by three additional types of meteorological measurement systems: on-ground instrumentation, meteorological balloon systems (weather balloons), and on-aircraft meteorological measurement systems.

The following detailed meteorological data were collected on the ground at several NASA measurement sites during the flight test, supporting the final validation data set:

1. Fractional Julian Day, none, fractional Julian day of the start time (UTC)
2. UTC_start, sec, UTC start of 1min integration time in seconds past midnight
3. UTC_stop, sec, UTC stop of 1min integration time in seconds past midnight
4. UTC_mid, sec, UTC mid of 1min integration time in seconds past midnight
5. year, none, year of measurement
6. Pressure, Torr, barometric pressure
7. Temperature, C, ambient temperature
8. RH, %, relative humidity
9. WS, mi hr-1, wind speed
10. WD, degrees, wind direction
11. SRD, Langley, solar radiation

The sample rate for these data was 60 seconds. Because the Volpe field measurement systems measured 0.5 second time history meteorological data at each acoustic measurement location, the NASA ground meteorological data were not included in this validation data set. Lidar data were also collected, but were not used for this analysis. However, these NASA data are available, if needed for future analyses.

Weather balloons were launched several times each day from SP-1. The following detailed meteorological data were collected by weather balloons during the flight test, supporting the final validation data set:

1. Start Time, hhmmss
2. Mid Time, hhmmss
3. Stop Time, hhmmss
4. Pressure, hPa
5. Temp, degrees Celsius
6. RH, percent relative humidity
7. Alt, Altitude in meters above sea level
8. Speed, Wind Speed in meters per second
9. Dir, Wind Direction in degrees
10. Et, Elapsed Time in seconds
11. Concentration, per cubic meter

12. Sounding ID, yyyymmddsoundingnumber

The sample rate for these data was 10 seconds.

The P-3B was equipped with detailed meteorological measurement equipment during the flight test. The following detailed meteorological data were collected by the P-3 during the flight test, supporting the final validation data set:

1. Start_UTC, seconds
2. Day_of_Year, Day, Day of flight counting from start of the.....
3. Latitude, degrees
4. Longitude, degrees
5. GPS_Altitude, meters
6. Pressure_Altitude, feet
7. Static_Air_Temp_Aircraft, Celsius
8. Static_Air_Temp, Celsius, Calculated from Rosemount 102E4A.....
9. Dew_Point_3-Stage, Celsius, Edgetech 3-Stage Hygrometer
10. Total_Air_Temp_Aircraft, Celsius
11. Total_Air_Temp, Celsius, From Rosemount 102E4AL TAT Sensor
12. IR_Surf_Temp, Celsius
13. Static_Pressure, millibars
14. Cabin_Pressure, millibars
15. Wind_Speed, meters per second
16. Wind_Direction, degrees (0-360)
17. Solar_Zenith_Angle, degrees
18. Aircraft_Sun_Elevation, degrees
19. Sun_Azimuth, degrees
20. Aircraft_Sun_Azimuth, degrees
21. Mixing_Ratio, grams per kilogram
22. Part_Press_Water_Vapor, millibars
23. Sat_Vapor_Press_H2O, millibars
24. Sat_Vapor_Press_Ice, millibars
25. Relative_Humidity, percent

The sample rate for these data was 1 second. The King Air did not collect meteorological data during this flight test.

6.3.3 NASA Aircraft Performance and Position Equipment

During the DISCOVER-AQ flight tests, both the B-200 King Air and the P-3B collected information about aircraft position and performance. The following aircraft performance and position data are available from the B-200 King Air, supporting the final validation data set:

1. Gps_time_midpoint, seconds, number_of_seconds_from_0000_UTC
2. Gps_lat, degrees, +N_degrees

3. Gps_lon, degrees, +E_degrees
4. Gps_alt, meters, altitude_of_aircraft_in_meters
5. Site_Flag, none, indicates the UC12 is near a NASA ground site

The sample rate for these data was 0.5 seconds.

Aircraft performance data were not included in the automatically collected aircraft performance and position data for the DISCOVER-AQ flight test for the B-200 King Air, although aircraft speed can be derived from these data. Since the B-200 King Air operated at a relatively constant power setting, the NASA B-200 King Air flight team noted their power settings and speeds during the flight tests. In most cases, the power settings were logged as the aircraft overflew Conroe Airport (near the northern sites) and Smith Point (near the southern sites). These logs included:

1. Description of certain overpass points
2. Approximate time
3. Altitude (ft MSL)
4. Interstage turbine temperature (°C)
5. Torque (SHP)
6. Engine rotations per minute (RPM)
7. Percent of outer core rotational speed (%N1)
8. Comments.

The data from these pilot logs are presented in Appendix B.4.2.

The P-3B had the capability to collect additional aircraft performance and position data:

1. Start_UTC, seconds
2. Day_of_Year, Day, Day of flight counting from start of the.....
3. Latitude, degrees
4. Longitude, degrees
5. GPS_Altitude, meters
6. Pressure_Altitude, feet
7. Radar_Altitude, feet
8. Ground_Speed, meters per second
9. True_Air_Speed, meters per second
10. Indicated_Air_Speed, knots
11. Mach_Number, Mach
12. Vertical_Speed, meters per second
13. True_Heading, degrees (0-360)
14. Track_Angle, degrees (0-360)
15. Drift_Angle, degrees
16. Pitch_Angle, degrees (+-180)
17. Roll_Angle, degrees (+-180)
18. SiteNum, None, Six digit integer indicating a P-3B overpass of a NASA measurement site

The sample rate for these data was 1 second.

Like with the B-200 King Air, aircraft performance data were not included in the automatically collected aircraft performance and position data for the DISCOVER-AQ flight test for the P-3B, although aircraft speed can be derived from these data. Instead, the NASA P-3B flight team noted their power settings during the flight tests, when they could, since this was often difficult given the complexity of the P-3B spiraling flight profiles. In most cases, the power settings were logged immediately before and after each spiral event. These logs included:

1. Loop number
2. Location
3. Time
4. Altitude (ft MSL)
5. Airspeed (KIAS)
6. Power setting (SHP)
7. Comments.

The data from these pilot logs are presented in Appendix B.4.1.

6.3.4 Observer Logging Equipment

In addition, these measurement systems were supported by periodic observer logging of potentially interfering noise sources, to aid in the data quality determination. The observer logging system was deployed at each acoustic measurement location at various times during the flight test, as indicated in Section 6.2.1. The observer logging system consisted of an Equus NOBI tablet computer outfitted with the Soundscape observer logging software and a web browser to allow for connection to the NASA Airborne Science Program (ASP) Asset Tracker [8].

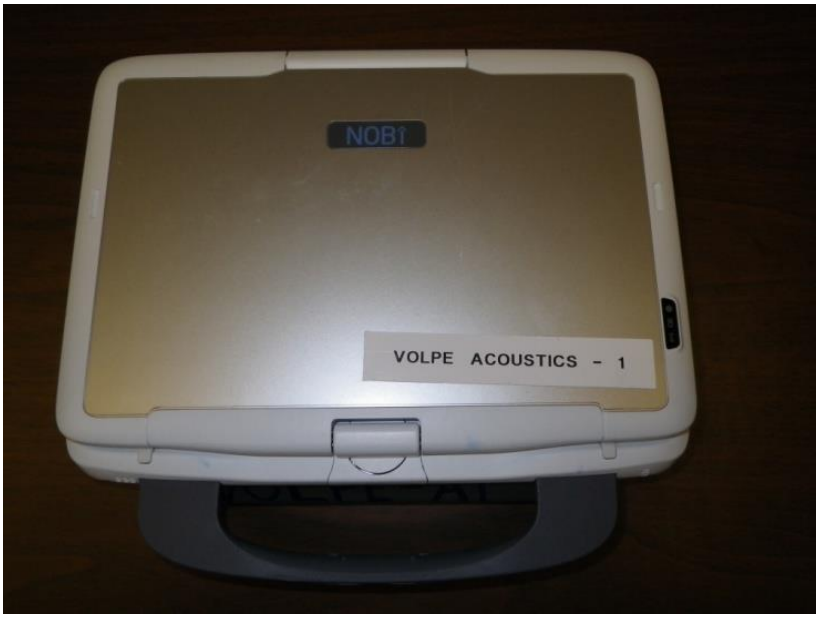

Figure 41. NOBI field laptop used for observer logging

Soundscape is a program designed to aid a listener in creating a record of audible sounds, their associated durations and distribution of source types. Originally developed by the National Park Service

for the purpose of logging sounds in parks, it was later modified by the Volpe Center for enhanced flexibility and ease of operation. Soundscape allows a user to create a customized page of buttons, each of which represents a discrete sound source tailored to the objectives of the project or the likely sound sources to be heard in a given location. For DISCOVER-AQ, the tabs chosen were Aircraft, Natural, and Human (non-aircraft) respectively (Figure 42)*.

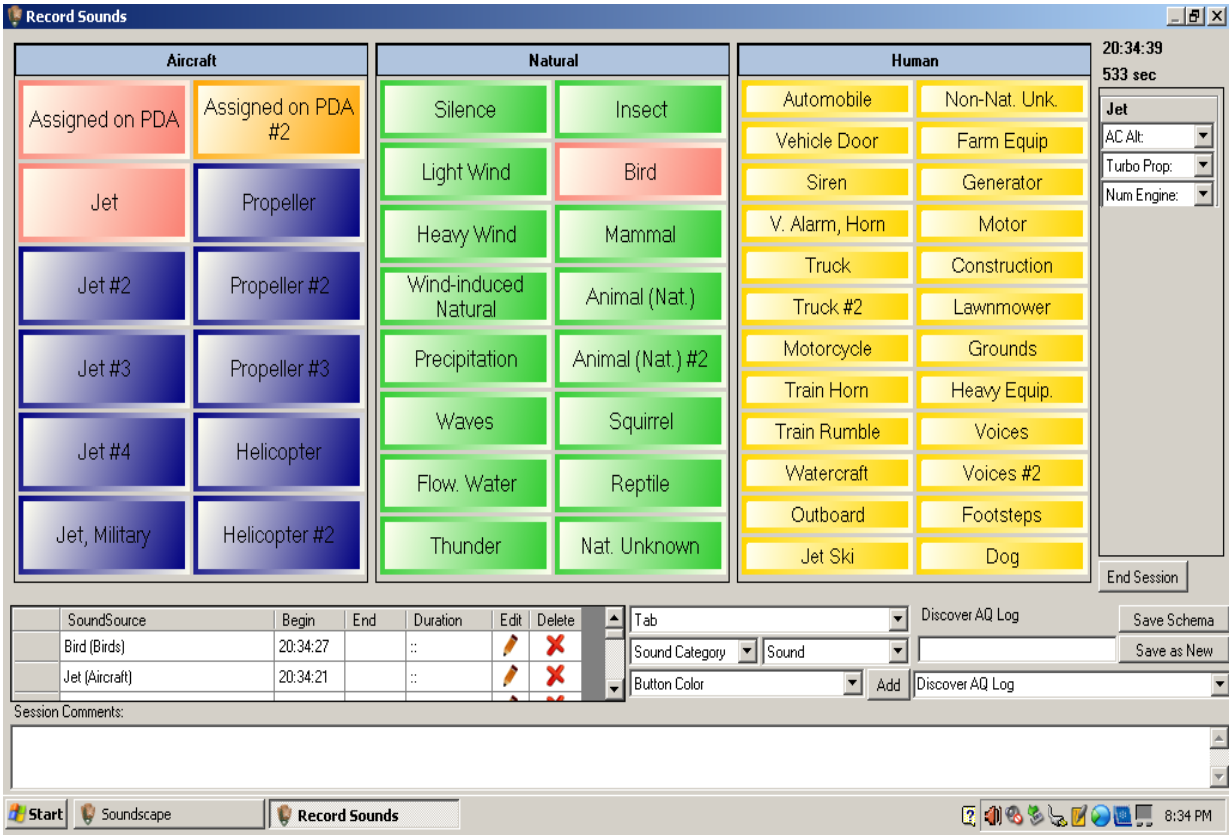

Figure 42. Soundscape Schema created for Discover AQ.

The Soundscape interface requires the user to click a button upon hearing a sound and then, click the same button when the sound can no longer be heard, automatically logging the source type and start and stop times in a file. Multiple sounds may be logged simultaneously, including multiple sound sources of the same type. The only constraints are the available buttons in the schema, which can be modified as needed, and the observer's ability to audibly track a complex soundscape. Comments may also be added to annotate specific sources or the logging session as a whole. The soundscape software allowed the measurement team to note each aircraft event and any other potentially interfering acoustic sources at each measurement site.

* Test aircraft are designated as "Assigned on PDA" = P-3B and ""Assigned on PDA #2" = King Air in the Soundscape software. Also, "active" sound sources change to a pink-red color when selected for easy identification.

NASA provided flight tracking software for use with the Houston DISCOVER-AQ flight tests. The software provided visual guidance of the approximate aircraft position in real time overlaid on a map. This software allowed for the observer logging teams to be aware of when the test aircraft were within close proximity of the measurement sites. An example of all of the flight tracks associated with the Houston flight test on September 11, 2013 is presented in Figure 43.

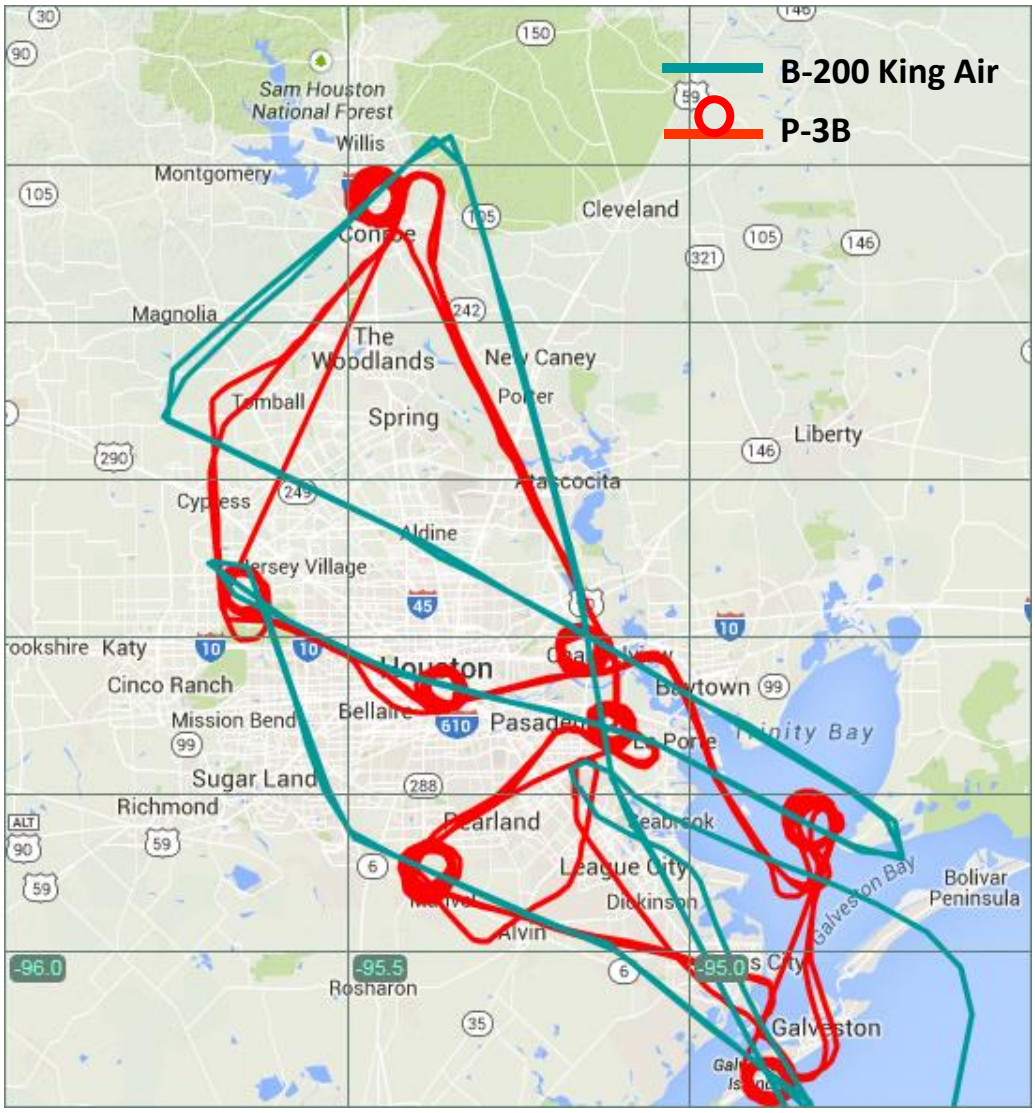

Figure 43. Example DISCOVER-AQ Daily Flight Tracks (Graphic Credit: NASA)

6.4 Flight test overview for data collection

In preparation for the measurements, Volpe anticipated measuring at 5-8 acoustic measurement sites for a minimum of three 2-to-3 day-long flight blocks during the DISCOVER-AQ flight tests. The goal of the flight test was to have 10 measurement days total over the course of the month, flying the flight

tracks described in Section 6.1.

With the P-3 completing three passes and the B-200 King Air completing four passes each day, there was the possibility of measuring noise from a maximum of 18 P-3 overflights and a maximum of 24 B-200 King Air overflights at each measurement location (or a maximum of 135 P-3 overflights including 66 spirals and 180 B-200 King Air overflights total)[*]. The official event counts from the Houston DISCOVER-AQ measurements prior to the data quality analysis are presented in Table 19. Graphics of the flight tracks for each measurement day are presented in Figure 44 through Figure 49[†]. The change in maximum possible event counts was due to certain measurement sites being unavailable during the first and second days of the flight tests.

Table 19. Maximum Possible Event Counts from the Houston DISCOVER-AQ Measurements Prior to the Data Quality Analysis

Measurement Date	Number of Measurement Sites	P-3B Overflights	P-3B Spirals	King Air Overflights
9/4/2013	6	12	9	24
9/6/2013	7	15	9	28
9/11/2013	8	18	12	32
9/12/2013	8	18	12	32
9/13/2013	8	18	12	32
9/14/2013	8	18	12	32
Total:		99	66	180

[*] It is important to note that going in to the measurements; it was already known that the King Air may not be audible during the DISCOVER-AQ flight tests due to the potentially high Houston ambient noise levels. This was confirmed by the 10,000 ft overflight flown by the King Air during the source data measurements (see Section 5.5).

[†] It is important to note that given the scale of these Figures, sites NB-1 and NP-2 are located very close together, and sites NP-10 and NP-1 are located very close together. Therefore, only NB-1 and NP-11 are labeled, to avoid obscuring the graphics.

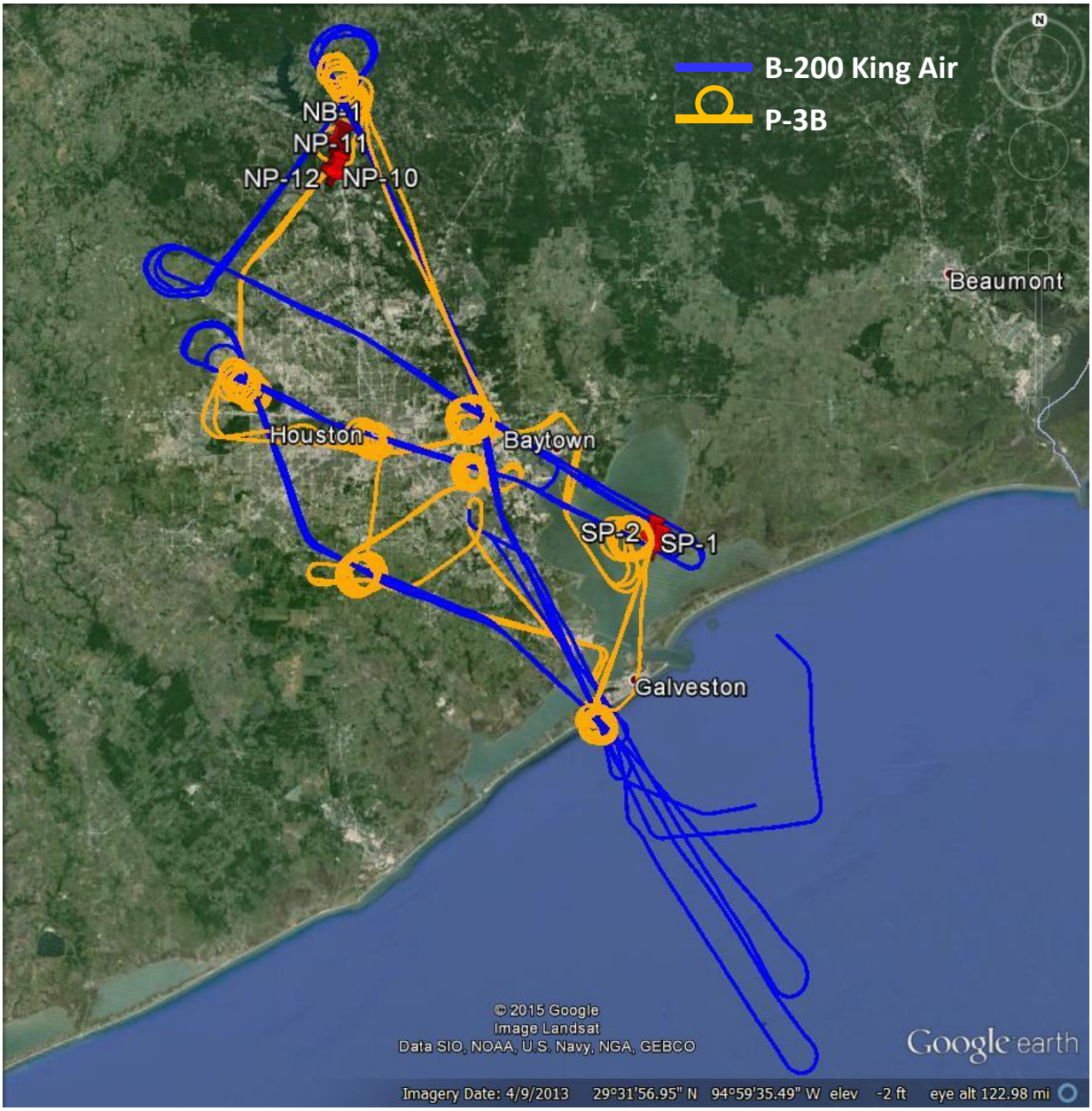

Figure 44. DISCOVER-AQ Flight Tracks for 9/4/2013 *

* Measurements were not made at NB-1 and NP-2 on 9/4/2013.

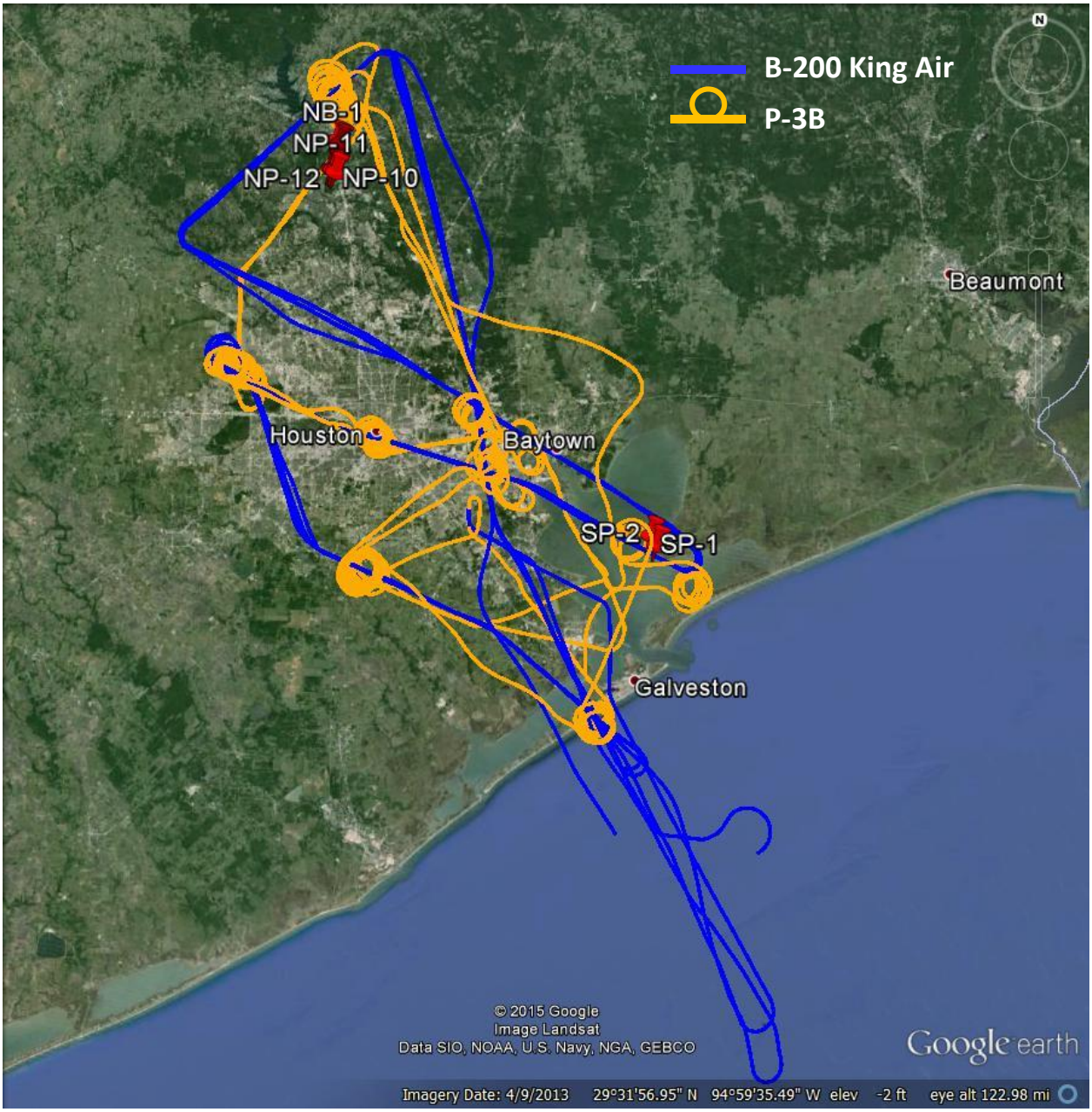

Figure 45. DISCOVER-AQ Flight Tracks for 9/6/2013*

* Measurements were not made at NP-2 on 9/4/2013.

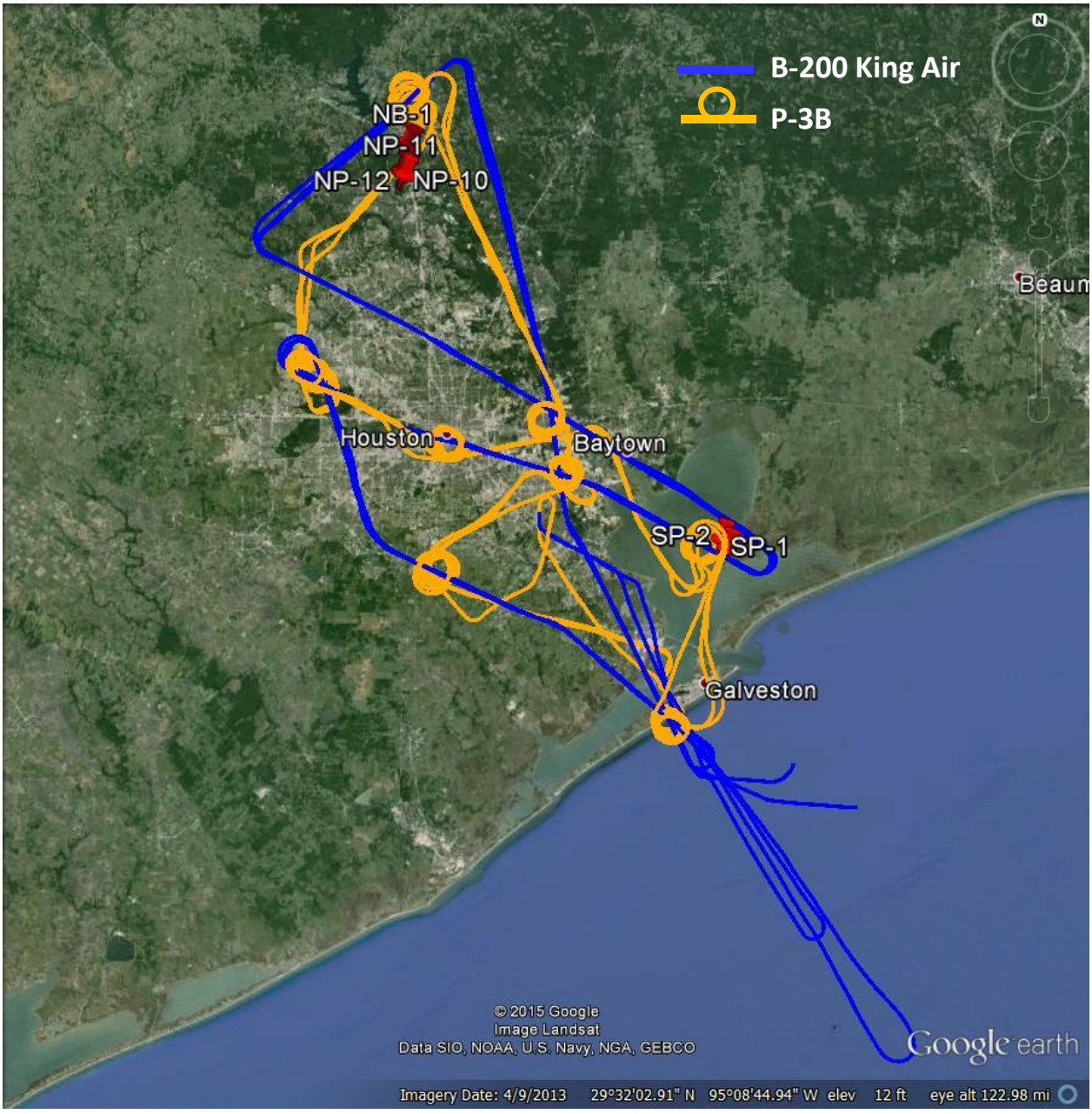

Figure 46. DISCOVER-AQ Flight Tracks for 9/11/2013

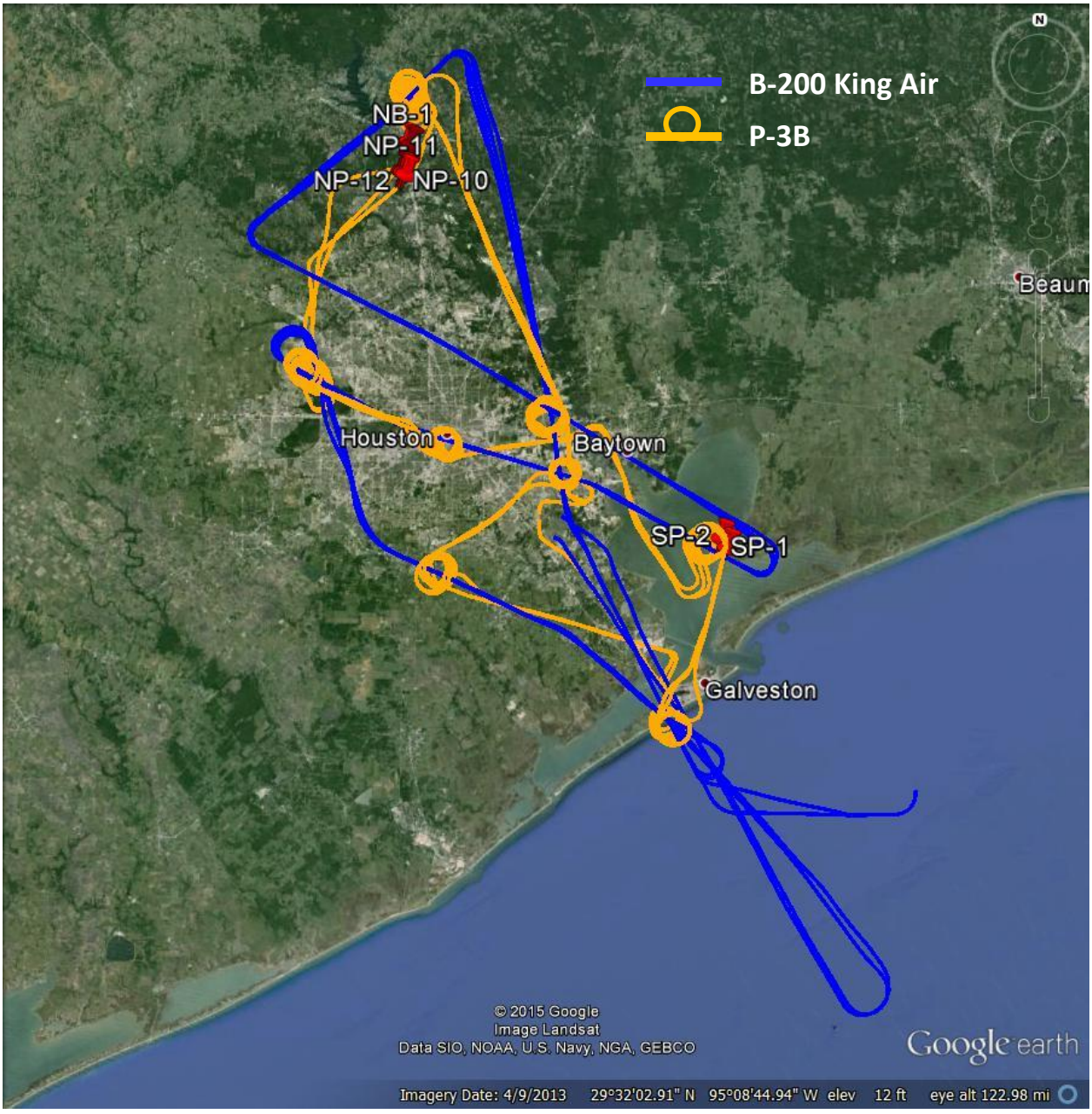

Figure 47. DISCOVER-AQ Flight Tracks for 9/12/2013

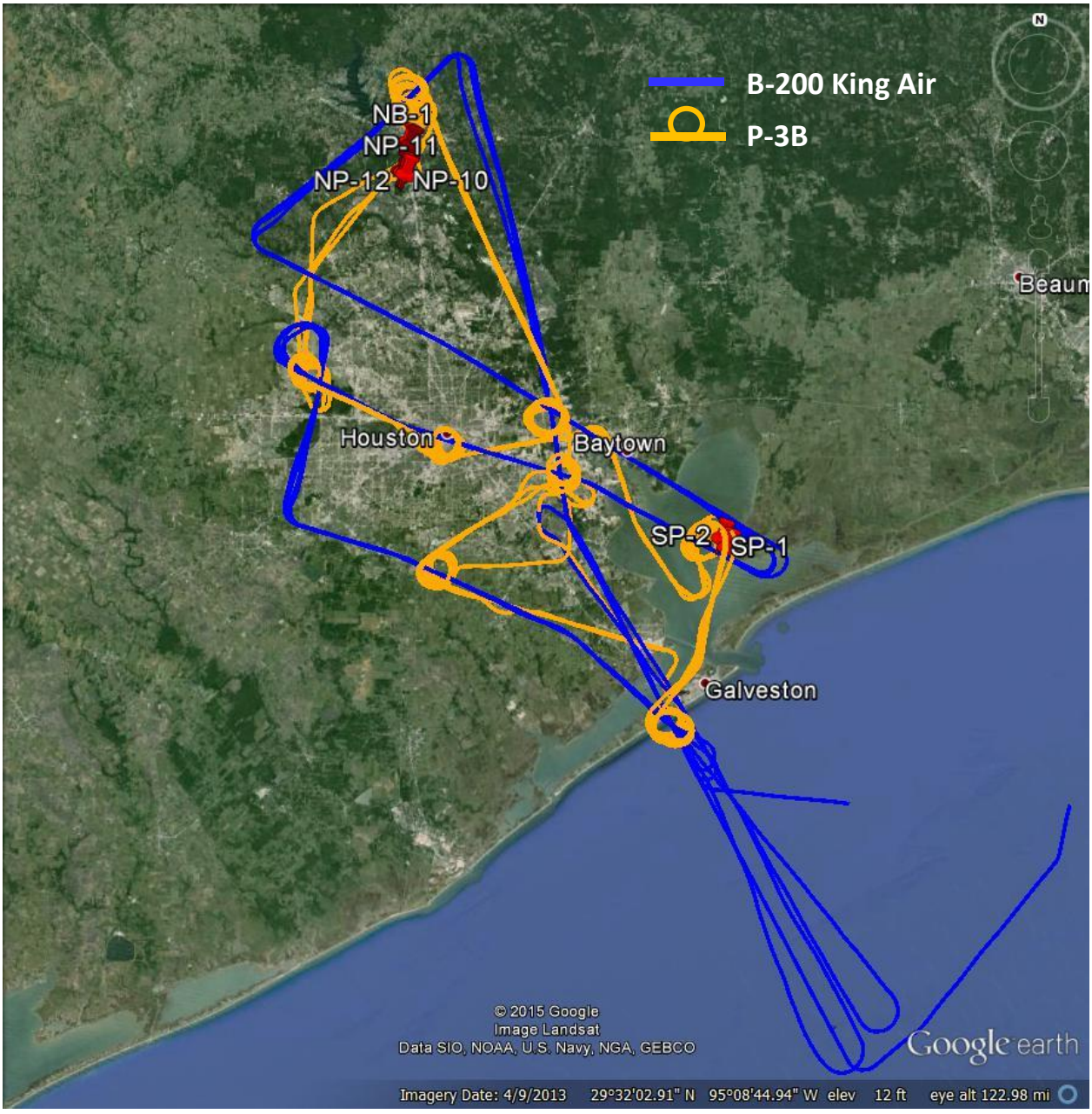

Figure 48. DISCOVER-AQ Flight Tracks for 9/13/2013

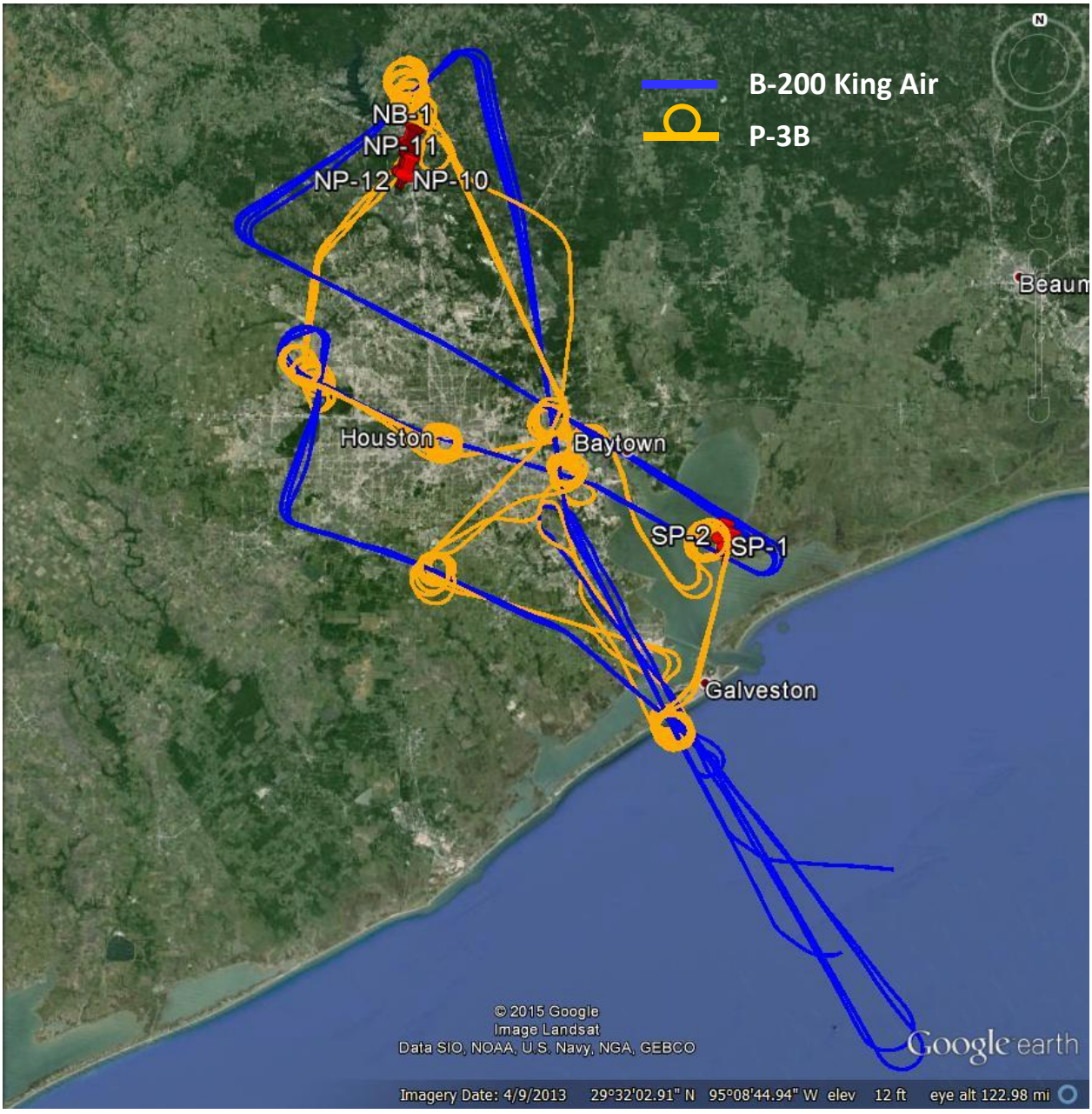

Figure 49. DISCOVER-AQ Flight Tracks for 9/14/2013

6.5 Measurement Procedures

The number of measurement sites and the sometimes large distances between them required a site visit protocol to ensure that the unattended systems were prepared for each block of measurement days. For unattended systems, site visits generally occurred the evening prior to, as well as in the hours immediately preceding and following flight test blocks. If fight tests exceeded two days in a row, site visits were performed prior to day 3 to ensure that WAV audio did not exceed system storage capacity of 50 hours. The following protocols describe the typical tasks associated with each type of visit.

6.5.1 Pre-Flight-Block Site Visit:

Note: applies to pre-flight-block site visits as well as the first flight-block.

1. Set up acoustic and meteorological measurement equipment at each site location (if not already setup).
2. Thoroughly check system cables for visible damage, bite marks. Cables that show damage through the outer insulation (to expose shield or conductors) should be replaced.
3. Install fresh battery (each fully charged 18 -20 amp-hour battery provides approximately 4 days of continuous data collection), and ensure that all measurement equipment are powered up and functionally properly.
4. Load empty 32 GB SDHC card in Roland R-05.
5. Power-up the LD831 sound level meter and the Roland R-05 audio recorder, and verify all of the equipment settings.
6. Resynchronize LD 831 clock (if > +/- 1 sec. drift) using GPS device in Cal Kit.
7. Manually resynchronize R-05 to LD831 clock.
8. Perform system calibration and start data collection.
9. Note system calibration and start data collection times in field log.

6.5.2 Mid-Flight-Block Site Visit:

1. Note arrival time at site in field log. *Special care should be taken to perform system maintenance when DAQ aircraft are not in vicinity, or outside of DAQ flight hours.
2. Thoroughly check system cables for visible damage, bite marks. Cables that show damage through the outer insulation (to expose shield or conductors) should be replaced.
3. In between Level Flyover events, open the Acoustic case. If system is still running, DO NOT stop data collection, i.e., leave 831 and Roland R-05 running.
4. Check the time drift (+/- sec.) for LD831 and R-05, and note in field log. If the time drift is greater than +/- 2 seconds, the LD831 and R-05 need to be stopped, resynchronized, and then restarted.
5. Remove windscreen and perform level check by gently placing the calibrator on the mic and recording one minute of calibration signal. Note in the field log. If the calibration level drift is greater than +/- 0.5 dB, then a full recalibration should be performed.
6. Roland R-05 SDHC card are replaced as necessary. If the R-05 SDHC card has been replaced, then recalibrate.
7. Note LD 831 levels (L_{AS}, L_{ZS}, L_{CS}) and R-05 input level from calibration in field log.
8. Secure system and note departure time in the field log.

6.5.3 Mid-Flight-Block Observer Logging:

1. Note arrival time at site in field log.
2. If not already done so, perform steps according to either the pre-flight-block site visit (Section 6.5.1) or the mid-flight-block site visit (Section 6.5.2), as appropriate.
3. Power on the NOBI system, and synchronize Windows date and time to match acoustic system.

4. Login to the NASA Airborne Science Program (ASP) Asset Tracker site and add coordinates of the measurement sites to the graphic display [8].
5. Start the Soundscape software and add the appropriate session information (site name, meteorological conditions, etc.).
6. As the aircraft approaches the measurement site, begin the logging session.
7. As sound sources are observed, the appropriate sound source tab is selected on/off according to audibility as perceived by the observer. This includes the DISCOVER-AQ test aircraft. Detailed information about each sound source can be added, when appropriate.
8. When the aircraft has left the vicinity of the measurement site and is no longer audible or visible, end the logging session.
9. It is recommended that a new session be used for each flyover event. The session should begin several minutes before the test aircraft is audible (or prior to entering the vicinity as there may be no audibility) and end several minutes after the conclusion of the event.
10. Ambient events may also be logged with short sessions periodically throughout the day.

6.5.4 Post-Flight-Block Site Visit:

1. Note arrival time at site in field log.
2. Thoroughly check system cables for visible damage, bite marks. Cables that show damage through the outer insulation (to expose shield or conductors) should be replaced.
3. Open the Acoustic case. Check the time drift (+/- sec.) for LD831 and R-05, and note in field log.
4. Remove windscreen and perform level check by gently placing the calibrator on the mic and recording one minute of calibration signal. Note LD 831 levels (L_{AS}, L_{ZS}, L_{CS}) and R-05 input level during calibration in field log.
5. Stop data collection, save data and power down the LD831 and R-05.
6. Disconnect 831 and remove from system. Check the time drift (+/- sec.) for LD831 and R-05, and note in field log. Carefully pack and store 831 and SDHC card in green “Transport Case” for subsequent data download.
7. Disconnect and remove battery from system. Pack up system (if it is the final measurement day).
8. Return to base of operations to download data and recharge battery prior to re-deploying in field.

6.6 Measured Data and Data Processing

Following the September 2013 measurements, all supporting data were accumulated and synchronized. These data included, aircraft tracking and performance data, measurement site location data, aircraft-based meteorological data, balloon meteorological data, on-ground meteorological data, in-aircraft acoustic measurements and on-ground acoustic measurements. These data were archived in a structured query language (SQL) database for further processing and to better facilitate data analysis.

The database is described in Appendix C: Database Description.

The DISCOVER-AQ Acoustic SQL database (referred to herein as the database) consists of the raw data collected between September 4th and September 13th, 2013. These data were further processed to identify flight test aircraft overflights, evaluate data quality and determine the final data to be used for aircraft acoustic model validation. Sections 6.6.1and 6.6.2 describe the acoustic and meteorological data processing, respectively.

6.6.1 Acoustic Data Processing

Hundreds of hours of acoustic data were collected at each measurement location during the DISCOVER-AQ flight test. However, only a small fraction of that time coincided to when the P-3B or the B-200 King Air were flying near the acoustic measurement systems, and out of that small sub set of events, even fewer occurred during times without other acoustic interference and under acceptable meteorological and operational conditions. This section describes the process used to identify the aircraft events and finalize the corresponding acoustic data for the validation data set. Section 6.6.1.1 describes the criteria for identifying potential aircraft flyover event for acoustic analysis. Section 6.6.1.2 describes the process of determining the quality and acceptability of those acoustic events. Section 6.6.1.4 describes some of the supplemental acoustic data sets available for further data processing.

6.6.1.1 *Determination of Acoustic Events based on Aircraft Proximity*

An event in the DISCOVER AQ validation data is defined a level flyover or a spiral maneuver from the test aircraft that is audible at a measurement location. In order to focus in on acoustic events directly attributed to the test aircraft, a window for a unique event was defined as the time when either test aircraft was within a slant distance of 15 km from a measurement site. This distance of 15 km was determined by modeling the P-3B in INM (with the P3C substitution aircraft) and determining at what distance the resulting sound exposure level would drop below a typical ambient level of 45 dB at different power settings (see Figure 50). INM predicted that at a lower power setting of 50%, the P3C SEL level would drop down to 45 dB at approximately 23 km (76,000 ft) and 50 dB at approximately 15 km (50,000 ft). Since the B-200 King Air was only expected to be audible directly above the measurement sites (between 20,000 and 30,000 ft), it was not taken in consideration for defining this overall event threshold (see Figure 51).

This 15 km threshold is displayed alongside flight tracks from the DISCOVER-AQ flight test in Figure 52, Figure 53 and Figure 54. A single maneuver may result in multiple distinct events if it occurs within 15 km of multiple sites, as seen in Figure 55. A total of 324 unique events were captured during the DISCOVER-AQ acoustic measurements.

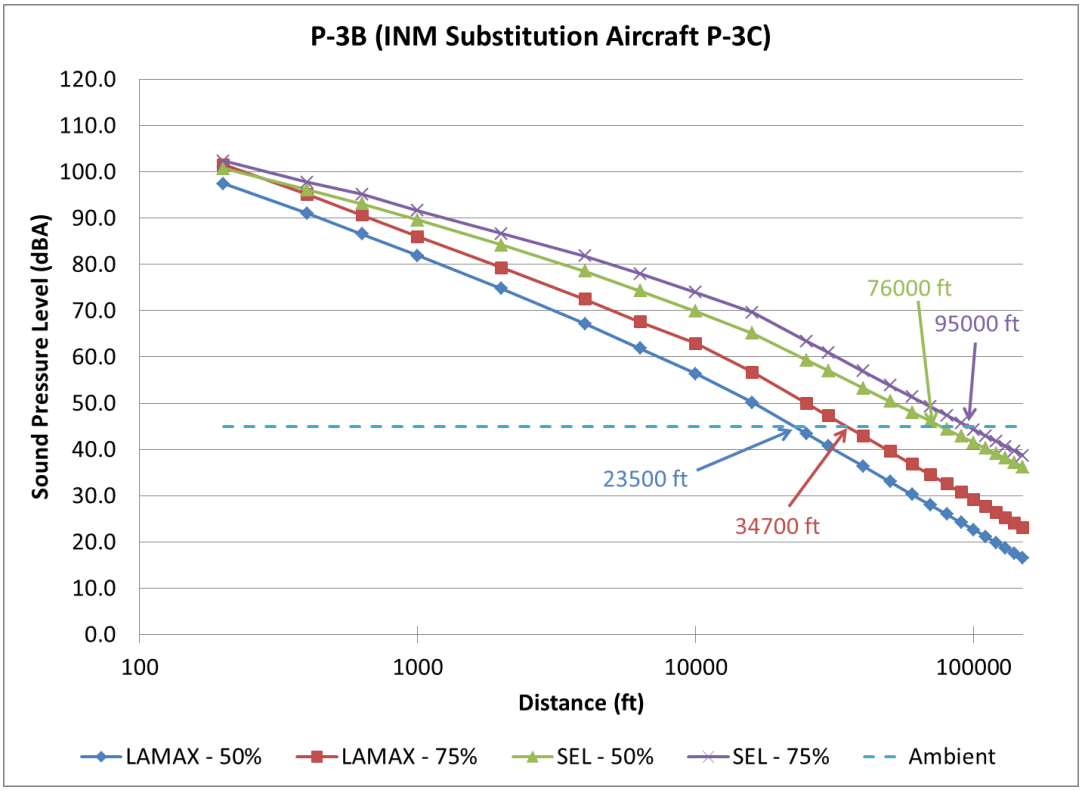

Figure 50. Sound Levels versus Distance Modeled in INM Version 7.0d (Service Update 1) for the P-3C Substitution Aircraft at Different Power Settings

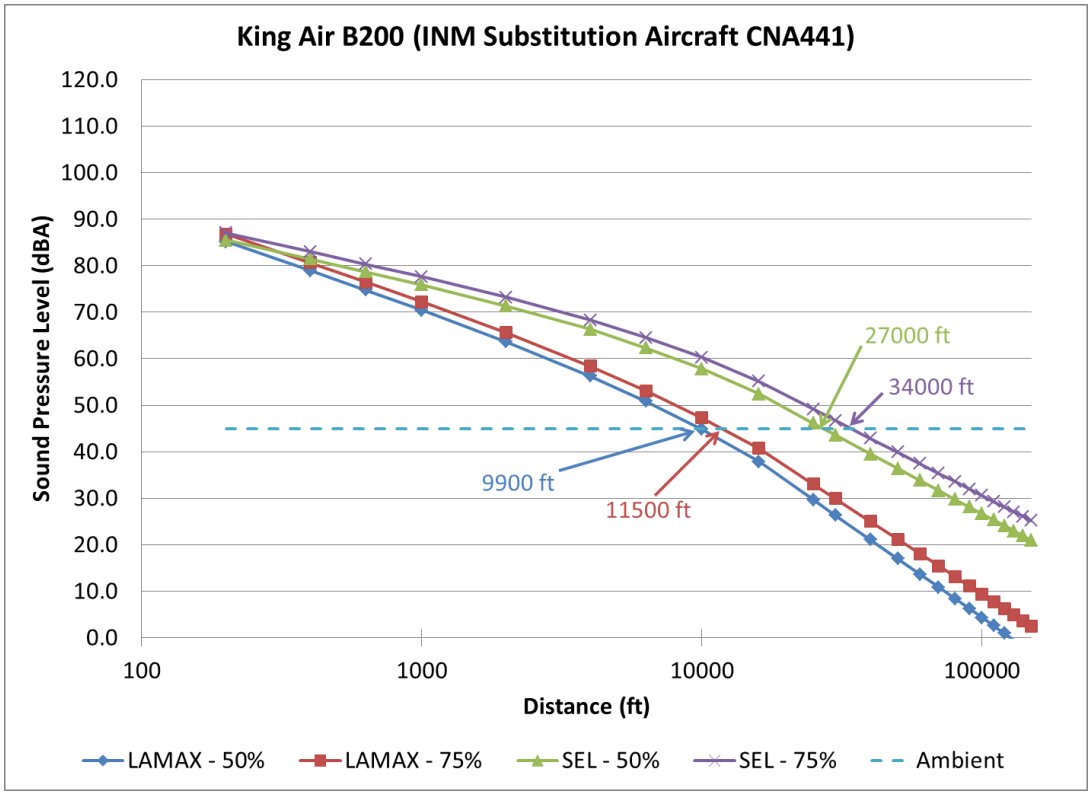

Figure 51. Sound Levels versus Distance Modeled in INM Version 7.0d (Service Update 1) for the CNA441 Substitution Aircraft at Different Power Settings

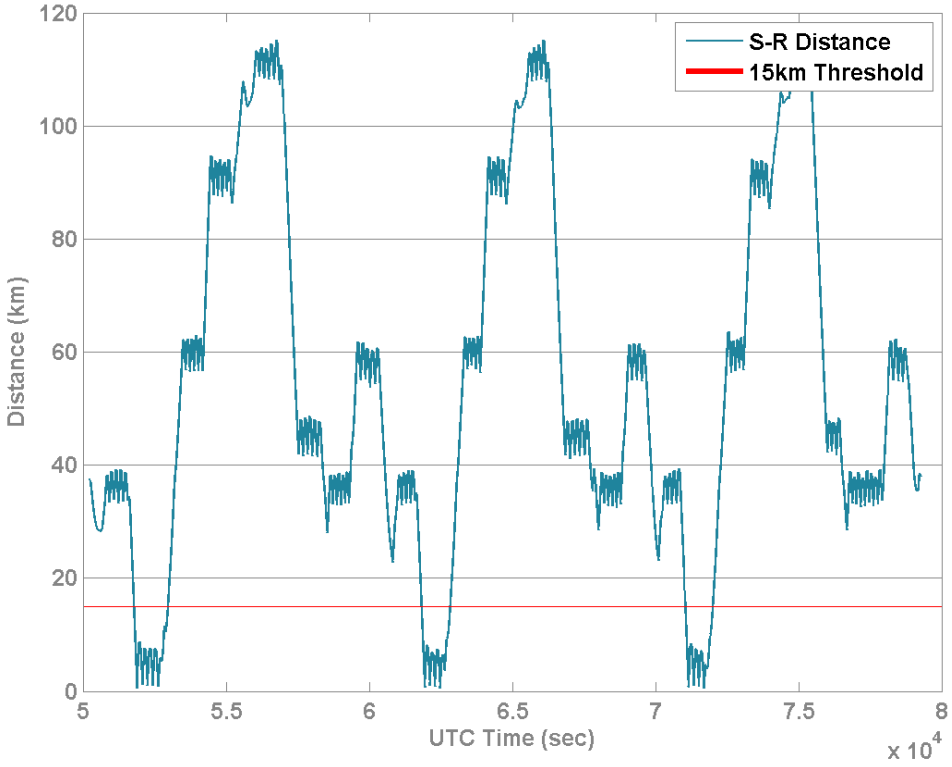

Figure 52. Example of Three-dimensional Source-Receiver Distance for the P-3B with Respect to SP-1 on 9/11/2013

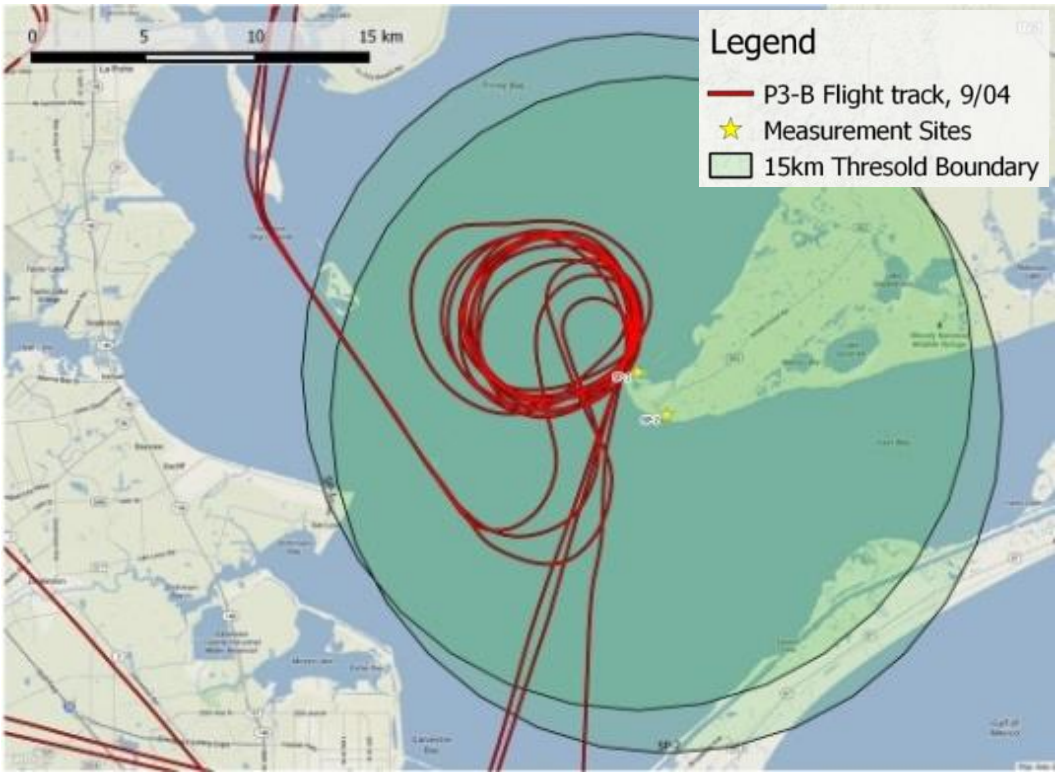

Figure 53. Example Visualization of 15 km Threshold around the Southern Measurement Sites for the P-3B

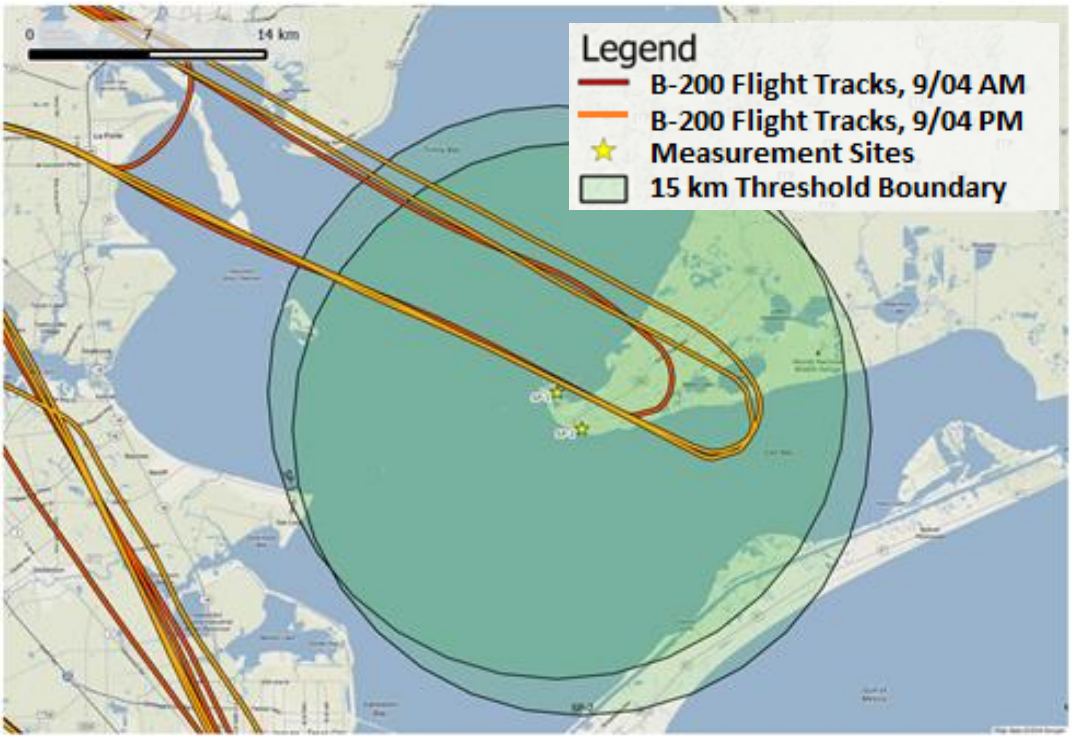

Figure 54. Example Visualization of 15 km Threshold around the Southern Measurement Sites for the B-200 King Air

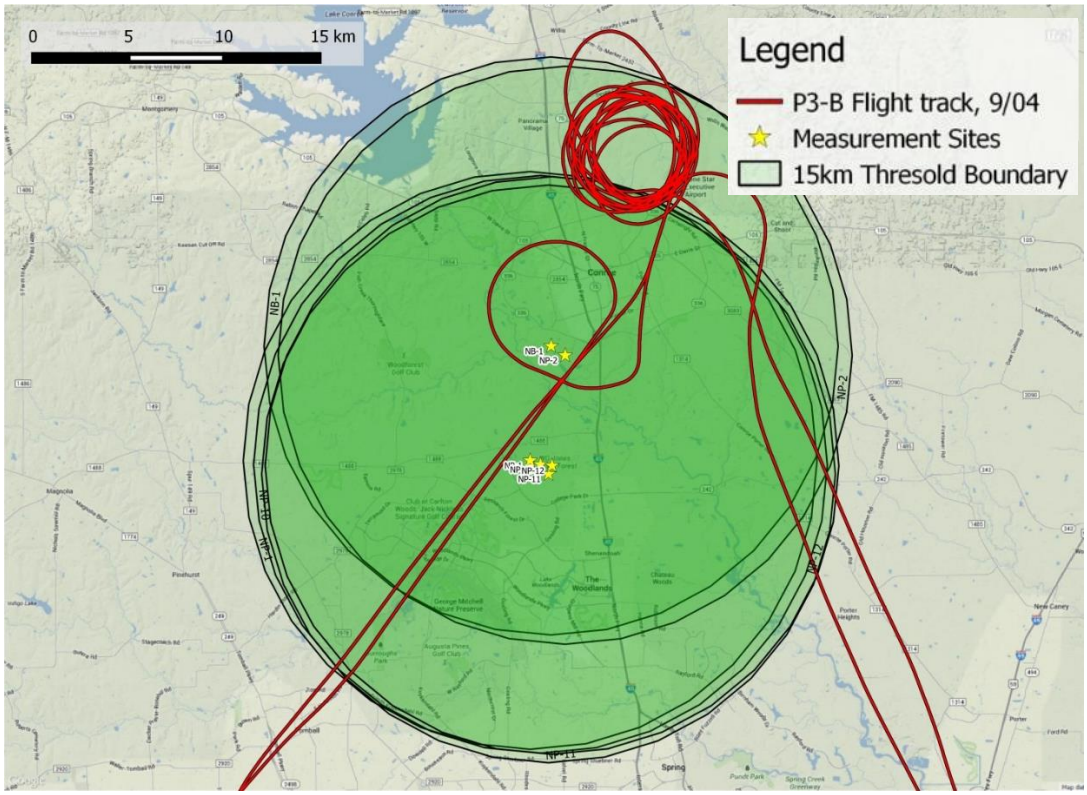

Figure 55. Example Visualization of 15 km Threshold around the Northern Measurement Sites with Some Spiral Events Intersecting the Threshold

6.6.1.2 *Data Quality Evaluation*

Once the unique acoustic events were identified, each event underwent a series of checks to determine data quality and to assure that measurements were collected under acceptable conditions. These data quality checks consisted of a calibration check, a check against meteorological limits, and checks against both the pilot logs and the measurement site observer logs.

Each usable event was made subject to a quality check to assure that the deviation in sensitivity between pre- and post-measurement calibrations performed on acoustics instrumentation was less than or equal to 1 dB. If the event had a calibration shift less than 1 dB, then all of the sound pressure level values for that event were adjusted by the following

$$LA_{MAX_{adj}} = LA_{MAX} + \frac{(CAL_{initial} - CAL_{final})}{2}$$

Where LA_{MAXadj} is the adjusted sound pressure level, LA_{MAX} is the measured sound pressure level, $CAL_{initial}$ is the calibration tone before the event and CAL_{final} is the calibration tone after the event. If the difference between the calibration tone before and the calibration tone after an acoustic event exceeded 1 dB, then the event was deemed invalid and not used for analysis.

Meteorological conditions were checked for each event to insure that they measured within the limitations set forth by Federal Aviation Regulations, Part 36, Noise Standards (FAR Part 36) [9] for temperature and wind speed, as well as instrumentation limits specified by the equipment manufacturers. Limits on relative humidity were set by specifications on Volpe's acoustic field measurement systems, as the system had more stringent limitations for relative humidity at the time of this measurement than FAR Part 36. Meteorological limits are listed in Table 20. For this data quality assessment, the meteorological conditions were checked against data collected by Volpe's on-ground meteorological system.

Table 20. Meteorological Limits

Temperature	36° F to 95° F
Wind Speed	Less than 12 m/s
Relative Humidity	5% to 85%

If less than 30% of an event occurred outside the meteorological limits, that event was flagged within the DISCOVER AQ database as a valid event. If more than 30% of an event outside the meteorological limits, the event was deemed invalid.

After calibration and meteorological checks, 205 of 324 unique events were deemed valid. These events were then compared against the pilot log for each aircraft and the observer log for each measurement site. A description of these logs can be found in Sections 6.3.3 and 6.3.4, respectively.

The pilot logs for each aircraft were checked for any comments from the aircraft crew on aircraft performance issues (including non-standard operational conditions) during each overflight or spiral event. It is important to note that safety was the highest priority during these flight tests, so if unexpected conditions were encountered (less than ideal meteorological conditions, flying in the vicinity of other aircraft, etc.), the pilots would forego logging in order to safely maneuver the aircraft. For this reason, there are some expected data gaps in the pilot flight logs. If the pilot notes indicated that the aircraft was operating at non-standard operating conditions, then the event was deemed invalid and not used for analysis. If there was simply a data gap in the pilot log, the event was flagged, but without data to the contrary, the aircraft was assumed to be operating under standard conditions. A detailed description of methods for modeling aircraft performance for events that occur during a data gap in the pilot log can be found in Section 6.6.3.

The observer logs for each measurement site were checked for any acoustic instrumentation issues and substantial acoustic interference during each overflight or spiral event. The ideal conditions for an event were when the equipment operated as intended and when no other significant noise occurred during the test aircraft overflight. For this analysis, significant noise is defined as noise from transportation sources (e.g., other aircraft, highway noise, rail noise, etc.), constant man-made noise (e.g., construction, lawn mowing, etc.), noise directly adjacent to the microphones (e.g., curious on-lookers, barking dogs, etc.), and impulsive noise from nearby sources (e.g., door slamming, car alarms, etc.). All other low level noises were considered acceptable and part of the ambient noise at each measurement site, unless they were loud enough to directly interfere with the acoustic data quality, as defined in Section 6.6.1.3.

If there were no acoustic instrumentation issues during the event and less than 30% of an event had potential low level acoustic interference, that event was flagged within the DISCOVER AQ database as valid. It is important to note that all valid events were further reviewed as part of the acoustic data quality process described in Section 6.6.1.3, in order to confirm that any other low level acoustic interference was negligible. If acoustic instrumentation issues occurred during the event, significant noise interference occurred during the event or more than 30% of an event had potential low level acoustic interference, then the event was deemed invalid and not used for this analysis.

After pilot and observer log checks, 205 of 324 unique events were deemed valid.

6.6.1.3 *Acoustic Data Quality*

For each valid event, the acoustic time history data were inspected. L_{AS} versus time were plotted for each event, alongside aircraft position relative to the measurement site versus time, to aid in the identification of events and check for any data synchronization issues. To aid in this inspection, aircraft position was shifted by an offset based on the speed of sound and the sound propagation distance, so the aircraft position data would line up in time with the acoustic data at the measurement system. For most events, the aircraft operated at relatively high altitudes in the airspace around a metropolitan area

with the potential for acoustic interference due to high ambient noise; a scenario that sometimes resulted in low signal to noise ratios. In order to insure that a level flyover or spiral maneuver was adequately captured by the acoustic measurement systems and not masked by other noise, an event threshold level of greater than 10 dB above the ambient noise levels was established. Therefore, the maximum L_{AS} levels (L_{ASmx}) had to show a minimum of 10 dB rise and fall above the ambient noise levels to signify the start and end of an event. Events were categorized according to the criteria in Table 21. Examples of these data are presented in Figure 56 through Figure 61 for each category.

Table 21. Acoustic Event Categories

Aircraft	Category	Physical Description
P-3B	1	Level flyovers with >10 dB rise and fall in L_{ASmx}
P-3B	2	Spirals with 3 to 6 peaks in L_{ASmx} >10dB rise and fall
King Air	3	Level flyovers with >10 dB rise and fall in L_{ASmx}

To supplement this data quality check, the one-third octave-band data were also reviewed. Propeller-driven aircraft are very tonal acoustic sources, with the aircraft's primary blade pass frequency (BPF) and its first and second harmonics producing peaks in the corresponding one-third octave frequency bands. The blade pass frequency of the P-3B under typical operations during the flight test was 66.7 Hz (captured in the 63 Hz band). Similarly, the blade pass frequency of the B-200 King Air was 85.2 Hz (captured in the 80 Hz band). By plotting these frequency bands alongside L_{AS} and aircraft position relative to the measurement site versus time, additional confirmation could be made that the aircraft were operating in the area, even if the event was quiet enough that it failed to meet the event categories in Table 21.

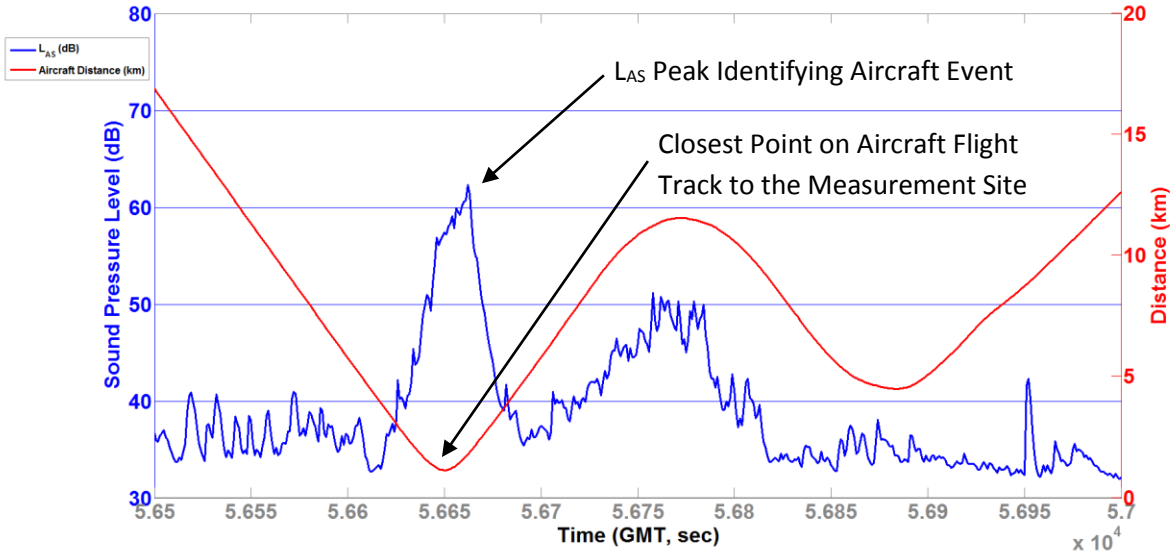

Figure 56. Category 1 Event, L_{AS} Sound Pressure Level during Event 9 with Aircraft Distance from NP-1

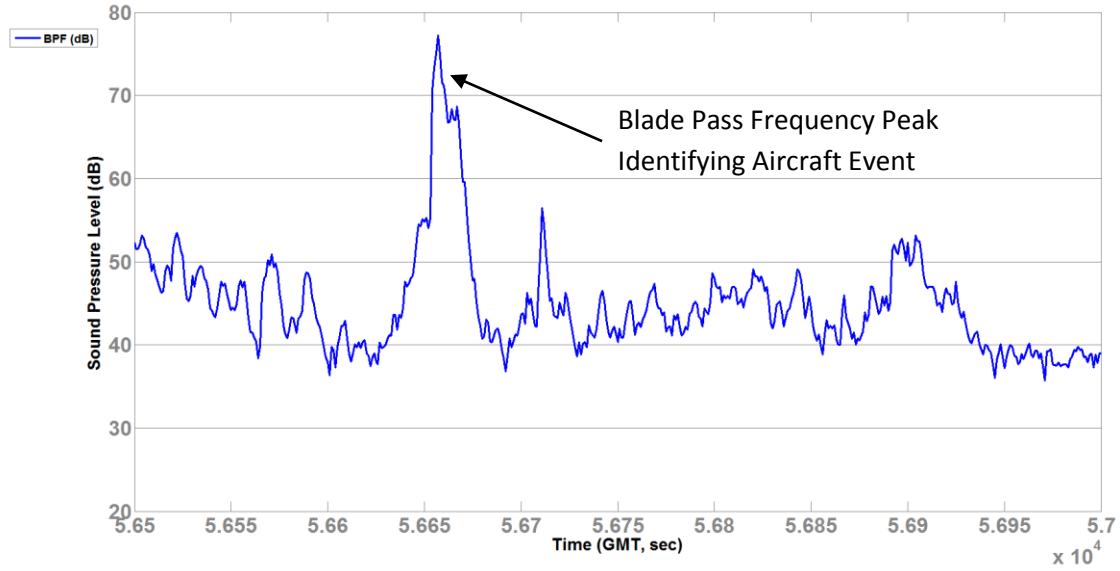

Figure 57. Category 1 Event, Sound Pressure Level at Blade Pass Frequency over Time for Event 9 at NP-1

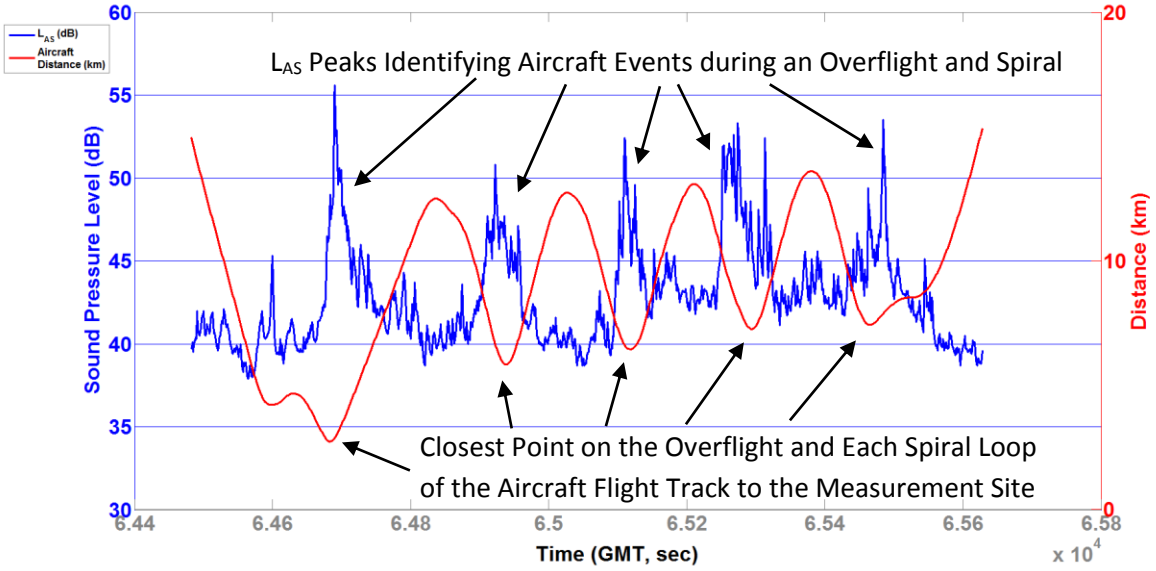

Figure 58. Category 2 Event, L_{AS} Sound Pressure Level during Event 244 with Aircraft Distance from NP-2

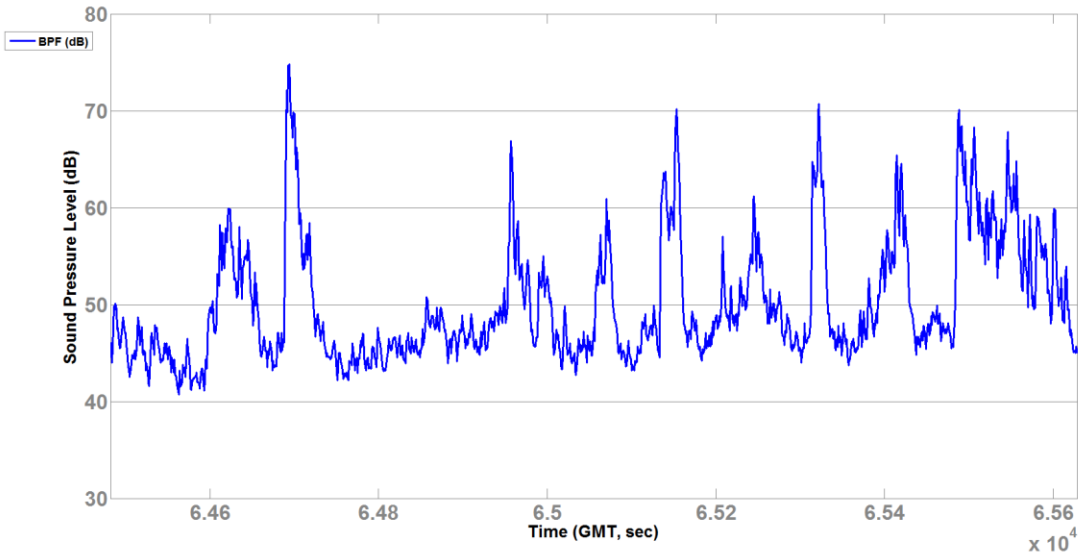

Figure 59. Category 2 Event, Sound Pressure Level at Blade Pass Frequency over Time for Event 9 at NP-2

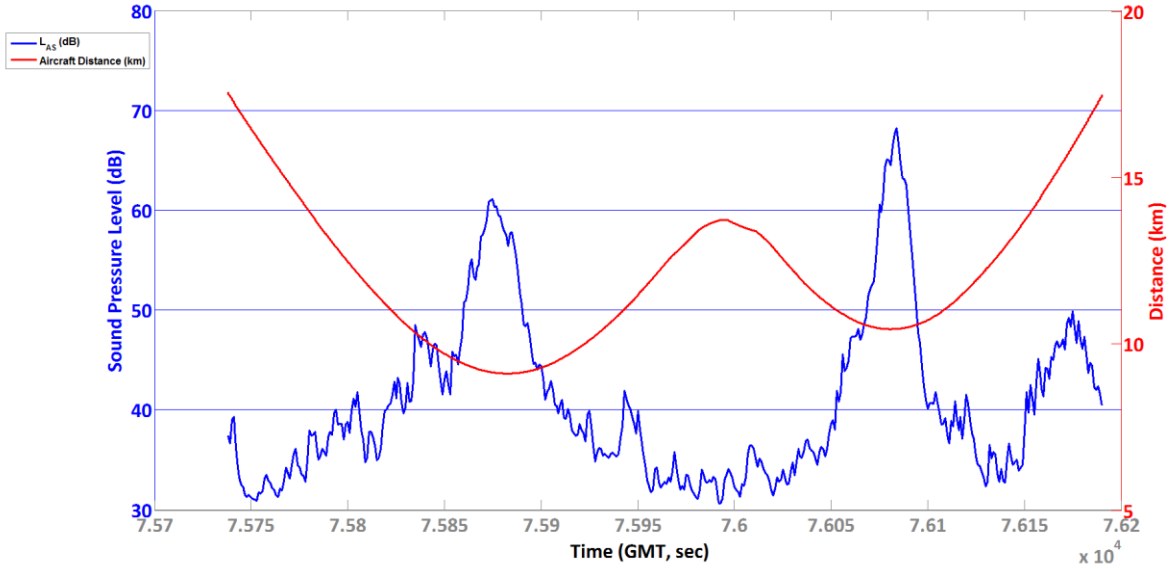

Figure 60. Category 3 Event, LAS Sound Pressure Level during Event 35 with Aircraft Distance from SP-1

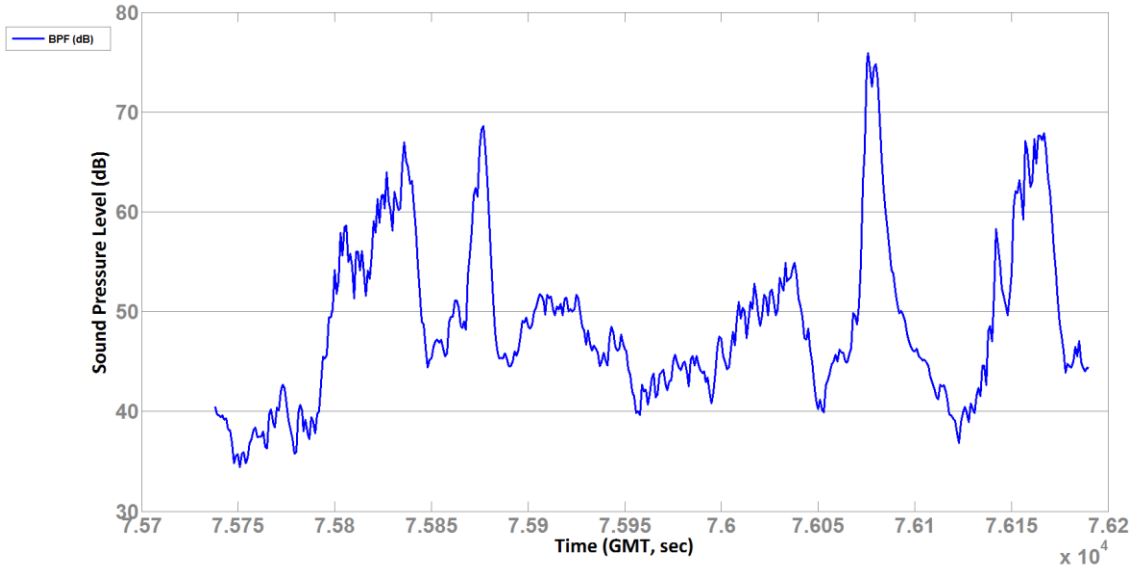

Figure 61. Category 3 Event, Sound Pressure Level at Blade Pass Frequency over Time for Event 35 at SP-1

If an event occurred where the test aircraft was within 15 km of the measurement site and met the other data quality criteria (see Sections 6.6.1.1 and 6.6.1.2), the data were then visually inspected, and the unique aircraft event was categorized as a "good" level flyover event or a "good" spiral event. A total of 95 good events were identified: 29 P-3B level flyover events (Category 1), 50 P-3B spiral events (Category 2) and 16 B-200 King Air level flyover events (Category 3). Table 22 contains a final count, by measurement date, of the valid events that were assigned the categories listed in Table 21. Table 23 presents the same valid events by measurement site, and Table 24 presents those events by measurement site and measurement date.

Table 22. Final Count of "Good" Acoustic Events by day from the Houston DISCOVER-AQ Measurements

Measurement Date	P-3B Level Flyovers (Category 1)	P-3B Spirals (Category 2)	King Air Level Flyovers (Category 3)
9/4/2013	5	8	5
9/6/2013	3	8	0
9/11/2013	6	11	2
9/12/2013	7	7	2
9/13/2013	3	8	3
9/14/2013	5	8	4
Total:	29	50	16

Table 23. Final Count of "Good" Acoustic Events by Measurement Site from the Houston DISCOVER-AQ Measurements

Site Code	Measurement Location ID	P-3B Level Flyovers (Category 1)	P-3B Spirals (Category 2)	King Air Level Flyovers (Category 3)
NB-1	1	10	9	0
NP-1	2	5	1	0
NP-2	3	7	6	0
NP-10	4	3	1	2
NP-11	5	3	2	4
NP-12	6	1	0	2
SP-1	7	0	18	5
SP-2	8	0	13	3
	Total:	29	50	16

Table 24. Final Count of "Good" Acoustic Events by Measurement Site and Date from the Houston DISCOVER-AQ Measurements by date

Date	Site	P-3B Level Flyovers (Category 1)	P-3B Spirals (Category 2)	King Air Level Flyovers (Category 3)
9/4/2013	NB-1	0	0	0
	NP-1	2	1	0
	NP-2	0	0	0
	NP-10	1	1	1
	NP-11	2	1	2
	NP-12	0	0	0
	SP-1	0	3	2
	SP-2	0	2	0
9/6/2013	NB-1	3	3	0
	NP-1	0	0	0
	NP-2	0	0	0
	NP-10	0	0	0
	NP-11	0	0	0
	NP-12	0	0	0
	SP-1	0	3	0
	SP-2	0	2	0

Date	Site	P-3B Level Flyovers (Category 1)	P-3B Spirals (Category 2)	King Air Level Flyovers (Category 3)
9/11/2013	NB-1	3	3	0
	NP-1	0	0	0
	NP-2	3	2	0
	NP-10	0	0	0
	NP-11	0	0	1
	NP-12	0	0	0
	SP-1	0	3	1
	SP-2	0	3	0
9/12/2013	NB-1	1	1	0
	NP-1	2	0	0
	NP-2	1	0	0
	NP-10	1	0	0
	NP-11	1	1	0
	NP-12	1	0	0
	SP-1	0	3	1
	SP-2	0	2	1
9/13/2013	NB-1	1	0	0
	NP-1	0	0	0
	NP-2	2	2	0
	NP-10	0	0	0
	NP-11	0	0	0
	NP-12	0	0	1
	SP-1	0	3	1
	SP-2	0	3	1
9/14/2013	NB-1	2	2	0
	NP-1	1	0	0
	NP-2	1	2	0
	NP-10	1	0	1
	NP-11	0	0	1
	NP-12	0	0	1
	SP-1	0	3	0
	SP-2	0	1	1
	Total:	29	50	16

6.6.1.4 *Supplemental Acoustic Data*

During the flight test in Houston, acoustic measurement systems were deployed inside both of the aircraft, as described in Section 6.3.1. The purpose of these systems was to collect in-aircraft noise levels that will help to determine if changes to the aircraft operational state occur during the flight tests (especially, at higher altitudes). The rationale is that changes in aircraft engine performance will be perceptible as changes in aircraft engine acoustic signals, which will be measured by the in-aircraft acoustic systems. These systems were deployed by the NASA DISCOVER-AQ aircraft instrumentation team, measured constantly during each flight day, calibrated before and after each flight day, and periodically downloaded over the course of the flight tests.

The resulting data are available for further investigation, if questions about the operational state of either aircraft arise. While there was no current need to review these in-aircraft acoustic data for each event, Figure 62through Figure 64 show in-aircraft sound pressure levels for a typical event.

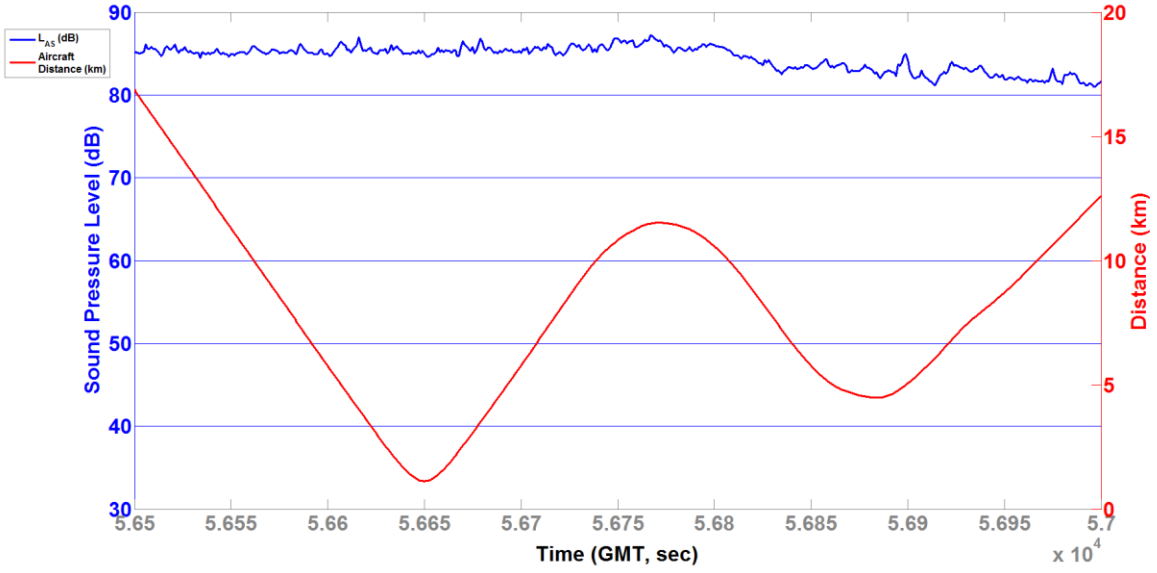

Figure 62. Category 1 Event, L_{AS} Sound Pressure Level during Event 9 with Aircraft Distance from On-Board

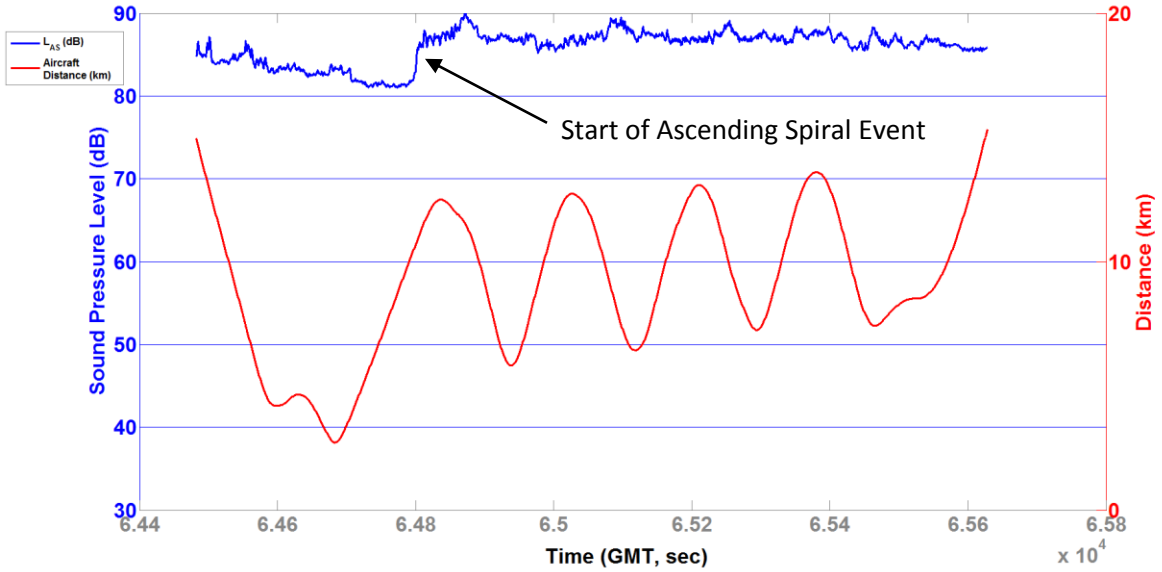

Figure 63. Category 2 Event, L_{AS} Sound Pressure Level during Event 244 with Aircraft Distance from On-Board

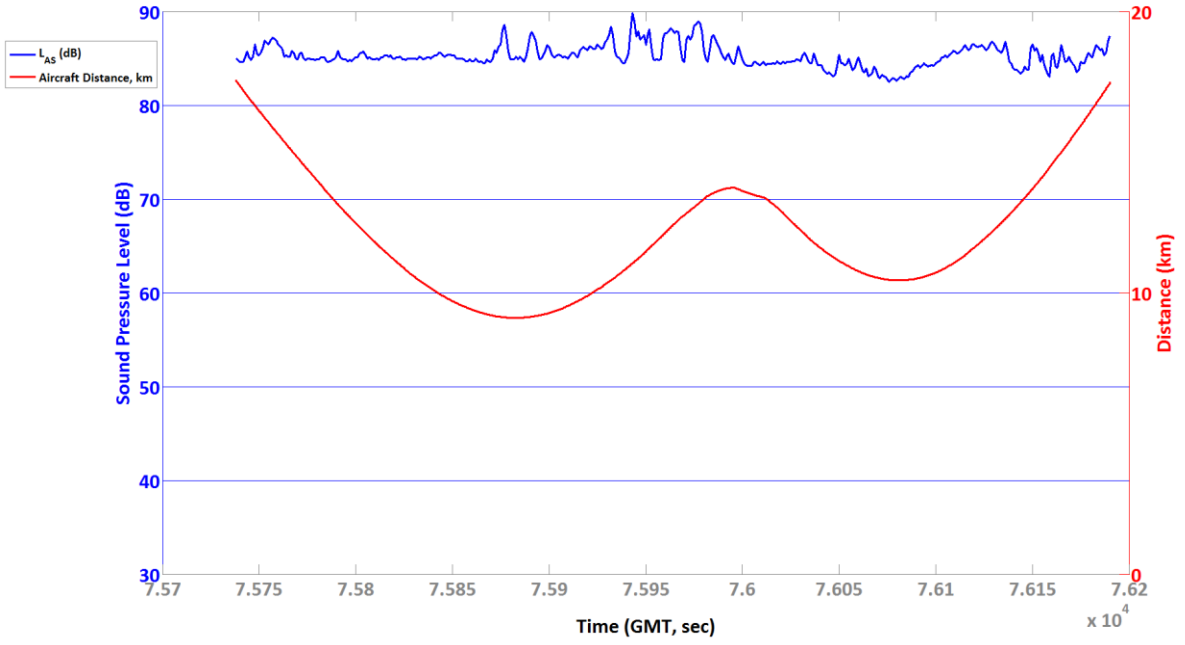

Figure 64. Category 3 Event, LAS Sound Pressure Level during Event 35 with Aircraft Distance from On-Board

An added bonus for measuring these in-aircraft acoustic data during the flight test is that in-aircraft acoustic data for ground roll events were also measured. Although not explicitly utilized for the data processing and analysis options presented in this report, in-aircraft acoustic data were measured for

idle, taxi and ground roll operations for each aircraft. Example data for P-3B ground operations are presented in Figure 65 and Figure 66.

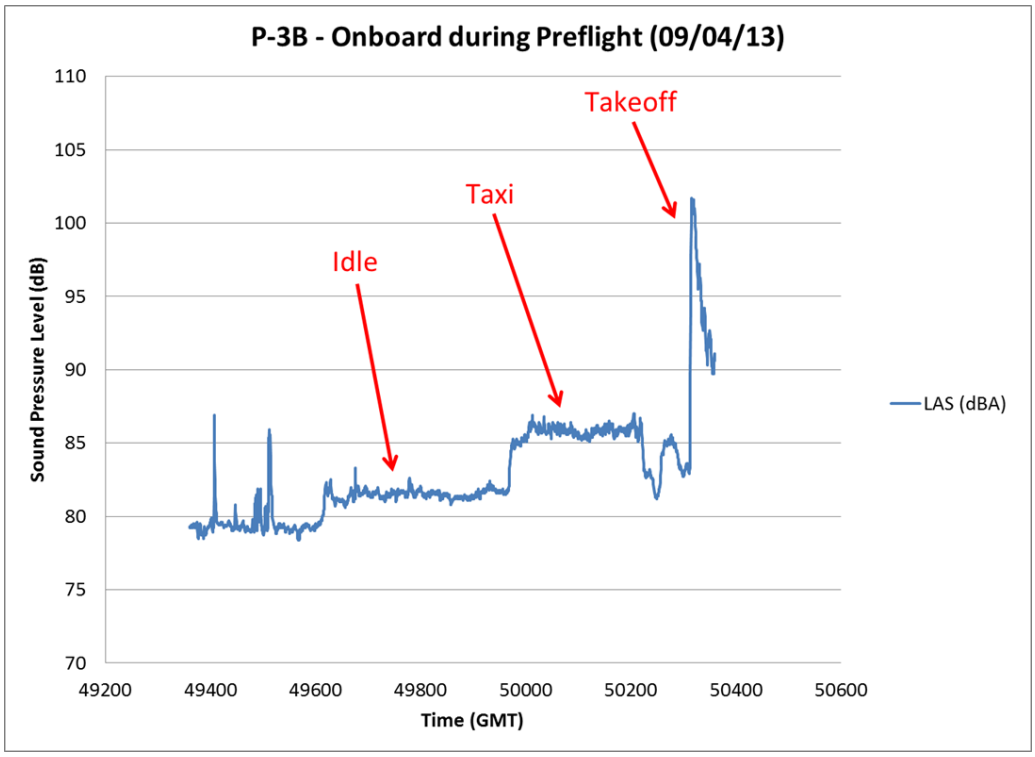

Figure 65. Example Onboard L_{AS} versus Time Data for the P-3B during Ground Operations

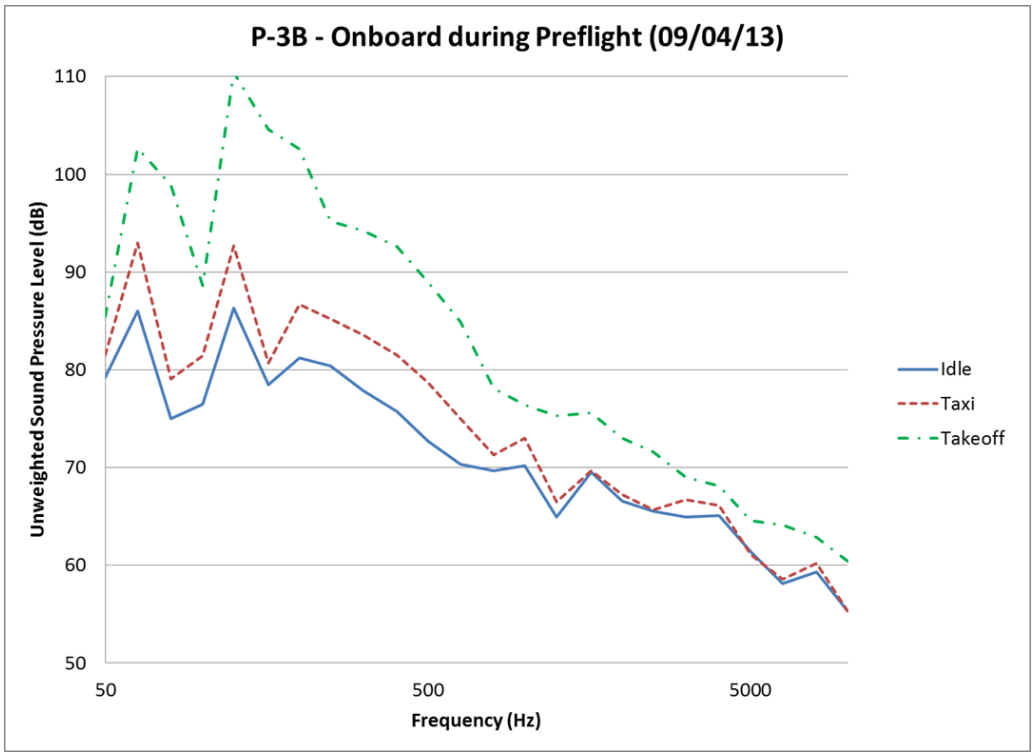

Figure 66. Example Average, Un-weighted Spectral Data for the P-3B during Ground Operations

6.6.2 Meteorological Data Processing

Meteorological data for the DISCOVER-AQ acoustic data set were collected from 3 sources; Volpe on-ground instrumentation, P-3B on-board measurement systems, and weather balloons, in order to fully define weather conditions during each acoustic event. Temperature, wind speed, atmospheric pressure, and humidity were utilized from all sources in order to build an appropriate weather profile for each event. The process of selecting and comparing each meteorological data source is presented in Section 6.6.2.1, and the development of time based and altitude based profiles is discussed in Section 6.6.2.2.

6.6.2.1 *Selecting and Comparing Meteorological Data Sources*

In order to determine the most suitable data source for each event, meteorological data from all 3 sources were correlated to events based on date and time. When ground data and aircraft data were the best available source, they were also correlated to events by measurement site.

An important factor in developing weather profiles was to understand the position of the aircraft in relation to the site at which its acoustic event was captured. In order to get an idea of the location of the weather balloon and the aircraft in reference to the measurement site during time based correlations, the slant distance from the measurement site to the balloon and from the measurement site to the aircraft were calculated using GPS positional data from each source.

Measurements recorded on the aircraft were the primary source for meteorological data below 15,000 ft AGL, as they are already associated with the position and altitude of the aircraft throughout an event. Some P-3B events, however, contained data gaps in on-aircraft meteorological data as can be seen in the measured wind speed for event 102 shown in Figure 71; in the case of the B-200 King Air, on-aircraft weather data were not collected. Ideally weather balloon or ground data could take the place of absent on-aircraft data in cases such as event 102, but the positional correlation between the 3 sources was not constant enough to justify directly substituting data based on time.

Figure 67 shows that during event 102, the P-3B only briefly flies at an altitude similar to a nearby weather balloon as the aircraft descends and the balloon rises. During this brief intersection, Figure 69, Figure 70 and Figure 72 show that temperature, humidity, and atmospheric pressure measurements from on-aircraft measurements agree with measurements from a nearby weather balloon. Towards the end of event 102, after 52600 s GMT, the P-3B flies level around 500 ft after descending from 14,000 ft and the vertical weather profile is almost entirely available for this event. Figure 69 through Figure 72, however, suggest that on-aircraft weather data at 500 ft is not significantly close enough to ground weather data to rely solely on aircraft weather measurements to define a full vertical profile and that ground weather data are required to define weather conditions on the surface.

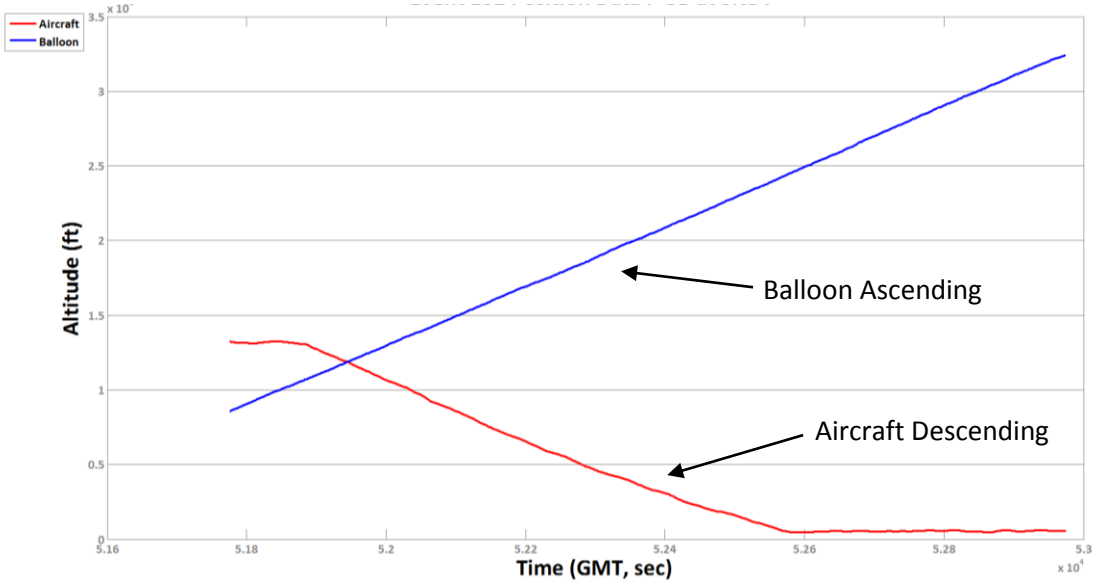

Figure 67. Aircraft (P-3B) and Weather Balloon Altitude over Time for Event 102 at SP-1

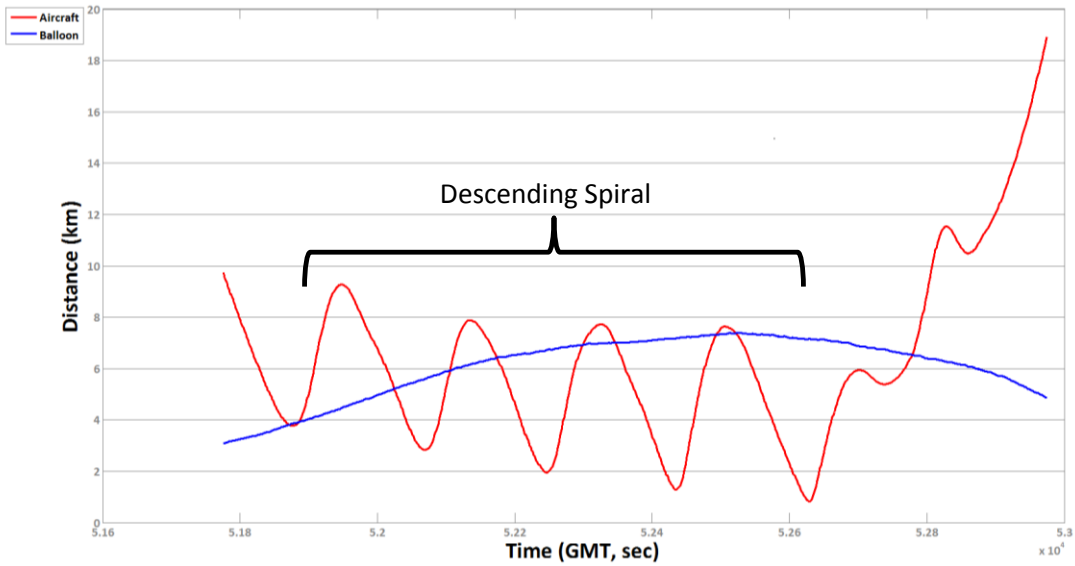

Figure 68. Aircraft (P-3B) and Weather Balloon Distance over Time for Event 102 at SP-1

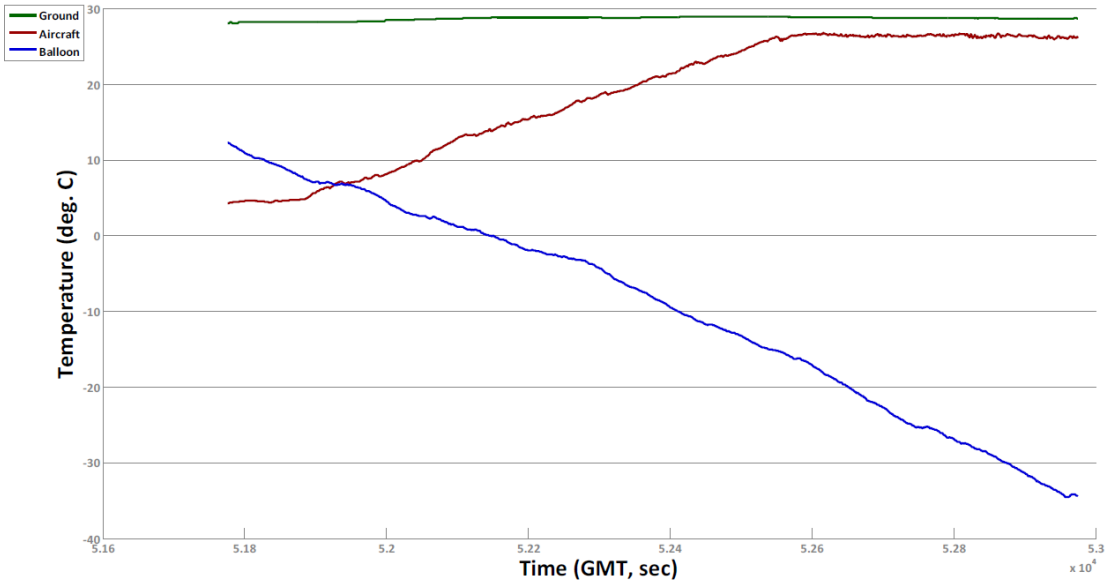

Figure 69. Temperature over time from Ground, Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

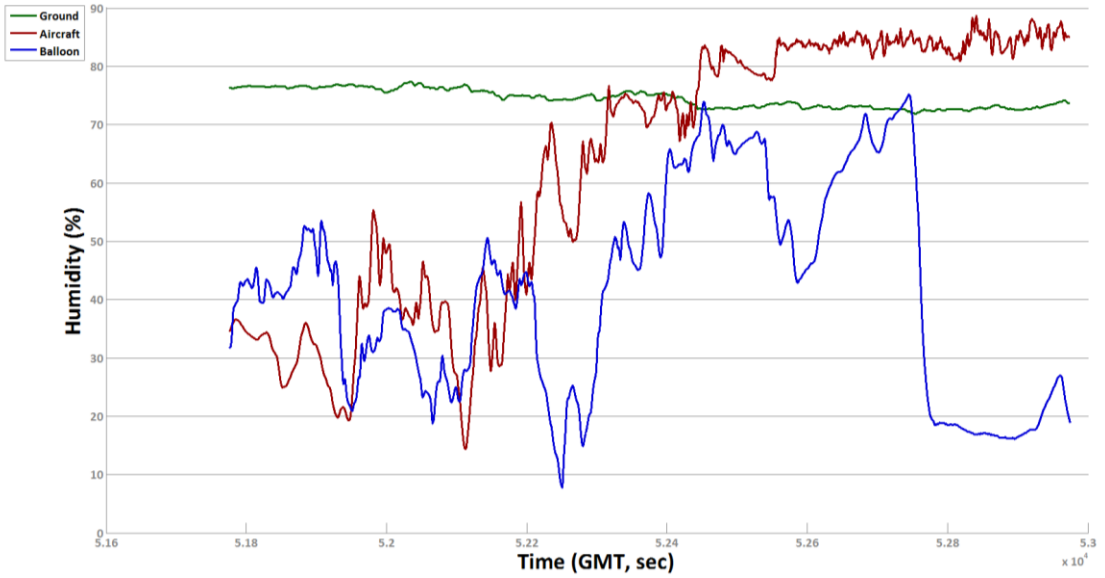

Figure 70. Relative Humidity over time from Ground, Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

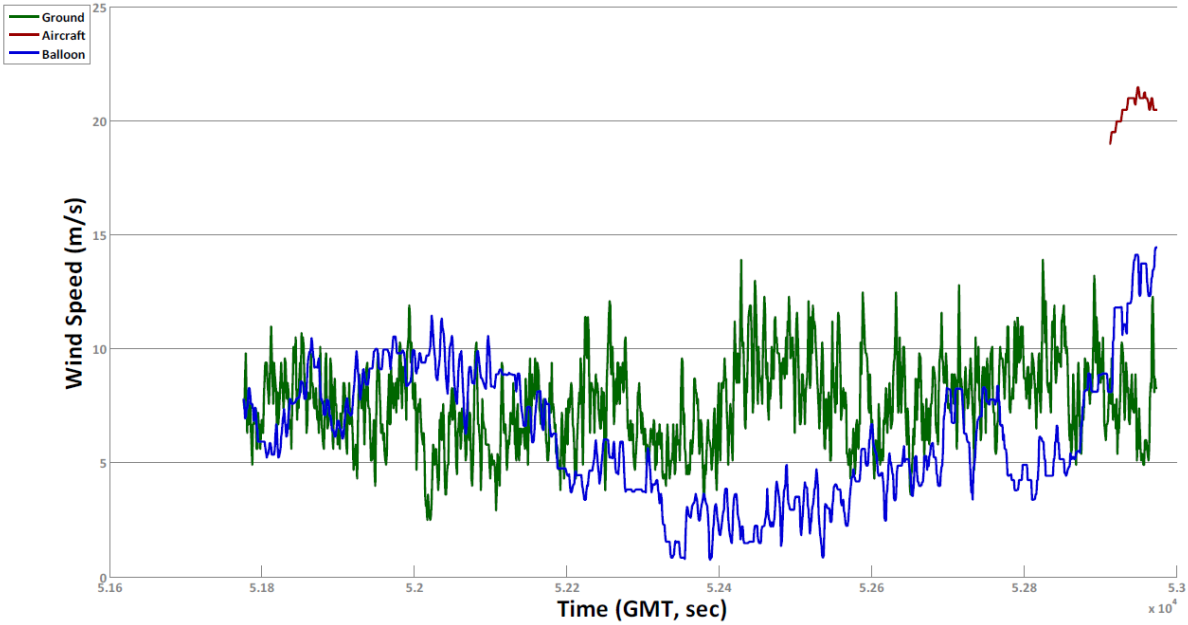

Figure 71. Wind Speed over Time from Ground, Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

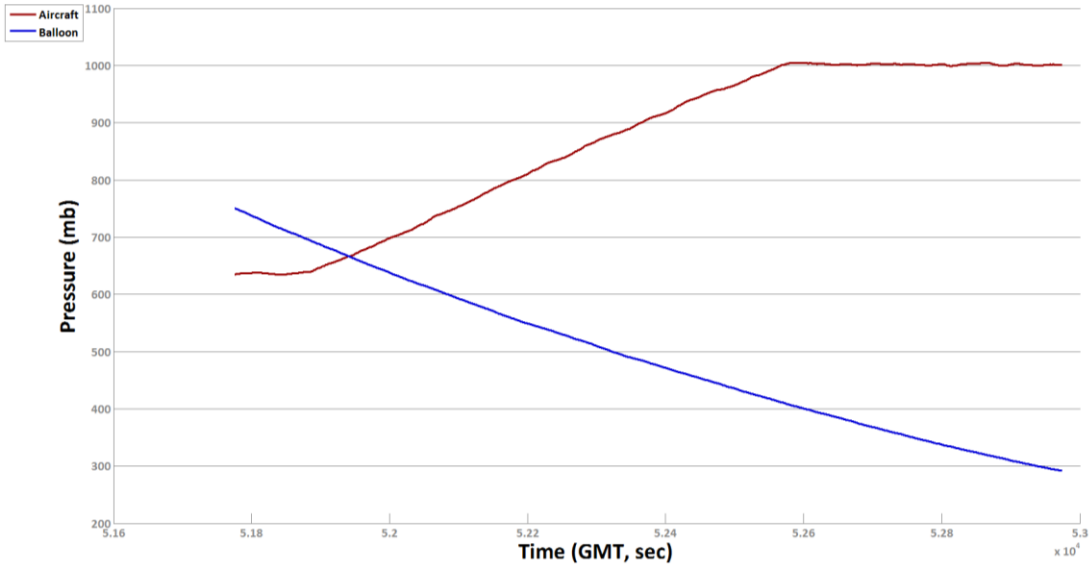

Figure 72. Atmospheric Pressure over Time from Aircraft (P-3B) and Weather Balloon Data for Event 102 at SP-1

Event 159 in Figure 73 shows the B-200 King Air flying level close to 30,000 ft while a weather balloon ascends from 2,200 ft to 30,000 ft. In the case of the King Air, which did not collect meteorological data, the only temporally accurate meteorological data available was weather balloon data collected at altitudes that correlated with the aircraft, such as the interaction seen in event 159, and ground weather data collected while the King Air was at ground level. These meteorological data are shown in Figure 75, Figure 76, Figure 77 and Figure 78, which include the corresponding P-3B data for reference. These weather data sources were combined to define a robust meteorological profile for each event.

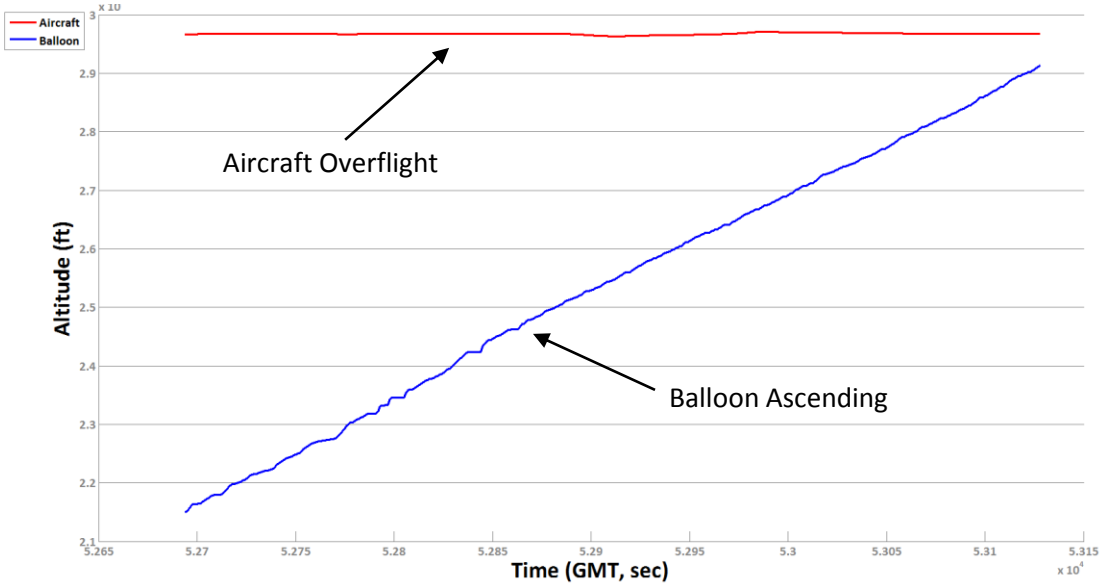

Figure 73. Aircraft (P-3B) and Weather Balloon Altitude over Time for Event 159 at SP-1

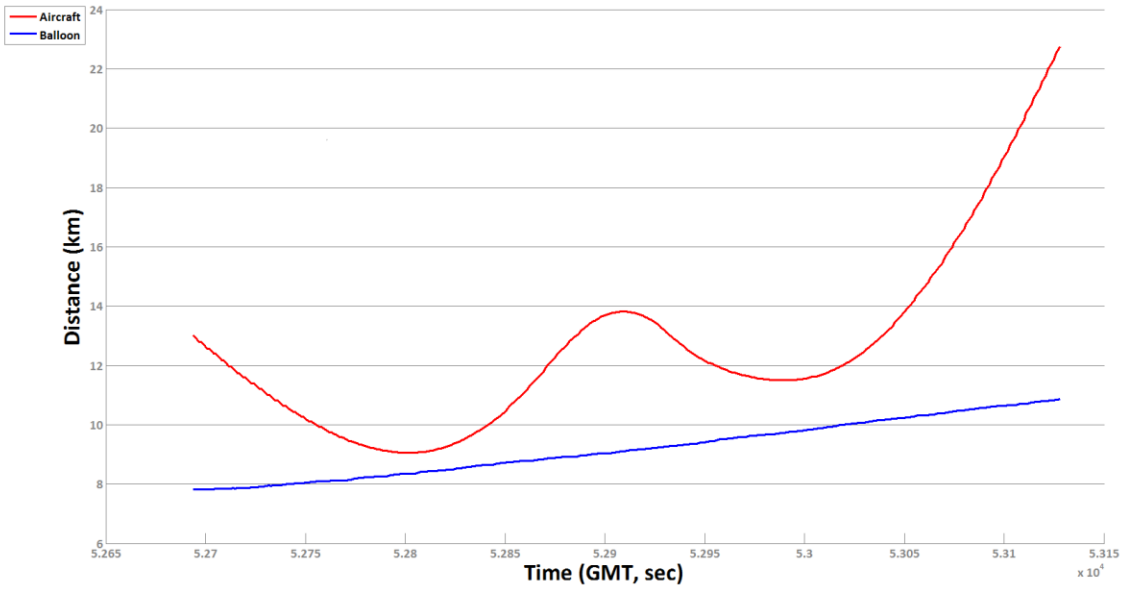

Figure 74. Aircraft (P-3B) and Weather Balloon Distance over Time for Event 159 at SP-1

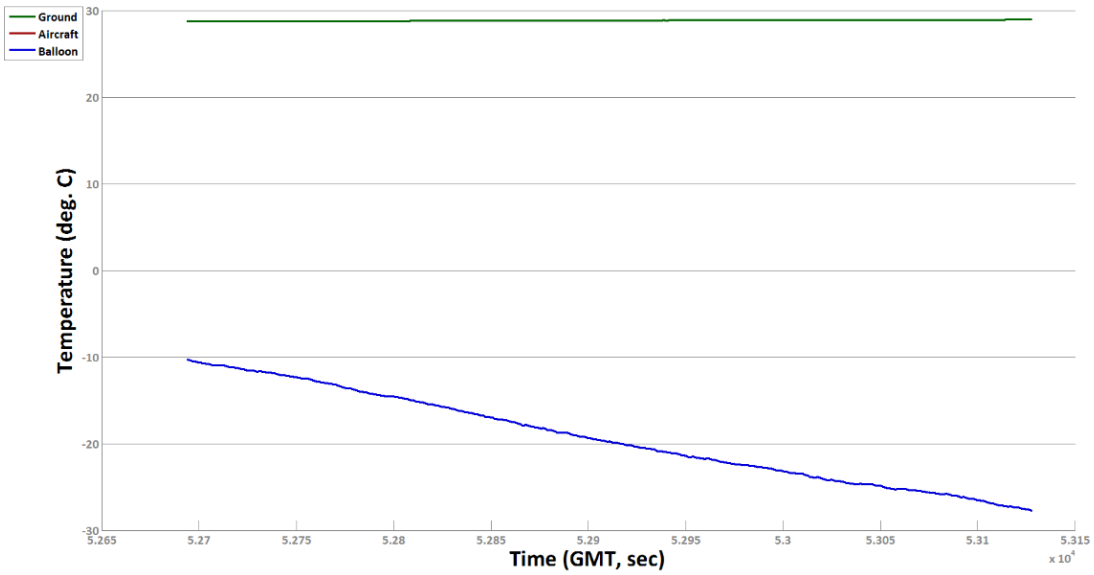

Figure 75. Temperature over Time from Ground, Aircraft (P-3B), and Weather Balloon Data for Event 159 at SP-1

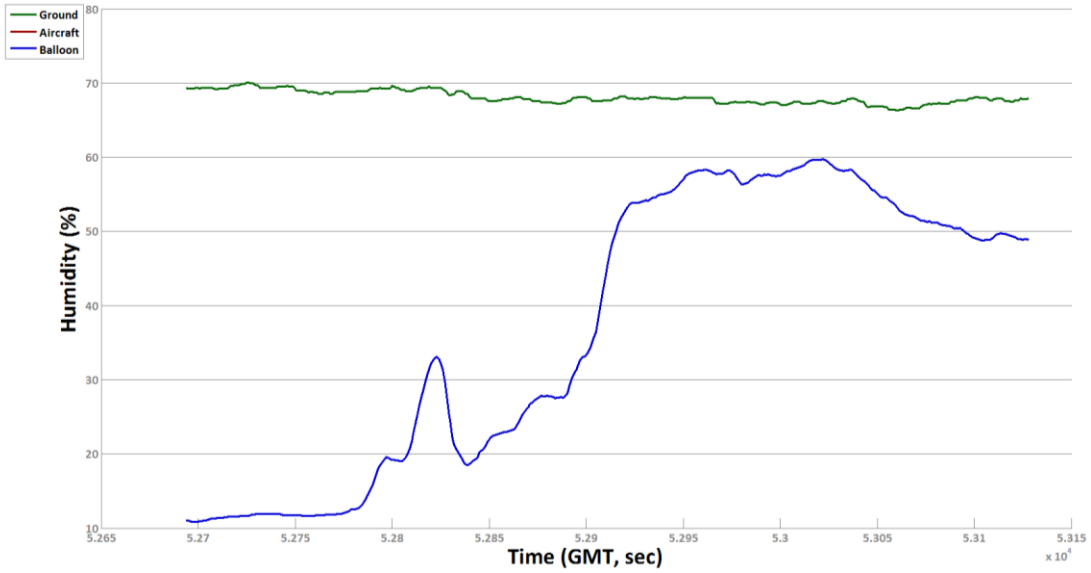

Figure 76. Relative Humidity over Time from Ground, Aircraft (P-3B), and Weather Balloon Data for Event 159 at SP-1

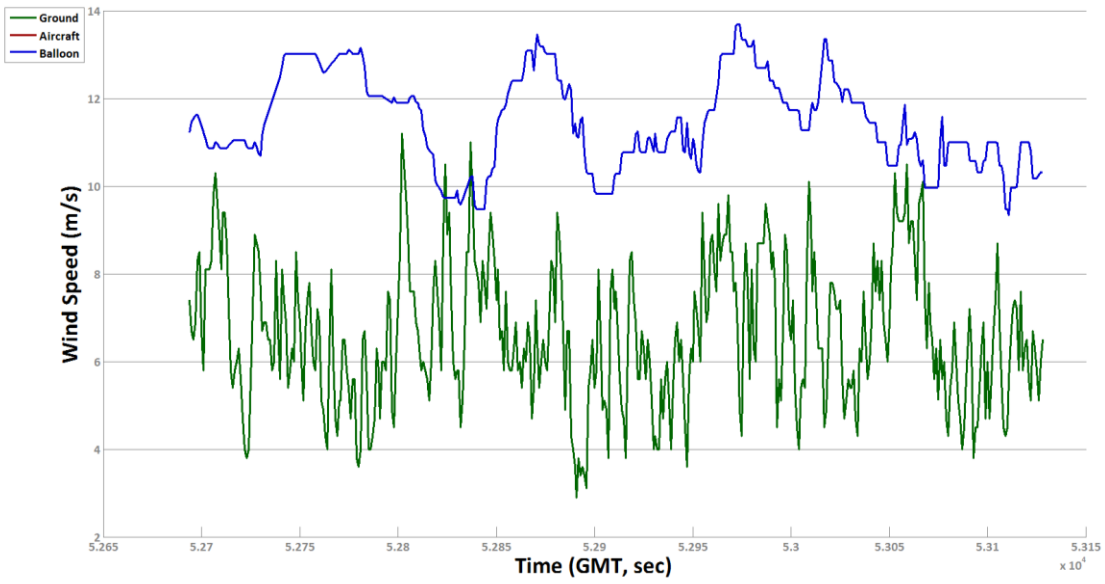

Figure 77. Wind Speed over Time from Ground, Aircraft (P-3B), and Weather Balloon Data for Event 159 at SP-1

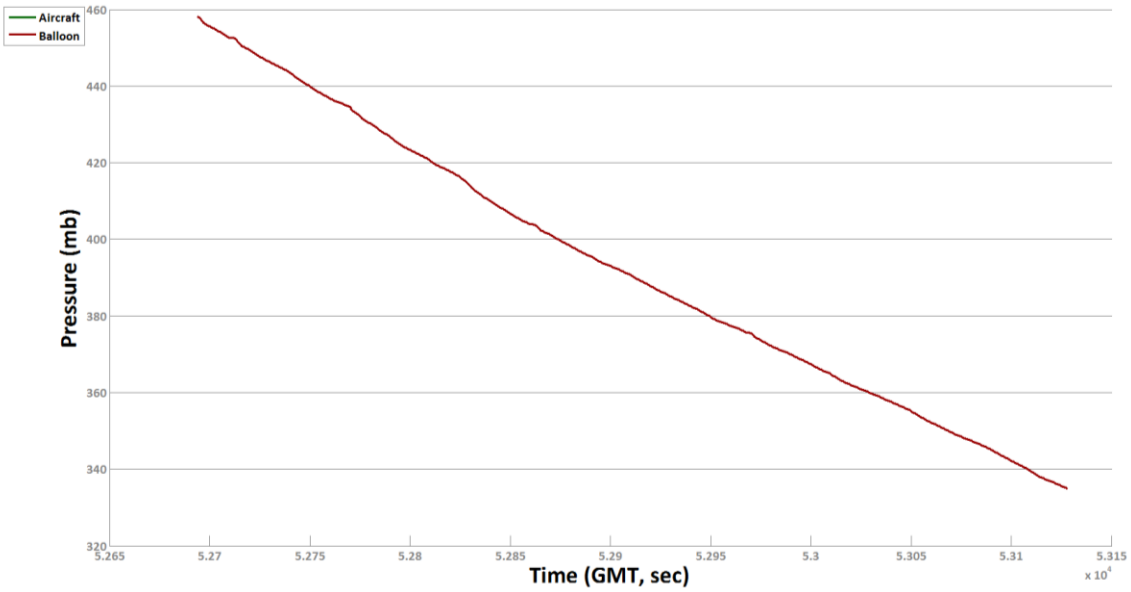

Figure 78. Atmospheric Pressure over Time from Aircraft (P-3B) and Weather Balloon Data for Event 159 at SP-1

6.6.2.2 *Developing Vertical Meteorological Profiles*

In order to take advantage of the wealth of meteorological data available from all sources, a methodology was developed to create a time- and location-based, vertically stratified meteorological profile for each event, using the most accurate data available for each 1 second record of each event. Vertical meteorological profiles combined different meteorological data sources in the vacinity of each measurement site that characterize the atmospheric conditions as they change with altitude. This

became especially important, since not all data sources were available at each measurement site for each aircraft event, with some sources only having periodic availability throughout the day. To develop the profiles, all available meteorological data were separated by source, day, and measurement site and examined over the course of each day.

The temperature, relative humidity, wind speed and atmospheric pressure data were first visually assessed on a day-by-day basis to explore variability and dependency due to altitude, time-of-day, and distance from each measurement site in an attempt to determine which factors must be included when summarizing and describing these data by statistical means. Additionally, daily data from all three sources were examined to determine if there was basic agreement between them.

Temperature

Temperature observations for the balloon and aircraft sources were visually assessed by plotting the data by altitude for each day, as altitude was suspected to be the dominant factor driving variability in temperature. Per ICAO International Standard Atmosphere condition, temperature will decreases 6.49 C° per km [5]. Figure 79 depicts a typical measurement day. The red markers show temperature observations from the balloon; the 2 instances of a balloon launch (at approximately 9:30 am and 2:30 pm) are visible in this plot. Blue markers show aircraft temperature observations.

Overall, there is a relatively small range of scatter in these data. The aircraft data show larger scatter than balloon data due to both time-of-day and location variability. Comparing the 2 sets (balloon vs aircraft), there is good agreement at altitudes greater than 2 km. There is lesser agreement nearer to ground level due to changes in the aircraft position (in the x-y plane) compared to the fixed position of the balloon. Further investigation of these data showed that, as expected, locations away from the coast (near the Northern sites) are generally warmer than locations nearby the coast (Southern sites SP-1 and SP-2). Also visible in the balloon data is the increase in temperature at ground level as the ground warmed between morning and afternoon launches.

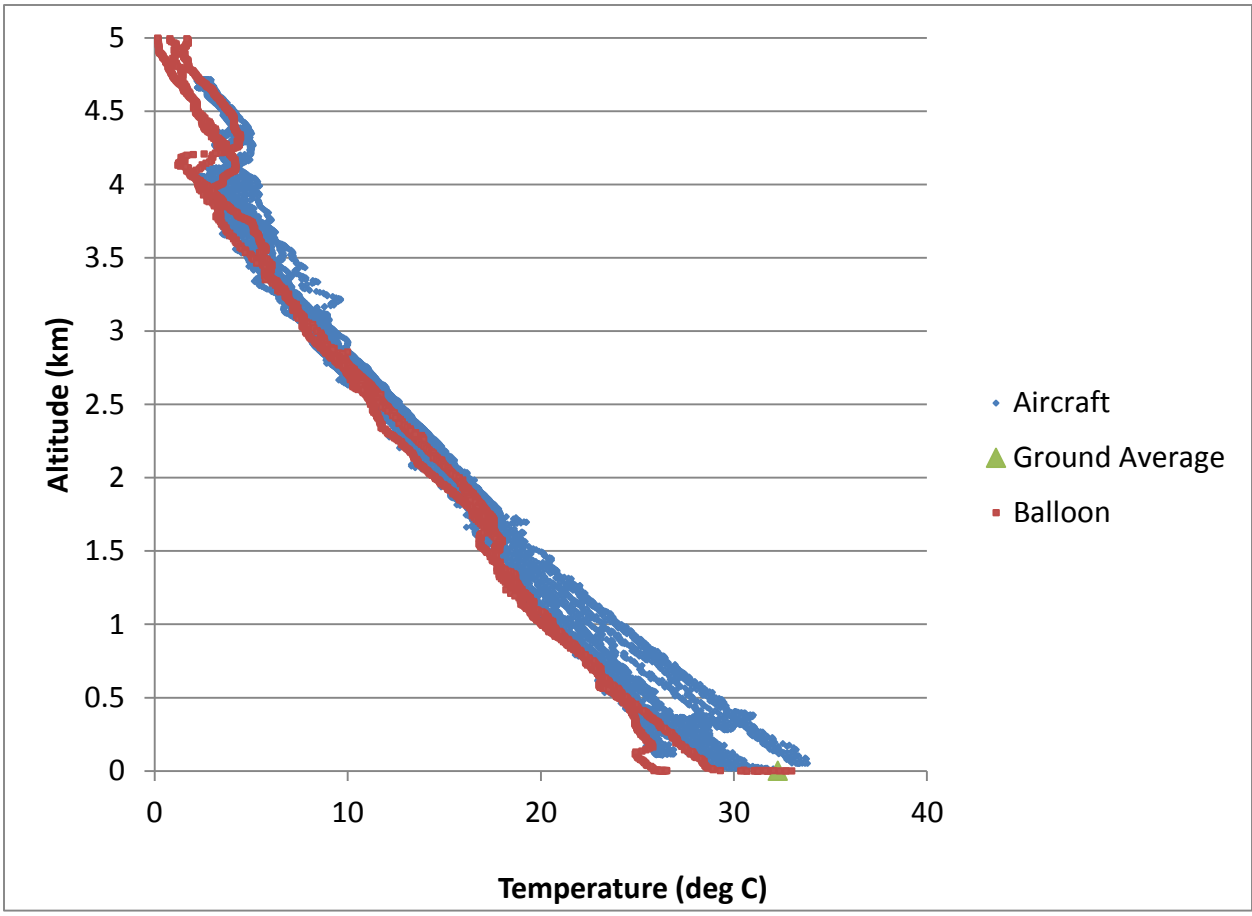

Figure 79. Measured Temperature vs. Altitude on 09/12/2013

Relative Humidity

Relative humidity observations for the balloon and aircraft sources were similarly assessed by plotting the data by altitude for each day. The relative humidity within a given atmosphere is dependent on both temperature and pressure – both of these factors are also dependent on altitude. Therefore, altitude was again suspected to be the dominant factor driving variability in relative humidity. Figure 80 depicts a typical day, again with red markers showing observations from the balloon and blue from the aircraft.

Overall, there is a much wider range of scatter in these data. Again, the aircraft data show larger scatter than balloon data due to both time-of-day and location variability. There is a general trend toward decreasing relative humidity with altitude, however, any trends in these data could not be described with a simple regression equation.

Comparing the two sets (balloon vs aircraft), there is relatively good agreement. Lesser areas of agreement are again due to changes in the aircraft position (in the x-y plane) compared to the fixed

position of the balloon. Also visible in the balloon data is the decrease in relative humidity at ground level as the ground and atmosphere warmed between morning and afternoon launches.

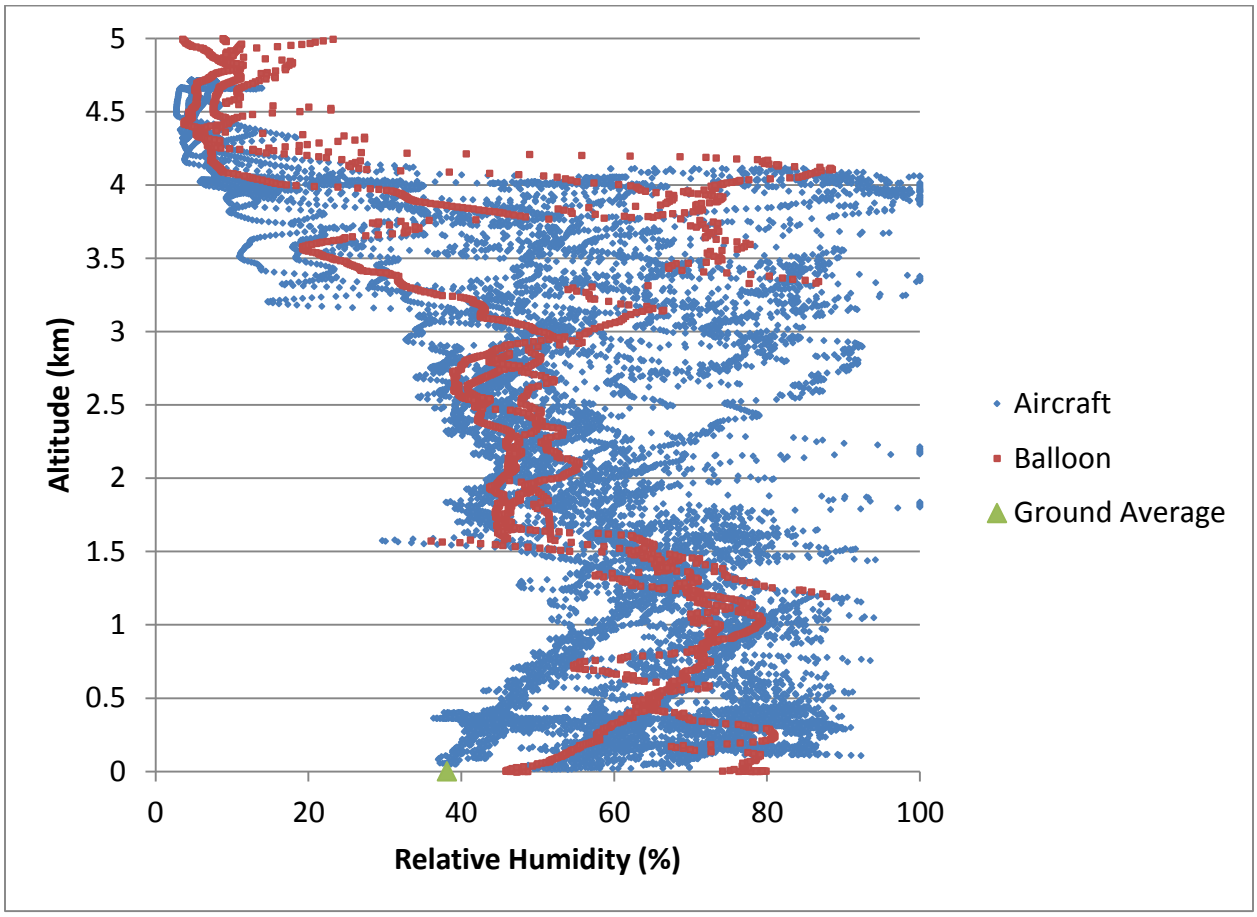

Figure 80. Measured Relative Humidity vs. Altitude on 09/12/2013

Wind Speed

Wind speed was also assessed by altitude, although altitude was not expected to be a driving factor. Data from the aircraft source was considered of lesser quality due to the on-board system's inability to capture accurate wind speed during spiral maneuvers. Figure 81 depicts a typical day, with red markers showing observations from the balloon, blue markers showing observations from the aircraft, and green from the ground-based system. In general, wind speeds on this day ranged between 4-12 *m/s* with no discernable trends based on altitude or time-of-day. During other measurement days (9/6 in particular), wind speeds as high as 25 *m/s* were recorded.

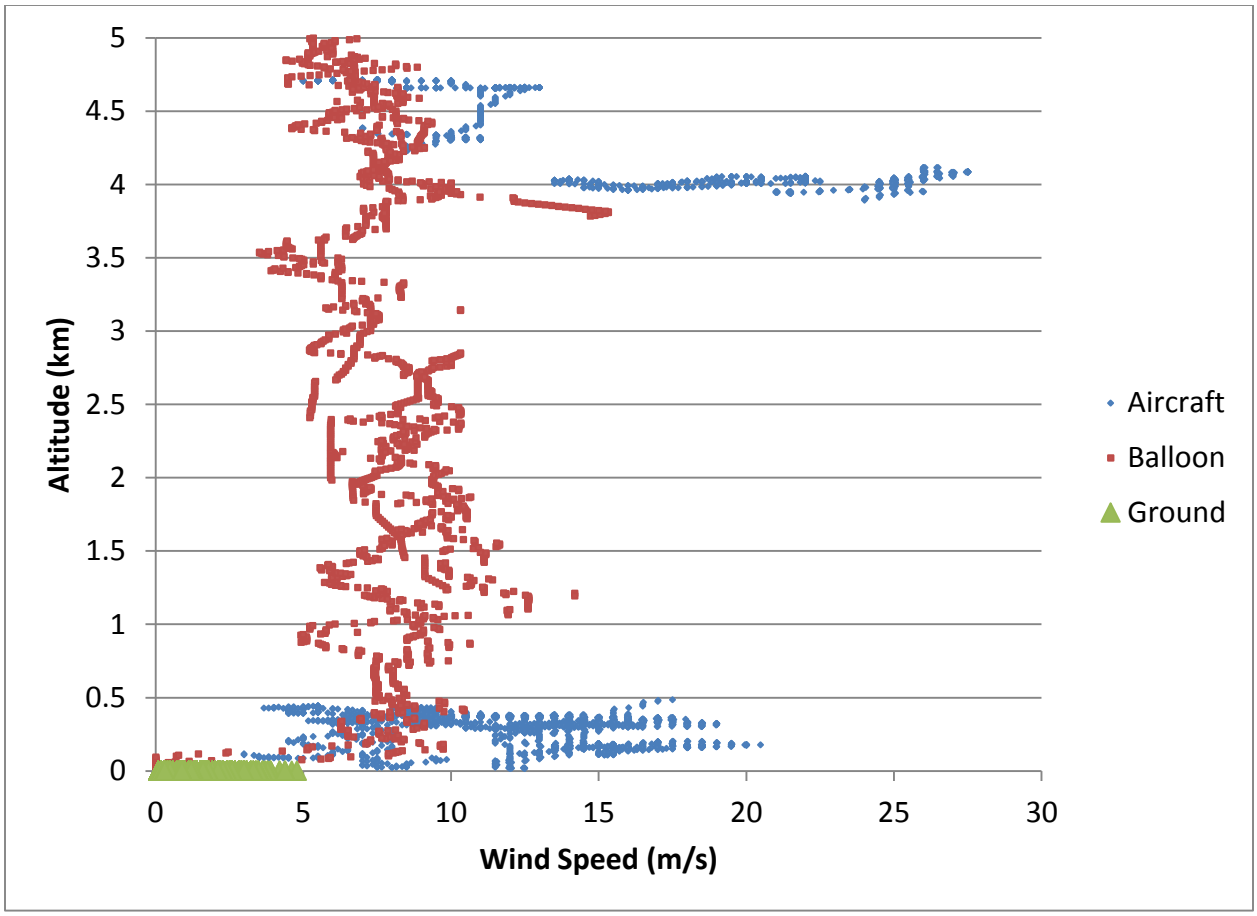

Figure 81. Measured Wind Speed vs. Altitude on 09/12/2013

Atmospheric Pressure

Atmospheric pressure observations for the balloon and aircraft sources were visually assessed by plotting the data by altitude for each day, as altitude was suspected to be the dominant factor driving variability in pressure. Figure 82 depicts a typical measurement day. The red markers show observations from the balloon; blue markers from the aircraft. As expected, there is a small range of scatter in these data, and excellent agreement between the balloon and aircraft sources.

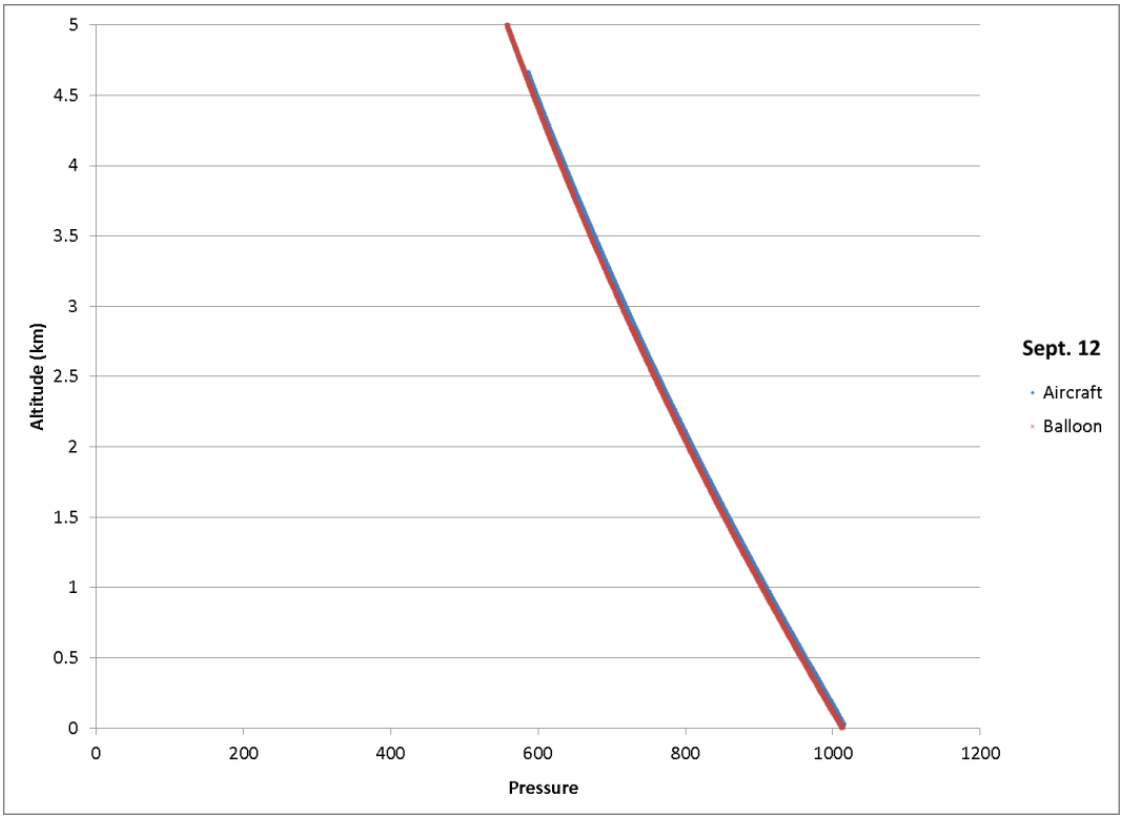

Figure 82. Typical plot showing atmospheric pressure by altitude

Profile Development Criteria

The exploratory analysis of the meteorological data can be summarized as follows:

- Temperature changes were largely dependent on altitude. Smaller increases in temperature near ground were observed over the course of the day. The changes in temperature could be described with a lapse-rate type equation.
- Relative humidity changes were somewhat dependent on altitude and time-of-day. However, there seemed to be minimal dependence on location. Relative humidity changes cannot be accurately described with simple regressions or lapse rate equation.
- Wind speed had no observed dependencies on altitude or time-of-day. Instead, wind changes are generally dependent on atmospheric pressure variations and convection. Wind speed changes cannot be accurately described with regression equations.
- Atmospheric pressure changes were dependent on altitude. The changes in atmospheric pressure can be described with a lapse-rate type equation.

Because both relative humidity and wind speed cannot be easily described with simple equations, it was reasoned that the most straightforward and appropriate way to summarize these data would be through a layered atmosphere – where the data are stratified in 0.5 km layers. Layered atmosphere data are reported separately for each source and are reported according to the following conditions:

- Measurement day (6 days)
- Measurement system location (10 sites for aircraft, 1 for balloon). Observations where the aircraft was within 15 km of the measurement system were considered.
- Time of day (2 blocks)

Data from ground-based monitors adjacent to each acoustic system are reported as the first layer within the aircraft-source based atmosphere.

In order to determine the most appropriate time for partitioning of the data on a time-of-day basis, data from the ground-based monitors adjacent acoustic systems in the southern and northern locations (SP1 and NB1) system were examined. Figure 83 and Figure 84 show typical plots of these data. There is a general trend toward a warming of the atmosphere between sunrise and midday, followed by relatively stable conditions throughout the remainder of the day. Thus, data were partitioned at 11 am so that the reported averages most accurately represent the conditions in the measurement time block. Data occurring before 11 am were assigned time block A and data occurring at or after 11 am were assigned time block B.

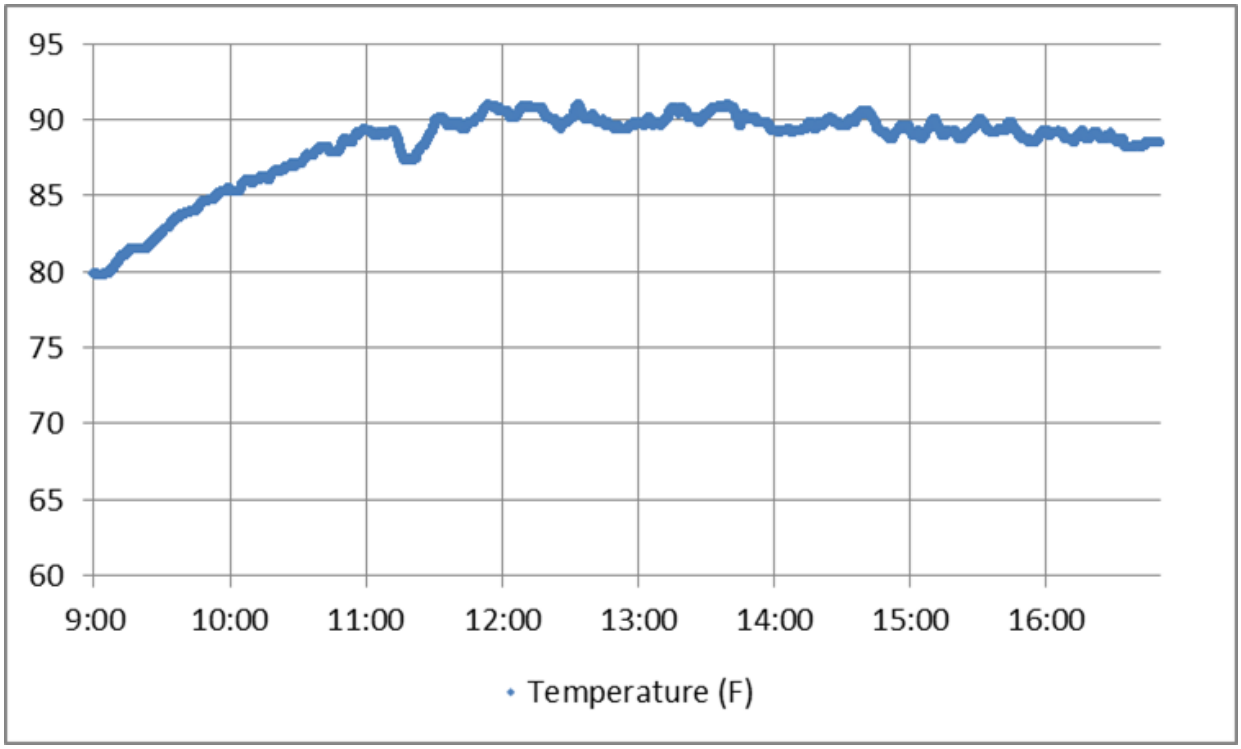

Figure 83. Ground Based Temperature over Time of day at SP-1, 09/12/2013

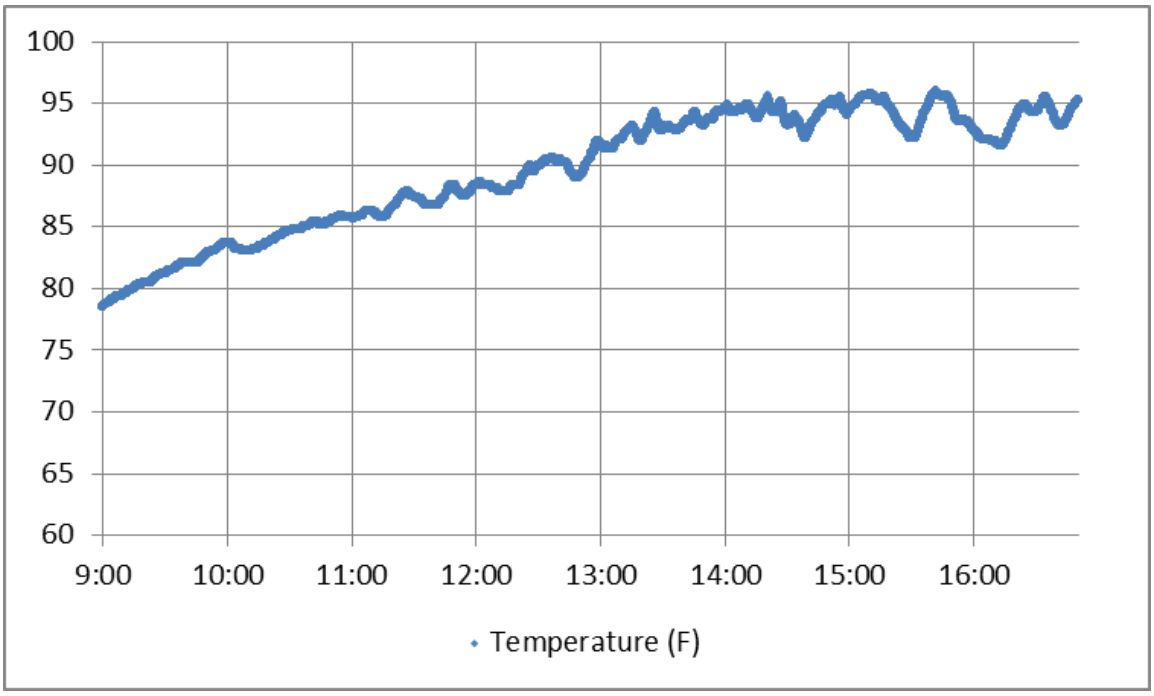

Figure 84. Ground Based Temperature by Time of Day at NB-1, 09/12/2013

For each layered atmosphere the following statistical summary data are reported: number of observations, mean, median, minimum, maximum and standard deviation.

Stratified weather data were entered into the Discover AQ database as source specific tables. A unique ID was assigned to the statistical summary of each distinct combination of date, time block, and altitude. All records in the ground data are representative of a ground layer with altitude between 0 and 5 ft and were assigned to altitude bin 0 whereas altitude bin assignments vary for aircraft and balloon records. Aircraft and ground data records were also assigned to the measurement site at which the ground data were recorded or at which the aircraft's acoustic measurements were associated. The altitude bins for aircraft and balloon data are shown in Table 25. Aircraft bins are limited by the maximum altitude flown by the P-3B and use up to bin 11 (5.5 km or 18,045 ft). Balloon data utilize all bins except for bin 0 and go as high as 9.5 km (31,168 ft) in order to accommodate the highest altitude measured by the King Air. Balloon data above bin 19 were retained in the database but were not binned.

Table 25. Altitude Bins for Meteorological Profiles

Altitude Bin	Altitude (km)	Altitude (km)
0	Ground	
1	<0.5	Less than 0.5
2	>= 0.5 to <1.0	Greater than 0.5 but less than 1.0
3	>=1.0 to <1.5	Greater than 1.0 but less than 1.5
4	>=1.5 to <2.0	Greater than 1.5 but less than 2.0
5	>=2.0 to <2.5	Greater than 2.0 but less than 2.5
6	>=2.5 to <3.0	Greater than 2.5 but less than 3.0
7	>=3.0 to <3.5	Greater than 3.0 but less than 3.5
8	>=3.5 to <4.0	Greater than 3.5 but less than 4.0
9	>=4.0 to <4.5	Greater than 4.0 but less than 4.5
10	>=4.5 to <5.0	Greater than 4.5 but less than 5.0
11	>=5.0 to <5.5	Greater than 5.0 but less than 5.5
12	>=5.5 to <6.0	Greater than 5.5 but less than 6.0
13	>=6.0 to <6.5	Greater than 6.0 but less than 6.5
14	>=6.5 to < 7.0	Greater than 6.5 but less than 7.0
15	>=7.0 to < 7.5	Greater than 7.0 but less than 7.5
16	>=7.5 to < 8.0	Greater than 7.5 but less than 8.0
17	>=8.0 to < 8.5	Greater than 8.0 but less than 8.5
18	>=8.5 to <9.0	Greater than 8.5 but less than 9.0
19	>=9.0 to <9.5	Greater than 9.0 but less than 9.5

Time-based weather profiles for each event were built by assigning a unique weather ID from tabulated weather averages to each 1 second interval of an event based on the date, time block, and altitude bin in which it fell. For ground and aircraft, weather IDs were also matched by measurement site. For the purpose of building the most complete weather profile for all events, P-3B on-board meteorological data were generalized as Aircraft meteorological data and applied to P-3B events and King Air events. The algorithm that decides from which source to pull the meteorolgical data for a weather profile is based on a hierarchy that selects the weather ID containing the most accurate, available conditions for the time and position of an aircraft during an event. When an aircraft is at an altitude of 0 to 5 ft, which is altitude bin 0, records are always assigned meteorological averages from ground data. Between altitude bins 1 and 11, where aircraft data are available, temperature and humidity averages are assigned to a record from aircraft data and are substituted with balloon data wherever aircraft data are absent. Wind speed is taken from balloon data for all altitude bins above 0 because on-aircraft wind speed records were deemed unreliable due to the variability in the maneuvers executed by the P-3B. For records with altitude bins between 12 and 19, all meteorological data were sourced form the weather balloon. This process is presented in Figure 85.

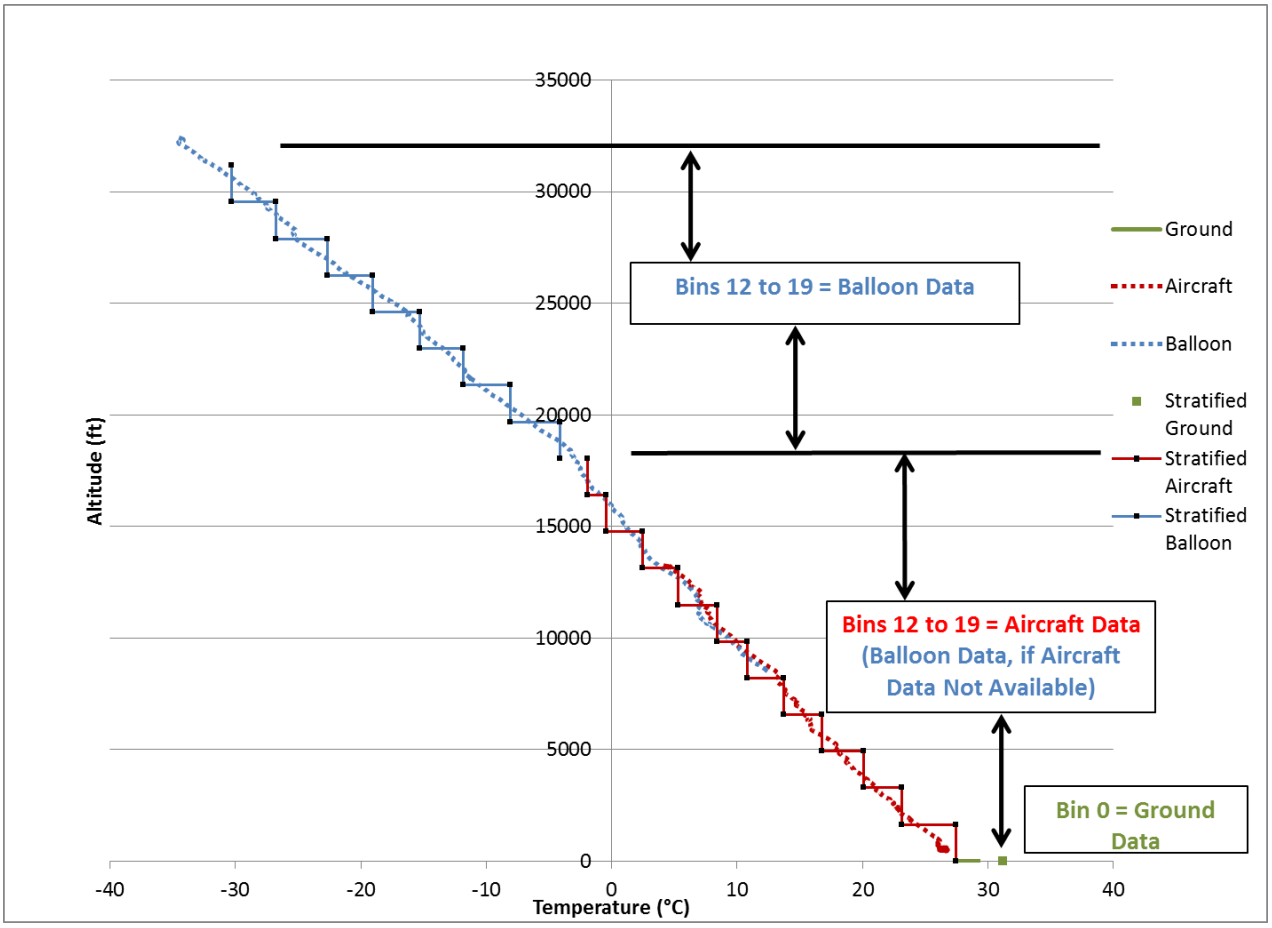

Figure 85. Meteorological Profile Development Binning Criteria

Plotted in black in Figure 86 through Figure 89 and Figure 94 through Figure 97 are examples of time based weather profiles built with stratified data for a P-3B, flying in event 102, and a King Air, flying in event 159 respectively. During event 102, the P-3B descends in a spiral maneuver to around 500 ft, where it then maintains level flight, as can be seen in Figure 86. Temperature averages over the course of the event correlate well with raw data, while humidity and wind speed averages show some variation from raw data due to variation within each altitude bin and variation over the course of a time block. In Figure 94 through Figure 97, the temperature, humidity, and wind speed averages remain constant throughout the course of an event because the King Air maintained level flight within altitude bin 19, thus only utilizing weather balloon data. Although this profile is accurate, it paints an incomplete picture of the atmospheric conditons during an event. For P-3B events, because the aircraft is often descending or climbing, time acts as a surrogate for altitude variations but the profile only covers the portion of the atmosphere in which the aircraft flies. Time based profiles provide the best available summary of weather conditions at the point of the acoustic source, but needed to be supplemented by vertical profiles, which depict the mean temperature, humidity, and wind speed at all altitude bins.

Vertical weather profiles were developed by selecting statistical means from all three meteorological data sources and applying the same hierarchy as time based profiles but reporting those means at all

altitudes and for a single time block, rather than at the changing altitude of the aircraft. A single vertical profile can typically be applied over the course of an entire event, as events take place within the same date and measurement site and rarely span time blocks. In the case that an event does span between time blocks A and B, 2 separate vertical profiles can be used to define an event. Figure 90 through Figure 93 and Figure 98 through Figure 101 depict veritcal temperature, humidity, and wind speed profiles for a P-3B event (Event 102) and a King Air event (Event 159). Vertical profile plots show the mean weather value at each altitude bin as a short vertical line with the standard deviation plotted at the center of each bin. Although it is difficult to observe at the scale of these plots, Bin 1 is plotted from 1,640 ft to 5 ft and bin 0 is plotted as a single point at an altitude of 0 ft but is representative of the ground layer from 0 ft to 5 ft As expected, temperature increases steadily as altitude decreases and has a low standard of deviation. Humidity and wind speed vary more sproadically over altitude and have larger standards of deviation which are reflective of the scatter observed in Figure 87 and Figure 88. In both events, however, a relationship between wind speed and humidity over altitude can be seen.

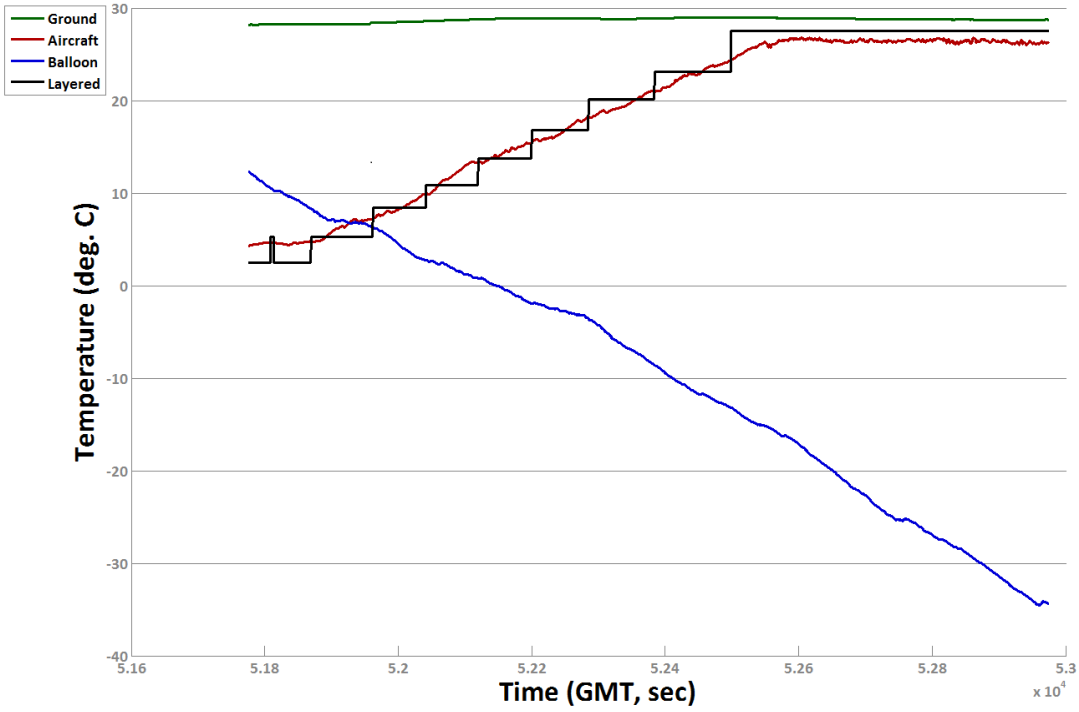

Figure 86. Temperature over Time for Layered, Time Based Profile and Ground, Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

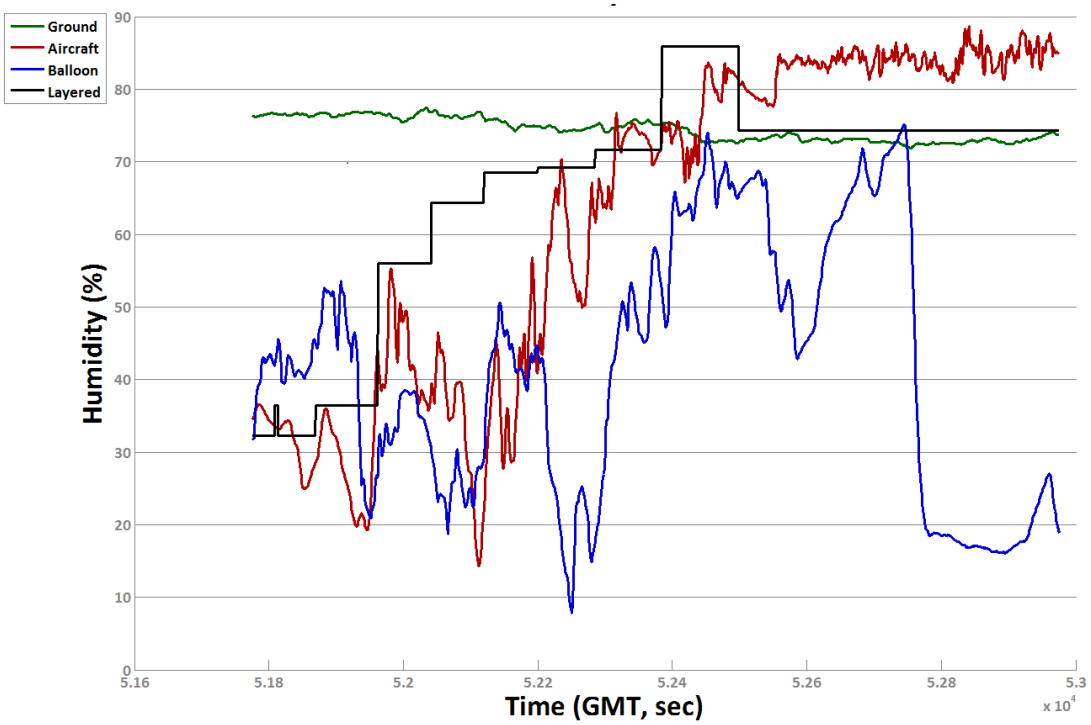

Figure 87. Relative Humidity over Time for Layered, Time Based Profile and Ground, Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

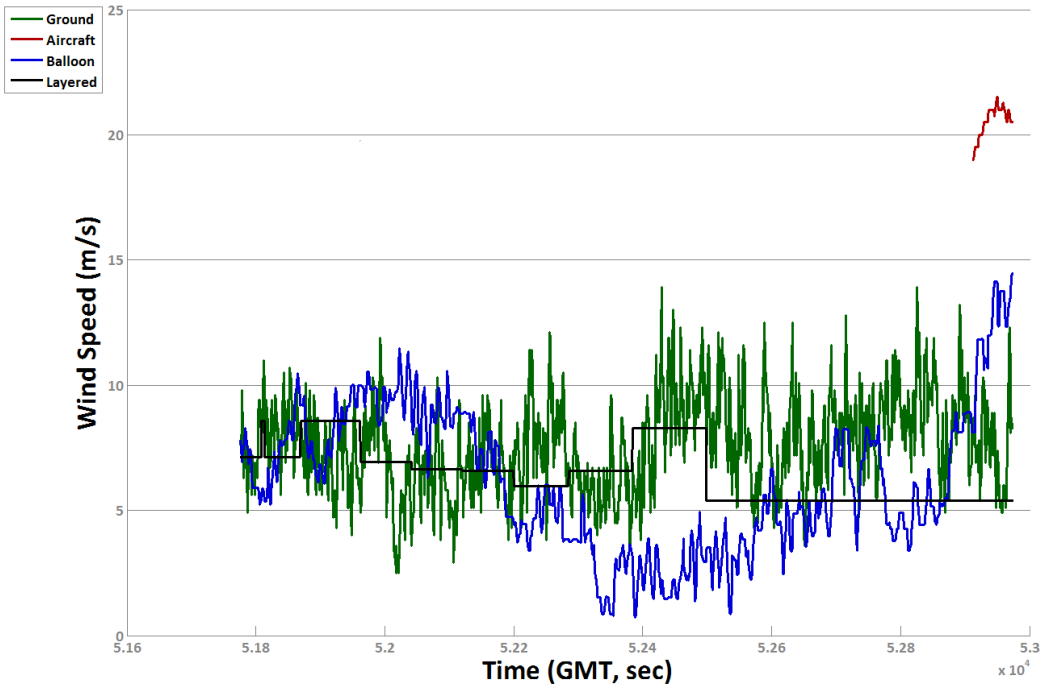

Figure 88. Wind Speed over Time for Layered, Time Based Profile and Ground, Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

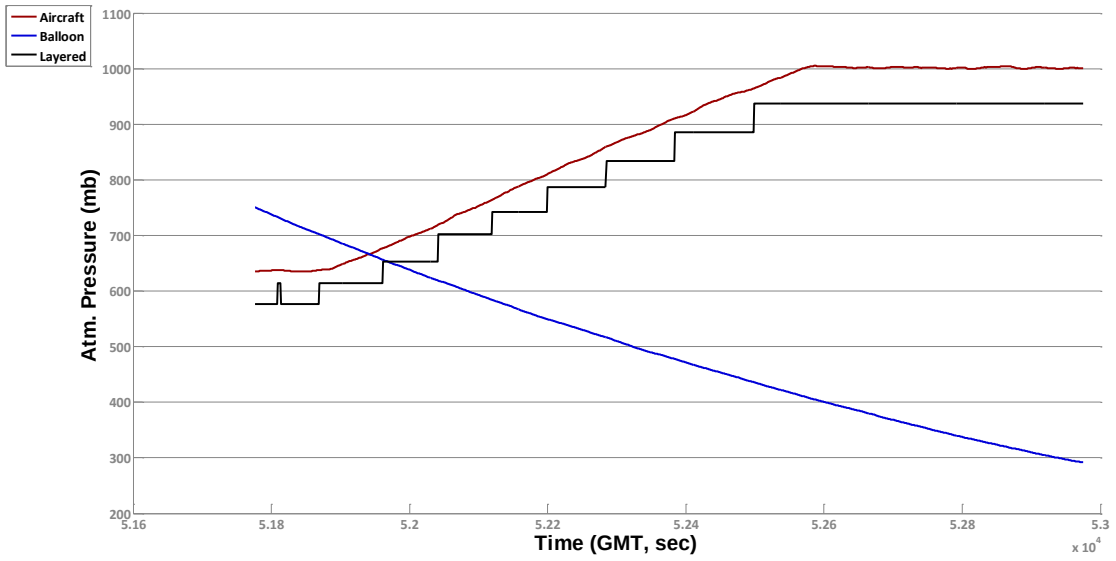

Figure 89. Atmospheric Pressure over Time for Layered, Time Based Profile and Aircraft (P-3B), and Weather Balloon Data for Event 102 at SP-1

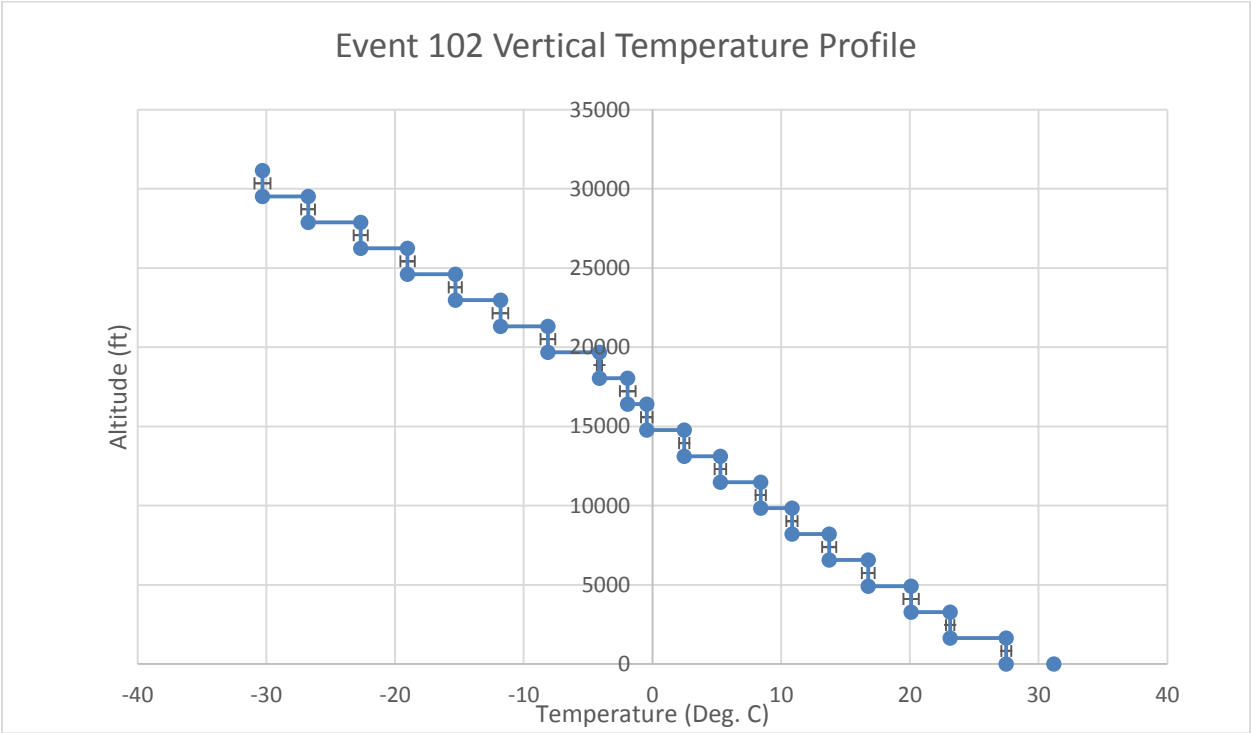

Figure 90. Temperature Vertical Profile for Event 102 at SP-1

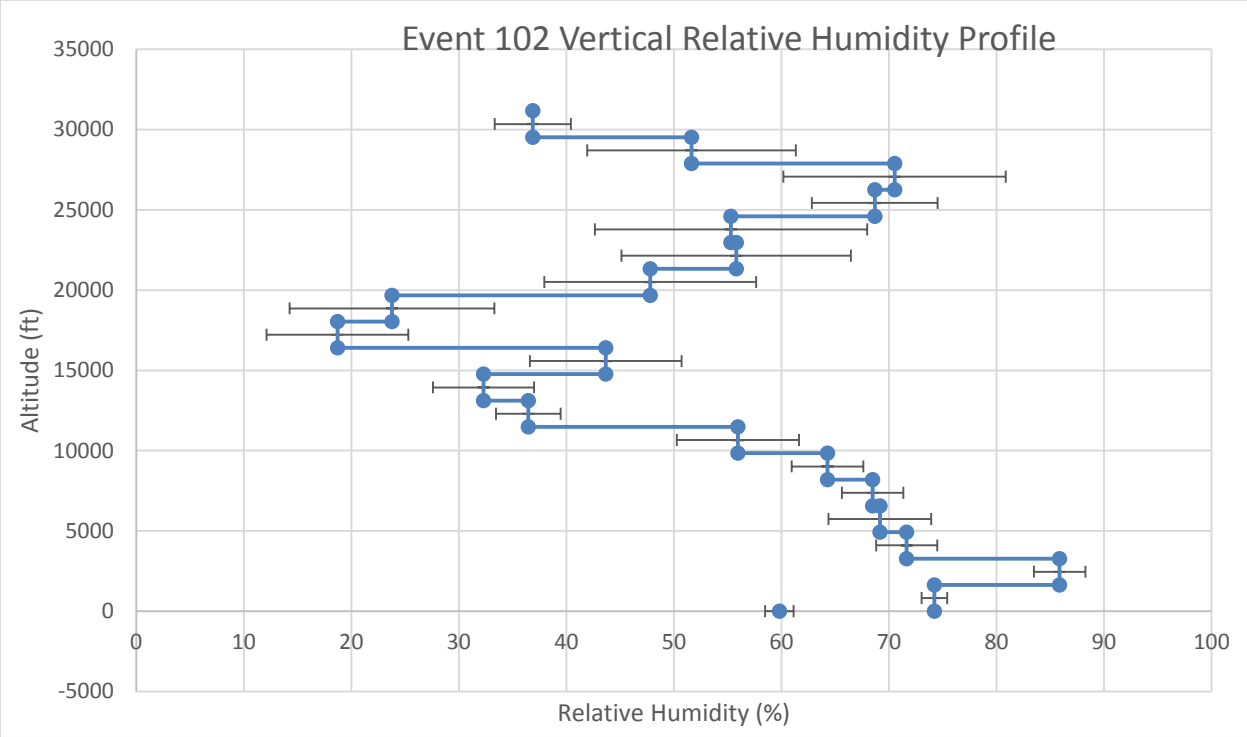

Figure 91. Relative Humidity Vertical Profile for Event 102 at SP-1

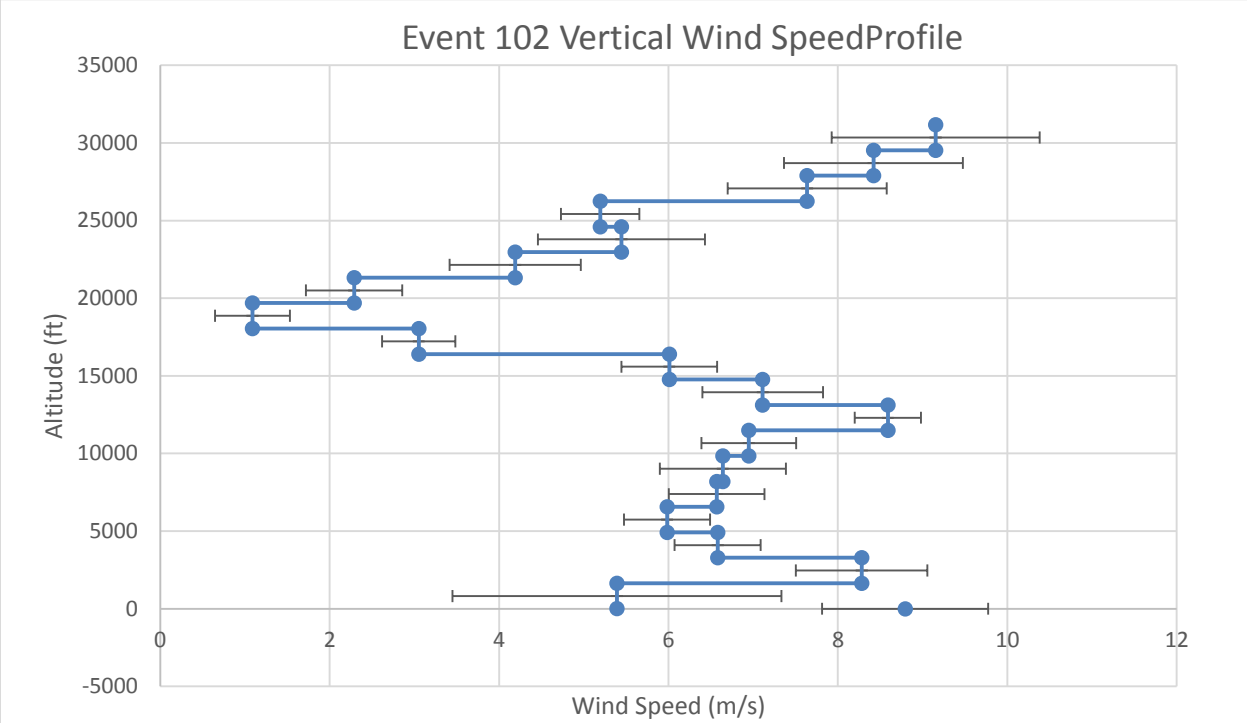

Figure 92. Wind Speed Vertical Profile for Event 102 at SP-1

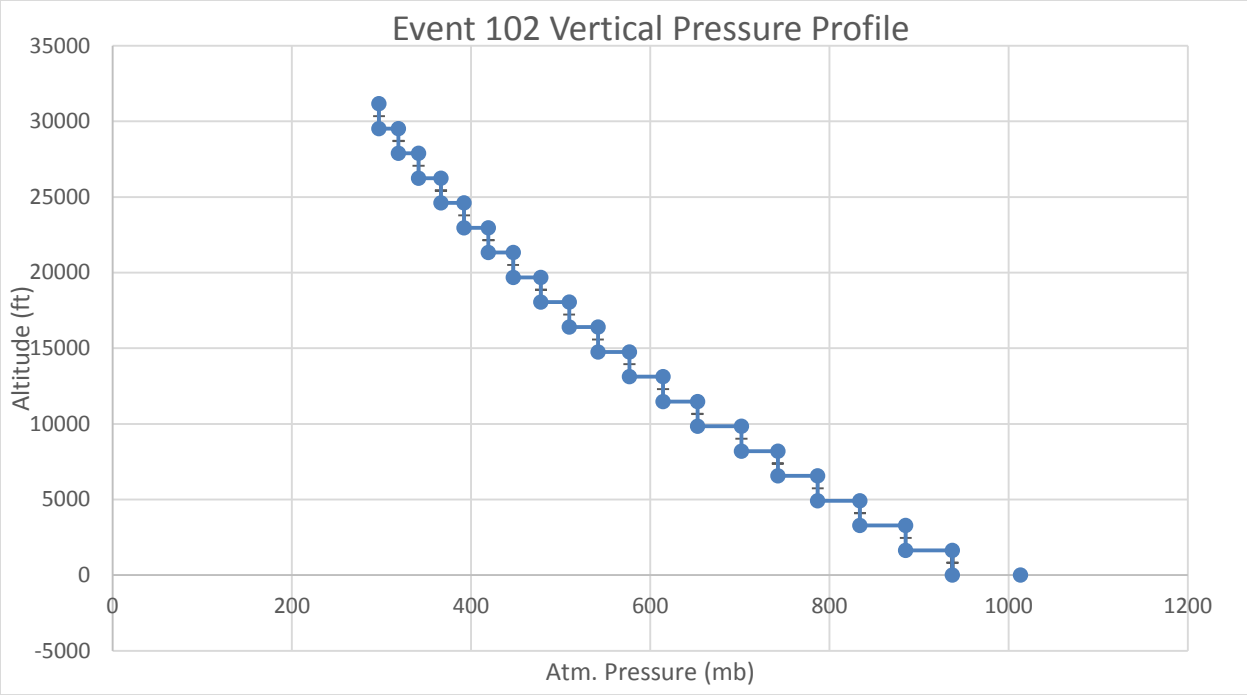

Figure 93. Atmospheric Pressure Vertical Profile for Event 102 at SP-1

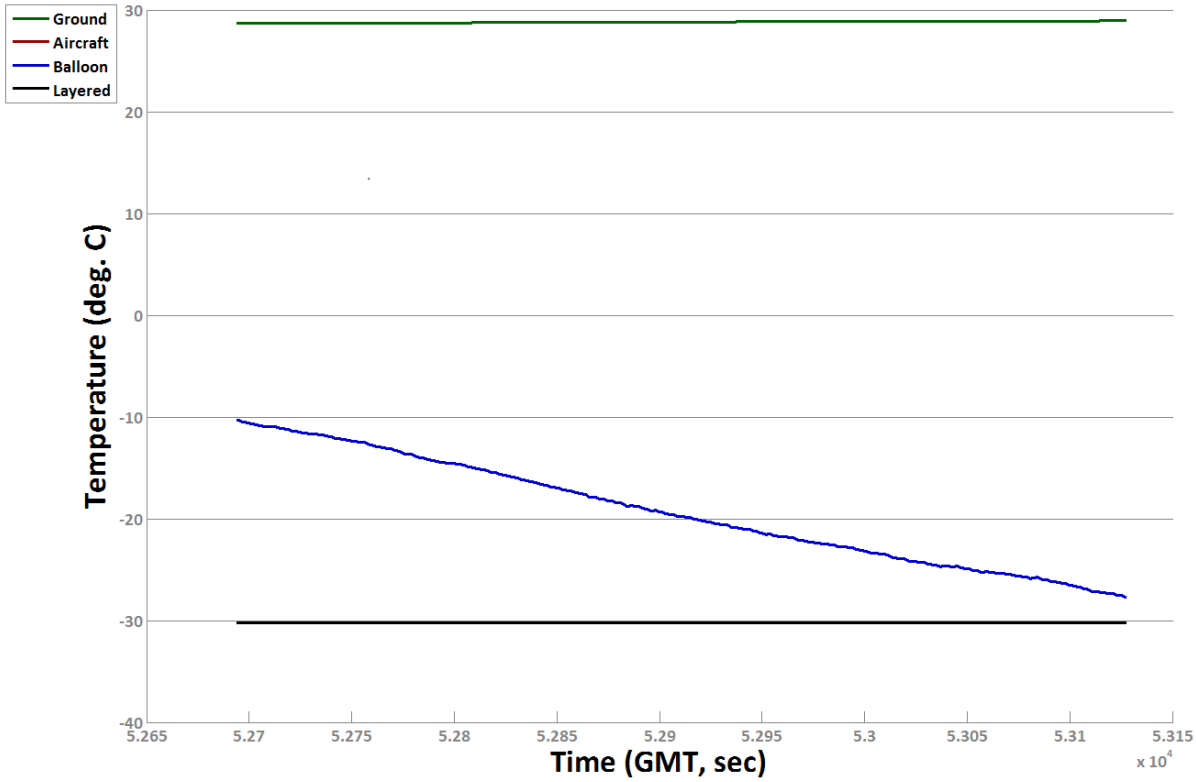

Figure 94. Temperature over Time for Layered, Time Based Profile and Ground, Aircraft (P-3B), and Weather Balloon Data for Event 159 at Site 7

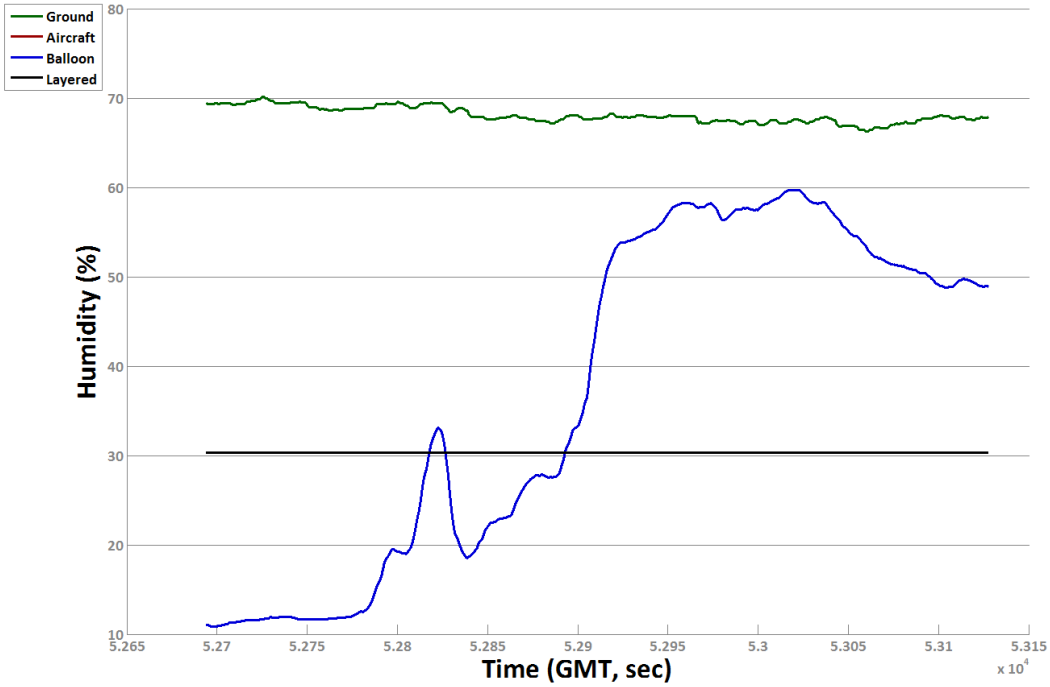

Figure 95. Relative Humidity over Time for Layered, Time Based Profile and Ground, Aircraft (P-3B), and Weather Balloon Data for Event 159 at SP-1

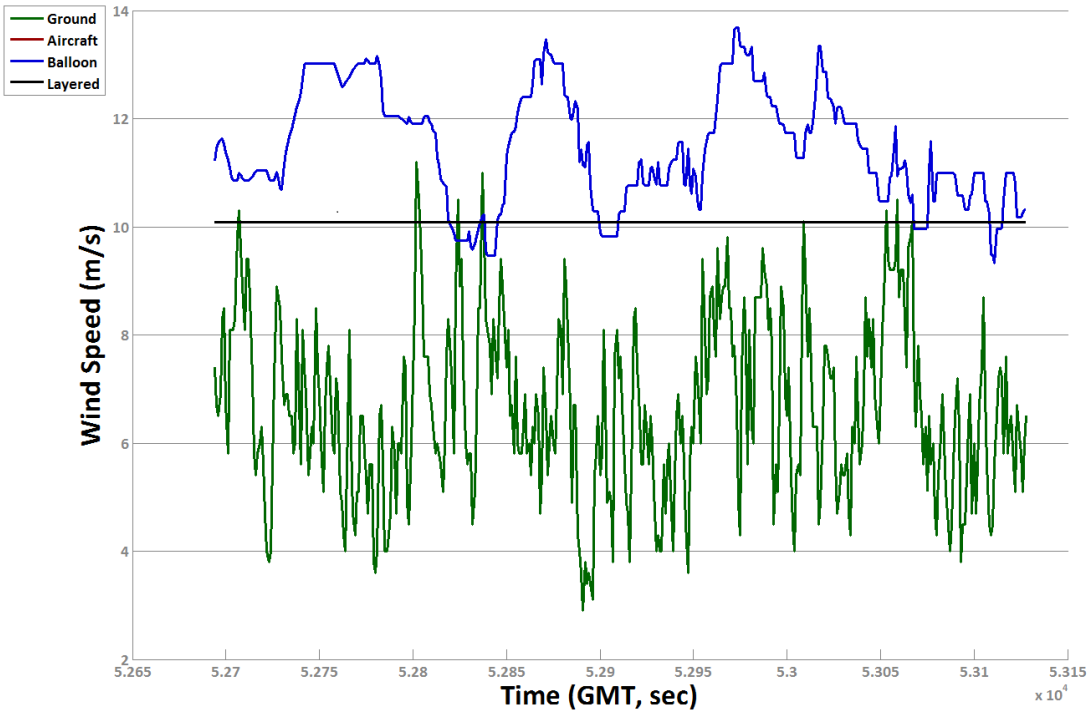

Figure 96. Wind Speed over Time for Layered, Time Based Profile and Ground, Aircraft (P-3B), and Weather Balloon Data for Event 159 at SP-1

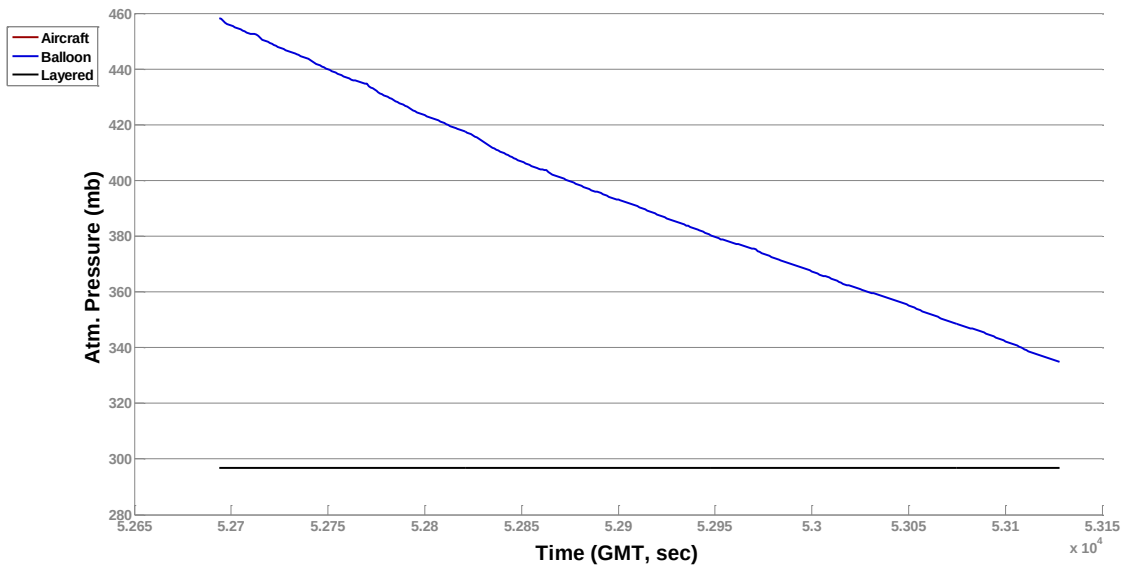

Figure 97. Atmospheric Pressure over Time for Layered, Time Based Profile for Aircraft (P-3B) and Weather Balloon Data for Event 159 at SP-1

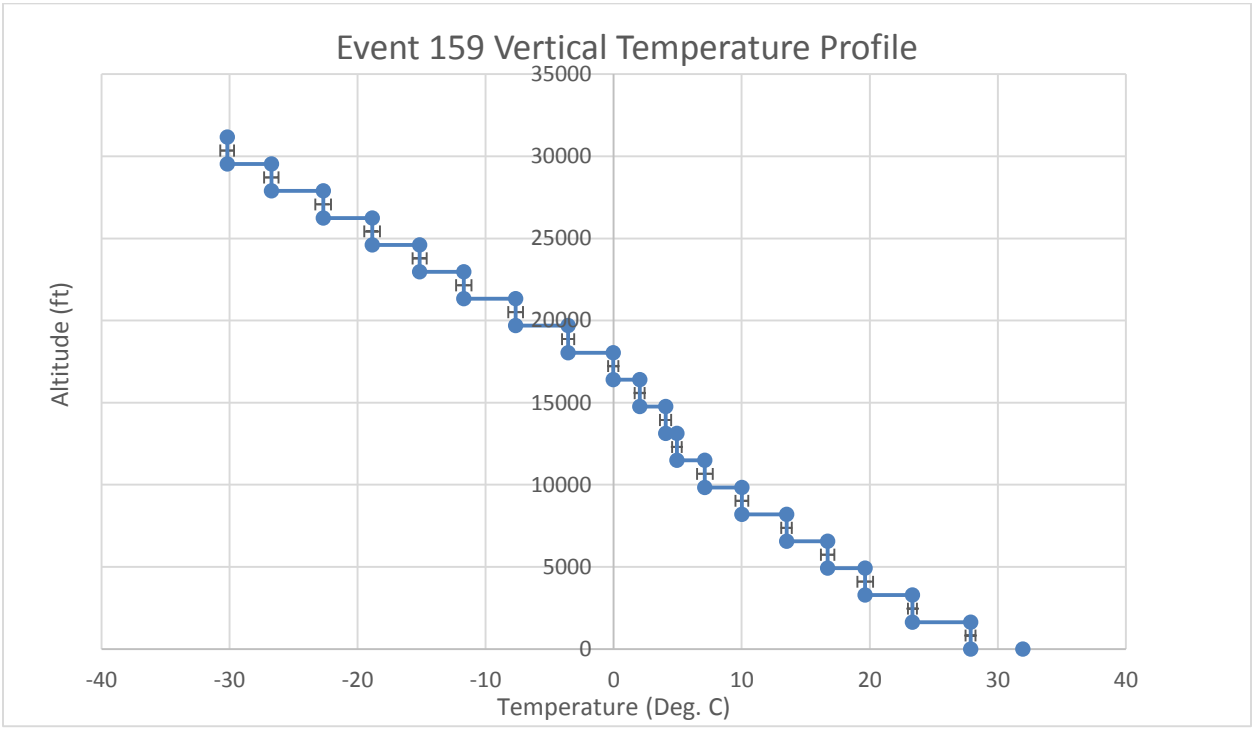

Figure 98. Temperature Vertical Profile for Event 159 at SP-1

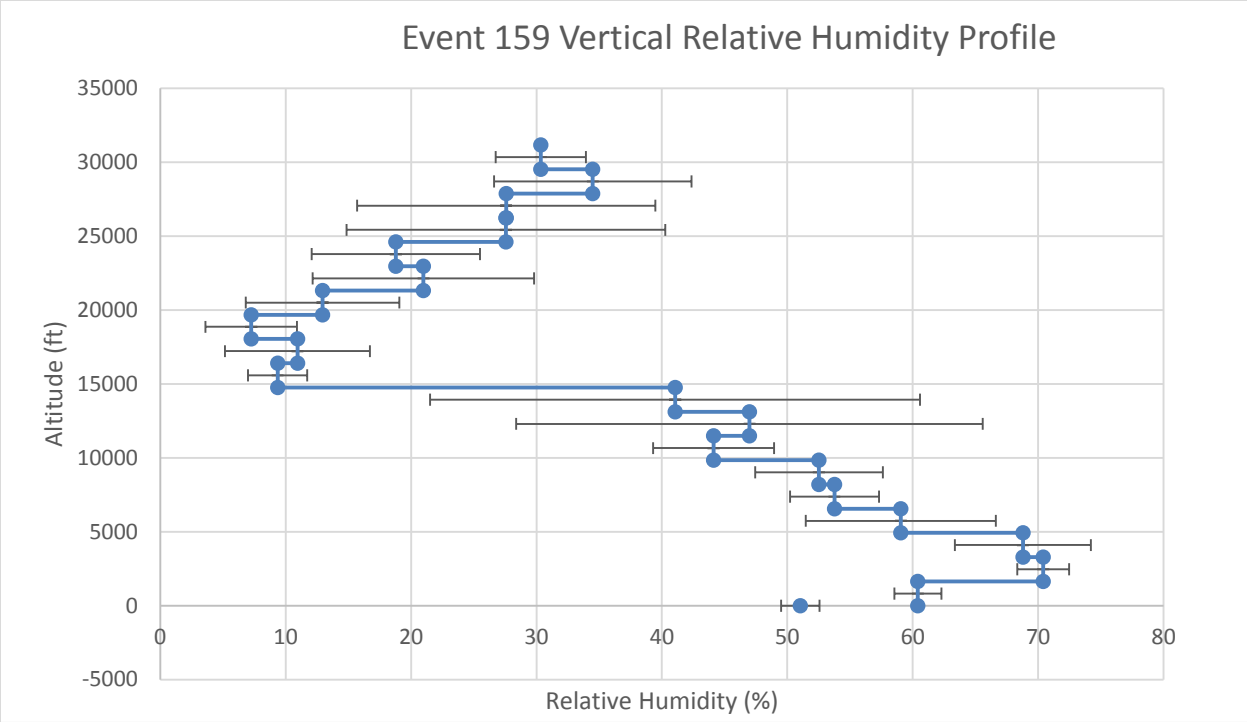

Figure 99. Relative Humidity Vertical Profile for Event 159 at SP-1

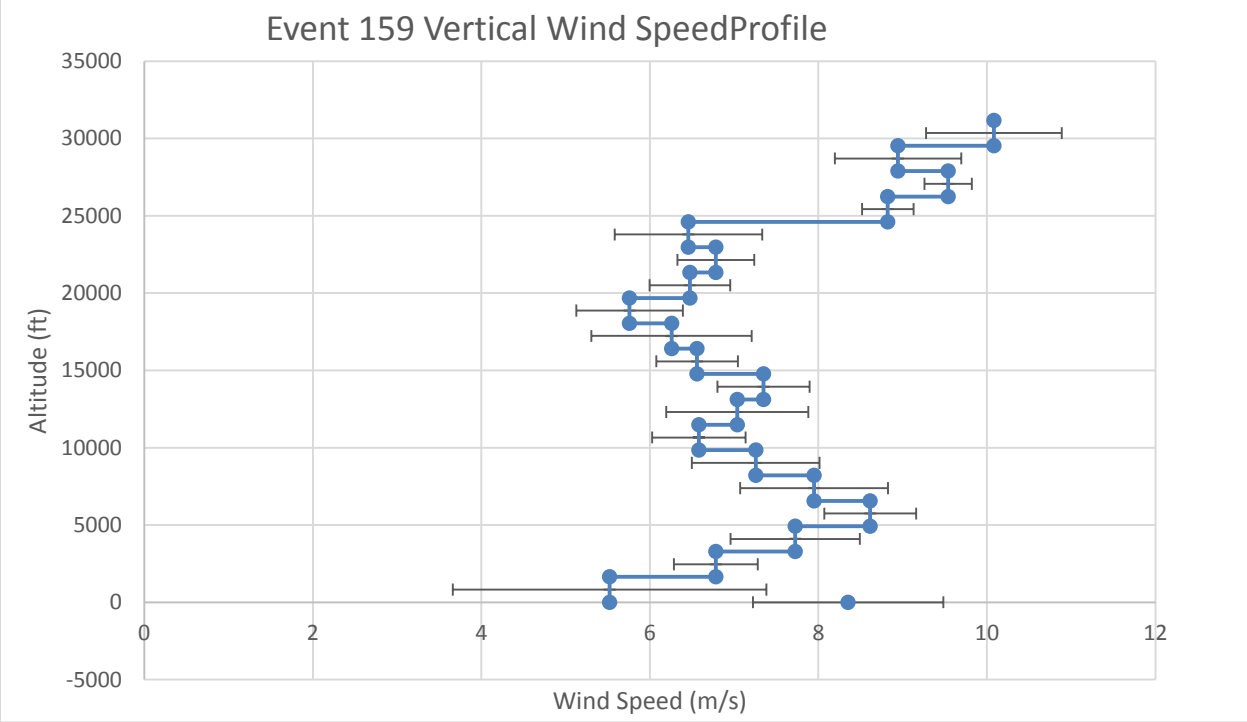

Figure 100. Wind Speed Vertical Profile for Event 159 at SP-1

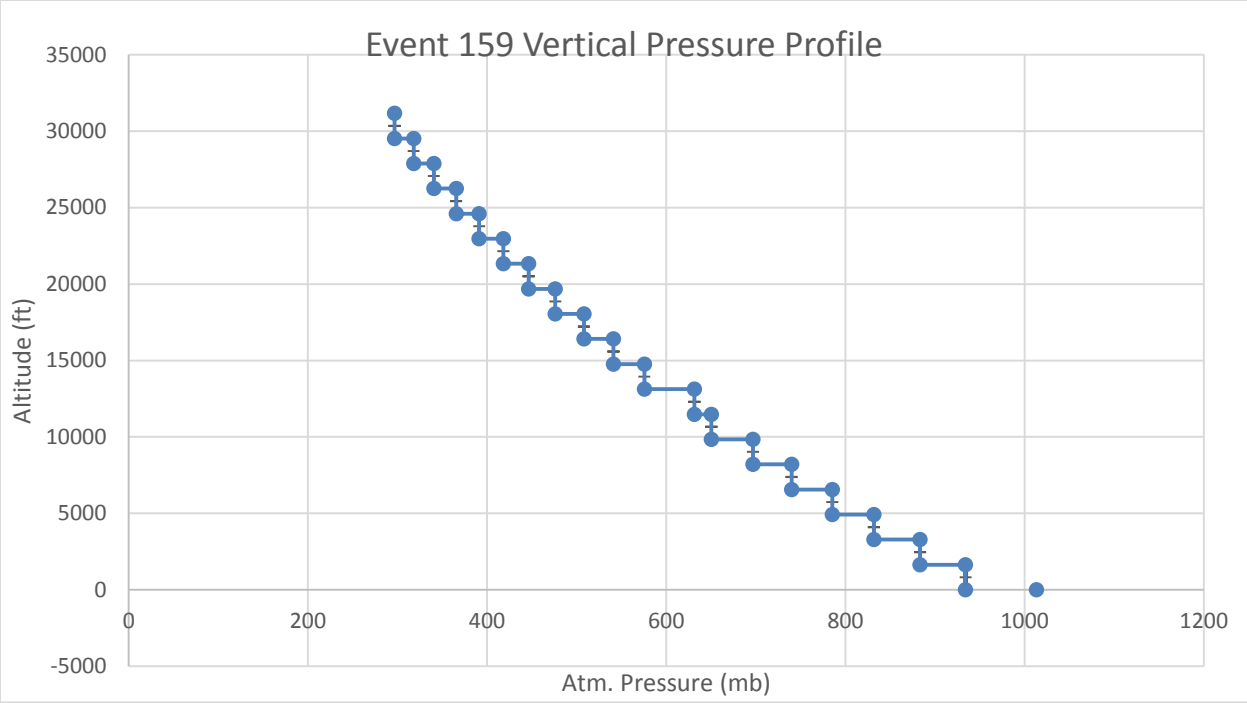

Figure 101. Atmospheric Pressure Vertical Profile for Event 159 at SP-1

6.6.3 Aircraft Performance Data Processing

As discussed in Section 6.3.3, the instrumentation onboard the two test aircraft did not record aircraft performance data. The aircraft measurement systems recorded aircraft position and speed data*, but all other aircraft performance data were manually logged by the pilots. The pilot logs are available in Appendix B.4

For the most part, the operational conditions for each aircraft remained consistent for each flight day, as well as across multiple flight days. However, a difference was noticed in the P-3B power settings at low altitudes (between 500 and 1300 ft MSL) and those at high altitudes (between 9500 and 15500 ft MSL). The P-3B events at a higher altitude constantly used a higher power setting than those at lower altitudes. However, there was not a significant difference between the power settings of the aircraft preparing to enter or leave a spiral at a given altitude, or at different times of day. Although P-3B performance data were not collected during each of the spirals, the targeted performance settings during climb in a spiral were airspeed of 2000 KIAS, 1000 RPM and a turbine inlet temperature of 950 °C.

Because the operational conditions of both aircraft were relatively consistent for the duration of the flight tests, and because aircraft operational data were only collected at a few, select points during each flight day, average performance data for each aircraft were computed. These data will become

* Aircraft speed data were only automatically collected for the P-3B. The speed of the King Air can be manually calculated from the aircraft position information.

especially useful, when modeling aircraft events where no event specific aircraft performance data were collected. The average aircraft performance data for the P-3B (representing 52 measurements over 6 days) are presented in Table 26 along with the average values separated out for low and high altitude. The average aircraft performance data for the B-200 King Air (representing 32 measurements over 4 days) are presented in Table 27.

Table 26. Average P-3B Performance Data

		Altitude (ft)	Airspeed (KIAS)	Power Setting (SHP)
Overall	Average	6731.7	201.7	1648.7
	Standard Deviation	6097.7	9.2	394.0
Low Altitude	Average	821.2	199.6	1429.2
	Standard Deviation	272.4	9.9	312.3
High Altitude	Average	12642.3	203.9	1868.1
	Standard Deviation	1764.4	8.0	344.9

Table 27. Average B-200 King Air Performance Data

	Approximate Altitude (ft)	Intermediate Turbine Temperature (C)	Torque (SHP)	Rotations per Minute (RPM)	Percent of Outer Core Rotational Speed (%N1)
Average	26600	690.3	1260	1703	93.73
Standard Deviation	2581.10	23.27	64.86	6.51	1.41

6.7 Validation Data Set

95 good acoustic events were measured during the Houston DISCOVER-AQ flight test. Two exemplary events were selected from each category in Table 21 (P-3B level flight, P-3B spiral and B-200 King Air level flight) and are discussed in detail in Sections 6.6.1 through 6.6.3. The following data are presented for each event:

- L_{AS} versus time;
- Aircraft position relative to the acoustic measurement site versus time (time shifted as described in Section 6.6.1.3);
- Un-weighted SPL for the one-third octave-band including the blade pass frequency of the aircraft versus time;
- Un-weighted, one-third octave-band data at the time of L_{ASmx};

- Aircraft and weather balloon position versus time;
- Temperature profile;
- Humidity profile;
- Wind speed profile; and
- Barometric pressure profile.

The un-weighted, one-third octave-band data at the time of L_{ASmx} for these six exemplary events are presented in Table 28 and Table 29. Detailed data for these example events are presented in Appendix B.

Data for additional events are available through FAA AEE upon request.

Table 28. SPL for One-Third Octave Band Spectrum at time of Acoustic Peaks in Categorized Events: 6.3 to 500 Hz

		Frequency (Hz)	6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
Event	Peak	Category	SPL (dB)																			
116	1	1	62.1	57.9	54.1	55.5	65.1	63.6	55.0	58.3	58.7	60.7	90.2	82.3	57.6	59.4	61.7	66.3	67.1	63.0	58.2	64.6
183	1	1	59.7	57.9	51.5	49.3	65.2	61.0	52.0	58.8	55.9	58.9	92.5	80.7	55.5	62.8	59.0	54.7	60.1	63.7	62.8	56.0
35	1	3	69.8	68.0	61.6	60.6	56.4	57.0	51.1	53.7	59.0	54.4	54.8	78.9	60.7	45.9	72.6	61.1	67.4	63.1	54.8	59.7
35	2	3	58.4	54.1	49.2	50.0	48.9	47.5	47.3	49.5	50.8	48.0	50.7	66.3	48.6	52.1	69.6	57.9	62.1	57.5	55.6	52.1
159	1	3	65.2	61.9	61.6	59.1	58.9	52.9	52.3	58.4	51.2	57.9	81.0	62.2	56.5	61.7	59.5	59.2	56.9	51.7	51.7	57.3
33	1	2	39.3	35.5	38.3	36.7	36.3	42.2	41.8	39.2	41.3	38.8	42.9	63.3	32.5	41.8	59.7	43.9	47.5	39.8	39.3	32.9
33	2	2	49.5	42.9	40.4	39.7	37.1	43.4	38.2	38.4	44.2	39.8	40.7	66.3	34.0	39.6	53.5	44.7	46.0	34.8	37.0	33.5
33	3	2	37.3	38.4	39.4	41.0	38.8	43.3	39.4	40.9	45.0	41.5	44.7	69.4	38.7	36.3	53.3	45.8	48.0	42.1	36.1	39.2
33	4	2	54.4	48.5	46.2	44.8	48.8	42.9	41.2	46.5	41.9	49.5	66.2	44.0	42.9	44.8	34.6	47.9	46.1	45.9	42.6	34.0
33	5	2	64.5	59.3	50.6	48.7	49.6	40.7	40.5	43.7	39.8	47.0	74.8	53.5	38.3	47.3	31.7	27.8	26.5	25.8	26.4	26.4
102	1	2	67.8	67.0	66.1	66.9	60.6	58.3	56.5	52.3	49.0	49.5	48.0	57.9	55.0	49.5	71.3	61.8	46.2	52.7	45.9	42.0
102	2	2	65.2	60.2	63.1	61.6	53.9	52.4	51.4	47.0	46.3	47.2	47.2	57.0	54.9	44.3	65.2	61.2	46.4	44.9	45.3	40.2
102	3	2	67.9	65.8	67.5	62.0	58.8	62.0	59.3	57.6	54.5	53.7	48.8	64.2	46.6	50.5	71.0	55.0	53.7	50.2	48.8	45.3
102	4	2	72.7	71.3	79.0	74.2	72.5	68.4	68.2	64.8	62.3	57.8	58.6	80.0	54.5	50.3	55.0	61.5	62.2	60.0	53.0	55.1
102	5	2	73.7	71.2	72.2	69.3	64.9	66.0	60.2	60.2	55.4	58.5	74.6	67.7	57.3	62.5	59.3	58.5	58.3	57.7	56.4	55.6

Table 29. SPL for One-Third Octave Band Spectrum at time of Acoustic Peaks in Categorized Events: 630 to 20,000 Hz

	Frequency (Hz)	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAeq	LAS	LZS
Event	Peak	Category	SPL (dB)																	
116	1	1	60.7	64.2	68.9	66.2	64.6	61.2	56.2	52.3	48.3	43.7	38.5	37.1	38.0	38.9	39.9	41.5	75.2	74.3	89.1
183	1	1	60.2	59.6	64.6	62.9	61.8	58.1	52.1	48.1	42.4	37.0	35.2	36.1	38.6	38.1	39.1	40.7	72.4	71.8	91.2
35	1	3	55.9	56.7	54.7	55.1	53.6	50.0	45.4	40.8	36.4	34.8	35.2	36.2	37.3	38.3	39.3	41.0	67.9	66.9	81.0
35	2	3	49.4	48.8	48.0	46.4	45.4	40.9	36.0	33.6	33.4	34.4	35.6	36.9	37.8	38.9	40.1	41.6	60.7	61.1	80.1
159	1	3	60.3	61.3	60.0	62.7	56.6	54.0	48.7	44.8	39.6	35.8	35.7	36.8	37.8	38.8	39.9	41.5	68.5	68.2	81.8
33	1	2	33.8	30.2	28.7	28.4	29.6	29.9	31.0	32.1	33.2	34.3	35.1	36.7	38.9	38.8	39.8	41.6	47.4	48.0	64.3
33	2	2	32.3	29.8	28.7	29.0	29.2	30.0	30.9	32.0	33.3	34.1	35.4	36.8	38.8	38.9	39.9	41.6	47.8	46.9	68.3
33	3	2	33.4	33.0	29.9	29.6	29.7	30.0	30.9	32.3	33.1	34.1	35.4	36.8	39.3	38.9	40.0	41.7	51.2	50.0	71.2
33	4	2	36.5	35.6	35.7	33.1	30.4	30.1	31.0	32.3	33.3	34.3	35.3	36.6	39.0	38.8	39.9	41.6	45.8	46.8	68.9
33	5	2	27.1	27.0	28.4	28.7	29.3	30.0	31.2	32.1	33.2	34.1	35.4	36.6	39.6	39.1	39.8	41.5	51.5	50.8	76.5
102	1	2	39.7	33.4	30.0	29.1	30.0	36.9	32.2	31.8	32.6	33.8	35.1	36.2	37.2	38.2	39.2	41.0	60.8	60.1	84.5
102	2	2	38.7	35.6	32.3	30.1	29.3	29.8	30.7	32.1	32.7	34.0	35.4	36.3	37.0	38.3	39.3	40.9	57.2	55.3	73.0
102	3	2	42.7	41.7	40.0	38.8	37.5	33.3	31.8	32.2	32.9	33.8	35.1	36.2	37.3	38.2	39.4	41.0	60.8	59.3	89.2
102	4	2	53.9	51.5	50.3	51.2	49.0	43.1	39.8	35.7	34.1	34.0	35.1	36.2	37.2	38.2	39.3	40.9	62.4	62.7	88.1
102	5	2	55.5	56.7	61.7	60.9	58.9	55.6	50.1	46.0	41.1	36.1	35.1	36.2	37.1	38.2	39.3	41.0	68.2	67.7	83.0

6.7.1 Acoustic Data Analysis: P-3B Level Flight

Events 116 and 183 are exhibits of category 1 events, a P-3B Level Flyover, occurring at NP-1 and NP-2, respectively, before the P-3B enters a climbing spiral maneuver. Although the measurement system also captured the aircraft spiraling, the spiral maneuver passes beyond 15 km from the measurement site and is not of interest in this event. In event 116, the L_{AS} rises from approximately 45 dB to a peak of 74.3 dB and then returns to 45 dB over the course of 45 seconds, as shown in Figure 102 and Figure 103. The sound levels begins to climb as the aircraft approaches site 3 from a distance of 1.53 km, maintaining an altitude between 1,115 ft and 1,159 ft as it passes the measurement site. The L_{AS} returns to 45 dB when the aircraft reaches a distance of 3.52 km from the site.

Similarly, in event 183 the L_{AS} rises from approximately 43 dB to a peak of 71.8 dB and then returns to 43 dB over the course of 43 seconds, as shown in Figure 104 and Figure 105. The SPL begins to rise as the aircraft approaches site 2 from a distance of 1.38 km, maintaining an altitude between 1,214 ft and 1,244 ft, until the SPL returns to 43 dB with the aircraft at a distance of 3.6 km. Figure 102 and Figure 104 show the altitude and the distance relative to each measurement site of the P-3B during both events.

Table 30. Data Corresponding to Acoustic Peaks in Category 1 Events 116 and 183

	GPS Midpoint Time (s)	Maximum L_{AS} (dB)	Distance from Site (km)	Altitude (ft)
Event 116	55881	74.3	0.85	1150
Event 183	65779	71.8	0.77	1243

Weather conditions during events 116 and 183, derived from stratified meteorological data, are depicted from Figure 106 through Figure 113. Under similar meteorological conditions, events 116 and 183 correlate well in the magnitude of their acoustic peaks in comparison to the position of the P-3B as it passes both measurement sites.

The P-3B performance data for events 116 and 183 are presented in Table 31. There was no pilot data log for event 116, so the average low altitude power settings were used. Pilot logged data were available for event 183.

Table 31. P-3B Performance Data for Category 1 Events 116 and 183

	Altitude (ft)	Airspeed (kts)	Power Setting (SHP)
Event 116 (Average Low Altitude Data)	821.2	199.6	1429.2
Event 183	1000	215	1650

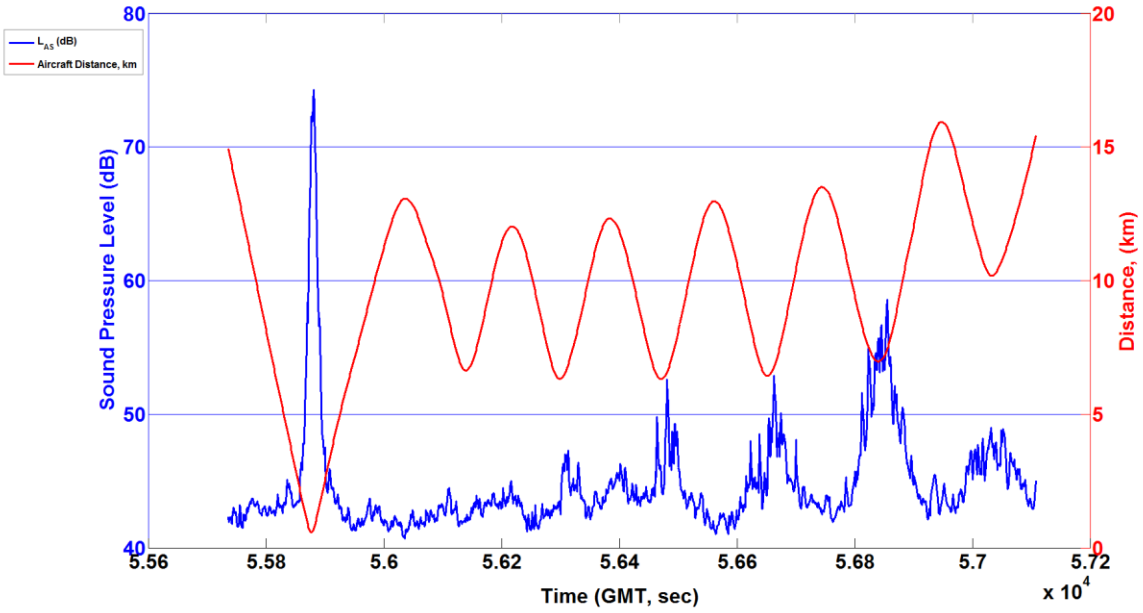

Figure 102. L_{AS} Sound Pressure Level during Event 116 with Aircraft Distance from NP-2

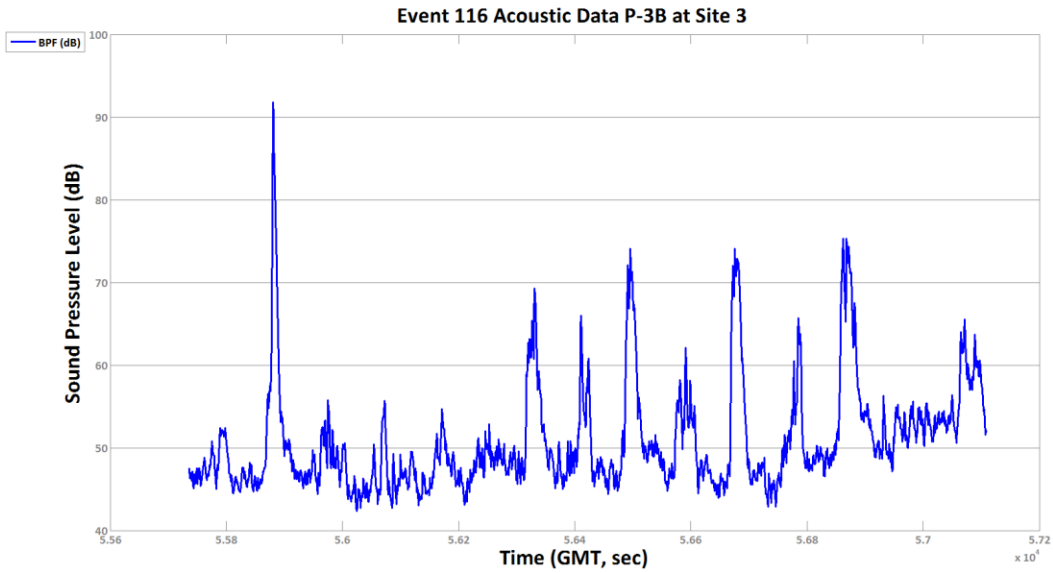

Figure 103. Sound Pressure Level at Blade Pass Frequency over Time for Event 116 at NP-2

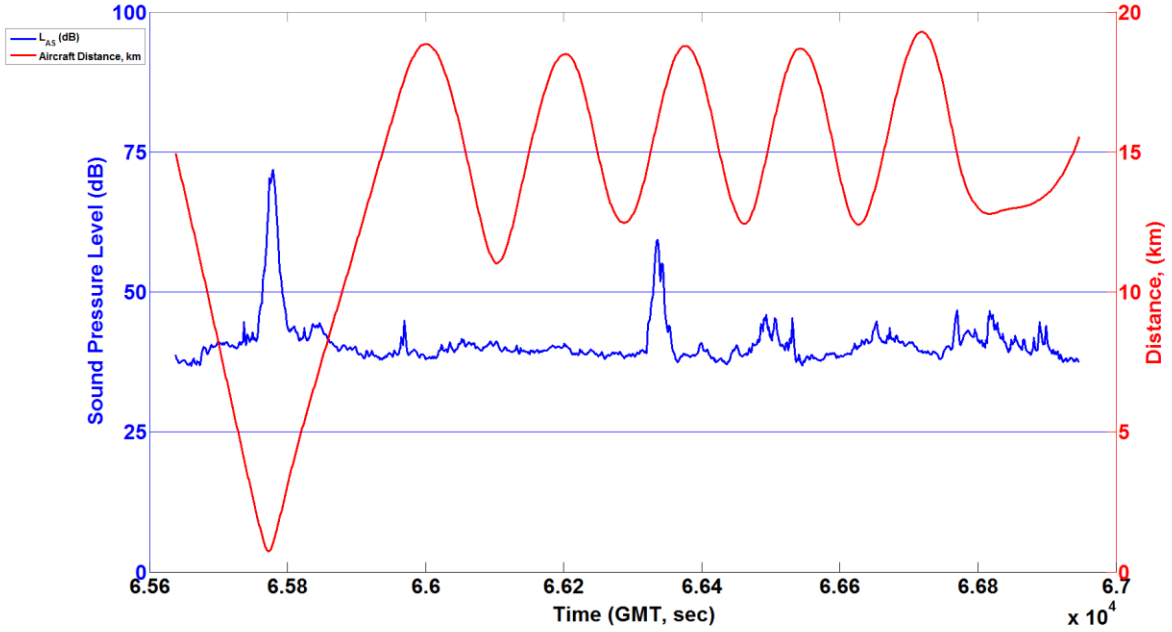

Figure 104. L_{AS} Sound Pressure Level during Event 183 with Aircraft Distance from NP-1

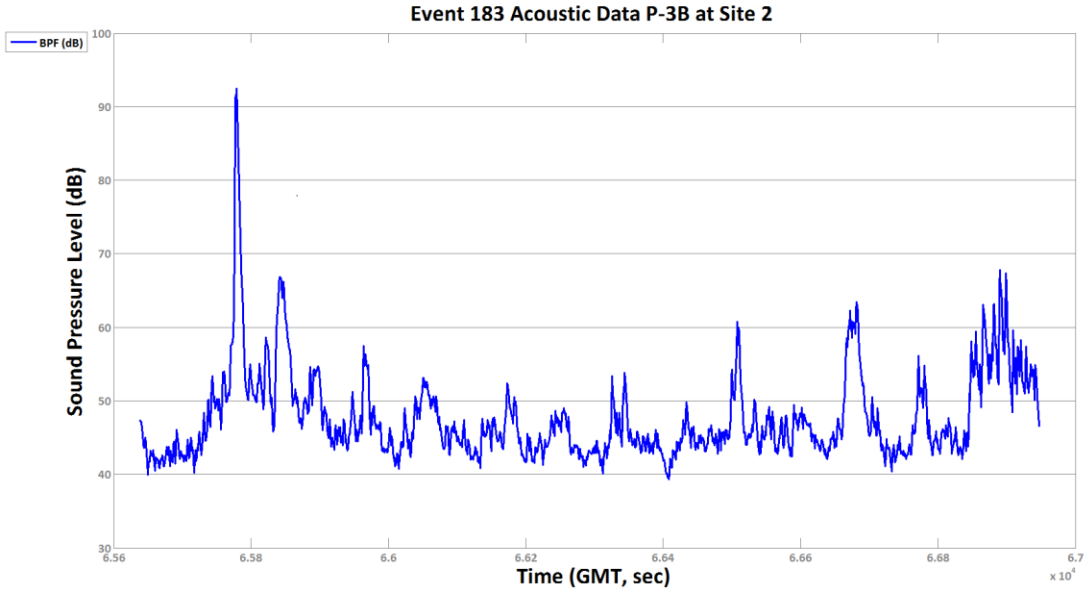

Figure 105. Sound Pressure Level at Blade Pass Frequency (BPF) over Time for Event 183 at NP-1

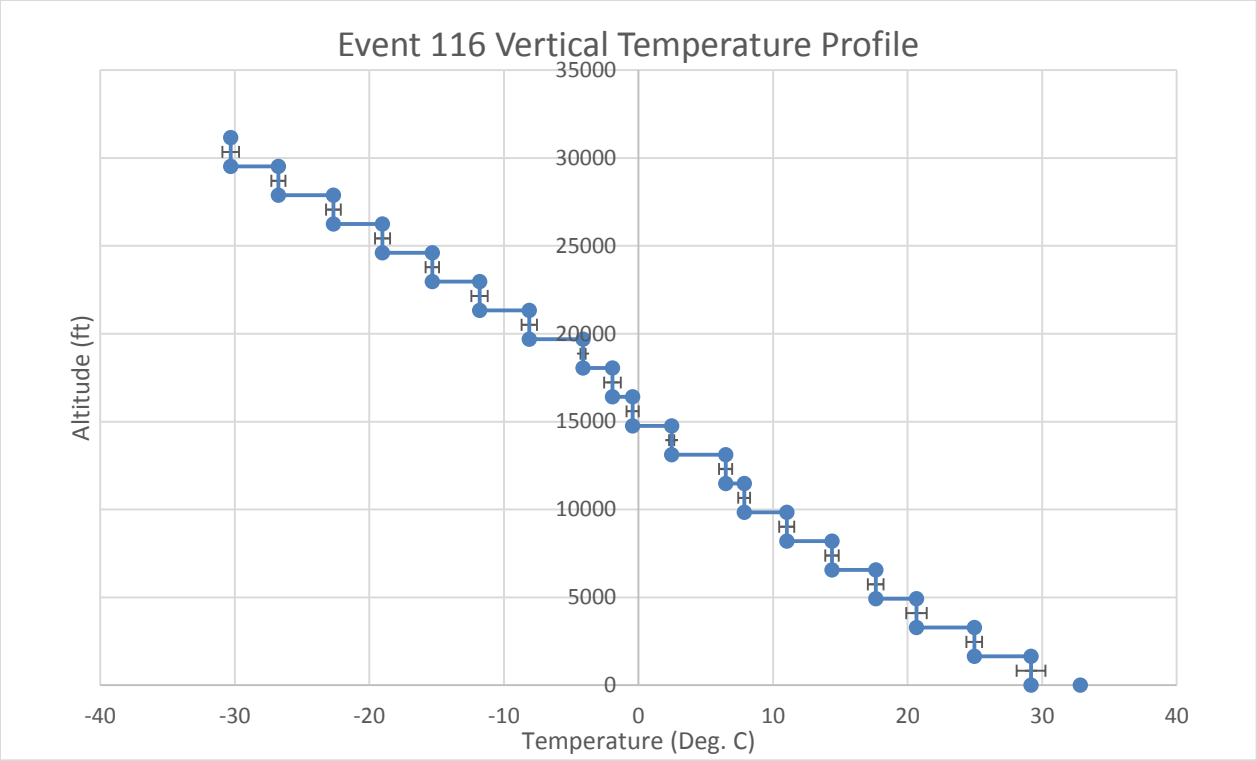

Figure 106. Temperature - Vertical Profile for Event 116 at NP-2

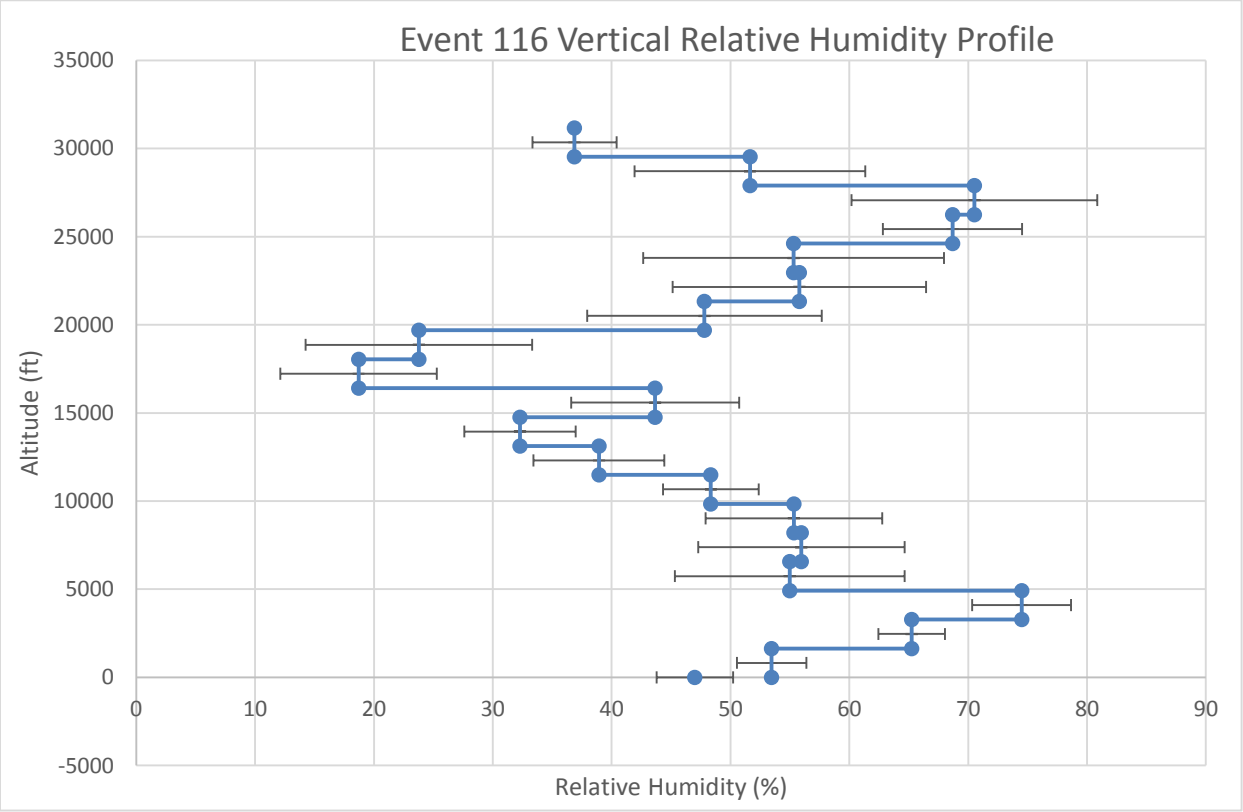

Figure 107. Relative Humidity - Vertical Profile for Event 116 at NP-2

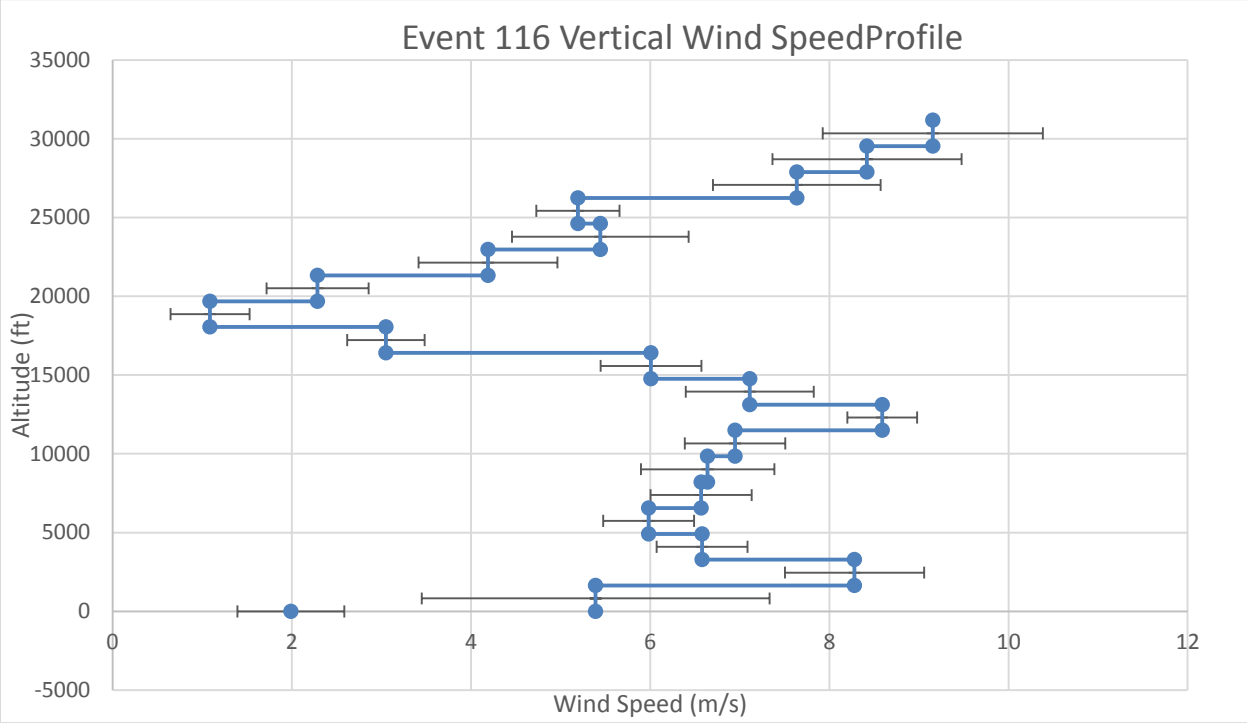

Figure 108. Wind Speed - Vertical Profile for Event 116 at NP-2

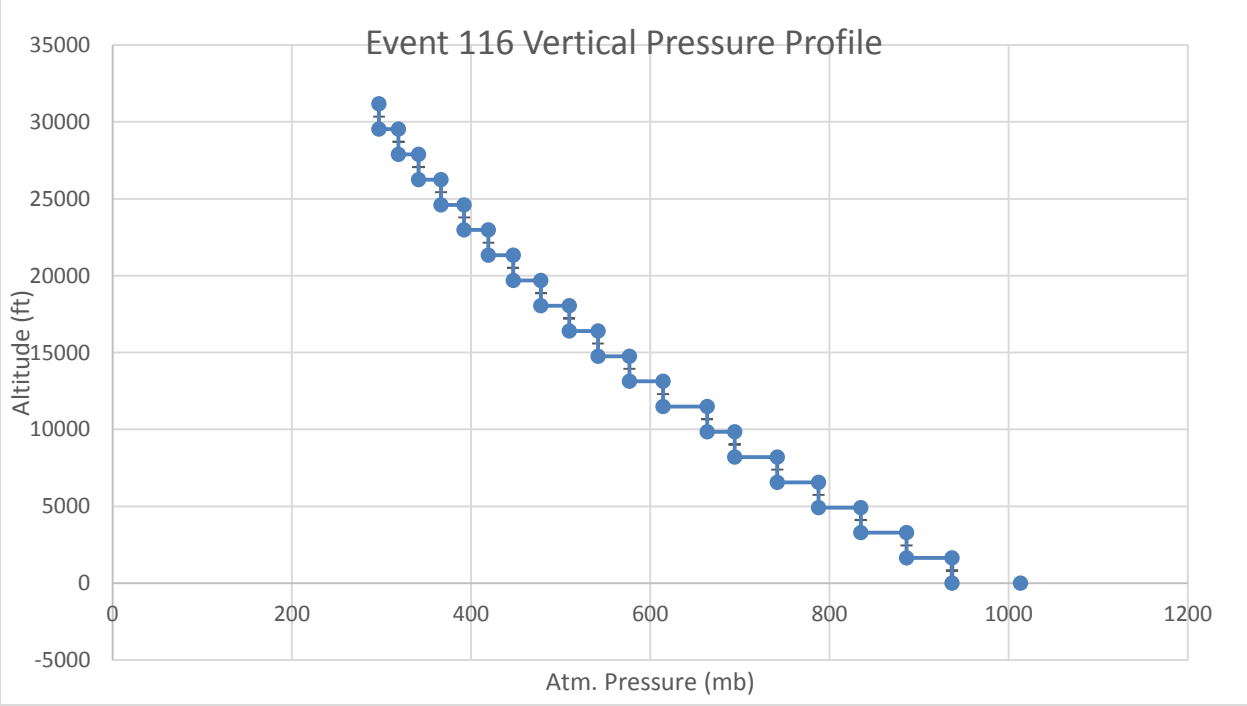

Figure 109. Atmospheric Pressure - Vertical Profile for Event 116 at NP-2

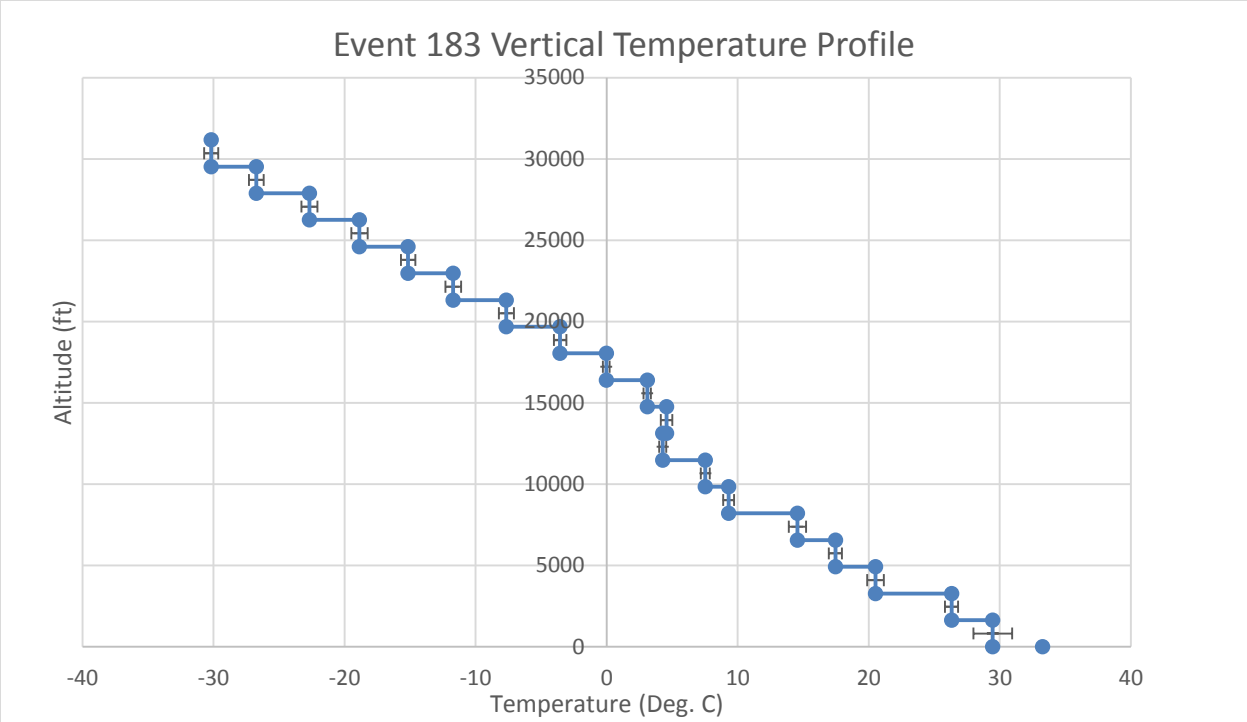

Figure 110. Temperature - Vertical Profile for Event 183 at NP-1

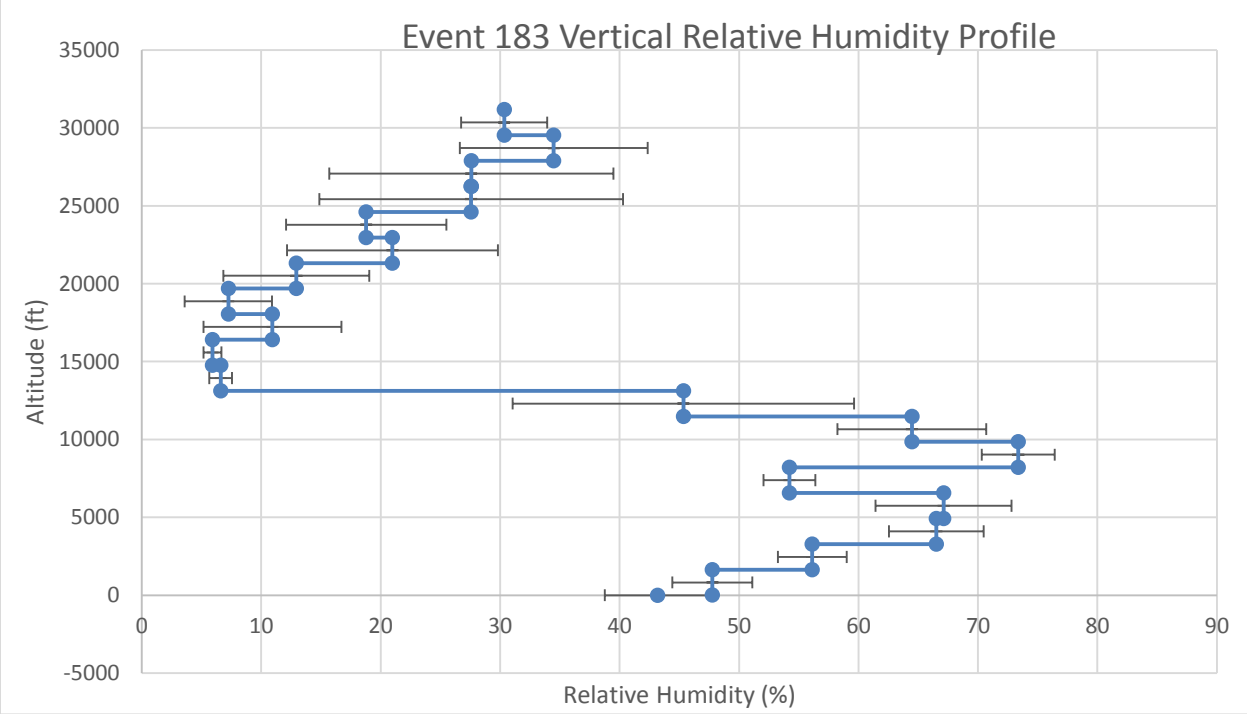

Figure 111. Relative Humidity - Vertical Profile for Event 183 at NP-1

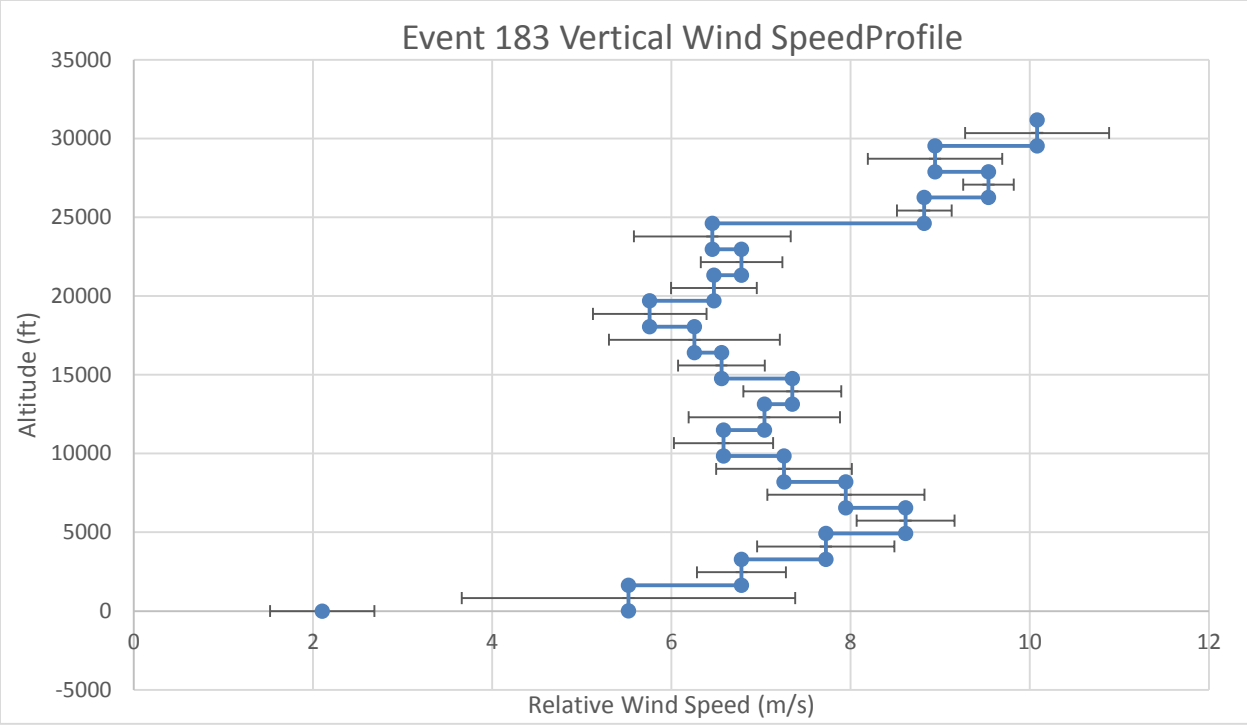

Figure 112. Wind Speed - Vertical Profile for Event 183 at NP-1

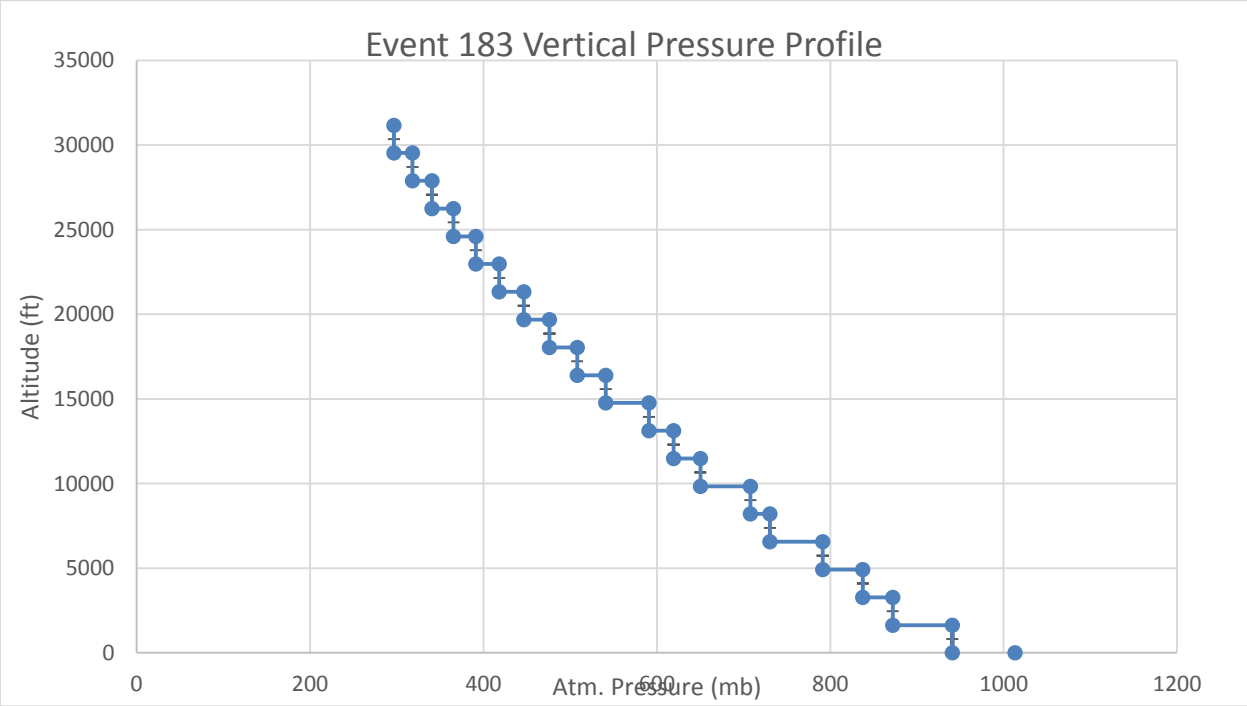

Figure 113. Atmospheric Pressure - Vertical Profile for Event 183 at NP-1

6.7.2 Acoustic Data Analysis: P-3B Spiral Flight

Events 33 and 102 are exhibits of a category 2 event, a P-3B spiral, occurring at Southern sites 8 and 7, respectively. Both events present five L_{AS} peaks, as defined in Table 14, as the aircraft spirals downwards from an altitude of approximately 13,000 ft to 600 ft. The sound level, position, altitude, and slant distance from the measurement site at each acoustic peak are presented in Table 32. Sound levels from event 102 are consistently higher than those in event 33 as the spiral maneuver was performed closer to the measurement site and at a slightly lower altitude. In event 102, the P-3B pilot performed each sequential spiral closer to the measurement site and at continuously descending altitude. Closer spirals produce higher SPL values with the exception of spiral 1, which has a measured SPL that is higher in spiral 1 than in spiral 2 for both events. A possible explanation for the higher SPL value in spiral 1 as compared to spiral 2 is that the aircraft was performing in a different operational mode while executing the first spiral. As depicted in Figure 114 and Figure 116, the pilot begins the P-3B's descent at 73502 s (GMT) in event 33 and at 51903 s (GMT) in event 102, both of which are after the peak time of the first spiral.

Table 32. LAS SPL Peaks in Category 2 Events 33 and 102

Event 33 Peaks	**1**	**2**	**3**	**4**	**5**
GPS Midpoint Time (s)	75293	75495	75681	75882	76191
Maximum L_{AS} (dB)	48.0	46.9	50.0	47.8	50.8
Distance from Site (km)	5.04	5.35	4.44	5.27	4.62
Altitude (ft)	13,267	10,035	7,126	4041	687
Event 102 Peaks	**1**	**2**	**3**	**4**	**5**
GPS Midpoint Time (s)	51884	52075	52255	52441	52637
Maximum L_{AS} (dB)	60.1	55.3	59.3	62.7	70.1
Distance from Site (km)	3.86	2.90	2.21	1.47	1.25
Altitude (ft)	13,061	9,057	5,555	2,326	535

Weather conditions during events 33 and 102, derived from stratified meteorological data and depicted in Figure 118 through Figure 125. Under similar meteorological conditions, events 33 and 102 correlate well in the magnitude of their acoustic peaks in comparison to the position of the P-3B as it passes both measurement sites.

The P-3B performance data for events 33 and 102 are presented in Table 33. Both of these events were downward spirals at the southern sites, so they started with high altitude performance settings and ended with low altitude performance settings. In this case, different performance data were used depending on aircraft altitude. There was no pilot data log for event 33, so the average high altitude performance data may be used at the beginning of the event, and the average low altitude performance data may be used at the end of the event. Pilot-logged data were available for start of event 102 (at high altitude), but there were no pilot log data for the end of the event (at low altitude). Therefore, the

event 102 specific high altitude data may be used at the beginning of the event, and the average low altitude performance data may be used at the end of the event.

Table 33. P-3B Performance Data for Category 2 Events 33 and 102

	Altitude (ft)	Airspeed (kts)	Power Setting (SHP)
Event 33 - High Altitude (Average Data)	12642.3	203.9	1868.1
Event 33 and 102 - Low Altitude (Average Data)	821.2	199.6	1429.2
Event 102 - High Altitude	9500.0	213.0	1700.0

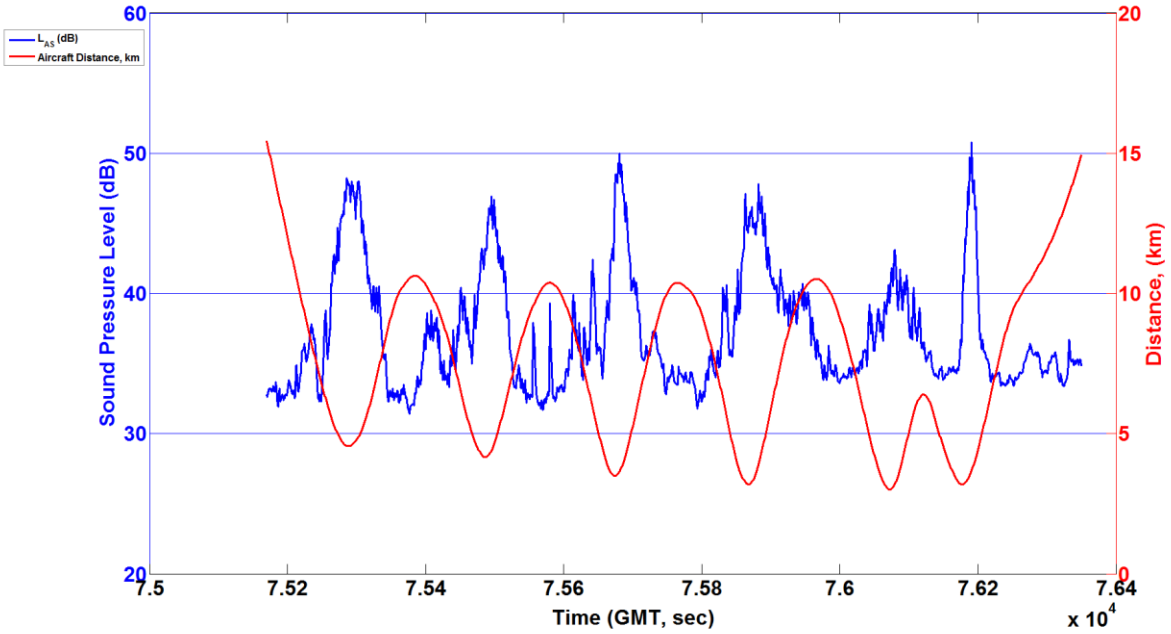

Figure 114. L_{AS} Sound Pressure Level during Event 33 with Aircraft Distance from SP-2

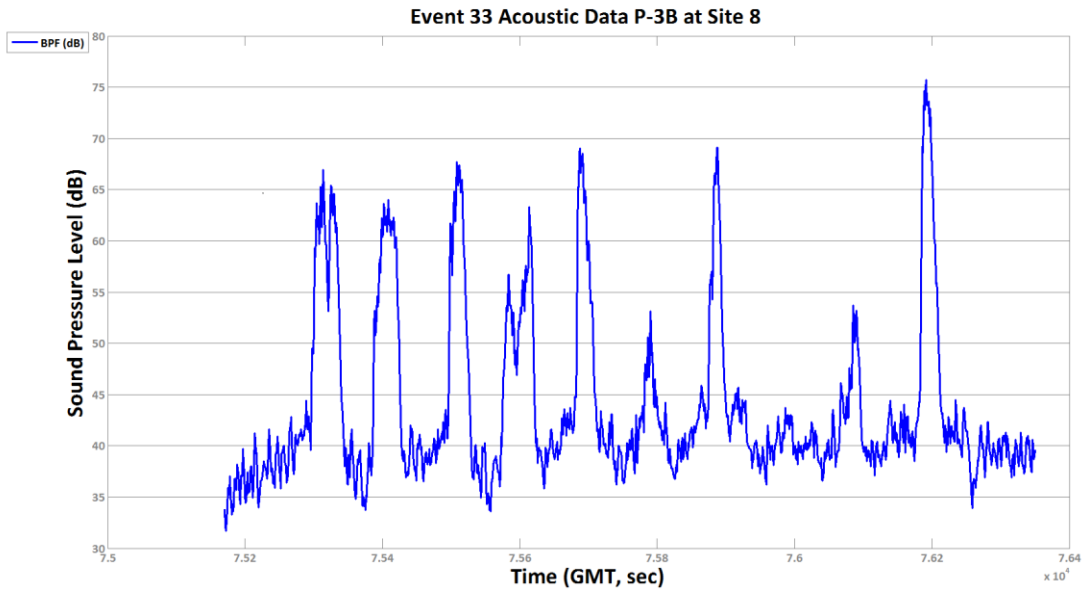

Figure 115. Sound Pressure Level at Blade Pass Frequency over Time for Event 33 at SP-2

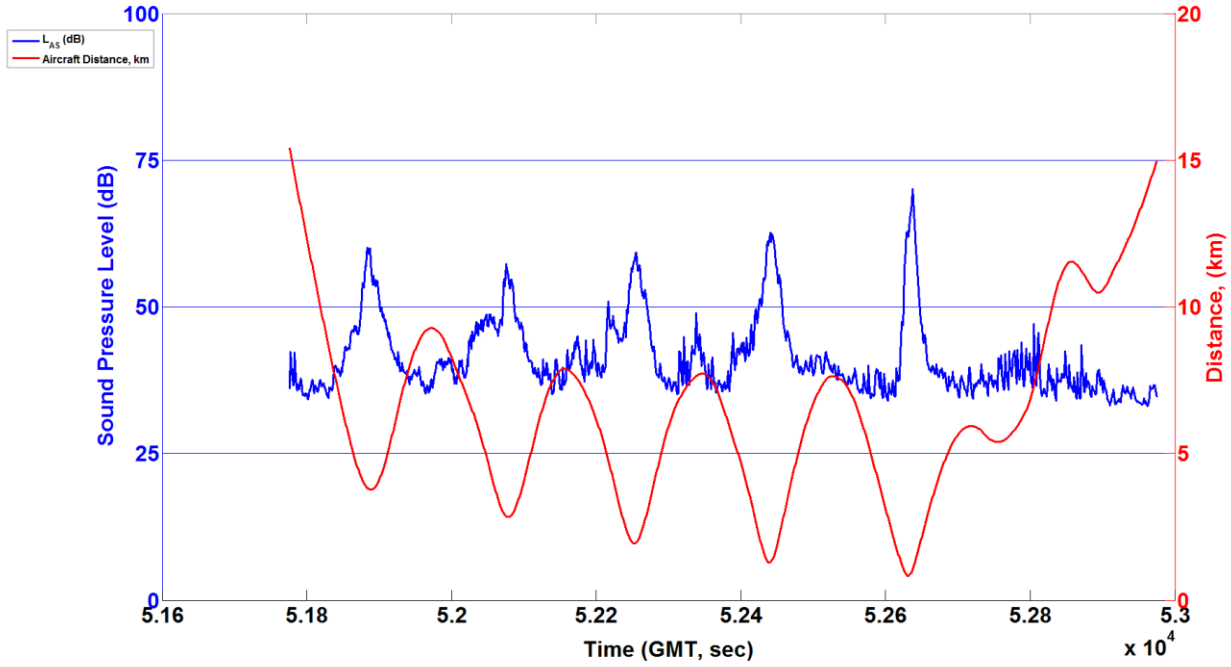

Figure 116. L_{AS} Sound Pressure Level during Event 102 with Aircraft Distance from SP-1

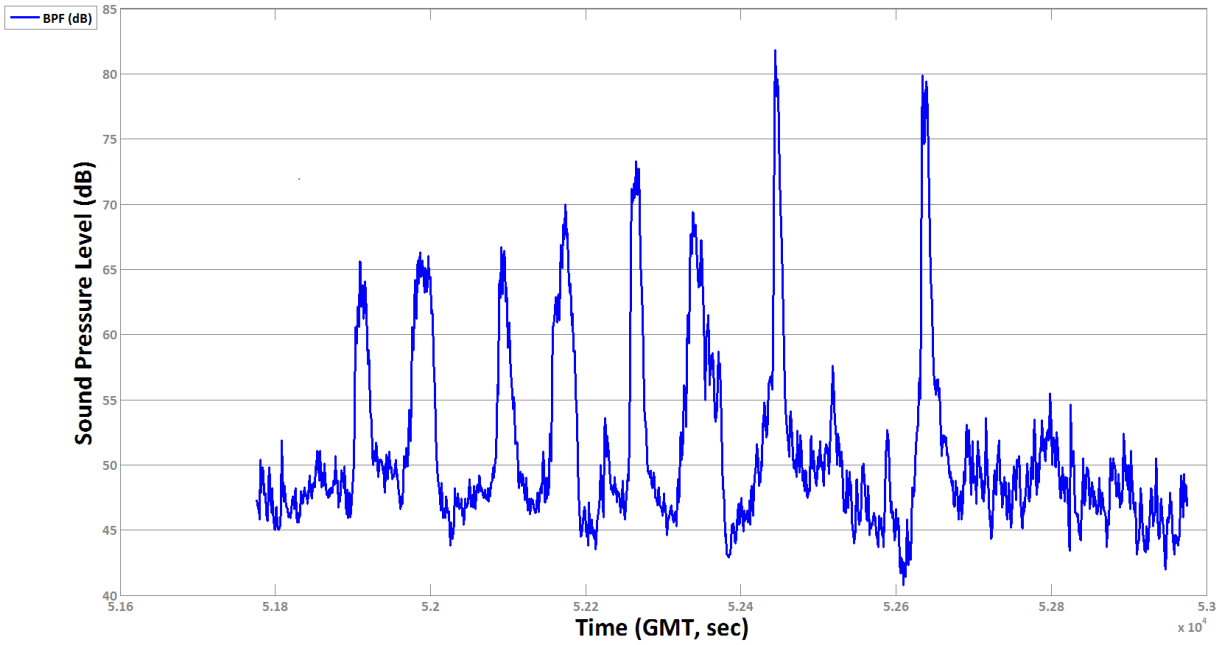

Figure 117. Sound Pressure Level at Blade Pass Frequency over Time for Event 102 at SP-1

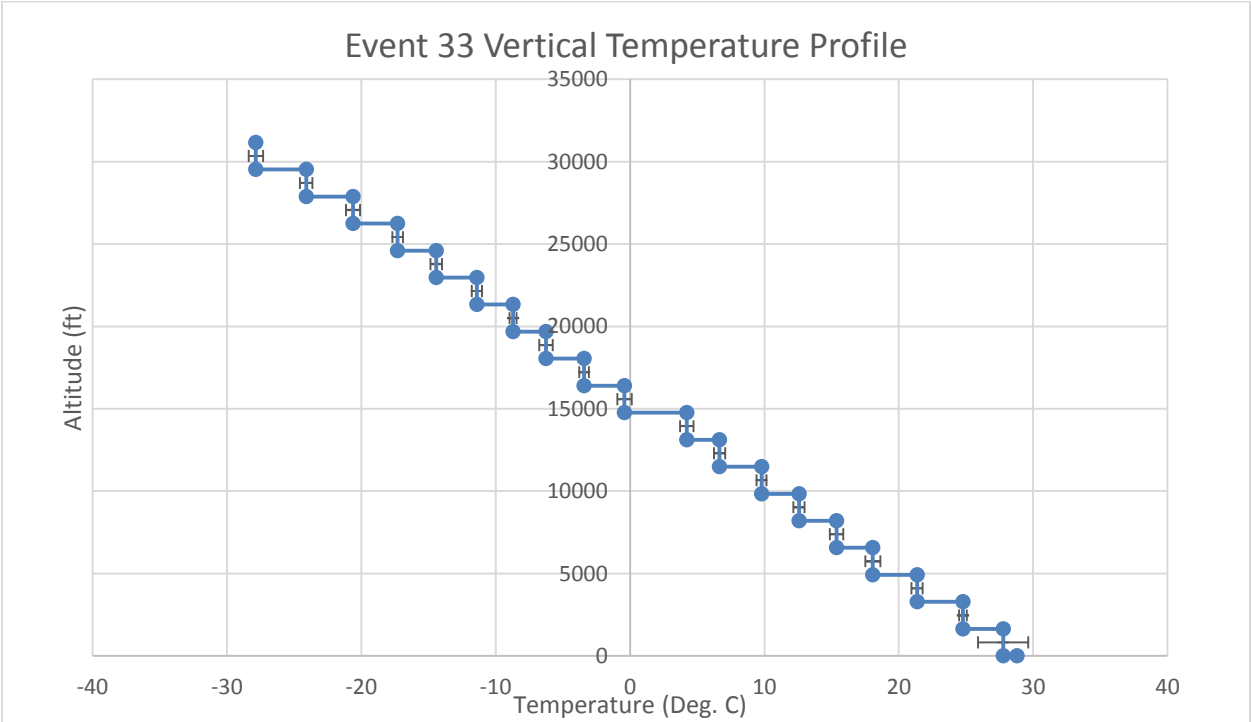

Figure 118. Temperature – Vertical Profile for Event 33 at SP-2

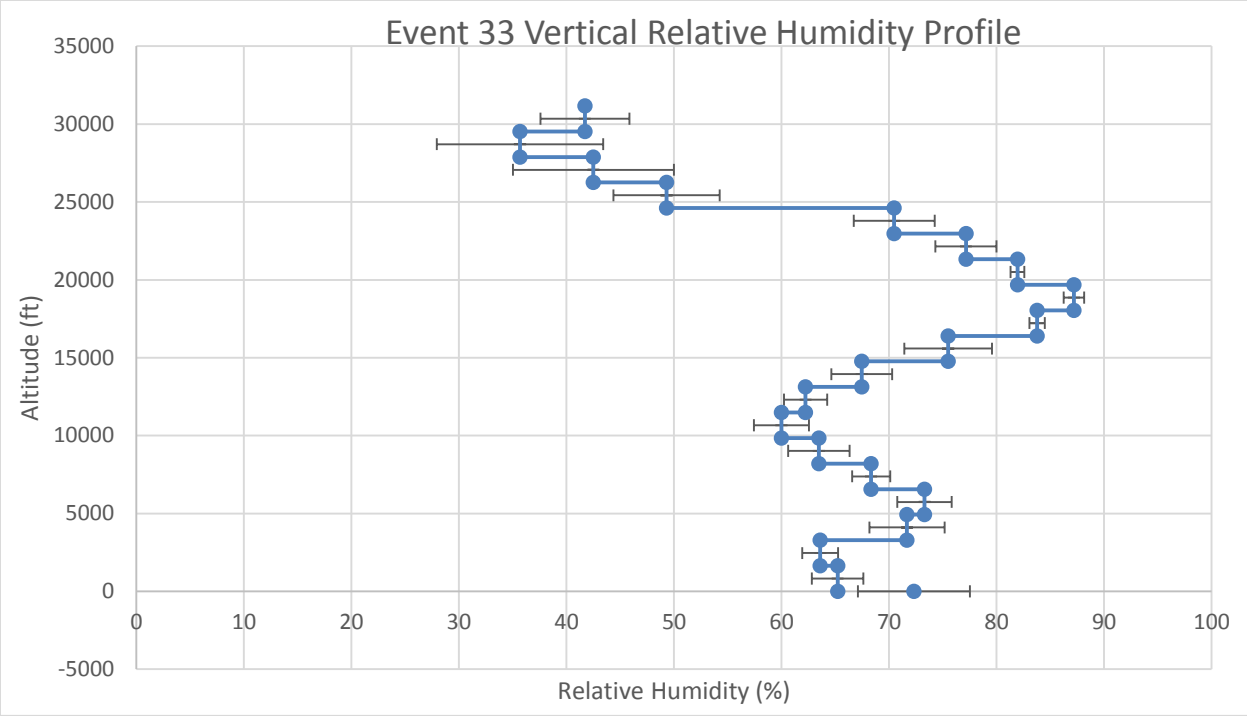

Figure 119. Relative Humidity – Vertical Profile for Event 33 at SP-2

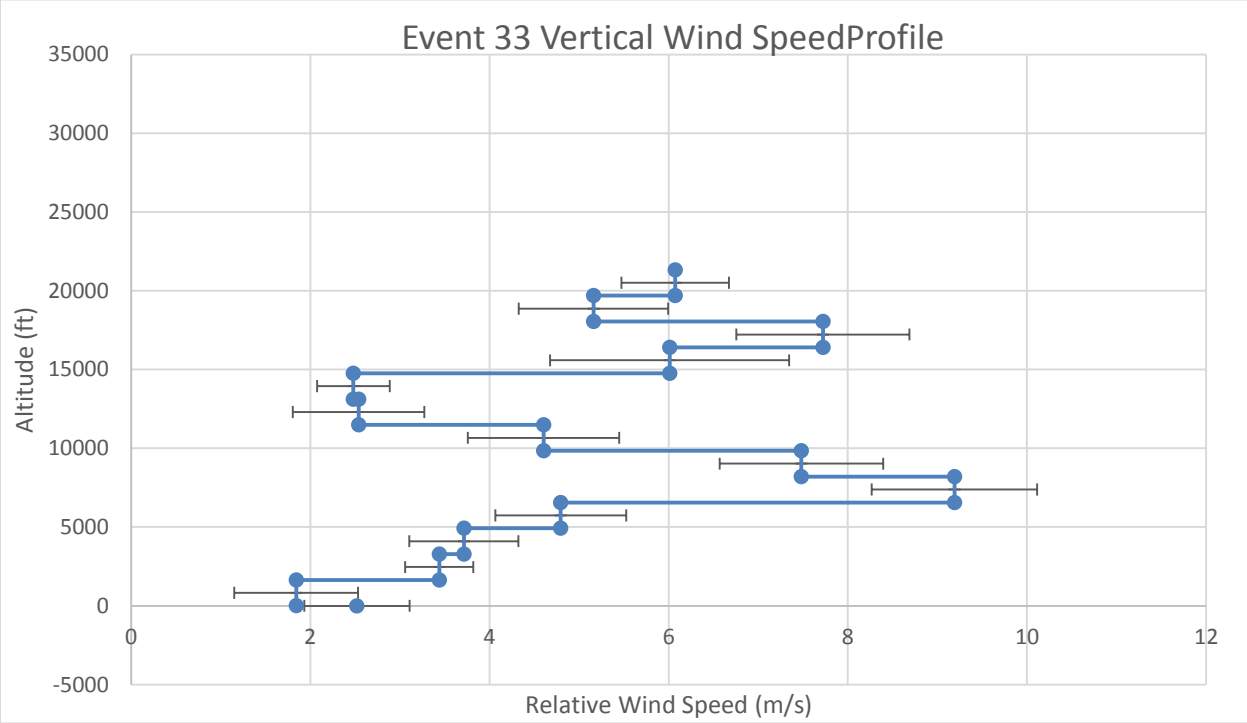

Figure 120. Wind Speed – Vertical Profile for Event 33 at SP-2

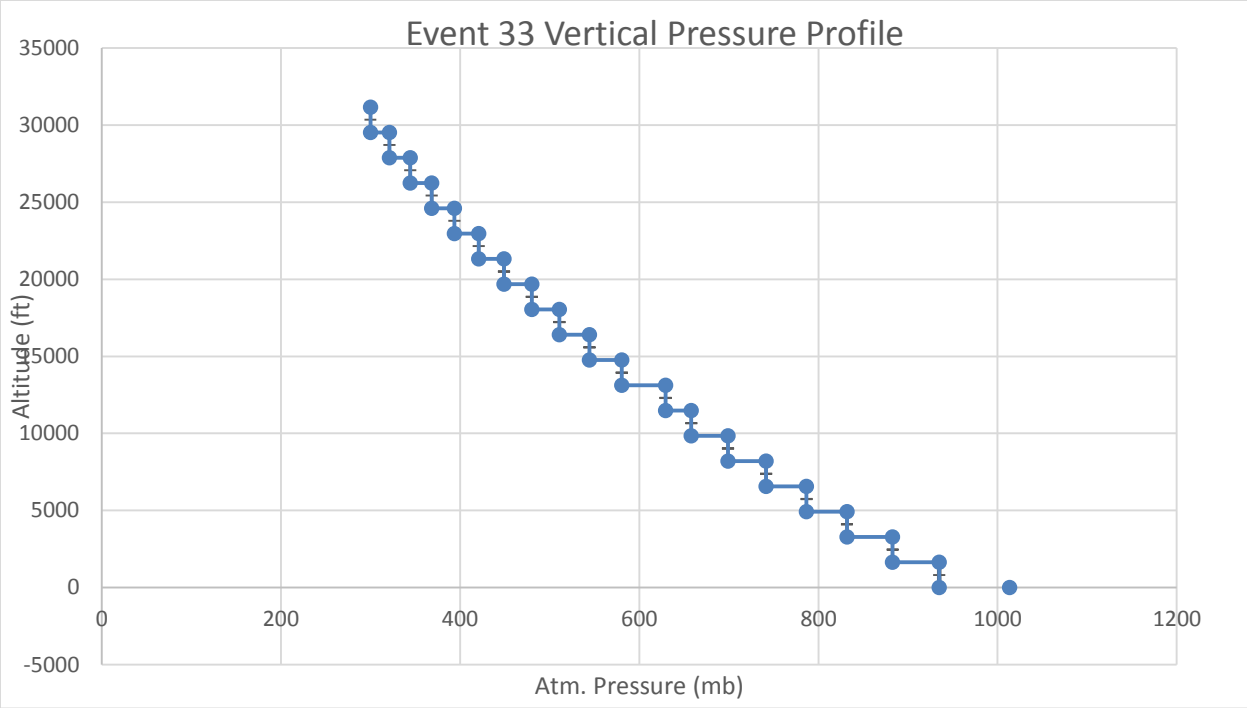

Figure 121. Atmospheric Pressure – Vertical Profile for Event 33 at SP-2

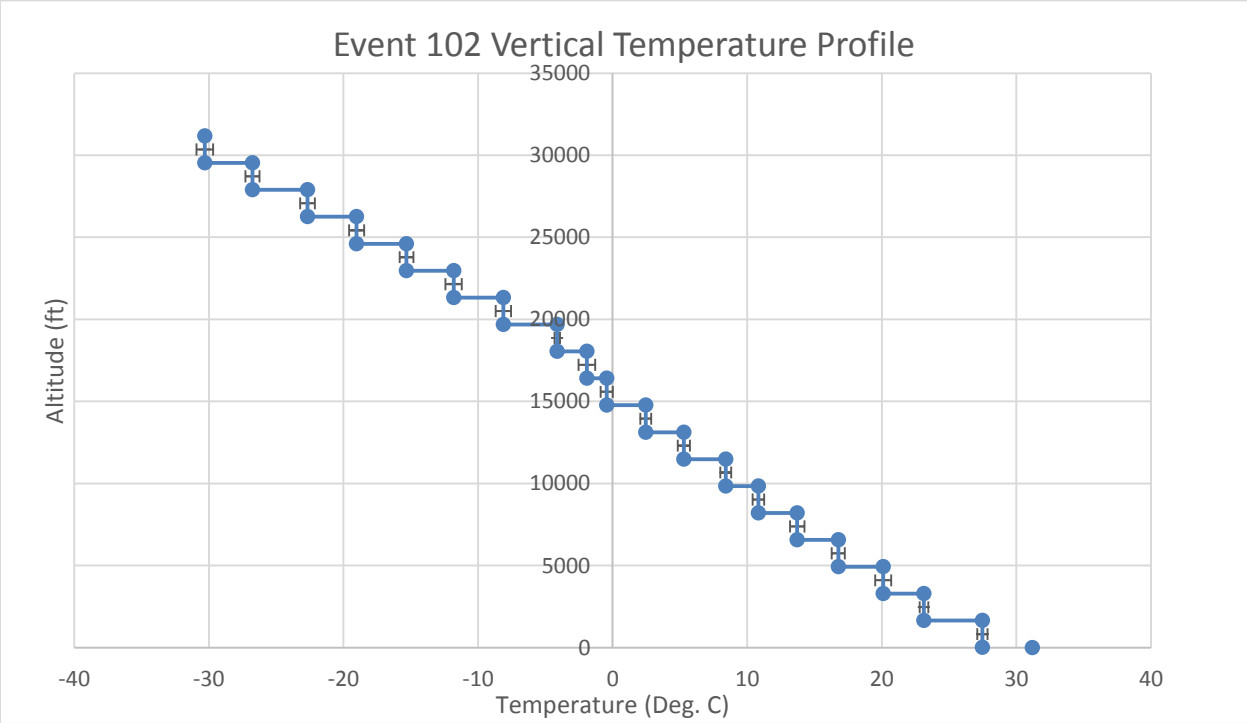

Figure 122. Temperature – Vertical Profile for Event 102 at SP-1

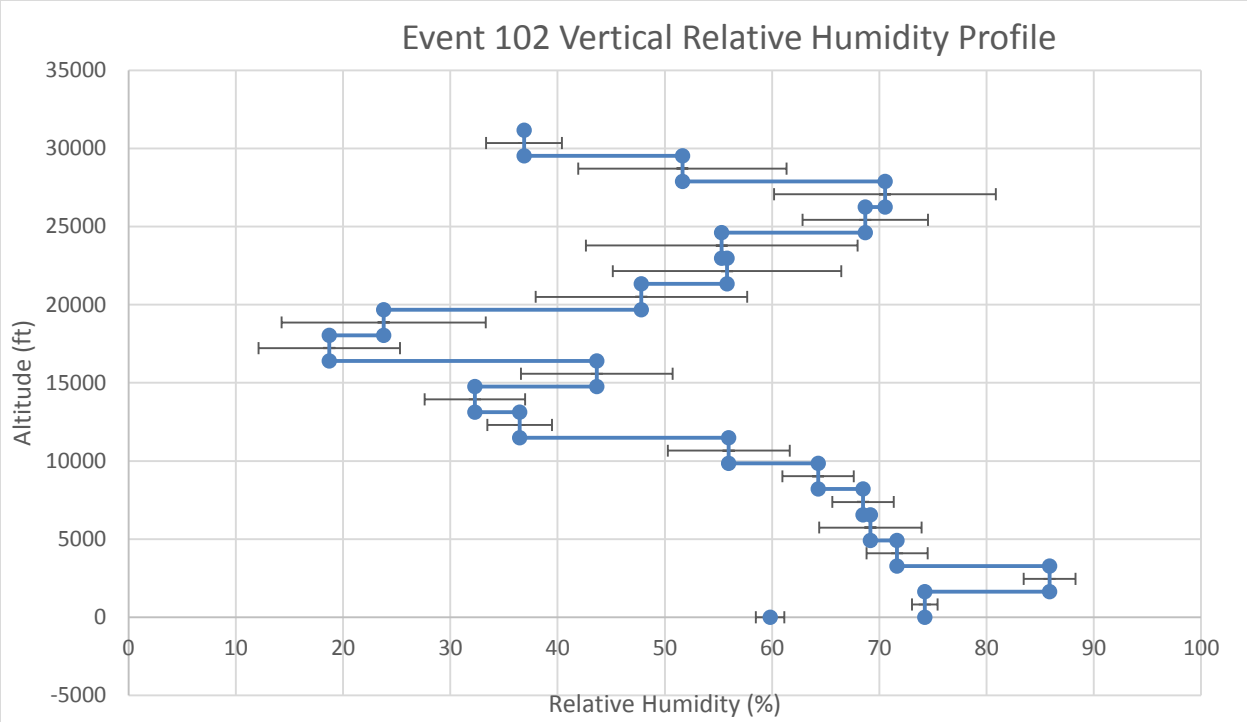

Figure 123. Relative Humidity – Vertical Profile for Event 102 at SP-1

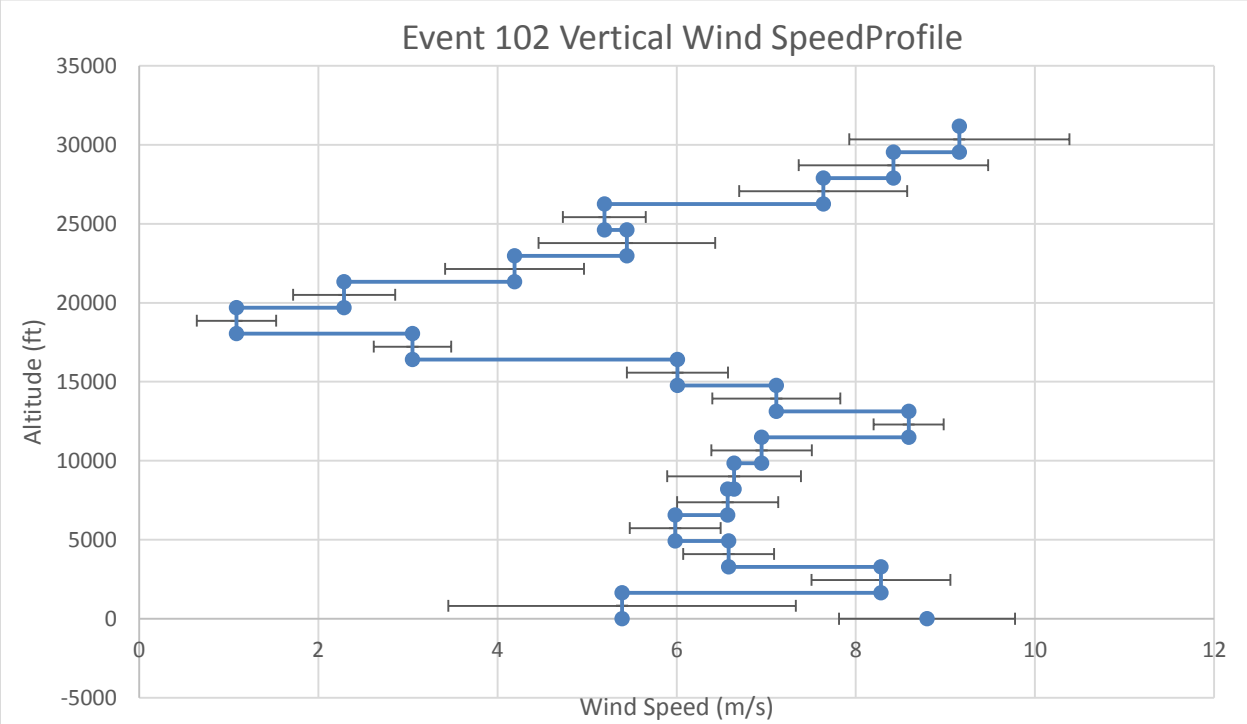

Figure 124. Wind Speed – Vertical Profile for Event 102 at SP-1

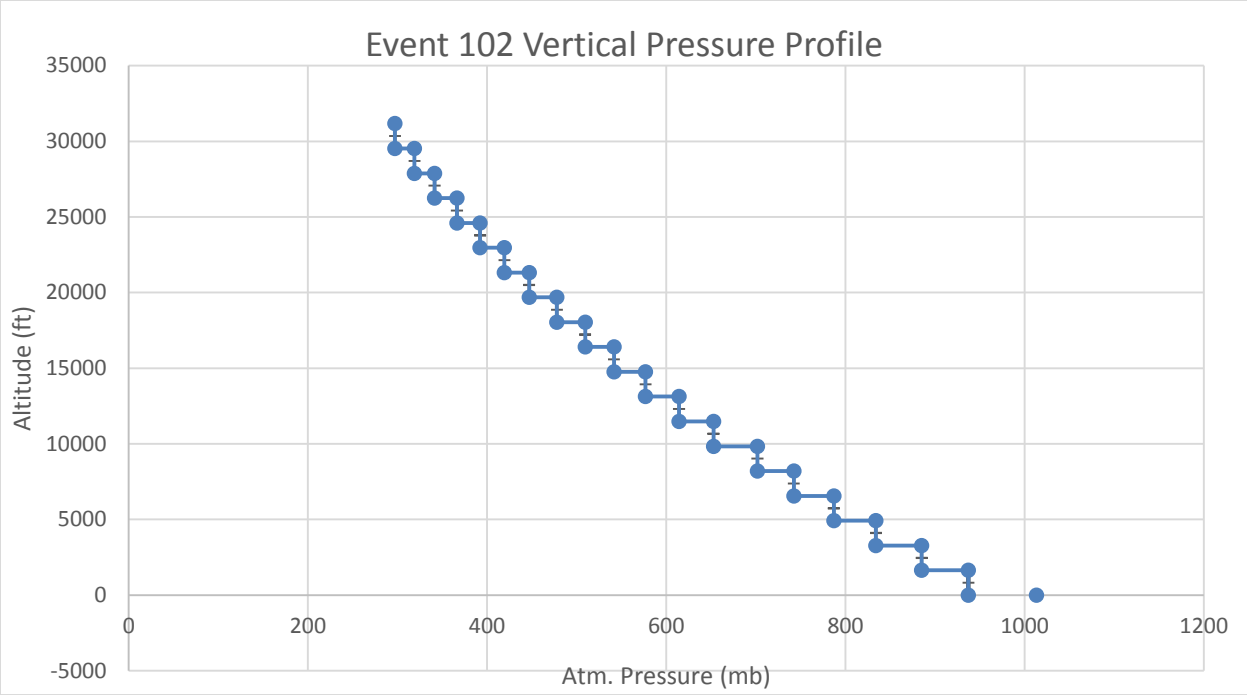

Figure 125. Atmospheric Pressure – Vertical Profile for Event 102 at SP-1

6.7.3 Acoustic Data Analysis: B-200 King Air Level Flight

The B-200 King Air Level flyover procedures, originally predicted to occur at an altitude of 20,000 ft, actually took place between 26,000 and 30,000 ft Events 35 and 159, both occuring at the Southern site 7 are category 3 events. Event 159 contains a maximum L_{AS} peak at 66.9 dB occuring at a distance of 9.3 km from the measurement site. Event 35 contains 2 acoustic peaks, the first occuring at 61.0 dB at a distance of 9.32 km from the site and the second occuring at 68.2 dB at a distacne of 11.319 km from the site. Acoustic results for both events are presented in Table 34, as well as Figure 126 through Figure 129.

Table 34. Data Corresponding to Acoustic Peaks in Category 3 Events 35 and 159

	GPS Midpoint Time (s)	Maximum L_{AS} (dB)	Distance from Site (km)	Altitude (ft)
Event 35 (Peak 1)	75875	61	9.32	29836
Event 35 (Peak 2)	76084	68.2	11.32	29878
Event 159	52779	66.9	9.3	29665

Weather conditions during events 35 and 159, derived from stratified meteorological data and depicted in

Figure 130 through Figure 137. Under similar meteorological conditions, events 35 and 159 correlate well in the magnitude of their acoustic peaks in comparison to the position of the B-200 King Air as it passes both measurement sites.

The B-200 King Air performance data for events 35 and 159 are presented in Table 35. Pilot logged data were available for both events.

Table 35. B-200 King Air Performance Data for Category 3 Events 35 and 159

	Approximate Altitude (ft)	Intermediate Turbine Temperature (F)	Torque (SHP)	Rotations per Minute (RPM)	Percent of Outer Core Rotational Speed (%N1)
Event 35	28000	700	1270	1710	95
Event 159	28000	700	1300	1700	95

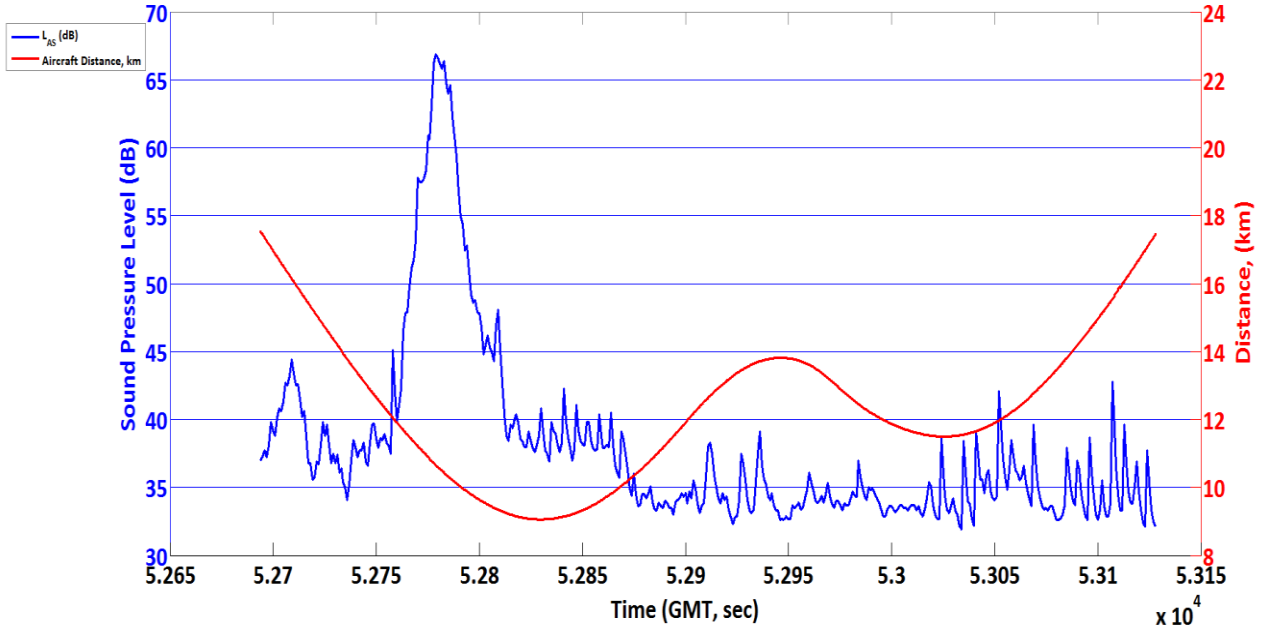

Figure 126. L_{AS} Sound Pressure Level during Event 159 with Aircraft Distance from SP-1

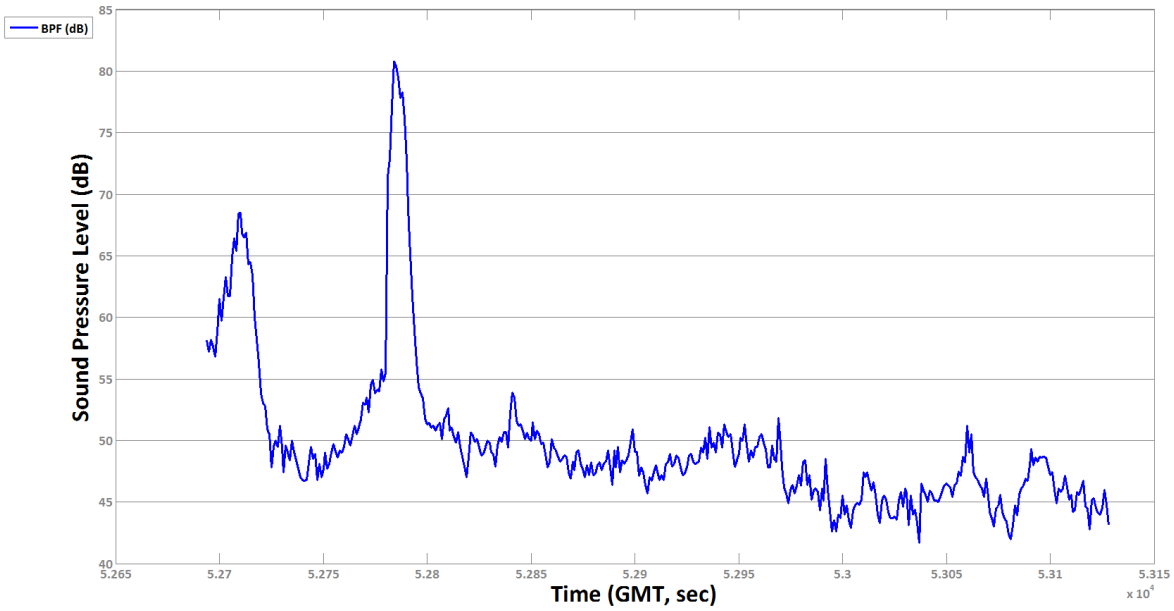

Figure 127. Sound Pressure Level at Blade Pass Frequency during Event 159 with Aircraft Distance from SP-1

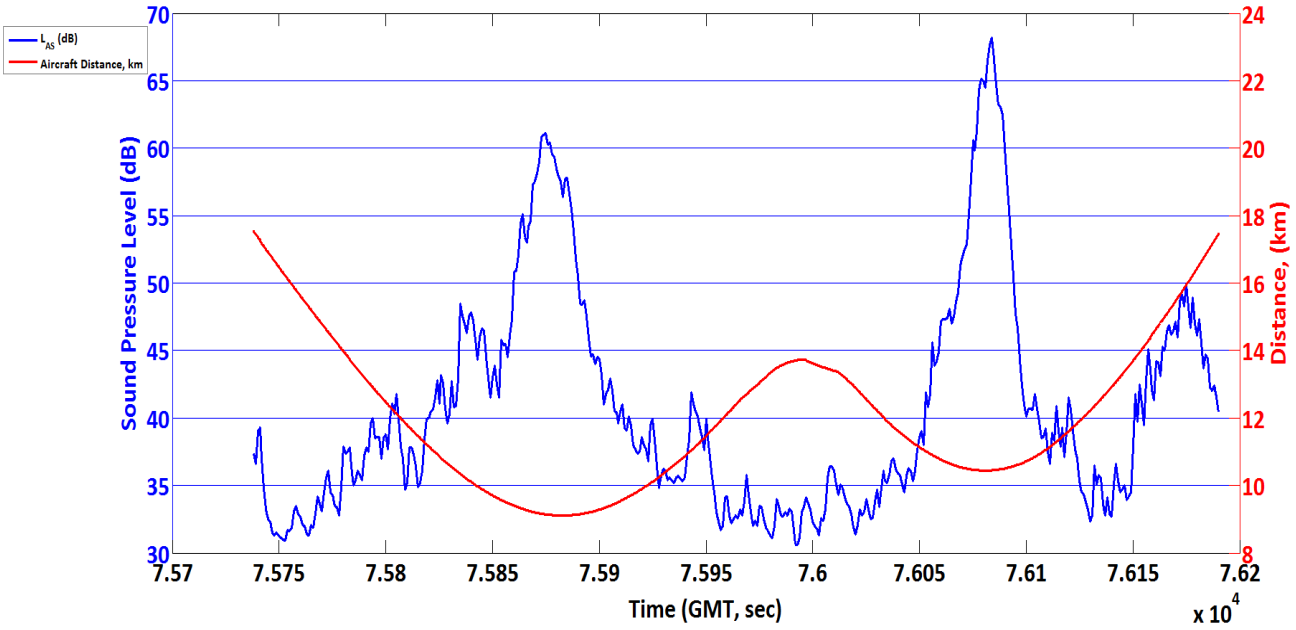

Figure 128. L_{AS} Sound Pressure Level during Event 35 with Aircraft Distance from SP-1

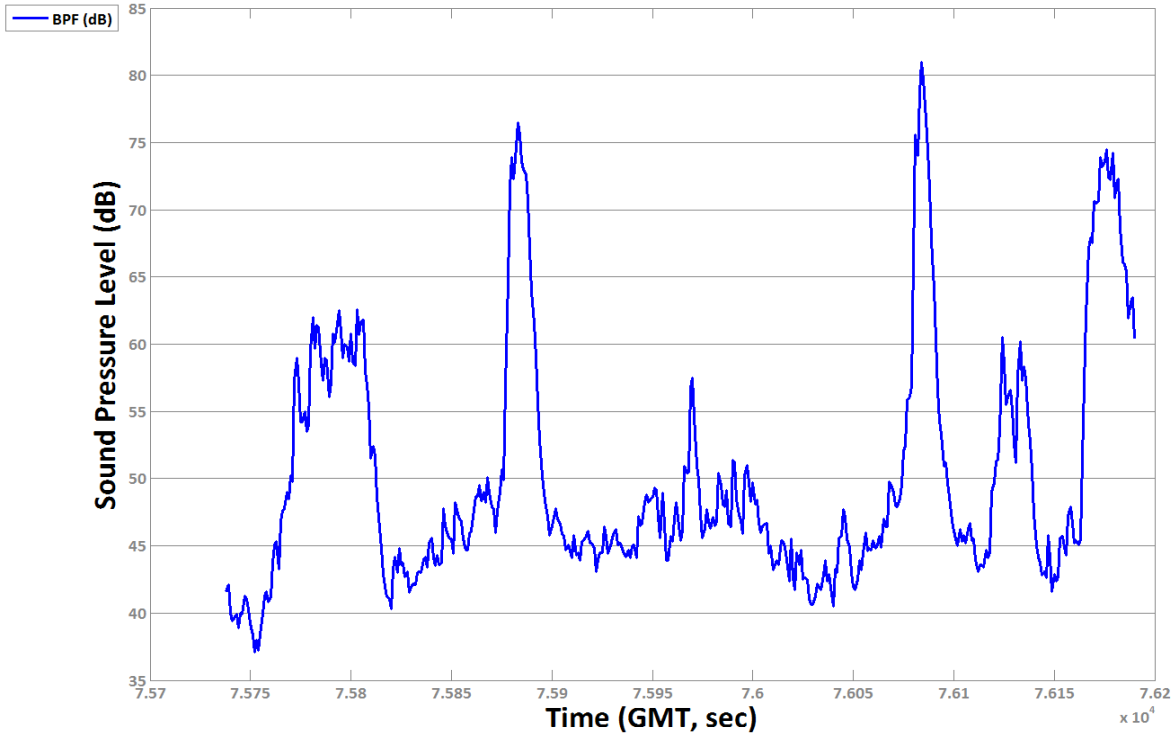

Figure 129. Sound Pressure Level at Blade Pass Frequency during Event 35 with Aircraft Distance from SP-1

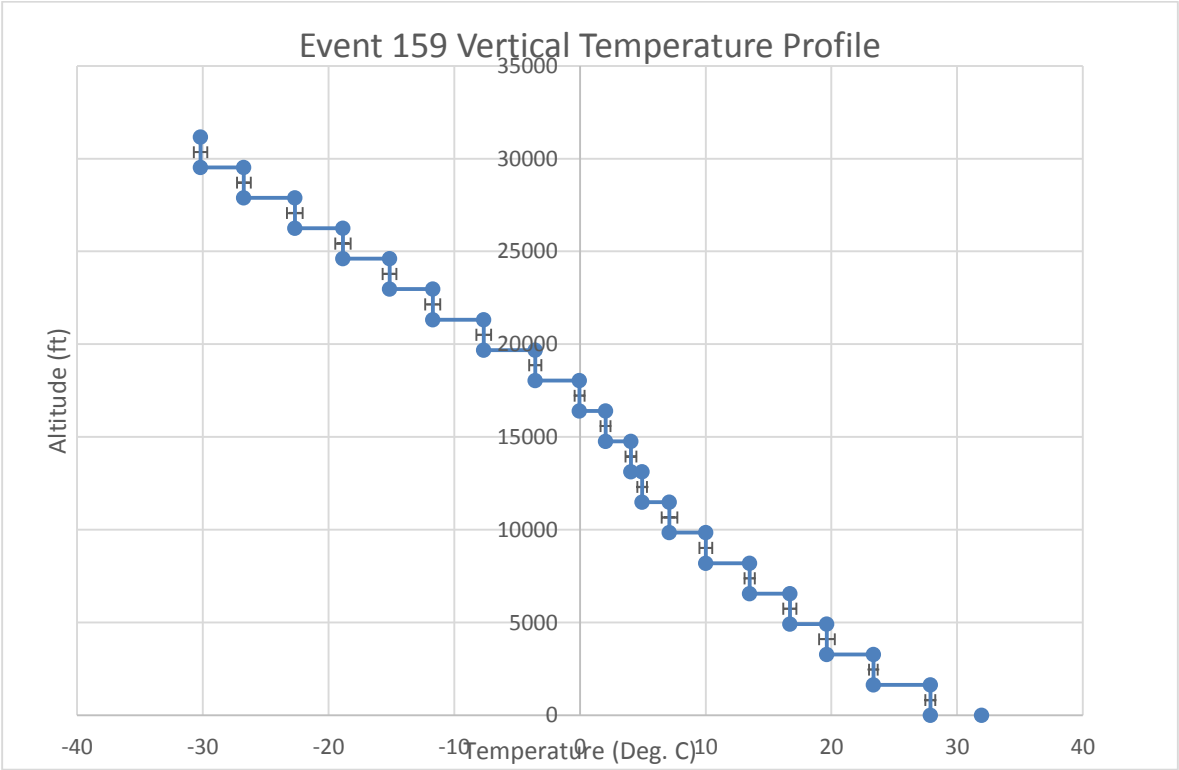

Figure 130. Temperature – Vertical Profile during Event 159 at SP-1

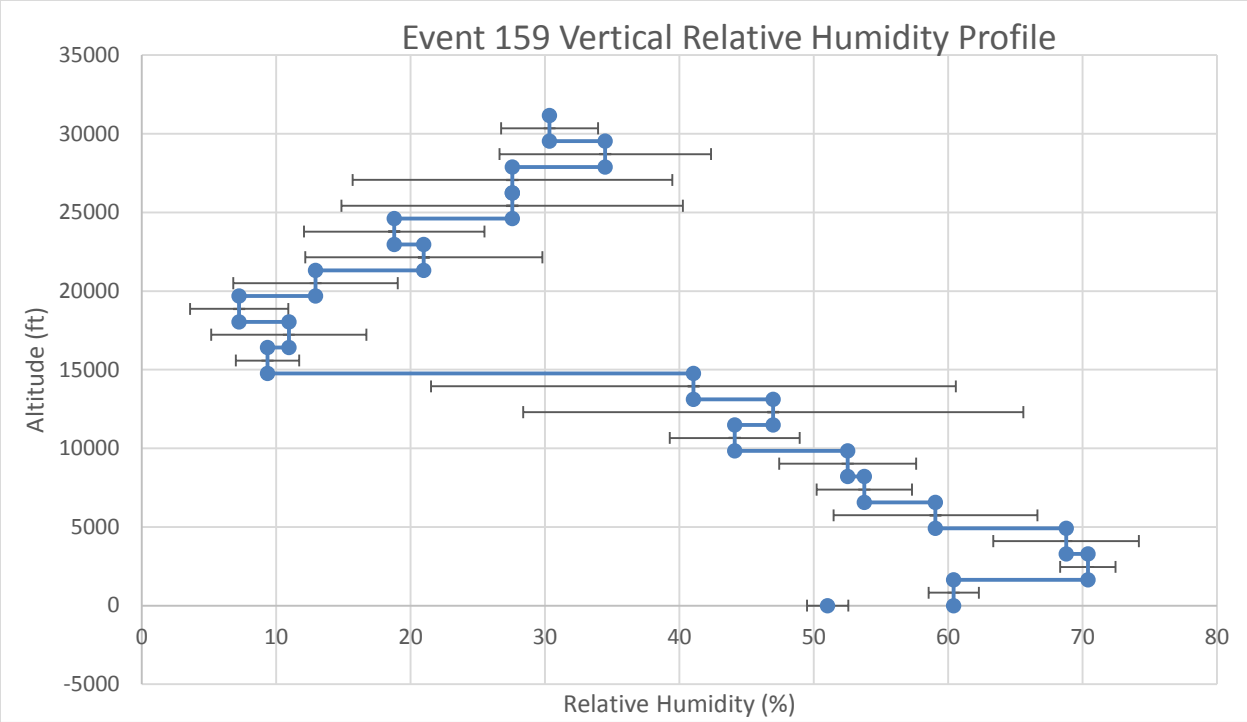

Figure 131. Relative Humidity – Vertical Profile during Event 159 at SP-1

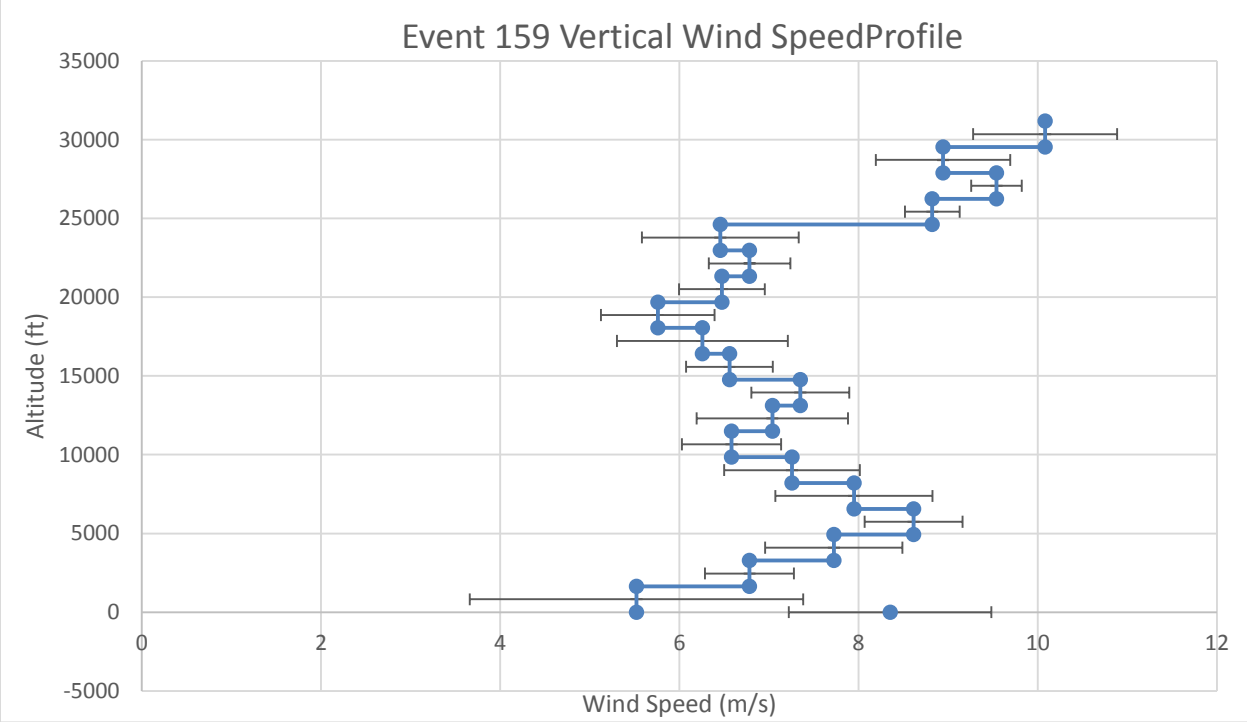

Figure 132. Wind Speed – Vertical Profile during Event 159 at SP-1

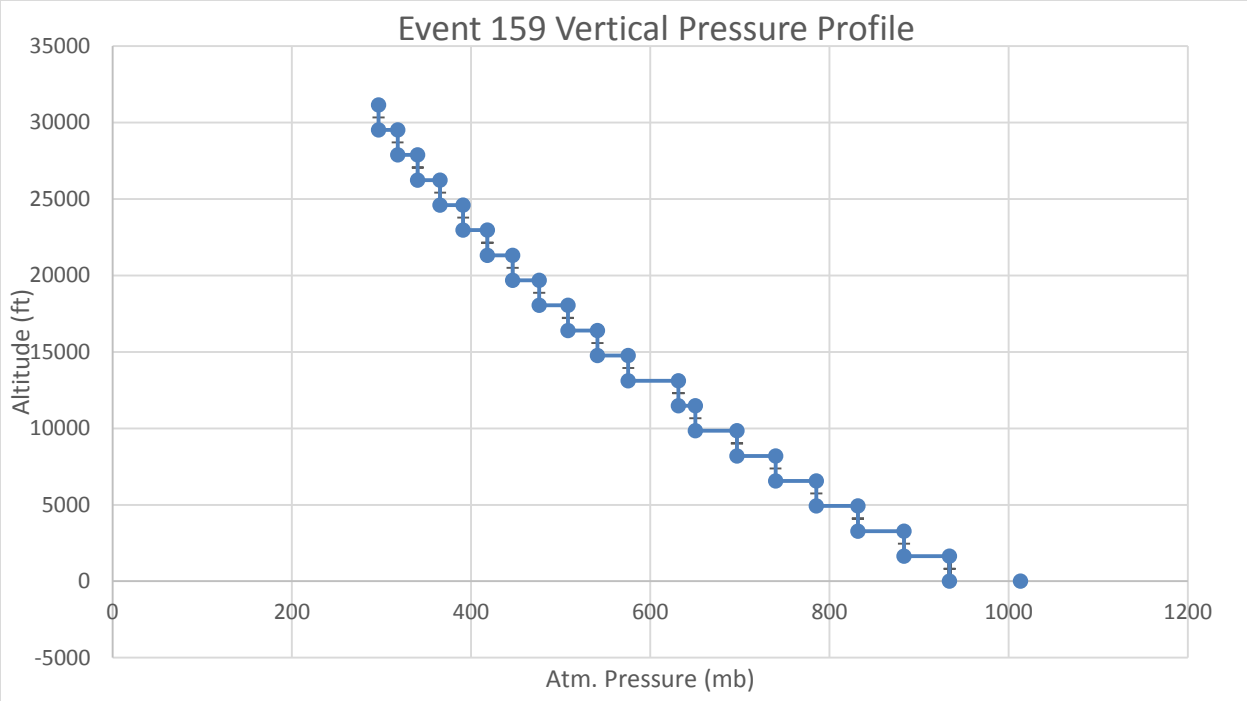

Figure 133. Atmospheric Pressure – Vertical Profile during Event 159 at SP-1

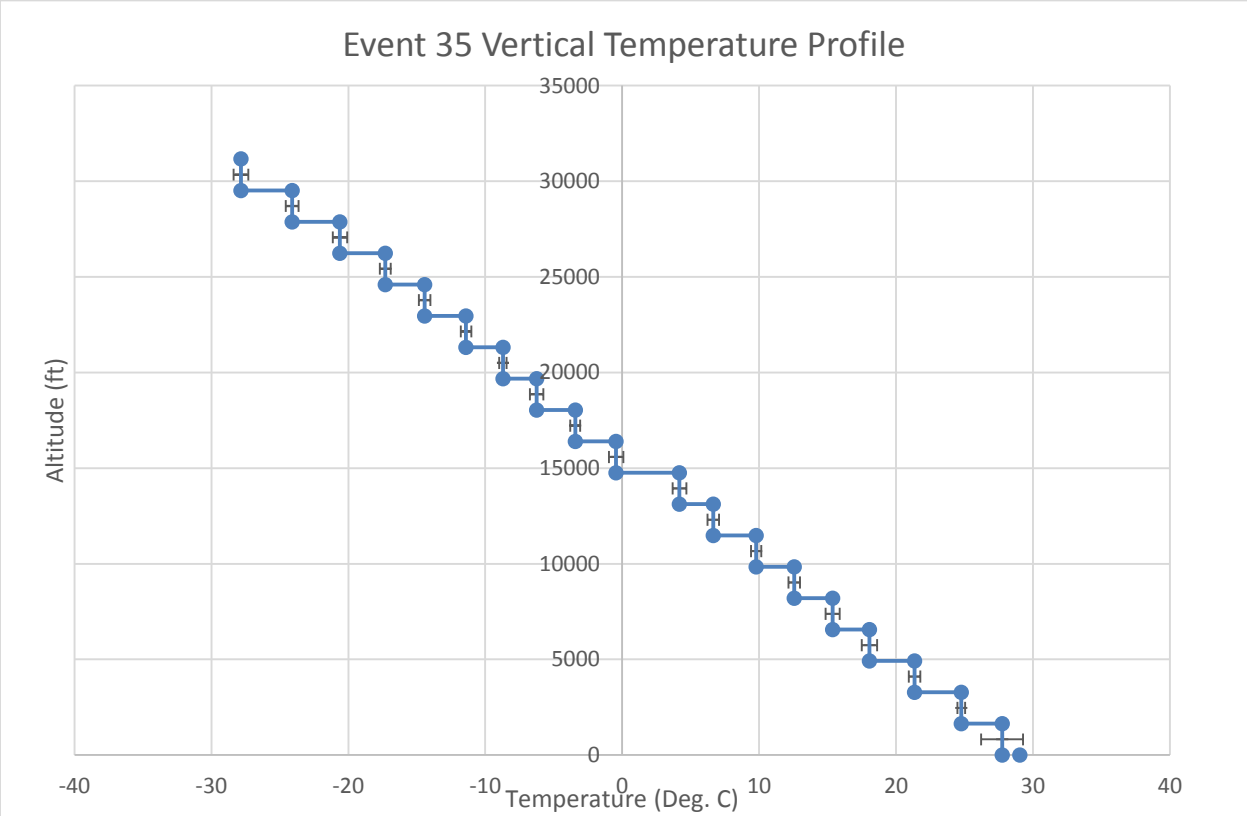

Figure 134. Temperature – Vertical Profile during Event 35 at SP-1

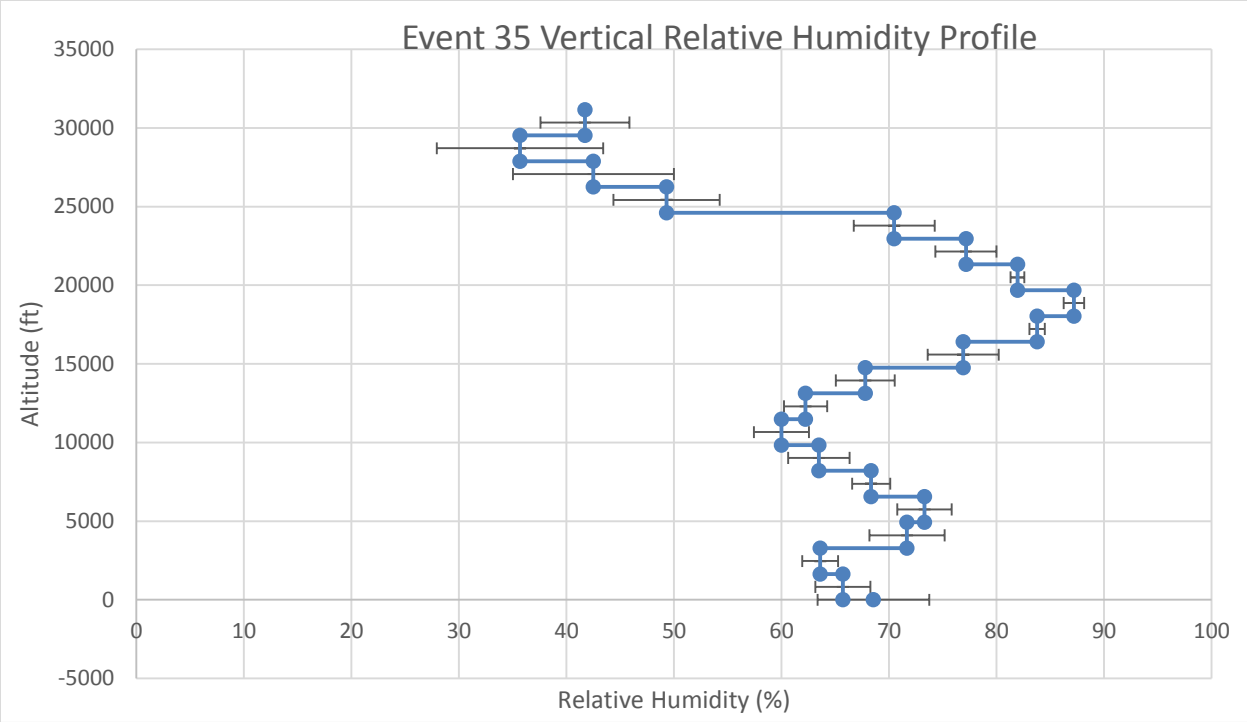

Figure 135. Relative Humidity – Vertical Profile during Event 35 at SP-1

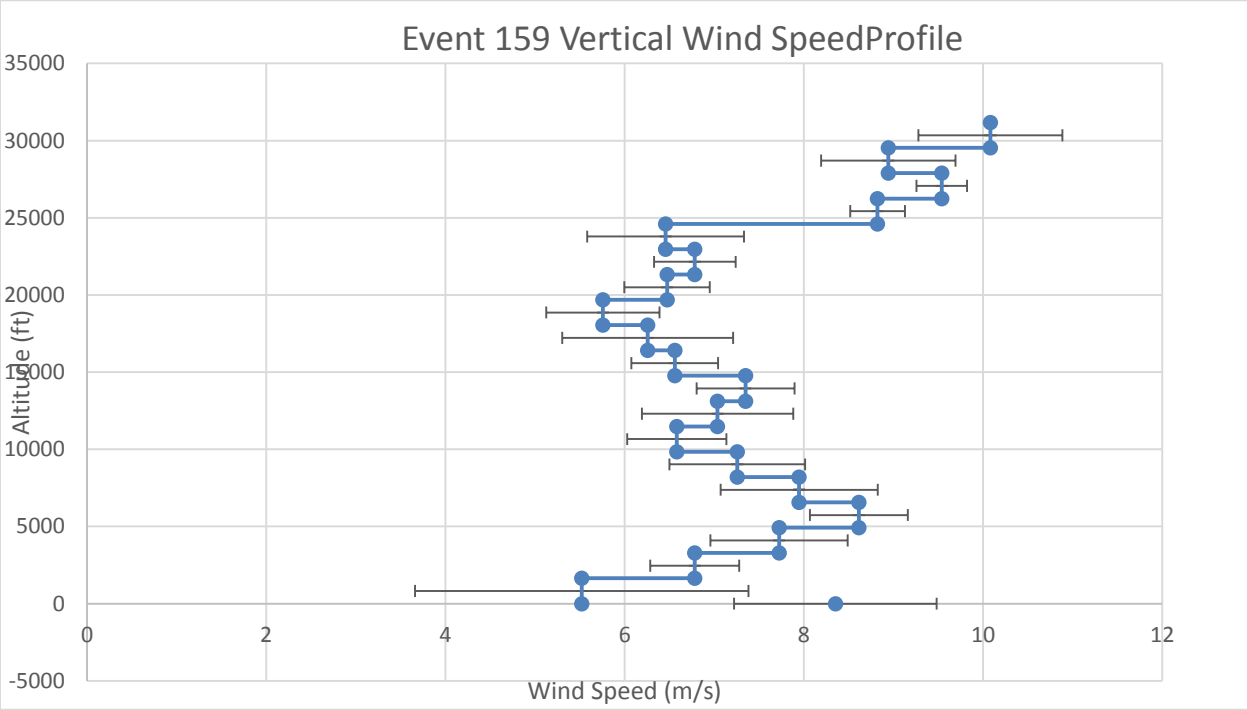

Figure 136. Wind Speed – Vertical Profile during Event 35 at SP-1

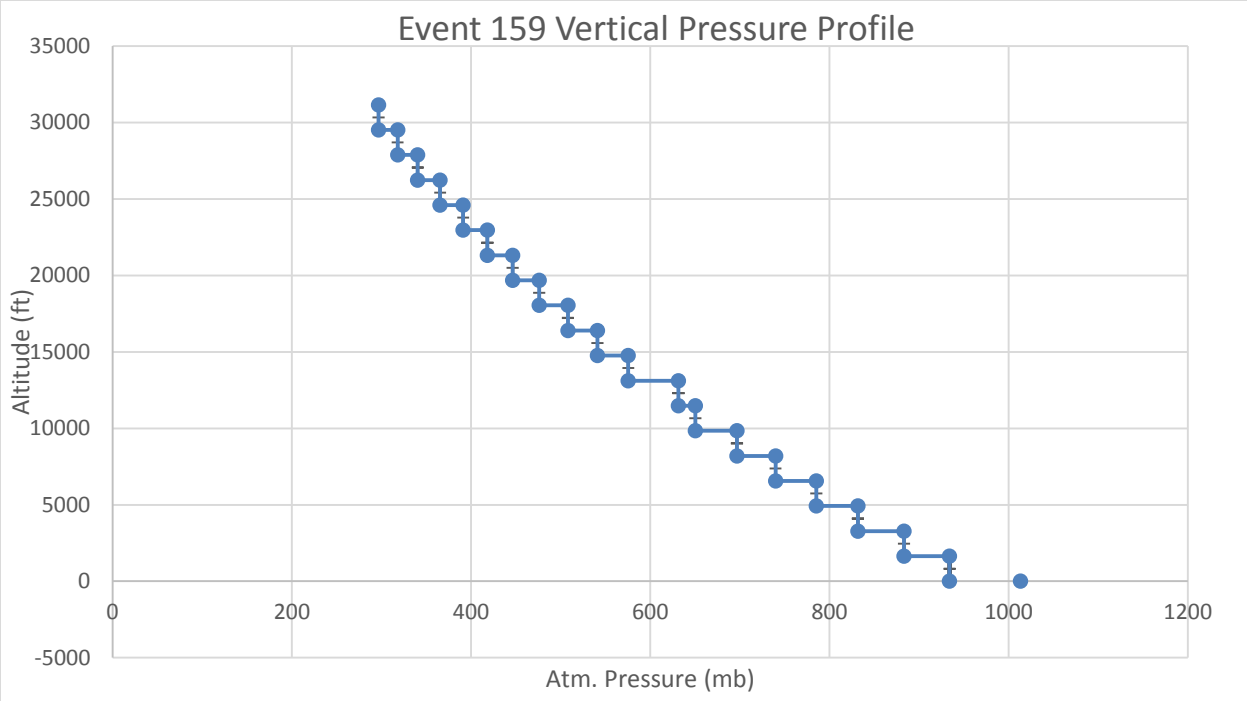

Figure 137. Atmospheric Pressure – Vertical Profile during Event 35 at SP-1

7. Considerations for Using the Data for Model Validation

The primary use of the DISCOVER-AQ Acoustics data set is the validation of aircraft noise modeling methodologies. The altitude dependent aircraft position and meteorology data make the data set ideally suited for the evaluation of aircraft acoustic propagation algorithms, especially those that utilize vertically-changing atmospheric effects. This can most effectively be done through single-event noise analyses.

The DISCOVER-AQ Acoustic data set presents a comprehensive acoustic, meteorological, and aircraft performance and position data set that can be used for validation of aircraft acoustic modeling methods. For a given event, aircraft source data are defined (as described in Sections 5.5 and 6.6.3), and the aircraft position data are imported into the noise model to define a ground track. The aircraft altitude, speed and performance data can then be used to define the profile along that ground track. The atmospheric profile data can be used to define the atmosphere in the study, either as a layered atmosphere or just with the ground meteorological data for a study with a homogeneous atmosphere. When using these inputs to define a single event, the measurement locations can then be modeled, and the modeled noise level results can be compared against the corresponding acoustic measurement data.

Events may be modeled as a single overflight, single pass by on a loop of a spiral, or the entire flight

event that occurs within the 15 km boundary threshold of each measurement site. These events may best be used to model maximum sound pressure level and sound exposure level metrics. Given the other aircraft noise sources, it may not be appropriate to model the day-night sound pressure level (DNL).

As indicated in Section 6.3.1 the processed DISCOVER-AQ, acoustic database includes 0.5 second time history acoustic data in the form of A-weighted sound pressure level with slow response (L_{AS}), un-weighted sound pressure level with slow response (L_{ZS}) and un-weighted, one-third octave-band sound pressure levels. If higher fidelity acoustic data are required for more detailed analyses, corresponding recorded continuous audio (time history data) for the duration of the acoustic measurements, with a sampling rate of 44.1 kHz/16 bit were also collected. These data were unprocessed at the time of publication of this report, but they are available for further analyses.

Although this data set includes detailed information about aircraft position, speed and average power setting, there is still some uncertainty associated with modeling the aircraft acoustic source (as described in Section 5). Only a limited number of level flight tests were conducted for the source noise measurements, which resulted in the recommendation of using AEDT/INM substitution aircraft to model the aircraft sources in model validation analyses. While, there is already some uncertainty associated with the use of average aircraft data to define an aircraft source, the tolerances on the measurement equipment and the assumptions used to develop NPD and spectral class data, additional uncertainty is associated with the use of substitution aircraft. It is important to be aware of this uncertainty when using this, or any other, validation data set, as it could result in a difference of several decibels between the measured and modeled aircraft noise levels.

Ideally, comprehensive source models based on empirical data for both of the DISCOVER-AQ aircraft would be preferred to substitution aircraft data, and would reduce the uncertainty associated with the data set. The development of such a source data set would require additional source measurement flight tests. These flight test should include acoustic measurement of aircraft operations using different power setting, flying different types of procedures (including approach and departure), over a range of speeds at a range of altitude, and at a range of distances from the aircraft flight track in an environment with low ambient noise levels. These acoustic data should then be supplemented by detailed aircraft performance and position data, as well as meteorological data. For the DISCOVER-AQ Houston flight tests, some of the aircraft performance parameters were noted in pilot logs during the flight tests, but a higher degree of data fidelity could be captured, if these data were automatically be collected by the aircraft tracking systems. If a more detailed characterization of the acoustic characteristics of the test aircraft is desired, a chase plane could be considered for acoustic measurements during high altitude operations. Since both the DISCOVER-AQ aircraft are owned by NASA, the opportunity to supplement the DISCOVER-AQ Acoustic database with additional aircraft source data measurements is still a possibility, if necessary.

An even more comprehensive validation data set would ideally include additional aircraft types (including jet aircraft and helicopters), additional operation types over a range of performance

parameters (including approach and departure) and a range of altitudes, as well. However, such a measurement program would require access to a much larger variety of aircraft. It is interesting to note that during the Houston DISCOVER-AQ acoustic measurements, acoustic and meteorological data were collected for large blocks of time, of which only a small portion of those data include noise from the flight test aircraft. Many additional aircraft were operating during the Houston airspace during the course of these acoustic measurements. If a source of tracking and performance data for these other aircraft could be secured, then there is a possibility that they could be correlated with the Houston acoustic and meteorological data to facilitate additional analyses.

8. Conclusions and Recommendations

The DISCOVER-AQ acoustic validation data represents a comprehensive acoustic, meteorological aircraft performance and position data set that includes 95 high-quality aircraft events: 29 P-3B level flyover events (Category 1), 50 P-3B spiral events (Category 2) and 16 B-200 King Air level flyover events (Category 3). These data may be used for single event analyses to validate the accuracy of aircraft acoustic modeling methods including, but not limited to, AEDT, layered atmospheric absorption methodologies, advanced acoustic propagation methodologies (such as ray tracing, parabolic equation, etc.) and other aircraft acoustic propagation methods and models.

9. References

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Appendix A: Detailed Source Data

This appendix presents the detailed supplemental aircraft source data, as described in Section 5. A single example of the data captured during each pre-flight test are included. Data for additional events are available through FAA AEE upon request.

A.1 P-3B Pre-flight Test

A.1.1 Acoustic Data

Note: Nominal one-third octave band center frequencies have been used throughout this document. The NASA detailed source data were collected at the exact one-third octave band center frequencies, and are given as follows (Hz):

Table 36. Exact Center Frequencies (Hz) Associated with the NASA Source Data

25.1189	31.6228	39.8107	50.1187	63.0957	79.4328	100	125.8925	158.4893	199.5262	251.1886	316.2278	398.1072	501.1872	630.9573	794.3282	1000	1258.9254	1584.8932	1995.2623	2511.8864	3162.2777	3981.0717	5011.8723	6309.5734	7943.2823	10000	12589.2541	15848.9319

Table 37. Acoustic Data from the P-3B Pre-flight Test: Event 2 at Mic 1

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third 0ctave-Band Center Frequency (Hz)																												
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	1	84244.3	8/27/2013	NASA P-3B	48.3	51.5	51.4	55.8	55.8	57.2	69.1	64.5	57.4	56.0	56.9	60.6	63.2	63.2	60.3	61.7	60.8	57.1	55.9	53.5	51.3	46.9	42.3	38.6	43.7	39.4	38.2	27.2	31.3	68.3
2	1	84244.8	8/27/2013	NASA P-3B	50.4	51.8	51.4	56.4	56.3	59.0	71.2	64.4	56.8	56.4	59.5	63.8	65.1	63.1	60.3	65.3	61.3	59.1	57.7	55.0	52.8	48.4	44.0	39.7	43.6	39.5	38.2	26.6	30.3	70.0
2	1	84245.3	8/27/2013	NASA P-3B	51.2	51.7	55.1	57.5	56.9	59.5	72.4	63.9	56.1	62.8	63.2	67.8	65.5	62.5	63.6	65.5	62.2	60.1	58.8	56.5	54.2	50.5	46.4	41.4	43.6	39.2	38.3	25.9	29.6	71.1
2	1	84245.8	8/27/2013	NASA P-3B	52.2	51.7	55.5	58.9	58.1	61.3	76.0	63.9	57.7	68.3	66.3	68.6	65.2	65.4	65.9	67.5	63.7	62.2	61.4	59.7	57.7	54.0	50.5	44.9	44.4	39.3	38.3	25.3	28.8	73.2
2	1	84246.3	8/27/2013	NASA P-3B	56.0	55.4	56.5	61.2	59.6	62.2	77.1	63.3	62.6	72.2	69.3	69.0	65.4	68.0	67.2	70.0	65.9	64.0	63.1	62.3	60.3	56.9	53.9	48.3	46.3	41.1	38.3	25.1	28.4	75.3
2	1	84246.8	8/27/2013	NASA P-3B	58.8	56.2	57.5	63.2	60.6	65.6	76.0	64.2	70.2	79.0	70.5	68.1	69.9	68.8	69.3	70.1	67.4	66.0	65.0	64.4	61.8	59.0	56.6	51.3	50.0	44.5	38.7	25.1	28.2	77.0
2	1	84247.3	8/27/2013	NASA P-3B	59.9	58.2	58.5	61.5	61.7	77.7	78.2	67.3	81.1	80.8	69.9	70.8	71.1	70.1	70.8	71.2	68.6	67.2	66.3	65.8	63.3	61.0	58.7	54.0	53.9	46.6	39.8	25.4	28.2	78.8
2	1	84247.8	8/27/2013	NASA P-3B	59.3	57.8	62.3	61.0	65.2	81.7	76.9	70.6	87.1	80.0	69.6	72.1	71.0	71.4	71.7	71.2	69.3	68.4	67.9	67.4	64.4	62.7	59.8	56.5	57.2	47.6	39.8	25.9	27.3	80.2
2	1	84248.3	8/27/2013	NASA P-3B	57.8	57.7	61.5	59.7	71.4	80.9	75.3	73.8	86.4	78.1	70.2	73.3	70.8	71.5	72.6	71.1	69.3	68.6	68.5	67.9	65.4	63.8	60.5	58.9	58.9	48.4	40.3	26.3	26.5	80.3
2	1	84248.8	8/27/2013	NASA P-3B	56.9	58.7	60.8	60.3	78.1	80.1	73.7	82.6	85.2	76.2	72.0	72.5	71.4	72.3	72.8	70.5	69.2	68.7	68.6	68.3	65.7	63.9	61.4	60.3	58.0	48.5	40.3	26.3	25.9	80.3
2	1	84249.3	8/27/2013	NASA P-3B	55.7	60.1	59.7	63.1	81.8	78.2	72.5	83.7	83.2	74.7	72.1	71.3	71.0	71.8	71.9	69.8	68.7	68.1	68.6	67.9	65.2	63.3	61.2	59.8	56.7	47.7	40.1	25.9	25.7	79.6
2	1	84249.8	8/27/2013	NASA P-3B	55.1	60.1	59.0	68.8	82.9	76.2	71.2	82.1	81.2	73.4	71.7	70.9	70.8	71.2	71.0	68.7	67.6	67.5	68.0	67.1	64.3	62.4	60.4	58.6	55.2	46.7	39.6	25.5	25.5	78.7
2	1	84250.3	8/27/2013	NASA P-3B	55.1	59.9	59.3	75.5	83.5	74.1	70.5	80.5	79.3	71.8	70.2	70.2	69.7	70.7	69.8	67.5	66.8	67.0	67.3	66.4	63.2	61.3	59.6	57.1	53.7	45.7	39.6	25.1	25.6	77.7
2	1	84250.8	8/27/2013	NASA P-3B	55.7	59.1	60.3	79.8	83.1	72.1	69.5	78.6	77.3	70.4	68.5	69.8	68.3	69.5	68.3	66.2	66.0	66.2	66.5	65.3	62.1	60.0	58.5	55.5	52.1	44.4	39.2	24.7	25.5	76.5
2	1	84251.3	8/27/2013	NASA P-3B	56.1	58.3	60.1	81.5	81.6	70.0	67.7	76.6	75.5	69.8	66.8	69.1	67.0	68.3	66.8	65.2	65.1	65.1	65.5	64.1	61.0	58.9	57.2	53.9	50.5	43.4	38.9	24.5	25.5	75.3
2	1	84251.8	8/27/2013	NASA P-3B	55.5	58.3	60.8	82.7	80.0	68.0	66.0	74.5	73.7	68.9	65.6	67.8	66.2	66.6	65.3	64.0	63.9	63.9	64.1	62.7	59.5	57.7	55.8	52.2	49.0	42.3	38.4	24.2	25.3	74.0
2	1	84252.3	8/27/2013	NASA P-3B	54.4	56.9	60.0	82.1	78.1	66.0	64.2	72.4	71.7	67.7	64.7	66.0	65.5	64.8	63.9	62.8	62.6	62.6	62.6	61.2	58.0	56.1	54.3	50.5	47.6	41.8	38.3	24.3	25.6	72.5

2	1	84252.8	8/27/2013	NASA P-3B	53.7	55.8	59.4	80.8	76.1	64.0	62.3	70.4	69.8	66.6	63.9	64.1	64.5	62.9	62.6	61.5	61.3	61.2	61.3	59.7	56.7	54.7	52.7	48.9	46.5	40.9	37.2	24.4	25.7	71.1
2	1	84253.3	8/27/2013	NASA P-3B	52.4	54.7	59.2	79.3	74.1	62.7	60.4	68.4	68.0	66.3	63.4	62.4	63.3	61.7	61.1	60.1	60.3	60.0	59.9	58.4	55.4	53.4	51.4	47.4	45.5	40.4	36.8	24.6	26.3	69.9
2	1	84253.8	8/27/2013	NASA P-3B	52.6	53.1	58.3	78.0	72.0	61.1	58.8	66.3	66.2	65.7	63.0	61.6	61.8	60.5	59.5	58.9	59.1	58.6	58.7	57.1	54.1	52.1	49.9	46.0	44.7	40.3	36.8	25.2	27.3	68.6

Table 38. Acoustic Data from the P-3B Pre-flight Test: Event 2 at Mic 2

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third 0ctave-Band Center Frequency (Hz)																												
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	2	84244.8	8/27/2013	NASA P-3B	50.7	51.8	51.3	57.3	57.2	62.2	74.0	67.6	64.0	68.0	65.9	65.5	65.7	65.9	66.4	66.4	63.2	61.5	57.6	55.6	52.2	48.6	44.5	39.1	37.8	34.2	24.6	20.8	20.5	72.2
2	2	84245.3	8/27/2013	NASA P-3B	52.3	52.5	54.8	58.3	58.5	62.9	76.0	68.2	64.8	70.5	66.8	68.0	67.1	68.1	68.0	69.4	64.6	63.9	60.0	58.6	54.5	52.1	49.0	43.5	39.3	35.2	25.0	20.9	20.4	74.4
2	2	84245.8	8/27/2013	NASA P-3B	52.3	52.7	56.0	60.0	60.5	65.7	81.6	70.2	67.7	72.7	68.0	69.7	69.8	71.1	70.1	72.1	66.9	67.4	63.4	62.5	59.7	58.4	55.3	48.7	41.1	36.0	25.4	21.0	20.4	77.2
2	2	84246.3	8/27/2013	NASA P-3B	55.4	55.2	57.0	62.4	62.5	67.6	83.7	71.1	69.4	74.7	70.8	71.6	71.6	72.3	71.9	72.9	68.4	69.8	65.6	65.6	63.6	61.5	57.4	49.6	43.2	37.0	25.7	21.1	20.4	79.0
2	2	84246.8	8/27/2013	NASA P-3B	58.4	56.0	58.5	65.2	64.0	76.3	86.1	72.4	72.7	79.5	72.6	72.2	73.2	73.1	73.0	72.8	70.5	72.2	68.3	68.6	65.6	62.3	57.7	51.3	44.4	37.4	26.6	21.2	20.4	80.7
2	2	84247.3	8/27/2013	NASA P-3B	59.1	58.0	59.6	64.0	68.0	89.2	90.0	73.7	81.8	81.6	76.7	73.7	73.5	74.1	74.8	74.7	72.3	73.6	70.1	69.8	65.9	63.5	59.6	52.2	45.0	39.5	31.4	22.0	20.5	82.6
2	2	84247.8	8/27/2013	NASA P-3B	58.3	58.3	65.6	65.3	73.7	93.4	88.6	74.9	87.0	81.0	77.2	73.7	73.7	74.7	76.1	74.9	73.5	73.4	71.0	69.3	66.6	64.0	59.3	51.8	52.2	43.0	34.1	23.4	20.7	83.4
2	2	84248.3	8/27/2013	NASA P-3B	56.9	58.8	65.3	66.3	81.7	94.7	86.6	75.9	86.2	80.3	78.0	74.3	73.2	75.0	77.9	76.1	74.1	72.6	71.1	70.0	66.4	63.6	58.8	51.5	52.7	45.2	35.7	24.5	20.8	83.7
2	2	84248.8	8/27/2013	NASA P-3B	56.6	62.3	65.2	68.9	90.2	93.8	84.6	83.2	85.3	79.2	77.0	73.7	72.9	75.9	78.1	76.4	74.0	71.5	71.2	70.4	65.9	63.1	58.0	51.8	52.1	45.8	36.4	24.7	20.7	83.7
2	2	84249.3	8/27/2013	NASA P-3B	55.9	64.8	64.1	72.2	92.2	91.7	82.6	84.6	83.4	78.5	76.2	73.1	72.7	76.0	76.9	75.8	73.6	71.4	70.8	69.9	66.1	62.3	57.2	51.2	51.1	45.6	36.3	24.6	20.6	83.0
2	2	84249.8	8/27/2013	NASA P-3B	56.2	64.7	64.2	78.2	93.1	89.6	80.6	83.1	81.5	77.5	75.5	72.4	72.6	75.7	75.5	74.3	72.5	71.4	69.9	68.7	65.2	61.4	56.2	50.2	49.7	44.5	35.4	24.1	20.5	82.0
2	2	84250.3	8/27/2013	NASA P-3B	56.0	64.0	65.1	84.1	93.5	87.4	78.8	81.6	79.7	76.1	74.5	71.7	72.0	74.8	74.0	72.7	71.8	71.5	70.0	68.1	64.1	61.0	55.7	49.2	48.1	43.3	34.1	23.5	20.4	81.1
2	2	84250.8	8/27/2013	NASA P-3B	58.0	62.9	66.0	87.6	92.5	85.3	77.2	79.9	77.9	74.7	73.4	71.2	71.4	73.7	72.4	71.2	71.2	71.1	70.4	67.8	63.1	59.8	55.7	48.4	46.6	41.9	32.8	22.8	20.4	80.3
2	2	84251.3	8/27/2013	NASA P-3B	59.0	61.5	65.6	88.9	90.8	83.2	75.3	77.9	76.2	73.6	72.2	70.3	70.8	72.4	70.8	69.7	70.0	69.9	69.5	67.1	62.3	58.3	54.7	48.0	45.1	40.6	31.3	22.2	20.3	79.1
2	2	84251.8	8/27/2013	NASA P-3B	58.3	60.9	65.1	88.4	88.8	81.0	73.7	76.0	74.6	72.1	71.2	69.5	69.9	70.9	69.2	68.2	68.5	68.3	68.2	66.1	61.7	57.4	53.2	47.1	43.8	39.4	29.9	21.7	20.3	77.7
2	2	84252.3	8/27/2013	NASA P-3B	56.7	59.5	64.1	87.2	86.7	78.9	72.4	74.2	72.7	70.6	69.8	68.0	68.7	69.3	67.5	66.7	67.1	66.6	66.6	64.8	60.7	56.7	51.9	45.8	42.7	38.5	28.8	21.2	20.3	76.2
2	2	84252.8	8/27/2013	NASA P-3B	55.5	58.0	63.3	85.6	84.5	76.8	70.7	72.4	71.0	69.0	68.3	66.8	67.4	67.6	65.9	65.5	65.9	65.0	65.0	63.3	59.6	56.1	51.4	44.6	41.8	37.8	27.8	21.0	20.3	74.7
2	2	84253.3	8/27/2013	NASA P-3B	54.2	56.9	62.4	84.0	82.4	74.7	68.8	70.6	69.5	68.1	67.1	65.4	66.1	66.0	64.3	64.2	64.5	63.4	63.3	61.8	58.4	55.4	52.4	43.8	41.0	37.2	27.0	20.9	20.3	73.3
2	2	84253.8	8/27/2013	NASA P-3B	53.6	55.3	61.0	82.4	80.3	72.7	67.5	69.3	68.3	67.2	65.7	64.6	64.8	64.4	62.7	62.8	63.1	61.6	61.5	60.0	56.7	53.8	50.9	42.7	40.3	36.5	26.3	20.7	20.3	71.7

Table 39. Acoustic Data from the P-3B Pre-flight Test: Event 2 at Mic 3

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third 0ctave-Band Center Frequency (Hz)																												
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	3	84244.8	8/27/2013	NASA P-3B	50.7	51.8	51.3	57.3	57.2	62.2	74.0	67.6	64.0	68.0	65.9	65.5	65.7	65.9	66.4	66.4	63.2	61.5	57.6	55.6	52.2	48.6	44.5	39.1	37.8	34.2	24.6	20.8	20.5	72.2
2	3	84244.3	8/27/2013	NASA P-3B	51.1	53.1	53.0	56.6	57.6	60.4	72.0	67.7	62.6	66.4	63.0	63.2	64.3	63.7	62.7	64.0	63.5	61.8	60.5	57.2	52.5	46.4	42.0	38.4	38.6	32.6	22.6	20.0	20.9	71.1
2	3	84244.8	8/27/2013	NASA P-3B	51.9	52.7	53.2	57.5	58.4	62.5	75.3	68.0	62.6	67.7	65.0	66.5	65.9	65.8	66.1	68.0	66.5	64.3	62.4	58.4	53.3	49.1	46.8	41.6	39.5	33.5	22.9	20.0	20.6	73.8
2	3	84245.3	8/27/2013	NASA P-3B	53.5	52.7	54.5	58.4	58.9	62.9	76.1	68.0	64.2	70.8	66.8	68.4	66.9	67.5	68.2	70.9	68.8	66.1	63.6	59.4	56.7	53.4	51.4	46.1	41.3	34.7	23.3	20.0	20.3	75.9
2	3	84245.8	8/27/2013	NASA P-3B	53.5	52.7	55.8	60.0	60.6	65.5	81.9	69.5	65.7	72.7	68.2	69.3	70.0	71.2	71.5	74.4	71.0	67.6	65.1	63.5	61.0	57.6	55.7	49.6	42.9	35.4	23.6	19.9	20.1	78.8
2	3	84246.3	8/27/2013	NASA P-3B	55.8	57.1	57.8	62.3	62.3	68.1	83.0	70.3	68.2	75.1	70.0	72.0	72.4	72.9	73.5	75.0	70.9	68.7	67.2	66.2	64.3	61.6	57.9	51.1	44.1	37.3	24.0	20.0	20.0	80.0
2	3	84246.8	8/27/2013	NASA P-3B	59.4	57.5	59.5	64.6	64.0	80.3	88.0	72.1	71.6	77.9	73.0	72.7	73.0	73.8	74.2	74.2	71.6	70.7	68.8	68.6	65.6	62.8	58.4	52.3	47.6	38.2	25.3	20.1	19.9	81.1
2	3	84247.3	8/27/2013	NASA P-3B	61.4	60.2	60.4	63.5	68.4	90.7	90.0	73.4	82.2	80.1	77.5	73.9	74.1	74.4	74.9	74.7	72.8	72.0	70.3	69.8	65.6	63.5	59.8	53.4	48.5	39.4	30.8	20.9	19.9	82.6
2	3	84247.8	8/27/2013	NASA P-3B	60.8	60.2	65.7	64.5	74.1	93.9	88.3	74.4	85.2	79.1	77.9	74.9	74.4	74.6	76.3	74.8	73.5	72.7	71.4	69.5	66.5	64.4	59.7	53.8	49.1	42.7	33.8	22.7	20.0	83.2
2	3	84248.3	8/27/2013	NASA P-3B	59.5	61.2	65.4	66.2	83.5	94.4	86.3	77.1	85.0	78.8	78.3	74.4	74.1	75.5	77.3	75.6	74.1	72.4	71.5	69.4	67.6	63.9	60.1	53.8	49.3	44.4	35.2	23.8	20.1	83.5
2	3	84248.8	8/27/2013	NASA P-3B	59.2	63.3	64.8	68.1	89.7	92.9	84.3	84.7	84.5	77.8	76.7	73.7	73.9	75.9	77.1	75.6	73.9	71.3	71.3	70.6	66.9	63.6	59.5	54.0	49.0	44.5	35.8	24.1	20.1	83.3

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third 0ctave-Band Center Frequency (Hz)																											
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	3	84249.3	8/27/2013	NASA P-3B	58.1	64.5	63.7	72.4	91.5	90.8	82.2	85.0	82.6	77.5	75.5	72.7	74.3	75.4	76.2	75.1	73.7	70.5	70.9	70.2	66.2	63.0	59.0	53.7	48.1	43.8	35.2	23.7	20.1	82.7
2	3	84249.8	8/27/2013	NASA P-3B	57.4	64.0	63.6	79.2	92.6	88.7	80.2	83.4	80.9	76.6	75.4	72.2	73.2	75.3	74.9	74.1	72.9	70.6	70.1	69.3	65.6	62.9	58.3	53.3	47.0	42.6	34.3	23.2	20.0	81.9
2	3	84250.3	8/27/2013	NASA P-3B	57.2	63.4	64.1	83.7	92.5	86.6	78.5	81.8	79.1	75.2	74.5	71.7	72.1	74.2	73.7	72.6	72.2	70.8	69.4	68.7	64.5	62.1	58.1	52.3	45.8	41.2	32.8	22.4	19.9	81.0
2	3	84250.8	8/27/2013	NASA P-3B	58.3	62.3	64.7	86.4	91.1	84.4	76.9	80.0	77.2	73.7	73.3	71.1	71.4	72.7	72.2	71.2	71.1	70.6	69.3	68.4	63.7	60.8	57.6	51.3	44.7	39.7	31.1	21.6	19.9	80.0
2	3	84251.3	8/27/2013	NASA P-3B	58.4	60.7	64.2	87.2	89.2	82.3	75.0	78.0	75.4	72.4	72.0	70.2	70.6	71.1	70.3	69.7	69.6	69.3	68.1	67.1	62.5	59.2	56.3	50.3	43.8	38.4	29.4	21.0	19.8	78.5
2	3	84251.8	8/27/2013	NASA P-3B	57.8	60.2	63.5	86.5	87.2	80.2	73.5	76.0	73.8	71.0	71.1	69.3	70.1	69.8	68.6	67.9	68.4	68.0	66.8	65.8	61.5	58.3	54.9	49.2	43.2	37.4	27.8	20.5	19.8	77.2
2	3	84252.3	8/27/2013	NASA P-3B	56.0	58.9	62.6	85.3	85.1	78.0	71.9	74.2	71.9	69.5	69.7	67.9	69.0	68.4	66.9	66.1	66.9	66.5	65.3	64.3	60.3	57.1	53.7	47.7	42.5	36.6	26.5	20.2	19.7	75.7
2	3	84252.8	8/27/2013	NASA P-3B	55.3	57.8	61.7	83.7	82.9	76.0	70.1	72.3	70.2	67.9	68.1	67.0	67.7	66.9	65.5	64.5	65.3	64.9	63.7	62.6	59.0	56.0	52.5	46.2	41.9	35.9	25.4	20.1	19.9	74.2
2	3	84253.3	8/27/2013	NASA P-3B	54.2	56.2	60.7	82.0	80.8	73.9	68.3	70.4	68.6	66.9	66.8	65.7	66.7	65.7	64.4	63.1	63.8	63.2	62.3	61.1	57.7	55.3	52.0	45.4	41.3	35.3	24.6	19.9	20.0	72.8
2	3	84253.8	8/27/2013	NASA P-3B	53.1	54.7	59.4	80.4	78.7	71.8	67.4	68.7	67.2	66.8	65.4	65.0	65.1	64.2	63.0	62.0	62.4	61.5	60.6	59.3	56.2	54.1	50.8	44.3	40.7	34.4	23.8	19.8	20.2	71.3

A.1.2 Meteorological Data

Table 40. NOAA Meteorological Data from the P-3B Pre-flight Test

Station	Station Name	Date	Temperature Max (F)	Temperature Min (F)	Average Daily Wind Speed (m/s)
GHCND:USW00093741	NEWPORT NEWS INTERNATIONAL AIRPORT VA US*	8/23/2013	86	66.92	2.2

A.1.3 Aircraft Position and Performance Data

All P-3B flight events were approximately 1000-1100 ft. altitude. Passes 1 and 2 were at a slightly lower power setting of 2100 shaft horsepower. Passes 3, 4, and 5 were at a power setting similar to that used during the Houston flight testes (2500 shaft horsepower).

Table 41. Relative Distance between Each Measurement Location and the Closest Point of Approach on Each Pass of the P-3B during the Pre-flight Test

Measurement Location	Closest Runway	Runway Elevation (ft)	Distance to runway center (ft)	Distance to Pass 1 (ft)	Distance to Pass 2 (ft)	Distance to Pass 3 (ft)	Distance to Pass 4 (ft)	Distance to Pass 5 (ft)
1	4	111.5	1250.0	59.1	128.0	229.7	193.6	144.4
2	4	111.5	1259.8	68.9	137.8	239.5	203.4	154.2
3	4	111.5	1276.2	88.6	157.5	259.2	223.1	170.6

* Newport News International Airport was the NOAA station closest Langley Research Center with daily surface average meteorological data for 08/23/2013.

A.2 B-200 King Air Pre-flight Test

A.2.1 Acoustic Data

Table 42. Acoustic Data from the B-200 Pre-flight Test: Event 2 at Mic 1

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third Octave-Band Center Frequency (Hz)																													
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	1	64408.0	8/23/2013	NASA/ Langley B200	47.0	48.1	44.3	50.3	46.9	47.4	57.6	53.5	44.4	49.8	51.1	51.6	49.7	46.9	48.5	47.8	44.0	42.4	40.5	40.0	37.7	38.3	30.9	25.2	28.7	46.1	47.9	28.7	29.9	55.5
2	1	64408.5	8/23/2013	NASA/ Langley B200	46.0	46.7	45.6	51.0	48.5	48.0	57.8	53.1	44.2	52.1	52.6	54.1	51.6	49.2	52.3	49.8	48.8	45.3	43.2	41.6	38.5	38.6	31.5	26.4	28.8	46.0	47.0	28.1	30.1	57.7
2	1	64409.0	8/23/2013	NASA/ Langley B200	50.5	48.1	45.1	51.6	48.7	49.8	58.4	53.1	45.3	54.1	54.5	55.5	52.1	51.2	54.7	50.7	51.0	47.7	44.2	43.2	40.7	40.9	34.4	28.6	28.9	46.1	46.8	27.9	29.7	59.4
2	1	64409.5	8/23/2013	NASA/ Langley B200	51.1	48.7	47.0	51.3	48.0	49.0	58.5	52.5	48.8	55.8	55.6	54.9	51.2	54.6	55.4	51.7	50.9	48.8	46.1	44.7	43.3	44.1	36.5	30.8	29.4	46.3	46.9	27.8	30.1	60.3
2	1	64410.0	8/23/2013	NASA/ Langley B200	49.6	48.1	46.7	51.3	47.9	48.6	57.4	51.2	51.3	58.1	56.8	55.8	51.1	56.5	55.0	52.7	51.3	50.0	48.0	46.7	45.6	47.1	39.3	33.3	29.6	45.7	46.9	27.5	30.5	61.3
2	1	64410.5	8/23/2013	NASA/ Langley B200	48.6	47.9	47.3	51.2	48.9	49.5	56.2	49.8	52.2	59.0	57.7	57.3	53.8	59.4	54.8	54.3	52.3	50.9	49.7	48.4	47.6	48.2	40.8	35.0	30.7	45.2	46.4	27.1	30.5	62.7
2	1	64411.0	8/23/2013	NASA/ Langley B200	48.6	47.2	46.3	51.0	49.0	49.3	55.0	48.8	52.6	60.3	57.7	56.1	55.1	59.5	54.3	53.9	53.0	51.5	50.2	48.9	48.5	49.3	42.1	36.3	32.1	45.4	47.0	27.4	30.4	62.9
2	1	64411.5	8/23/2013	NASA/ Langley B200	48.1	48.6	46.2	50.6	50.2	49.7	54.0	49.2	54.1	63.5	58.5	54.7	56.8	59.2	55.1	54.4	53.7	52.4	51.1	50.4	50.4	51.1	43.4	38.4	34.4	45.7	47.2	27.6	30.7	63.8
2	1	64412.0	8/23/2013	NASA/ Langley B200	49.1	48.2	47.8	52.0	49.8	49.7	53.5	50.2	56.7	64.9	59.3	54.6	61.0	60.0	57.8	55.9	54.4	53.4	53.0	52.2	52.8	53.0	45.2	41.5	37.2	45.6	46.5	27.2	30.6	65.5
2	1	64412.5	8/23/2013	NASA/ Langley B200	50.2	49.7	47.9	52.5	49.4	50.4	56.6	52.8	59.9	64.2	58.9	55.2	62.2	59.9	58.0	55.8	54.6	54.2	53.1	52.5	52.7	52.3	45.5	41.7	37.0	45.6	46.0	26.9	30.4	65.7
2	1	64413.0	8/23/2013	NASA/ Langley B200	49.5	49.8	47.9	51.7	49.4	51.3	57.5	54.6	60.8	64.6	58.1	58.4	61.9	60.3	57.7	56.6	55.2	54.8	53.6	52.8	53.0	52.1	46.4	43.0	38.5	45.9	46.6	27.3	30.5	66.0
2	1	64413.5	8/23/2013	NASA/ Langley B200	49.4	49.4	47.5	52.9	49.7	52.9	59.4	56.7	62.0	67.6	57.6	59.9	61.4	60.8	57.7	57.1	56.3	55.8	54.8	54.7	55.5	53.2	48.6	45.7	41.2	46.1	47.1	27.6	30.6	67.0
2	1	64414.0	8/23/2013	NASA/ Langley B200	49.3	50.4	47.5	53.6	49.8	55.0	61.7	57.2	63.8	69.1	58.5	60.6	61.2	61.3	58.0	56.9	55.8	55.9	54.8	54.6	56.5	53.3	49.2	46.7	42.0	45.3	46.9	27.4	29.8	67.3
2	1	64414.5	8/23/2013	NASA/ Langley B200	48.8	53.3	48.2	53.2	49.6	56.8	61.1	59.4	64.4	67.9	60.7	61.4	61.9	61.5	59.2	57.6	57.0	56.5	55.9	55.2	56.9	53.5	49.6	47.1	43.1	45.0	46.7	27.3	29.8	67.9
2	1	64415.0	8/23/2013	NASA/ Langley B200	51.2	54.9	47.9	53.1	49.7	63.0	61.4	60.5	66.2	66.4	59.9	62.4	62.6	62.1	59.7	58.5	57.5	56.5	55.5	55.4	57.6	52.9	49.2	46.9	43.0	44.6	45.1	26.5	30.3	68.2
2	1	64415.5	8/23/2013	NASA/ Langley B200	54.4	55.2	47.3	53.6	49.7	66.6	61.0	61.4	68.7	64.9	59.3	62.8	63.3	61.6	59.5	58.6	57.7	56.0	55.5	55.0	56.6	52.1	49.0	47.0	43.3	44.8	44.6	26.7	30.6	68.1
2	1	64416.0	8/23/2013	NASA/ Langley B200	55.6	54.0	46.8	53.9	49.9	65.4	59.7	61.5	68.6	63.7	58.8	64.4	63.1	61.5	59.7	58.7	58.0	56.5	56.1	55.6	56.2	52.2	49.7	47.5	43.6	45.5	44.7	27.1	31.0	68.3
2	1	64416.5	8/23/2013	NASA/ Langley B200	58.5	52.9	46.5	53.9	50.8	64.4	58.3	61.3	68.4	62.2	57.8	65.0	62.5	60.9	58.9	57.9	57.0	55.4	55.1	54.8	55.0	51.2	49.0	46.6	42.8	45.9	44.9	27.3	31.9	67.6
2	1	64417.0	8/23/2013	NASA/ Langley B200	59.0	51.7	47.3	53.4	51.4	64.1	56.8	60.9	68.8	60.9	57.1	65.9	62.3	60.8	58.5	57.7	56.9	55.0	55.0	55.0	54.7	51.3	49.3	46.4	43.0	46.2	44.9	27.5	32.0	67.6
2	1	64417.5	8/23/2013	NASA/ Langley B200	57.8	50.0	46.4	54.2	52.6	64.8	55.3	59.8	68.2	60.0	56.0	65.6	62.0	59.8	57.7	56.8	55.6	54.0	53.9	54.1	53.4	50.4	48.3	45.0	42.0	46.5	45.1	27.7	32.6	66.7
2	1	64418.0	8/23/2013	NASA/ Langley B200	56.9	49.2	46.8	53.8	54.0	64.8	53.7	59.6	67.6	58.8	54.5	64.9	61.7	59.2	57.3	55.9	54.8	53.3	53.4	53.5	52.7	49.5	47.6	44.2	41.8	46.9	45.5	27.8	32.9	66.1
2	1	64418.5	8/23/2013	NASA/ Langley B200	56.6	48.4	46.0	53.3	55.6	64.6	52.2	59.8	66.9	58.2	53.3	63.5	61.1	58.4	57.6	55.7	55.2	53.1	53.4	53.5	52.2	49.1	47.3	43.4	41.4	47.2	46.0	27.9	32.7	65.7
2	1	64419.0	8/23/2013	NASA/ Langley B200	56.5	47.6	46.4	52.7	57.1	63.7	51.0	59.9	66.1	57.3	53.3	62.1	60.9	57.4	58.1	55.6	54.6	52.5	52.8	53.3	51.7	48.7	47.1	42.5	40.6	47.5	46.6	28.2	32.6	65.2
2	1	64419.5	8/23/2013	NASA/ Langley B200	55.6	47.6	45.9	51.6	58.2	63.3	49.5	59.5	64.8	57.9	53.8	60.5	60.2	56.3	58.1	55.0	53.9	51.7	52.0	52.7	50.7	48.0	46.6	41.4	39.7	47.9	46.4	27.8	32.6	64.5
2	1	64420.0	8/23/2013	NASA/ Langley B200	55.9	48.9	46.1	52.2	58.0	62.3	48.4	57.8	62.9	56.7	53.4	58.7	59.0	55.1	56.7	53.6	52.4	50.2	50.6	51.1	49.1	46.5	45.3	39.7	38.2	47.8	46.7	27.7	32.7	63.1
2	1	64420.5	8/23/2013	NASA/ Langley B200	55.0	48.3	46.5	53.7	58.4	61.2	48.5	56.3	61.0	55.7	53.6	57.3	57.6	54.0	55.1	52.4	51.4	49.1	49.3	49.7	47.4	44.8	43.7	37.9	36.8	47.5	46.6	27.5	32.6	61.8
2	1	64421.0	8/23/2013	NASA/ Langley B200	54.8	49.1	45.9	52.8	58.7	60.1	47.8	54.5	59.1	54.7	53.5	56.3	56.2	53.9	53.6	51.6	50.6	48.4	48.6	48.9	46.5	44.1	43.3	36.7	35.6	46.9	47.3	28.1	33.1	60.9
2	1	64421.5	8/23/2013	NASA/ Langley B200	53.8	47.9	45.5	52.5	59.8	59.3	47.5	52.7	57.1	53.6	52.6	54.9	54.4	53.1	52.1	50.6	49.4	47.1	47.3	47.6	44.9	42.8	42.0	35.3	34.5	46.8	48.0	28.8	33.3	59.7
2	1	64422.0	8/23/2013	NASA/ Langley B200	53.1	47.9	44.9	51.7	60.8	58.7	47.4	51.0	55.2	52.8	52.8	54.6	52.8	52.9	51.1	49.6	48.2	46.1	46.4	46.5	43.5	41.6	41.0	33.9	33.4	46.7	48.1	29.0	32.9	58.8
2	1	64422.5	8/23/2013	NASA/ Langley B200	52.7	47.7	45.8	51.1	61.0	57.8	46.8	49.3	53.3	51.7	53.3	54.8	51.4	53.5	52.0	50.6	48.0	45.8	46.0	45.8	42.8	41.4	40.8	33.2	32.9	47.0	48.3	29.2	32.9	58.9
2	1	64423.0	8/23/2013	NASA/ Langley B200	52.1	46.5	44.8	50.5	61.3	57.7	47.9	48.4	51.6	51.3	53.4	55.8	50.8	53.4	52.8	50.2	47.6	45.4	45.3	45.1	41.6	40.4	39.4	32.0	32.3	47.3	48.4	29.1	32.9	58.8
2	1	64423.5	8/23/2013	NASA/ Langley B200	51.5	46.1	45.5	49.9	60.6	57.0	48.2	47.5	49.7	50.3	53.9	57.1	52.7	53.2	54.4	50.2	48.7	45.7	45.3	45.0	40.9	39.7	38.7	31.1	31.9	48.0	48.4	29.2	32.7	59.3

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third Octave-Band Center Frequency (Hz)																												
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	1	64424.0	8/23/2013	NASA/ Langley B200	51.3	46.7	45.4	50.8	60.4	56.2	48.3	46.5	48.1	48.9	53.3	56.5	52.7	51.5	52.7	48.7	47.2	44.0	43.8	43.7	39.4	38.4	37.5	29.8	31.3	48.6	48.8	29.6	32.1	58.3
2	1	64424.5	8/23/2013	NASA/ Langley B200	51.3	46.4	44.5	50.4	60.7	55.9	47.9	45.2	46.3	47.2	51.6	54.7	51.2	49.6	50.8	46.8	45.3	42.2	42.0	41.8	37.7	36.5	35.6	28.3	30.7	49.0	48.7	29.3	31.9	56.7
2	1	64425.0	8/23/2013	NASA/ Langley B200	50.5	45.9	43.4	50.8	60.3	55.1	47.1	45.5	44.7	45.7	50.1	53.2	49.9	47.7	49.1	45.2	44.1	40.9	40.6	40.1	36.0	34.8	33.8	26.9	30.1	49.0	48.2	29.0	32.3	55.5

Table 43. Acoustic Data from the B-200 Pre-flight Test: Event 2 at Mic 2

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third Octave-Band Center Frequency (Hz)																												
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	2	64408.5	8/23/2013	NASA/ Langley B200	47.2	44.6	44.2	50.2	48.3	49.3	63.1	58.4	56.1	56.1	54.0	53.8	54.1	56.1	54.6	52.9	52.8	48.6	46.4	44.0	41.6	42.3	34.9	28.2	25.3	30.3	25.9	18.7	19.1	60.7
2	2	64409.0	8/23/2013	NASA/ Langley B200	47.1	44.6	45.4	50.2	49.0	51.6	64.0	59.0	56.4	57.1	55.6	54.2	55.0	57.8	56.1	54.4	53.8	50.7	48.6	47.1	44.6	45.9	38.9	34.1	28.6	30.4	26.4	18.8	19.2	62.3
2	2	64409.5	8/23/2013	NASA/ Langley B200	47.6	44.6	46.7	50.9	49.2	51.8	64.5	59.0	57.0	59.1	56.2	54.2	55.6	59.7	57.0	56.2	56.3	53.7	51.9	50.3	48.8	50.1	43.0	38.8	32.1	30.5	26.6	18.8	19.4	64.3
2	2	64410.0	8/23/2013	NASA/ Langley B200	48.8	46.0	46.1	50.7	49.7	51.8	64.8	59.0	58.6	60.8	56.7	55.7	56.7	60.4	57.7	56.4	56.5	53.1	51.2	50.0	48.9	50.7	44.1	40.5	33.1	30.5	26.6	18.9	19.5	64.6
2	2	64410.5	8/23/2013	NASA/ Langley B200	48.5	46.7	47.7	51.1	51.4	53.5	64.7	58.6	59.5	61.4	57.8	58.3	60.5	63.1	59.5	58.2	57.7	53.7	51.4	50.0	49.0	50.4	43.4	39.4	32.3	30.4	26.2	19.0	20.0	66.2
2	2	64411.0	8/23/2013	NASA/ Langley B200	48.3	48.4	48.5	51.1	52.1	53.9	64.4	58.9	59.3	63.0	58.5	58.9	60.9	63.4	60.5	58.9	58.8	55.0	53.9	52.6	52.9	54.6	48.3	43.7	34.5	30.9	26.5	19.1	20.4	67.4
2	2	64411.5	8/23/2013	NASA/ Langley B200	49.2	49.5	48.5	50.5	53.3	55.1	63.6	59.4	59.3	64.4	59.4	58.7	60.7	62.6	59.9	58.7	58.2	54.8	53.5	52.4	53.0	54.8	47.5	42.6	33.6	31.0	26.3	19.2	20.7	67.1
2	2	64412.0	8/23/2013	NASA/ Langley B200	48.1	49.1	48.5	51.1	53.8	55.2	65.1	59.6	60.2	64.9	59.8	60.7	62.2	64.2	61.4	60.0	59.0	55.7	55.7	54.2	55.9	56.3	48.2	43.0	36.3	31.1	26.0	19.2	20.7	68.5
2	2	64412.5	8/23/2013	NASA/ Langley B200	48.8	49.6	49.3	51.4	54.0	56.6	67.6	60.1	61.9	64.0	60.3	60.8	64.3	65.6	62.3	60.6	59.8	57.6	57.3	56.5	58.1	56.7	48.5	44.3	38.2	31.2	26.5	19.4	20.7	69.8
2	2	64413.0	8/23/2013	NASA/ Langley B200	49.3	49.7	50.1	51.5	54.3	58.5	70.0	60.6	62.1	64.2	60.9	62.2	64.2	65.3	62.7	61.1	59.7	57.8	57.2	56.5	57.7	55.5	48.3	44.4	37.2	31.1	27.3	19.6	21.2	69.8
2	2	64413.5	8/23/2013	NASA/ Langley B200	49.8	49.3	50.0	55.4	55.9	61.6	72.7	61.2	63.0	67.6	62.0	63.0	64.6	65.2	62.7	61.2	60.1	58.6	58.1	57.5	57.3	54.9	49.2	44.8	36.7	31.6	29.0	20.1	21.5	70.2
2	2	64414.0	8/23/2013	NASA/ Langley B200	49.9	51.5	50.7	54.2	56.8	65.6	73.6	61.3	64.4	69.4	63.2	63.2	66.3	65.4	63.1	61.6	60.0	59.1	58.2	57.0	56.8	54.5	49.2	44.0	36.2	32.7	30.9	20.5	21.7	70.6
2	2	64414.5	8/23/2013	NASA/ Langley B200	49.9	53.7	51.4	55.8	56.2	71.2	73.7	62.1	65.1	68.6	64.5	63.3	67.0	65.3	63.8	62.1	60.2	59.7	58.8	56.6	58.0	54.3	48.3	43.7	35.4	34.8	33.0	21.0	21.9	71.0
2	2	64415.0	8/23/2013	NASA/ Langley B200	51.9	55.6	50.7	55.4	57.0	76.1	73.3	62.2	67.5	67.3	63.9	64.0	68.0	65.6	64.4	63.4	61.0	59.7	59.2	56.5	60.8	53.8	48.6	43.9	35.5	36.8	33.6	21.7	21.9	71.7
2	2	64415.5	8/23/2013	NASA/ Langley B200	54.6	55.5	50.5	58.5	58.9	78.8	72.1	62.4	70.1	66.3	63.4	64.4	68.1	64.9	63.8	63.0	61.0	58.8	58.6	56.1	59.8	52.9	47.8	42.9	35.6	37.9	33.3	21.7	22.0	71.4
2	2	64416.0	8/23/2013	NASA/ Langley B200	57.9	54.7	49.9	58.7	60.2	79.2	70.5	62.1	69.8	65.5	63.1	65.5	68.2	64.5	63.8	63.6	61.8	58.6	58.3	57.0	58.8	53.7	48.3	43.9	35.4	39.8	33.4	21.9	22.0	71.5
2	2	64416.5	8/23/2013	NASA/ Langley B200	60.3	53.8	48.9	58.8	61.1	78.7	68.7	61.9	68.8	64.1	62.7	65.4	67.3	63.7	63.1	63.1	61.1	58.0	57.5	56.9	57.5	53.1	48.3	43.5	35.3	39.8	32.8	21.8	22.2	70.8
2	2	64417.0	8/23/2013	NASA/ Langley B200	60.1	52.9	49.7	58.0	61.5	77.7	66.8	61.8	68.7	63.0	62.8	65.7	66.4	63.2	62.8	62.8	61.0	58.0	57.6	56.3	56.5	53.3	48.3	42.8	35.2	39.1	32.2	21.5	22.1	70.4
2	2	64417.5	8/23/2013	NASA/ Langley B200	59.8	51.1	49.0	58.0	63.2	77.0	65.1	60.8	67.9	62.2	62.0	65.4	65.5	62.2	62.5	62.0	60.0	57.5	56.9	55.7	55.2	53.0	47.9	41.8	34.4	37.8	31.1	21.0	22.3	69.7
2	2	64418.0	8/23/2013	NASA/ Langley B200	59.1	49.9	49.7	57.2	63.4	75.7	63.3	61.0	67.5	60.9	60.8	65.2	64.6	61.7	62.1	61.4	59.4	56.9	56.3	55.1	54.2	52.1	47.8	41.0	34.5	36.8	30.2	20.3	21.4	69.0
2	2	64418.5	8/23/2013	NASA/ Langley B200	58.4	48.7	48.5	55.8	64.2	74.5	62.0	61.9	67.6	59.8	59.9	64.5	63.5	61.1	61.8	60.7	58.9	56.4	55.9	54.4	53.4	50.5	47.1	40.2	34.0	36.1	29.3	19.8	20.8	68.4
2	2	64419.0	8/23/2013	NASA/ Langley B200	57.4	47.7	47.8	55.3	65.0	73.3	60.9	62.2	66.9	58.7	59.1	63.9	62.5	60.9	61.6	60.0	58.3	56.2	55.9	54.6	53.3	49.2	46.7	40.3	33.1	34.8	28.4	19.3	20.3	67.9
2	2	64419.5	8/23/2013	NASA/ Langley B200	56.5	46.8	47.0	54.5	65.5	71.9	59.5	62.4	66.1	58.7	58.9	63.8	61.7	60.4	61.4	59.5	58.1	56.2	56.0	54.8	53.6	49.1	46.5	41.0	33.6	33.5	27.3	19.1	20.0	67.7
2	2	64420.0	8/23/2013	NASA/ Langley B200	56.7	46.1	45.8	54.0	65.1	70.3	58.6	61.5	64.4	57.6	58.1	63.0	61.2	59.8	60.7	58.8	57.7	56.0	56.0	54.6	53.1	48.6	45.7	40.4	34.1	32.6	26.1	19.0	19.8	67.1
2	2	64420.5	8/23/2013	NASA/ Langley B200	55.7	45.9	44.8	53.3	64.4	68.5	57.8	60.9	63.0	56.6	57.5	63.2	60.5	58.7	59.3	57.5	56.5	55.0	55.0	53.6	51.7	47.8	44.5	38.7	33.5	32.0	25.2	19.0	20.3	66.1
2	2	64421.0	8/23/2013	NASA/ Langley B200	55.0	45.5	44.0	53.5	63.9	66.8	56.5	60.0	61.4	55.8	56.6	62.6	60.1	58.1	58.1	56.6	55.5	54.0	53.8	52.4	50.1	46.8	43.7	37.0	32.6	31.7	24.7	19.1	20.9	65.2
2	2	64421.5	8/23/2013	NASA/ Langley B200	54.0	45.9	44.7	53.0	64.9	65.6	55.8	59.2	59.8	54.9	55.4	61.2	58.9	57.0	57.0	55.2	54.1	52.8	52.6	51.6	48.6	46.3	43.7	35.6	31.7	31.3	24.1	19.3	21.4	64.0
2	2	64422.0	8/23/2013	NASA/ Langley B200	53.0	46.3	44.2	52.5	64.8	64.3	55.3	58.7	58.4	54.3	54.7	60.2	58.6	56.7	55.9	54.0	53.0	51.9	51.9	50.8	47.3	45.3	43.1	34.3	30.3	30.8	24.0	19.4	21.8	63.1
2	2	64422.5	8/23/2013	NASA/ Langley B200	52.1	45.2	45.9	51.4	64.2	62.8	55.4	58.6	57.2	53.5	54.3	59.2	57.6	56.1	55.1	52.8	51.6	50.5	50.4	49.5	45.8	44.0	42.1	33.1	29.1	30.6	24.0	19.3	21.6	62.0
2	2	64423.0	8/23/2013	NASA/ Langley B200	51.0	45.4	44.6	51.0	63.8	61.5	55.2	59.1	56.9	53.8	54.3	58.7	56.7	55.7	54.2	51.6	50.2	48.9	48.9	48.1	44.1	42.6	41.1	32.0	28.2	30.3	23.8	19.1	21.1	61.1
2	2	64423.5	8/23/2013	NASA/ Langley B200	50.5	45.0	45.8	50.6	63.2	60.4	54.8	58.3	56.0	53.5	54.8	58.9	57.5	55.8	55.0	52.2	50.6	49.3	49.4	48.7	43.7	41.7	40.8	32.1	28.4	30.4	23.7	18.9	20.5	61.5

EVENT Number	Microphone/ Site Number	GPS Time Midpoint (s)	Date	Model	One-Third 0ctave-Band Center Frequency (Hz)																												
					25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	SPL (dBA)
2	2	64424.0	8/23/2013	NASA/ Langley B200	50.6	43.7	46.2	50.7	62.7	59.2	54.3	57.1	54.9	52.9	54.2	57.9	56.5	54.6	53.7	50.7	48.8	47.4	47.5	46.8	41.7	39.8	39.0	30.5	27.2	30.2	23.6	18.7	20.0	60.1

A.2.2 Meteorological Data

Table 44. NOAA Meteorological Data from the B-200 Pre-flight Test

Station	Station Name	Elevation	Latitude	Longitude	Date	Temperature Max (F)	Temperature Min (F)	Average Daily Wind Speed (m/s)
GHCND:USW00093739	WALLOPS ISLAND WALLOPS FLIGHT FACILITY VA US	14	37.9372	-75.4708	8/27/2013	89.96	73.04	3.5

A.2.3 Aircraft Position and Performance Data

Pass 1 occurred at approximately 10,000 ft. Passes 2, 3, and 4 were nominally 1000 ft. altitude. Passes 5, 6, and 7 were at approximately 500 ft. All King Air flight events were at the approximately the same power setting (1700 RPM, 93% N1), which were power setting similar to that used during the Houston flight tests. All of the passes occurred approximately overhead of the measurement sites.

Appendix B: Detailed Validation Data

This appendix presents the detailed aircraft validation data, as described in Section 6. Two example of the data captured for each of the three categories of events flown during the Houston DISCOVER-AQ flight test are included. Data for additional events are available through FAA AEE upon request.

B.1 Acoustics Data

B.1.1 Category 1: P-3B Level Flyover Events

Table 45. Acoustic Data from Example Category 1 Event 116 for the P-3B at NP-2

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site Name	One-Third Octave-Band Center Frequency (Hz)																																			
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
116	1	55873	9/11/2013	NASA P-3B	3	NP-2	49.6	49	49.3	51.5	57.8	58.3	54.5	50.7	53.1	52.5	54.8	59.9	69.8	57.5	58	59.1	49.4	53.4	56.2	56	52.5	51.3	50.8	48.3	47.9	46.2	42.4	38.7	35.8	35	36	36.8	37.9	38.9	39.9	41.6	61.4
116	1	55873.5	9/11/2013	NASA P-3B	3	NP-2	49.8	52.4	47.9	52	56.6	61.5	56.1	52.4	52.5	53	56.2	66	74.3	57.5	59.6	61.5	53.6	56.8	59.3	57.9	53.7	53.7	53	51.9	50.7	48.5	45.3	40.6	36.9	35.5	36.2	36.8	37.9	38.9	40	41.6	63.8
116	1	55874	9/11/2013	NASA P-3B	3	NP-2	50.4	51.7	49.2	51.7	56.2	60.5	57.5	52.7	53.3	54.3	56.2	73.2	77.3	57.2	60.4	60.3	53.8	56.6	59.1	57.7	52.7	53.6	53.3	51.8	50.9	48.7	45.9	41.9	38.5	36.1	36.3	36.9	38	39	40	41.7	65
116	1	55874.5	9/11/2013	NASA P-3B	3	NP-2	53.3	51.9	48.1	52.6	55	59.8	58.2	52.4	54.3	54.4	55.4	79	78.1	57	61.2	59.6	56.7	57.7	59.8	57.8	52.7	54.8	53.3	52.5	51.6	49.2	46.3	42.4	38.7	36.3	36.3	36.9	37.9	38.9	40	41.6	65.5
116	1	55875	9/11/2013	NASA P-3B	3	NP-2	52.3	50.6	48.7	53.8	54.4	60.7	59.8	55.3	54.4	55.3	57.5	81.4	77.2	56.2	60	58	57	60.2	60.4	57.2	54.1	55.5	53.7	53.4	52.6	49.8	47.2	43.1	39.3	36.8	36.4	36.9	37.9	38.9	40	41.6	65.9
116	1	55875.5	9/11/2013	NASA P-3B	3	NP-2	50.6	49.1	50.5	55	54.3	61.9	58.8	55.5	55.7	56.2	57	82	75.5	56.5	59.4	56.8	58.5	60.7	59.6	56	54.8	55	54	53.3	52.7	50.2	47.4	43.9	39.9	37.4	36.5	36.8	37.8	39	40	41.7	66
116	1	55876	9/11/2013	NASA P-3B	3	NP-2	50.1	49.5	54.3	53.9	54.2	61.7	59.1	55.9	56.7	57.5	56.8	82.8	73.5	56.2	59.5	56	61.4	60.6	58.6	54.6	54.7	54.2	53.6	52.7	52.4	49.5	46.6	43.3	39.5	37.4	36.6	36.8	37.9	39	39.9	41.7	68
116	1	55876.5	9/11/2013	NASA P-3B	3	NP-2	52	52.4	56	54.5	56.8	63.9	57.7	55.4	56.4	56.5	58.5	87.6	71.4	55.3	64.1	56.2	62.5	61	58.7	55.3	57.7	56.5	55.1	55.1	54.3	51.7	48.5	44.8	41.3	39.1	37.4	36.9	37.9	39	39.9	41.7	71.2
116	1	55877	9/11/2013	NASA P-3B	3	NP-2	50.6	51.7	56	57.5	56.5	64	56.6	56.2	56.5	57.1	59	92.1	69.4	55.7	70.5	59.9	69.4	63.3	59.2	58.6	59.2	58.2	56.1	56.7	56.5	53	50.2	46.1	42.7	40.2	37.7	37	37.8	38.9	39.9	41.7	72.3
116	1	55877.5	9/11/2013	NASA P-3B	3	NP-2	49.5	52.2	55.5	57.3	57.9	64.1	56.1	56.5	57.6	56.4	62	93.1	67.4	54.5	71.4	65	71.4	64.2	58.5	61.1	60.1	59.8	58	59.1	58.7	55	51.8	47.4	43.8	41	37.7	37	37.8	38.9	39.9	41.7	72.6
116	1	55878	9/11/2013	NASA P-3B	3	NP-2	51.2	51.6	54.9	58	57.2	63.9	55.3	55.6	59.5	57	63.9	92.7	65.4	53.6	69.8	71.2	71.7	64.3	57.7	61.6	59.6	59.8	57.7	59	58.8	55.3	51.3	47.1	44	41.3	37.7	37	37.9	38.9	39.9	41.7	72.1
116	1	55878.5	9/11/2013	NASA P-3B	3	NP-2	52.2	50.3	53.5	57.3	56.4	65.4	55.3	56	61.2	58.4	73.4	91.7	63.6	58.3	69.6	72.5	70.2	64.3	57.2	62.2	59.5	60.8	58.4	60.4	60.1	56.1	52	48.4	45.4	42.7	38.1	37.2	37.9	39	39.9	41.7	71.9
116	1	55879	9/11/2013	NASA P-3B	3	NP-2	55	54.9	52.1	56.4	56.7	67.8	56.5	56.9	62	60	79.5	90	61.9	58.8	67.8	71.4	69	63.6	56.8	62.8	58.9	60.6	59	60.3	60	56.2	51.9	48.2	45.3	42.5	38	37.2	37.8	39	40	41.7	71.9
116	1	55879.5	9/11/2013	NASA P-3B	3	NP-2	55.8	57.7	52.6	55.7	57	67.7	57.3	59.1	61.2	61.3	88	88.5	60.4	59.1	65.9	69.9	67.8	63	56.6	62.9	58.5	60.6	61.8	62.9	61.8	58.8	54	50.1	46.9	43.8	38.5	37.2	37.9	39	40	41.7	72.9
116	1	55880	9/11/2013	NASA P-3B	3	NP-2	60.3	56.7	51.6	55.5	61	66.7	57.3	59.2	59.7	61.5	91.8	86.5	58.8	61.8	64.9	69.6	69.1	63.5	57.1	63.2	59.4	62	64	64.3	63.2	60.8	55.3	51.7	48	44.6	38.8	37.3	37.9	38.9	40	41.6	73.4
116	1	55880.5	9/11/2013	NASA P-3B	3	NP-2	59.7	57.9	54.9	55.2	61	65.3	56.7	58.9	58.9	61.4	92	84.4	57.9	61.1	63.3	68	67.8	63	57.2	63.4	60.2	62.8	65.9	65.1	63.8	61.3	56.1	52.3	48.2	44.3	38.7	37.2	38	39	39.9	41.6	73.4
116	1	55881	9/11/2013	NASA P-3B	3	NP-2	62.1	57.9	54.1	55.5	65.1	63.6	55	58.3	58.7	60.7	90.2	82.3	57.6	59.4	61.7	66.3	67.1	63	58.2	64.6	60.7	64.2	68.9	66.2	64.6	61.2	56.2	52.3	48.3	43.7	38.5	37.1	38	38.9	39.9	41.5	74.3
116	1	55881.5	9/11/2013	NASA P-3B	3	NP-2	61.8	56.8	55.2	54.5	67	61.9	54.2	57.7	57.6	59.5	88.6	80.2	56.4	57.8	60.7	65.3	66.2	62.5	58	63.7	59.3	63.1	67.6	65.4	63.7	60.4	55.4	51.7	47.6	42.7	38	37	38.1	39	39.9	41.6	73.2
116	1	55882	9/11/2013	NASA P-3B	3	NP-2	62.2	55.7	57.9	54.5	67	61.4	56	56.9	56.4	59.2	87.2	78.2	55.7	56.1	59.2	63.8	64.8	61.2	57.2	62.5	58.5	62.3	67.5	65.7	63.8	61.1	55.6	52.2	47.5	42.2	37.7	36.9	38.1	38.9	39.9	41.6	73
116	1	55882.5	9/11/2013	NASA P-3B	3	NP-2	60.9	55.7	57.3	53.8	67.1	59.9	55.1	58.1	54.9	58.1	85.4	76.1	55.7	55.6	57.8	62.7	63.7	60.3	56.4	61.2	57.3	61.2	66.2	64	62.2	59.6	54.1	50.6	45.9	40.9	37.2	36.8	37.9	38.8	39.9	41.7	71.5
116	1	55883	9/11/2013	NASA P-3B	3	NP-2	61.3	57.9	56.1	55.4	67.4	59.6	54.5	56.8	53.6	57.5	84.1	74	54.4	54.7	56.2	61.6	63	61.1	55.6	61.2	56.4	59.7	64.5	62.5	60.4	58.1	52.5	49.1	44.5	39.8	36.8	36.7	37.9	38.8	39.9	41.7	70.1
116	1	55883.5	9/11/2013	NASA P-3B	3	NP-2	61.7	56.2	55.9	54.6	66.2	58.4	53.2	55.5	53.2	59.8	83.3	71.9	54	54.3	55.2	60.5	62.6	61.5	56.4	60.9	56.8	59	63.2	61.7	58.8	56.4	50.9	47.5	43.2	38.8	36.5	36.8	38	38.8	39.9	41.7	69
116	1	55884	9/11/2013	NASA P-3B	3	NP-2	61.7	54.6	55.4	54.1	65.5	57.9	52.3	54.4	52.8	64.3	81.9	69.9	53.6	53.9	53.7	59.9	63.2	61.6	56.6	59.9	56.8	58.4	62.9	62.4	57.9	55.3	49.8	46.5	42.2	38	36.3	36.8	38	38.9	40	41.7	69
116	1	55884.5	9/11/2013	NASA P-3B	3	NP-2	60.4	55.2	54.3	56.6	64.6	57.5	53.1	54.7	52.6	64.5	80	67.9	54.8	54	52.6	59.8	63.3	62.1	57.9	59.2	57.4	58	62.9	62	56.7	53.9	48.5	45.2	41	37.3	36.3	36.8	38	38.9	40	41.7	68.4
116	1	55885	9/11/2013	NASA P-3B	3	NP-2	58.5	55.5	53.7	55.3	63.2	57	52.2	53.6	51.4	64.4	78	66	54	53	51.1	58.4	61.6	60.8	57.3	61.3	56.5	56.6	61.5	60.3	55.1	52.2	47	43.9	39.8	36.6	36.1	36.9	37.9	38.8	39.9	41.7	67.2

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site Name	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
116	1	55885.5	9/11/2013	NASA P-3B	3	NP-2	58.2	55.8	54.2	54.5	62.7	55.9	53.4	53.7	50.6	67.6	76.5	64	54.9	52.5	49.6	56.9	61.2	61.1	57.9	59.7	56.2	55.8	61.1	59.3	54.6	51	46.4	43.2	39.1	36.2	36	36.9	37.9	38.9	39.9	41.7	66.6
116	1	55886	9/11/2013	NASA P-3B	3	NP-2	57.9	54	55.7	55.8	61.4	57	53.4	53.6	52.1	70	75.2	62.1	54.8	55	50.2	55.8	60.4	61.5	58.4	58.1	55.6	55.2	60.2	58.7	54.3	50.4	45.5	42.4	38.4	35.8	36	36.9	37.9	38.9	39.9	41.6	65.9
116	1	55886.5	9/11/2013	NASA P-3B	3	NP-2	56.9	54.2	54.9	55.3	59.9	56.7	54.3	53.1	51.5	70	73.5	60.3	56.4	56.7	52	54.5	58.7	60.2	57.2	56.4	54	53.8	58.7	57.3	53	48.9	44	41.2	37.4	35.5	36	36.8	37.9	39	40	41.6	64.4
116	1	55887	9/11/2013	NASA P-3B	3	NP-2	56.2	53.4	54.3	55.6	59.2	56	55	52.2	51.2	68.4	71.5	58.9	56.3	55.3	50.8	52.9	57	59	56.7	55.2	53.3	53	57.4	56	51.7	47.7	42.7	40.1	36.6	35.2	35.9	36.8	37.9	39	40	41.6	63.3

Table 46. Acoustic Data from Example Category 1 Event 183 for the P-3B at NP-1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
183	1	65770.5	9/12/2013	NASA P-3B	2	NP-1	50.7	51.5	54.1	52.3	50	50.3	57.3	50.8	49.9	53	58.2	58.9	69.7	55.4	58.9	63.6	49.9	52	54.9	54.4	53	49.3	48.2	48.3	46.2	44	40	35.2	33.3	33.8	34.6	35.7	38.9	38.3	39	40.6	61.2
183	1	65771	9/12/2013	NASA P-3B	2	NP-1	50.5	53.8	52.8	51.1	51.1	52.3	57.7	52.7	52.7	53.4	57.6	67.3	73.9	55.5	63.7	65.7	50.6	53.6	55.4	54.4	52.7	49.6	49.4	48.4	47	45	40.7	36.3	33.5	33.9	34.6	35.6	38.7	38.3	39	40.7	62.4
183	1	65771.5	9/12/2013	NASA P-3B	2	NP-1	57.3	54.4	51.3	49.7	52.2	52.9	57.4	52.7	53.9	55.7	56.7	75	75.5	55.1	63.1	64	52.5	55.2	56	53.9	52.5	49.9	50.4	48.8	47.6	45.3	41.1	36.7	33.8	34	34.6	35.8	38.7	38.4	39	40.7	62.8
183	1	65772	9/12/2013	NASA P-3B	2	NP-1	59.2	52.6	51.4	52.8	51.1	55.6	57.5	52.2	55.6	55.8	57.7	77.5	74.4	55	62.7	62.4	53.6	54.8	56.4	55.2	53.1	49.9	52.1	49.6	48.9	46.2	41.8	37.2	34.1	34.1	34.6	35.8	38.8	38.3	38.9	40.7	62.7
183	1	65772.5	9/12/2013	NASA P-3B	2	NP-1	58.8	53	51.6	52.7	50.3	58.4	57.6	51.5	56.5	56.4	57.3	77.6	72.7	53.8	62.9	60.6	53	53.5	55.2	54	52.5	49.8	51.7	49.1	48.5	45.8	41.5	37	33.9	34.1	34.6	35.7	38.9	38.3	38.8	40.7	62.8
183	1	65773	9/12/2013	NASA P-3B	2	NP-1	57.2	52.5	50.4	54.2	51.2	60.9	57.9	53	58.4	55.5	58	79.4	70.7	53.4	67.2	58.7	59	54.1	55.4	55	52.1	50.6	52.3	50.7	50	46.4	41.7	37.1	34.1	34	34.8	35.8	38.7	38.2	39	40.7	65.8
183	1	65773.5	9/12/2013	NASA P-3B	2	NP-1	57.2	51.7	50.7	54.3	51.5	62.1	56.3	52.2	57	54.3	58.3	84.7	68.7	55.1	67.9	57	59.7	54.8	56.4	55	52.4	52.5	53.1	51.9	50.6	47.2	42.5	37.7	34.7	34.1	34.9	35.8	38.5	38.2	39	40.8	69.9
183	1	65774	9/12/2013	NASA P-3B	2	NP-1	55.6	52.2	49.8	53.4	51.4	62.4	54.5	51.2	56.2	55.3	59	91	66.9	55.4	68.5	55.3	59.9	58.7	58.2	56.7	53.4	54.3	53.6	53.5	51.4	47.6	42.7	38	34.9	34.3	35	35.9	38.3	38.2	39	40.8	70.3
183	1	65774.5	9/12/2013	NASA P-3B	2	NP-1	54.4	53.6	50	57	53	62.5	52.9	51.5	56.7	56	60.3	91.6	65	54.6	70.2	53.8	60.6	58.6	57.7	55.6	53	53.8	52.6	52.9	51	47.3	42.9	38.2	35.3	34.3	34.9	36	38.5	38.2	39.1	40.7	69.4
183	1	65775	9/12/2013	NASA P-3B	2	NP-1	53.5	53.6	54.2	58.5	52.6	63.5	52.8	50.8	56.4	55.1	62.4	90.6	63.2	54.4	70.5	57.4	63.2	62	61.1	56.5	55.3	56.2	54	56.3	53.8	49.9	46.2	40.7	36.4	34.8	35	36	38.5	38.1	39	40.7	69.4
183	1	65775.5	9/12/2013	NASA P-3B	2	NP-1	52	52.2	54.9	57.3	51.4	64	52.7	51.4	56.1	57.2	64.3	89.8	61.9	56	71.1	61.2	62.9	61.7	61	56.7	56.2	57	54.3	57.4	54.9	51.5	47.4	41.7	37.3	35.2	35.1	36	38.5	38.1	39	40.7	69.1
183	1	65776	9/12/2013	NASA P-3B	2	NP-1	50.4	50.8	55.4	55.8	51.5	65.3	51.5	54.7	58.2	61.8	72.1	89	61	58.8	69.9	61.2	62.3	62.3	61.7	56.6	58.2	57.5	56.1	58.6	55.9	52.7	48.4	42.2	37.8	35.3	35	36	38.6	38.1	39	40.6	69.9
183	1	65776.5	9/12/2013	NASA P-3B	2	NP-1	50.3	50.7	54.8	55.7	52.3	66	52.6	54.1	58.6	61.5	83	89	59.8	64.6	68.8	60.3	62.2	62.4	61.2	55.9	58.2	57.1	56.8	58.3	56.3	52.3	47.8	41.8	37.7	35.2	35	35.9	38.7	38	39	40.6	70.9
183	1	65777	9/12/2013	NASA P-3B	2	NP-1	51.7	57.6	53.2	54.5	51.7	66	52.8	53.7	57.8	62.6	91.3	89	59.4	64.8	66.8	59.3	61.2	62.5	61	55.7	58.7	57.4	58.7	60.3	58.4	54	49.3	43.7	39.1	35.6	35	35.9	38.8	38.1	39.1	40.7	70.8
183	1	65777.5	9/12/2013	NASA P-3B	2	NP-1	57.8	57.5	53.3	53.2	51.5	65.8	52.3	52	58.1	61.4	91.3	87	58.9	67.5	64.8	58.4	60.6	62.1	60.5	55.1	59.5	57	59.8	60.5	59.3	55.2	50	44.5	39.8	35.7	35.2	35.9	38.7	38.1	39.1	40.7	70.5
183	1	65778	9/12/2013	NASA P-3B	2	NP-1	58.8	56.7	52.8	51.5	59.3	64.3	52.2	54.3	56.5	61	91	84.9	57.8	66.2	62.8	57.2	60.6	64.3	62	54.7	59.5	57.6	62.1	61.2	60.2	56.9	51	46.2	40.9	36.3	35.2	35.9	38.8	38	39.1	40.7	71.6
183	1	65778.5	9/12/2013	NASA P-3B	2	NP-1	60.8	57.5	51.7	50.3	62.9	62.5	51.9	55.7	55.8	59.9	92.6	82.8	56.7	64.5	60.9	55.9	60	63.6	61.8	55.2	59.1	57.9	62.4	61.5	60.8	57.4	51.1	46.6	41	36.5	35.3	35.9	38.9	38	39.1	40.6	71.3
183	1	65779	9/12/2013	NASA P-3B	2	NP-1	59.7	57.9	51.5	49.3	65.2	61	52	58.8	55.9	58.9	92.5	80.7	55.5	62.8	59	54.7	60.1	63.7	62.8	56	60.2	59.6	64.6	62.9	61.8	58.1	52.1	48.1	42.4	37	35.2	36.1	38.6	38.1	39.1	40.7	71.8
183	1	65779.5	9/12/2013	NASA P-3B	2	NP-1	58.9	56.2	53.1	52.7	65	59.8	54	58.4	55.3	57.8	91.3	78.6	58.4	62.2	57.4	55.1	61.4	64.5	63.3	56.1	60.4	59.4	65.4	63.6	61.5	58.2	52	48.2	42.3	36.8	35.1	36.1	38.6	38.2	39	40.7	71.6
183	1	65780	9/12/2013	NASA P-3B	2	NP-1	58.2	54.4	52.6	54.4	64.9	58.2	52.8	58.4	55.3	57.4	89.5	76.6	58.5	61.7	55.8	54.5	60.3	63.2	62.1	55.9	59.1	58.8	64.3	62.3	60.2	57.2	50.9	47.1	41.2	36.2	35.1	36	38.9	38.2	39	40.7	70.4
183	1	65780.5	9/12/2013	NASA P-3B	2	NP-1	57.2	52.6	53.9	55.4	64.8	56.7	52	58.4	55.2	57.2	87.9	74.5	58.1	62.5	54.5	55.4	60.9	63.9	64.1	57.8	58.6	59.9	63.5	62.7	59.7	56.6	50.2	46.1	40.1	35.5	35	36	38.9	38.2	39.1	40.7	70.3
183	1	65781	9/12/2013	NASA P-3B	2	NP-1	55.5	51.7	55.4	54.4	64	56.8	53.4	57.2	55.3	56.7	86.3	72.5	58.3	62.4	53.4	55.3	60.8	63.5	63.5	59.2	57.7	59.9	62.6	62.2	59.1	55.7	49.2	44.8	39	35.2	35	35.9	38.9	38.1	39	40.7	69.6
183	1	65781.5	9/12/2013	NASA P-3B	2	NP-1	54.1	51.1	57.1	57.6	63	55.7	53.5	56.5	55	56.3	84.4	70.5	57.2	63	53.4	54.4	60.2	62.5	62.7	58.5	56.7	60.2	62.2	62.4	58.1	54.6	47.8	43.5	37.8	34.7	35	36	39	38	39	40.7	69.1
183	1	65782	9/12/2013	NASA P-3B	2	NP-1	53.3	51.5	57.6	58.6	62	55.4	52.6	56.4	54.1	56.4	82.6	68.7	57	61.3	52.6	52.7	58.6	61.1	61.6	58.6	55.6	59.5	62	61.3	56.6	53	46.3	42	36.7	34.4	35	36	39.1	38.2	38.9	40.7	68.1
183	1	65782.5	9/12/2013	NASA P-3B	2	NP-1	51.9	53.2	58.2	58.9	61.4	54.7	51.6	55.1	53.3	61.4	81	66.7	56.3	59.7	52.6	51.3	57.4	60.2	61.5	58.7	55.7	59.3	61.6	60.5	55.5	51.8	44.9	40.7	35.9	34.2	35	36	39	38.3	39	40.6	67.6
183	1	65783	9/12/2013	NASA P-3B	2	NP-1	52.4	59.4	57.4	58.2	60	54.4	51	54.6	53.7	63.5	79.2	64.8	55.8	58.7	53.4	50.6	56.1	59.4	60.7	57.9	54.9	58.3	62.1	59.2	54.3	50.3	43.5	39.4	35.1	34	35	36.1	38.7	38.5	39	40.5	66.9
183	1	65783.5	9/12/2013	NASA P-3B	2	NP-1	54.2	58.6	59.9	57.1	59.4	53.3	51.3	53.4	53.1	61.9	77.1	63	55.9	57.7	53.8	49.9	54.4	58	59.5	56.9	54.1	56.9	61.2	57.7	53	48.7	42.1	38.2	34.5	33.9	35	36.2	38.8	38.3	38.9	40.6	65.7
183	1	65784	9/12/2013	NASA P-3B	2	NP-1	53.2	59.5	60.1	55.7	58.1	51.9	51.1	52.2	52.6	63	75.3	61.2	55.8	57.1	55	49.9	52.9	56.5	57.9	55.5	52.8	55.1	59.5	56	51.5	47	40.7	37	34.2	34	34.9	36.1	38.7	38.3	38.9	40.6	64
183	1	65784.5	9/12/2013	NASA P-3B	2	NP-1	54.9	58.5	58.7	56	57.8	50.9	50.1	51.4	52	64.7	73.5	59.7	54.6	56	54.4	48.9	51.2	54.8	56.6	54.6	51.6	53.7	58.5	54.8	50.6	45.7	39.4	36	33.9	33.9	34.8	36	38.7	38.4	38.9	40.6	62.9
183	1	65785	9/12/2013	NASA P-3B	2	NP-1	56	57.3	57.9	55.7	57.6	51.5	48.8	50.9	50.8	65.6	71.8	58.1	53.4	55.8	56.1	50	50.6	55.2	56.7	56.9	52.3	53.4	58.5	54.1	49.6	44.6	38.7	35.4	33.6	33.9	34.8	36	38.9	38.5	38.9	40.6	63

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																				
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
183	1	65785.5	9/12/2013	NASA P-3B	2	NP-1	56.4	58.3	56.2	55.1	56	50.8	49.2	51.1	52.8	65.7	70	56.6	53.4	55.1	56.6	49.6	50.3	54.9	56.4	56.3	51.4	53.1	57.5	52.9	48.6	43.8	38.2	35.3	33.5	34	34.8	35.9	38.9	38.5	39	40.6	62.1
183	1	65786	9/12/2013	NASA P-3B	2	NP-1	54.6	58.4	56.2	54.2	55.5	49.8	49.2	49.7	51.5	63.8	68	57.1	54.2	54.6	56.9	50.1	48.8	53.7	55.1	55.2	50.3	51.6	56.3	51.6	47.5	42.9	37.2	34.7	33.5	33.9	34.9	35.8	38.7	38.6	39	40.6	60.9

B.1.2 Category: 2 P-3B Spiral Events

Table 47. Acoustic Data from Example Category 2 Event 33 for the P-3B at SP-2

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																				
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	1	75262	9/4/2013	NASA P-3B	8	SP-2	47.7	45.5	44	42.7	40.1	36.8	42.3	38.8	38.6	40.4	37.1	37.7	50.3	31.4	28.2	41.2	35.8	33.8	28.5	26.4	27	27.4	27.8	28.3	29.1	30.1	31.3	32.2	33.3	34	35.3	36.7	39.5	39.1	39.9	41.6	37.4
33	1	75262.5	9/4/2013	NASA P-3B	8	SP-2	46.8	47.9	43.2	43.5	38.9	35.6	42.6	37.8	39.2	41.8	37.8	38.1	49.5	32.2	30.5	44.9	37.5	36.5	29.8	27.7	27.7	27.5	27.4	28.3	29.3	30.3	31.1	32.1	33.3	34.1	35.3	36.8	39.5	39	39.8	41.6	39.6
33	1	75263	9/4/2013	NASA P-3B	8	SP-2	48.3	48.3	43.4	43.2	38.5	35.6	42.2	40.6	39.5	41.5	38.9	38.8	54.7	33.2	32	45.1	38.3	36.1	29.2	27.4	27.4	27.2	27.5	28.3	29.2	30.4	31.1	32.2	33.3	34.1	35.4	36.8	39.6	38.9	39.8	41.6	40.7
33	1	75263.5	9/4/2013	NASA P-3B	8	SP-2	52.7	46.9	46.9	43.8	41.6	38	42.9	40	38.9	41.6	39.8	40.9	57.6	33.1	33.5	45	39	36.1	29.5	27.2	27.6	27.1	27.6	28.5	29.2	30.4	31.3	32.3	33.4	34.2	35.3	36.8	39.6	39	39.8	41.5	41.3
33	1	75264	9/4/2013	NASA P-3B	8	SP-2	51.7	44.9	45.4	42	40.4	38	42.9	39	38.7	42.5	41.1	40.9	57	32.8	33.4	45.4	39.2	37	29.9	27.5	27.9	27	27.5	28.7	29.2	30.4	31.3	32.2	33.4	34.2	35.3	36.8	39.7	38.9	39.8	41.6	40.5
33	1	75264.5	9/4/2013	NASA P-3B	8	SP-2	49.7	42.9	44.7	40.4	39.2	36.7	42.6	37.7	38.9	43.2	42.5	40	55.2	31.9	33.9	44	38.9	36.7	30.5	28.8	28.3	27	27.5	28.6	29.2	30.2	31.2	32.2	33.3	34.3	35.3	36.7	39.6	39	39.8	41.6	40.1
33	1	75265	9/4/2013	NASA P-3B	8	SP-2	48.2	43.8	42.8	41	37.5	37.3	42	40.2	39.3	42.4	41.8	39.8	55.7	31.1	33.4	43.6	38.1	36.7	30	28.9	28	27.1	27.8	29	29.2	30.2	31.2	32.2	33.2	34.2	35.4	36.7	39.6	39	39.8	41.6	41
33	1	75265.5	9/4/2013	NASA P-3B	8	SP-2	46.4	45.4	40.8	40.7	36.7	38.4	40.7	39	38.3	42.1	42.2	38.6	58.6	31.3	33.7	43.2	37.7	37	29.8	28.8	27.6	27.1	27.8	28.9	29.4	30.2	31.1	32.3	33.1	34.2	35.3	36.8	39.6	38.9	39.8	41.6	41.9
33	1	75266	9/4/2013	NASA P-3B	8	SP-2	48.7	45.9	39	41.1	40.1	37.4	41.4	39.3	38.6	41	41.8	38.8	59.4	31.7	32.8	44.7	37.9	37.2	30.2	30.9	28.6	27.9	27.7	28.8	29.6	30.1	31.3	32.3	33.1	34.2	35.4	36.8	39.6	39	39.8	41.6	42.1
33	1	75266.5	9/4/2013	NASA P-3B	8	SP-2	48.4	44.1	38.8	41.3	42	36.9	40.7	39.4	38.6	41.1	42.1	38.9	58.3	31.8	33	45.3	39.2	38	30.2	32.8	29.8	28.4	28	28.5	29.4	30.1	31.3	32.2	33.1	34.1	35.5	36.7	39.5	39	39.8	41.7	41.7
33	1	75267	9/4/2013	NASA P-3B	8	SP-2	47.7	43.3	39.1	40	41.5	37.3	39.6	39.7	38.2	40.9	42.8	39.2	57.1	31.3	33.8	47.5	40.8	39	30.9	34	29.9	28.5	28.1	28.1	29.1	29.9	31	32.1	33.2	34	35.4	36.7	39.5	39	39.8	41.7	42.6
33	1	75267.5	9/4/2013	NASA P-3B	8	SP-2	46.4	42.8	38.2	40.7	41.3	36.2	40.5	39.5	37.8	41.1	41	38.7	57.4	31.4	33.7	48.3	40.7	39.3	30	32.6	29.4	28	28	28	28.9	30.1	31	32.1	33.1	34	35.4	36.7	39.5	39	39.8	41.7	42.7
33	1	75268	9/4/2013	NASA P-3B	8	SP-2	44.7	42.5	39.8	40.5	41.3	36.5	41.5	39.8	37.1	40.8	40	38.2	59	30.8	35.2	48.1	40.6	39.2	29.3	31.2	28.5	27.8	27.8	28.2	29.1	30	31	32.1	33.1	34.1	35.4	36.6	39.5	38.9	39.8	41.6	42.8
33	1	75268.5	9/4/2013	NASA P-3B	8	SP-2	44.2	40.6	39.7	39.7	40.1	37	42.1	39.7	36.2	41.1	39.9	38.2	58.2	30.6	35.9	49.2	40.5	38.1	28.9	30.9	27.6	27.3	27.8	28.1	28.9	30.1	31	32.2	33.1	34.2	35.2	36.6	39.6	38.9	39.8	41.6	42.3
33	1	75269	9/4/2013	NASA P-3B	8	SP-2	42.5	39.6	38.5	41.6	38.6	36.7	41.6	38.1	37.3	41.6	39.3	38.5	56.6	31.2	35.3	48.1	39.9	37.1	28.3	30.2	27	27.1	27.8	28.1	29.1	30.1	31	32.1	33.1	34.1	35.3	36.7	39.6	38.9	39.8	41.6	41.4
33	1	75269.5	9/4/2013	NASA P-3B	8	SP-2	42	42.2	37.5	39.6	38.6	36.9	42.4	37.8	40.1	41.7	38.1	37.8	56.7	31.8	35.6	48.5	38.9	36.1	28.3	29.4	27.2	27.1	27.4	28.3	29	30.2	31	32	33.1	34	35.3	36.8	39.6	38.9	39.9	41.5	42.3
33	1	75270	9/4/2013	NASA P-3B	8	SP-2	46.1	41.2	39.9	37.9	37.6	38	43.4	39.1	40.1	41.4	37.8	39.3	58.5	31.4	35.4	49	39.4	35.6	29.4	29.7	26.9	26.8	27.4	28.5	29	30.2	31	32	33.2	33.9	35.3	36.7	39.5	38.9	39.8	41.5	42.6
33	1	75270.5	9/4/2013	NASA P-3B	8	SP-2	45.8	40.5	39	38.3	37.4	37.5	43.3	38.8	39.7	40.9	37.3	40	58.8	31.4	36.2	48.7	40.4	37	31.2	31.1	27.7	26.9	27.3	28.3	29.2	30.2	30.8	31.9	33.2	34	35.4	36.7	39.5	38.9	39.9	41.5	42.5
33	1	75271	9/4/2013	NASA P-3B	8	SP-2	44.2	40.8	37.8	39.5	37.5	36	41.9	38.4	39.4	42	37.2	39.4	57.8	31.7	36.2	48.5	41.2	37.6	32.1	32.5	28.6	28	27.5	28.5	29	30.1	30.8	32.1	33.3	34.2	35.5	36.8	39.4	38.9	39.9	41.6	42.2
33	1	75271.5	9/4/2013	NASA P-3B	8	SP-2	42.3	39.4	38.1	39.5	38.9	37.7	42.2	39.1	39.2	42.6	38.2	40.7	56.8	31.8	37.8	49.3	42.2	37.5	31.3	32.2	28.3	28.5	27.7	28.5	29.2	30.1	31	32.3	33.4	34.2	35.4	36.8	39.3	38.9	39.8	41.6	43.3
33	1	75272	9/4/2013	NASA P-3B	8	SP-2	41.3	42.2	37.5	39.9	38.1	39.7	44	39.5	39.3	44	37.9	41.6	59.3	32.2	38.6	49.2	43.4	38.6	31.6	34.6	29.1	29.1	27.4	28.4	29.5	30.1	30.9	32.2	33.3	34	35.3	36.7	39.2	38.8	39.7	41.6	44.7
33	1	75272.5	9/4/2013	NASA P-3B	8	SP-2	40.5	41.2	36.1	38.4	38.1	38.9	42.7	39.6	39.4	43.7	40.4	45.5	62.4	33.6	38.9	48.6	43.4	39	31.6	35.1	29.1	29.3	27.9	28.8	29.3	30.2	30.9	32	33.3	33.9	35.3	36.7	39.2	38.8	39.8	41.6	45.3
33	1	75273	9/4/2013	NASA P-3B	8	SP-2	40.9	40.4	34.2	37.3	38.2	37.4	42.3	39.8	39.4	43.3	40.6	48.6	62.6	34.4	38.7	49.1	42.4	37.8	31.5	34.3	28.8	28.8	27.7	28.6	29.1	30.2	31.1	32.2	33.4	34	35.3	36.8	39.1	38.8	39.7	41.6	44.3
33	1	75273.5	9/4/2013	NASA P-3B	8	SP-2	40.3	39.2	34.9	38.3	36.7	37.8	41.9	41	40.3	43.3	40.1	48	60.8	34	38.4	47.8	40.9	36.3	31.1	33.3	28.5	28.5	27.5	28.5	28.9	30.1	31.3	33	33.8	34.5	35.4	36.8	39.1	38.8	39.7	41.6	43.2
33	1	75274	9/4/2013	NASA P-3B	8	SP-2	39	41.6	39.7	37.4	36.4	37.3	42	41.3	39.7	43.2	41.1	46.3	58.8	34.3	38.7	48.5	40.6	35.2	31	32.4	27.9	27.9	27.3	28.4	29.1	30.1	31.4	33	33.9	34.4	35.4	36.8	39.2	39	39.8	41.6	42.3
33	1	75274.5	9/4/2013	NASA P-3B	8	SP-2	43.8	41.8	39.7	39.5	37	37.9	41.2	40.8	40.6	42.3	41	44.9	57.2	33.3	38	47	40.6	34.8	30.3	31.6	27.6	27.8	27.8	28.6	29.3	30.2	31.3	32.8	33.6	34.4	35.4	36.7	39	38.9	39.8	41.6	42.1
33	1	75275	9/4/2013	NASA P-3B	8	SP-2	45	40.7	38.4	39.5	37.9	37.7	40.9	39.9	40.5	40.9	40.2	46.2	57	33.3	43.8	51.5	43.6	35.5	31	31.9	28.7	28.3	27.9	28.5	29.3	30.2	31.2	32.6	33.4	34.4	35.4	36.7	39.1	38.9	39.8	41.6	44.2
33	1	75275.5	9/4/2013	NASA P-3B	8	SP-2	43.4	43.9	38.6	40	38	38.3	40.9	39.3	40.9	40.5	39.5	48.6	56.2	32.9	44.7	51.2	46.1	36.3	32.2	32	28.6	28.3	28	28.5	29.3	30.2	31	32.6	33.4	34.3	35.4	36.7	39.1	38.8	39.7	41.5	43.9
33	1	75276	9/4/2013	NASA P-3B	8	SP-2	44.8	43.2	38.5	39.2	36.7	37.4	41.1	38.5	40.2	40.6	40.3	48.3	55	33	45	51.4	46.5	36.2	32.6	32.1	28.5	28.2	27.9	28.4	29.2	30.3	31.2	32.5	33.2	34.2	35.4	36.7	39.1	38.9	39.7	41.5	44.8
33	1	75276.5	9/4/2013	NASA P-3B	8	SP-2	45.1	41.8	38.6	38.1	36.7	38.9	42.1	38	39.4	40.2	40.6	50.9	56.1	33.2	47.4	51.7	47.8	36.4	33.4	33.3	28.6	28.2	27.7	28.3	29.2	29.9	31.2	32.3	33.3	34.3	35.4	36.7	39.1	38.9	39.8	41.5	45.3
33	1	75277	9/4/2013	NASA P-3B	8	SP-2	44.2	40.6	37.7	39.1	39.2	38	42.4	37	38.8	39.7	40	55.4	58.2	33.9	46.8	50.9	46.6	34.9	32.7	32.6	29.1	28.5	27.8	28.5	29	30	31.2	32.3	33.4	34.3	35.4	36.7	39	39	39.8	41.5	45.3
33	1	75277.5	9/4/2013	NASA P-3B	8	SP-2	43.1	39.3	38.3	39.9	39.5	37.8	42.1	38	39.9	39.3	39.7	56.9	58.1	33.8	47.4	50.7	46.7	34.2	32.8	32.2	29.2	28.8	27.8	28.1	29	30	31	32.2	33.2	34.2	35.4	36.7	38.9	39	39.8	41.6	44.9

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	1	75278	9/4/2013	NASA P-3B	8	SP-2	42.5	38.4	38.1	40	37.8	38.2	42	39.6	39.6	40.1	40.4	56.9	57.4	34.3	48.4	50.6	46.3	34.1	32.6	31.6	29.1	28.6	28	28.3	29.2	29.9	31.1	32.2	33.1	34.3	35.4	36.7	38.9	39	39.8	41.6	45.4
33	1	75278.5	9/4/2013	NASA P-3B	8	SP-2	41.9	38.1	38.6	40.2	36.6	37.5	41.6	38.3	39	39.3	40.5	59.2	58.6	34.2	49.4	50.1	45.1	33	32.6	31	28.7	28.1	28	28.4	29.4	30	31	32.2	33.1	34.3	35.4	36.7	38.9	38.8	39.8	41.6	45.7
33	1	75279	9/4/2013	NASA P-3B	8	SP-2	41	37.9	38.6	38.6	35.7	37	41.6	38.1	38.8	38.6	41.1	61.8	59	34	49.1	49	43.5	32.2	32.3	30.6	28	27.5	27.9	28.2	29.1	30.1	30.8	32.1	33.2	34.3	35.3	36.7	39	38.8	39.9	41.7	45.6
33	1	75279.5	9/4/2013	NASA P-3B	8	SP-2	39.8	36.4	37.2	37.8	35.7	37.3	41.3	37.8	38.4	39.8	40.3	62.5	58.8	32.8	50.1	48.8	43.7	33	32.7	30.9	28.9	28	28	28.3	28.9	30.1	31	32.1	33.2	34.2	35.3	36.7	38.9	38.9	39.9	41.6	45.6
33	1	75280	9/4/2013	NASA P-3B	8	SP-2	40.7	37.3	38.1	37.6	36.2	38.4	42.2	38	38.3	39.1	41	62.6	57.7	33.9	50.9	48.8	43.3	32.5	33.5	31	29	27.6	27.7	28.3	29.2	30.2	31.1	32.2	33.2	34.2	35.3	36.7	38.9	38.9	39.9	41.6	45.5
33	1	75280.5	9/4/2013	NASA P-3B	8	SP-2	40.2	37.5	37.4	37.8	34.7	39.6	43	38.2	39.1	39.8	41.2	61.9	56.2	35.6	53	49.6	44	32.6	34	31.4	30.4	28.1	27.7	28.5	29	30.2	31.3	32.4	33.3	34.4	35.3	36.7	38.9	38.8	39.9	41.6	45.8
33	1	75281	9/4/2013	NASA P-3B	8	SP-2	39.8	37.5	35.9	38	34.3	39.7	42.2	38.9	40.6	40.2	41.6	60.9	54.6	36.1	53.9	49.3	43.8	32	34.3	31.4	31.1	28.3	27.7	28.6	28.9	29.9	31.2	32.4	33.4	34.4	35.3	36.7	38.9	38.8	39.8	41.6	45.9
33	1	75281.5	9/4/2013	NASA P-3B	8	SP-2	39.5	38.5	35.3	37	37.2	39.6	43.2	38.1	40.9	40.9	41.7	60.3	53.1	35.6	54.2	48.7	47.5	33.9	37.6	33	33.7	28.9	28.2	28.6	28.7	30.1	31.4	32.5	33.3	34.3	35.2	36.7	38.9	38.9	39.8	41.6	46.5
33	1	75282	9/4/2013	NASA P-3B	8	SP-2	38.8	38.9	34.5	39.1	37.7	39.8	42.8	38.9	41.4	39.9	41.2	59.9	51.6	36.9	54.6	48.5	46.2	33.2	37.8	32.6	32.9	28.8	28.2	28.4	29.1	30.2	31.4	32.6	33.3	34.4	35.2	36.7	39	38.8	39.8	41.6	45.6
33	1	75282.5	9/4/2013	NASA P-3B	8	SP-2	41.1	39.1	33.8	38.2	37	41.3	41.6	39.7	40.5	39.5	41	58.7	49.8	36.5	54.4	47.7	44.8	32.6	37.6	31.9	31.8	28.7	28.2	28.5	29.3	30	31.5	32.6	33.2	34.4	35.1	36.6	39	38.8	39.9	41.6	46
33	1	75283	9/4/2013	NASA P-3B	8	SP-2	41	37.6	33.7	37.6	37.2	40.5	41	39.3	41.2	39	40.5	58.3	48.5	36.9	57.2	47.9	46	33	38	33	33.4	29.7	28.2	28.6	29	30	31.5	32.4	33.3	34.2	35.2	36.7	39.1	38.8	39.8	41.6	47.2
33	1	75283.5	9/4/2013	NASA P-3B	8	SP-2	40	35.9	33.9	36	37.4	39.6	40	38.8	41.1	38.2	40.6	59.9	47.6	36.6	56.9	47.2	45.8	33.7	37.8	31.9	33.6	29	28.3	28.5	29.3	30.3	31.5	32.3	33.2	34.3	35.3	36.7	39	38.9	39.8	41.6	47.2
33	1	75284	9/4/2013	NASA P-3B	8	SP-2	40.8	34.9	33.1	35.7	39.4	39.7	39.2	39.9	40.4	38.1	40.7	61.7	46.5	36.9	57.1	46.3	46.1	34.1	38.1	32.2	33.3	28.6	28	28.5	29.1	30.2	31.4	32.3	33.2	34.3	35.3	36.8	39	38.9	39.9	41.6	47.3
33	1	75284.5	9/4/2013	NASA P-3B	8	SP-2	40.7	35	34.6	38.1	40.7	39.5	39.8	39.4	41	38.8	41.1	62.8	45.2	36.6	56.4	45.8	44.9	33.1	37.6	31.2	32.6	28.1	27.7	28.3	28.8	30.3	31.3	32.2	33.3	34.3	35.3	36.8	39	38.9	39.9	41.6	46.8
33	1	75285	9/4/2013	NASA P-3B	8	SP-2	40.1	37.6	35.7	38.3	40.9	39.3	41.5	39.3	41.5	38.9	41.1	62.7	43.4	37.5	56.1	46.3	45.6	33.5	36.6	31.1	31.8	28	27.8	28.3	29	30.2	31.2	32.3	33.3	34.3	35.3	36.8	39	38.9	39.8	41.6	46.6
33	1	75285.5	9/4/2013	NASA P-3B	8	SP-2	40.9	39.7	37.6	39.6	39.3	39.1	43.2	39.5	42.4	38.8	41.5	61.5	41.7	38.4	56.7	45.7	44.7	35.2	37.2	31.3	33.3	28.6	28.3	28.5	29	30.2	31.2	32.3	33.2	34.4	35.3	36.9	39	38.8	39.9	41.6	47.2
33	1	75286	9/4/2013	NASA P-3B	8	SP-2	43.3	39.6	38.7	37.8	38.1	40.3	42.4	39.6	44.9	39.2	41	60.8	40	38.5	58.2	46.1	47.6	36.9	38.8	32.8	34.8	29.6	28.7	28.8	29.3	30.2	31.2	32.2	33.3	34.5	35.3	36.8	39	38.7	39.9	41.6	48.2
33	1	75286.5	9/4/2013	NASA P-3B	8	SP-2	44.1	38	39.2	37.4	36.8	41.9	42.3	38.9	44.3	39.6	40.8	62.1	38.5	38.4	57.7	45.5	46.5	37.6	38.7	32.2	34.2	29.3	28.5	28.4	29.1	30	31.1	32.2	33.2	34.4	35.3	36.8	39	38.8	39.9	41.6	47.6
33	1	75287	9/4/2013	NASA P-3B	8	SP-2	43.7	36.5	38	36.2	36.6	42.9	41.9	38.7	45.3	38.5	42	63.4	36.7	39	56.8	45.2	47.7	37.6	38.5	31.9	34.1	29.5	28.6	28.5	29.2	30	31.1	32.3	33	34.4	35.2	36.7	39.1	38.8	39.9	41.7	47.9
33	1	75287.5	9/4/2013	NASA P-3B	8	SP-2	42.7	37.4	37	40	38.8	43.3	40.7	39.3	44.2	38.5	41.2	63.7	35.3	41.3	58.2	44.8	47	38.5	39.2	32.1	34.6	29.6	28.5	28.7	29	30.2	31	32.1	33	34.2	35.2	36.6	39.1	38.8	39.9	41.5	48.3
33	1	75288	9/4/2013	NASA P-3B	8	SP-2	41.1	36.5	36.5	41.3	38.4	43.1	41.6	39.5	43.2	38	41.8	62.9	34.1	40.8	58	45.7	47.6	38.4	40.4	32.2	34.3	29.2	28.1	28.5	28.8	30.3	31	32.1	33.2	34.2	35.3	36.6	39.1	38.8	39.8	41.6	47.7
33	1	75288.5	9/4/2013	NASA P-3B	8	SP-2	40	35	36	41.1	39	43.4	40.9	39	42.9	38.5	43.4	62.5	32.8	40.4	57.6	45.4	47.8	37.7	39.8	32.2	34	29	28.1	28.5	29.1	30.4	30.9	32.2	33.1	34.2	35.2	36.7	39	38.8	39.9	41.6	48.1
33	1	75289	9/4/2013	NASA P-3B	8	SP-2	40.2	35.2	36.7	39.6	37.7	43.9	41.5	38.9	42.8	39	44.4	62.7	32.4	41.3	58.5	44.8	47.4	37.6	39.6	32.6	33.5	29	28.2	28.5	29	30.2	31.1	32.2	33.2	34.1	35.3	36.7	38.9	38.7	39.8	41.6	47.8
33	1	75289.5	9/4/2013	NASA P-3B	8	SP-2	38.8	35.7	37	38.9	38.3	42.8	42	38	42.5	39	43	62.6	31.5	41.3	57.3	45.1	48.1	37	39.7	32.4	33.1	29.7	28.3	28.5	29.1	30.1	31.1	32.2	33.3	34.1	35.2	36.7	39	38.8	39.8	41.6	47.6
33	1	75290	9/4/2013	NASA P-3B	8	SP-2	39.4	34.5	36.3	38.1	37.1	42.6	41.3	38.3	41.5	39.2	42.5	62.4	32.2	41.3	58	44.6	46.9	36.8	39.3	32.2	32.9	29.4	28.2	28.7	28.8	29.8	31.1	32.2	33.2	34.1	35.2	36.7	39	38.8	39.8	41.7	47.5
33	1	75290.5	9/4/2013	NASA P-3B	8	SP-2	39.2	35.9	35.6	38.1	35.4	41.9	42.5	39.4	40.5	40	42.4	61.9	32	41	57.8	43.8	47.1	36.8	39.4	32.3	33	29.3	28.2	28.9	29	30	31	32.2	33.1	34	35.2	36.7	39	38.7	39.8	41.7	46.6
33	1	75291	9/4/2013	NASA P-3B	8	SP-2	40	34.8	37.2	37	35.4	41.4	41	38.2	39.1	39.4	41.6	60.7	32.5	40.9	56.3	43.5	46.7	37.1	39.6	32.9	34.1	29.6	28.6	28.9	29.2	29.9	31	32.1	33.2	34.1	35.2	36.6	38.8	38.7	39.8	41.7	46.5
33	1	75291.5	9/4/2013	NASA P-3B	8	SP-2	38.1	35.5	38.2	36.4	35.9	41.7	43.6	38.3	42.3	39.1	42.1	61	31.8	41	57.3	42.6	46.3	36.8	39.2	32.5	33.7	30.2	29.1	28.6	29.3	30.1	31.1	32	33	34.1	35.2	36.7	38.9	38.8	39.9	41.7	47
33	1	75292	9/4/2013	NASA P-3B	8	SP-2	38	35.7	37.7	35.6	36.9	41.9	43	38.6	42.7	39.8	41.6	62	31.1	41.4	57.3	43	49.6	38.5	39.7	33.1	33.7	30.3	29	28.5	29.4	30.1	30.9	32.1	33.2	34.2	35.1	36.8	38.9	38.8	39.9	41.7	47.5
33	1	75292.5	9/4/2013	NASA P-3B	8	SP-2	39.7	35.3	37.3	36.5	36.8	42.5	43.2	38.4	42.5	39.1	41.7	63.5	31.8	41.9	57.4	44.2	49.1	39.4	40.2	33.4	34.1	30.2	29.1	28.4	29.5	30.1	30.8	32	33.2	34.2	35	36.8	39	38.7	39.8	41.6	48.2
33	1	75293	9/4/2013	NASA P-3B	8	SP-2	39.3	35.5	38.3	36.7	36.3	42.2	41.8	39.2	41.3	38.8	42.9	63.3	32.5	41.8	59.7	43.9	47.5	39.8	39.3	32.9	33.8	30.2	28.7	28.4	29.6	29.9	31	32.1	33.2	34.3	35.1	36.7	38.9	38.8	39.8	41.6	48
33	1	75293.5	9/4/2013	NASA P-3B	8	SP-2	37.6	35.3	37.8	35.4	35.5	42	41.6	38.2	40.8	38.5	42.2	61.9	32.9	42.4	58.5	43.7	46.9	39.5	38.6	32.2	33	29.5	28.3	28.4	29.4	29.7	31	32.3	33.2	34.3	35.3	36.6	38.9	38.8	39.8	41.6	47.2
33	1	75294	9/4/2013	NASA P-3B	8	SP-2	37.7	33.7	41.1	35.7	35.3	42.4	42.2	37.3	40.1	39.4	41.4	62.1	33.3	42.3	58.2	43.5	46.1	39	38	31.6	32.2	29.1	28.3	28.7	29.4	30	31	32.2	33.2	34.4	35.4	36.6	38.8	38.8	39.8	41.6	47.3
33	1	75294.5	9/4/2013	NASA P-3B	8	SP-2	37.1	33.1	39.9	34.9	37.1	42	41.8	37.1	39.2	40	40.8	63.4	34	42	58.1	45.8	47	38.8	37.4	32.1	31.9	29.2	28.6	28.5	29.3	30.1	31	32.2	33	34.4	35.4	36.7	38.9	38.8	39.8	41.5	47.2
33	1	75295	9/4/2013	NASA P-3B	8	SP-2	36.8	31.6	38.5	35.9	37.9	42.5	41.3	37.5	39.3	39.4	41.2	63.9	34.2	42.1	57.9	46.4	45.5	41	37.6	34.8	34.6	30.2	28.8	28.8	29.4	30.3	31.1	32.1	33.1	34.4	35.5	36.7	38.9	38.8	39.8	41.5	47.7
33	1	75295.5	9/4/2013	NASA P-3B	8	SP-2	41.1	30.9	36.7	35.3	36.7	42.6	41.5	37.2	39.9	39.3	40.5	62.9	34.9	42.9	59.3	48.2	46.3	40.3	38.6	34.6	34	30.3	28.7	28.5	29.5	30.4	31	32.2	33.1	34.3	35.5	36.7	39	38.8	39.8	41.6	47.8
33	1	75296	9/4/2013	NASA P-3B	8	SP-2	42.6	37.7	36	35.1	37.7	42.7	41.7	38.6	40	39	39.6	61.2	34.6	43.3	58.4	48	45.5	39.9	38.7	34.8	34.3	30.2	28.9	28.5	29.3	30.4	31.1	32.1	33.2	34.4	35.4	36.8	38.9	38.8	39.8	41.6	46.9
33	1	75296.5	9/4/2013	NASA P-3B	8	SP-2	41.2	38	36.5	36.3	40.4	43.2	41.9	40.9	40.1	39.9	43.2	60	35.4	42.7	57.6	47.9	44.8	39.1	37.9	34	33.7	29.5	28.7	28.3	29.4	30.3	31.1	32.1	33.3	34.2	35.3	36.6	38.9	38.9	39.8	41.6	46.7
33	1	75297	9/4/2013	NASA P-3B	8	SP-2	39.2	37.2	36.4	36.6	39.3	41.9	42	40	39.9	39.8	44.9	60.9	34.9	43.2	58.1	47.7	43.6	38.8	37.8	35	35.2	30.3	29.2	28.5	29.4	30.2	31.1	32.3	33.2	34.2	35.3	36.6	38.8	38.9	39.9	41.6	46.9
33	1	75297.5	9/4/2013	NASA P-3B	8	SP-2	37.2	39.7	35.8	36.7	39.3	42.2	42.7	39.1	39.7	40.3	45.7	62.7	34.7	42.8	56.4	48.9	43.5	38.9	37.9	36.1	35.6	30.6	29.6	28.5	29.2	30.1	30.9	32.1	33.3	34.3	35.4	36.7	38.8	38.9	39.9	41.6	46.6
33	1	75298	9/4/2013	NASA P-3B	8	SP-2	36.4	38.6	36.2	36.8	38.9	43.6	41.1	38.5	40.4	40.1	49.5	62.9	35.1	44.6	56.6	49	42.5	38.5	36.9	35.5	34.9	30.5	29.7	28.6	29	30.2	31.1	32.2	33.2	34.4	35.3	36.6	38.9	38.8	39.9	41.6	46.5

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	1	75298.5	9/4/2013	NASA P-3B	8	SP-2	34.9	40.2	36.9	35.8	38.1	44.9	40.7	39	40.8	39.4	50.1	61.5	34.7	47.5	56.6	49.4	41.9	38.7	36.6	34.5	33.5	29.6	28.9	28.7	29.2	30.3	30.9	32.1	33.2	34.3	35.3	36.7	38.9	38.9	40	41.6	46.1
33	1	75299	9/4/2013	NASA P-3B	8	SP-2	33.8	40.3	38.5	34.4	37.4	44.8	40.7	38.3	40.2	39.8	49	59.7	33.8	46.9	55	50.1	41.3	38.4	36.7	35.4	33.3	29.6	28.9	28.7	29	30.2	31.1	32.1	33.2	34.2	35.4	36.8	39	39	40	41.6	45.3
33	1	75299.5	9/4/2013	NASA P-3B	8	SP-2	32.8	40.3	37.7	37	38.1	45	40.5	38.7	39.8	41.1	49	58.3	33.6	47.5	54.4	50.6	40.6	38.2	36.6	35.4	33.3	29.8	29.2	28.7	29	30.1	31	32	33.1	34.2	35.3	36.8	38.9	38.8	40	41.6	46.3
33	1	75300	9/4/2013	NASA P-3B	8	SP-2	34.3	39.9	39.2	39.7	37.3	45.1	40.3	38.9	39.8	40.6	51.7	58.1	34.9	52.3	56.1	51.3	39.9	38.7	36.9	35.5	33	30.2	29.3	28.7	29.1	30	31	32	33.1	34.3	35.3	36.7	38.9	38.9	39.9	41.7	47.2
33	1	75300.5	9/4/2013	NASA P-3B	8	SP-2	34.2	39.2	38.5	39.5	39.9	45.5	40.5	39.2	39.1	40.8	57.2	59.9	36.4	53.7	56	51.4	39.6	39.7	38	37.1	33.7	30.7	29.7	28.9	29.3	30.1	31	31.9	33.1	34.3	35.3	36.5	38.9	38.9	39.9	41.7	47
33	1	75301	9/4/2013	NASA P-3B	8	SP-2	33.4	40.1	38.3	39.7	39.8	44.6	39.9	39.2	38.2	39.8	59.3	60	36.7	53.4	54.9	50.9	39.7	40.5	38.6	37.3	33.4	30.8	29.9	28.9	29.2	30	31	32	33.2	34.4	35.2	36.5	39	38.9	39.8	41.7	46.8
33	1	75301.5	9/4/2013	NASA P-3B	8	SP-2	35.2	40.6	38.1	39	41.3	43.5	40.3	39.7	39.1	40.6	58.5	58.5	36.1	56.7	55.5	49.9	39.3	40.6	38.5	37.4	32.7	30.5	29.9	28.8	29.2	30.2	31.1	32.1	33	34.3	35.3	36.6	38.9	38.9	39.8	41.7	48.3
33	1	75302	9/4/2013	NASA P-3B	8	SP-2	45.4	40	36.5	37.8	41.8	43.1	38.8	40.4	39.3	39.4	58.4	57	36.3	59.6	56.6	49.1	39.5	41	38.5	38.1	33	31.2	30.1	29	29.3	30.3	31.1	32.1	33.1	34.3	35.3	36.6	38.8	38.8	39.8	41.7	47.9
33	1	75302.5	9/4/2013	NASA P-3B	8	SP-2	46.7	39.1	36.9	36.9	44	43.4	38.3	41.9	38.9	39.9	58.7	55.9	37.2	58.2	55	48.6	38.8	40.8	37.9	37.9	32.5	31.1	30.1	28.8	29.4	30.2	31.3	32.3	33.2	34.2	35.3	36.6	38.7	38.8	39.9	41.7	47.3
33	1	75303	9/4/2013	NASA P-3B	8	SP-2	44.8	40.8	38.8	35.3	45.4	42.9	37.5	42.1	39.3	40	60.5	55.6	37.1	59	54.6	47.7	39	40.3	37.7	37.9	32.4	30.7	29.8	29	29.4	30.1	31.2	32.3	33.3	34.3	35.3	36.6	38.6	38.8	39.9	41.6	48
33	1	75303.5	9/4/2013	NASA P-3B	8	SP-2	43.1	40.6	39.8	35.8	45.2	41.7	39.3	40.7	38.8	40.7	63.3	55.9	36.1	59.6	53.8	48.2	38.3	40.3	37.8	38.8	33.2	31.1	30.2	28.6	29.3	30.1	31.2	32.2	33.2	34.3	35.4	36.7	38.7	38.8	39.8	41.6	47.5
33	1	75304	9/4/2013	NASA P-3B	8	SP-2	42.6	40.6	38.8	36.1	44.3	41.4	39.4	41.5	40.3	41.7	63.7	54.9	36	58.1	52.2	48.4	38.5	41.8	39.5	39.7	33.6	32.2	30.9	28.9	29.4	30.1	31	32.1	33.1	34.2	35.4	36.6	38.7	38.8	39.8	41.6	47.4
33	1	75304.5	9/4/2013	NASA P-3B	8	SP-2	41.5	38.9	38.3	37.3	43.6	39.8	40.2	42.3	40.6	41.4	62.6	53.1	36.9	59.3	51.8	47.9	37.8	41.6	39	39.9	33.2	31.8	30.7	29.1	29.2	29.9	31.1	32.1	33.1	34.3	35.4	36.8	38.6	38.8	39.8	41.6	47.6
33	1	75305	9/4/2013	NASA P-3B	8	SP-2	39.5	37.7	37.4	38.9	42.6	39.3	40.3	42	39.4	42.6	61.4	51.3	37.3	59.7	51	47.7	37.4	41.2	38.2	38.6	32.4	31	30	28.6	29.1	30.1	31	32.2	33.1	34.3	35.5	36.8	38.7	38.8	39.8	41.5	46.8
33	1	75305.5	9/4/2013	NASA P-3B	8	SP-2	37.4	37.9	37.7	37.9	41.1	39.9	40.1	41.4	38.2	41.9	60.9	49.8	36.6	58	49.7	47.8	37.2	40.9	37.5	37.8	31.9	30.5	30	28.5	29.1	30.2	31.3	32.2	33.2	34.3	35.4	36.8	38.7	38.8	39.8	41.7	46.4
33	1	75306	9/4/2013	NASA P-3B	8	SP-2	37	38.8	36.6	38.7	43.9	39.3	40	40.7	37	40.8	62.2	48.3	37.1	58.3	49.5	47.5	37	40.4	37.2	37.8	32	30.7	29.9	28.7	29	30.1	31.4	32.1	33.1	34.2	35.5	36.9	38.7	38.9	39.9	41.6	46.5
33	1	75306.5	9/4/2013	NASA P-3B	8	SP-2	36.9	38.4	36.6	38.2	43.8	39.7	39.8	40	37.6	40.6	63.2	46.9	36.7	58	48.2	47.2	37	39.8	37.8	36.8	31.4	30.1	29.4	28.6	28.9	30	31.2	32.2	33.3	34.3	35.4	36.9	38.8	38.8	39.8	41.6	45.5
33	1	75307	9/4/2013	NASA P-3B	8	SP-2	36.5	37	35.3	38.2	42.6	38.6	38.9	39.5	37.4	41.2	62.4	45.3	35.9	56.1	46.9	47.2	36.7	38.8	37.2	35.8	30.6	29.3	28.8	28.3	29	30.2	31.2	32.1	33.3	34.2	35.4	36.8	38.7	38.8	39.8	41.7	44.3
33	1	75307.5	9/4/2013	NASA P-3B	8	SP-2	35.7	36.1	33.3	39.3	40.8	38.2	40.2	39.9	39.6	41.6	61	43.3	35.4	55.1	45.5	46.2	35.8	38.2	37.2	35.5	31	28.9	28.8	28.2	29	30.1	30.9	32.1	33.2	34.2	35.4	36.7	38.6	38.8	39.8	41.6	44.2
33	1	75308	9/4/2013	NASA P-3B	8	SP-2	34.9	38.8	31.8	38.5	40.6	39.5	40.1	40.3	39.5	41.6	59.7	41.5	35.7	56	45.1	48.1	35.3	38.1	37.7	35.8	31.7	29	28.9	28.6	29.1	29.9	31.1	32.4	33.2	34.3	35.3	36.7	38.7	38.8	39.9	41.6	44.6
33	1	75308.5	9/4/2013	NASA P-3B	8	SP-2	34.8	37.5	32.8	36.6	39.9	39	40	40.3	39.7	41.2	59.7	39.7	34.8	55.5	44.5	47.6	36.4	38.6	38.3	36.4	32	29.4	28.7	28.6	29	30.1	31.1	32	33.3	34.1	35.4	36.8	38.8	38.9	40	41.6	44.3
33	1	75309	9/4/2013	NASA P-3B	8	SP-2	33.6	36.9	37	37.4	40.5	39.4	39.2	40.5	39.7	41.1	61.6	38.5	34.9	54	44.8	47.7	37.6	39	39.6	37.4	32.4	29.6	28.9	28.5	28.9	29.8	31.1	32	33.1	34.1	35.3	36.8	38.9	39	40	41.6	45.2
33	1	75309.5	9/4/2013	NASA P-3B	8	SP-2	36.1	37.4	39.1	36.9	42	38.9	39.3	40.3	39.8	40.9	64.3	37.5	35.2	54.2	45	47.7	37.4	40	40.4	37.3	32.6	29.6	29.3	28.8	29.1	29.6	31.1	32	33.2	34.2	35.4	36.6	39	38.9	40	41.6	45.4
33	1	75310	9/4/2013	NASA P-3B	8	SP-2	35.9	36.8	39.2	35.3	43.1	40.2	38.5	42.4	39.1	39.8	65.3	36.4	36.3	53.5	44.3	47.9	37.5	39.8	39.9	36.6	31.8	28.9	29.2	28.7	29.2	29.7	31.1	32	33.2	34.2	35.3	36.7	39	38.9	39.9	41.6	44.7
33	1	75310.5	9/4/2013	NASA P-3B	8	SP-2	34.9	35.5	38.4	38.6	42.6	38.7	38.7	42.3	38.8	39.5	64.8	35	36	51.6	44.1	49.2	38.4	39.8	39	35.8	31.2	28.7	28.7	28.5	29.2	29.7	31.1	32.2	33.1	34.2	35.3	36.7	39	38.9	39.9	41.6	44.3
33	1	75311	9/4/2013	NASA P-3B	8	SP-2	35.3	37.2	36.9	37.2	41.5	37.8	40.6	41.7	38.4	38.7	63.8	33.4	36.2	50.7	44	48.7	37.8	39.6	39.9	35.4	31.1	28.7	28.7	28.6	29.1	29.8	31.2	32.3	33.1	34.3	35.4	36.7	38.9	38.9	39.9	41.6	43.6
33	1	75311.5	9/4/2013	NASA P-3B	8	SP-2	34.9	37.1	36.6	38.1	41.2	39	42.2	41.1	38.4	39.9	62.3	32.5	35.7	49.5	43.6	48.9	36.9	38.8	39.1	34.8	30.7	28.8	28.8	28.4	29.2	29.9	31.1	32.4	33.1	34.2	35.3	36.7	39	39	39.8	41.7	43.1
33	1	75312	9/4/2013	NASA P-3B	8	SP-2	34	39.9	36.3	38.4	43.1	39.2	42.1	40.3	38.8	39.9	61.3	32.2	35.5	47.8	43.6	47.8	36.7	39.1	38.8	33.9	29.9	28.5	28.8	28.4	29.5	30	31.2	32.6	33.2	34.2	35.4	36.6	39	39	39.9	41.6	42.8
33	1	75312.5	9/4/2013	NASA P-3B	8	SP-2	33.8	40.5	35.6	39.9	43.7	39.4	41.6	40.1	39.2	40.5	62.1	32.9	35.5	46.8	43.3	46.9	36	38.7	37.7	33.6	29.9	28.3	28.9	28.7	29.4	30.2	31.1	32.4	33.2	34.3	35.4	36.6	38.8	39	39.9	41.6	42.8
33	1	75313	9/4/2013	NASA P-3B	8	SP-2	32.3	39.2	35	39.4	43	39.4	41.4	40.1	38.9	40.7	64.1	32.9	35.5	45.8	42.4	45.8	35.2	38.2	36.8	32.9	29.3	28.2	28.8	28.5	29.4	30.1	31.1	32.3	33.2	34.4	36.8	37	39	39.1	39.9	41.6	43.7
33	1	75313.5	9/4/2013	NASA P-3B	8	SP-2	35.3	37.7	34.2	39.3	43.4	38.2	41	40.4	37.8	40.6	66.2	33.4	35.1	46.1	42.8	46.1	36.3	38.5	37.7	33.2	30	28.3	28.8	28.5	29.2	30.2	31	32.4	33.2	34.3	36.3	36.9	39	39.1	39.9	41.6	44
33	1	75314	9/4/2013	NASA P-3B	8	SP-2	35.1	36.5	35.9	39.8	43.4	38.6	40.1	39.6	37.9	39.8	66.9	32.6	35.5	44.8	42.7	44.9	36.5	39.5	38.6	33.9	30	28.5	29	29.1	29.4	30.2	31.3	32.3	33.2	34.3	36	36.8	39.1	39	40	41.6	43.4
33	1	75314.5	9/4/2013	NASA P-3B	8	SP-2	34.7	35.7	36.6	39	42.5	38.1	41	40.4	39.4	40.3	66.1	32.7	35.8	44.6	42.5	44.2	36.3	38.6	38	34.7	30	28.3	29	29.1	29.1	30.1	31.1	32.2	33.3	34.2	35.6	36.8	39.1	38.9	40	41.5	42.7
33	1	75315	9/4/2013	NASA P-3B	8	SP-2	33.2	34.9	36	40	41.6	37.7	40.6	40.8	39.6	40.8	64.7	33.3	36	45.5	42.7	43.4	36.6	38.2	38	35.3	30.5	28.4	28.8	28.8	29.4	30.1	31.3	32.1	33.4	34.3	35.5	36.7	39.2	39	40	41.5	42.6
33	1	75315.5	9/4/2013	NASA P-3B	8	SP-2	34.9	34.6	34.5	41.2	42.2	38.2	40.6	40	38.9	41.4	63.8	33.8	35.9	47.8	43.3	43.5	36.7	38.1	37.7	34.6	30.3	28.4	28.6	28.7	29.3	30.2	31.3	32.3	33.3	34.3	35.5	36.6	39.2	39	40	41.5	42.1
33	1	75316	9/4/2013	NASA P-3B	8	SP-2	35.4	36.8	34.8	40.3	42.4	39.2	40.2	39.6	39	41.5	63.2	33.1	35.4	47.6	42.6	43.5	37.1	37.4	36.9	33.9	29.6	28.1	28.5	28.6	29.2	30.2	31.2	32.2	33.2	34.2	35.4	36.7	39.1	39	39.9	41.6	41.4
33	1	75316.5	9/4/2013	NASA P-3B	8	SP-2	34.9	36.2	36.5	39.5	43.5	39	39.9	41.9	39	40.9	61.8	32.6	34.5	46.2	42.2	44.4	36.7	36.7	36.1	33.8	29.6	28.5	28.7	28.7	29	30.3	31.3	32	33.2	34.6	35.6	36.7	39.1	39	39.9	41.6	41.1
33	1	75317	9/4/2013	NASA P-3B	8	SP-2	35.3	35.3	35.4	40.1	44.1	39.2	38.4	40.8	38.2	40	60	32.4	34.4	44.8	41.9	44.6	35.7	36.2	35.8	34.7	30.8	29.1	28.8	29.4	29.3	30.2	31.3	32.1	33.2	34.5	35.5	36.7	39	39	39.9	41.6	40.7
33	1	75317.5	9/4/2013	NASA P-3B	8	SP-2	36.3	35.1	36.8	41.3	43.3	38.3	39	40.6	38.1	39.7	59.2	31.8	34	45.2	41.7	44.6	34.9	36	35.6	34.5	30.9	29.5	29.1	29.3	29.6	30.1	31.1	32	33.1	34.3	35.4	36.7	39	39	39.9	41.6	40.9
33	1	75318	9/4/2013	NASA P-3B	8	SP-2	37.9	34.5	35.5	41.9	42	38.8	38.1	39.9	38.9	39.5	59.5	31.1	34.1	45.6	42.5	44.4	36.9	36.7	37.2	35	31.5	29.6	29.4	29.8	29.6	30.1	31.1	32	33.1	34.3	35.5	36.7	38.9	39	39.9	41.6	41.3
33	1	75318.5	9/4/2013	NASA P-3B	8	SP-2	41.3	32.9	34.7	40.3	40.6	37.4	37.4	39.8	39.3	40.3	58.5	32	33.5	46.2	43.1	44.9	37.5	35.7	37.2	34.6	30.7	29.3	29	29.6	29.6	30.1	31.2	32.2	33.1	34.3	35.5	36.8	38.9	39	39.8	41.6	40.8

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	1	75319	9/4/2013	NASA P-3B	8	SP-2	39.9	30.9	36	38.8	41.1	39.6	39.6	39.9	39.5	39.9	56.9	32.7	33.7	45.5	44	44.4	37.6	36.5	37.5	34	30.1	28.9	29.1	29.6	29.6	30.1	31	32.2	33	34.3	35.5	36.8	39	39	39.8	41.6	40.6
33	1	75319.5	9/4/2013	NASA P-3B	8	SP-2	37.9	32.3	36.7	38.3	39.7	40.3	41.3	40	38.9	40.2	55.6	33.6	33.7	43.8	43.4	43.3	37.1	36.7	37.6	33.4	29.5	28.8	28.8	29.5	29.6	30.4	31.1	32.3	33	34.3	35.5	36.6	39	39	39.8	41.6	40.1
33	1	75320	9/4/2013	NASA P-3B	8	SP-2	36.7	31.4	39.6	37	41.9	38.5	39.8	39.4	38.8	40.8	55	34.1	33.9	43.8	43	42.2	36.2	35.8	37.6	33.6	29.7	28.9	29.2	29.4	29.4	30.3	31.1	32.3	33.2	34.2	35.3	36.7	39	38.9	39.8	41.6	40
33	1	75320.5	9/4/2013	NASA P-3B	8	SP-2	35	31	39.5	39.9	41.4	37.5	41	38.8	39.9	40	53.7	33.9	34.3	47.3	43.2	41.6	36.1	35.4	37.6	33.9	30	29.1	29.5	29.3	29.7	30.2	31.1	32.4	33.2	34.2	35.4	36.7	39.1	38.9	39.8	41.6	40.3
33	1	75321	9/4/2013	NASA P-3B	8	SP-2	37.1	37.8	37.9	38.6	39.5	38.8	39.5	38.2	39.5	39.6	53.1	33.7	34.6	49.2	43	40.7	35.5	34.9	36.7	34.2	29.6	28.7	29	29.1	29.6	30.4	30.9	32.3	33.1	34.1	35.4	36.7	39	38.9	39.8	41.6	39.9
33	1	75321.5	9/4/2013	NASA P-3B	8	SP-2	40.9	40.2	37.5	38.3	37.8	38.4	39.4	37.5	39	39.6	53.4	33.6	33.6	48.4	42	39.9	34.4	33.4	35.2	33.6	29	28.4	28.7	28.6	29.7	30.3	31	32.1	33	34.3	35.5	36.7	38.9	38.9	39.8	41.6	39
33	1	75322	9/4/2013	NASA P-3B	8	SP-2	41.3	40.5	38	39.6	37.8	38.3	39.2	40.5	38.5	40.3	55.6	33.6	33.7	47.3	40.9	38.7	33.9	32.4	34	32.5	28.4	28	28.6	28.7	29.4	30.1	31	32.2	33	34.4	35.6	36.8	38.9	38.9	39.9	41.6	38.9
33	1	75322.5	9/4/2013	NASA P-3B	8	SP-2	43.1	38.8	38.8	38.6	38.3	38.7	39.5	42.2	38.5	39.4	57.9	33.9	34.2	46	40.2	38.7	34.3	32.1	33.6	31.3	28	27.6	28.3	28.9	29.2	30.3	30.9	32.2	33.1	34.4	35.5	36.8	39	38.9	39.9	41.6	39.1
33	1	75323	9/4/2013	NASA P-3B	8	SP-2	43.2	38.3	37.6	37.7	38	38.3	39.6	41.1	39.4	40.2	60.5	33.6	33.5	45.1	39.6	38.1	33.4	30.9	33	30.8	28.1	27.7	28.3	28.7	29.3	30.3	30.9	32.2	33.1	34.3	35.5	36.8	39	38.8	39.8	41.7	39.3
33	1	75323.5	9/4/2013	NASA P-3B	8	SP-2	44.1	38.6	36.8	39.3	37.8	38.5	39.1	39.6	38.9	40.2	62.2	33.7	32.6	44.6	38.9	38.6	33.7	31.1	33.7	30.7	28	28.3	28.5	28.8	29.2	30	31.1	32.3	33.3	34.3	35.4	36.7	39	38.8	39.9	41.6	40
33	1	75324	9/4/2013	NASA P-3B	8	SP-2	43.1	37.6	35.2	39.1	40.5	38.5	38.9	38.3	38.6	40.3	63.6	34.4	32.5	43.4	38.8	39.3	34.2	30.9	33.9	30.3	28	28.1	28.9	28.9	29	30	31.1	32.2	33.3	34.3	35.4	36.8	38.9	38.8	39.9	41.6	40.5
33	1	75324.5	9/4/2013	NASA P-3B	8	SP-2	41.5	36.9	37.6	37.4	40	38.3	39.6	38.7	38.4	42.4	64.9	34.3	32.7	41.9	38.7	39.8	33.5	30.4	33.5	30.1	28.4	28.3	29.2	28.6	29.1	30	31.1	32.4	33.3	34.3	35.4	36.7	38.8	38.8	39.8	41.6	40.5
33	1	75325	9/4/2013	NASA P-3B	8	SP-2	40.8	36.2	37.4	38.2	40.1	39.9	40.2	40.2	39.9	44.4	65.4	33.9	33.4	40.5	38.2	40.4	33.9	30.3	33.4	29.8	28.3	28.4	28.9	28.4	29.1	30.1	31	32.4	33.3	34.3	35.4	36.7	38.8	38.7	39.8	41.6	40.5
33	1	75325.5	9/4/2013	NASA P-3B	8	SP-2	39.7	36.9	37	37.3	39.9	38.9	40.1	39.6	40.1	46.4	65.4	33.4	33.4	39.9	39	40.2	34	29.9	32.8	29	28.6	28.4	29	28.4	28.9	30.1	31.1	32.5	33.3	34.3	35.5	36.7	38.8	38.7	39.9	41.6	40.3
33	1	75326	9/4/2013	NASA P-3B	8	SP-2	39.5	35.1	37.5	37.4	41.1	37.7	39.7	38.4	39.9	47.5	65.2	33	33.4	40.8	39.5	39.4	33.1	29.3	32.5	28.7	28.5	28.4	29.1	28.4	29	30	31.2	32.4	33.1	34.2	35.5	36.8	38.9	38.8	39.8	41.6	39.5
33	1	75326.5	9/4/2013	NASA P-3B	8	SP-2	38.6	34.1	40	37.7	41.6	39.9	39	39.1	39	48.4	64.2	32.8	33.3	41.2	38.6	38.7	32.8	28.4	31.5	28.1	28.5	27.9	28.9	28.4	29.3	30	31.3	32.3	33.2	34.2	35.4	36.7	38.9	38.9	39.7	41.5	38.7
33	1	75327	9/4/2013	NASA P-3B	8	SP-2	38	38.7	39.5	36.7	40	39	41.3	40.1	38.7	49	63	32.4	33.9	41.3	38.3	38.4	33.1	28.7	31.7	28.8	28.8	28	28.6	28.4	29.5	29.9	31.1	32.4	33.1	34.2	35.4	36.8	38.9	38.9	39.8	41.5	38.7
33	1	75327.5	9/4/2013	NASA P-3B	8	SP-2	37.1	39.7	38.8	36.7	38.9	39.9	41	39.9	40.2	50.5	62.1	32.3	33.9	41.3	39.1	39.6	33.5	29	32.1	28.7	28.7	28.3	28.5	28.6	29.6	29.9	31.1	32.1	33.1	34.1	35.3	36.8	38.9	39	39.9	41.5	39.1
33	1	75328	9/4/2013	NASA P-3B	8	SP-2	36.6	39.1	37.2	36.5	40.6	40.5	40.7	40.9	41	52.9	62.5	33.5	33.1	40.5	39.6	39.4	33.4	29.5	32.5	28.6	28.4	27.9	28.1	28.7	29.5	30	31	32.1	33.2	34.2	35.2	36.7	38.9	39	39.8	41.5	39.7
33	1	75328.5	9/4/2013	NASA P-3B	8	SP-2	34.7	37.9	38.1	38.9	41.3	39.1	42.2	40.9	41.8	55.4	63.5	33.3	33.2	40.6	39.1	39.6	33.1	29.8	32.6	28.5	28.1	28	28	28.5	29.4	30.1	31	32	33.1	34.2	35.2	36.7	39	39	39.8	41.6	40.3
33	1	75329	9/4/2013	NASA P-3B	8	SP-2	36.9	38	38.8	37.6	43.3	37.9	41.8	40.6	41.7	57.7	64.6	32.6	33.6	39.7	39.1	39.8	33.4	29.3	32	28.6	28.1	27.7	27.7	28.5	29.3	30.1	31.1	32.1	33.2	34.2	35.2	36.7	38.9	39	39.8	41.6	40.4
33	1	75329.5	9/4/2013	NASA P-3B	8	SP-2	39.9	37.4	38.1	37.7	41.8	37.6	42.9	40	40	59.3	64.9	33.6	32.7	38.7	39.1	40	34.6	29.4	31.5	28.4	27.8	27.5	27.9	28.5	29.5	29.9	31.1	32.1	33.3	34.2	35.3	36.7	38.9	38.9	39.8	41.6	40.2
33	1	75330	9/4/2013	NASA P-3B	8	SP-2	38.3	37.5	37.4	36.9	43.1	37	42.7	40.3	39.5	60.2	64.6	32.7	32.5	38.7	39.5	39.9	34.6	29.5	31.6	28.3	28	27.6	27.6	28.6	29.3	29.8	31.2	32.2	33.3	34.1	35.3	36.6	38.9	38.9	39.8	41.6	39.8
33	1	75330.5	9/4/2013	NASA P-3B	8	SP-2	37.2	37.3	36.9	37.4	44	36.9	42	40.8	38.3	60.5	63.7	32.9	31.8	38.4	38.9	39.8	34.7	29	31.8	28	27.7	27.4	27.5	28.3	29.4	29.9	31.2	32.2	33.3	34.1	35.3	36.7	38.9	38.9	39.8	41.6	39.1
33	1	75331	9/4/2013	NASA P-3B	8	SP-2	37.5	37.2	39	40.7	43.8	38.6	42.4	40.7	38.9	60.3	62.4	33.4	32.8	37.7	38.5	39.3	34.2	28.2	30.7	27.6	27.4	27.1	27.5	28.2	29.2	30	31.1	32.1	33.2	34.3	35.4	36.7	38.9	38.9	39.8	41.6	38.6
33	1	75331.5	9/4/2013	NASA P-3B	8	SP-2	36.9	36.6	39.6	41.5	42.1	41.1	41.3	39.9	38.8	60.4	61.4	33.5	32.5	37.1	38.4	38.6	33.8	27.3	29.8	27.2	27.2	27	27.8	28.1	29.3	30.1	31.2	32.2	33.3	34.3	35.4	36.7	38.9	38.9	39.8	41.5	38.7
33	1	75332	9/4/2013	NASA P-3B	8	SP-2	35.7	37.4	41.5	40.2	42.3	40.2	40.5	39.2	39.1	61.2	60.8	32.8	32.9	37.9	38.9	38.6	34	27.8	29.8	27.6	27.1	27.2	27.7	28.1	29.4	29.9	31.1	32.2	33.1	34.2	35.3	36.7	39	38.9	39.8	41.6	39.5
33	1	75332.5	9/4/2013	NASA P-3B	8	SP-2	36.5	36.1	40.1	39.4	42.1	41.6	40.9	39.9	39.9	63.2	61.2	32.6	34	37.2	40.3	38.1	35.4	28.4	30.4	27.7	27.2	27.3	27.8	28.1	29.2	29.9	31.2	32.1	33	34.2	35.3	36.7	39	38.9	39.8	41.6	40.3
33	1	75333	9/4/2013	NASA P-3B	8	SP-2	37.3	39.8	40.4	39.3	42.1	41.3	41.1	40.4	41.5	64.8	61.8	33.7	33	36.4	40.1	38.7	35.3	28.8	30.9	28.1	27.3	27.3	27.7	28.2	29.3	30	31.2	32.2	33.3	34.3	35.3	36.8	38.9	38.9	39.9	41.6	40.5
33	1	75333.5	9/4/2013	NASA P-3B	8	SP-2	36.1	43.6	40.2	37.9	42.2	40.6	42.2	40.6	40.5	65.6	61.7	33.5	32.2	37	39.7	38.3	34.6	28.4	30.4	27.6	27.2	27.3	27.8	28.3	29.4	30.1	31.1	32.2	33.2	34.3	35.3	36.7	39	38.9	39.8	41.6	40.1
33	1	75334	9/4/2013	NASA P-3B	8	SP-2	35.9	42.5	40.1	39.2	43.4	40.9	42	39.6	40.1	65.5	61	33.4	31	36.3	39.9	38.7	34.4	28.5	30.6	27.9	27	27.4	28.1	28.2	29.5	30	31	32.1	33.2	34.2	35.2	36.8	39	38.8	39.8	41.6	39.4
33	1	75334.5	9/4/2013	NASA P-3B	8	SP-2	37.1	41	39.4	40.5	42.1	39.5	41.3	40.2	39	64.7	59.8	33.1	30.1	35.5	39.4	38.8	34.6	28.9	31.1	28.9	27.5	27.8	28.1	28.2	29.4	30.2	31	32.1	33.2	34.2	35.3	36.8	39	38.8	39.8	41.6	38.7
33	1	75335	9/4/2013	NASA P-3B	8	SP-2	35.3	39.6	39	42.5	41	38.8	41.9	39.7	38.9	63.6	58.3	33.5	29.1	34.4	38.9	38.3	34.8	28.8	30.9	28.6	27.3	27.5	28	28.3	29.5	30.1	31.2	32.1	33.2	34.2	35.3	36.7	39	38.8	39.7	41.6	38
33	1	75335.5	9/4/2013	NASA P-3B	8	SP-2	36.4	40	40.9	42	40.4	38.6	43	39.4	40.4	62.2	56.5	33.6	28.5	34.3	39	37.9	34.4	28.9	30.9	28.3	26.9	27.3	27.8	28.4	29.5	30.1	30.9	32.1	33.2	34.2	35.3	36.8	39.1	38.8	39.8	41.6	37.4
33	2	75469	9/4/2013	NASA P-3B	8	SP-2	66.3	63.3	50.4	48	42.3	40.9	43.2	39	39.2	42	38.1	40.2	49.2	36.8	29.5	35.7	34	33.6	27.8	26.1	26.6	26.9	28.1	28.8	29.1	30	31.2	32.1	33.2	34.2	35.4	36.9	39	39	40.1	41.6	36.8
33	2	75469.5	9/4/2013	NASA P-3B	8	SP-2	66	61.2	48.6	46.9	41	40.8	42.2	39.6	40.1	41.9	39	38.9	52	36.2	29.9	36.3	34.3	35.3	29	26.3	26.8	26.9	28	28.7	29.2	30.1	31.2	32.3	33.1	34.2	35.4	36.8	38.9	38.9	40	41.7	37.3
33	2	75470	9/4/2013	NASA P-3B	8	SP-2	64.7	59.3	48.9	47	41.1	40.2	42.2	40	40.2	41.8	38.2	37.7	52.2	35.4	29.6	36.7	35.5	36.7	31.4	26.7	27.9	27.3	28	28.6	29.3	30.1	31.1	32.4	33.2	34.1	35.3	36.8	38.9	38.9	39.9	41.6	38.1
33	2	75470.5	9/4/2013	NASA P-3B	8	SP-2	62.9	57.8	47.7	46.2	40	39	40.8	40.5	41.1	41.9	38.9	37.8	50.9	35.2	31.6	40.2	40.6	41.5	34.1	30.6	31.2	28	28	28.5	29.5	30	31.1	32.3	33.1	34.1	35.3	36.7	38.9	38.8	39.8	41.5	40.3
33	2	75471	9/4/2013	NASA P-3B	8	SP-2	61	56	45.7	44.7	39.8	37.7	39.6	40	40.9	41.4	38.5	39.2	51.9	34.5	31.5	40.3	40.3	41	34.1	30.7	30.7	27.9	27.6	28	29.3	29.9	31.2	32.2	33.2	34.1	35.3	36.8	38.8	38.8	39.9	41.6	39.9
33	2	75471.5	9/4/2013	NASA P-3B	8	SP-2	58.9	54.1	45.4	43	38.4	39.6	39.7	39	40.9	42.6	39.5	38.7	50.8	33.9	32	41.8	40.1	40.5	34	30	29.9	27.9	27.7	28.1	29.6	29.9	31.4	32.1	33.2	34.3	35.3	36.6	38.8	38.8	39.9	41.6	39.3
33	2	75472	9/4/2013	NASA P-3B	8	SP-2	57.1	53.2	45.5	41.6	38.3	39.2	37.9	38	39.9	42.1	39.3	38.7	49	34	31.7	40.9	39.7	39.3	32.6	29.1	29.1	27.7	27.7	27.9	29.5	30	31.4	32.1	33.2	34.1	35.2	36.6	38.9	38.9	39.9	41.6	38.4

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	2	75472.5	9/4/2013	NASA P-3B	8	SP-2	55.5	51.8	43.7	40.7	38.8	37.8	38.1	37.6	39.2	41.5	39	37.4	47.8	33.7	31.8	41.2	39.1	38.5	32	28.7	28.6	27.4	27.8	28	29.7	30.2	31.4	32	33	34.1	35.1	36.5	38.9	38.8	39.9	41.6	38
33	2	75473	9/4/2013	NASA P-3B	8	SP-2	54.2	49.8	43.4	39.3	38	37.3	37.9	36.8	38.9	39.8	39.3	36.7	46.9	33.8	32.4	40.9	38	37.6	30.9	28.7	28.2	27.4	27.7	28.2	29.7	30.2	31.3	32.1	32.9	34.2	35.3	36.7	38.9	38.8	39.9	41.6	37.5
33	2	75473.5	9/4/2013	NASA P-3B	8	SP-2	52.6	48.9	42.1	38.6	37.7	39	38.9	36.6	38.9	40.2	39.7	37.6	46.7	33.6	32.4	41.1	38.1	37.2	30.5	29.5	28.1	27.8	27.6	28.4	29.5	30	31.3	32	33	34.2	35.2	36.7	38.9	38.9	39.9	41.6	38
33	2	75474	9/4/2013	NASA P-3B	8	SP-2	51.5	47.2	40.6	39	38.4	39.7	38.4	35.9	40.4	40.2	39.7	37.4	49.7	33.8	33.2	40.3	38.6	38.1	30.7	29.6	27.8	27.5	27.7	28.3	29.3	30	31.2	32	33	34.2	35.3	36.7	38.9	38.9	40	41.6	38.5
33	2	75474.5	9/4/2013	NASA P-3B	8	SP-2	50.3	45.7	43.5	38.2	38.4	39.2	39	38	42.2	40.5	41.1	37.7	51.5	33.6	32.5	40.1	38.5	37.8	30.2	29.3	27.8	27.4	27.6	28.3	29.3	30	31.1	32.1	33.1	34.2	35.4	36.8	38.9	39	40.1	41.6	38.2
33	2	75475	9/4/2013	NASA P-3B	8	SP-2	48.5	43.8	43.6	39.5	40.5	37.6	38.7	37.6	42.3	40.8	40.7	37.6	50.2	33.9	33.2	42.2	38.4	37.4	30.2	29.4	27.8	27.9	27.5	28.4	29.4	30.2	31	32.1	33.1	34.1	35.3	36.7	39	39	40.2	41.6	38.5
33	2	75475.5	9/4/2013	NASA P-3B	8	SP-2	47.3	42.1	42.4	39.4	40	38.9	37.9	39.8	41.1	42.6	39.8	37.4	50.8	33.4	33.2	42.3	38.2	36.9	30.4	30.5	28.2	27.8	27.6	28.4	29.4	30	31	32.1	33.2	34.1	35.3	36.7	39	39	40.2	41.6	38.7
33	2	75476	9/4/2013	NASA P-3B	8	SP-2	45.9	41.1	41.3	39.5	39.8	38.3	38.6	39.4	40.9	41.7	40.5	38.1	51.4	32.3	34.1	42.8	39.4	38.4	31	33	29.2	28.2	27.8	28.5	29	29.8	31.1	32.1	33.4	34.2	35.3	36.8	39	38.9	40	41.7	39.8
33	2	75476.5	9/4/2013	NASA P-3B	8	SP-2	47.6	43.7	39.2	39.2	38.2	37.3	37.9	39.4	39.8	41.8	40.1	37.2	49.9	32.7	34.7	46.4	39.7	39.3	31.5	32.7	29.5	27.9	27.5	28.4	29.1	29.9	31.1	32	33.3	34.2	35.3	36.7	39.1	38.9	40	41.7	40.2
33	2	75477	9/4/2013	NASA P-3B	8	SP-2	48.8	43.5	37.5	38.9	38.1	38	39.4	37.8	39.9	41.1	39.8	36.3	49.9	32.6	34.1	46.2	40.1	38.7	30.3	31.6	28.8	27.6	27.6	28.4	29	30	30.9	32.1	33.3	34.4	35.2	36.8	39.1	38.9	40	41.6	40.6
33	2	75477.5	9/4/2013	NASA P-3B	8	SP-2	47.1	42.8	38.2	40.5	40.5	36.4	39.2	38	40.9	40.3	38.9	37.7	53.5	33.1	34.4	48.3	40.9	38	29.1	30.9	28.3	27.5	27.7	28.5	29	29.9	31.1	31.9	33.2	34.2	35.3	36.7	39.1	38.9	39.9	41.6	41.2
33	2	75478	9/4/2013	NASA P-3B	8	SP-2	47.1	42.2	43.6	41.5	39.5	37.4	39.5	37.7	40.2	40.2	38.3	37.7	54.9	32.2	35.1	48.1	40.1	37.4	29	30.4	28.4	27.8	27.9	28.3	29	29.8	31	31.8	33.2	34.1	35.3	36.7	39.1	38.9	39.9	41.6	40.9
33	2	75478.5	9/4/2013	NASA P-3B	8	SP-2	46.5	40.5	43.1	40	38.6	39.6	38.2	37.5	40.9	39.5	39.1	38.2	53.4	31.4	35.6	47.4	40.3	37.4	28.9	30.8	28.7	28.2	27.7	28.4	29.1	29.9	31.1	32.1	33.2	34.3	35.3	36.8	39.2	38.8	39.9	41.6	40.9
33	2	75479	9/4/2013	NASA P-3B	8	SP-2	47	40.8	42.5	38.8	37.7	38.9	41.6	38.8	42.1	38.9	38.8	42.1	55.1	30.9	36.3	47.2	41.8	37.9	29.3	32.4	29.1	28.9	27.6	28.9	29.5	30.1	31	32.1	33.3	34.2	35.3	36.6	39.3	38.8	39.9	41.7	42
33	2	75479.5	9/4/2013	NASA P-3B	8	SP-2	46.7	45.3	42.3	37.9	37.8	38.6	42.4	39	41.8	38.9	39.7	42.9	55.6	30.9	38.7	50.2	42	38	30.6	32.7	28.7	28.8	27.8	28.9	29.2	30.1	30.9	32.1	33.3	34.2	35.4	36.6	39.3	38.9	39.8	41.6	42.6
33	2	75480	9/4/2013	NASA P-3B	8	SP-2	46.7	46	44.8	39.2	36.7	38.6	41.9	38.6	41.4	39.8	39.4	42.5	54.3	31.2	41.3	50.1	43	37.2	30.3	32.5	28.5	28.5	27.7	28.8	29.3	30.1	30.9	32.1	33.3	34.2	35.2	36.7	39.6	38.9	39.9	41.6	42.7
33	2	75480.5	9/4/2013	NASA P-3B	8	SP-2	48.5	46.9	43.8	38.7	36.9	37.6	40.6	37.7	42	41.5	40.3	43.5	53.6	31.9	44.8	51.7	43.6	37.7	31.1	33.3	29.3	28.6	28	29	29.4	30.1	30.8	32.1	33.3	34.4	35.2	36.7	39.8	38.9	39.8	41.6	43.7
33	2	75481	9/4/2013	NASA P-3B	8	SP-2	52.7	45.7	42.7	39.8	37.2	38.2	41.4	39.7	42.4	44.1	41.6	45	52.6	31.4	45.6	51.1	43.3	37.4	32.3	34	29.3	28.5	28	28.8	29.4	30.2	31	32.1	33.2	34.4	35.4	36.6	40.1	39	39.8	41.6	43.2
33	2	75481.5	9/4/2013	NASA P-3B	8	SP-2	51.1	45.3	41.5	40	36.1	37.9	41.1	41	43	44.3	41.6	45.6	51.5	31.4	47.6	50.9	42.5	37.1	32.5	33	28.8	28	27.7	28.4	29.3	30.3	31.1	32.4	33.2	34.3	35.4	36.5	40.4	39	39.9	41.6	43.4
33	2	75482	9/4/2013	NASA P-3B	8	SP-2	50.1	46	40.4	40.4	37.2	38.6	41.5	39.8	42.9	43.7	40	48.8	52.5	31	47.3	49.5	41.9	36.1	31.6	32.2	28.3	27.7	27.6	28.4	29.2	30.2	31.3	32.3	33.2	34.3	35.4	36.6	40.7	39	39.9	41.6	43
33	2	75482.5	9/4/2013	NASA P-3B	8	SP-2	50.1	44.5	39.4	40	37.7	39	42.1	40.8	43.6	42.5	40.5	53.6	53.1	31.1	46.9	48.5	42.1	35.4	31.3	31.7	28.7	28	27.8	28.6	29.1	30.1	31.1	32.1	33.1	34.2	35.3	36.7	40.8	38.9	39.9	41.6	43
33	2	75483	9/4/2013	NASA P-3B	8	SP-2	48.4	42.6	38.4	39.7	38	39.4	41.6	41.2	42.9	41.9	39.7	55.4	52.3	31.2	47.9	47.8	41.6	34.3	31	31.2	28	28.2	28	28.3	29.1	30.1	31.1	32.2	33.1	34.2	35.3	36.8	40.9	38.9	39.9	41.6	42.4
33	2	75483.5	9/4/2013	NASA P-3B	8	SP-2	47	40.6	40.6	38.7	40.2	38.1	40.5	40	43.1	41.7	39.7	54.8	50.7	31.4	46.9	46.4	40.9	34	31.2	30.7	27.8	27.9	27.9	28.1	29	30	31.1	32.3	33.1	34.2	35.3	36.7	41	38.8	39.9	41.6	42.2
33	2	75484	9/4/2013	NASA P-3B	8	SP-2	45.2	40.5	40.3	40.4	39.7	39.3	40.5	39.5	43.7	40.9	40	55.8	50	31.5	47.1	45.2	40.1	33.3	30.8	30.8	28.1	28	27.9	28.3	29.2	30	31.1	32.4	33.3	34.1	35.3	36.7	41.1	38.9	39.9	41.7	41.7
33	2	75484.5	9/4/2013	NASA P-3B	8	SP-2	43.5	43	40.2	40.8	39.5	39.3	41	38.6	44.2	40.2	39.3	56.1	48.7	32.6	45.6	43.9	42.3	33.6	31.7	31.4	27.9	28	28.1	28.2	29.1	30	31.1	32.5	33.3	34.1	35.4	36.7	41	38.9	39.9	41.7	41.8
33	2	75485	9/4/2013	NASA P-3B	8	SP-2	44	43.8	38.8	39.1	38.8	39	40.2	37.7	44.8	39.8	40.4	56.3	47.2	32.2	45.9	43.1	42.8	34.3	32.5	31.3	28.3	27.9	28	28.5	29.2	30	31.2	32.4	33.4	34.2	35.4	36.7	41	38.9	39.8	41.6	42.2
33	2	75485.5	9/4/2013	NASA P-3B	8	SP-2	45.6	44.9	41.3	41.3	39.7	37.7	40.6	38.7	45.5	39.6	41.8	57.4	46.3	33	46.1	41.9	41.9	33.5	31.9	31.2	27.9	27.7	28	28.4	29.4	29.9	30.9	32.3	33.2	34.2	35.3	36.8	41	38.9	39.8	41.6	42.2
33	2	75486	9/4/2013	NASA P-3B	8	SP-2	49.5	44	40.2	42.4	39	37	39.5	38.9	44.4	38.8	41.2	58.2	45.2	34	47.6	42	42.2	33.1	32.7	31.4	27.9	28	27.8	28.2	29.4	30.1	30.9	32.2	33.3	34.1	35.3	36.8	41.1	39	39.8	41.6	43.2
33	2	75486.5	9/4/2013	NASA P-3B	8	SP-2	51.3	42.5	41.3	43.5	37.7	37.7	39.6	39	43.8	38.5	41.2	59.5	43.9	34.7	49.3	42.4	43.2	34.1	33.5	32.6	29.1	28.3	28.2	28.5	29.5	30.2	31	32.4	33.2	34.3	35.3	36.8	41	39	39.8	41.6	43.2
33	2	75487	9/4/2013	NASA P-3B	8	SP-2	51.2	41.7	41	44.4	38.2	41.1	40.5	39.2	43.6	39.8	40.6	58.8	42	34.2	48.3	42.4	44.1	34.5	33.7	32.7	29	27.9	28.3	28.7	29.4	30.4	31	32.4	33.1	34.3	35.2	36.7	40.6	39	39.8	41.6	43
33	2	75487.5	9/4/2013	NASA P-3B	8	SP-2	50.7	41.8	39.8	43.6	37.6	41.1	39.6	38.8	42.8	40.1	42	58.3	40.2	34	49.5	42.7	44.2	33.9	33.1	32.6	28.8	27.9	28.2	28.5	29.1	30.4	31.1	32.2	33.3	34.2	35.2	36.6	40.1	39	39.8	41.6	43
33	2	75488	9/4/2013	NASA P-3B	8	SP-2	48.8	40.5	39.7	42.8	38.1	41.3	39.3	38.1	41.6	39.9	42.3	58.8	38.6	34.2	49.2	42.8	44.6	33.8	34.1	33	29.7	28.3	28.4	28.4	29.1	30.5	31.2	32.1	33.1	34.1	35.3	36.7	39.7	39	39.8	41.6	43.1
33	2	75488.5	9/4/2013	NASA P-3B	8	SP-2	47.9	41.5	39.3	42.9	38.3	41.6	39.1	38.5	41.3	41.5	41.8	58.3	37.2	34.7	50.9	42.5	44.7	33	34.1	33.6	29.7	28.1	28.1	28.5	29.1	30.4	30.9	32.1	33.2	34.1	35.2	36.6	39.5	38.9	39.8	41.6	43.3
33	2	75489	9/4/2013	NASA P-3B	8	SP-2	49.7	41.4	43.1	41.9	37.8	41.4	39	38.8	42.8	40.9	42.1	58.7	36	35.4	50.8	42.9	45.1	32.8	33.9	33.4	29.4	28.1	28.2	28.6	29	30.5	30.9	32.1	33.2	34	35.2	36.7	39.4	38.9	39.8	41.6	43.3
33	2	75489.5	9/4/2013	NASA P-3B	8	SP-2	49.5	44.5	43.9	44.8	39.6	42.4	39.4	38.7	41.9	40	41.1	57.8	34.8	35.7	50.9	43	46.4	33.8	33.7	33.2	29.3	28.1	28.1	28.7	29	30.3	30.9	32.1	33.2	34	35.2	36.8	39.3	38.9	39.8	41.6	43.8
33	2	75490	9/4/2013	NASA P-3B	8	SP-2	50.1	43.2	48.7	46.1	39.8	43.5	39	38.8	43	39.7	40.3	57.7	34.3	36.3	53.2	43.6	47.9	34.8	35.4	34.8	31.9	29	28.6	28.7	29.1	30.4	31	32	33.1	34.1	35.3	36.8	39.1	38.9	39.8	41.6	45.1
33	2	75490.5	9/4/2013	NASA P-3B	8	SP-2	48.5	45.7	47.9	45.4	39.1	42.2	38.7	38.6	43.2	39.3	41.1	57.7	34	36.6	53	43.9	48.1	34.7	36.1	34.7	32.1	29.1	29.1	29	29	30.3	31.1	32.2	33	34.1	35.2	36.8	38.9	38.9	39.9	41.6	44.5
33	2	75491	9/4/2013	NASA P-3B	8	SP-2	47.7	49.2	47.8	43.4	38.3	40.5	39.3	40.8	42.8	39.3	42.8	58.3	34.9	36.5	52.3	43.3	48	34.4	36.1	34.1	31.4	28.9	28.8	29.1	29.2	30	31	32.3	33.2	34.1	35.2	36.7	38.8	38.9	40	41.6	44.9
33	2	75491.5	9/4/2013	NASA P-3B	8	SP-2	47.6	52.3	47.3	42.3	37.5	38.9	40.8	40.5	44.1	39.4	43.4	59.3	34.3	37.7	54.2	43.9	48	34.2	36.9	34.1	31.7	29.3	28.7	29.1	29.3	29.9	30.9	32.2	33.2	34.1	35.3	36.8	38.8	38.8	40	41.6	45.6
33	2	75492	9/4/2013	NASA P-3B	8	SP-2	51.5	52.7	45.5	41.8	37.2	38.5	41	40.5	44.2	40.2	43.5	59.8	34.6	38.9	53.9	45.4	50.4	35	38.4	36	33.3	30.5	29.1	28.8	29.4	29.7	30.9	32.3	33	34.2	35.3	36.9	38.8	38.8	39.9	41.6	46.1
33	2	75492.5	9/4/2013	NASA P-3B	8	SP-2	52.7	51.5	43.7	41.2	36	38	40.4	39.5	44.5	40	43	59.5	33.8	38.7	53.5	46.1	50.3	34.2	37.1	34.9	32.9	30.2	29.1	28.8	29.3	29.8	30.8	32.2	33.2	34.1	35.3	36.7	39	38.8	39.9	41.7	45.9

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	2	75493	9/4/2013	NASA P-3B	8	SP-2	53.5	49.9	41.7	40.1	37.5	38.7	40	38.5	45.5	39.3	42.5	59.3	33.3	38.6	54.4	45.7	50.6	33.2	36.3	34.2	32.8	29.8	29.2	28.9	29.1	29.9	30.8	32.2	33.2	34.1	35.4	36.8	39.1	38.8	39.8	41.6	46
33	2	75493.5	9/4/2013	NASA P-3B	8	SP-2	51.9	48.6	40.7	39.1	37.2	43.3	38.9	39.6	45.6	40	41.8	60	33	39.1	53.2	45	49.8	33.1	36.5	34.3	33.4	30.1	29	28.7	29.3	29.9	31.1	32	33.2	34.3	35.3	36.8	39	38.8	39.8	41.6	45.5
33	2	75494	9/4/2013	NASA P-3B	8	SP-2	50	46.6	41.4	40.9	37.7	44	39.3	39.4	45.1	39.5	40.8	62.3	32.4	39.5	52.5	44.2	48	32.3	35.9	33.1	32.5	29.6	28.7	28.7	29.1	29.8	31.1	32.1	33.3	34.1	35.3	36.8	38.9	38.8	39.8	41.6	45.6
33	2	75494.5	9/4/2013	NASA P-3B	8	SP-2	49	44.6	40.1	40.7	36.9	44.4	39	39.9	44.7	39.6	40.7	63.9	33.4	38.3	53.7	44.1	46.5	31.8	35.4	32.7	32.2	29.2	28.4	28.8	29.1	30.1	31	32.1	33.3	34.1	35.3	36.8	38.8	38.9	39.8	41.6	46.4
33	2	75495	9/4/2013	NASA P-3B	8	SP-2	49.5	42.9	40.4	39.7	37.1	43.4	38.2	38.4	44.2	39.8	40.7	66.3	34	39.6	53.5	44.7	46	34.8	37	33.5	32.3	29.8	28.7	29	29.2	30	30.9	32	33.3	34.1	35.4	36.8	38.8	38.9	39.9	41.6	46.9
33	2	75495.5	9/4/2013	NASA P-3B	8	SP-2	48.3	42.5	39.9	38.8	38.4	44.1	37.5	39.2	43	40.3	42.1	67.2	33.3	39.5	52.1	47.5	47.9	35	37.7	33.3	32.1	29.5	28.7	28.8	29.2	30.1	31	32.1	33.3	34.3	35.4	36.8	38.8	38.9	39.9	41.6	46.6
33	2	75496	9/4/2013	NASA P-3B	8	SP-2	46.2	41.1	39	37.3	38.4	45	38.3	39.6	42.1	41.6	43.1	66.8	33.3	40.2	51.7	46.6	46.5	34.9	37.2	33.2	32.1	29.3	28.7	29	29.1	30.2	31	32.1	33.2	34.3	35.3	36.8	38.8	38.9	39.8	41.6	45.8
33	2	75496.5	9/4/2013	NASA P-3B	8	SP-2	44.5	41.1	37.9	37.9	36.8	44.5	38.9	39.2	42.6	42	44.9	65.5	33.5	39.7	50.7	47.3	45.6	34.6	36.8	32.7	31.8	29.3	28.9	28.7	29.2	30.3	30.9	32.1	33.2	34.2	35.2	36.7	38.8	39	39.7	41.6	44.9
33	2	75497	9/4/2013	NASA P-3B	8	SP-2	44.5	44.4	36.4	37.2	36.1	44.4	39.4	39	42.7	42.2	47.1	63.9	33	40.3	51	46.4	44.4	34.1	36.3	31.8	31	28.8	28.9	28.7	29.4	30.3	31.1	32.2	33.3	34.2	35.2	36.7	38.9	38.9	39.8	41.6	44.6
33	2	75497.5	9/4/2013	NASA P-3B	8	SP-2	45.2	43.5	34.8	37.9	38.6	44.3	39.8	38.5	42.3	41.5	49.5	63	32.3	43.7	52.4	46.9	43.5	34.2	36	31.3	30.2	28.4	28.7	29.1	29	30.2	31.3	32.2	33.2	34.3	35.2	36.5	38.8	38.9	39.8	41.6	45.1
33	2	75498	9/4/2013	NASA P-3B	8	SP-2	45.6	41.5	33.5	39.3	37.7	45.8	40.6	38	42.2	42.1	55.3	63.5	32.4	45.4	51.9	46.5	42.8	35	35.9	31.3	30	28.7	29	29.3	29.2	30	31.2	32.4	33.3	34.2	35.3	36.7	38.9	38.8	39.8	41.6	45.1
33	2	75498.5	9/4/2013	NASA P-3B	8	SP-2	46.3	42.3	33.4	38.6	39.6	45.6	40.3	39.2	43	41.5	59.2	63.8	31.8	48.1	52	47.6	43.1	34.9	37.1	32	30.6	29.4	29.5	29.8	29.7	30	31.2	32.3	33.2	34.2	35.2	36.7	39	38.8	39.8	41.6	45.9
33	2	75499	9/4/2013	NASA P-3B	8	SP-2	45.1	42.7	36.1	38.5	40.3	46	39.8	40.3	42.7	42.4	61.7	63.5	31.4	54.6	54.3	47.2	42.3	34.1	37.3	32.2	30.8	29.4	29.6	29.9	29.6	29.8	31	32.3	33.2	34.2	35.3	36.6	39	38.9	39.8	41.6	46.7
33	2	75499.5	9/4/2013	NASA P-3B	8	SP-2	45	43.7	36	37.3	41.8	45.1	41.3	40	43.3	41.8	61.8	62.2	31.7	56.9	54.4	46.7	41.9	33.6	37.1	32	30.8	29.6	29.4	29.8	29.7	29.6	31.2	32.2	33.2	34.2	35.3	36.7	39	38.9	40	41.6	46.4
33	2	75500	9/4/2013	NASA P-3B	8	SP-2	44.3	43.9	38.2	40.3	43.1	44.9	40.7	40	42.4	41.7	61.3	60.5	32.4	56.6	53	45.8	41.2	33	36.5	31.3	30.5	29.7	29.2	29.4	29.4	29.7	31.2	32	33.1	34.1	35.3	36.8	39	38.9	40.2	41.7	45.7
33	2	75500.5	9/4/2013	NASA P-3B	8	SP-2	44.6	42.6	41.2	41.4	44.7	44	41.4	40.5	41.7	41.5	60.6	58.7	32.1	57	51.7	45.9	40.9	33.3	36.7	31.8	30.5	29.8	29.7	29.2	29.6	30	31	32.1	33.2	34	35.4	36.8	39	38.9	40.4	41.7	45.4
33	2	75501	9/4/2013	NASA P-3B	8	SP-2	42.9	41.2	41.7	41	44.3	42.5	39.9	39.8	40.4	40.8	59.1	56.6	32.6	57.5	50.4	45	40.8	33.4	37.3	31.9	31	30	29.7	29.2	29.7	30	31.1	32	33.1	34	35.4	36.7	39.1	38.9	40.2	41.6	45.3
33	2	75501.5	9/4/2013	NASA P-3B	8	SP-2	43.8	43	41.9	41.2	44.8	42.6	39.4	40.3	40.5	41.8	57.3	54.6	32.5	57.4	48.9	45.8	40.4	33	36.9	31.9	31.7	30.5	30.3	29.2	29.7	29.8	31.1	32.1	33.1	34	35.4	36.7	39.1	38.8	40.1	41.6	44.6
33	2	75502	9/4/2013	NASA P-3B	8	SP-2	43.7	45.2	45.1	40.5	45.5	41.5	39.7	42.4	40	41.1	56.6	52.5	31.8	56.2	47.6	45.3	39.8	32.6	36.6	31.8	31.5	31.4	30.7	29.6	29.4	30	31.1	32.2	33.3	34.1	35.4	36.7	39.1	38.9	40	41.6	44.1
33	2	75502.5	9/4/2013	NASA P-3B	8	SP-2	47	45	45.9	39.7	46.4	41.1	40.5	42.8	39.9	41	58.1	50.6	32.2	55.2	46.3	45.6	39.6	32.5	36	31.4	31.9	32.9	32.4	30.2	29.5	30.2	31	32.2	33.3	34	35.4	36.7	39.2	38.9	39.9	41.6	44.2
33	2	75503	9/4/2013	NASA P-3B	8	SP-2	48.8	46.6	45.1	39.4	47	39.9	40.7	42.3	40.1	41.1	60.6	48.6	32.1	54.3	45.1	46.8	39.8	32.4	36.6	32.1	32.4	33.7	33	30.4	29.6	30.3	31.3	32.2	33.3	34	35.5	36.6	39.1	38.9	39.9	41.6	44.5
33	2	75503.5	9/4/2013	NASA P-3B	8	SP-2	50.6	52.2	43.8	39.1	47	39.6	39.7	41.9	39.6	41.6	63.1	46.6	32.6	53	44.5	47	41	32.4	38.3	34.1	33.9	34.2	33	30.8	29.6	29.9	31.1	32.1	33.2	34.1	35.5	36.7	39.1	38.9	39.9	41.6	45.1
33	2	75504	9/4/2013	NASA P-3B	8	SP-2	54.8	52.3	42.1	38.5	47.1	39.3	38.6	41.4	39.4	40.8	64.8	44.7	32.3	51.6	43.7	47.3	41.3	32.9	38.2	33.9	33	33.6	32.2	30.5	29.6	30	31.2	31.9	33.2	34.2	35.5	36.6	39	39	40	41.6	44.5
33	2	75504.5	9/4/2013	NASA P-3B	8	SP-2	53.8	51.4	40.9	39.3	47.1	39	37.5	42.2	38	40.2	65.2	42.7	32.1	50.2	42.8	47.2	40.6	31.8	37.1	33	31.9	32.5	31.3	30.1	29.6	30.1	31.2	31.9	33.3	34.3	35.3	36.7	38.9	39	40	41.6	43.4
33	2	75505	9/4/2013	NASA P-3B	8	SP-2	52.8	49.4	40.4	38.7	47.1	38	37.5	42.2	38.2	39.8	64.1	40.9	32.3	49.3	41.8	47	39.7	31.2	36.3	32.5	31.2	32.1	31	29.9	29.4	30	31.1	32.2	33.3	34.3	35.3	36.7	38.9	39	40	41.5	42.7
33	2	75505.5	9/4/2013	NASA P-3B	8	SP-2	51.9	49.8	41.7	38.3	46	37.6	36.7	41.7	39.4	40.8	62.7	39.3	32.3	48.8	41.7	46.2	39.4	31.4	36.5	33.6	31	31.5	30.5	29.4	29.2	30	31.2	32	33.3	34.3	35.4	36.7	39.1	39	40	41.5	42.3
33	2	75506	9/4/2013	NASA P-3B	8	SP-2	52	49.5	41.6	38.8	45.1	38.9	38	42.6	38.7	39.8	61.9	38.1	31.4	47.6	41.6	45.5	39.1	31.8	36.2	33.3	30.7	30.9	29.8	29.3	29.2	30.1	31.2	32.1	33.2	34.3	35.4	36.6	39.1	39	40.1	41.6	42.2
33	2	75506.5	9/4/2013	NASA P-3B	8	SP-2	50	50.5	42.7	40	45.6	37.6	37.7	43.1	38.1	40.5	63.1	36.9	31.3	45.9	42	44.9	39	31.6	36.2	33	30.2	30.9	30.2	29.2	29.3	29.9	31.1	32.1	33.1	34.2	35.4	36.6	39.1	39	40.1	41.7	42.7
33	2	75507	9/4/2013	NASA P-3B	8	SP-2	48.7	52.6	41.8	38.2	45.9	36.1	37.9	43.5	37.7	39.2	64.8	36.5	31.1	45.6	42.3	45	39.4	31.9	35.8	32.5	30.4	31.3	30.1	29.6	29.7	30.1	31.1	32	33	34.2	35.4	36.6	39.1	39	40	41.7	43.4
33	2	75507.5	9/4/2013	NASA P-3B	8	SP-2	47.2	51	41.4	38.4	46.2	35.8	40.1	44	36.5	38.8	66.3	35.6	30.8	46.3	41.7	44.1	39	31.7	35	31.9	30.6	30.8	29.7	29.3	29.4	30.1	31.1	32.2	33	34.2	35.3	36.5	39.1	39	40	41.6	43.6
33	2	75508	9/4/2013	NASA P-3B	8	SP-2	46.1	49.2	41.7	40.1	47.4	35.6	39.5	44	36.5	41.5	67.7	34.9	31.1	45.8	41.5	42.9	38.7	31.5	33.9	30.8	30	30.4	29	28.9	29.4	30.1	30.9	32.3	33	34.3	35.3	36.6	39	38.9	40	41.6	43.2
33	2	75508.5	9/4/2013	NASA P-3B	8	SP-2	47	48.4	43.7	40.4	45.9	36.7	39.5	43.1	36.3	41.5	67.8	35.7	31.7	44.1	41.2	42.9	38.6	30.3	33.5	30	30	30	28.9	28.8	29.3	30.1	31	32.1	32.9	34.2	35.3	36.6	38.9	38.8	40	41.6	42.6
33	2	75509	9/4/2013	NASA P-3B	8	SP-2	47.5	46.8	43	40.2	44.7	37.3	39.6	42.4	37.5	41.9	67.2	36.1	31.9	44.1	40.7	43.2	38	29.9	34.2	31.3	30.2	29.8	28.5	28.7	29.3	29.9	31.1	32.2	33	34.1	35.2	36.7	38.8	38.8	39.9	41.6	42
33	2	75509.5	9/4/2013	NASA P-3B	8	SP-2	47.3	46.1	43.4	38.8	43.7	38.5	40.2	41.7	38	41.6	66.1	35.6	32	44.3	40.6	43.1	37.5	30.2	34.8	32.5	30.3	29.9	29.4	28.9	29.1	29.9	30.9	32.3	33.1	34.1	35.3	36.7	38.7	38.9	39.9	41.6	41.9
33	2	75510	9/4/2013	NASA P-3B	8	SP-2	45.9	46.4	41.7	37.8	42.7	38.6	39.2	40.8	39.4	40.8	65.4	35.8	32.7	43.1	41.1	43.5	38.4	31.6	35.4	31.9	30.1	29.5	29.3	29.3	28.9	29.7	30.8	32.2	33.3	34.2	35.4	36.7	38.8	38.9	40	41.7	41.7
33	2	75510.5	9/4/2013	NASA P-3B	8	SP-2	45	47.5	40.4	37.3	41.7	37.6	40.2	39.2	40.6	40.9	65.2	35.5	32.8	41.8	40.7	43	38.4	31.5	34.8	31.5	30.1	29.3	30.1	29.3	29.2	29.9	30.8	32.3	33.3	34.2	35.3	36.8	38.8	39	40	41.6	42.3
33	2	75511	9/4/2013	NASA P-3B	8	SP-2	50.3	46.5	41.2	37.3	40.7	37.7	41.1	38.5	40.8	41.8	66.4	35.2	34.1	42.2	40.7	43.5	40	31.7	35.1	32.2	30.4	29.5	30.3	29.6	29.2	30	30.9	32.1	33.3	34.1	35.4	36.7	38.7	38.9	39.9	41.6	42.7
33	2	75511.5	9/4/2013	NASA P-3B	8	SP-2	51	44.6	39.8	36.6	40.3	38.6	40.5	38.5	40.1	44.3	67.1	35.5	33.6	41.9	40	43.2	40.5	32.2	34.3	31.9	29.7	29.2	29.9	29.3	29.3	30	30.9	32.1	33.2	34.2	35.3	36.6	38.8	38.9	39.9	41.6	42.7
33	2	75512	9/4/2013	NASA P-3B	8	SP-2	48.9	45.6	40.5	38.5	39.5	38.5	39.9	37.4	39.5	47.3	67.4	36.9	33.1	40.3	39.2	43.3	40.7	32.9	33.8	31.3	28.8	28.8	29.7	29.2	29.3	30.2	31.1	32.1	33.1	34.3	35.4	36.7	38.9	38.9	39.9	41.6	42.5
33	2	75512.5	9/4/2013	NASA P-3B	8	SP-2	47.4	45.5	41.1	39	39.5	37	39.7	38.2	39.4	50	67.3	35.5	32.4	39.2	38.5	42.4	40.3	32.4	33.6	31.6	28.6	28.6	29.6	29	29.4	30	31.1	32.2	33	34.3	35.3	36.7	38.9	39	40	41.6	41.8
33	2	75513	9/4/2013	NASA P-3B	8	SP-2	46.1	44.7	42.6	38.4	39.1	37	41.2	39.1	39.9	51.8	66.6	36	31.9	38.5	37.5	41.5	39.2	31.5	32.4	30.7	27.8	28.3	29.9	29	29.3	30	31.2	32.2	33.1	34.4	35.2	36.6	38.8	39	40	41.6	40.8

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	2	75513.5	9/4/2013	NASA P-3B	8	SP-2	44.6	44.4	41.7	37.4	40.4	37.6	40.1	39.5	40.2	52.6	65.2	36	31.9	37.6	37	40.5	38	30.5	31	29.7	27.7	28.3	29.5	28.9	29.4	29.7	31	32.1	33.3	34.3	35.2	36.6	38.7	39.1	40.1	41.6	40.4
33	2	75514	9/4/2013	NASA P-3B	8	SP-2	43.9	42.6	40.2	36.7	40.4	37.8	38.3	38.8	41.3	54.6	64.7	35.6	31	36.6	36.4	39.4	37.8	29.9	30.2	29.7	27.6	28.7	29.9	29.2	29.2	29.9	31.2	32.2	33.2	34.3	35.3	36.6	38.8	39.1	40	41.7	41
33	2	75514.5	9/4/2013	NASA P-3B	8	SP-2	45.1	40.8	41.6	37.8	41.2	38.4	37.4	38.3	41	57.5	65.2	35.7	30.5	35.6	37.4	40	38.2	31.1	31	30.7	28.5	29.3	29.8	29.2	29.2	30	31.2	32.1	33.2	34.3	35.4	36.7	38.7	39.1	40	41.6	41.4
33	2	75515	9/4/2013	NASA P-3B	8	SP-2	46.7	39.1	40.2	38.5	41.1	37	36.8	40	41.7	59.9	65.6	35.4	31.4	35.2	36.4	39.3	37.7	30.2	30.2	30.2	28.2	29.5	29.8	29.1	29.2	30.1	31.1	32.2	33.3	34.3	35.4	36.6	38.7	39	40.1	41.6	41.6
33	2	75515.5	9/4/2013	NASA P-3B	8	SP-2	45.4	38.6	38.6	39.9	41	36.7	38.3	40.2	41.7	61.9	65.9	35.3	31.2	34.6	36.7	38.4	37.2	29.6	29.6	29.8	27.8	29.1	29.4	29	29.1	30	31.1	32.1	33.2	34.2	35.4	36.6	38.6	39	40	41.7	41.6
33	2	75516	9/4/2013	NASA P-3B	8	SP-2	44.8	39.5	39	39.1	42.2	35.5	37.6	39.6	41	63.3	66	35.3	31.4	33.8	36.2	38.2	36.4	29.6	29.5	29.8	28	29.2	28.8	29	29.3	30.1	31.1	32.2	33.1	34.1	35.5	36.7	38.7	39	40	41.6	40.9
33	2	75516.5	9/4/2013	NASA P-3B	8	SP-2	42.9	40.7	38.2	39.4	41.8	35.1	38.6	39.3	40.5	63.5	65.1	34.8	31	33.5	36	37.9	36.5	29	29.5	30	27.8	28.9	28.6	28.6	29.5	30.2	31.3	32.3	33.1	34.2	35.3	36.7	38.7	38.9	39.9	41.6	40.1
33	2	75517	9/4/2013	NASA P-3B	8	SP-2	41.1	40.7	37.9	40	40.9	36.5	38.2	38.4	39.6	63	63.8	36.2	30.8	33.2	35.6	37.5	36.9	28.8	28.8	29.2	27.5	28.4	28.4	28.5	29.5	30.3	31.3	32.3	33	34.2	35.3	36.7	38.8	39	40	41.7	39.2
33	2	75517.5	9/4/2013	NASA P-3B	8	SP-2	39.4	40.4	36.9	38.9	40.1	37.6	36.8	37.2	39.1	62	62.1	36.6	30.7	33	35.7	37.6	36.9	29.7	28.9	28.8	27.2	28	28.3	28.6	29.4	30.2	31.2	32	33.1	34.2	35.5	36.6	38.8	38.9	40	41.7	38.6
33	2	75518	9/4/2013	NASA P-3B	8	SP-2	40	38.8	36.3	40.3	40.2	38.3	36.2	38.9	38.7	61.1	60.5	36.2	30.5	32.8	37.2	37.2	36.4	30.1	28.8	28.4	27.3	27.7	28.2	28.6	29.6	30.2	31.2	32.1	33	34.2	35.6	36.6	38.9	39	40.1	41.7	38.3
33	2	75518.5	9/4/2013	NASA P-3B	8	SP-2	40.1	37.1	35.9	40.3	41.6	38.2	35.8	37.6	38.4	60.8	59.3	35.5	30.3	32.5	36.8	37.7	36.4	30.3	28.8	28.5	27.2	28.1	28.2	28.7	29.3	30	31.1	32.1	33	34.1	35.5	36.7	38.9	39	40.1	41.7	38.4
33	2	75519	9/4/2013	NASA P-3B	8	SP-2	41.3	36.1	37.2	44	42.2	37.5	35.4	36.9	37.8	61.2	58.7	35.6	31	31.6	36.9	38.4	36.3	30.1	28.8	27.8	27	27.8	28	28.5	29.3	30.1	31.2	32.4	33.1	34.1	35.5	36.7	38.9	38.9	40	41.6	38.7
33	2	75519.5	9/4/2013	NASA P-3B	8	SP-2	39.7	38.3	37	45.5	41.7	36.4	36.5	36.9	36.8	62.3	58.6	37.2	31.4	32.2	36.7	39	36.9	31.4	28.5	28.1	27.1	27.6	28.2	28.4	29.4	30.3	31.1	32.3	33	34.3	35.5	36.7	39	38.9	40	41.5	38.8
33	2	75520	9/4/2013	NASA P-3B	8	SP-2	38.2	39.2	38.5	44.5	40.9	38.5	35.6	36.2	36.5	62.9	58.1	38.1	32.3	33.1	36.6	38.8	37	31.4	28.3	27.8	27	27.9	28.5	28.5	29.2	30.4	31.2	32.4	33	34.3	35.5	36.8	39.1	38.9	39.9	41.6	38.7
33	2	75520.5	9/4/2013	NASA P-3B	8	SP-2	36.4	38.3	36.8	44.1	40.6	36.9	38.1	34.9	40.4	62.9	57.4	38	33.2	33.4	37.8	39.4	37.1	31.8	29.1	28	27.1	28.3	28.4	28.5	29.3	30.5	31.2	32.4	33.1	34.3	35.4	36.8	39.1	38.9	39.8	41.6	38.5
33	2	75521	9/4/2013	NASA P-3B	8	SP-2	36.1	38.1	36.6	44	39.7	36.4	38.5	33.9	41	62.6	56.4	37.8	33	33.2	38.5	40.1	36.6	31.4	28.4	28.1	27.2	28.1	28.1	28.6	29.1	30.4	31.1	32.3	33.2	34.3	35.4	36.8	39.1	38.9	39.8	41.6	37.7
33	2	75521.5	9/4/2013	NASA P-3B	8	SP-2	37	37.5	36.5	43.4	39	38.6	39.3	36.2	39.4	61.3	54.7	36.4	33.1	32.6	37.3	39.6	35.8	30.6	27.8	27.8	27.2	27.6	28	28.6	28.9	30.4	31.2	32.1	33.2	34.2	35.4	36.8	39	39	39.8	41.6	36.8
33	3	75666.5	9/4/2013	NASA P-3B	8	SP-2	37.2	34.8	38.7	40.1	38.4	37.3	40.2	41.3	40.4	42.5	42.4	41.2	46.2	35.7	31.1	41.1	36.6	38	33	27.7	27.5	27.8	28.3	28.4	29.4	29.9	31.1	32.2	33.2	34.2	35.5	36.8	39.1	38.9	39.8	41.7	38.3
33	3	75667	9/4/2013	NASA P-3B	8	SP-2	35.3	35.6	38.4	39	39.8	37.4	41	40.9	41	42.7	42.7	40.9	45.9	36.9	32.1	44.3	40.9	41.2	33.5	28	28.9	27.6	28.1	28.3	29.5	30	31	32.2	33.1	34.2	35.4	36.7	39.1	39	39.8	41.7	40.5
33	3	75667.5	9/4/2013	NASA P-3B	8	SP-2	34.2	34.8	39	38.2	39	36.6	42.4	41	42.3	42	41.8	40	47.2	36.3	34.1	45.6	41.9	42.8	37	30.6	32	28.9	28.6	28.6	29.6	29.9	31	32.1	33.2	34.2	35.3	36.7	39.1	38.9	39.8	41.5	41.6
33	3	75668	9/4/2013	NASA P-3B	8	SP-2	32.3	35.7	37.4	37	38.9	36.9	41.4	40.6	41.2	41.7	41	39.6	46.6	36.3	33.9	45	43.3	43.8	37.3	31.4	32.4	29.4	28.7	28.7	29.2	29.9	30.9	32.3	33	34.2	35.4	36.8	39.2	39	39.8	41.6	42.3
33	3	75668.5	9/4/2013	NASA P-3B	8	SP-2	34.3	35.7	35.5	37.9	37.7	38.8	41.5	41.8	41	41.2	41.7	39.3	46.2	36.5	33.7	46.5	43.5	43.6	36.4	31.7	32.4	29.8	28.9	28.7	29.3	29.9	31.1	32.2	33.2	34.2	35.4	36.8	39.2	39.1	39.8	41.6	42.4
33	3	75669	9/4/2013	NASA P-3B	8	SP-2	36.8	37.5	35.8	41.1	38.5	38.8	43.4	41.6	41.4	41.3	42.4	40.2	49.7	36.3	33	46.3	43.8	43.1	36.5	32	32.5	29.5	28.8	28.6	29.4	29.8	30.9	32.3	33.3	34.2	35.2	36.7	39.4	39	39.8	41.6	42.5
33	3	75669.5	9/4/2013	NASA P-3B	8	SP-2	36.8	36.7	38.9	40.1	37.3	40.3	43.5	41.3	40.7	40.9	42.1	41.3	50.7	35.9	33.3	47.8	43.8	43.6	37.1	33.7	33.5	29.4	28.8	28.8	29.4	30	31.1	32.3	33.4	34.2	35.3	36.7	39.4	39.1	39.8	41.6	43.5
33	3	75670	9/4/2013	NASA P-3B	8	SP-2	37.3	36.2	38.6	39.2	37.1	40	44.7	40	40.6	40.8	43.2	43.3	50.1	36.3	34	48.5	44.5	44.1	37.5	33.7	32.8	28.9	28.6	29	29.1	30	31.1	32.4	33.3	34.2	35.3	36.8	39.4	38.9	39.8	41.6	43.2
33	3	75670.5	9/4/2013	NASA P-3B	8	SP-2	37.5	39.8	38.9	41.1	38.4	39.4	43.2	43.4	41.9	42.7	42.6	42.5	49.5	36.8	34.4	47.1	44	43.4	36.1	32.3	31.5	28.2	28.5	28.8	29.1	30.3	31.1	32.7	33.4	34.2	35.3	36.8	39.4	38.9	39.9	41.6	42.7
33	3	75671	9/4/2013	NASA P-3B	8	SP-2	37.8	39.5	39.7	40.6	38.3	40.3	46.4	42.9	41.3	42	42.1	41.9	52.7	36.4	34.5	47.1	44.3	42.5	34.9	32.9	30.7	27.9	28.1	28.5	29.2	30.2	31.2	32.5	33.3	34.2	35.4	36.7	39.5	38.9	39.8	41.6	42.6
33	3	75671.5	9/4/2013	NASA P-3B	8	SP-2	39.5	38.9	38.6	39.6	39.3	40.2	45.8	41.5	41.5	41.3	42.6	43.1	54.6	35.7	35.5	46.9	43.7	41.7	33.8	33.2	31.1	28.4	28.2	28.4	29.5	30.1	31.1	32.4	33.1	34.1	35.3	36.7	39.4	38.9	39.8	41.6	42.5
33	3	75672	9/4/2013	NASA P-3B	8	SP-2	39.3	37.7	41.1	38.5	39.5	39	44.8	42.1	41.6	41.6	41.6	44.5	54.3	34.7	36.8	48	44	40.9	33.1	33.1	31	28.6	28.7	28.4	29.5	30.1	31.1	32.4	33	34.1	35.3	36.6	39.3	38.8	39.8	41.6	42.3
33	3	75672.5	9/4/2013	NASA P-3B	8	SP-2	38.8	36.5	41.2	38.9	39.2	39.8	43.1	41.4	42.8	43.4	43.6	43.8	52.4	34.2	35.9	46.4	45.1	42.2	33.5	34	32	30.6	29.7	29.2	29.6	30	31.3	32.4	33.2	34.2	35.3	36.6	39.3	38.9	39.8	41.5	43
33	3	75673	9/4/2013	NASA P-3B	8	SP-2	39.2	37.1	41.9	39.8	40.7	39.3	42.9	41.7	41.8	44.1	43.7	44.5	52.8	34	41.3	48.3	47.5	43.1	34.9	35.8	33.1	30.7	29.9	29.6	29.5	30.2	31.2	32.3	33.1	34.2	35.2	36.6	39.2	38.9	40	41.6	44.9
33	3	75673.5	9/4/2013	NASA P-3B	8	SP-2	38	37	41.5	40	40.4	39.9	42.6	41.5	41.7	44	43.5	50.3	56.1	35.2	44.6	48.9	48.1	43.1	36.3	36.9	33.4	30.9	29.8	29.5	29.5	30.1	31.1	32.3	33.2	34.2	35.3	36.7	39.1	38.9	40	41.7	46
33	3	75674	9/4/2013	NASA P-3B	8	SP-2	38.9	40.7	41.2	38.8	40.9	39.7	41.8	42.7	42	44.1	42.7	54.2	56.8	34	51.1	52.6	48.8	42.9	36.2	37.6	33.7	30.9	29.8	30	29.5	30.1	30.9	32.2	33.4	34.1	35.4	36.7	39.1	39	40.1	41.7	47.3
33	3	75674.5	9/4/2013	NASA P-3B	8	SP-2	38.1	40.2	40.1	38.4	40.7	39.8	42.4	43	43.1	43.9	41.3	55.3	56.6	34.9	52.4	52.7	50.2	43.7	37.9	39.2	35.6	32.2	30.4	30.5	29.4	30.3	31.1	32.3	33.4	34.1	35.4	36.7	39.2	39	40.1	41.8	48.2
33	3	75675	9/4/2013	NASA P-3B	8	SP-2	37.9	38.7	39.4	39.5	39.6	39	42.9	41.5	43.7	43.9	42.3	59.4	57.1	35.3	54.1	52.2	50.2	43.8	37.4	39.3	35.3	32.5	30.8	30.5	29.5	30.2	31.1	32.3	33.4	34.2	35.4	36.6	39.2	39	40.1	41.7	48.5
33	3	75675.5	9/4/2013	NASA P-3B	8	SP-2	39.6	37.5	39.9	38.6	38	39	41.5	40.7	45.8	43.7	42.5	61.2	56.1	34.9	54.1	50.9	50	43.2	36.6	38.5	34.5	31.9	30.8	30.6	29.6	30.6	31.3	32.5	33.4	34.2	35.4	36.6	39.2	39	40	41.7	47.6
33	3	75676	9/4/2013	NASA P-3B	8	SP-2	39	38.7	39.8	38.2	37.3	41.5	41.3	40.7	45.7	43.1	41.8	60.2	54.3	34.3	54	50.1	49.6	43.9	37.5	39.7	35.5	34.6	32.2	30.9	29.8	30.6	31.2	32.2	33.3	34.2	35.5	36.8	39.3	39	39.9	41.6	48.3
33	3	75676.5	9/4/2013	NASA P-3B	8	SP-2	39.1	38.2	39	37.9	37.5	42.6	42.3	41.8	46	43	41.3	60.3	52.7	35.2	54.9	49.4	49.3	44	37	39.2	35.2	33.8	31.7	30.5	29.8	30.5	31.1	32.3	33.4	34.2	35.6	36.9	39.3	39	39.9	41.6	48.1
33	3	75677	9/4/2013	NASA P-3B	8	SP-2	38.3	38.6	39.6	38.4	37.4	44.8	43.5	42.8	46.9	43.5	41.2	63.1	51.1	34.5	53.9	48.3	48.8	42.9	36.2	38.9	34.2	33	31.1	30	29.7	30.5	31.1	32.3	33.3	34.2	35.6	36.9	39.3	38.9	39.9	41.6	48.3
33	3	75677.5	9/4/2013	NASA P-3B	8	SP-2	37.8	37.4	38	37.6	39.3	43.8	43.3	41.7	46	43.6	41	65	49.3	34.2	54	48.5	50.2	43.6	36.3	38.9	33.7	32.3	30.2	29.9	29.6	30.5	30.9	32.3	33.3	34.3	35.5	36.8	39.2	38.9	39.9	41.6	48.1
33	3	75678	9/4/2013	NASA P-3B	8	SP-2	36.4	36.1	39	39.6	40.5	44.6	42.1	41.3	45.7	44	41.6	64.2	47.4	34.8	52.3	48.4	51.8	43.9	35.8	38.1	32.9	31.8	30.4	30	29.6	30.3	31.1	32.9	33.2	34.3	35.4	36.8	39.2	38.9	40	41.6	47.8

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	3	75678.5	9/4/2013	NASA P-3B	8	SP-2	34.4	35.4	37.3	38.7	39.5	44.9	41.8	42.6	45	43.6	40.9	63.6	45.5	35.6	50.9	47.5	50.7	42.4	35	38.6	33.4	31.8	30.2	29.5	29.8	30.3	31.1	33.1	33.2	34.2	35.4	36.8	39.3	38.9	40	41.7	48.9
33	3	75679	9/4/2013	NASA P-3B	8	SP-2	33.2	38.1	36.6	38.2	39.3	45.2	41.3	42.6	44.3	42.7	42	67.6	43.8	35	51.2	46.6	50.3	42.3	35.1	38.1	32.4	31.1	29.7	29.2	29.8	30.1	31	32.8	33.3	34.2	35.4	36.7	39.2	38.9	40.1	41.7	49.3
33	3	75679.5	9/4/2013	NASA P-3B	8	SP-2	36	38.4	35.5	38.4	37.8	44.9	40.4	43	43.6	41.5	43.7	69.5	42.1	35.2	49.8	45.2	49.7	42.3	34.2	37.4	32.3	30.7	29.1	28.9	29.6	30.1	31.1	32.6	33.3	34.2	35.5	36.8	39.1	39	40.1	41.7	48.9
33	3	75680	9/4/2013	NASA P-3B	8	SP-2	37	38.5	35.5	38.8	38.8	44.6	39.1	42	44.2	42.4	44.8	69.1	40.9	35.7	51.9	45.4	48.8	43.5	36.3	39.3	33	32.2	29.7	29.2	29.8	30.3	31.1	32.5	33.2	34.3	35.4	36.9	39.2	38.9	40.1	41.8	48.6
33	3	75680.5	9/4/2013	NASA P-3B	8	SP-2	36.9	37.6	40	38.7	39.8	44.7	38.8	40.7	44.5	41.8	45.7	68.4	39.5	36.3	50.6	46	48.3	42.8	36.2	38.8	32.6	32	29.4	29.4	29.7	30.2	31.2	32.4	33.2	34.2	35.5	36.9	39.2	38.9	40.2	41.8	49
33	3	75681	9/4/2013	NASA P-3B	8	SP-2	37.3	38.4	39.4	41	38.8	43.3	39.4	40.9	45	41.5	44.7	69.4	38.7	36.3	53.3	45.8	48	42.1	36.1	39.2	33.4	33	29.9	29.6	29.7	30	30.9	32.3	33.1	34.1	35.4	36.8	39.3	38.9	40	41.7	50
33	3	75681.5	9/4/2013	NASA P-3B	8	SP-2	36.5	37.5	38.5	40.7	37	43.1	42.4	41	45.9	41.3	44.4	70.9	38.9	37.3	53.2	46.4	47.8	41.9	36	39	32.9	32.3	29.8	29.8	29.8	30	30.9	32.4	33.1	34.1	35.4	36.8	39.3	38.8	40	41.7	49.6
33	3	75682	9/4/2013	NASA P-3B	8	SP-2	35.9	37.7	37.7	39.2	35.6	43.8	41.5	40.5	44.6	41.9	44.7	70.9	37.6	37.2	52.3	46.9	47.7	41.7	36.1	39	32.5	31.7	29.5	29.4	29.6	29.9	30.9	32.4	33.1	34.2	35.4	36.8	39.3	38.8	40	41.6	48.7
33	3	75682.5	9/4/2013	NASA P-3B	8	SP-2	34.8	36.3	39.8	38.2	37	44.8	40.7	39.6	44.3	43.5	44.6	69.4	36.5	38.1	54.1	47	47.1	41.6	36	38.8	32.7	32	29.8	29.5	29.7	30	31.1	32.4	33.1	34.2	35.4	36.8	39.3	38.8	39.9	41.6	48.2
33	3	75683	9/4/2013	NASA P-3B	8	SP-2	36.9	35.3	38.2	38.7	38.6	45.6	40.9	40.6	44.1	45	49	68.2	35.8	38	53.1	48.3	46.5	41.1	36.8	38.5	32.7	31.1	29.3	29.6	29.8	30.1	31	32.4	33.1	34.2	35.4	36.7	39.4	38.8	39.9	41.5	48.3
33	3	75683.5	9/4/2013	NASA P-3B	8	SP-2	40.2	33.8	36.9	38.2	39	47.3	40.3	40.1	43.2	45.5	55.4	68.9	37.2	40.5	52.6	48.6	46	41	37.6	38.6	33.2	31.8	29.7	29.3	29.9	30.3	31.1	32.2	33.1	34.1	35.4	36.6	39.5	38.9	39.9	41.6	49.2
33	3	75684	9/4/2013	NASA P-3B	8	SP-2	39.4	36	35.3	37.3	40.8	48.8	39.9	39.9	42.3	45.8	60.9	69.9	36.2	45.4	53	49.2	45.8	41	37.6	38.7	33.1	32.1	30.2	29.4	30	30.3	31.1	32.2	33.2	34.1	35.4	36.6	39.4	38.9	39.8	41.6	49.2
33	3	75684.5	9/4/2013	NASA P-3B	8	SP-2	38.5	35.9	36	37.5	40.9	48.7	41.3	39.7	41.8	45.4	64.3	69.7	35.6	45.1	51.4	49.2	45.5	40.5	36.5	37.7	31.9	31.3	29.5	29.2	29.6	30.3	31	32.2	33.4	34.1	35.3	36.6	39.5	38.8	39.9	41.6	48.4
33	3	75685	9/4/2013	NASA P-3B	8	SP-2	39.4	35	38	39.6	41.3	48.1	41.6	38.9	40.6	45.2	65.3	68.4	34.7	48.8	50.9	48.6	44.6	39.8	35.4	37.1	31.5	30.8	29.7	29.1	29.7	30.3	31.2	32.1	33.2	34.1	35.3	36.6	39.5	38.9	39.9	41.6	47.4
33	3	75685.5	9/4/2013	NASA P-3B	8	SP-2	42.1	33.5	37.8	38	42.4	48.6	41.4	40	41.1	45.8	65.2	66.6	34	49	49.7	48.6	44.2	38.9	34.8	36.7	31	30.6	29.5	29.1	29.6	30.4	31.2	32.1	33.3	34.2	35.4	36.7	39.4	38.8	39.9	41.6	46.7
33	3	75686	9/4/2013	NASA P-3B	8	SP-2	41.4	34.4	37.9	38.8	43.2	47.9	41.4	40.3	41.1	46.7	65.2	64.8	34.9	47.2	48.2	47.9	45.7	38.7	35.4	37.3	31	31	29.5	28.9	29.7	30.3	31.3	32.2	33.4	34.2	35.5	36.7	39.3	38.9	39.9	41.6	47
33	3	75686.5	9/4/2013	NASA P-3B	8	SP-2	39.4	35.9	36.9	40.8	44.7	47.4	40.3	41.3	41.3	47.5	67.3	63.3	34.5	47.9	47.1	47.7	45.7	39	35.2	36.8	30.9	31.3	30.1	29	29.6	30.4	31.3	32.4	33.2	34.3	35.5	36.7	39.3	38.8	39.9	41.6	47.2
33	3	75687	9/4/2013	NASA P-3B	8	SP-2	38.4	36	38.2	40.4	47.1	46.3	40.6	41.8	40.6	47.7	68.6	61.6	34.3	48.4	46	47.2	45.9	38.8	34.4	35.9	30.1	30.5	30	29.2	29.6	30.2	31.3	32.3	33.3	34.3	35.5	36.7	39.4	38.9	40	41.6	47.1
33	3	75687.5	9/4/2013	NASA P-3B	8	SP-2	37.5	34.9	38.9	38.9	48.5	44.8	41	41.9	40	47.8	69.4	59.6	34	46.9	45	47.5	46	38.6	34.9	35.9	29.6	29.9	29.7	29.5	29.5	30.1	31.3	32.2	33.3	34.3	35.4	36.7	39.4	38.9	40.1	41.6	46.7
33	3	75688	9/4/2013	NASA P-3B	8	SP-2	37.7	33.7	39.3	39.5	48.1	43.6	40.5	42.6	39	47	69	57.6	33.1	46.6	45.1	48.1	46.2	38.6	34.9	36.6	30.1	30	30	28.9	29.4	30	31.1	32.5	33.1	34.3	35.4	36.6	39.6	38.9	40.2	41.7	46
33	3	75688.5	9/4/2013	NASA P-3B	8	SP-2	38.2	32.6	39.5	39.5	47.9	41.6	39.5	43.1	37.5	45.7	68.1	55.5	33.9	47.2	44.3	47.1	45	38	34.5	36.4	30.2	30.4	30.5	28.7	29.2	29.8	31.1	32.6	33.2	34.3	35.3	36.5	39.6	38.9	40.1	41.7	45.1
33	3	75689	9/4/2013	NASA P-3B	8	SP-2	37.6	35.1	39.4	39.2	48.8	40.7	39.9	43.7	38.8	45	66.6	53.5	33.1	46.2	43.5	46.4	44.3	38.4	34	36.1	30.2	30.4	30.3	28.9	29.3	29.9	31	32.3	33.1	34.2	35.3	36.5	39.6	38.9	40	41.7	45.1
33	3	75689.5	9/4/2013	NASA P-3B	8	SP-2	36.1	37.7	40.7	40.1	49.3	41.4	39.9	45.2	40	44.3	66.8	51.6	32.7	44.4	43.7	46.6	44.5	38.9	35.1	37.3	31.5	31.9	31.2	29.6	29.4	30.2	30.9	32.1	33.2	34.2	35.3	36.6	39.5	38.9	40	41.7	45.6
33	3	75690	9/4/2013	NASA P-3B	8	SP-2	34.8	38.7	40.3	40.1	50.3	40.6	39.2	45.8	41.3	43.6	67.8	49.7	34.6	43.1	43.8	47.7	45.3	38.9	36.7	39.9	33.2	33.2	31.6	30.3	29.3	30.1	30.9	32.7	33.1	34.2	35.3	36.7	39.5	38.8	39.9	41.7	46.5
33	3	75690.5	9/4/2013	NASA P-3B	8	SP-2	35.9	39.4	42.4	40.4	49.7	40.1	39.2	45.6	40.7	42.9	68.2	47.9	35.9	42.2	44	50.2	45.8	38.6	36.3	39.6	33.8	34.8	31.9	30.8	29.6	30.4	30.9	32.4	33.1	34.2	35.2	36.7	39.4	38.9	39.9	41.6	46.7
33	3	75691	9/4/2013	NASA P-3B	8	SP-2	41.3	38.6	42.9	40.9	48.3	40.7	38.1	45.4	39.9	42.5	68.5	46.2	36	41.7	43.7	49.3	45.6	38.5	35.9	38.6	33.1	33.9	31.3	30.5	29.4	30.2	31.1	32.8	33	34.2	35.4	36.8	39.4	38.9	39.9	41.7	46
33	3	75691.5	9/4/2013	NASA P-3B	8	SP-2	42.3	37	41.6	40.1	47.2	39.5	39	45.1	39.9	43	68.1	45.3	37.3	40.4	44	49	45.4	38.4	35.4	38.2	32.9	33.5	31.5	30.5	29.5	30.1	31.2	32.6	33.1	34.2	35.3	36.8	39.6	38.9	39.9	41.7	45.2
33	3	75692	9/4/2013	NASA P-3B	8	SP-2	41.9	36.5	42	39.1	48.1	38.8	39.5	43.8	38.9	43.1	66.7	44.3	38	39.6	43.2	48.1	45.2	38.7	36.3	38.9	33.7	34.1	32	30.3	29.7	30.2	31	32.3	33	34.1	35.3	36.7	39.5	38.9	39.9	41.7	44.9
33	3	75692.5	9/4/2013	NASA P-3B	8	SP-2	42.2	35.8	41.5	37.7	47.2	39.1	38.2	43	38.6	43.5	65	43.4	37.5	39.3	42.6	47.1	45.2	39.9	35.5	38.3	32.9	33.1	31.1	29.8	29.6	30.2	31.2	32.2	33.1	34.2	35.4	36.7	39.5	38.9	39.9	41.7	44.3
33	3	75693	9/4/2013	NASA P-3B	8	SP-2	40.7	37.7	40.5	36.4	47	40.2	38.3	42.1	38.6	43.1	63.7	42.2	36.9	39	42.4	46.6	45.3	39.9	34.7	37.9	32.5	32.7	30.7	29.7	29.5	30	31.1	32.2	33.1	34.2	35.5	36.8	39.6	38.9	39.9	41.7	44.1
33	3	75693.5	9/4/2013	NASA P-3B	8	SP-2	39	36.4	39.8	36.4	46	40.2	38.8	41.7	38.6	42.5	64.2	41.4	36.1	37.3	41.2	45.4	44.6	39	33.9	36.9	32.1	32.2	30.8	29.6	29.3	29.9	31.1	32.3	33	34.2	35.3	36.8	39.6	38.9	39.9	41.6	43.4
33	3	75694	9/4/2013	NASA P-3B	8	SP-2	38.1	35.3	37.8	37.7	44.9	38.3	37.8	41.9	37.8	41.5	64.6	40.7	35.2	35.8	39.9	44.2	43.7	38.6	32.8	35.7	31.5	32.3	30.8	29.8	29.4	29.7	31	32.4	33.1	34.1	35.2	36.8	39.6	39	40	41.5	43.1
33	3	75694.5	9/4/2013	NASA P-3B	8	SP-2	37.6	36.1	36.4	38	44	37.1	38.9	40.9	37.4	40.7	64.8	39.8	34.6	35.2	40.6	43.7	43.7	38.2	32.8	35.7	31.6	33.1	31.6	30.8	29.7	29.8	30.9	32.3	33.1	34.2	35.4	36.7	39.5	38.9	39.9	41.5	43.2
33	3	75695	9/4/2013	NASA P-3B	8	SP-2	36.7	37.7	36.2	36.9	42.5	37.9	37.7	42.7	37.2	40.8	64.9	40.1	33.9	34.6	40.5	43.2	43.1	37.7	32.3	35.8	31.4	32.6	31.2	30.3	29.6	30	31	32.4	33.1	34.1	35.3	36.6	39.5	38.8	39.8	41.5	42.8
33	3	75695.5	9/4/2013	NASA P-3B	8	SP-2	35.8	37.4	36.7	36.1	40.9	37.3	37	41.5	37.9	42.1	64.5	39.9	34.5	33.6	39.7	43	43.3	38.1	32.4	35.6	31.6	32.1	31.4	30.1	29.3	30.1	30.9	32.3	33.1	34.1	35.3	36.7	39.5	38.8	39.8	41.5	42.4
33	3	75696	9/4/2013	NASA P-3B	8	SP-2	34.6	35.7	36.7	35.2	39.8	37.9	35.9	41.4	39.5	43	63.8	39.7	34.3	33.6	39.4	42.6	43.7	38.2	33.4	36.6	32.3	33	32	30.7	29.3	30	31.1	32.4	33.2	34.2	35.3	36.7	39.5	38.8	39.9	41.6	42.6
33	3	75696.5	9/4/2013	NASA P-3B	8	SP-2	37.9	36	41.1	36.7	39.2	37.3	35.6	41.4	39.1	43.8	62.5	39.5	33.5	34.8	39.1	42.7	44.6	38.5	33.7	37.4	32.7	33.6	33.1	32.2	29.8	30	31	32.3	33.2	34.2	35.4	36.7	39.5	38.8	39.9	41.6	42.9
33	3	75697	9/4/2013	NASA P-3B	8	SP-2	37.7	37.5	39.8	36.5	37.6	38.9	37.4	40.9	40.2	44.8	61.1	39.5	34.5	36.2	38.2	42	43.8	38.8	32.8	36.1	31.9	32.4	32.1	31.1	29.6	30	30.9	32.3	33.3	34.1	35.4	36.7	39.5	38.9	40.1	41.6	41.8
33	3	75697.5	9/4/2013	NASA P-3B	8	SP-2	36.1	37.8	39.6	36	38.2	38.2	39.3	39.6	41.1	45.1	59.3	39	34.6	37.6	37	40.9	42.9	38.2	31.4	34.6	30.9	31.1	30.8	30.2	29.3	30	30.9	32.3	33.4	34.2	35.4	36.7	39.4	38.9	40.2	41.7	40.9
33	3	75698	9/4/2013	NASA P-3B	8	SP-2	34.3	39.3	42.4	36.4	41.5	38.3	38.7	39	40.3	47.1	58.1	39	35.2	37.8	37.1	40.7	42.2	37.4	30.2	33.4	30.3	30.4	30.1	29.9	29.4	30.1	30.9	32.4	33.3	34.1	35.5	36.6	39.4	38.8	40.1	41.7	40.2
33	3	75698.5	9/4/2013	NASA P-3B	8	SP-2	35.2	40.9	40.8	37.1	41.6	37.3	40	38.9	40.4	51.4	58.2	38.9	37.7	36.7	36.7	40	41.6	37	29.6	32.7	29.8	29.5	30	29.7	29.4	29.8	30.7	32.3	33.1	34.1	35.4	36.7	39.3	38.8	40	41.6	40.1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	3	75699	9/4/2013	NASA P-3B	8	SP-2	33.9	41.6	39.9	37.3	42.7	37	39	38.5	42.3	54.5	58.9	39.1	37.5	36.3	35.3	40.5	41.4	36.6	29.9	32.4	29.8	29.5	30.5	30.2	29.5	30	31.1	32.5	33.2	34.2	35.3	36.7	39.4	38.8	39.9	41.7	40.3
33	3	75699.5	9/4/2013	NASA P-3B	8	SP-2	39.3	40.8	40.6	37.8	42.1	35.5	40	38.6	42.4	56.8	59.6	38.5	37.1	36.2	34.3	40.2	40.9	36.9	29.9	31.6	30.1	29.2	30.8	29.7	29.2	30	31.1	32.3	33.1	34.1	35.4	36.7	39.4	38.8	39.9	41.6	40.3
33	3	75700	9/4/2013	NASA P-3B	8	SP-2	44.3	41.8	40.2	37.4	42	34.6	39.9	39.6	41.4	58.5	60	37.3	37.3	36.1	34.5	40.1	41.3	37.6	30.2	31.4	30.2	29.4	30.9	29.8	29.3	30.1	31.2	32.2	33.2	34.1	35.4	36.8	39.4	38.8	39.8	41.6	40.8
33	3	75700.5	9/4/2013	NASA P-3B	8	SP-2	43.8	41.4	38.6	38.7	42.8	35.6	39.8	38.8	40.5	60.1	60	38.7	38.2	35.1	34.4	40.1	42.1	38.8	30.8	32.6	31.2	29.8	31.6	29.5	29.2	29.9	31	32.1	33.2	34.1	35.3	36.7	39.3	38.7	39.9	41.7	41.1
33	3	75701	9/4/2013	NASA P-3B	8	SP-2	42.5	41.6	39.7	40.9	42.7	35	38.6	37.2	40.9	60.5	59.4	38.8	37.9	35	33.9	39.7	41.8	39.4	31.3	33.1	32	30.5	32.5	30.1	29.4	29.9	31	32.1	33.2	34.1	35.3	36.7	39.3	38.9	39.9	41.6	41.1
33	3	75701.5	9/4/2013	NASA P-3B	8	SP-2	43.2	40.6	39.4	43.3	41.9	34.1	38.8	37.7	39.7	59.9	58.1	38.7	39.1	35.2	33.5	40.6	42	38.9	31.6	32.8	31.7	30.5	32.2	31	29.5	30.1	31.1	31.9	33.3	34.1	35.4	36.7	39.5	38.9	39.8	41.7	41.1
33	3	75702	9/4/2013	NASA P-3B	8	SP-2	41.9	39.1	38.3	42.5	41.8	35.2	38.3	38.5	39.2	58.9	56.6	39.7	38.2	34.7	33.4	40.4	42.1	39.4	32.3	32.4	31.2	30.6	32	30.5	29.6	30	31.2	32.2	33.2	34.2	35.4	36.7	39.5	38.9	39.8	41.6	40.8
33	3	75702.5	9/4/2013	NASA P-3B	8	SP-2	44.2	39.2	37.9	42.8	41.1	34.6	38.1	37.3	38.8	57.6	54.9	38.9	37.6	34.9	32.5	39.6	41.6	39.1	31.7	31.8	30.5	29.8	30.8	29.6	29.4	30.1	31.1	32.4	33.2	34.2	35.6	36.6	39.6	38.8	39.8	41.5	40.3
33	3	75703	9/4/2013	NASA P-3B	8	SP-2	43.8	41.2	38.4	43.2	41.4	35.4	38.2	37.1	37.5	57.7	53.9	38.2	37.4	34.2	32.3	39.7	41.2	39.5	31.3	30.6	29.5	28.9	29.9	29	29.2	30.2	30.9	32.3	33.3	34.2	35.5	36.6	39.6	38.8	39.8	41.6	40.1
33	3	75703.5	9/4/2013	NASA P-3B	8	SP-2	44.7	40	38.2	42.7	41.3	35	37.1	37.8	38.8	59.6	54	37.2	36.3	33.3	31.2	39.7	40.7	38.8	31	29.5	28.8	28.5	29	28.6	29.2	30.1	30.9	32.3	33.3	34.3	35.4	36.7	39.7	38.8	39.8	41.6	39.8
33	4	75846	9/4/2013	NASA P-3B	8	SP-2	54.8	55.7	48.1	43.9	43.9	36.4	43.1	39.9	39.5	40.8	39.8	37.1	48.6	34.5	31.6	36.8	35.7	26.3	25.4	25.4	25.9	26.8	27.8	28.6	29	30.1	30.9	32	33.4	34.2	35.4	36.6	39.8	39.4	40.2	41.6	37.3
33	4	75846.5	9/4/2013	NASA P-3B	8	SP-2	54.9	53.9	46.4	42.1	41.9	36.3	42.9	40.6	39.4	40.2	40.3	36.9	51.3	36	32.9	36.3	35.2	28.6	26.3	26.1	26.4	26.8	27.4	28.7	29.3	30.2	31.2	32	33.4	34.2	35.4	36.7	39.8	39.4	40.2	41.6	37.9
33	4	75847	9/4/2013	NASA P-3B	8	SP-2	53.5	54.2	46.2	40.1	40.7	35.3	42.6	40.8	38.5	39.1	41	36.8	52.4	36.3	33.2	37.1	35.5	28.5	27.3	27.7	26.6	27.4	27.5	28.9	29.3	30.2	31.4	32	33.2	34.3	35.4	36.8	39.7	39.4	40.2	41.7	38.2
33	4	75847.5	9/4/2013	NASA P-3B	8	SP-2	54.3	53.1	46.8	41.1	41.7	37.9	41.5	40.7	38.2	38.4	40.7	38.7	52.5	36.5	33.8	36.6	35	28.1	28.4	28.5	27.2	27.5	27.6	28.6	29.2	30.2	31.4	32.1	33.3	34.3	35.5	36.8	39.8	39.4	40.1	41.6	38.9
33	4	75848	9/4/2013	NASA P-3B	8	SP-2	54.3	51.3	46.9	43.7	42.4	37	40	39.6	37.7	38.2	41.4	38.4	54.5	37	33.6	36.6	34.4	28	29	27.6	26.7	27.2	27.7	28.4	29.2	30.2	31.4	32.1	33.4	34.3	35.4	36.8	39.8	39.4	40.1	41.6	39.1
33	4	75848.5	9/4/2013	NASA P-3B	8	SP-2	53.1	49.5	48	43.3	41.7	35.7	40	40.4	37	39	41.6	40.6	54.6	38.5	34.4	36.1	34	27.6	28.4	28	26.4	27.1	27.8	28.4	28.9	30.3	31.3	32.2	33.4	34.3	35.5	36.8	39.9	39.4	40.2	41.6	38.6
33	4	75849	9/4/2013	NASA P-3B	8	SP-2	51.5	49.9	46.8	41.6	41.5	34.9	41.2	39.5	39	39.2	41.4	40.9	53.3	39.4	37.2	38.5	35.8	29	27.7	27.6	26.8	27.2	28	28.2	29.1	30.1	31.2	32.3	33.2	34.3	35.4	36.8	39.8	39.4	40.2	41.6	38.7
33	4	75849.5	9/4/2013	NASA P-3B	8	SP-2	50.1	49.7	44.9	39.7	41.9	37.9	42.7	40.7	39.4	40.9	42	40.3	52.5	40.3	37.4	38.5	35.8	31.9	27.8	26.9	27	27.3	27.9	28.2	29.3	30.3	31.2	32.2	33.2	34.2	35.3	36.8	39.8	39.4	40.1	41.7	38.4
33	4	75850	9/4/2013	NASA P-3B	8	SP-2	51.9	50.7	44	37.8	42.2	38.7	42.7	41.2	39.9	40.6	41.8	40.3	51	41.3	38.6	38.1	35.8	31.5	28.4	28.2	26.9	27	27.7	28.4	29.3	30.3	30.9	32	33.1	34.2	35.3	36.8	39.7	39.4	40.3	41.7	38.1
33	4	75850.5	9/4/2013	NASA P-3B	8	SP-2	53.9	51.9	43.5	36.7	43.2	39.1	42.6	42.8	39.9	40.6	41.1	41.3	49.6	40.9	38.3	37.8	36	34	30.2	28.8	27	27.2	28.1	28.7	29.4	30.4	31	32.1	33	34.2	35.3	36.7	39.7	39.4	40.3	41.7	38.2
33	4	75851	9/4/2013	NASA P-3B	8	SP-2	52.7	51.1	45	40.5	42.7	43.2	42.7	42.1	40.7	40.7	41.5	41.7	48.3	40.5	37.2	37.5	36.5	37.2	33	30.3	27.5	27.7	28.1	28.6	29.6	30.4	31.1	32	33.2	34.2	35.4	36.7	39.8	39.3	40.1	41.6	39.1
33	4	75851.5	9/4/2013	NASA P-3B	8	SP-2	51.7	49.5	46.3	45.2	43.4	43.6	43.4	42.3	41	40	40.3	41.4	48.8	40.7	36.9	38.1	37.1	39.3	37.6	34.3	30.5	28.3	28	28.5	29.5	30.2	31	32.1	33.2	34.3	35.4	36.8	39.7	39.2	40.1	41.6	40.7
33	4	75852	9/4/2013	NASA P-3B	8	SP-2	49.9	50.1	47.4	51.5	46.3	43.4	43.2	41.1	40.7	40.2	39.8	41.1	50.9	41.3	37.8	39.4	37.2	41	39.2	36	32.3	28.3	28.1	28.3	29.4	30.1	31.1	32.1	33.2	34.2	35.4	36.8	39.6	39.1	40	41.6	41.7
33	4	75852.5	9/4/2013	NASA P-3B	8	SP-2	48.2	50.4	46.1	52	45.1	42.5	42.9	41.3	40.4	40.7	39.6	41.1	51.8	43	39.8	39.3	36.8	39.9	38.4	35	31.4	28.3	27.8	28.4	29.5	30.2	30.9	32.2	33.2	34.3	35.3	36.8	39.6	39	40	41.6	40.9
33	4	75853	9/4/2013	NASA P-3B	8	SP-2	49.5	51.3	48.2	50.4	44.3	40.8	41.7	41.2	40.6	42.3	40.4	41.7	52	43.1	39.6	38.7	35.9	38	37	33.5	30.2	28	27.7	28.5	29.3	30.4	31.1	32.2	33.2	34.1	35.3	36.7	39.4	38.9	40	41.6	40.2
33	4	75853.5	9/4/2013	NASA P-3B	8	SP-2	50.7	50.5	51.3	50.1	43.5	40.4	40.6	41.6	39.8	42.3	40.6	41.1	52	42.2	38.6	38.1	34.9	36.4	35.5	32.3	29.3	27.7	27.8	28.4	29.3	30.2	31.2	32.1	33.1	34.1	35.3	36.7	39.4	39	40	41.5	39.2
33	4	75854	9/4/2013	NASA P-3B	8	SP-2	51.4	54.5	51.2	48.6	42.3	40.8	41	41.4	39.5	42.5	41.9	42.5	51.1	41.1	37.7	37.3	34.6	35.3	34.4	31.1	28.5	27.5	27.6	28.4	29.5	30.2	31.2	32.1	33.2	34.1	35.2	36.8	39.5	38.9	39.9	41.6	38.5
33	4	75854.5	9/4/2013	NASA P-3B	8	SP-2	57.5	54.4	50.4	47.1	42.4	42.1	41.1	41	39.6	41.9	41.5	41.6	50.2	40.7	36.9	37.6	34.8	36.5	34	30.2	28	27	27.7	28.4	29.2	30.3	31	32.1	33.3	34.1	35.2	36.8	39.7	38.8	39.9	41.5	38.4
33	4	75855	9/4/2013	NASA P-3B	8	SP-2	56.4	56.8	49.2	47.3	45	41.4	40.3	41	40.6	41.4	41.6	40.6	49.1	41	37.6	37.2	34.7	37	34.5	30.8	28.3	27.1	27.5	28.8	29.1	30.2	31	32.2	33.3	34.2	35.2	36.8	39.6	38.9	39.8	41.6	38.7
33	4	75855.5	9/4/2013	NASA P-3B	8	SP-2	56.2	58	48.2	46.9	46.1	40	39.6	41.2	41.3	41.3	41.7	41.6	49.2	41.4	37.5	36.8	34.5	37.2	35.4	33.3	28.8	26.8	27.6	28.5	28.9	30.2	31	32.2	33.3	34.1	35.2	36.8	39.8	38.8	39.8	41.6	39
33	4	75856	9/4/2013	NASA P-3B	8	SP-2	57.8	56.9	50.2	46.3	44.9	39.3	38.9	42.2	42.6	40.1	41.3	42.8	48.4	40.2	36.5	38.1	35	36.5	36.4	33.4	29.4	27.5	27.8	28.5	28.9	30.4	31.3	32.3	33.3	34.1	35.3	36.8	39.7	38.8	39.8	41.6	39
33	4	75856.5	9/4/2013	NASA P-3B	8	SP-2	58.8	56.4	50.4	44.2	43.2	38.2	38.8	40.7	42.7	40.9	41.8	42.7	48.6	40.4	37.4	39	35.7	36.1	37.1	35.3	30.8	28.7	27.9	28.4	29.2	30.2	31.1	32.3	33.3	34.2	35.2	36.8	39.7	38.8	39.8	41.6	40.2
33	4	75857	9/4/2013	NASA P-3B	8	SP-2	58.4	54.9	48.4	42.5	42.1	37.9	39.5	39.9	42.3	42.2	41.8	42.4	52.2	40.9	38.2	39.6	35.8	37.5	37	35.7	31.5	28.4	27.8	28.7	29.4	30.2	31.1	32.2	33.3	34.2	35.3	36.8	39.8	39	39.9	41.6	41
33	4	75857.5	9/4/2013	NASA P-3B	8	SP-2	57.2	55	46.5	41.3	42	38.8	38.9	39.9	42.5	41.7	41.7	42.9	53.5	41	38.1	39.9	36.5	39	38.7	36.7	31.5	28.1	27.9	28.8	29.1	30.2	31.2	32.2	33.3	34.1	35.4	36.7	39.7	39.1	39.9	41.6	41.7
33	4	75858	9/4/2013	NASA P-3B	8	SP-2	56	53.6	44.7	39.7	42.3	38.4	38.8	39.8	42.3	42.7	42.1	43.8	54.7	42	37.6	40.6	37.2	39.3	37.6	35.3	30.8	28.3	28	28.7	29	30.2	31.2	32.1	33.3	34.2	35.3	36.7	39.8	39.2	40.1	41.7	42.1
33	4	75858.5	9/4/2013	NASA P-3B	8	SP-2	54.4	51.6	42.8	38	41.4	37.9	39.6	39.4	42.7	45	42.5	43.8	56.3	43.4	37.4	41	37	39.4	37.6	35.2	31.7	29	28	28.5	29.2	30.2	31	32	33.2	34.2	35.2	36.7	39.7	39.1	40.1	41.7	42.3
33	4	75859	9/4/2013	NASA P-3B	8	SP-2	52.8	49.5	40.8	41.8	43.3	39.1	41.5	40	43.6	45.9	42.6	44.6	56.1	43.2	37.4	40.5	37.2	39.8	39	36.3	32.2	29.7	27.9	28.6	29.3	30.3	30.9	32	33.3	34.2	35.3	36.6	39.7	39	40.3	41.8	42.4
33	4	75859.5	9/4/2013	NASA P-3B	8	SP-2	50.8	47.5	41.4	43.4	42.4	39.6	41.8	42.5	43.4	45.1	42.8	44.6	55	42.5	36.7	39.7	39.7	40.9	39.6	37.2	33.6	30.4	28.2	28.8	29.3	30.1	31.2	31.9	33.2	34.2	35.2	36.7	39.7	39	40.3	41.8	42.8
33	4	75860	9/4/2013	NASA P-3B	8	SP-2	48.7	45.7	42.1	42	41.7	38.9	42.8	42.8	44.4	46	42.6	45.1	53.4	42.5	38	40.3	39	42.4	40.4	39.2	34.7	30.8	28.1	28.8	29.3	30	31.1	32	33.1	34.2	35.2	36.7	39.5	38.9	40.1	41.8	43.1
33	4	75860.5	9/4/2013	NASA P-3B	8	SP-2	46.9	43.8	41.2	41.6	43.4	39.3	43.9	43.1	45.8	44.8	44.3	46.2	52.1	42	38.2	40.1	38.9	42.2	41	39.1	34.8	30.4	28.3	28.8	29.2	29.9	31	32.2	33.1	34.3	35.2	36.7	39.4	38.8	40	41.7	43.3
33	4	75861	9/4/2013	NASA P-3B	8	SP-2	46	48.1	41.4	41.6	43	39	45.5	42.2	45.4	44.7	44	46.2	53	42.9	38.2	43	39.6	41.9	41.2	38.8	33.8	30	28.8	29.2	29.4	29.9	30.8	32.3	33.2	34.3	35.3	36.6	39.5	38.8	40	41.7	43.2

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	4	75861.5	9/4/2013	NASA P-3B	8	SP-2	48.1	48.5	41.4	40.8	42.1	40.2	44.5	41.7	45	44.6	44.1	46.6	53.1	43.1	38	44	39.5	41.6	40.7	38.4	33.4	29.9	29.1	29	29.4	30	31	32.3	33.2	34.2	35.4	36.7	39.4	38.9	40.1	41.6	43.4
33	4	75862	9/4/2013	NASA P-3B	8	SP-2	54.2	50	40.5	41.6	43.1	39.6	45.3	41.6	43.9	43.3	43.7	45.9	54	43.6	39.9	44.7	40.9	44.4	45.4	42	35.1	32.3	30.1	29.4	29.3	30	30.8	32.2	33.3	34.2	35.3	36.6	39.4	38.9	40	41.6	46.4
33	4	75862.5	9/4/2013	NASA P-3B	8	SP-2	53	48.2	40.4	41	43.3	39.3	45	41.6	43.9	43	43.4	45.9	54.9	44.6	40.4	44.8	43.3	46.6	47	44.1	37.3	34.6	33.2	30.2	29.5	30.1	30.9	32.2	33.4	34.2	35.2	36.6	39.4	38.9	39.9	41.7	47.6
33	4	75863	9/4/2013	NASA P-3B	8	SP-2	50.9	46.3	43.1	39.3	42.3	40.2	44.4	41.2	45.6	43.3	44.5	44.7	54.2	44.3	39.6	44.7	42.7	45.8	46.3	43.2	36.2	33.4	32.5	30.4	29.5	30.1	31	32.1	33.3	34.1	35.1	36.6	39.5	38.8	39.9	41.6	47.1
33	4	75863.5	9/4/2013	NASA P-3B	8	SP-2	49.8	44.8	41.4	38.5	41.2	39.4	43.6	42	45.5	43.4	45.3	46.9	59.4	44.1	38.9	44.9	41.1	43.9	44.5	41.3	34.6	32.2	31.6	29.9	29.3	30.3	31.2	32.1	33.2	34	35.2	36.6	39.4	38.8	39.9	41.6	46.2
33	4	75864	9/4/2013	NASA P-3B	8	SP-2	50	44	40.2	41.1	41.3	39.7	42.5	41.6	44.4	45	45.9	50.4	60.6	43.9	38	44.6	39.9	42.7	42.9	39.6	33	31.2	30.7	29.3	29.5	30.1	31.3	32	33.1	34.1	35.3	36.6	39.4	38.8	39.9	41.6	45.3
33	4	75864.5	9/4/2013	NASA P-3B	8	SP-2	48.7	45.8	46	49.5	44.6	38.6	43.3	45	46.1	46.6	46.4	53.3	59.9	42.9	37.6	43.9	40.1	42.2	42.7	39.1	31.9	31.2	31.1	29.3	29.4	30.1	31.3	32.2	33.2	34.2	35.4	36.6	39.4	38.8	39.9	41.5	45.3
33	4	75865	9/4/2013	NASA P-3B	8	SP-2	50.9	45	49.9	50.4	43.7	39.1	43.9	44.6	45.9	47.3	45.6	55.8	59.5	41.6	37.9	43.7	40.1	41.9	41.9	37.5	30.8	30.4	30.3	29	29.2	30.1	31.3	32.2	33.1	34.1	35.3	36.7	39.4	38.7	39.8	41.6	44.5
33	4	75865.5	9/4/2013	NASA P-3B	8	SP-2	52	43.7	50.6	48.7	42.2	41.1	44.2	44.2	46.5	46.9	45.1	56.6	57.9	41	37.6	43.8	39.9	41.7	41.7	37.1	30.8	30.9	30	29	29.4	30.3	31.2	32.3	33	34.3	35.3	36.6	39.4	38.8	39.8	41.6	44.3
33	4	75866	9/4/2013	NASA P-3B	8	SP-2	50.2	45.2	48.7	47.3	43.1	41.4	44.1	43	45.9	45.6	44.9	57.6	56.5	40.1	38.8	43.7	41.3	41.9	40.8	36.6	30.4	31	30.2	28.9	29.5	30.3	31.2	32.2	33.2	34.3	35.3	36.7	39.2	38.8	39.9	41.6	44.6
33	4	75866.5	9/4/2013	NASA P-3B	8	SP-2	48.9	52.7	48.4	45.3	44.8	43.5	44.5	44.3	46.2	44.9	45.1	60.1	55	40.1	38.6	43.9	43.1	42.3	40.8	36.6	29.9	30.8	30.2	28.8	29.3	30.3	31.3	32.3	33	34.2	35.3	36.7	39.2	38.8	39.9	41.7	44.4
33	4	75867	9/4/2013	NASA P-3B	8	SP-2	50.4	58.2	46.8	46.1	44.2	42.5	44.6	43.8	45.1	43.6	44.3	60.7	53.3	39.6	38.9	43.5	43.4	41.9	41.3	36.8	30.6	31	29.8	28.7	29.4	30.3	31.2	32	33.1	34.1	35.3	36.8	39.1	38.8	39.9	41.6	44.3
33	4	75867.5	9/4/2013	NASA P-3B	8	SP-2	54.5	57.9	46.1	45.6	44.9	46.3	43.5	44.1	45.3	43.1	44	59.9	51.5	40.4	41	43.1	42.7	41.2	40.8	35.9	30.2	30.9	29.4	28.9	29.3	30.3	31.2	31.9	33.2	34.2	35.3	36.8	39.1	38.7	39.8	41.6	44.5
33	4	75868	9/4/2013	NASA P-3B	8	SP-2	54.9	56.1	47.2	45.8	44.8	46.8	42.6	42.9	46.7	42.2	43.4	61.7	49.7	39.7	40.5	44.3	43.3	41.2	40.7	35	29.9	31.5	29.4	29	29.3	30.4	31.3	32.1	33.1	34.1	35.2	36.8	38.9	38.7	39.8	41.6	45.5
33	4	75868.5	9/4/2013	NASA P-3B	8	SP-2	53.7	54.5	47.2	52	52.5	45.5	41.9	43.1	47.8	42.7	44.2	63.8	48	39	43.1	44.8	43.7	42.5	41.4	35.1	30.8	32.2	29.8	29.6	29.3	30.2	31.1	32	33.3	34.1	35.3	36.8	38.9	38.8	39.9	41.6	45.1
33	4	75869	9/4/2013	NASA P-3B	8	SP-2	53.2	53.5	53.5	54.5	51.3	45.6	43.3	42.2	47.9	42.5	44.1	62.3	46.4	39.2	42.4	45	43	42.8	40.8	33.9	30.8	32	29.5	29.2	29.2	30.3	31.1	32.1	33.3	34.2	35.4	36.8	38.9	38.8	39.9	41.5	44.8
33	4	75869.5	9/4/2013	NASA P-3B	8	SP-2	52.7	51.8	54.6	53.1	49.5	44.1	43.1	43	47.3	43.1	43.3	61.6	45	39	45.9	46.1	43.5	43	40.5	33	30.6	31.9	29	29.1	29.4	30.1	31.1	32	33.2	34.2	35.4	36.7	39	38.8	39.8	41.5	45.2
33	4	75870	9/4/2013	NASA P-3B	8	SP-2	55.2	51.1	54.2	51.8	48.1	42.4	42.1	42.9	47.2	42.6	43.6	63.2	43.9	38.1	44.9	45.8	43.7	43.5	40.2	33	30.8	32.2	28.8	29.2	29.6	30.3	31.2	31.9	33.1	34.2	35.4	36.6	38.9	38.8	39.9	41.6	45.8
33	4	75870.5	9/4/2013	NASA P-3B	8	SP-2	55	50.9	53.1	51.3	47.7	41.5	41.7	42.1	45.5	42.1	42.3	64	43	39.6	45.6	45.6	46.5	44.2	41.3	34	32.6	32.9	29.8	29.4	29.5	30.2	31.3	32	33.1	34.2	35.4	36.7	38.7	38.9	39.9	41.5	46.1
33	4	75871	9/4/2013	NASA P-3B	8	SP-2	55.6	56.1	52.4	49.7	46	41.5	41.2	42.9	46.1	42.4	41.7	63.8	42.3	41.3	49.1	45.1	45.9	44	41.4	33.6	33.1	33.1	29.6	29.9	29.5	30.1	31.5	31.9	33	34.1	35.3	36.6	38.7	38.8	39.8	41.5	45.7
33	4	75871.5	9/4/2013	NASA P-3B	8	SP-2	59.3	55.7	50.4	48.1	44.5	41.6	42.1	42.9	46.7	42.5	43.4	62.3	42	40.8	48.3	44.3	47.1	44.2	41.3	34.2	33.4	33.4	29.7	30.1	29.6	30.1	31.3	31.9	32.9	34.1	35.5	36.6	38.7	38.8	39.8	41.6	45.3
33	4	75872	9/4/2013	NASA P-3B	8	SP-2	62.6	54.2	48.4	46.5	43.6	41.9	41.1	42.6	46.5	42.7	43.1	60.8	41.2	40	47.3	45.4	47	43.9	40.6	33.7	32.7	32.7	29.2	29.6	29.5	29.9	31.3	31.9	33	34.1	35.4	36.6	38.9	38.8	39.8	41.6	45.7
33	4	75872.5	9/4/2013	NASA P-3B	8	SP-2	61.5	56.4	46.6	45.3	42.6	41.7	40	43.8	46.9	42.4	43.4	62.1	40.6	39.8	48.3	46.2	46.4	44.7	42.9	35.5	33	32.9	29.2	30.2	29.5	30.1	31.2	32	33.1	34.1	35.4	36.6	38.9	38.8	39.8	41.7	46.3
33	4	75873	9/4/2013	NASA P-3B	8	SP-2	60	55.4	46.3	44.1	42.1	44.6	40.3	44.3	47.3	42.2	42.4	63.6	41.4	39.7	46.6	47	45.5	44.6	41.7	34.6	32.6	33	29.2	29.9	29.5	30	31.2	32.2	33	34.3	35.3	36.7	38.8	38.7	39.8	41.7	46.2
33	4	75873.5	9/4/2013	NASA P-3B	8	SP-2	58.6	53.6	44.7	43.9	40.7	44.9	41.3	45	47.9	42.6	42.3	64.4	40.9	38.9	46	48.2	44.6	43.6	40.7	34	32.6	33.1	29.1	30.3	29.6	30.2	30.9	32.2	33	34.3	35.4	36.7	38.8	38.7	39.8	41.6	45.4
33	4	75874	9/4/2013	NASA P-3B	8	SP-2	56.6	51.6	44.1	42.3	41	43.4	43.6	43.7	47.5	42.7	42.9	63.2	41.2	38.6	47	47.7	44	43.4	40	33.3	32.7	32.9	28.6	29.8	29.4	30	30.9	32.2	33.1	34.2	35.4	36.7	38.7	38.8	39.7	41.6	44.8
33	4	75874.5	9/4/2013	NASA P-3B	8	SP-2	54.7	49.7	42.8	41.1	39.8	44.1	43.4	42	47.6	43.1	42.6	61.5	41.1	39.1	46.1	47.1	44.1	44	40.4	33.7	32.6	33	28.8	30.2	29.8	30.2	31.1	32	33.2	34.2	35.5	36.8	38.8	38.9	39.8	41.7	44.6
33	4	75875	9/4/2013	NASA P-3B	8	SP-2	52.9	47.9	41.1	40.3	38.5	47.6	43.1	42.4	47.6	43.3	44	60.1	42.3	39.1	45.2	45.7	43.9	43.7	41.3	35.3	32.6	32.5	28.6	30	29.8	30.3	31.2	32.2	33.3	34.1	35.5	36.8	38.8	38.9	39.8	41.7	44.7
33	4	75875.5	9/4/2013	NASA P-3B	8	SP-2	51	46.7	43.9	42.2	41.6	47.5	42.9	42.6	47.6	42.7	47.2	60.9	42.8	40.9	45.8	46.4	43.9	43.5	41.1	35	32.6	32.2	28.8	30	29.5	30.1	31.1	32	33.1	34.1	35.4	36.7	38.8	38.8	39.9	41.6	45.2
33	4	75876	9/4/2013	NASA P-3B	8	SP-2	49	47.5	47.5	52.3	48.4	48.9	42.2	42	47.9	42.4	51.8	62.5	43	41.9	45.2	46.6	43.4	43.8	41.1	34.5	32.2	32	29	29.6	29.2	30.2	31	32.1	33.1	34.2	35.4	36.7	38.8	38.7	40	41.7	45
33	4	75876.5	9/4/2013	NASA P-3B	8	SP-2	47.3	45.7	49	51.4	46.8	49	43.3	42.3	47	42.6	54.4	62.2	42.9	41	43.3	48	42.7	43.2	40.4	33.7	32	31.3	28.6	29.4	29.1	30.2	31.1	32.2	33.2	34.2	35.4	36.7	38.9	38.8	40	41.7	44.7
33	4	75877	9/4/2013	NASA P-3B	8	SP-2	46	45.5	51.2	50.2	45.3	48.7	42	43.2	46.2	42.1	55.6	61.2	42.7	40.5	41.6	49.3	41.6	43.6	40.6	32.9	30.9	30.2	28.4	29.2	29.3	30.2	31.1	32.2	33.2	34.3	35.4	36.7	39	38.8	40	41.8	44.3
33	4	75877.5	9/4/2013	NASA P-3B	8	SP-2	44.4	50.8	50.1	49.6	45.4	48.2	41.9	43.2	44.9	43.6	56	59.9	42	39.6	39.9	49	40.6	42.4	40	32.1	30.7	30	29.1	29.4	29.5	30.2	31.2	32.2	33.3	34.3	35.4	36.7	39	38.8	40	41.8	44
33	4	75878	9/4/2013	NASA P-3B	8	SP-2	47.1	53.8	50	48.5	46.4	46.5	41.8	43.7	44	44.1	56.5	58.3	41.2	40.6	39.1	49.9	40.4	42.2	39.6	31.2	31.4	30.6	30.3	30.6	30	30.1	31.1	32.2	33.3	34.3	35.3	36.7	38.9	38.8	40	41.7	44.2
33	4	75878.5	9/4/2013	NASA P-3B	8	SP-2	55.4	54.2	50.2	47.3	44.9	46.2	41.9	43.9	43.3	45.2	57.4	56.7	41.9	41.4	38	50.3	41.3	42.1	39.6	31.9	33.5	31.3	31.4	31	30	30.1	30.9	32.1	33.1	34.2	35.3	36.8	39	38.8	39.9	41.6	44.7
33	4	75879	9/4/2013	NASA P-3B	8	SP-2	58	52.7	48.6	46.2	44.3	45.7	41.4	45.7	43.2	45.6	57	54.9	42.3	40.9	36.6	52.1	41.9	43.9	40.2	32	33.5	31.4	30.9	30.4	29.7	30.2	31.1	32.1	33.3	34.2	35.4	36.7	39.1	38.8	39.9	41.6	45.1
33	4	75879.5	9/4/2013	NASA P-3B	8	SP-2	56.8	53.1	47	44.6	47	44.7	40.7	46.5	42.8	45.4	55.8	53.1	41.8	40.5	35.9	51.3	42.8	43.8	40.1	31.8	34.4	31.7	31.5	30.4	29.8	30.1	31.2	32	33.2	34.2	35.4	36.7	39.2	38.8	39.9	41.5	44.8
33	4	75880	9/4/2013	NASA P-3B	8	SP-2	55	52	46.1	42.8	48.7	43	41.1	46.7	42.1	44.3	54.3	51.4	42.1	40.6	35.6	50	44.4	44.1	40.3	32.1	34.7	31.7	32.4	30.6	29.8	30.2	31	32	33.1	34.3	35.3	36.6	39.2	38.9	39.9	41.6	45.1
33	4	75880.5	9/4/2013	NASA P-3B	8	SP-2	53.9	50.9	46.5	41.5	48.5	41.7	40.5	46.7	41.8	44.7	54.8	49.8	42.7	41.5	36.9	48.8	45.6	45	40.9	31.7	34.4	32	33.8	31.6	30.2	30.4	31.1	32.2	33.1	34.3	35.2	36.6	39.2	38.8	39.9	41.6	45.2
33	4	75881	9/4/2013	NASA P-3B	8	SP-2	53.4	49.1	45.8	40.8	48.5	41	40.6	47.6	41.4	45.5	58.6	48.3	42.9	42.8	36.3	47.7	44.6	44.8	40.6	31.8	34.3	31.5	33.4	31	29.7	30.4	31.1	32.1	33.1	34.2	35.3	36.6	39.1	38.8	39.9	41.6	45.2
33	4	75881.5	9/4/2013	NASA P-3B	8	SP-2	51.6	48.6	45.7	44.7	48.7	42.7	40.4	47.9	41.5	46.2	62.4	46.9	43.9	42.8	35.5	46.3	45.5	45.5	41.6	32.8	36.9	34.8	35.6	32.7	30.4	30.3	31	32.1	32.9	34.2	35.4	36.6	39.1	38.8	39.9	41.6	46.5

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	4	75882	9/4/2013	NASA P-3B	8	SP-2	54	47.3	47.6	44.4	48.3	43.1	41.3	48.1	41.2	48.1	64.5	45.9	43.5	42.8	35.2	47.4	46.9	46.1	43	34.2	38.2	37.3	38.2	35.2	30.9	30.5	31	32	33	34.4	35.2	36.7	39.1	38.9	39.9	41.6	47.8
33	4	75882.5	9/4/2013	NASA P-3B	8	SP-2	55.4	46.7	46.6	43.1	48	43.5	40.1	47.6	41.5	49.5	65.6	45.4	43	44.2	34.3	46.6	46.9	46.7	43.4	34.5	37.4	36.6	37.1	34.2	30.6	30.2	31.1	32	33.1	34.3	35.3	36.7	39.2	38.8	39.9	41.6	47.4
33	4	75883	9/4/2013	NASA P-3B	8	SP-2	54.4	48.5	46.2	44.8	48.8	42.9	41.2	46.5	41.9	49.5	66.2	44	42.9	44.8	34.6	47.9	46.1	45.9	42.6	34	36.5	35.6	35.7	33.1	30.4	30.1	31	32.3	33.3	34.3	35.3	36.6	39	38.8	39.9	41.6	46.8
33	4	75883.5	9/4/2013	NASA P-3B	8	SP-2	53.1	49.9	49	44.6	47.2	42.4	41.2	45.9	40.6	49.5	66.1	43.2	42.6	45.1	34.9	47.6	45.2	44.6	42.1	34	35.6	35.8	35.4	34.4	31.3	30.3	31.1	32.2	33.3	34.3	35.3	36.7	39	38.8	39.9	41.6	46.6
33	4	75884	9/4/2013	NASA P-3B	8	SP-2	51.7	47.9	47.9	46.2	47.6	42.5	42	44.6	40.5	49	66.6	44.1	43	46.8	34.6	47.8	44.2	43.8	41.9	35.4	35.6	36.3	34.9	34.8	31.1	30.3	31.1	32.3	33.4	34.4	35.4	36.7	39	38.7	39.9	41.6	46.2
33	4	75884.5	9/4/2013	NASA P-3B	8	SP-2	51.3	46.1	46.3	45.3	46.8	41.8	41.8	44.1	42.1	47.7	66	43.4	42.2	46.7	34.4	48	43.1	42.7	41.2	34.8	34.2	35.7	33.8	34	30.8	30.4	31.1	32.2	33.4	34.3	35.5	36.8	39	38.7	39.8	41.6	45.5
33	4	75885	9/4/2013	NASA P-3B	8	SP-2	50	46.4	46.9	44.6	47.4	41	40.5	43	41.9	47.1	65.5	43.6	41.5	45.5	34.4	48.2	42.5	42.2	40.8	34.4	33.3	35.5	33.6	34.8	30.5	30.4	31.1	32.3	33.4	34.2	35.4	36.7	39.1	38.7	39.9	41.6	45.7
33	4	75885.5	9/4/2013	NASA P-3B	8	SP-2	50.9	46.6	47.1	43.9	46.8	41.4	40.8	42	41.8	46.4	66.2	43.2	41.7	44.6	35	48.5	42.1	41.8	40.9	34.6	32.7	34.6	32.4	33.6	30.2	30.3	31.1	32.3	33.4	34.2	35.5	36.7	39.1	38.7	39.8	41.6	45.6
33	4	75886	9/4/2013	NASA P-3B	8	SP-2	51.3	48	46	42.4	46.2	39.6	40.9	41.8	42	45.5	67.4	41.9	41.1	43.8	35.6	47.9	41.2	42.8	41.5	35.6	31.9	33.8	31.9	32.8	29.8	30.2	31.3	32.3	33.2	34.3	35.5	36.7	39	38.7	39.8	41.6	46.1
33	4	75886.5	9/4/2013	NASA P-3B	8	SP-2	50	48.1	45.4	43.1	45.6	38.4	41.8	42.6	42.1	46.1	68.3	42.5	41.3	44.2	35.3	50.3	40.7	43.4	42.1	36.6	32.8	36.2	34.1	34.5	30.1	30.3	31.3	32.1	33.3	34.3	35.6	36.6	39.1	38.7	39.8	41.6	47
33	4	75887	9/4/2013	NASA P-3B	8	SP-2	53.3	49	44.6	42.2	43.9	39	41.2	42.2	42.4	48.9	69.1	42.2	41.7	43.5	34.4	49	41.1	42.8	42.2	36.6	32.8	36.6	34.3	34.5	29.9	30.5	31.2	32.2	33.2	34.4	35.4	36.6	39.1	38.7	39.8	41.5	46.9
33	4	75887.5	9/4/2013	NASA P-3B	8	SP-2	53.1	48.8	43.7	40.7	43.2	41.5	40.4	42.9	42.1	52.7	69.5	42.4	41.7	43.1	34.6	50.3	40.9	42.9	41.7	36.6	32.1	35.3	33.2	33.5	29.7	30.4	31.2	32	33.2	34.3	35.5	36.8	39.2	38.7	39.9	41.6	46.6
33	4	75888	9/4/2013	NASA P-3B	8	SP-2	51.4	49.4	43.6	41.3	43.4	40.5	41.5	45.3	42	55.8	69.1	42.2	41	42.8	34.7	49.7	39.9	42	40.8	35.9	31.1	34.4	32.9	33.3	29.9	30.3	31.3	32.1	33.3	34.2	35.4	36.7	39.1	38.7	39.9	41.6	45.6
33	4	75888.5	9/4/2013	NASA P-3B	8	SP-2	49.8	49.2	48.7	44.3	43.5	40.7	41.4	43.9	44.2	57.2	68	41.9	40.6	42.3	35.5	48.8	38.9	40.9	39.4	34.8	30.8	33.3	32	32.6	29.6	30.4	31.2	32.3	33.1	34.2	35.3	36.8	39.2	38.8	39.9	41.6	44.5
33	4	75889	9/4/2013	NASA P-3B	8	SP-2	49.9	50.2	50.5	44.6	42	40.6	40.5	43.5	43.7	58	66.6	41.8	41.1	41.4	35.7	48.2	39	41	38.6	33.6	31.1	33.4	31.5	31.9	29.5	30.3	31.2	32.1	33.2	34.2	35.3	36.8	39.2	38.9	39.8	41.7	44.2
33	4	75889.5	9/4/2013	NASA P-3B	8	SP-2	51.9	49.4	53.9	43.6	41	39.7	40.1	43.6	43.7	58.8	65.3	42.1	41.5	41	35.2	50.1	39.2	40.5	39.3	33.7	30.1	32.5	31	31.1	29.2	30.4	31.2	32.1	33.2	34.1	35.3	36.7	39.1	38.9	39.8	41.6	44.5
33	4	75890	9/4/2013	NASA P-3B	8	SP-2	50.6	49.4	52.4	42.3	43	39	39.9	43	45	60.4	64.3	42.9	43.2	41.4	35.5	49.3	38.9	40.4	39.8	35	29.7	31.8	30.6	30.4	29.2	30.3	31.3	32.2	33.1	34.2	35.3	36.8	39.1	38.8	39.8	41.5	44.1
33	4	75890.5	9/4/2013	NASA P-3B	8	SP-2	50.6	55.4	50.4	41.7	43.9	39.3	41.3	41.9	45.5	61.7	63.7	43	42.7	40.9	34.8	47.9	38.4	41.6	41.1	36.3	31	35.6	32.8	32.5	29.6	30.3	31	32.2	33.2	34.3	35.4	36.8	39	38.8	39.9	41.6	45
33	4	75891	9/4/2013	NASA P-3B	8	SP-2	52.5	55.8	48.4	41.2	44.2	38.8	41.2	41.3	45.3	62.8	63	42.8	41.6	39.4	34.2	46.8	40.1	43.3	43.8	39.3	32.6	36.5	34	33.2	29.7	30.2	31	32.1	33.1	34.2	35.5	36.8	38.9	38.8	39.9	41.6	45.7
33	4	75891.5	9/4/2013	NASA P-3B	8	SP-2	57	55.2	47.3	42.8	43.6	39.4	40.5	42	44.7	63.4	62.3	42	41.2	38.6	34	46	39.6	42.5	43	38.4	31.5	35.4	33.6	32.4	29.8	30.1	31.1	32.2	33.2	34.2	35.4	36.7	39.1	38.9	39.9	41.6	44.9
33	4	75892	9/4/2013	NASA P-3B	8	SP-2	57.7	53.5	49.1	46.1	42.6	37.8	39.9	42.4	45	63.5	61.1	43.3	42	38.4	33.6	47.1	38.4	41.2	41.6	36.8	30.6	34.7	33.3	31.8	29.6	30.2	31.1	32.2	33.2	34.2	35.4	36.7	38.9	38.8	39.9	41.6	44
33	4	75892.5	9/4/2013	NASA P-3B	8	SP-2	55.6	51.5	50.4	45.1	43	40.1	40.2	41	44.7	63	59.8	42.8	44.6	40.3	34.2	48.4	37.5	39.8	40.1	35.6	29.9	33.5	32.1	31	29.4	30.3	31.2	32.1	33.1	34.2	35.3	36.7	38.9	38.8	39.9	41.5	43.5
33	4	75893	9/4/2013	NASA P-3B	8	SP-2	53.8	50	50.8	44.8	42.1	39.6	40.7	40.4	44.1	62.1	58.4	43.3	44.4	40.7	33.9	49.1	37	38.9	38.6	34.2	29	32.6	31.3	30.3	29.5	30.1	30.9	32.3	33.1	34.3	35.3	36.7	39	38.9	39.9	41.6	42.7
33	4	75893.5	9/4/2013	NASA P-3B	8	SP-2	52.4	49.5	49.6	45.3	43.7	39.6	40.9	42	43.4	60.7	56.7	43.2	45.3	41.8	34.8	48.6	37.5	38.5	37.9	33.5	28.4	31.9	30.9	29.9	29.3	30.1	30.8	32.1	33.1	34.3	35.4	36.7	39.1	38.9	39.9	41.6	42.2
33	4	75894	9/4/2013	NASA P-3B	8	SP-2	50.9	48	48.4	46.4	44	41.5	40.9	41.3	43.6	59.3	55	44.5	46.1	41.5	35.1	47.9	37	38.3	37.6	34.4	28.5	32.2	30.5	29.5	29.4	30.2	30.8	32.3	33.1	34.4	35.4	36.7	39.1	38.9	39.8	41.6	42
33	4	75894.5	9/4/2013	NASA P-3B	8	SP-2	49.8	46.7	48.9	45.4	43.6	40.7	41	40.2	42.2	57.9	53.5	44.8	46.5	40.9	34.3	49.7	35.5	38.1	37.6	33.7	28	31.5	29.8	29.2	29.4	30	30.9	32.2	33.2	34.4	35.4	36.7	39.2	38.9	39.8	41.7	42.1
33	4	75895	9/4/2013	NASA P-3B	8	SP-2	48.6	47	47.6	44.7	43.7	39.7	40.7	38.9	42.7	56.7	51.7	44	45.4	40.3	33.5	49.3	33.9	37.4	36.8	33.2	27.7	30.6	29.1	29.1	29.1	29.8	31.1	32.3	33.1	34.2	35.4	36.7	39.2	38.8	39.8	41.6	41.7
33	4	75895.5	9/4/2013	NASA P-3B	8	SP-2	51.3	48	47.7	45.9	44.3	39.1	41.8	38.2	42.4	56.1	50.2	43.5	45.1	40.3	34.2	51.5	32.7	38.4	36.1	32.8	27.9	30.4	29.4	28.7	29.1	29.6	31.1	32.2	33.2	34.2	35.4	36.7	39.3	38.9	39.7	41.7	43.1
33	4	75896	9/4/2013	NASA P-3B	8	SP-2	55.2	50.9	47.6	45.8	42.7	39.2	42.2	38.6	42.1	56	49	42.4	44.6	40	34.7	52.5	33.4	39.2	35.4	31.9	28.2	30.4	30	28.7	29.2	29.8	31.2	32.1	33.1	34.3	35.4	36.8	39.4	38.8	39.7	41.7	43.3
33	4	75896.5	9/4/2013	NASA P-3B	8	SP-2	58.3	51.9	46.5	45.7	41.5	41.5	41.7	37.4	42.6	57	47.7	41.5	43.9	39.9	34.9	52	33.7	39.4	35.5	31.9	27.9	29.8	29.4	28.7	29	29.7	31	32	33.2	34.3	35.3	36.8	39.4	38.9	39.8	41.6	43.1
33	4	75897	9/4/2013	NASA P-3B	8	SP-2	58.8	53	45.6	46	41	41.9	40.8	39	42.9	57.1	46.3	41	42.9	39.5	35	51.3	32.9	39.3	35.8	32	27.9	29.1	29.4	28.6	29	29.9	30.9	31.9	33.2	34.3	35.4	36.7	39.3	38.9	39.8	41.7	42.4
33	4	75897.5	9/4/2013	NASA P-3B	8	SP-2	59.2	52.9	44.1	45.2	42.9	40.7	40.1	38.1	42.4	56.9	46.1	41.6	42.6	39.2	34.8	51.2	33.5	38.5	35.6	31.8	28	28.9	29.7	28.8	29.1	30.1	31	31.9	33.3	34.3	35.4	36.7	39.2	38.9	39.9	41.6	42.4
33	4	75898	9/4/2013	NASA P-3B	8	SP-2	57.4	53.2	43.2	44.2	42.7	39.4	39.1	38.8	42	57.2	45.9	41.3	42.4	39.5	35.8	51.9	34.1	38.4	35.6	31.8	28.7	28.6	29.4	28.8	29	30.1	31.2	32	33.3	34.3	35.4	36.7	39.3	38.9	39.8	41.6	42.7
33	4	75898.5	9/4/2013	NASA P-3B	8	SP-2	55.8	52.6	41.9	42.8	41	39.3	38.4	38.2	42.5	57.8	45.1	40.5	42	38.9	35.1	50.8	34.2	38	35.1	31.6	28.7	28.5	29	28.8	28.8	29.9	31.2	32.1	33.3	34.3	35.3	36.7	39.2	38.9	39.8	41.6	41.9
33	4	75899	9/4/2013	NASA P-3B	8	SP-2	54.1	50.8	41.4	42.9	39.3	39.5	36.7	39.1	42.6	58.7	44.9	41.2	42.9	39	36	49.8	33.7	37.1	34.2	31.5	28.3	28	28.6	28.9	28.9	30	31.1	32.1	33.3	34.2	35.4	36.7	39.2	38.8	39.8	41.5	41.2
33	4	75899.5	9/4/2013	NASA P-3B	8	SP-2	54	48.9	40.1	42.7	37.7	39.4	38.6	39.9	41.8	59.4	44.1	42.1	42.7	38.5	35.2	49.1	32.9	35.8	34.4	31.8	28.6	28	28.7	28.8	29	30	31	32.2	33.3	34.3	35.4	36.6	39.3	38.8	39.8	41.5	41.2
33	4	75900	9/4/2013	NASA P-3B	8	SP-2	52.6	47.1	40.5	42.1	36.8	38.6	37.8	39.7	41.5	59.3	43.6	41.7	43.4	38.3	35	50	31.9	35.1	34.4	31.9	28.8	28	28.4	28.5	29.2	30.2	31.1	32.3	33.2	34.3	35.3	36.6	39.4	39	39.7	41.5	41.3
33	4	75900.5	9/4/2013	NASA P-3B	8	SP-2	50.7	45.3	39.5	43.4	37.3	39.1	38.4	39.4	41.5	58.8	42.9	41.7	43.9	39.7	35.1	49.2	31.8	34.2	33.8	30.8	28.5	28.1	28.4	28.5	29.3	30.3	31.1	32.3	33.2	34.2	35.3	36.6	39.5	39.1	39.8	41.6	40.7
33	4	75901	9/4/2013	NASA P-3B	8	SP-2	49.4	43.9	38.2	43.5	37.2	38.8	37.1	40	42.8	58.2	42.8	41.2	44.9	39.8	34.3	49.2	31.2	34.4	33.7	30.1	28.1	28.1	28	28.3	29.2	30.2	31	32.4	33.2	34.2	35.3	36.6	39.6	39.1	39.8	41.6	41
33	4	75901.5	9/4/2013	NASA P-3B	8	SP-2	47.9	42.7	37.6	44.8	37.6	38.1	35.9	39.3	41.5	57.5	42.6	42	45.6	40.9	35	49.5	30.8	34	32.4	29.2	27.6	27.9	28.2	28	29.5	30.3	31.1	32.2	33.3	34.3	35.2	36.8	39.4	39	39.8	41.6	40.7
33	4	75902	9/4/2013	NASA P-3B	8	SP-2	47.5	41	40.1	44.4	37.1	37.9	37.5	40.4	40.6	57.9	43	41.6	45.1	40.4	34.6	49.5	30.7	34.4	31.9	28.7	27.3	27.5	28.1	28	29.4	30.4	31.1	32.4	33.4	34.2	35.2	36.8	39.4	39	40	41.6	40.8

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	4	75902.5	9/4/2013	NASA P-3B	8	SP-2	46.9	42.5	39.5	42.6	39.7	36.7	38.2	39.9	39.4	58.9	43.3	42.3	45.5	39.6	33.9	48.9	29.9	33.2	30.8	28.1	27.1	27.1	27.8	28.2	29.2	30.3	31.2	32.3	33.3	34.2	35.1	36.7	39.3	39.1	39.8	41.7	40.1
33	4	75903	9/4/2013	NASA P-3B	8	SP-2	45.2	43	39.8	41	38.4	37	42	40.4	42	59.2	42.9	41.6	44.8	38.8	32.6	49.5	29.4	32.6	30	27.4	26.9	27.1	27.8	28.1	29.2	30.4	31.3	32.2	33.1	34.2	35.2	36.7	39.4	39.1	39.9	41.7	40.6
33	4	75903.5	9/4/2013	NASA P-3B	8	SP-2	43.8	41.6	38.4	39.8	37.9	37.2	42.2	40.3	41.2	59.7	41.4	41.1	44.9	38	32.1	49	28.8	31.8	29.3	27.2	26.7	27.3	27.6	28.1	29.3	30.3	31.1	32.3	33.3	34.1	35.2	36.8	39.4	39	39.9	41.6	40.2
33	4	75904	9/4/2013	NASA P-3B	8	SP-2	42.8	43	38.3	42.1	38.8	37.5	41.8	39.8	41.3	59.4	41.2	40.3	44.6	38.4	33	50.7	28.6	31.7	31.1	28.4	27.4	27.5	27.6	28.2	29.3	30.1	31.2	32.2	33.2	34.2	35.1	36.7	39.4	39.2	39.9	41.6	41.1
33	4	75904.5	9/4/2013	NASA P-3B	8	SP-2	42.4	42.6	40.3	40.9	38.1	38	41.3	38.9	40.5	58.5	41.7	40.7	44	38.7	34.1	50.1	29.4	31.8	30.9	29	28.2	28.1	27.9	28	29.5	30	31.1	32.2	33.2	34.1	35.2	36.7	39.4	39.1	39.9	41.6	40.5
33	4	75905	9/4/2013	NASA P-3B	8	SP-2	44.7	41.7	38.7	39.8	38	37.8	40.9	39.5	40.4	57.4	41.4	39.8	43.1	38.7	34.3	49.4	29.3	31.7	30.4	29.8	28.2	27.9	27.9	28.3	29.2	29.9	30.8	32.1	33.2	34.4	35.2	36.8	39.4	39.1	39.9	41.6	40.4
33	4	75905.5	9/4/2013	NASA P-3B	8	SP-2	44.5	40.6	38	40.2	36.8	38	40.7	39.2	41.8	56.5	41.3	39.2	42.6	39	34.4	49	30	31.8	30.6	29.9	28.7	28.2	28.1	28.2	28.9	30	31	32.1	33.3	34.3	35.3	36.8	39.4	39.1	39.8	41.5	40.1
33	4	75906	9/4/2013	NASA P-3B	8	SP-2	43.5	39.5	38.2	40.4	35.9	36.9	39.9	39.2	42.3	55.4	40.4	39.3	42.8	40.4	35.2	48.3	30.8	32.1	30.7	30.3	28.5	28	28.3	28.6	29	29.9	31.1	32.2	33.1	34.2	35.4	36.7	39.4	39.1	39.8	41.5	40.3
33	4	75906.5	9/4/2013	NASA P-3B	8	SP-2	41.8	38.8	39.4	40.9	36.8	36.8	40.2	38.6	41.3	54.5	40.5	41.5	45	40.4	35.9	49.7	30.7	31.7	30.2	29.5	28.1	28.3	28.3	28.6	29.2	30	31	32	33.1	34.3	35.3	36.7	39.4	39.1	39.8	41.5	40.6
33	4	75907	9/4/2013	NASA P-3B	8	SP-2	40	39.8	38.6	39.6	38.5	36.2	40	37.7	42.2	53.6	41.7	41.6	45.1	40.6	36.5	49.6	30.7	31.7	30.6	29.3	27.9	27.8	28	28.5	29.4	30	31.1	32.1	33.1	34.1	35.2	36.7	39.5	39.1	39.9	41.5	40.5
33	4	75907.5	9/4/2013	NASA P-3B	8	SP-2	38.3	40.7	40.5	38.7	38.7	37.7	40	40.4	43.1	53.8	42	42.6	44.3	40.4	36.2	49.5	31.3	32.4	31.8	29.9	28.7	27.7	28	28.7	29.5	30	31	32.1	33.2	34.2	35.3	36.7	39.5	39.1	39.8	41.5	40.7
33	4	75908	9/4/2013	NASA P-3B	8	SP-2	38.7	41.1	40.1	38.8	38.6	37.5	39.5	40.7	43.6	53.3	42.3	43.8	44.2	40.9	36.5	49.1	31.7	33.7	33.6	31.3	29.1	29.3	28	28.8	29.4	30	30.9	32.1	33.1	34.1	35.4	36.8	39.6	39.2	39.8	41.5	40.6
33	4	75908.5	9/4/2013	NASA P-3B	8	SP-2	40.2	40	38.4	38.9	39.8	38	40.2	39.5	43.8	53.1	41.7	42.9	44.3	40.4	36.5	48.2	31.4	33	34.1	31.4	28.6	28.5	28	28.6	29.5	30.3	31	32.2	33.1	34.2	35.3	36.7	39.5	39.2	39.8	41.6	40
33	4	75909	9/4/2013	NASA P-3B	8	SP-2	39	38.4	37.9	38.6	40	37.7	39	39	42.5	53.1	42.5	43	43.7	39.8	35.6	47.5	30.6	32.3	33	30.5	28.4	28.2	27.8	28.8	29.4	30.2	31	32	33.1	34.2	35.4	36.7	39.6	39.2	39.8	41.6	39.4
33	4	75909.5	9/4/2013	NASA P-3B	8	SP-2	39.1	36.8	37.1	37.3	41.2	38.2	37.7	38.8	41.1	53.1	43.6	44.1	42.9	40.4	34.9	47.1	30.5	31.8	31.7	29.8	28.1	28.2	28.1	28.5	29.2	30.2	31	32.1	33.3	34.1	35.4	36.7	39.6	39.2	39.8	41.5	39.1
33	4	75910	9/4/2013	NASA P-3B	8	SP-2	37.7	34.9	36.2	36.5	40.7	36.4	37.4	39.5	41.1	52.8	44	44.1	42.8	40.1	34.4	46.4	30.3	31	31.1	29	27.4	28.3	27.9	28.5	29.2	30.1	31.1	32	33.3	34.1	35.3	36.8	39.7	39.2	39.7	41.5	38.8
33	4	75910.5	9/4/2013	NASA P-3B	8	SP-2	37.7	33.5	35.4	36.1	39.7	35.9	37.8	39.7	39.7	51.9	43.3	44.3	43.3	39.4	34.5	46.2	29.7	30	30.5	28.2	27.3	27.9	28.2	28.6	29.5	30	31	32	33.3	34	35.2	36.8	39.6	39.2	39.8	41.6	38.4
33	4	75911	9/4/2013	NASA P-3B	8	SP-2	36.7	31.8	34.8	35.1	38.5	35.4	39.4	40.2	38.8	51	43	44.2	43.2	38.9	34.9	46.4	29.3	29.1	29.7	27.7	27.1	27.5	28.3	28.5	29.3	29.9	31	32.1	33.3	34.1	35.2	36.8	39.6	39.1	39.8	41.6	38.6
33	4	75911.5	9/4/2013	NASA P-3B	8	SP-2	34.8	31	34.4	33.8	38.9	35	39.1	40.3	39.4	49.4	43.7	43.7	43.4	38.7	35.4	47.4	29.8	28.9	29.9	27	27	27.2	28.3	28.6	29.3	29.9	31	32.2	33.2	34.1	35.2	36.7	39.6	39	39.9	41.6	39.5
33	4	75912	9/4/2013	NASA P-3B	8	SP-2	37.3	34.8	34.8	34.9	40.1	34.9	38	41.6	39.9	47.7	43.7	43.6	44.7	38.9	36.7	49.1	31.2	29.5	30.1	26.9	26.5	26.7	28.2	28.6	29	29.9	31	32.2	33.2	34.2	35.3	36.7	39.8	39	39.9	41.6	40.3
33	4	75912.5	9/4/2013	NASA P-3B	8	SP-2	37.7	34	35.4	35.4	38.9	38.7	37.6	43.6	40.2	46.2	43.1	42.9	46.6	40.2	38.1	49.8	32.5	29.5	29.8	27	26.7	26.9	28	28.5	29.2	30	31	32.3	33.2	34.1	35.2	36.7	39.8	39	39.9	41.7	40.4
33	4	75913	9/4/2013	NASA P-3B	8	SP-2	38	34.5	38.1	36.3	37.6	39.8	37.3	43.4	39.9	45.6	43.6	43.5	46.3	41.3	38.7	49.8	32.3	29.7	29.9	27.2	26.5	27.1	28.2	28.4	29.2	30.2	31	32.2	33.2	34.1	35.3	36.7	39.7	39.1	40	41.7	40.7
33	4	75913.5	9/4/2013	NASA P-3B	8	SP-2	38.1	35	37.5	35	39.3	38.3	39.7	42.1	40.6	46.1	44.5	44.3	45.8	41	39.8	49.9	32.7	30.6	29.8	27.2	26.6	27.1	28.2	28.1	29.1	30.3	31	32.3	33.1	34	35.3	36.7	39.7	39.2	40	41.7	41
33	4	75914	9/4/2013	NASA P-3B	8	SP-2	40.3	36	35.7	34.9	39.3	37.8	40.9	42.5	41.1	46.6	45	44.8	46.5	40.8	41.7	51.1	33	31.9	30.9	27.8	26.4	27.3	28.3	28.3	29.3	30.1	31.1	32.3	33.1	34	35.3	36.7	39.7	39.1	39.9	41.6	41.7
33	4	75914.5	9/4/2013	NASA P-3B	8	SP-2	39.9	37	37	36	38.1	38	41	42.2	41.8	47.1	45.9	45.3	46.4	40.5	41.9	50.5	33.8	31.7	31.5	27.7	26.2	27.2	28.3	28.3	29.4	30.2	31	32.3	33.2	34.1	35.4	36.7	39.6	39.1	40.1	41.7	41
33	4	75915	9/4/2013	NASA P-3B	8	SP-2	40.2	36.6	35.3	36.3	40.7	38	39.9	42.7	41.1	46.9	45.1	45.2	45.2	41	41.6	49.6	33.6	30.8	30.5	26.9	26.5	27.1	28.3	28.2	29.2	30.1	30.8	32.2	33.2	34.1	35.4	36.7	39.5	39.2	40.1	41.7	40.7
33	4	75915.5	9/4/2013	NASA P-3B	8	SP-2	39.5	36.1	35.6	35.5	39.7	37.3	38.7	43.8	42.3	46.4	44.4	45.4	44.5	41.3	42.1	50	34.2	30.6	30.7	26.8	26.1	27.1	28	28.4	29.2	30.2	30.9	32.1	33.2	34.2	35.4	36.7	39.5	39.2	40	41.7	41.3
33	4	75916	9/4/2013	NASA P-3B	8	SP-2	38.1	35.9	34.5	37	38.4	37	37.8	44.1	42.6	45.3	43.6	45	45.4	40.3	43	50.2	33.5	29.6	30.5	26.8	26.3	27	27.9	28.4	29.1	30.3	31	32.2	33.3	34.1	35.4	36.8	39.4	39.1	40	41.6	40.8
33	4	75916.5	9/4/2013	NASA P-3B	8	SP-2	37	34.2	33.7	35.8	37.4	36.3	36.8	44.2	43.7	44.4	45.1	44.6	45.2	40.3	43.3	49.6	33	29.2	30.2	27	26.8	28.2	28.6	28.3	29.2	30.2	31.1	32.3	33.3	34.2	35.3	36.8	39.5	39.1	40	41.6	40.9
33	4	75917	9/4/2013	NASA P-3B	8	SP-2	36.2	34.2	34.1	38.3	37.7	36.6	37	44	44.4	44	45.5	47.3	45.9	40.2	43.6	49	34.6	28.6	29.4	26.6	26.9	27.8	28.3	28.2	29.2	30.2	31.1	32.4	33.3	34.2	35.3	36.8	39.6	39.1	40.1	41.7	40.3
33	4	75917.5	9/4/2013	NASA P-3B	8	SP-2	36.4	34	38	38.1	37.3	38	40.1	42.7	43.6	43.5	46.3	46.1	46.2	39.2	43.9	48.7	35	28.1	29	26.3	26.6	27.5	28.2	28.3	29.1	30.1	30.8	32.1	33.2	34.3	35.3	36.7	39.5	39.1	40.1	41.7	40.1
33	4	75918	9/4/2013	NASA P-3B	8	SP-2	38.7	33.9	39.3	36.7	36.1	38.6	39.5	41.6	43.4	43.2	45.7	45.8	45.8	38.2	44.3	48.7	37.2	28.6	28.8	27.1	27	27.2	28.3	28.2	29.2	30.1	31	32	33.2	34.2	35.2	36.7	39.4	39.1	40.1	41.7	40.1
33	4	75918.5	9/4/2013	NASA P-3B	8	SP-2	37.9	35.3	38	38.8	38	37	37.9	40.5	43.4	43.3	44.7	45	45.7	37.2	43.5	47.5	35.8	27.7	28.2	27.2	26.8	27.5	28.3	28.4	29.1	30.1	31.2	32.1	33.2	34.2	35.3	36.6	39.4	38.9	40	41.6	39.4
33	4	75919	9/4/2013	NASA P-3B	8	SP-2	36.8	36.4	37.2	39.4	39.5	37.1	37.1	40	43.5	43.4	43.6	44.9	45.2	36.2	43.6	47.3	35.8	27.9	28.3	26.8	26.8	27.6	28.3	28.4	29.1	30	31.2	32.1	33.1	34.1	35.3	36.6	39.3	38.8	40.1	41.7	39.1
33	4	75919.5	9/4/2013	NASA P-3B	8	SP-2	37.1	38.6	37.8	39.1	38.4	37.4	35.9	41.5	43.2	42.7	42.7	43.8	44.6	35.2	42.5	45.9	34.3	27.3	27.8	26.6	26.4	27.1	28.3	28.3	29.1	30.2	31.2	32.2	33.3	34.2	35.3	36.8	39.4	38.8	40.1	41.6	38.1
33	4	75920	9/4/2013	NASA P-3B	8	SP-2	37.7	39	36.4	39.1	37.5	38.6	39.3	42.3	42.6	42.7	42.3	43.8	43.7	34.6	42.5	45.3	32.9	26.9	27.3	26.4	26.3	27.3	28.2	28.3	29.2	30.3	31.1	32.1	33.4	34.2	35.4	36.8	39.4	38.8	40	41.7	38.4
33	4	75920.5	9/4/2013	NASA P-3B	8	SP-2	39.1	37.7	34.8	38.6	37.6	39.1	39.8	42.3	42.1	43	42.3	42.7	42.8	35.7	44.6	46.1	32.3	27.3	27	26	26.7	27.9	28.2	28.4	29.4	30.3	31.1	32.3	33.4	34.2	35.5	36.8	39.4	38.9	39.9	41.7	38.4
33	4	75921	9/4/2013	NASA P-3B	8	SP-2	38.2	37.5	36	36.9	38.9	38.2	41.3	41.1	41.2	43.6	43.8	42.2	42.7	35	44.8	46	32.8	28.4	28.3	26.1	26.5	27.6	28.2	28.3	29.3	30.2	31.1	32.2	33.4	34.1	35.4	36.7	39.4	38.9	39.9	41.7	39.4
33	4	75921.5	9/4/2013	NASA P-3B	8	SP-2	36.3	40.2	36.6	36.5	39.1	36.8	40.2	41.2	39.9	43.7	44.6	41.8	42.5	35.6	47.2	48	35.7	30.2	29.6	26	26.7	27.5	28.2	28.2	29.2	30.2	31.1	32.2	33.2	34.2	35.3	36.6	39.3	38.9	39.9	41.7	40
33	4	75922	9/4/2013	NASA P-3B	8	SP-2	34.3	39.2	35.8	35.7	38.4	36.5	38.7	41.6	39.8	42.9	43.3	42.2	42	35.7	46.3	47	35.1	29.4	29.2	26.4	26.7	27.4	28.2	28	29.3	30.1	31.1	32.3	33.3	34.2	35.3	36.6	39.4	38.8	39.8	41.7	39.6
33	4	75922.5	9/4/2013	NASA P-3B	8	SP-2	33.6	38	37.6	35.7	37.7	35	38.3	42.4	38.9	42.7	42.5	42.1	41.3	35.6	46.3	46.4	34.6	28.5	28.1	25.8	26.8	27.4	28.1	28.3	29.3	30.1	31	32.2	33.1	34.2	35.4	36.5	39.3	38.8	39.8	41.7	39.1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	4	75923	9/4/2013	NASA P-3B	8	SP-2	36.9	39.4	36.6	34	36.8	38	39.3	43.5	38.2	43.1	42.1	41.1	40.1	36.2	46.5	45.7	33.5	28.1	27.4	26	26.4	27.4	28.1	28.4	29.5	30.2	31.1	32.2	33.2	34.3	35.5	36.6	39.2	38.9	39.8	41.6	38.6
33	4	75923.5	9/4/2013	NASA P-3B	8	SP-2	36.7	38.5	37.2	32.7	36.1	38.3	38.7	42.8	41	45.4	42.7	41.9	39.5	36.4	45.6	44.5	32.1	27.8	26.7	26	26.3	27.5	28	28.6	29.5	30.1	31	32.1	33.3	34.2	35.4	36.6	39.4	38.9	39.8	41.6	38.5
33	4	75924	9/4/2013	NASA P-3B	8	SP-2	39.5	37	40.9	38.4	36.4	38.2	37.7	41.5	41.6	46.5	44.5	41.6	39.3	35.8	46.6	44.9	32.4	28	27	26.3	26.3	27.8	28.1	28.6	29.6	30.3	31	32	33.1	34.1	35.4	36.6	39.5	38.9	39.8	41.6	39.3
33	4	75924.5	9/4/2013	NASA P-3B	8	SP-2	40.7	40.1	42.6	38.1	38.5	39.2	39	40.9	41.4	45.6	44.1	44	39.9	36.7	47.1	44.5	32.8	28.6	27.5	26	26.1	28.1	28.3	28.4	29.6	30.3	30.7	32	33.1	34.2	35.4	36.7	39.4	38.9	39.8	41.6	38.4
33	4	75925	9/4/2013	NASA P-3B	8	SP-2	40.6	42.4	42.2	38.1	39	39.2	38.6	40.7	41.9	44.9	44	43	39.9	36.3	45.9	43.1	31.8	28	27.4	25.8	26.2	28.1	28	28.3	29.2	30.2	30.9	32.2	33.1	34.3	35.6	36.6	39.3	38.9	39.9	41.6	37.7
33	5	76179.5	9/4/2013	NASA P-3B	8	SP-2	36.9	32.1	32.3	37.1	36.7	49.7	43.3	38.6	38.4	40.2	43.5	62.3	31.8	31.3	29.4	26.8	25.5	25.4	26.4	26.7	26.5	26.8	28	28.3	29.6	30	31.1	32.3	33.1	34.4	35.3	36.7	39.9	39.4	40	41.5	40.7
33	5	76180	9/4/2013	NASA P-3B	8	SP-2	37	31.7	35.9	43.1	48.1	49.2	42	40.9	40.4	39.7	43.2	62	31.5	31.1	28.9	26	25.1	25.7	26.3	26.9	27	27.4	27.9	28.4	29.5	30.1	31.1	32.3	33.1	34.4	35.3	36.8	39.9	39.3	40	41.5	41.9
33	5	76180.5	9/4/2013	NASA P-3B	8	SP-2	37.6	33.3	44.1	54.9	51.4	49.3	41.1	40.2	40.7	40.1	45.1	63.6	32.4	33	33	27.4	25.9	26.2	26.5	27.3	27.7	27.5	27.8	28.4	29.5	30	30.8	32.4	33.1	34.3	35.3	36.7	39.8	39.2	40	41.5	43.8
33	5	76181	9/4/2013	NASA P-3B	8	SP-2	38.4	35.4	51.9	54.2	49.7	48.3	39.9	39.6	41.1	39.3	44.3	66.1	34	34.1	32.7	28.3	25.9	26.4	26.6	27.2	27.6	27.1	27.8	28.2	29.6	29.9	31.1	32.5	33.3	34.3	35.4	36.7	39.6	39.2	40	41.6	43.9
33	5	76181.5	9/4/2013	NASA P-3B	8	SP-2	37.8	39.6	50.9	54.5	48.5	48.4	44.8	41.1	43.2	40.8	43.8	66.6	35	33.8	36.1	27.8	26.4	26.2	26.5	27.2	27.6	27.2	27.8	28.1	29.5	30	31	32.4	33.3	34.4	35.4	36.7	39.6	39.2	39.9	41.6	43.3
33	5	76182	9/4/2013	NASA P-3B	8	SP-2	37.4	44.3	51.8	53.3	46.7	49.2	48.7	44.3	42.2	40.6	44.2	65.8	36.4	35.1	40.1	27.3	26.3	26.1	26.3	27.6	27.1	27.1	27.9	28.2	29.2	30.3	30.9	32.2	33.3	34.3	35.5	36.7	39.5	39.1	39.9	41.6	43.5
33	5	76182.5	9/4/2013	NASA P-3B	8	SP-2	40.6	56.6	54.3	53	51.2	50.2	49	43.4	42.5	42.4	45.1	66.2	37.8	35.6	39.1	26.7	25.6	26.5	26.3	27.4	27	27	27.7	28.2	29.3	30.3	31	32.2	33.3	34.3	35.3	36.8	39.5	39.2	39.9	41.5	43.3
33	5	76183	9/4/2013	NASA P-3B	8	SP-2	49.7	56.1	54.7	61.3	53.5	51.3	47.5	44.3	42.4	42.4	46.4	65.9	37.5	35.2	38.5	26.2	25.5	26.9	26.7	27	27	27.1	27.7	28.5	29.2	30.3	31	32.2	33.1	34.1	35.2	36.8	39.4	39.1	40	41.6	44.6
33	5	76183.5	9/4/2013	NASA P-3B	8	SP-2	51	57.1	54.9	61.1	55.5	56.4	46.4	42.9	42.5	42.4	51.8	67.3	37.5	35.7	42.3	26.2	25.1	26.2	26.4	26.8	27.1	27.2	27.7	28.6	29.3	30.1	30.9	32.2	33.2	34.1	35.3	36.7	39.4	39	39.9	41.6	45.4
33	5	76184	9/4/2013	NASA P-3B	8	SP-2	56.9	59.7	60.1	59.7	57.8	54.7	44.8	41.4	43.1	42.5	55.6	68.3	37.6	35.4	41.3	27	26	26	26	26.8	26.8	27	28	28.5	29.2	30	31	32.3	33.1	34.1	35.4	36.7	39.4	39.1	39.9	41.6	44.8
33	5	76184.5	9/4/2013	NASA P-3B	8	SP-2	58.5	59.1	61.6	58	56.2	53.7	43	41.2	43.5	42.4	57.6	67.6	36.5	37.2	42.5	26.7	25.6	25.6	25.9	26.4	26.8	27.6	27.9	28.5	29	30.1	31	32.2	33.2	34.2	35.5	36.7	39.4	39.1	39.8	41.7	44.9
33	5	76185	9/4/2013	NASA P-3B	8	SP-2	59.1	60.8	62.6	56.4	54.3	51.9	42.4	41.3	43.4	42	61	66.9	36.6	38.5	41.7	26.3	24.8	25.3	25.9	26.5	27.1	27.7	27.9	28.4	29	30	31	32.2	33.2	34.2	35.5	36.7	39.4	39.1	39.9	41.6	47
33	5	76185.5	9/4/2013	NASA P-3B	8	SP-2	61.2	63.6	60.7	54.7	53	51.2	41.3	41.8	44	41.6	65.8	68.5	36.1	40.3	41.7	27.5	25.2	25.1	25.8	26.4	27.1	27.7	28	28.7	29.1	29.9	31.1	32.2	33.1	34.2	35.4	36.7	39.5	39	39.8	41.5	48.2
33	5	76186	9/4/2013	NASA P-3B	8	SP-2	63.2	62.7	58.7	53.4	51.7	50.5	41	44	44.6	43.3	69.2	69.3	36.8	41.6	41	28.3	24.9	25.2	25.4	26.9	27.3	27.4	28	28.7	29.2	29.9	31.1	32.2	33.1	34.2	35.3	36.7	39.6	39.1	39.8	41.5	47.6
33	5	76186.5	9/4/2013	NASA P-3B	8	SP-2	64.2	66.6	58.3	53	51	50.2	39.8	43.9	43.4	43.9	69.6	68.2	36.8	42	39.8	27.8	24.7	25.3	25.3	26.8	27	27.3	27.7	28.3	29	29.9	31.1	32.2	33.2	34.1	35.3	36.7	39.6	39.1	39.8	41.5	46.4
33	5	76187	9/4/2013	NASA P-3B	8	SP-2	67.2	65.8	56.8	51.8	51.3	50.8	41.9	44.6	43.5	44.1	68.6	66.4	35.9	44.2	39.5	27.8	25	25.1	25.6	26.4	27.2	26.9	27.6	28.5	29	30.1	31.3	32.2	33.2	34.1	35.4	36.6	39.6	39.2	39.7	41.6	46.3
33	5	76187.5	9/4/2013	NASA P-3B	8	SP-2	66.4	63.9	55.6	53.7	52.1	49.7	41.4	44.8	42.6	43.3	68.8	64.8	36.4	46.5	39.6	27.8	24.9	24.7	26.3	26.5	27.2	27	27.7	28.6	29.3	30	31.2	32.2	33.3	34.1	35.4	36.6	39.5	39.2	39.8	41.5	48.2
33	5	76188	9/4/2013	NASA P-3B	8	SP-2	64.8	62.1	54.7	55.5	53.5	48.2	40.1	44.5	41.6	45.1	71.9	63.9	38	46.1	38.4	28.2	25.4	25.8	26.1	26.3	27.1	27.5	28	28.7	29.3	30	31.1	32.1	33.2	34.2	35.4	36.6	39.6	39.2	39.8	41.6	49.7
33	5	76188.5	9/4/2013	NASA P-3B	8	SP-2	63.2	60.6	54.5	53.6	52.5	47	39.7	45.2	41.6	44	73.8	63	37.9	46	36.8	27.5	25.1	25.6	25.8	26.5	27.1	27.3	27.9	28.8	29.3	30.3	31.1	32	33.3	34.3	35.5	36.7	39.6	39.1	39.8	41.5	49.7
33	5	76189	9/4/2013	NASA P-3B	8	SP-2	61.9	60	54.2	51.7	52	46.8	41.3	44.9	41.2	43.4	74.6	61.6	37.1	44.5	35	26.9	24.3	25	25.6	26.1	26.9	27.3	27.9	28.8	29.5	30	31.1	32.1	33.3	34.4	35.5	36.6	39.5	39.1	39.8	41.5	48.7
33	5	76189.5	9/4/2013	NASA P-3B	8	SP-2	60.6	60.6	53.1	50.6	52.4	45	41.3	43.9	41.4	43.8	73.6	59.6	38	44.1	33.6	26.6	24.3	24.5	26	26.4	27.4	26.8	27.6	28.7	29.6	30.1	31.1	32	33.3	34.3	35.4	36.7	39.6	39.1	39.8	41.5	47.8
33	5	76190	9/4/2013	NASA P-3B	8	SP-2	61.1	59.9	51.8	49.7	50.8	43.5	41.1	43.1	40.5	45.8	72.8	57.6	37.7	47.4	32.2	26.3	24.7	24.7	25.7	26.3	27.2	26.8	27.9	28.6	29.3	30.1	31.1	31.9	33.2	34.3	35.4	36.6	39.7	39	39.8	41.5	48.6
33	5	76190.5	9/4/2013	NASA P-3B	8	SP-2	59.9	60	51.1	49	50.1	42.4	40.1	42.8	40	46.2	73.2	55.5	38.6	47	32.1	26.8	25.4	24.8	25.8	26.3	27	27.2	28.1	28.4	29.2	30	31.1	31.9	33.3	34.1	35.4	36.7	39.7	39	39.8	41.5	50.1
33	5	76191	9/4/2013	NASA P-3B	8	SP-2	64.5	59.3	50.6	48.7	49.6	40.7	40.5	43.7	39.8	47	74.8	53.5	38.3	47.3	31.7	27.8	26.5	25.8	26.4	26.4	27.1	27	28.4	28.7	29.3	30	31.2	32.1	33.2	34.1	35.4	36.6	39.6	39.1	39.8	41.5	50.8
33	5	76191.5	9/4/2013	NASA P-3B	8	SP-2	65.6	57.5	50.4	47	49.8	39.4	39.4	42.3	39	46	76.2	51.7	36.8	47.5	31.4	27.9	26.3	26.7	26.6	26.4	26.9	27.4	28.7	28.5	29.4	30.2	31.2	32.1	33.3	34.1	35.5	36.6	39.6	39.1	39.8	41.5	50.1
33	5	76192	9/4/2013	NASA P-3B	8	SP-2	63.9	56.4	48.6	45.2	50.5	38.1	39.2	42.7	39.7	44.8	75.7	49.7	37.7	46.2	30.7	27.4	26.1	26.5	26.2	26.2	27.2	27.4	28.8	28.6	29.4	30.2	31.1	32.2	33.4	34.2	35.4	36.7	39.6	39.2	39.8	41.5	48.7
33	5	76192.5	9/4/2013	NASA P-3B	8	SP-2	61.9	55.5	47.4	43.3	50.2	38.2	38.7	42.6	40.5	44.4	74.6	47.9	39.2	45.4	30.5	27.5	25.9	26.3	26.5	26.2	26.9	27.2	28.3	28.5	29.2	30.1	31.1	32.3	33.3	34.1	35.4	36.8	39.7	39.2	39.8	41.5	47.5
33	5	76193	9/4/2013	NASA P-3B	8	SP-2	60.1	54.4	46.6	42.8	49	39.2	39.3	41.9	43.5	45.8	73.2	46.1	39.1	44.5	30.6	26.9	25.9	25.8	26	25.8	27	27.2	28.4	28.6	29	30.1	31	32.3	33.4	34.1	35.3	36.7	39.7	39.1	39.7	41.6	47.2
33	5	76193.5	9/4/2013	NASA P-3B	8	SP-2	58.6	53.2	45.9	44.2	49.2	38.5	39.4	40.8	42.6	44.9	72.6	44.8	38.9	44.4	30.8	27.2	25.6	25.5	25.6	26.4	26.9	27.7	28.6	29	29.3	30.1	31.2	32.3	33.3	34.2	35.3	36.7	39.7	39.1	39.8	41.7	47.6
33	5	76194	9/4/2013	NASA P-3B	8	SP-2	57	52.7	46	43	48.4	37.3	38.7	39.8	43.8	44.3	73.2	43.3	38.6	46.4	30.5	27	24.8	25.1	25.4	26.5	26.7	27.5	28.4	29	29.2	30	30.9	32.2	33.2	34.2	35.3	36.7	39.6	39.1	39.7	41.7	48.1
33	5	76194.5	9/4/2013	NASA P-3B	8	SP-2	55.7	52	44.7	42.7	48.1	37.5	39.2	39.6	44.9	44.1	73.9	42.6	38.4	45.1	30.7	26.4	24.6	24.9	26	26.5	26.5	27.6	28.7	29	29.4	30.2	30.8	32.3	33.2	34.1	35.3	36.7	39.5	39.1	39.8	41.6	47.4
33	5	76195	9/4/2013	NASA P-3B	8	SP-2	54.5	50	43.2	42.9	47.6	39.3	39.6	40.1	45.1	44.7	73.6	41.1	39.1	44.2	30.4	25.6	25	24.7	25.8	26.3	26.3	27.6	28.5	29	29.1	30.2	31.1	32.4	33.2	34.1	35.3	36.8	39.5	39.1	39.8	41.6	46
33	5	76195.5	9/4/2013	NASA P-3B	8	SP-2	54	49.8	41.6	41.3	47.7	39.8	38.3	40.6	44.6	45.9	72.4	40.7	38.3	42.7	29.9	25.5	24.2	24.6	25.4	26.1	26.8	27.4	28.3	28.7	29.1	30	31.2	32.2	33.1	34.2	35.2	36.7	39.3	39.1	39.9	41.6	45.2
33	5	76196	9/4/2013	NASA P-3B	8	SP-2	52.5	49.9	41.9	39.7	47	39.4	40.1	40.7	43.3	46.5	71.2	42.3	39.2	41.7	30.4	26	25	24.9	25.4	26.3	26.7	27.7	29.6	29.2	29.2	30.1	31.2	32	33.2	34.1	35.3	36.7	39.3	39.1	39.9	41.6	46.1
33	5	76196.5	9/4/2013	NASA P-3B	8	SP-2	51.6	48.4	42.5	39.5	47.1	39.3	40.1	42	41.8	47.4	72.1	42.5	39.3	41.3	32.5	27.8	25.4	25.1	26.2	26.3	27.1	27.8	29.5	29.1	29.3	30	31.2	32.2	33.1	34.2	35.4	36.6	39.4	39	39.9	41.6	46.8
33	5	76197	9/4/2013	NASA P-3B	8	SP-2	50.4	47.1	42.6	42	48.6	38.8	40.1	42.5	41	47.2	72.9	42.1	38.4	40.5	32.1	29.1	25.3	24.9	26.2	26.6	27.4	27.8	29.2	29	29.5	30.2	31	32.1	33.2	34.2	35.3	36.7	39.3	39.1	39.9	41.6	46.2

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
33	5	76197.5	9/4/2013	NASA P-3B	8	SP-2	49	45.3	43.8	40.8	48	38.2	38.7	42.3	40.4	47.2	72.9	40.4	37.7	40	32.2	28.5	25.2	25.1	26.1	26.5	27.1	27.8	29.1	29.1	29.4	30.2	31.1	32.1	33.2	34.1	35.2	36.6	39.3	39.2	39.9	41.7	44.5
33	5	76198	9/4/2013	NASA P-3B	8	SP-2	47.7	46.7	42.4	42.7	47.7	38.1	39.7	43.3	40.2	46.5	71.3	41.2	37.6	40.8	31.8	27.7	25.8	24.5	26.4	26.3	26.8	27.8	29.2	28.9	29.2	30	30.9	32.1	33.3	34.2	35.3	36.7	39.3	39.2	40.1	41.6	42.8
33	5	76198.5	9/4/2013	NASA P-3B	8	SP-2	46.9	46.2	40.5	41.3	48.7	37.3	38.9	42.4	41	45.8	69.2	41.2	38.3	41.4	31.4	27.3	26	24.4	26.4	27.2	27.1	27.6	29	29.1	29.2	30.4	30.9	32.1	33.3	34.2	35.3	36.7	39.3	39.1	40	41.7	42
33	5	76199	9/4/2013	NASA P-3B	8	SP-2	49.4	46.4	42.6	40.4	48.5	38.8	38.5	41.9	44.3	44.1	67.9	41.3	39	41.3	30.7	27.1	25.6	24.8	26.3	27.3	26.9	27.8	28.7	29	29.2	30.4	31	32.1	33.3	34.2	35.3	36.7	39.3	39.1	40	41.7	42.1
33	5	76199.5	9/4/2013	NASA P-3B	8	SP-2	56.4	45.6	41.6	40.7	48.6	38.6	39.1	40.8	44.5	43.4	67.9	41.8	39	41.7	29.8	26.2	25.7	25.7	26.7	27.1	27	28.2	28.6	28.8	29.3	30.5	31.2	32.1	33.2	34.1	35.4	36.8	39.2	39	40	41.7	41.6
33	5	76200	9/4/2013	NASA P-3B	8	SP-2	55.5	45.5	40.5	39.6	47.9	38.4	40.2	39.9	44.9	43.4	67.8	41.2	39.6	42.1	30.2	25.9	26.4	25.8	26.8	26.7	27.1	28.2	28.6	29	29.3	30.5	31.2	32.2	33.2	34.1	35.4	36.8	39.3	39.1	39.9	41.7	40.5

Table 48. Acoustic Data from Example Category 2 Event 102 for the P-3B at SP-1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	1	51875.5	9/11/2013	NASA P-3B	7	SP-1	69.9	69	71	67.4	61	55	53	49.7	45	48	49	45	57.3	42.9	46.4	59.4	43.7	38.3	42.9	34.2	33.3	29.4	28.5	28.7	29.2	30.7	30.8	31.7	32.6	34.2	35.1	36.2	37.1	38.3	39.2	41	50.1
102	1	51876	9/11/2013	NASA P-3B	7	SP-1	69.1	68	69	65.5	60	54	52	48.3	45	49	49	45	56.3	42.7	47	63	44.2	40.4	43.5	34.9	34.9	30.7	28.7	28.5	29.2	30.6	30.7	31.7	32.8	34.2	35.1	36.1	37.1	38.3	39.2	40.9	52.2
102	1	51876.5	9/11/2013	NASA P-3B	7	SP-1	68.7	69	67	64.9	59	53	50	46.9	46	49	48	45	55.6	42.7	48.5	63.6	45.1	40.8	44.8	35.9	35.2	31.6	29	28.7	29.4	30.3	30.6	31.8	32.7	33.9	35.1	36.1	37.2	38.3	39.2	41.1	53.7
102	1	51877	9/11/2013	NASA P-3B	7	SP-1	73.3	68	66	64.2	59	52	50	48.7	46	48	49	47	57.2	43.4	50.2	65.3	44.9	40.3	44.5	35.5	34.5	30.9	28.8	28.8	32.5	30.4	30.6	31.7	32.8	34	35.1	36.2	37.2	38.2	39.2	41	54.1
102	1	51877.5	9/11/2013	NASA P-3B	7	SP-1	73.6	66	66	63	57	52	50	50.6	47	49	49	47	56.2	43.1	50.1	64	44.7	40.8	44.3	34.6	33.9	30.6	28.9	29	31.7	38.8	32.9	31.5	32.7	34.1	35	36.3	37.1	38.2	39.3	41	53.3
102	1	51878	9/11/2013	NASA P-3B	7	SP-1	71.7	66	65	62	56	57	58	53.8	47	48	51	48	56	43.4	52.7	64.6	44	41.1	45.5	35.5	34.1	31.5	29.2	28.9	30.9	37	32.2	31.6	32.8	34	34.9	36.2	37.1	38.2	39.3	41	54.1
102	1	51878.5	9/11/2013	NASA P-3B	7	SP-1	70.1	64	64	61.3	57	62	58	56.9	48	48	50	48	55	44.7	53.9	63.9	43.5	42.6	46.3	36.6	34.6	32.2	28.9	28.7	30.4	35.4	31.7	31.7	32.8	34.1	35	36.1	37.1	38.3	39.2	41	52.9
102	1	51879	9/11/2013	NASA P-3B	7	SP-1	69.3	65	62	60.4	66	62	57	56	50	50	49	49	55	44.7	54.3	63.5	43.8	42.9	45.5	36.5	34	31.9	28.8	28.8	29.9	34	31.3	31.6	32.7	34	35	36.2	37.1	38.3	39.2	40.9	53.3
102	1	51879.5	9/11/2013	NASA P-3B	7	SP-1	68.4	63	65	63	65	61	55	54.2	48	49	49	49	54.5	45.4	56.1	62.6	43.7	42.8	44.7	36	33.4	31.4	28.6	28.6	29.6	32.8	31	31.6	32.7	33.9	35	36.2	37.2	38.4	39.2	41	52.7
102	1	51880	9/11/2013	NASA P-3B	7	SP-1	68.5	61	66	66.1	65	62	56	52.6	48	48	49	49	54.9	45.7	60	64.1	42.4	43.2	44.4	37.2	34.2	32	29.1	28.4	29.6	31.9	30.8	31.7	32.7	34.1	35.2	36.2	37.3	38.4	39.3	41.1	55.1
102	1	51880.5	9/11/2013	NASA P-3B	7	SP-1	67.2	62	68	66.4	64	60	55	52.4	48	49	47	49	55.3	45.8	63.1	64.7	42.7	44.9	45.1	38.3	35.4	32.3	29.1	28.3	29.5	31.2	30.7	31.8	32.9	34.1	35.1	36.2	37.3	38.4	39.3	41	55.6
102	1	51881	9/11/2013	NASA P-3B	7	SP-1	66.5	66	69	66.2	64	59	55	52.2	48	50	47	51	56.3	45.8	65.1	65.2	42.4	45.4	44.8	38.9	36.6	32.8	29.1	28.3	29.4	30.7	30.8	31.7	32.9	34.2	35.2	36.2	37.3	38.4	39.2	41	57
102	1	51881.5	9/11/2013	NASA P-3B	7	SP-1	68.4	66	68	64.9	63	59	54	51.7	52	51	48	51	55.7	46.5	66.9	65.2	42.2	47.4	45.6	40	37.5	33.1	29.4	28.6	29.4	30.6	30.7	31.9	33.1	34.2	35.1	36.1	37.2	38.4	39.3	41	56.7
102	1	51882	9/11/2013	NASA P-3B	7	SP-1	70	70	67	63.7	63	60	55	55.3	51	50	48	51	55.9	46.6	65.9	63.8	42.5	47.5	45	40.3	38.1	33.3	29.9	28.6	29.4	30.5	30.9	31.8	33	34.1	35	36.3	37.2	38.3	39.3	41	56.9
102	1	51882.5	9/11/2013	NASA P-3B	7	SP-1	71.6	71	66	63.8	62	62	57	53.6	51	51	48	53	56.1	47.1	68.6	64.2	43.3	47.9	44.4	40.4	37.7	32.9	29.7	28.8	31.6	30.3	30.8	31.9	32.9	34	35.1	36.2	37.2	38.3	39.2	41.1	57.8
102	1	51883	9/11/2013	NASA P-3B	7	SP-1	70.3	70	67	65.3	62	60	56	52.4	49	49	47	53	55.4	48	68.9	63.1	43.5	48.6	44.7	41.2	38.4	33.4	29.9	28.9	31.3	40.4	32.6	31.8	32.8	33.9	35.1	36.1	37.3	38.3	39.3	41.1	59
102	1	51883.5	9/11/2013	NASA P-3B	7	SP-1	69.7	68	67	68.3	60	59	55	51.7	49	50	46	55	55.4	48.8	71.3	63	45.4	50.3	45.1	42.1	40.3	34.4	30.5	29	30.6	38.7	32.8	31.8	32.6	33.9	35	36.1	37.3	38.3	39.3	41	59.8
102	1	51884	9/11/2013	NASA P-3B	7	SP-1	67.8	67	66	66.9	61	58	57	52.3	49	50	48	58	55	49.5	71.3	61.8	46.2	52.7	45.9	42	39.7	33.4	30	29.1	30	36.9	32.2	31.8	32.6	33.8	35.1	36.2	37.2	38.2	39.2	41	60.1
102	1	51884.5	9/11/2013	NASA P-3B	7	SP-1	66.1	68	65	65.9	62	59	57	51.7	53	53	49	59	54.4	49.4	72.7	61	46	52.9	44.9	41.9	39.6	32.8	29.6	29	29.7	35.2	31.8	31.8	32.6	33.9	35.1	36.3	37.3	38.2	39.2	41	60.9
102	1	51885	9/11/2013	NASA P-3B	7	SP-1	65.7	67	67	66.6	65	60	58	55.3	54	52	50	58	54.4	49.2	72.8	59.4	44.9	51.2	43.6	41	39.6	32.6	29.7	29.2	29.4	33.8	31.3	31.8	32.8	34.1	35	36.2	37.2	38.3	39.2	41	59.9
102	1	51885.5	9/11/2013	NASA P-3B	7	SP-1	66.2	68	72	65.3	65	64	59	55.8	54	52	51	60	54.3	48.8	71.3	57.5	44.5	50.4	42.6	41.6	39.2	32.5	29.5	29	29.3	32.7	31.1	31.9	32.9	33.9	34.9	36.2	37.2	38.2	39.3	41	58.9
102	1	51886	9/11/2013	NASA P-3B	7	SP-1	68.4	67	71	66.2	66	65	59	56.9	54	52	49	59	53.6	48.4	71.4	55.8	45.5	51	41.8	41.8	39.4	32.6	29.8	29	29.1	31.9	30.8	31.7	32.8	33.9	34.9	36.3	37.2	38.3	39.3	41	59.1
102	1	51886.5	9/11/2013	NASA P-3B	7	SP-1	69.4	68	74	69.8	65	66	61	59.5	54	53	50	59	54.2	48.6	70.6	54	45.8	51.6	41.9	42.5	40.3	32.8	30.6	29.2	29.1	31.2	30.7	31.8	32.9	33.9	35.1	36.3	37.2	38.2	39.2	41	58.4
102	1	51887	9/11/2013	NASA P-3B	7	SP-1	74.1	69	75	68.6	65	67	65	58.9	55	52	49	60	53.3	48.2	71.8	52.5	45.7	50.9	41.8	42.7	41.5	33.7	30.7	29.3	29.1	30.7	30.8	31.6	32.8	33.8	35	36.2	37.3	38.2	39.2	41.1	60
102	1	51887.5	9/11/2013	NASA P-3B	7	SP-1	74.3	72	74	67.7	66	67	64	58.1	54	52	49	59	52.1	49.2	72.4	51	46.2	50	41	42.5	41.4	33.2	30.4	28.9	29.1	30.4	30.9	32	32.9	33.8	35	36.1	37.2	38.2	39.2	41	59
102	1	51888	9/11/2013	NASA P-3B	7	SP-1	74.1	73	72	66.5	67	66	63	57.8	54	52	48	58	51.9	48.6	70.8	49.2	45.3	49.3	40.2	42.2	40.6	33	30.2	28.6	32	30.7	30.8	32	33	33.9	35.2	36.2	37.2	38.2	39.2	40.9	57.6
102	1	51888.5	9/11/2013	NASA P-3B	7	SP-1	75.1	72	71	66.4	66	65	63	57.3	53	51	48	62	52.2	48	69.6	47.7	44.8	48.4	39.9	41	39.8	32.6	29.7	28.7	36.8	34	30.8	31.8	32.8	33.9	35.2	36.2	37.2	38.3	39.3	41	56.4
102	1	51889	9/11/2013	NASA P-3B	7	SP-1	74.4	75	71	65.9	66	66	61	55.8	53	52	50	62	51.6	47.9	68.4	46.4	45.3	50	39.5	40.5	40.1	32.6	29.6	28.6	35.1	36.2	33	31.8	32.9	33.9	35.1	36.1	37.2	38.3	39.3	41	55.8
102	1	51889.5	9/11/2013	NASA P-3B	7	SP-1	75.4	73	72	67.6	68	65	60	56.3	53	51	49	61	51.5	48	67.8	46	44.8	52.3	40.7	41.8	40.9	32.7	29.8	28.9	33.6	34.6	32.2	31.6	32.8	34	35.1	36.1	37.3	38.3	39.3	41	55.5
102	1	51890	9/11/2013	NASA P-3B	7	SP-1	77.9	72	73	69.1	66	65	58	55.5	51	50	49	60	50.7	48.9	66.5	46.2	45	54.7	41.9	42.1	42.4	34.3	31	29.2	32.3	33.2	31.5	31.7	32.7	33.9	35.1	36.3	37.3	38.2	39.2	41	54.9
102	1	51890.5	9/11/2013	NASA P-3B	7	SP-1	77.7	75	74	68.5	69	64	56	53.9	50	50	48	59	50.4	48.6	66	45.1	44.1	55	42	41.5	42	33.9	30.7	28.9	31.3	32.1	31.3	31.8	32.8	34.1	35.1	36.3	37.2	38.2	39.2	41	54.3

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	1	51891	9/11/2013	NASA P-3B	7	SP-1	76.8	74	73	69.6	68	62	55	54.8	51	49	47	57	50	48.8	64.9	44.3	44.4	54.4	41.7	40.8	41.6	33.4	30.2	29.1	30.5	31.4	31.3	31.6	32.8	34	35.1	36.3	37.3	38.3	39.3	41	53.7
102	1	51891.5	9/11/2013	NASA P-3B	7	SP-1	75.5	74	73	68.5	66	61	57	54.3	51	49	47	57	49.4	48.6	65.9	44.5	44.4	54.5	41.9	40.5	41.5	33.2	30.2	29.1	29.9	30.8	31	31.6	32.9	34	35	36.3	37.3	38.3	39.3	40.9	54.6
102	1	51892	9/11/2013	NASA P-3B	7	SP-1	76.1	76	72	66.6	64	61	58	54.1	51	49	46	59	49.7	49.4	66.9	45.6	45.6	55.4	43.1	42.4	43.1	34.3	30.2	28.9	29.4	30.4	31	31.5	33	34.1	35	36.4	37.2	38.3	39.3	40.9	55.3
102	1	51892.5	9/11/2013	NASA P-3B	7	SP-1	75.4	75	71	65.1	64	60	57	53.1	50	49	47	58	49	49.6	66.9	45.4	47.2	55.1	43.5	42	43	34	29.6	28.7	29.2	30.2	30.8	31.6	32.9	34	35.1	36.3	37.1	38.3	39.3	40.9	55
102	1	51893	9/11/2013	NASA P-3B	7	SP-1	74.2	75	70	67.2	64	59	57	51.8	50	49	48	59	49.5	50.3	66.7	45.1	46.6	54.5	42.7	41.3	42	33.3	29.4	28.9	29.2	29.8	30.7	31.7	33	34	35.1	36.1	37.2	38.3	39.3	41	54.3
102	1	51893.5	9/11/2013	NASA P-3B	7	SP-1	74.6	73	69	68.2	64	59	55	51.7	49	48	47	59	49.2	49.6	65.3	44.8	46.2	55.9	42.9	41.8	42	33.7	29.5	29.1	28.9	29.8	30.8	31.6	33.1	34.1	35.2	36.2	37.1	38.2	39.2	41	53.8
102	1	51894	9/11/2013	NASA P-3B	7	SP-1	73.8	71	69	67	63	58	54	50.3	49	47	46	60	49.6	49	64.7	44.1	46.2	55.3	43.3	41.9	43.2	34	29.6	29.4	39.5	38.9	30.8	31.6	33	34.1	35.3	36.2	37.1	38.2	39.3	41	54
102	1	51894.5	9/11/2013	NASA P-3B	7	SP-1	72.6	70	68	65.3	62	57	53	48.9	48	48	47	60	50.3	50.3	65.1	45	46.7	54.2	43	41.8	43	34.6	30	29.1	37.8	42	35.3	31.6	32.9	33.9	35.2	36.2	37.1	38.3	39.3	41	54.1
102	1	51895	9/11/2013	NASA P-3B	7	SP-1	71.7	71	67	64.6	61	56	52	49.3	49	49	47	61	50	51.6	65.3	44.8	46.1	52.8	42.6	41.4	42.5	33.8	29.8	29.1	36	40	34.1	31.8	33	33.9	35.1	36.2	37.2	38.2	39.3	41	53.5
102	1	51895.5	9/11/2013	NASA P-3B	7	SP-1	71.7	72	66	63.5	59	60	51	49	50	49	47	60	50.7	52.4	64.5	44.8	45.9	51.7	44.2	42.8	43.3	34.8	30.2	29.2	34.4	38.1	33.1	31.8	32.9	33.9	35.1	36.2	37.2	38.2	39.2	41	53.1
102	1	51896	9/11/2013	NASA P-3B	7	SP-1	70.9	71	64	62.4	60	60	55	49.9	50	49	48	60	51.3	56.2	65.1	44.6	46.5	51	44.3	42.9	42.8	34.1	30.1	29	33	36.4	32.3	31.7	32.9	34	35.2	36.2	37.1	38.2	39.2	41	54.5
102	1	51896.5	9/11/2013	NASA P-3B	7	SP-1	71.1	70	63	63.3	62	62	58	51.2	51	49	47	60	50.4	61.1	67.2	43.7	46.1	49.8	44.3	43.4	42.9	34.1	30.3	29.1	31.7	34.8	31.7	31.7	32.9	33.9	35.2	36	37.2	38.3	39.3	41	54.9
102	1	51897	9/11/2013	NASA P-3B	7	SP-1	70.2	69	62	65.5	61	61	58	51.1	50	48	46	60	50.4	61.9	66.7	43.4	45.5	48.4	43.8	42.5	41.7	33.6	30.5	29.1	31	33.4	31.3	31.7	33	34	35.2	36.1	37.2	38.3	39.3	40.9	54.1
102	1	51897.5	9/11/2013	NASA P-3B	7	SP-1	69.5	68	62	67	61	60	58	52.3	49	48	46	59	50.5	61.9	65.6	43.1	46.1	47.7	42.9	41.7	40.3	32.7	30.1	29	30.5	32.5	31.3	31.8	32.9	33.9	35.2	36.2	37.2	38.3	39.3	41	54
102	1	51898	9/11/2013	NASA P-3B	7	SP-1	67.9	67	66	67	64	58	57	51.9	48	47	46	59	49.9	64	65.8	43.2	47.3	47.6	42.8	42.1	39.5	32.1	29.7	28.8	30.1	31.8	31.1	31.9	32.9	34	35.1	36.2	37.2	38.3	39.3	40.9	54.4
102	1	51898.5	9/11/2013	NASA P-3B	7	SP-1	66.1	65	67	65.3	64	58	57	51.5	48	47	47	58	49.3	64.7	65	42.8	48.2	47.8	42.2	41.9	38.7	32	29.7	28.8	29.6	31.1	31	31.8	32.7	34	35.2	36.2	37.2	38.3	39.3	40.9	53.5
102	1	51899	9/11/2013	NASA P-3B	7	SP-1	66.7	64	66	64.2	66	56	57	51.1	47	48	48	58	50.3	63.9	63.3	42.8	48.3	47.5	42.5	42.2	38.8	32.9	29.8	29.1	29.3	30.5	30.9	31.8	32.8	34.1	35.2	36.1	37.3	38.3	39.3	41	52.6
102	1	51899.5	9/11/2013	NASA P-3B	7	SP-1	68.1	63	65	63.2	64	55	55	50.3	48	49	50	57	50.4	63.7	61.8	43.1	48.3	47.2	42.3	41.5	38.5	33.4	29.8	29.1	33.8	31.3	30.8	31.9	32.6	34	35.1	36.2	37.2	38.2	39.4	41	52.4
102	1	51900	9/11/2013	NASA P-3B	7	SP-1	71.9	68	65	64.4	62	55	53	50	47	48	49	56	50.8	64.1	60.6	44.4	48.4	46.9	43.1	41.7	38.2	33.6	30.2	29.3	32.9	35.2	31	31.8	32.7	34	34.9	36.3	37.3	38.2	39.3	40.9	51.9
102	1	51900.5	9/11/2013	NASA P-3B	7	SP-1	76.7	69	65	63.7	61	54	51	49.1	47	48	51	57	50.7	62.9	59	45.2	48.2	46.3	43.5	42.1	38.1	34.1	30.4	29.8	31.8	33.8	31	31.8	32.7	33.9	34.9	36.2	37.2	38.2	39.3	41	50.8
102	1	51901	9/11/2013	NASA P-3B	7	SP-1	75.9	68	65	62	59	54	51	49.1	48	48	50	56	50.1	61.8	57.3	46.1	48.3	46.2	43.1	41.5	37.4	33.4	30.4	29.6	31.2	32.6	30.9	31.8	32.8	34	35	36.2	37.2	38.2	39.3	41	50.5
102	1	51901.5	9/11/2013	NASA P-3B	7	SP-1	74.2	71	63	60.5	58	55	51	49.1	47	48	51	56	49.5	62.4	55.8	45.4	47.9	45.4	42.4	40.6	36.7	33.4	30.2	30	30.7	31.8	30.7	31.6	32.6	34	35.1	36.2	37.3	38.2	39.3	41	49.7
102	2	52065	9/11/2013	NASA P-3B	7	SP-1	68.9	67	60	58	60	55	53	48.4	46	46	48	48	58.7	40.5	42.1	52.9	46.8	42.8	35.7	38.7	32.5	32.4	29.8	29	29.1	29.8	30.8	33.3	33	34.4	35	36.2	37.3	38.4	39.2	40.9	46.2
102	2	52065.5	9/11/2013	NASA P-3B	7	SP-1	67.6	65	60	56.7	60	54	53	47.3	45	47	49	47	57.1	40.9	43.1	53.6	46.4	42.2	37	37.8	32.3	32	29.6	28.8	29.1	29.8	30.9	32.9	32.9	34.2	35.1	36.3	37.2	38.4	39.2	41	46.2
102	2	52066	9/11/2013	NASA P-3B	7	SP-1	66.4	64	61	61.2	60	52	52	46.2	46	46	48	46	57.3	40.7	43.2	54.4	46.2	41.8	36.8	37.3	32.7	31.7	30.1	29.2	29.2	29.9	30.7	32.4	32.9	34	35.1	36.3	37.2	38.3	39.1	41	46.7
102	2	52066.5	9/11/2013	NASA P-3B	7	SP-1	65.9	62	63	63	58	52	53	47.7	48	48	48	46	57.2	40.9	44.1	55.1	46.4	42.1	39	37.9	32.7	31	30	29.4	29.3	30	30.8	32.2	33	34.1	35.1	36.1	37.2	38.2	39.1	41	46.7
102	2	52067	9/11/2013	NASA P-3B	7	SP-1	66.1	65	62	61.1	56	55	57	49.1	49	47	48	46	56	42.3	45.5	55.4	46.8	43.1	40.3	38.5	34.3	31.3	30.1	29.6	29.3	29.9	30.8	31.9	33	34.1	35.1	36.2	37.2	38.3	39.1	41	47.7
102	2	52067.5	9/11/2013	NASA P-3B	7	SP-1	68.2	67	61	59.4	57	56	57	47.8	48	48	47	46	58.8	42	45.3	55	47.4	43.8	41	38.7	35.3	31.8	30.2	29.4	29.5	30	30.9	31.8	33	34.1	35.3	36.2	37.2	38.3	39.2	41	48
102	2	52068	9/11/2013	NASA P-3B	7	SP-1	67.4	68	61	58	60	55	55	47.8	47	47	48	47	60.4	42.5	45.3	55.1	48	43.9	41.8	38.8	35.8	31.1	30	29.2	29.3	29.8	31	32.6	32.8	34.3	35.2	36.2	37.1	38.3	39.2	41	47.8
102	2	52068.5	9/11/2013	NASA P-3B	7	SP-1	66.9	67	66	61.8	59	53	53	47.4	46	46	48	46	58.6	42.6	46.2	54.6	48.3	43.8	42.6	38.5	37	32.4	29.9	29.2	29.6	30	31	32.2	32.7	34.2	35.1	36.3	37.2	38.4	39.2	40.9	47.9
102	2	52069	9/11/2013	NASA P-3B	7	SP-1	68.6	65	69	61.2	58	52	52	46.1	46	45	48	46	59	43.2	46.1	54.1	48	42.7	44	39.1	37.6	32.7	29.9	28.9	29.4	29.8	30.8	32.1	32.7	34.1	35.2	36.3	37.1	38.4	39.2	40.9	47.6
102	2	52069.5	9/11/2013	NASA P-3B	7	SP-1	67.7	63	67	59.7	57	50	50	46.4	45	46	48	45	58.5	42.6	46.1	53.8	47.3	41.1	43.5	38.1	36.8	32.2	29.5	28.8	29.3	29.8	30.8	31.9	32.6	34	35.4	36.2	37.1	38.3	39.2	40.9	46.9
102	2	52070	9/11/2013	NASA P-3B	7	SP-1	67.7	64	66	59.7	55	49	49	45.6	45	47	48	45	56.9	41.4	45.8	53.3	46.6	40	43.5	37.1	36.3	32.3	29.8	28.8	29.5	29.9	30.7	31.7	32.6	34.1	35.5	36.1	37.1	38.3	39.3	40.9	46.9
102	2	52070.5	9/11/2013	NASA P-3B	7	SP-1	67.5	64	64	58.3	54	48	48	47.2	45	47	48	45	55.2	41.7	45.8	55.7	45.9	39.6	43.3	36.4	36.1	31.9	29.8	29	29.5	30	30.6	31.6	32.7	34.2	35.4	36.1	37.2	38.2	39.3	41	47.2
102	2	52071	9/11/2013	NASA P-3B	7	SP-1	68.9	65	62	57.3	52	48	49	45.9	46	49	47	45	54.9	41.5	46	58.6	45.6	39.1	43.1	36.4	37	33.2	30.4	29.1	29.4	30	30.6	31.7	32.6	34.2	35.3	36.3	37.2	38.3	39.3	41	49.7
102	2	52071.5	9/11/2013	NASA P-3B	7	SP-1	69.3	64	61	55.8	55	50	51	48.1	48	48	47	46	54.2	41.3	48.5	60.4	45.8	38.9	44.5	38.6	38.1	34.2	31.2	29.9	29.4	30.1	30.8	31.8	32.8	34.3	35.2	36.2	37.2	38.3	39.2	41	51.9
102	2	52072	9/11/2013	NASA P-3B	7	SP-1	68.1	64	61	56.8	54	53	50	47.3	47	47	48	45	53.9	42.3	54.1	64.2	46.6	40.1	46	38.5	38.7	34.7	31.4	29.9	29.3	30	30.7	31.9	32.8	34.3	35.2	36.4	37.2	38.2	39.2	41	54
102	2	52072.5	9/11/2013	NASA P-3B	7	SP-1	68.3	63	61	56.1	56	54	51	46.9	46	47	48	46	53	42.9	57.1	64.9	46.3	40.8	45.7	38.7	39.3	35.1	31.7	30	29.5	29.9	30.6	31.8	32.9	34.3	35.2	36.3	37.1	38.2	39.2	41	55.1
102	2	52073	9/11/2013	NASA P-3B	7	SP-1	67.3	61	60	56.4	57	53	51	47.2	47	47	47	47	54.2	43.8	59.3	64.7	45.4	42.3	46.3	38.4	38.6	34.3	31.2	29.7	29.4	29.9	30.6	31.6	32.7	34.2	35.3	36.4	37.1	38.3	39.3	41	54.8
102	2	52073.5	9/11/2013	NASA P-3B	7	SP-1	65.7	62	60	57.6	56	53	52	48	47	46	47	51	55.2	43.5	60.9	64	45.5	43.2	46.5	38	38.3	34	31	29.8	29.3	29.9	30.7	31.8	32.8	34.1	35.2	36.2	37.2	38.3	39.3	41	54
102	2	52074	9/11/2013	NASA P-3B	7	SP-1	64.5	61	64	59.7	56	54	52	48.2	47	46	48	51	54.2	43.9	60.8	62.6	45.6	43.6	46.3	39.5	40	34.8	31.5	30	29.1	29.7	30.6	32	32.8	34.1	35.2	36.3	37.1	38.3	39.4	40.9	53.5

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	2	52074.5	9/11/2013	NASA P-3B	7	SP-1	64.3	60	64	62.2	55	53	52	46.9	47	47	48	54	55	43	60.7	61	45.6	43.7	45.5	39	39.1	35.2	31.5	29.7	29.3	29.7	30.5	32.3	32.8	34.1	35.3	36.2	37.1	38.4	39.3	40.9	53.4
102	2	52075	9/11/2013	NASA P-3B	7	SP-1	65.2	60	63	61.6	54	52	51	47	46	47	47	57	54.9	44.3	65.2	61.2	46.4	44.9	45.3	40.2	38.7	35.6	32.3	30.1	29.3	29.8	30.7	32.1	32.7	34	35.4	36.3	37	38.3	39.3	40.9	55.3
102	2	52075.5	9/11/2013	NASA P-3B	7	SP-1	65.9	66	67	61	54	52	51	46.1	47	47	48	57	53.8	46.2	66.5	60.2	47.9	48.8	46.6	42.7	40.1	37.6	33.8	30.4	29.6	29.9	30.7	31.9	32.8	34.2	35.4	36.2	37.1	38.3	39.3	40.9	57.2
102	2	52076	9/11/2013	NASA P-3B	7	SP-1	69.8	67	68	59.4	52	52	49	47	48	46	48	56	52.8	47.2	69.5	59.6	47.6	50.1	46.8	43.6	40.5	38.1	34.2	31	29.6	29.8	30.7	31.8	32.7	34.2	35.5	36.2	37.1	38.3	39.3	40.9	57.3
102	2	52076.5	9/11/2013	NASA P-3B	7	SP-1	69.8	66	66	58.3	53	51	49	46.8	48	47	48	57	51.9	47.6	67.9	57.9	47.3	53.3	46.4	44.1	40.1	38.3	34.2	30.8	29.5	30	30.9	31.9	32.7	34.3	35.4	36.2	37.2	38.3	39.2	40.9	56.8
102	2	52077	9/11/2013	NASA P-3B	7	SP-1	68	66	64	56.7	51	50	48	48.3	49	46	48	59	51.7	47.2	68.3	56.1	46.3	53.8	45.4	43.6	39.7	37.7	33.7	31.2	29.3	30.1	30.8	32	32.7	34.2	35.3	36.3	37.3	38.3	39.3	41	56.4
102	2	52077.5	9/11/2013	NASA P-3B	7	SP-1	67.7	66	62	54.9	50	51	48	46.8	48	46	48	58	51.3	47.5	66.7	54.3	45.9	53.7	44.1	42.8	39	36.7	32.9	31	29.4	30.1	30.8	32.3	32.7	34.2	35.2	36.3	37.2	38.3	39.3	41	55.4
102	2	52078	9/11/2013	NASA P-3B	7	SP-1	66.6	66	61	53.7	48	50	47	46.3	48	46	49	56	50.8	47.4	66.9	52.9	47.1	53.2	43.8	43	38.9	35.9	32.2	30.7	29.5	29.9	30.9	32.1	32.8	34.2	35.2	36.3	37.2	38.3	39.3	40.9	55.4
102	2	52078.5	9/11/2013	NASA P-3B	7	SP-1	65.3	67	60	53	50	50	48	49.6	51	49	48	56	50.3	48.2	66.2	51.8	47.9	53.1	44.1	43.1	39.8	36.3	33.3	31.9	29.8	30	30.8	32.1	32.8	34.2	35.2	36.3	37.2	38.3	39.3	41	54.5
102	2	52079	9/11/2013	NASA P-3B	7	SP-1	64.3	65	59	54.6	52	57	55	52.7	53	48	49	55	50	49.3	64.9	51.6	47.4	53.8	43.8	43.2	40.5	37	33.9	32.4	30.3	30.2	30.8	32	33.1	34.1	35	36.2	37.2	38.3	39.2	41	54.4
102	2	52079.5	9/11/2013	NASA P-3B	7	SP-1	63.7	63	58	54.9	58	59	58	53.1	52	49	48	54	49.4	48.5	64.6	50.5	46.2	53.3	43.9	43.5	41.2	37.9	34.7	33.3	30.6	30	30.8	32.1	32.9	34	35.1	36.3	37.2	38.3	39.2	41	53.3
102	2	52080	9/11/2013	NASA P-3B	7	SP-1	62	61	57	65.4	63	59	58	57.2	54	50	49	53	48.7	49.1	63.7	49.5	45.7	52.5	42.7	42.9	40	36.6	33.6	32.3	30.1	30	30.9	32.2	32.9	34	35.1	36.3	37.3	38.2	39.2	41	53.2
102	2	52080.5	9/11/2013	NASA P-3B	7	SP-1	60.1	60	64	68.3	64	59	61	59.8	55	51	49	55	49	49.1	64.2	48.9	45.9	52.4	42.5	42.5	39.2	36	33.1	31.8	30	29.8	31	32.5	32.8	33.9	35.1	36.2	37.2	38.2	39.3	41	52.6
102	2	52081	9/11/2013	NASA P-3B	7	SP-1	58.2	59	63	67.1	64	62	64	61	56	51	50	54	48.4	49.1	62.7	48.9	45.2	53.9	42.5	43.6	40.6	36.2	33.2	32	29.9	29.9	30.9	32.2	32.7	33.8	35	36.2	37.2	38.3	39.3	40.9	53.1
102	2	52081.5	9/11/2013	NASA P-3B	7	SP-1	58.4	61	67	67.6	64	64	63	60	55	51	49	54	48.4	50.3	65	49.9	45	54.4	43.1	43.8	40.9	36.3	33.7	32.3	30	30.1	30.8	32	32.6	34	35.1	36.2	37.2	38.3	39.4	40.9	53.8
102	2	52082	9/11/2013	NASA P-3B	7	SP-1	59.1	66	67	70.2	68	64	63	59.4	55	49	49	56	49.1	50.4	64	51.7	46.5	56	44.9	44.7	41.2	37	33.9	32.5	30.1	30.1	30.8	31.9	32.9	34.1	35.2	36.3	37.2	38.3	39.3	40.9	54.5
102	2	52082.5	9/11/2013	NASA P-3B	7	SP-1	62.2	68	70	71.9	68	64	63	58.2	54	50	50	59	49	50.2	66.4	51.9	46	56.5	45.2	45.9	42.4	38.4	35.9	34.6	31	30.1	30.8	31.9	32.8	34	35.2	36.2	37.2	38.3	39.4	41	55.8
102	2	52083	9/11/2013	NASA P-3B	7	SP-1	64.2	69	71	71	68	63	62	59	53	51	50	61	48.4	50.8	66.8	51.5	45.5	56	44.4	45.4	41.9	38	35.8	33.9	30.7	29.9	30.7	31.8	32.7	33.9	35.1	36.3	37.2	38.3	39.3	40.9	54.7
102	2	52083.5	9/11/2013	NASA P-3B	7	SP-1	66.7	70	72	70.1	66	62	61	57.6	52	50	49	60	48.9	52.3	65.2	50.5	44.8	54.9	44	44.3	40.7	36.9	35	33	30.8	29.7	30.7	32.2	32.8	33.9	35.2	36.3	37.2	38.3	39.3	40.9	54
102	2	52084	9/11/2013	NASA P-3B	7	SP-1	68.3	72	70	69.1	66	62	60	55.8	51	51	50	59	49.1	54.8	65.4	50	44.5	53.9	43.2	43.7	40.6	36.9	34.8	32.8	30.7	29.7	30.6	32.1	33	34	35.2	36.2	37.1	38.3	39.3	41	53.7
102	2	52084.5	9/11/2013	NASA P-3B	7	SP-1	68.8	75	68	69.9	65	62	58	54.4	50	50	50	59	48.2	56.3	64.3	49.8	45.8	53.3	43.3	44.3	41.6	38.5	36	32.9	31	29.7	30.7	31.9	32.9	34.1	35.1	36.2	37.1	38.3	39.3	41	53.6
102	2	52085	9/11/2013	NASA P-3B	7	SP-1	73.3	74	69	70.2	64	60	57	52.4	48	50	51	59	48.1	59.3	64.4	49.8	46.9	52.6	43.3	44	41.5	38	36.2	33.1	31.1	29.9	30.8	31.8	32.9	34.2	35.1	36.2	37.1	38.3	39.2	41	53.6
102	2	52085.5	9/11/2013	NASA P-3B	7	SP-1	76.4	73	69	68.3	63	59	56	51	48	48	55	59	48.1	60.9	63.6	48.8	47.8	51.7	43.2	43.5	41.2	37.1	36.7	32.9	30.7	29.9	30.7	31.8	32.8	34	35	36.3	37.2	38.3	39.3	41	52.7
102	2	52086	9/11/2013	NASA P-3B	7	SP-1	76.2	71	67	68	63	58	54	49.9	48	48	56	59	47.5	59.8	61.7	48.2	47.4	50.8	42.5	42.7	40.3	36.4	36	32	30.3	29.6	30.7	31.8	32.7	34	35.1	36.3	37.3	38.3	39.2	41	51.4
102	2	52086.5	9/11/2013	NASA P-3B	7	SP-1	75.7	71	66	66.6	61	57	53	50.1	48	47	55	58	47	59	60	48.1	46.5	49.7	42.4	42	39.1	35.5	35.4	31.6	29.9	29.8	30.6	32.3	32.9	34.2	35.1	36.3	37.3	38.3	39.2	40.9	50.4
102	2	52087	9/11/2013	NASA P-3B	7	SP-1	75	70	65	65.3	60	56	52	49.3	47	47	55	57	45.7	58.4	58.2	47.3	45.3	48.7	41.7	41.9	38.3	35	34.7	31.3	29.9	29.8	30.6	32.5	32.8	34.3	35.1	36.2	37.3	38.3	39.1	41	49.4
102	2	52087.5	9/11/2013	NASA P-3B	7	SP-1	74.1	68	63	63.4	59	54	51	50.5	48	48	60	57	45	57	56.4	46.4	44.6	47.9	40.4	41.7	37.8	34.7	34.6	31.2	29.8	30	30.6	32.2	32.6	34.1	35.1	36.3	37.2	38.2	39.1	41	48.9
102	2	52088	9/11/2013	NASA P-3B	7	SP-1	72.5	67	63	64.1	58	53	51	49.7	46	47	64	57	43.9	56.9	54.8	46.6	42.9	47.6	39.9	42.6	37.8	34	34.2	30.9	29.8	30.3	30.8	32	32.8	34.1	35.1	36.2	37.2	38.2	39.3	41	48.6
102	2	52088.5	9/11/2013	NASA P-3B	7	SP-1	73.1	66	64	63	57	53	50	49.2	46	46	65	56	44.8	55.9	53.5	45.9	42.2	47.2	39.6	42.2	37.7	34.2	34.1	31.1	29.9	30	30.7	31.8	32.8	34.3	35.1	36.3	37.2	38.3	39.2	41	48
102	2	52089	9/11/2013	NASA P-3B	7	SP-1	72	66	63	61.8	55	52	49	49.4	47	46	64	57	44.9	54.8	52.2	46.6	41.4	46.7	39.6	42.2	37.6	33.8	33.6	30.7	29.4	29.9	30.9	31.8	32.7	34.1	35.3	36.3	37.2	38.3	39.2	41	47.4
102	2	52089.5	9/11/2013	NASA P-3B	7	SP-1	71.4	66	62	60.2	54	52	49	48	46	47	62	56	44.7	54.2	50.9	47.3	41.6	46.6	39.7	42.5	38.4	34.2	34.2	31.3	29.8	30.1	30.9	32.2	32.8	34.1	35.3	36.2	37.3	38.3	39.3	41	47.7
102	2	52090	9/11/2013	NASA P-3B	7	SP-1	70	64	60	59	55	51	47	47.8	45	47	63	55	44.5	53.4	51.2	46.9	41.7	47.3	40.9	43.9	38.5	34.8	35.1	31.9	29.7	30	30.7	32.2	32.6	34	35.2	36.1	37.3	38.3	39.4	41	48.2
102	2	52090.5	9/11/2013	NASA P-3B	7	SP-1	68.1	63	62	60.1	55	50	46	46.9	46	50	65	55	43.8	51.9	51.1	47.2	41.7	47.3	40.4	43.7	38	34.5	35.2	32.2	29.9	29.8	30.7	32.1	32.8	34.1	35.1	36.1	37.3	38.2	39.4	41	48.3
102	2	52091	9/11/2013	NASA P-3B	7	SP-1	66.5	63	62	58.7	54	55	54	47.4	47	49	67	55	44.8	51.6	50.9	48.1	41.4	47	40.8	43.7	37.8	34.6	34.8	31.8	29.7	29.9	30.8	32	32.8	34.1	35.1	36	37.2	38.3	39.3	41	48.1
102	2	52091.5	9/11/2013	NASA P-3B	7	SP-1	66.2	65	61	57	56	60	53	48.1	47	49	66	55	45.1	50.4	50.6	47.7	40.5	47.1	41.4	44.6	38.5	35.8	36.5	32.3	30.1	30	30.6	31.9	32.5	34.1	35.1	36.2	37.2	38.3	39.4	41	48.2
102	2	52092	9/11/2013	NASA P-3B	7	SP-1	69	66	59	59.1	57	58	52	47.9	46	47	66	54	45.5	51.1	49.8	47.4	40.8	46.9	41.7	44.8	38.4	35.9	36.4	32.1	30.2	29.9	30.6	31.7	32.6	34	35.3	36.2	37.2	38.3	39.3	41	48
102	2	52092.5	9/11/2013	NASA P-3B	7	SP-1	68.4	66	64	63.9	57	56	50	48.6	45	46	64	53	45.8	51.5	49.8	47.1	40.2	46.6	41.9	44.1	38.6	36.2	36.4	32.5	30.1	29.7	30.6	31.9	32.7	34	35.3	36.2	37.1	38.3	39.2	40.9	47.7
102	2	52093	9/11/2013	NASA P-3B	7	SP-1	66.9	65	66	63.2	56	54	48	48.7	45	45	63	52	45.7	50.7	49.1	46.6	39.2	46	41.3	43.5	38.2	35.6	35.8	32	29.9	29.7	30.8	33.6	32.7	34	35.2	36.2	37.2	38.3	39.2	41	47.3
102	2	52093.5	9/11/2013	NASA P-3B	7	SP-1	65	64	64	61.6	55	53	47	47.6	44	46	64	52	45.6	50	48.6	45.9	38.2	45	40.7	42.3	37.6	35.3	35	31.4	29.9	29.9	30.8	32.9	32.6	33.9	35.4	36.3	37.1	38.3	39.3	41	46.7
102	2	52094	9/11/2013	NASA P-3B	7	SP-1	65	62	62	59.6	55	51	46	48.4	44	46	65	52	45	49.3	48.8	45.5	37.4	44.2	39.9	41.2	36.4	34.6	34.2	30.9	29.7	30	30.6	32.4	32.7	34	35.4	36.2	37.1	38.4	39.3	40.9	46.2
102	3	52244	9/11/2013	NASA P-3B	7	SP-1	73.2	69	65	62.9	60	57	57	53.2	50	51	47	45	56.6	38.1	44.9	50	50.4	46.8	40.9	45.6	38.5	38.7	34.7	34.2	32.1	31.9	31.6	32.4	33	34.2	35.2	36.3	37.1	38.3	39.2	40.9	49.1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	3	52244.5	9/11/2013	NASA P-3B	7	SP-1	73	68	64	64.3	61	58	56	52.3	50	51	46	48	58.8	38.6	46	52.1	51.2	46.7	42	45.6	39.9	40	36.6	34.8	32.5	32.2	31.5	32.4	32.9	34.2	35.3	36.2	37.1	38.3	39.2	41	50.4
102	3	52245	9/11/2013	NASA P-3B	7	SP-1	71.4	67	64	66.6	61	58	55	51.9	50	50	46	49	57.5	39.4	51.1	57.7	52.1	46.7	42.4	46.7	40.5	40.6	37.5	35.2	33.9	32.2	31.5	32.2	32.9	34.1	35.2	36.2	37	38.2	39.3	41	51.6
102	3	52245.5	9/11/2013	NASA P-3B	7	SP-1	69.8	65	70	64.9	62	57	54	50.9	50	49	47	52	59.1	40.8	53.6	59.1	53.2	47.5	45	47.3	41	40.7	38.7	35.9	33.9	31.9	31.4	32.1	32.7	34.1	35.2	36.1	37.1	38.2	39.3	40.9	53.8
102	3	52246	9/11/2013	NASA P-3B	7	SP-1	71.5	67	69	63.6	62	56	53	50.2	49	49	47	58	60.9	41	57.6	60.4	54.6	47	47.3	47.5	43	40.4	38.6	35.7	33.3	31.6	31.2	31.8	32.8	34.1	35.1	36.2	37.2	38.2	39.3	41	54
102	3	52246.5	9/11/2013	NASA P-3B	7	SP-1	70.7	69	68	63.4	63	56	56	52.7	51	49	48	60	60.7	41.5	57.4	59.5	54.2	46.2	48	47.2	44.5	41.3	39.1	36.2	33.7	31.9	31.2	32.1	33	34	35.1	36.2	37.2	38.3	39.3	40.9	53.7
102	3	52247	9/11/2013	NASA P-3B	7	SP-1	70.3	70	66	64.9	62	59	59	55.7	53	50	48	60	59.2	42	57.1	58.1	53.9	45.4	47.4	46.2	44.4	41	39.1	36.5	33.9	32.2	31.1	31.8	32.9	34	35.1	36.2	37.3	38.4	39.3	41	53.2
102	3	52247.5	9/11/2013	NASA P-3B	7	SP-1	74.3	69	67	64.2	63	62	59	55.1	52	49	49	60	58.4	43	57.8	57.3	54.7	44.6	48.6	45.6	43.4	40.2	38.1	35.6	32.9	31.5	31.5	32	32.9	33.9	35	36.2	37.2	38.3	39.3	41	53.4
102	3	52248	9/11/2013	NASA P-3B	7	SP-1	75.8	68	67	62.7	66	61	61	55.9	53	49	49	62	57.5	43.1	58.9	56.6	57.5	45.8	50.5	45.7	45.2	40.7	38.3	35.8	33.9	32	31.4	32.1	32.9	33.8	35	36.1	37.2	38.2	39.3	41	54.8
102	3	52248.5	9/11/2013	NASA P-3B	7	SP-1	75.5	68	66	65.3	65	65	61	55.5	51	48	47	61	55.6	43.8	61.8	56.3	58	45.9	49.7	44.7	44.9	41.1	38.6	36	34.3	31.8	31.3	31.9	32.9	33.9	35	36.3	37.3	38.2	39.3	41	55.2
102	3	52249	9/11/2013	NASA P-3B	7	SP-1	75.1	69	67	67.3	66	64	60	54.7	51	48	47	60	54	44	63.9	55.6	58.5	46.6	50.5	44	46.1	41.3	39.2	37.1	35.3	31.9	31.3	31.8	32.7	33.9	35.1	36.3	37.3	38.2	39.3	41	56.6
102	3	52249.5	9/11/2013	NASA P-3B	7	SP-1	73.1	69	70	67.9	67	62	58	53	52	48	46	62	52.4	45.4	66.1	54.7	58	45.8	49.3	42.9	45.3	40.7	38.1	36.1	34.3	31.6	31.2	31.8	32.7	33.8	35.1	36.4	37.2	38.3	39.3	40.9	56
102	3	52250	9/11/2013	NASA P-3B	7	SP-1	72	68	73	67.8	66	61	56	51.6	53	47	46	64	50.7	45.7	65.5	54.1	57.3	44.9	48.9	42.3	44.4	40.4	37.9	36.4	33.6	31.4	31.4	31.9	32.9	33.8	35.1	36.3	37.2	38.2	39.3	41	55.9
102	3	52250.5	9/11/2013	NASA P-3B	7	SP-1	71.6	70	72	67.7	64	59	54	50.3	53	47	46	63	49	45.6	66.3	53.5	56.7	45.3	49.2	41.9	44.2	40.5	37.5	37	35.1	32.1	31.5	31.8	32.8	33.9	35.3	36.3	37.1	38.2	39.3	40.9	56
102	3	52251	9/11/2013	NASA P-3B	7	SP-1	72.5	73	70	65.9	63	58	53	49.7	53	47	46	61	47.6	46.4	65.9	53.5	57.7	46.6	49.7	42	43.3	39.3	36.7	36.3	34.3	31.6	31.4	31.7	32.8	34.2	35.1	36.2	37.2	38.2	39.3	40.9	56.7
102	3	52251.5	9/11/2013	NASA P-3B	7	SP-1	72.3	76	68	64.1	61	57	52	50.2	52	48	46	62	46.4	47.8	69.4	53.6	57.9	46.4	50.8	43.8	44.3	42.2	38.8	37.1	34.5	32.1	31.4	31.8	32.7	34	35	36.3	37.2	38.2	39.3	40.9	58.4
102	3	52252	9/11/2013	NASA P-3B	7	SP-1	76.7	75	67	62.5	60	55	52	50.3	51	49	47	65	45.5	47.3	69	54.6	57.4	46.9	50.7	44.4	44.3	43.7	42.2	39.6	36.7	32.8	31.6	31.8	32.8	34	35	36.4	37.3	38.2	39.3	40.9	57.6
102	3	52252.5	9/11/2013	NASA P-3B	7	SP-1	75.9	74	66	61.5	59	58	54	54.2	51	48	46	66	45.1	47.5	69	54.2	57.2	47.5	49.7	43.5	43	42.4	40.9	38.4	35.7	33.3	31.5	31.9	32.7	34	34.9	36.2	37.2	38.2	39.3	40.9	58.2
102	3	52253	9/11/2013	NASA P-3B	7	SP-1	74.4	72	65	60.8	59	58	53	53.3	52	48	48	64	45.2	47.5	70.1	54.5	56.8	48.4	49.3	44.2	44.1	42.6	41.7	39.9	38.3	34	31.9	32.1	32.7	34	35	36.2	37.2	38.3	39.4	40.9	58
102	3	52253.5	9/11/2013	NASA P-3B	7	SP-1	72.6	70	65	62.3	62	57	52	51.9	50	47	48	64	44.7	49.5	69.6	53.5	55.6	49.9	50.4	45	45	43.2	41.7	39.6	37.5	33.5	31.6	32.2	32.7	34	35	36.3	37.3	38.2	39.3	40.9	58.9
102	3	52254	9/11/2013	NASA P-3B	7	SP-1	70.9	69	67	62.4	61	56	52	50.6	50	52	49	65	45	49.7	71.6	54	55.8	50.8	51.2	46.9	45.3	43.3	41.7	39.9	38.6	34	31.9	32.1	32.8	33.9	35	36.3	37.3	38.3	39.3	40.9	59
102	3	52254.5	9/11/2013	NASA P-3B	7	SP-1	69.2	67	68	62.5	60	58	57	53.6	54	53	49	65	45.8	48.9	70.2	53.8	54.4	50.2	50.1	46.1	44.2	42.8	40.9	39.7	38.4	33.5	31.8	32	32.8	33.9	35.1	36.2	37.3	38.2	39.4	41	58
102	3	52255	9/11/2013	NASA P-3B	7	SP-1	67.9	66	68	62	59	62	59	57.6	55	54	49	64	46.6	50.5	71	55	53.7	50.2	48.8	45.3	42.7	41.7	40	38.8	37.5	33.3	31.8	32.2	32.9	33.8	35.1	36.2	37.3	38.2	39.4	41	59.3
102	3	52255.5	9/11/2013	NASA P-3B	7	SP-1	68.4	66	66	61	67	62	60	57.8	55	55	52	62	46.9	51.8	72.3	56.3	53.1	51	49.4	47.2	43.9	43.1	41.1	41.3	38.4	33.8	31.9	32	32.9	33.7	35.1	36.2	37.3	38.3	39.4	41.1	59.3
102	3	52256	9/11/2013	NASA P-3B	7	SP-1	68.3	66	71	67.7	67	63	63	59.9	60	55	52	62	46.5	53.6	71	59	53.2	50.7	48.6	46.5	43.4	42.5	40.5	40.3	37.4	33.3	31.6	32	32.9	33.9	34.9	36.3	37.4	38.3	39.4	41.1	58.1
102	3	52256.5	9/11/2013	NASA P-3B	7	SP-1	67.8	67	73	67.3	68	70	70	60.1	60	55	54	63	46.3	56.5	69.6	58.1	51.4	50.1	47.4	45.9	42.4	41.8	40.4	40.2	37.6	33.4	31.6	32.1	33	33.9	34.9	36.2	37.3	38.3	39.4	41	57.2
102	3	52257	9/11/2013	NASA P-3B	7	SP-1	66.1	67	73	69.5	67	70	68	60	60	54	57	64	46.1	58.5	68.2	57.3	49.7	49.7	47.7	46.2	42.5	41.7	40.3	39.3	36.8	33	31.4	32.2	32.9	33.9	35	36.2	37.2	38.3	39.2	41	56.3
102	3	52257.5	9/11/2013	NASA P-3B	7	SP-1	67.2	69	73	74.9	73	69	67	60.8	59	55	63	65	45.8	61.6	66.9	56.9	48.1	48.8	46.5	45.4	41.3	40.5	39.1	38.3	35.9	33.6	31.4	32.1	32.7	33.8	35	36.3	37.2	38.3	39.3	41	55.8
102	3	52258	9/11/2013	NASA P-3B	7	SP-1	70	69	74	74.9	72	68	66	60.8	58	54	66	65	46.1	64.3	65.3	56	47.2	49.5	46.8	47.2	43.5	41.7	41.7	40.9	38.5	34.3	31.7	32.1	32.8	33.9	35	36.3	37.2	38.3	39.3	40.9	56.2
102	3	52258.5	9/11/2013	NASA P-3B	7	SP-1	72.5	71	74	73.6	71	67	64	59.5	57	53	69	65	47.5	65	63.7	57.3	46.1	49.4	46.9	47.2	43.5	42.9	42.9	42.2	39.3	34.6	31.7	32	32.8	33.9	35	36.4	37.2	38.3	39.4	41	56.3
102	3	52259	9/11/2013	NASA P-3B	7	SP-1	71.5	70	74	72	70	67	64	59.9	56	53	71	64	48	66.5	62	58.4	45	49.6	47.1	47.7	43.8	43.6	43.5	42.2	39.2	34.9	32	32	32.7	33.8	35.1	36.4	37.2	38.3	39.3	41	57.1
102	3	52259.5	9/11/2013	NASA P-3B	7	SP-1	71.4	77	72	71	70	66	65	59.8	54	52	72	62	47.9	69.2	60.6	58.1	44.3	51	47.7	47.9	44.2	44	45	42.4	39.8	35.9	32.4	32.2	32.7	34.1	35.2	36.3	37.1	38.2	39.3	41	57.5
102	3	52260	9/11/2013	NASA P-3B	7	SP-1	74	81	72	71.8	69	68	65	59	53	51	70	61	47.6	68.9	59.1	59.3	44.6	51	47.7	48.3	43.9	44.4	46	43.4	40.7	36.5	32.7	32.2	32.8	34	35.2	36.2	37.2	38.2	39.2	41	57.1
102	3	52260.5	9/11/2013	NASA P-3B	7	SP-1	80.7	79	73	70.5	68	67	63	59.2	53	51	70	60	46.7	67.5	57.7	58.2	44.4	50.7	48.4	48.3	44.4	45.5	46.9	43.8	40.7	36.4	32.7	32.2	32.9	34	35.2	36.2	37.1	38.3	39.3	41	56.8
102	3	52261	9/11/2013	NASA P-3B	7	SP-1	80.1	77	74	70.4	68	66	63	58.1	51	49	70	58	46.4	66.6	56.2	56.6	44	50.2	48.4	48	44.1	45.2	46.5	43.6	40.4	36.2	32.4	32.1	32.7	33.9	35.1	36.2	37.1	38.2	39.3	41	56
102	3	52261.5	9/11/2013	NASA P-3B	7	SP-1	78.1	77	74	70.7	67	65	61	57	51	49	71	56	45.8	65	55	54.9	43.6	48.8	47	46.7	42.9	44	45.2	42.2	39	35.1	31.9	31.9	32.8	33.9	35.2	36.3	37.1	38.3	39.3	41	54.6
102	3	52262	9/11/2013	NASA P-3B	7	SP-1	76.4	75	72	71.5	65	64	60	55.6	51	49	72	56	44.8	63.3	53.6	53.7	42.7	47.2	45.6	45.2	41.6	42.7	43.5	40.8	37.8	34.5	31.6	31.9	32.8	33.9	35.2	36.2	37.1	38.3	39.3	41	53.5
102	3	52262.5	9/11/2013	NASA P-3B	7	SP-1	74.6	74	71	70	64	64	58	54.6	50	50	71	55	44.6	62.9	53.3	53.3	44	47.1	46.8	45.4	42.6	43	43.4	41.3	38	34.8	31.6	32	32.8	33.8	35.1	36.1	37.1	38.3	39.4	40.9	53.6
102	3	52263	9/11/2013	NASA P-3B	7	SP-1	73.7	75	70	68.6	64	63	57	56.4	50	51	71	55	44.2	62	53.5	54.1	44.9	46.6	47.3	44.4	42	42.4	42.9	41	37.8	34	31.5	31.9	32.9	33.8	35	36.1	37.2	38.3	39.2	40.9	52.9
102	3	52263.5	9/11/2013	NASA P-3B	7	SP-1	73	75	72	69.5	65	62	57	55.2	51	52	70	55	43.7	60.2	53.1	53.4	44.2	45.1	46.4	43.3	41.3	41.5	41.9	39.9	36.5	33.1	31.1	31.8	32.9	33.9	35	36.1	37.3	38.3	39.4	41	52.1
102	3	52264	9/11/2013	NASA P-3B	7	SP-1	71.3	74	72	69.7	64	61	58	55.1	51	51	71	54	43.1	58.6	51.8	52.6	43.9	44.3	46.2	42.1	41	40.6	41.5	39.2	35.7	32.6	31.2	31.9	32.7	33.9	35	36.2	37.3	38.2	39.3	41	51.9
102	3	52264.5	9/11/2013	NASA P-3B	7	SP-1	71.8	74	70	68	63	61	59	55.8	53	50	73	55	43.5	57.2	51.1	51.9	44.3	44.6	46.6	42	41.2	41.4	43.5	39.9	35.9	32.9	31.2	31.9	32.8	34	35	36.2	37.2	38.2	39.3	41	52.2

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	3	52265	9/11/2013	NASA P-3B	7	SP-1	70.9	73	70	68.2	62	62	60	54.8	52	50	73	54	43.3	55.7	51.1	52.5	45.8	44.3	47.8	41.7	41.2	41.4	43.5	41	36.3	32.9	31.3	32	32.7	34	35	36.3	37.2	38.3	39.3	41	52.5
102	3	52265.5	9/11/2013	NASA P-3B	7	SP-1	71.9	72	69	66.9	64	61	58	54.8	53	51	74	54	42.6	54	50.8	52.2	46.4	44.7	48	41.7	42	41.3	43.4	41.1	35.8	32.6	31.2	32.2	32.7	33.9	35	36.3	37.2	38.2	39.2	41	51.9
102	3	52266	9/11/2013	NASA P-3B	7	SP-1	72.2	71	68	66.5	66	61	59	57.8	54	50	72	54	43.8	52.5	49.9	51.2	45.8	43.5	47	41.1	41.2	41.3	43.4	42.3	36.3	33	31.2	32.2	32.8	34	34.8	36.2	37.2	38.3	39.2	40.9	51.4
102	3	52266.5	9/11/2013	NASA P-3B	7	SP-1	70.4	70	71	70.2	65	62	58	56.8	52	52	71	55	44.1	50.9	49.2	49.9	45.9	42.7	46	40.5	41.2	40.8	42.7	41.6	36.4	32.8	31.1	32	33	33.9	34.9	36.2	37.2	38.3	39.2	41	50.9
102	3	52267	9/11/2013	NASA P-3B	7	SP-1	68.8	71	73	69.5	67	62	61	56.7	55	55	71	55	44.5	49.3	48.8	50	45.9	41.8	45.8	40.6	42.1	41.3	43.4	41.8	37	33.5	31.2	32.1	33	34	34.9	36.2	37.3	38.3	39.2	41	51.6
102	3	52267.5	9/11/2013	NASA P-3B	7	SP-1	68.7	70	72	68.6	66	62	63	63.2	58	56	72	55	43.4	47.9	48.1	50.2	46.8	41.5	46.4	42.1	43.3	43.1	44.5	42.7	37.5	34	31.1	32.1	32.8	34	35	36.2	37.2	38.2	39.2	40.9	52.3
102	3	52268	9/11/2013	NASA P-3B	7	SP-1	69	72	72	68.9	67	66	63	61.4	57	59	73	57	42.8	47.3	50.5	51	48.3	41.3	46.9	42.4	43.7	44	45.6	42.6	37.7	33.8	31.3	32	32.7	33.9	35	36.2	37.3	38.2	39.2	41	52.9
102	3	52268.5	9/11/2013	NASA P-3B	7	SP-1	68.5	71	72	69.9	70	65	61	59.3	55	62	73	56	43.9	46.2	50.8	50.5	48.9	41.4	45.9	41.7	42.7	43.5	45.2	41.4	36.7	33	31.1	31.9	32.7	34	35.1	36.2	37.3	38.2	39.2	40.9	52.2
102	3	52269	9/11/2013	NASA P-3B	7	SP-1	68.6	69	73	70.7	69	63	60	58.5	54	63	73	55	43.8	45.2	49.7	50.2	48.9	40.7	45	41.2	41.4	42.3	43.8	40.1	35.6	32.1	30.9	31.9	32.8	34	35.1	36.2	37.3	38.3	39.3	41	51.1
102	3	52269.5	9/11/2013	NASA P-3B	7	SP-1	68.4	70	75	71.1	68	63	60	57.3	53	63	72	53	42.9	44.2	49	49.9	48.4	40.2	44.9	41.4	40.9	42.4	43.7	39.5	35.1	32.1	31	31.8	32.6	34.1	35.1	36.1	37.3	38.3	39.2	40.9	50.6
102	3	52270	9/11/2013	NASA P-3B	7	SP-1	69.5	70	74	69.3	66	62	58	56.4	52	62	70	53	42.3	43.3	48.5	49.1	47.7	40	44.3	41.1	40.3	41.7	42.7	38.4	34.2	31.7	31.2	31.8	32.8	34.1	35.1	36.3	37.3	38.2	39.3	40.9	49.6
102	3	52270.5	9/11/2013	NASA P-3B	7	SP-1	71	71	72	68.8	65	61	57	55.7	52	60	68	53	42.2	43.2	48.4	48.7	47.2	40.9	43.5	40.7	39.5	40.6	41.7	37.7	33.7	31.3	31.3	32	32.8	34.1	35	36.1	37.2	38.2	39.3	40.9	49
102	4	52429	9/11/2013	NASA P-3B	7	SP-1	77.2	72	67	67	65	70	70	65.8	59	58	53	55	62.2	51.7	51.2	49.7	44.5	44.4	46.2	46.8	42.6	38.8	36.7	34.9	32.8	32.1	31.3	31.9	32.9	34.1	35	36.2	37.2	38.2	39.3	41	50.8
102	4	52429.5	9/11/2013	NASA P-3B	7	SP-1	76.5	70	66	66.9	71	69	68	64.4	59	58	53	55	62.8	53.7	51.7	49.6	44.5	44.3	49.9	50	47	41.4	38.5	35.6	34.4	32.6	31.5	32	32.9	34	35.1	36.1	37.2	38.3	39.4	41	52.9
102	4	52430	9/11/2013	NASA P-3B	7	SP-1	75.3	73	66	71	73	68	67	64.2	60	58	55	55	62.6	53.7	52.1	49.2	44.8	46.1	50.7	50.5	46.5	41	38.6	35.8	35.3	32.8	31.8	32	32.9	34.1	35.1	36.2	37.1	38.3	39.3	41	53.5
102	4	52430.5	9/11/2013	NASA P-3B	7	SP-1	75.3	75	74	70.9	73	68	69	64.8	60	57	54	55	67.6	53.8	52.1	49.2	44.7	48	50.5	49.5	44.9	40.7	38.8	35.7	35.2	32.7	31.7	32.2	33	34.1	35.2	36.1	37.2	38.3	39.2	41	54.5
102	4	52431	9/11/2013	NASA P-3B	7	SP-1	75.3	76	75	69.7	71	68	67	64.7	59	56	54	55	70.5	53.8	52.2	49.6	44.4	49.9	51	50	44.5	40.4	39.5	36.7	35.5	32.6	31.6	32.2	32.9	34	35	36.1	37.2	38.3	39.2	41	54.8
102	4	52431.5	9/11/2013	NASA P-3B	7	SP-1	74.1	74	73	73.7	71	67	66	63.2	58	55	53	55	70.3	53.1	51.5	50.1	44.7	49.9	51.7	51.7	47	42.5	43.1	39.8	38	34.8	32.1	32.1	32.8	34.1	34.9	36.2	37.3	38.4	39.2	41	55.7
102	4	52432	9/11/2013	NASA P-3B	7	SP-1	72.2	77	74	75.1	70	65	66	62.2	57	54	53	54	70.3	52.6	51	50	45.6	48.9	51	51.1	47.1	41.5	42.3	39.1	37.5	34.1	31.9	32.1	32.9	34.1	34.9	36.2	37.2	38.3	39.2	41	54.9
102	4	52432.5	9/11/2013	NASA P-3B	7	SP-1	78.1	78	73	74	69	65	65	61	56	55	53	54	69.3	52.2	50.6	50.1	46.5	49	49.7	49.5	45.6	41	41.6	38.1	36.9	33.9	31.8	31.9	32.8	34.2	35.1	36.2	37.2	38.2	39.2	41	54
102	4	52433	9/11/2013	NASA P-3B	7	SP-1	79.2	78	72	72.1	67	65	64	60.3	56	54	52	53	68.2	51.6	50.1	51.1	46.9	49	51.4	50.6	45	42.7	42.3	39.7	37.3	35.4	32.4	32.1	32.8	34	35.1	36.3	37.1	38.3	39.3	41	54.6
102	4	52433.5	9/11/2013	NASA P-3B	7	SP-1	79	77	71	70.9	68	65	63	58.7	55	56	52	52	66.6	51	50.4	52.2	47.9	51.1	54.1	52	45.5	44.4	43.2	41.8	39.1	36.9	33.4	32.6	32.7	33.9	35.1	36.2	37.2	38.3	39.3	41	55.6
102	4	52434	9/11/2013	NASA P-3B	7	SP-1	78.5	75	74	71.8	69	64	62	57.1	56	57	52	53	64.7	51.7	49.8	52.7	47.8	51.8	54.8	52	44.8	45.8	43.3	42.7	38.8	36.9	33.3	32.6	32.8	34	35.1	36.2	37.2	38.3	39.3	41	55.5
102	4	52434.5	9/11/2013	NASA P-3B	7	SP-1	77.5	73	76	72.5	68	63	64	59.5	57	56	53	53	63	52.2	49.2	51.4	49.5	51.6	54.1	51.1	43.7	45.6	42.7	43.1	39	37	33.5	32.5	32.9	34	35	36.2	37.2	38.3	39.3	41	55.4
102	4	52435	9/11/2013	NASA P-3B	7	SP-1	76.6	73	75	71.4	67	65	62	58.1	56	55	54	53	61.3	51.6	49.9	50.2	51.1	54	56.6	53.6	46.8	50.4	45.5	47.4	44.2	40.9	36.1	33	33	34.1	35	36.2	37.2	38.3	39.4	41	58.4
102	4	52435.5	9/11/2013	NASA P-3B	7	SP-1	77.1	72	73	71.6	68	64	62	57.6	54	57	54	56	61.6	53.1	49.5	49	53.6	57.8	58.6	53.5	50.2	51.5	47.8	47.8	45.1	41.2	36.3	33.2	33.1	34.1	35	36.2	37.2	38.3	39.3	41	59.5
102	4	52436	9/11/2013	NASA P-3B	7	SP-1	79.6	74	72	70.1	67	66	61	58.7	55	58	56	60	60.9	52.8	50	49.1	55	58.4	58.4	52.4	52.5	51.2	48.8	48.1	45.4	41.6	36.7	33.3	33	33.8	35	36.1	37.1	38.3	39.2	40.9	60.2
102	4	52436.5	9/11/2013	NASA P-3B	7	SP-1	79.3	73	71	69.4	66	68	65	59.9	58	58	57	64	61.8	53.7	49.6	49.8	58.2	59.6	58.6	51.8	54	50.7	50.3	49.2	46	41.6	37.3	33.6	33	34	35	36.1	37.1	38.2	39.2	41	61.2
102	4	52437	9/11/2013	NASA P-3B	7	SP-1	78	71	69	69	67	69	65	59.6	59	57	56	74	62.8	53.1	49.4	49.6	59.3	59.2	58.3	50.4	53.1	49.2	48.9	48.2	45.3	41	36.9	33.6	32.9	34	35	36.1	37.1	38.2	39.2	41	61.2
102	4	52437.5	9/11/2013	NASA P-3B	7	SP-1	76.2	71	68	70.6	68	69	66	59.7	59	58	57	77	61.8	53	51.4	51.9	59.1	59	57.4	49.5	52.7	48.5	48.6	47.9	44.8	40.6	36.7	33.8	33.1	33.9	34.9	36.2	37.1	38.3	39.2	41	60.6
102	4	52438	9/11/2013	NASA P-3B	7	SP-1	74.5	70	70	76	72	68	64	60.1	59	60	57	76	60.1	52.7	50.5	52.1	59.5	58.7	56.3	49	52.3	47.8	47.8	47.1	44.1	40.1	36.4	33.8	33.1	33.9	35	36.2	37.2	38.3	39.1	41	60.4
102	4	52438.5	9/11/2013	NASA P-3B	7	SP-1	73.3	69	73	75.2	71	67	68	64.5	62	59	56	76	58.6	52.1	50	53.7	60	58.8	54.9	50.2	52.6	47.9	47.3	47	44.9	40	36.4	33.8	33.1	33.8	35	36.1	37.2	38.2	39.2	41	60.8
102	4	52439	9/11/2013	NASA P-3B	7	SP-1	72.2	72	72	73.7	70	70	71	64.2	63	59	57	78	57	51	49.1	53.5	60.6	59.2	54	52	53.6	49.7	49.2	48.9	46.8	41.3	37.5	34.2	33.1	33.9	35	36.1	37.2	38.2	39.2	41.1	61.2
102	4	52439.5	9/11/2013	NASA P-3B	7	SP-1	72.6	72	71	72.1	72	70	69	64.3	63	58	57	77	55.6	50.2	49.5	54	60.9	60.1	53.6	52	54	49.4	48.9	49.5	46.7	41	37.2	34	33.2	33.9	35.2	36.1	37.2	38.3	39.3	41.1	61.2
102	4	52440	9/11/2013	NASA P-3B	7	SP-1	73.5	72	71	74.6	75	68	68	63.6	62	57	56	76	54.6	49.9	50.8	56.2	62.4	60.3	53.4	52.1	53.4	49.7	48.8	49.5	48	41.6	37.9	34.8	33.5	33.9	35	36.2	37.2	38.3	39.3	41.1	61.5
102	4	52440.5	9/11/2013	NASA P-3B	7	SP-1	73.9	71	76	75.7	73	69	67	64	63	58	55	78	54.6	50.4	53.1	59.8	62.3	60.2	53.3	53.8	53.4	50.8	49.1	50.1	48.4	42.4	38.9	35.2	33.7	34	35.1	36.2	37.2	38.3	39.3	41	62.7
102	4	52441	9/11/2013	NASA P-3B	7	SP-1	72.7	71	79	74.2	73	68	68	64.8	62	58	59	80	54.5	50.3	55	61.5	62.2	60	53	55.1	53.9	51.5	50.3	51.2	49	43.1	39.8	35.7	34.1	34	35.1	36.2	37.2	38.2	39.3	40.9	62.7
102	4	52441.5	9/11/2013	NASA P-3B	7	SP-1	71.9	71	78	73	73	71	67	64.1	64	57	64	80	54.7	49.3	54.4	61.5	60.7	59.1	51.6	53.8	52.6	50.5	49.3	50.2	47.8	42.1	38.6	35	33.9	34.1	35.1	36.3	37.2	38.2	39.3	41	61.6
102	4	52442	9/11/2013	NASA P-3B	7	SP-1	72.5	72	78	77.2	73	73	67	63.9	64	59	67	78	54.2	48.7	53.7	60.9	59.9	58.6	50.5	53.6	52.5	50.5	48.9	50.2	47.4	41.8	38.1	35.1	33.7	34.1	35	36.2	37.2	38.2	39.3	41	61
102	4	52442.5	9/11/2013	NASA P-3B	7	SP-1	71.5	73	77	75.6	74	72	68	65.1	63	59	71	77	53.6	49.5	52.4	60.5	59.3	57.7	50.2	53.9	53.1	51.4	51	51.1	48.8	43.3	39.4	36.2	34	34.1	35	36.1	37.1	38.3	39.4	41	62.1
102	4	52443	9/11/2013	NASA P-3B	7	SP-1	70.5	77	75	74.4	73	71	67	63.8	63	59	77	76	53.8	50.3	51.5	60.1	59	57.9	50.6	55.4	53.2	51.4	51.1	50.8	48.6	43.3	39.8	36.2	33.9	34.1	35.1	36	37.2	38.4	39.3	41	62.4

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																	
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	4	52443.5	9/11/2013	NASA P-3B	7	SP-1	77.3	78	73	72.7	72	70	66	62.6	62	60	81	75	52.9	51.5	50.3	59.1	58.9	57.3	50.1	54.4	53.2	51.1	51.1	50.4	47.8	43.2	39.5	36	33.8	34	35.1	36.1	37.1	38.3	39.4	41	62
102	4	52444	9/11/2013	NASA P-3B	7	SP-1	77.5	78	76	72.1	71	70	66	65.4	62	59	82	73	53	51.9	49.4	57.7	58.1	57.2	51.4	53.8	53.9	51.3	52.3	51.2	48.1	43.8	39.8	36.2	34	34	35	36.1	37.2	38.3	39.4	41	61.9
102	4	52444.5	9/11/2013	NASA P-3B	7	SP-1	79.3	76	76	72.1	72	70	69	64.1	61	59	81	71	52.8	52.4	48.6	56.7	57.7	57.3	52.6	52.8	53.6	51	52.1	51.3	47.6	43.7	39.3	35.7	33.8	34	35	36.1	37.1	38.3	39.3	41	61.3
102	4	52445	9/11/2013	NASA P-3B	7	SP-1	78.7	76	74	71.3	72	70	68	64.2	60	58	80	69	52.2	55.6	48.3	56.4	57.3	58.6	52.4	52.6	53.6	50.6	51.8	50.9	47.1	43.4	39.1	35.4	33.7	34	35	36.2	37.3	38.3	39.3	41	61.2
102	4	52445.5	9/11/2013	NASA P-3B	7	SP-1	80.3	77	73	70.2	73	70	67	63.2	58	60	78	67	53.5	55.2	48.1	57	58.6	59.3	52.6	52.1	52.9	51	52.6	51.2	47.6	43.9	39	35.4	33.8	34	34.9	36.1	37.3	38.3	39.3	40.9	61.1
102	4	52446	9/11/2013	NASA P-3B	7	SP-1	80.8	75	77	70.6	73	70	66	62.4	59	59	78	65	52.8	54.2	49.1	56.4	57.2	57.9	51.1	50.4	51.5	49.8	52	50.3	46.9	43.2	38.3	35.2	33.6	34	35.1	36.1	37.4	38.4	39.3	40.9	60.3
102	4	52446.5	9/11/2013	NASA P-3B	7	SP-1	79.4	74	77	70.7	72	68	65	62	62	61	79	63	52.6	53.6	49.7	55.4	56.7	57	51.3	49.4	51	49.1	52.7	51.4	46.5	43.6	38.1	35.1	33.5	33.9	35	36	37.3	38.4	39.3	41	60.3
102	4	52447	9/11/2013	NASA P-3B	7	SP-1	77.7	75	75	70.2	70	69	65	63.6	65	59	80	61	51.5	53.7	49.3	54	55.4	55.7	50.3	48.4	50.1	47.8	51.5	50.1	45	42.2	37	34.5	33.2	34.2	35	36.1	37.3	38.3	39.3	41	59.3
102	4	52447.5	9/11/2013	NASA P-3B	7	SP-1	77.7	76	73	69.3	70	71	66	64.4	64	60	80	60	51.4	53.3	48.6	52.7	54.4	54.7	49.3	47	49.3	46.6	50.4	49.2	43.9	41	35.9	34	33.2	34	35	36.1	37.3	38.3	39.3	41	58.2
102	4	52448	9/11/2013	NASA P-3B	7	SP-1	78.3	75	72	69.6	70	70	67	65.3	63	60	79	58	51.1	52.5	48.4	51.4	53.3	53.7	48.7	45.6	48.2	45.7	50.5	48.1	43.6	40.4	35.8	33.9	33.2	34	35	36.1	37.3	38.2	39.3	41	57.3
102	4	52448.5	9/11/2013	NASA P-3B	7	SP-1	80	78	74	77.6	75	71	68	65.9	62	59	77	57	51.1	52.5	47.3	49.8	52.5	53.2	48.4	44.3	47.1	44.9	49.4	47	42.7	39.3	35.2	33.7	33.1	34	34.9	36.1	37.2	38.2	39.2	41	56.1
102	4	52449	9/11/2013	NASA P-3B	7	SP-1	79.2	77	76	78.8	74	70	68	64.4	60	58	76	57	51.7	54.4	46.3	48.9	52.5	54	51.7	46.4	46.8	45.1	48.8	47	42.4	39.3	35.2	33.6	33.1	33.8	35	36.2	37.2	38.1	39.2	41	56.7
102	4	52449.5	9/11/2013	NASA P-3B	7	SP-1	78.3	77	76	78.8	73	69	66	62.5	59	58	74	56	54	56.7	48	48.7	52.2	54.6	52.8	47.3	48.7	48.2	50	48.8	43.2	40.3	35.3	33.9	33.2	33.9	35	36.2	37.3	38.2	39.2	41.1	57.4
102	4	52450	9/11/2013	NASA P-3B	7	SP-1	78.6	76	77	77.1	72	68	64	60.5	57	60	72	56	54.9	58	49.8	49.5	52.1	53.6	51.8	46	47.3	47.2	49.3	48.4	42.6	39.7	34.8	33.7	33.1	33.8	35.1	36.2	37.3	38.2	39.3	41.1	56.6
102	4	52450.5	9/11/2013	NASA P-3B	7	SP-1	76.8	77	79	75.2	71	66	62	58.9	56	62	71	56	54.6	57.1	49.7	48.8	50.7	52.1	50.8	44.9	46.2	46.6	48.2	47.5	42	38.9	34.2	33.5	32.9	33.8	35	36.2	37.3	38.3	39.2	41.1	55.6
102	4	52451	9/11/2013	NASA P-3B	7	SP-1	78.1	78	78	73.5	69	65	62	57.8	56	64	70	55	54.1	55.3	48.4	47.4	49.5	51.3	49.9	43.8	44.7	45	46.5	45.7	40.4	37.3	33.3	33	32.7	33.8	35	36.2	37.4	38.3	39.3	41.1	54.3
102	4	52451.5	9/11/2013	NASA P-3B	7	SP-1	79.7	78	76	71.6	68	64	63	58.6	56	66	69	55	53.1	53.9	47.4	46	48.4	50.1	49	42.5	43.3	43.8	45.1	44	38.9	36.3	32.9	32.7	32.8	33.9	35	36.1	37.3	38.2	39.2	41	53
102	4	52452	9/11/2013	NASA P-3B	7	SP-1	79.4	79	74	69.9	67	64	63	57.7	57	68	68	55	53.5	52.8	47.3	44.9	47.9	50.4	49	41.9	43.7	44.2	45.7	43.8	39.6	36.9	33.3	32.9	32.9	33.8	35	36	37.3	38.2	39.2	41	54
102	4	52452.5	9/11/2013	NASA P-3B	7	SP-1	79.1	79	74	69.4	68	65	63	58.5	56	70	67	56	54.5	51.8	47.2	44.6	48.3	53.2	51.1	44.1	46.9	48.5	49.3	47.4	41.3	37.9	33.9	32.9	33.1	33.7	35	36.1	37.2	38.2	39.2	41	56
102	4	52453	9/11/2013	NASA P-3B	7	SP-1	77.9	77	73	69.7	68	65	61	56.8	55	71	67	55	53.3	51.5	47.7	44.9	48	53	50.8	44.1	45.2	48.3	48.3	46.7	40.8	37.2	33.6	32.9	33	33.8	35	36.1	37.3	38.3	39.2	41	55.5
102	4	52453.5	9/11/2013	NASA P-3B	7	SP-1	76.6	75	72	70.1	67	64	59	55	54	72	65	55	53.9	52.3	48.5	46.6	48.5	52.2	50	44.3	43.4	48.2	47.1	45.5	39.8	36.3	33.3	32.7	32.9	33.8	35.2	36.1	37.3	38.4	39.3	41	54.9
102	4	52454	9/11/2013	NASA P-3B	7	SP-1	75.1	74	72	70.9	68	62	57	53.5	54	72	64	54	54.9	51.7	49.4	46.3	48.2	52.4	50.3	45.5	42.2	48.2	46.2	44.6	39.2	35.7	33.3	32.7	32.9	33.8	35	36.1	37.3	38.4	39.4	41	54.6
102	4	52454.5	9/11/2013	NASA P-3B	7	SP-1	74.4	73	72	70	66	60	56	53.5	54	71	63	54	56.5	52.9	50	46.1	47.4	52.2	50.6	45.6	41.6	47.5	45.1	43.2	38.6	35.2	33	32.7	33	33.9	34.8	36.2	37.3	38.3	39.3	41	54
102	4	52455	9/11/2013	NASA P-3B	7	SP-1	73.2	73	70	68	64	61	58	55.7	54	70	61	55	56.5	52.4	50	45.6	46.1	51.7	51.2	45.8	42.2	48.9	45.6	43.1	38.8	34.8	33	32.6	33	34.1	34.9	36.1	37.4	38.3	39.3	41	54.4
102	4	52455.5	9/11/2013	NASA P-3B	7	SP-1	74.2	72	68	67	63	66	61	55.6	55	70	60	54	55.8	51.8	49.6	44.9	45.1	50.1	50.1	45.1	41	48	44.8	42.2	38.1	34.3	32.6	32.3	32.9	34	35	36.2	37.3	38.3	39.3	40.9	53.4
102	4	52456	9/11/2013	NASA P-3B	7	SP-1	74.5	70	67	66.5	65	66	63	57	56	70	59	53	54.6	51.1	48.7	44.2	43.9	48.7	48.6	43.9	39.8	46.3	43.4	40.5	36.9	33.5	32.3	32.1	33	34	35	36.1	37.3	38.3	39.2	40.9	52.1
102	5	52628	9/11/2013	NASA P-3B	7	SP-1	66.9	66	63	65.3	62	60	54	50.7	56	55	53	74	56.1	54.3	63.8	55.1	58.6	55.2	52.8	51.1	48.5	46.5	44.1	44.2	43.6	43.2	41.1	37.9	35.2	34.7	35.4	36.3	37.1	38.2	39.2	41	60.5
102	5	52628.5	9/11/2013	NASA P-3B	7	SP-1	66.1	68	62	64.6	62	59	55	52	56	54	55	78	57.3	56.2	64.2	57.3	61.6	58.4	55.5	53.8	52.2	50.4	47.9	47.5	45.3	44	41.8	38.7	35.8	34.9	35.3	36.3	37.2	38.2	39.3	40.9	63
102	5	52629	9/11/2013	NASA P-3B	7	SP-1	73.6	69	64	63.1	61	58	55	52	55	56	56	80	57.7	58.3	66.8	58.7	62.3	57.7	54.6	53	51.8	50	47.5	47.1	45.6	44.2	42.5	39.4	36.4	35.1	35.2	36.3	37.3	38.2	39.3	41	62.6
102	5	52629.5	9/11/2013	NASA P-3B	7	SP-1	74.2	68	63	61.4	61	60	56	56.2	55	56	57	80	56.8	58.2	65.8	58.2	61.4	58.7	56.1	55.1	54.1	52.3	50.3	50.2	47.7	45.9	43.8	40	36.6	35.2	35.3	36.3	37.2	38.2	39.3	41	63
102	5	52630	9/11/2013	NASA P-3B	7	SP-1	72.2	68	65	60.5	59	59	58	56.4	57	57	57	79	57.9	59.6	65.4	59.1	61	58.6	56.7	55.6	53.8	51.7	49.3	49.6	48.6	47	44.1	39.8	36.7	35.3	35.2	36.3	37.2	38.2	39.3	41	62.7
102	5	52630.5	9/11/2013	NASA P-3B	7	SP-1	70.6	66	64	60.3	61	64	61	57.6	58	56	56	77	57.7	60.1	66.7	58.8	60.4	57.8	56.5	55.3	53.3	51.1	48.1	49.3	48.9	46.5	43.1	39	36.3	35.1	35.1	36.3	37.2	38.2	39.3	41	62.5
102	5	52631	9/11/2013	NASA P-3B	7	SP-1	68.8	66	64	63.2	63	65	62	58.2	60	56	55	77	57.5	59.4	65.6	62.4	62.4	59.2	55.8	54.5	52.4	50.3	48	49.8	48.9	46.2	42.3	38.9	36.2	35.1	35.1	36.3	37.1	38.2	39.2	41.1	62.9
102	5	52631.5	9/11/2013	NASA P-3B	7	SP-1	67.2	65	66	62.9	68	65	62	57.2	62	56	57	79	58.2	59.9	65.7	63.2	61.5	58.9	55.6	54.1	51.4	49	47.6	49.9	48.8	45.8	41.8	38.6	36	34.8	35.1	36.2	37.2	38.2	39.3	41.1	62.6
102	5	52632	9/11/2013	NASA P-3B	7	SP-1	65.8	67	71	69.9	66	65	63	56.5	62	56	63	79	58.7	60.6	65.8	62.9	60.2	58.3	55.2	53.6	50.3	47.6	48.1	51.1	48.8	45.6	41.7	38	35.7	34.8	35	36.3	37.4	38.3	39.2	41.1	62
102	5	52632.5	9/11/2013	NASA P-3B	7	SP-1	68.4	67	71	70.7	67	63	61	57.1	62	58	66	78	58.2	60.9	64.8	62.4	60.6	59	55.1	53.9	50.2	47.7	50.4	54.5	51.1	46.2	43.1	39.4	36.6	35	35	36.3	37.3	38.3	39.2	41.1	63.3
102	5	52633	9/11/2013	NASA P-3B	7	SP-1	72.1	69	71	71.4	67	63	64	61	63	59	75	78	60	64.5	65.2	61.8	59.9	58.6	55.3	54.5	51.4	48.6	50.4	53.6	51.1	47.2	43.5	40.2	37.2	35.2	35	36.3	37.2	38.3	39.2	41	63.4
102	5	52633.5	9/11/2013	NASA P-3B	7	SP-1	74.9	68	71	71.6	67	72	66	59.7	62	58	80	77	59	64.9	63.9	61.6	59.1	58.1	56	54.4	51.2	48.6	53.6	56	53.1	50.3	44.8	40.8	37.8	35.2	35.1	36.3	37.2	38.3	39.2	41	64.1
102	5	52634	9/11/2013	NASA P-3B	7	SP-1	75.7	69	70	69.8	67	71	66	61.6	60	56	80	76	58.8	64.3	62.5	60.9	59	58	55.8	53.5	51.2	51.3	57.5	58.2	53.5	51.9	45.8	41.8	38.2	35.3	35	36.2	37.3	38.3	39.2	41	65.1
102	5	52634.5	9/11/2013	NASA P-3B	7	SP-1	75.5	71	71	70.7	69	71	65	60.6	59	55	79	73	57.7	63.2	61.4	60	58.4	57.4	55.3	53.8	52	53.5	59.3	58.7	54.7	52.1	47.1	42.9	38.8	35.3	35	36.2	37.4	38.3	39.3	41	65.5
102	5	52635	9/11/2013	NASA P-3B	7	SP-1	74.8	72	72	71.3	68	70	63	60.1	57	55	77	71	57.1	62.6	60.2	59.7	58.2	57.5	55.4	53	52	55.1	61.1	59.6	55.7	55	48.5	44.3	39.8	35.7	35	36	37.2	38.3	39.3	41	66.5

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
102	5	52635.5	9/11/2013	NASA P-3B	7	SP-1	73.3	72	73	71	67	68	61	59.7	56	56	76	69	57.2	62.8	59.5	59	58.6	57.7	56.1	54.1	53.6	56	61.8	60.7	58.1	55.2	49.7	45.7	41	35.9	35.1	36.2	37.2	38.2	39.3	41	67.4
102	5	52636	9/11/2013	NASA P-3B	7	SP-1	73.7	71	72	69.3	65	66	60	60.2	55	59	75	68	57.3	62.5	59.3	58.5	58.3	57.7	56.4	55.6	55.5	56.7	61.7	60.9	58.9	55.6	50.1	46	41.1	36.1	35.1	36.2	37.1	38.2	39.3	41	67.7
102	5	52636.5	9/11/2013	NASA P-3B	7	SP-1	74.8	70	71	67.4	64	64	58	60.4	55	59	73	66	57.9	62.5	59.2	58.1	58.9	58.2	59	58	58.6	60.7	64.4	63.7	61.6	58.7	52.2	48.3	42.6	36.6	35.2	36.3	37.2	38.2	39.3	40.9	70.5
102	5	52637	9/11/2013	NASA P-3B	7	SP-1	74.6	73	70	68.9	64	63	58	59.8	54	58	75	65	57.7	62.2	59.2	58.6	60.1	59.3	59.4	57.9	57.6	60.4	64.2	63	61.1	58.5	51.7	47.9	42.1	36.3	35.1	36.2	37.2	38.2	39.2	41	70.1
102	5	52637.5	9/11/2013	NASA P-3B	7	SP-1	77.7	75	72	67.4	64	62	56	58.9	54	59	78	63	57.7	61.9	59.7	58.4	59.4	59.1	58.8	57.1	55.9	59.1	63.3	61.9	59.7	57.3	50.4	46.8	41	35.9	34.9	36.2	37.1	38.2	39.3	41	69.1
102	5	52638	9/11/2013	NASA P-3B	7	SP-1	78.4	75	71	66.3	63	61	56	57.9	54	59	78	62	58.2	61.6	59.6	58.1	58.9	58.9	58.9	56.3	54.7	58.2	63.3	61.5	58.6	56.9	49.5	46	40.1	35.5	35	36.1	37.1	38.3	39.4	41	68.5
102	5	52638.5	9/11/2013	NASA P-3B	7	SP-1	78.7	74	69	66.4	63	61	54	57	56	59	79	61	58.2	63	59.7	58.3	58.3	58.9	58.9	56.4	54.3	57.8	62.4	60.7	57.3	55.5	48.4	45.1	39.3	35.3	35	36.1	37.2	38.3	39.4	41	67.7
102	5	52639	9/11/2013	NASA P-3B	7	SP-1	77.3	74	68	65.4	62	60	54	56.6	55	59	79	60	57.2	62.2	59.8	57.2	57.2	57.7	57.7	55	52.8	56.2	60.7	59.2	55.6	53.6	46.8	43.4	38	35	35	36.1	37.1	38.3	39.3	41	66.2
102	5	52639.5	9/11/2013	NASA P-3B	7	SP-1	75.6	73	67	65.6	62	62	58	56.9	55	61	79	59	56.9	61.3	58.8	56	55.6	56.9	56.4	54.2	52.6	55.5	59.6	58.2	54.6	52	45.5	42.2	37	34.7	35.1	36.2	37.1	38.3	39.3	41	65.2
102	5	52640	9/11/2013	NASA P-3B	7	SP-1	74	71	65	67.1	62	61	59	56.5	54	64	79	58	56.8	60.1	57.7	55.4	56.2	56.7	55.5	53.1	51.4	54.2	58.2	57	53	50.7	44	41	36.2	34.6	35.2	36.1	37.1	38.2	39.3	41	64.1
102	5	52640.5	9/11/2013	NASA P-3B	7	SP-1	72.2	70	66	66.7	61	59	58	55.3	54	66	78	58	56.9	59.8	57.7	54.8	56.1	56.7	55.3	53.2	50.9	53.2	56.9	56.2	52	49.2	43.3	40.2	35.6	34.5	35.2	36.1	37.2	38.3	39.3	40.9	63.2
102	5	52641	9/11/2013	NASA P-3B	7	SP-1	74.9	69	68	67.1	63	63	58	54.8	53	68	77	59	56.3	59	57.6	55.2	56.5	56.2	55	52.9	49.9	51.9	55.2	54.6	50.5	47.6	41.8	38.9	34.9	34.3	35.1	36.2	37.2	38.3	39.3	41	61.9
102	5	52641.5	9/11/2013	NASA P-3B	7	SP-1	76	68	71	67.4	65	62	58	53.7	53	68	75	59	56.8	59	57.4	55	56.2	56.6	54	51.6	48.7	50.7	54.1	53.2	49.2	46.7	40.7	37.9	34.4	34.1	35.1	36.3	37.3	38.3	39.3	41	60.9
102	5	52642	9/11/2013	NASA P-3B	7	SP-1	74.3	69	70	68.7	66	60	56	53.6	52	68	74	58	56	58.1	56.5	55	55.2	55.3	52.5	50.1	47.7	49.2	52.5	51.6	47.4	45.1	39.8	36.7	33.9	34.2	35.2	36.3	37.2	38.2	39.3	41	59.5

B.1.3 Category 3: B-200 King Air Level Flyover Events

Table 49. Acoustic Data from Example Category 3 Event 35 for the B-200 at SP-1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																				
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
35	1	75861.5	9/4/2013	NASA/ Langley B200	7	SP-1	60.2	59.7	55	51.3	47.4	44.6	46.5	47.1	47.4	49.1	47.3	48.6	62.4	48	43	45.5	47.2	50.6	50.2	43.4	42.3	40.9	34.4	32.9	32.3	31.2	31.3	32.1	33.2	34.2	36.1	36.8	37.8	38.9	39.9	41.6	51.4
35	1	75862	9/4/2013	NASA/ Langley B200	7	SP-1	61.1	60.1	53.9	50.5	48.9	46.5	46.8	45.9	48	49.1	48.7	51.1	62.7	48.3	43	46.9	51	52.9	50	42.2	41.5	39.7	36.1	33.9	33	31.6	31.5	32	33.1	34.3	36	37	37.7	38.8	39.9	41.5	52.1
35	1	75862.5	9/4/2013	NASA/ Langley B200	7	SP-1	60	58.5	52.1	49.2	49.1	44.8	46.5	45.9	49	50.4	49.4	51.4	62.5	48.6	42.7	48.2	52.3	54.3	49.8	42.4	45.2	41.2	38.5	35.6	34.8	32.7	31.6	32.3	33.2	34.7	35.8	36.9	37.7	38.8	40	41.5	53.3
35	1	75863	9/4/2013	NASA/ Langley B200	7	SP-1	59.7	59.9	51	49.4	49	46.6	48.2	46.9	48.3	52.1	48.7	51.1	63	48.1	41.7	49.9	53	54.9	51.6	43.7	47.9	42.3	40.8	36.7	34.8	32.9	31.5	32.3	33.1	34.5	35.8	36.9	37.8	38.8	39.9	41.6	54.4
35	1	75863.5	9/4/2013	NASA/ Langley B200	7	SP-1	58.9	59.2	51.5	51.6	49.2	47	47.2	45.8	48.1	52.5	49.9	51.7	61.5	47.4	42.9	51.7	54.5	55.6	51.5	47.4	49.6	44.8	42.4	39.7	36.9	33.5	31.6	32.3	33.2	34.5	35.9	36.8	37.7	38.9	40	41.6	55.4
35	1	75864	9/4/2013	NASA/ Langley B200	7	SP-1	58.1	57.9	49.8	50.6	49.2	45.4	45.9	45.9	48.6	51.6	49.5	50.4	61	46	43.6	52.5	55.9	55.8	50.6	47.2	48.8	44.5	42.2	40	37	33.6	31.6	32.4	33.2	34.4	35.9	36.8	37.7	38.9	40	41.6	55.1
35	1	75864.5	9/4/2013	NASA/ Langley B200	7	SP-1	56.4	58	50.9	51.5	47.7	45.8	45.3	46.1	48.7	50.6	48.4	49.7	60.9	44.8	44.5	52.8	55.5	54.9	49	47.3	47.9	43.5	41.1	38.9	36.7	33.6	31.4	32.4	33.1	34.5	36.1	36.8	37.7	38.9	40	41.6	54.3
35	1	75865	9/4/2013	NASA/ Langley B200	7	SP-1	55.4	58.6	53.9	49.9	46.2	47	45.9	45.9	50.2	49.5	48.3	48.6	59.5	43.8	44.2	53.3	54.4	53.7	47.5	47.1	46.8	42.6	39.8	38.4	36.2	33.8	31.3	32.5	33.1	34.5	36	36.7	37.8	39	40	41.6	53.4
35	1	75865.5	9/4/2013	NASA/ Langley B200	7	SP-1	55.3	58.4	54.1	49	46.9	46.6	45.2	45.4	49.6	50.2	48.9	48.5	60.4	42.8	43.8	53.7	54.1	53.3	46.7	47.8	45.9	43.5	40.1	39	36.1	34.2	31.8	32.4	33.2	34.5	36	36.8	37.9	39	40.1	41.6	53.5
35	1	75866	9/4/2013	NASA/ Langley B200	7	SP-1	57.3	57.5	53.5	48.1	46.6	45.8	46.6	45.9	48.7	49.6	49	48.4	59.8	42.6	44.7	55.2	53.9	52.3	45.1	47.8	45.3	43.4	39.4	38.5	35.7	34.1	31.9	32.2	33.2	34.6	36.1	36.9	37.9	39	40	41.6	53
35	1	75866.5	9/4/2013	NASA/ Langley B200	7	SP-1	57.6	55.7	53.5	47.9	45.3	46	47.4	46	48.8	48.3	48.9	47.9	58.4	41.2	45	58.2	53	50.9	44.1	48.4	44.1	42.7	38.9	38.3	35.4	33.7	31.9	32.3	33.2	34.4	36	36.9	37.8	39	40	41.6	53.6
35	1	75867	9/4/2013	NASA/ Langley B200	7	SP-1	57.5	56.1	52.2	47.8	45.1	44.8	49.4	44.8	48.5	48	48.2	49	59.2	40.5	47	60	53.8	50.7	45.2	49.3	43.4	43.3	39.4	39.3	35.7	34.7	32.2	32.4	33.2	34.3	36.1	36.8	37.8	38.9	40.1	41.6	54.2
35	1	75867.5	9/4/2013	NASA/ Langley B200	7	SP-1	56.7	54.4	52.7	50.6	45.4	43.9	48.8	45	47.7	48.6	49.9	48.6	60.6	39.9	48.3	61.1	54.4	50.9	46.7	49.8	43.2	43.4	40	41.4	36.8	35.2	32.1	32.2	33.1	34.4	36	36.7	37.8	38.9	40	41.6	54.9
35	1	75868	9/4/2013	NASA/ Langley B200	7	SP-1	57.2	53.8	52.5	49.5	45.2	42.8	49.7	46.3	46.8	49.5	50.1	48.2	60.2	39.4	51.3	61.8	54.2	49.7	45.9	49.1	43.3	43	39.8	41	36.2	34.6	31.9	32.2	33.3	34.3	35.9	36.7	37.9	39	40	41.5	54.6
35	1	75868.5	9/4/2013	NASA/ Langley B200	7	SP-1	57.2	57.3	51	47.9	45.1	43	50.8	48.4	46.7	50.6	49.2	49.3	59.5	40.2	52.8	61.7	55	49.8	48.6	50.1	45.2	44	42.7	43.3	37.9	36	32.4	32.2	33.3	34.2	35.9	36.8	37.8	39	39.9	41.6	56.2
35	1	75869	9/4/2013	NASA/ Langley B200	7	SP-1	55.9	58	49.4	47.1	45.8	44.6	51.1	49.1	47.7	51.4	48.9	53.6	60.5	42.8	59.9	63.9	57.7	49.9	50.4	49.7	45.9	43.7	43	43.1	37.9	36.1	32.5	32.3	33.3	34.3	35.9	36.9	37.8	39	39.9	41.6	57.3
35	1	75869.5	9/4/2013	NASA/ Langley B200	7	SP-1	55.9	59.4	47.9	45.5	45.3	44.8	50.5	48.4	49.1	51.8	48.4	56.5	60	45.1	61.5	63.2	57.4	48.8	51.1	49	47	43.9	43.6	43.4	38.7	36.1	32.7	32.3	33.1	34.2	36	36.9	37.7	38.9	40	41.6	57.1
35	1	75870	9/4/2013	NASA/ Langley B200	7	SP-1	55.8	57.9	47.4	44.3	44.6	47.3	49.4	48.1	50.3	51.5	47.9	55.7	58.3	45.4	62.8	62.8	56.5	48.1	51.7	48.4	48.3	44.2	43.6	42.8	38.8	36.4	32.7	32.3	33.2	34.3	36.1	36.9	37.8	38.8	40	41.6	57.5
35	1	75870.5	9/4/2013	NASA/ Langley B200	7	SP-1	56.4	56.1	47	45.2	46.4	48.4	47.7	47	50.1	50.7	47.2	55.7	57.1	46	64.8	61.9	56.1	47.7	52.3	48	49.6	44.6	43.6	42.2	38.7	36.4	32.8	32.5	33.3	34.1	36	36.9	37.8	38.9	39.9	41.6	57.4
35	1	75871	9/4/2013	NASA/ Langley B200	7	SP-1	54.8	54.2	50.4	45.7	49.7	47.5	46.8	46.5	50.6	49.6	47.8	58.1	56.2	46.3	64.2	60.8	56.3	48.6	53.8	48	50.2	45.2	43.6	42.2	40	37.3	33.1	32.5	33.2	34.4	35.9	36.9	37.8	38.9	39.9	41.6	58.1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																		
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
35	1	75871.5	9/4/2013	NASA/ Langley B200	7	SP-1	53.9	52.4	50	49.1	49.1	47.9	46	46	50.2	48.3	47.1	59.5	55.2	46.8	68.1	60.3	56.7	48.8	53.3	47.6	49.8	46.2	44.7	43.3	39.9	37.4	33.2	32.5	33.1	34.4	35.9	36.9	37.8	38.9	39.9	41.5	59.3
35	1	75872	9/4/2013	NASA/ Langley B200	7	SP-1	55	50.8	49.9	50.4	48.9	46.1	46.4	47.2	51.1	49	46	61.6	54	48	68.8	59.1	56.9	49.7	53.7	47	48.9	45.9	43.7	42.5	39.5	36.8	32.9	32.4	33.1	34.3	35.9	36.9	37.8	38.9	40	41.6	59
35	1	75872.5	9/4/2013	NASA/ Langley B200	7	SP-1	56.4	49.3	53.4	51	47.3	45.6	46.2	46.4	51.1	48.5	48	61.4	52.9	48.4	68.4	58.4	58.1	51.7	54.7	47.4	48.8	46.1	43.8	42.7	40.1	37.1	33.4	32.6	33.1	34.3	35.9	36.8	37.8	38.8	40	41.6	59.3
35	1	75873	9/4/2013	NASA/ Langley B200	7	SP-1	56.6	49.2	54	49.7	46.6	46.6	46.3	47.3	50.6	48.4	47.6	62.4	51.7	49.9	68.9	58.5	61	54	55.4	48.9	49.1	47.7	46.3	45	42.8	39.2	35	33	33.3	34.5	35.9	36.8	37.7	38.9	40	41.6	60.8
35	1	75873.5	9/4/2013	NASA/ Langley B200	7	SP-1	56	55.9	54	49.2	45.7	46.3	46	48.8	51.5	48.1	47.5	63.1	50.3	51.1	70.6	59	61.3	55.8	55.2	49.8	49.1	48.4	46.9	45.8	43.8	39.9	35.4	33.1	33.5	34.3	35.9	36.8	37.7	38.9	40	41.5	61.2
35	1	75874	9/4/2013	NASA/ Langley B200	7	SP-1	56.4	55.7	52.4	50.3	46.5	46.7	46.5	49.4	51.5	48.3	49	61.5	49.2	51.2	69.7	58.9	61.9	56.5	55.6	51.4	49.7	49.1	47.6	45.9	44.2	40.5	35.8	33.3	33.4	34.4	35.8	36.7	37.7	39	40.1	41.6	61
35	1	75874.5	9/4/2013	NASA/ Langley B200	7	SP-1	56.5	54.5	51	50.6	50.1	48.2	45.7	50.1	51.5	48.3	50	64.1	48.9	52.2	69.1	58.4	62.5	57.2	56	52.1	49.7	49.3	48.2	46.2	45.6	41.6	36.2	33.6	33.5	34.4	35.6	36.9	37.7	39	40.1	41.6	61.4
35	1	75875	9/4/2013	NASA/ Langley B200	7	SP-1	58.4	54.1	49.2	50	48.9	47.5	47.3	49.5	50.8	48	50.7	66.3	48.6	52.1	69.6	57.9	62.1	57.5	55.6	52.1	49.4	48.8	48	46.4	45.4	40.9	36	33.6	33.4	34.4	35.6	36.9	37.8	38.9	40.1	41.6	61.1
35	1	75875.5	9/4/2013	NASA/ Langley B200	7	SP-1	59.1	52.6	48.3	50.6	49.6	52.7	48.4	49.9	51.9	47.9	50.8	67.5	48.7	52.8	69.7	58	60.7	57.2	54.9	54.1	50.2	49.2	47.7	47.1	45.7	40.9	36	33.7	33.5	34.5	35.6	37.1	37.8	38.9	40.1	41.6	60.9
35	1	75876	9/4/2013	NASA/ Langley B200	7	SP-1	57.3	50.7	51.4	49.8	50.6	52.4	48.7	51.5	52.2	47.7	49.9	68.2	48	52.6	68.1	59.6	59.2	56.9	53.9	53.9	50.1	48.9	47.1	47.6	45.6	41.1	36.5	33.6	33.4	34.5	35.8	37.1	37.9	38.8	40	41.6	60.3
35	1	75876.5	9/4/2013	NASA/ Langley B200	7	SP-1	55.5	50.3	54.9	50.7	50.4	56.6	55.6	54.2	53.6	48.6	50.8	68.4	48.1	56.4	68.6	59.1	57.5	56.1	52.8	53.1	49.3	48.4	46.7	47.6	45.4	40.7	36.5	33.6	33.4	34.5	35.8	37	37.9	38.8	40.1	41.6	60.4
35	1	75877	9/4/2013	NASA/ Langley B200	7	SP-1	53.8	51.1	53.8	55	54.4	58.4	54.6	54	55.2	49.1	56.9	68.6	49.5	62.2	69.7	58.8	55.6	55.8	52	53.2	49.4	48.7	47.4	48.1	45.7	41.5	37.3	33.8	33.5	34.5	35.7	36.9	37.8	38.9	40.1	41.6	60.4
35	1	75877.5	9/4/2013	NASA/ Langley B200	7	SP-1	56.7	53.2	56.6	59.2	58.1	58.3	55.3	53.2	54.3	49	60.2	67.4	49.7	64.8	68.7	59.6	53.9	55.7	51.9	53	49.9	49.2	47.7	48.3	46	41.9	37.7	33.8	33.6	34.5	35.7	36.9	37.8	38.9	40	41.6	60.2
35	1	75878	9/4/2013	NASA/ Langley B200	7	SP-1	60.1	54.8	64.4	63.8	62.3	58.5	54.5	52	53.6	49.3	64.7	66.2	49.3	65.1	67	59.1	52.4	55.2	51.8	53	49.2	49	47.2	47.8	45.3	41.2	37.2	33.8	33.4	34.5	35.8	36.8	37.7	38.9	39.9	41.7	59.5
35	1	75878.5	9/4/2013	NASA/ Langley B200	7	SP-1	58.5	54.1	67.7	63.2	61	58.5	53.9	51.7	52.5	50.9	68.4	64.7	49.5	65.9	65.2	58.7	51	54.9	51.7	53.2	48.8	48.3	47.6	47.4	44.9	41.1	36.9	33.8	33.4	34.4	35.8	36.8	37.7	38.9	39.9	41.7	59.5
35	1	75879	9/4/2013	NASA/ Langley B200	7	SP-1	57.7	61.6	65.8	62.8	61	57.5	52.7	51.6	52	50.5	71.7	63.1	49.8	67.3	63.5	58.4	49.7	54.8	51.5	52.6	48.9	48	48.4	47.3	44.8	41.1	36.5	33.7	33.5	34.5	35.7	36.8	37.7	38.8	39.9	41.7	59.4
35	1	75879.5	9/4/2013	NASA/ Langley B200	7	SP-1	57.4	66	65.7	62	60	56	52.3	51.1	50.8	50.8	73.6	61.1	50.3	66.6	62	57.5	48.7	54.6	51.4	52.4	48.3	48.1	48.3	47.6	45	41.4	36.5	33.8	33.5	34.4	35.8	36.8	37.7	38.8	39.9	41.7	58.9
35	1	75880	9/4/2013	NASA/ Langley B200	7	SP-1	65.4	72	64.2	62.4	59.1	55.1	52	49.7	49.4	51.3	73.9	59	49.2	65.5	60.7	57	48.8	54.3	51.3	51.6	47.6	47.9	48.5	47.3	44.6	40.9	35.8	33.4	33.3	34.6	35.8	36.8	37.8	38.9	40	41.6	58.5
35	1	75880.5	9/4/2013	NASA/ Langley B200	7	SP-1	73.7	71.6	62.8	61.6	59	53.6	51	50.5	48.6	50.6	73.2	56.9	48.5	66.2	59.6	57	47.8	54.3	51.8	51.8	47.3	47.6	48.3	47.2	44.2	40.8	35.6	33.3	33.5	34.5	35.9	36.8	37.8	38.9	40.1	41.6	58.4
35	1	75881	9/4/2013	NASA/ Langley B200	7	SP-1	72.9	70.1	61.7	60.3	58.8	52.8	49.1	52	48.2	50.2	72.3	54.9	47.7	65.6	58.8	56	47.5	54.9	51.7	51.6	46.9	47.2	47.6	46.9	43.8	40.3	35.5	33.2	33.6	34.5	36	37	37.8	38.9	40.1	41.6	57.9
35	1	75881.5	9/4/2013	NASA/ Langley B200	7	SP-1	72.2	69.1	60.3	59.3	59.3	52	48	52.1	47.2	49.8	72.6	53.1	47.2	63.9	57.5	55.8	47.5	54.4	51.3	50.6	46.3	46.5	46.9	46.3	43.5	39.6	34.9	33.1	33.4	34.4	35.8	36.9	37.9	38.9	40	41.5	57.3
35	1	75882	9/4/2013	NASA/ Langley B200	7	SP-1	71.4	67.8	59.5	57.9	58.3	52.9	47.6	52.8	46.6	49.3	73.8	51.2	48.6	62.5	56.6	56.7	48.2	53.7	51.4	50.6	46.9	46.3	47.2	47.1	44.1	40.4	35.1	33	33.5	34.5	35.8	36.8	37.8	38.9	40.1	41.5	57.5
35	1	75882.5	9/4/2013	NASA/ Langley B200	7	SP-1	70.2	66.4	59.4	57.4	58.3	51.3	46.8	53.7	46.5	49.8	75.3	49.6	48.9	61.8	56.2	56.2	48.4	53.4	50.8	49.9	46.9	46	46.9	47	44.1	40.4	35.2	33	33.4	34.4	35.7	36.8	37.8	38.9	40.1	41.6	57.3
35	1	75883	9/4/2013	NASA/ Langley B200	7	SP-1	68.5	65.6	57.7	55.7	57.5	50	46.6	54.3	47.8	50.2	76.5	47.9	49.1	60.3	55.3	55.4	47.7	52.3	50	48.9	46.3	45.2	46.1	45.9	43.2	39.4	34.6	32.9	33.3	34.4	35.7	36.9	37.8	39	40	41.6	56.4
35	1	75883.5	9/4/2013	NASA/ Langley B200	7	SP-1	67.8	64.3	56.5	54.6	56.9	49.2	46.8	54.3	48.2	50.5	76.5	46.5	49.3	58.6	54.9	55.6	48.5	51.6	49.8	48	45.7	45.6	47.9	46.2	42.9	39	34.6	32.8	33.3	34.5	35.7	36.9	37.8	39	40	41.6	56.4
35	1	75884	9/4/2013	NASA/ Langley B200	7	SP-1	66.2	63.5	55.2	53.1	56.4	49	46.3	53.6	49.4	52.4	75.6	46.2	50	57.6	54.8	55.3	49.2	51.2	50.8	48	46.4	47.8	51.3	48.9	44.8	40.7	36	33.1	33.5	34.4	35.7	36.9	37.8	39	40.1	41.6	57.7
35	1	75884.5	9/4/2013	NASA/ Langley B200	7	SP-1	64.7	61.9	54.1	51.3	56.4	50.4	46.8	53.5	51.4	55.4	74.4	45.2	49.8	56	54.4	56.2	51.3	51.5	52.4	48.5	47.6	49.8	53	52.4	46.2	41.9	36.2	33.2	33.5	34.4	35.5	37	37.8	39.1	40.2	41.5	59.1
35	1	75885	9/4/2013	NASA/ Langley B200	7	SP-1	63.6	61.3	54.7	51.7	56.6	48.9	46.9	51.7	50.9	58.8	73.6	45.3	50.8	54.4	53.8	55.8	51.7	50.3	51.6	47.1	46.3	48.6	51.4	50.9	44.9	41	35.4	33	33.4	34.4	35.7	37	37.8	39	40.1	41.6	57.8
35	1	75885.5	9/4/2013	NASA/ Langley B200	7	SP-1	61.9	60.7	57.7	55.4	56.8	47.6	46.2	50.4	49.6	62.7	73.2	44.4	51	52.9	53.5	54.6	50.7	48.7	50.5	45.7	44.9	47.1	49.7	49.6	44	40.3	34.8	33	33.3	34.4	35.7	36.9	37.9	38.9	40	41.6	56.6
35	1	75886	9/4/2013	NASA/ Langley B200	7	SP-1	60.5	59.2	57.4	56.6	55.2	47.3	48	48.9	49.5	65.4	73	45.4	51	51.6	52.8	54.1	50.6	48.9	51.2	46.6	46.1	46.9	49	48.6	44.5	40.2	34.8	33.1	33.4	34.5	35.8	37	37.8	38.9	40	41.5	56.6
35	1	75886.5	9/4/2013	NASA/ Langley B200	7	SP-1	59.6	58.8	56.8	54.6	54.4	47.4	47.5	47.8	49.3	67.8	73.2	45.5	50.2	50.3	52.7	53.7	51.1	47.8	50.4	46.2	46.4	47.4	49.1	48.1	44.4	40.2	34.9	33.1	33.4	34.6	35.8	36.8	37.7	38.9	40	41.6	56.3
35	1	75887	9/4/2013	NASA/ Langley B200	7	SP-1	58.8	59	55.4	53	53.7	47.8	46.5	47.1	48.3	69.3	72.6	45.3	50.4	49.1	52.5	53.3	51.3	46.9	49.8	46.1	45.7	46.4	47.8	46.5	42.8	38.8	34.1	32.9	33.3	34.5	35.8	36.7	37.6	38.9	39.9	41.6	55.5
35	1	75887.5	9/4/2013	NASA/ Langley B200	7	SP-1	61.5	58.1	55.6	52.9	54.3	47.9	49.2	46.8	48.3	70.1	71.9	46	50.6	48.4	52.3	53.7	51.4	46.5	49.6	45.6	45.9	46.5	47.5	45.4	41.4	37.6	33.4	32.8	33.3	34.5	35.8	36.8	37.7	38.9	40	41.6	54.9
35	1	75888	9/4/2013	NASA/ Langley B200	7	SP-1	64	58	58.2	54	53.7	47.2	47.9	47.8	48.2	70.2	70.7	45.8	50.2	47.4	51.2	52.8	50.8	45.6	48.6	44.7	44.6	45.4	46.3	44.3	40.2	36.5	33.1	32.5	33.1	34.4	35.7	36.9	37.7	38.9	39.9	41.6	53.8
35	1	75888.5	9/4/2013	NASA/ Langley B200	7	SP-1	62.7	57.7	57.5	54.4	52.4	48.1	48.2	46.6	47.5	69.4	69	45.6	51.3	46	50.2	52.1	50.6	45.3	46.9	43.4	43.1	43.9	44.7	42.9	39	35.7	32.8	32.4	33.1	34.5	35.9	36.8	37.8	38.9	40.1	41.7	52.5
35	1	75889	9/4/2013	NASA/ Langley B200	7	SP-1	60.9	56.2	55.9	56.6	51.2	47.6	46.8	46	48.3	68.3	67.1	45.3	51.2	44.7	49.7	51.6	50.2	45.4	45.6	43.3	42.1	42.4	43.3	42.1	37.7	34.7	32.4	32.5	33.1	34.5	35.9	36.7	37.7	38.9	40.1	41.7	51.8
35	1	75889.5	9/4/2013	NASA/ Langley B200	7	SP-1	59.5	55.7	55	55	50.3	46.7	46.8	46	48	67.7	65.4	44.8	51.3	43.4	48.7	51.7	50.6	45.7	44.9	44	41.7	42.6	43.6	42.5	37.8	34.8	32.3	32.4	33.2	34.5	35.8	36.8	37.8	38.9	40.2	41.7	51.7
35	1	75890	9/4/2013	NASA/ Langley B200	7	SP-1	59.6	56.8	53.6	54.2	49.2	47.7	46.6	45.7	47.4	67.8	63.9	44.5	51.2	42.4	48.1	50.7	50.1	44.8	43.2	42.8	40.3	41.1	42	41	36.7	33.8	32.1	32.3	33.2	34.5	35.8	36.8	37.8	38.9	40.1	41.6	50.5
35	2	76074	9/4/2013	NASA/ Langley B200	7	SP-1	57.4	57	65.5	58.5	59	57.5	53.4	50.3	49.6	52.3	49.6	66.4	69.3	54.4	56.6	57.6	51.5	51.1	48.7	45.3	46.1	48.8	48.2	46.8	43.6	43.1	38.9	35.5	34	34.5	35.9	37	37.6	38.9	39.8	41.6	57.7
35	2	76074.5	9/4/2013	NASA/ Langley B200	7	SP-1	57.5	60.8	64.3	58.2	59.8	56.9	53.2	48.8	51.2	52.2	50.2	69.8	68.7	54.9	58.2	57.8	52.3	51.1	48.4	44.7	46.6	49.6	48.7	46.3	44.3	43.8	39.9	36.3	34.6	34.6	35.9	37	37.6	38.9	39.9	41.6	59.1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																		
							6.3	8	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
35	2	76075	9/4/2013	NASA/ Langley B200	7	SP-1	63.3	62.3	63.1	60.7	60.7	55.3	51.6	49	52.1	52.4	52	74.7	69	55.5	61.7	57.7	54	52.9	48.9	45.5	50.2	52.5	51.2	47.3	47.9	45.3	41.7	37.4	35	34.6	35.8	37	37.6	38.9	39.8	41.6	60.6
35	2	76075.5	9/4/2013	NASA/ Langley B200	7	SP-1	69.4	64.1	65.2	60.3	59	53.7	50.2	50.2	51.8	51.9	53.2	75.9	67.3	55.2	62.2	57.1	54.1	52.2	48.4	44.9	49.7	52	50.4	46.3	47.4	44.2	41	36.8	34.7	34.6	35.9	37	37.7	38.8	39.9	41.5	60
35	2	76076	9/4/2013	NASA/ Langley B200	7	SP-1	69	64	65.7	61	57.3	53	51.5	50.3	53.9	51.8	52.5	75.9	65.7	56.5	61.3	56.5	54.2	51.6	47.5	47	50.3	53	50	46.9	47.7	43.4	40.9	37.3	34.8	34.6	35.9	36.9	37.8	38.8	39.8	41.5	59.8
35	2	76076.5	9/4/2013	NASA/ Langley B200	7	SP-1	68.9	62.9	64.6	59.6	55.8	52.2	53.5	50.5	55.1	51.6	53.5	74.3	63.9	56.5	61.5	55.8	53.6	50.7	46.7	49.4	51.5	53	49.3	50	47.7	43.6	41.1	37.7	35	34.8	35.9	36.9	37.8	38.8	39.8	41.5	60.3
35	2	76077	9/4/2013	NASA/ Langley B200	7	SP-1	67.5	65.4	63.1	58	54.2	53.6	52.2	49.2	56.7	53.2	55.8	74.3	62.4	56.3	62.1	55.3	53	49.4	47.1	51.1	53.6	54.5	48.9	53.7	49.2	45.5	42.4	38.5	35.7	35	36	36.9	37.7	38.8	39.8	41.5	61.2
35	2	76077.5	9/4/2013	NASA/ Langley B200	7	SP-1	66.1	65.4	61.4	56.8	52.5	52.7	50.9	50.3	59.1	53.8	55.6	74	61.2	56.5	62.6	55.5	52.7	48.5	47.3	51.7	54.6	55	48.4	55.4	50.2	46.4	43.2	38.9	36	35.1	36	36.8	37.8	38.8	39.8	41.5	62
35	2	76078	9/4/2013	NASA/ Langley B200	7	SP-1	64.8	66.7	59.5	55.4	51.1	53.7	51.1	50.5	60.4	52.9	56.1	72.5	59.8	56.2	63.9	55.7	54.3	48	48.6	54.7	57	55.7	49.4	58.4	52	49	46.2	41	37.4	35.7	36	36.9	37.8	38.8	39.8	41.5	64.3
35	2	76078.5	9/4/2013	NASA/ Langley B200	7	SP-1	65.9	64.9	58.3	53.5	51	53.8	51.8	50.5	59.5	53	55.8	74	59.6	57.1	64.9	56.7	55	47	52.6	57.2	58.5	55.9	51.8	60.6	53.2	50	46.3	41.6	38.1	35.7	35.9	37	37.8	38.8	39.8	41.5	65.3
35	2	76079	9/4/2013	NASA/ Langley B200	7	SP-1	64.8	63.1	57.6	52.7	51.6	54.3	52.2	50	57.9	53.4	56.9	74.4	59.4	58.3	64.5	57.3	54	46.4	53.6	57.6	58.1	54.9	53.4	60.3	52.7	49.5	46.1	41.1	38.2	35.6	35.9	37	37.7	38.8	39.8	41.6	65.1
35	2	76079.5	9/4/2013	NASA/ Langley B200	7	SP-1	62.9	61.1	57.2	51.1	50	54.5	51.6	51.2	56.9	52.9	59.2	74.4	59	58.6	63.5	56.4	52.4	46.1	53.7	57	57.6	53.6	56.2	59.7	52.5	49	46	40.7	37.9	35.4	35.7	37.1	37.6	38.9	39.8	41.6	65
35	2	76080	9/4/2013	NASA/ Langley B200	7	SP-1	61.2	61.1	56.3	53.8	55	54.4	52.6	52.3	57.5	54.5	66.4	74.8	58.8	60.8	63.4	56.4	51	47.5	54.3	57.2	57.2	52.5	58.3	58.8	52	48.5	45.2	40.7	37.7	35.5	35.8	37	37.6	38.9	39.8	41.5	65
35	2	76080.5	9/4/2013	NASA/ Langley B200	7	SP-1	61.9	60.4	57.5	55.6	56.2	56	54.4	53.1	56.9	55.3	74.6	75	58.7	61.4	62.4	56.7	49.5	49.1	54.7	56.9	56.9	52.4	59.6	58.6	52.4	49.1	45.6	41	37.8	35.4	35.7	37.1	37.7	38.9	39.8	41.5	65.1
35	2	76081	9/4/2013	NASA/ Langley B200	7	SP-1	60.7	60.9	57.4	55.2	55.5	56.2	53.5	54	55.6	54.8	75.6	73.2	58.3	60.8	61	56.1	48	48.8	54.1	55.8	56.7	51.8	58.7	57.9	51.8	49.1	44.9	40.3	37.2	35.2	35.9	37	37.7	38.9	39.8	41.5	64.5
35	2	76081.5	9/4/2013	NASA/ Langley B200	7	SP-1	61.5	61.2	60.2	58.8	56.8	55.2	55	56.3	55	55.4	74.2	71.2	58.4	60.6	59.6	55	47.4	47.4	53	55.1	56.2	52.4	57.5	57.8	51.8	50	44.5	39.9	36.9	35.2	35.9	36.8	37.8	38.8	39.9	41.5	64
35	2	76082	9/4/2013	NASA/ Langley B200	7	SP-1	61.3	60.3	62.3	58.4	56.1	55.1	54.7	60.1	55.3	56	74	69.2	58.2	61.5	59	55.3	49	46.6	52.7	56.1	58.7	56.2	57.9	60.3	55.8	54.1	47	42.7	38.3	35.5	35.8	36.8	37.7	38.8	39.9	41.5	66.5
35	2	76082.5	9/4/2013	NASA/ Langley B200	7	SP-1	60.8	59.6	60.7	57.2	57.4	55.2	53	60.4	54.2	57.3	76.3	67.2	57.4	60.6	58.5	55.8	49.8	47.2	51.7	56.1	58.9	57.2	57.1	60.1	56.3	54.4	47.6	43.5	39.1	35.7	35.8	36.9	37.7	38.8	39.9	41.6	66.3
35	2	76083	9/4/2013	NASA/ Langley B200	7	SP-1	61.7	59.4	62.1	62.1	57.7	54.4	54.2	60.5	53.1	58.4	78.7	65.3	57.5	60.1	59.2	57.4	53.2	48.7	52.1	57.5	60.3	59.4	58.4	61.6	57.1	54.4	48.7	44.4	39.7	35.9	35.8	36.9	37.7	38.8	39.9	41.5	67.6
35	2	76083.5	9/4/2013	NASA/ Langley B200	7	SP-1	66.1	60.3	62.5	61	58.3	54.1	53.6	59.5	52.2	58.2	80.5	63.5	57.5	60.9	59.1	58.2	54.8	49.5	52	57.5	60.1	60.3	59.4	62.5	56.6	54	48.9	45.1	40.4	36.1	35.7	36.9	37.7	38.8	39.9	41.5	68.1
35	2	76084	9/4/2013	NASA/ Langley B200	7	SP-1	65.2	61.9	61.6	59.1	58.9	52.9	52.3	58.4	51.2	57.9	81	62.2	56.5	61.7	59.5	59.2	56.9	51.7	51.7	57.3	60.3	61.3	60	62.7	56.6	54	48.7	44.8	39.6	35.8	35.7	36.8	37.8	38.8	39.9	41.5	68.2
35	2	76084.5	9/4/2013	NASA/ Langley B200	7	SP-1	63.8	61.8	63	58.7	57.9	51.8	51	56.9	52.1	57.2	80.6	60.9	57.1	61.2	59.2	58.7	57.3	52.6	50.4	55.5	58.7	60.6	60.1	61.2	55.6	52.5	47.5	43.6	38.7	35.4	35.6	36.9	37.8	38.8	39.9	41.5	67.3
35	2	76085	9/4/2013	NASA/ Langley B200	7	SP-1	66.5	62.4	64.8	57.6	56.3	50.3	50.3	55.2	53.6	56.6	79.7	60	58.1	61.1	58.9	58	56.5	53.4	50.9	53.9	56.8	60.2	61.1	59.9	54.3	51.6	46.3	42.4	37.8	35.2	35.7	36.8	37.7	38.8	39.9	41.6	66.6
35	2	76085.5	9/4/2013	NASA/ Langley B200	7	SP-1	66	61.7	62.9	57.1	55.5	48.8	50	53.8	54.1	58.1	78.4	58.8	57.3	61.1	58.6	57.4	55.4	53.3	50.6	52.4	54.9	58.4	59.7	58.3	52.6	49.9	44.8	41	36.8	35	35.8	36.8	37.7	38.9	39.9	41.5	65
35	2	76086	9/4/2013	NASA/ Langley B200	7	SP-1	66	61.7	61	55.5	53.9	48.8	49.7	52.1	53.5	60.1	76.7	58.2	56.5	60	57.5	56.1	55.3	54.5	52.9	52.5	54	57.9	59.1	57.9	52.4	48.8	44	40.4	36	34.8	35.8	36.9	37.7	38.9	39.8	41.5	64.7
35	2	76086.5	9/4/2013	NASA/ Langley B200	7	SP-1	64.7	65.8	59.3	53.8	52.1	48	48.5	52	52	62.3	75.2	56.9	56	58.9	56.6	55.2	54.8	54.9	53.9	52.8	53	57.7	58.6	57.2	51.7	47.6	43.1	39.7	35.9	34.6	35.8	37	37.7	39	39.9	41.5	64.2
35	2	76087	9/4/2013	NASA/ Langley B200	7	SP-1	66.8	66.4	57.5	55.1	52.4	46.4	47.8	52	50.8	66.6	74.4	56.3	56.2	58	55.8	55.4	53.8	54	53.1	51.7	51.7	57.1	57.8	56.4	50.6	46.6	41.9	38.6	35.2	34.6	35.8	36.9	37.8	38.9	39.9	41.5	63.2
35	2	76087.5	9/4/2013	NASA/ Langley B200	7	SP-1	66.4	64.9	57.1	54	51.6	45.9	49.2	52.7	50.1	68.1	73.1	55.1	55.7	56.7	55	55.8	52.4	52.7	51.9	50.3	50.2	56	56.7	55.2	50.1	46	41.1	38.1	34.9	34.6	35.9	36.9	37.8	38.9	39.9	41.6	62.3
35	2	76088	9/4/2013	NASA/ Langley B200	7	SP-1	64.5	64.8	55.3	52.4	50.3	45.5	51.2	51.8	49.4	68.2	71.5	54.2	55.8	56.5	54.2	55.4	51.9	52.7	51.5	50.9	51	57.4	57.8	55.9	51.6	47.3	41.9	38.7	35	34.6	36.1	36.9	37.6	38.9	40	41.5	63.1
35	2	76088.5	9/4/2013	NASA/ Langley B200	7	SP-1	63.4	63.2	54.1	50.5	48.7	44	50.7	50.7	48.5	67.7	69.6	54	56.3	56.9	53.4	55.6	52.4	52.7	50.9	51.3	50.8	56	56.3	54.4	50.2	45.8	40.6	37.6	34.5	34.4	36.1	36.9	37.5	38.8	39.9	41.5	62
35	2	76089	9/4/2013	NASA/ Langley B200	7	SP-1	62.3	61.6	52.9	52.2	48.7	44.8	51	49.9	49.1	66.7	67.7	53.8	55.6	56	54.3	57	53.4	53.5	52.1	52.3	51.8	56.2	56	54.1	50.5	47	41.5	38.1	34.4	34.4	36.1	36.9	37.6	38.8	39.9	41.6	62.5
35	2	76089.5	9/4/2013	NASA/ Langley B200	7	SP-1	62.4	59.7	51.2	52.7	48.4	44.7	50.9	48.3	48.9	66.2	65.9	53.5	54.2	56	55.2	56.9	53.7	53.7	52.4	52.3	52.7	56.1	55.7	53.3	49.8	46.1	40.5	37.2	34.1	34.5	36.2	36.9	37.6	38.8	40	41.5	61.8
35	2	76090	9/4/2013	NASA/ Langley B200	7	SP-1	61.5	57.7	53.8	51.6	46.6	45.9	50.5	46.9	48.5	65.6	64.1	52.1	53.9	55.1	54.3	55.5	52.5	52.1	50.7	50.7	50.8	54.5	53.9	51.3	47.9	44.2	38.9	36	33.9	34.4	36	37	37.6	38.8	40	41.5	60
35	2	76090.5	9/4/2013	NASA/ Langley B200	7	SP-1	60.7	56.8	52.2	50.1	46.9	44.6	50.2	46.4	47.1	64.9	62.1	51.1	53.2	54.8	53.2	54.6	51.7	51	49.6	49.5	49.7	53.5	52.8	50.5	47.4	43.5	38.2	35.3	33.6	34.4	36	36.9	37.6	38.7	39.8	41.6	59.2
35	2	76091	9/4/2013	NASA/ Langley B200	7	SP-1	62.1	56.6	52.2	51.4	46.4	43.4	49.7	45.9	48.1	64.3	60.3	50.8	52.1	53.5	52.2	54.2	50.4	49.4	48.5	48	48.3	51.9	51.2	48.7	45.9	42.1	37.1	34.5	33.4	34.3	36	36.9	37.7	38.9	39.8	41.6	57.6

Table 50. Acoustic Data from Example Category 3 Event 159 for the B-200 at SP-1

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third Octave-Band Center Frequency (Hz)																																				
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
159	1	52769.5	9/12/2013	NASA/ Langley B200	7	SP-1	65.5	62.2	60.5	59.8	59.1	53.4	52	47.5	48	51.7	52.9	54.3	68.7	52.7	53.9	51	47.9	47.1	49.7	51.4	49.2	46.3	43	41.7	40.7	40.7	34.1	32	32.7	34	35.4	36	37.2	38.2	39.2	41	56.2
159	1	52770	9/12/2013	NASA/ Langley B200	7	SP-1	64.7	62.5	59.6	60	57.6	51.8	50.9	47	48.5	51	52.9	53.3	68.2	54.3	53.8	50.7	48	46.6	52	54.4	52.8	48.7	44.1	44.2	40.9	40.1	34	32.3	32.6	33.9	35.3	36.2	37.2	38.2	39.3	41	57.8
159	1	52770.5	9/12/2013	NASA/ Langley B200	7	SP-1	64.1	65.7	58.2	58.6	56.7	50.2	52.2	48.3	51.8	51.3	53.1	52.3	69.9	54.6	54.2	51.6	48.5	47.6	52.2	53.9	51.3	48.6	44.4	43.6	40.5	39	33.7	32.2	32.6	34	35.1	36.2	37.2	38.2	39.2	41	57.6
159	1	52771	9/12/2013	NASA/ Langley B200	7	SP-1	64.5	66.9	57	57.6	55.1	54.2	53.9	50.8	51.6	51.8	53.5	52.4	70.8	54.8	54.2	51.2	48	49.4	53.1	53.4	49.8	48.3	45.7	44.1	41	39	34	32.5	32.9	34	35	36.1	37.2	38.3	39.3	41	57.5

EVENT ID	Peak	GPS Time Midpoint (s)	Date	Model	Measurement Site ID	Measurement Site	One-Third 0ctave-Band Center Frequency (Hz)																																		
							6.3	8	10	13	16	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	LAS
159	1	52771.5	9/12/2013	NASA/ Langley B200	7	SP-1	62.6	66.8	57.2	55.7	53.7	59	54.9	54.5	51.3	51.7	52.7	51.5	70.7	54.8	52.8	49.9	46.9	50.4	52.8	52.8	48.7	49	46.6	45.1	41	39.2	34.1	32.4	32.8	34.1	34.9	36.1	37.3	38.2	39.2	41	57.4
159	1	52772	9/12/2013	NASA/ Langley B200	7	SP-1	60.8	66	57.7	60.7	60.4	59.2	56.2	54.1	52.6	50.5	52.3	51.7	70.7	53.7	51.5	48.3	46.2	50.9	52.9	52.8	47.8	49.7	45.8	44.5	41	38.7	34.4	32.7	32.8	34.2	34.9	36.2	37.2	38.3	39.3	40.9	57.5
159	1	52772.5	9/12/2013	NASA/ Langley B200	7	SP-1	61.4	64.6	60.8	62	65.3	59.1	55	52.9	52.4	51.1	53.7	53.1	70.9	53.6	51.3	46.9	47.9	53	53.9	52.7	47.9	50.4	44.8	44.5	41.5	38.7	34.6	33	32.6	34.1	35	36.1	37.2	38.3	39.2	40.9	57.7
159	1	52773	9/12/2013	NASA/ Langley B200	7	SP-1	61.4	64.2	67.1	63.8	65.5	58.4	53.7	51.9	51.6	51.3	54.5	54.1	70.5	53.1	51.5	45.7	50	55.1	54.4	52.2	46.9	49.9	44.2	44	41.4	40.1	35.1	33.2	32.9	34.2	35	36.2	37.2	38.3	39.2	41	57.7
159	1	52773.5	9/12/2013	NASA/ Langley B200	7	SP-1	63.8	62.3	66.6	65.8	64.9	56.7	54.3	52	51.1	51.5	54.6	53.6	70	53.1	50.6	46	50.2	55.1	55.1	51.7	47	51.2	44.5	45.6	43.1	41.3	36.8	34.2	33.1	34.1	35	36.3	37.2	38.3	39.2	40.9	57.8
159	1	52774	9/12/2013	NASA/ Langley B200	7	SP-1	62.5	62	65.7	64	63.1	55.1	53.4	50.8	51.2	52.5	54.9	53.3	68.7	53.1	49.5	45.6	52.5	55.7	56.4	51.5	47.9	51.7	44.5	45.9	43.5	41.2	36.8	34.1	33.2	34.1	35.1	36.2	37.2	38.4	39.3	41	58.3
159	1	52774.5	9/12/2013	NASA/ Langley B200	7	SP-1	61.6	64.2	64.5	63	61.6	56.2	57.1	50.8	52.1	52.2	54.6	53.5	67	52.3	48.2	45.5	52.6	55.9	56.3	51.2	49.5	51.8	46.4	46.8	45.1	43.2	37.8	34.5	33.4	34	35.2	36.2	37.2	38.3	39.3	41	58.6
159	1	52775	9/12/2013	NASA/ Langley B200	7	SP-1	60.5	65.5	63	61.9	59.7	56.6	56.4	50.4	51.9	53.2	53.8	53.6	65.7	52.4	47.9	49.9	57.3	57.8	58.4	51.3	53.6	52.7	49.8	49	48.1	48.2	40.4	36	33.3	34	35.1	36.4	37.1	38.3	39.4	41	60.9
159	1	52775.5	9/12/2013	NASA/ Langley B200	7	SP-1	68.2	65.7	61.3	62.2	60.3	54.9	55.4	51.7	51.9	54.1	54.3	55.5	64.8	53.1	47.4	52.1	58.2	57.7	57.5	50.3	52.7	51.3	49	48.1	47	46.6	39.5	35.5	33.4	34	35.2	36.3	37.1	38.3	39.4	41	60
159	1	52776	9/12/2013	NASA/ Langley B200	7	SP-1	74.2	68.4	61.3	61.7	59.2	53.8	53.9	52.8	54.5	56.3	54.1	56.6	64.3	52.6	46.2	51.5	59.2	57.4	57.2	49.8	53.2	50.3	50	48.6	46.7	46.2	39.5	35.7	33.6	34	35.1	36.2	37.1	38.3	39.3	40.9	60.6
159	1	52776.5	9/12/2013	NASA/ Langley B200	7	SP-1	72.7	70.4	62.8	61.3	59.8	52.6	55.2	54.1	54.6	55.3	54.2	62.4	66.8	51.7	53	54.4	63.5	58.9	56.8	51.1	54.8	50.3	50	49.3	47.3	45.9	39.9	36	33.7	33.8	35.1	36.2	37.1	38.3	39.3	41	62.2
159	1	52777	9/12/2013	NASA/ Langley B200	7	SP-1	70.9	68.7	63.8	62.5	59.4	52.5	54.4	54.2	53.4	56.6	54	71.1	67.6	50.7	58.2	57.2	64.9	60.1	56.1	54.4	55.9	52.6	51.4	51.6	49.6	48.1	41.9	37.6	34.2	34	35.2	36.3	37.2	38.3	39.3	41	63.1
159	1	52777.5	9/12/2013	NASA/ Langley B200	7	SP-1	69	68.3	64.1	61.2	58.9	54.1	54.5	53.3	53.8	56.5	56.2	71	66	49.2	62.1	57.7	64.4	59.9	55.1	55.4	55.2	53.4	51.9	51.4	49.4	47.4	41.9	37.8	34.4	34.1	35.2	36.3	37.2	38.2	39.2	41	63.7
159	1	52778	9/12/2013	NASA/ Langley B200	7	SP-1	67.8	68	64	60.1	58.1	54.2	53.7	52.3	57.3	55.8	55.8	75	64.4	47.8	68.2	60.5	65.6	61.8	55.5	58.7	56.8	56.7	54.1	54.7	52	49.5	45.3	40.2	35.9	34.4	35.2	36.2	37.2	38.2	39.3	40.9	66.2
159	1	52778.5	9/12/2013	NASA/ Langley B200	7	SP-1	69.3	67.6	63.1	58.9	56.7	57.5	52.3	53	58.4	55.2	55.1	79.2	62.5	46.8	70.4	60.1	66.4	61.9	54.2	58.4	55.9	56.2	53.7	54.3	52.1	49.1	45	39.8	35.9	34.6	35.2	36.2	37.2	38.3	39.3	40.9	66.1
159	1	52779	9/12/2013	NASA/ Langley B200	7	SP-1	69.8	68	61.6	60.6	56.4	57	51.1	53.7	59	54.4	54.8	78.9	60.7	45.9	72.6	61.1	67.4	63.1	54.8	59.7	55.9	56.7	54.7	55.1	53.6	50	45.4	40.8	36.4	34.8	35.2	36.2	37.3	38.3	39.3	41	66.9
159	1	52779.5	9/12/2013	NASA/ Langley B200	7	SP-1	69.8	66.7	61	61	55.5	57.1	50.6	53.3	59.5	55.1	55.6	77.8	59	45	73.1	60.7	66.7	62.2	54	59.4	55.3	56.9	54.4	54.9	54.3	49.8	45.5	40.7	36.6	35.1	35.2	36.2	37.2	38.3	39.2	41	66.6
159	1	52780	9/12/2013	NASA/ Langley B200	7	SP-1	69.8	65	61.2	61.1	54.7	57.6	52.1	53.2	58.7	54.3	55.5	80.1	57.7	47.5	72.1	61.4	65.8	61.8	54	59.8	54.9	56.5	54	54.7	54.7	49	45	40.3	36.6	35.2	35.3	36.1	37.2	38.2	39.2	41	66.6
159	1	52780.5	9/12/2013	NASA/ Langley B200	7	SP-1	68.5	66	61.2	59.6	53.6	58.9	52.2	52.6	58.5	53.8	62.7	81.2	56.9	61.7	72.6	65.4	65	61.2	54.9	60.1	54.9	56	54.5	54.9	56.4	50.7	45	40.4	37.1	35.2	35.3	36.2	37.2	38.2	39.2	41	66.8
159	1	52781	9/12/2013	NASA/ Langley B200	7	SP-1	68	64.4	59.8	58.9	56.8	59.4	52.9	53	60.3	56.1	71.4	80.6	55.4	63.8	71	65.1	64.1	60.2	54.9	59.8	54.2	55.5	54.8	55.1	56.2	50.4	45.3	40.7	37.3	35.2	35.3	36.2	37.1	38.3	39.3	41	66.2
159	1	52781.5	9/12/2013	NASA/ Langley B200	7	SP-1	67.8	63.9	58.7	60.1	55.5	57.6	52.2	54.3	59.4	55	73.9	78.8	54.1	65	69.1	65.6	63.7	59.5	54.7	59.2	54.3	55.4	55.5	55.7	55.8	50.7	45.6	40.9	37.2	35.1	35.3	36.2	37.2	38.3	39.2	41	65.9
159	1	52782	9/12/2013	NASA/ Langley B200	7	SP-1	66	64.3	57.5	59.6	54.9	56.7	51.6	57	58.5	55.1	72.9	76.8	53.6	65.3	67.2	64.8	62.8	58.9	54	59.3	53.7	55.8	56.7	56.2	55.4	50.7	45.7	41.2	37.4	34.9	35.2	36.1	37.1	38.3	39.3	41.1	65.8
159	1	52782.5	9/12/2013	NASA/ Langley B200	7	SP-1	65.5	63.4	60.1	58.8	54.8	56	52.8	57.9	57.1	55.3	72.7	74.7	53.3	63.4	65.2	64.2	63.8	59.3	53.6	59.9	53.8	56.8	58.5	57.2	55.3	51.1	45.8	41.5	37.3	34.8	35.1	36.1	37.1	38.2	39.3	41	66.2
159	1	52783	9/12/2013	NASA/ Langley B200	7	SP-1	66.8	61.6	59.7	58.2	53.8	55.3	51.5	57	55.4	56.6	77.1	72.7	54.6	61.6	63.4	63.2	63.1	60	53	59.7	53.8	57.6	59.1	58.1	55.1	51.9	46	41.9	37.2	34.6	35.1	36.2	37.2	38.2	39.3	41	66.4
159	1	52783.5	9/12/2013	NASA/ Langley B200	7	SP-1	65.4	60.2	59.3	58.4	54.6	55.9	51.3	57.1	54.8	57.8	80	70.7	54.1	60	61.5	61.8	61.8	59	51.8	59	52.8	57	58.1	57.3	54	51	45.2	41.1	36.9	34.7	35	36.2	37.1	38.2	39.3	41	65.6
159	1	52784	9/12/2013	NASA/ Langley B200	7	SP-1	66.6	61.4	60.3	60.6	57.7	55	49.7	58.2	53.7	57.9	80.8	68.7	53	58.5	59.6	60.4	60.8	58	50.8	58.2	52.1	56.1	57.2	56.8	53.2	50	44.2	40.2	36.3	34.4	34.9	36.2	37.1	38.3	39.3	41	64.8
159	1	52784.5	9/12/2013	NASA/ Langley B200	7	SP-1	67	65.7	59.3	61	59.9	53.3	50.9	57.7	53.3	57.6	81.1	66.9	52.7	56.8	57.8	59.3	60.2	57.8	51	58.2	52.3	56.1	57	56.7	53.6	50.2	44.3	40	36.1	34.3	35	36.2	37.3	38.3	39.3	41	64.6
159	1	52785	9/12/2013	NASA/ Langley B200	7	SP-1	65.2	64	58.8	59	59.8	52.8	50	56.6	52.7	57	80.4	65.3	52.7	55.7	56.2	59	59.9	58	49.9	57.2	51.7	55.5	56.2	56	52.6	49.2	43.8	39.5	35.8	34.3	35.1	36.2	37.4	38.2	39.2	40.9	64
159	1	52785.5	9/12/2013	NASA/ Langley B200	7	SP-1	64.2	63	57	57.4	60.3	52.2	50.6	56.5	51.9	57.5	80	63.4	52.3	54.8	54.3	58.9	60	58.3	50	57.7	52.9	56.1	56.8	57.6	53.8	50.3	44.4	40	35.9	34.2	35.3	36.2	37.2	38.3	39.2	41	64.8
159	1	52786	9/12/2013	NASA/ Langley B200	7	SP-1	65.1	64.7	55.7	55.8	60.2	52.5	52	54.9	51.5	61.1	79.5	62.7	52.2	54.6	52.6	58.5	59.6	58.1	49.5	56.7	53	56.3	57	58.1	53.5	50.2	44.6	39.7	35.6	34.1	35.2	36.2	37.2	38.3	39.2	41	64.6
159	1	52786.5	9/12/2013	NASA/ Langley B200	7	SP-1	64.7	64.4	55.5	56.9	59.4	56	53	53.8	52.8	65.3	78.5	61.6	51.9	53.5	50.8	57	58.8	57.5	49.3	55.4	52.1	55.2	56.1	56.7	52.2	49	43.3	38.7	34.9	34.1	35.2	36.2	37.1	38.2	39.3	41	63.5
159	1	52787	9/12/2013	NASA/ Langley B200	7	SP-1	64	63	60.6	56.9	59.8	55	52.3	53.5	53.2	68.9	77.8	60.4	51.8	52.1	49.1	55.7	57.8	56.5	49	53.7	51.3	53.9	55.1	55.1	50.7	47.4	41.7	37.5	34.4	34	35.1	36.1	37.2	38.3	39.3	41	62.3
159	1	52787.5	9/12/2013	NASA/ Langley B200	7	SP-1	62.2	61.8	62.8	56.3	60.1	53.5	51.1	52.1	54	73.5	77.9	59.2	52.3	51.5	47.6	54.2	57.5	56.8	49.8	52.1	52	53.1	55	53.7	49.8	46.3	40.9	36.9	34.1	34.1	35.2	36	37.2	38.3	39.3	41	61.9
159	1	52788	9/12/2013	NASA/ Langley B200	7	SP-1	62.1	64.1	61.4	55.2	59.5	52.3	50.3	50.7	55.2	77	78.3	59.3	53.9	51.3	46.2	52.8	56.6	55.9	50.6	50.3	51.3	51.8	54	52.3	48.4	44.9	39.8	36	33.8	34	35.2	36	37.2	38.3	39.3	41	60.8
159	1	52788.5	9/12/2013	NASA/ Langley B200	7	SP-1	62.3	63.2	60.2	55.4	58.6	51.6	49.1	49.1	56.8	78.4	77.5	58.2	53.8	50.4	45.6	51.3	55.5	55.1	49.8	48.6	50.4	50.5	53	50.9	47.1	43.7	38.8	35.3	33.5	34	35.2	36.1	37.1	38.4	39.3	41	59.8
159	1	52789	9/12/2013	NASA/ Langley B200	7	SP-1	62.5	66.3	59.2	54.7	57	49.9	47.6	47.3	56.3	78.5	76.1	57.7	54.5	51.1	44.5	50.3	55.1	55.1	51.4	47.4	49.6	50.3	53.1	50.3	46.3	43	38.2	35.2	33.3	34	35.3	36.3	37.1	38.3	39.3	41	59.4
159	1	52789.5	9/12/2013	NASA/ Langley B200	7	SP-1	64.7	66	59.6	53.8	56.2	48.5	46.8	46.5	56.7	78.1	74.6	57	55	52.4	43.6	48.9	54.5	54.8	51.1	46	48.6	49.2	51.4	48.7	45.1	41.6	37	34.5	33.1	33.8	35.2	36.2	37.1	38.2	39.2	41	58.1
159	1	52790	9/12/2013	NASA/ Langley B200	7	SP-1	67.2	69.5	58.5	54.6	54.3	47.4	46	47	56.5	76.9	72.7	56.7	54.7	52	44.1	47.6	53.4	53.5	50.2	44.6	47	48	49.7	47.3	43.6	40	36	33.8	33.1	33.8	35.1	36.3	37.1	38.3	39.2	41	56.7

B.2 Aircraft Position Data

B.2.1 Category 1: P-3B Level Flyover Events

Table 51. Aircraft Position Data from Example Category 1 Event 116 for the P-3B at NP-2

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
116	1	55873	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.48	0.726	102.907
116	1	55874	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.666	102.898
116	1	55875	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.618	102.898
116	1	55876	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.588	102.883
116	1	55877	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.575	102.874
116	1	55878	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.582	102.859
116	1	55879	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.608	102.855
116	1	55880	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.653	102.85
116	1	55881	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.71	102.845
116	1	55882	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.778	102.836
116	1	55883	9/11/2013	NASA P-3B	3	NP-2	30.27	-95.47	0.853	102.826
116	1	55884	9/11/2013	NASA P-3B	3	NP-2	30.28	-95.47	0.935	102.816
116	1	55885	9/11/2013	NASA P-3B	3	NP-2	30.28	-95.47	1.018	102.816
116	1	55886	9/11/2013	NASA P-3B	3	NP-2	30.28	-95.47	1.112	102.812
116	1	55887	9/11/2013	NASA P-3B	3	NP-2	30.28	-95.47	1.205	102.812

Table 52. Aircraft Position Data from Example Category 1 Event 183 for the P-3B at NP-1

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat.	GPS Lon.	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
183	1	65770	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.793	NULL
183	1	65771	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.759	NULL
183	1	65772	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.744	NULL
183	1	65773	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.739	NULL
183	1	65774	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.754	NULL
183	1	65775	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.784	NULL
183	1	65776	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.829	NULL
183	1	65777	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.886	NULL
183	1	65778	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	0.956	NULL
183	1	65779	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.49	1.034	NULL
183	1	65780	9/12/2013	NASA P-3B	2	NP-1	30.22	-95.48	1.115	NULL
183	1	65781	9/12/2013	NASA P-3B	2	NP-1	30.23	-95.48	1.196	NULL
183	1	65782	9/12/2013	NASA P-3B	2	NP-1	30.23	-95.48	1.281	NULL
183	1	65783	9/12/2013	NASA P-3B	2	NP-1	30.23	-95.48	1.371	NULL
183	1	65784	9/12/2013	NASA P-3B	2	NP-1	30.23	-95.48	1.46	NULL
183	1	65785	9/12/2013	NASA P-3B	2	NP-1	30.23	-95.48	1.555	NULL
183	1	65786	9/12/2013	NASA P-3B	2	NP-1	30.23	-95.48	1.65	NULL

B.2.2 Category 2: P-3B Spiral Events

Table 53. Aircraft Position Data from Example Category 2 Event 33 for the P-3B at SP-2

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	1	75262	9/4/2013	NASA P-3B	8	SP-2	29.5	-94.8	5.699	NULL
33	1	75263	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.623	NULL
33	1	75264	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.549	NULL
33	1	75265	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.478	NULL
33	1	75266	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.407	NULL
33	1	75267	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.339	NULL
33	1	75268	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.272	NULL
33	1	75269	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.211	NULL
33	1	75270	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.149	NULL
33	1	75271	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	5.089	NULL
33	1	75272	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	5.036	NULL
33	1	75273	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	4.983	NULL
33	1	75274	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	4.931	NULL
33	1	75275	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	4.885	NULL
33	1	75276	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	4.841	NULL
33	1	75277	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	4.799	NULL
33	1	75278	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.79	4.76	NULL
33	1	75279	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.79	4.727	NULL
33	1	75280	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.79	4.695	NULL
33	1	75281	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.667	NULL
33	1	75282	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.64	NULL
33	1	75283	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.617	NULL
33	1	75284	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.597	NULL
33	1	75285	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.582	NULL
33	1	75286	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.573	NULL
33	1	75287	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.566	NULL
33	1	75288	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.56	NULL
33	1	75289	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.79	4.561	NULL
33	1	75290	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.561	NULL
33	1	75291	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.568	NULL
33	1	75292	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.576	NULL
33	1	75293	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.589	NULL
33	1	75294	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.605	NULL
33	1	75295	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.625	NULL
33	1	75296	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.646	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	1	75297	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.67	NULL
33	1	75298	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	4.703	NULL
33	1	75299	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	4.733	NULL
33	1	75300	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	4.768	NULL
33	1	75301	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	4.808	NULL
33	1	75302	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	4.852	NULL
33	1	75303	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	4.894	NULL
33	1	75304	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	4.94	NULL
33	1	75305	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	4.992	NULL
33	1	75306	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.043	NULL
33	1	75307	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.096	NULL
33	1	75308	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.155	NULL
33	1	75309	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.213	NULL
33	1	75310	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.276	NULL
33	1	75311	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.345	NULL
33	1	75312	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.417	NULL
33	1	75313	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.488	NULL
33	1	75314	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.568	NULL
33	1	75315	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.647	NULL
33	1	75316	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.73	NULL
33	1	75317	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	5.815	NULL
33	1	75318	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	5.904	NULL
33	1	75319	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	5.994	NULL
33	1	75320	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	6.091	NULL
33	1	75321	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	6.185	NULL
33	1	75322	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	6.28	NULL
33	1	75323	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	6.381	NULL
33	1	75324	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	6.483	NULL
33	1	75325	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	6.584	NULL
33	1	75326	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	6.685	NULL
33	1	75327	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	6.791	NULL
33	1	75328	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	6.892	NULL
33	1	75329	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	6.998	NULL
33	1	75330	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	7.102	NULL
33	1	75331	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	7.21	NULL
33	1	75332	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	7.315	NULL
33	1	75333	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	7.423	NULL
33	1	75334	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	7.53	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	1	75335	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	7.639	NULL
33	1	75336	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	7.744	NULL
33	2	75469	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.853	NULL
33	2	75470	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.961	NULL
33	2	75471	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.067	NULL
33	2	75472	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.176	NULL
33	2	75473	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.279	NULL
33	2	75474	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.385	NULL
33	2	75475	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.49	NULL
33	2	75476	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.594	NULL
33	2	75477	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.696	NULL
33	2	75478	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	8.799	NULL
33	2	75479	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	8.898	NULL
33	2	75480	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	8.998	NULL
33	2	75481	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	9.092	NULL
33	2	75482	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	9.188	NULL
33	2	75483	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	9.277	NULL
33	2	75484	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	9.368	NULL
33	2	75485	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	9.448	NULL
33	2	75486	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	9.528	NULL
33	2	75487	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	9.605	NULL
33	2	75488	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	9.676	NULL
33	2	75489	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	9.748	NULL
33	2	75490	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.814	NULL
33	2	75491	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.88	NULL
33	2	75492	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.931	NULL
33	2	75493	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.984	NULL
33	2	75494	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.037	NULL
33	2	75495	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.085	NULL
33	2	75496	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.127	NULL
33	2	75497	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.17	NULL
33	2	75498	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.207	NULL
33	2	75499	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.241	NULL
33	2	75500	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.273	NULL
33	2	75501	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.308	NULL
33	2	75502	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.34	NULL
33	2	75503	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.371	NULL
33	2	75504	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.401	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	2	75505	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.429	NULL
33	2	75506	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	10.457	NULL
33	2	75507	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.482	NULL
33	2	75508	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.509	NULL
33	2	75509	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.534	NULL
33	2	75510	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.554	NULL
33	2	75511	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.572	NULL
33	2	75512	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.588	NULL
33	2	75513	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.604	NULL
33	2	75514	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.62	NULL
33	2	75515	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.627	NULL
33	2	75516	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	10.63	NULL
33	2	75517	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	10.63	NULL
33	2	75518	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	10.636	NULL
33	2	75519	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	10.633	NULL
33	2	75520	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	10.624	NULL
33	2	75521	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	10.615	NULL
33	2	75522	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	10.596	NULL
33	3	75666	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	10.581	NULL
33	3	75667	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.563	NULL
33	3	75668	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.544	NULL
33	3	75669	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.519	NULL
33	3	75670	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.489	NULL
33	3	75671	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.455	NULL
33	3	75672	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.421	NULL
33	3	75673	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.385	NULL
33	3	75674	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.349	NULL
33	3	75675	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	10.311	NULL
33	3	75676	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	10.27	NULL
33	3	75677	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	10.232	NULL
33	3	75678	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.188	NULL
33	3	75679	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.146	NULL
33	3	75680	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.102	NULL
33	3	75681	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.06	NULL
33	3	75682	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	10.014	NULL
33	3	75683	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.972	NULL
33	3	75684	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.919	NULL
33	3	75685	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	9.875	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	3	75686	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.834	NULL
33	3	75687	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.785	NULL
33	3	75688	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.727	NULL
33	3	75689	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.675	NULL
33	3	75690	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.624	NULL
33	3	75691	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.563	NULL
33	3	75692	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.511	NULL
33	3	75693	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.453	NULL
33	3	75694	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.39	NULL
33	3	75695	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	9.326	NULL
33	3	75696	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	9.261	NULL
33	3	75697	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	9.191	NULL
33	3	75698	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	9.123	NULL
33	3	75699	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	9.054	NULL
33	3	75700	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	8.981	NULL
33	3	75701	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	8.904	NULL
33	3	75702	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	8.825	NULL
33	3	75703	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	8.749	NULL
33	3	75704	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	8.667	NULL
33	4	75846	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.81	8.586	NULL
33	4	75847	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.81	8.499	NULL
33	4	75848	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.81	8.414	NULL
33	4	75849	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.81	8.32	NULL
33	4	75850	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.81	8.227	NULL
33	4	75851	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.8	8.133	NULL
33	4	75852	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.8	8.034	NULL
33	4	75853	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.8	7.938	NULL
33	4	75854	9/4/2013	NASA P-3B	8	SP-2	29.53	-94.8	7.842	NULL
33	4	75855	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.741	NULL
33	4	75856	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.638	NULL
33	4	75857	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.537	NULL
33	4	75858	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.434	NULL
33	4	75859	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.33	NULL
33	4	75860	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.226	NULL
33	4	75861	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.8	7.119	NULL
33	4	75862	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	7.012	NULL
33	4	75863	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	6.905	NULL
33	4	75864	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	6.805	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	4	75865	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	6.699	NULL
33	4	75866	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	6.592	NULL
33	4	75867	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	6.49	NULL
33	4	75868	9/4/2013	NASA P-3B	8	SP-2	29.54	-94.79	6.386	NULL
33	4	75869	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	6.282	NULL
33	4	75870	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	6.182	NULL
33	4	75871	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	6.083	NULL
33	4	75872	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	5.985	NULL
33	4	75873	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	5.886	NULL
33	4	75874	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.79	5.794	NULL
33	4	75875	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.698	NULL
33	4	75876	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.605	NULL
33	4	75877	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.515	NULL
33	4	75878	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.43	NULL
33	4	75879	9/4/2013	NASA P-3B	8	SP-2	29.55	-94.78	5.345	NULL
33	4	75880	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.259	NULL
33	4	75881	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.178	NULL
33	4	75882	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.101	NULL
33	4	75883	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	5.025	NULL
33	4	75884	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	4.951	NULL
33	4	75885	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	4.881	NULL
33	4	75886	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	4.814	NULL
33	4	75887	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	4.745	NULL
33	4	75888	9/4/2013	NASA P-3B	8	SP-2	29.56	-94.78	4.683	NULL
33	4	75889	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.624	NULL
33	4	75890	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.564	NULL
33	4	75891	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.512	NULL
33	4	75892	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.461	NULL
33	4	75893	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.41	NULL
33	4	75894	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.368	NULL
33	4	75895	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.326	NULL
33	4	75896	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.289	NULL
33	4	75897	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.253	NULL
33	4	75898	9/4/2013	NASA P-3B	8	SP-2	29.57	-94.78	4.227	NULL
33	4	75899	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	4.198	NULL
33	4	75900	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	4.18	NULL
33	4	75901	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	4.165	NULL
33	4	75902	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.78	4.16	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	4	75903	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	4.16	NULL
33	4	75904	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	4.166	NULL
33	4	75905	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	4.173	NULL
33	4	75906	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	4.192	NULL
33	4	75907	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	4.216	NULL
33	4	75908	9/4/2013	NASA P-3B	8	SP-2	29.58	-94.79	4.243	NULL
33	4	75909	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.286	NULL
33	4	75910	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.327	NULL
33	4	75911	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.371	NULL
33	4	75912	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.421	NULL
33	4	75913	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.48	NULL
33	4	75914	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.543	NULL
33	4	75915	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.79	4.607	NULL
33	4	75916	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	4.679	NULL
33	4	75917	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	4.753	NULL
33	4	75918	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	4.829	NULL
33	4	75919	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	4.909	NULL
33	4	75920	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	4.992	NULL
33	4	75921	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	5.079	NULL
33	4	75922	9/4/2013	NASA P-3B	8	SP-2	29.59	-94.8	5.167	NULL
33	4	75923	9/4/2013	NASA P-3B	8	SP-2	29.6	-94.8	5.256	NULL
33	4	75924	9/4/2013	NASA P-3B	8	SP-2	29.6	-94.8	5.35	NULL
33	4	75925	9/4/2013	NASA P-3B	8	SP-2	29.6	-94.81	5.441	NULL
33	5	76179	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	5.536	NULL
33	5	76180	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	5.631	NULL
33	5	76181	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	5.73	NULL
33	5	76182	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	5.826	NULL
33	5	76183	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	5.925	NULL
33	5	76184	9/4/2013	NASA P-3B	8	SP-2	29.52	-94.8	6.023	NULL
33	5	76185	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.122	NULL
33	5	76186	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.219	NULL
33	5	76187	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.321	NULL
33	5	76188	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.424	NULL
33	5	76189	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.524	NULL
33	5	76190	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.622	NULL
33	5	76191	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.727	NULL
33	5	76192	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.825	NULL
33	5	76193	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	6.926	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
33	5	76194	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	7.031	NULL
33	5	76195	9/4/2013	NASA P-3B	8	SP-2	29.51	-94.8	7.13	NULL
33	5	76196	9/4/2013	NASA P-3B	8	SP-2	29.5	-94.8	7.229	NULL
33	5	76197	9/4/2013	NASA P-3B	8	SP-2	29.5	-94.8	7.328	NULL
33	5	76198	9/4/2013	NASA P-3B	8	SP-2	29.5	-94.8	7.425	NULL
33	5	76199	9/4/2013	NASA P-3B	8	SP-2	29.5	-94.8	7.526	NULL
33	5	76200	9/4/2013	NASA P-3B	8	SP-2	29.5	-94.8	7.624	NULL

Table 54. Aircraft Position Data from Example Category 2 Event 102 for the P-3B at SP-1

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
102	1	51875	00:00.0	NASA P-3B	7	SP-1	29.53	-94.79	4.197	3.847
102	1	51876	00:00.0	NASA P-3B	7	SP-1	29.53	-94.79	4.14	3.857
102	1	51877	00:00.0	NASA P-3B	7	SP-1	29.53	-94.79	4.085	3.86
102	1	51878	00:00.0	NASA P-3B	7	SP-1	29.53	-94.79	4.038	3.86
102	1	51879	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.994	3.873
102	1	51880	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.951	3.873
102	1	51881	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.912	3.882
102	1	51882	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.882	3.879
102	1	51883	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.852	3.888
102	1	51884	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.829	3.906
102	1	51885	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.812	3.915
102	1	51886	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.797	3.915
102	1	51887	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	3.784	3.937
102	1	51888	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	3.778	3.941
102	1	51889	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	3.774	3.95
102	1	51890	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	3.777	3.954
102	1	51891	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	3.782	3.963
102	1	51892	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	3.795	3.963
102	1	51893	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	3.81	3.963
102	1	51894	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	3.831	3.968
102	1	51895	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	3.864	3.977
102	1	51896	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	3.896	3.986
102	1	51897	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	3.935	4.005
102	1	51898	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	3.98	4.014
102	1	51899	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	4.03	4.027
102	1	51900	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	4.084	4.036

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
102	1	51901	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	4.143	4.039
102	1	51902	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	4.207	4.049
102	2	52065	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	4.276	4.049
102	2	52066	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	4.346	4.058
102	2	52067	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	4.419	4.063
102	2	52068	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	4.494	4.072
102	2	52069	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	4.577	4.081
102	2	52070	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	4.663	4.103
102	2	52071	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	4.75	4.112
102	2	52072	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	4.841	4.125
102	2	52073	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	4.936	4.125
102	2	52074	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	5.028	4.138
102	2	52075	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	5.126	4.138
102	2	52076	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.225	4.142
102	2	52077	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.327	4.147
102	2	52078	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.428	4.156
102	2	52079	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.531	4.166
102	2	52080	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.636	4.175
102	2	52081	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.736	4.184
102	2	52082	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.843	4.193
102	2	52083	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	5.947	4.211
102	2	52084	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	6.054	4.224
102	2	52085	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.16	4.233
102	2	52086	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.263	4.246
102	2	52087	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.366	4.25
102	2	52088	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.471	4.259
102	2	52089	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.575	4.259
102	2	52090	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.681	4.268
102	2	52091	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.784	4.277
102	2	52092	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.883	4.286
102	2	52093	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	6.985	4.295
102	2	52094	00:00.0	NASA P-3B	7	SP-1	29.57	-94.79	7.084	4.305
102	3	52244	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	7.181	4.314
102	3	52245	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	7.277	4.326
102	3	52246	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	7.371	4.326
102	3	52247	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.462	4.336
102	3	52248	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.551	4.345
102	3	52249	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.638	4.358

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
102	3	52250	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.725	4.376
102	3	52251	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.809	4.389
102	3	52252	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.893	4.389
102	3	52253	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	7.973	4.402
102	3	52254	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.05	4.411
102	3	52255	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.127	4.411
102	3	52256	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.204	4.42
102	3	52257	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.277	4.425
102	3	52258	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.351	4.438
102	3	52259	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.418	4.456
102	3	52260	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.485	4.466
102	3	52261	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.545	4.487
102	3	52262	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.613	4.497
102	3	52263	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.669	4.506
102	3	52264	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.726	4.515
102	3	52265	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.779	4.524
102	3	52266	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.832	4.533
102	3	52267	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.878	4.537
102	3	52268	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.925	4.546
102	3	52269	00:00.0	NASA P-3B	7	SP-1	29.57	-94.78	8.967	4.559
102	3	52270	00:00.0	NASA P-3B	7	SP-1	29.57	-94.78	9.009	4.568
102	3	52271	00:00.0	NASA P-3B	7	SP-1	29.57	-94.79	9.045	4.586
102	4	52429	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	9.072	4.595
102	4	52430	00:00.0	NASA P-3B	7	SP-1	29.54	-94.8	9.106	4.605
102	4	52431	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	9.136	4.614
102	4	52432	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	9.161	4.623
102	4	52433	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	9.185	4.632
102	4	52434	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	9.208	4.632
102	4	52435	00:00.0	NASA P-3B	7	SP-1	29.54	-94.79	9.224	4.641
102	4	52436	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.24	4.65
102	4	52437	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.253	4.663
102	4	52438	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.26	4.672
102	4	52439	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.27	4.685
102	4	52440	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.27	4.694
102	4	52441	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.273	4.703
102	4	52442	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.269	4.709
102	4	52443	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.265	4.718
102	4	52444	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.26	4.727

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
102	4	52445	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.25	4.737
102	4	52446	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	9.231	4.746
102	4	52447	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.215	4.755
102	4	52448	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.197	4.777
102	4	52449	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.176	4.786
102	4	52450	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.151	4.799
102	4	52451	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.125	4.811
102	4	52452	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.096	4.811
102	4	52453	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.057	4.821
102	4	52454	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	9.024	4.821
102	4	52455	00:00.0	NASA P-3B	7	SP-1	29.56	-94.79	8.981	4.833
102	4	52456	00:00.0	NASA P-3B	7	SP-1	29.57	-94.79	8.945	4.833
102	5	52628	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.902	4.833
102	5	52629	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.848	4.843
102	5	52630	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.805	4.852
102	5	52631	00:00.0	NASA P-3B	7	SP-1	29.55	-94.79	8.748	4.864
102	5	52632	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.696	4.874
102	5	52633	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.638	4.886
102	5	52634	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.579	4.905
102	5	52635	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.522	4.914
102	5	52636	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.459	4.932
102	5	52637	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.399	4.941
102	5	52638	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.336	4.954
102	5	52639	00:00.0	NASA P-3B	7	SP-1	29.55	-94.78	8.277	4.963
102	5	52640	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.212	4.976
102	5	52641	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.153	4.976
102	5	52642	00:00.0	NASA P-3B	7	SP-1	29.56	-94.78	8.087	4.989

B.2.3 Category 3: B-200 King Air Level Flyover Events

Table 55. Aircraft Position Data from Example Category 3 Event 35 for the B-200 at SP-1

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
35	1	75861	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.8	9.384	NULL
35	1	75862	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.8	9.359	NULL
35	1	75863	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.8	9.336	NULL
35	1	75864	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.79	9.314	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
35	1	75865	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.79	9.293	NULL
35	1	75866	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.79	9.274	NULL
35	1	75867	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.79	9.255	NULL
35	1	75868	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.79	9.237	NULL
35	1	75869	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.79	9.221	NULL
35	1	75870	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.79	9.205	NULL
35	1	75871	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.79	9.191	NULL
35	1	75872	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.79	9.178	NULL
35	1	75873	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.79	9.166	NULL
35	1	75874	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.155	NULL
35	1	75875	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.145	NULL
35	1	75876	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.137	NULL
35	1	75877	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.129	NULL
35	1	75878	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.123	NULL
35	1	75879	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.118	NULL
35	1	75880	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.114	NULL
35	1	75881	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.111	NULL
35	1	75882	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.11	NULL
35	1	75883	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.109	NULL
35	1	75884	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.78	9.11	NULL
35	1	75885	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.77	9.112	NULL
35	1	75886	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.77	9.115	NULL
35	1	75887	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.77	9.119	NULL
35	1	75888	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.77	9.125	NULL
35	1	75889	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.77	9.131	NULL
35	1	75890	00:00.0	NASA/Langley B200	7	SP-1	29.55	-94.77	9.139	NULL
35	2	76074	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.148	NULL
35	2	76075	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.158	NULL
35	2	76076	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.169	NULL
35	2	76077	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.181	NULL
35	2	76078	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.194	NULL
35	2	76079	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.209	NULL
35	2	76080	00:00.0	NASA/Langley B200	7	SP-1	29.58	-94.75	9.224	NULL
35	2	76081	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.75	9.241	NULL
35	2	76082	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.259	NULL
35	2	76083	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.278	NULL
35	2	76084	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.299	NULL
35	2	76085	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.32	NULL

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
35	2	76086	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.343	NULL
35	2	76087	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.366	NULL
35	2	76088	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.391	NULL
35	2	76089	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.76	9.416	NULL
35	2	76090	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.77	9.443	NULL
35	2	76091	00:00.0	NASA/Langley B200	7	SP-1	29.59	-94.77	9.471	NULL

Table 56. Aircraft Position Data from Example Category 3 Event 159 for the B-200 at SP-1

EVENT ID	Peak	GPS Time Midpoint	Date	Model	Measurement Location ID	Location Name	GPS Lat	GPS Lon	Aircraft Distance from Measurement Site (km)	Balloon Distance from Measurement Site (km)
159	1	52769	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	11.302	8.117
159	1	52770	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	11.236	8.115
159	1	52771	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	11.171	8.124
159	1	52772	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	11.106	8.141
159	1	52773	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	11.042	8.148
159	1	52774	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	10.979	8.166
159	1	52775	00:00.0	NASA/Langley B200	7	SP-1	29.57	-94.84	10.917	8.183
159	1	52776	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.84	10.855	8.189
159	1	52777	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.84	10.794	8.207
159	1	52778	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.734	8.216
159	1	52779	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.675	8.216
159	1	52780	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.617	8.224
159	1	52781	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.56	8.234
159	1	52782	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.504	8.242
159	1	52783	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.449	8.241
159	1	52784	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.394	8.241
159	1	52785	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.34	8.249
159	1	52786	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.83	10.287	8.258
159	1	52787	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.82	10.235	8.258
159	1	52788	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.82	10.184	8.258
159	1	52789	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.82	10.134	8.258
159	1	52790	00:00.0	NASA/Langley B200	7	SP-1	29.56	-94.82	10.085	8.258

B.3 Stratified Meteorological Data

B.3.1 Category 1: P-3B Level Flyover Events

Table 57. Stratified Meteorological Data from Example Category 1 Event 116 for the P-3B at NP-2

Event ID	Date	Model	Measurement Location ID	Location Name	Time Block	Altitude Bin	Altitude Range (km)	Avg. Temperature (Deg. C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Pressure (mbar)
116	9/11/2013	NASA P-3B	3	NP-2	B	0	Ground	32.84	47.00	1.99	1013.25
116	9/11/2013	NASA P-3B	3	NP-2	B	1	<0.5	29.18	53.47	5.39	936.97
116	9/11/2013	NASA P-3B	3	NP-2	B	2	>=0.5 to <1.0	24.96	65.24	8.28	886.09
116	9/11/2013	NASA P-3B	3	NP-2	B	3	>=1.0 to <1.5	20.66	74.50	6.58	835.01
116	9/11/2013	NASA P-3B	3	NP-2	B	4	>=1.5 to <2.0	17.64	54.99	5.98	787.88
116	9/11/2013	NASA P-3B	3	NP-2	B	5	>=2.0 to <2.5	14.38	55.96	6.57	741.88
116	9/11/2013	NASA P-3B	3	NP-2	B	6	>=2.5 to <3.0	11.03	55.33	6.64	694.37
116	9/11/2013	NASA P-3B	3	NP-2	B	7	>=3.0 to <3.5	7.87	48.35	6.95	663.47
116	9/11/2013	NASA P-3B	3	NP-2	B	8	>=3.5 to <4.0	6.48	38.94	8.59	614.38
116	9/11/2013	NASA P-3B	3	NP-2	B	9	>=4.0 to <4.5	2.47	32.29	7.11	576.92
116	9/11/2013	NASA P-3B	3	NP-2	B	10	>=4.5 to <5.0	-0.44	43.66	6.01	541.69
116	9/11/2013	NASA P-3B	3	NP-2	B	11	>=5.0 to <5.5	-1.92	18.71	3.05	509.57
116	9/11/2013	NASA P-3B	3	NP-2	B	12	>=5.5 to <6.0	-4.12	23.78	1.09	477.99
116	9/11/2013	NASA P-3B	3	NP-2	B	13	>=6.0 to <6.5	-8.11	47.81	2.29	447.06
116	9/11/2013	NASA P-3B	3	NP-2	B	14	>=6.5 to < 7.0	-11.81	55.80	4.19	419.46
116	9/11/2013	NASA P-3B	3	NP-2	B	15	>=7.0 to < 7.5	-15.32	55.31	5.44	392.26
116	9/11/2013	NASA P-3B	3	NP-2	B	16	>=7.5 to < 8.0	-19.03	68.69	5.19	366.39
116	9/11/2013	NASA P-3B	3	NP-2	B	17	>=8.0 to < 8.5	-22.67	70.53	7.64	341.41
116	9/11/2013	NASA P-3B	3	NP-2	B	18	>=8.5 to <9.0	-26.75	51.64	8.42	319.10
116	9/11/2013	NASA P-3B	3	NP-2	B	19	>=9.0 to <9.5	-30.30	36.87	9.15	297.26

Table 58. Stratified Meteorological Data from Example Category 1 Event 183 for the P-3B at NP-1

Event ID	Date	Model	Measurement Location ID	Location Name	Time Block	Altitude Bin	Altitude Range (km)	Avg. Temperature (Deg. C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Pressure (mbar)
183	9/12/2013	NASA P-3B	2	NP-1	B	0	Ground	33.26	43.19	2.10	1013.25
183	9/12/2013	NASA P-3B	2	NP-1	B	1	<0.5	29.46	47.77	5.52	940.8644
183	9/12/2013	NASA P-3B	2	NP-1	B	2	>=0.5 to <1.0	26.32	56.13	6.78	871.97
183	9/12/2013	NASA P-3B	2	NP-1	B	3	>=1.0 to <1.5	20.52	66.51	7.72	837.59
183	9/12/2013	NASA P-3B	2	NP-1	B	4	>=1.5 to <2.0	17.45	67.12	8.62	791.24
183	9/12/2013	NASA P-3B	2	NP-1	B	5	>=2.0 to <2.5	14.55	54.22	7.95	730.40
183	9/12/2013	NASA P-3B	2	NP-1	B	6	>=2.5 to <3.0	9.30	73.37	7.26	707.83
183	9/12/2013	NASA P-3B	2	NP-1	B	7	>=3.0 to <3.5	7.53	64.47	6.58	650.13
183	9/12/2013	NASA P-3B	2	NP-1	B	8	>=3.5 to <4.0	4.28	45.34	7.04	619.22
183	9/12/2013	NASA P-3B	2	NP-1	B	9	>=4.0 to <4.5	4.57	6.60	7.35	590.87
183	9/12/2013	NASA P-3B	2	NP-1	B	10	>=4.5 to <5.0	3.10	5.92	6.56	541.08
183	9/12/2013	NASA P-3B	2	NP-1	B	11	>=5.0 to <5.5	-0.03	10.94	6.26	508.10
183	9/12/2013	NASA P-3B	2	NP-1	B	12	>=5.5 to <6.0	-3.55	7.25	5.76	476.19
183	9/12/2013	NASA P-3B	2	NP-1	B	13	>=6.0 to <6.5	-7.66	12.93	6.47	446.51

183	9/12/2013	NASA P-3B	2	NP-1	B	14	>=6.5 to < 7.0	-11.71	20.98	6.78	418.30
183	9/12/2013	NASA P-3B	2	NP-1	B	15	>=7.0 to < 7.5	-15.15	18.79	6.46	391.19
183	9/12/2013	NASA P-3B	2	NP-1	B	16	>=7.5 to < 8.0	-18.86	27.57	8.82	365.54
183	9/12/2013	NASA P-3B	2	NP-1	B	17	>=8.0 to < 8.5	-22.68	27.58	9.54	340.54
183	9/12/2013	NASA P-3B	2	NP-1	B	18	>=8.5 to <9.0	-26.74	34.49	8.94	318.06
183	9/12/2013	NASA P-3B	2	NP-1	B	19	>=9.0 to <9.5	-30.18	30.34	10.08	296.71

B.3.2 Category 2: P-3B Spiral Events

Table 59. Stratified Meteorological Data from Example Category 2 Event 23 for the P-3B at SP-2

Event ID	Date	Model	Measurement Location ID	Location Name	Time Block	Altitude Bin	Altitude Range (km)	Avg. Temperature (Deg. C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Pressure (mbar)
33	9/4/2013	NASA P3-B	8	SP-2	B	0	Ground	28.79	72.32	2.52	1013.25
33	9/4/2013	NASA P3-B	8	SP-2	B	1	<0.5	27.76	65.23	1.84	934.72
33	9/4/2013	NASA P3-B	8	SP-2	B	2	>=0.5 to <1.0	24.77	63.61	3.44	882.82
33	9/4/2013	NASA P3-B	8	SP-2	B	3	>=1.0 to <1.5	21.36	71.67	3.72	831.78
33	9/4/2013	NASA P3-B	8	SP-2	B	4	>=1.5 to <2.0	18.07	73.31	4.79	786.67
33	9/4/2013	NASA P3-B	8	SP-2	B	5	>=2.0 to <2.5	15.37	68.33	9.19	741.50
33	9/4/2013	NASA P3-B	8	SP-2	B	6	>=2.5 to <3.0	12.58	63.47	7.48	699.11
33	9/4/2013	NASA P3-B	8	SP-2	B	7	>=3.0 to <3.5	9.79	59.99	4.60	658.11
33	9/4/2013	NASA P3-B	8	SP-2	B	8	>=3.5 to <4.0	6.66	62.24	2.54	629.39
33	9/4/2013	NASA P3-B	8	SP-2	B	9	>=4.0 to <4.5	4.23	67.46	2.48	580.50
33	9/4/2013	NASA P3-B	8	SP-2	B	10	>=4.5 to <5.0	-0.41	75.50	6.01	544.36
33	9/4/2013	NASA P3-B	8	SP-2	B	11	>=5.0 to <5.5	-3.42	83.78	7.72	510.91
33	9/4/2013	NASA P3-B	8	SP-2	B	12	>=5.5 to <6.0	-6.25	87.20	5.16	480.02
33	9/4/2013	NASA P3-B	8	SP-2	B	13	>=6.0 to <6.5	-8.71	81.95	6.07	449.05
33	9/4/2013	NASA P3-B	8	SP-2	B	14	>=6.5 to < 7.0	-11.40	77.16		420.78
33	9/4/2013	NASA P3-B	8	SP-2	B	15	>=7.0 to < 7.5	-14.42	70.49		393.69
33	9/4/2013	NASA P3-B	8	SP-2	B	16	>=7.5 to < 8.0	-17.30	49.31		368.27
33	9/4/2013	NASA P3-B	8	SP-2	B	17	>=8.0 to < 8.5	-20.62	42.50		344.34
33	9/4/2013	NASA P3-B	8	SP-2	B	18	>=8.5 to <9.0	-24.10	35.67		321.15
33	9/4/2013	NASA P3-B	8	SP-2	B	19	>=9.0 to <9.5	-27.84	41.71		299.91

Table 60. Stratified Meteorological Data from Example Category 2 Event 102 for the P-3B at SP-1

Event ID	Date	Model	Measurement Location ID	Location Name	Time Block	Altitude Bin	Altitude Range (km)	Avg. Temperature (Deg. C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Pressure (mbar)
102	9/11/2013	NASA P3-B	7	SP-1	B	0	Ground	31.18	59.82	3.93	1013.25
102	9/11/2013	NASA P3-B	7	SP-1	B	1	<0.5	27.48	74.25	5.39	937.35
102	9/11/2013	NASA P3-B	7	SP-1	B	2	>=0.5 to <1.0	23.13	85.89	8.28	885.22
102	9/11/2013	NASA P3-B	7	SP-1	B	3	>=1.0 to <1.5	20.10	71.66	6.58	834.12
102	9/11/2013	NASA P3-B	7	SP-1	B	4	>=1.5 to <2.0	16.77	69.17	5.98	787.04
102	9/11/2013	NASA P3-B	7	SP-1	B	5	>=2.0 to <2.5	13.72	68.49	6.57	742.43
102	9/11/2013	NASA P3-B	7	SP-1	B	6	>=2.5 to <3.0	10.84	64.29	6.64	701.89

102	9/11/2013	NASA P3-B	7	SP-1	B	7	>=3.0 to <3.5	8.40	55.96	6.95	652.77
102	9/11/2013	NASA P3-B	7	SP-1	B	8	>=3.5 to <4.0	5.29	36.46	8.59	614.38
102	9/11/2013	NASA P3-B	7	SP-1	B	9	>=4.0 to <4.5	2.47	32.29	7.11	576.93
102	9/11/2013	NASA P3-B	7	SP-1	B	10	>=4.5 to <5.0	-0.44	43.66	6.01	541.70
102	9/11/2013	NASA P3-B	7	SP-1	B	11	>=5.0 to <5.5	-1.92	18.71	3.05	509.58
102	9/11/2013	NASA P3-B	7	SP-1	B	12	>=5.5 to <6.0	-4.12	23.78	1.09	477.99
102	9/11/2013	NASA P3-B	7	SP-1	B	13	>=6.0 to <6.5	-8.11	47.81	2.29	447.06
102	9/11/2013	NASA P3-B	7	SP-1	B	14	>=6.5 to < 7.0	-11.81	55.80	4.19	419.47
102	9/11/2013	NASA P3-B	7	SP-1	B	15	>=7.0 to < 7.5	-15.32	55.31	5.44	392.27
102	9/11/2013	NASA P3-B	7	SP-1	B	16	>=7.5 to < 8.0	-19.03	68.69	5.19	366.40
102	9/11/2013	NASA P3-B	7	SP-1	B	17	>=8.0 to < 8.5	-22.67	70.53	7.64	341.42
102	9/11/2013	NASA P3-B	7	SP-1	B	18	>=8.5 to <9.0	-26.75	51.64	8.42	319.10
102	9/11/2013	NASA P3-B	7	SP-1	B	19	>=9.0 to <9.5	-30.30	36.87	9.15	297.27

B.3.3 Category 3: B-200 King Air Level Flyover Events

Table 61. Stratified Meteorological Data from Example Category 3 Event 159 for the B-200 at SP-1

Event ID	Date	Model	Measurement Location ID	Location Name	Time Block	Altitude Bin	Altitude Range (km)	Avg. Temperature (Deg. C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Pressure (mbar)
159	9/12/2013	NASA/Langley B200	7	SP-1	B	0	Ground	31.94	51.04	8.35	1013.25
159	9/12/2013	NASA/Langley B200	7	SP-1	B	1	<0.5	27.87	60.42	5.52	934.19
159	9/12/2013	NASA/Langley B200	7	SP-1	B	2	>=0.5 to <1.0	23.34	70.41	6.78	883.39
159	9/12/2013	NASA/Langley B200	7	SP-1	B	3	>=1.0 to <1.5	19.65	68.79	7.72	831.90
159	9/12/2013	NASA/Langley B200	7	SP-1	B	4	>=1.5 to <2.0	16.70	59.06	8.62	785.46
159	9/12/2013	NASA/Langley B200	7	SP-1	B	5	>=2.0 to <2.5	13.50	53.76	7.95	739.91
159	9/12/2013	NASA/Langley B200	7	SP-1	B	6	>=2.5 to <3.0	10.02	52.53	7.26	696.92
159	9/12/2013	NASA/Langley B200	7	SP-1	B	7	>=3.0 to <3.5	7.12	44.12	6.58	650.46
159	9/12/2013	NASA/Langley B200	7	SP-1	B	8	>=3.5 to <4.0	4.94	46.99	7.04	631.48
159	9/12/2013	NASA/Langley B200	7	SP-1	B	9	>=4.0 to <4.5	4.06	41.06	7.35	575.58
159	9/12/2013	NASA/Langley B200	7	SP-1	B	10	>=4.5 to <5.0	2.03	9.35	6.56	541.08
159	9/12/2013	NASA/Langley B200	7	SP-1	B	11	>=5.0 to <5.5	-0.03	10.94	6.26	508.10
159	9/12/2013	NASA/Langley B200	7	SP-1	B	12	>=5.5 to <6.0	-3.55	7.25	5.76	476.19
159	9/12/2013	NASA/Langley B200	7	SP-1	B	13	>=6.0 to <6.5	-7.66	12.93	6.47	446.51
159	9/12/2013	NASA/Langley B200	7	SP-1	B	14	>=6.5 to < 7.0	-11.71	20.98	6.78	418.30
159	9/12/2013	NASA/Langley B200	7	SP-1	B	15	>=7.0 to < 7.5	-15.15	18.79	6.46	391.19
159	9/12/2013	NASA/Langley B200	7	SP-1	B	16	>=7.5 to < 8.0	-18.86	27.57	8.82	365.54
159	9/12/2013	NASA/Langley B200	7	SP-1	B	17	>=8.0 to < 8.5	-22.68	27.58	9.54	340.54
159	9/12/2013	NASA/Langley B200	7	SP-1	B	18	>=8.5 to <9.0	-26.74	34.49	8.94	318.06
159	9/12/2013	NASA/Langley B200	7	SP-1	B	19	>=9.0 to <9.5	-30.18	30.34	10.08	296.71

Table 62. Stratified Meteorological Data from Example Category 3 Event 35 for the B-200 at SP-1

Event ID	Date	Model	Measurement Location ID	Location Name	Time Block	Altitude Bin	Altitude Range (km)	Avg. Temperature (Deg. C)	Avg. Relative Humidity (%)	Avg. Wind Speed (m/s)	Avg. Pressure (mbar)
35	9/4/2013	NASA/Langley B200	7	SP-1	B	0	Ground	29.06	68.55	4.26	1013.25
35	9/4/2013	NASA/Langley B200	7	SP-1	B	1	<0.5	27.76	65.71	1.84	934.72
35	9/4/2013	NASA/Langley B200	7	SP-1	B	2	>=0.5 to <1.0	24.77	63.61	3.44	882.82
35	9/4/2013	NASA/Langley B200	7	SP-1	B	3	>=1.0 to <1.5	21.36	71.67	3.72	831.77
35	9/4/2013	NASA/Langley B200	7	SP-1	B	4	>=1.5 to <2.0	18.07	73.31	4.79	786.66
35	9/4/2013	NASA/Langley B200	7	SP-1	B	5	>=2.0 to <2.5	15.37	68.33	9.19	741.49
35	9/4/2013	NASA/Langley B200	7	SP-1	B	6	>=2.5 to <3.0	12.58	63.47	7.48	699.11
35	9/4/2013	NASA/Langley B200	7	SP-1	B	7	>=3.0 to <3.5	9.79	59.99	4.60	658.11
35	9/4/2013	NASA/Langley B200	7	SP-1	B	8	>=3.5 to <4.0	6.66	62.24	2.54	629.09
35	9/4/2013	NASA/Langley B200	7	SP-1	B	9	>=4.0 to <4.5	4.18	67.79	2.48	580.72
35	9/4/2013	NASA/Langley B200	7	SP-1	B	10	>=4.5 to <5.0	-0.44	76.91	6.01	544.35
35	9/4/2013	NASA/Langley B200	7	SP-1	B	11	>=5.0 to <5.5	-3.42	83.78	7.72	510.90
35	9/4/2013	NASA/Langley B200	7	SP-1	B	12	>=5.5 to <6.0	-6.25	87.20	5.16	480.02
35	9/4/2013	NASA/Langley B200	7	SP-1	B	13	>=6.0 to <6.5	-8.71	81.95	6.07	449.05
35	9/4/2013	NASA/Langley B200	7	SP-1	B	14	>=6.5 to < 7.0	-11.40	77.16		420.78
35	9/4/2013	NASA/Langley B200	7	SP-1	B	15	>=7.0 to < 7.5	-14.42	70.49		393.69
35	9/4/2013	NASA/Langley B200	7	SP-1	B	16	>=7.5 to < 8.0	-17.30	49.31		368.27
35	9/4/2013	NASA/Langley B200	7	SP-1	B	17	>=8.0 to < 8.5	-20.62	42.50		344.34
35	9/4/2013	NASA/Langley B200	7	SP-1	B	18	>=8.5 to <9.0	-24.10	35.67		321.15
35	9/4/2013	NASA/Langley B200	7	SP-1	B	19	>=9.0 to <9.5	-27.84	41.71		299.91

B.4 Aircraft Performance Data (Pilot Logs)

B.4.1 P-3B Pilot Log

Table 63. Explanation of P-3B Pilot Location Names

Location ID	Explanation
A1	straight and level section prior to entering spiral at Smith Point
A2	straight and level section after exiting spiral at Smith Point
A3	straight and level section prior to entering spiral at Conroe
A4	straight and level section after exiting spiral at Conroe

Table 64. Aircraft Performance Data Logged by the P-3B Pilots during the Houston DISCOVER-AQ Flight Tests

Date	Loop Number	Location	Time(Zulu)	Altitude (ft)	Airspeed (A/s)	Power Setting (SHP)	Comments
9/4/2013	1	A1					data not useful
9/4/2013	1	A2					data not useful
9/4/2013	1	A3					data not useful
9/4/2013	1	A4					data not useful
9/4/2013	2	A1					data not useful
9/4/2013	2	A2					data not useful
9/4/2013	2	A3					data not useful
9/4/2013	2	A4					data not useful
9/4/2013	3	A1					data not useful
9/4/2013	3	A2					data not useful
9/4/2013	3	A3					data not useful
9/4/2013	3	A4					data not useful
9/6/2013	1	A1	1426	12500	207	1900	
9/6/2013	1	A2	1438	650	206	1200	
9/6/2013	1	A3	1531	1000	200	1300	
9/6/2013	1	A4	1550	12500	211	1720	
9/6/2013	2	A1					Did not get due to weather
9/6/2013	2	A2					Did not get due to weather
9/6/2013	2	A3	1743	1000	215	1700	
9/6/2013	2	A4	1803	15000	202	1700	
9/6/2013	3	A1					Did not get due to weather
9/6/2013	3	A2					Did not get due to weather
9/6/2013	3	A3	2021	1300	202	750	Recorded by Jeff Chandler
9/6/2013	3	A4	2039	15500	210	1350	Recorded by Jeff Chandler
9/11/2013	1	A1	924	12500	214	2000	Recorded by Jeff Chandler
9/11/2013	1	A2	939	500	194	1800	Recorded by Jeff Chandler
9/11/2013	1	A3	1029	1000	205	1500	Recorded by Jeff Chandler
9/11/2013	1	A4	1049	12500	212	2100	Recorded by Jeff Chandler
9/11/2013	2	A1	1211	10500	109	1700	Recorded by Jeff Chandler
9/11/2013	2	A2	1222	500	207	1700	Recorded by Jeff Chandler
9/11/2013	2	A3	1308	1000	204	1500	Recorded by Jeff Chandler
9/11/2013	2	A4	1325	11500	221	2100	Recorded by Jeff Chandler
9/11/2013	3	A1	1445	9500	213	1700	Recorded by Jeff Chandler
9/11/2013	3	A2					Recorded by Jeff Chandler
9/11/2013	3	A3	1543	1000	200	1450	Recorded by Jeff Chandler
9/11/2013	3	A4	1558	10500	202	1550	Recorded by Jeff Chandler
9/13/2013	1	A1	1427	12500	196	1800	
9/13/2013	1	A2	1441	500	195	1200	
9/13/2013	1	A3	1530	1000	200	1200	
9/13/2013	1	A4	1551	13500	195	2800	Taken during climb to 14500 ft.
9/13/2013	2	A1	1711	12500	206	1400	
9/13/2013	2	A2	1726	500	204	1800	
9/13/2013	2	A3	1816	1000	215	1650	
9/13/2013	2	A4	1834	13500	200	2300	Taken during climb to 14500 ft.

Date	Loop Number	Location	Time(Zulu)	Altitude (ft)	Airspeed (A/s)	Power Setting (SHP)	Comments
9/13/2013	3	A1	1955	12500	204	1600	
9/13/2013	3	A2	2007	1000	200	750	3rd A2 has 2 readings
9/13/2013	3	A2	2009	500	202	1600	3rd A2 has 2 readings
9/13/2013	3	A3	2100	1100	175	1100	Not directly over - 2 mi NW
9/13/2013	3	A4	2117	13800	190	2550	Taken during climb to 14500 ft. - Not directly over - 2 mi SW
9/14/2013		A1	826	13500	188	1900	
9/14/2013		A2	838	500	197	1570	
9/14/2013		A3					
9/14/2013		A4	954	15500	196	2150	
9/14/2013		A1					
9/14/2013		A2	1130	500	198	1600	
9/14/2013		A3					
9/14/2013		A4	1241	15500	198	1600	
9/14/2013		A1					
9/14/2013		A2	1357	500	191	1290	
9/14/2013		A3					
9/14/2013		A4	1455	15500	211	1900	

B.4.2 B-200 King Air Pilot Log

Table 65. Aircraft Performance Data Logged by the B-200 Pilots during the Houston DISCOVER-AQ Flight Tests

Date	Aircraft	Call Sign	Location	Instrument	Flt #	Take-off	Land	Duration	Pilot	Ops Eng	Research Crew	Comments
9/4/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-005A**	**0830 L**	**1218 L**	**3.7**	**Yasky**	**Wusk**	**Harper**	**1st Flight for DISCOVER AQ, HSRL2 and new GCAM,2 patterns some T-storms over Smith Pt.**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			919		data not recorded						
	Conroe			1011		FL280	700/700	1200/1200	1700/1700	93.5/93.5		
	Smith Pt			1107		Unable due to Weather						
	Conroe			1132		FL280	680/720	1180/1340	1700/1700	95/94		
9/4/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-005B**	**1330 L**	**1730 L**	**4.1**	**Yasky**	**Wusk**	**Harper**	**2nd Flight for DISCOVER AQ, HSRL2 and new GCAM,2 patterns still some clouds**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			1426		FL280	700/710	1270/1250	1710/1720	95/94		
	Conroe			1452		FL280	700/700	1210/1200	1710/1720	94/93		
	Smith Pt			1600		FL280	700/700	1200/1210	1710/1710	94/94		

Date	Aircraft	Call Sign	Location	Instrument	Flt #	Take-off	Land	Duration	Pilot	Ops Eng	Research Crew	Comments
	Conroe			1626		FL280	680/720	1180/1340	1700/1700	95/94		
9/6/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-006A**	**0835 L**	**122 L**	**3.8**	**Yasky**	**Wusk**	**Harper/Berkoff**	**3rd Flight for DISCOVER AQ, HSRL2 and new GCAM,2 patterns, clouds over water, Tim's first HSRL flight**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			943		FL280	720/720	-	1700/1700	95/94		
	Conroe			1009		FL280	700/720	-	1700/1700	94/95		
	Smith Pt			1104		FL280	710/710	1290/1290	1700/1710	94/94		
	Conroe			1130		FL280	700/710	1290/1280	1700/1700	94/94		
9/6/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-006B**	**1347 L**	**1730 L**	**3.6**	**Yasky**	**Wusk**	**Harper/Berkoff**	**4th Flight for DISCOVER AQ, HSRL2 and new GCAM,2 patterns, clouds more inland**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			1451		FL280	700/700	1300/1200	1720/1720	95/93		
	Conroe			1517		FL280	710/710	1290/1220	1720/1720	95/93.5		
	Smith Pt			1614		FL280	700/700	1300/1280	1700/1700	94/94		
	Conroe			1640		FL280	700/700	1250/1250	1700/1700	94/93		
9/11/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-008A**	**0834 L**	**1218 L**	**3.7**	**Yasky**	**Wusk**	**Harper/Berkoff**	**5th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL220 for clouds**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			941		FL280	700/730	1280/1340	1700/1700	94/94.5		
	Conroe			1008		FL220	640/680	1100/1220	1700/1700	90/91		
	Smith Pt			1104		FL220	650/680	1200/1200	1700/1700	91/91		
	Conroe			1148		FL220	650/670	1200/1200	1700/1700	91/91		
9/11/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-008B**	**1322 L**	**1704 L**	**3.7**	**Yasky**	**Wusk**	**Harper/Berkoff**	**6th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL220 for clouds**
	meter not on until ~1418											
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			1420		FL220	680/700	1390/1400	1720/1720	93/93		
	Conroe			1450		FL220	620/680	1300/1300	1700/1700	92/92		
	Smith Pt			1539		FL220	660/680	1220/1200	1700/1700	91/91		
	Conroe			1618		FL220	700/700	1400/1400	1700/1700	93/93		
9/12/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-009A**	**0835 L**	**1217 L**	**3.7**	**Yasky**	**Wusk**	**Harper/Berkoff**	**7th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**

Date	Aircraft	Call Sign	Location	Instrument	Flt #	Take-off	Land	Duration	Pilot	Ops Eng	Research Crew	Comments
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			936		FL280	700/710	1300/1320	1700/1710	95/93		
	Conroe			1006		FL280	700/710	1280/1320	1700/1700	94/94.5		
	Smith Pt			1100		FL280	700/700	1300/1250	1700/1710	94/93		
	Conroe			1122		FL280	700/700	1300/1280	1700/1700	95/93		
9/12/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-009B**	**1330 L**	**1716 L**	**3.8**	**Yasky**	**Wusk**	**Harper/Berkoff**	**8th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			1431		FL280	700/700	1300/1250	1700/1710	95/93		
	Conroe			1454		FL280	710/710	1300/1320	1700/1700	95/94.5		
	Smith Pt			1556		FL280	700/700	1250/1270	1700/1710	94/94		
	Conroe			1618		FL280	700/700	1200/1200	1700/1700	93.5/93.5		
9/13/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-010A**	**0830 L**		**4**	**Yasky**	**Wusk**	**Harper/Berkoff**	**9th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**
	Flight notes missing											
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt											
	Conroe											
	Smith Pt											
	Conroe											
	Smith Pt											
	Conroe											
9/13/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-010B**	**1330 L**		**3.8**	**Yasky**	**Wusk**	**Harper/Berkoff**	**10th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**
	Flight notes missing											
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt											
	Conroe											
	Smith Pt											
	Conroe											
9/14/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-011A**	**0730 L**		**3.9**	**Yasky**	**Wusk**	**Harper/Berkoff**	**11th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**
	Flight notes missing											
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt											
	Conroe											
	Smith Pt											
	Conroe											
9/14/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-011B**	**1230 L**		**3.9**	**Yasky**	**Wusk**	**Harper/Berkoff**	**12th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**

Date	Aircraft	Call Sign	Location	Instrument	Flt #	Take-off	Land	Duration	Pilot	Ops Eng	Research Crew	Comments
	Flight notes missing											
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt											
	Conroe											
	Smith Pt											
	Conroe											
9/18/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-013A**	**0832 L**	**1230 L**	**4**	**Yasky**	**Wusk**	**Harper/Berkoff**	**13th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			942		FL280	710/710	1340/1300	1700/1710	95/94		
	Conroe			1002		FL280	700/700	1300/1280	1700/1700	94/94		
	Smith Pt			1106		FL280	710/710	1300/1280	1700/1700	94/94		
	Conroe			1618		FL280	700/700	1300/1300	1700/1700	95/94		
9/18/13	**B-200**	**NASA 529**	**KEFD-KEFD**	**HSRL2/GCAM**	**R-013B**	**1354 L**	**1741 L**	**3.8**	**Yasky**	**Wusk**	**Harper/Berkoff**	**14th DISCOVER AQ, HSRL2 and new GCAM,2 patterns at FL280**
	Overpass point			Approximate time		Altitude	ITT	Torques	RPM	%N1		
	Smith Pt			1457		FL260	720/720	1450/1300	1700/1700	95.5/95.5		
	Conroe			1521		FL260	700/700	1220/1200	1700/1700	94/93		
	Smith Pt			1625		FL240	680/700	1200/1200	1700/1700	93/92		
	Conroe				By-pass due to clouds							

Appendix C: Database Description

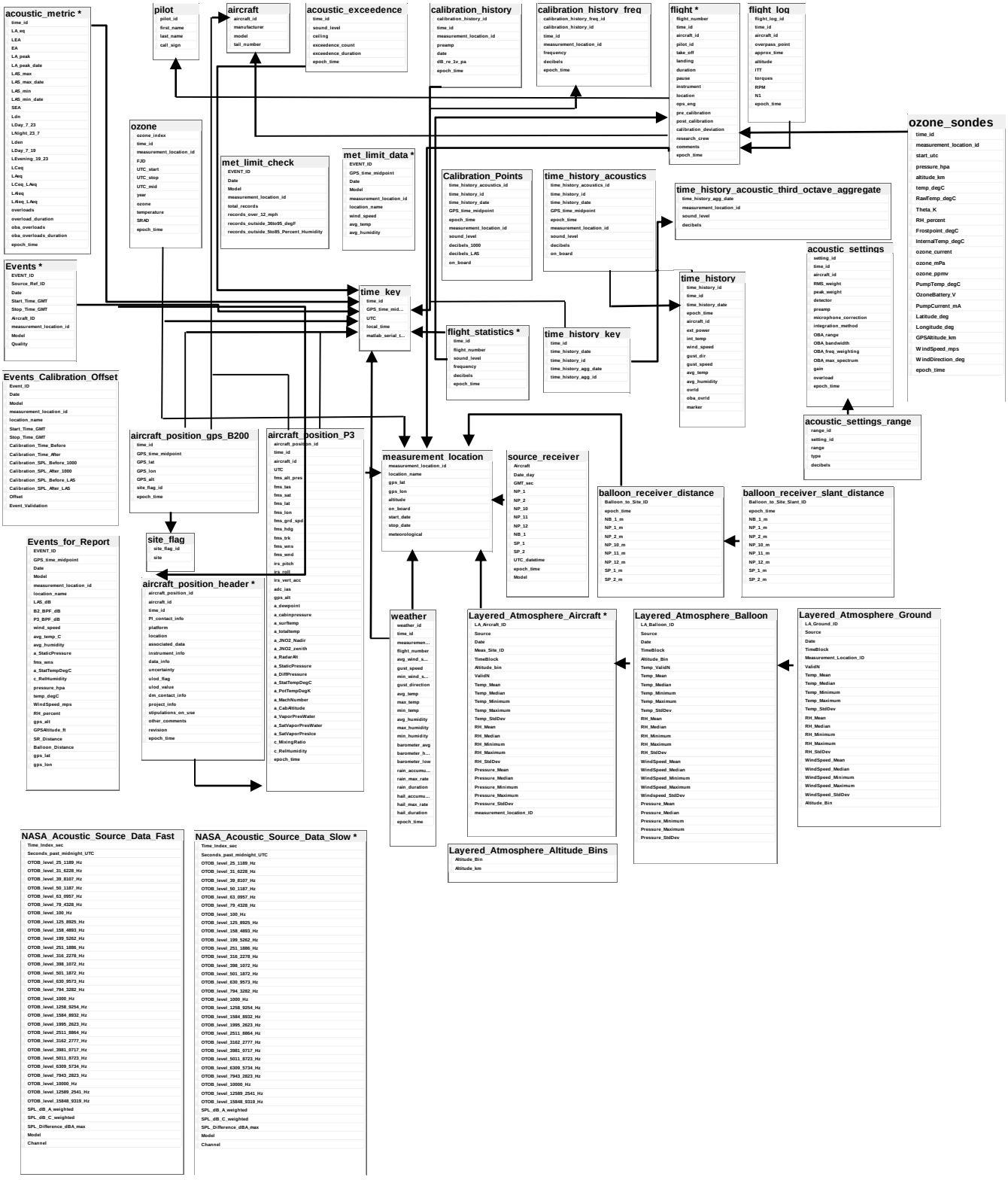
The DISCOVER-AQ database is a SQL relational database containing all of the data measured during the "Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality" (DISCOVER-AQ) in 2013 in Houston, Texas to support aircraft acoustic model validation[15]. The DISCOVER-AQ database consists of 39 tables that are cross-referenced and keyed using time identifiers. Each table contains two time identifiers, time_id and epoch_time, that represent a point in time and measurements taken at that time. Each time identifier is a foreign key to the time key table which contains every time_id and a representation of that time in GPS time, UTC, local time of the location of the measurement, Matlab serial time and Epoch time. For the purposes of simplicity and to unify the tables Epoch time was added to each table and each table can be joined using Epoch time.

One of the central tables to the DISCOVER-AQ database is the time_history_acoustics table. It contains all important acoustic data to the half-second for each frequency in each one-third octave-band. Most data contained in the database is to the half second. Location data can be found in either the aircraft_position_gps_B200 table or aircraft_position_P3.

Date, time, location, and aircraft model from the Events table can be used to correlate each event to measured acoustic and meteorological data, aircraft and weather balloon distance from the measurement site, and aircraft performance data. These fields can also be used to build stratified meteorological profiles for each event by utilizing the layered atmosphere tables in the database.

[15] It is important to differentiate this DISCOVER-AQ Acoustics database, which is used for validation of aircraft acoustic methods, with the extensive set of DISCOVER-AQ air quality measurement data collected and compiled by NASA. More information on the NASA DISCOVER-AQ program and the resulting databases may be found on the NASA mission website [2].

C.1 Database Design



C.2 Database Legend and Data Type Definitions

C.2.1 DISCOVER-AQ Key Legend

1.  = Database
2.  = Either a table or table field/column
3.  = Stored Procedure
4.  = Primary Key
5.  = Index
6.  = Database Statistics

C.2.2 Data Types Used

1. **Int** = Integer that is stored in 4 bytes; has a maximum value of 2,147,483,647 and a minimum value of -2,147,483,648.
2. **BigInt =** An integer that is stored in 8 bytes and has a maximum value of 9,223,372,036,854,775,807 and a minimum value of -9,223,372,036,854,775,808.
3. **Uniqueidentifier** = An integer value that auto-increments and acts as the unique identifying key for each row in the table.
4. **Real** = a binary floating-point type.
5. **Decimal(10,2)** = Decimal value with a precision of 10 figures to the left of the decimal and 2 figures to the right of the decimal point.
6. **Varchar** = The char is a fixed-length character data type, the varchar is a variable-length character data type. Because char is a fixed-length data type, the storage size of the char value is equal to the maximum size for this column
7. **Datetime** = This value is a date and time in the form *yyyy/dd/mm hh:mm:ss.mm*
8. **Bit =** A flag that when set to 1 represents true and when set to 0 represents false.

C.3 Database Description Tables

DISCOVER_AQ Database

Database Properties

Property	Value
SQL Server Version	SQL Server 2008
Compatibility Level	SQL Server 2008
Database Encryption Enabled	False
Last backup time	-
Last log backup time	-
Creation date	Sep 26 2014
Users	9
Database size	319090.00 MB
Unallocated space	119108.20 MB

Database Options

Property	Value
Compatibility Level	100
Database collation	SQL_Latin1_General_CP1251_CI_AS
Restrict access	MULTI_USER
Is read-only	False
Auto close	False
Auto shrink	False
Database status	ONLINE
In standby	False
Cleanly shutdown	False
Supplemental logging enabled	False
Snapshot isolation state	OFF
Read committed snapshot on	False
Recovery model	SIMPLE
Page verify option	NONE
Auto create statistics	True
Auto update statistics	True

Auto update statistics asynchronously	False
ANSI NULL default	True
ANSI NULL enabled	True
ANSI padding enabled	True
ANSI warnings enabled	True
Arithmetic abort enabled	True
Concatenating NULL yields NULL	True
Numeric roundabort enabled	False
Quoted Identifier On	True
Recursive triggers enabled	False
Close cursors on commit	False
Local cursors by default	True
Fulltext enabled	True
Trustworthy	False
Database chaining	False
Forced parameterization	False
Master key encrypted by server	False
Published	False
Subscribed	False
Merge published	False
Is distribution database	False
Sync with backup	False
Service broker GUID	ce2b6066-3ced-4b46-9bcd-44a3cee6a64a
Service broker enabled	False
Log reuse wait	NOTHING
Date correlation	False
CDC enabled	False
Encrypted	False
Honor broker priority	False
Database owner	sa

Files

Name	Type	Size	File Name
DISCOVER_AQ	Data	146.35 GB	D:\DISCOVER_AQ\DISCOVER_AQ_v11\DISCOVER_AQ.mdf
DISCOVER_AQ_log	Log	165.26 GB	D:\DISCOVER_AQ\DISCOVER_AQ_v11\DISCOVER_AQ_1.ldf

Tables

Objects

Name
dbo.acoustic_exceedence
dbo.acoustic_metric
dbo.acoustic_settings
dbo.acoustic_settings_range
dbo.aircraft
dbo.aircraft_position_gps_B200
dbo.aircraft_position_header
dbo.aircraft_position_P3
dbo.balloon_receiver_distance
dbo.balloon_receiver_slant_distance
dbo.calibration_history
dbo.calibration_history_freq
dbo.Calibration_Points
dbo.Events
dbo.Events_Calibration_Offset
dbo.Events_for_Report
dbo.flight
dbo.flight_log
dbo.flight_statistics
dbo.Layered_Atmosphere_Aircraft
dbo.Layered_Atmosphere_Altitude_Bins
dbo.Layered_Atmosphere_Balloon
dbo.Layered_Atmosphere_Ground
dbo.measurement_location
dbo.met_limit_check
dbo.met_limit_data
dbo.NASA_Acoustic_Source_Data_Fast
dbo.NASA_Acoustic_Source_Data_Slow
dbo.ozone
dbo.ozone_sondes
dbo.pilot
dbo.site_flag
dbo.source_receiver
dbo.time_history
dbo.time_history_acoustic_third_octave_aggregate
dbo.time_history_acoustics
dbo.time_history_key
dbo.time_key
dbo.weather

[dbo].[acoustic_exceedence]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	0
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
PK C	time_id	int	4	False
PK C	sound_level	varchar(20)	20	False
PK C	ceiling	decimal(10,2)	9	False
	exceedence_count	int	4	True
	exceedence_duration	decimal(10,2)	9	True
	epoch_time	decimal(12,2)	9	True

Indexes

Key	Name	Columns	Unique
PK C	PK_acoustic_exceedence	time_id, sound_level, ceiling	True

SQL Script

```
CREATE TABLE [dbo].[acoustic_exceedence]
(
[time_id] [int] NOT NULL,
[sound_level] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[ceiling] [decimal] (10, 2) NOT NULL,
[exceedence_count] [int] NULL,
[exceedence_duration] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[acoustic_exceedence] ADD CONSTRAINT [PK_acoustic_exceedence] PRIMARY KEY
CLUSTERED  ([time_id], [sound_level], [ceiling]) ON [PRIMARY]
GO
```

[dbo].[acoustic_metric]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	214
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
PK C	time_id	uniqueidentifier	16	False
	LA_eq	varchar(50)	50	True
	LEA	varchar(50)	50	True
	EA	varchar(50)	50	True
	LA_peak	varchar(50)	50	True
	LA_peak_date	varchar(50)	50	True
	LAS_max	varchar(50)	50	True
	LAS_max_date	varchar(50)	50	True
	LAS_min	varchar(50)	50	True
	LAS_min_date	varchar(50)	50	True
	SEA	varchar(50)	50	True
	Ldn	varchar(50)	50	True
	LDay_7_23	varchar(50)	50	True
	LNight_23_7	varchar(50)	50	True
	Lden	varchar(50)	50	True
	LDay_7_19	varchar(50)	50	True
	LEvening_19_23	varchar(50)	50	True
	LCeq	varchar(50)	50	True
	LAeq	varchar(50)	50	True
	LCeq_LAeq	varchar(50)	50	True
	LAleq	varchar(50)	50	True
	LAleq_LAeq	varchar(50)	50	True
	overloads	varchar(50)	50	True
	overload_duration	varchar(50)	50	True

	oba_overloads	varchar(50)	50	True
	oba_overloads_duration	varchar(50)	50	True
	epoch_time	decimal(12,2)	9	True

Indexes

Key	Name	Columns	Unique
PK C	PK_acoustic_metric	time_id	True

SQL Script

```
CREATE TABLE [dbo].[acoustic_metric]
(
[time_id] [uniqueidentifier] NOT NULL,
[LA_eq] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LEA] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[EA] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LA_peak] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LA_peak_date] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAS_max] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAS_max_date] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAS_min] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAS_min_date] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[SEA] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Ldn] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LDay_7_23] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LNight_23_7] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Lden] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LDay_7_19] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LEvening_19_23] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LCeq] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAeq] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LCeq_LAeq] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAleq] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[LAleq_LAeq] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[overloads] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[overload_duration] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[oba_overloads] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[oba_overloads_duration] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[acoustic_metric] ADD CONSTRAINT [PK_acoustic_metric] PRIMARY KEY CLUSTERED
([time_id]) ON [PRIMARY]
GO
```

[dbo].[acoustic_settings]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	214
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
setting_id	int	4	False	1 - 1
time_id	uniqueidentifier	16	False	
aircraft_id	int	4	True	
RMS_weight	varchar(50)	50	True	
peak_weight	varchar(50)	50	True	
detector	varchar(50)	50	True	
preamp	varchar(20)	20	True	
microphone_correction	varchar(10)	10	True	
integration_method	varchar(20)	20	True	
OBA_range	varchar(20)	20	True	
OBA_bandwidth	varchar(50)	50	True	
OBA_freq_weighting	varchar(50)	50	True	
OBA_max_spectrum	varchar(30)	30	True	
gain	decimal(10,2)	9	True	
overload	decimal(10,2)	9	True	
epoch_time	decimal(12,2)	9	True	

SQL Script

```
CREATE TABLE [dbo].[acoustic_settings]
(
[setting_id] [int] NOT NULL IDENTITY(1, 1),
[time_id] [uniqueidentifier] NOT NULL,
[aircraft_id] [int] NULL,
[RMS_weight] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
```

```
[peak_weight] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[detector] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[preamp] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[microphone_correction] [varchar] (10) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[integration_method] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[OBA_range] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[OBA_bandwidth] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[OBA_freq_weighting] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[OBA_max_spectrum] [varchar] (30) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[gain] [decimal] (10, 2) NULL,
[overload] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
```

[dbo].[acoustic_settings_range]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	1926
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	11:20:15 PM Friday, June 20, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK	range_id	int	4	False	1 - 1
	setting_id	int	4	False	
	range	varchar(20)	20	False	
	type	char(1)	1	False	
	decibels	decimal(10,2)	9	False	

Indexes

Key	Name	Columns	Unique
PK	PK_acoustic_settings_range	range_id	True

SQL Script

```
CREATE TABLE [dbo].[acoustic_settings_range]
(
[range_id] [int] NOT NULL IDENTITY(1, 1),
[setting_id] [int] NOT NULL,
[range] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[type] [char] (1) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[decibels] [decimal] (10, 2) NOT NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[acoustic_settings_range] ADD CONSTRAINT [PK_acoustic_settings_range] PRIMARY
KEY CLUSTERED  ([range_id]) ON [PRIMARY]
GO
```

[dbo].[aircraft]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	171
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	11:20:15 PM Friday, June 20, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	aircraft_id	int	4	False	1 - 1
	manufacturer	varchar(250)	250	True	
	model	varchar(250)	250	True	
	tail_number	varchar(25)	25	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_aircraft	aircraft_id	True

SQL Script

```
CREATE TABLE [dbo].[aircraft]
(
[aircraft_id] [int] NOT NULL IDENTITY(1, 1),
[manufacturer] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[model] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[tail_number] [varchar] (25) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[aircraft] ADD CONSTRAINT [PK_aircraft] PRIMARY KEY CLUSTERED
([aircraft_id]) ON [PRIMARY]
GO
```

[dbo].[aircraft_position_gps_B200]

Properties

Property	Value
Row Count (~)	640097
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	4:03:20 PM Saturday, January 03, 2015

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
PK C	time_id	uniqueidentifier	16	False
PK C	GPS_time_midpoint	decimal(10,2)	9	False
	GPS_lat	decimal(10,2)	9	True
	GPS_lon	decimal(10,2)	9	True
	GPS_alt	decimal(10,2)	9	True
	site_flag_id	int	4	True
	epoch_time	decimal(12,2)	9	True

Indexes

Key	Name	Columns	Unique
PK C	PK_aircraft_position_gps	time_id, GPS_time_midpoint	True

SQL Script

```
CREATE TABLE [dbo].[aircraft_position_gps_B200]
(
[time_id] [uniqueidentifier] NOT NULL,
[GPS_time_midpoint] [decimal] (10, 2) NOT NULL,
[GPS_lat] [decimal] (10, 2) NULL,
[GPS_lon] [decimal] (10, 2) NULL,
[GPS_alt] [decimal] (10, 2) NULL,
[site_flag_id] [int] NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[aircraft_position_gps_B200] ADD CONSTRAINT [PK_aircraft_position_gps]
PRIMARY KEY CLUSTERED  ([time_id], [GPS_time_midpoint]) ON [PRIMARY]
GO
```

[dbo].[aircraft_position_header]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	171
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	aircraft_position_id	int	4	False	1 - 1
	aircraft_id	int	4	False	
PK C	time_id	uniqueidentifier	16	False	
	PI_contact_info	varchar(250)	250	True	
	platform	varchar(250)	250	True	
	location	varchar(250)	250	True	
	associated_data	varchar(250)	250	True	
	instrument_info	varchar(250)	250	True	
	data_info	varchar(250)	250	True	
	uncertainty	varchar(250)	250	True	
	ulod_flag	varchar(250)	250	True	
	ulod_value	varchar(250)	250	True	
	dm_contact_info	varchar(250)	250	True	
	project_info	varchar(250)	250	True	
	stipulations_on_use	varchar(250)	250	True	
	other_comments	varchar(250)	250	True	
	revision	varchar(250)	250	True	
	ra	varchar(250)	250	True	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_aircraft_position_header	time_id, aircraft_position_id	True

SQL Script

```
CREATE TABLE [dbo].[aircraft_position_header]
(
[aircraft_position_id] [int] NOT NULL IDENTITY(1, 1),
[aircraft_id] [int] NOT NULL,
[time_id] [uniqueidentifier] NOT NULL,
[PI_contact_info] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[platform] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[location] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[associated_data] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[instrument_info] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[data_info] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[uncertainty] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[ulod_flag] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[ulod_value] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[dm_contact_info] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[project_info] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[stipulations_on_use] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[other_comments] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[revision] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[ra] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[aircraft_position_header] ADD CONSTRAINT [PK_aircraft_position_header]
PRIMARY KEY CLUSTERED  ([time_id], [aircraft_position_id]) ON [PRIMARY]
GO
```

[dbo].[aircraft_position_P3]

Properties

Property	Value
Row Count (~)	281311
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	4:03:00 PM Saturday, January 03, 2015

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	aircraft_position_id	int	4	False	1 - 1
PK C	time_id	uniqueidentifier	16	False	
	aircraft_id	int	4	False	
	UTC	int	4	False	
	fms_alt_pres	decimal(10,2)	9	True	
	fms_tas	decimal(10,2)	9	True	
	fms_sat	decimal(10,2)	9	True	
	fms_lat	decimal(10,2)	9	True	
	fms_lon	decimal(10,2)	9	True	
	fms_grd_spd	decimal(10,2)	9	True	
	fms_hdg	decimal(10,2)	9	True	
	fms_trk	decimal(10,2)	9	True	
	fms_wns	decimal(10,2)	9	True	
	fms_wnd	decimal(10,2)	9	True	
	irs_pitch	decimal(10,2)	9	True	
	irs_roll	decimal(10,2)	9	True	
	irs_vert_acc	decimal(10,2)	9	True	
	adc_ias	decimal(10,2)	9	True	
	gps_alt	decimal(10,2)	9	True	
	a_dewpoint	decimal(10,2)	9	True	
	a_cabinpressure	decimal(10,2)	9	True	
	a_surftemp	decimal(10,2)	9	True	
	a_totaltemp	decimal(10,2)	9	True	
	a_JNO2_Nadir	decimal(10,2)	9	True	
	a_JNO2_zenith	decimal(10,2)	9	True	

	a_RadarAlt	decimal(10,2)	9	True	
	a_StaticPressure	decimal(10,2)	9	True	
	a_DiffPressure	decimal(10,2)	9	True	
	a_StatTempDegC	decimal(10,2)	9	True	
	a_PotTempDegK	decimal(10,2)	9	True	
	a_MachNumber	decimal(10,2)	9	True	
	a_CabAltitude	decimal(10,2)	9	True	
	a_VaporPresWater	decimal(10,2)	9	True	
	a_SatVaporPresWater	decimal(10,2)	9	True	
	a_SatVaporPresIce	decimal(10,2)	9	True	
	c_MixingRatio	decimal(10,2)	9	True	
	c_RelHumidity	decimal(10,2)	9	True	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_aircraft_position	aircraft_position_id, time_id	True

SQL Script

```
CREATE TABLE [dbo].[aircraft_position_P3]
(
[aircraft_position_id] [int] NOT NULL IDENTITY(1, 1),
[time_id] [uniqueidentifier] NOT NULL,
[aircraft_id] [int] NOT NULL,
[UTC] [int] NOT NULL,
[fms_alt_pres] [decimal] (10, 2) NULL,
[fms_tas] [decimal] (10, 2) NULL,
[fms_sat] [decimal] (10, 2) NULL,
[fms_lat] [decimal] (10, 2) NULL,
[fms_lon] [decimal] (10, 2) NULL,
[fms_grd_spd] [decimal] (10, 2) NULL,
[fms_hdg] [decimal] (10, 2) NULL,
[fms_trk] [decimal] (10, 2) NULL,
[fms_wns] [decimal] (10, 2) NULL,
[fms_wnd] [decimal] (10, 2) NULL,
[irs_pitch] [decimal] (10, 2) NULL,
[irs_roll] [decimal] (10, 2) NULL,
[irs_vert_acc] [decimal] (10, 2) NULL,
[adc_ias] [decimal] (10, 2) NULL,
[gps_alt] [decimal] (10, 2) NULL,
[a_dewpoint] [decimal] (10, 2) NULL,
[a_cabinpressure] [decimal] (10, 2) NULL,
[a_surftemp] [decimal] (10, 2) NULL,
[a_totaltemp] [decimal] (10, 2) NULL,
[a_JNO2_Nadir] [decimal] (10, 2) NULL,
[a_JNO2_zenith] [decimal] (10, 2) NULL,
[a_RadarAlt] [decimal] (10, 2) NULL,
[a_StaticPressure] [decimal] (10, 2) NULL,
```

```
[a_DiffPressure] [decimal] (10, 2) NULL,
[a_StatTempDegC] [decimal] (10, 2) NULL,
[a_PotTempDegK] [decimal] (10, 2) NULL,
[a_MachNumber] [decimal] (10, 2) NULL,
[a_CabAltitude] [decimal] (10, 2) NULL,
[a_VaporPresWater] [decimal] (10, 2) NULL,
[a_SatVaporPresWater] [decimal] (10, 2) NULL,
[a_SatVaporPresIce] [decimal] (10, 2) NULL,
[c_MixingRatio] [decimal] (10, 2) NULL,
[c_RelHumidity] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[aircraft_position_P3] ADD CONSTRAINT [PK_aircraft_position] PRIMARY KEY
CLUSTERED  ([aircraft_position_id], [time_id]) ON [PRIMARY]
GO
```

[dbo].[balloon_receiver_distance]

Properties

Property	Value
Row Count (~)	192777
Created	3:45:56 PM Thursday, October 30, 2014
Last Modified	3:45:56 PM Thursday, October 30, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	Balloon_to_Site_ID	int	4	False	1 - 1
	epoch_time	decimal(12,2)	9	True	
	NB_1_m	float	8	True	
	NP_1_m	float	8	True	
	NP_2_m	float	8	True	
	NP_10_m	float	8	True	
	NP_11_m	float	8	True	
	NP_12_m	float	8	True	
	SP_1_m	float	8	True	
	SP_2_m	float	8	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_balloon_receiver_ID	Balloon_to_Site_ID	True

SQL Script

```
CREATE TABLE [dbo].[balloon_receiver_distance]
(
[Balloon_to_Site_ID] [int] NOT NULL IDENTITY(1, 1),
[epoch_time] [decimal] (12, 2) NULL,
[NB_1_m] [float] NULL,
[NP_1_m] [float] NULL,
[NP_2_m] [float] NULL,
[NP_10_m] [float] NULL,
[NP_11_m] [float] NULL,
[NP_12_m] [float] NULL,
```

```
[SP_1_m] [float] NULL,
[SP_2_m] [float] NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[balloon_receiver_distance] ADD CONSTRAINT [PK_balloon_receiver_ID] PRIMARY
KEY CLUSTERED  ([Balloon_to_Site_ID]) ON [PRIMARY]
GO
```

[dbo].[balloon_receiver_slant_distance]

Properties

Property	Value
Row Count (~)	192777
Created	3:43:51 PM Thursday, October 30, 2014
Last Modified	8:48:02 AM Monday, January 05, 2015

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	Balloon_to_Site_Slant_ID	int	4	False	1 - 1
	epoch_time	decimal(12,2)	9	True	
	NB_1_m	float	8	True	
	NP_1_m	float	8	True	
	NP_2_m	float	8	True	
	NP_10_m	float	8	True	
	NP_11_m	float	8	True	
	NP_12_m	float	8	True	
	SP_1_m	float	8	True	
	SP_2_m	float	8	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_balloon_receiver_slant_ID	Balloon_to_Site_Slant_ID	True

SQL Script

```
CREATE TABLE [dbo].[balloon_receiver_slant_distance]
(
[Balloon_to_Site_Slant_ID] [int] NOT NULL IDENTITY(1, 1),
[epoch_time] [decimal] (12, 2) NULL,
[NB_1_m] [float] NULL,
[NP_1_m] [float] NULL,
[NP_2_m] [float] NULL,
[NP_10_m] [float] NULL,
[NP_11_m] [float] NULL,
[NP_12_m] [float] NULL,
```

```
[SP_1_m] [float] NULL,
[SP_2_m] [float] NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[balloon_receiver_slant_distance] ADD CONSTRAINT [PK_balloon_receiver_slant_-
ID] PRIMARY KEY CLUSTERED  ([Balloon_to_Site_Slant_ID]) ON [PRIMARY]
GO
```

[dbo].[calibration_history]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	864
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK	calibration_history_id	int	4	False	1 - 1
	time_id	uniqueidentifier	16	False	
	measurement_location_id	int	4	True	
	preamp	varchar(10)	10	False	
	date	datetime	8	False	
	dB_re_1v_pa	decimal(10,2)	9	True	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK	PK_calibration_history	calibration_history_id	True

SQL Script

```
CREATE TABLE [dbo].[calibration_history]
(
[calibration_history_id] [int] NOT NULL IDENTITY(1, 1),
[time_id] [uniqueidentifier] NOT NULL,
[measurement_location_id] [int] NULL,
[preamp] [varchar] (10) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[date] [datetime] NOT NULL,
[dB_re_1v_pa] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[calibration_history] ADD CONSTRAINT [PK_calibration_history] PRIMARY KEY
CLUSTERED  ([calibration_history_id]) ON [PRIMARY]
```

GO

[dbo].[calibration_history_freq]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	31968
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	calibration_history_freq_id	int	4	False	1 - 1
	calibration_history_id	int	4	True	
	time_id	uniqueidentifier	16	True	
	measurement_location_id	int	4	True	
	frequency	varchar(50)	50	False	
	decibels	decimal(10,2)	9	False	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_calibration_history_freq	calibration_history_freq_id	True

SQL Script

```
CREATE TABLE [dbo].[calibration_history_freq]
(
[calibration_history_freq_id] [int] NOT NULL IDENTITY(1, 1),
[calibration_history_id] [int] NULL,
[time_id] [uniqueidentifier] NULL,
[measurement_location_id] [int] NULL,
[frequency] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[decibels] [decimal] (10, 2) NOT NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[calibration_history_freq] ADD CONSTRAINT [PK_calibration_history_freq]
PRIMARY KEY CLUSTERED  ([calibration_history_freq_id]) ON [PRIMARY]
GO
```

[dbo].[Calibration_Points]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	8948
Created	5:12:20 PM Friday, November 21, 2014
Last Modified	11:08:54 AM Tuesday, December 02, 2014

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
time_history_acoustics_id	int	4	True
time_history_id	int	4	True
time_history_date	date	3	True
GPS_time_midpoint	decimal(10,2)	9	True
epoch_time	decimal(12,2)	9	True
measurement_location_id	int	4	True
sound_level	varchar(20)	20	True
decibels_1000	decimal(10,2)	9	True
decibels_LAS	decimal(10,2)	9	True
on_board	bit	1	True

SQL Script

```
CREATE TABLE [dbo].[Calibration_Points]
(
[time_history_acoustics_id] [int] NULL,
[time_history_id] [int] NULL,
[time_history_date] [date] NULL,
[GPS_time_midpoint] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL,
[measurement_location_id] [int] NULL,
[sound_level] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[decibels_1000] [decimal] (10, 2) NULL,
[decibels_LAS] [decimal] (10, 2) NULL,
[on_board] [bit] NULL
) ON [PRIMARY]
GO
```

[dbo].[Events]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	325
Created	2:53:47 PM Monday, September 08, 2014
Last Modified	2:20:38 PM Tuesday, December 02, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK	EVENT_ID	int	4	False	1 - 1
	Source_Ref_ID	tinyint	1	False	
	Date	datetime	8	False	
	Start_Time_GMT	float	8	False	
	Stop_Time_GMT	float	8	False	
	Aircraft_ID	tinyint	1	True	
	measurement_location_id	tinyint	1	False	
	Model	nvarchar(max)	max	False	
	Quality	Nvarchar(50)	50	False	

Indexes

Key	Name	Columns	Unique
PK	PK_EVENTS	EVENT_ID	True
	IX_EVENT_START_-STOP_TIME	Start_Time_GMT, Stop_Time_GMT, measurement_location_id, Date	

SQL Script

```
CREATE TABLE [dbo].[Events]
(
[EVENT_ID] [int] NOT NULL IDENTITY(1, 1),
[Source_Ref_ID] [tinyint] NOT NULL,
[Date] [datetime] NOT NULL,
[Start_Time_GMT] [float] NOT NULL,
[Stop_Time_GMT] [float] NOT NULL,
```

```
[Aircraft_ID] [tinyint] NULL,
[measurement_location_id] [tinyint] NOT NULL,
[Model] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[Quality] [nvarchar](50) NOT NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
ALTER TABLE [dbo].[Events] ADD CONSTRAINT [PK_EVENTS] PRIMARY KEY CLUSTERED  ([EVENT_ID]) ON
[PRIMARY]
GO
CREATE NONCLUSTERED INDEX [IX_EVENT_START_STOP_TIME] ON [dbo].[Events] ([Start_Time_GMT],
[Stop_Time_GMT], [measurement_location_id], [Date]) ON [PRIMARY]
GO
```

[dbo].[Events_Calibration_Offset]

Properties

Property	Value
Row Count (~)	324
Created	2:23:36 PM Tuesday, December 02, 2014
Last Modified	10:35:59 AM Tuesday, January 06, 2015

Columns

Key	Name	Data Type	Collation	Max Length (Bytes)	Allow Nulls
PK C	Event_ID	int		4	False
	Date	date		3	True
	Model	nvarchar(max)	SQL_Latin1_General_-CP1_CI_AS	max	True
	measurement_location_id	tinyint		1	True
	location_name	varchar(100)	SQL_Latin1_General_-CP1251_CI_AS	100	True
	Start_Time_GMT	float		8	True
	Stop_Time_GMT	float		8	True
	Calibration_Time_Before	decimal(10,2)		9	True
	Calibration_Time_After	decimal(10,2)		9	True
	Calibration_SPL_-Before_1000	decimal(10,2)		9	True
	Calibration_SPL_-After_1000	decimal(10,2)		9	True
	Calibration_SPL_Before_-LAS	decimal(10,2)		9	True
	Calibration_SPL_After_LAS	decimal(10,2)		9	True
	Offset	decimal(15,6)		9	True
	Event_Validation	varchar(7)	SQL_Latin1_General_-CP1251_CI_AS	7	False

Indexes

Key	Name	Columns	Unique
PK C	PK__Events_C__FD6BEFE43A4CA8FD	Event_ID	True

SQL Script

```
CREATE TABLE [dbo].[Events_Calibration_Offset]
(
[Event_ID] [int] NOT NULL,
[Date] [date] NULL,
[Model] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[measurement_location_id] [tinyint] NULL,
[location_name] [varchar] (100) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Start_Time_GMT] [float] NULL,
[Stop_Time_GMT] [float] NULL,
[Calibration_Time_Before] [decimal] (10, 2) NULL,
[Calibration_Time_After] [decimal] (10, 2) NULL,
[Calibration_SPL_Before_1000] [decimal] (10, 2) NULL,
[Calibration_SPL_After_1000] [decimal] (10, 2) NULL,
[Calibration_SPL_Before_LAS] [decimal] (10, 2) NULL,
[Calibration_SPL_After_LAS] [decimal] (10, 2) NULL,
[Offset] [decimal] (15, 6) NULL,
[Event_Validation] [varchar] (7) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
ALTER TABLE [dbo].[Events_Calibration_Offset] ADD CONSTRAINT [PK__Events_C__FD6BEFE43A4CA8FD]
PRIMARY KEY CLUSTERED  ([Event_ID]) ON [PRIMARY]
GO
```

[dbo].[Events_for_Report]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Heap	True
Row Count (~)	5952
Created	10:49:02 AM Tuesday, April 21, 2015
Last Modified	10:49:02 AM Tuesday, April 21, 2015

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
EVENT_ID	smallint	2	False
GPS_time_midpoint	decimal(10,2)	9	False
Date	datetime	8	False
Model	nvarchar(max)	max	False
measurement_location_id	tinyint	1	False
location_name	nvarchar(max)	max	False
LAS_dB	varchar(20)	20	True
B2_BPF_dB	varchar(20)	20	True
P3_BPF_dB	varchar(20)	20	True
wind_speed	decimal(10,2)	9	True
avg_temp_C	decimal(10,2)	9	True
avg_humidity	decimal(10,2)	9	True
a_StaticPressure	decimal(10,2)	9	True
fms_wns	decimal(10,2)	9	True
a_StatTempDegC	decimal(10,2)	9	True
c_RelHumidity	decimal(19,4)	9	True
pressure_hpa	decimal(10,2)	9	True
temp_degC	decimal(19,4)	9	True
WindSpeed_mps	decimal(19,4)	9	True
RH_percent	decimal(19,4)	9	True
gps_alt	decimal(10,2)	9	True
GPSAltitude_ft	decimal(19,4)	9	True
SR_Distance	float	8	True

Balloon_Distance	float	8	True
gps_lat	float	8	True
gps_lon	float	8	True

SQL Script

```
CREATE TABLE [dbo].[Events_for_Report]
(
[EVENT_ID] [smallint] NOT NULL,
[GPS_time_midpoint] [decimal] (10, 2) NOT NULL,
[Date] [datetime] NOT NULL,
[Model] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[measurement_location_id] [tinyint] NOT NULL,
[location_name] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[LAS_dB] [varchar] (20) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[B2_BPF_dB] [varchar] (20) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[P3_BPF_dB] [varchar] (20) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[wind_speed] [decimal] (10, 2) NULL,
[avg_temp_C] [decimal] (10, 2) NULL,
[avg_humidity] [decimal] (10, 2) NULL,
[a_StaticPressure] [decimal] (10, 2) NULL,
[fms_wns] [decimal] (10, 2) NULL,
[a_StatTempDegC] [decimal] (10, 2) NULL,
[c_RelHumidity] [decimal] (19, 4) NULL,
[pressure_hpa] [decimal] (10, 2) NULL,
[temp_degC] [decimal] (19, 4) NULL,
[WindSpeed_mps] [decimal] (19, 4) NULL,
[RH_percent] [decimal] (19, 4) NULL,
[gps_alt] [decimal] (10, 2) NULL,
[GPSAltitude_ft] [decimal] (19, 4) NULL,
[SR_Distance] [float] NULL,
[Balloon_Distance] [float] NULL,
[gps_lat] [float] NULL,
[gps_lon] [float] NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
```

[dbo].[flight]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	214
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	flight_number	int	4	False	1 - 1
	time_id	uniqueidentifier	16	True	
	aircraft_id	int	4	True	
	pilot_id	int	4	True	
	take_off	datetime	8	False	
	landing	datetime	8	False	
	duration	datetime	8	True	
	pause	datetime	8	True	
	instrument	varchar(100)	100	True	
	location	varchar(150)	150	True	
	ops_eng	varchar(100)	100	True	
	pre_calibration	datetime	8	True	
	post_calibration	datetime	8	True	
	calibration_deviation	varchar(100)	100	True	
	research_crew	varchar(250)	250	True	
	comments	text	max	True	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_flight	flight_number	True

SQL Script

```
CREATE TABLE [dbo].[flight]
(
[flight_number] [int] NOT NULL IDENTITY(1, 1),
[time_id] [uniqueidentifier] NULL,
[aircraft_id] [int] NULL,
[pilot_id] [int] NULL,
[take_off] [datetime] NOT NULL,
[landing] [datetime] NOT NULL,
[duration] [datetime] NULL,
[pause] [datetime] NULL,
[instrument] [varchar] (100) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[location] [varchar] (150) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[ops_eng] [varchar] (100) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[pre_calibration] [datetime] NULL,
[post_calibration] [datetime] NULL,
[calibration_deviation] [varchar] (100) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[research_crew] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[comments] [text] COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
ALTER TABLE [dbo].[flight] ADD CONSTRAINT [PK_flight] PRIMARY KEY CLUSTERED  ([flight_number])
ON [PRIMARY]
GO
```

[dbo].[flight_log]

Properties

Property	Value
Row Count (~)	0
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	flight_log_id	int	4	False	1 - 1
	time_id	int	4	False	
	aircraft_id	int	4	False	
	overpass_point	decimal(10,2)	9	False	
	approx_time	datetime	8	False	
	altitude	decimal(10,2)	9	False	
	ITT	decimal(10,2)	9	False	
	torques	decimal(10,2)	9	False	
	RPM	decimal(10,2)	9	False	
	N1	decimal(10,2)	9	False	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_flight_log	flight_log_id	True

SQL Script

```
CREATE TABLE [dbo].[flight_log]
(
[flight_log_id] [int] NOT NULL IDENTITY(1, 1),
[time_id] [int] NOT NULL,
[aircraft_id] [int] NOT NULL,
[overpass_point] [decimal] (10, 2) NOT NULL,
[approx_time] [datetime] NOT NULL,
[altitude] [decimal] (10, 2) NOT NULL,
[ITT] [decimal] (10, 2) NOT NULL,
```

```
[torques] [decimal] (10, 2) NOT NULL,
[RPM] [decimal] (10, 2) NOT NULL,
[N1] [decimal] (10, 2) NOT NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[flight_log] ADD CONSTRAINT [PK_flight_log] PRIMARY KEY CLUSTERED
([flight_log_id]) ON [PRIMARY]
GO
```

[dbo].[flight_statistics]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	7704
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
	time_id	uniqueidentifier	16	False
PK C	flight_number	int	4	False
PK C	sound_level	varchar(20)	20	False
PK C	frequency	decimal(10,2)	9	False
	decibels	decimal(10,2)	9	False
	epoch_time	decimal(12,2)	9	True

Indexes

Key	Name	Columns	Unique
PK C	PK_flight_statistics	flight_number, sound_level, frequency	True

SQL Script

```
CREATE TABLE [dbo].[flight_statistics]
(
[time_id] [uniqueidentifier] NOT NULL,
[flight_number] [int] NOT NULL,
[sound_level] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[frequency] [decimal] (10, 2) NOT NULL,
[decibels] [decimal] (10, 2) NOT NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[flight_statistics] ADD CONSTRAINT [PK_flight_statistics] PRIMARY KEY
CLUSTERED  ([flight_number], [sound_level], [frequency]) ON [PRIMARY]
GO
```

[dbo].[Layered_Atmosphere_Aircraft]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	889
Created	1:06:52 PM Thursday, April 23, 2015
Last Modified	1:08:38 PM Thursday, April 23, 2015

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
LA_Aircraft_ID	int	4	False	1 - 1
Source	nvarchar(50)	100	True	
Date	date	3	True	
Meas_Site_ID	nvarchar(10)	20	True	
TimeBlock	nvarchar(2)	4	True	
Altitude_bin	tinyint	1	True	
ValidN	int	4	True	
Temp_Mean	float	8	True	
Temp_Median	float	8	True	
Temp_Minimum	float	8	True	
Temp_Maximum	float	8	True	
Temp_StdDev	float	8	True	
RH_Mean	float	8	True	
RH_Median	float	8	True	
RH_Minimum	float	8	True	
RH_Maximum	float	8	True	
RH_StdDev	float	8	True	
Pressure_Mean	float	8	True	
Pressure_Median	float	8	True	
Pressure_Minimum	float	8	True	
Pressure_Maximum	float	8	True	
Pressure_StdDev	float	8	True	
measurement_location_ID	tinyint	1	True	

SQL Script

```
CREATE TABLE [dbo].[Layered_Atmosphere_Aircraft]
(
[LA_Aircraft_ID] [int] NOT NULL IDENTITY(1, 1),
[Source] [nvarchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Date] [date] NULL,
[Meas_Site_ID] [nvarchar] (10) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[TimeBlock] [nvarchar] (2) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Altitude_bin] [tinyint] NULL,
[ValidN] [int] NULL,
[Temp_Mean] [float] NULL,
[Temp_Median] [float] NULL,
[Temp_Minimum] [float] NULL,
[Temp_Maximum] [float] NULL,
[Temp_StdDev] [float] NULL,
[RH_Mean] [float] NULL,
[RH_Median] [float] NULL,
[RH_Minimum] [float] NULL,
[RH_Maximum] [float] NULL,
[RH_StdDev] [float] NULL,
[Pressure_Mean] [float] NULL,
[Pressure_Median] [float] NULL,
[Pressure_Minimum] [float] NULL,
[Pressure_Maximum] [float] NULL,
[Pressure_StdDev] [float] NULL,
[measurement_location_ID] [tinyint] NULL
) ON [PRIMARY]
GO
```

[dbo].[Layered_Atmosphere_Altitude_Bins]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	20
Created	3:38:20 PM Monday, February 09, 2015
Last Modified	3:38:20 PM Monday, February 09, 2015

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
Altitude_Bin	tinyint	1	False
Altitude_km	nvarchar(50)	100	False

SQL Script

```
CREATE TABLE [dbo].[Layered_Atmosphere_Altitude_Bins]
(
[Altitude_Bin] [tinyint] NOT NULL,
[Altitude_km] [nvarchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL
) ON [PRIMARY]
GO
```

[dbo].[Layered_Atmosphere_Balloon]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	219
Created	1:07:05 PM Thursday, April 23, 2015
Last Modified	1:08:39 PM Thursday, April 23, 2015

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	LA_Balloon_ID	int	4	False	1 - 1
	Source	nvarchar(50)	100	True	
	Date	date	3	True	
	TimeBlock	nvarchar(2)	4	True	
	Altitude_Bin	tinyint	1	True	
	Temp_ValidN	int	4	True	
	Temp_Mean	float	8	True	
	Temp_Median	float	8	True	
	Temp_Minimum	float	8	True	
	Temp_Maximum	float	8	True	
	Temp_StdDev	float	8	True	
	RH_Mean	float	8	True	
	RH_Median	float	8	True	
	RH_Minimum	float	8	True	
	RH_Maximum	float	8	True	
	RH_StdDev	float	8	True	
	WindSpeed_Mean	float	8	True	
	WindSpeed_Median	float	8	True	
	WindSpeed_Minimum	float	8	True	
	WindSpeed_Maximum	float	8	True	
	Windspeed_StdDev	float	8	True	
	Pressure_Mean	float	8	True	
	Pressure_Median	float	8	True	
	Pressure_Minimum	float	8	True	

	Pressure_Maximum	float	8	True	
	Pressure_StdDev	float	8	True	

Indexes

Key	Name	Columns	Unique
PK C	PK__Layered___FA87B6BD540C7B00	LA_Balloon_ID	True

SQL Script

```
CREATE TABLE [dbo].[Layered_Atmosphere_Balloon]
(
[LA_Balloon_ID] [int] NOT NULL IDENTITY(1, 1),
[Source] [nvarchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Date] [date] NULL,
[TimeBlock] [nvarchar] (2) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Altitude_Bin] [tinyint] NULL,
[Temp_ValidN] [int] NULL,
[Temp_Mean] [float] NULL,
[Temp_Median] [float] NULL,
[Temp_Minimum] [float] NULL,
[Temp_Maximum] [float] NULL,
[Temp_StdDev] [float] NULL,
[RH_Mean] [float] NULL,
[RH_Median] [float] NULL,
[RH_Minimum] [float] NULL,
[RH_Maximum] [float] NULL,
[RH_StdDev] [float] NULL,
[WindSpeed_Mean] [float] NULL,
[WindSpeed_Median] [float] NULL,
[WindSpeed_Minimum] [float] NULL,
[WindSpeed_Maximum] [float] NULL,
[Windspeed_StdDev] [float] NULL,
[Pressure_Mean] [float] NULL,
[Pressure_Median] [float] NULL,
[Pressure_Minimum] [float] NULL,
[Pressure_Maximum] [float] NULL,
[Pressure_StdDev] [float] NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[Layered_Atmosphere_Balloon] ADD CONSTRAINT [PK__Layered___FA87B6BD540C7B00]
PRIMARY KEY CLUSTERED  ([LA_Balloon_ID]) ON [PRIMARY]
GO
```

[dbo].[Layered_Atmosphere_Ground]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	91
Created	5:50:36 PM Friday, January 02, 2015
Last Modified	2:18:49 PM Tuesday, February 03, 2015

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	LA_Ground_ID	int	4	False	1 - 1
	Source	nvarchar(50)	100	True	
	Date	date	3	True	
	TimeBlock	nvarchar(2)	4	True	
	Measurement_Location_ID	tinyint	1	True	
	ValidN	int	4	True	
	Temp_Mean	float	8	True	
	Temp_Median	float	8	True	
	Temp_Minimum	float	8	True	
	Temp_Maximum	float	8	True	
	Temp_StdDev	float	8	True	
	RH_Mean	float	8	True	
	RH_Median	float	8	True	
	RH_Minimum	float	8	True	
	RH_Maximum	float	8	True	
	RH_StdDev	float	8	True	
	WindSpeed_Mean	float	8	True	
	WindSpeed_Median	float	8	True	
	WindSpeed_Minimum	float	8	True	
	WindSpeed_Maximum	float	8	True	
	WindSpeed_StdDev	float	8	True	
	Altitude_Bin	tinyint	1	True	

Indexes

Key	Name	Columns	Unique
PK	PK__Layered___3F6397DA37703C52	LA_Ground_ID	True

SQL Script

```
CREATE TABLE [dbo].[Layered_Atmosphere_Ground]
(
[LA_Ground_ID] [int] NOT NULL IDENTITY(1, 1),
[Source] [nvarchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Date] [date] NULL,
[TimeBlock] [nvarchar] (2) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[Measurement_Location_ID] [tinyint] NULL,
[ValidN] [int] NULL,
[Temp_Mean] [float] NULL,
[Temp_Median] [float] NULL,
[Temp_Minimum] [float] NULL,
[Temp_Maximum] [float] NULL,
[Temp_StdDev] [float] NULL,
[RH_Mean] [float] NULL,
[RH_Median] [float] NULL,
[RH_Minimum] [float] NULL,
[RH_Maximum] [float] NULL,
[RH_StdDev] [float] NULL,
[WindSpeed_Mean] [float] NULL,
[WindSpeed_Median] [float] NULL,
[WindSpeed_Minimum] [float] NULL,
[WindSpeed_Maximum] [float] NULL,
[WindSpeed_StdDev] [float] NULL,
[Altitude_Bin] [tinyint] NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[Layered_Atmosphere_Ground] ADD CONSTRAINT [PK__Layered___3F6397DA37703C52]
PRIMARY KEY CLUSTERED  ([LA_Ground_ID]) ON [PRIMARY]
GO
```

[dbo].[measurement_location]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	14
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	4:22:17 PM Monday, September 29, 2014

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity	Default
measurement_location_id	int	4	False	1 - 1	
location_name	varchar(100)	100	True		
gps_lat	decimal(10,5)	9	True		
gps_lon	decimal(10,5)	9	True		
altitude	decimal(10,2)	9	True		
on_board	bit	1	False		((0))
start_date	datetime	8	True		
stop_date	datetime	8	True		
meteorological	bit	1	False		((0))

SQL Script

```
CREATE TABLE [dbo].[measurement_location]
(
[measurement_location_id] [int] NOT NULL IDENTITY(1, 1),
[location_name] [varchar] (100) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[gps_lat] [decimal] (10, 5) NULL,
[gps_lon] [decimal] (10, 5) NULL,
[altitude] [decimal] (10, 2) NULL,
[on_board] [bit] NOT NULL CONSTRAINT [DF__measureme__on_bo__2D27B809] DEFAULT ((0)),
[start_date] [datetime] NULL,
[stop_date] [datetime] NULL,
[meteorological] [bit] NOT NULL CONSTRAINT [DF__measureme__meteo__2E1BDC42] DEFAULT ((0))
) ON [PRIMARY]
GO
```

[dbo].[met_limit_check]

Properties

Property	Value
Heap	True
Row Count (~)	295
Created	4:14:55 PM Tuesday, December 02, 2014
Last Modified	10:40:29 AM Monday, January 12, 2015

Columns

Name	Data Type	Collation	Max Length (Bytes)	Allow Nulls
EVENT_ID	smallint		2	False
Date	datetime		8	False
Model	nvarchar(max)	SQL_Latin1_-General_CP1_CI_AS	max	False
measurement_location_id	tinyint		1	False
total_records	int		4	True
records_over_12_mph	varchar(16)	SQL_Latin1_-General_CP1251_-CI_AS	16	True
records_outside_36to95_degF	varchar(16)	SQL_Latin1_-General_CP1251_-CI_AS	16	True
records_outside_5to85_Percent_-Humidity	varchar(16)	SQL_Latin1_-General_CP1251_-CI_AS	16	True

SQL Script

```
CREATE TABLE [dbo].[met_limit_check]
(
[EVENT_ID] [smallint] NOT NULL,
[Date] [datetime] NOT NULL,
[Model] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[measurement_location_id] [tinyint] NOT NULL,
[total_records] [int] NULL,
[records_over_12_mph] [varchar] (16) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
```

```
[records_outside_36to95_degF] [varchar] (16) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[records_outside_5to85_Percent_Humidity] [varchar] (16) COLLATE SQL_Latin1_General_CP1251_CI_AS
NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
```

[dbo].[met_limit_data]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Heap	True
Row Count (~)	441806
Created	7:29:06 PM Sunday, November 30, 2014
Last Modified	4:13:36 PM Tuesday, December 02, 2014

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
EVENT_ID	smallint	2	False
GPS_time_midpoint	decimal(10,2)	9	False
Date	datetime	8	False
Model	nvarchar(max)	max	False
measurement_location_id	tinyint	1	False
location_name	nvarchar(max)	max	False
wind_speed	decimal(10,2)	9	True
avg_temp	decimal(10,2)	9	True
avg_humidity	decimal(10,2)	9	True

SQL Script

```
CREATE TABLE [dbo].[met_limit_data]
(
[EVENT_ID] [smallint] NOT NULL,
[GPS_time_midpoint] [decimal] (10, 2) NOT NULL,
[Date] [datetime] NOT NULL,
[Model] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[measurement_location_id] [tinyint] NOT NULL,
[location_name] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[wind_speed] [decimal] (10, 2) NULL,
[avg_temp] [decimal] (10, 2) NULL,
[avg_humidity] [decimal] (10, 2) NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
```

[dbo].[NASA_Acoustic_Source_Data_Fast]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	56498
Created	11:40:48 AM Thursday, September 24, 2015
Last Modified	11:40:48 AM Thursday, September 24, 2015

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
Time_Index_sec	float	8	True
Seconds_past_midnight_UTC	float	8	True
OTOB_level_25_1189_Hz	float	8	True
OTOB_level_31_6228_Hz	float	8	True
OTOB_level_39_8107_Hz	float	8	True
OTOB_level_50_1187_Hz	float	8	True
OTOB_level_63_0957_Hz	float	8	True
OTOB_level_79_4328_Hz	float	8	True
OTOB_level_100_Hz	float	8	True
OTOB_level_125_8925_Hz	float	8	True
OTOB_level_158_4893_Hz	float	8	True
OTOB_level_199_5262_Hz	float	8	True
OTOB_level_251_1886_Hz	float	8	True
OTOB_level_316_2278_Hz	float	8	True
OTOB_level_398_1072_Hz	float	8	True
OTOB_level_501_1872_Hz	float	8	True
OTOB_level_630_9573_Hz	float	8	True
OTOB_level_794_3282_Hz	float	8	True
OTOB_level_1000_Hz	float	8	True
OTOB_level_1258_9254_Hz	float	8	True
OTOB_level_1584_8932_Hz	float	8	True
OTOB_level_1995_2623_Hz	float	8	True
OTOB_level_2511_8864_Hz	float	8	True

OTOB_level_3162_2777_Hz	float	8	True
OTOB_level_3981_0717_Hz	float	8	True
OTOB_level_5011_8723_Hz	float	8	True
OTOB_level_6309_5734_Hz	float	8	True
OTOB_level_7943_2823_Hz	float	8	True
OTOB_level_10000_Hz	float	8	True
OTOB_level_12589_2541_Hz	float	8	True
OTOB_level_15848_9319_Hz	float	8	True
SPL_dB_A_weighted	float	8	True
SPL_dB_C_weighted	float	8	True
SPL_Difference_dBA_max	float	8	True
Model	nvarchar(50)	100	True
Channel	tinyint	1	True

SQL Script

```
CREATE TABLE [dbo].[NASA_Acoustic_Source_Data_Fast]
(
[Time_Index_sec] [float] NULL,
[Seconds_past_midnight_UTC] [float] NULL,
[OTOB_level_25_1189_Hz] [float] NULL,
[OTOB_level_31_6228_Hz] [float] NULL,
[OTOB_level_39_8107_Hz] [float] NULL,
[OTOB_level_50_1187_Hz] [float] NULL,
[OTOB_level_63_0957_Hz] [float] NULL,
[OTOB_level_79_4328_Hz] [float] NULL,
[OTOB_level_100_Hz] [float] NULL,
[OTOB_level_125_8925_Hz] [float] NULL,
[OTOB_level_158_4893_Hz] [float] NULL,
[OTOB_level_199_5262_Hz] [float] NULL,
[OTOB_level_251_1886_Hz] [float] NULL,
[OTOB_level_316_2278_Hz] [float] NULL,
[OTOB_level_398_1072_Hz] [float] NULL,
[OTOB_level_501_1872_Hz] [float] NULL,
[OTOB_level_630_9573_Hz] [float] NULL,
[OTOB_level_794_3282_Hz] [float] NULL,
[OTOB_level_1000_Hz] [float] NULL,
[OTOB_level_1258_9254_Hz] [float] NULL,
[OTOB_level_1584_8932_Hz] [float] NULL,
[OTOB_level_1995_2623_Hz] [float] NULL,
[OTOB_level_2511_8864_Hz] [float] NULL,
[OTOB_level_3162_2777_Hz] [float] NULL,
[OTOB_level_3981_0717_Hz] [float] NULL,
[OTOB_level_5011_8723_Hz] [float] NULL,
[OTOB_level_6309_5734_Hz] [float] NULL,
[OTOB_level_7943_2823_Hz] [float] NULL,
[OTOB_level_10000_Hz] [float] NULL,
[OTOB_level_12589_2541_Hz] [float] NULL,
[OTOB_level_15848_9319_Hz] [float] NULL,
[SPL_dB_A_weighted] [float] NULL,
[SPL_dB_C_weighted] [float] NULL,
[SPL_Difference_dBA_max] [float] NULL,
[Model] [nvarchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
```

```
[Channel] [tinyint] NULL
) ON [PRIMARY]
GO
```

[dbo].[NASA_Acoustic_Source_Data_Slow]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	60686
Created	11:40:48 AM Thursday, September 24, 2015
Last Modified	11:40:48 AM Thursday, September 24, 2015

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
Time_Index_sec	float	8	True
Seconds_past_midnight_UTC	float	8	True
OTOB_level_25_1189_Hz	float	8	True
OTOB_level_31_6228_Hz	float	8	True
OTOB_level_39_8107_Hz	float	8	True
OTOB_level_50_1187_Hz	float	8	True
OTOB_level_63_0957_Hz	float	8	True
OTOB_level_79_4328_Hz	float	8	True
OTOB_level_100_Hz	float	8	True
OTOB_level_125_8925_Hz	float	8	True
OTOB_level_158_4893_Hz	float	8	True
OTOB_level_199_5262_Hz	float	8	True
OTOB_level_251_1886_Hz	float	8	True
OTOB_level_316_2278_Hz	float	8	True
OTOB_level_398_1072_Hz	float	8	True
OTOB_level_501_1872_Hz	float	8	True
OTOB_level_630_9573_Hz	float	8	True
OTOB_level_794_3282_Hz	float	8	True
OTOB_level_1000_Hz	float	8	True
OTOB_level_1258_9254_Hz	float	8	True
OTOB_level_1584_8932_Hz	float	8	True
OTOB_level_1995_2623_Hz	float	8	True
OTOB_level_2511_8864_Hz	float	8	True

OTOB_level_3162_2777_Hz	float	8	True
OTOB_level_3981_0717_Hz	float	8	True
OTOB_level_5011_8723_Hz	float	8	True
OTOB_level_6309_5734_Hz	float	8	True
OTOB_level_7943_2823_Hz	float	8	True
OTOB_level_10000_Hz	float	8	True
OTOB_level_12589_2541_Hz	float	8	True
OTOB_level_15848_9319_Hz	float	8	True
SPL_dB_A_weighted	float	8	True
SPL_dB_C_weighted	float	8	True
SPL_Difference_dBA_max	float	8	True
Model	nvarchar(50)	100	True
Channel	tinyint	1	True

SQL Script

```
CREATE TABLE [dbo].[NASA_Acoustic_Source_Data_Slow]
(
[Time_Index_sec] [float] NULL,
[Seconds_past_midnight_UTC] [float] NULL,
[OTOB_level_25_1189_Hz] [float] NULL,
[OTOB_level_31_6228_Hz] [float] NULL,
[OTOB_level_39_8107_Hz] [float] NULL,
[OTOB_level_50_1187_Hz] [float] NULL,
[OTOB_level_63_0957_Hz] [float] NULL,
[OTOB_level_79_4328_Hz] [float] NULL,
[OTOB_level_100_Hz] [float] NULL,
[OTOB_level_125_8925_Hz] [float] NULL,
[OTOB_level_158_4893_Hz] [float] NULL,
[OTOB_level_199_5262_Hz] [float] NULL,
[OTOB_level_251_1886_Hz] [float] NULL,
[OTOB_level_316_2278_Hz] [float] NULL,
[OTOB_level_398_1072_Hz] [float] NULL,
[OTOB_level_501_1872_Hz] [float] NULL,
[OTOB_level_630_9573_Hz] [float] NULL,
[OTOB_level_794_3282_Hz] [float] NULL,
[OTOB_level_1000_Hz] [float] NULL,
[OTOB_level_1258_9254_Hz] [float] NULL,
[OTOB_level_1584_8932_Hz] [float] NULL,
[OTOB_level_1995_2623_Hz] [float] NULL,
[OTOB_level_2511_8864_Hz] [float] NULL,
[OTOB_level_3162_2777_Hz] [float] NULL,
[OTOB_level_3981_0717_Hz] [float] NULL,
[OTOB_level_5011_8723_Hz] [float] NULL,
[OTOB_level_6309_5734_Hz] [float] NULL,
[OTOB_level_7943_2823_Hz] [float] NULL,
[OTOB_level_10000_Hz] [float] NULL,
[OTOB_level_12589_2541_Hz] [float] NULL,
[OTOB_level_15848_9319_Hz] [float] NULL,
[SPL_dB_A_weighted] [float] NULL,
[SPL_dB_C_weighted] [float] NULL,
[SPL_Difference_dBA_max] [float] NULL,
[Model] [nvarchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
```

```
[Channel] [tinyint] NULL
) ON [PRIMARY]
GO
```

[dbo].[ozone]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Heap	True
Row Count (~)	527
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:43:00 PM Monday, July 07, 2014

Columns

Name	Data Type	Max Length (Bytes)	Allow Nulls
ozone_index	int	4	False
time_id	uniqueidentifier	16	True
measurement_location_id	int	4	True
FJD	decimal(19,4)	9	True
UTC_start	int	4	True
UTC_stop	int	4	True
UTC_mid	int	4	True
year	varchar(4)	4	True
ozone	int	4	True
temperature	decimal(10,2)	9	True
SRAD	decimal(10,2)	9	True
epoch_time	decimal(12,2)	9	True

SQL Script

```
CREATE TABLE [dbo].[ozone]
(
[ozone_index] [int] NOT NULL,
[time_id] [uniqueidentifier] NULL,
[measurement_location_id] [int] NULL,
[FJD] [decimal] (19, 4) NULL,
[UTC_start] [int] NULL,
[UTC_stop] [int] NULL,
[UTC_mid] [int] NULL,
[year] [varchar] (4) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[ozone] [int] NULL,
[temperature] [decimal] (10, 2) NULL,
```

```
[SRAD] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
```

[dbo].[ozone_sondes]

Properties

Property	Value
Heap	True
Row Count (~)	192777
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	5:25:03 PM Monday, September 29, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
	time_id	uniqueidentifier	16	False
	measurement_location_id	int	4	True
	start_utc	int	4	False
	pressure_hpa	decimal(10,2)	9	True
	altitude_km	decimal(19,4)	9	True
	temp_degC	decimal(19,4)	9	True
	RawTemp_degC	decimal(19,4)	9	True
	Theta_K	decimal(19,4)	9	True
	RH_percent	decimal(19,4)	9	True
	Frostpoint_degC	decimal(19,4)	9	True
	InternalTemp_degC	decimal(19,4)	9	True
	ozone_current	decimal(19,4)	9	True
	ozone_mPa	decimal(19,4)	9	True
	ozone_ppmv	decimal(19,4)	9	True
	PumpTemp_degC	decimal(10,2)	9	True
	OzoneBattery_V	decimal(19,4)	9	True
	PumpCurrent_mA	decimal(19,4)	9	True
	Latitude_deg	decimal(19,4)	9	True
	Longitude_deg	decimal(19,4)	9	True
	GPSAltitude_km	decimal(19,4)	9	True
	WindSpeed_mps	decimal(19,4)	9	True
	WindDirection_deg	decimal(19,4)	9	True
	epoch_time	decimal(12,2)	9	True

Indexes

Name	Columns
_dta_index_ozone_sondes_7_405576483__K23	epoch_time

SQL Script

```
CREATE TABLE [dbo].[ozone_sondes]
(
[time_id] [uniqueidentifier] NOT NULL,
[measurement_location_id] [int] NULL,
[start_utc] [int] NOT NULL,
[pressure_hpa] [decimal] (10, 2) NULL,
[altitude_km] [decimal] (19, 4) NULL,
[temp_degC] [decimal] (19, 4) NULL,
[RawTemp_degC] [decimal] (19, 4) NULL,
[Theta_K] [decimal] (19, 4) NULL,
[RH_percent] [decimal] (19, 4) NULL,
[Frostpoint_degC] [decimal] (19, 4) NULL,
[InternalTemp_degC] [decimal] (19, 4) NULL,
[ozone_current] [decimal] (19, 4) NULL,
[ozone_mPa] [decimal] (19, 4) NULL,
[ozone_ppmv] [decimal] (19, 4) NULL,
[PumpTemp_degC] [decimal] (10, 2) NULL,
[OzoneBattery_V] [decimal] (19, 4) NULL,
[PumpCurrent_mA] [decimal] (19, 4) NULL,
[Latitude_deg] [decimal] (19, 4) NULL,
[Longitude_deg] [decimal] (19, 4) NULL,
[GPSAltitude_km] [decimal] (19, 4) NULL,
[WindSpeed_mps] [decimal] (19, 4) NULL,
[WindDirection_deg] [decimal] (19, 4) NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
CREATE NONCLUSTERED INDEX [_dta_index_ozone_sondes_7_405576483__K23] ON [dbo].[ozone_sondes]
([epoch_time]) ON [PRIMARY]
GO
```

[dbo].[pilot]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	0
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	11:20:15 PM Friday, June 20, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK	pilot_id	int	4	False	1 - 1
	first_name	varchar(25)	25	True	
	last_name	varchar(50)	50	True	
	call_sign	varchar(25)	25	True	

Indexes

Key	Name	Columns	Unique
PK	PK_pilot	pilot_id	True

SQL Script

```
CREATE TABLE [dbo].[pilot]
(
[pilot_id] [int] NOT NULL IDENTITY(1, 1),
[first_name] [varchar] (25) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[last_name] [varchar] (50) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[call_sign] [varchar] (25) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[pilot] ADD CONSTRAINT [PK_pilot] PRIMARY KEY CLUSTERED  ([pilot_id]) ON
[PRIMARY]
GO
```

[dbo].[site_flag]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	9477
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	11:20:15 PM Friday, June 20, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK	site_flag_id	int	4	False	1 - 1
	site	varchar(250)	250	False	

Indexes

Key	Name	Columns	Unique
PK	PK_site_flag	site_flag_id	True

SQL Script

```
CREATE TABLE [dbo].[site_flag]
(
[site_flag_id] [int] NOT NULL IDENTITY(1, 1),
[site] [varchar] (250) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[site_flag] ADD CONSTRAINT [PK_site_flag] PRIMARY KEY CLUSTERED
([site_flag_id]) ON [PRIMARY]
GO
```

[dbo].[source_receiver]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	475163
Created	5:38:04 PM Monday, July 14, 2014
Last Modified	4:09:35 PM Friday, August 07, 2015

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
(3)	Aircraft	bigint	8	True
(3)	Date_day	bigint	8	True
(2)	GMT_sec	bigint	8	True
	NP_1	real	4	True
	NP_2	real	4	True
	NP_10	real	4	True
	NP_11	real	4	True
	NP_12	real	4	True
	NB_1	real	4	True
	SP_1	real	4	True
	SP_2	real	4	True
(2)	UTC_datetime	datetime	8	True
(2)	epoch_time	decimal(12,2)	9	True
	Model	nvarchar(max)	max	True

Indexes

Key	Name	Columns
	_dta_index_source_receiver_7_1205579333__K13_K1_-K3_K2_K12_4_5_6_7_8_9_10_11	NP_1, NP_2, NP_10, NP_11, NP_12, NB_1, SP_1, SP_2, epoch_time, Aircraft, GMT_sec, Date_day, UTC_datetime

	_dta_index_source_receiver_c_7_1205579333__K13_-K1_K2_K3_K12	epoch_time, Aircraft, Date_day, GMT_sec, UTC_datetime

Statistics

Name	Columns
_dta_stat_1205579333_13_1_2_3_12	epoch_time, Aircraft, Date_day, GMT_sec, UTC_datetime
_dta_stat_1205579333_1_2	Aircraft, Date_day

SQL Script

```
CREATE TABLE [dbo].[source_receiver]
(
[Aircraft] [bigint] NULL,
[Date_day] [bigint] NULL,
[GMT_sec] [bigint] NULL,
[NP_1] [real] NULL,
[NP_2] [real] NULL,
[NP_10] [real] NULL,
[NP_11] [real] NULL,
[NP_12] [real] NULL,
[NB_1] [real] NULL,
[SP_1] [real] NULL,
[SP_2] [real] NULL,
[UTC_datetime] [datetime] NULL,
[epoch_time] [decimal] (12, 2) NULL,
[Model] [nvarchar] (max) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
CREATE CLUSTERED INDEX [_dta_index_source_receiver_c_7_1205579333__K13_K1_K2_K3_K12] ON
[dbo].[source_receiver] ([epoch_time], [Aircraft], [Date_day], [GMT_sec], [UTC_datetime]) ON
[PRIMARY]
GO
CREATE NONCLUSTERED INDEX [_dta_index_source_receiver_7_1205579333__K13_K1_K3_K2_-
K12_4_5_6_7_8_9_10_11] ON [dbo].[source_receiver] ([epoch_time], [Aircraft], [GMT_sec],
[Date_day], [UTC_datetime]) INCLUDE ([NB_1], [NP_1], [NP_10], [NP_11], [NP_12], [NP_2], [SP_1],
[SP_2]) ON [PRIMARY]
GO
CREATE STATISTICS [_dta_stat_1205579333_1_2] ON [dbo].[source_receiver] ([Aircraft],
[Date_day])
GO
CREATE STATISTICS [_dta_stat_1205579333_13_1_2_3_12] ON [dbo].[source_receiver] ([epoch_time],
[Aircraft], [Date_day], [GMT_sec], [UTC_datetime])
GO
```

[dbo].[time_history]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	8293295
Created	4:00:47 PM Thursday, July 10, 2014
Last Modified	4:07:31 PM Tuesday, September 30, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C (2)	time_history_id	int	4	False	1 - 1
	time_id	uniqueidentifier	16	True	
	time_history_date	datetime	8	False	
(2)	epoch_time	decimal(12,2)	9	True	
	aircraft_id	int	4	True	
	ext_power	decimal(10,2)	9	True	
	int_temp	decimal(10,2)	9	True	
	wind_speed	decimal(10,2)	9	True	
	gust_dir	decimal(10,2)	9	True	
	gust_speed	decimal(10,2)	9	True	
	avg_temp	decimal(10,2)	9	True	
	avg_humidity	decimal(10,2)	9	True	
	ovrId	varchar(5)	5	True	
	oba_ovrId	varchar(5)	5	True	
	marker	varchar(25)	25	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_Time_History	time_history_id	True
	_dta_index_time_history_7_1125579048__K1_4	epoch_time, time_history_id	

Statistics

Name	Columns
_dta_stat_1125579048_4_1	epoch_time, time_history_id

SQL Script

```
CREATE TABLE [dbo].[time_history]
(
[time_history_id] [int] NOT NULL IDENTITY(1, 1),
[time_id] [uniqueidentifier] NULL,
[time_history_date] [datetime] NOT NULL,
[epoch_time] [decimal] (12, 2) NULL,
[aircraft_id] [int] NULL,
[ext_power] [decimal] (10, 2) NULL,
[int_temp] [decimal] (10, 2) NULL,
[wind_speed] [decimal] (10, 2) NULL,
[gust_dir] [decimal] (10, 2) NULL,
[gust_speed] [decimal] (10, 2) NULL,
[avg_temp] [decimal] (10, 2) NULL,
[avg_humidity] [decimal] (10, 2) NULL,
[ovrId] [varchar] (5) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[oba_ovrId] [varchar] (5) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL,
[marker] [varchar] (25) COLLATE SQL_Latin1_General_CP1251_CI_AS NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[time_history] ADD CONSTRAINT [PK_Time_History] PRIMARY KEY CLUSTERED
([time_history_id]) ON [PRIMARY]
GO
CREATE NONCLUSTERED INDEX [_dta_index_time_history_7_1125579048__K1_4] ON [dbo].[time_history]
([time_history_id]) INCLUDE ([epoch_time]) ON [PRIMARY]
GO
CREATE STATISTICS [_dta_stat_1125579048_4_1] ON [dbo].[time_history] ([epoch_time],
[time_history_id])
GO
```

Used By

[dbo].[time_history_acoustics]

[dbo].[time_history_acoustic_third_octave_aggregate]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	0
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	2:19:24 PM Friday, June 27, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
PK C	time_history_agg_date	datetime	8	False
	measurement_location_id	int	4	False
PK C	sound_level	varchar(20)	20	False
	decibels	decimal(10,2)	9	True

Indexes

Key	Name	Columns	Unique
PK C	PK_time_history_acoustic_third_octive	time_history_agg_date, sound_level	True

SQL Script

```
CREATE TABLE [dbo].[time_history_acoustic_third_octave_aggregate]
(
[time_history_agg_date] [datetime] NOT NULL,
[measurement_location_id] [int] NOT NULL,
[sound_level] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[decibels] [decimal] (10, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[time_history_acoustic_third_octave_aggregate] ADD CONSTRAINT
[PK_time_history_acoustic_third_octive] PRIMARY KEY CLUSTERED  ([time_history_agg_date],
[sound_level]) ON [PRIMARY]
GO
```

[dbo].[time_history_acoustics]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1251_CI_AS
Row Count (~)	323442210
Created	4:55:18 PM Wednesday, July 16, 2014
Last Modified	4:07:31 PM Tuesday, September 30, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	time_history_acoustics_id	int	4	False	1 - 1
(2) FK	time_history_id	int	4	False	
(4)	time_history_date	datetime	8	False	
(5)	GPS_time_midpoint	decimal(10,2)	9	True	
	epoch_time	decimal(12,2)	9	True	
(3)	measurement_location_id	int	4	True	
	sound_level	varchar(20)	20	False	
	decibels	decimal(10,2)	9	False	
	on_board	bit	1	False	

Indexes

Key	Name	Columns	Unique
PK C	PK_Time_History_Acoustics	time_history_acoustics_id	True
	_dta_index_time_history_acoustics_7_1221579390__-K3	time_history_date, GPS_time_midpoint	

Statistics

Name	Columns
_dta_stat_1221579390_2_4_3	time_history_id, GPS_time_midpoint, time_history_date
_dta_stat_1221579390_4_2_6_3	GPS_time_midpoint, time_history_id, measurement_location_id, time_history_date

_dta_stat_1221579390_4_3_6	GPS_time_midpoint, time_history_date, measurement_location_id
_dta_stat_1221579390_6_4	measurement_location_id, GPS_time_midpoint

Foreign Keys

Name	Columns
FK__time_hist__time___6383C8BA	time_history_id->[dbo].[time_history].[time_history_id]

SQL Script

```
CREATE TABLE [dbo].[time_history_acoustics]
(
[time_history_acoustics_id] [int] NOT NULL IDENTITY(1, 1),
[time_history_id] [int] NOT NULL,
[time_history_date] [datetime] NOT NULL,
[GPS_time_midpoint] [decimal] (10, 2) NULL,
[epoch_time] [decimal] (12, 2) NULL,
[measurement_location_id] [int] NULL,
[sound_level] [varchar] (20) COLLATE SQL_Latin1_General_CP1251_CI_AS NOT NULL,
[decibels] [decimal] (10, 2) NOT NULL,
[on_board] [bit] NOT NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[time_history_acoustics] ADD CONSTRAINT [PK_Time_History_Acoustics] PRIMARY
KEY CLUSTERED  ([time_history_acoustics_id]) ON [PRIMARY]
GO
CREATE NONCLUSTERED INDEX [_dta_index_time_history_acoustics_7_1221579390__K3] ON
[dbo].[time_history_acoustics] ([time_history_date], [GPS_time_midpoint]) ON [PRIMARY]
GO
CREATE STATISTICS [_dta_stat_1221579390_4_3_6] ON [dbo].[time_history_acoustics]
([GPS_time_midpoint], [time_history_date], [measurement_location_id])
GO
CREATE STATISTICS [_dta_stat_1221579390_4_2_6_3] ON [dbo].[time_history_acoustics]
([GPS_time_midpoint], [time_history_id], [measurement_location_id], [time_history_date])
GO
CREATE STATISTICS [_dta_stat_1221579390_6_4] ON [dbo].[time_history_acoustics]
([measurement_location_id], [GPS_time_midpoint])
GO
CREATE STATISTICS [_dta_stat_1221579390_2_4_3] ON [dbo].[time_history_acoustics]
([time_history_id], [GPS_time_midpoint], [time_history_date])
GO
ALTER TABLE [dbo].[time_history_acoustics] ADD CONSTRAINT [FK__time_hist__time___6383C8BA]
FOREIGN KEY ([time_history_id]) REFERENCES [dbo].[time_history] ([time_history_id])
GO
```

Uses

[dbo].[time_history]

[dbo].[time_history_key]

Properties

Property	Value
Row Count (~)	0
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	11:20:15 PM Friday, June 20, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
PK C	time_id	uniqueidentifier	16	False
	time_history_date	datetime	8	False
	time_history_id	int	4	False
	time_history_agg_date	datetime	8	True
	time_history_agg_id	int	4	True

Indexes

Key	Name	Columns	Unique
PK C	PK_time_history_key	time_id	True

SQL Script

```
CREATE TABLE [dbo].[time_history_key]
(
[time_id] [uniqueidentifier] NOT NULL,
[time_history_date] [datetime] NOT NULL,
[time_history_id] [int] NOT NULL,
[time_history_agg_date] [datetime] NULL,
[time_history_agg_id] [int] NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[time_history_key] ADD CONSTRAINT [PK_time_history_key] PRIMARY KEY CLUSTERED
([time_id]) ON [PRIMARY]
GO
```

[dbo].[time_key]

Properties

Property	Value
Row Count (~)	1115315
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	11:20:15 PM Friday, June 20, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Default
PK C	time_id	uniqueidentifier	16	False	(newsequentialid())
	GPS_time_midpoint	decimal(10,2)	9	True	
	UTC	datetime	8	True	
	local_time	datetime	8	False	
	matlab_serial_time	decimal(10,10)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK__time_key__0FB76BB929572725	time_id	True

SQL Script

```
CREATE TABLE [dbo].[time_key]
(
[time_id] [uniqueidentifier] NOT NULL CONSTRAINT [DF__time_key__time_i__2F10007B] DEFAULT
(newsequentialid()),
[GPS_time_midpoint] [decimal] (10, 2) NULL,
[UTC] [datetime] NULL,
[local_time] [datetime] NOT NULL,
[matlab_serial_time] [decimal] (10, 10) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[time_key] ADD CONSTRAINT [PK__time_key__0FB76BB929572725] PRIMARY KEY
CLUSTERED  ([time_id]) ON [PRIMARY]
GO
```

Used By

[dbo].[usp_Create_Time_Key_GPS_Time]
[dbo].[usp_Create_Time_Key_Local_Time]
[dbo].[usp_Create_Time_Key_UTC]
[dbo].[usp_Update_Time_Key_Local_Time]

[dbo].[weather]

Properties

Property	Value
Row Count (~)	175
Created	11:20:15 PM Friday, June 20, 2014
Last Modified	8:23:02 AM Tuesday, July 08, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
PK C	weather_id	int	4	False	1 - 1
PK C	time_id	uniqueidentifier	16	False	
	measurement_location_id	int	4	True	
	flight_number	int	4	True	
	avg_wind_speed	decimal(10,2)	9	False	
	gust_speed	decimal(10,2)	9	False	
	min_wind_speed	decimal(10,2)	9	False	
	gust_direction	decimal(10,2)	9	False	
	avg_temp	decimal(10,2)	9	False	
	max_temp	decimal(10,2)	9	False	
	min_temp	decimal(10,2)	9	False	
	avg_humidity	decimal(10,2)	9	False	
	max_humidity	decimal(10,2)	9	False	
	min_humidity	decimal(10,2)	9	False	
	barometer_avg	decimal(10,2)	9	False	
	barometer_high	decimal(10,2)	9	False	
	barometer_low	decimal(10,2)	9	False	
	rain_accumulation	decimal(10,2)	9	False	
	rain_max_rate	decimal(10,2)	9	False	
	rain_duration	decimal(10,2)	9	False	
	hail_accumulation	decimal(10,2)	9	False	
	hail_max_rate	decimal(10,2)	9	False	
	hail_duration	decimal(10,2)	9	False	
	epoch_time	decimal(12,2)	9	True	

Indexes

Key	Name	Columns	Unique
PK C	PK_weather	weather_id, time_id	True

SQL Script

```
CREATE TABLE [dbo].[weather]
(
[weather_id] [int] NOT NULL IDENTITY(1, 1),
[time_id] [uniqueidentifier] NOT NULL,
[measurement_location_id] [int] NULL,
[flight_number] [int] NULL,
[avg_wind_speed] [decimal] (10, 2) NOT NULL,
[gust_speed] [decimal] (10, 2) NOT NULL,
[min_wind_speed] [decimal] (10, 2) NOT NULL,
[gust_direction] [decimal] (10, 2) NOT NULL,
[avg_temp] [decimal] (10, 2) NOT NULL,
[max_temp] [decimal] (10, 2) NOT NULL,
[min_temp] [decimal] (10, 2) NOT NULL,
[avg_humidity] [decimal] (10, 2) NOT NULL,
[max_humidity] [decimal] (10, 2) NOT NULL,
[min_humidity] [decimal] (10, 2) NOT NULL,
[barometer_avg] [decimal] (10, 2) NOT NULL,
[barometer_high] [decimal] (10, 2) NOT NULL,
[barometer_low] [decimal] (10, 2) NOT NULL,
[rain_accumulation] [decimal] (10, 2) NOT NULL,
[rain_max_rate] [decimal] (10, 2) NOT NULL,
[rain_duration] [decimal] (10, 2) NOT NULL,
[hail_accumulation] [decimal] (10, 2) NOT NULL,
[hail_max_rate] [decimal] (10, 2) NOT NULL,
[hail_duration] [decimal] (10, 2) NOT NULL,
[epoch_time] [decimal] (12, 2) NULL
) ON [PRIMARY]
GO
ALTER TABLE [dbo].[weather] ADD CONSTRAINT [PK_weather] PRIMARY KEY CLUSTERED  ([weather_id],
[time_id]) ON [PRIMARY]
GO
```

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DOT-VNTSC-FAA-15-09
DOT/FAA/AEE/2015-11