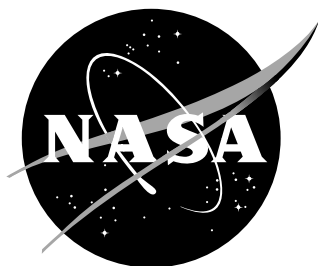


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Noise Abatement Flight Test Data Report

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March 2019

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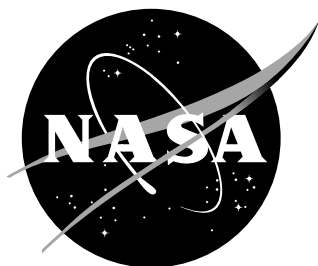
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663	B407, 285256, D6, dBA hemisphere, ground speed 107.8 kts, -3.1° FPA.	440
664	B407, 285257, D36, dBA hemisphere, ground speed 47.8 kts, -7.5° FPA.	441

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764	B407, A27, run 286272 A-Weighted SEL contour.	491
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766	B407, A33, run 286281 A-Weighted SEL contour.	492
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768	B407, A35, run 286283 A-Weighted SEL contour.	493
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771	B407, A36, run 286275 A-Weighted SEL contour.	494
772	B407, A36, run 286276 A-Weighted SEL contour.	495
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795	AS350B3, 289104, D32, dBA hemisphere, ground speed 80.9 kts, -11.1° FPA.	508
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797	AS350B3, 289106, D30, dBA hemisphere, ground speed 62.5 kts, -11.8° FPA.	509
798	AS350B3, 289107, D29, dBA hemisphere, ground speed 80.1 kts, -10.5° FPA.	510
799	AS350B3, 289108, D29, dBA hemisphere, ground speed 78.7 kts, -10.5° FPA.	510
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819	AS350B3, 289128, D28, dBA hemisphere, ground speed 68.7 kts, -10.6° FPA.	520
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821	AS350B3, 289130, D27, dBA hemisphere, ground speed 57.5 kts, -10.4° FPA.	521
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824	AS350B3, 289133, D6, dBA hemisphere, ground speed 97.3 kts, -3.1° FPA.	523
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830	AS350B3, 289139, D33, dBA hemisphere, ground speed 41.8 kts, -3.1° FPA.	526
831	AS350B3, 289140, D33, dBA hemisphere, ground speed 39.8 kts, -3.1° FPA.	526
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1106	EC130B4, 297243, G14, maximum dBA contour.	666
1107	EC130B4, 297217, G15, maximum dBA contour.	667
1108	EC130B4, 297218, G15, maximum dBA contour.	667
1109	EC130B4, 297219, G15, maximum dBA contour.	668
1110	EC130B4, 297220, G16, maximum dBA contour.	668
1111	EC130B4, 297221, G16, maximum dBA contour.	669
1112	EC130B4, 297222, G16, maximum dBA contour.	669
1113	EC130B4, 299331, N5, maximum dBA contour.	670
1114	EC130B4, 299332, N5, maximum dBA contour.	670
1115	EC130B4, 299333, N6, maximum dBA contour.	671
1116	EC130B4, 299334, N6, maximum dBA contour.	671
1117	EC130B4, 297173, N11, maximum dBA contour.	672
1118	EC130B4, 297174, N11, maximum dBA contour.	672
1119	EC130B4, 297175, N12, maximum dBA contour.	673
1120	EC130B4, 297176, N12, maximum dBA contour.	673
1121	EC130B4, 297177, N13, maximum dBA contour.	674
1122	EC130B4, 297178, N13, maximum dBA contour.	674
1123	EC130B4, 297179, N14, maximum dBA contour.	675
1124	EC130B4, 297180, N14, maximum dBA contour.	675
1125	EC130B4, 297181, N15, maximum dBA contour.	676
1126	EC130B4, 297182, N15, maximum dBA contour.	676
1127	EC130B4, 297183, N16, maximum dBA contour.	677
1128	EC130B4, 297184, N16, maximum dBA contour.	677
1129	EC130B4, 299335, N21, maximum dBA contour.	678
1130	EC130B4, 299336, N21, maximum dBA contour.	678
1131	EC130B4, 299337, N22, maximum dBA contour.	679
1132	EC130B4, 299338, N22, maximum dBA contour.	679
1133	EC130B4, 299339, O3, maximum dBA contour.	680
1134	EC130B4, 299340, O3, maximum dBA contour.	680
1135	EC130B4, 299341, O4, maximum dBA contour.	681
1136	EC130B4, 299342, O4, maximum dBA contour.	681

1137	EC130B4, 297185, O7, maximum dBA contour.	682
1138	EC130B4, 297186, O7, maximum dBA contour.	682
1139	EC130B4, 297187, O8, maximum dBA contour.	683
1140	EC130B4, 297188, O8, maximum dBA contour.	683
1141	EC130B4, 299343, O11, maximum dBA contour.	684
1142	EC130B4, 299344, O11, maximum dBA contour.	684
1143	EC130B4, 299345, O12, maximum dBA contour.	685
1144	EC130B4, 299346, O12, maximum dBA contour.	685
1145	EC130B4, 297189, X27, maximum dBA contour.	686
1146	EC130B4, 297190, X27, maximum dBA contour.	686
1147	EC130B4, 297191, X28, maximum dBA contour.	687
1148	EC130B4, 297192, X28, maximum dBA contour.	687
1149	EC130B4, 297193, X31, maximum dBA contour.	688
1150	EC130B4, 297194, X31, maximum dBA contour.	688
1151	EC130B4, 297195, X31, maximum dBA contour.	689
1152	EC130B4, 297196, X32, maximum dBA contour.	689
1153	EC130B4, 297197, X32, maximum dBA contour.	690
1154	EC130B4, 297198, X39, maximum dBA contour.	690
1155	EC130B4, 297199, X39, maximum dBA contour.	691
1156	EC130B4, 297200, X39, maximum dBA contour.	691
1157	EC130B4, 297201, X40, maximum dBA contour.	692
1158	EC130B4, 297202, X40, maximum dBA contour.	692
1159	EC130B4, 297203, X43, maximum dBA contour.	693
1160	EC130B4, 297204, X43, maximum dBA contour.	693
1161	EC130B4, 297205, X43, maximum dBA contour.	694
1162	EC130B4, 297206, X44, maximum dBA contour.	694
1163	EC130B4, 297207, X44, maximum dBA contour.	695
1164	EC130B4, 299347, X55, maximum dBA contour.	695
1165	EC130B4, 299348, X55, maximum dBA contour.	696
1166	EC130B4, 299349, X56, maximum dBA contour.	696
1167	EC130B4, 299350, X56, maximum dBA contour.	697
1168	EC130B4, 299351, X56, maximum dBA contour.	697
1169	EC130B4, 299352, X63, maximum dBA contour.	698
1170	EC130B4, 299353, X63, maximum dBA contour.	698
1171	EC130B4, 299354, X64, maximum dBA contour.	699
1172	EC130B4, 299355, X64, maximum dBA contour.	699
1173	EC130B4, A22, run 298293 A-Weighted SEL contour. . .	700
1174	EC130B4, A22, run 298294 A-Weighted SEL contour. . .	700
1175	EC130B4, A25, run 298270 A-Weighted SEL contour. . .	701
1176	EC130B4, A25, run 298271 A-Weighted SEL contour. . .	701
1177	EC130B4, A43, run 298272 A-Weighted SEL contour. . .	702
1178	EC130B4, A43, run 298273 A-Weighted SEL contour. . .	702
1179	EC130B4, A44, run 298276 A-Weighted SEL contour. . .	703
1180	EC130B4, A44, run 298277 A-Weighted SEL contour. . .	703
1181	EC130B4, A45, run 298280 A-Weighted SEL contour. . .	704
1182	EC130B4, A45, run 298281 A-Weighted SEL contour. . .	704

1183	EC130B4, A45, run 298282	A-Weighted SEL contour.	. . .	705
1184	EC130B4, A51, run 298274	A-Weighted SEL contour.	. . .	705
1185	EC130B4, A51, run 298275	A-Weighted SEL contour.	. . .	706
1186	EC130B4, A52, run 298278	A-Weighted SEL contour.	. . .	706
1187	EC130B4, A52, run 298279	A-Weighted SEL contour.	. . .	707
1188	EC130B4, A53, run 298283	A-Weighted SEL contour.	. . .	707
1189	EC130B4, A53, run 298284	A-Weighted SEL contour.	. . .	708
1190	EC130B4, A54, run 298287	A-Weighted SEL contour.	. . .	708
1191	EC130B4, A54, run 298288	A-Weighted SEL contour.	. . .	709
1192	EC130B4, A55, run 298289	A-Weighted SEL contour.	. . .	709
1193	EC130B4, A55, run 298290	A-Weighted SEL contour.	. . .	710
1194	EC130B4, A56, run 298291	A-Weighted SEL contour.	. . .	710
1195	EC130B4, A56, run 298292	A-Weighted SEL contour.	. . .	711
1196	EC130B4, A57, run 299358	A-Weighted SEL contour.	. . .	711
1197	EC130B4, A57, run 299359	A-Weighted SEL contour.	. . .	712
1198	EC130B4, A58, run 299360	A-Weighted SEL contour.	. . .	712
1199	EC130B4, A58, run 299361	A-Weighted SEL contour.	. . .	713
1200	EC130B4, A59, run 298285	A-Weighted SEL contour.	. . .	713
1201	EC130B4, A59, run 298286	A-Weighted SEL contour.	. . .	714
1202	EC130B4, C1, run 298297	A-Weighted SEL contour.	. . .	715
1203	EC130B4, C1, run 298298	A-Weighted SEL contour.	. . .	715
1204	EC130B4, C1, run 299306	A-Weighted SEL contour.	. . .	716
1205	EC130B4, C1, run 299307	A-Weighted SEL contour.	. . .	716
1206	EC130B4, C2, run 298299	A-Weighted SEL contour.	. . .	717
1207	EC130B4, C2, run 298300	A-Weighted SEL contour.	. . .	717
1208	EC130B4, C2, run 299309	A-Weighted SEL contour.	. . .	718
1209	EC130B4, C3, run 298301	A-Weighted SEL contour.	. . .	718
1210	EC130B4, C3, run 298302	A-Weighted SEL contour.	. . .	719
1211	EC130B4, C3, run 299310	A-Weighted SEL contour.	. . .	719
1212	EC130B4, C3, run 299311	A-Weighted SEL contour.	. . .	720
1213	EC130B4, C4, run 299312	A-Weighted SEL contour.	. . .	720
1214	EC130B4, C4, run 299313	A-Weighted SEL contour.	. . .	721
1215	EC130B4, C5, run 299317	A-Weighted SEL contour.	. . .	721
1216	EC130B4, C5, run 299318	A-Weighted SEL contour.	. . .	722
1217	EC130B4, C6, run 299319	A-Weighted SEL contour.	. . .	722
1218	EC130B4, C6, run 299320	A-Weighted SEL contour.	. . .	723
1219	EC130B4, C7, run 299321	A-Weighted SEL contour.	. . .	723
1220	EC130B4, C7, run 299322	A-Weighted SEL contour.	. . .	724
1221	EC130B4, C8, run 299323	A-Weighted SEL contour.	. . .	724
1222	EC130B4, C8, run 299324	A-Weighted SEL contour.	. . .	725
1223	EC130B4, C9, run 299325	A-Weighted SEL contour.	. . .	725
1224	EC130B4, C9, run 299326	A-Weighted SEL contour.	. . .	726
1225	EC130B4, C10, run 299327	A-Weighted SEL contour.	. . .	726
1226	EC130B4, C10, run 299328	A-Weighted SEL contour.	. . .	727
1227	EC130B4, C11, run 299329	A-Weighted SEL contour.	. . .	727
1228	EC130B4, C11, run 299330	A-Weighted SEL contour.	. . .	728

1 Nomenclature

- AGL** Above Ground Level
- ANTS** Aircraft Navigation and Tracking System
- ART** Acoustic Repropagation Technique
- ASCII** American Standard Code for Information Interchange
- BROC** Best Rate of Climb
- CHARM** Comprehensive Hierarchical Aeromechanics Rotorcraft Model
- cRIO** compact Real-time Industrial Controller
- dB** decibels ref 20 micropascals
- ENU** East North Up
- FPA** Flight Path Angle
- FRAME** Fundamental Rotorcraft Acoustic Modeling from Experiments
- GPS** Global Positioning System
- HAI** Helicopter Association International
- INS** Inertial Navigation System
- KIAS** Knots Indicated Airspeed
- LaRC** Langley Research Center
- LIDAR** Light Detection and Ranging
- MCP** Maximum Continuous Power
- MSL** Mean Sea Level
- NetCDF** Network Common Data Form
- NGAS** Northrop Grumman Aerospace Systems
- NRTC** National Rotorcraft Technology Center
- PAPI** Precision Approach Path Indicator
- PSU-WOPWOP** Penn State University - WOPWOP
- RNM** Rotorcraft Noise Model

SEL Sound Exposure Level
SPL Sound Pressure Level
TOGW Takeoff Gross Weight
UTC Coordinated Universal Time
UTM Universal Transverse Mercator
WAARN Wireless Acoustic Array Real-time Network
WAAS Wide Area Augmentation System
WAMS Wireless Acoustic Measurement System
WGS84 World Geodetic System 1984

2 Introduction

Community acceptance of helicopter operations has been limited by the acoustic impact of those operations on communities. There have been several efforts to develop flight procedures that minimize the acoustic impact of flight operations. The 1996 National Rotorcraft Technology Center (NRTC) Noise Abatement Flight Test [1] focused on testing low noise approaches on the MD Explorer and S76B aircraft. The approaches included linear decelerating descents and multisegmented descents. Significant noise reductions exceeding 6 dB over the standard noise certification approach were achieved using these multisegmented approaches. While the 1996 NRTC test thoroughly investigated approach noise reduction techniques, the issue of en route noise reduction was not addressed, as it was thought that the prime area of noise complaint issues was on the approach to and near the helipad.

En route noise complaints have risen over the last several years. The Helicopter Association International (HAI) Fly Neighborly Committee, in cooperation with helicopter manufacturers, has issued Fly Neighborly guidelines to pilots to minimize the noise impact of helicopter operations on the community. These guidelines were developed many years ago and remain incomplete. Blade-Vortex Interaction (BVI) is identified as a the primary source of objectionable noise during approach and maneuvering flight. While specific guidance is provided for avoiding BVI during approach, no similar guidance exists for common maneuvers, such as turns. Previous testing has shown an acoustic impact when the helicopter turns [2–4] or maneuvers aggressively [5], but these data sets were limited. A more extensive investigation into the causes of maneuvering flight noise was performed by NASA, Bell Helicopter, and the US Army in 2011 at Eglin AFB using a Bell 430 aircraft [6]. This Maneuver Acoustics Test focused on the effects of control inputs on sound

generation during maneuvers. Several ways to fly turns and climbs more quietly were identified during this test. These techniques are thought to be generally applicable to other helicopters but validation of the effectiveness of these procedures across different helicopter types is required before recommendations can be established.

Recently there have been modeling efforts to identify low noise approaches and maneuvers. Greenwood has developed a semiempirical method called Fundamental Rotorcraft Acoustic Modeling from Experiments (FRAME) [7] that can predict the noise radiated by a maneuvering helicopter [8] and has been used to develop low noise flight procedures for helicopter operations [9]. However, this method must be calibrated using measured steady-flight acoustic data for each type of helicopter to be modeled. For planning low noise operations for vehicles where measured acoustic data do not exist, the FAA is contracting under the ASCENT Program to Penn State and Continuum Dynamics, Inc. (CDI) to develop a prediction tool for en route and low noise approach acoustics based on coupling the PSU-WOPWOP [10] acoustic solver with the CHARM [11] aeromechanics model. This tool will be used to develop low noise methodologies. Predictions from this tool have been compared to data from the Maneuver Acoustics Test but more data are required to ensure its applicability over multiple classes of aircraft. To address the above issues, the test described in this document was designed with the following objectives:

1. Acquire source noise to enable modeling of the tested aircraft in empirical models, like AAM, and semiempirical models, like FRAME.
2. Obtain maneuvering flight acoustics data to identify low noise maneuvering techniques such as those identified in the Maneuver Acoustics Test. This information will then be input into the Fly Neighborly Guidance.
3. Obtain data on the low noise approaches for validation of theoretical models, such as the coupled PSU-WOPWOP/CHARM prediction method.

3 Technical Approach

The NASA Langley Research Center (LaRC), FAA Acoustics Division, and the U.S. Army Aviation Development Directorate conducted a joint flight test to acquire data to meet these objectives. Six aircraft were chosen for testing that met the criteria determined by the joint team:

1. The aircraft need to span the maximum gross takeoff weight range of 2500 lb to 5000 lb.
2. The aircraft should be chosen such that they can be used to investigate technology changes within the same airframe class

3. The aircraft should have the schedule flexibility to be available for test
4. The aircraft cost should be reasonable and fit within the overall test budget

Each of the six aircraft flew the same condition matrix that consisted of steady level and descending flight, left and right turns, and noise abatement approaches. The steady descending flight conditions were flown on the first day of testing and the results provided that evening to the noise abatement approach design team. The noise abatement procedures were developed on subsequent days and flown by the final day of testing. A distributed ground array of microphones was used for all flight conditions.

4 Description of Aircraft

The six aircraft that met the test requirements were the Robinson R44 and R66, Bell Helicopter 206L3 and 407, and the Airbus AS350B3 and EC130B4. Figure 1 shows these six aircraft. Table 1 lists the parameters associated with each aircraft. It should be pointed out that the AS350B3 aircraft was configured as a utility helicopter, which included a work platform and cowlings that increased the drag of the airframe tested by 75% from a stock AS350B3, as estimated using the procedures described in Ref.12.

5 Description of Experiment

During the experiment, the aircraft was flown over a distributed ground array with 52 microphone positions for level flight, descents, and turns. The R44 and R66 helicopters were flown at Eglin AFB Test Range C62 (Lat. 30.646788, Lon. -86.227224) for the forward flight testing. The static testing at Eglin AFB was performed at Wagner Airfield (Lat. 30.656692, Lon. -86.349850). The Airbus AS350B3 and EC130B4, and the Bell 407 and 206L3 dynamic and static testing were performed at Amedee Army Airfield (Lat. 40.26327596, Lon. -120.15896670). The array configuration was essentially the same at both test sites. Weather data were recorded by a weather balloon system and a Light Detection and Ranging (LIDAR) system during the test. Flight path guidance for descents was provided by a portable Precision Approach Path Indicator (PAPI) system located on the ground. An overview of Test Range C62 with the locations of the microphone positions, weather balloon, LIDAR, PAPI, and control trailers is shown in Figure 2. Hover and ground run-up testing at Eglin used an array of 13 microphones located at Wagner Airfield as shown in Figure 3. An overview of the Amedee Army Airfield test site is shown in Figure 4. Detailed descriptions of the microphone instrumentation, weather

systems, aircraft instrumentation, and flight path guidance system, are discussed in the following sections.

5.1 Acoustic Instrumentation

The level, descending, and turning flight conditions used a distributed ground array with 52 microphone positions that were essentially the same for both test ranges. The microphone positions were chosen to give the best coverage for measuring the footprint, as well as the source noise hemisphere. Table 2 lists the Cartesian and Global Positioning System (GPS) coordinates for the microphone array, as well as other significant locations for the Eglin test site, and Table 3 for the Amedee test site. These tables contain the latitude, longitude, ellipsoid height in feet from the GPS survey as well as the coordinates in East North Up (ENU) and local coordinate systems. The ENU and local coordinate systems have their origin at a point where a helipad would be located if the aircraft were to land during the descents and is the location for the PAPI system. The ENU coordinate system (ex , ey , z) is a Cartesian coordinate system whose origin is at the PAPI position with $+ex$ True East, $+ey$ True North, and $+z$ is up. The local coordinate system (x , y , z) is a Cartesian system, which also has the origin at the PAPI position, but with the $+x$ along the nominal flight direction for that site. The PAPI position is referred to as the reference location. ENU coordinates were rotated by 50° in the counterclockwise direction (140° True aircraft heading) for Eglin and 180° in the counterclockwise direction (270° True aircraft heading) for Amedee to generate the local coordinate systems. Additionally, the tables list the GPS locations and Cartesian coordinates of the key nonmicrophone locations. Two similar array configurations were used during the test. The first is called the Base Array and consists of microphone positions 1 through 52. The second is referred to as the Turn Array and is primarily the same as the Base Array with microphone positions 2 through 5 removed and microphone positions 53 through 56 added.

The acoustic data were acquired using a combination of the NASA and Northrop Grumman Aerospace Systems (NGAS) acoustic measurement systems. The primary microphone used was the G.R.A.S. 67AX (Figure 5), which is a 1/2 inch prepolarized microphone (G.R.A.S. 47AX) flush mounted in a 15 inch ground board. The microphone is offset from the center of the ground board to minimize edge effects. This ground board configuration is based on the SAE Aerospace Recommended Practice ARP4055, but adapted from inverted microphones to flush mounted. Three positions in the array used G.R.A.S. 46AE microphones mounted on 4 foot tripods to emulate certification placement at -45° , 0° , and 45° under the aircraft and perpendicular to the flight path.

Thirty-two of the fifty-two microphones' data were acquired by the NASA LaRC Wireless Acoustic Measurement System (WAMS), Figure 6.

Each of the NASA microphone locations consisted of a WAMS acquisition system, a ground board with flush mounted microphone, a GPS receiver, and a radio antenna. The Coordinated Universal Time (UTC) obtained from the GPS is used to synchronize all microphone, aircraft, and weather information. The WAMS recorded acoustic data at 25,000 samples per second with 16-bit resolution.

Twenty of the microphones' data were collected using the NGAS proprietary Wireless Acoustic Array Real-time Network (WAARN) system. The system is composed of a base station and up to 20 "nodes," each containing a sensor (microphone), a GPS receiver, a National Instruments compact Real-time Industrial Controller (cRIO) data acquisition system with GPS synchronization and data acquisition cards, a solid-state drive, a 12V-19.8AH battery, and a wireless access point that broadcasts data across a secured wireless network utilizing the IEEE 802.11ac wireless networking standard. Recorded data are stored onto local solid-state drives and are broadcast back to the base station for real-time monitoring. The base station is composed of six (6) wireless access points, each capable of receiving up to four (4) signals to avoid interference and bandwidth overlap. Figure 7 shows a single WAARN node. The WAARN recorded acoustic data at 25,500 samples per second with 24-bit resolution.

Measurements of static flight conditions were made with a 500 foot radius semicircular array of thirteen microphones inverted on ground boards and a National Instruments-based data acquisition system. The system was composed of two cRIO nodes placed on either side of the microphone array and controlled by a centrally-located laptop computer over a local area network. One of the nodes used a GPS module to synchronize its system time with UTC; a network time synchronization protocol was used to set time on the second node. Microphone signals were conditioned with external amplifiers prior to analog-to-digital conversion at the nodes. Each node acquired signals from either six or seven microphones and stored the signals locally on integrated solid-state drives. The signals were acquired at a rate of 51,200 samples per second and at 16-bit precision. The static microphone positions for Eglin are listed in Table 4 and for Amedee in Table 5.

5.2 Weather Instrumentation

An extensive set of weather measurements was made throughout the test. A tethered weather balloon system (Figure 8) was located sufficiently far away from the flight path to not interfere with the aircraft. The balloon altitude was fixed such that the weather sonde was at the primary aircraft altitude of 500 feet Above Ground Level (AGL). The weather sonde data (wind speed, wind direction, temperature, pressure, humidity, and density) were radioed to the control trailer and displayed in real time.

Attached to the weather balloon tether line just below the weather sonde is a temperature string, Figure 9. This string has a temperature

sensor located every 10 feet and records the temperature profile once a minute to yield near real time temperature profiles.

A ZephIR 300 portable IEC 60825-1 Class 1 eye-safe LIDAR system was deployed during testing and is shown in Figure 10. The LIDAR system measured wind speed and wind direction at 13 heights up to 900 feet AGL. This system was placed under the aircraft flight path 2,300 feet before the PAPI location.

Additionally, between 2 and 5 ground weather stations measured wind speed, wind direction, pressure, temperature and humidity and were mounted on 4 foot tripods and placed among the microphone array.

5.3 Aircraft Navigation and Tracking System

An Aircraft Navigation and Tracking System (ANTS) unit, Figure 11, developed by NASA LaRC was installed on each of the six aircraft. ANTS incorporates a VectorNav VN-200 Inertial Navigation System (INS) into a self-contained device that receives the GPS signal, processes the GPS data in conjunction with built-in sensors, calculates a Kalman filtered aircraft state solution, and logs the solution to an SD memory card at a programmable rate of 1 to 50 Hz. The state solution contains information about the location, velocity, acceleration, attitude, and attitude rates. ANTS data were sampled and recorded at 50 Hz throughout the test campaign. The unit is 6.25 in. x 4 in. x 2.75 in. and weighs 2.5 pounds. Power was provided by four AA alkaline batteries (1.5 V, 2850 mAh each). The GPS signal was provided by a GPS antenna located behind the wind screen of the aircraft. A handheld WAAS-enabled GPS receiver that measured latitude, longitude, and altitude was carried by the pilot as a backup to the ANTS.

5.4 Flight Path Guidance System

A two-light Precision Approach Path Indicator (PAPI) system was used to aide the pilot in flying the specified approach descent angle. This system is battery operated and uses two lights to indicate if the pilot is on the prescribed flight path. The pilot will see two white lights if they are above the flight path, a white and a red light if they are on path, and two red lights if they are below the flight path. The commercial fixed angle system was modified with actuators such that the angle can be set remotely from the control trailer. Additionally, each lamp's angle could be set independently such that one light indicated when a condition started and the other lamp indicated when to start the turn. This system is shown in Figure 12 and was located at the reference point.

6 Test Conditions

The following sections will describe the test conditions for the steady level, steady descent, turning, static, and approach flight conditions. A common condition code was assigned to each type of flight condition for clarity during testing. Not all of the defined conditions were able to be flown by all aircraft tested, but the condition code definition stayed constant for all aircraft. The exceptions to this consistency are the unique condition codes for the approaches which were defined specifically for each aircraft during testing. Table 6 lists all the condition code designators for this test.

6.1 Steady Flight Conditions

The conditions flown for steady level flight noise acquisition are from 40 Knots Indicated Airspeed (KIAS) to V_H , level flight speed at maximum continuous power (MCP); 3 to 12 degree descents at 60 KIAS to V_y , best rate of climb (BROC) at MCP; and climbs at $V_y \pm 10$ KIAS. The steady level flight conditions (Condition Code L) were primarily flown at a constant altitude of 200 feet AGL; however, two certification airspeeds were flown at 500 feet AGL. During steady descents (Condition Code D), the aircraft approached the array in level flight at an altitude set such that they acquired the PAPI indicated descent path at approximately 10,000 feet before the PAPI. The aircraft captured the PAPI lights and flew the steady descent at a constant airspeed until the pilot pulled out to not descend below 50 feet AGL. The steady flight conditions are shown with priorities in Table 7. Note that the priorities assigned are shown for the general test requirements. The priorities for each specific aircraft were determined based on that aircraft's normal operation parameters as determined during testing. Climbing flight conditions (Condition Code C) are also listed in Table 7. They are initiated from level flight at 50 feet AGL with maximum collective applied at the climb initiation point.

6.2 Turns

Turns were performed at bank angles ranging from 20° to 45° , speeds ranging from 60 KIAS to V_y , for BROC, and for descents up to -9° . For all turns, the helicopter pilot initially established a steady flight condition along the same heading as for the steady level flights at an altitude of 500 feet AGL. A 50 foot AGL hard deck was maintained for all turns, including those initiated from descending flight. The stabilized airspeed for the test point was established at approximately 3500 feet before reaching the turn initialization point. The PAPI system was set such that when the pilot saw the left indicator light change from red to white, they started the acceleration/climb/descent as indicated for the test condition. When the pilot saw the right light change from red

to white, they started the turn. The pilot exited the turn at 90° to the initial flight path and proceeded beyond the bounds of the array. The nominal methods for executing the turns were:

- Constant Speed Steady Level Turns: The pilot held a constant speed, altitude, and bank angle using both cyclic and collective (Condition Code N).
- Constant Torque Level Turns: The pilot allowed the airspeed to vary while holding constant altitude and collective during the turn (Condition Code O).
- Turn with Acceleration Through Roll-in: The pilot established an acceleration at 1 or 2 kts/sec, rolled into the turn while maintaining the acceleration until a specified bank angle was achieved, and then held a constant airspeed and altitude during the remainder of the turn (Condition Code X).
- Turn from Climb/Descent: The pilot established a climb or descent at the specified airspeed and flight path angle and then initiated a turn to the specified bank angle (Condition Code F).
- Turn from Descent with Acceleration or Deceleration through Roll-in: The pilot established a climb or descent at the specified airspeed and flight path angle, started accelerating or decelerating at 1 or 2 kts/sec as specified, and then initiated a turn to the specified bank angle (Condition Code G).

Tables 8 through 11 are tables of these testing conditions with priorities. The priorities for each specific aircraft are to be determined based on that aircraft's normal operation parameters and were determined during the testing.

6.3 Noise Abatement Approaches

A series of noise abatement approaches (Condition Code A) that consist of single or multisegment decelerating descents were flown for validation of predictive codes. The approach was terminated at a hover taxi at 15 feet AGL. The approaches were developed based on the manufacturers' quiet approach profiles, the Fly Neighborly guidelines, and the steady state data acquired during the first day of testing. This approach development occurred during subsequent test days and was flown by the final test day.

6.4 Static Test Conditions

During static data acquisition (Condition Code H), the aircraft was positioned directly over the origin of the 180° microphone array arc. The aircraft performed ground idle, flight idle, hover in ground effect (HIGE)

and hover out of ground effect (HOGE) flight operations shown in Table 12. For ground and flight idle, the aircraft was oriented at 90° and 270° . For HIGE and HOGE, the aircraft was oriented at 0° , 90° , 180° and 270° . Zero degrees is with the nose of the aircraft pointed at the microphone 1 in the 180° arc and progressing in a clockwise manner. Each condition was held for 30 seconds after the aircraft stabilized. The ground altitude for HOGE was determined by the pilot based on environmental conditions, aircraft weight and performance capabilities.

7 Test Results

Level flight and descent source hemispheres as well as turn and approach data are presented for each aircraft. Table 13 shows the flight numbers, dates, number of test points, and flight hours for each day of testing for all the aircraft.

7.1 Source Noise Mapping

7.1.1 Level Flight

Sound hemispheres were created for each steady condition test point for each aircraft using the Acoustic Repropagation Technique (ART) methodology contained within the Rotorcraft Noise Model (RNM). ART captures the noise spectra from all microphones at specific time intervals (typically every 0.5 seconds) along the flight profile and relates these spectra to the aircraft position, thus providing noise levels as a function of noise emission angle. These measured noise levels are then depropagated to a hemisphere of a 100 foot radius, centered at the aircraft GPS receiver. Atmospheric and speed effects are accounted for during this depropagation process. For more details, the depropagation process is described more fully in Ref. 13. Individual hemispheres were grouped into similar ground speeds and an average hemisphere was created for each of these groupings. The Lambert projections of the A-weighted spectra from 30 to 2,500 Hz are presented for these averaged hemispheres as a function of ground speed in knots. This frequency range was chosen to minimize the effect of background noise because these are quiet aircraft and the distances involved in the hemisphere development are large. The circles in these figures represent data points acquired. Where appropriate, acoustic spectra from multiple runs were averaged to yield a representative spectra for an airspeed. The runs averaged are indicated with brackets in the figures. The file name for the averaged hemisphere is listed under that hemisphere in the figure. The following figures are for the individual aircraft averaged level flight hemispheres.

- R44: Figures 13 and 14
- R66: Figures 231 and 232
- B206L3: Figures 421 and 422

- B407: Figures 597 and 598
- AS350B3: Figures 789 and 790
- EC130B4: Figures 991 and 992

7.1.2 Steady Descent

Steady descending flight hemispheres were created for each aircraft using the ART methodology. The pilot flew indicated airspeed using the aircraft internal instrumentation and used the PAPI visual system for flight path guidance. These factors cause a scatter in the actual flight condition flown. The actual descent angles as a function of ground speed for each point along with the corresponding run number are shown for each aircraft. There are no obvious groupings of test points for condition averaging; thus, all of the individual test point hemispheres are presented in run number order. The descent angle versus ground speed and the individual A-weighted spectra from 30 to 2,500 Hz hemispheres are shown for each aircraft in:

- R44: Figure 15, and Figures 16 through 73
- R66: Figure 233, and Figures 234 through 292
- B206L3: Figure 423, and Figures 424 through 498
- B407: Figure 599, and Figures 600 through 683
- AS350B3: Figure 791, and Figures 792 through 866
- EC130B4: Figure 993, and Figures 994 through 1066

Several right and left sideslip conditions were flown for the AS350B3 and the EC130B4 aircraft and are shown in red in the descent angle versus ground speed plots.

7.2 Turn Data

Turning data are presented as contour plots of the maximum dBA calculated from 30 to 2,500 Hz. Also presented in the figures are ground speed, altitude above reference, and roll angle. The turn data for each aircraft are presented in order of condition number.

- R44: Figures 74 through 209
- R66: Figures 293 through 393
- B206L3: Figures 499 through 569
- B407: Figures 684 through 757
- AS350B3: Figures 867 through 958
- EC130B4: Figures 1067 through 1172

7.3 Approach Data

Approach conditions were defined during the testing as described in the Noise Abatement Approaches section. This meant that there were no predefined Approach Condition Codes (A) before the testing. The

condition codes and descriptions of the approaches are presented in tabular form. Also included in the report are figures that show the A-weighted SEL contours, ground speed, altitude, and deceleration rates for each of the A test points flown. These tables and figures are presented for each aircraft in order of the condition number.

- R44: Table 14, and Figures 210 through 223
- R66: Table 15, and Figures 394 through 414
- B206L3: Table 16, and Figures 570 through 590
- B407: Table 17, and Figures 758 through 782
- AS350B3: Table 18, and Figures 959 through 984
- EC130B4: Table 19, and Figures 1173 through 1201

7.4 Climb Data

Each aircraft performed three climbing conditions with additional conditions flown for the EC130B4. These are presented in the same metric and format as the approach figures and in condition code order for each aircraft.

- R44: Figures 224 through 230
- R66: Figures 415 through 420
- B206L3: Figures 591 through 596
- B407: Figures 783 through 788
- AS350B3: Figures 985 through 990
- EC130B4: Figures 1202 through 1228

Numerous climb profiles were performed for the EC130B4 beyond the three that were done for the other aircraft. These are listed in Table 20.

8 Electronic Data

The data formats are consistent across all six aircraft. The acoustic data for the static flight conditions were collected by the US Department of Transportation Volpe Center, and are not distributed by NASA. All other data described in this paper are open and available electronically upon request from Eric Greenwood, Aeroacoustics Branch (D314), Mail Stop 461, NASA Langley Research Center, 23681, eric.greenwood@nasa.gov. The data are provided in American Standard Code for Information Interchange (ASCII) text and/or Network Common Data Form (NetCDF) formats, depending on data type. NetCDF is a “self-describing”, packed binary format, which is platform independent. Drivers for a multitude of platforms are available at no cost at <http://www.unidata.ucar.edu/software/netcdf/>. The file structure for the electronic data for each of the six aircraft is the same and is shown for the R44 in Figure 1229. Descriptions of the contents of each file type, including file naming convention and file format, are contained in the following subsections.

8.1 Microphone Location File

The microphone GPS coordinate locations are contained in the comma delimited text files `AmedeeNoiseAbatMicFullList.csv` or `EglinNoiseAbatMicFullList.csv` for the dynamic test array and `AmedeeNoiseAbatStaticList.csv` or `EglinNoiseAbatStaticList.csv` for the static test array. These files have a row for each microphone, which contains the microphone number, latitude and longitude in decimal degrees, orthometric height in meters and an installation type keyword. The installation types are `gdbdf1` for flush mounted in a ground board with the diaphragm pointed up, `elevtd` for elevated 4 feet on a tripod, and `invgb7` for a microphone inverted over a ground board with a 7 mm gap. The commercial software package MATLAB[®] is used to execute the provided function `micConvert` to read this file and generate the microphone locations in an ENU Cartesian coordinate system centered at an input reference location with `+ex` in the easterly direction and `+ey` in the northerly direction. The function `coordrotate` can then be used to rotate that ENU coordinate system to point the `+x` in the desired direction, 140° true for Eglin, and 270° true for Amedee. The primary installation type used for the dynamic array in the data analysis for this paper is the `gdbdf1` type and has a constant installation correction of -6 dB for 0 to 10,000 Hz to remove the ground plane effect. The installation type for the static array was `invgb7`.

8.2 Acoustic Pressure Time History Data

Acoustic pressure time history data, in units of pascals, are in the NetCDF binary files contained in the `aaaaaAcousticData/aaaaa_fff_pascal` folders with `aaaaa` being the aircraft name and `fff` being the flight number. Within this directory are NetCDF files containing the acoustic data in pascals. The filename format is `fffrrr_mm_pascal.nc` where `rrr` is the run number, and `mm` is the microphone number. For example, file `301100_08_pascal.nc` is the file containing the acoustic pressure time history data in pascals for flight number 301, run number 100 and microphone number 8. Table 21 describes the variables contained in the acoustic pressure time history files. Note that the acoustic data in these files are not corrected for installation effects.

8.3 Test Point Reference Data

Information about each test point for each aircraft is contained in the comma delimited text file `aaaaaFullRefList.csv`, and Table 22 describes the values contained within the file. The function in file `loadNoiseAbatRefInfo.m` loads these variables into MATLAB[®] in a data structure that contains the values for the specified aircraft and run number.

8.4 Aircraft Tracking Data

The tracking files for each aircraft are contained in the directory `aaaaa_AC_Data` with one comma delimited file for each run number with the file name being the `ffffrrrAC.csv`. Each file contains 27 columns that are described in Table 23 and includes direct measurements from the ANTS, as well as derived parameters. If a 999.0 is present, then the parameter was either not measured or not calculated. This occurred for the EC130B4 during flight 298 as the ANTS system did not work, and the handheld GPS data were used instead. Please note that the handheld GPS altitude accuracy is severely degraded. The World Geodetic System 1984 (WGS84) ellipsoid is used for all tracking calculations in this report. The MATLAB[®] software used to execute the provided function `ACread` that reads in the aircraft tracking data and loads it into a data structure is included in the distribution.

8.5 Individual and Averaged Hemispheres

The individual and averaged hemisphere files both have the same format and are included in the data distribution. The individual hemisphere files are contained in a folder called `aaaaa_Individual_Hemispheres` and the averaged hemisphere files are contained in a folder called `aaaaa_Averaged_Hemispheres`. Each file name is of the format `aaaaa<last 3 digits of the run number>.nc`. For example, `B407102.nc` is the hemisphere file for run 233102. Table 24 describes the variables contained in these NetCDF files.

8.6 Weather Data

The weather data are contained in the folder `aaaaa_Weather` for each aircraft.

8.6.1 Wind Profiles

Data from the LIDAR are amalgamated into one comma delimited `.csv` file for each aircraft. Each file contains the wind speeds and direction for each test point for that aircraft derived from the 10 minute averaged LIDAR measurement with the file naming convention `aaaaa_LIDAR_Wind_Data.csv`. The data for each profile are contained in 23 columns: 1) run number, 2) seconds from midnight, 3-9) horizontal wind speed in knots at 984 feet, 696 feet, 495 feet, 348 feet, 197 feet, 125 feet, 46 feet AGL, 10-16) vertical wind speed in knots at 984 feet, 696 feet, 495 feet, 348 feet, 197 feet, 125 feet, 46 feet AGL, 17-23) wind direction in degrees wind speed in knots at 984 feet, 696 feet, 495 feet, 348 feet, 197 feet, 125 feet, 46 feet AGL. A value of 99999 is entered where there are no data available.

8.6.2 Temperature Profiles

The temperature profiles were measured using the temperature string described in the Weather Instrumentation section. There is one file for each aircraft, each file containing the run number, balloon elevation (ft) and the temperatures in 10 foot increments from 0 to 500 feet AGL using the naming convention of `aaaaa_Temperature_Data.csv`. The actual height of each temperature sensor on the string is a function of balloon height and wind speed. Thus, the actual data were interpolated in altitude and time to generate a profile at the midpoint in time of each test point as well as provide a point at every 10 feet AGL. In most cases, the balloon was not at 500 feet, so the data above the actual ballon height (column 2 in the files) were projected using the standard atmospheric lapse rate of -3.564 °F/1000 ft. The MATLAB[®] software is used to execute the provided function `loadTempProfile` to interrogate the temperature file and load the profile for the requested run number.

8.6.3 Weather Balloon Sonde

The weather balloon sonde raw data are stored in comma delimited text files within the `aaaaa_Balloon_Sonde` folder. The naming convention is `aaaaa_fff_BalloonSonde.csv`. Each file contains seconds from midnight, UTC time, altitude (ft), temperature (°F), relative humidity (%), pressure (kPa), cup wind speed (kts), wind direction (magnetic), ground temperature (°F), and density (kg/m³).

8.6.4 Stationary Weather Sensors

Ground weather station data are stored in comma delimited text files within the `aaaaa_Ground_Stations` folder. The naming convention is `aaaaa_fff_SWS<sensor number>.csv`. Each file contains seconds from midnight, time, temperature (°F), relative humidity (%), pressure (kPa), cup wind speed (kts), wind direction (mag), current rain (in.), daily rain (in.), total rain (in.), heat index (°F), wind chill (°F), and dew point (°F). A value of -1000 is entered if the measurement is missing or was not calculated.

8.7 Flight Cards

The directory `aaaaa_Flight_Cards` contains the Microsoft Excel formatted files containing the daily flight cards as written in the control trailer during the testing for all data points acquired.

9 Concluding Remarks

A joint flight test between NASA, FAA, and the U.S. Army was performed from August through October of 2017. The purposes of the testing were

to acquire source characterization, maneuvering, and approach acoustic data for six aircraft. The six aircraft were the Robinson R44, Robinson R66, Bell 206L3, Bell 407, Airbus AS350B3, and the Airbus EC130B4. Testing occurred at Eglin AFB, Florida for the R44 and R66. The B206L3, B407, AS350B3, and the EC130B4 were tested at Amedee Army Airfield located in the Sierra Army Depot, CA. Forward flight data were acquired over an array of 52 microphones and showed that maneuvering flight can lead to significant increases in noise for all aircraft tested. The approach data acquired demonstrated that low noise approaches are possible for all the aircraft. This extensive data set is publicly available upon request.

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Tables

Table 1: Aircraft Parameters.

Manufacturer	Robinson	Robinson	Bell	Bell	Airbus	Airbus
Model	R44	R66	206L3	407	AS350B3	EC130B4
TOGW (lbf)	2029	2041	3462	3824	4247	4529
Engine	Piston	Turbine	Turbine	Turbine	Turbine	Turbine
MR Blades	2	2	2	4	3	3
MR Diameter (ft)	33	33	37	35	35.07	35.07
MR Tip Speed (fps)	705	705	744	757	723.5	705
MR Rotation	CCW	CCW	CCW	CCW	CW	CW
TR Type	2 bladed	2 bladed	2 bladed	2 bladed	2 bladed	Fenestron
TR Diameter (ft)	4.83	5	5.4	5.4	6.1	3.28
TR Tip Speed (fps)	614	635	722.8	709	665.7	656.2
Drag as Configured (ft^2)	3.364	3.911	8.6	8.8	12.9	7.158

Table 2: Eglin Positions.

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
PAPI (Ref)	30.64059108	-86.22354232	99.0	0.0	0.0	0.0	0.0	0.0
1	30.63934339	-86.22232782	100.7	382.0	-453.8	593.2	0.9	1.6
2	30.64043125	-86.22163276	101.7	600.6	-58.1	430.6	422.7	2.6
3	30.63893613	-86.22371222	95.5	-53.4	-601.9	426.8	-427.9	-3.6
4	30.64163554	-86.22208232	103.5	459.2	379.9	4.1	595.9	4.5
5	30.63953562	-86.22501266	94.0	-462.4	-383.9	-3.2	-601.0	-5.0
6	30.64535791	-86.22189355	103.6	518.5	1733.8	-994.9	1511.7	4.6
7	30.64445612	-86.22315550	104.8	121.7	1405.8	-998.7	996.8	5.8
8	30.64358130	-86.22438519	103.8	-265.1	1087.6	-1003.6	496.0	4.7
9	30.64268665	-86.22560236	102.9	-647.9	762.2	-1000.3	-6.4	3.8
10	30.64180756	-86.22681969	98.8	-1030.7	442.5	-1001.5	-505.2	-0.3
11	30.64095420	-86.22801864	97.0	-1407.8	132.1	-1006.1	-993.5	-2.0
12	30.63999968	-86.22930496	92.0	-1812.4	-215.1	-1000.2	-1526.6	-7.0
13	30.64669198	-86.22450583	103.9	-303.0	2219.1	-1894.7	1194.3	4.9
14	30.64598989	-86.22548270	106.4	-610.2	1963.7	-1896.5	794.8	7.3
15	30.64531305	-86.22642362	105.5	-906.1	1717.5	-1898.1	409.9	6.5
16	30.64486075	-86.22704414	105.2	-1101.3	1553.0	-1897.6	154.6	6.2
17	30.64477829	-86.22717107	105.0	-1141.2	1523.0	-1900.2	104.8	5.9
18	30.64466623	-86.22731138	104.8	-1185.3	1482.3	-1897.4	44.8	5.7
19	30.64457952	-86.22743556	103.9	-1224.4	1450.7	-1898.3	-5.4	4.9

Continued on next page

Table 2: *Continued.*

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
20	30.64448310	-86.22756039	104.6	-1263.6	1415.6	-1896.7	-58.0	5.5
21	30.64438738	-86.22769905	104.3	-1307.3	1380.8	-1898.1	-113.8	5.3
22	30.64429959	-86.22782345	104.3	-1346.4	1348.9	-1898.8	-164.3	5.2
23	30.64388398	-86.22840808	103.4	-1530.2	1197.7	-1901.1	-402.3	4.3
24	30.64316997	-86.22938914	101.2	-1838.8	938.1	-1900.5	-805.6	2.2
25	30.64247059	-86.23037058	100.1	-2147.5	683.7	-1904.1	-1205.6	1.1
26	30.64832261	-86.22671562	110.6	-997.9	2812.2	-2795.7	1043.2	11.6
27	30.64770076	-86.22757996	109.1	-1269.8	2586.0	-2797.2	689.6	10.1
28	30.64702570	-86.22850071	105.7	-1559.3	2340.5	-2795.2	309.9	6.6
29	30.64647155	-86.22927754	104.5	-1803.6	2138.9	-2797.9	-6.8	5.4
30	30.64591007	-86.23004743	104.2	-2045.8	1934.7	-2797.1	-323.5	5.2
31	30.64532769	-86.23107921	104.0	-2370.3	1722.9	-2843.4	-708.3	5.0
32	30.64464019	-86.23183556	103.1	-2608.1	1472.9	-2804.8	-1051.2	4.1
33	30.65004681	-86.22902321	104.7	-1723.6	3439.3	-3742.6	890.4	5.6
34	30.64933902	-86.22998183	105.7	-2025.1	3181.9	-3739.2	494.0	6.7
35	30.64881505	-86.23073546	105.6	-2262.1	2991.3	-3745.5	189.9	6.6
36	30.64846051	-86.23122445	105.3	-2415.9	2862.4	-3745.6	-10.7	6.3
37	30.64811020	-86.23170552	105.3	-2567.2	2735.0	-3745.3	-208.5	6.2
38	30.64757383	-86.23245060	104.4	-2801.5	2539.9	-3746.4	-513.4	5.4
39	30.64686153	-86.23342041	104.3	-3106.5	2280.9	-3744.1	-913.6	5.3

Continued on next page

Table 2: *Continued.*

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
40	30.65270463	-86.23201609	110.5	-2664.7	4406.1	-5088.1	790.9	11.5
41	30.65200133	-86.23301913	108.6	-2980.1	4150.3	-5094.9	384.9	9.6
42	30.65128815	-86.23401174	106.9	-3292.3	3890.9	-5096.9	-21.0	7.8
43	30.65058798	-86.23496600	106.4	-3592.4	3636.3	-5094.7	-414.6	7.4
44	30.64988902	-86.23594735	105.9	-3901.0	3382.1	-5098.4	-814.4	6.9
45	30.65440168	-86.23449129	117.5	-3443.0	5023.4	-6061.3	591.5	18.5
46	30.65381005	-86.23529306	115.7	-3695.1	4808.3	-6058.5	260.0	16.6
47	30.65331731	-86.23597301	110.6	-3909.0	4629.1	-6058.7	-18.9	11.6
48	30.65281656	-86.23669912	108.9	-4137.3	4447.0	-6066.0	-310.9	9.9
49	30.65227464	-86.23742968	106.9	-4367.1	4249.9	-6062.7	-613.6	7.9
50	30.64933902	-86.22998183	105.7	-2025.1	3181.9	-3739.2	494.0	6.7
51	30.64933902	-86.22998183	105.7	-2025.1	3181.9	-3739.2	494.0	6.7
52	30.64933902	-86.22998183	105.7	-2025.1	3181.9	-3739.2	494.0	6.7
53	30.64330014	-86.22722741	101.5	-1158.9	985.4	-1499.8	-254.4	2.4
54	30.64417671	-86.22600903	103.7	-775.8	1304.2	-1497.7	244.1	4.7
55	30.64486152	-86.22873949	104.0	-1634.5	1553.3	-2240.5	-253.6	4.9
56	30.64574310	-86.22753116	103.9	-1254.4	1873.9	-2241.9	243.6	4.8
Balloon	30.65584025	-86.23141231	114	-2474.8	5546.6	-5839.7	1669.5	14.1
Control	30.657318	-86.236172	123.883	-3971.4	6.084.3	-7213.6	868.6	23.6
LIDAR	30.6454334	-86.2282495	104.4	-1480.4	1761.3	-2300.8	-1.9	5.2

Continued on next page

Table 2: *Continued.*

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
SWS1	30.657236	-86.236359	123.883	-4030.2	6054.4	-7228.5	804.4	23.6
SWS2	30.655941	-86.231575	114	-2525.9	5583.3	-5900.1	1653.9	14.1
SWS3	30.641293	-86.222534	103.5	317.1	255.3	8.23	407	4.5
SWS4	30.644444	-86.227478	104.3	317.1	1401.4	-869.7	1143.7	5.2

Note: SWS is a ground weather station

Table 3: Amedee Positions.

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
PAPI (Ref)	40.25609963	-120.1569918	3926.5	0.0	0.0	0.0	0.0	0.0
1	40.25607530	-120.15916890	3926.5	-607.7	-8.9	607.7	8.9	0.0
2	40.25496248	-120.15852370	3926.8	-427.6	-414.3	427.6	414.3	0.3
3	40.25725307	-120.15849490	3926.3	-419.5	420.2	419.5	-420.2	-0.2
4	40.25445246	-120.15699060	3926.8	0.3	-600.1	-0.3	600.1	0.3
5	40.25778406	-120.15699050	3926.7	0.4	613.6	-0.4	-613.6	0.2
6	40.25778406	-120.15699050	3926.7	0.4	613.6	-0.4	-613.6	0.2
7	40.25334162	-120.15340770	3927.3	1000.4	-1004.7	-1000.4	1004.7	0.8
8	40.25471407	-120.15340230	3927.1	1001.9	-504.7	-1001.9	504.7	0.6
9	40.25608910	-120.15337800	3927.4	1008.7	-3.8	-1008.7	3.8	0.9
10	40.25747107	-120.15339900	3927.0	1002.8	499.6	-1002.8	-499.6	0.5
11	40.25884090	-120.15339930	3927.3	1002.7	998.7	-1002.7	-998.7	0.8
12	40.26025279	-120.15340120	3927.4	1002.1	1513.0	-1002.1	-1513.0	0.9
13	40.25281563	-120.15016690	3927.7	1905.0	-1196.3	-1905.0	1196.3	1.2
14	40.25389878	-120.15016750	3927.6	1904.8	-801.7	-1904.8	801.7	1.1
15	40.25498968	-120.15016870	3927.5	1904.5	-404.3	-1904.5	404.3	1.0
16	40.25565518	-120.15016700	3927.4	1904.9	-161.8	-1904.9	161.8	0.9
17	40.25577974	-120.15016520	3927.5	1905.4	-116.5	-1905.4	116.5	1.0
18	40.25595970	-120.15016620	3927.5	1905.1	-50.9	-1905.1	50.9	1.0
19	40.25609592	-120.15016670	3927.3	1905.0	-1.3	-1905.0	1.3	0.8

Continued on next page

Table 3: *continued.*

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
20	40.25623072	-120.15016370	3927.3	1905.8	47.8	-1905.8	-47.8	0.8
21	40.25640235	-120.15016630	3927.4	1905.1	110.4	-1905.1	-110.4	0.8
22	40.25653587	-120.15016640	3927.4	1905.1	159.0	-1905.1	-159.0	0.9
23	40.25719497	-120.15016440	3927.6	1905.6	399.1	-1905.6	-399.1	1.1
24	40.25829713	-120.15016140	3927.7	1906.4	800.6	-1906.4	-800.6	1.2
25	40.25939094	-120.15016690	3927.7	1904.8	1199.1	-1904.8	-1199.1	1.2
26	40.25321940	-120.14694120	3927.8	2805.4	-1049.1	-2805.4	1049.1	1.3
27	40.25417891	-120.14693060	3928.0	2808.3	-699.6	-2808.3	699.6	1.5
28	40.25523953	-120.14692970	3927.9	2808.5	-313.2	-2808.5	313.2	1.4
29	40.25609432	-120.14696830	3927.9	2797.7	-1.8	-2797.7	1.8	1.4
30	40.25696569	-120.14693150	3928.4	2807.9	315.7	-2807.9	-315.7	1.9
31	40.25802060	-120.14692780	3928.4	2808.9	700.0	-2808.9	-700.0	1.9
32	40.25897055	-120.14692770	3927.9	2808.9	1046.0	-2808.9	-1046.0	1.4
33	40.25362798	-120.14352200	3928.7	3759.7	-900.1	-3759.7	900.1	2.2
34	40.25472437	-120.14352380	3928.9	3759.2	-500.7	-3759.2	500.7	2.4
35	40.25554511	-120.14352680	3928.5	3758.3	-201.7	-3758.3	201.7	2.0
36	40.25609325	-120.14352390	3928.8	3759.1	-2.0	-3759.1	2.0	2.3
37	40.25664361	-120.14352360	3928.5	3759.1	198.5	-3759.1	-198.5	2.0
38	40.25747613	-120.14352020	3928.4	3760.0	501.7	-3760.0	-501.7	1.9
39	40.25856663	-120.14352090	3928.6	3759.8	899.0	-3759.8	-899.0	2.1

Continued on next page

Table 3: *continued.*

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
40	40.25390347	-120.13866680	3928.3	5114.9	-799.5	-5114.9	799.5	1.8
41	40.25500024	-120.13866760	3928.4	5114.6	-400.0	-5114.6	400.0	1.9
42	40.25609820	-120.13866940	3928.4	5114.0	0.0	-5114.0	-0.0	1.9
43	40.25719754	-120.13866660	3928.5	5114.7	400.5	-5114.7	-400.5	2.0
44	40.25829861	-120.13866660	3928.4	5114.7	801.6	-5114.7	-801.6	1.9
45	40.25445623	-120.13518170	3928.2	6087.7	-597.9	-6087.7	597.9	1.7
46	40.25526979	-120.13518460	3928.2	6086.8	-301.6	-6086.8	301.6	1.7
47	40.25609269	-120.13518790	3928.2	6085.8	-1.8	-6085.8	1.8	1.7
48	40.25690043	-120.13519070	3928.3	6084.9	292.5	-6084.9	-292.5	1.8
49	40.25776948	-120.13519470	3928.4	6083.7	609.1	-6083.7	-609.1	1.9
50	40.25472437	-120.14352380	3928.9	3759.2	-500.7	-3759.2	500.7	2.4
51	40.25609325	-120.14352390	3928.8	3759.1	-2.0	-3759.1	2.0	2.3
52	40.25747613	-120.14352020	3928.4	3760.0	501.7	-3760.0	-501.7	1.9
53	40.25678494	-120.15160340	3927.1	1504.0	249.7	-1504.0	-249.7	0.6
54	40.25541039	-120.15160530	3927.3	1503.5	-251.0	-1503.5	251.0	0.8
55	40.25678504	-120.14890940	3927.9	2255.9	249.8	-2255.9	-249.8	1.4
56	40.25541474	-120.14891090	3927.7	2255.5	-249.4	-2255.5	249.4	1.2
Balloon	40.2680979	-120.1294483	3931.4	7687.9	4373	-7687.9	-4373	3.1
Control	40.266878	-120.13615	3927.4	5817.4	3928	-5817.4	-3928	-0.2
LIDAR	40.2560401	-120.1487793	3927.4	2292.7	-21.6	-2292.7	21.6	0.8

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Table 3: *continued.*

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
SWS1	40.266994	-120.13623	3927.4	5795.1	3970.3	-5795.1	-3970.3	-0.2
SWS2	40.256001	-120.136513	3928.1	5717	-35.3	-5717	35.3	0.9
SWS4	40.256008	-120.159363	3926.5	-662	-33.4	662	33.4	0

Note: SWS is a ground weather station

Table 4: Egin Static Array Positions.

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
Hover Point (Ref)	30.659089	-86.3496784	138.6	0.0	0.0	0.0	0.0	0.0
1	30.66045100	-86.34964700	141.4	9.7	495.4	-0.0	495.5	2.9
2	30.66039800	-86.34923700	136.1	138.7	476.1	129.3	478.8	-2.4
3	30.66025900	-86.34886000	134.2	257.2	425.6	248.8	430.5	-4.3
4	30.66002900	-86.34853800	140.7	358.5	341.9	351.6	348.9	2.2
5	30.65974300	-86.34829500	139.9	434.9	237.9	430.1	246.4	1.4
6	30.65941200	-86.34814100	135.5	483.3	117.5	480.9	127.0	-3.0
7	30.65906100	-86.34808500	136.5	500.9	-10.2	501.0	-0.3	-2.0
8	30.65870100	-86.34815700	136.9	478.3	-141.1	481.0	-131.7	-1.6
9	30.65836700	-86.34831900	138.0	427.3	-262.6	432.4	-254.1	-0.5
10	30.65808800	-86.34859100	136.2	341.8	-364.1	348.9	-357.3	-2.3
11	30.65789200	-86.34891900	141.4	238.7	-435.4	247.2	-430.6	2.9
12	30.65776500	-86.34930600	141.2	117.0	-481.6	126.4	-479.2	2.7
13	30.65771300	-86.34972000	143.6	-13.2	-500.5	-3.3	-500.6	5.1

Table 5: Amedee Static Array Positions.

Mic Number	Latitude	Longitude	Elipsoid Height Feet	ENU ex Feet	ENU ey Feet	x Feet	y Feet	z Feet
Hover Point (Ref)	40.2684292	-120.1713414	3928.9	0.0	0.0	0.0	0.0	0.0
1	40.26977793	-120.17105810	3925.3	79.1	491.3	-1.2	-497.7	-3.5
2	40.26979403	-120.17152840	3925.3	-52.2	497.2	129.3	-482.9	-3.5
3	40.26970871	-120.17198530	3925.7	-179.7	466.1	250.4	-432.3	-3.1
4	40.26953716	-120.17239660	3925.9	-294.5	403.6	354.0	-352.6	-2.9
5	40.26929139	-120.17273520	3925.9	-389.0	314.1	433.3	-249.4	-2.9
6	40.26898648	-120.17298090	3926.3	-457.5	203.0	483.6	-129.0	-2.5
7	40.26864272	-120.17311420	3926.6	-494.7	77.8	500.8	0.6	-2.2
8	40.26828405	-120.17312630	3926.6	-498.1	-52.9	483.7	130.1	-2.2
9	40.26793740	-120.17301570	3926.4	-467.2	-179.2	433.5	250.0	-2.4
10	40.26762191	-120.17279360	3926.5	-405.3	-294.1	354.3	353.9	-2.3
11	40.26736115	-120.17247020	3926.4	-315.0	-389.1	250.3	433.6	-2.4
12	40.26717498	-120.17206820	3925.9	-202.8	-456.9	128.9	483.0	-2.9
13	40.26707151	-120.17163310	3926.0	-81.4	-494.6	3.0	501.3	-2.8

Table 6: Condition Code List.

Code	Description
A	Low Noise Approaches
C	Steady Climbs
D	Steady Descents
F	Turn from Climb or Descent
G	Turn from Descent with Acceleration Through Roll-in
H	Static Test Points
L	Steady Level Flight
N	Variable Load Factor Level Turns (Constant Speed, Constant Bank, Hold Altitude)
O	Constant Torque Level Turns (Speed Varies, Constant Bank, Hold Altitude)
X	Turn with Acceleration Through Roll-in

Table 7: Steady Flight Condition Codes.

	FPA								
	BROC	0°	-3°	-4.5°	-6°	-7.5°	-9°	-10.5°	-12°
40 kts		L1	D33	D34	D35	D36	D37		
60 kts		L2	D2	D7	D12	D17	D22	D27	D30
70 kts			D3	D8	D13	D18	D23	D28	D31
80 kts		L3	D4	D9	D14	D19	D24	D29	D32
90 kts			D5	D10	D15	D20	D25		
100 kts		L4	D6	D11	D16	D21	D26		
120 kts		L5							
140 kts		L6							
V_H		L7							
V_H (500 AGL)		L8							
$0.45*V_H+65$ (500 AGL)		L9							
$V_y -10$	C1								
V_y	C2				D1				
$V_y +10$	C3								

Note: Green = Priority 1, Yellow = Priority 2

Table 8: Test Condition Codes for 20° Bank Angle.

KIAS	Bank Angle	Direction	Description	Climb*	Level	Descend**
60	20°	Left	Decel, -1			
			Decel, -2			
			Constant Speed		N1	
			Constant Torque			
			Accel, 1			
		Accel, 2				
		Right	Decel, -1			
			Decel, -2			
			Constant Speed		N2	
			Constant Torque			
Accel, 1						
80	20°	Left	Decel, -1			
			Decel, -2			
			Constant Speed		N9	
			Constant Torque			
			Accel, 1			
		Accel, 2				
		Right	Decel, -1			
			Decel, -2			
			Constant Speed		N10	
			Constant Torque			
Accel, 1						
100	20°	Left	Decel, -1			
			Decel, -2			
			Constant Speed		N17	
			Constant Torque			
			Accel, 1			
		Accel, 2				
		Right	Decel, -1			
			Decel, -2			
			Constant Speed		N18	
			Constant Torque			
Accel, 1						
Accel, 2						

Note: Green = Priority 1, Yellow = Priority 2

*: All climbs are at 6° unless noted in cell

**: All descents are at -6° unless noted in cell

Table 9: Test Condition Codes for 35° Bank Angle.

KIAS	Bank Angle	Direction	Description	Climb*	Level	Descend**
60	35°	Left	Decel, -1		X17	
			Decel, -2		X19	
			Constant Speed	F5	N5	-3, -6, -9 F13, F7, F15
			Constant Torque		O3	
			Accel, 1		X5	G3
			Accel, 2		X7	G7
		Right	Decel, -1		X18	
			Decel, -2		X20	
			Constant Speed	F6	N6	-3, -6, -9 F14, F8, F16
			Constant Torque		O4	
			Accel, 1		X6	G4
			Accel, 2		X8	G8
80	35°	Left	Decel, -1		X41	
			Decel, -2		X43	
			Constant Speed	F21	N13	-3, -6, -9 F29, F23, F31
			Constant Torque		O7	
			Accel, 1		X29	G11
			Accel, 2		X31	G15
		Right	Decel, -1		X42	
			Decel, -2		X44	
			Constant Speed	F22	N14	-3, -6, -9 F30, F24, F32
			Constant Torque		O8	
			Accel, 1		X30	G12
			Accel, 2		X32	G16
100	35°	Left	Decel, -1		X61	
			Decel, -2		X63	
			Constant Speed	F37	N21	-3, -6, -9 F45, F39, F47
			Constant Torque		O11	
			Accel, 1		X53	G19
			Accel, 2		X55	G23
		Right	Decel, -1		X62	
			Decel, -2		X64	
			Constant Speed	F38	N22	-3, -6, -9 F46, F40, F48
			Constant Torque		O12	
			Accel, 1		X54	G20
			Accel, 2		X56	G24

Note: Green = Priority 1, Yellow = Priority 2

*: All climbs are at 6° unless noted in cell

** : All descents are at -6° unless noted in cell

Table 10: Test Condition Codes for 35° Best Rate of Climb Bank Angle.

KIAS	Bank Angle	Direction	Code
V_y	35°	Left	F51
		Right	F52
$V_y - 10$	35°	Left	F55
		Right	F56

Table 11: Test Condition Codes for 45° Bank Angle.

KIAS	Bank Angle	Direction	Description	Climb*	Level	Descend**
60	45°	Left	Decel, -1		X21	
			Decel, -2		X23	
			Constant Speed		N7	
			Constant Torque			
			Accel, 1		X9	
			Accel, 2		X11	
		Right	Decel, -1		X22	
			Decel, -2		X24	
			Constant Speed		N8	
			Constant Torque			
			Accel, 1		X10	
			Accel, 2		X12	
80	45°	Left	Decel, -1		X45	
			Decel, -2		X47	
			Constant Speed		N15	
			Constant Torque			
			Accel, 1		X33	
			Accel, 2		X35	
		Right	Decel, -1		X46	
			Decel, -2		X48	
			Constant Speed		N16	
			Constant Torque			
			Accel, 1		X34	
			Accel, 2		X36	
100	45°	Left	Decel, -1			
			Decel, -2			
			Constant Speed		N23	
			Constant Torque			
			Accel, 1			
			Accel, 2			
		Right	Decel, -1			
			Decel, -2			
			Constant Speed		N24	
			Constant Torque			
			Accel, 1			
			Accel, 2			

Note: Green = Priority 1, Yellow = Priority 2, Blue = Priority 3

*: All climbs are at 6° unless noted in cell

**: All descents are at -6° unless noted in cell

Table 12: Test Condition Codes for Static Test Points.

Condition Code	Relative Direction 0° = nose facing array mic 1	Condition
H1	90	Ground Idle
H2	90	Flight Idle
H3	90	HIGE
H4	180	HIGE
H5	270	HIGE
H6	0	HIGE
H7	90	HOGE
H8	180	HOGE
H9	270	HOGE
H10	0	HOGE
H11	270	Flight Idle
H12	270	Ground Idle

Table 13: Daily Flight Information.

Aircraft	Flight Number	Date	Test Points	Flight Hours
R44	227	8/15/2017	35	3.6
	228	8/16/2017	101	4.7
	229	8/17/2017	68	4.8
	230	8/18/2017	55	2.3
R66	231	8/19/2017	22	0.3
	234	8/22/2017	52	3.7
	235	8/23/2017	95	3.8
	236	8/24/2017	52	2.7
	237	8/25/2017	23	1.8
B206L3	277	10/4/2017	81	5.6
	278	10/5/2017	62	3.3
	279	10/6/2017	89	4.6
B407	283	10/10/2017	75	3.4
	284	10/11/2017	58	3.3
	285	10/12/2017	48	4.1
	286	10/13/2017	58	4.1
AS350B3	289	10/16/2017	53	3.4
	290	10/17/2017	58	3.3
	291	10/18/2017	58	4.1
	292	10/19/2017	22	0.3
EC130B4	296	10/23/2017	72	5.1
	297	10/24/2017	104	3.9
	298	10/25/2017	49	3.3
	299	10/26/2017	62	3.5

Table 14: R44 Approach Condition Codes

Condition Code	Initial KIAS	Ending KIAS	FPA	Entry Alt	Pilot Instructions
A2	80	Hover Taxi	-3	600	1 kt/sec decel
A3	80	Hover Taxi	-3	600	Constant speed until need to flare for hover taxi
A4	40	40	-4.5	600	Constant speed
A5	80	Hover Taxi	-4.5	600	Constant deceleration
A6	80	Hover Taxi	-4.5	600	Constant speed until need to flare for hover taxi
A7	40	40	-6	1000	Constant speed
A8	80	Hover Taxi	-6	1000	Constant deceleration
A9	80	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi

Table 15: R66 Approach Condition Codes

Condition Code	Initial KIAS	Ending KIAS	FPA	Entry Alt	Pilot Instructions
A9	80	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A20	100	50 ft Pullout		870	Level to -7800x, at PAPI establish 1000 fpm descent rate, begin 1 kt/sec decel to 60 kts at 1000 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A21	100	50 ft Pullout		650	Level to -6000x, at PAPI establish 1000 fpm descent rate, begin 1.5 kts/sec decel to 60 kts at 1000 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A22	100	50 ft Pullout		530	Level to -4900x, at PAPI establish 1000 fpm descent rate, begin 2 kts/sec decel to 60 kts at 1000 fpm descent rate at, 60 kts maintain airspeed and descent rate until 50 ft pullout
A25	100	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A26	60	Hover Taxi	-9	1400	Constant speed until need to flare for hover taxi
A28	80	Hover Taxi	-7.5	1400	Constant speed until need to flare for hover taxi
A29	80	Hover Taxi	-9	1400	Constant speed until need to flare for hover taxi

Table 16: B206L3 Approach Condition Codes

Condition Code	Initial KIAS	Ending KIAS	FPA	Entry Alt	Pilot Instructions
A9	80	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A20	100	50 ft Pullout		870	Level to -7000x establish 1000 fpm descent rate, begin 1 kt/sec decel to 60 kts at 1000 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A21	100	50 ft Pullout		650	Level to -6000x, establish 1000 fpm descent rate, begin 1.5 kts/sec decel to 60 kts at 1000 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A22	100	50 ft Pullout		530	Level to -4600x, at PAPI establish 1000 fpm descent rate, begin 2 kts/sec decel to 60 kts at 1000 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A23	60	Hover Taxi	-12	2300	Constant speed until need to flare for hover taxi
A24	60	Hover Taxi	-10	1950	Constant speed until need to flare for hover taxi
A25	100	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A26	60	Hover Taxi	-9	1400	Constant speed until need to flare for hover taxi

Table 17: B407 Approach Condition Codes

Condition Code	Initial KIAS	Ending KIAS	FPA	Entry Alt	Pilot Instructions
A9	80	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A23	60	Hover Taxi	-12	2300	Constant speed until need to flare for hover taxi
A25	100	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A27	80	Hover Taxi	-12	1800	Constant speed until need to flare for hover taxi
A33	80	50 ft Pullout	1000 fpm	870	Level to PAPI (X=-5550), establish 1000 fpm descent rate, begin 1 kt/sec decel to 40 kts at 1000 fpm descent rate, at 40 kts maintain airspeed and descent rate until 50 ft pullout
A35	80	50 ft Pullout	1000 fpm	530	Level to PAPI (X=-3500), establish 1000 fpm descent rate, begin 2 kts/sec decel to 40 kts at 1000 fpm descent rate, at 40 kts maintain airspeed and descent rate until 50 ft pullout
A36	100	Hover Taxi	-7	250	Level, start decel at 2 kts/sec at -6100 to 40 kts, hold 40 kts, pick up PAPI and fly PAPI to hover taxi
A37	60	Hover Taxi	-14	2100	Constant speed until need to flare for hover taxi
A38	100	Hover Taxi	-7	250	Level, start decel at 2.5 kts/sec at -5600 to 40 kts, hold 40 kts, pick up PAPI and fly PAPI to hover taxi
A39	100	Hover Taxi	-7	250	Level, start decel at 3 kts/sec at -4650 to 40 kts, hold 40 kts, pick up PAPI and fly PAPI to hover taxi
A40	80	50 ft Pullout	-9	850	Level to PAPI (X=-5350). Establish Glideslope, Decel (1 kt/sec) from 80 to 40 kts, at 40 kts maintain airspeed and descent rate until 50 ft pullout
A42	80	50 ft Pullout	-9	525	Level to PAPI (X=-3325). Establish Glideslope Decel (2 kts/sec) from 80 to 40 kts, at 40 kts maintain airspeed and descent rate until 50 ft pullout

Table 18: AS350B3 Approach Condition Codes

Condition Code	Initial KIAS	Ending KIAS	FPA	Entry Alt	Pilot Instructions
A9	80	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A23	60	Hover Taxi	-12	2300	Constant speed until need to flare for hover taxi
A25	100	Hover Taxi	-6	1000	Pilot's discretion
A27	80	Hover Taxi	-12	1800	Constant speed until need to flare for hover taxi
A43	70	Hover Taxi	-12	1800	Constant speed until need to flare for hover taxi
A44	70	Hover Taxi	-10.5	1800	Constant speed until need to flare for hover taxi
A45	60	Hover Taxi	-10.5	1800	Constant speed until need to flare for hover taxi
A46	100	Hover Taxi	-9	1400	Constant speed until need to flare for hover taxi
A47	90	Hover Taxi	-9	1400	Constant speed until need to flare for hover taxi
A48	100	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi
A49	90	Hover Taxi	1000 fpm	750	Level to Flag 2, establish 1000 fpm descent rate, begin 1 kt/sec decel to 60 kts at 1000 fpm descent rate, at PAPI establish final glide slope (10.5°) then maintain 60 kts airspeed and descent rate until 50 ft pullout
A50	90	Hover Taxi	1000 fpm	570	Level to Flag 3, establish 1000 fpm descent rate, begin 1.5 kts/sec decel to 60 kts at 1000 fpm descent rate, at PAPI establish final glide slope (10.5°) then maintain 60 kts airspeed and descent rate until 50 ft pullout

Table 19: EC130B4 Approach Condition Codes

Condition Code	Initial KIAS	Ending KIAS	FPA	Entry Alt	Pilot Instructions
A22	100	50 ft Pullout		530	Level to -4900x, at PAPI establish 1000 fpm descent rate, then begin 2 kts/sec decel to 60 kts at 1000 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A25	100	Hover Taxi	-6	1000	Pilot's discretion
A43	70	Hover Taxi	-12	1800	Constant speed until need to flare for hover taxi
A44	70	Hover Taxi	-10.5	1800	Constant speed until need to flare for hover taxi
A45	60	Hover Taxi	-9	1400	Constant speed until need to flare for hover taxi
A51	70	Hover Taxi	-12	1800	Max pax comfort right pedal, constant speed until need to flare for hover taxi
A52	70	Hover Taxi	-10.5	1800	Max pax comfort right pedal, constant speed until need to flare for hover taxi
A53	60	Hover Taxi	-9	1400	Max pax comfort right pedal, constant speed until need to flare for hover taxi
A54	100	Hover Taxi	-6	1000	Max pax comfort right pedal, constant speed until need to flare for hover taxi
A55	100	Hover Taxi	-3	600	Constant speed until need to flare for hover taxi
A56	100	Hover Taxi	-3	600	Max pax comfort right pedal, constant speed until need to flare for hover taxi
A57	90	50 ft Pullout		500	Level to -3700x, at PAPI establish 1200 fpm descent rate, then begin 2 kts/sec decel to 60 kts at 1200 fpm descent rate, at 60 kts maintain airspeed and descent rate until 50 ft pullout
A58	60	Hover Taxi	1000	1200	At road start 1000 fpm descent rate, maintain 60 kts and 1000 fpm until transition to level flight at 200 ft alt, maintain level flight at 200 ft alt until transition to hover taxi at PAPI
A59	100	Hover Taxi	-6	1000	Constant speed until need to flare for hover taxi

Table 20: EC130B4 Climb Condition Codes.

Condition Code	IAS kts	Climb Rate	Entry Alt	Pilot Instructions
C4	V _y	BROC	50	Start climb at Flag 2, BROC to 300 ft, then 800 fpm to 1300 ft alt
C5	V _y	BROC	50	Start climb at Flag 2, BROC to 300 ft, then 400 fpm to 800 ft alt
C6	V _y	BROC	50	Start climb at Flag 2, BROC to 300 ft, then 400 fpm to 700 ft alt with 2 kts/sec acceleration to V _h
C7	V _y	BROC	50	Start climb at Flag 2, BROC to 300 ft, then 400 fpm to 700 ft alt with 1 kt/sec acceleration to V _h
C8	V _y	BROC	50	Start climb at Flag 2, BROC to 300 ft, then 100 fpm to 450 ft alt with 1 kt/sec acceleration to V _h
C9	80	BROC	50	Start climb at Flag 2, then decel at BROC to 50 kts at 1 kt/sec, maintain 50 kts at BROC to 1500 alt
C10	80	1700 fpm	50	Start climb at Flag 2, establish 1700 fpm climb, then decel while maintaining climb rate to 50 kts at 1 kt/sec, once at 50 kts, accel at 1 kt/sec at BROC to 1500
C11	V _y	MCP	50	Start climb at Flag 2, then MCP to 1500 ft alt

Table 21: Pressure Time History File Contents.

Variable Name	Description	Units
pressure.data	Acoustic pressure as measured	pascals
global.test	Test description	
global.location	Test location	
global.date	Date of test	
global.run_number	NASA combined run number	
global.noise_source	Aircraft measured	
global.mic_number	Microphone number	
global.Latitude	Microphone Latitude	
global.Longitude	Microphone Longitude	
x	Mic x location in rotated coordinate frame	feet
y	Mic y location in rotated coordinate frame	feet
z	Mic z location in rotated coordinate frame	feet
global.sample_rate	Samples per second of pressure data	
global.start_time	Local seconds from midnight of first sample	secs
global.number_samples	Number of data samples	

Table 22: Reference List File Contents.

Column Number	Variable Name	Description	Units
1	nasa_ft	NASA flight number	fff
2	nasa_run	NASA run number	rrr
3	nasa_comb	Combined NASA number	ffrrr
4	ac	Aircraft	
5	test_cond	Test condition	
6	start_time	UTC start time	
7	stop_time	UTC stop time	
8	utc_secs_from_mid	Run start UTC seconds from mid.	sec
9	duration	Record duration	sec
10	location	Testing location	
11	mic_loc_file	Microphone location file name	
12	trk_file	ANTS file name	
13	ref_lat	Reference latitude	deg
14	ref_lon	Reference longitude	deg
15	ref_elips_ft	Reference ellipsoid height	ft
16	ref_hgt_ft	Reference MSL height	ft
17	true_heading	Nominal true heading	deg
18	gross_weight	Gross weight for run	lbs
19	target_ias	Condition target IAS	kts
20	bank_ang	Condition target bank angle	deg
21	fuel_rem	Reported fuel remaining by pilot	
22	fpa	Condition target flight path angle	deg
23	direction	Turn direction	
24	accel_rate	Target acceleration rate	g
25	balloon_temp	Balloon temperature	°F
26	balloon_ws_kts	Balloon wind speed	kts
27	balloon_wd	Balloon wind direction, mag	deg
28	Comments	Comments for run	
29	layout	Microphone layout	

Table 23: Aircraft Tracking File Contents.

Variable	Description	Units	Source
utcsec	UTC seconds from midnight	secs	
time	Elapsed time from run start	secs	
lat	Latitude	Decimal °	measured
lon	Longitude	Decimal °	measured
alt	Elipsoid height	feet	measured
x	X position	ft	derived
y	Y position	ft	derived
z	Z position	ft	derived
heading	Heading relative to true North	°	measured
pitch	Pitch angle relative to horizon	°	measured
roll	Roll angle relative to horizon	°	measured
vx	Velocity in X direction	fps	measured
vxk	Velocity in X direction	kts	measured
vy	Velocity in Y direction	fps	measured
vyk	Velocity in Y direction	kts	measured
vz	Velocity in Z direction	fps	measured
vzk	Velocity in Z direction	kts	measured
V	Velocity in X, Y, and Z	fps	measured
VG	Velocity in X, and Y	fps	measured
Vk	Velocity in X, Y, and Z	kts	measured
VGk	Velocity in X, and Y	kts	measured
ax	Acceleration in X direction	ft/sec/sec	derived
ay	Acceleration in Y direction	ft/sec/sec	derived
az	Acceleration in Z direction	ft/sec/sec	derived
Uatt	Aircraft attitude uncertainty	°	measured
Upos	Aircraft position uncertainty	ft	measured
Uvel	Aircraft velocity uncertainty	ft/sec	measured

Table 24: Individual Hemisphere File Contents.

Variable Name	Description	Units
BB	Broadband data switch	
NB	Narrowband data switch	
PT	Pure-Tone data switch	
DOPPLER_SHIFT_REMOVED	0 = False and 1 = True	
EMPTY_WEIGHT	(not used for this test)	
FUEL_WEIGHT	(not used for this test)	
LOAD_WEIGHT	(not used for this test)	
RADIUS	Radius of Sound Sphere	ft
FLIGHT_PATH_ANGLE	Target flight path angle	deg
PYLON_ANGLE	(not used for this test)	
SPEED	Ground speed	kts
MASTTILT	(not used for this test)	
XYZ	(not used for this test)	
PHI	Spherical angle phi	deg
THETA	Spherical angle theta	deg
FREQUENCY	Center frequencies	Hz
AMPLITUDE	Sound pressure level	dB
global.title	Hemisphere description	

Figures



Figure 1: The six tested aircraft.



Figure 2: Overview of Eglin Test Range C62, lat 30.646788°, lon -86.227224°.

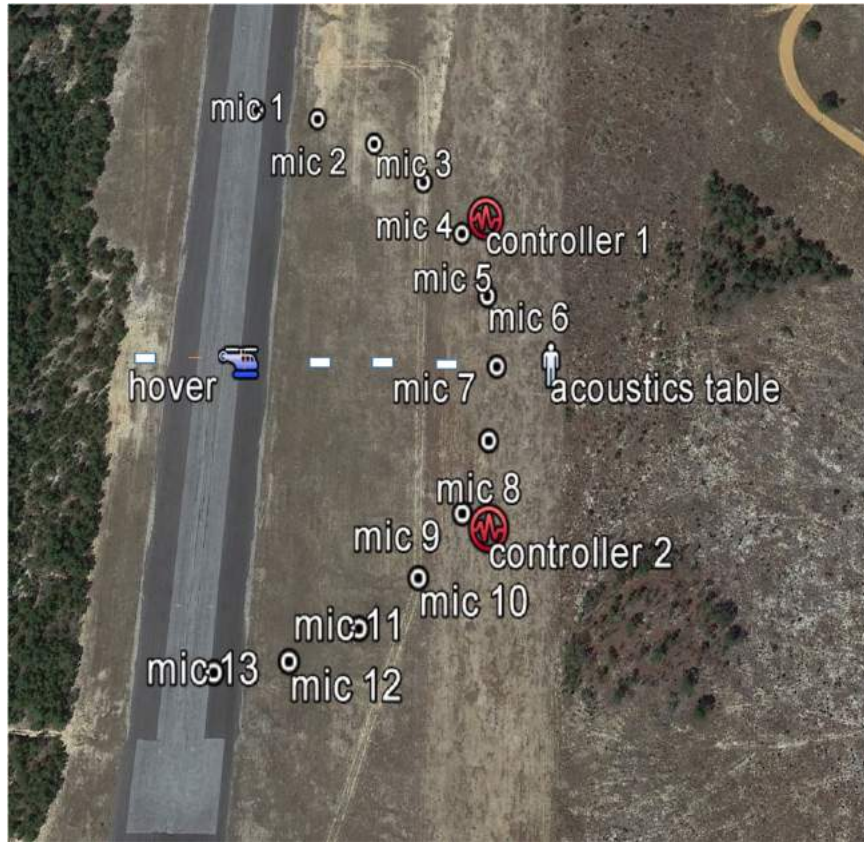


Figure 3: Wagner Field static test layout, lat 30.656692°, lon -86.349850°.



Figure 4: Overview of Amedee test range, lat 40.26327596°, lon -120.15896670°.



Figure 5: G.R.A.S. 67AX flush mounted microphone.



Figure 6: Wireless Acoustic Measurement System.



Figure 7: Northrop Grumman wireless acquisition system.



Figure 8: Tethered balloon weather system.



Figure 9: Temperature string attached to weather balloon.



Figure 10: LIDAR wind measurement system.



Figure 11: NASA Aircraft Navigation and Tracking System.

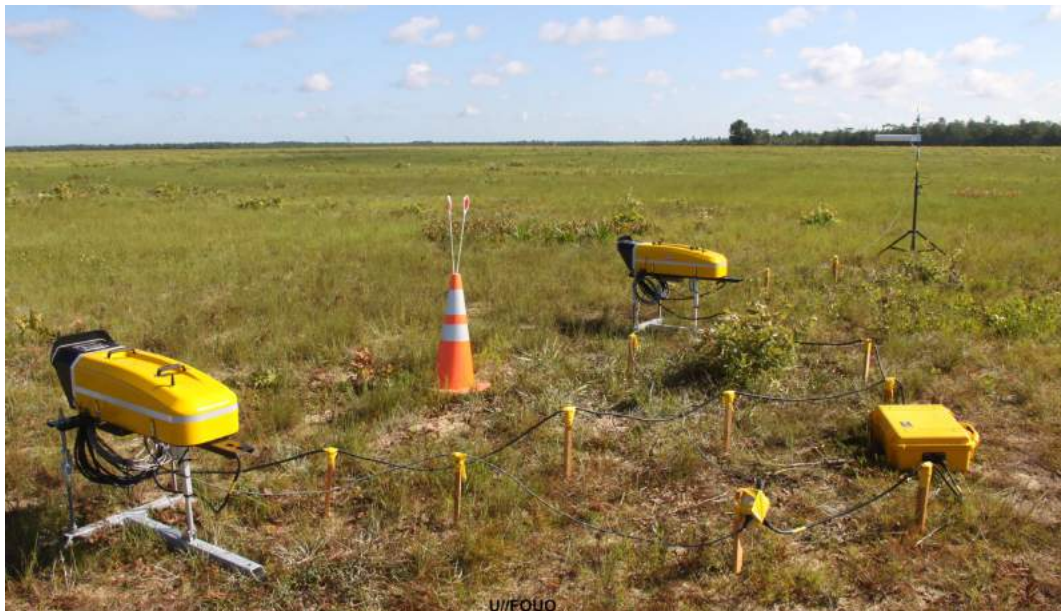


Figure 12: Precision Approach Path Indicator.

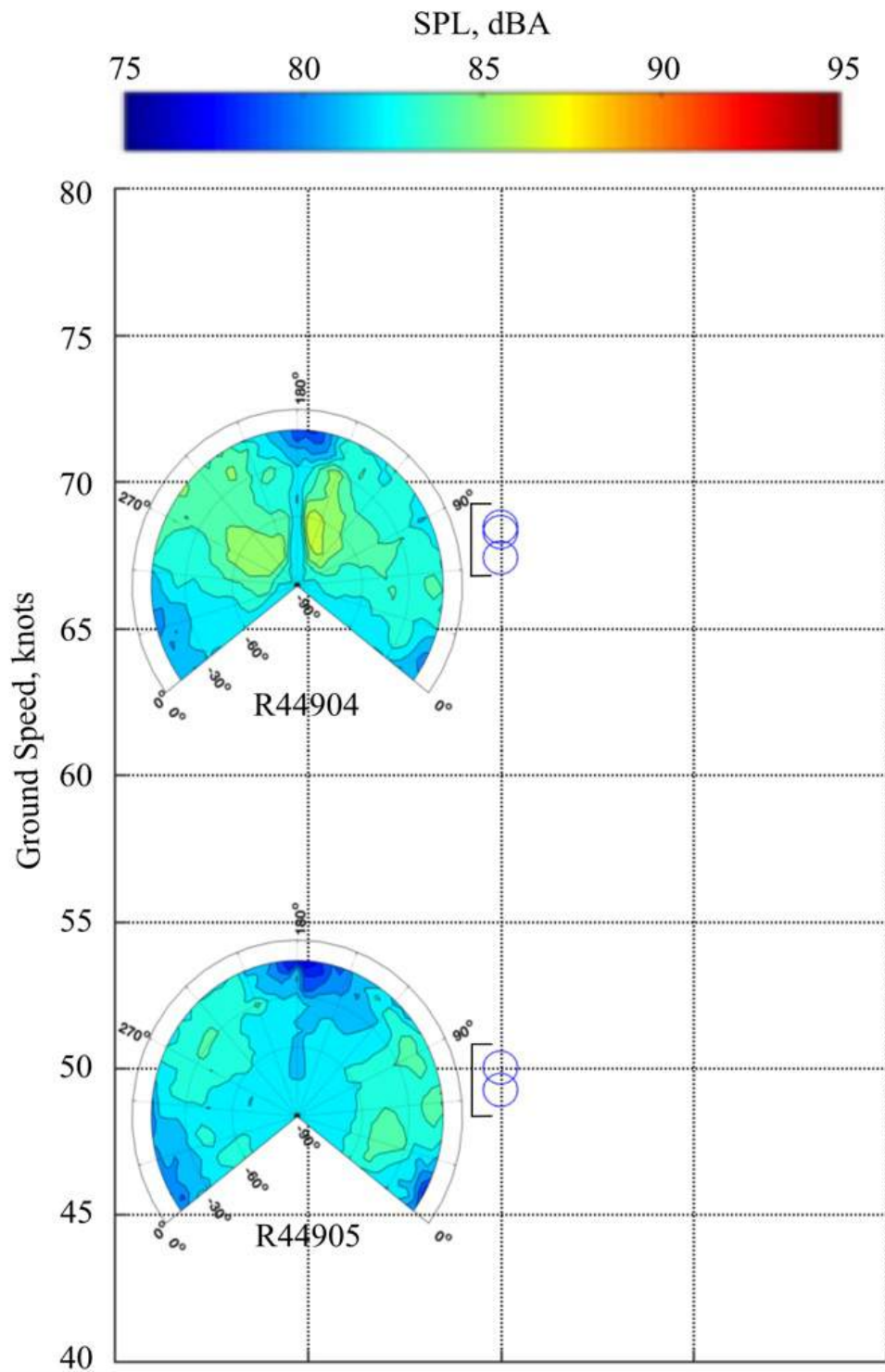


Figure 14: R44 average level flight source noise hemispheres, lower speed range.

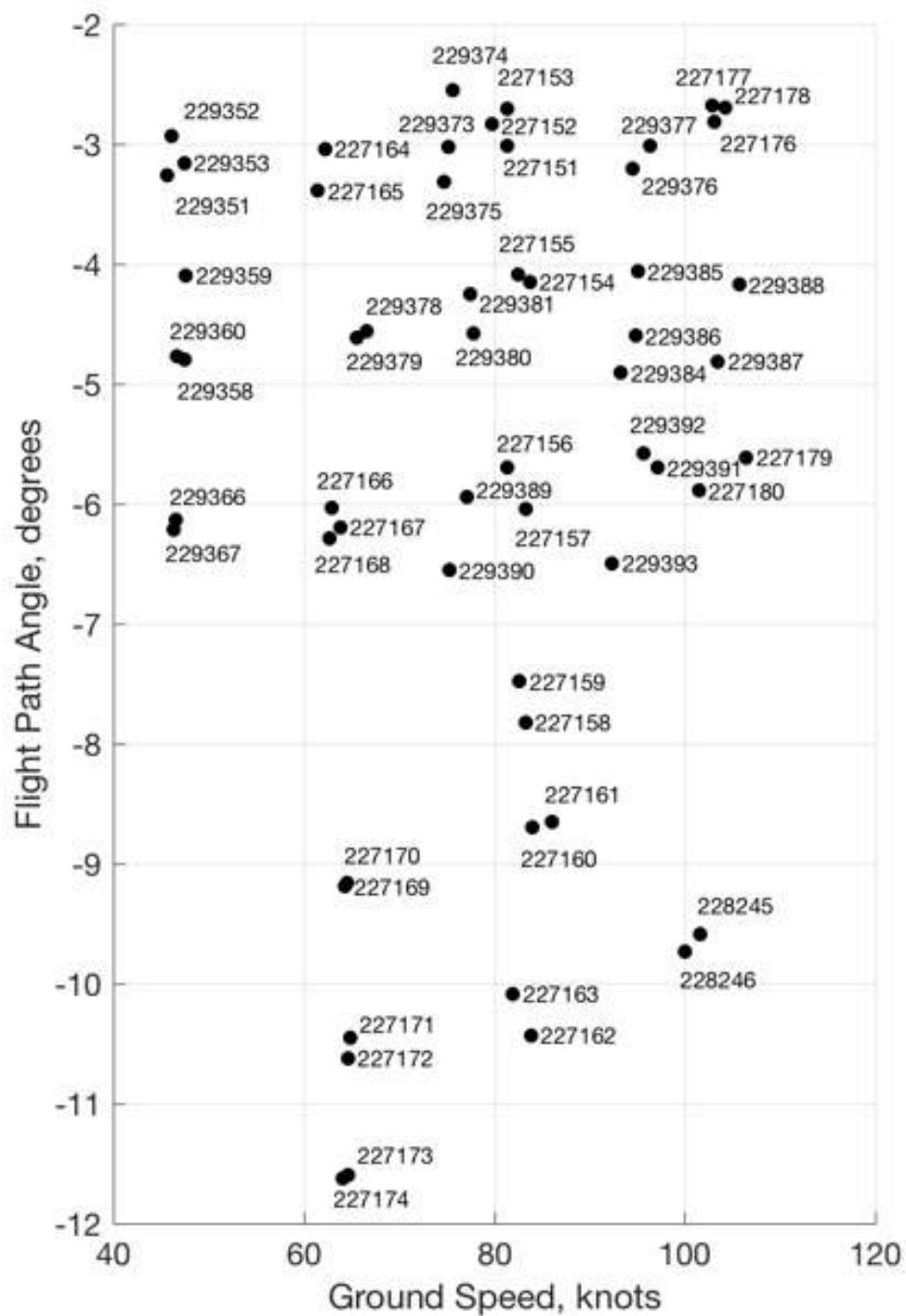


Figure 15: R44 source noise descent conditions flown.

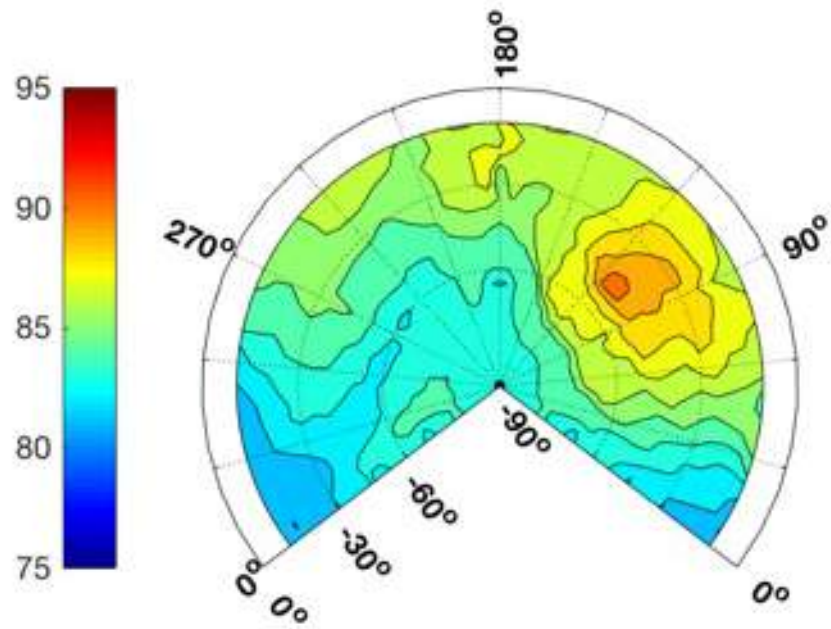


Figure 16: R44, 227151, D4, dBA hemisphere, ground speed 81.4 kts, -3.0° FPA.

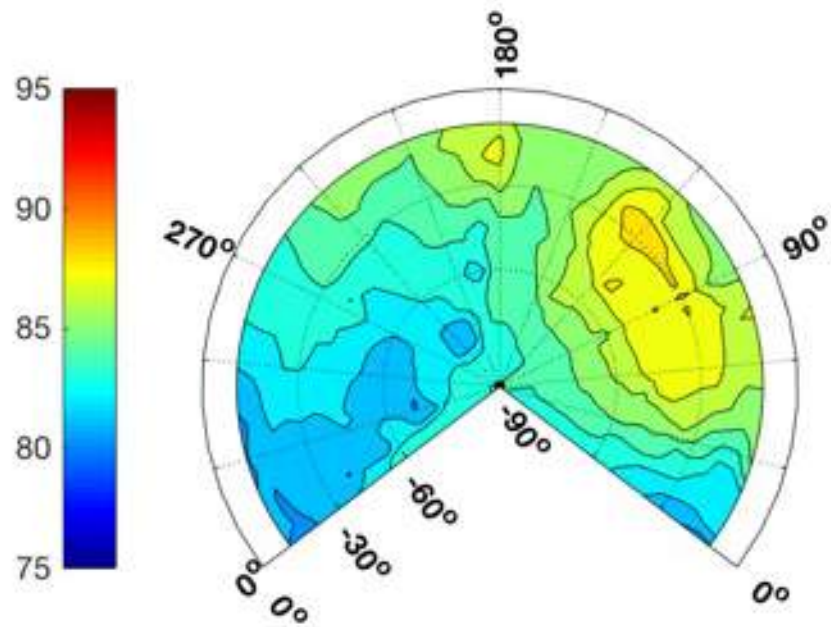


Figure 17: R44, 227152, D4, dBA hemisphere, ground speed 79.7 kts, -2.8° FPA.

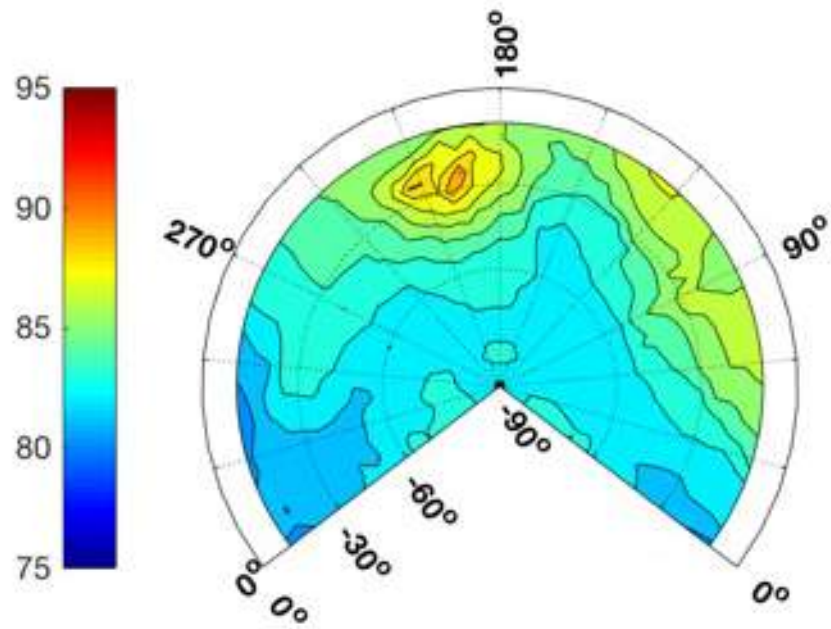


Figure 18: R44, 227153, D4, dBA hemisphere, ground speed 81.3 kts, -2.7° FPA.

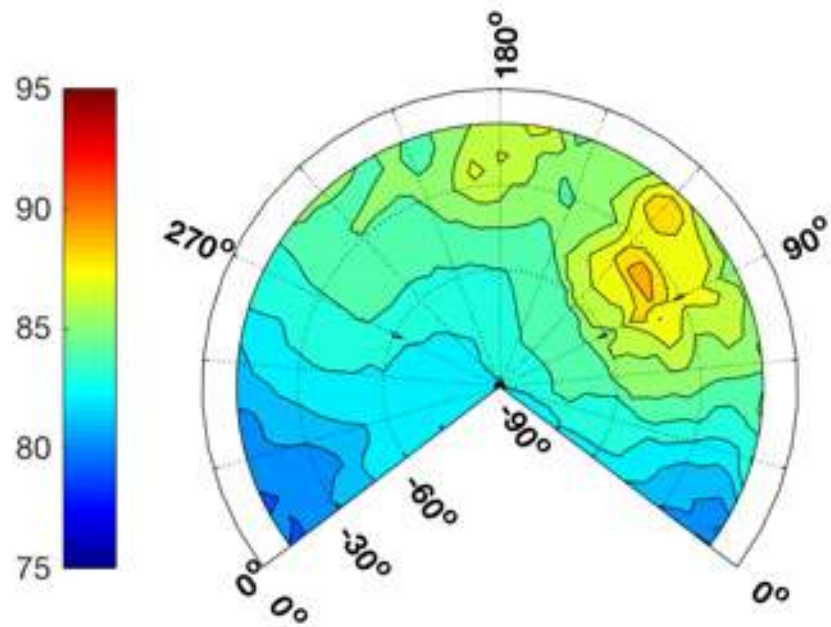


Figure 19: R44, 227154, D9, dBA hemisphere, ground speed 83.8 kts, -4.1° FPA.

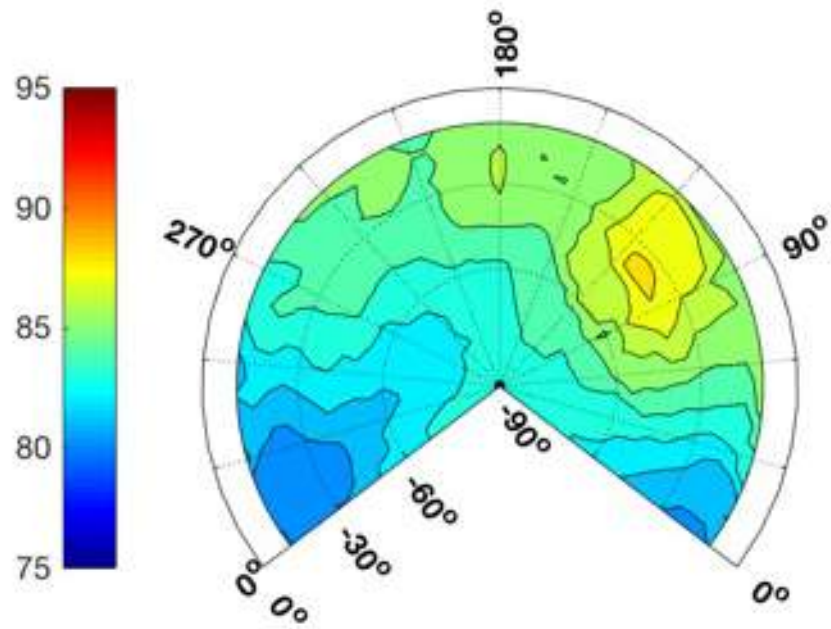


Figure 20: R44, 227155, D9, dBA hemisphere, ground speed 82.5 kts, -4.1° FPA.

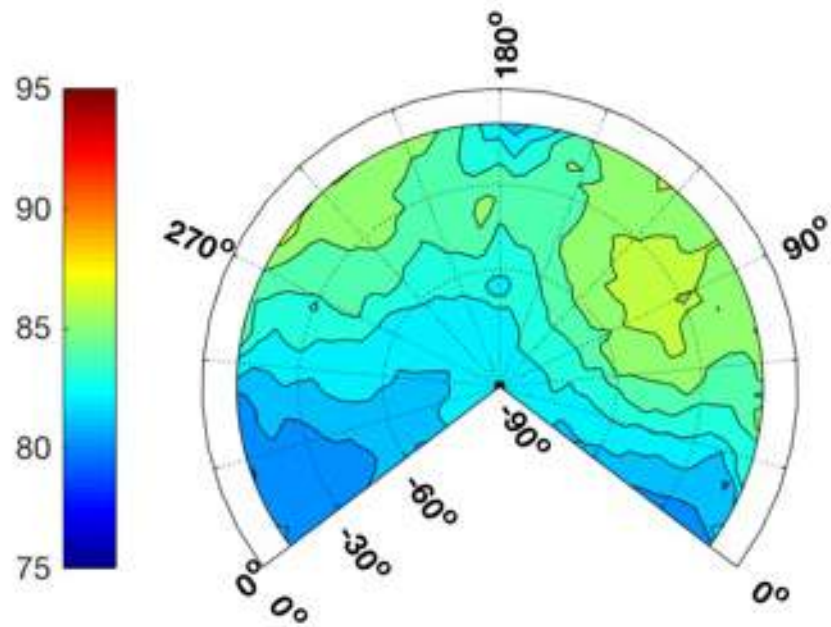


Figure 21: R44, 227156, D14, dBA hemisphere, ground speed 81.4 kts, -5.7° FPA.

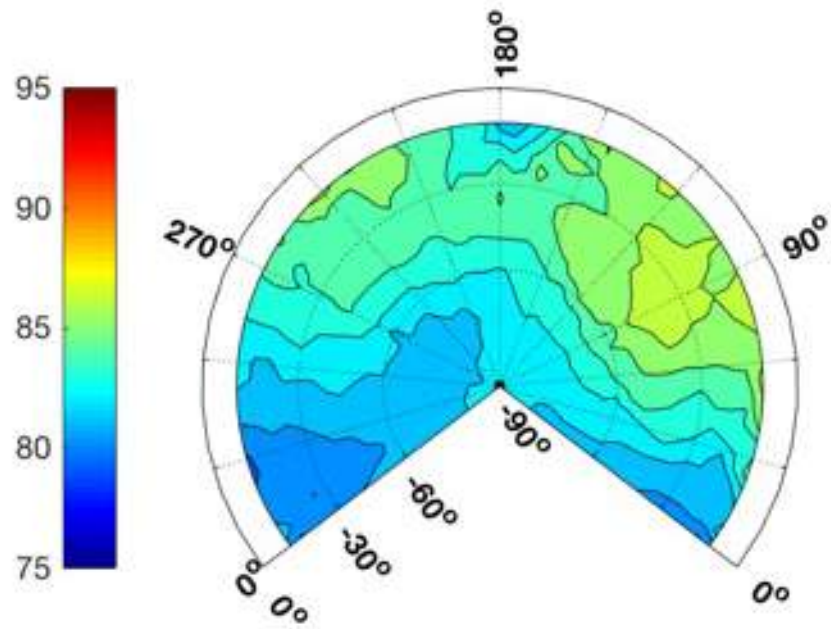


Figure 22: R44, 227157, D14, dBA hemisphere, ground speed 83.3 kts, -6.0° FPA.

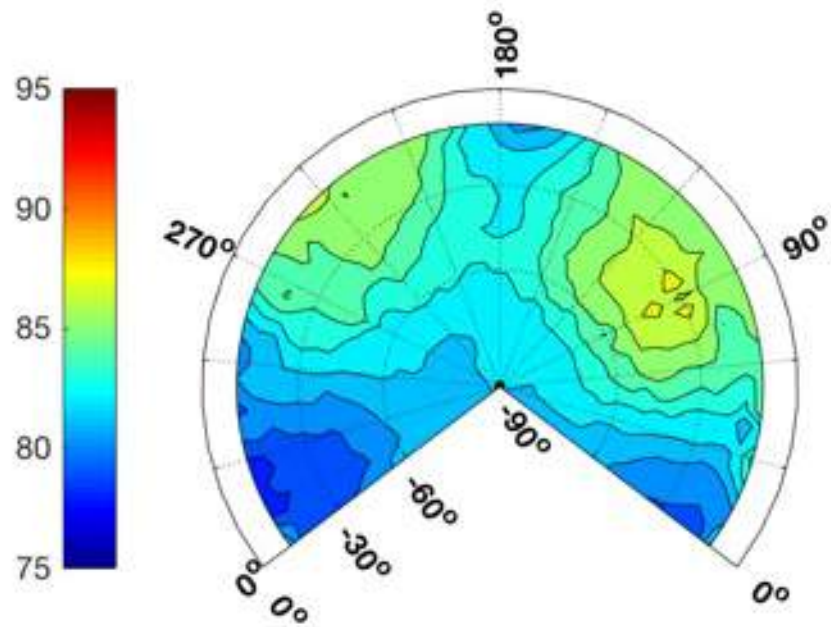


Figure 23: R44, 227158, D19, dBA hemisphere, ground speed 83.3 kts, -7.8° FPA.

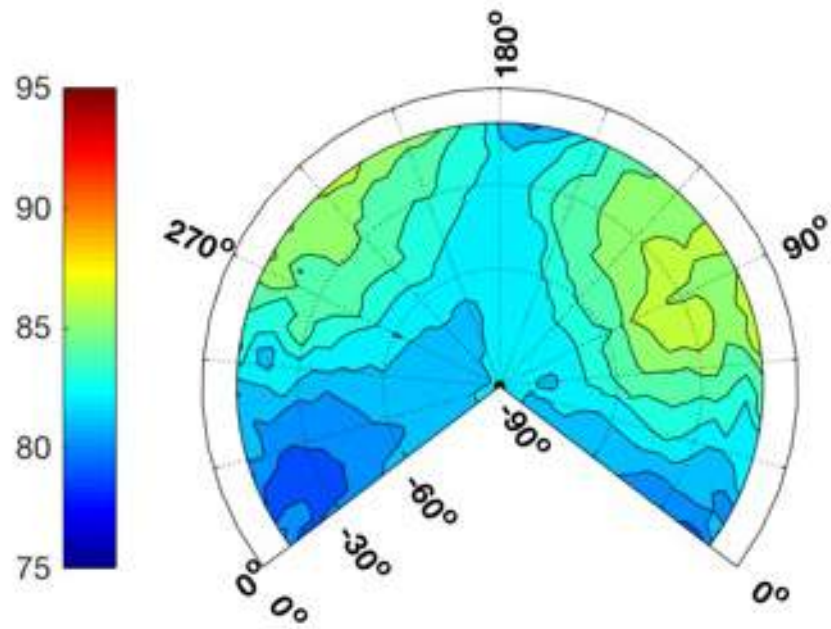


Figure 24: R44, 227159, D19, dBA hemisphere, ground speed 82.7 kts, -7.5° FPA.

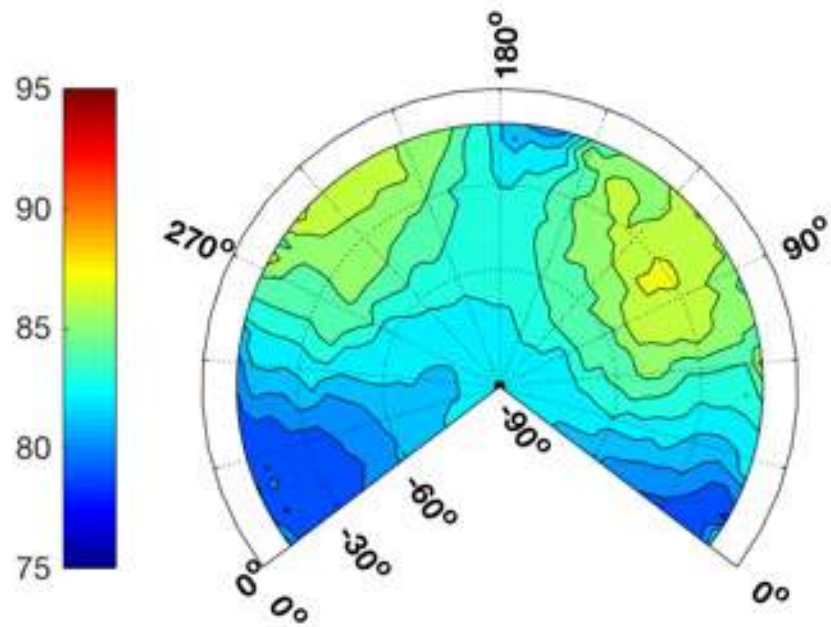


Figure 25: R44, 227160, D24, dBA hemisphere, ground speed 84.0 kts, -8.7° FPA.

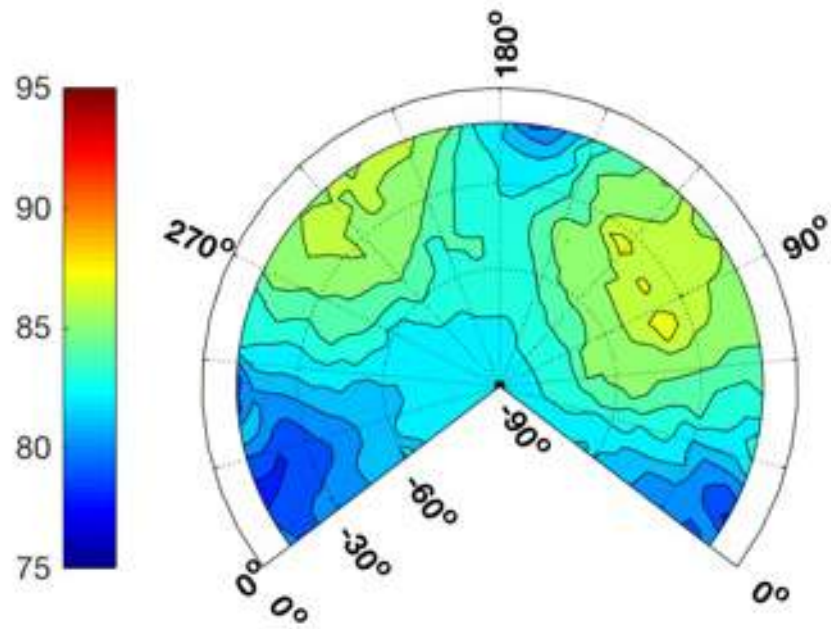


Figure 26: R44, 227161, D24, dBA hemisphere, ground speed 86.1 kts, -8.7° FPA.

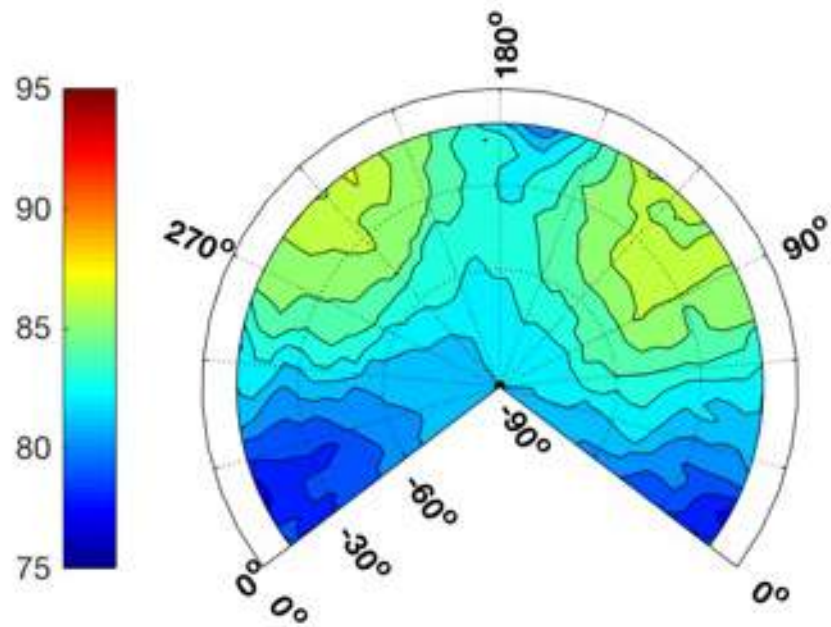


Figure 27: R44, 227162, D29, dBA hemisphere, ground speed 83.9 kts, -10.4° FPA.

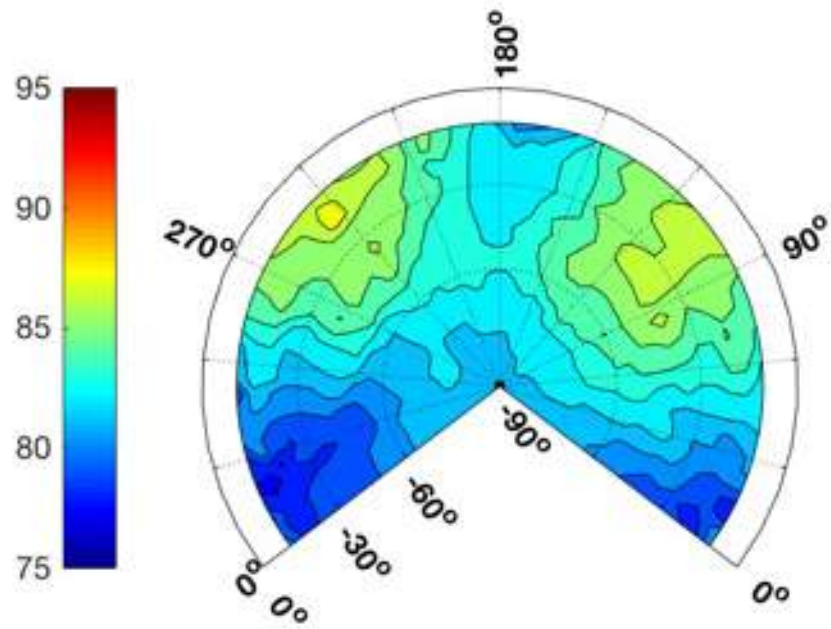


Figure 28: R44, 227163, D29, dBA hemisphere, ground speed 82.0 kts, -10.1° FPA.

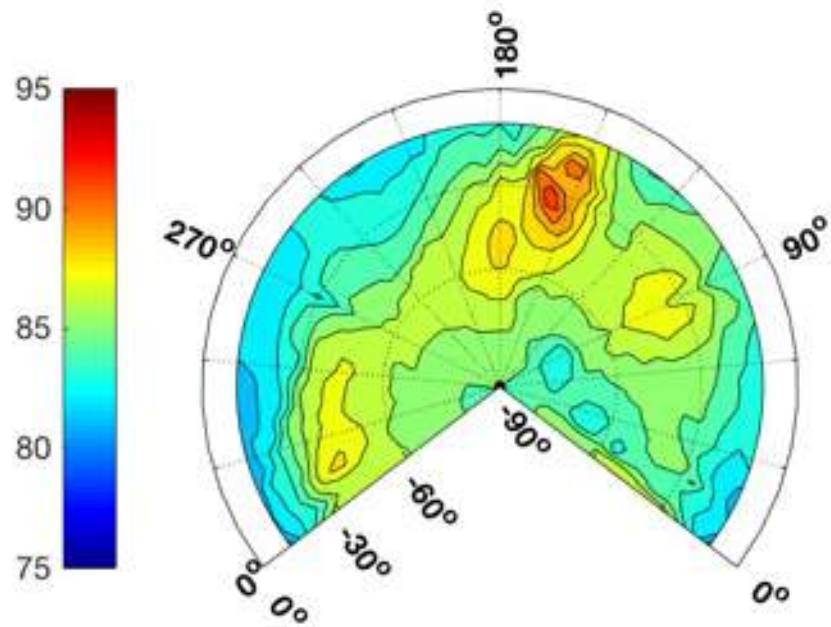


Figure 29: R44, 227164, D2, dBA hemisphere, ground speed 62.2 kts, -3.0° FPA.

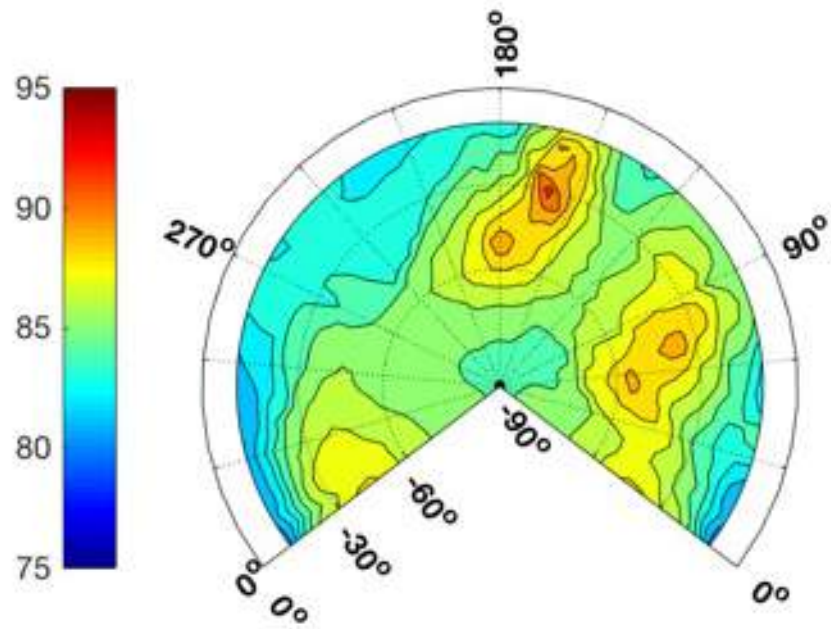


Figure 30: R44, 227165, D2, dBA hemisphere, ground speed 61.5 kts, -3.4° FPA.

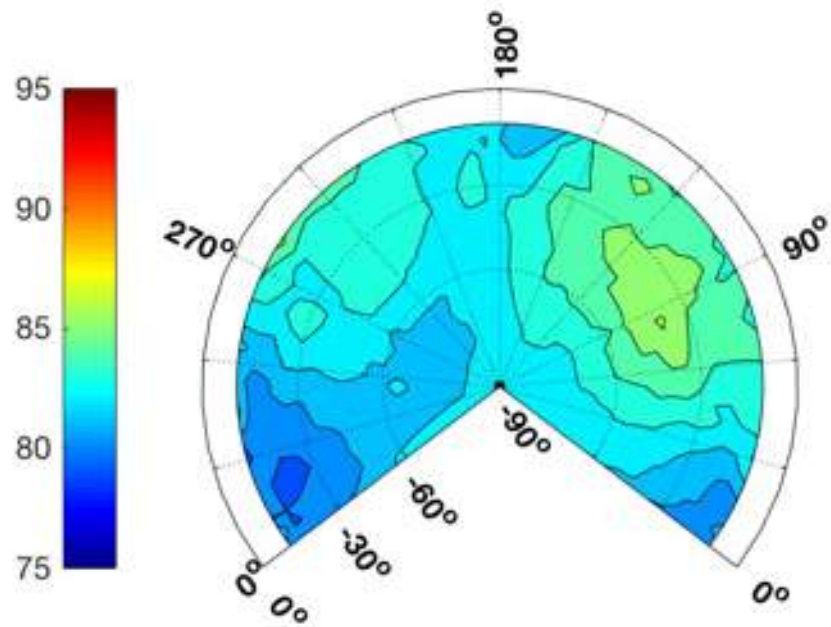


Figure 31: R44, 227166, D12, dBA hemisphere, ground speed 63.0 kts, -6.0° FPA.

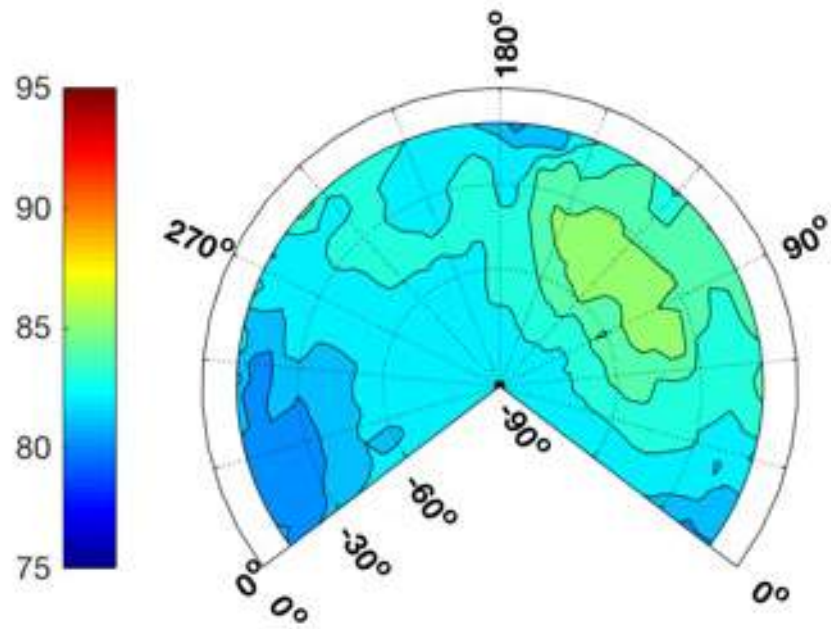


Figure 32: R44, 227167, D12, dBA hemisphere, ground speed 63.8 kts, -6.2° FPA.

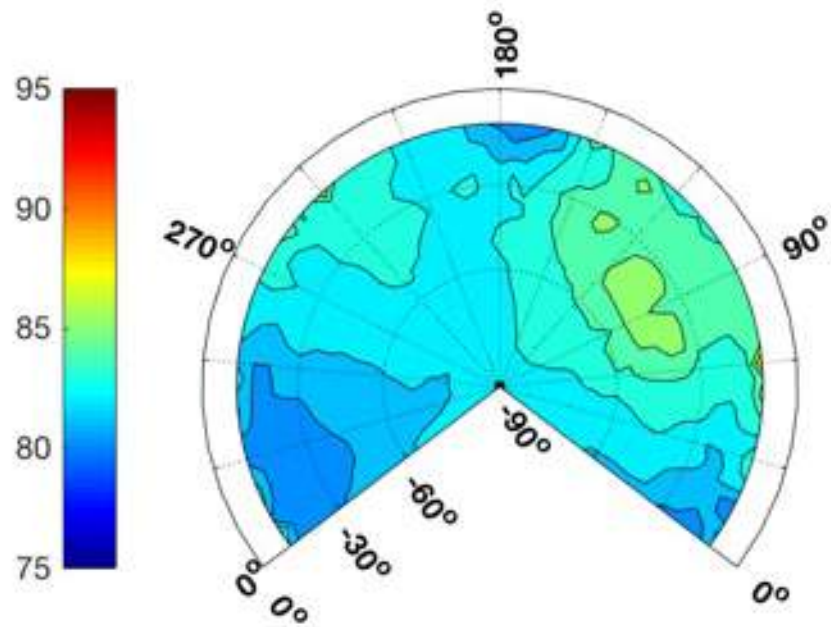


Figure 33: R44, 227168, D12, dBA hemisphere, ground speed 62.8 kts, -6.3° FPA.

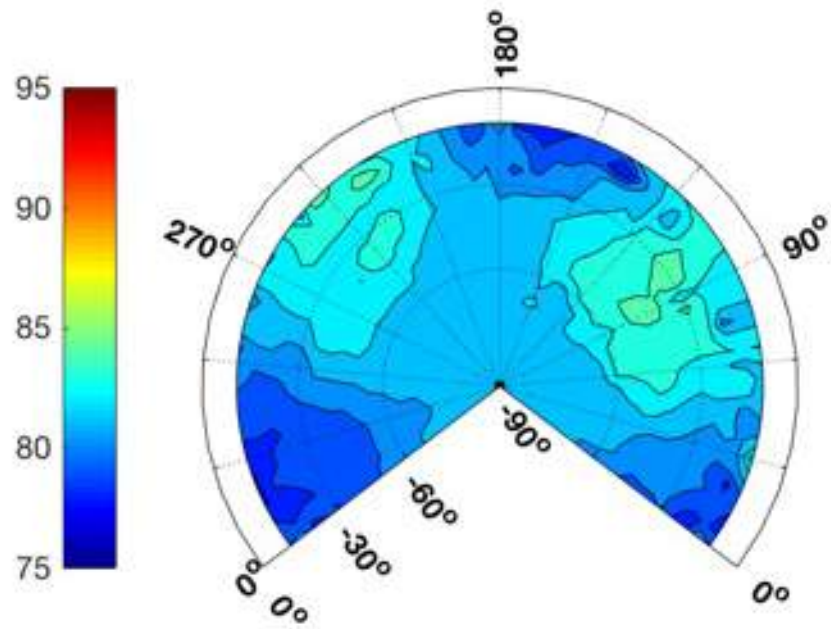


Figure 34: R44, 227169, D22, dBA hemisphere, ground speed 64.3 kts, -9.2° FPA.

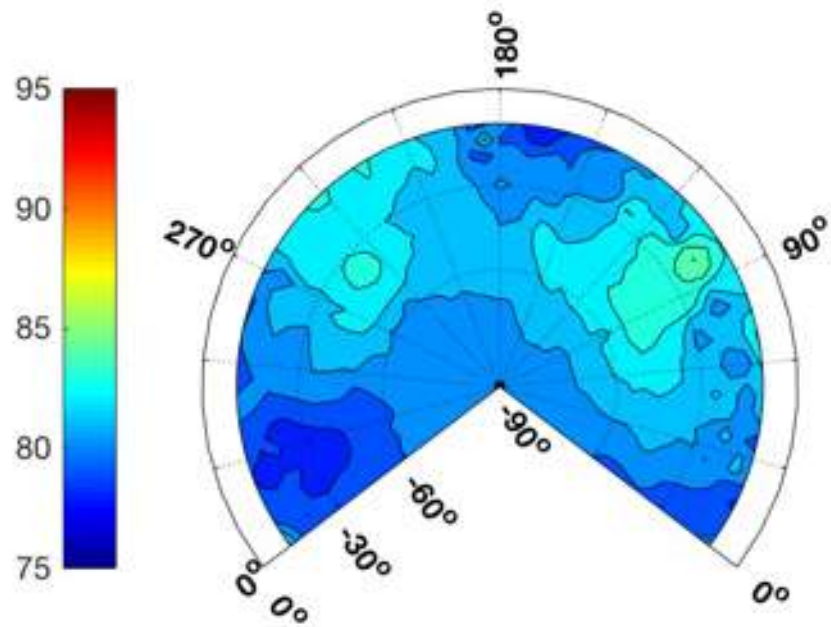


Figure 35: R44, 227170, D22, dBA hemisphere, ground speed 64.5 kts, -9.2° FPA.

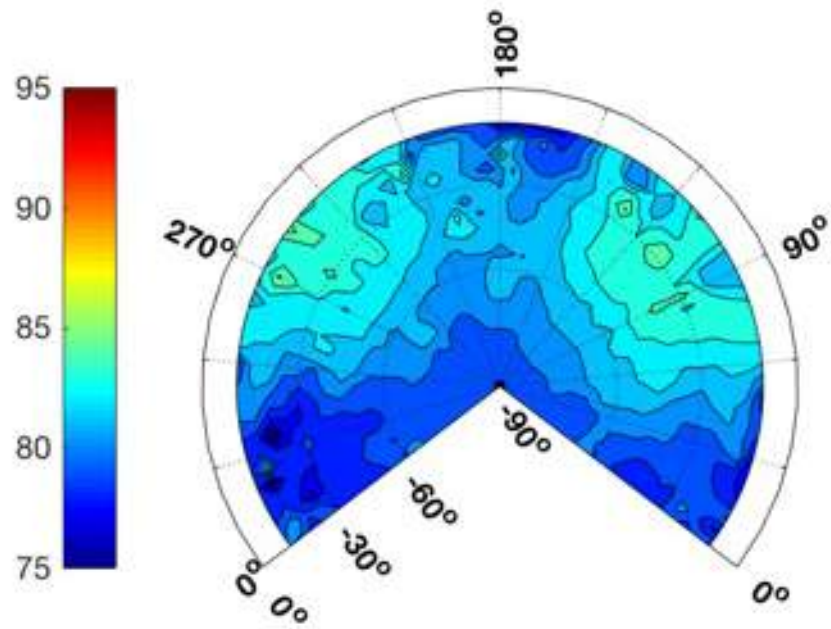


Figure 36: R44, 227171, D27, dBA hemisphere, ground speed 64.9 kts, -10.5° FPA.

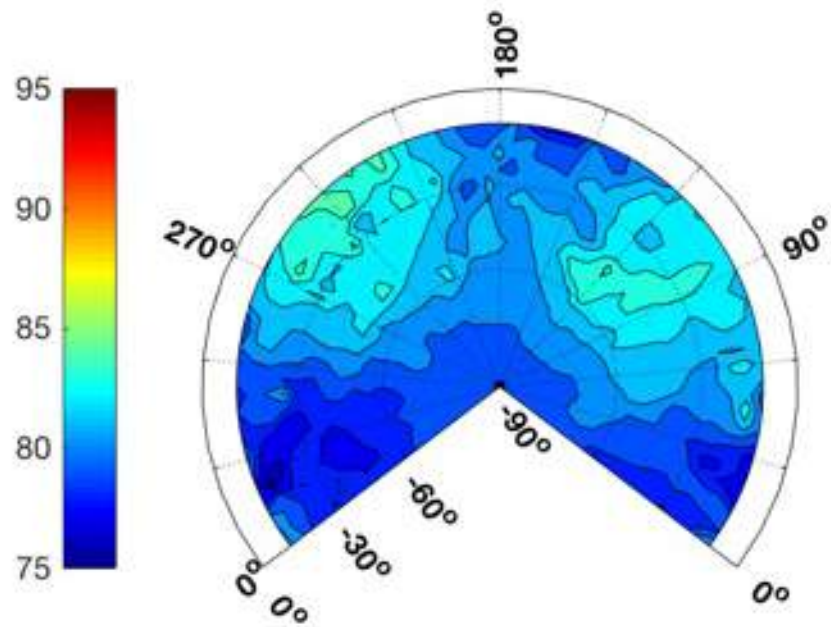


Figure 37: R44, 227172, D27, dBA hemisphere, ground speed 64.6 kts, -10.6° FPA.

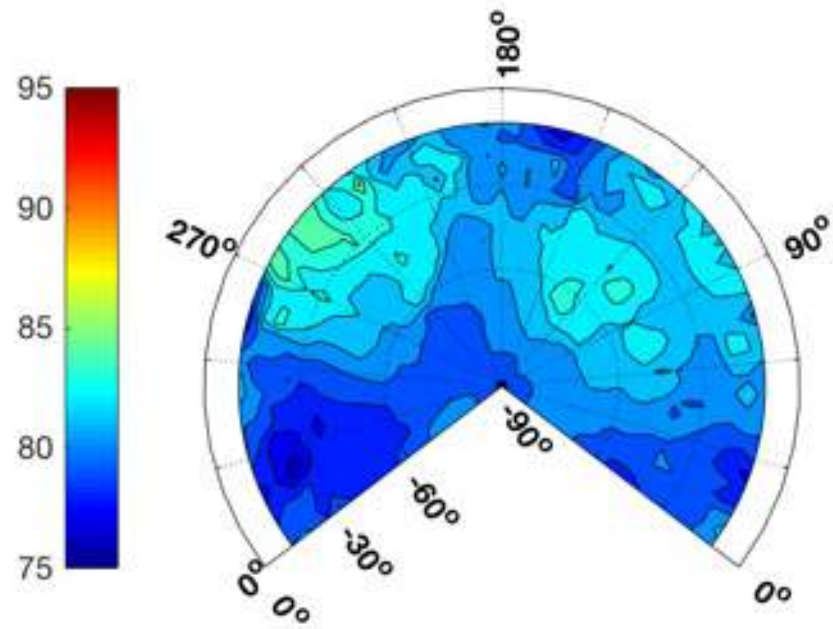


Figure 38: R44, 227173, D30, dBA hemisphere, ground speed 64.7 kts, -11.6° FPA.

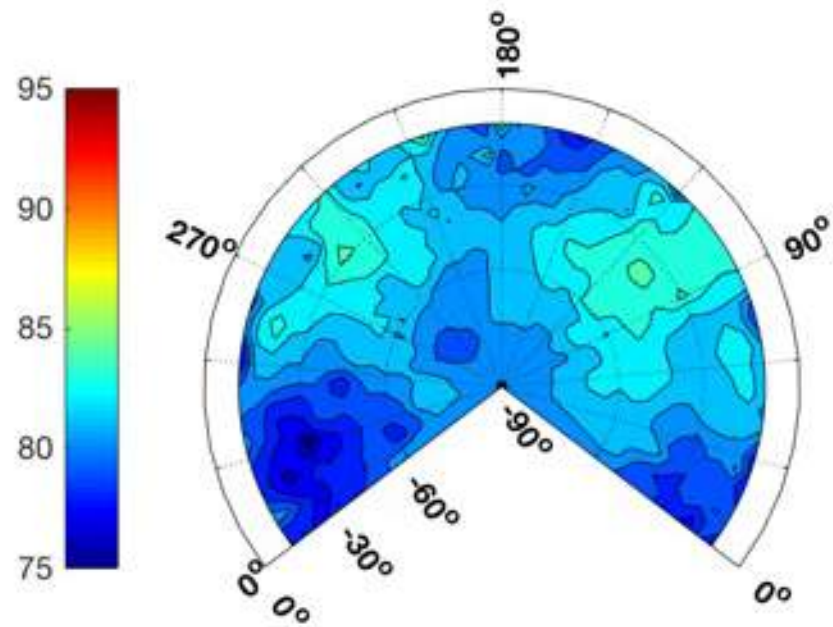


Figure 39: R44, 227174, D30, dBA hemisphere, ground speed 64.0 kts, -11.6° FPA.

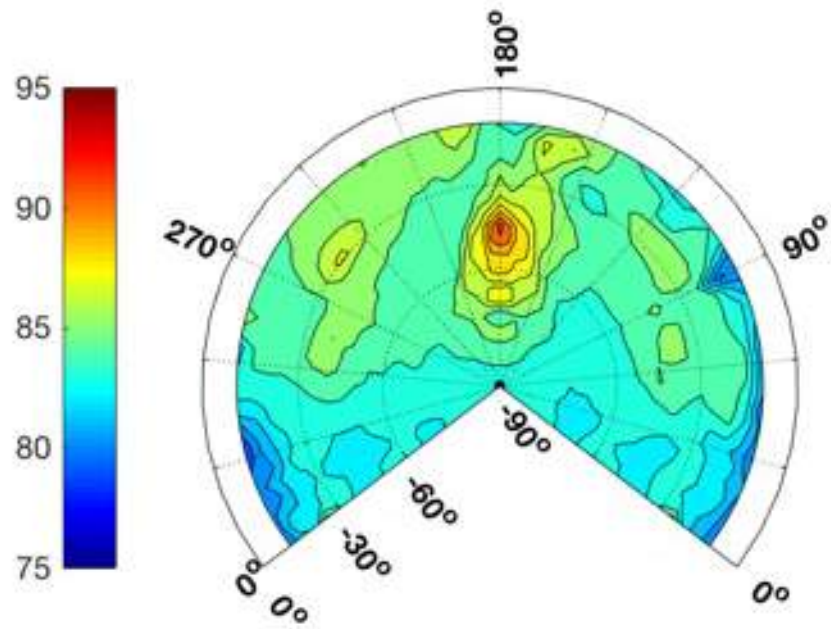


Figure 40: R44, 227176, D6, dBA hemisphere, ground speed 103.1 kts, -2.8° FPA.

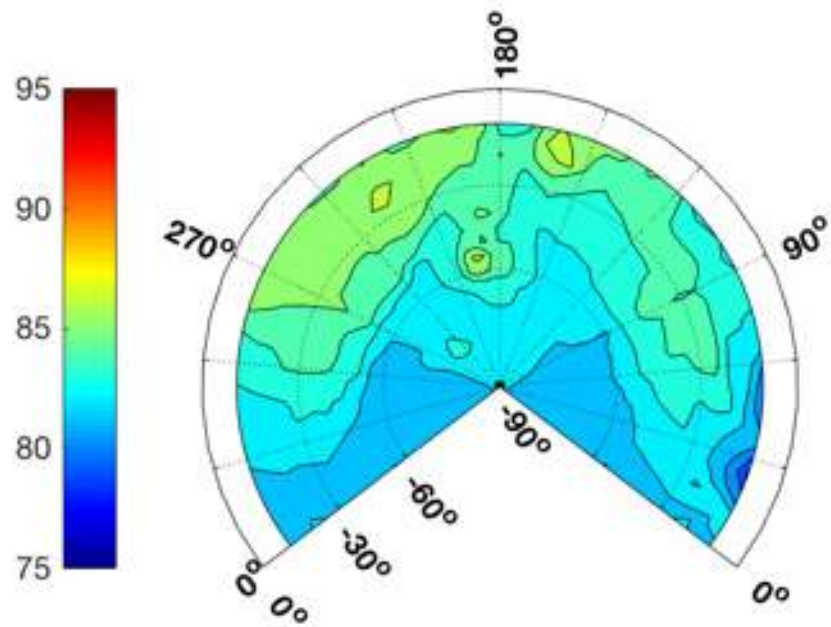


Figure 41: R44, 227177, D6, dBA hemisphere, ground speed 102.9 kts, -2.7° FPA.

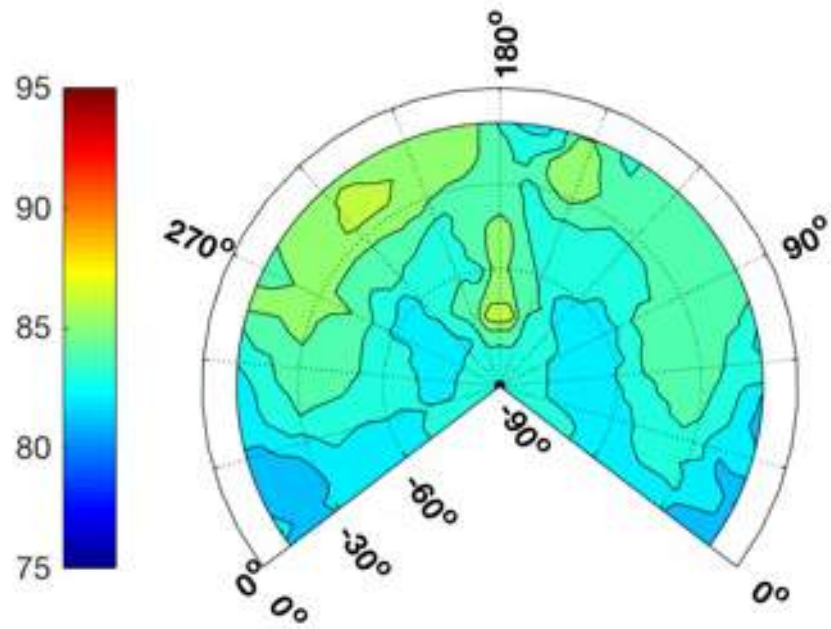


Figure 42: R44, 227178, D6, dBA hemisphere, ground speed 104.2 kts, -2.7° FPA.

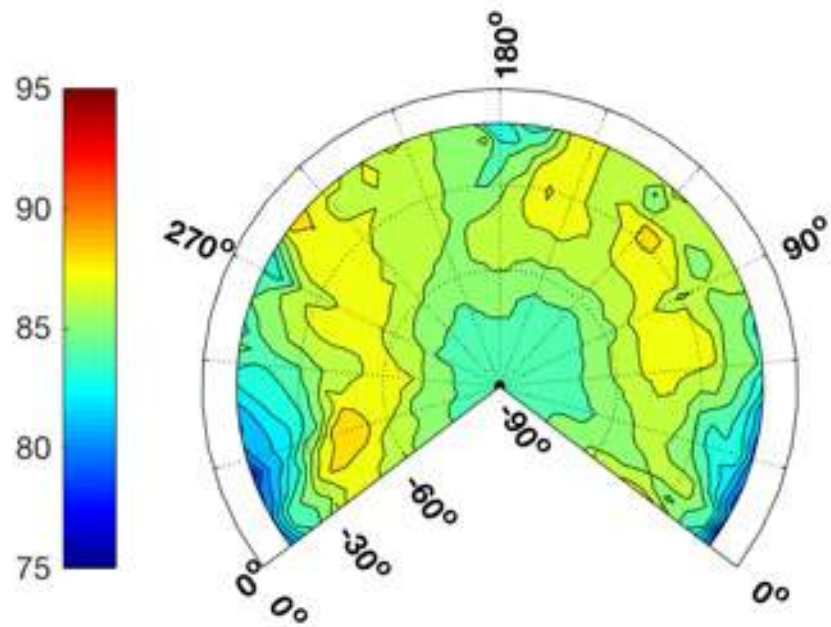


Figure 43: R44, 227179, D16, dBA hemisphere, ground speed 106.5 kts, -5.6° FPA.

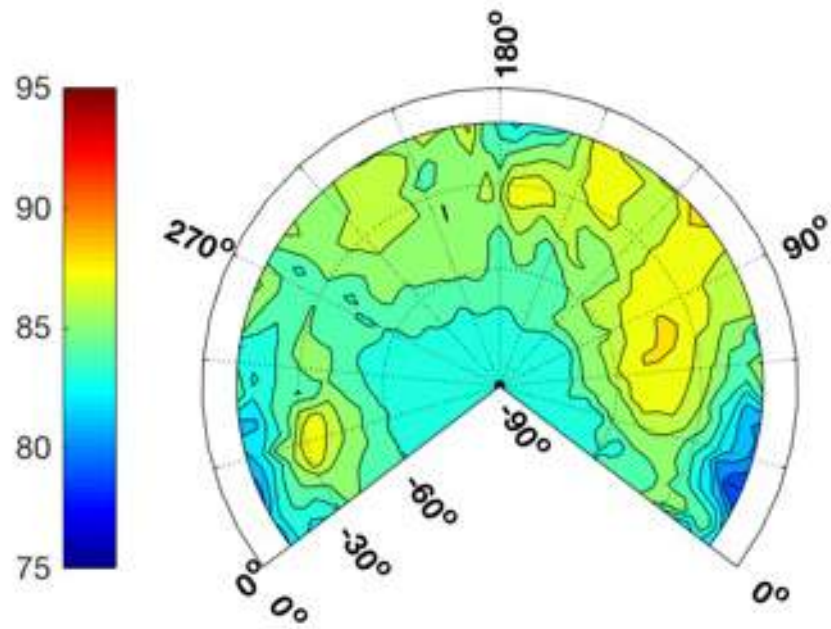


Figure 44: R44, 227180, D16, dBA hemisphere, ground speed 101.5 kts, -5.9° FPA.

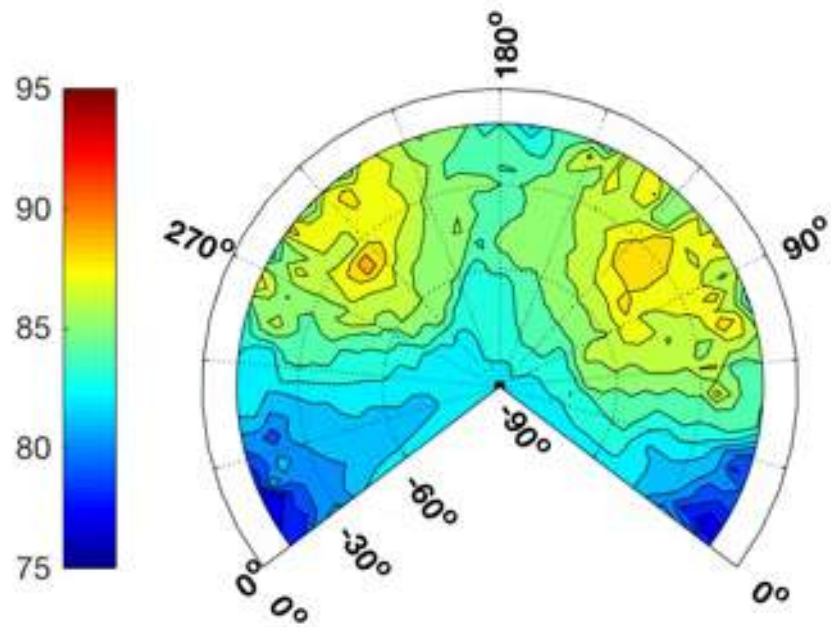


Figure 45: R44, 228245, D26, dBA hemisphere, ground speed 101.7 kts, -9.6° FPA.

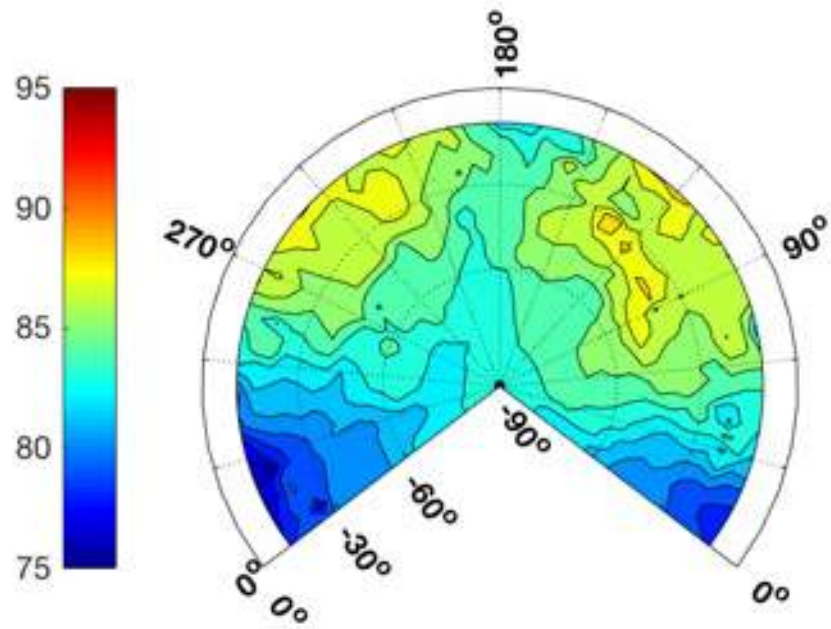


Figure 46: R44, 228246, D26, dBA hemisphere, ground speed 100.1 kts, -9.7° FPA.

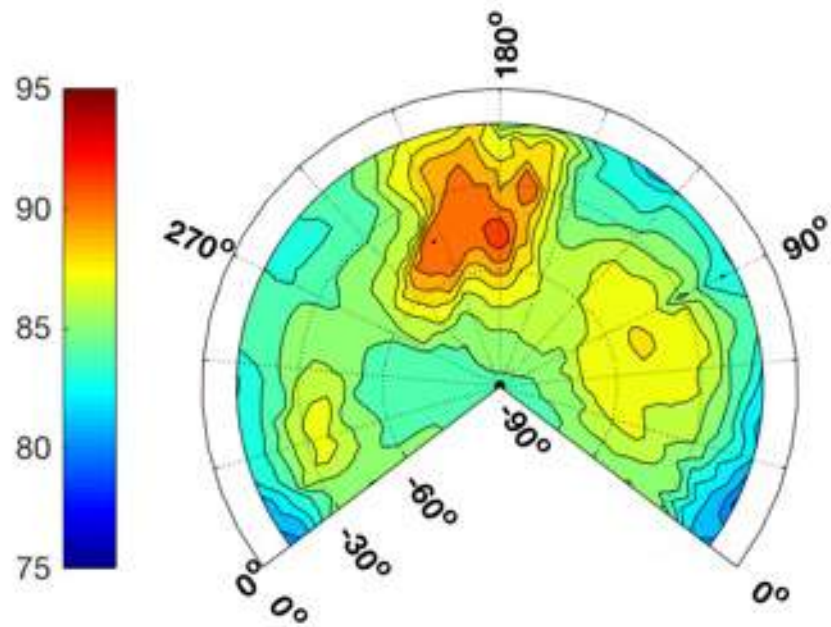


Figure 47: R44, 229351, D33, dBA hemisphere, ground speed 45.7 kts, -3.3° FPA.

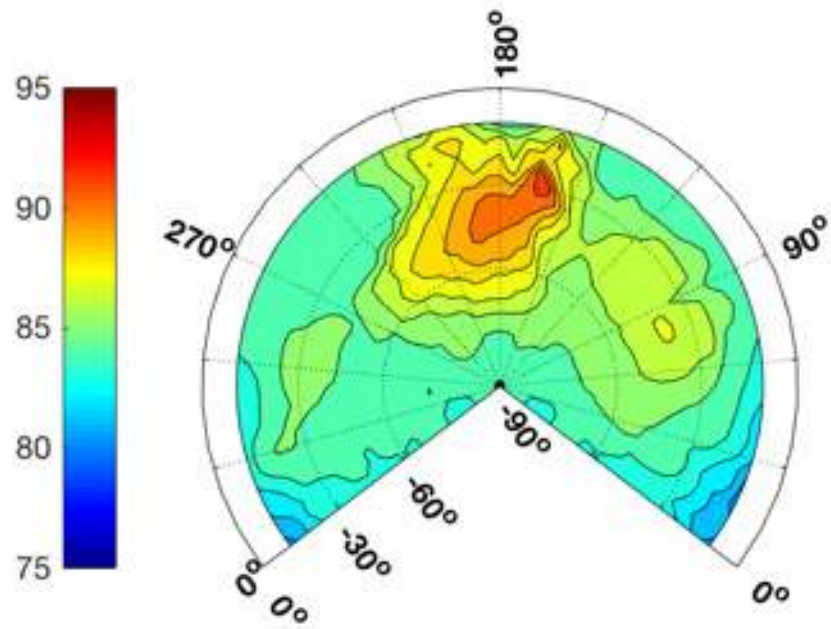


Figure 48: R44, 229352, D33, dBA hemisphere, ground speed 46.1 kts, -2.9° FPA.

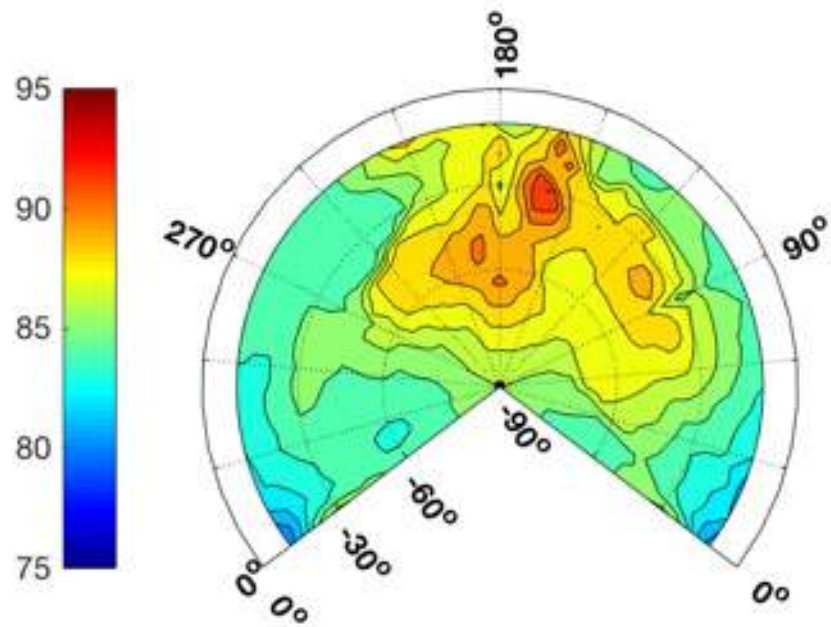


Figure 49: R44, 229353, D33, dBA hemisphere, ground speed 47.5 kts, -3.2° FPA.

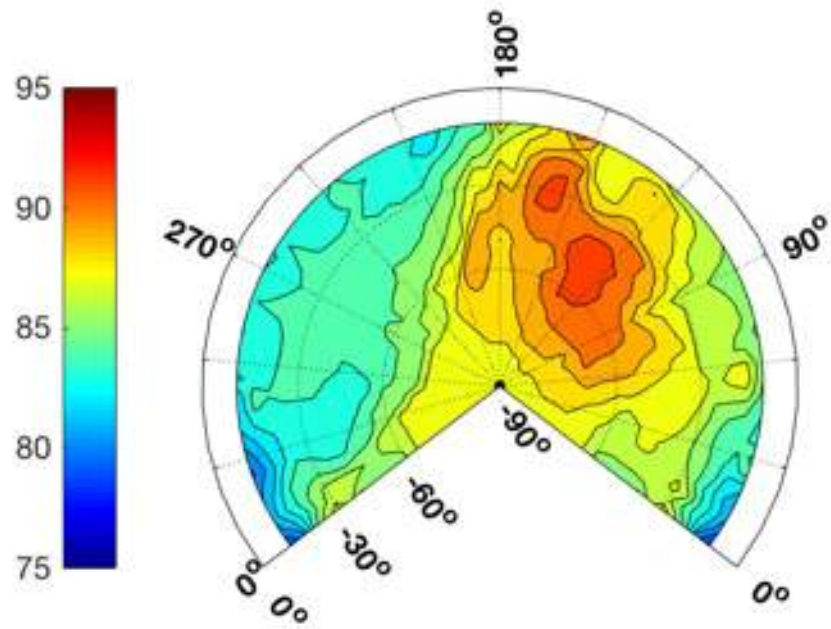


Figure 50: R44, 229358, D34, dBA hemisphere, ground speed 47.5 kts, -4.8° FPA.

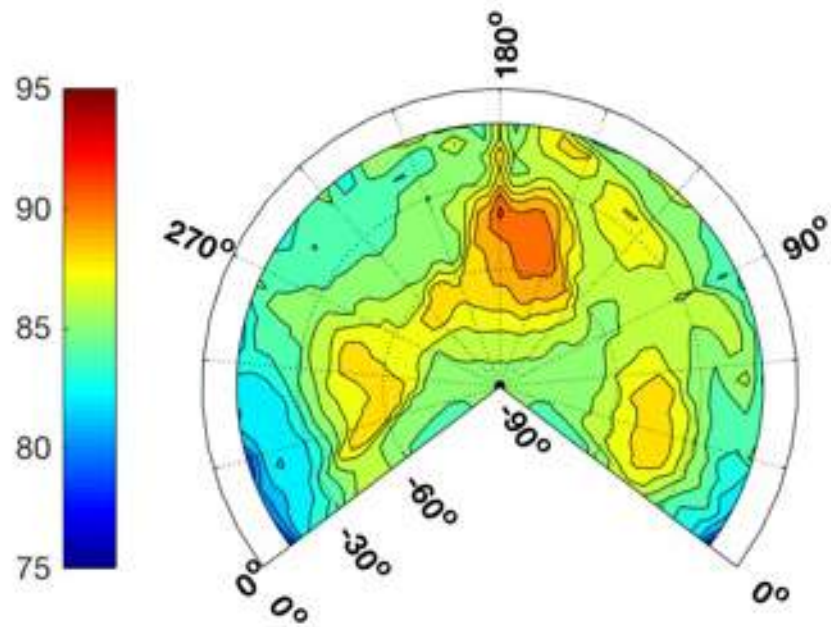


Figure 51: R44, 229359, D34, dBA hemisphere, ground speed 47.6 kts, -4.1° FPA.

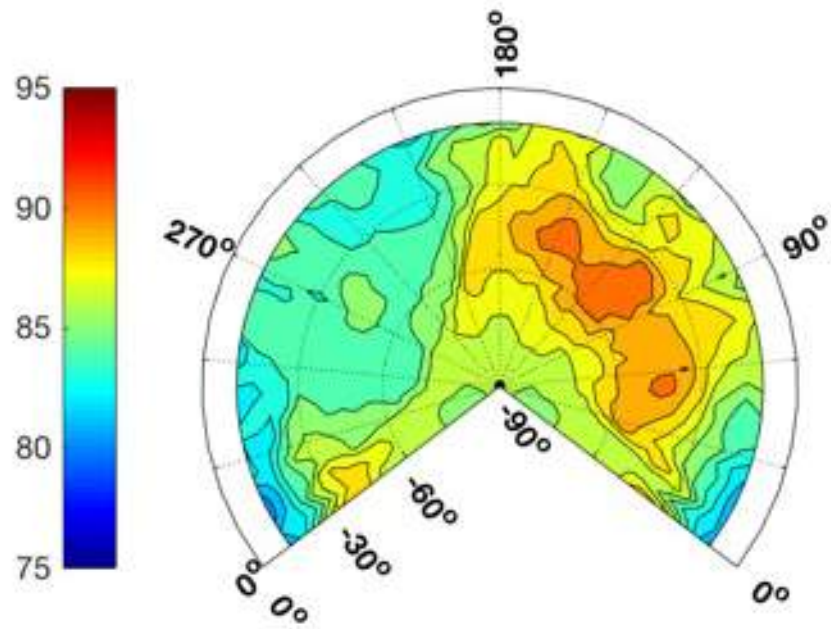


Figure 52: R44, 229360, D34, dBA hemisphere, ground speed 46.7 kts, -4.8° FPA.

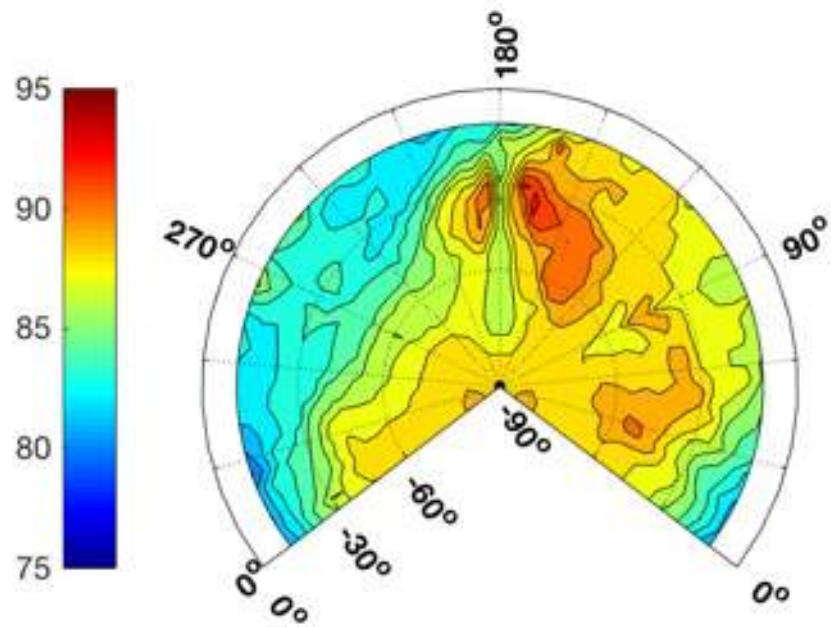


Figure 53: R44, 229366, D35, dBA hemisphere, ground speed 46.5 kts, -6.1° FPA.

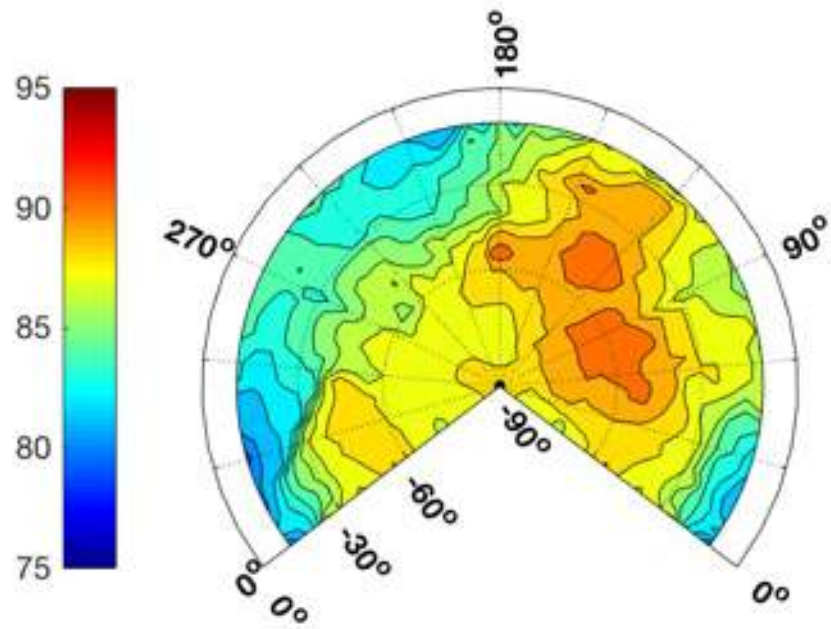


Figure 54: R44, 229367, D35, dBA hemisphere, ground speed 46.3 kts, -6.2° FPA.

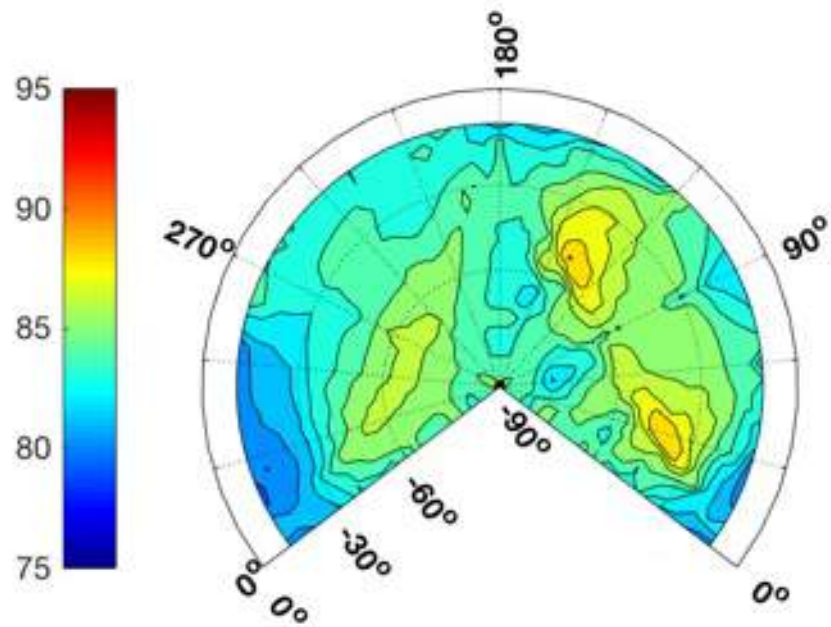


Figure 55: R44, 229373, D3, dBA hemisphere, ground speed 75.1 kts, -3.0° FPA.

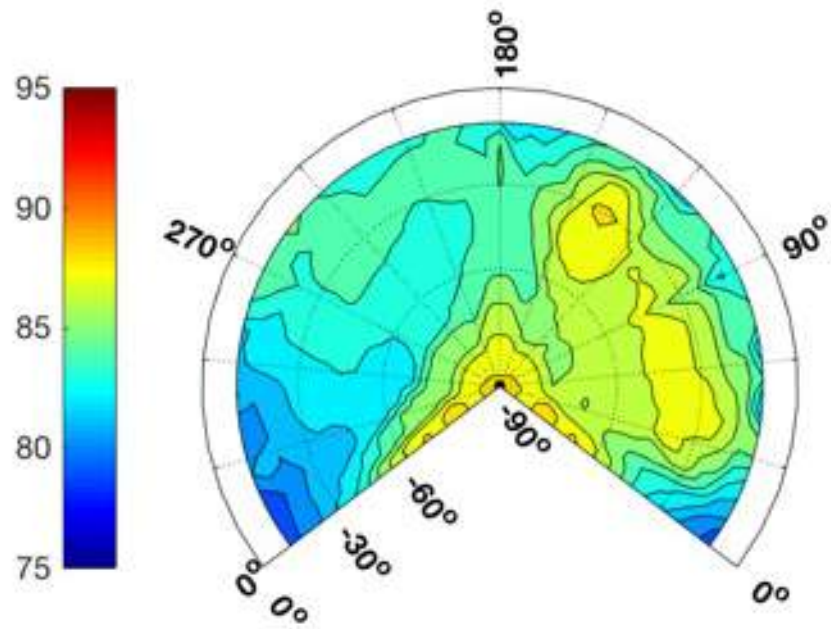


Figure 56: R44, 229374, D3, dBA hemisphere, ground speed 75.6 kts, -2.5° FPA.

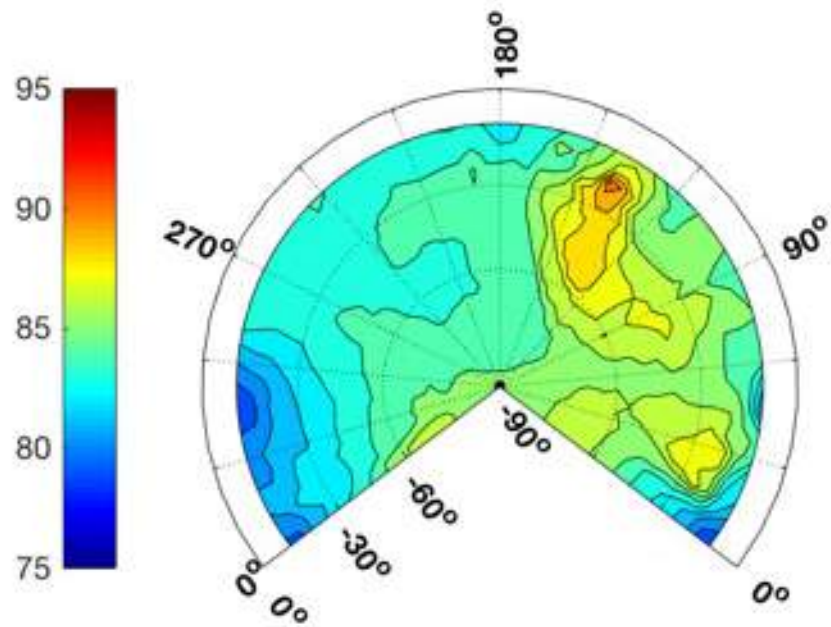


Figure 57: R44, 229375, D3, dBA hemisphere, ground speed 74.7 kts, -3.3° FPA.

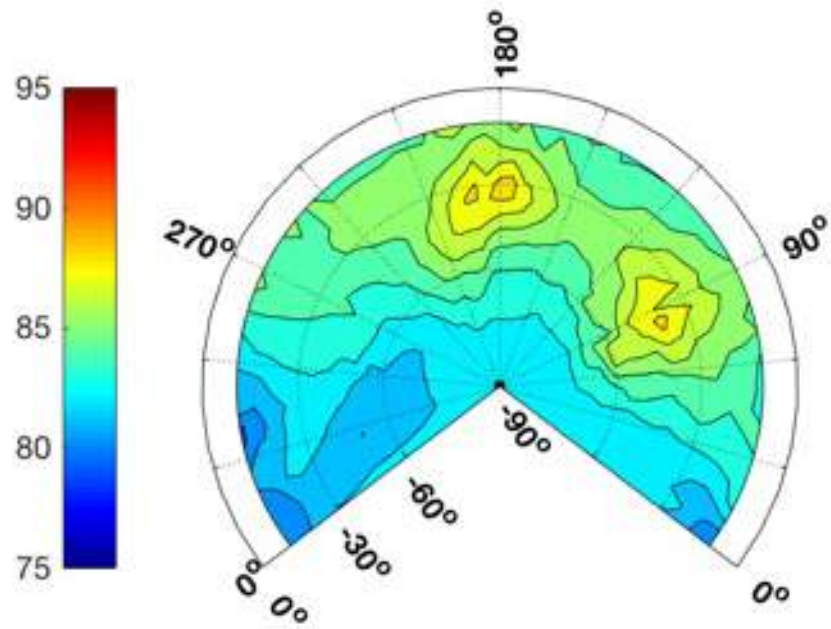


Figure 58: R44, 229376, D5, dBA hemisphere, ground speed 94.5 kts, -3.2° FPA.

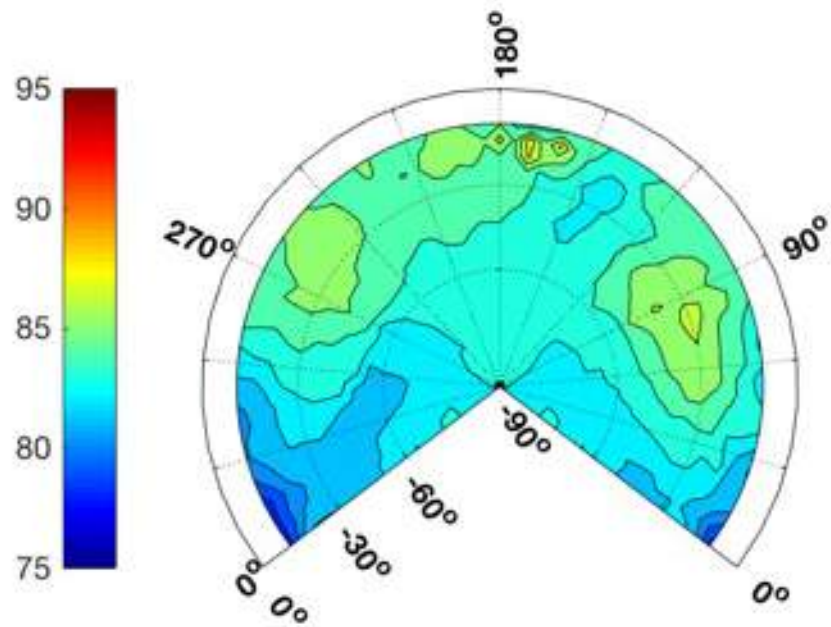


Figure 59: R44, 229377, D5, dBA hemisphere, ground speed 96.3 kts, -3.0° FPA.

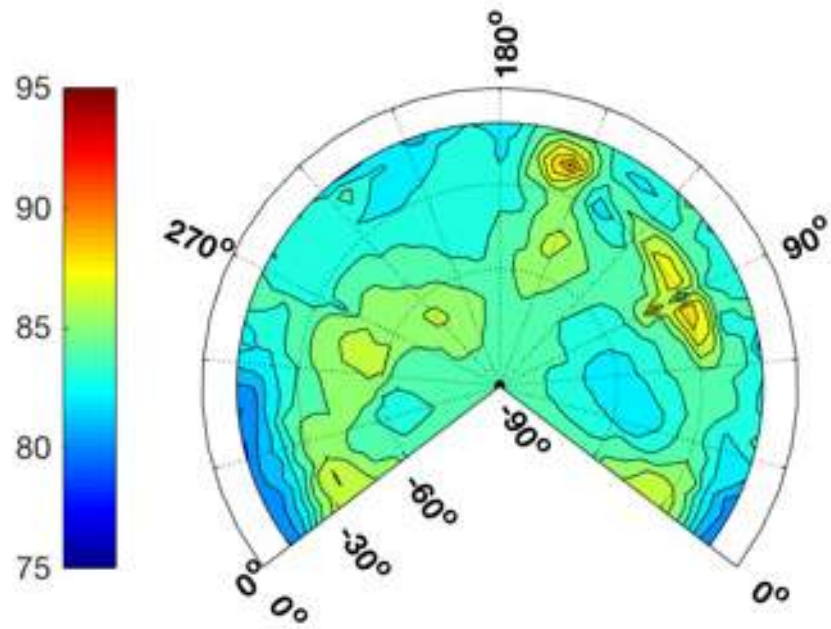


Figure 60: R44, 229378, D7, dBA hemisphere, ground speed 66.6 kts, -4.6° FPA.

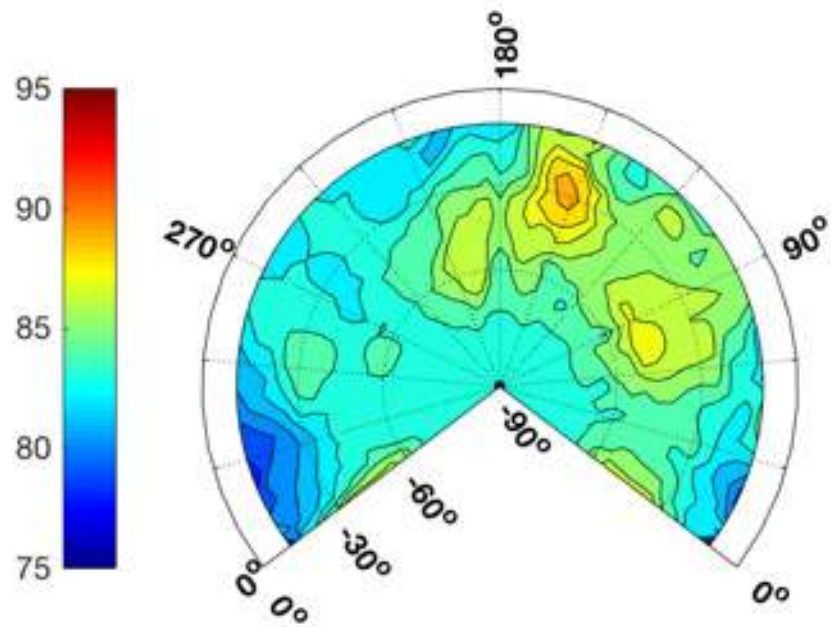


Figure 61: R44, 229379, D7, dBA hemisphere, ground speed 65.6 kts, -4.6° FPA.

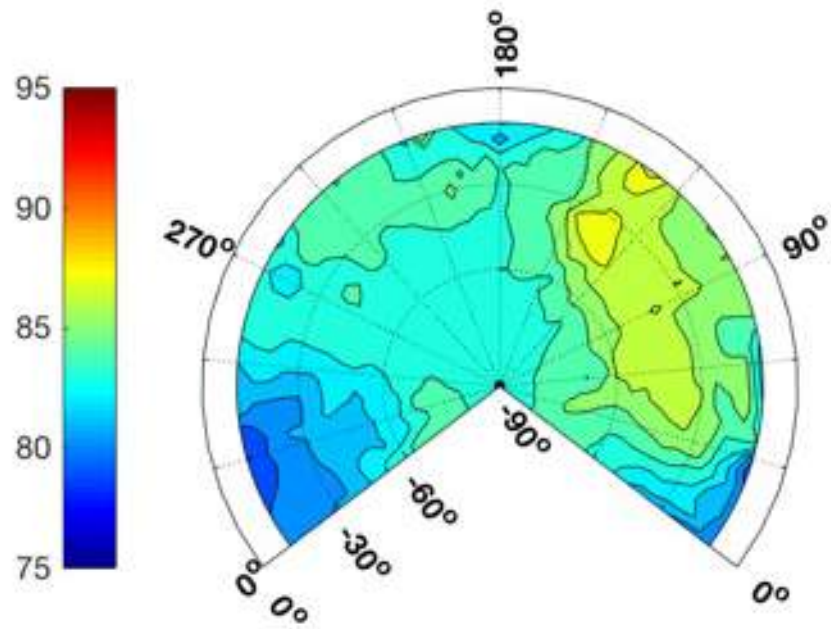


Figure 62: R44, 229380, D8, dBA hemisphere, ground speed 77.9 kts, -4.6° FPA.

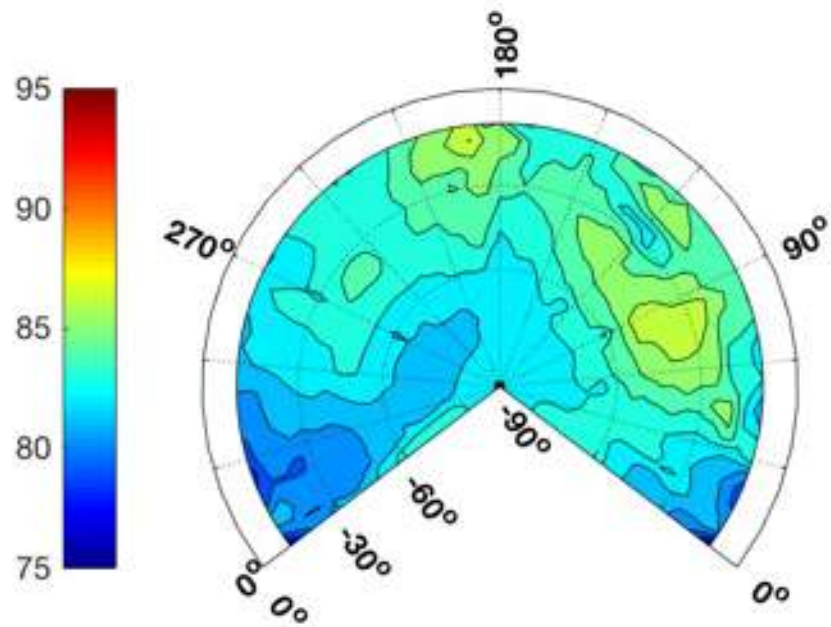


Figure 63: R44, 229381, D8, dBA hemisphere, ground speed 77.5 kts, -4.2° FPA.

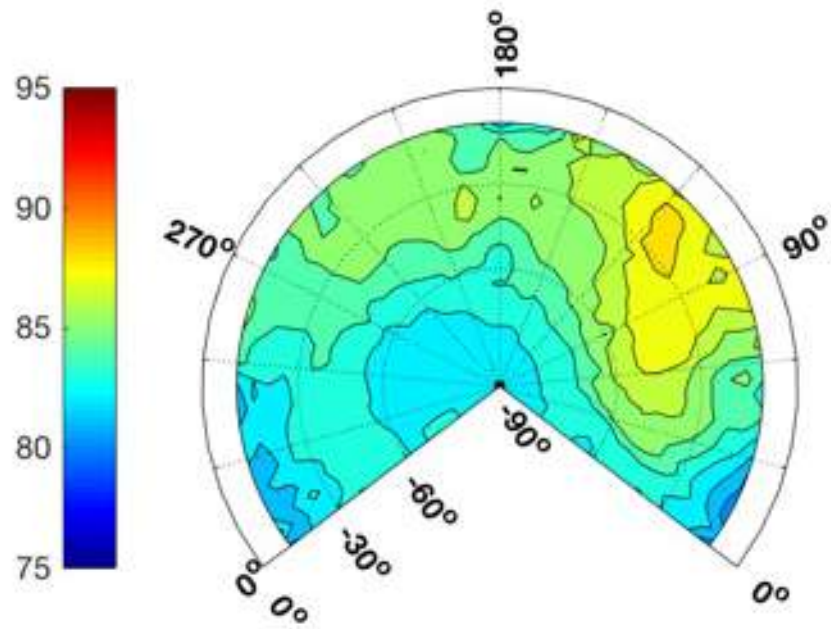


Figure 64: R44, 229384, D10, dBA hemisphere, ground speed 93.3 kts, -4.9° FPA.

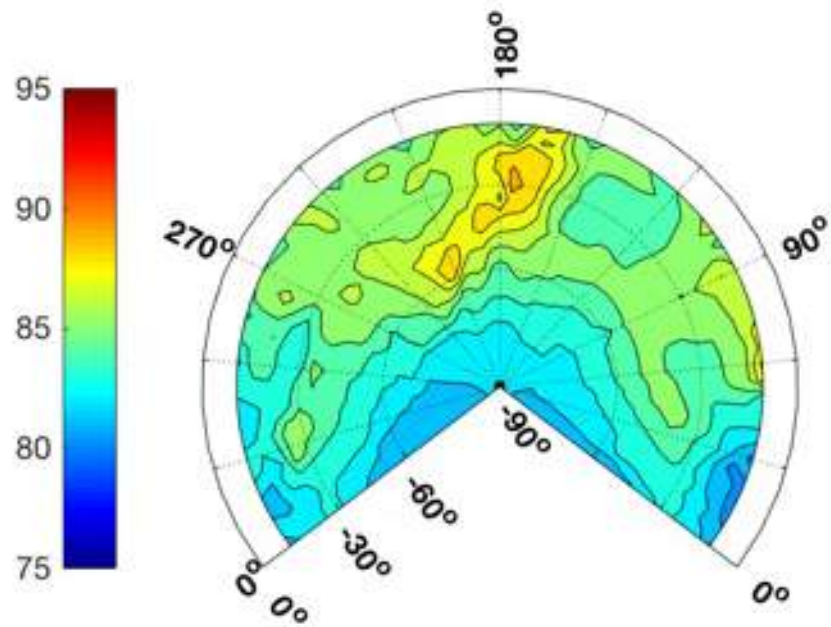


Figure 65: R44, 229385, D10, dBA hemisphere, ground speed 95.1 kts, -4.1° FPA.

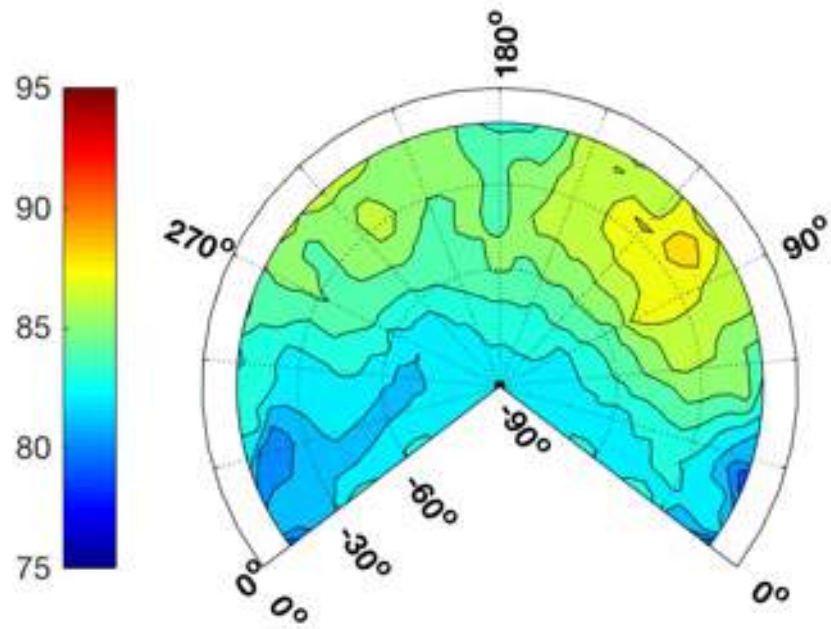


Figure 66: R44, 229386, D10, dBA hemisphere, ground speed 94.8 kts, -4.6° FPA.

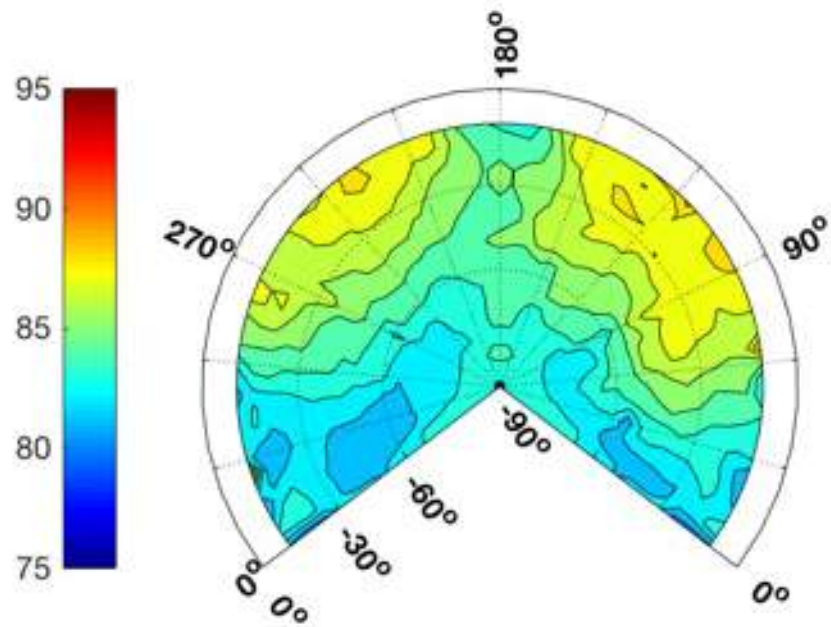


Figure 67: R44, 229387, D11, dBA hemisphere, ground speed 103.5 kts, -4.8° FPA.

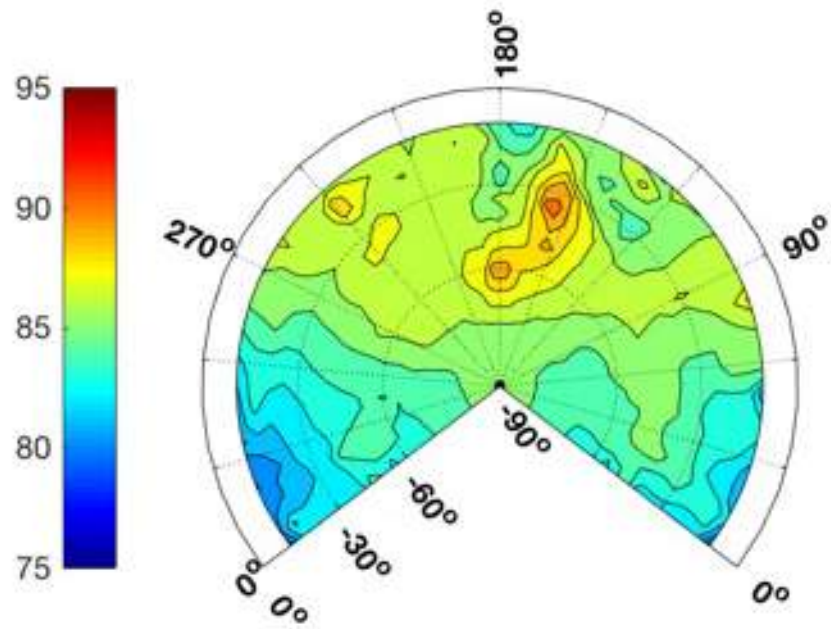


Figure 68: R44, 229388, D11, dBA hemisphere, ground speed 105.7 kts, -4.2° FPA.

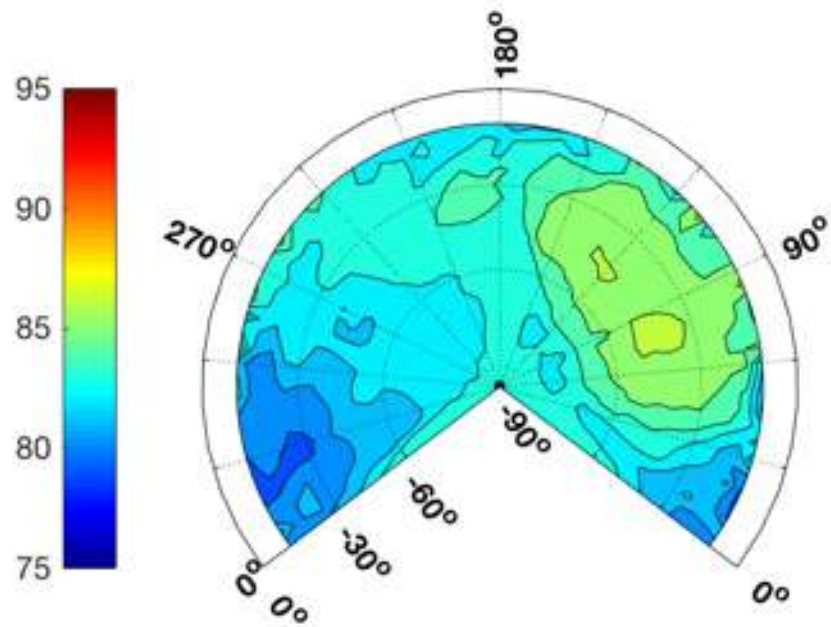


Figure 69: R44, 229389, D13, dBA hemisphere, ground speed 77.1 kts, -5.9° FPA.

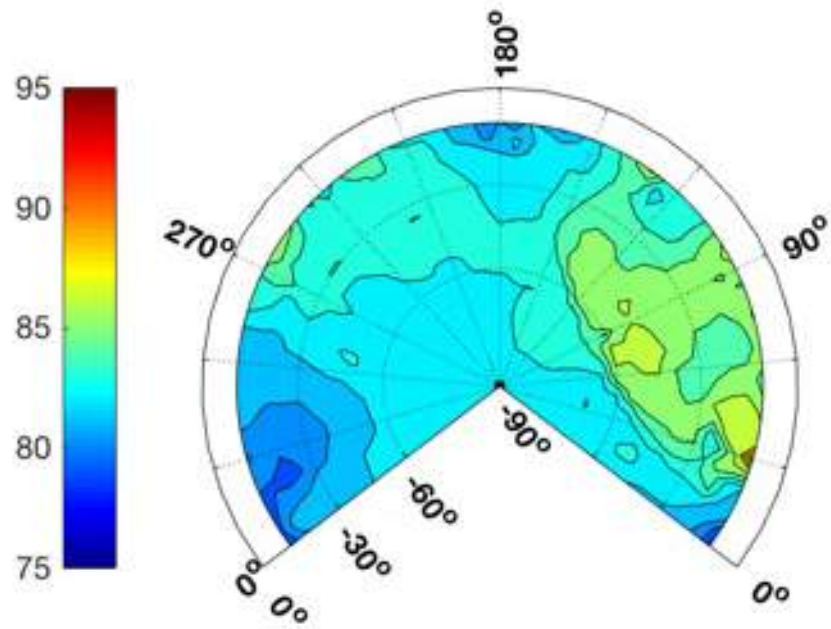


Figure 70: R44, 229390, D13, dBA hemisphere, ground speed 75.3 kts, -6.6° FPA.

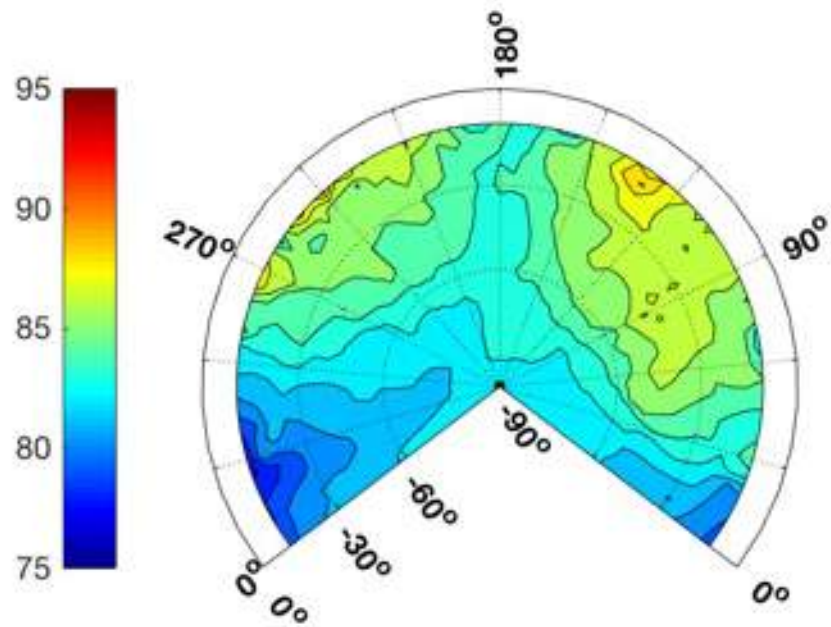


Figure 71: R44, 229391, D15, dBA hemisphere, ground speed 97.1 kts, -5.7° FPA.

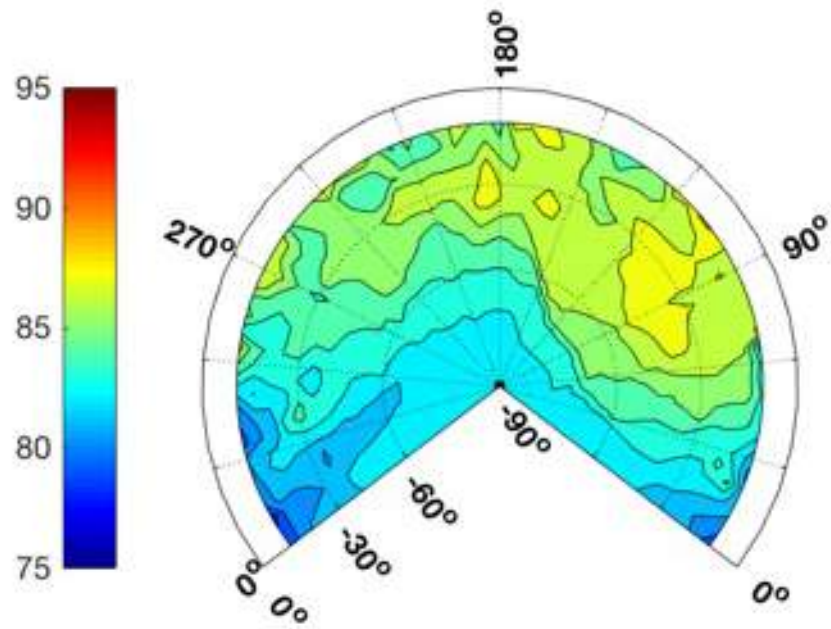


Figure 72: R44, 229392, D15, dBA hemisphere, ground speed 95.7 kts, -5.6° FPA.

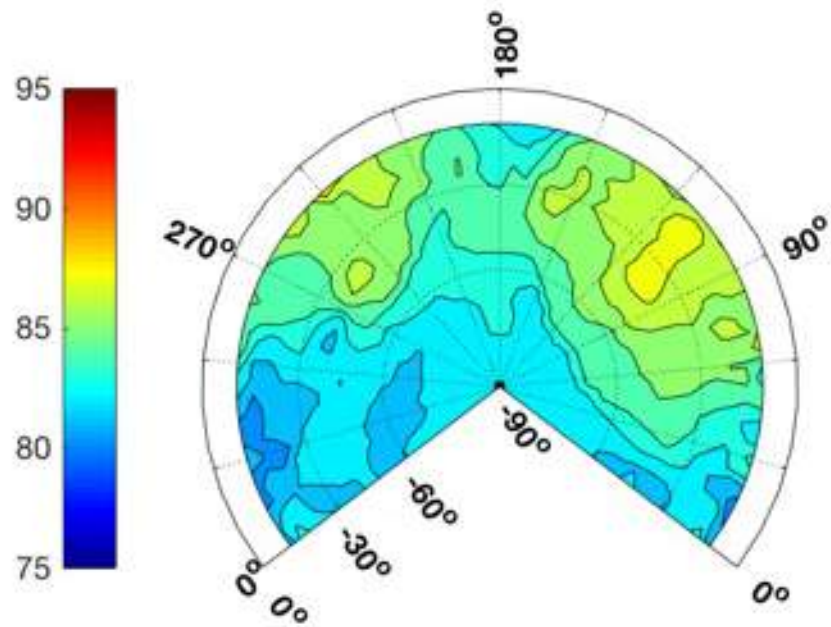


Figure 73: R44, 229393, D15, dBA hemisphere, ground speed 92.4 kts, -6.5° FPA.

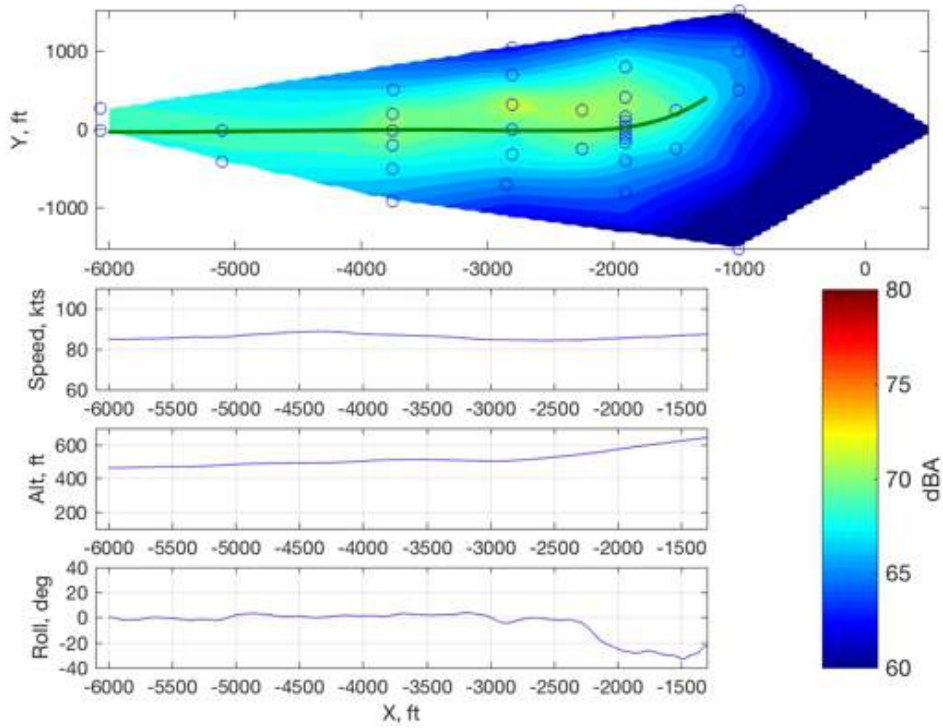


Figure 74: R44, 228273, F17, maximum dBA contour.

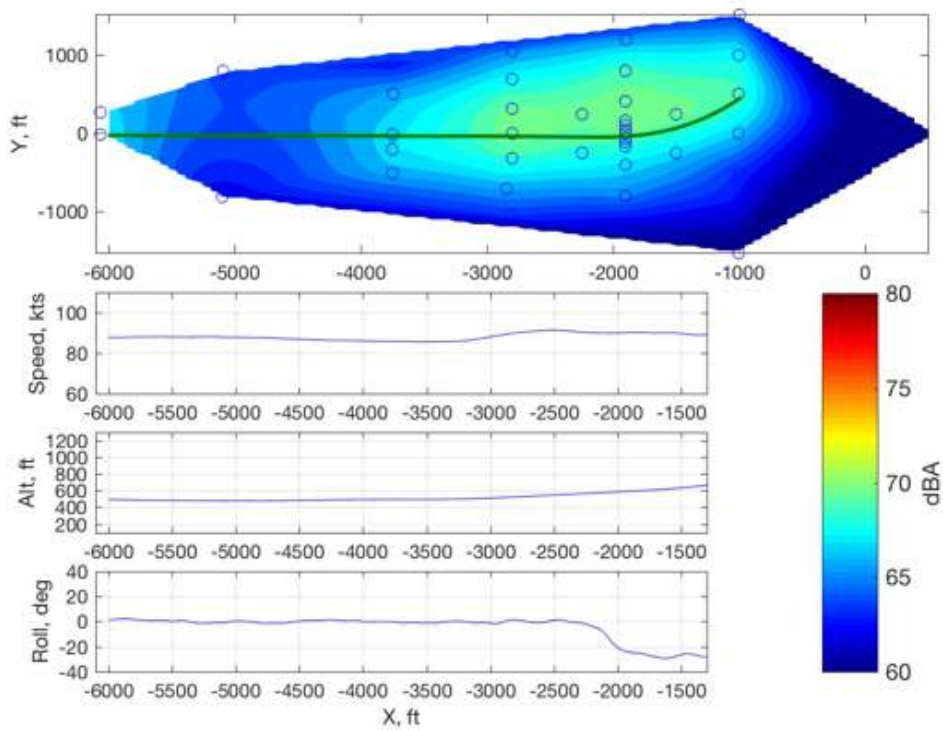


Figure 75: R44, 228274, F17, maximum dBA contour.

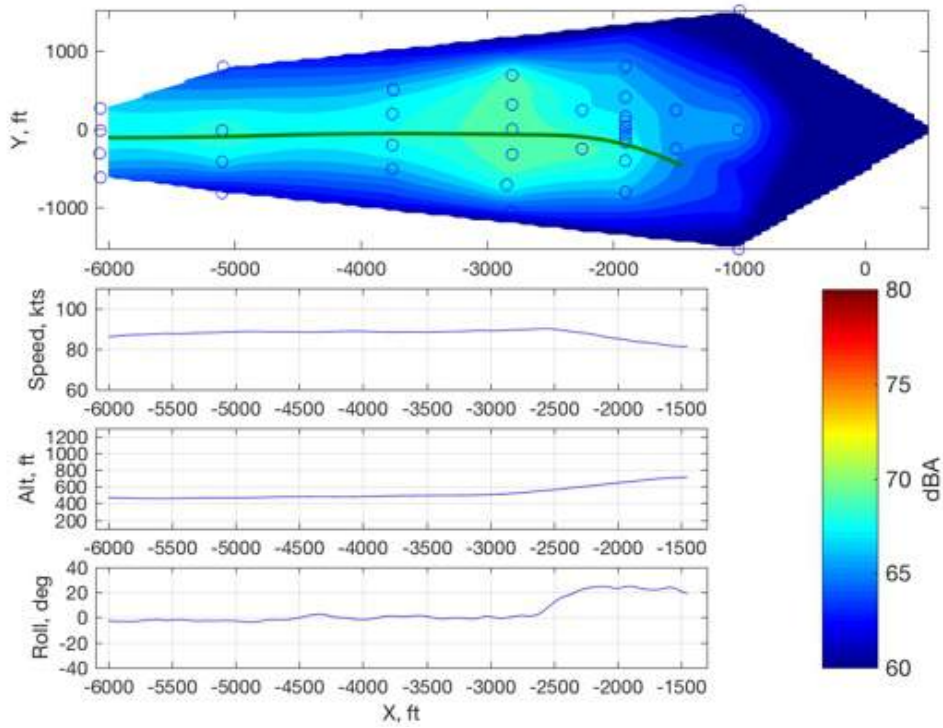


Figure 76: R44, 228275, F18, maximum dBA contour.

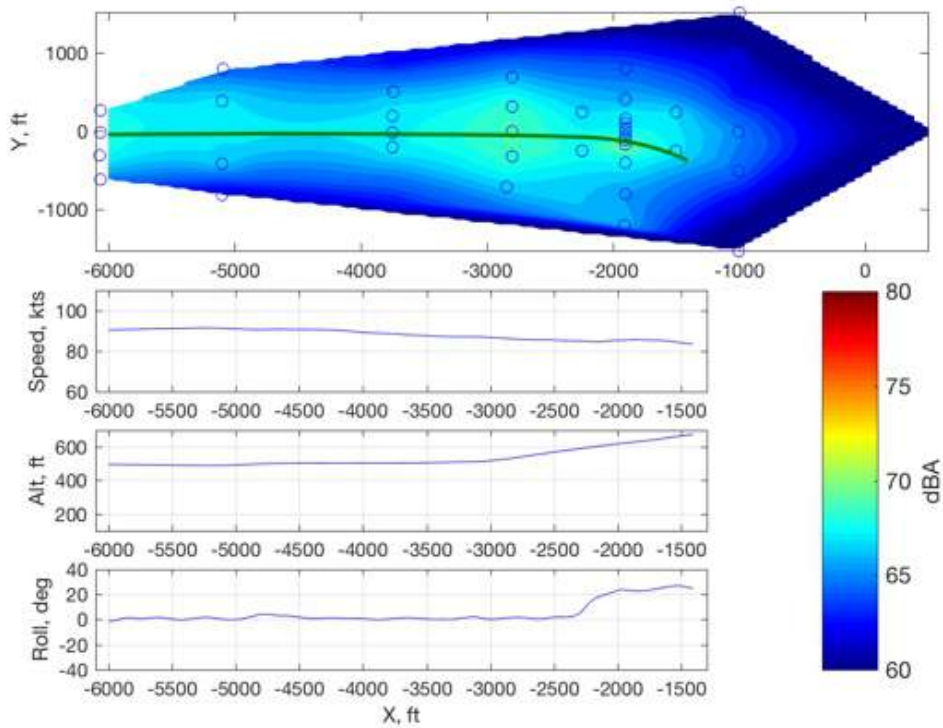


Figure 77: R44, 228276, F18, maximum dBA contour.

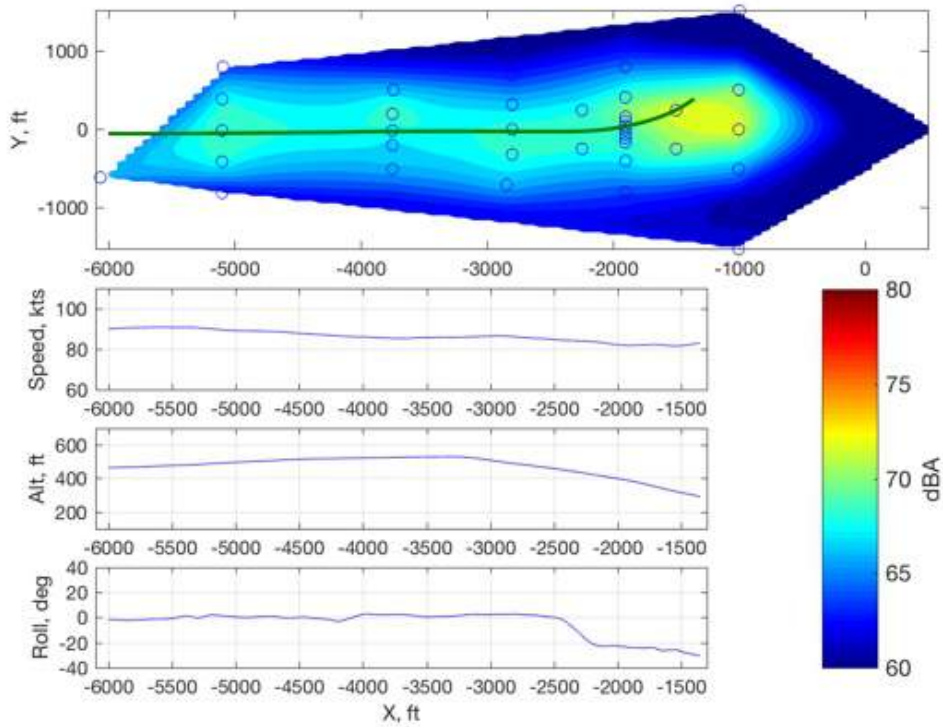


Figure 78: R44, 228277, F19, maximum dBA contour.

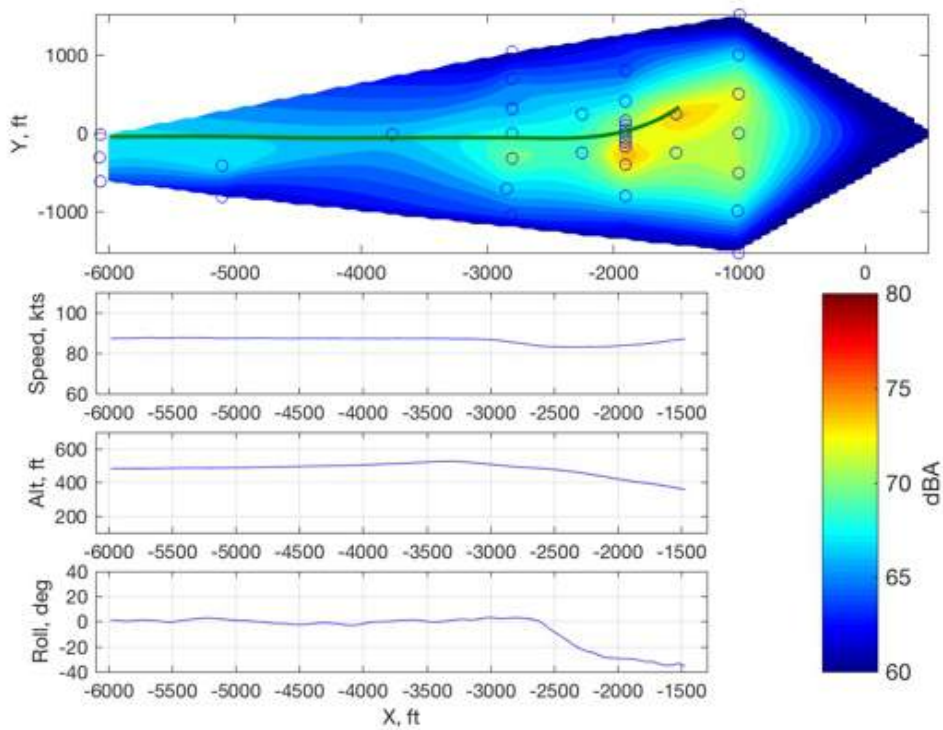


Figure 79: R44, 228278, F19, maximum dBA contour.

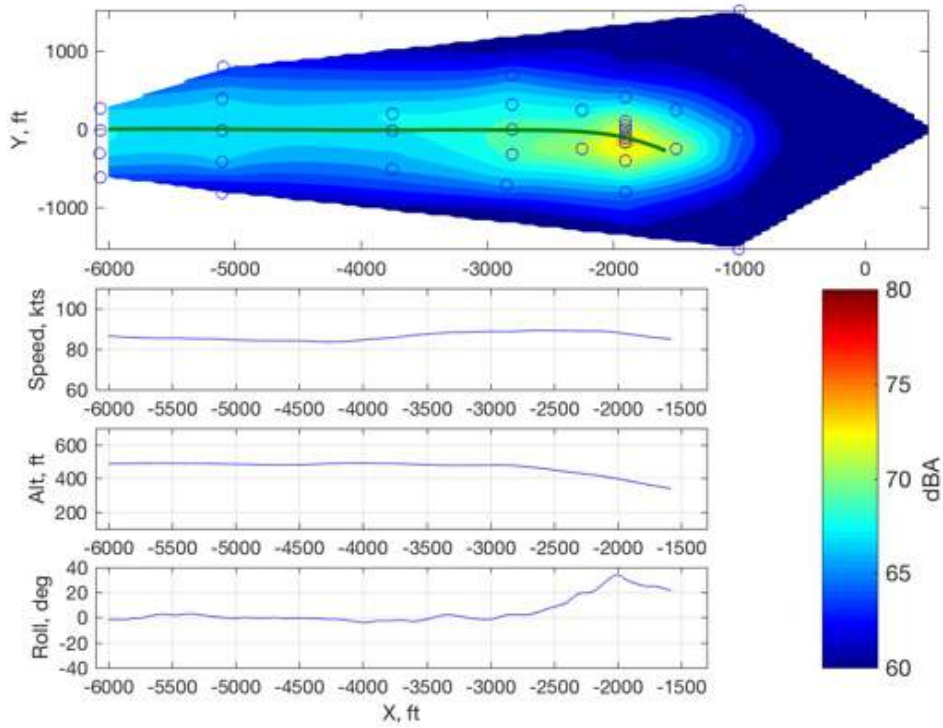


Figure 80: R44, 228279, F20, maximum dBA contour.

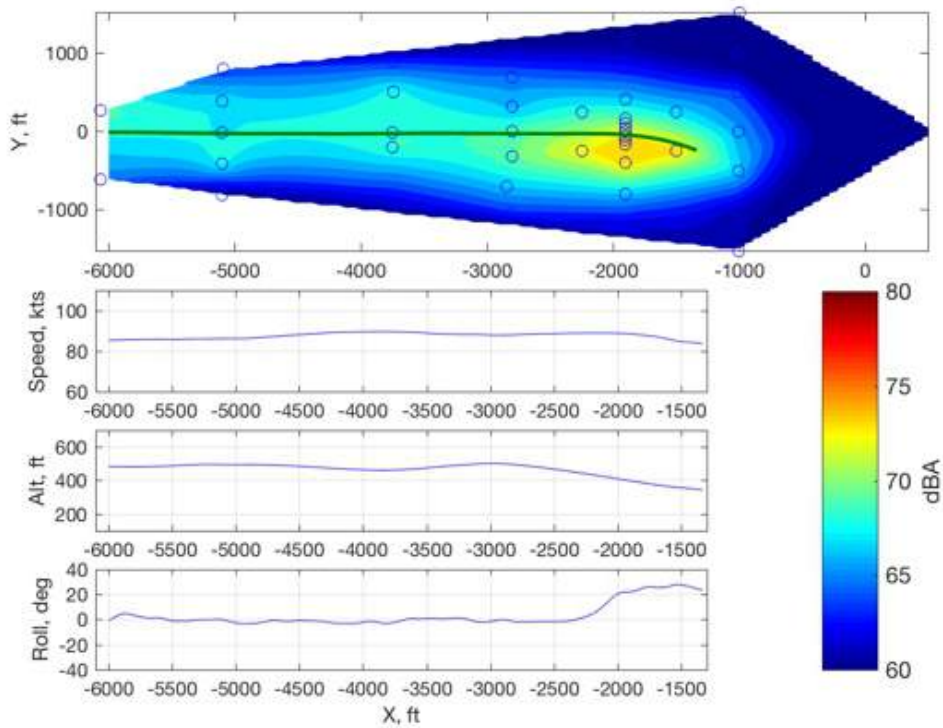


Figure 81: R44, 228280, F20, maximum dBA contour.

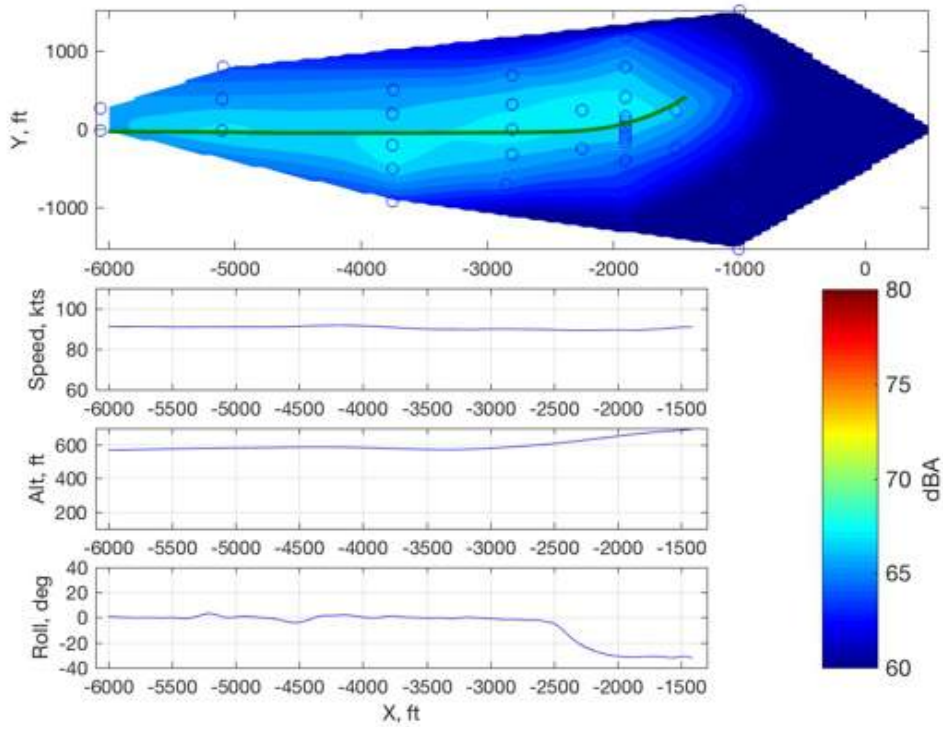


Figure 82: R44, 228236, F21, maximum dBA contour.

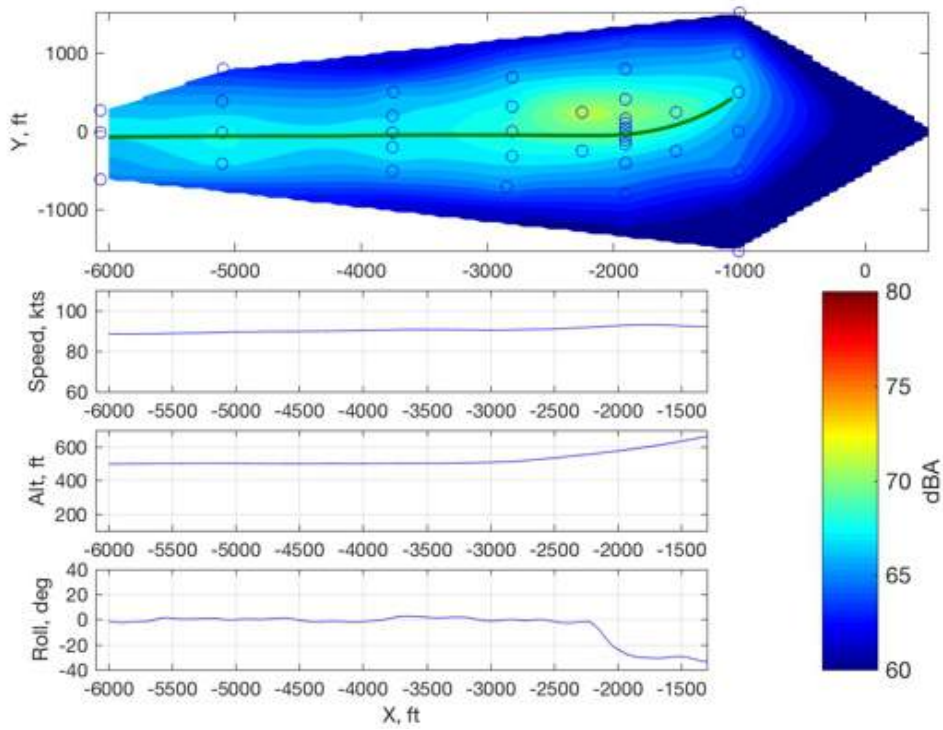


Figure 83: R44, 228237, F21, maximum dBA contour.

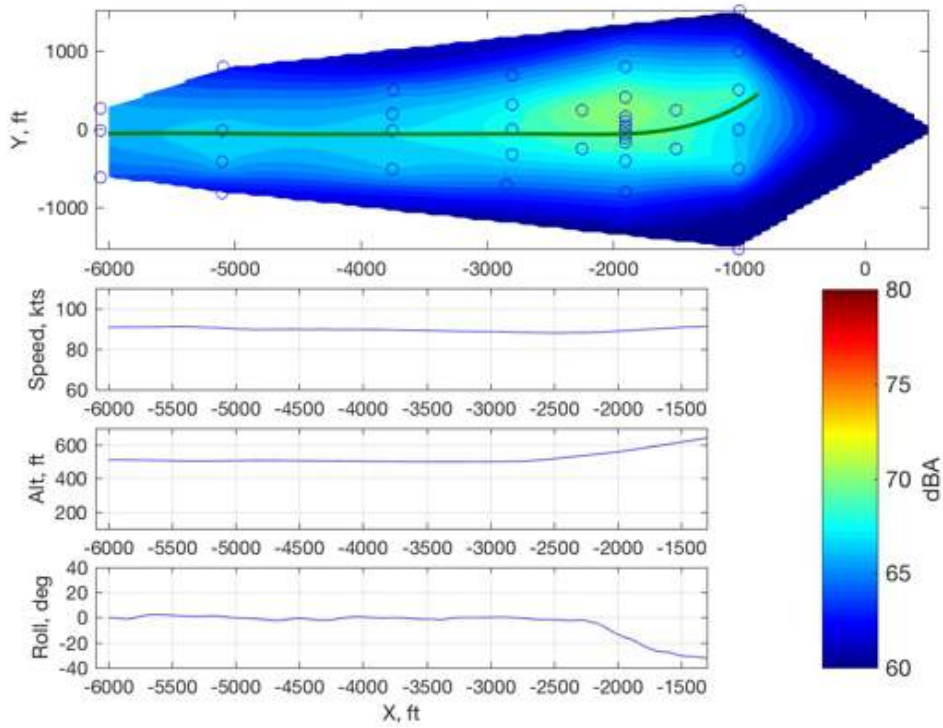


Figure 84: R44, 228238, F21, maximum dBA contour.

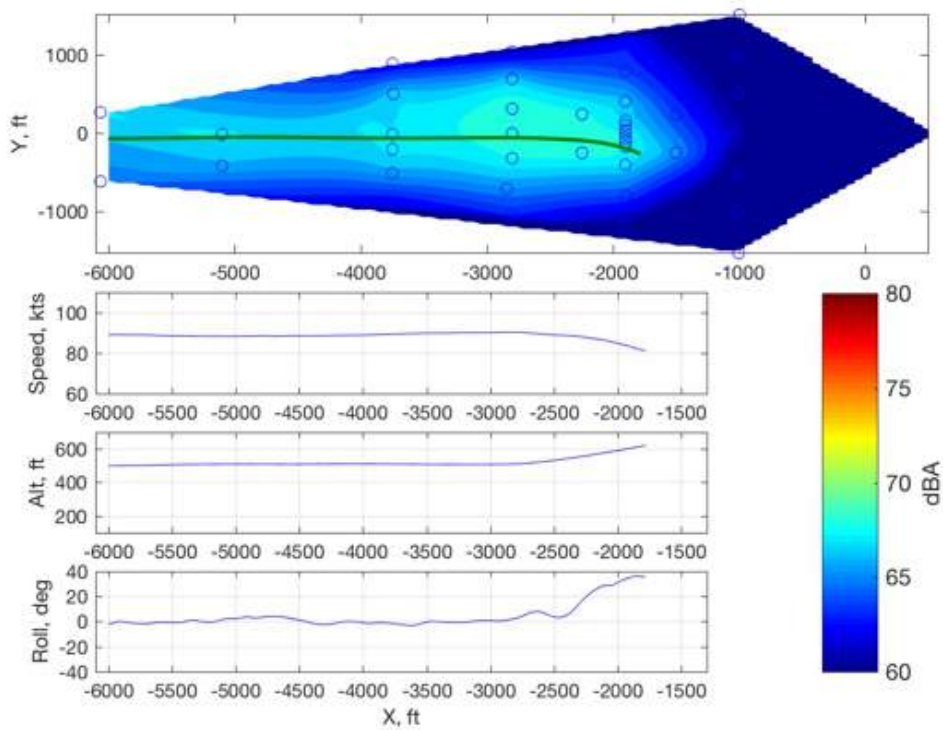


Figure 85: R44, 228239, F22, maximum dBA contour.

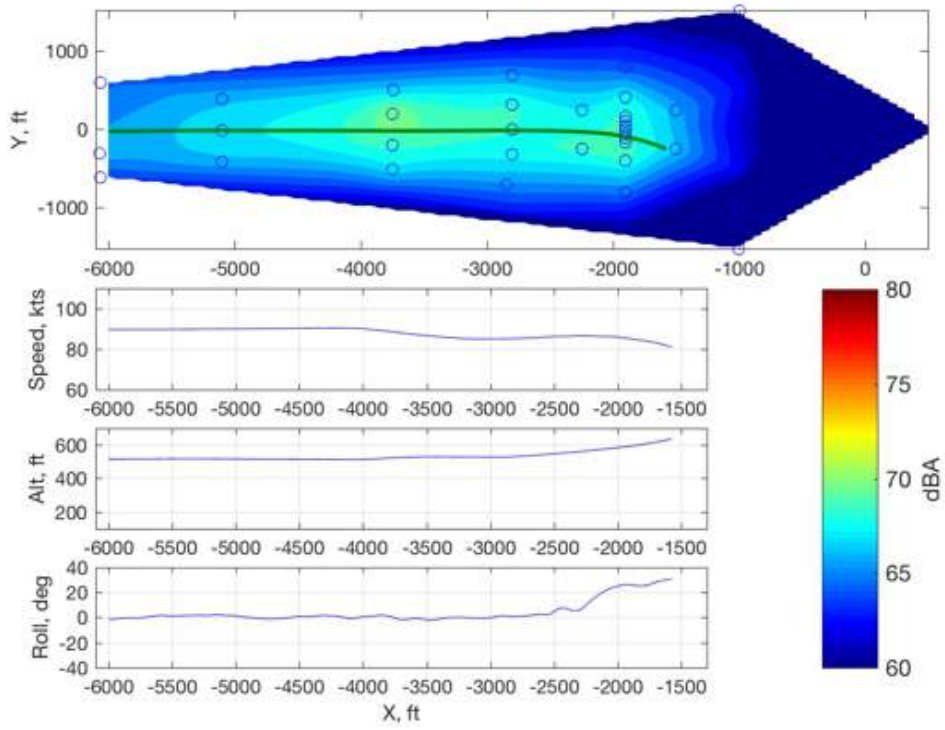


Figure 86: R44, 228240, F22, maximum dBA contour.

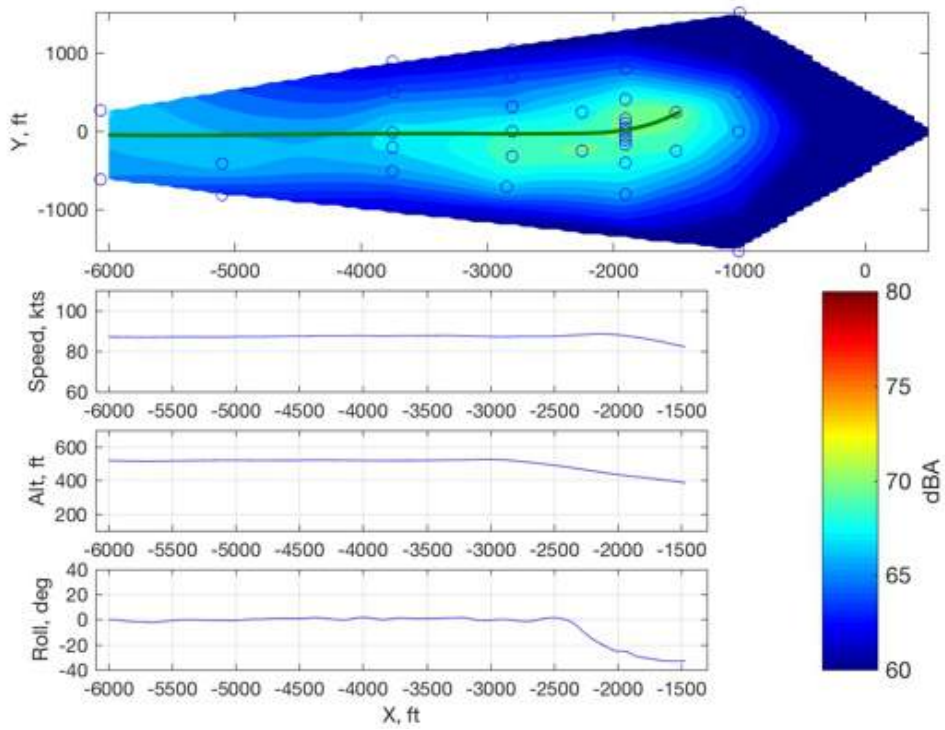


Figure 87: R44, 228241, F23, maximum dBA contour.

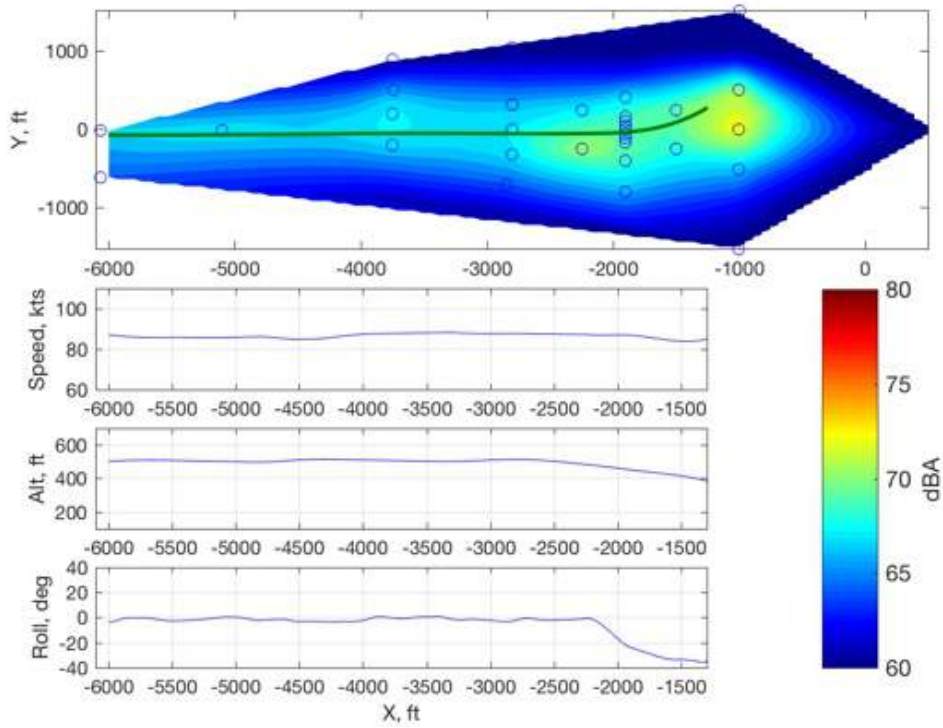


Figure 88: R44, 228242, F23, maximum dBA contour.

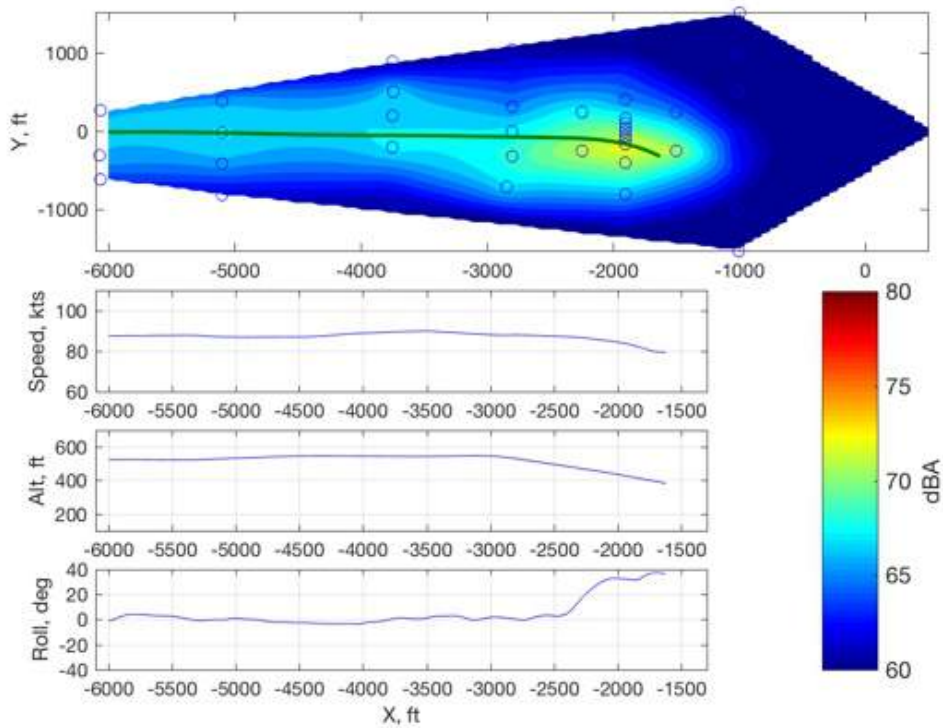


Figure 89: R44, 228243, F24, maximum dBA contour.

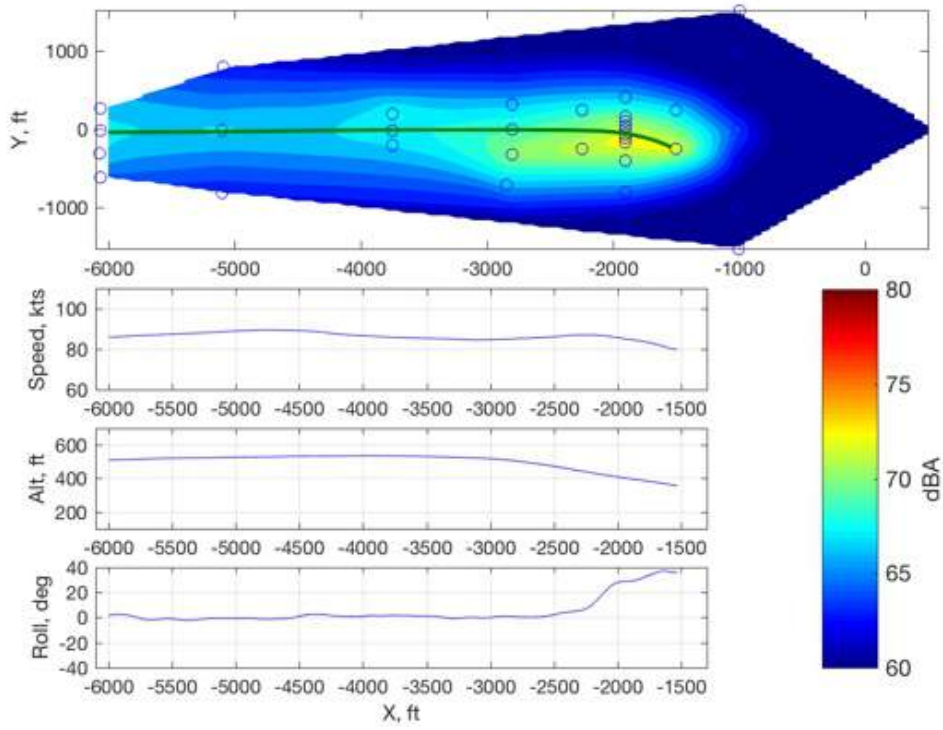


Figure 90: R44, 228244, F24, maximum dBA contour.

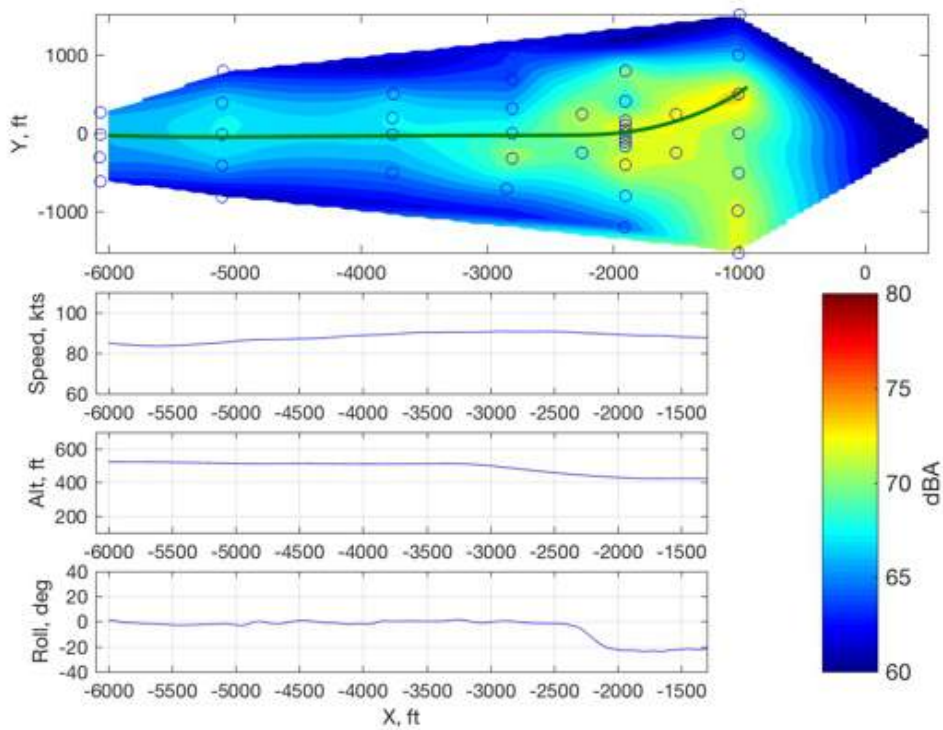


Figure 91: R44, 228285, F25, maximum dBA contour.

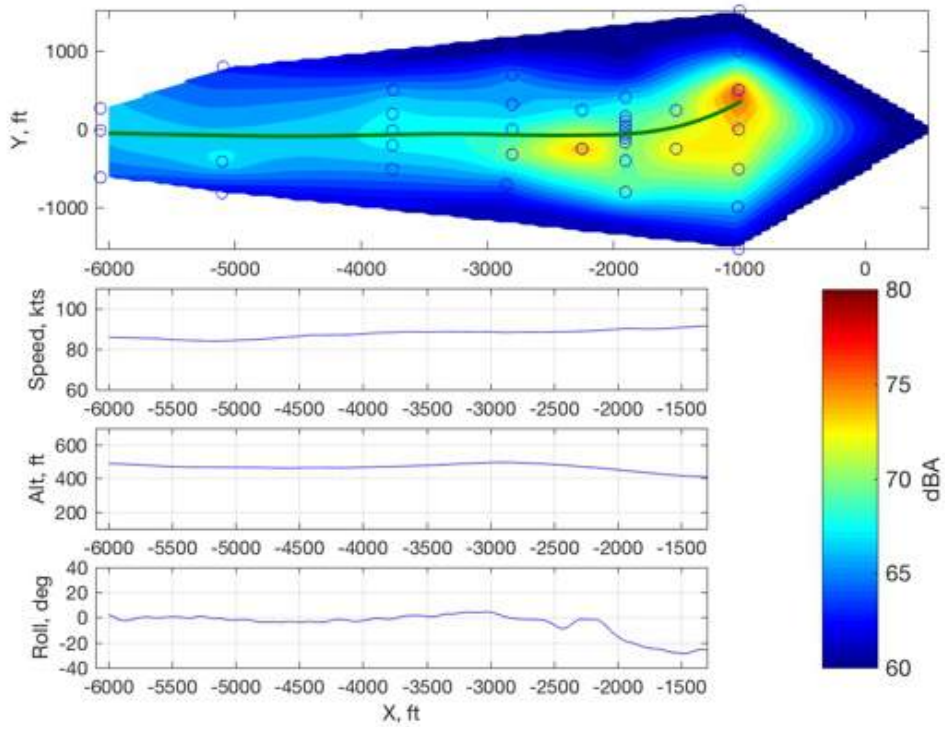


Figure 92: R44, 228286, F25, maximum dBA contour.

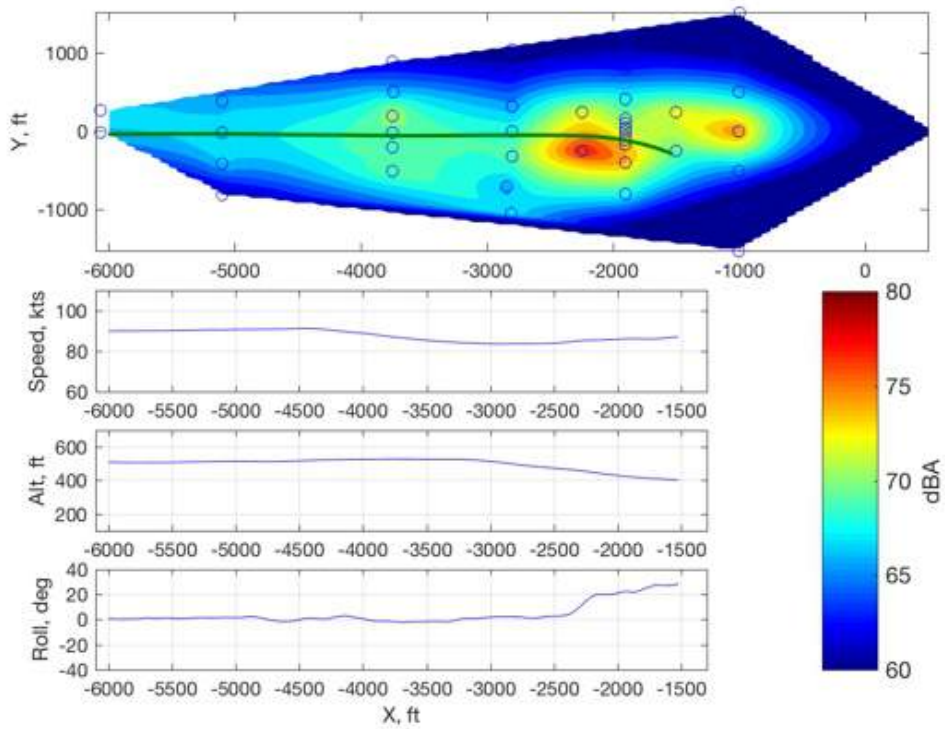


Figure 93: R44, 228287, F26, maximum dBA contour.

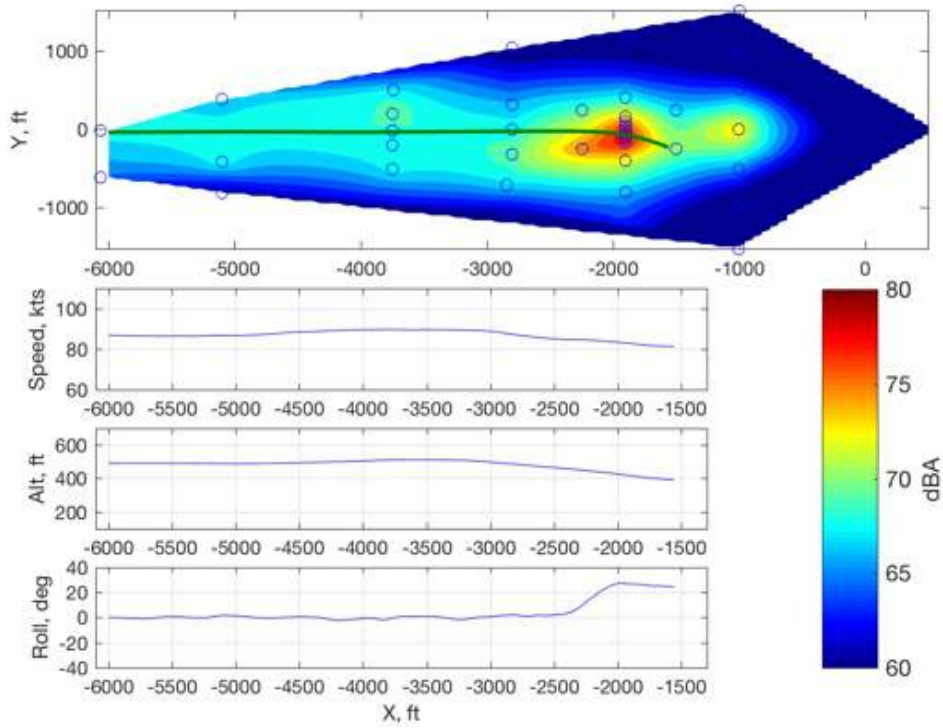


Figure 94: R44, 228288, F26, maximum dBA contour.

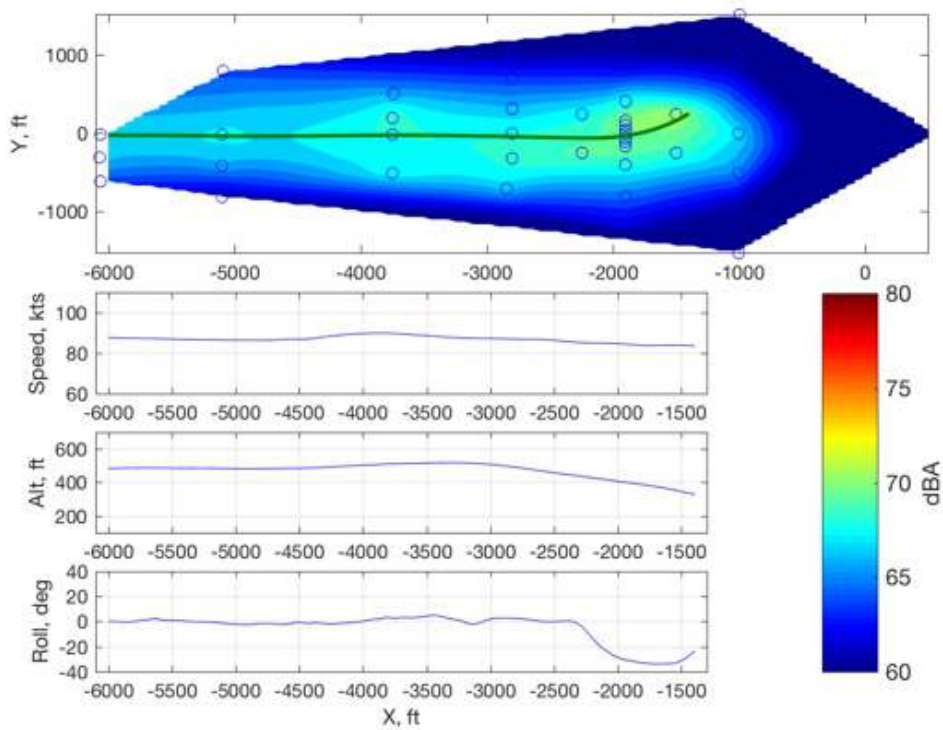


Figure 95: R44, 228289, F27, maximum dBA contour.

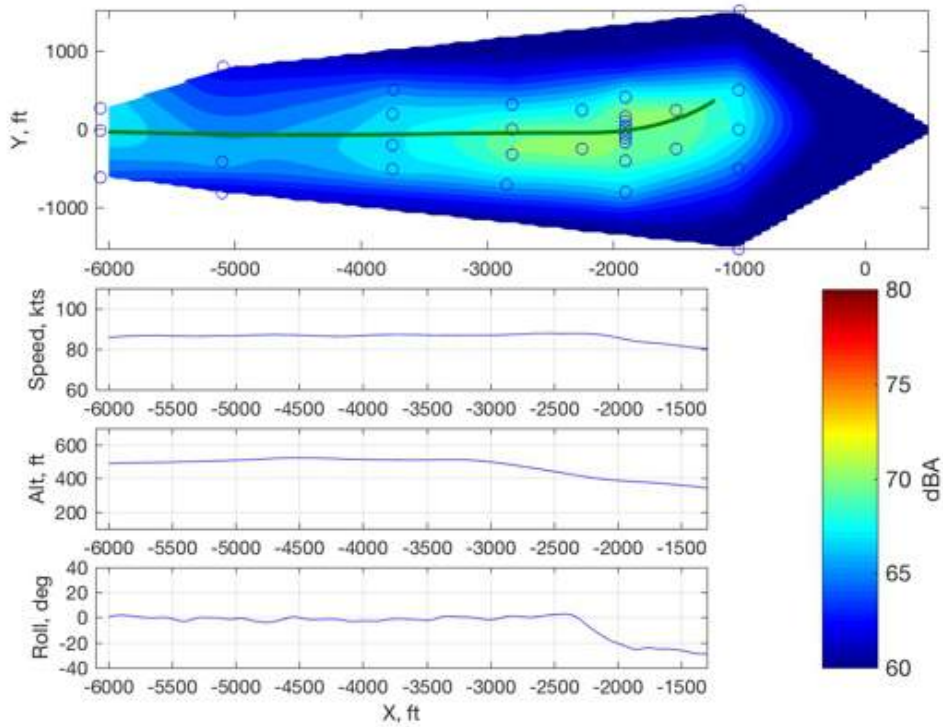


Figure 96: R44, 228290, F27, maximum dBA contour.

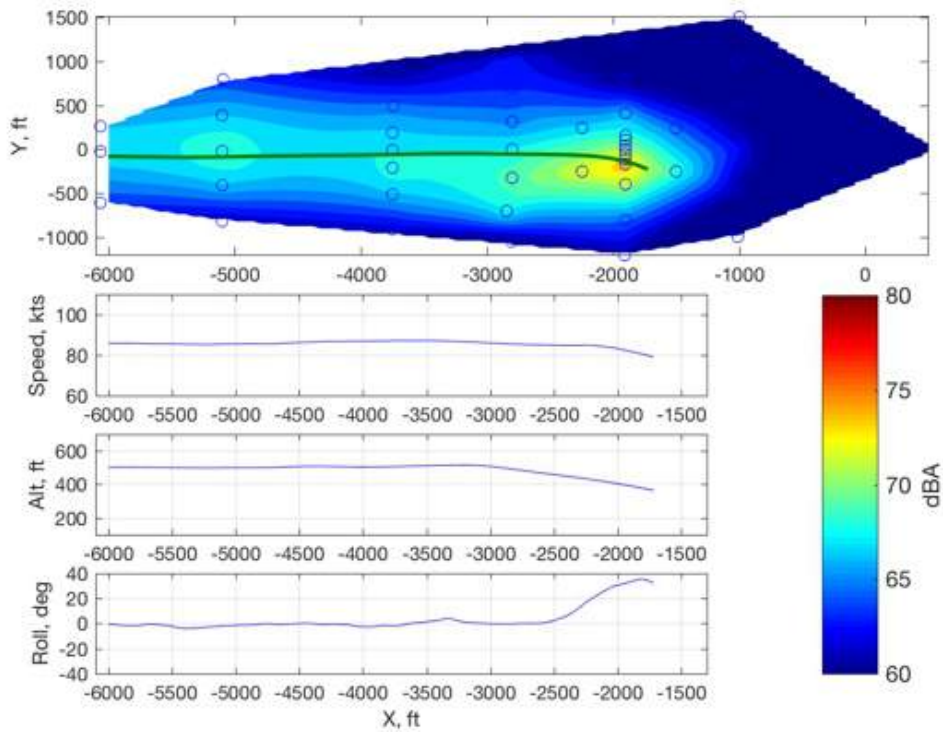


Figure 97: R44, 228291, F28, maximum dBA contour.

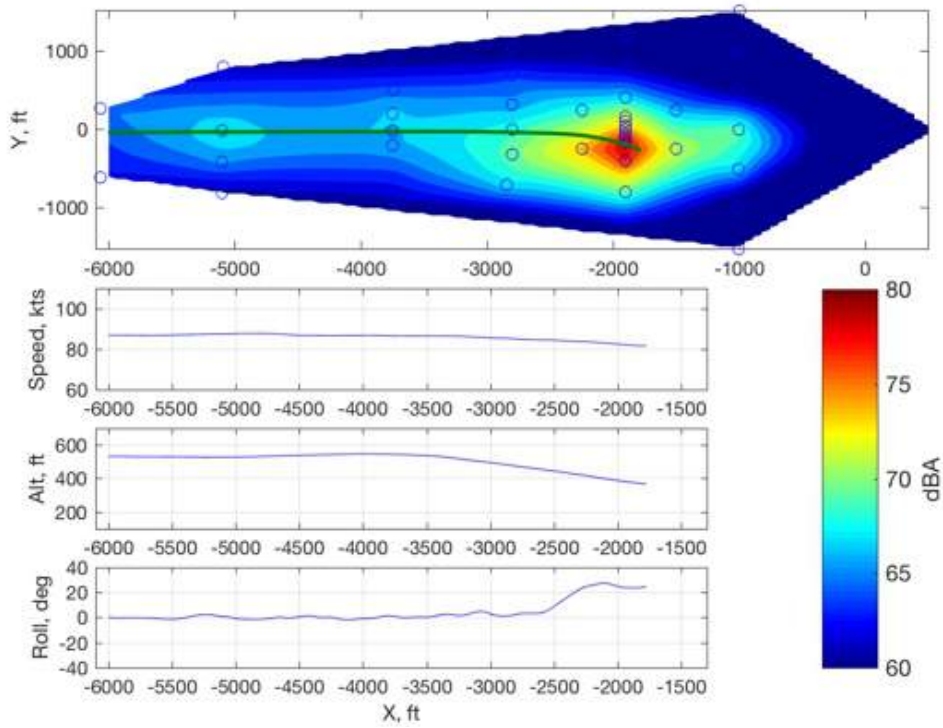


Figure 98: R44, 228292, F28, maximum dBA contour.

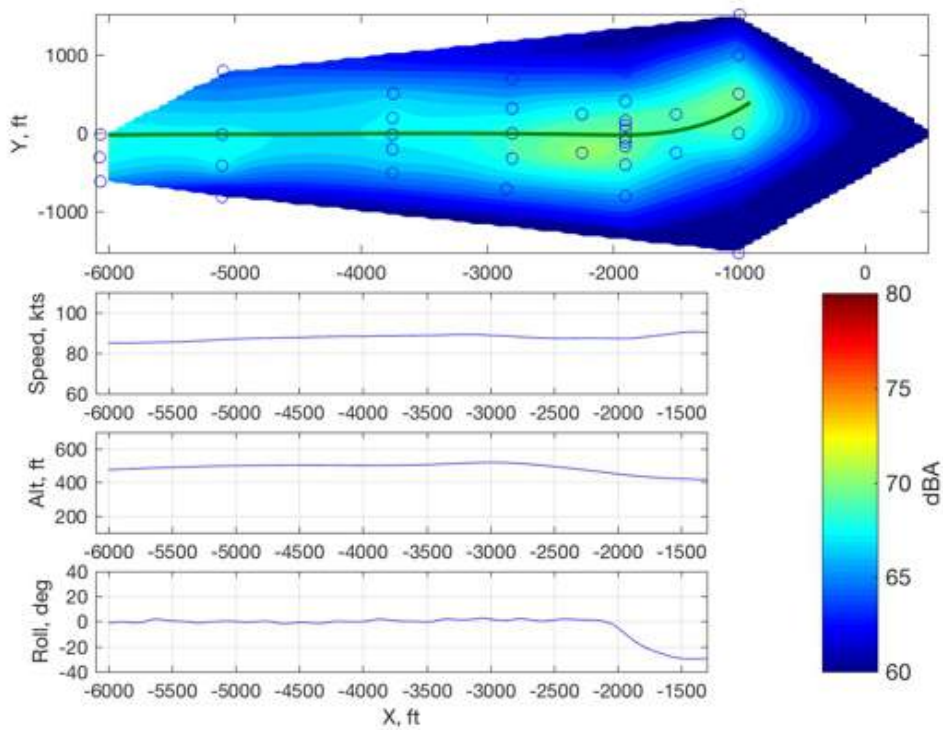


Figure 99: R44, 228263, F29, maximum dBA contour.

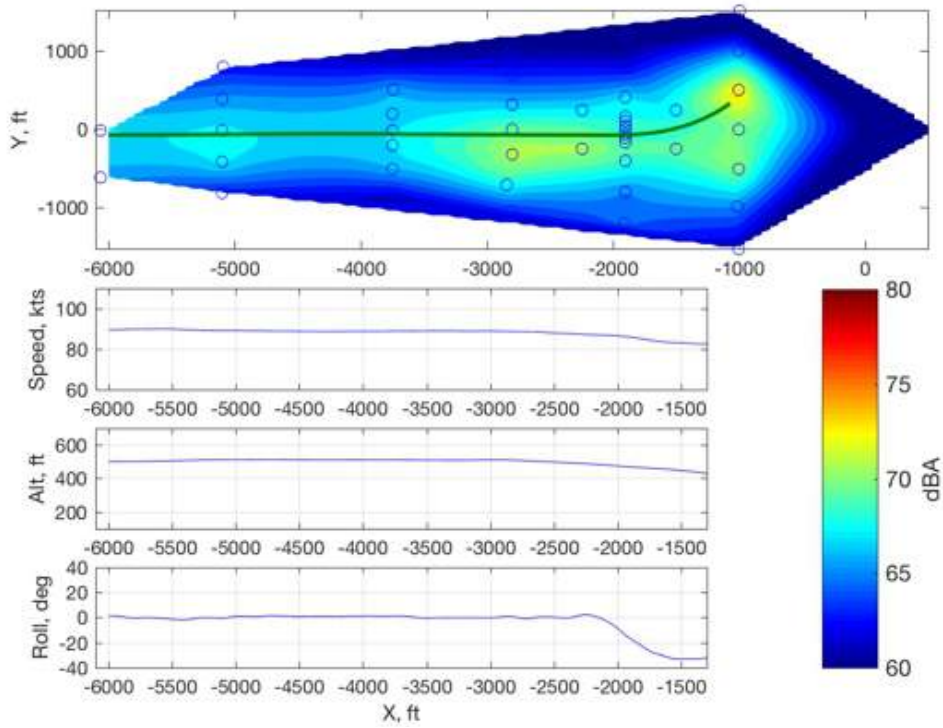


Figure 100: R44, 228264, F29, maximum dBA contour.

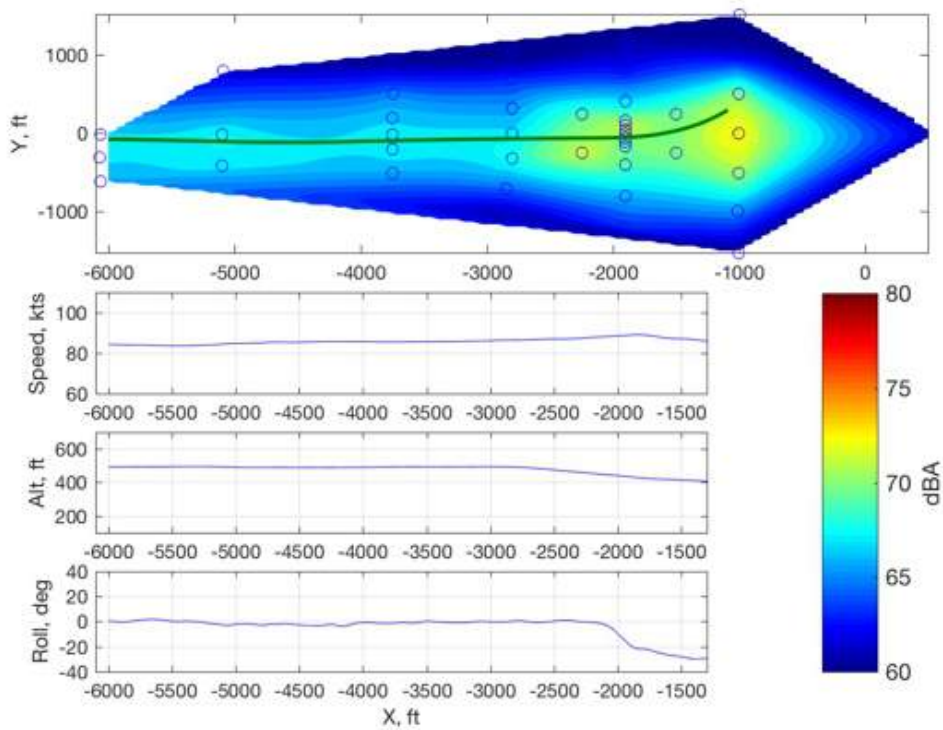


Figure 101: R44, 228265, F29, maximum dBA contour.

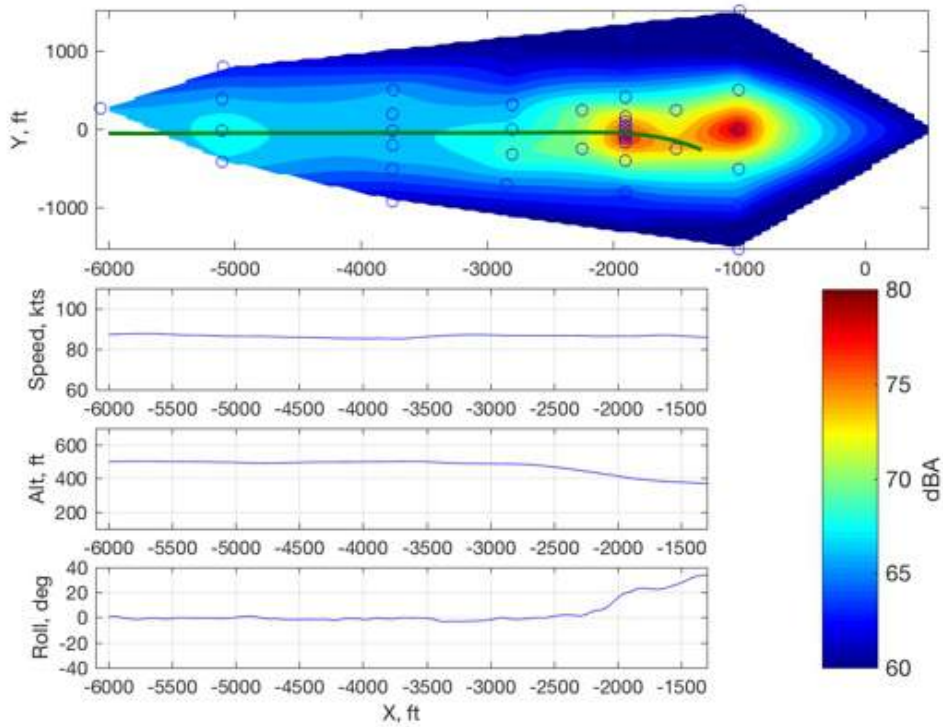


Figure 102: R44, 228266, F30, maximum dBA contour.

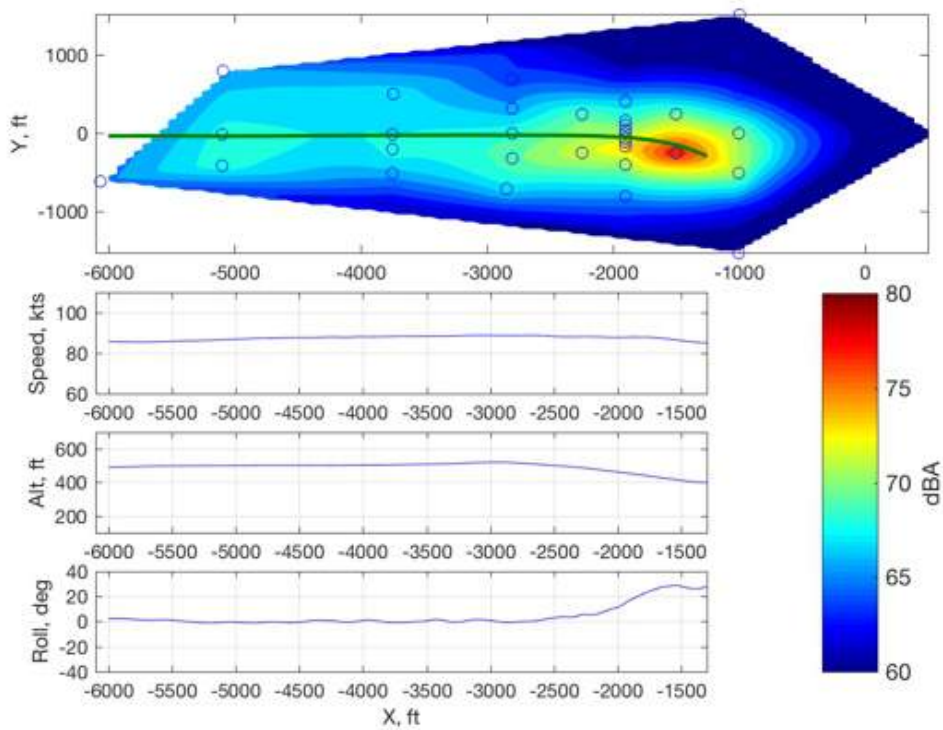


Figure 103: R44, 228267, F30, maximum dBA contour.

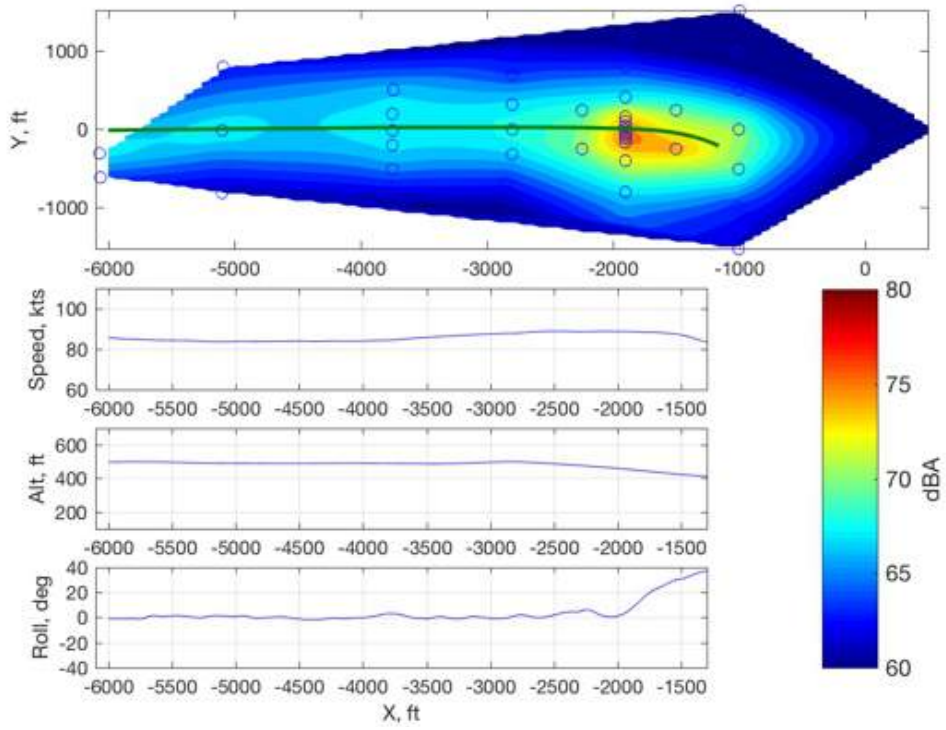


Figure 104: R44, 228268, F30, maximum dBA contour.

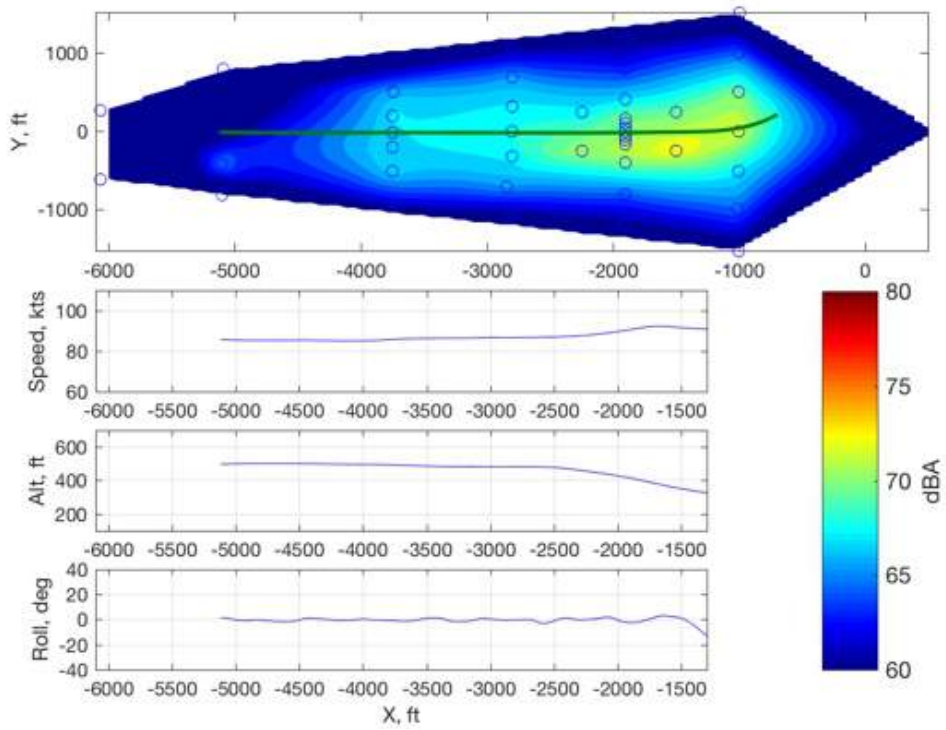


Figure 105: R44, 228269, F31, maximum dBA contour.

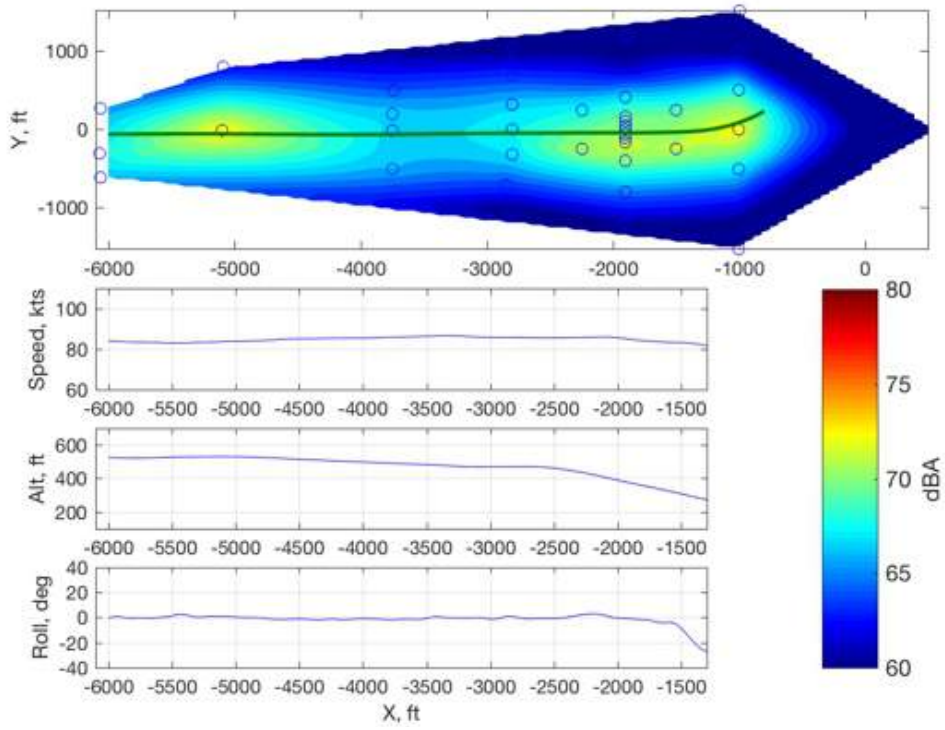


Figure 106: R44, 228270, F31, maximum dBA contour.

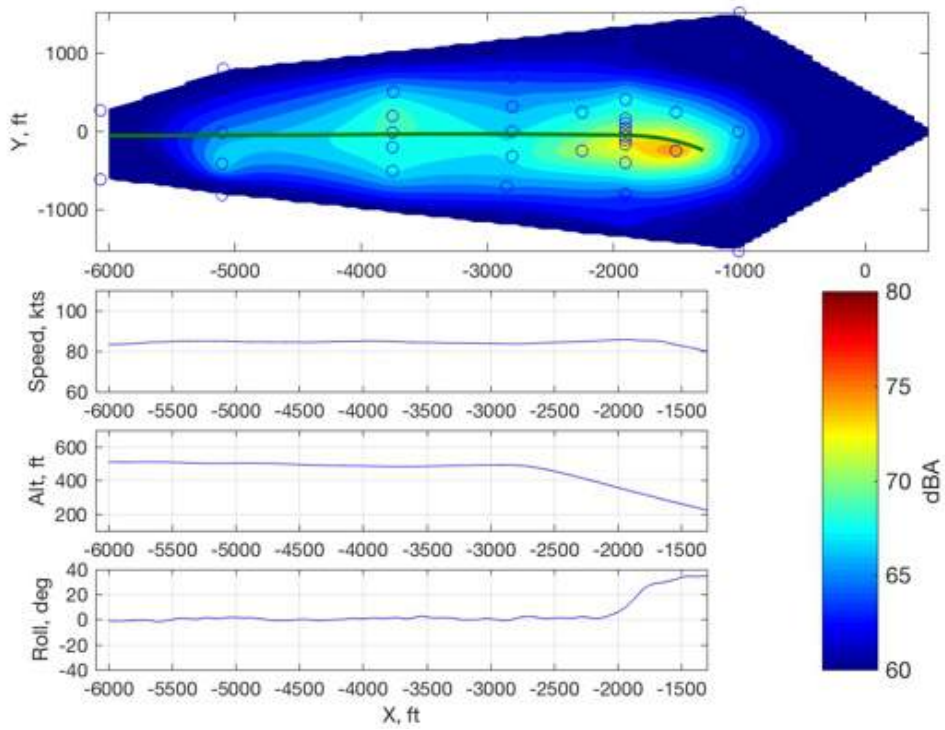


Figure 107: R44, 228271, F32, maximum dBA contour.

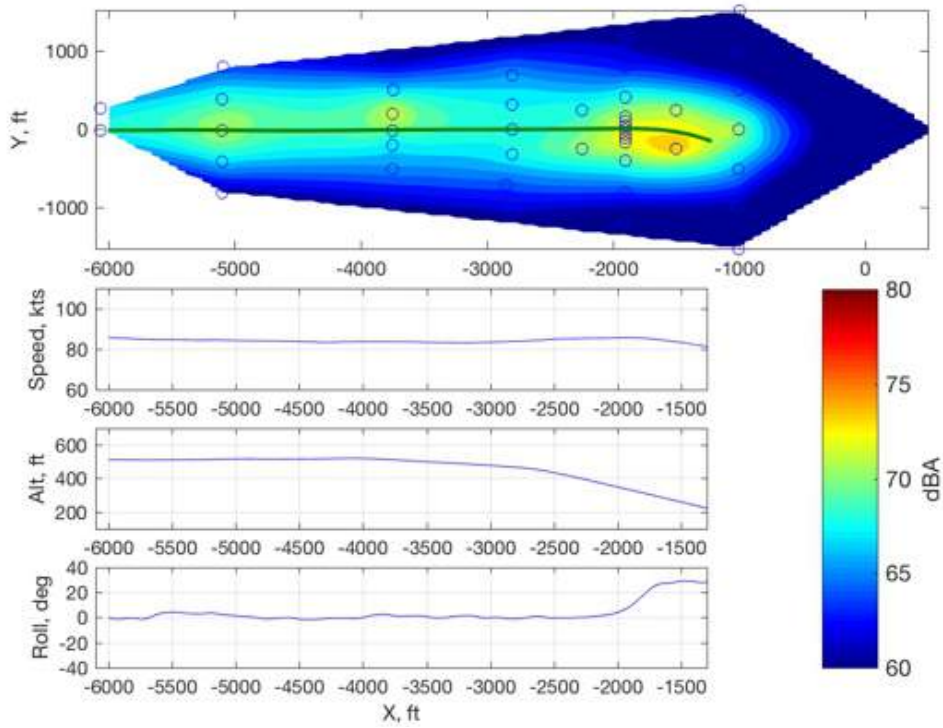


Figure 108: R44, 228272, F32, maximum dBA contour.

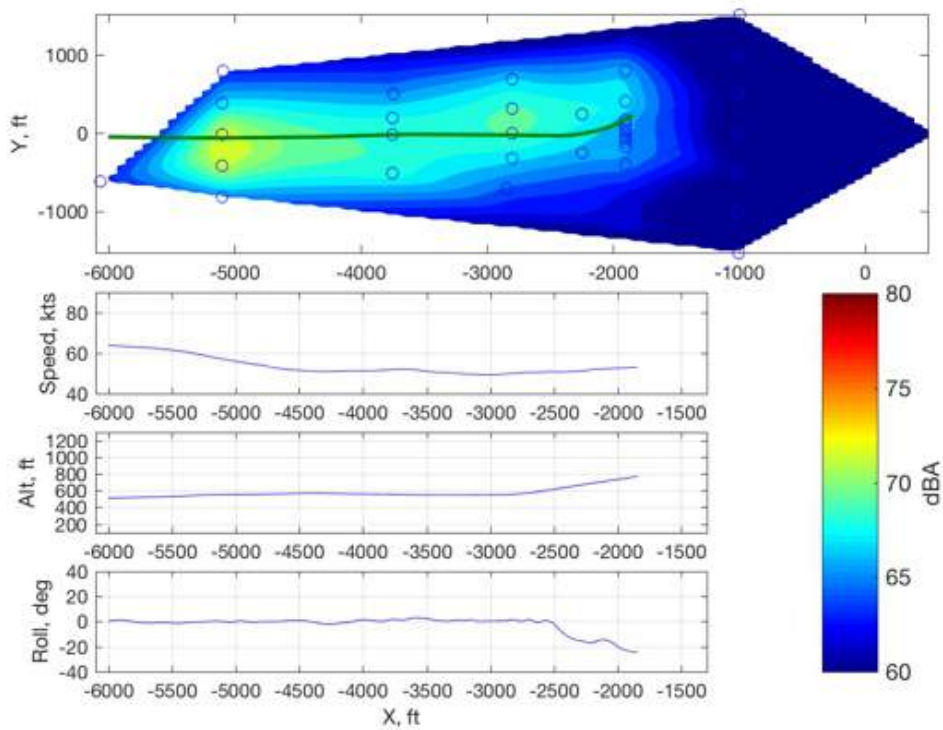


Figure 109: R44, 228293, F53, maximum dBA contour.

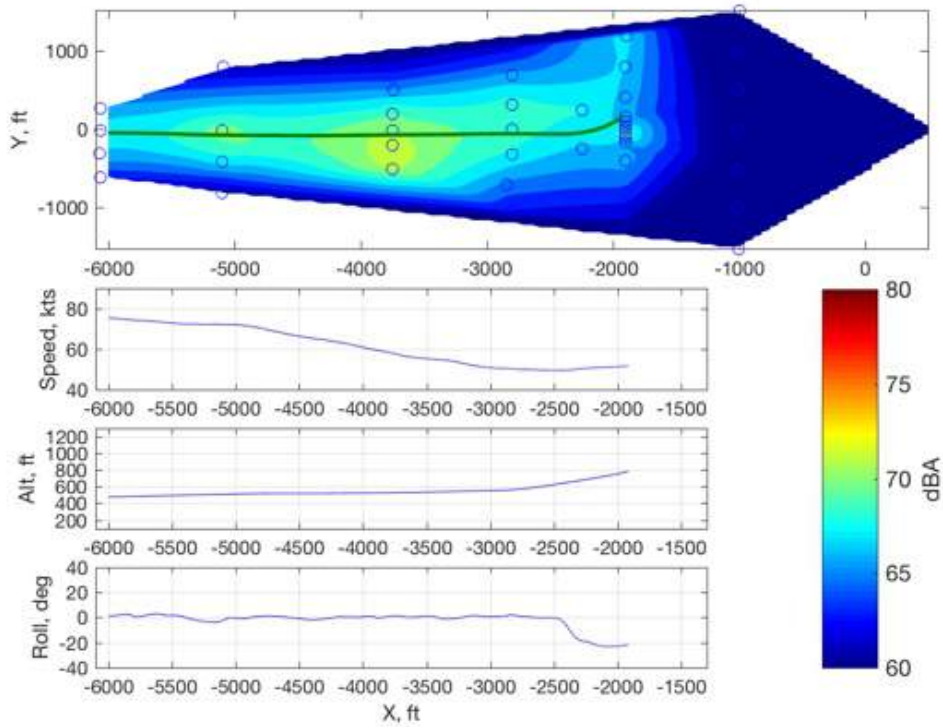


Figure 110: R44, 228294, F53, maximum dBA contour.

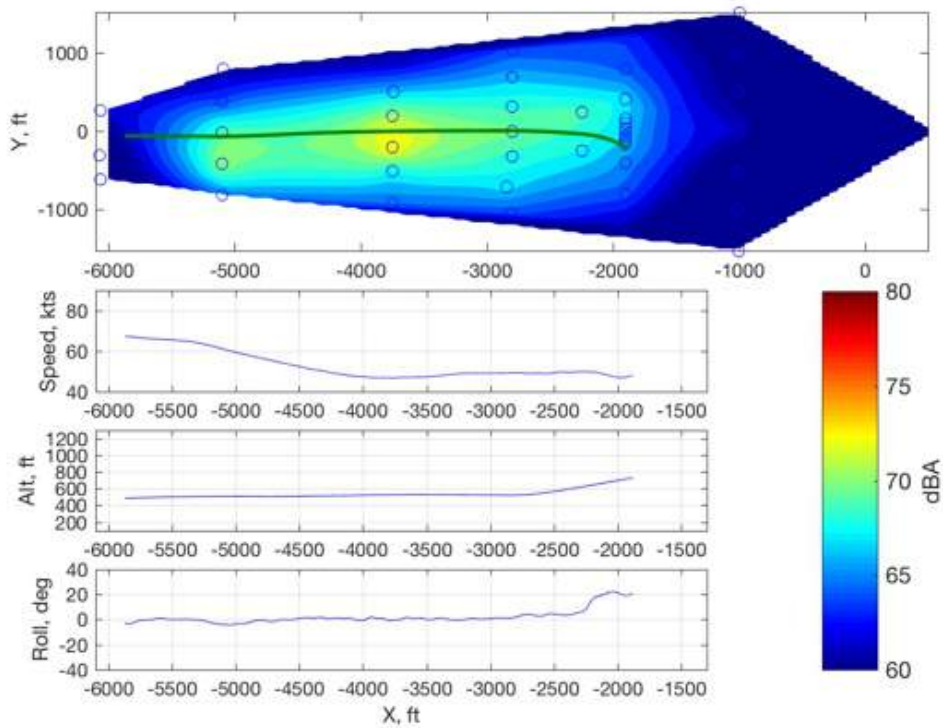


Figure 111: R44, 228296, F54, maximum dBA contour.

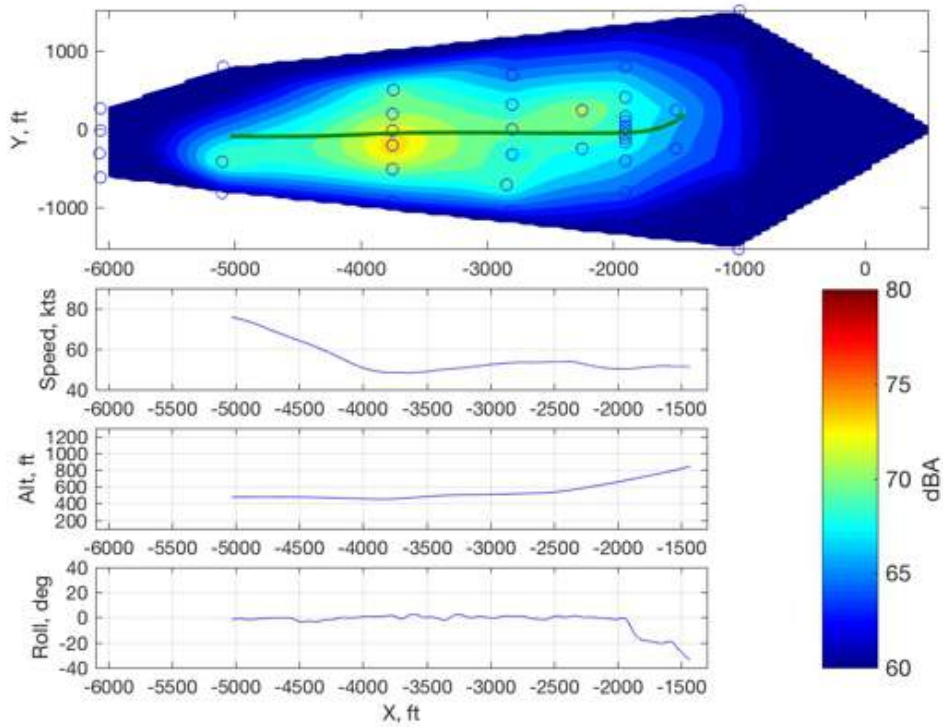


Figure 112: R44, 228297, F55, maximum dBA contour.

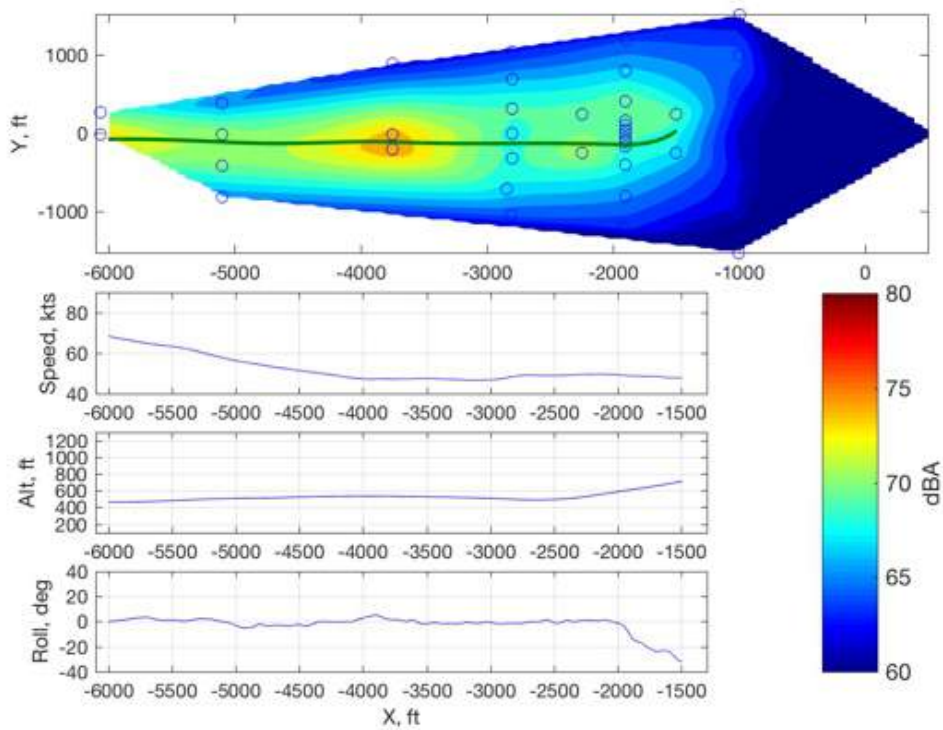


Figure 113: R44, 228298, F55, maximum dBA contour.

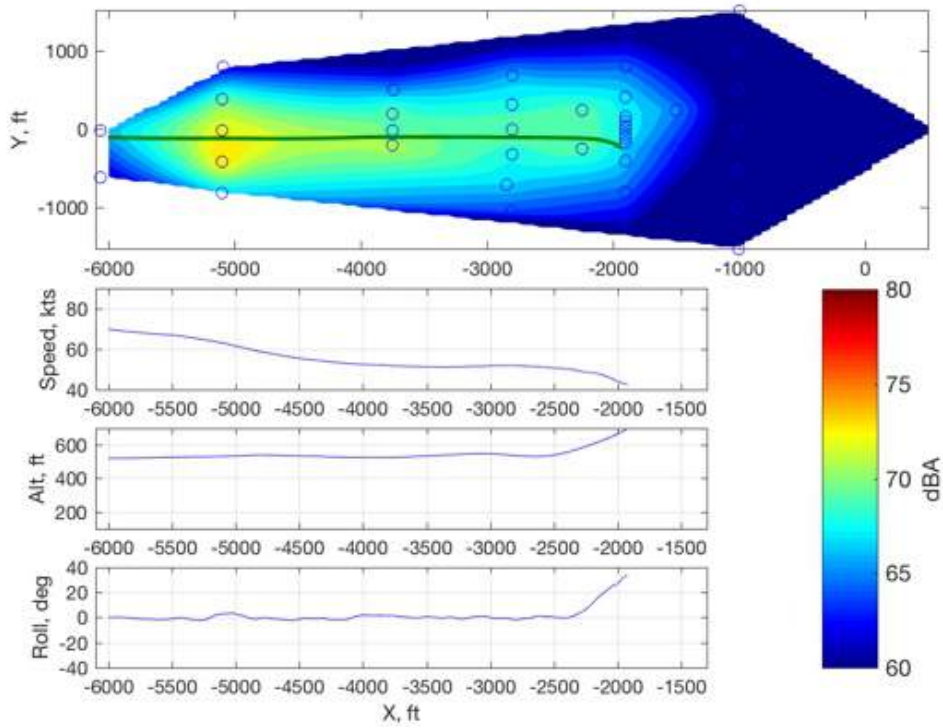


Figure 114: R44, 228299, F56, maximum dBA contour.

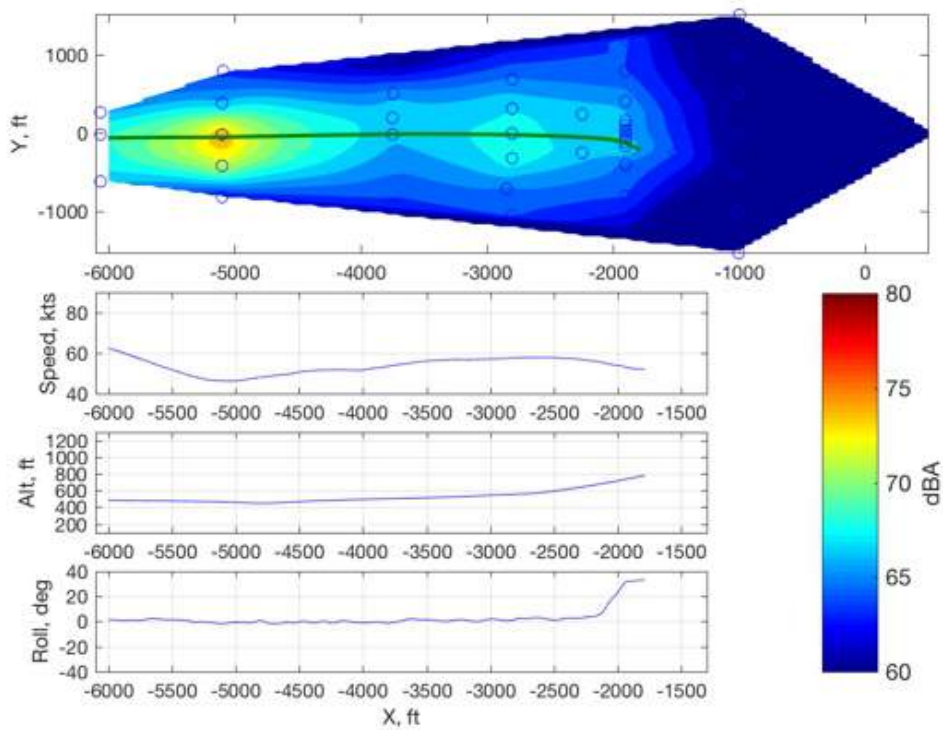


Figure 115: R44, 228300, F56, maximum dBA contour.

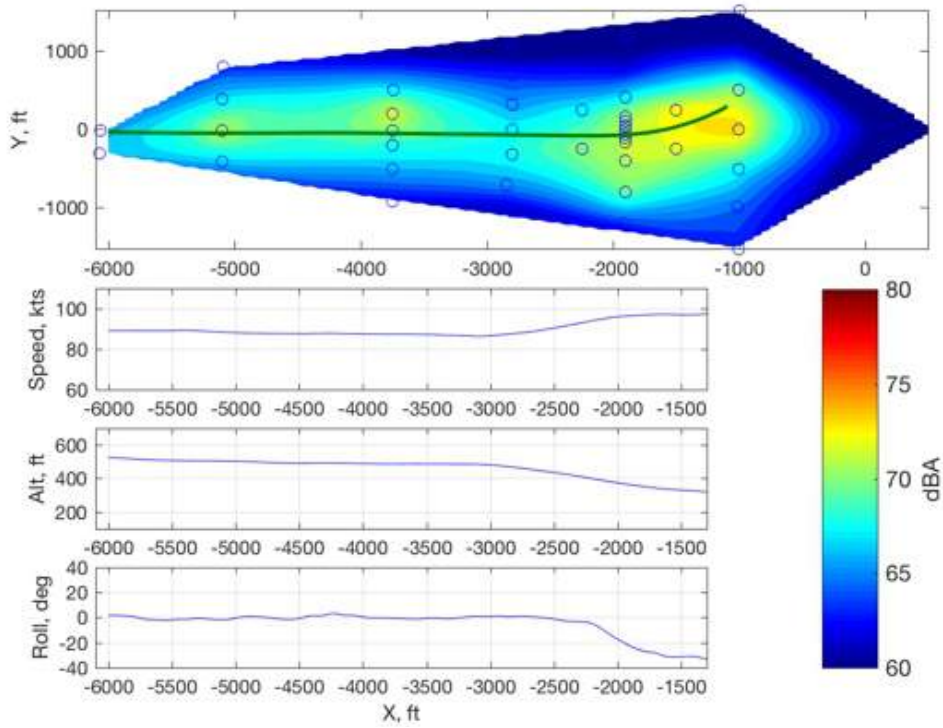


Figure 116: R44, 228281, G13, maximum dBA contour.

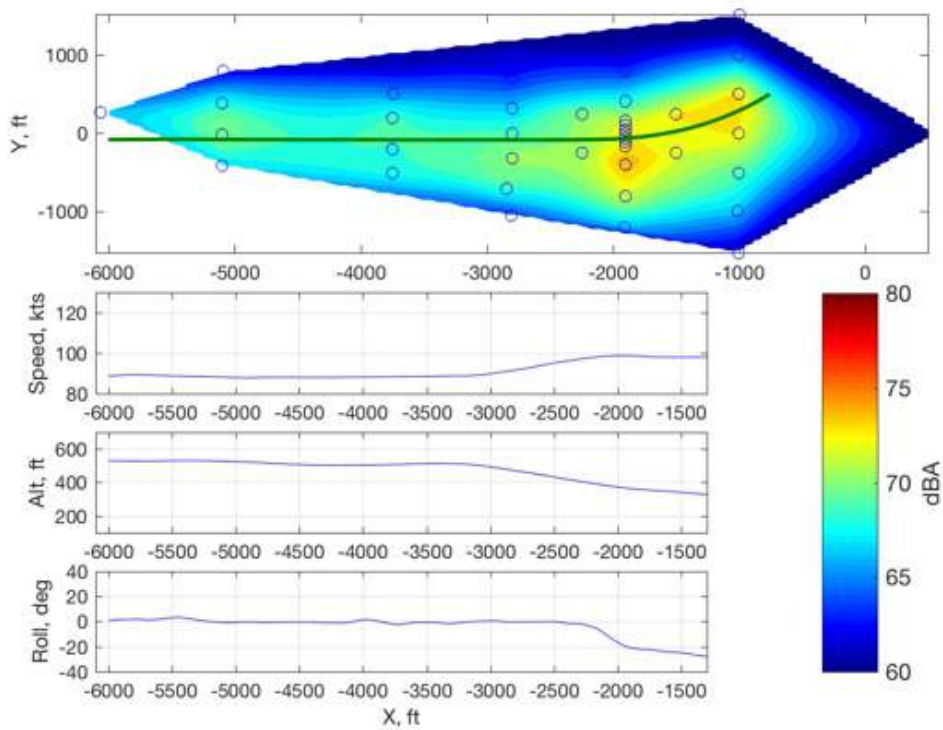


Figure 117: R44, 228282, G13, maximum dBA contour.

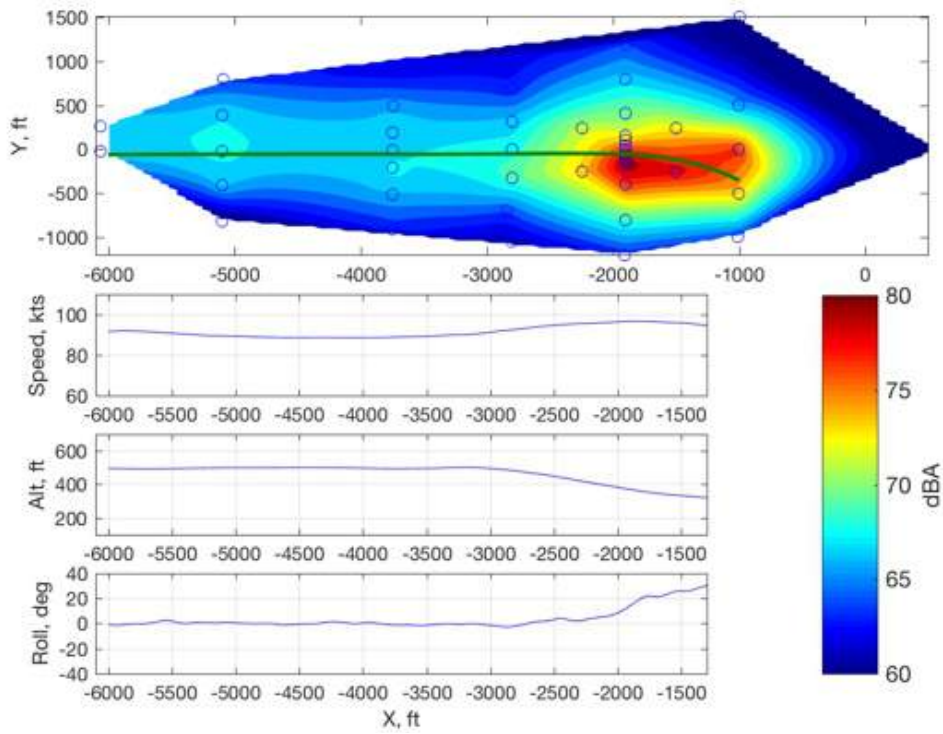


Figure 118: R44, 228283, G14, maximum dBA contour.

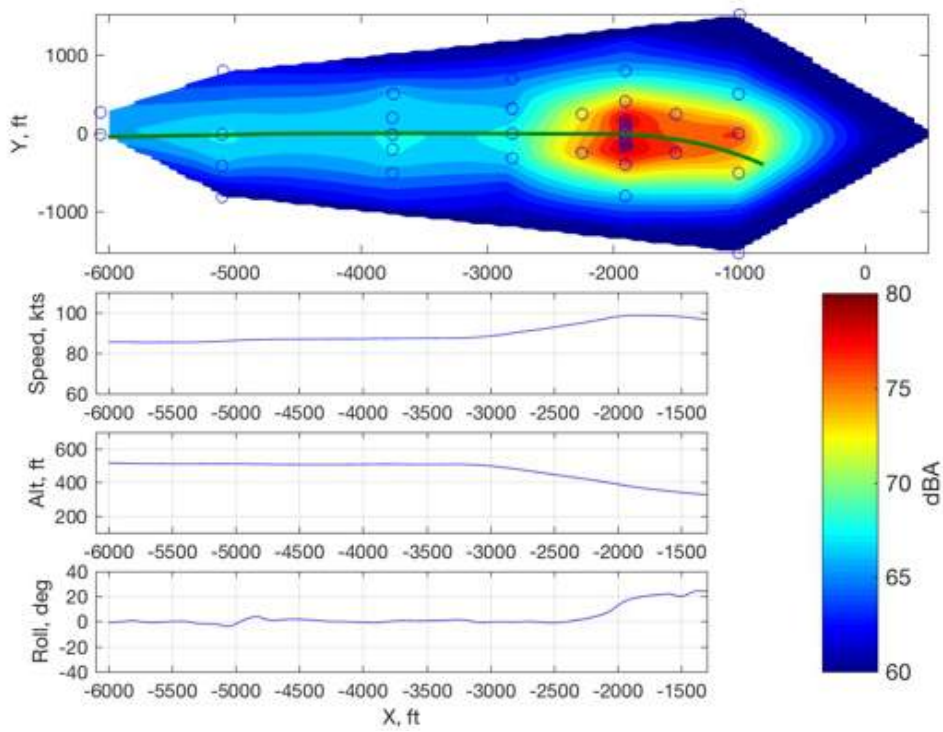


Figure 119: R44, 228284, G14, maximum dBA contour.

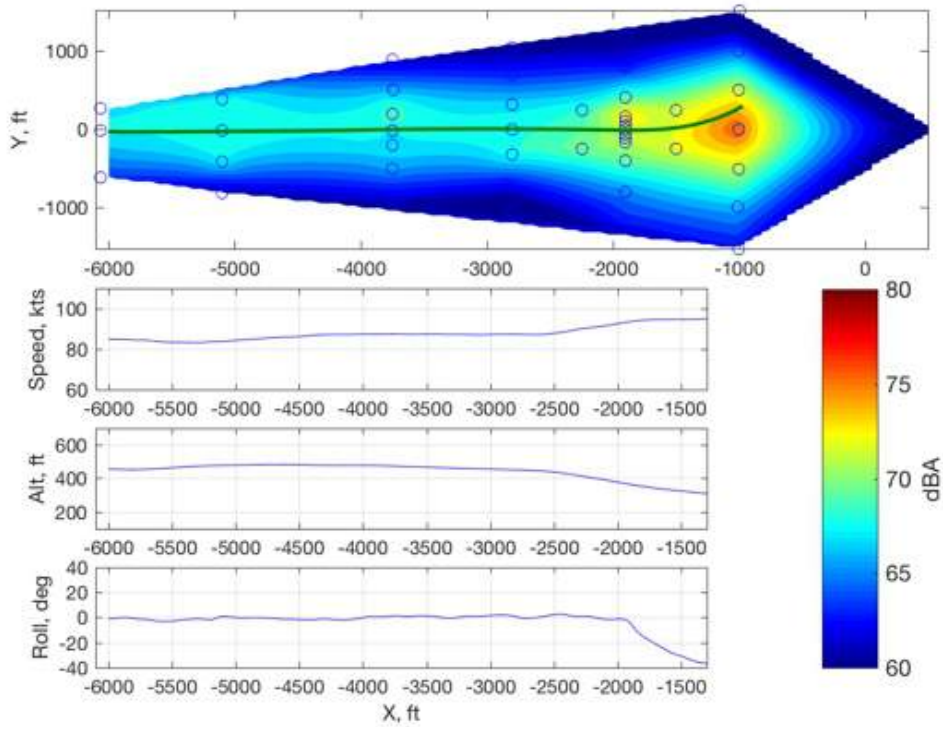


Figure 120: R44, 228257, G15, maximum dBA contour.

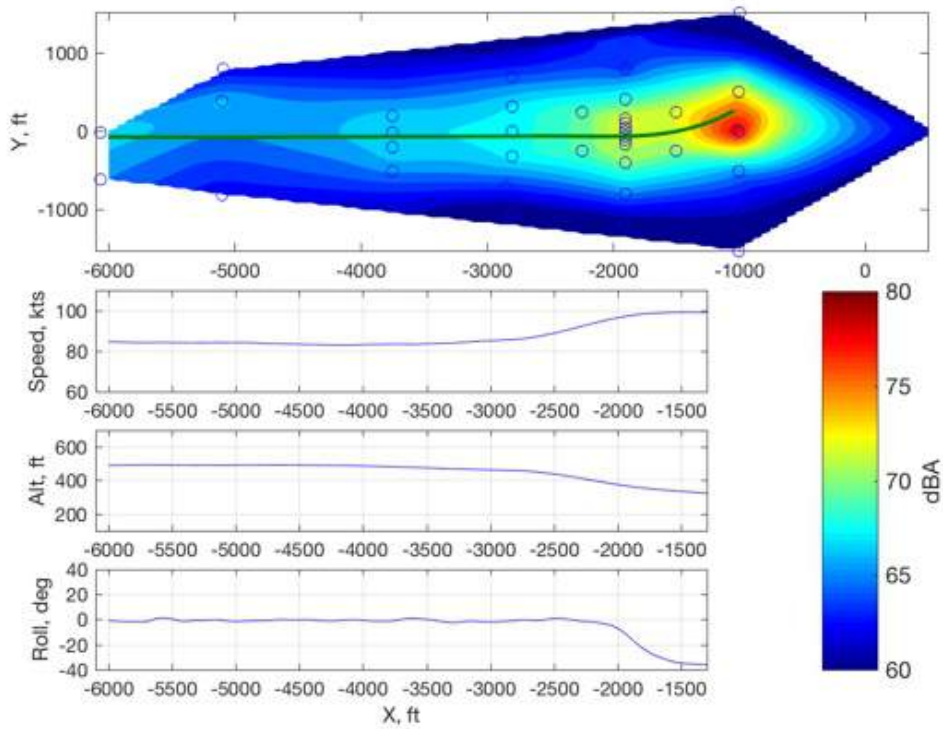


Figure 121: R44, 228258, G15, maximum dBA contour.

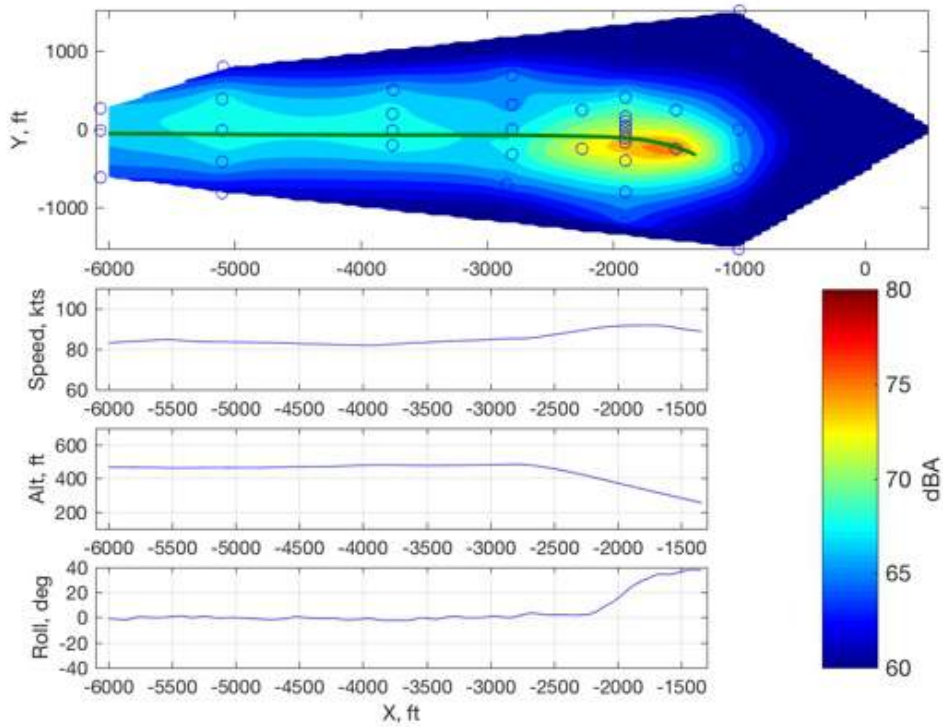


Figure 122: R44, 228259, G16, maximum dBA contour.

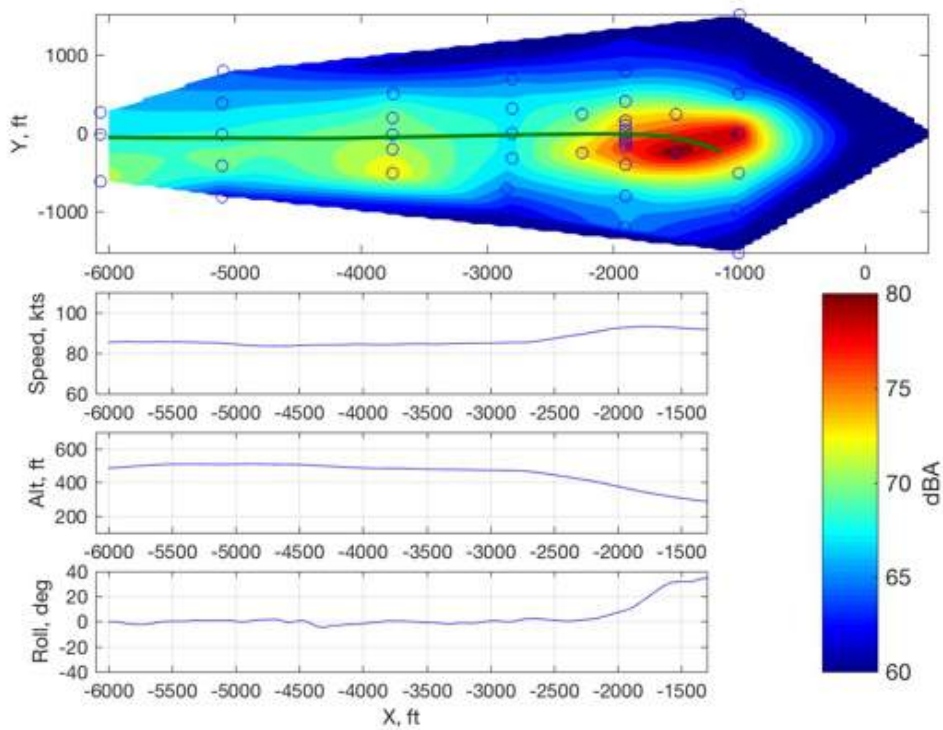


Figure 123: R44, 228260, G16, maximum dBA contour.

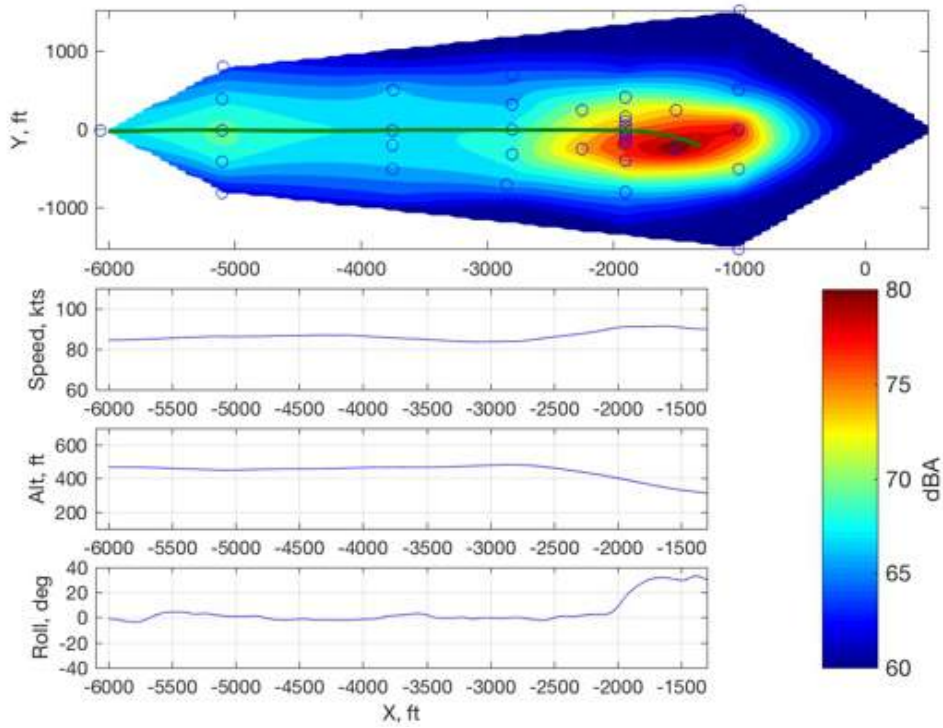


Figure 124: R44, 228261, G16, maximum dBA contour.

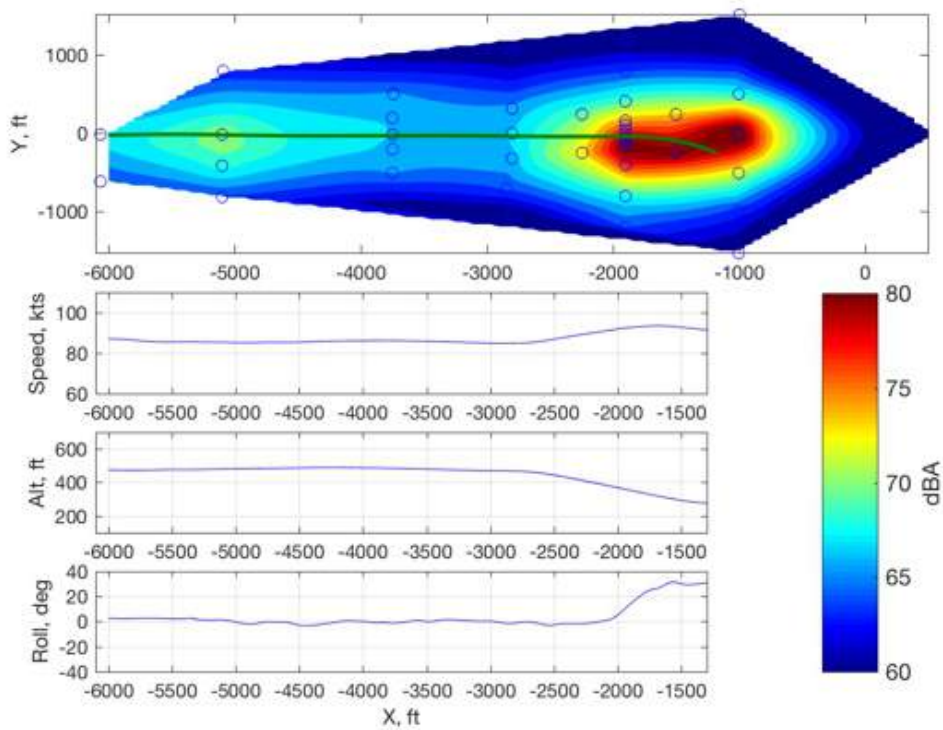


Figure 125: R44, 228262, G16, maximum dBA contour.

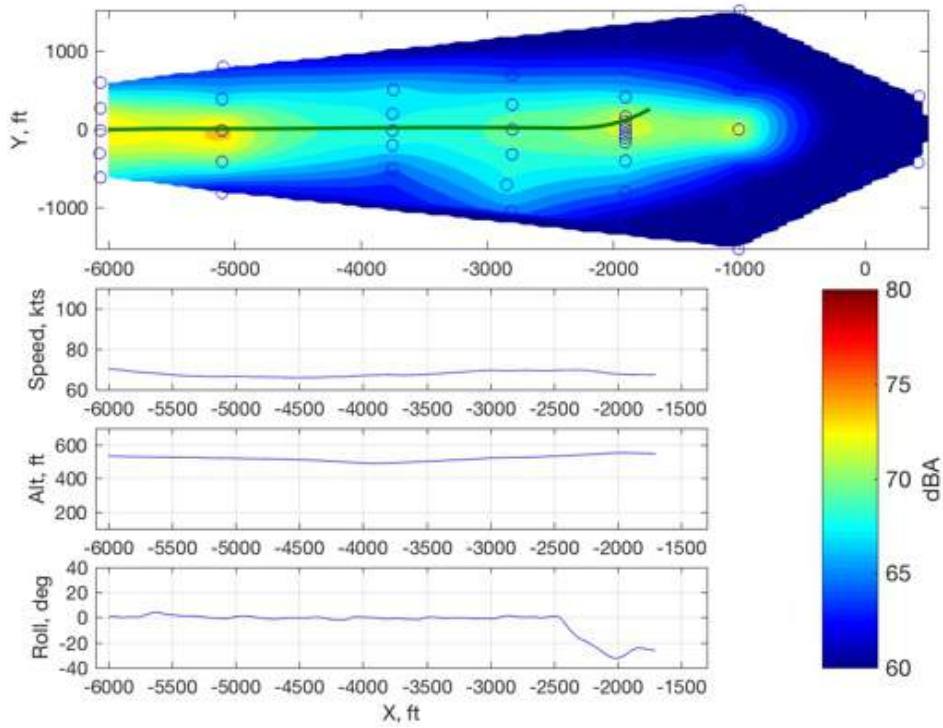


Figure 126: R44, 229401, N3, maximum dBA contour.

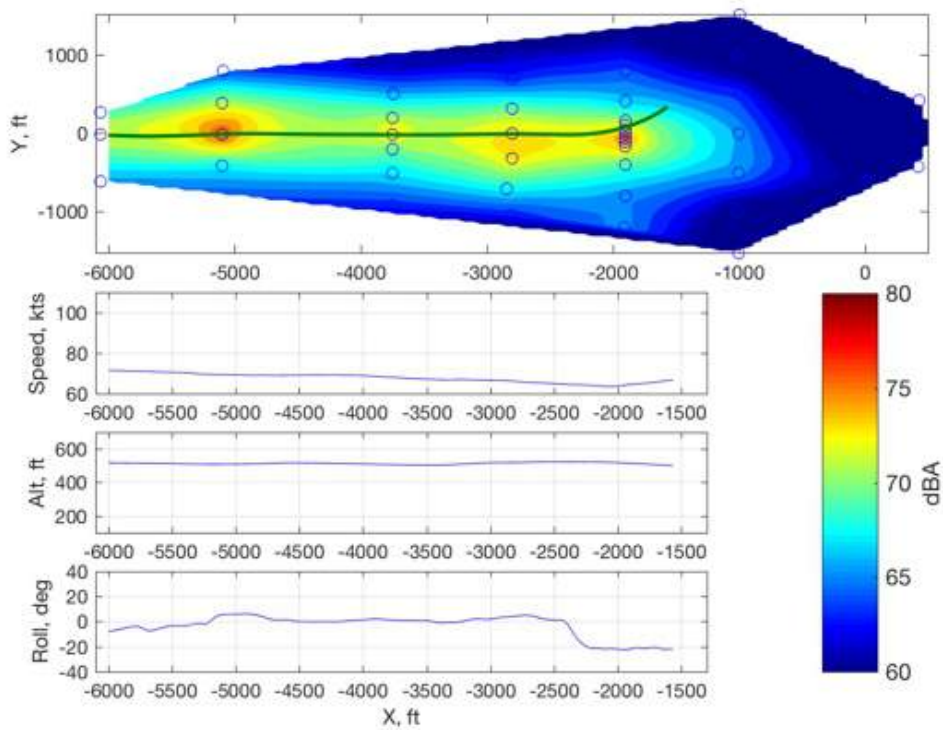


Figure 127: R44, 229402, N3, maximum dBA contour.

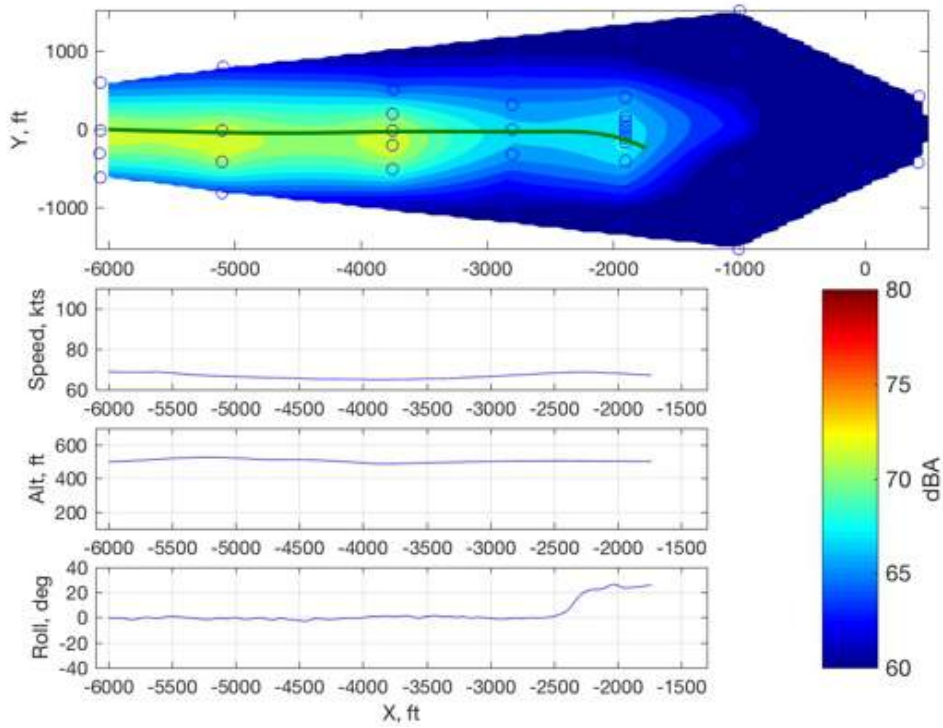


Figure 128: R44, 229403, N4, maximum dBA contour.

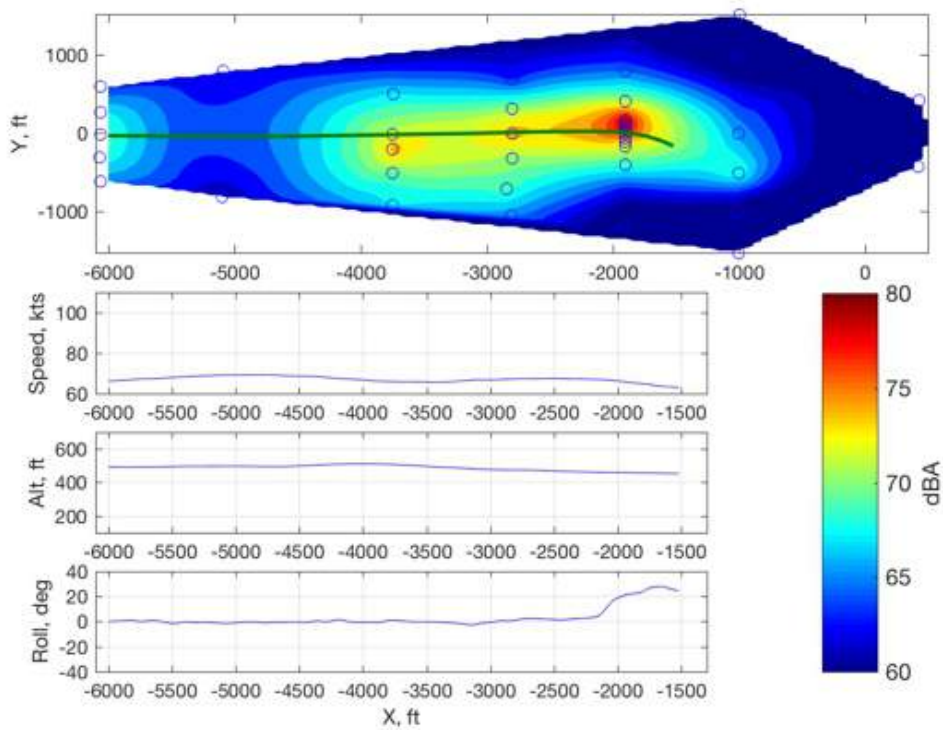


Figure 129: R44, 229404, N4, maximum dBA contour.

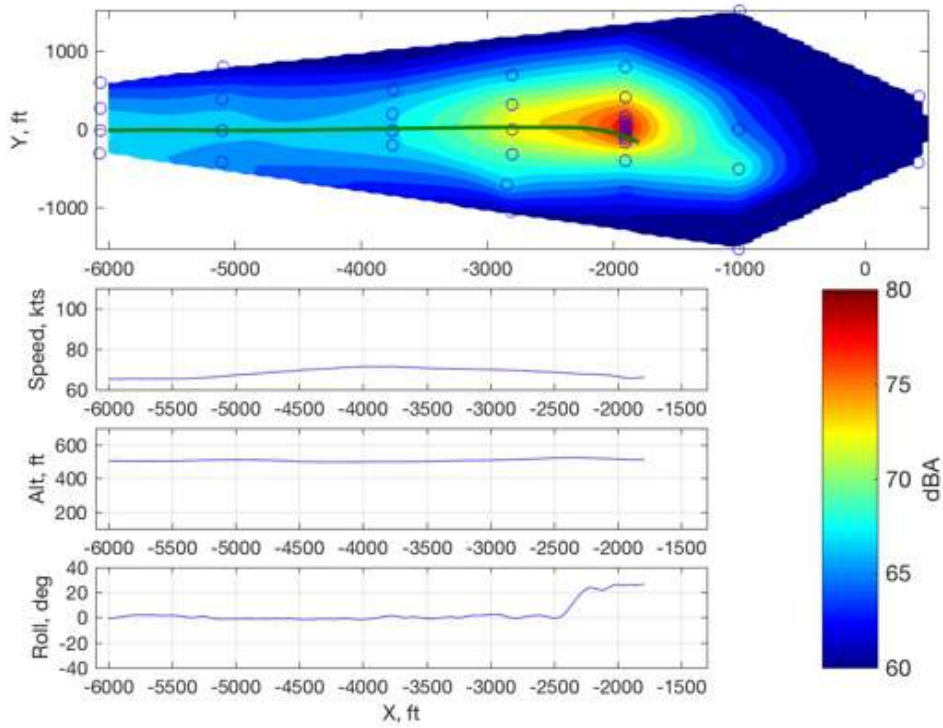


Figure 130: R44, 229405, N4, maximum dBA contour.

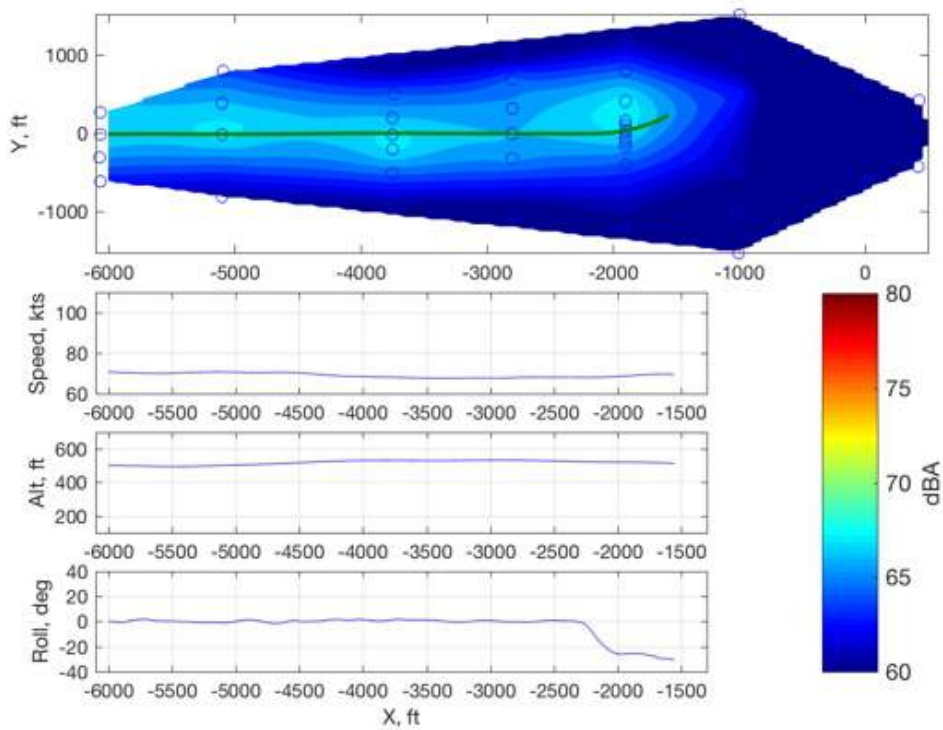


Figure 131: R44, 229406, N5, maximum dBA contour.

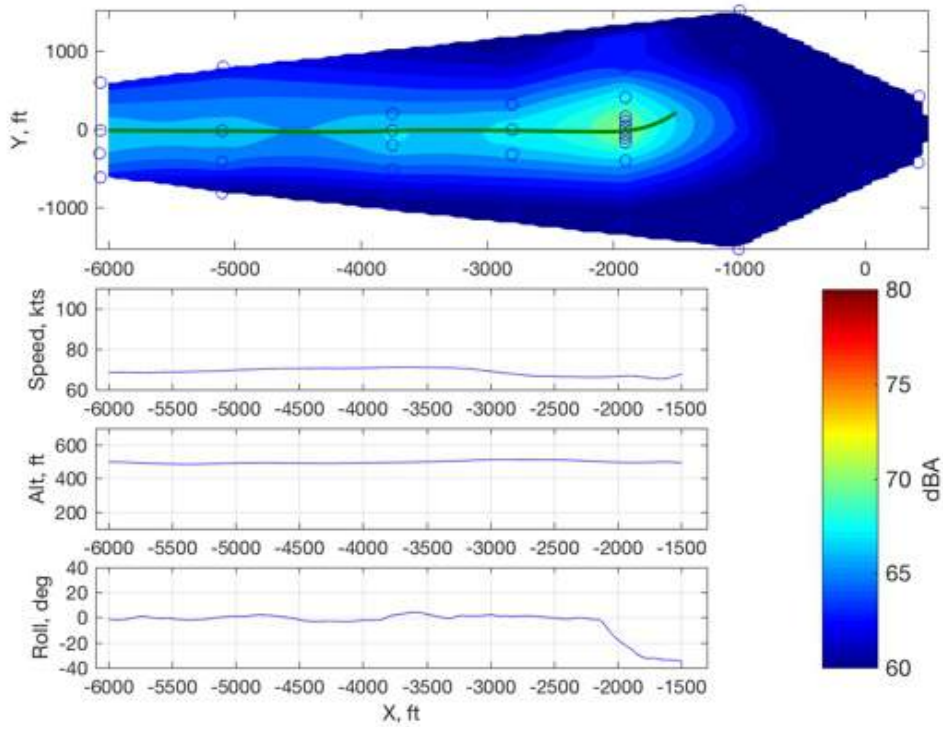


Figure 132: R44, 229407, N5, maximum dBA contour.

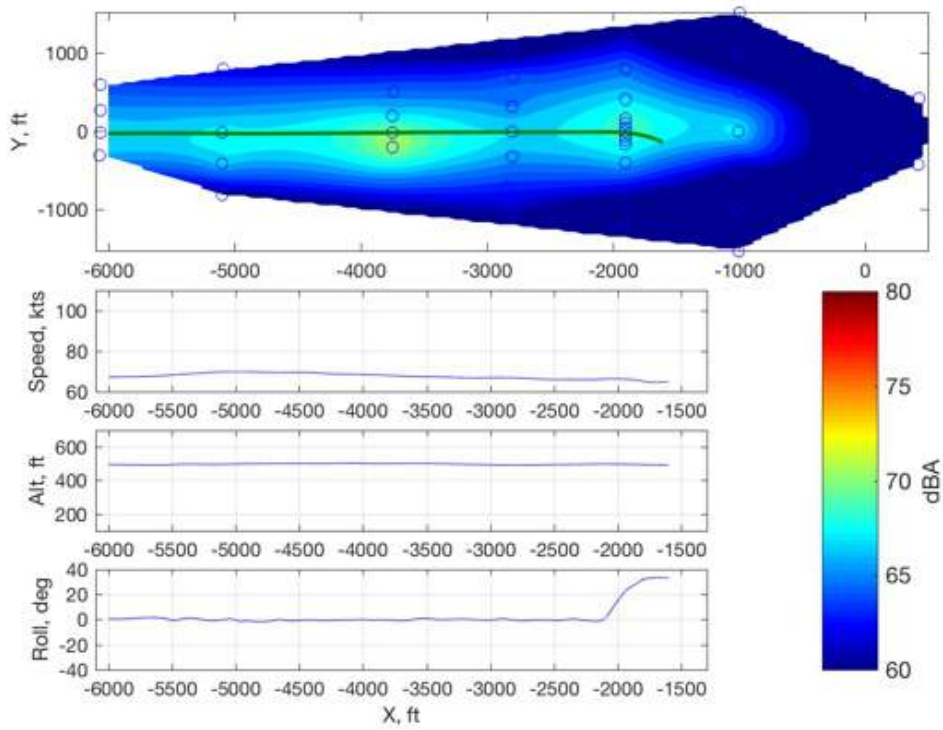


Figure 133: R44, 229408, N6, maximum dBA contour.

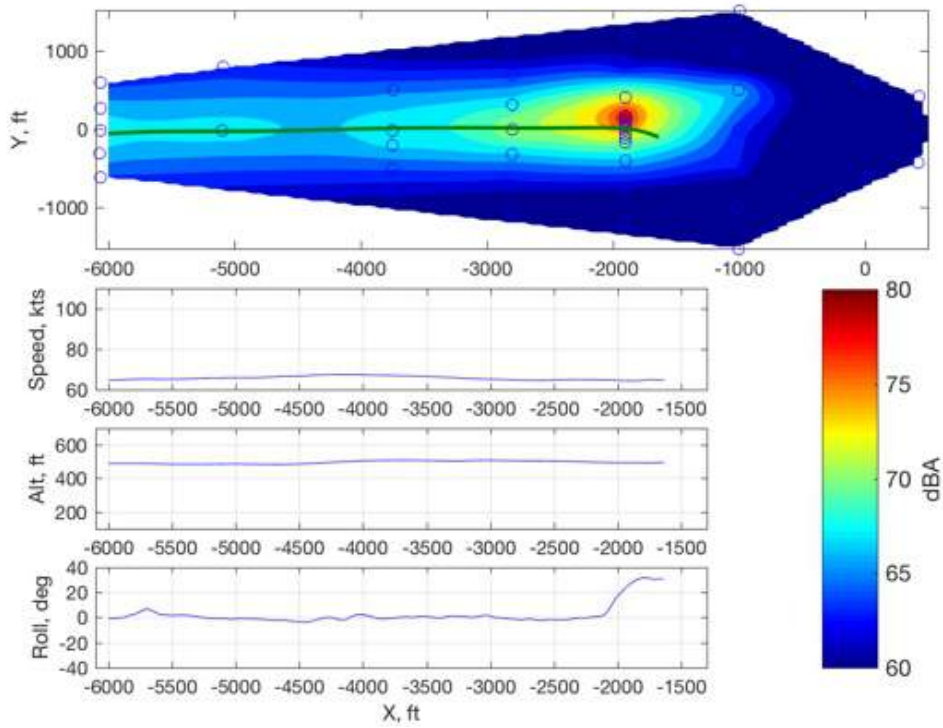


Figure 134: R44, 229409, N6, maximum dBA contour.

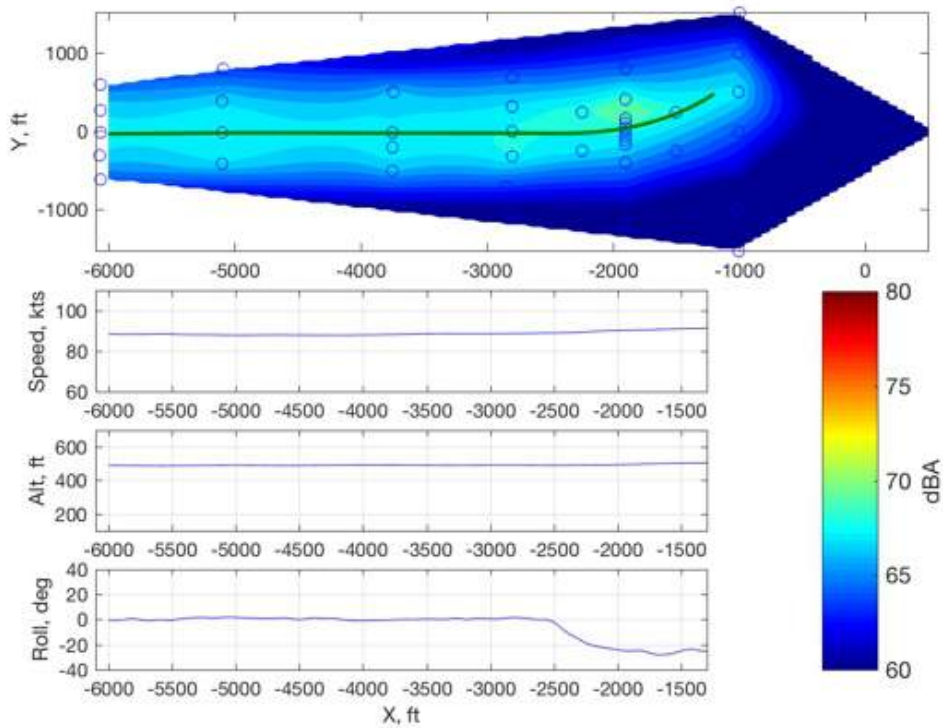


Figure 135: R44, 228201, N11, maximum dBA contour.

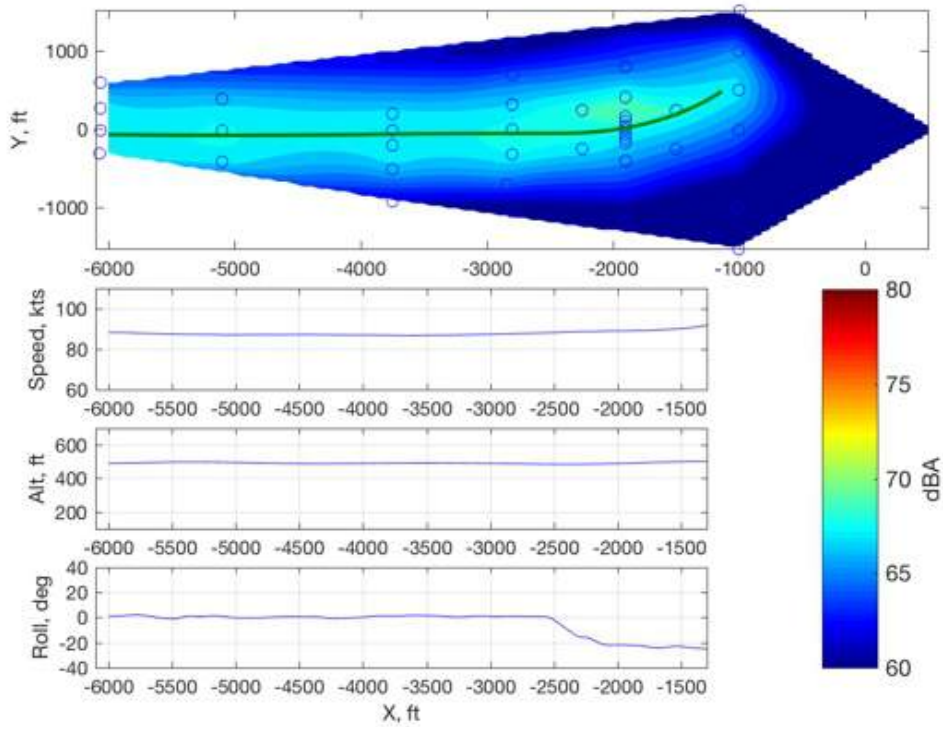


Figure 136: R44, 228202, N11, maximum dBA contour.

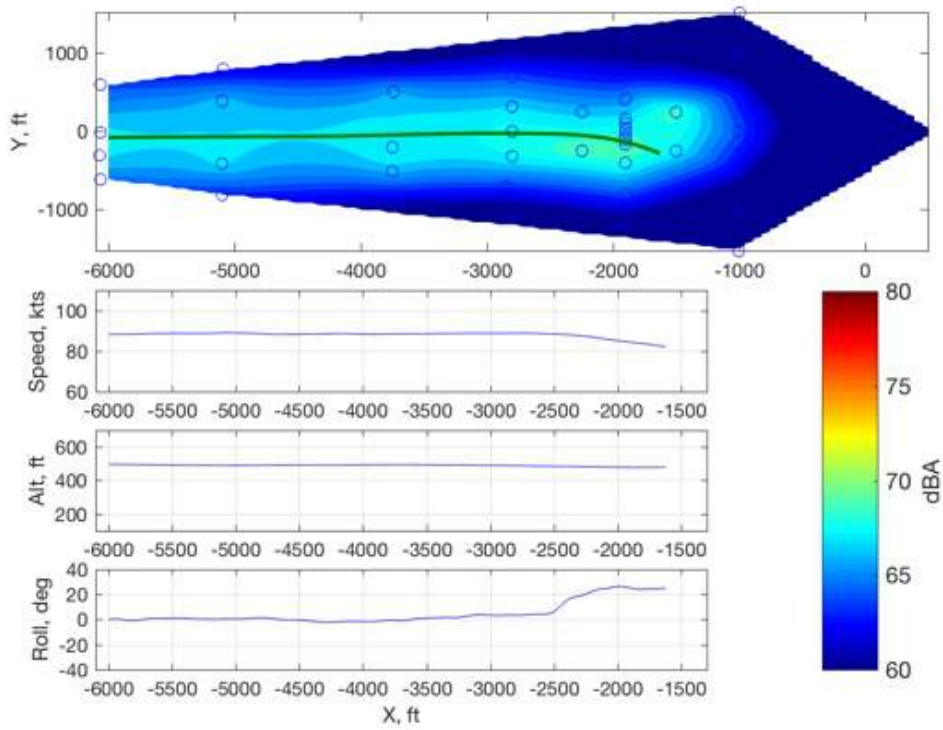


Figure 137: R44, 228203, N12, maximum dBA contour.

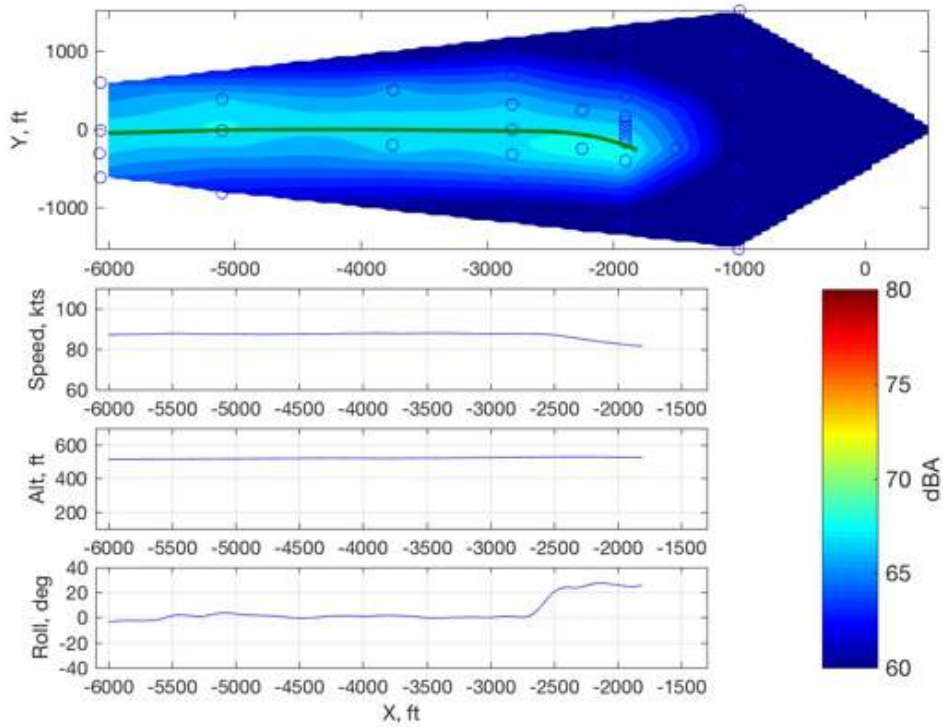


Figure 138: R44, 228204, N12, maximum dBA contour.

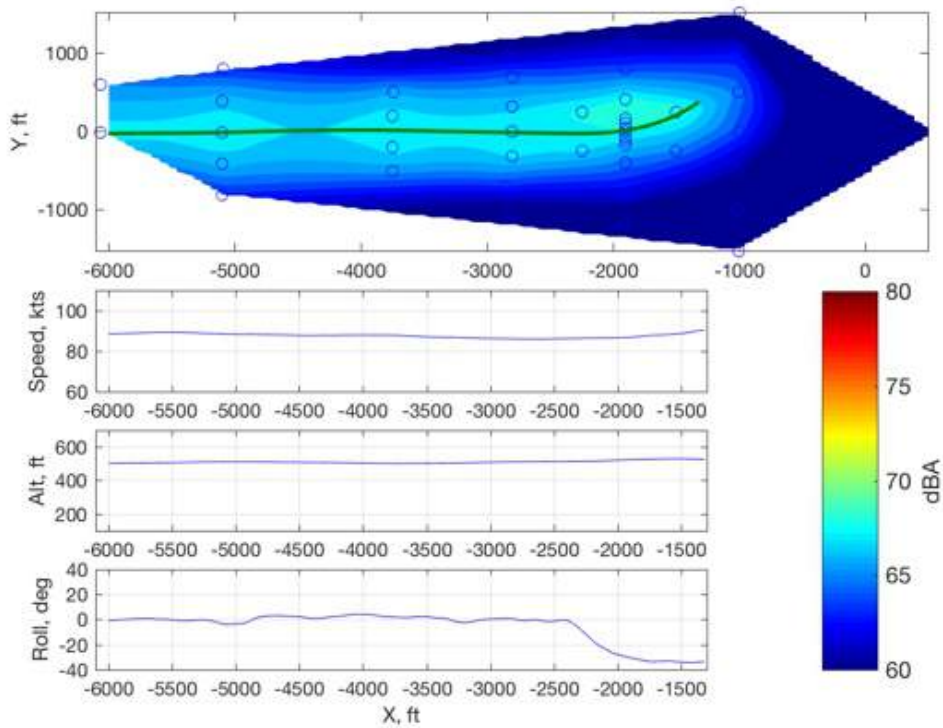


Figure 139: R44, 228205, N13, maximum dBA contour.

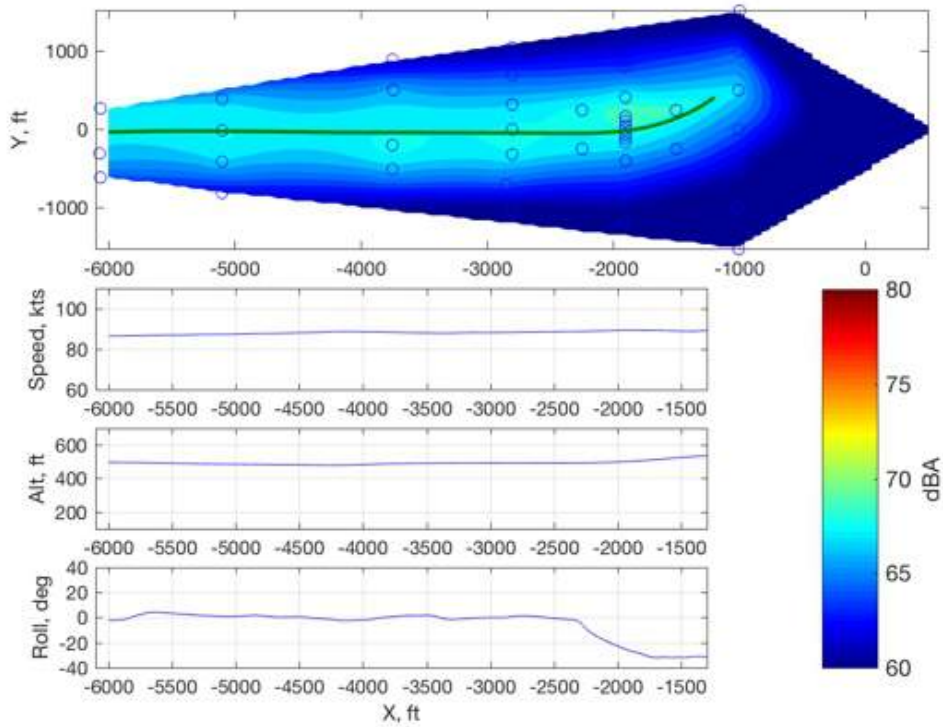


Figure 140: R44, 228206, N13, maximum dBA contour.

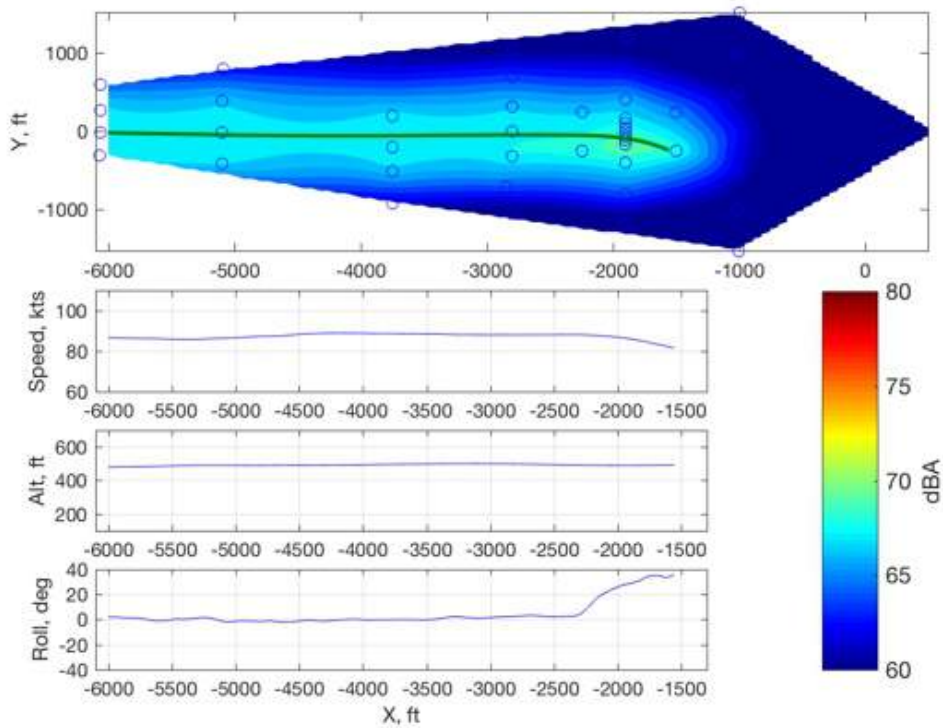


Figure 141: R44, 228207, N14, maximum dBA contour.

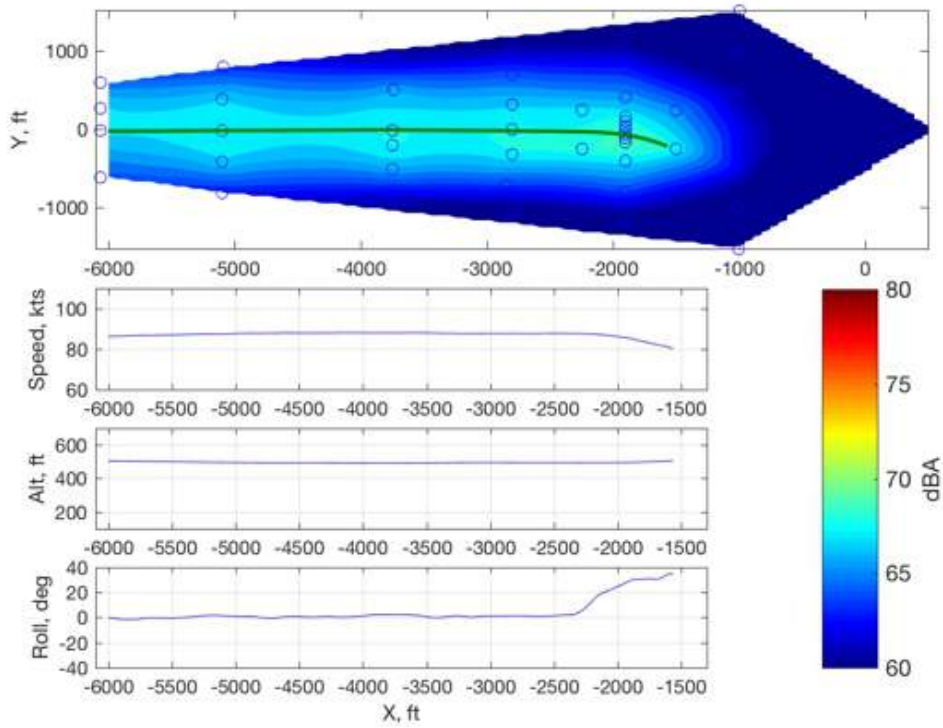


Figure 142: R44, 228208, N14, maximum dBA contour.

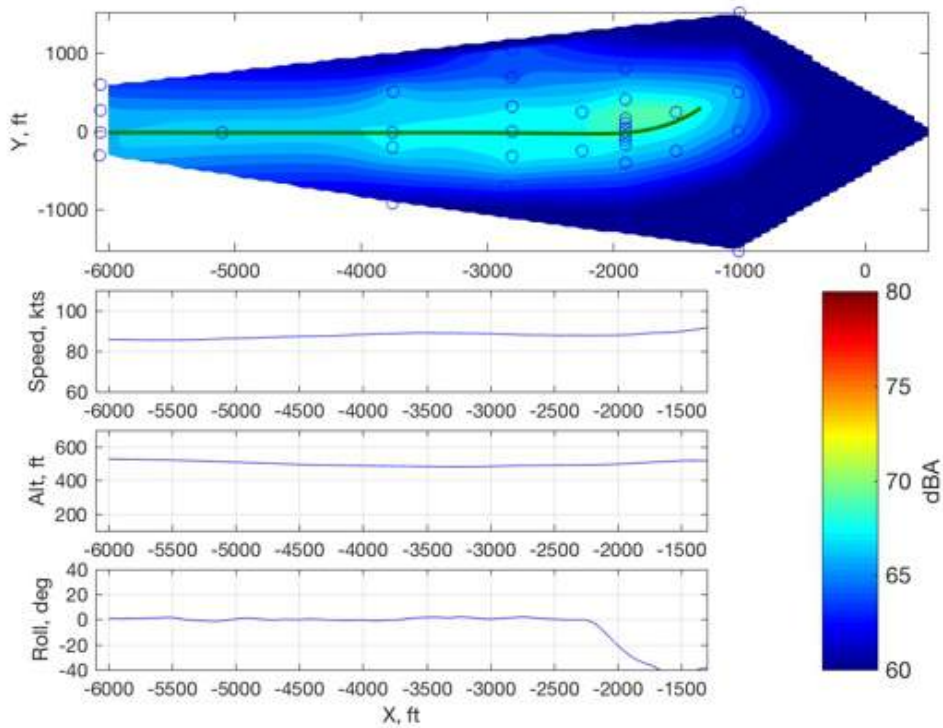


Figure 143: R44, 228209, N15, maximum dBA contour.

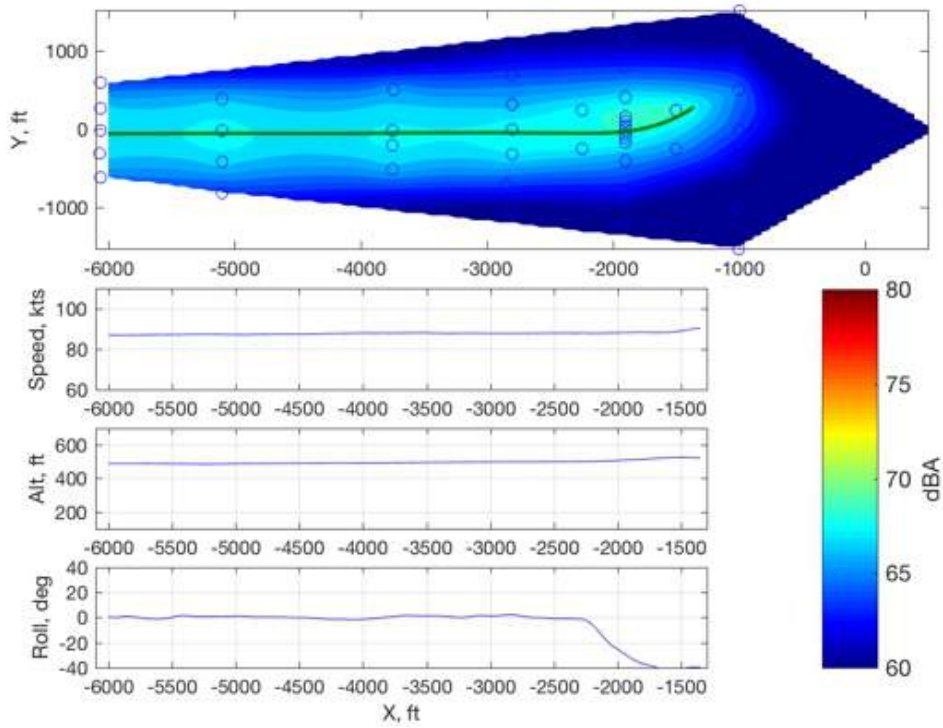


Figure 144: R44, 228210, N15, maximum dBA contour.

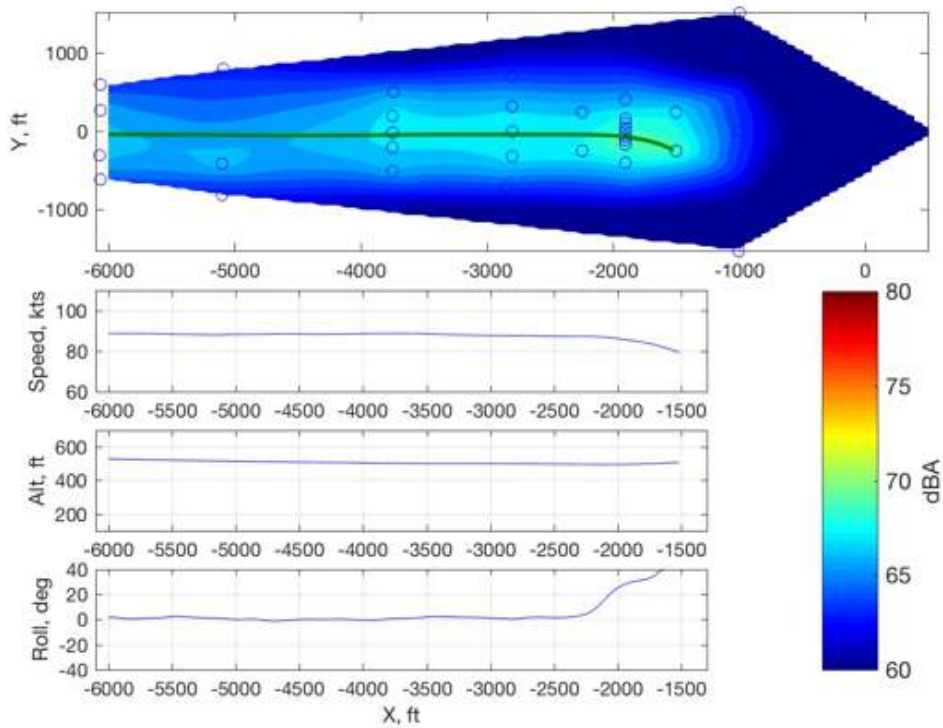


Figure 145: R44, 228211, N16, maximum dBA contour.

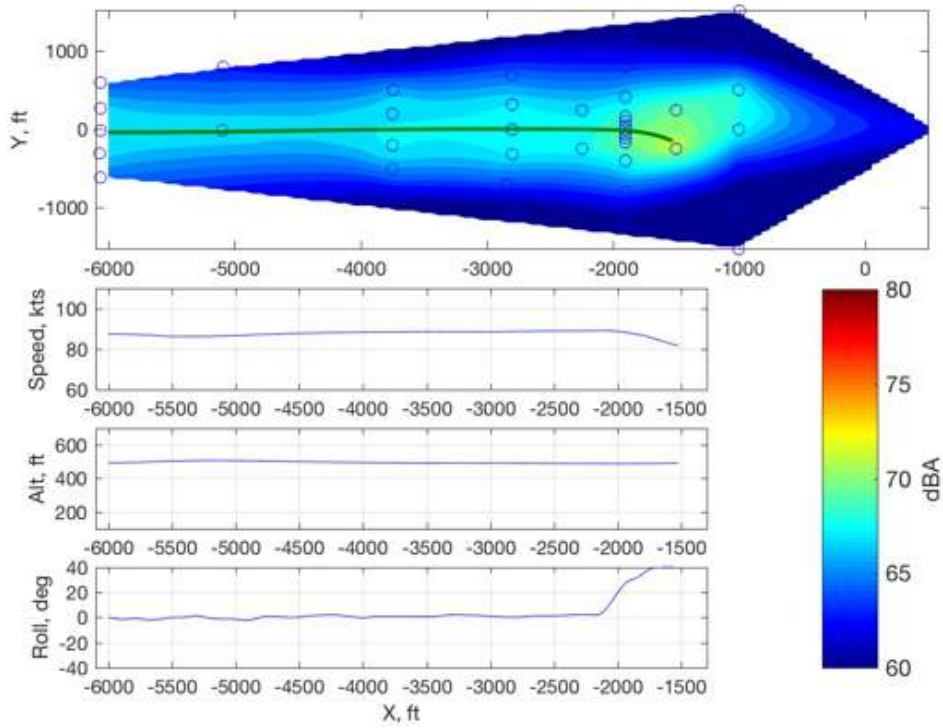


Figure 146: R44, 228212, N16, maximum dBA contour.

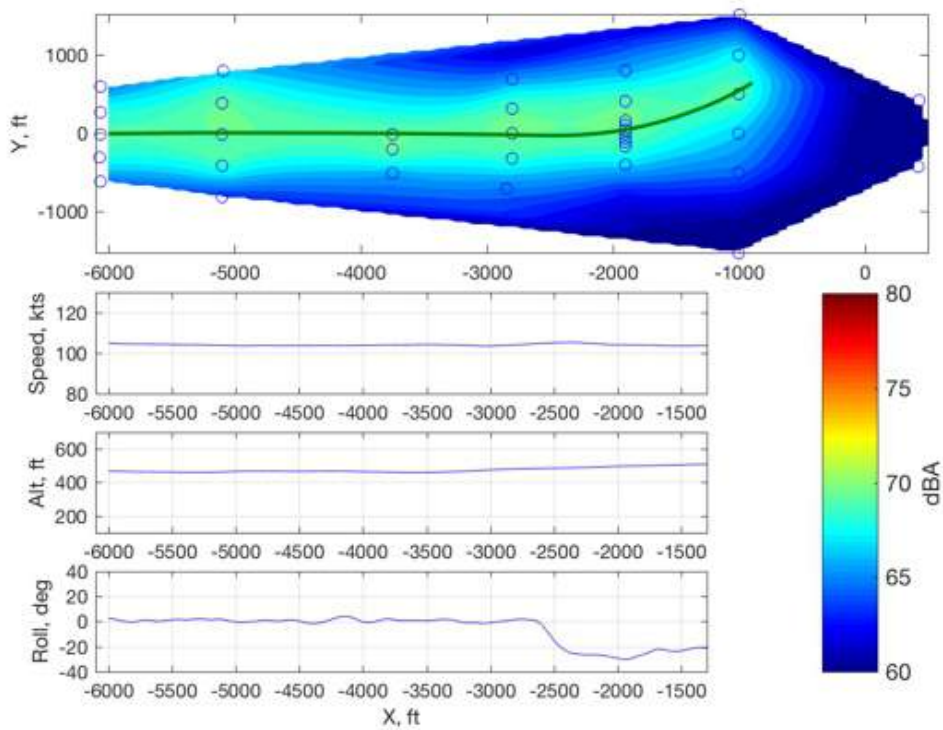


Figure 147: R44, 229410, N19, maximum dBA contour.

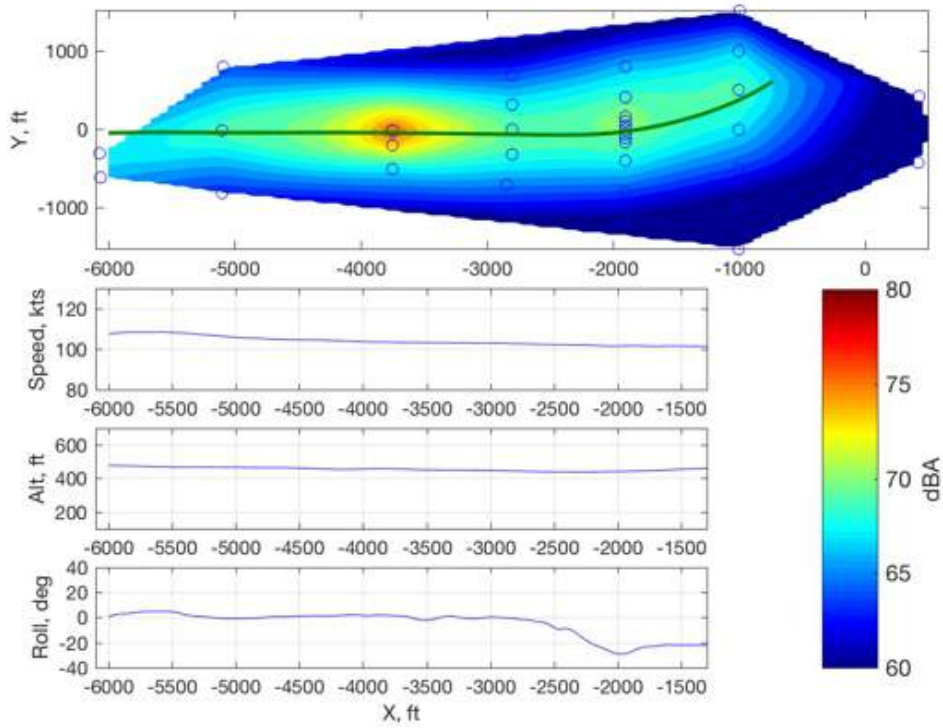


Figure 148: R44, 229411, N19, maximum dBA contour.

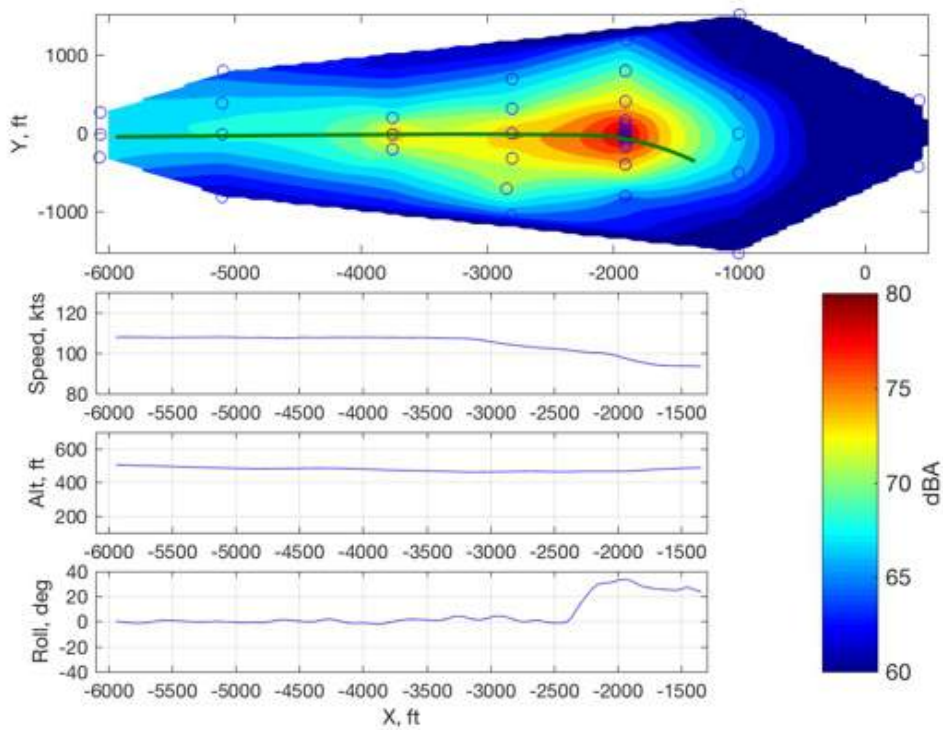


Figure 149: R44, 229412, N20, maximum dBA contour.

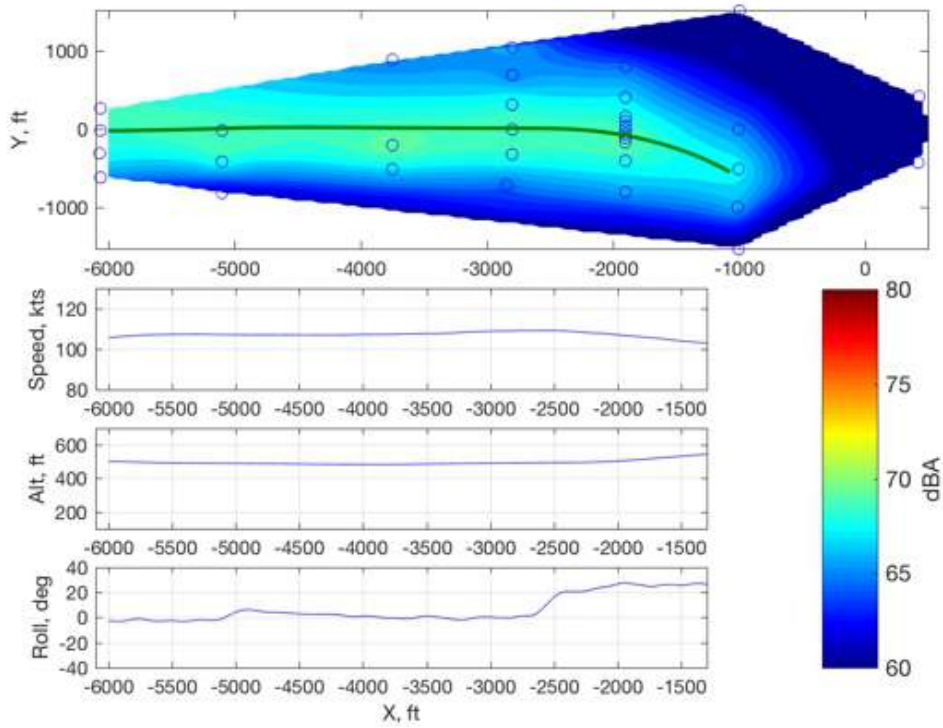


Figure 150: R44, 229413, N20, maximum dBA contour.

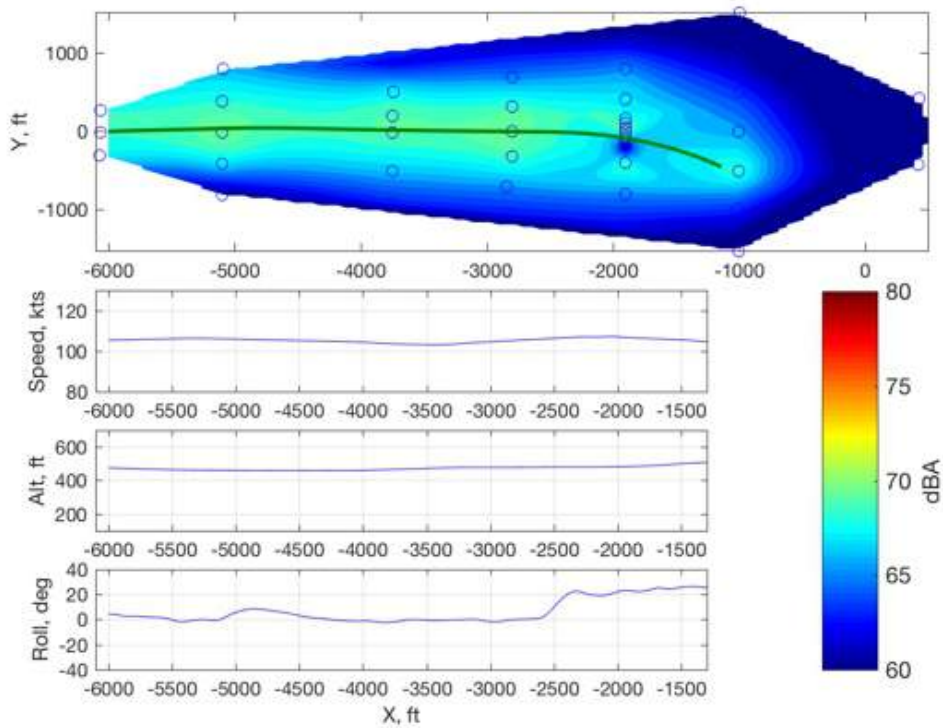


Figure 151: R44, 229414, N20, maximum dBA contour.

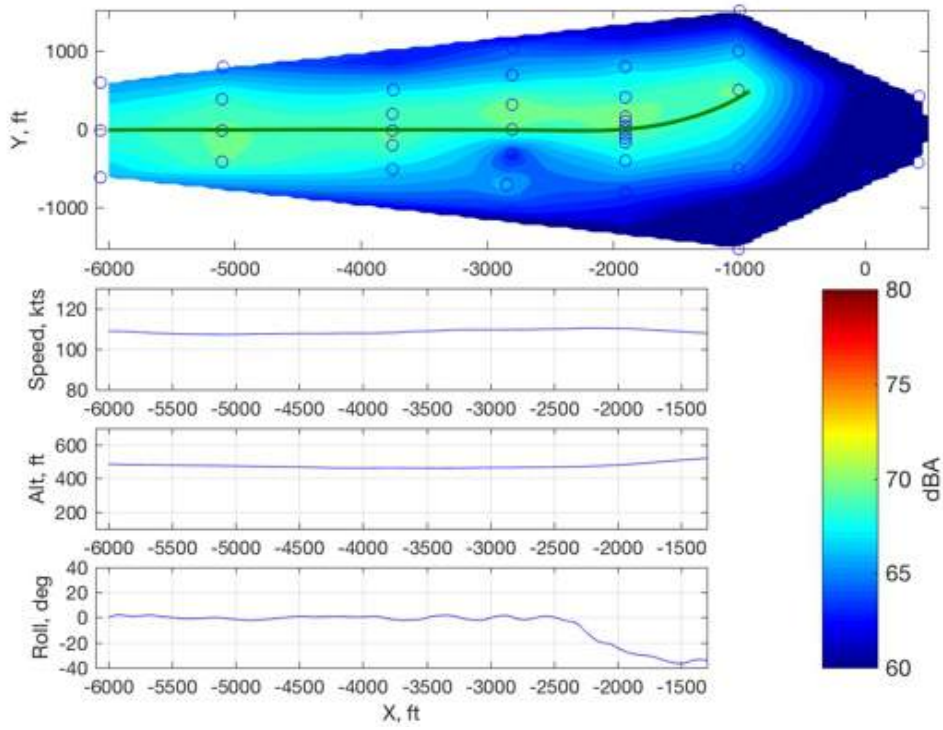


Figure 152: R44, 229415, N21, maximum dBA contour.

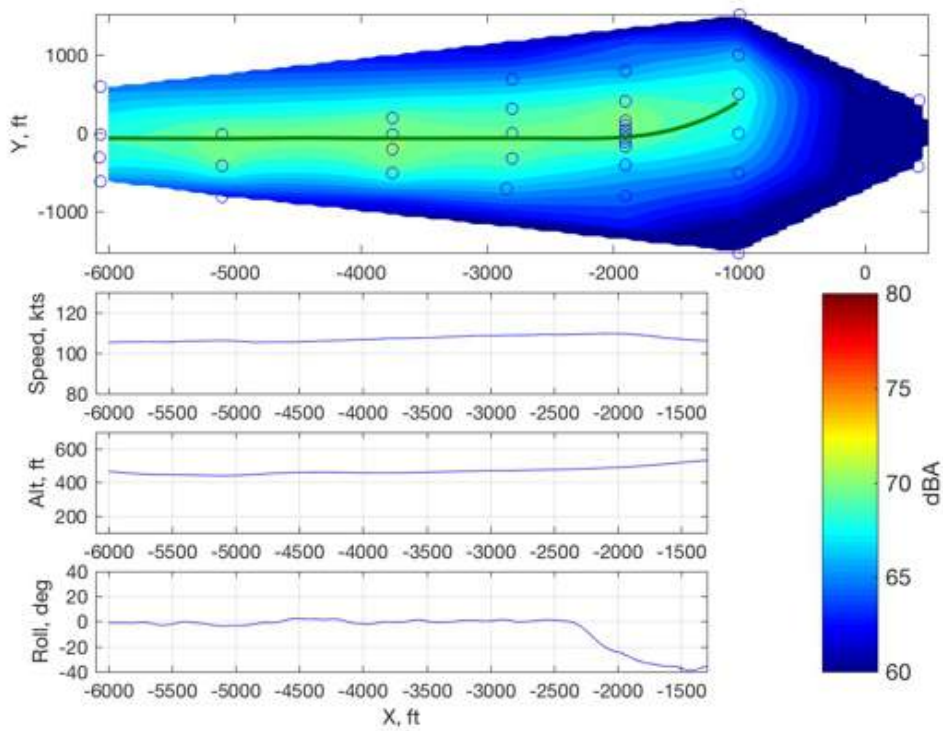


Figure 153: R44, 229416, N21, maximum dBA contour.

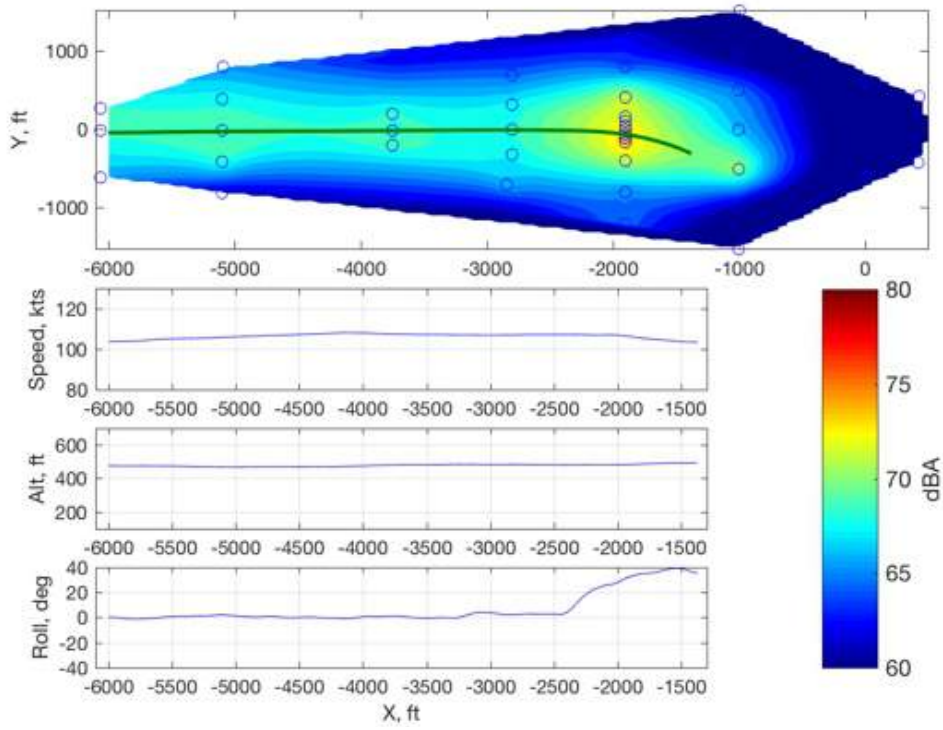


Figure 154: R44, 229417, N22, maximum dBA contour.

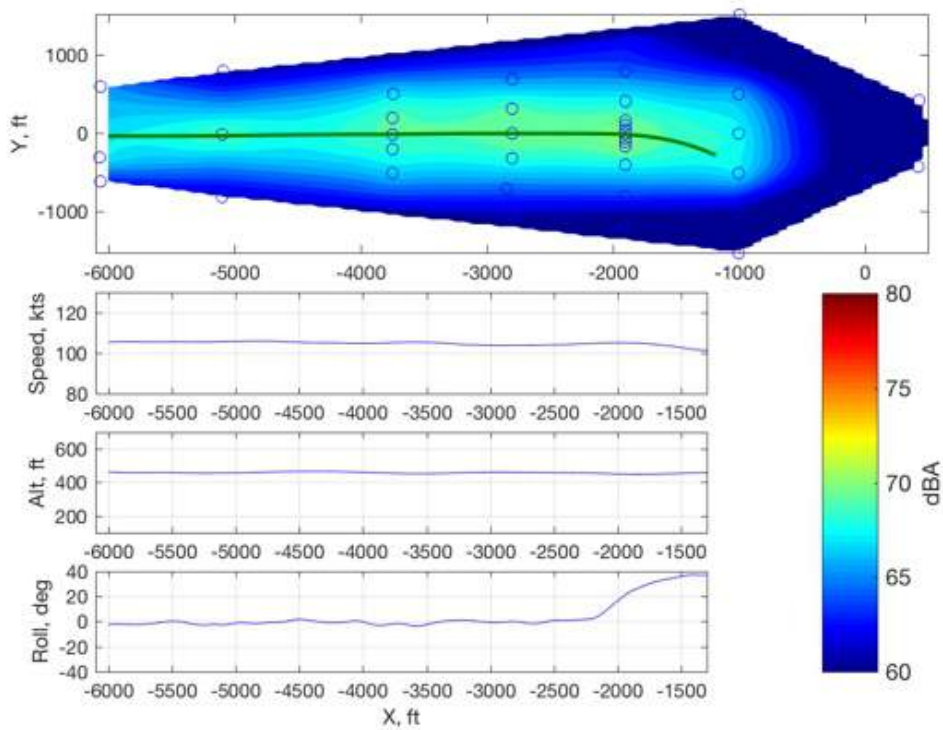


Figure 155: R44, 229418, N22, maximum dBA contour.

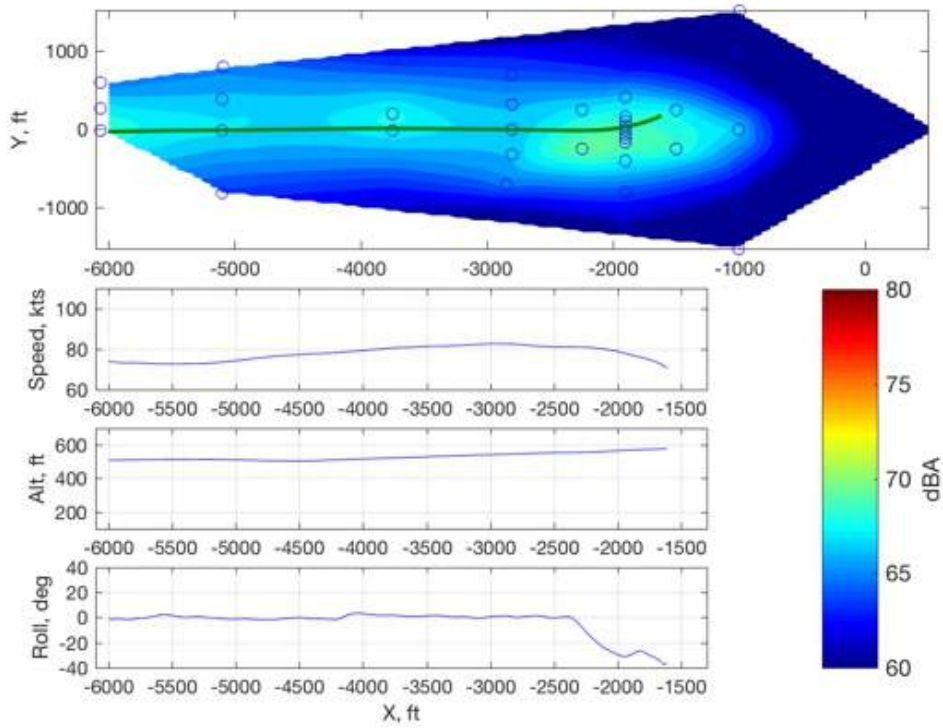


Figure 156: R44, 230451, O3, maximum dBA contour.

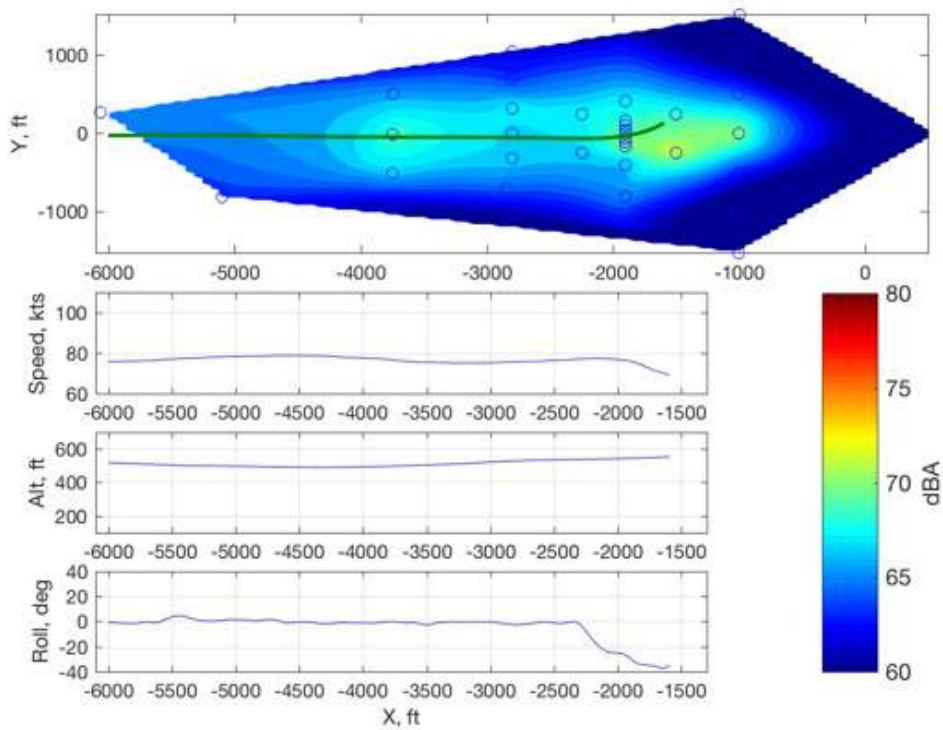


Figure 157: R44, 230452, O3, maximum dBA contour.

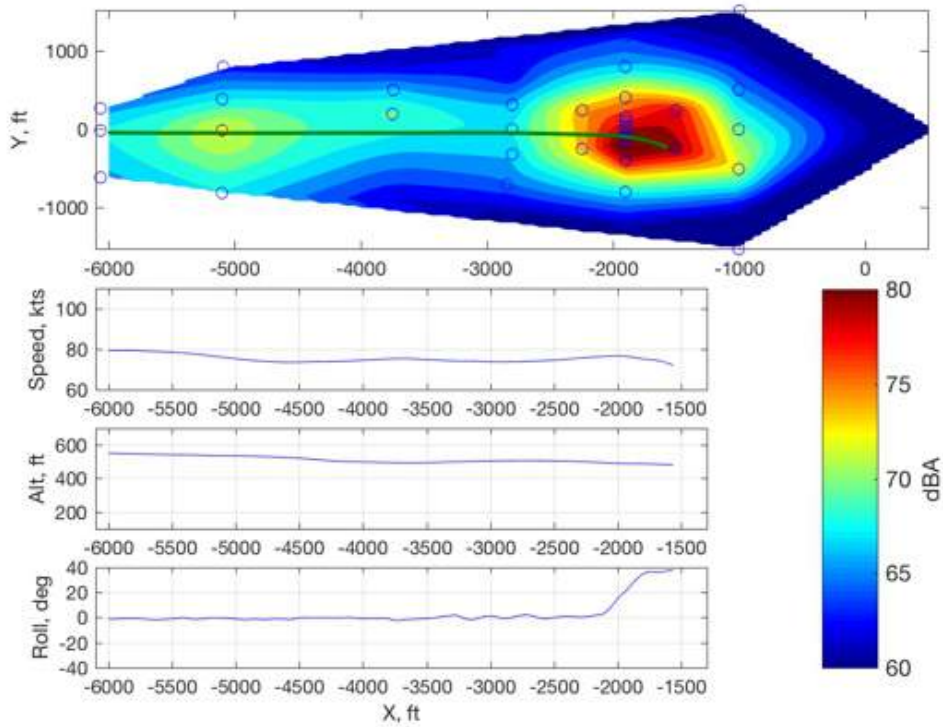


Figure 158: R44, 230453, O4, maximum dBA contour.

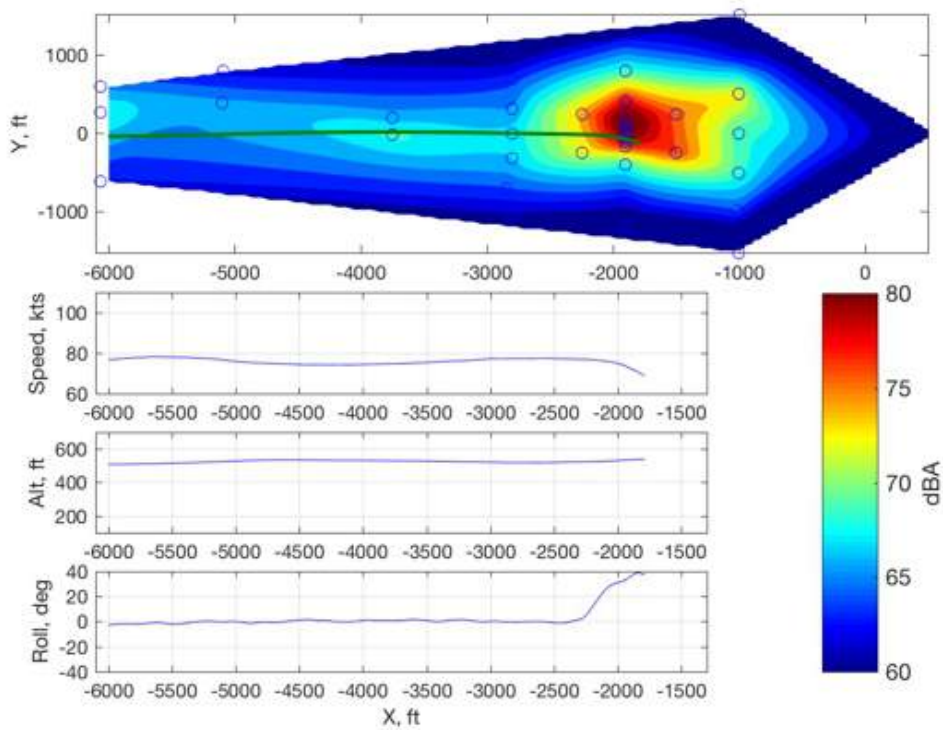


Figure 159: R44, 230454, O4, maximum dBA contour.

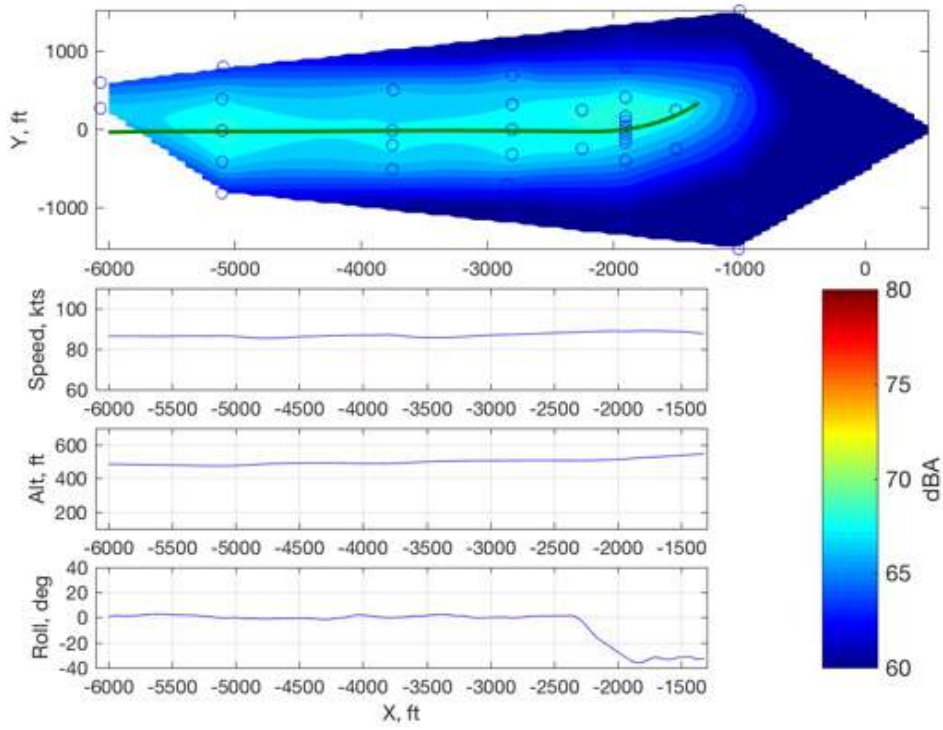


Figure 160: R44, 228213, O7, maximum dBA contour.

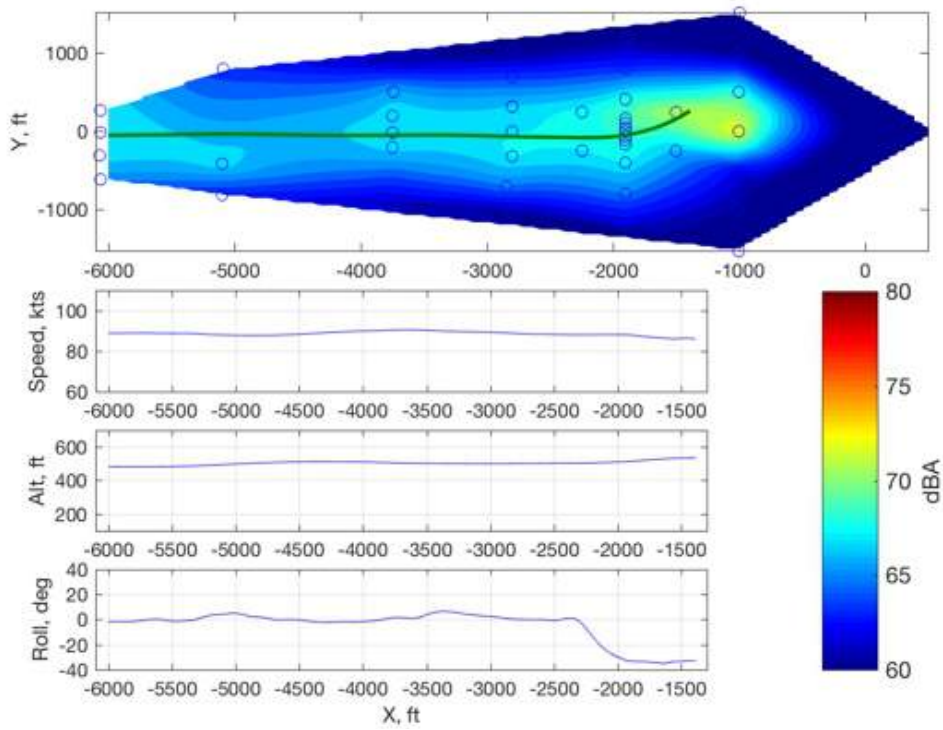


Figure 161: R44, 228214, O7, maximum dBA contour.

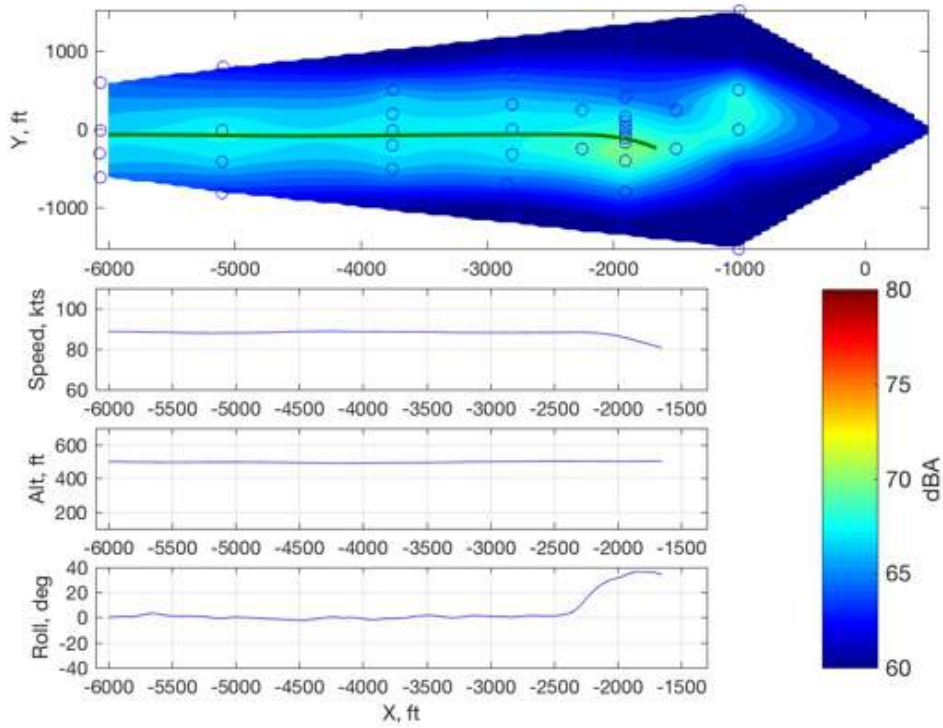


Figure 162: R44, 228215, O8, maximum dBA contour.

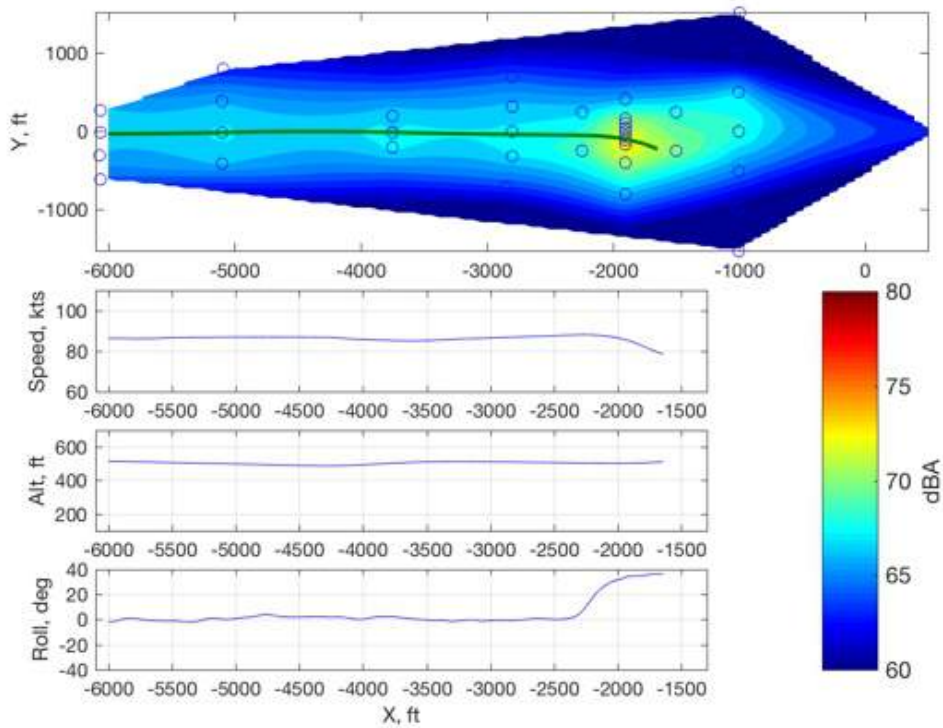


Figure 163: R44, 228216, O8, maximum dBA contour.

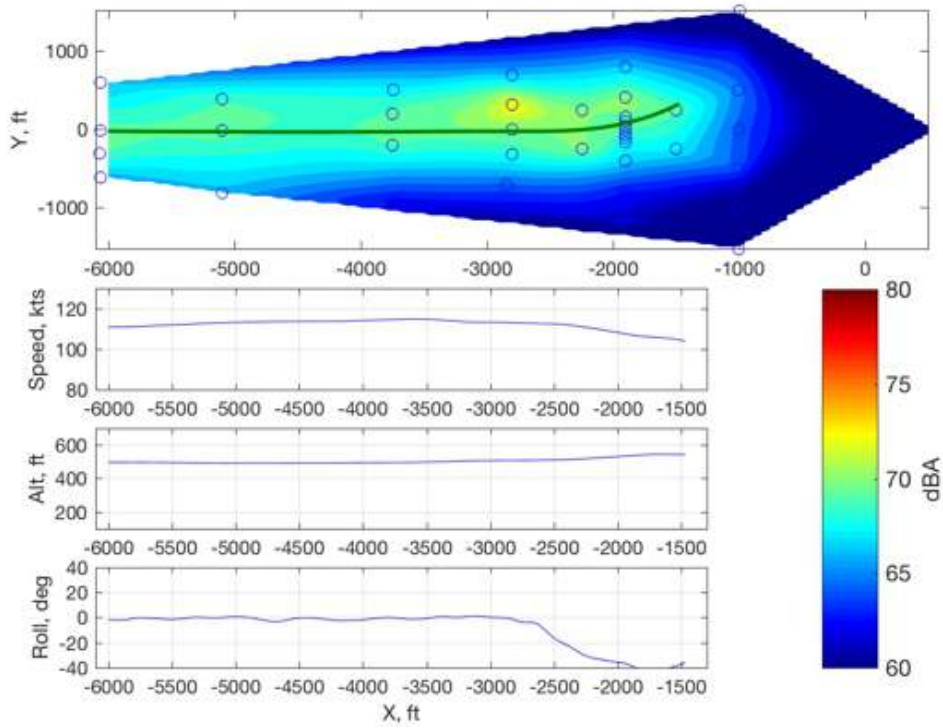


Figure 164: R44, 230455, O11, maximum dBA contour.

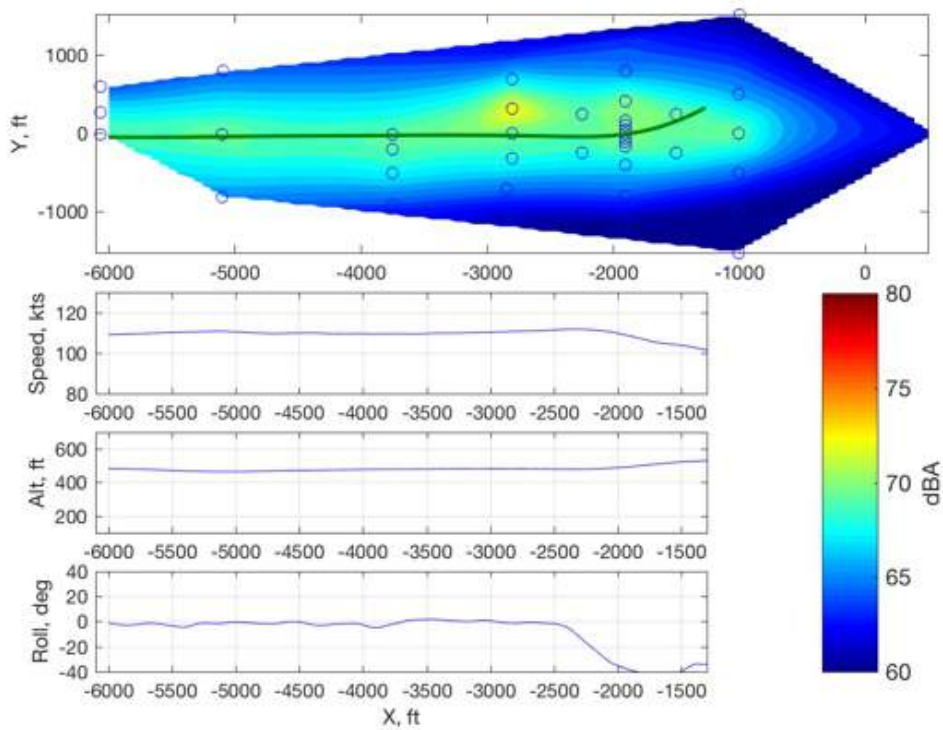


Figure 165: R44, 230456, O11, maximum dBA contour.

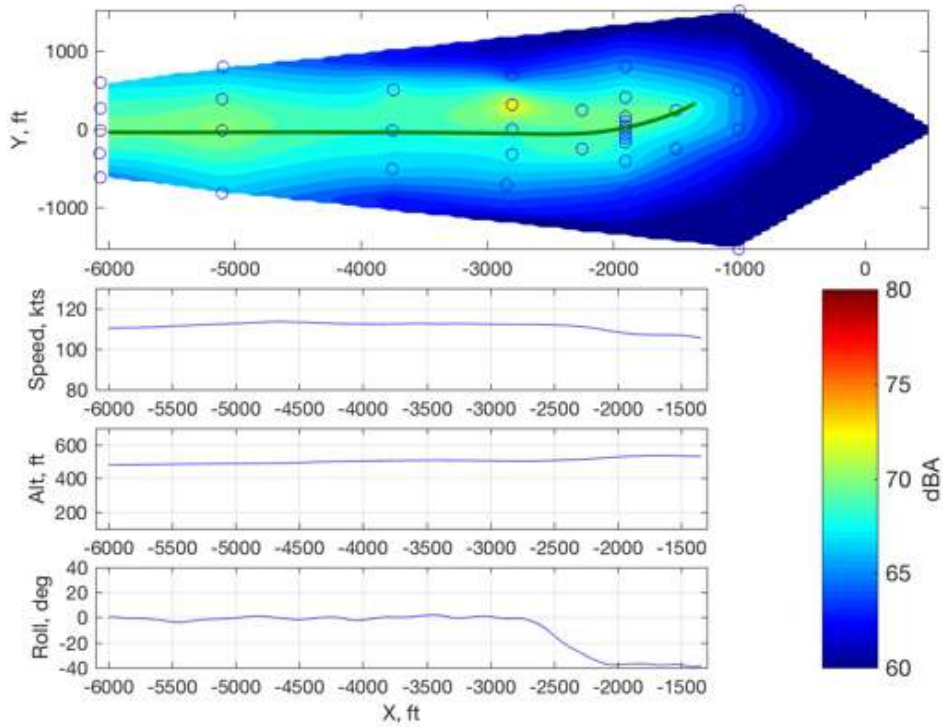


Figure 166: R44, 230457, O11, maximum dBA contour.

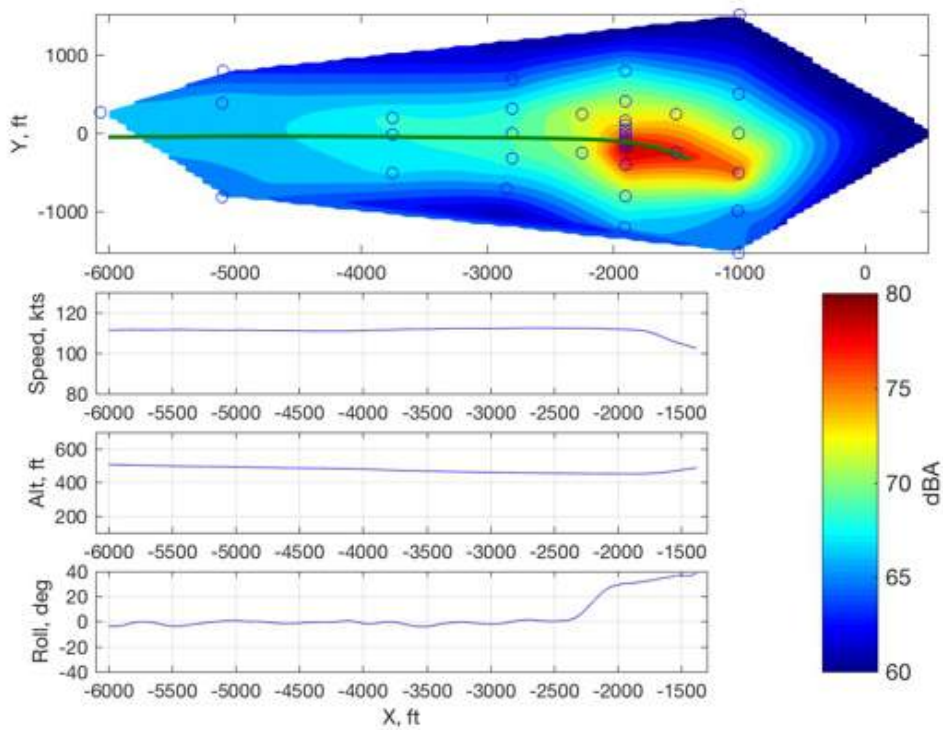


Figure 167: R44, 230458, O12, maximum dBA contour.

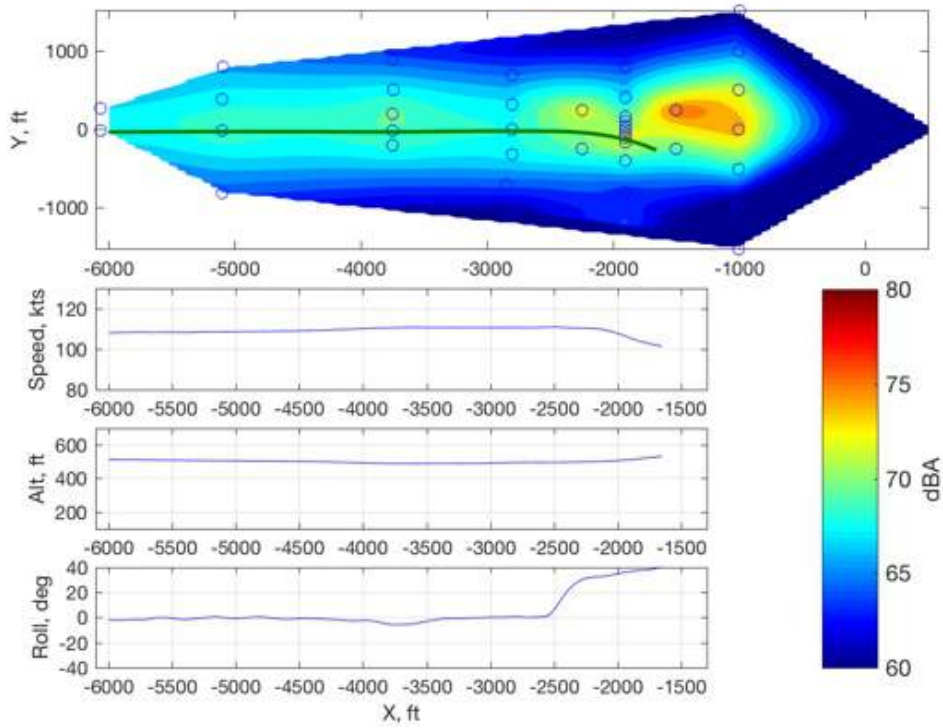


Figure 168: R44, 230459, O12, maximum dBA contour.

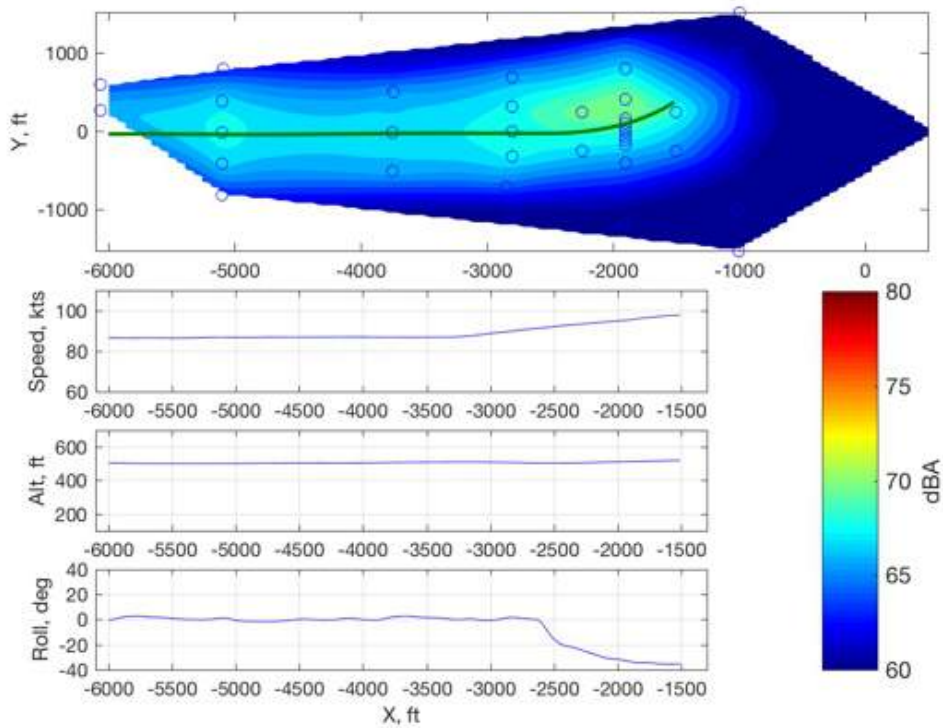


Figure 169: R44, 228217, X27, maximum dBA contour.

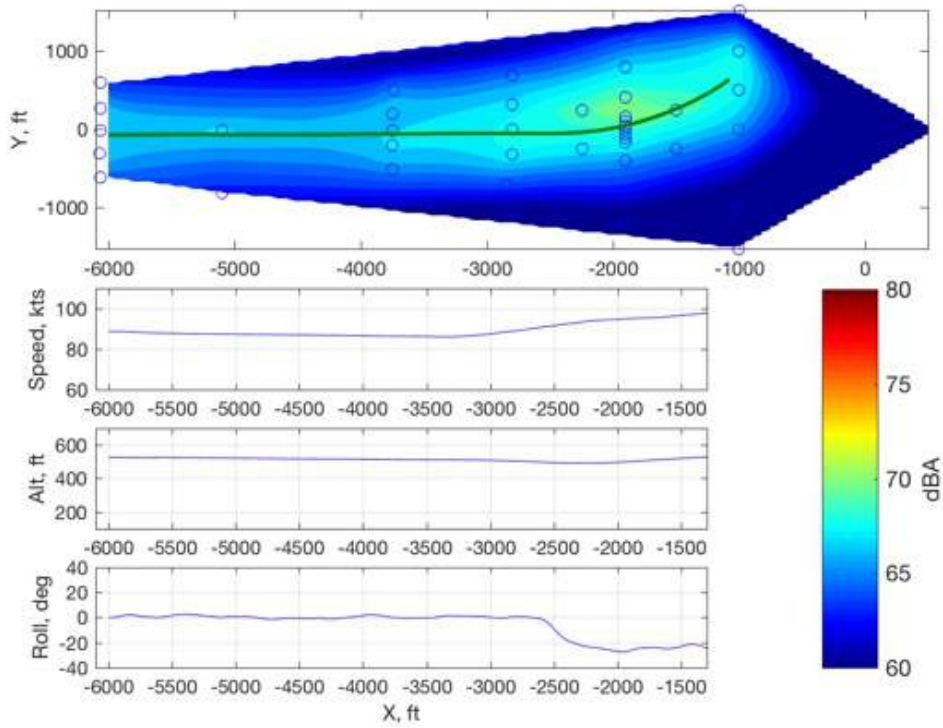


Figure 170: R44, 228218, X27, maximum dBA contour.

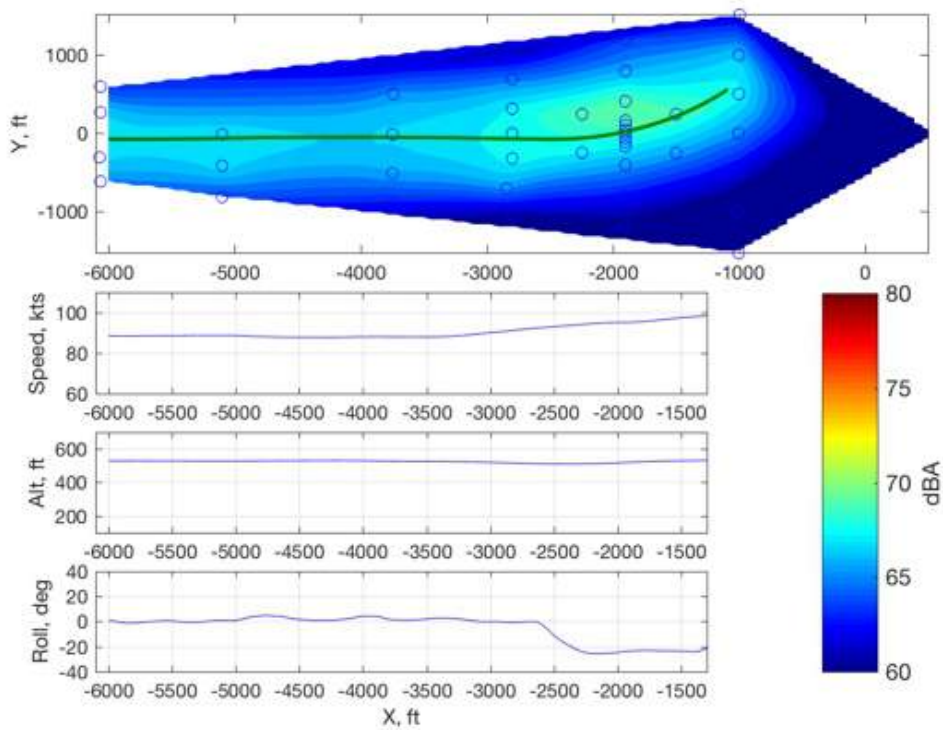


Figure 171: R44, 228219, X27, maximum dBA contour.

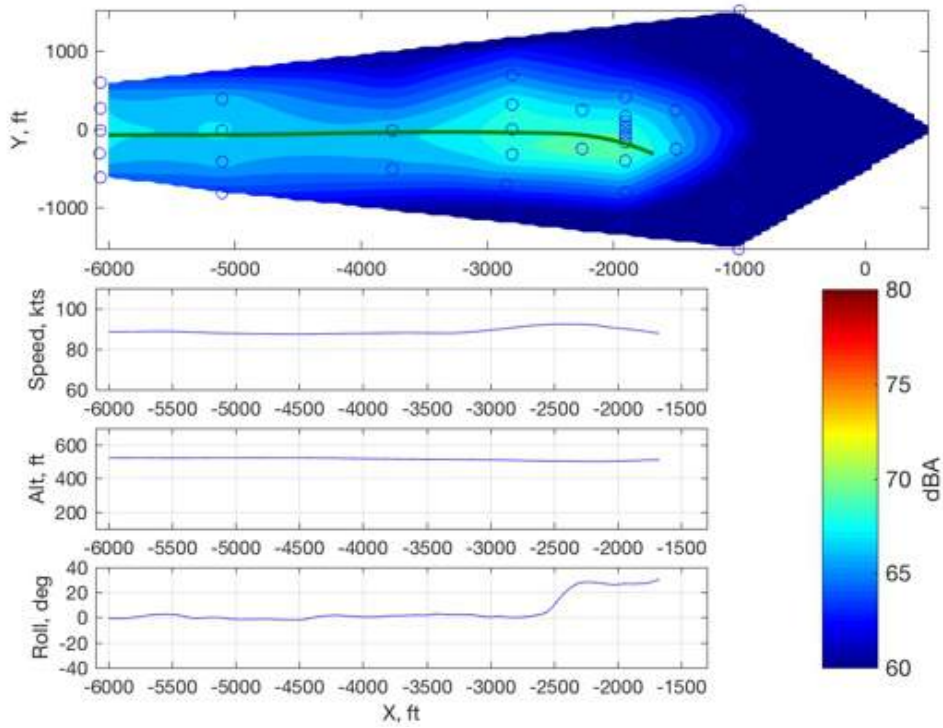


Figure 172: R44, 228220, X28, maximum dBA contour.

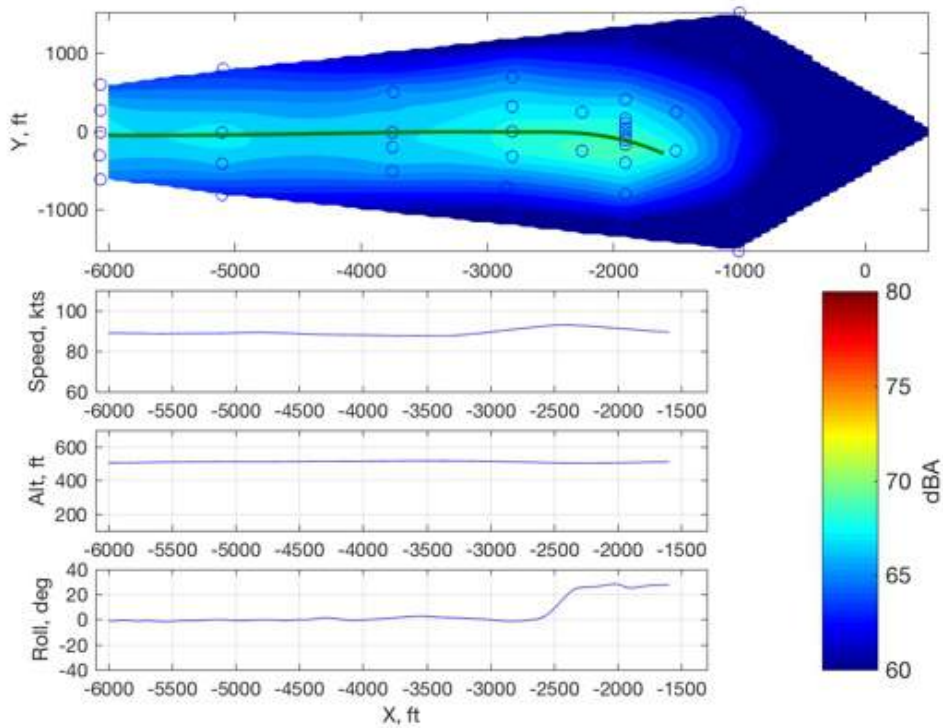


Figure 173: R44, 228221, X28, maximum dBA contour.

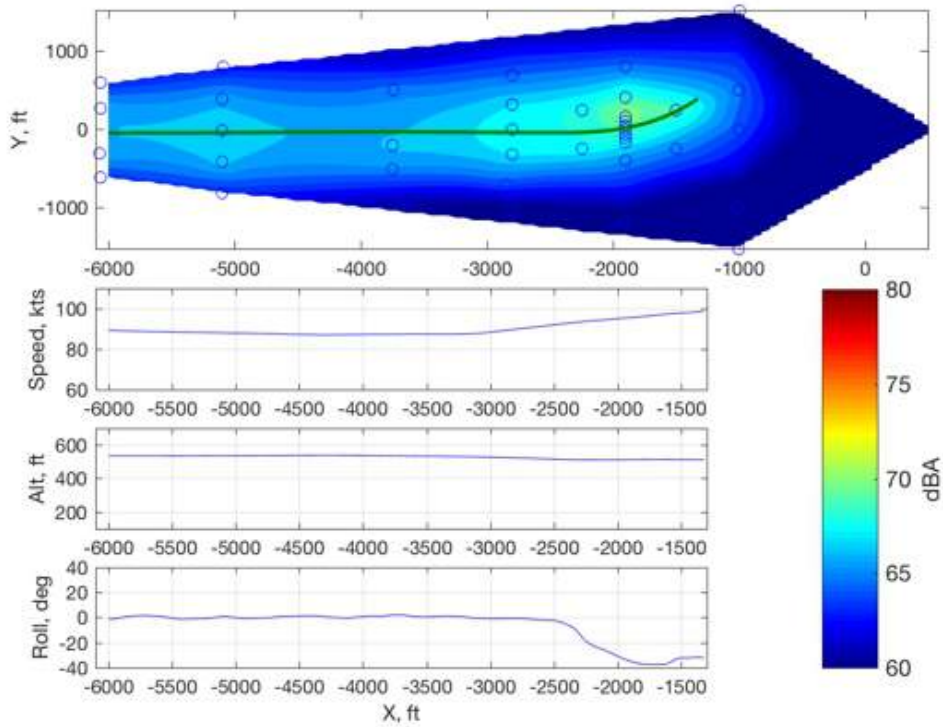


Figure 174: R44, 228222, X31, maximum dBA contour.

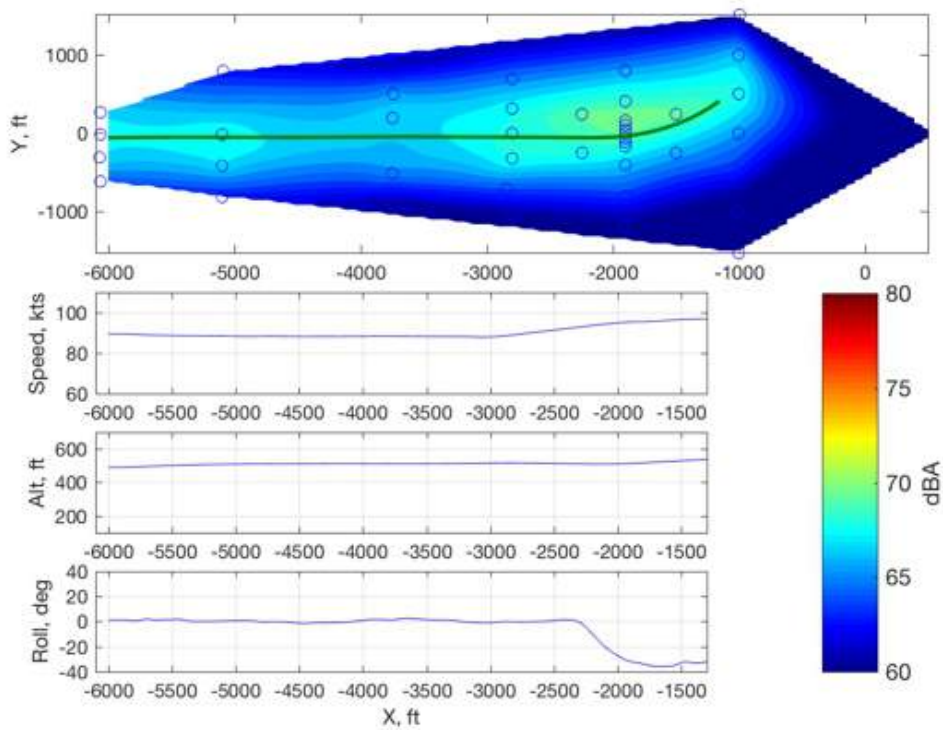


Figure 175: R44, 228223, X31, maximum dBA contour.

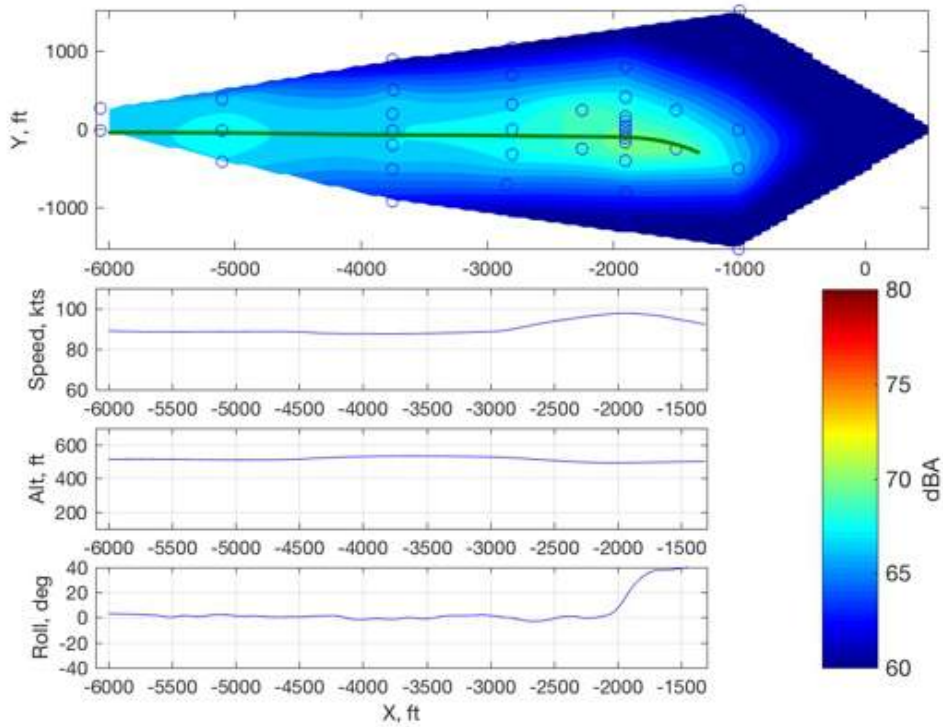


Figure 176: R44, 228224, X32, maximum dBA contour.

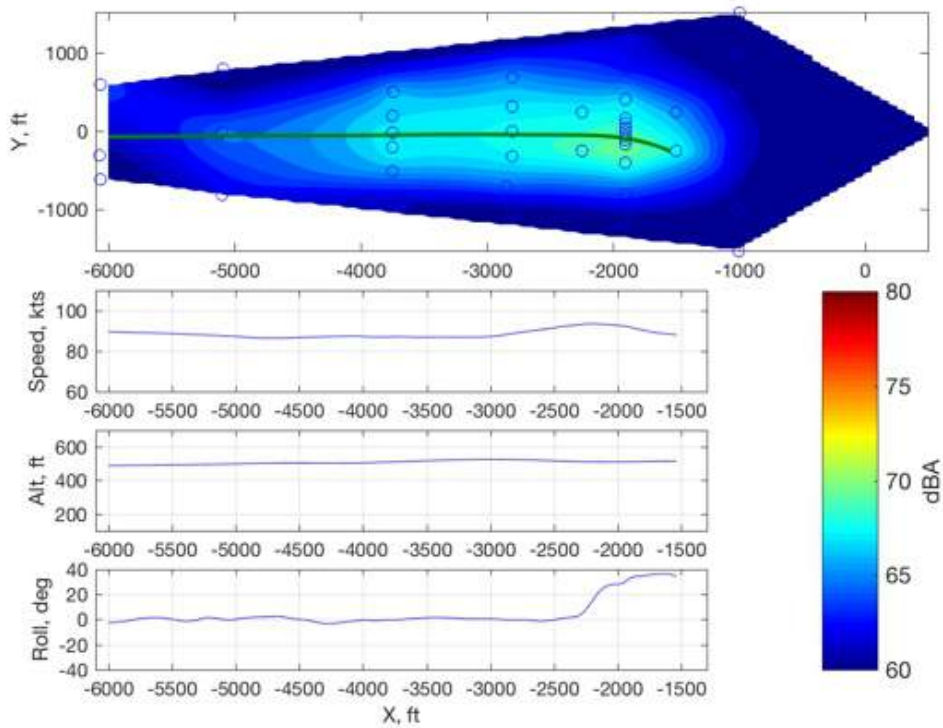


Figure 177: R44, 228225, X32, maximum dBA contour.

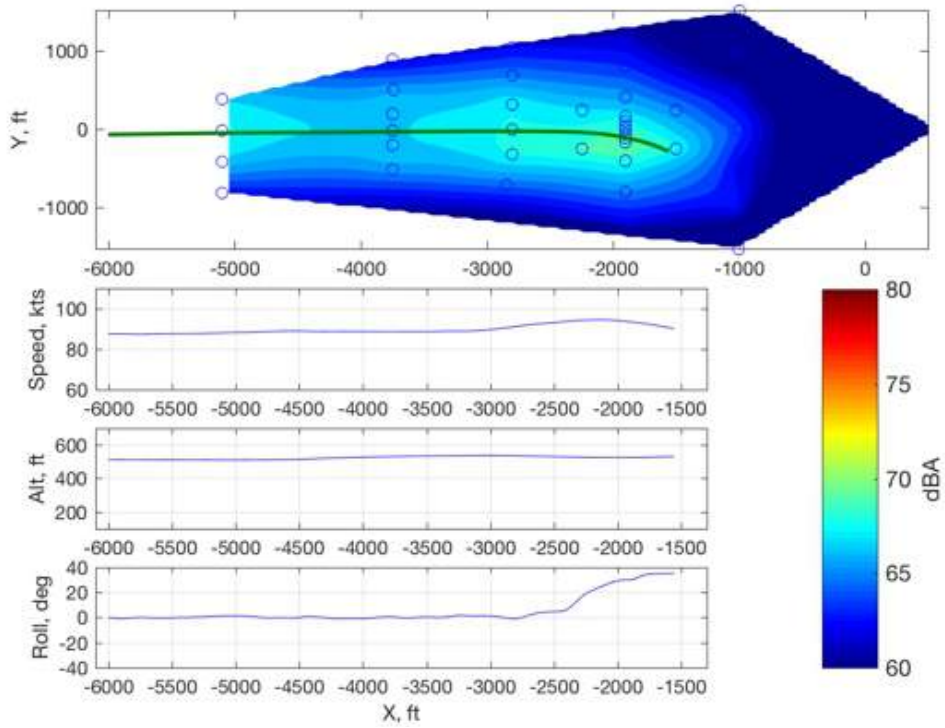


Figure 178: R44, 228226, X32, maximum dBA contour.

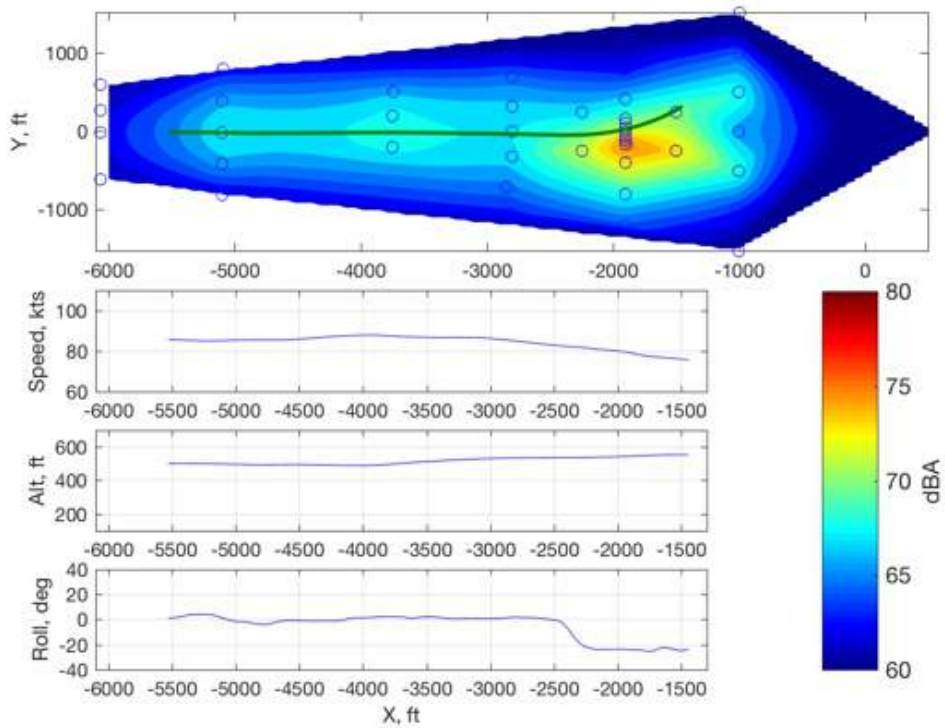


Figure 179: R44, 228227, X39, maximum dBA contour.

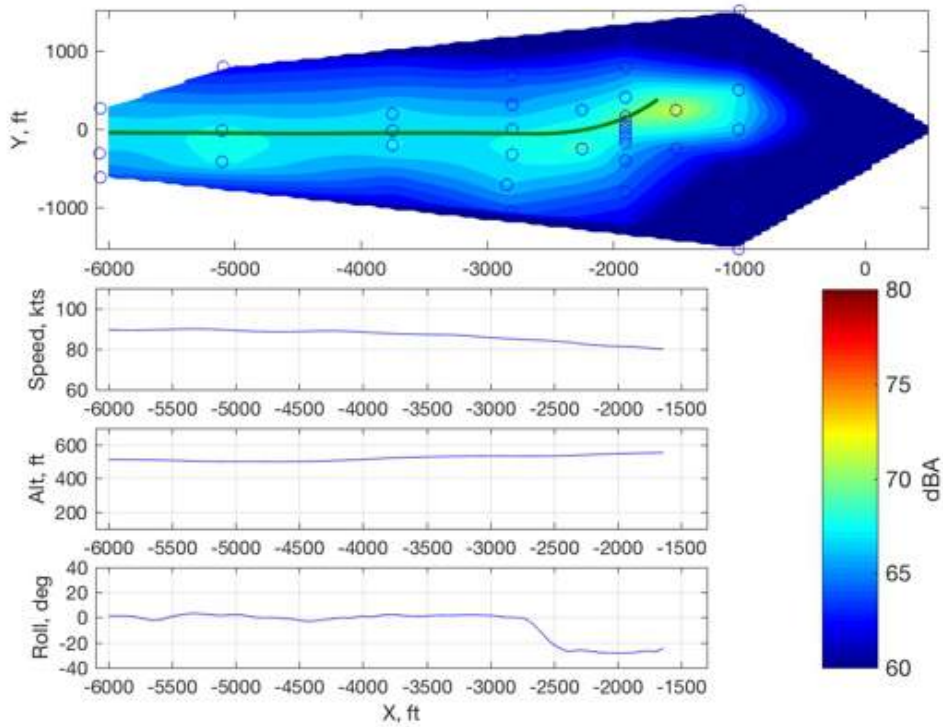


Figure 180: R44, 228228, X39, maximum dBA contour.

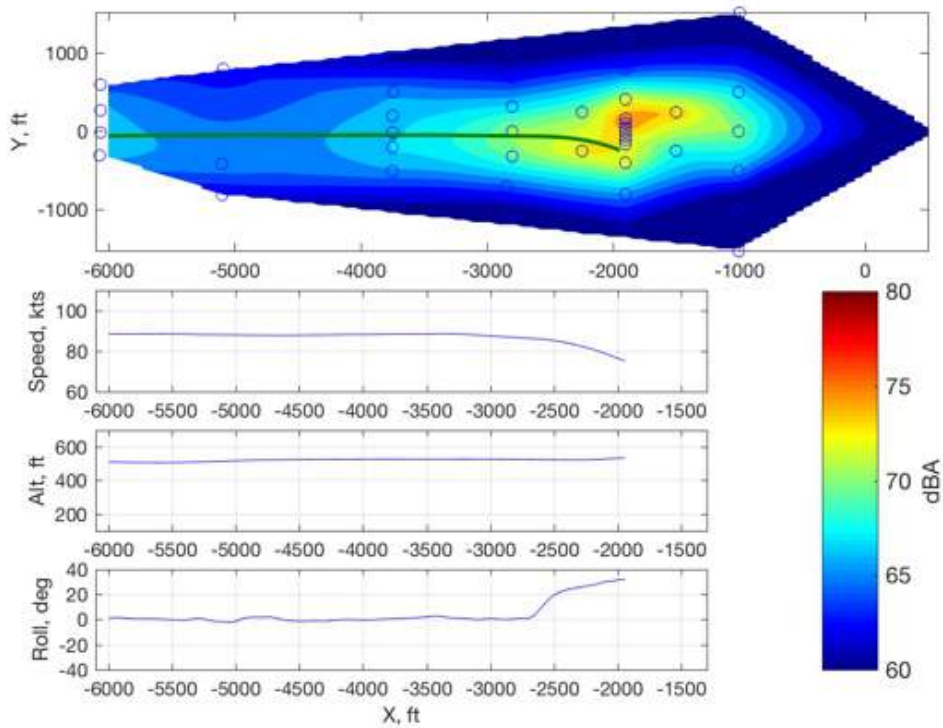


Figure 181: R44, 228229, X40, maximum dBA contour.

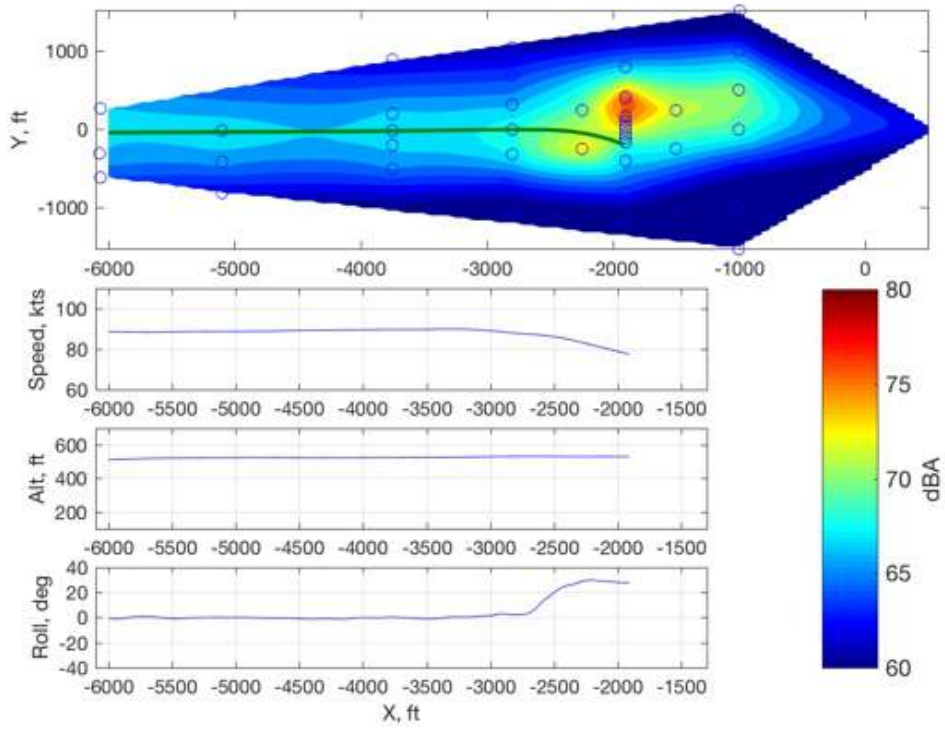


Figure 182: R44, 228230, X40, maximum dBA contour.

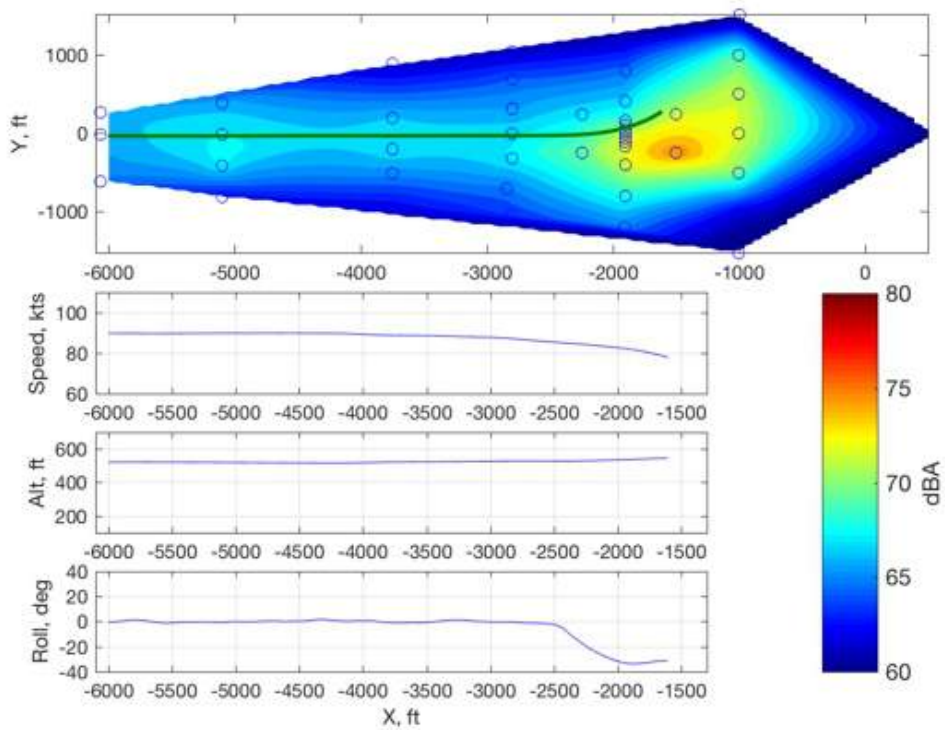


Figure 183: R44, 228231, X43, maximum dBA contour.

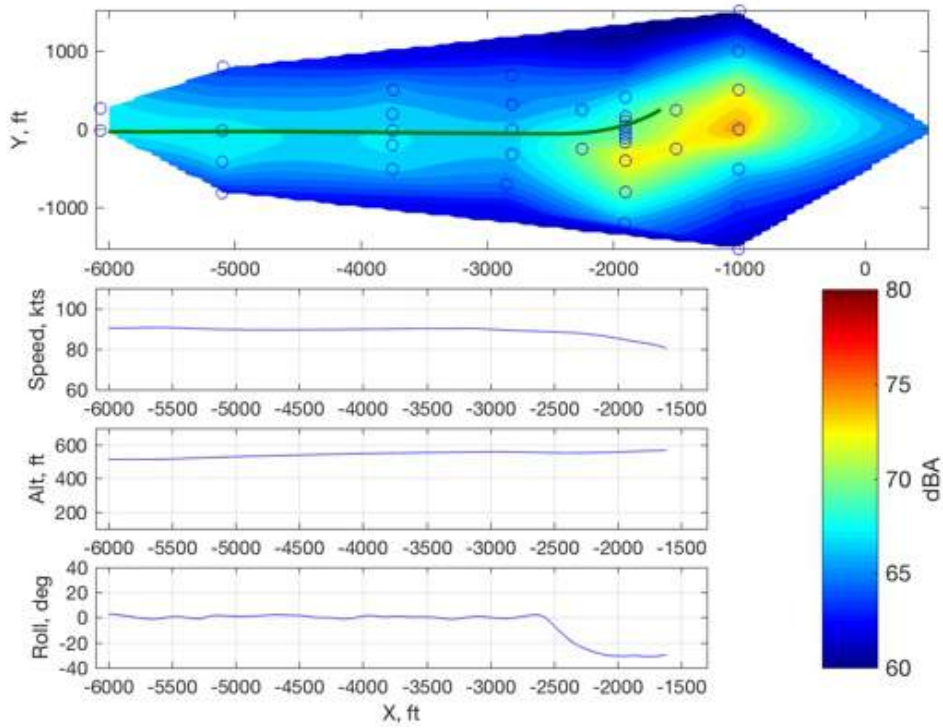


Figure 184: R44, 228232, X43, maximum dBA contour.

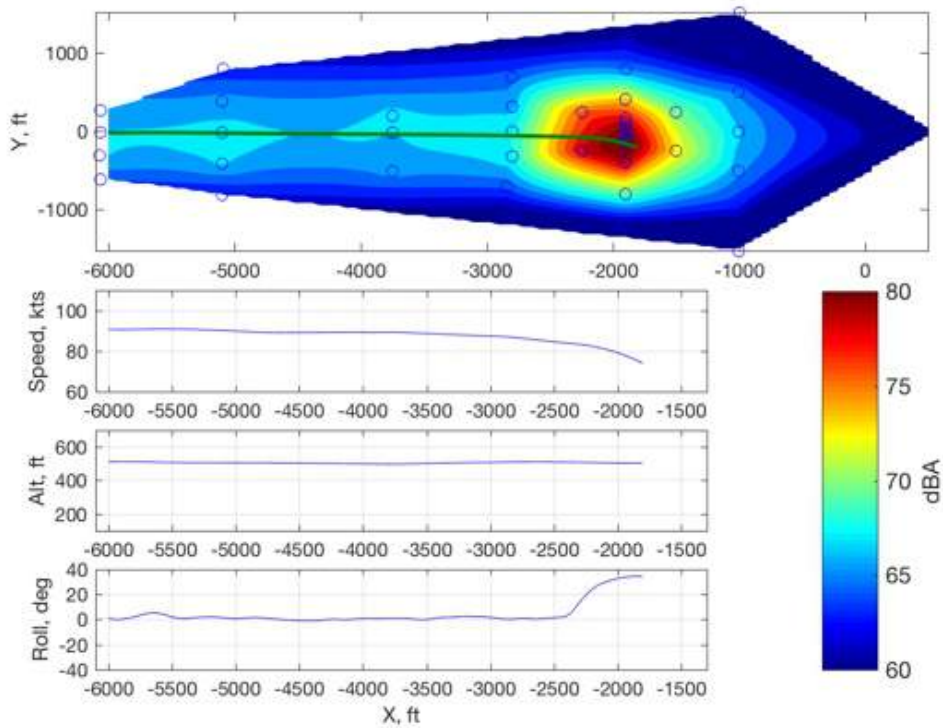


Figure 185: R44, 228233, X44, maximum dBA contour.

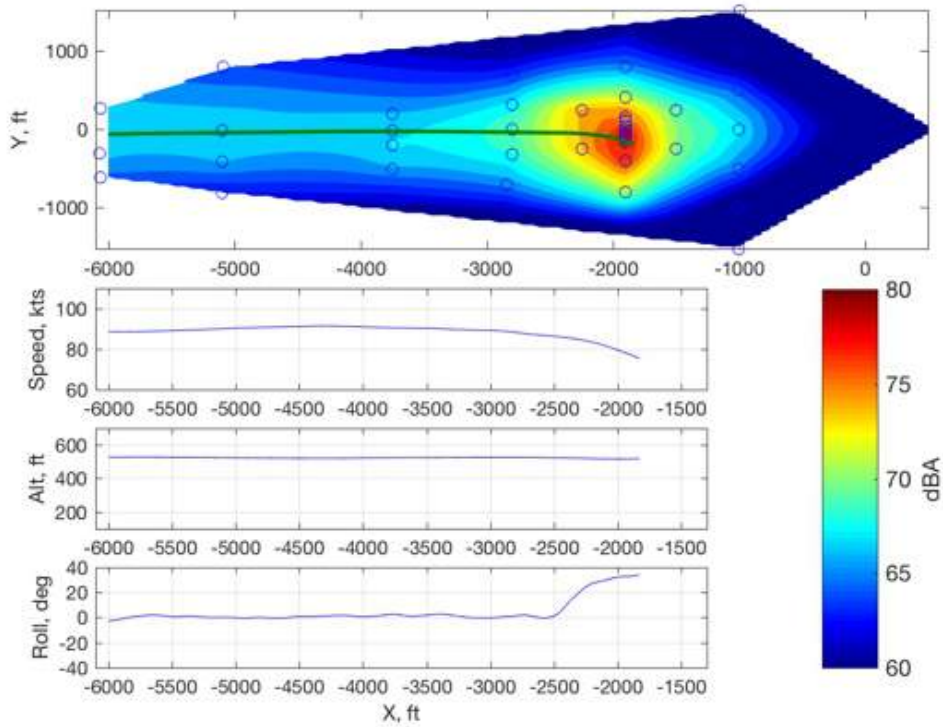


Figure 186: R44, 228234, X44, maximum dBA contour.

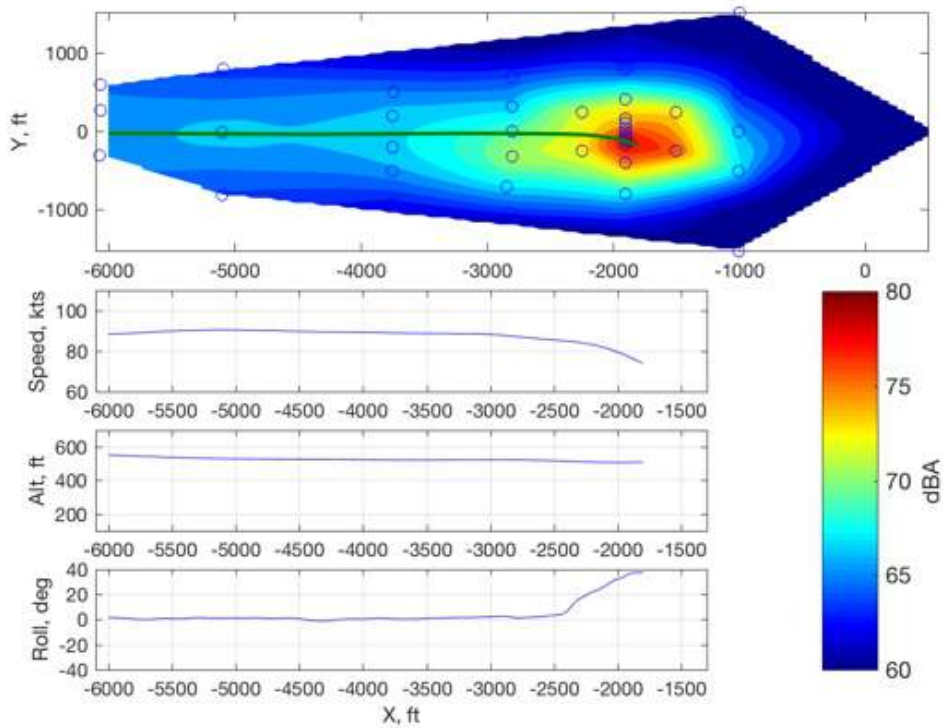


Figure 187: R44, 228235, X44, maximum dBA contour.

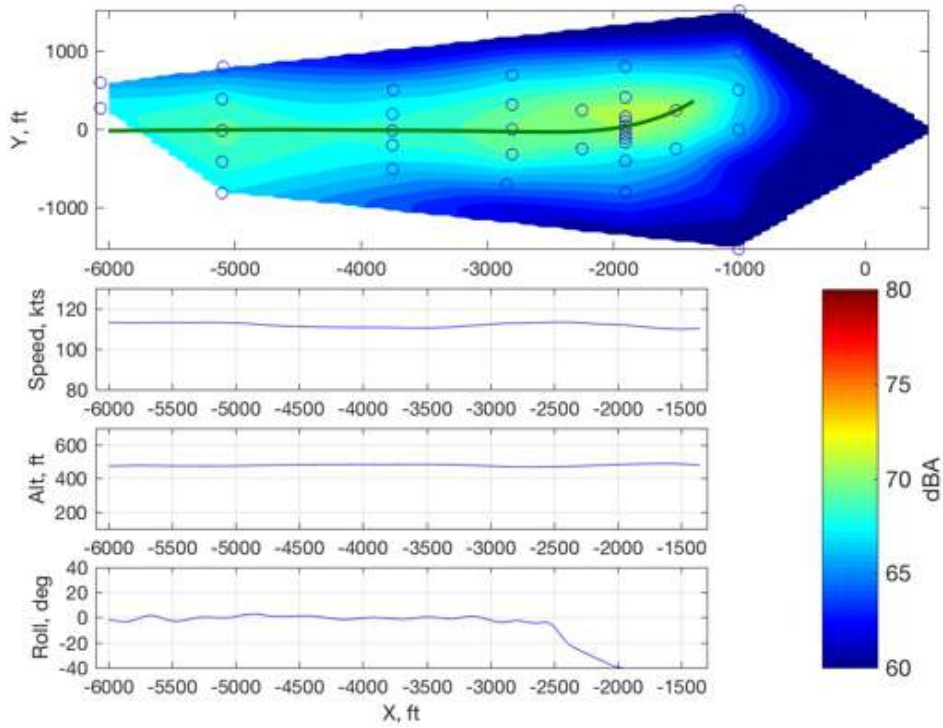


Figure 188: R44, 230460, X51, maximum dBA contour.

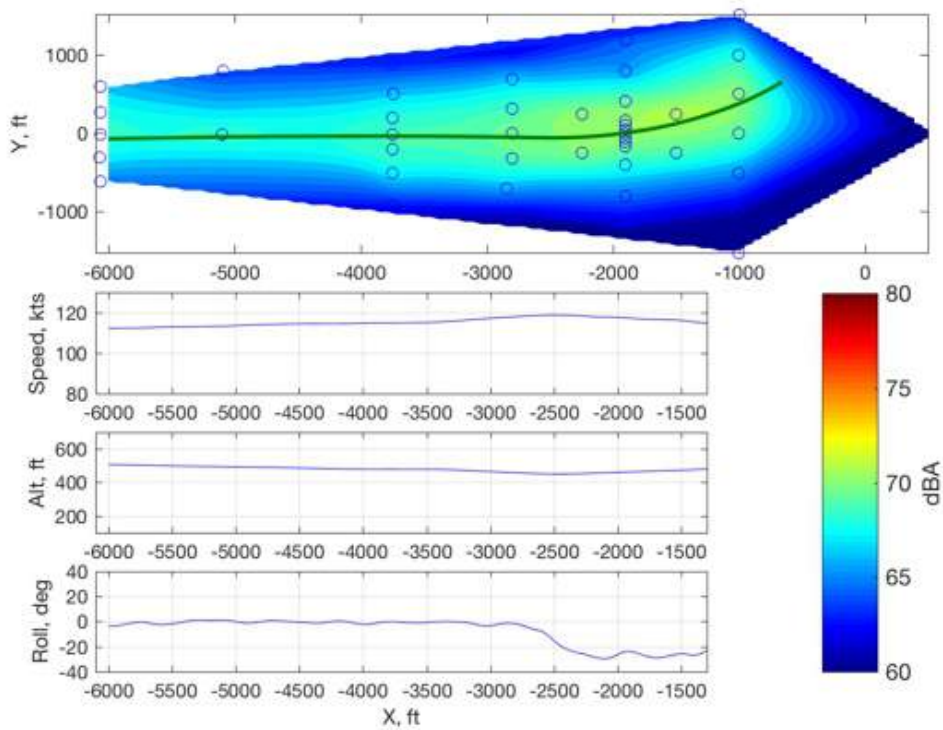


Figure 189: R44, 230461, X51, maximum dBA contour.

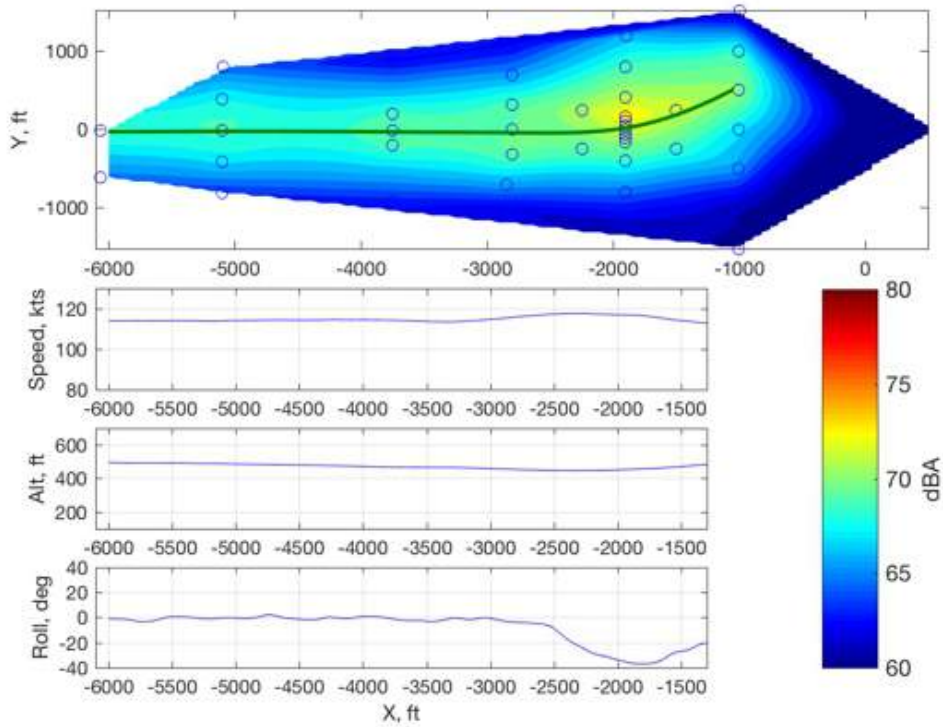


Figure 190: R44, 230462, X51, maximum dBA contour.

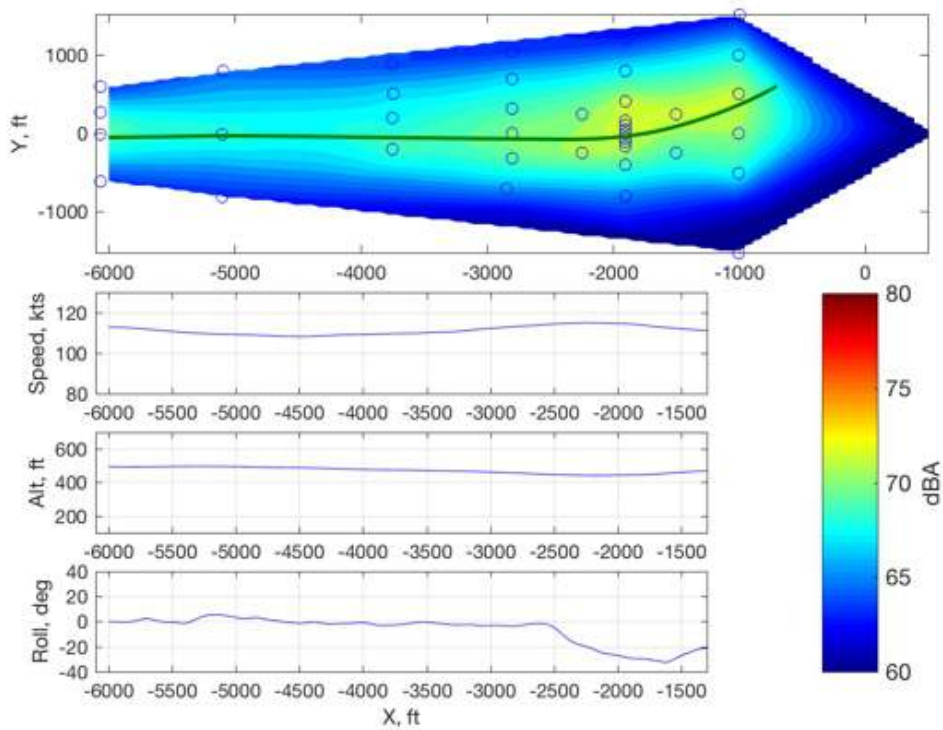


Figure 191: R44, 230463, X51, maximum dBA contour.

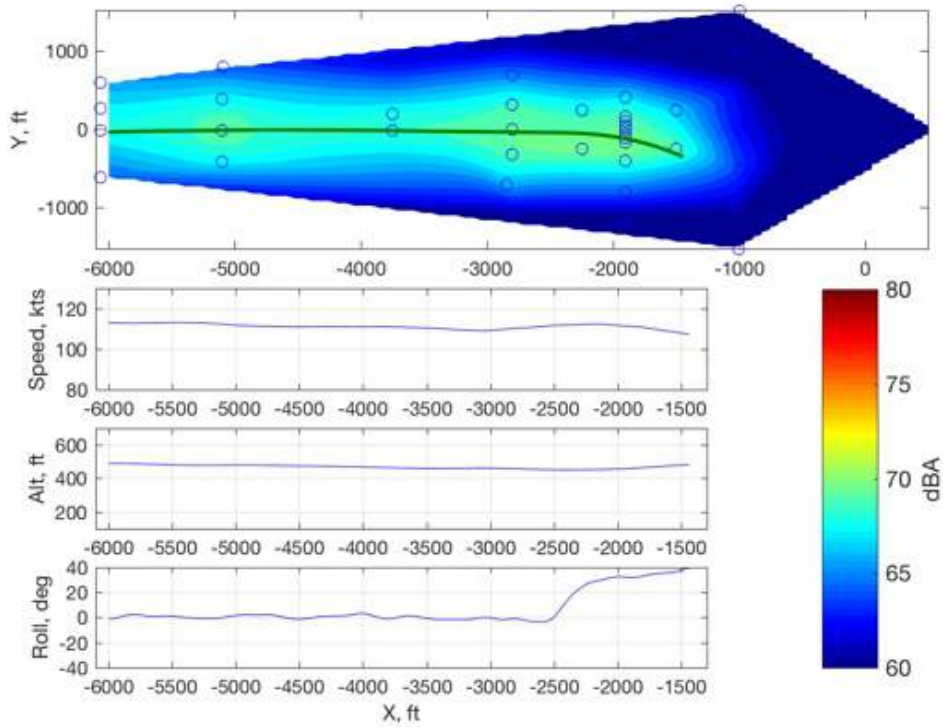


Figure 192: R44, 230464, X52, maximum dBA contour.

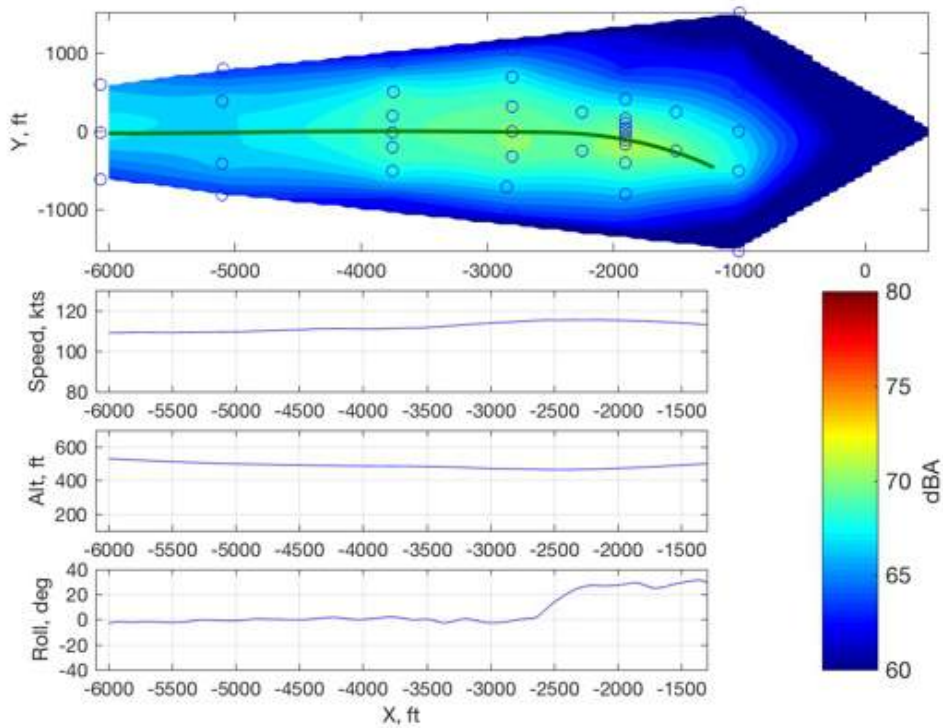


Figure 193: R44, 230465, X52, maximum dBA contour.

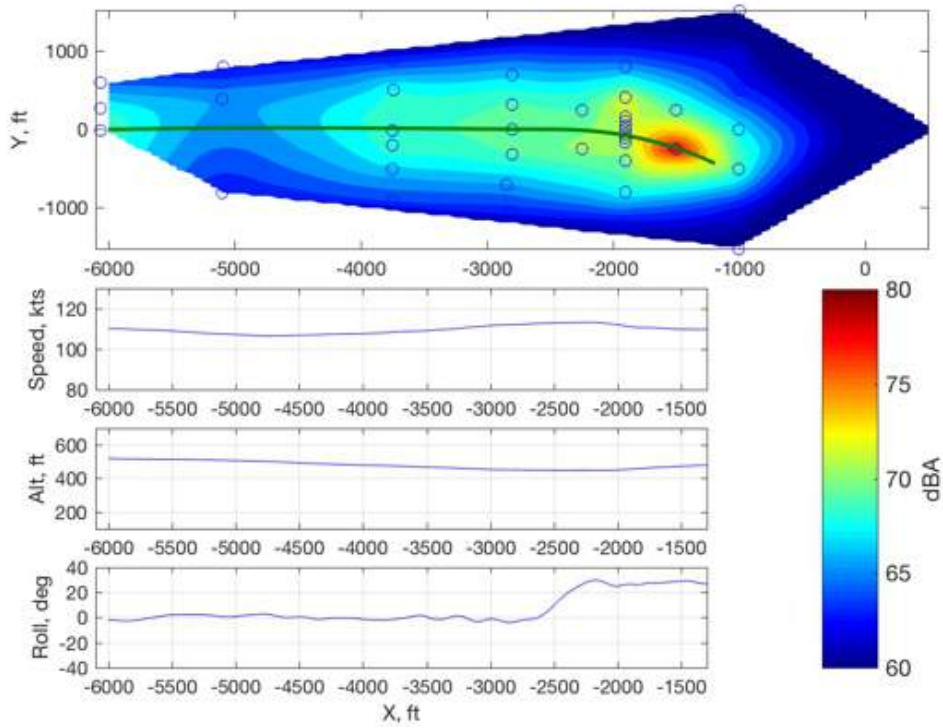


Figure 194: R44, 230466, X52, maximum dBA contour.

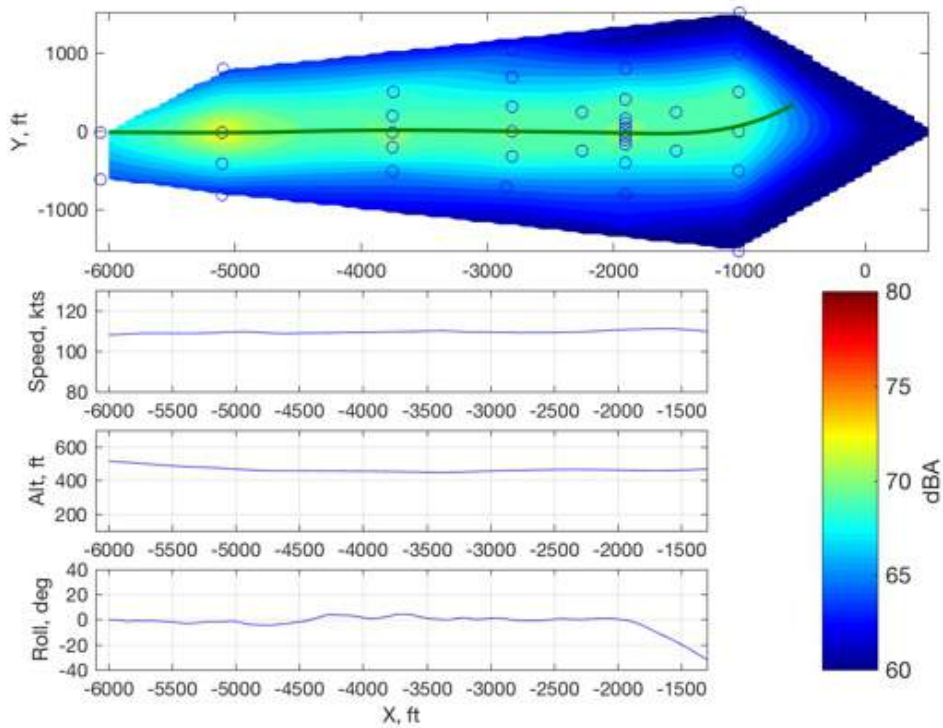


Figure 195: R44, 230467, X55, maximum dBA contour.

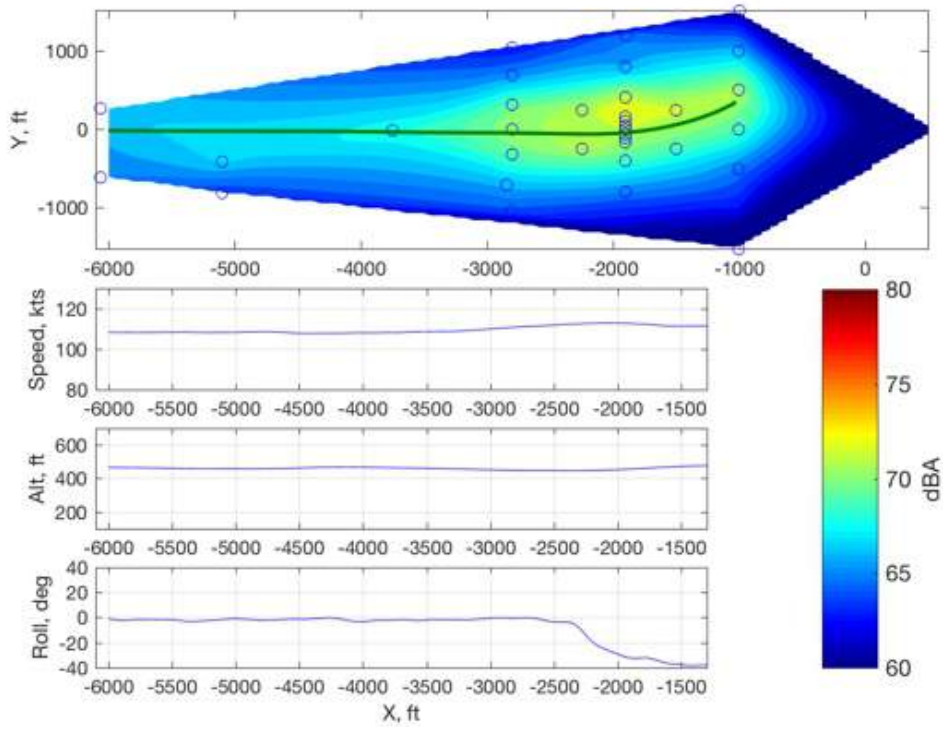


Figure 196: R44, 230468, X55, maximum dBA contour.

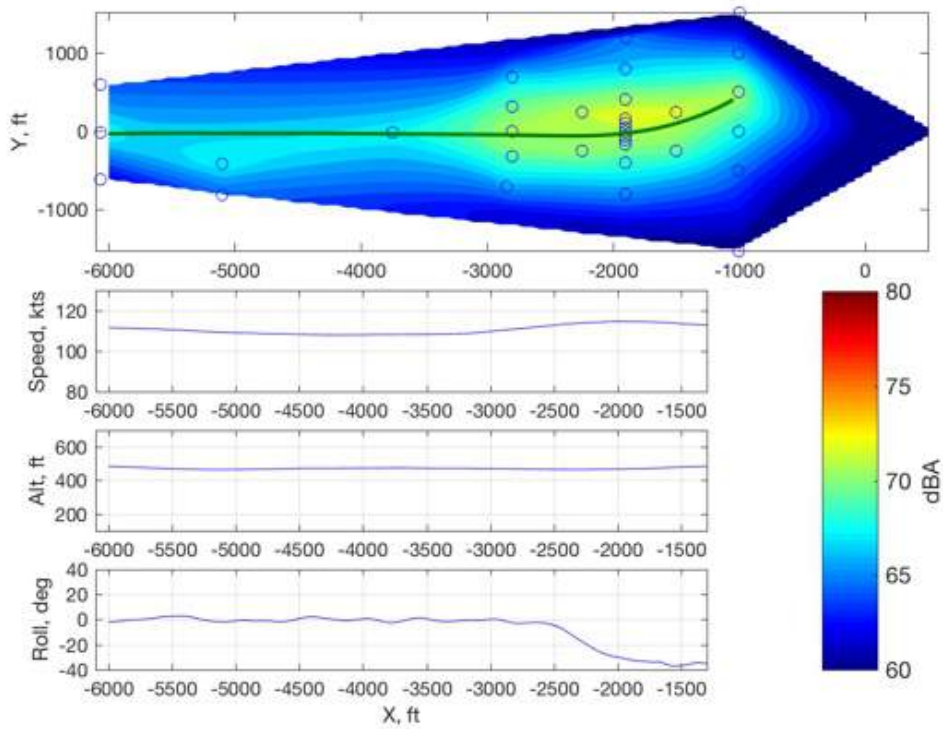


Figure 197: R44, 230469, X55, maximum dBA contour.

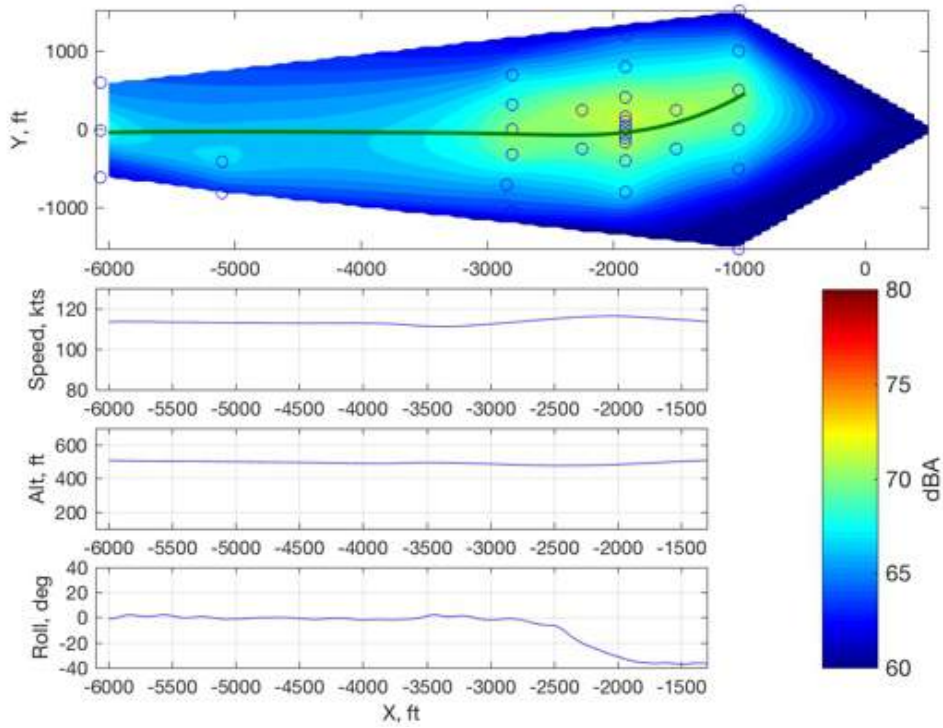


Figure 198: R44, 230470, X55, maximum dBA contour.

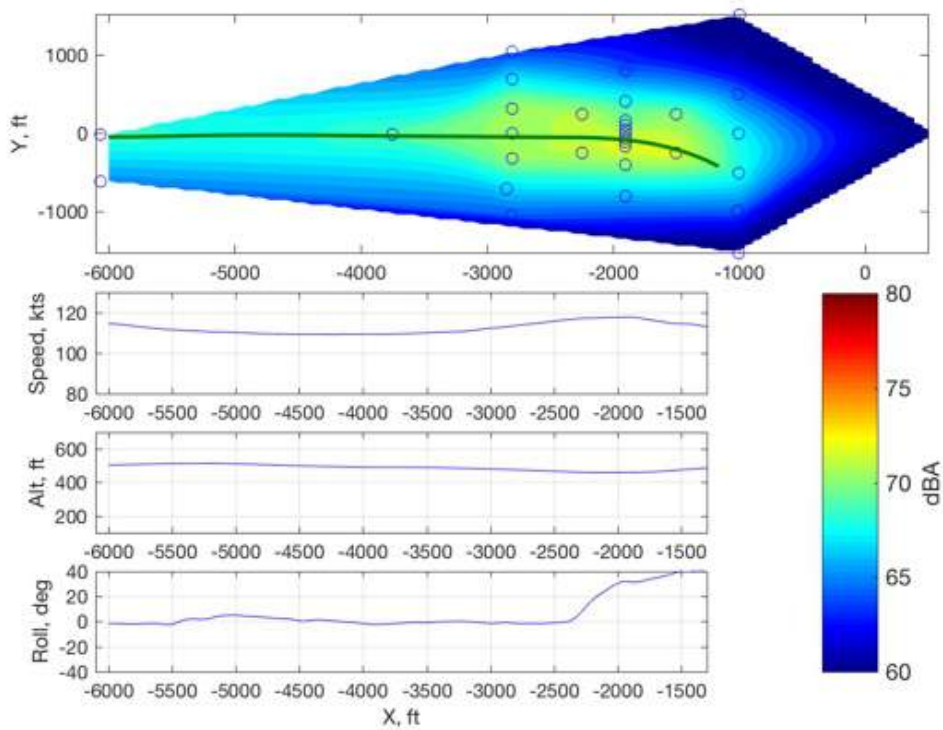


Figure 199: R44, 230471, X56, maximum dBA contour.

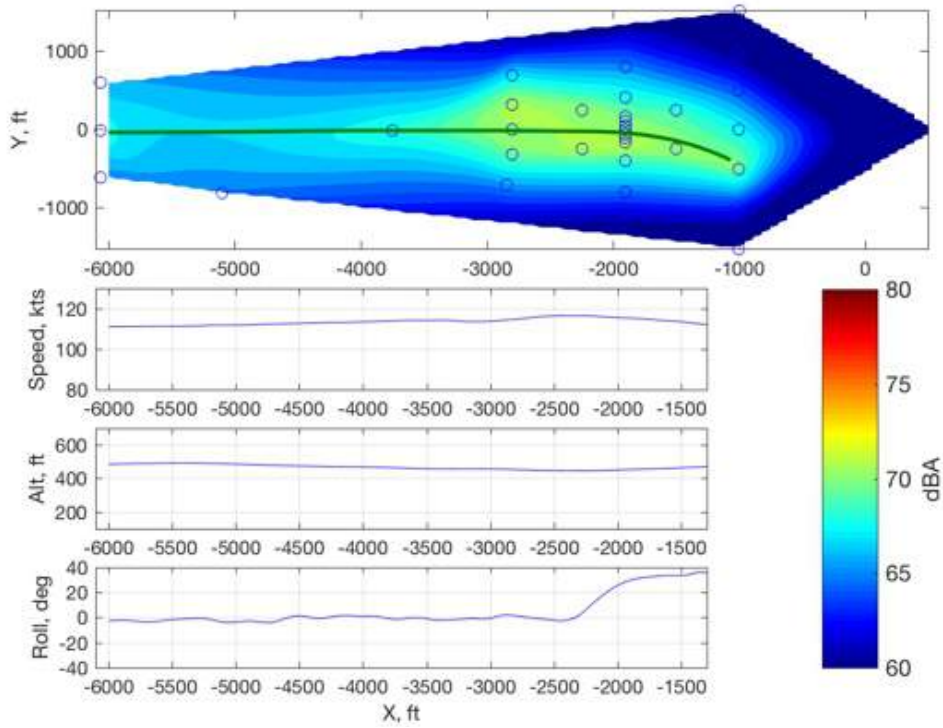


Figure 200: R44, 230472, X56, maximum dBA contour.

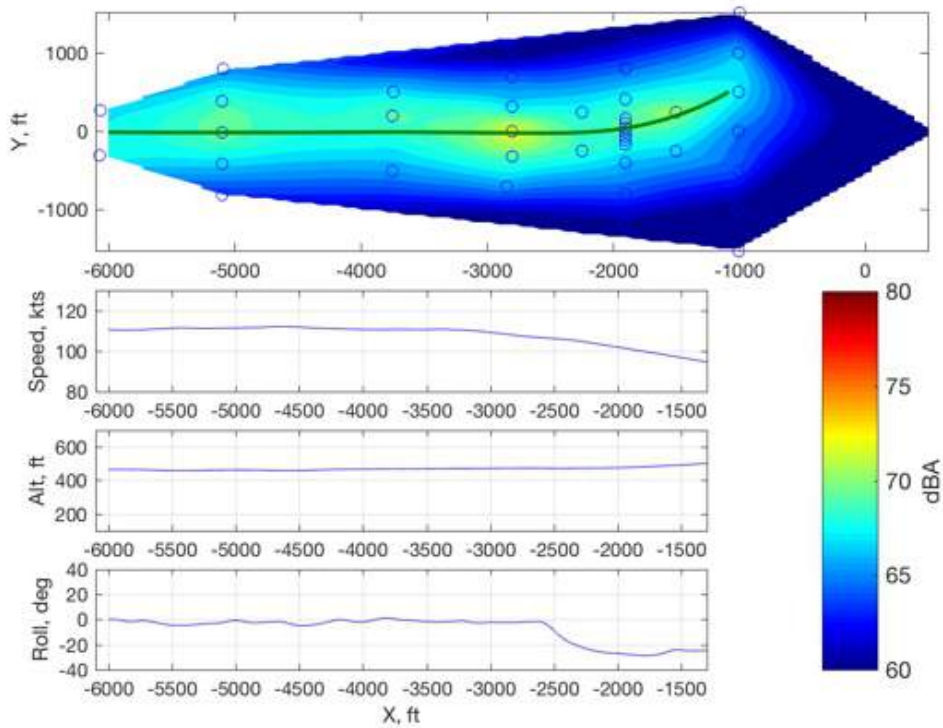


Figure 201: R44, 230473, X59, maximum dBA contour.

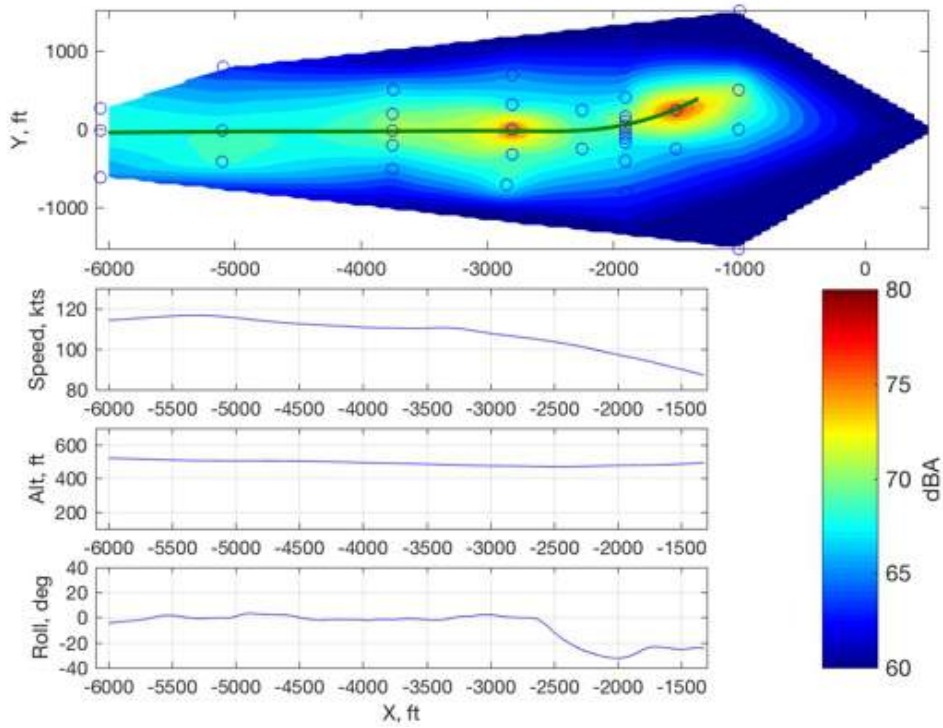


Figure 202: R44, 230474, X59, maximum dBA contour.

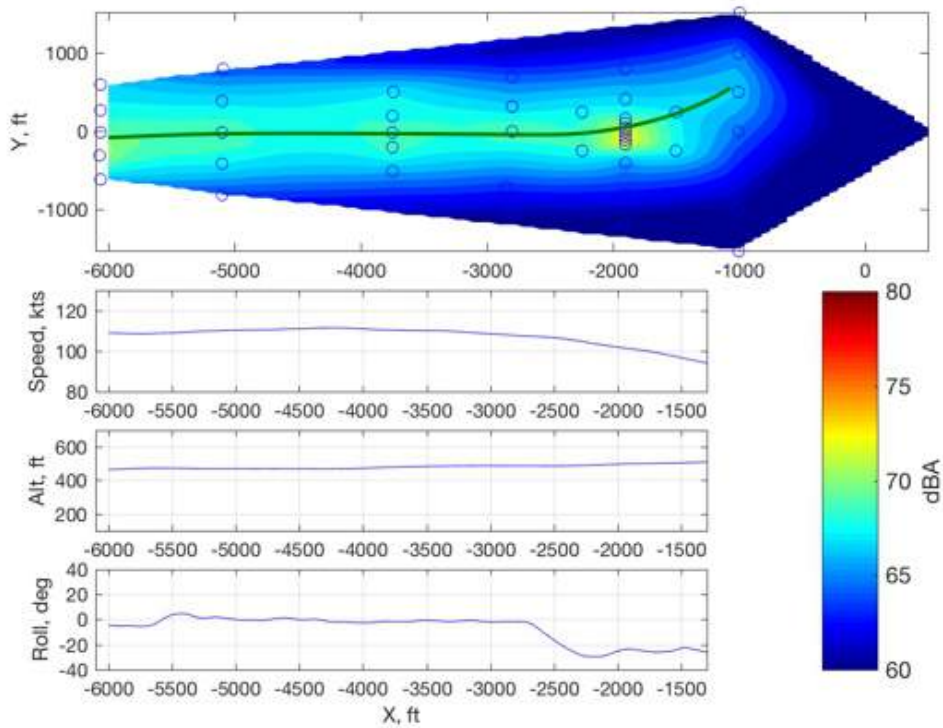


Figure 203: R44, 230475, X59, maximum dBA contour.

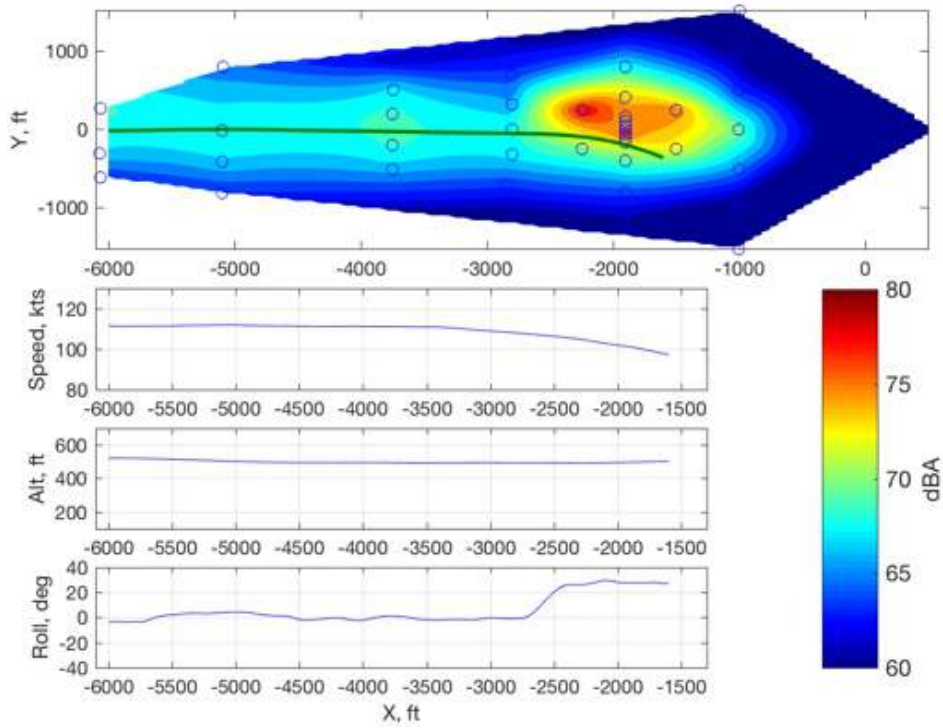


Figure 204: R44, 230476, X60, maximum dBA contour.

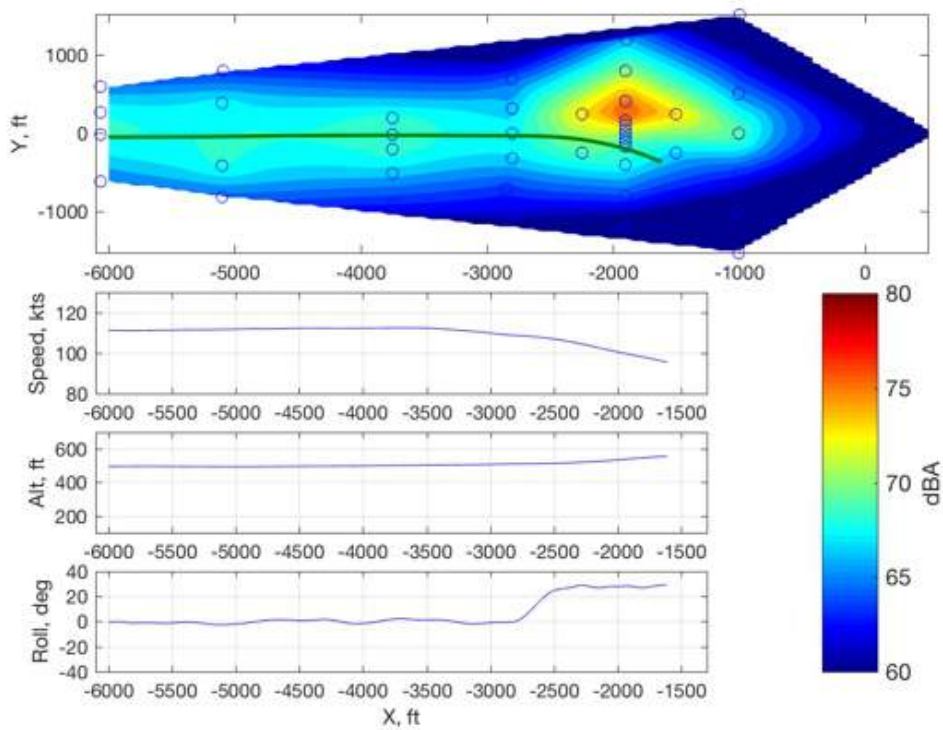


Figure 205: R44, 230477, X60, maximum dBA contour.

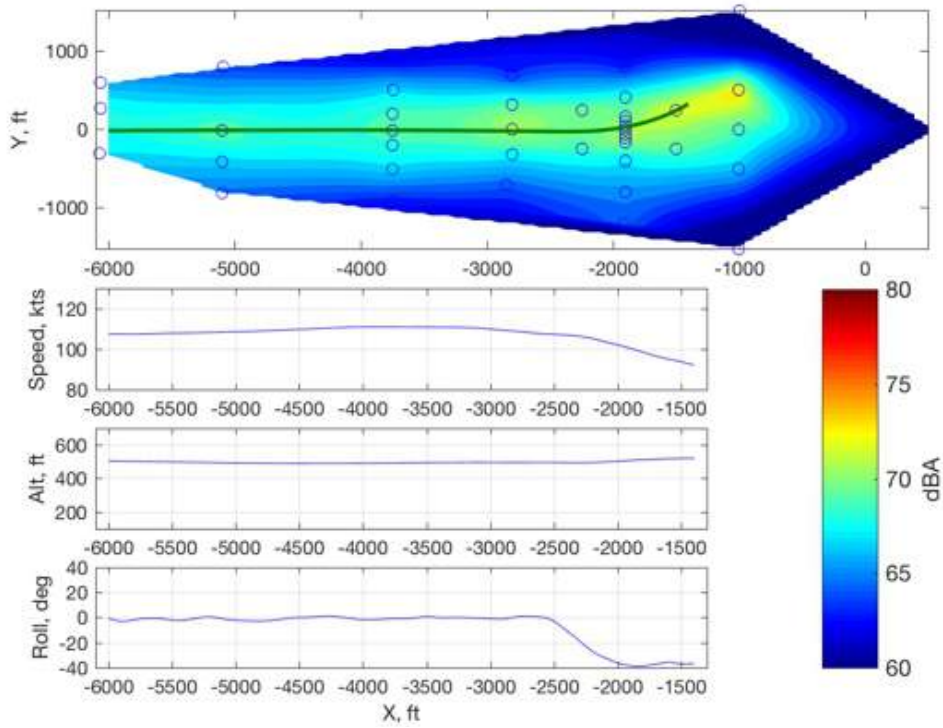


Figure 206: R44, 230478, X63, maximum dBA contour.

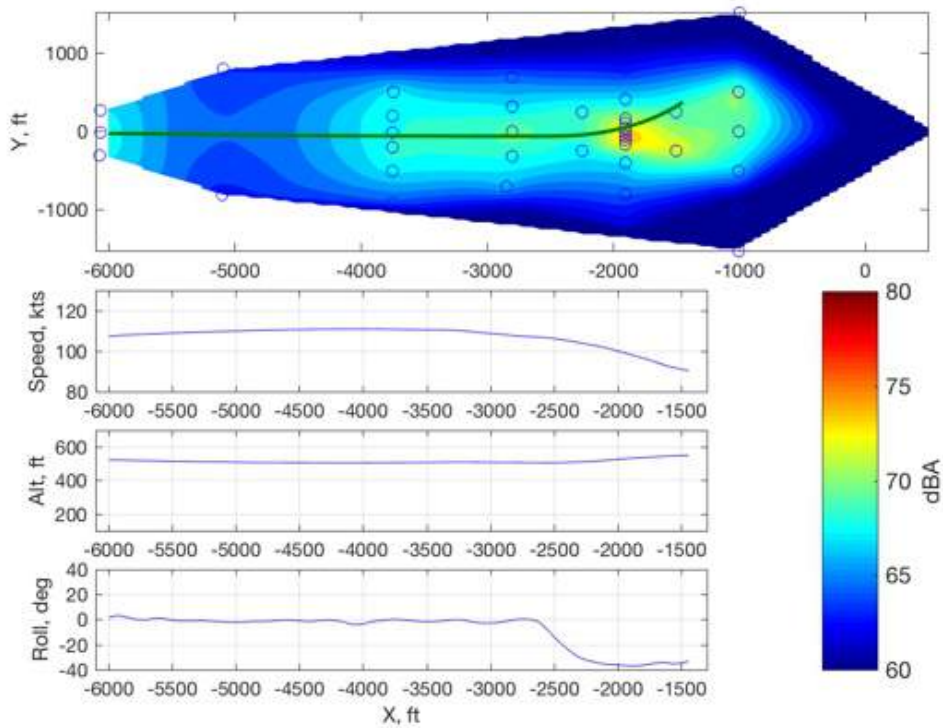


Figure 207: R44, 230479, X63, maximum dBA contour.

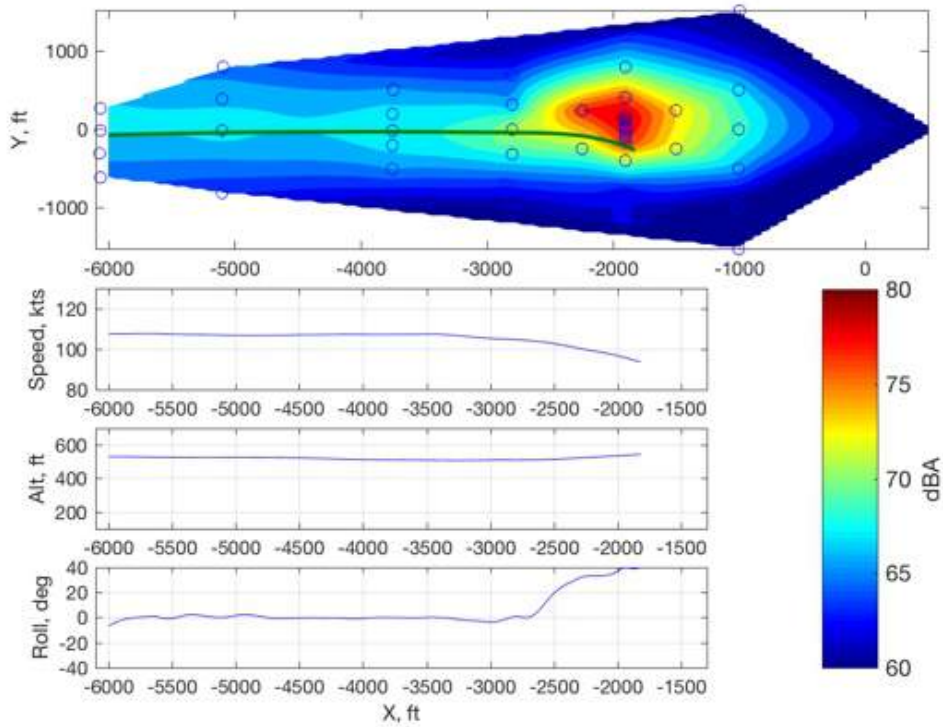


Figure 208: R44, 230480, X64, maximum dBA contour.

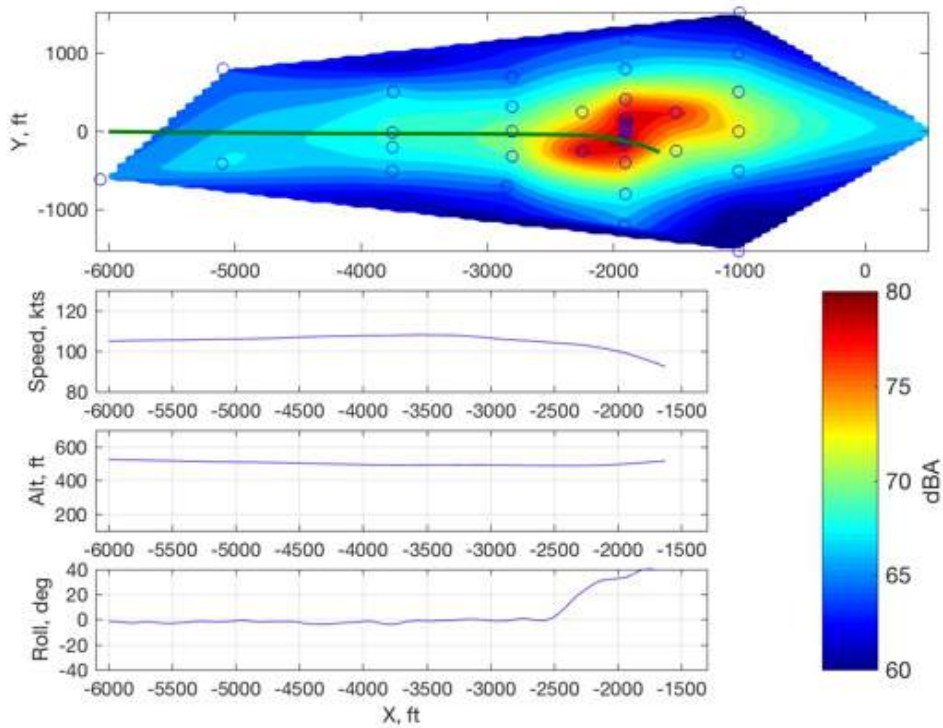


Figure 209: R44, 230481, X64, maximum dBA contour.

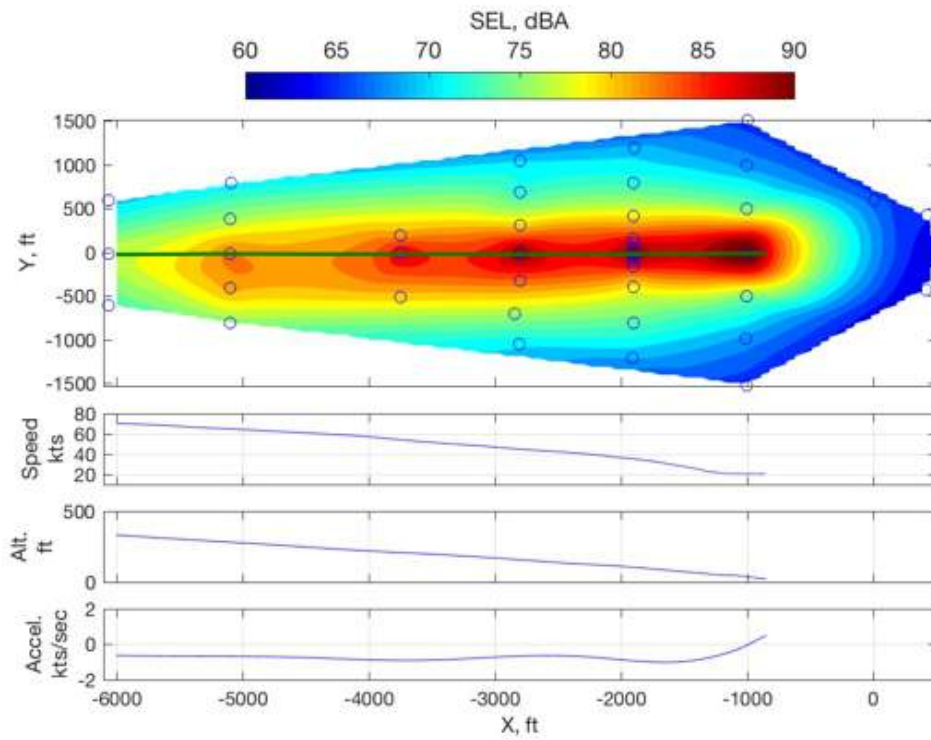


Figure 210: R44, 229354, A2 A-Weighted SEL contour.

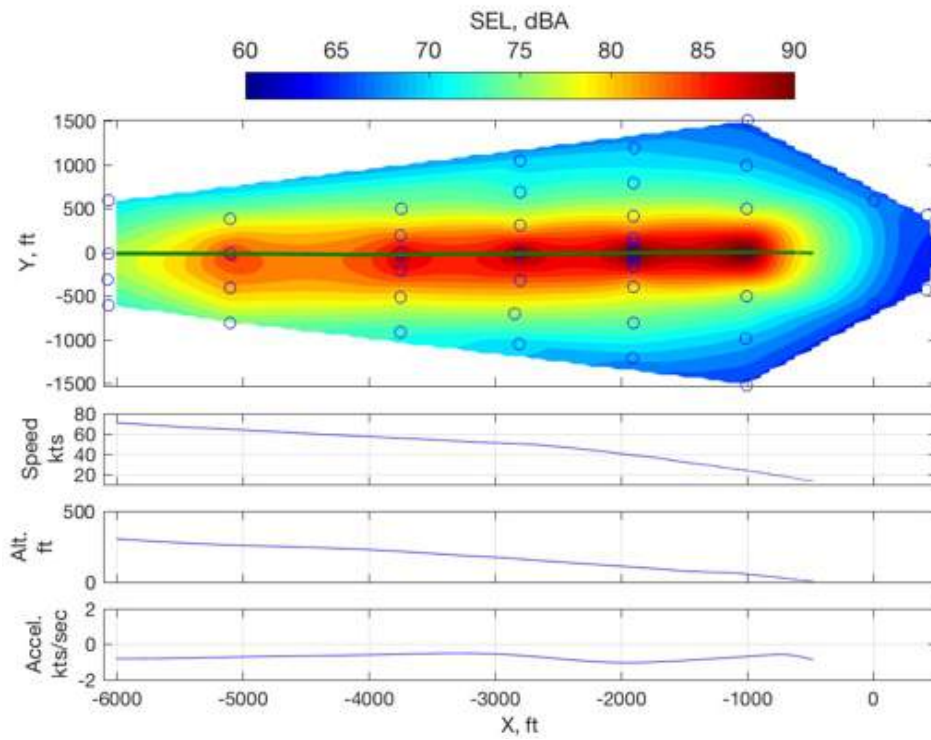


Figure 211: R44, 229355, A2 A-Weighted SEL contour.

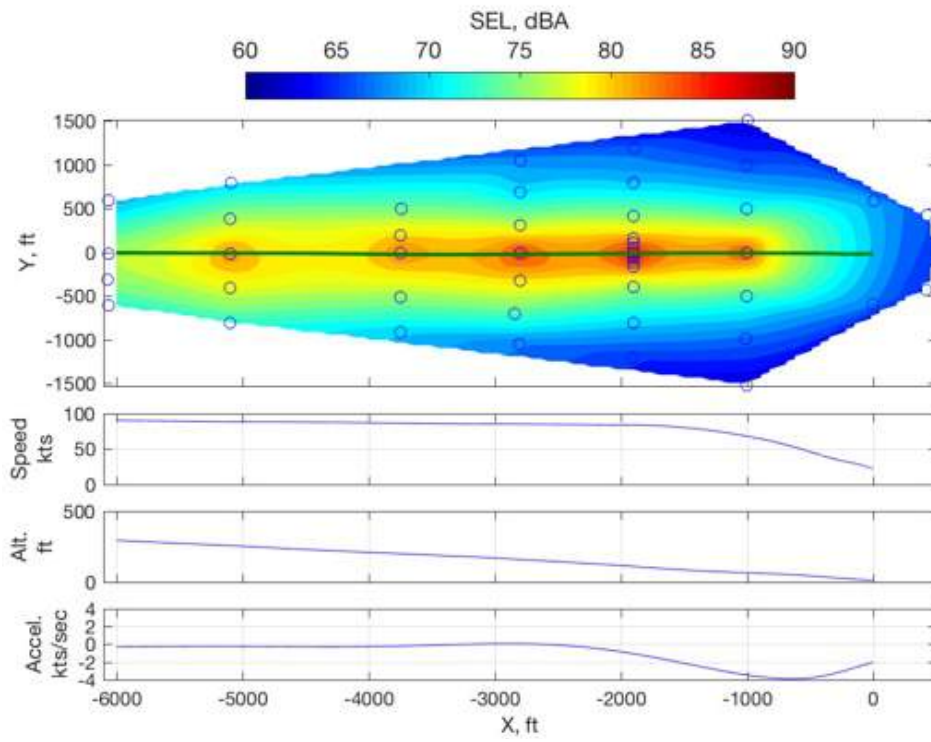


Figure 212: R44, 229356, A3 A-Weighted SEL contour.

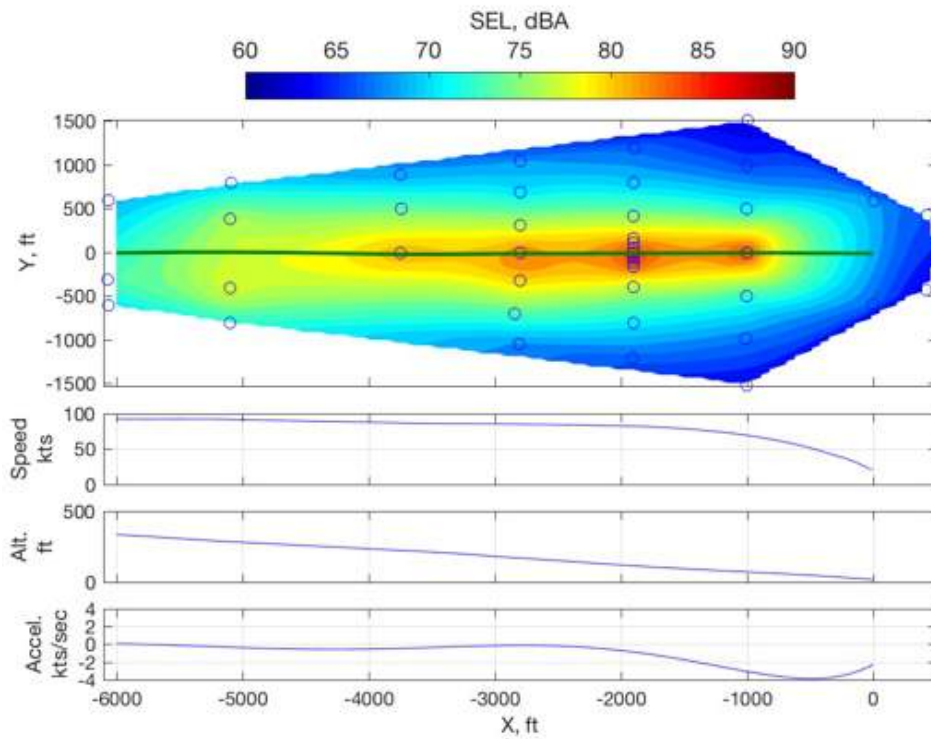


Figure 213: R44, 229357, A3 A-Weighted SEL contour.

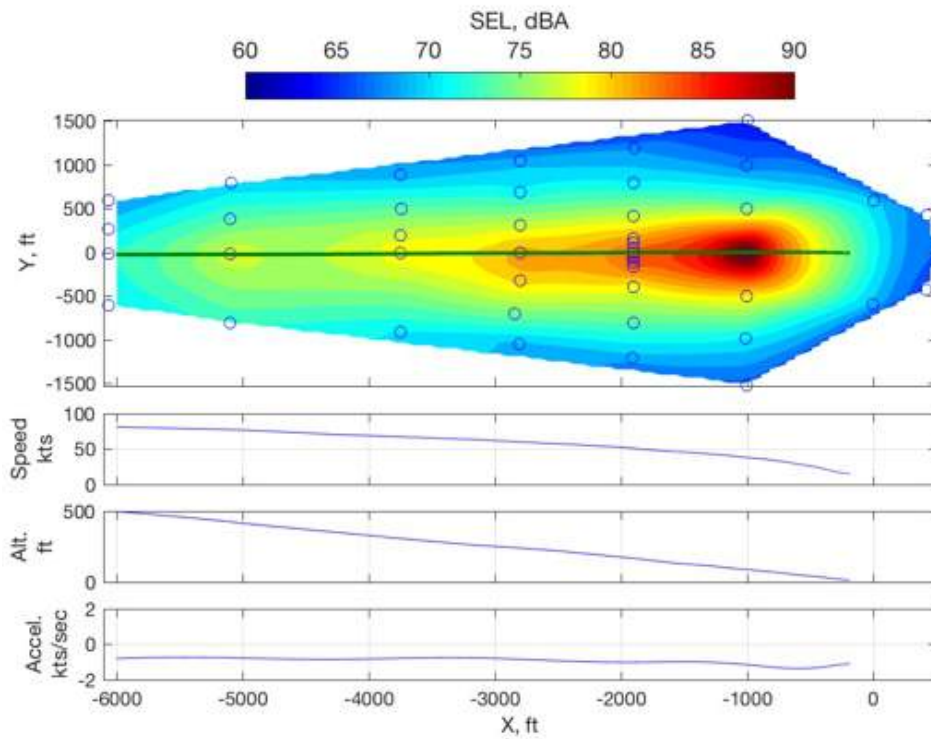


Figure 214: R44, 229361, A5 A-Weighted SEL contour.

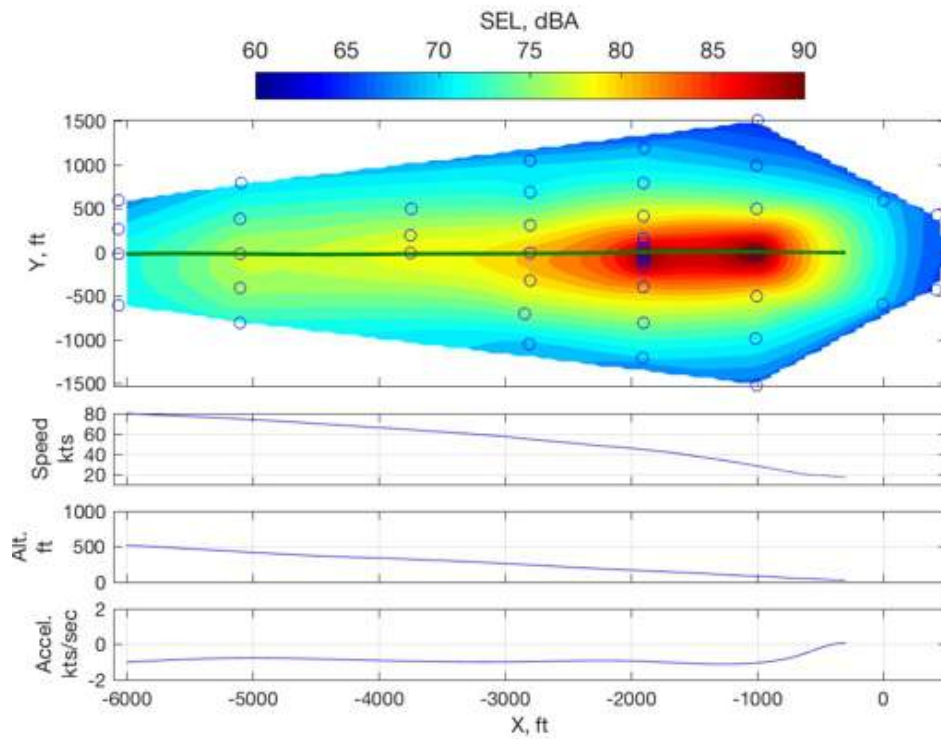


Figure 215: R44, 229362, A5 A-Weighted SEL contour.

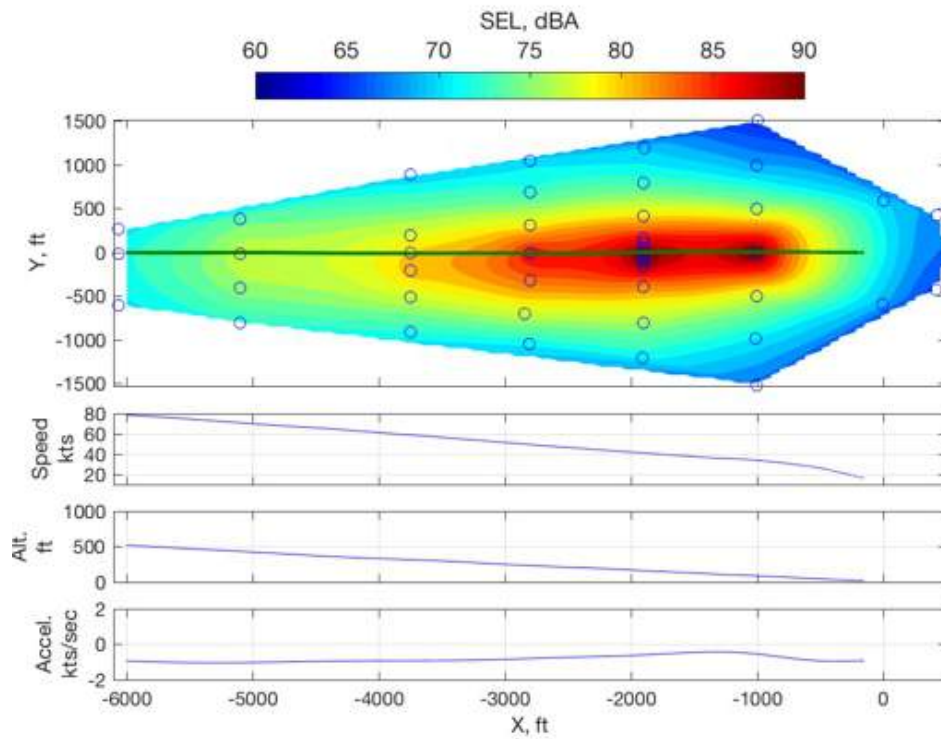


Figure 216: R44, 229363, A5 A-Weighted SEL contour.

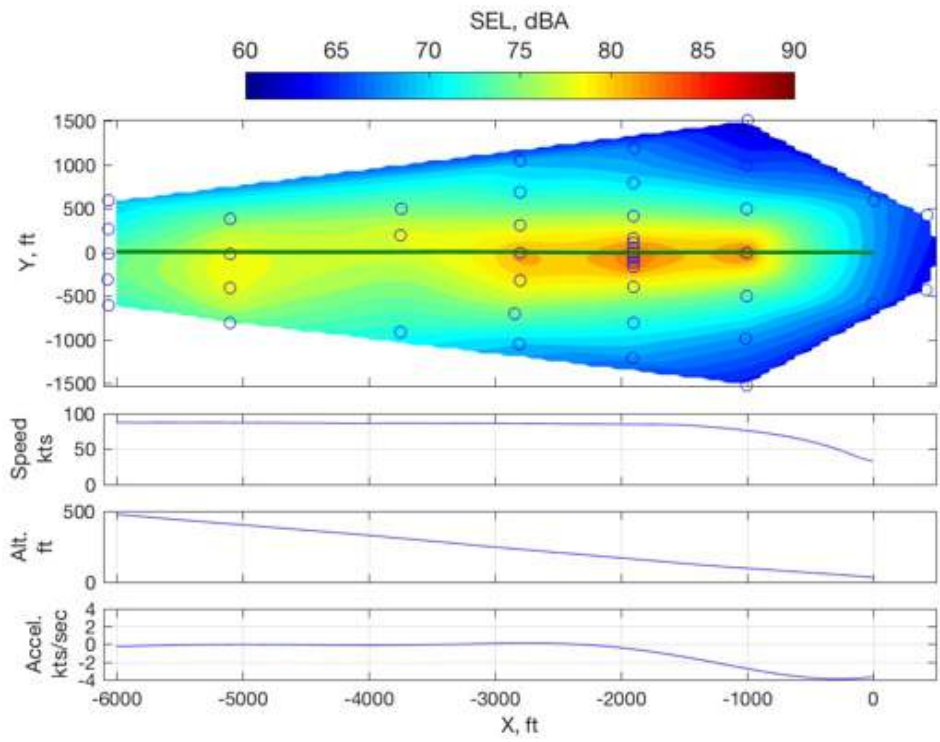


Figure 217: R44, 229364, A6 A-Weighted SEL contour.

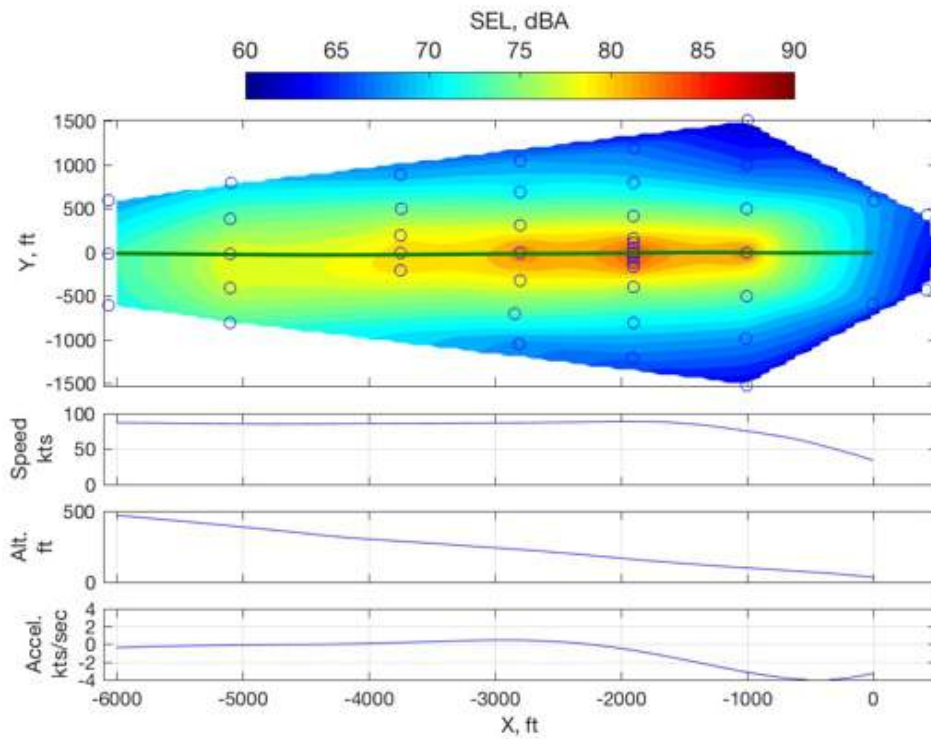


Figure 218: R44, 229365, A6 A-Weighted SEL contour.

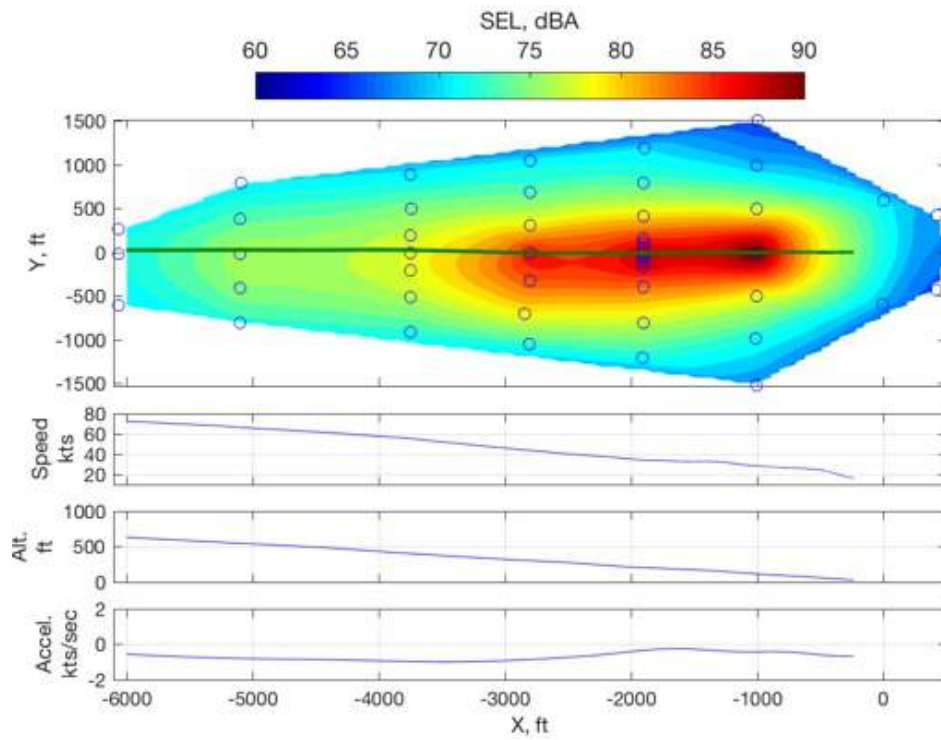


Figure 219: R44, 229368, A8 A-Weighted SEL contour.

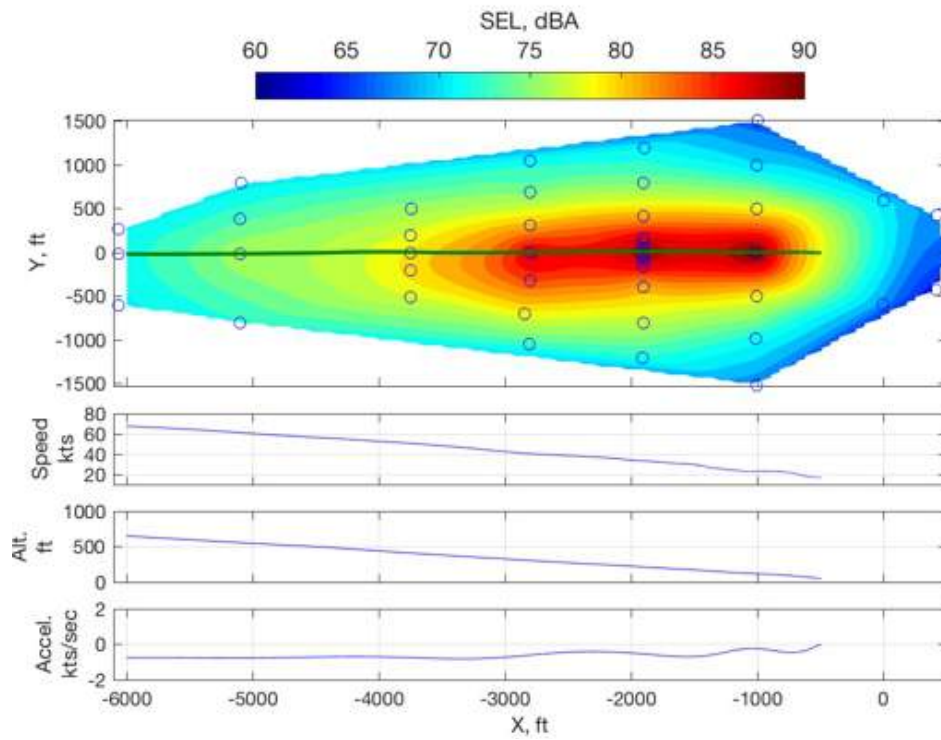


Figure 220: R44, 229369, A8 A-Weighted SEL contour.

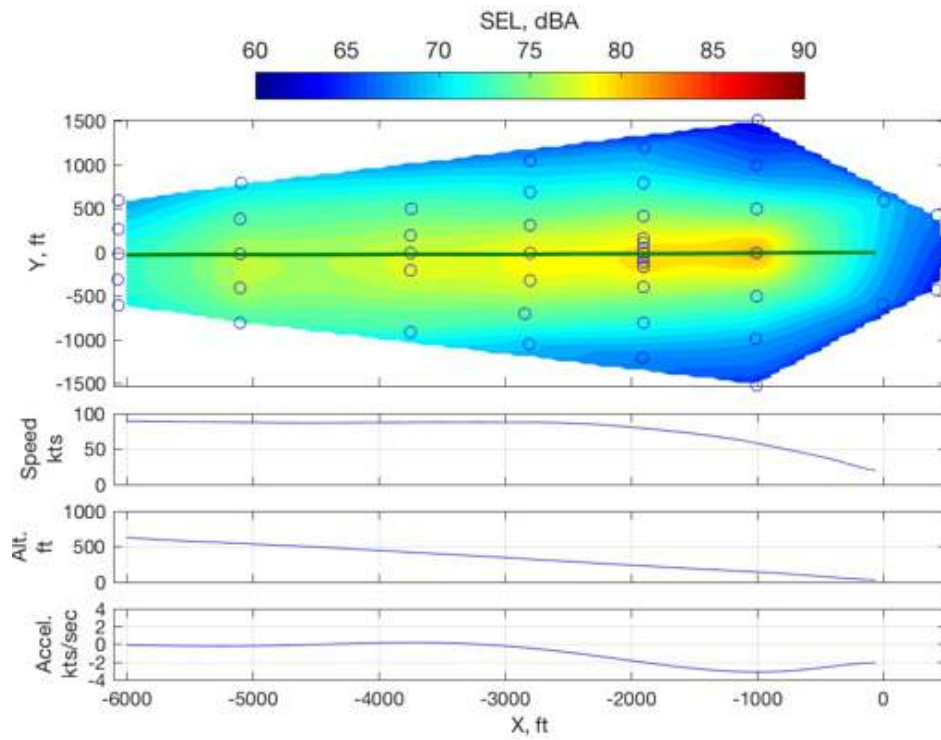


Figure 221: R44, 229370, A9 A-Weighted SEL contour.

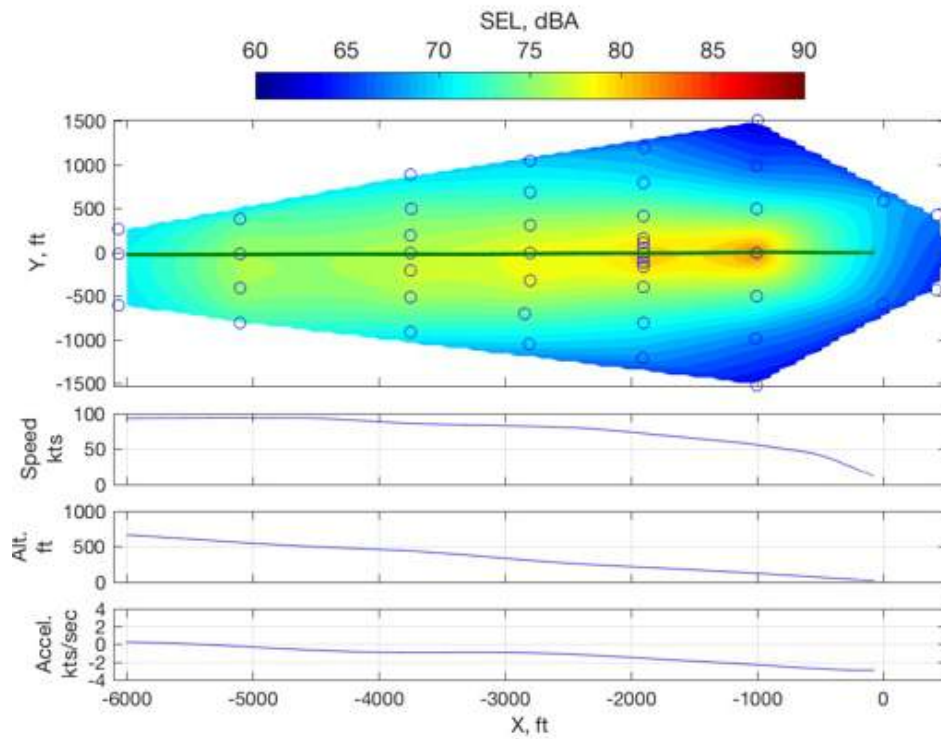


Figure 222: R44, 229371, A9 A-Weighted SEL contour.

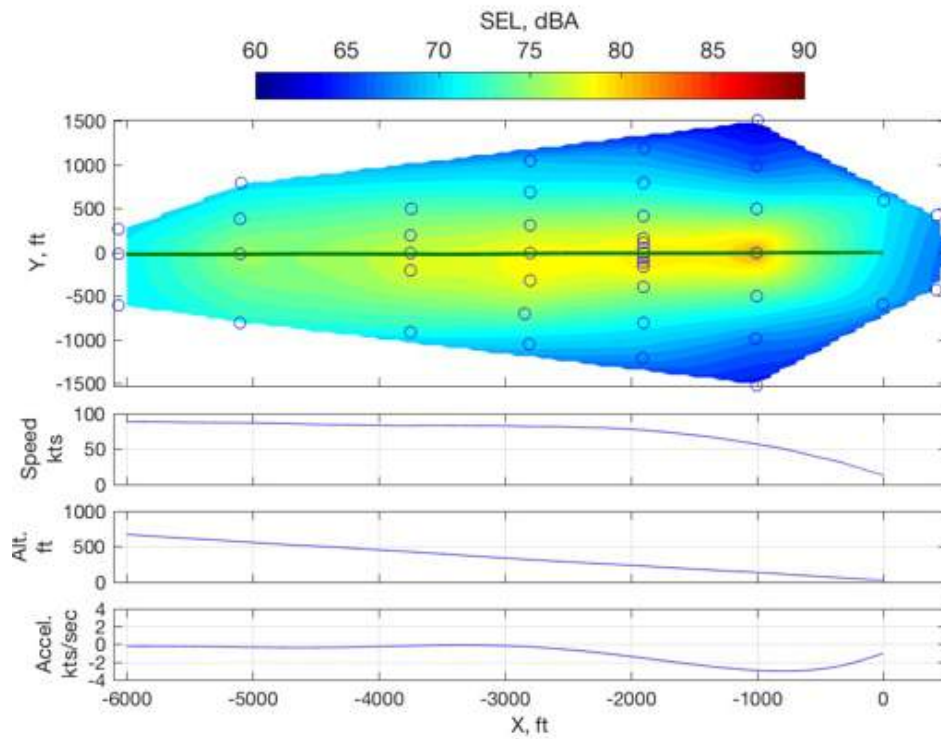


Figure 223: R44, 229372, A9 A-Weighted SEL contour.

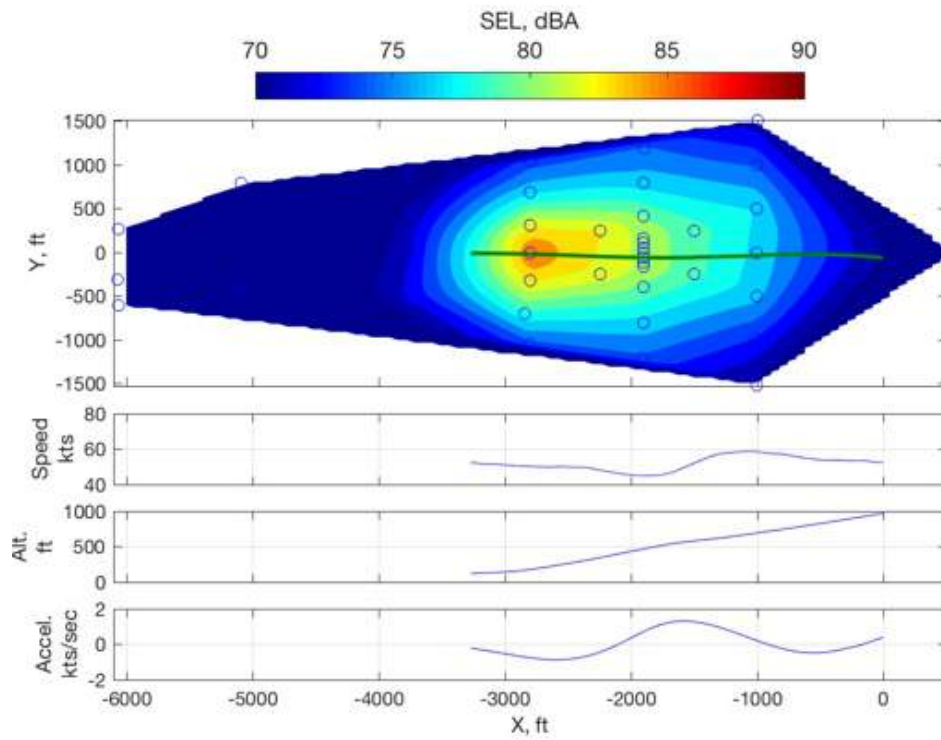


Figure 224: R44, C1, run 228247 A-Weighted SEL contour.

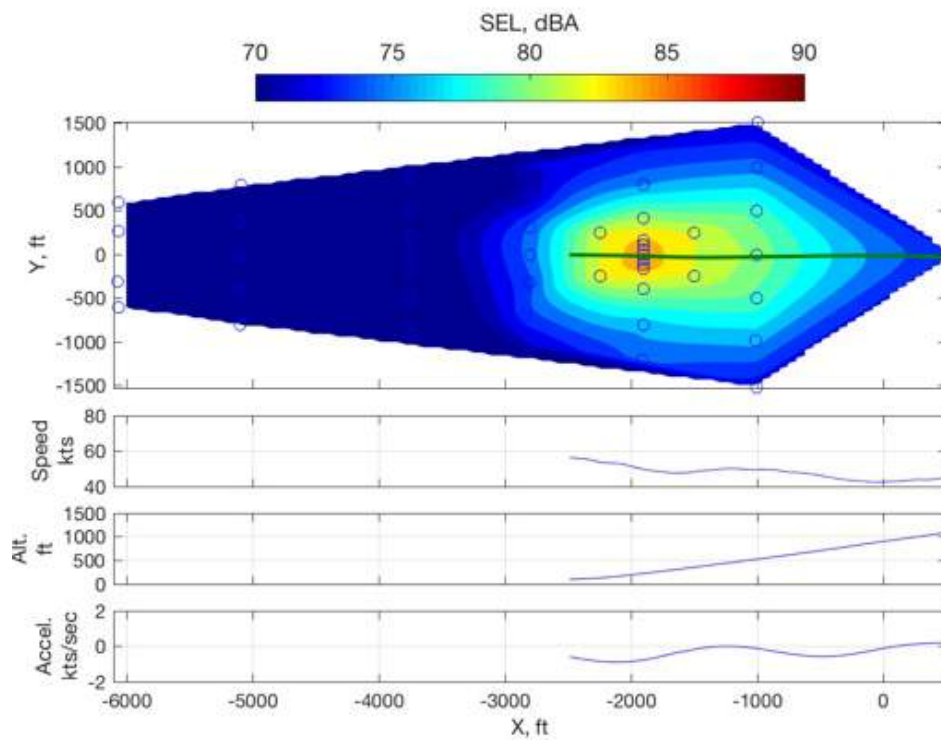


Figure 225: R44, C1, run 228248 A-Weighted SEL contour.

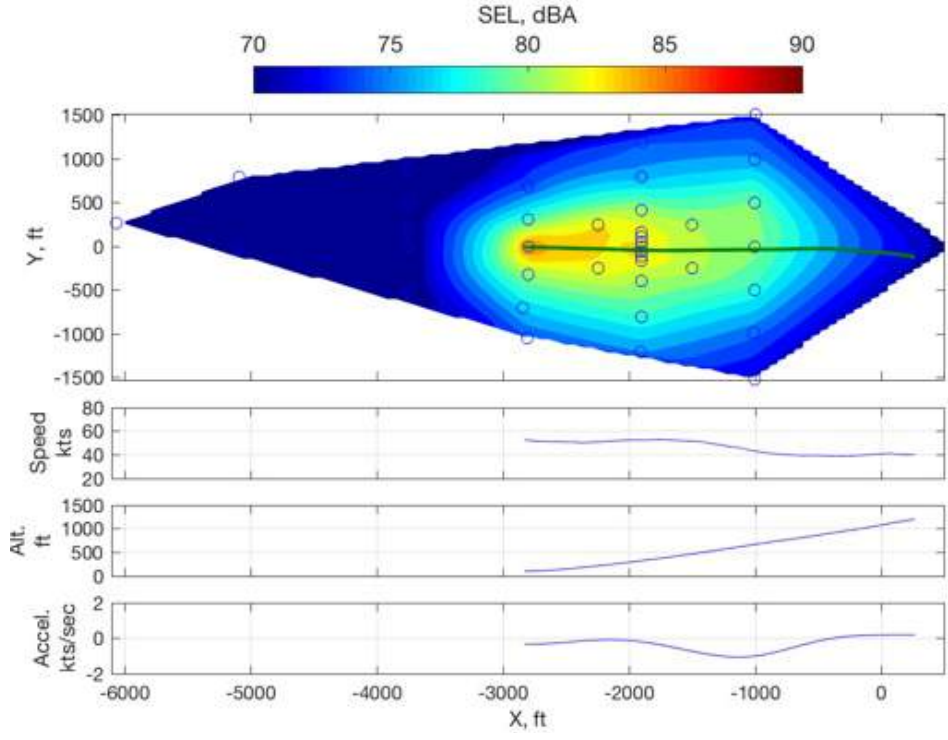


Figure 226: R44, C1, run 228253 A-Weighted SEL contour.

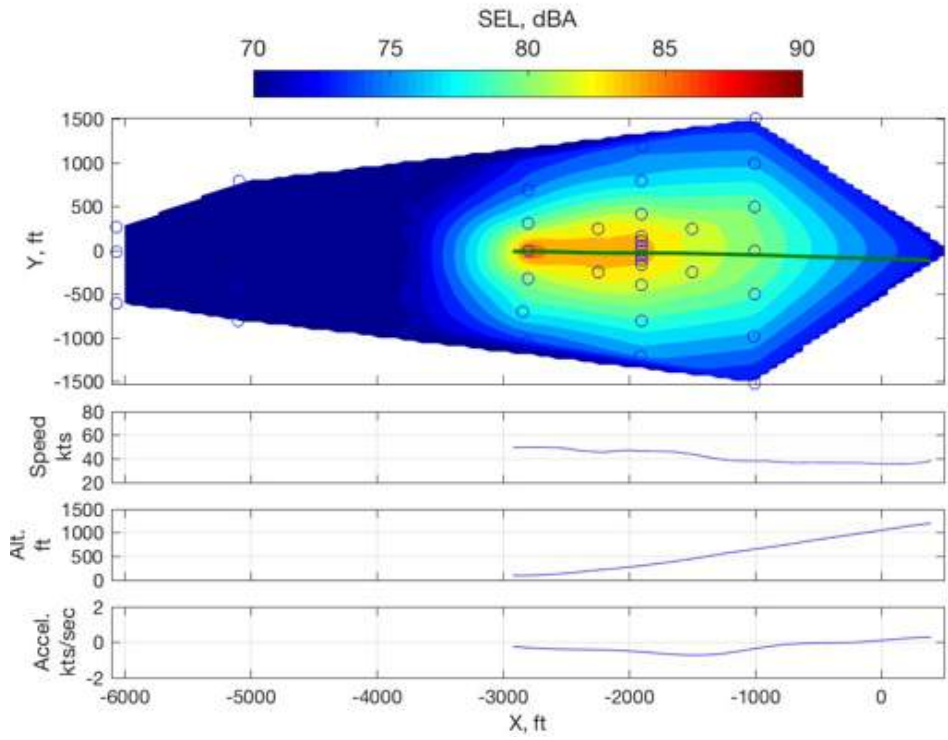


Figure 227: R44, C1, run 228254 A-Weighted SEL contour.

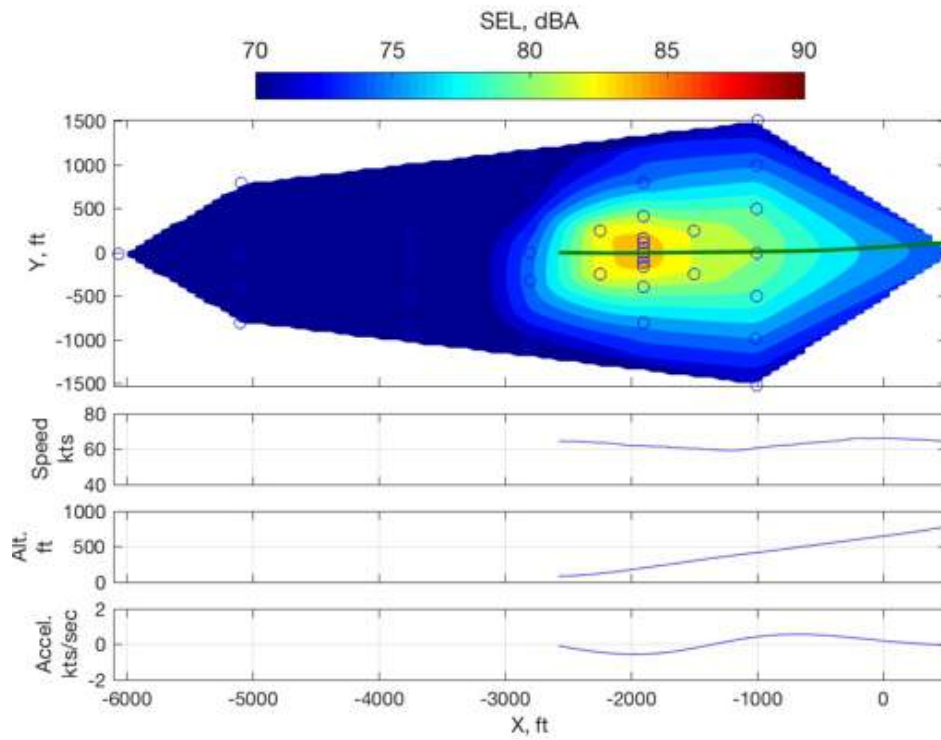


Figure 228: R44, C2, run 228249 A-Weighted SEL contour.

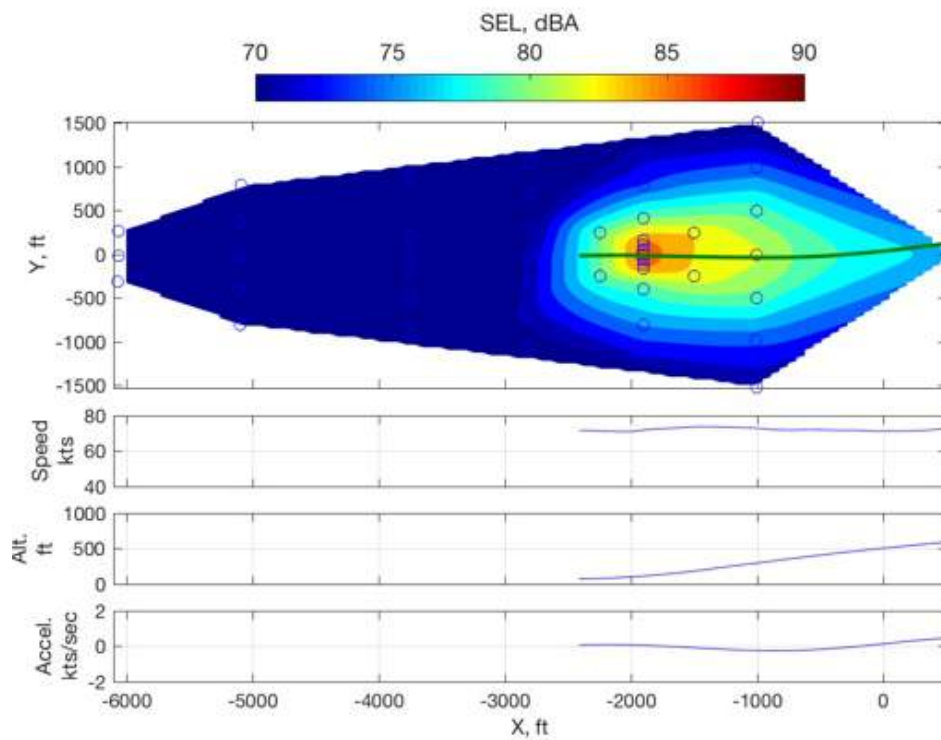


Figure 229: R44, C3, run 228251 A-Weighted SEL contour.

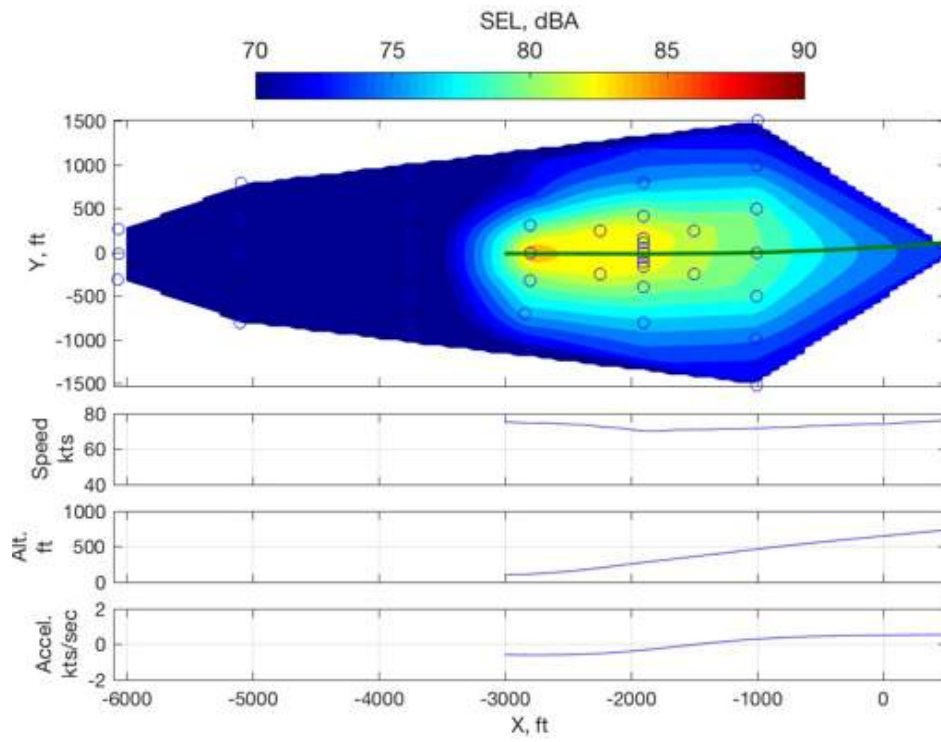


Figure 230: R44, C3, run 228252 A-Weighted SEL contour.

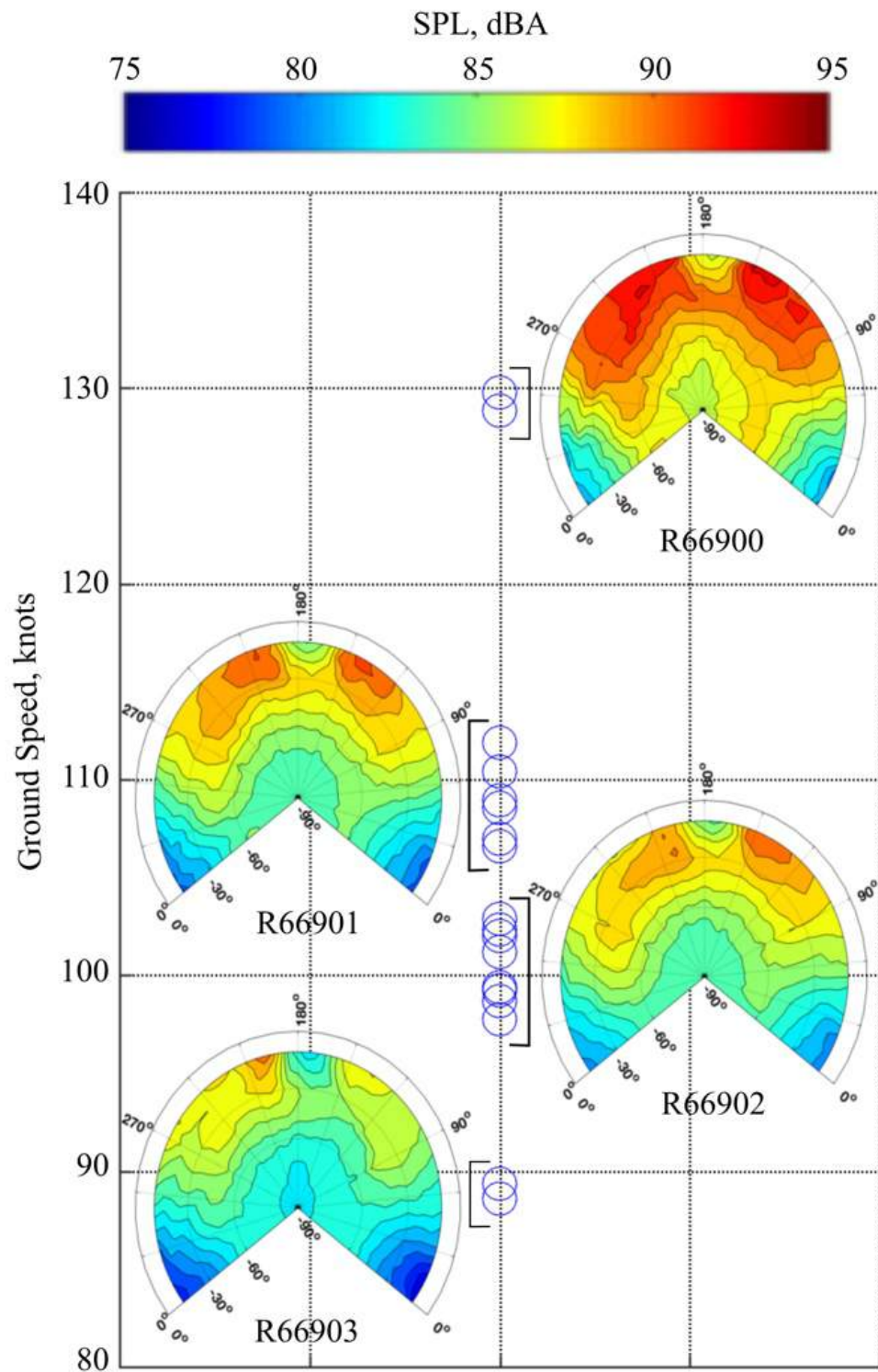


Figure 231: R66 average level flight source noise hemispheres, higher speed range.

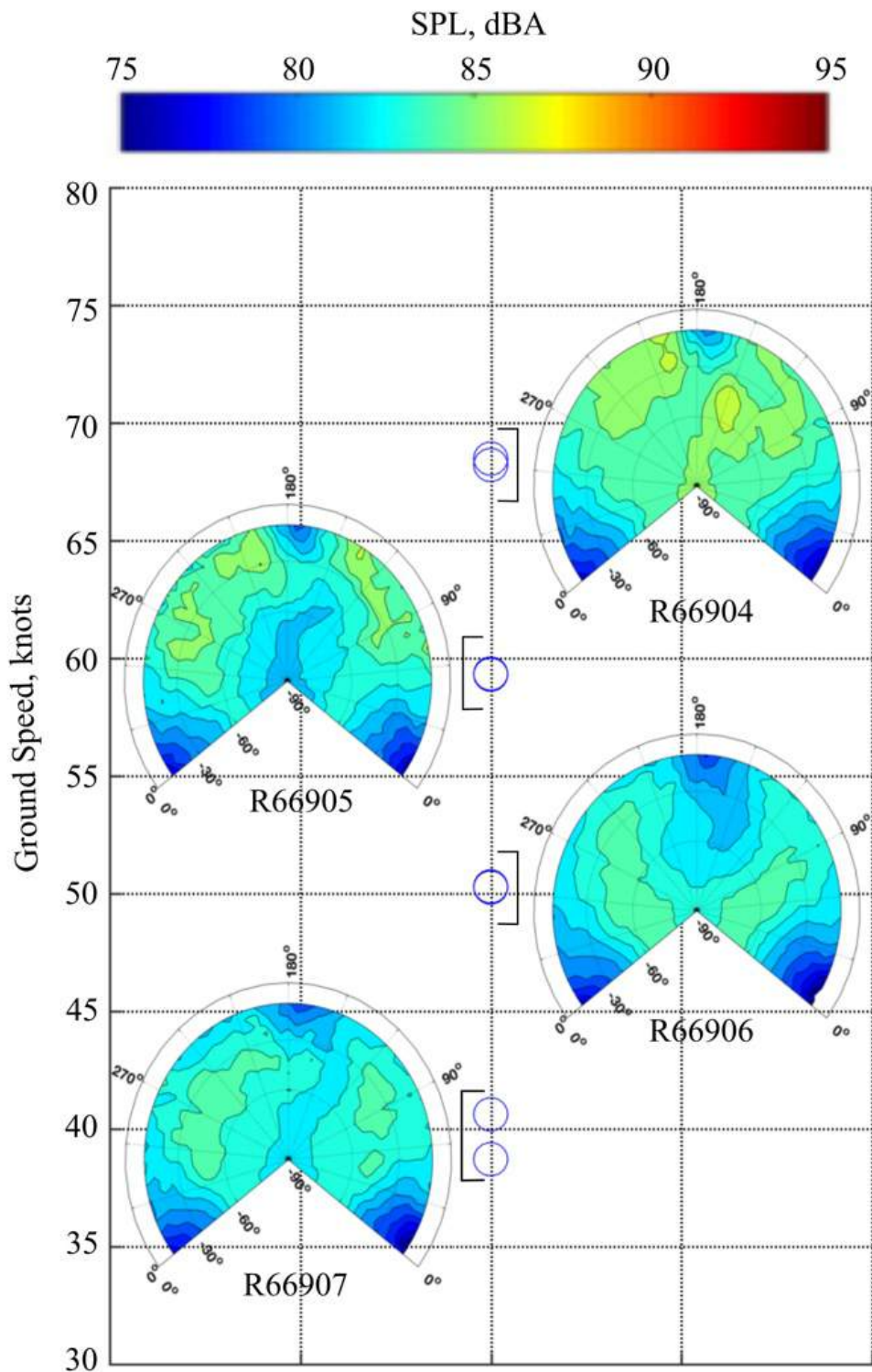


Figure 232: R66 average level flight source noise hemispheres, lower speed range.

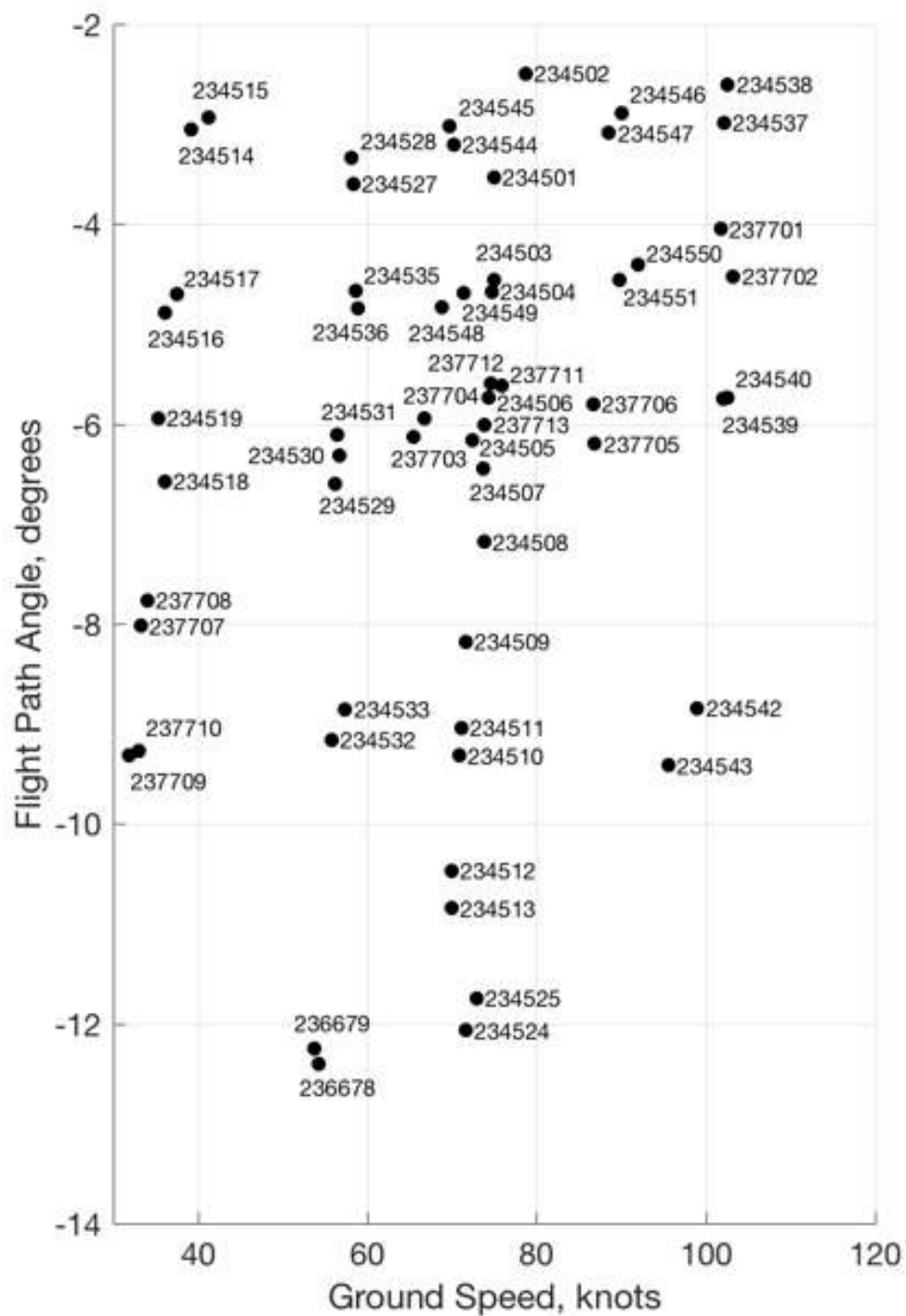


Figure 233: R66 source noise descent conditions flown.

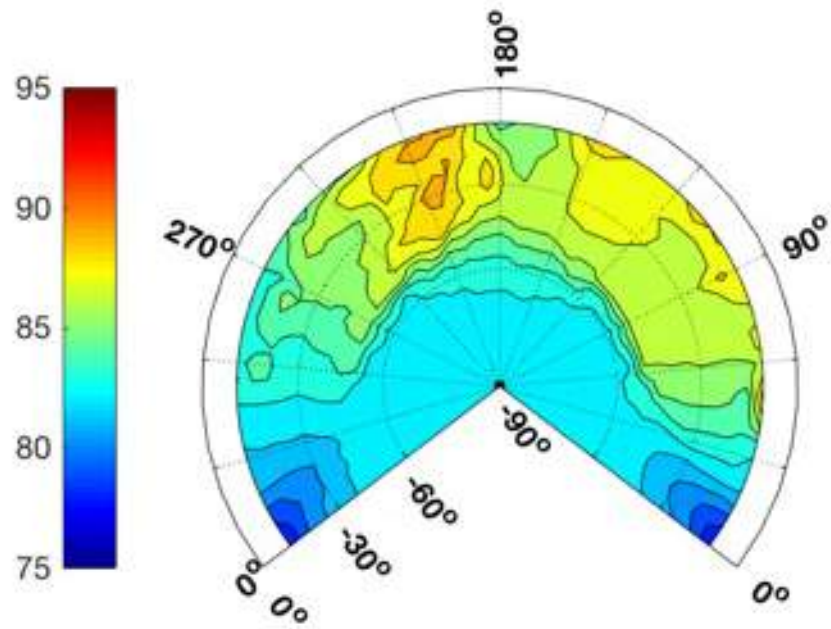


Figure 234: R66, 234501, D4, dBA hemisphere, ground speed 74.9 kts, -3.5° FPA.

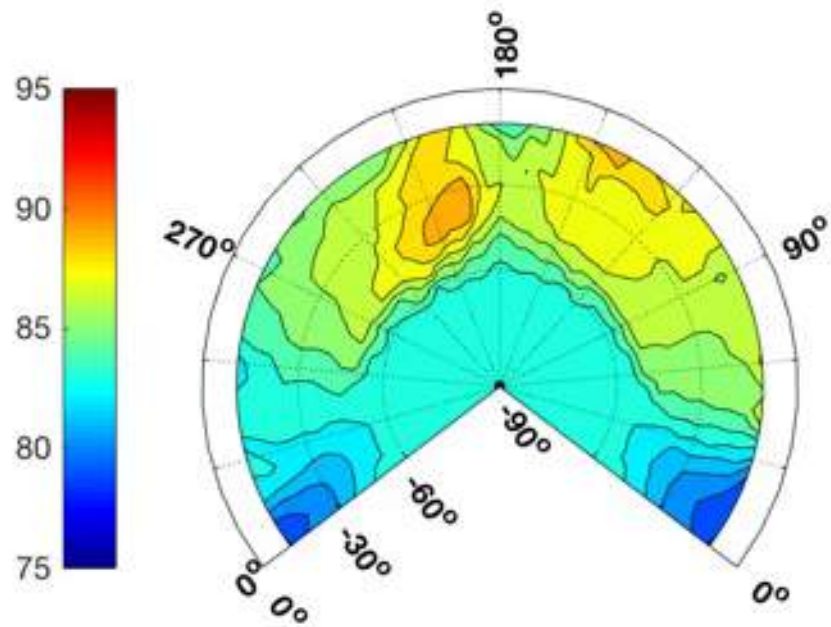


Figure 235: R66, 234502, D4, dBA hemisphere, ground speed 78.7 kts, -2.5° FPA.

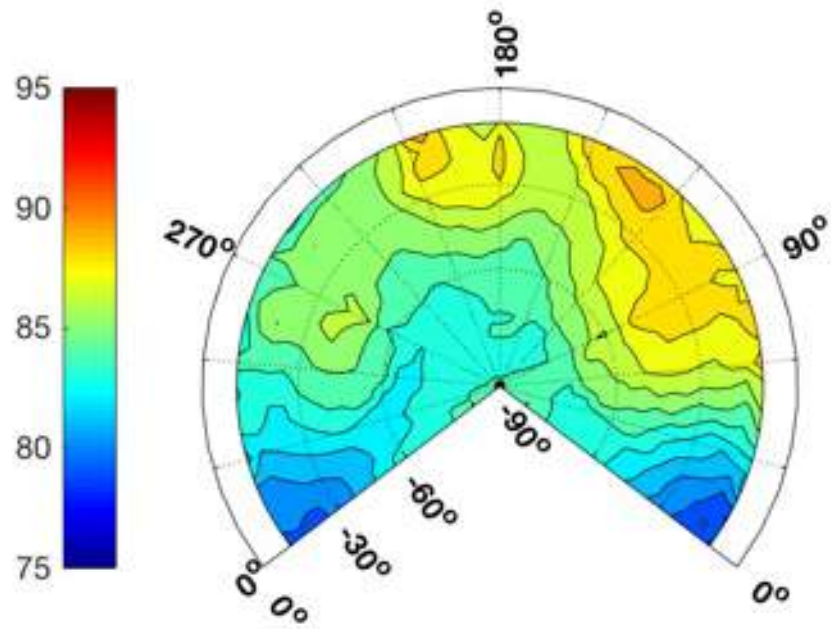


Figure 236: R66, 234503, D9, dBA hemisphere, ground speed 75.0 kts, -4.6° FPA.

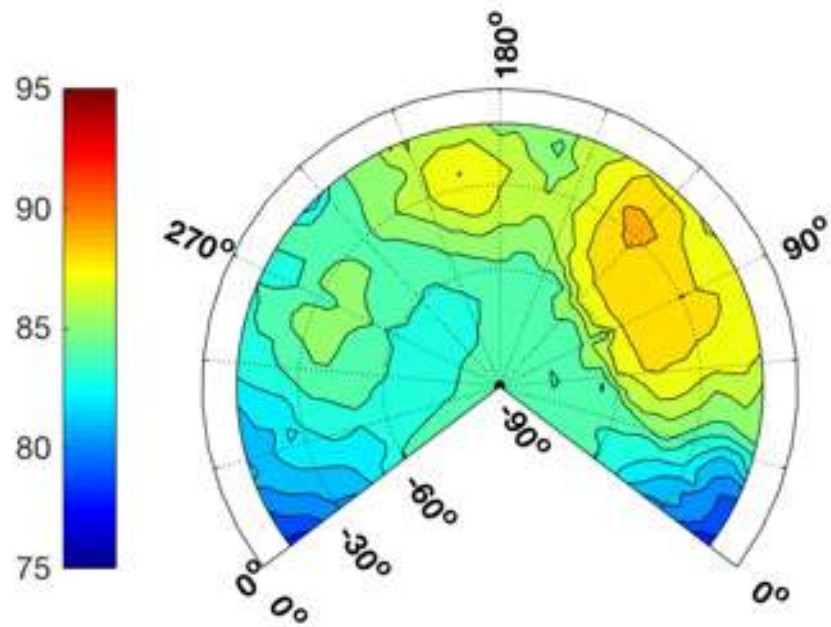


Figure 237: R66, 234504, D9, dBA hemisphere, ground speed 74.7 kts, -4.7° FPA.

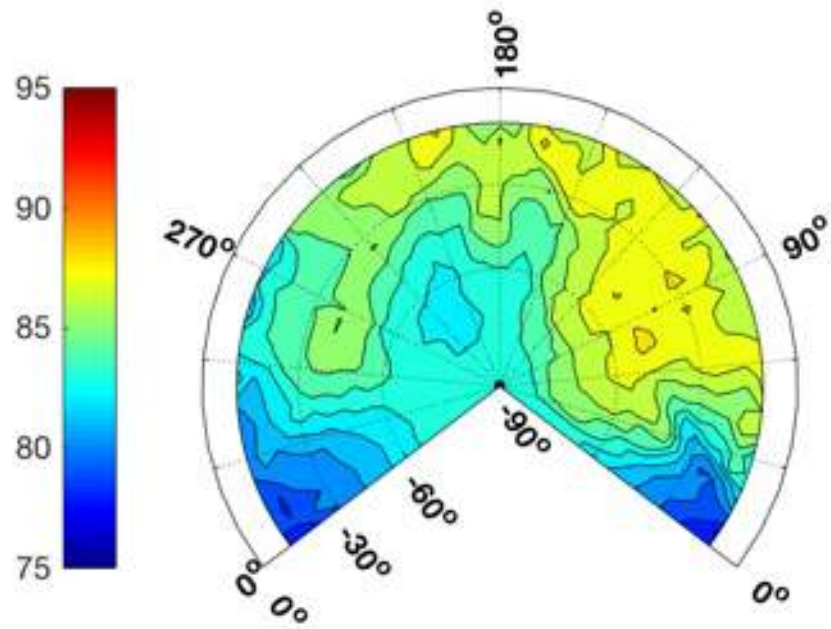


Figure 238: R66, 234505, D14, dBA hemisphere, ground speed 72.4 kts, -6.2° FPA.

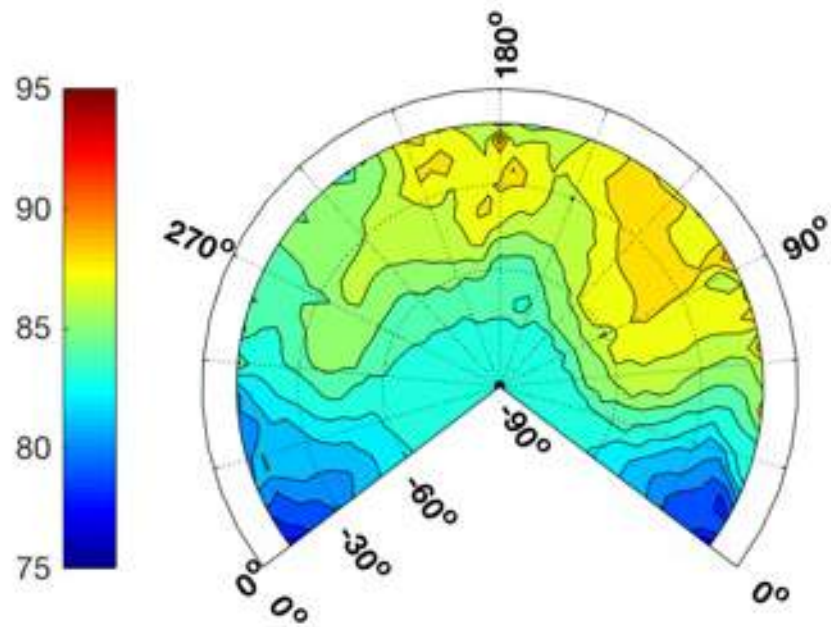


Figure 239: R66, 234506, D14, dBA hemisphere, ground speed 74.3 kts, -5.7° FPA.

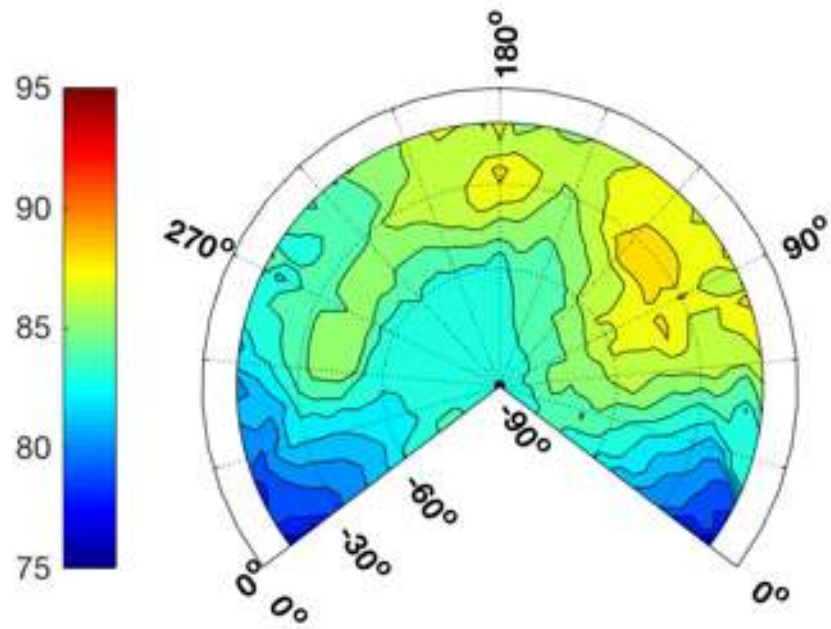


Figure 240: R66, 234507, D14, dBA hemisphere, ground speed 73.7 kts, -6.4° FPA.

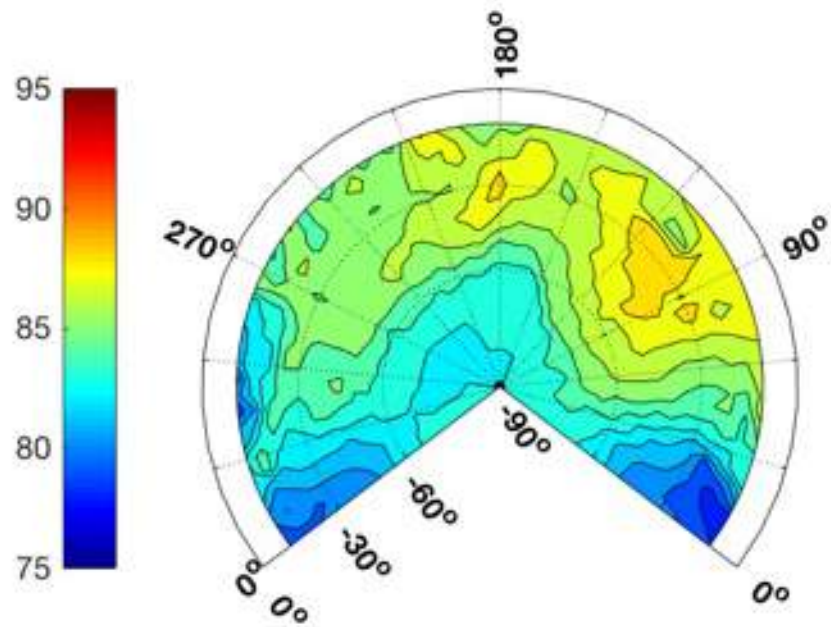


Figure 241: R66, 234508, D19, dBA hemisphere, ground speed 73.8 kts, -7.2° FPA.

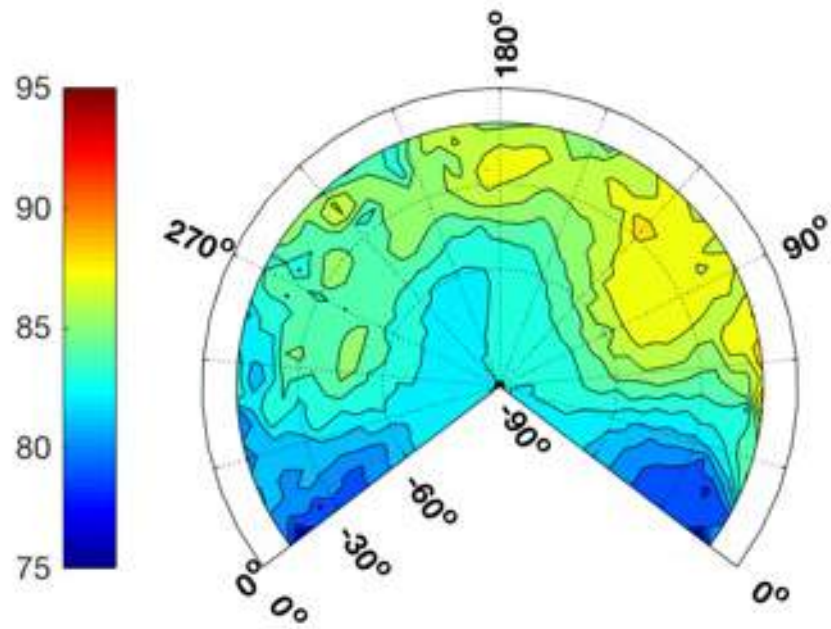


Figure 242: R66, 234509, D19, dBA hemisphere, ground speed 71.6 kts, -8.2° FPA.

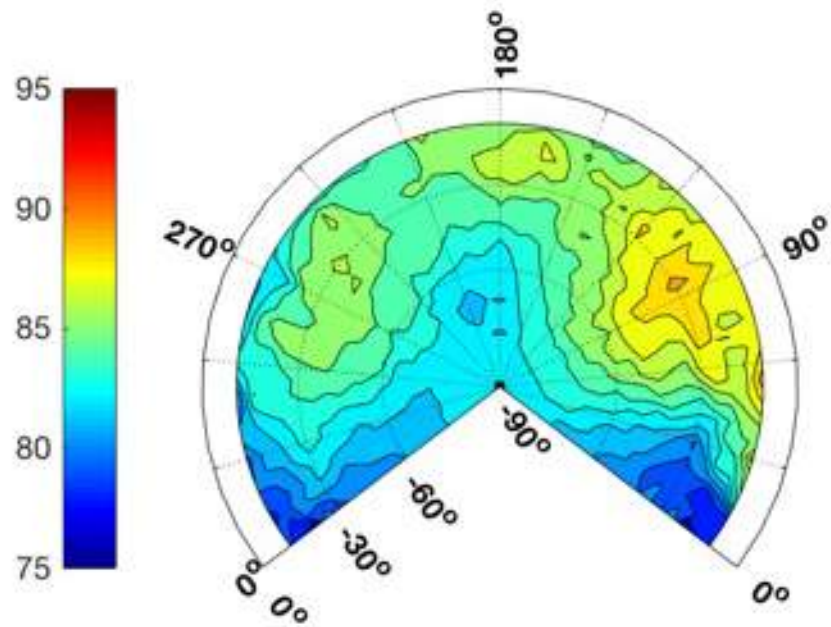


Figure 243: R66, 234510, D24, dBA hemisphere, ground speed 70.8 kts, -9.3° FPA.

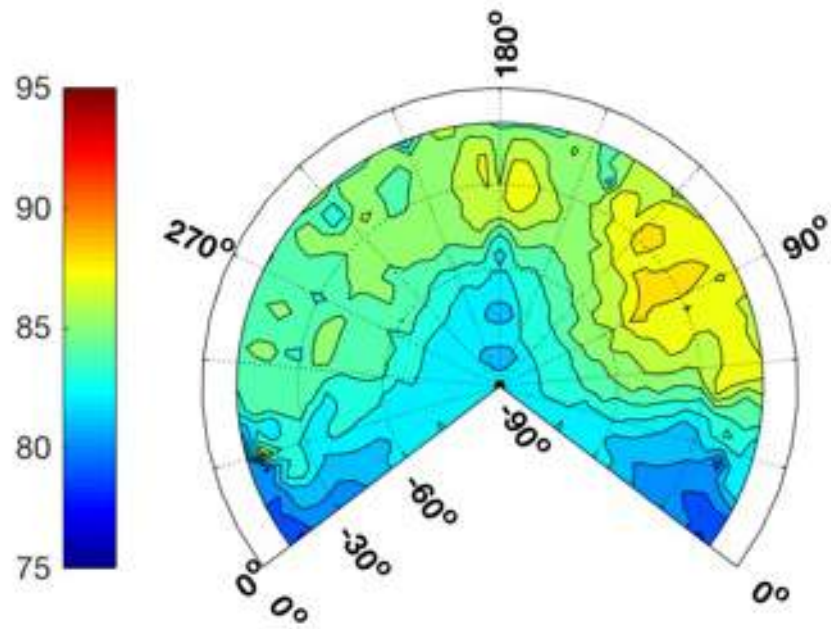


Figure 244: R66, 234511, D24, dBA hemisphere, ground speed 71.1 kts, -9.0° FPA.

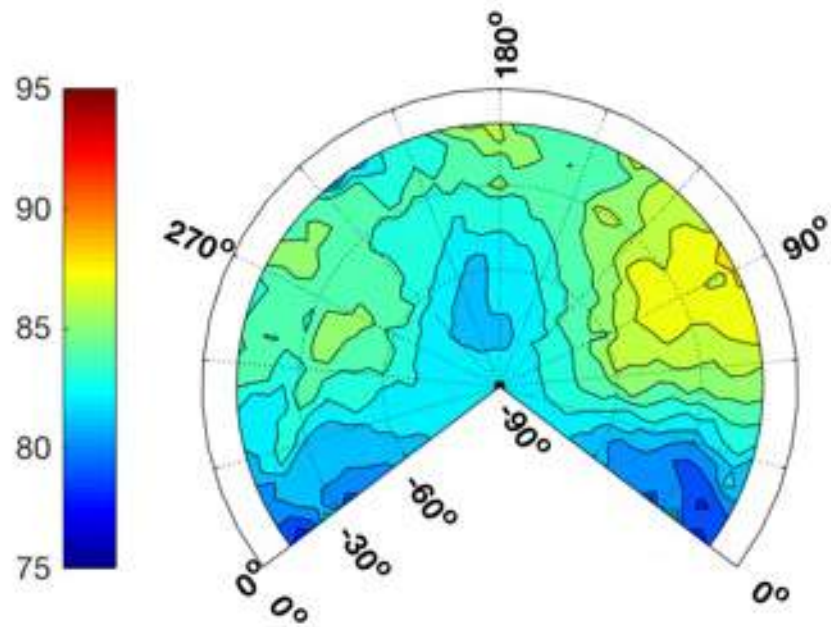


Figure 245: R66, 234512, D29, dBA hemisphere, ground speed 70.0 kts, -10.5° FPA.

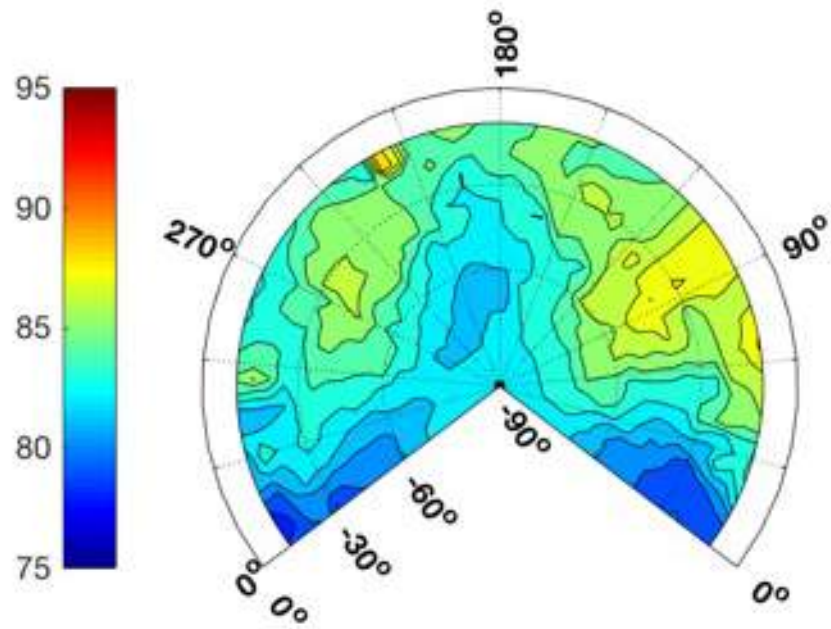


Figure 246: R66, 234513, D29, dBA hemisphere, ground speed 70.0 kts, -10.8° FPA.

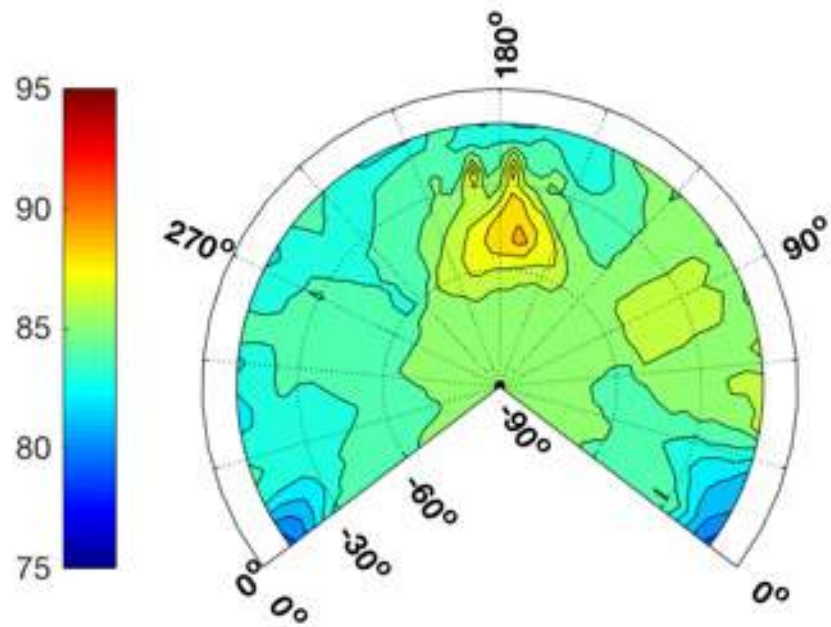


Figure 247: R66, 234514, D33, dBA hemisphere, ground speed 39.1 kts, -3.1° FPA.

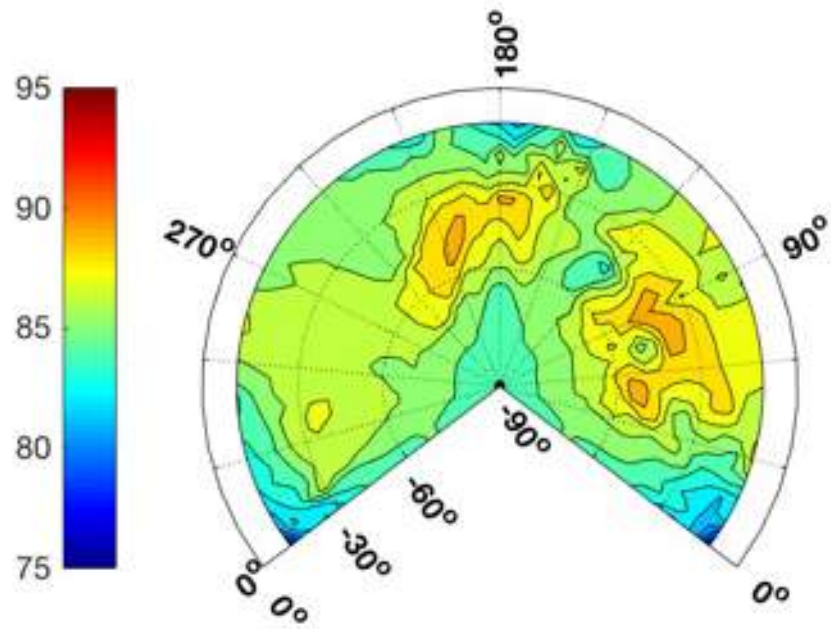


Figure 248: R66, 234515, D33, dBA hemisphere, ground speed 41.3 kts, -2.9° FPA.

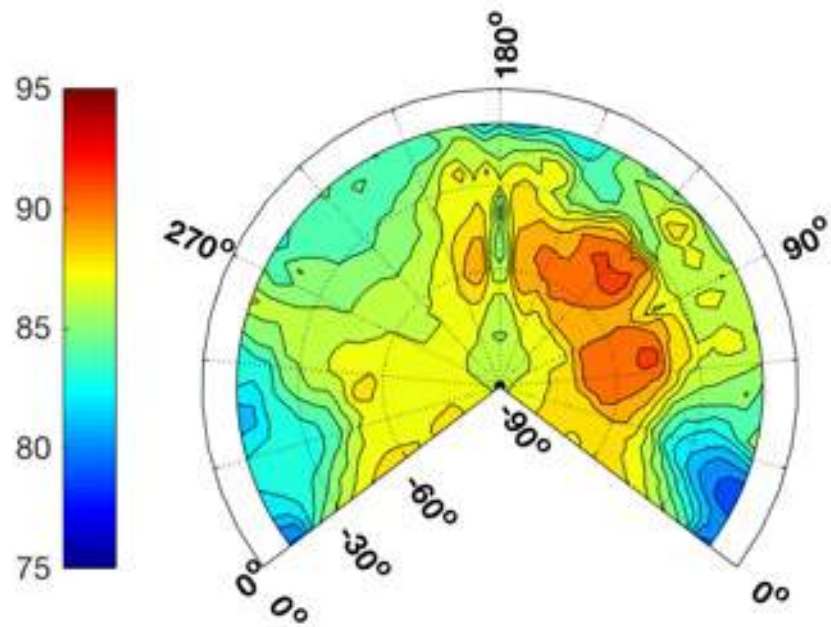


Figure 249: R66, 234516, D34, dBA hemisphere, ground speed 36.0 kts, -4.9° FPA.

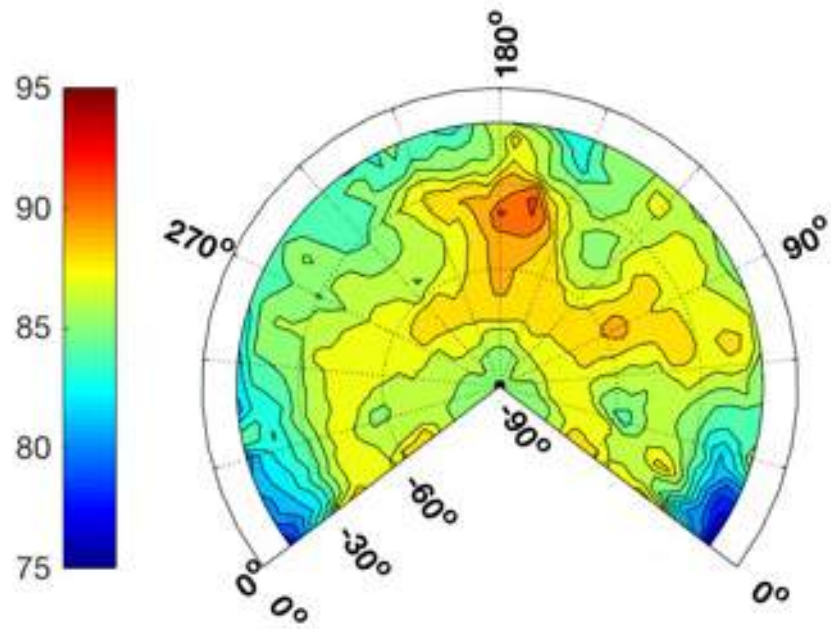


Figure 250: R66, 234517, D34, dBA hemisphere, ground speed 37.5 kts, -4.7° FPA.

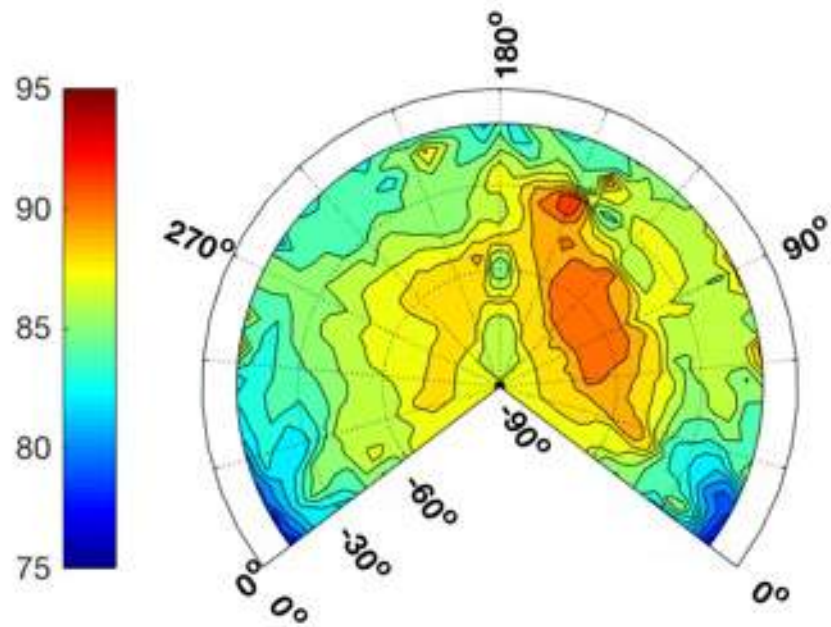


Figure 251: R66, 234518, D35, dBA hemisphere, ground speed 36.1 kts, -6.6° FPA.

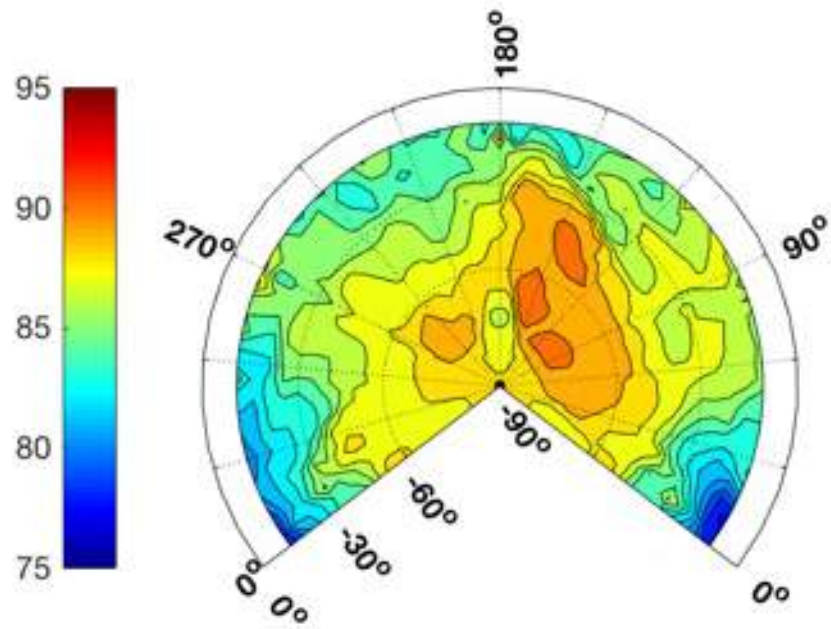


Figure 252: R66, 234519, D35, dBA hemisphere, ground speed 35.3 kts, -5.9° FPA.

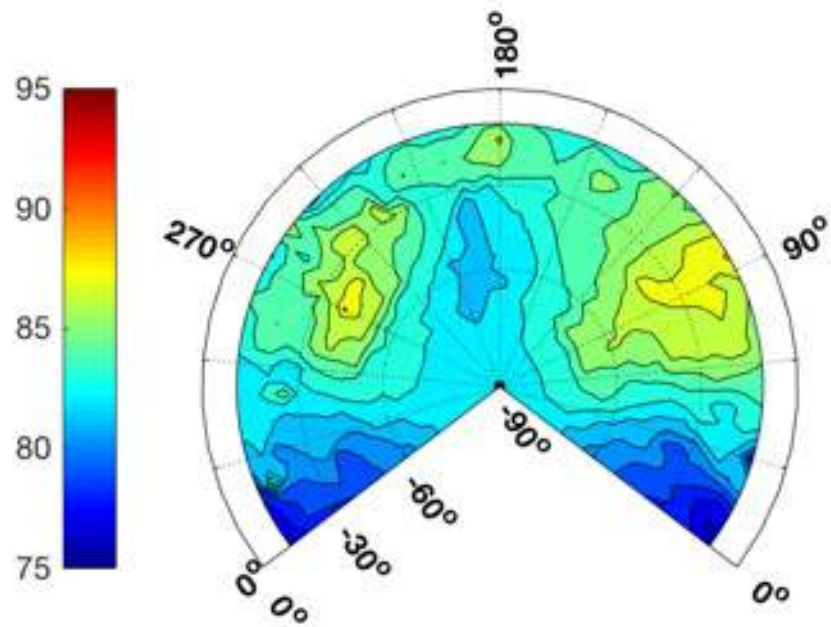


Figure 253: R66, 234524, D32, dBA hemisphere, ground speed 71.6 kts, -12.1° FPA.

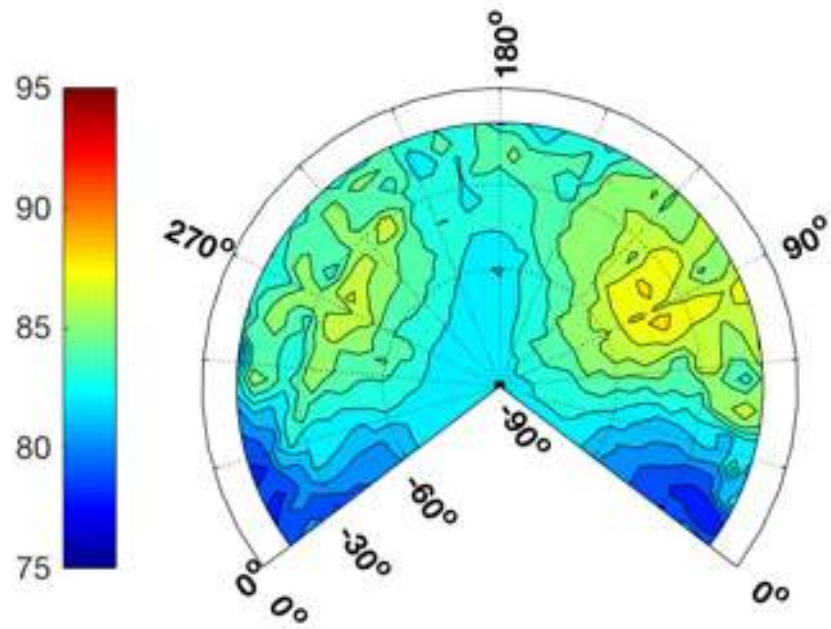


Figure 254: R66, 234525, D32, dBA hemisphere, ground speed 72.9 kts, -11.7° FPA.

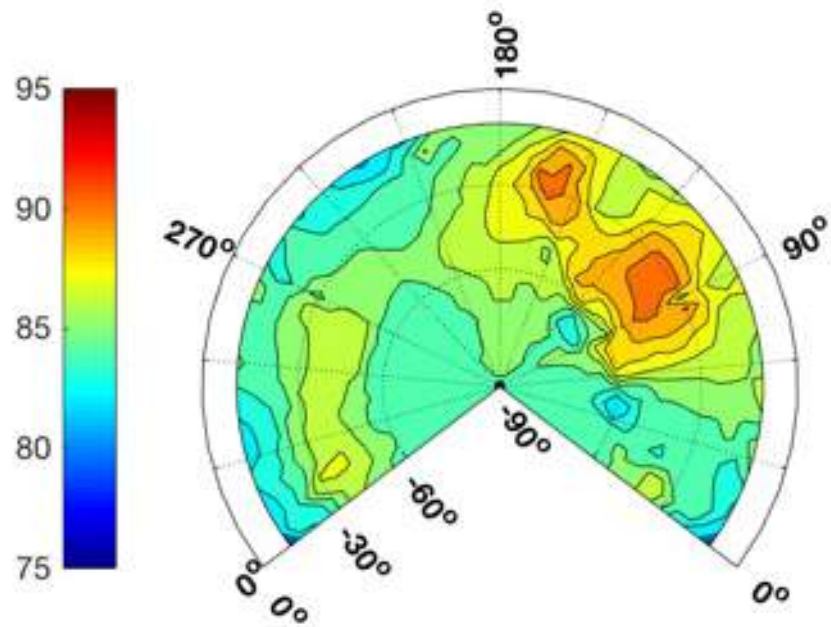


Figure 255: R66, 234527, D2, dBA hemisphere, ground speed 58.4 kts, -3.6° FPA.

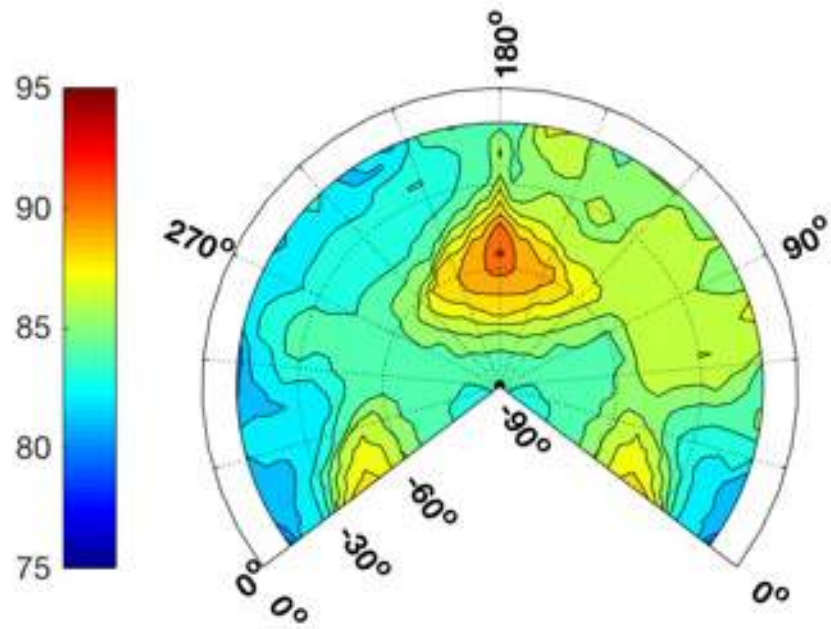


Figure 256: R66, 234528, D2, dBA hemisphere, ground speed 58.2 kts, -3.3° FPA.

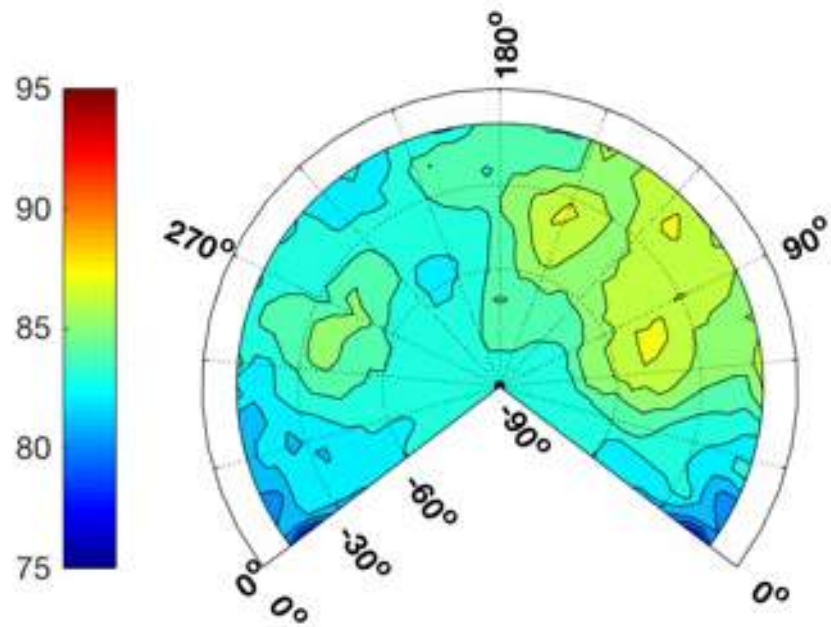


Figure 257: R66, 234529, D12, dBA hemisphere, ground speed 56.1 kts, -6.6° FPA.

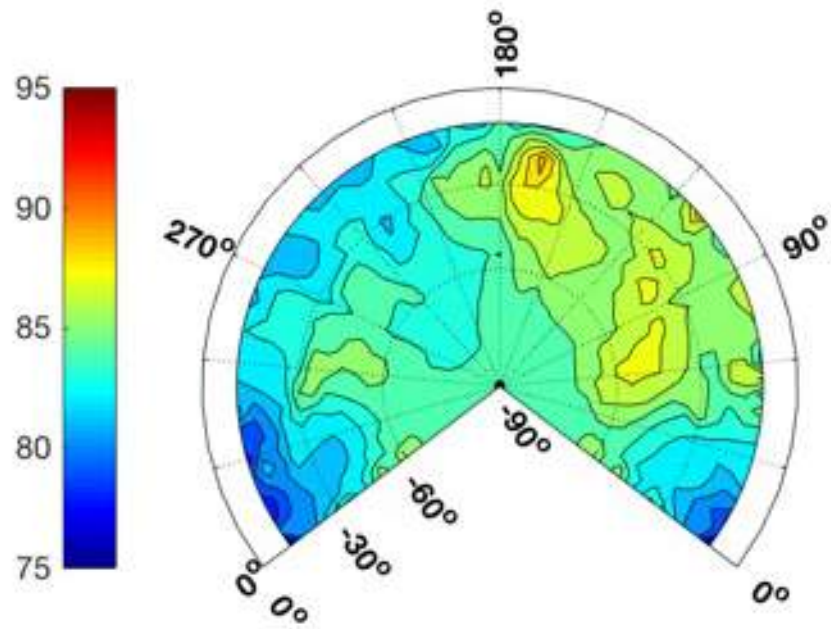


Figure 258: R66, 234530, D12, dBA hemisphere, ground speed 56.7 kts, -6.3° FPA.

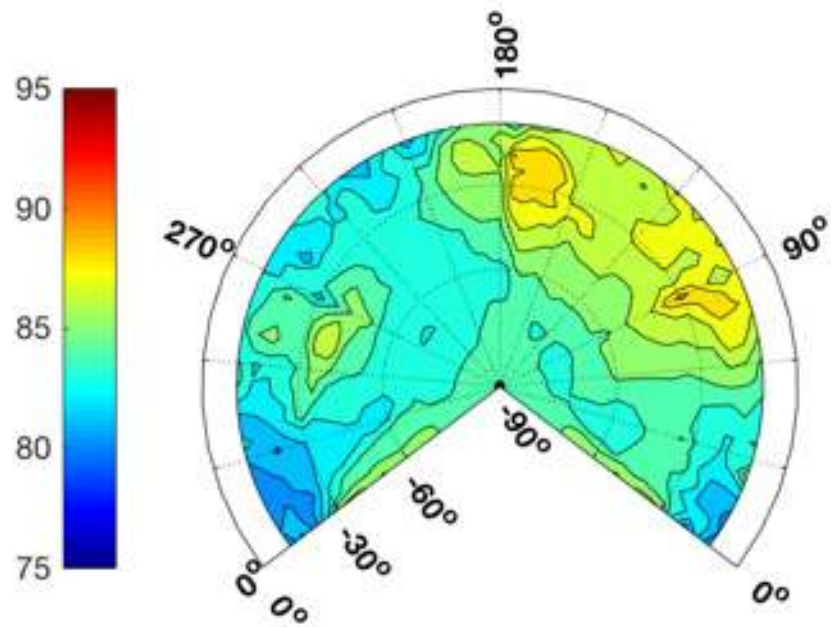


Figure 259: R66, 234531, D12, dBA hemisphere, ground speed 56.4 kts, -6.1° FPA.

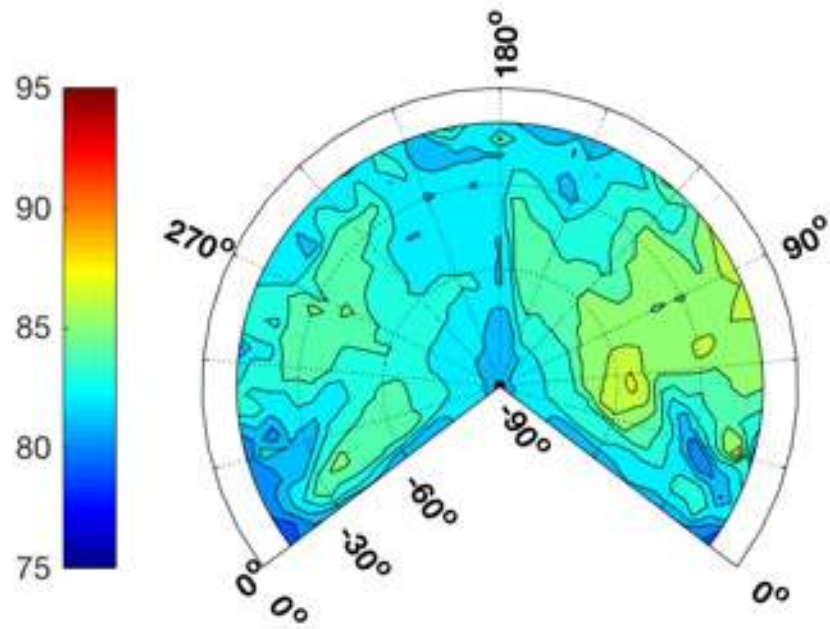


Figure 260: R66, 234532, D22, dBA hemisphere, ground speed 55.8 kts, -9.2° FPA.

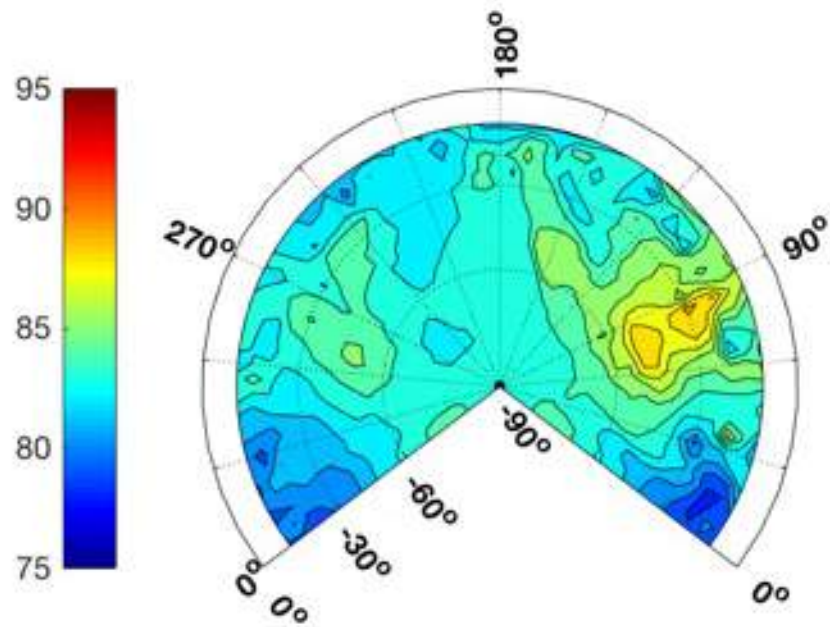


Figure 261: R66, 234533, D22, dBA hemisphere, ground speed 57.4 kts, -8.9° FPA.

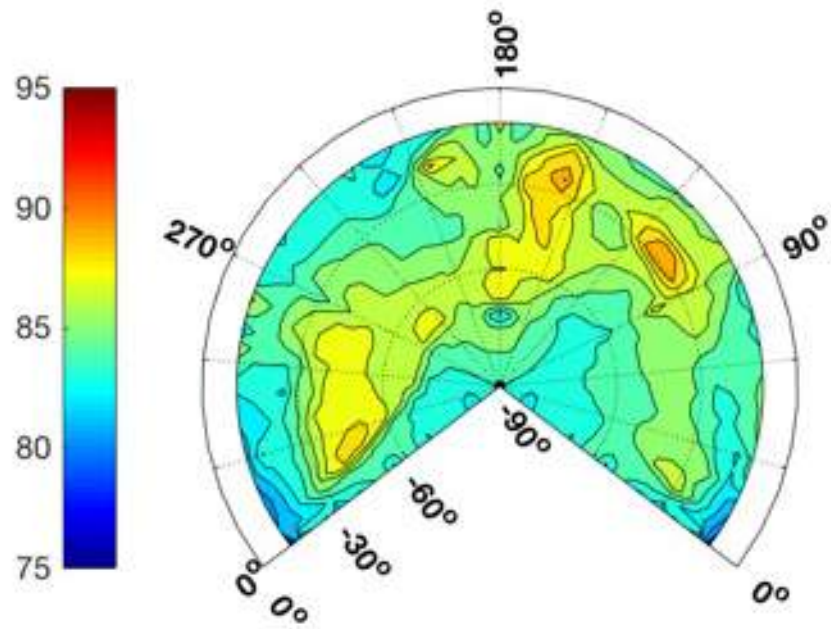


Figure 262: R66, 234535, D7, dBA hemisphere, ground speed 58.6 kts, -4.7° FPA.

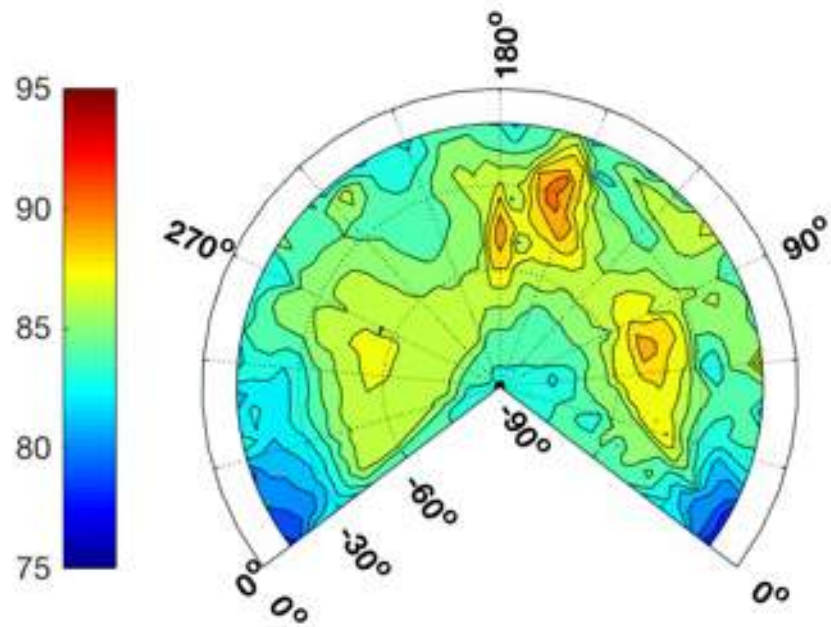


Figure 263: R66, 234536, D7, dBA hemisphere, ground speed 58.9 kts, -4.8° FPA.

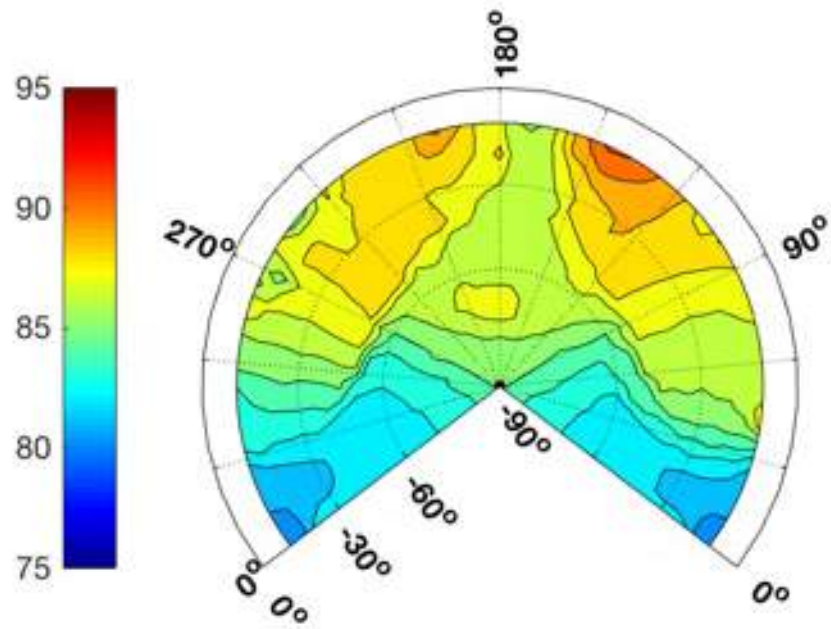


Figure 264: R66, 234537, D6, dBA hemisphere, ground speed 102.2 kts, -3.0° FPA.

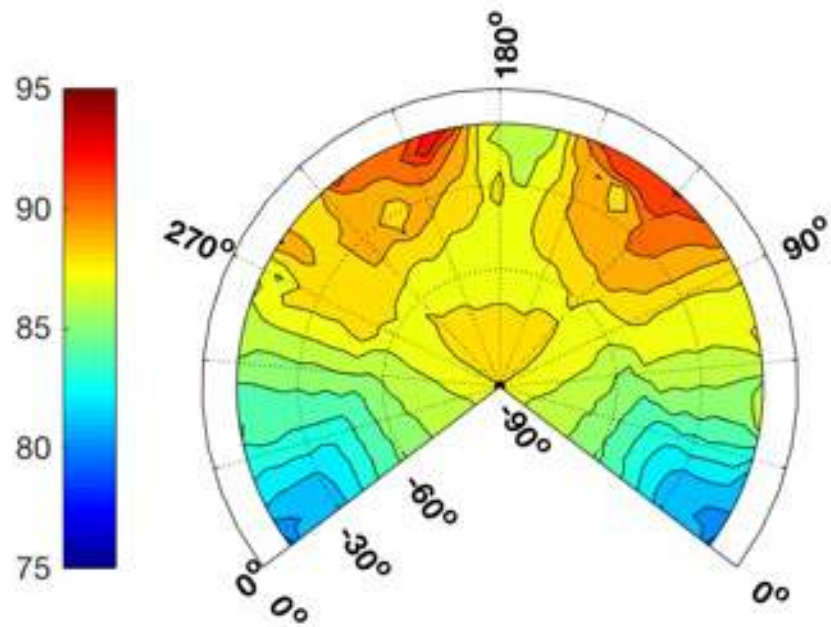


Figure 265: R66, 234538, D6, dBA hemisphere, ground speed 102.6 kts, -2.6° FPA.

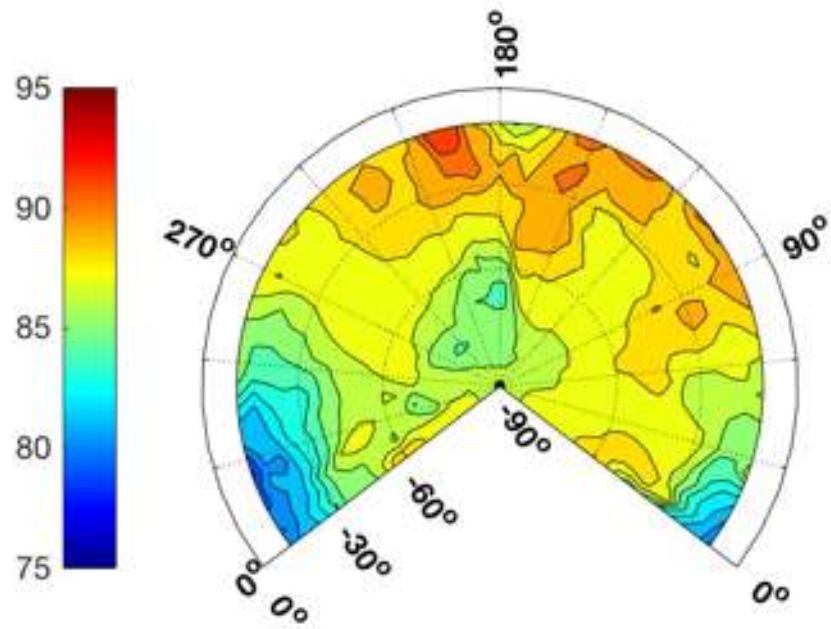


Figure 266: R66, 234539, D16, dBA hemisphere, ground speed 102.0 kts, -5.8° FPA.

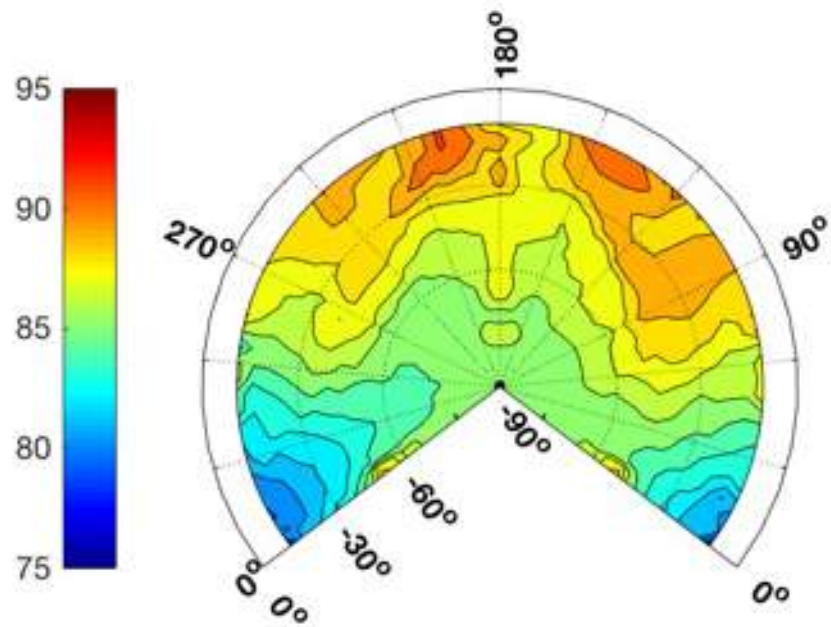


Figure 267: R66, 234540, D16, dBA hemisphere, ground speed 102.6 kts, -5.7° FPA.

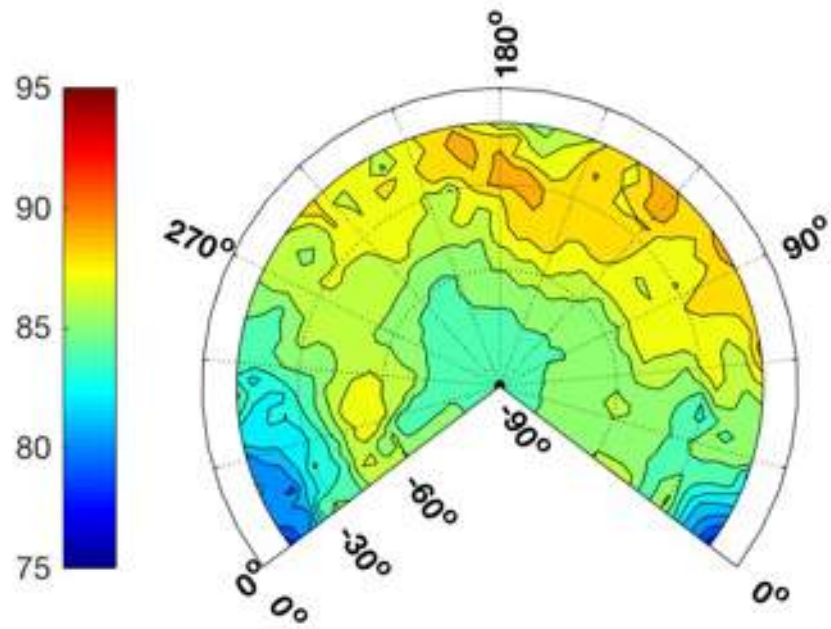


Figure 268: R66, 234542, D26, dBA hemisphere, ground speed 99.0 kts, -8.8° FPA.

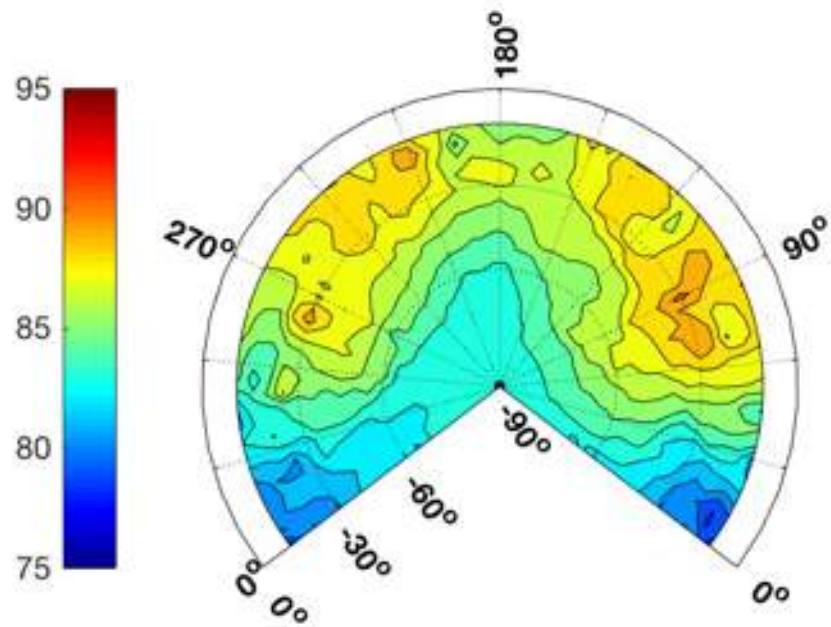


Figure 269: R66, 234543, D26, dBA hemisphere, ground speed 95.6 kts, -9.4° FPA.

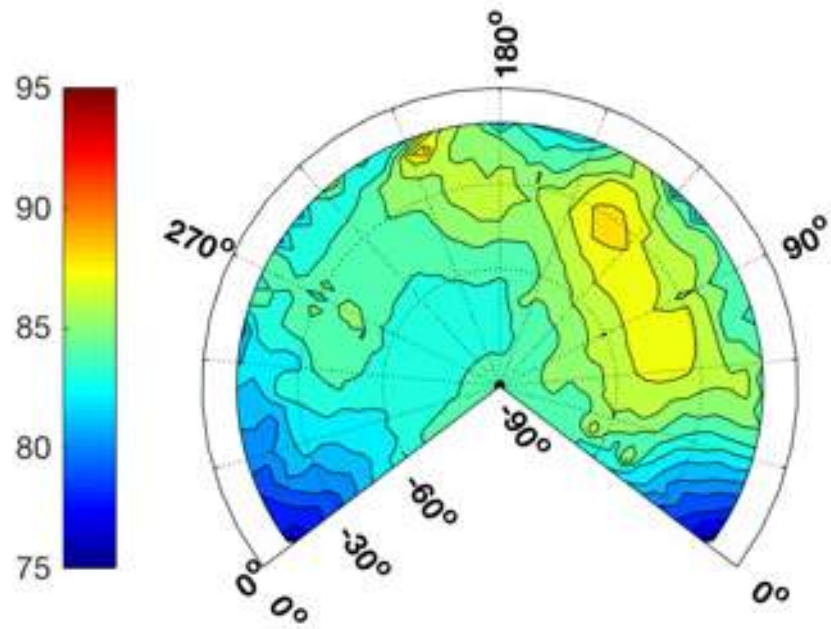


Figure 270: R66, 234544, D3, dBA hemisphere, ground speed 70.2 kts, -3.2° FPA.

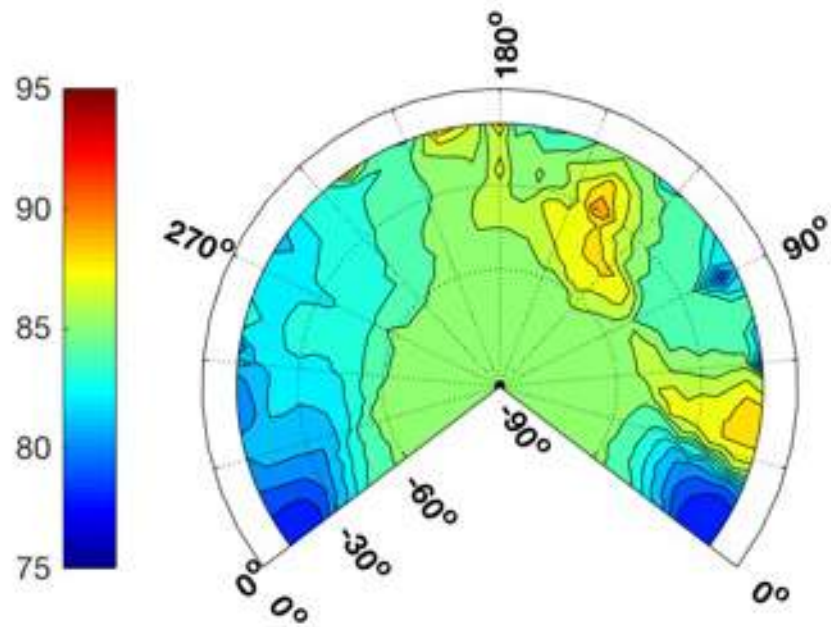


Figure 271: R66, 234545, D3, dBA hemisphere, ground speed 69.8 kts, -3.0° FPA.

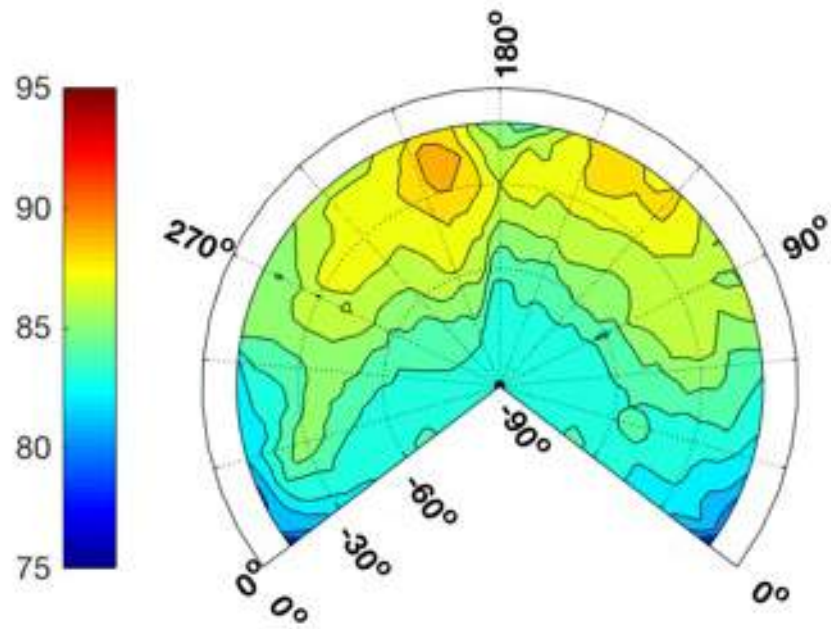


Figure 272: R66, 234546, D5, dBA hemisphere, ground speed 90.0 kts, -2.9° FPA.

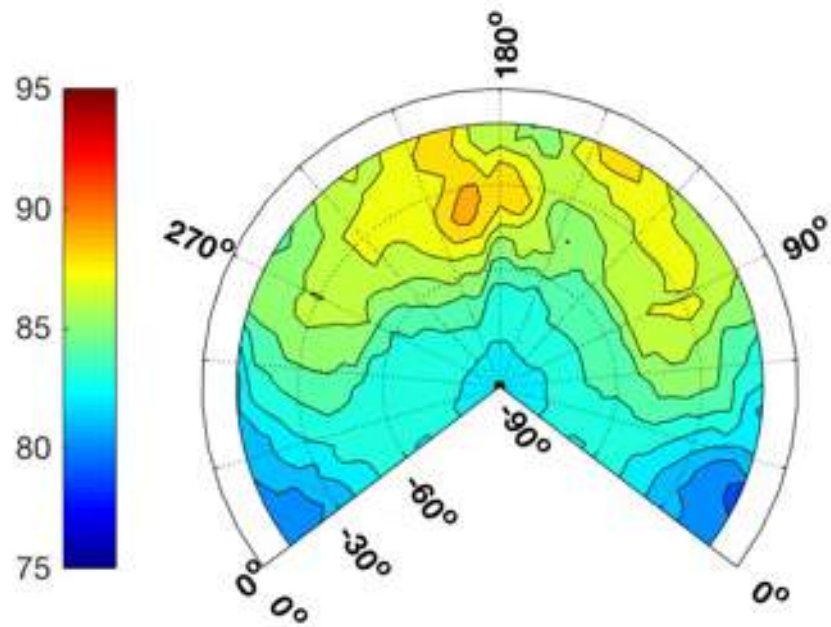


Figure 273: R66, 234547, D5, dBA hemisphere, ground speed 88.6 kts, -3.1° FPA.

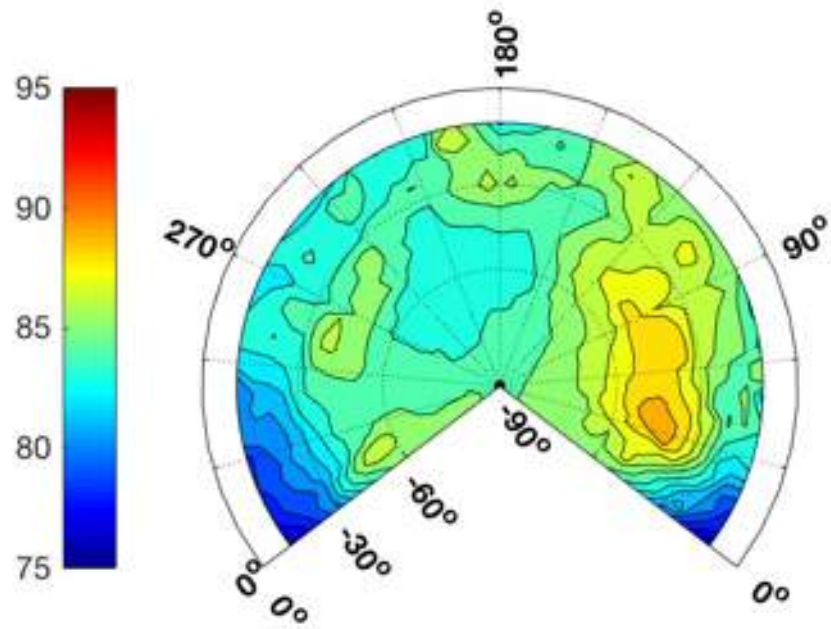


Figure 274: R66, 234548, D8, dBA hemisphere, ground speed 68.9 kts, -4.8° FPA.

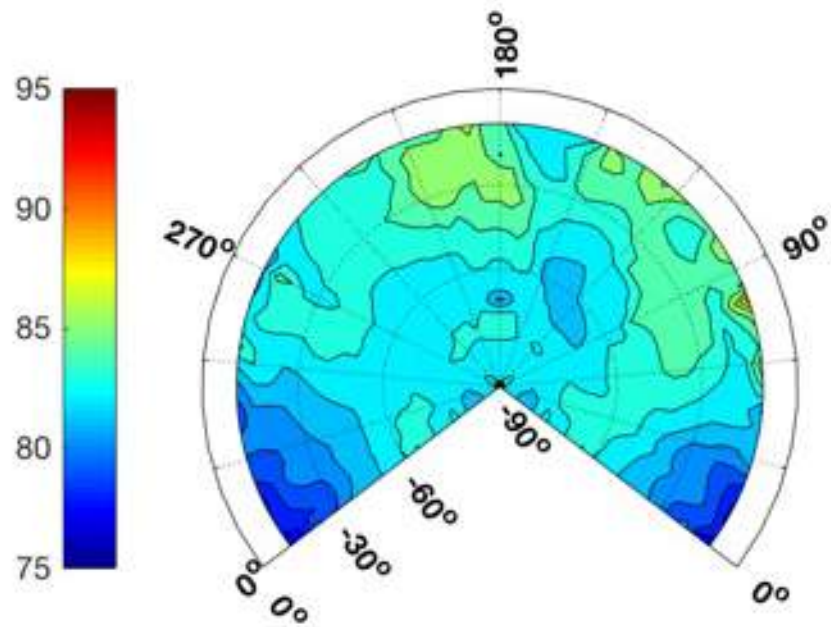


Figure 275: R66, 234549, D8, dBA hemisphere, ground speed 71.3 kts, -4.7° FPA.

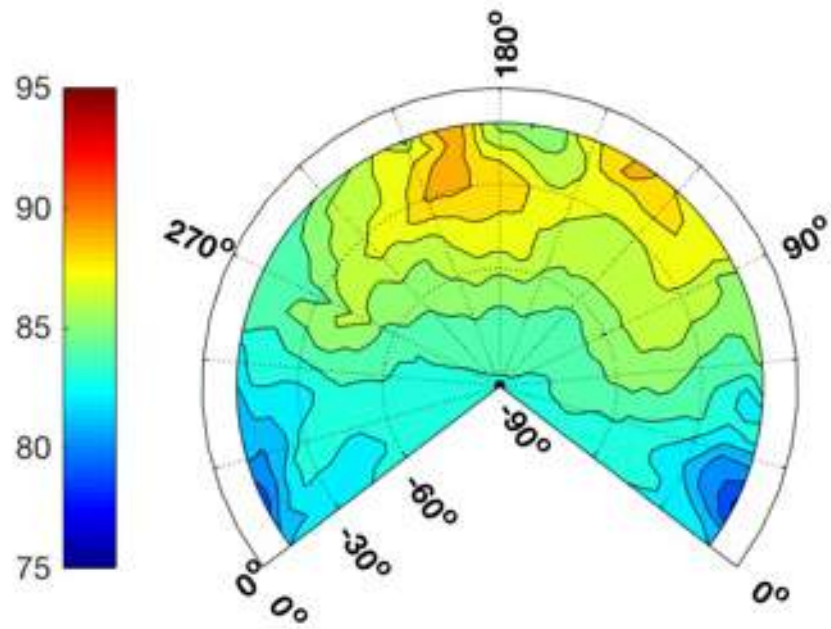


Figure 276: R66, 234550, D10, dBA hemisphere, ground speed 91.9 kts, -4.4° FPA.

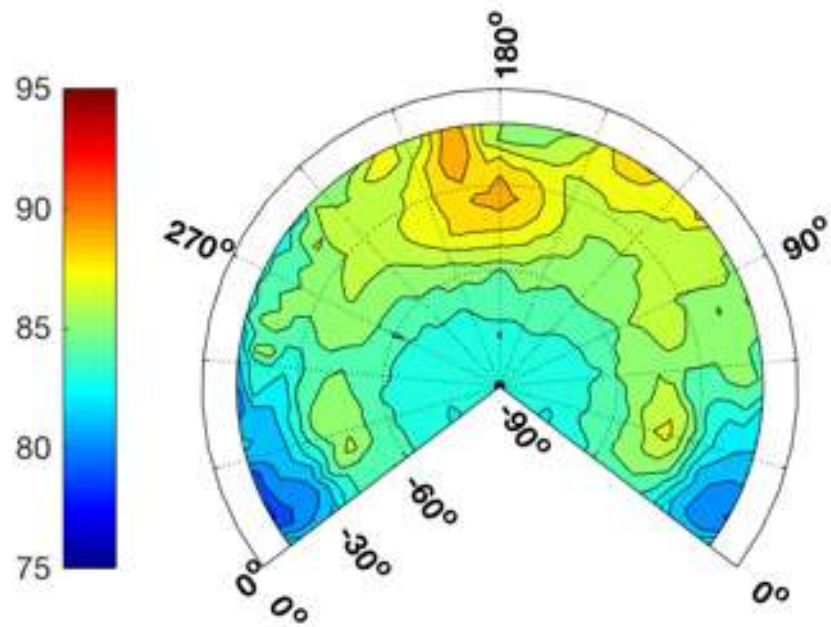


Figure 277: R66, 234551, D10, dBA hemisphere, ground speed 89.8 kts, -4.6° FPA.

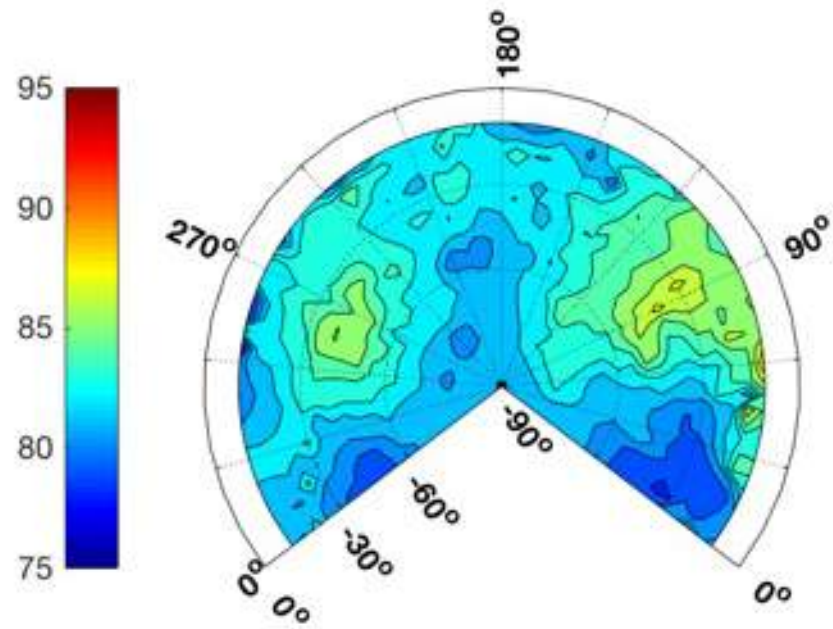


Figure 278: R66, 236678, D30, dBA hemisphere, ground speed 54.3 kts, -12.4° FPA.

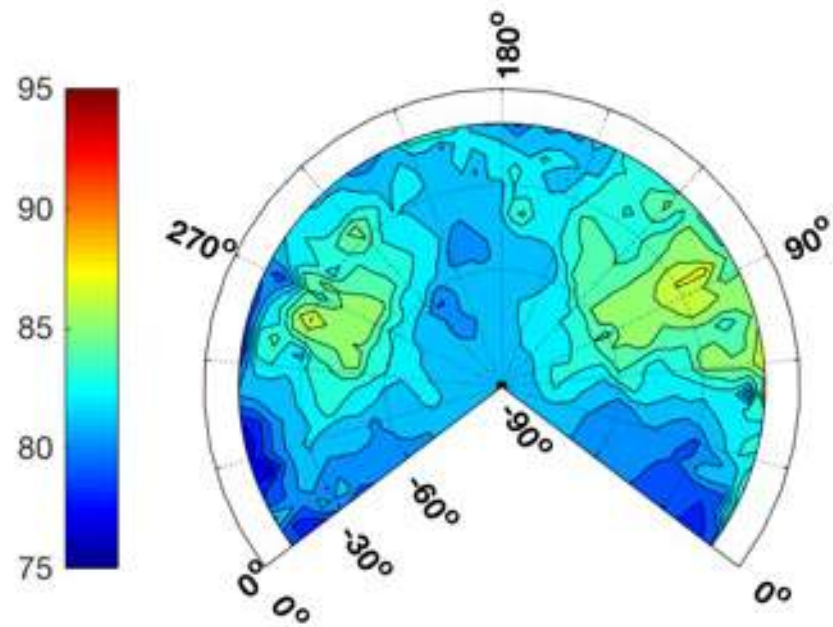


Figure 279: R66, 236679, D30, dBA hemisphere, ground speed 53.8 kts, -12.2° FPA.

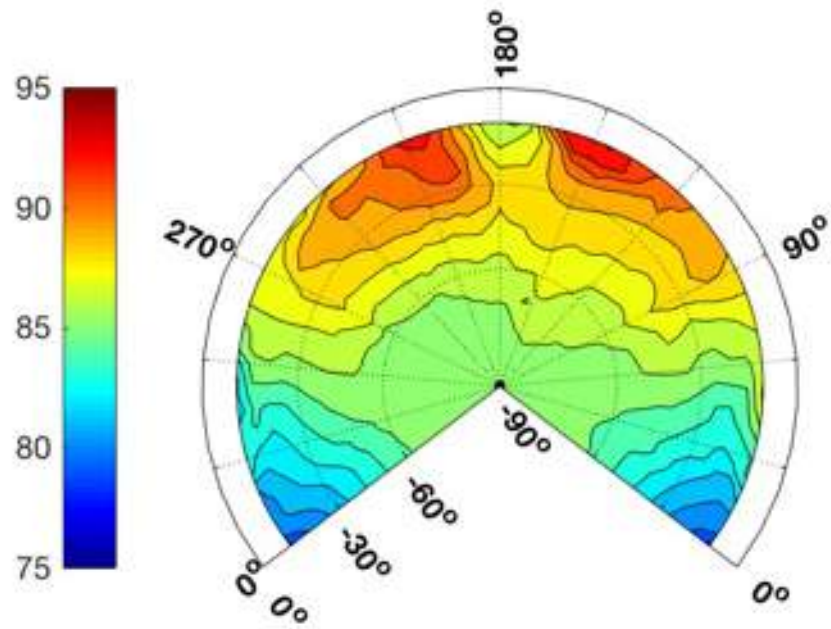


Figure 280: R66, 237701, D11, dBA hemisphere, ground speed 101.7 kts, -4.0° FPA.

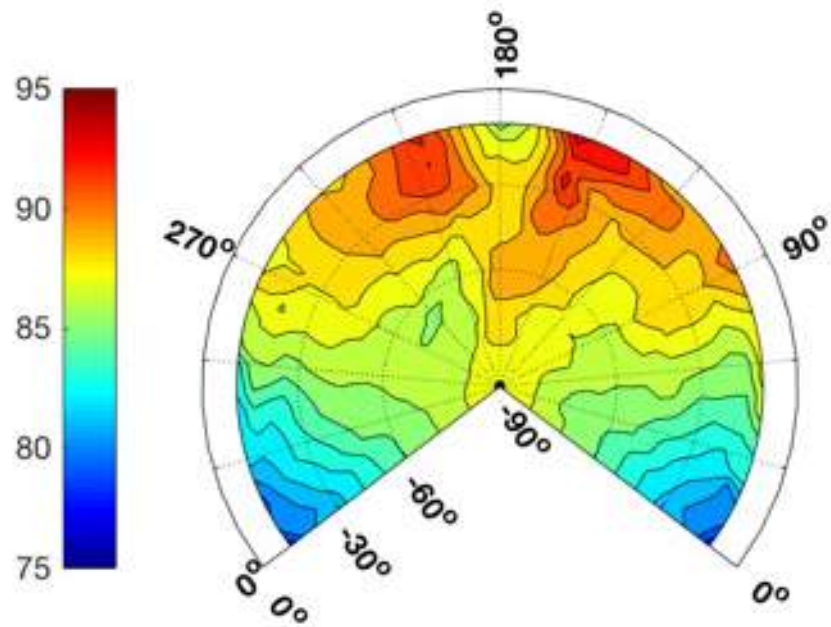


Figure 281: R66, 237702, D11, dBA hemisphere, ground speed 103.2 kts, -4.5° FPA.

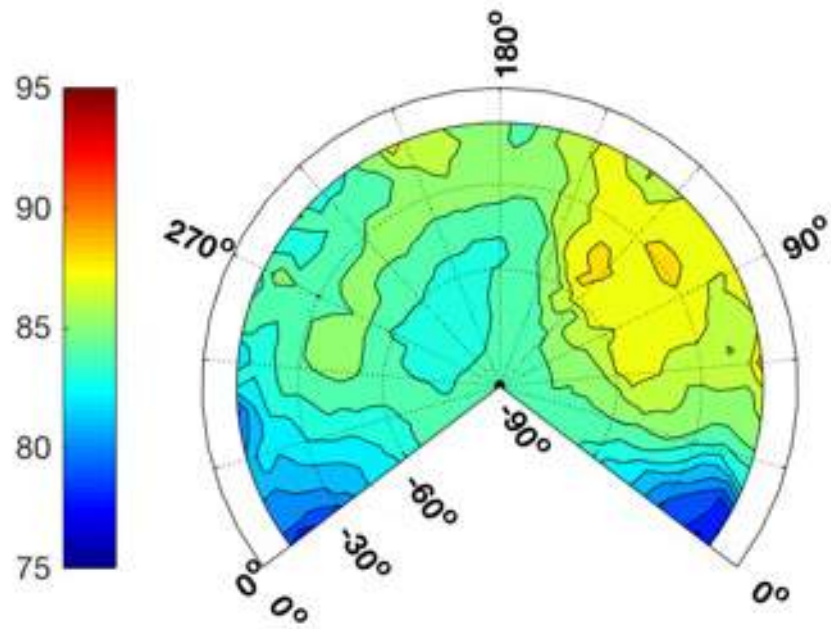


Figure 282: R66, 237703, D13, dBA hemisphere, ground speed 65.5 kts, -6.1° FPA.

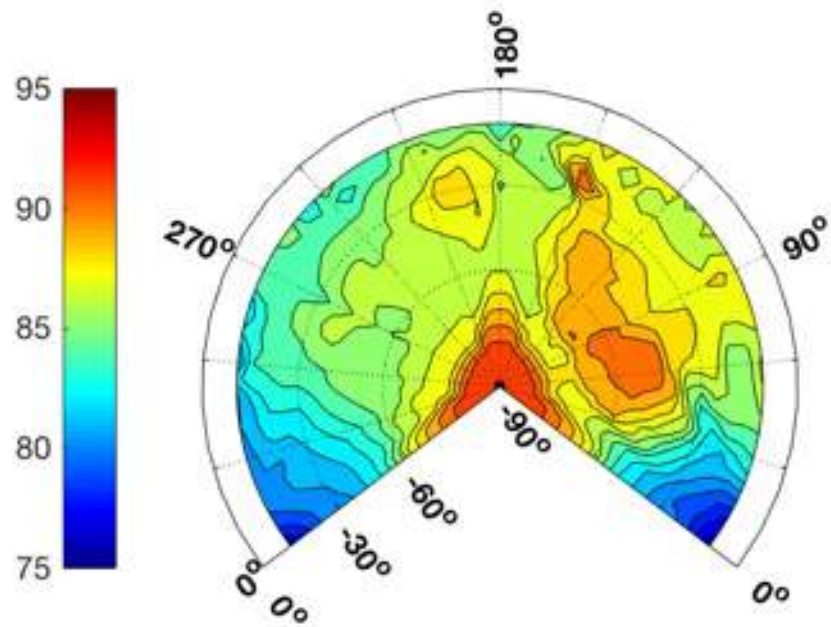


Figure 283: R66, 237704, D13, dBA hemisphere, ground speed 66.7 kts, -5.9° FPA.

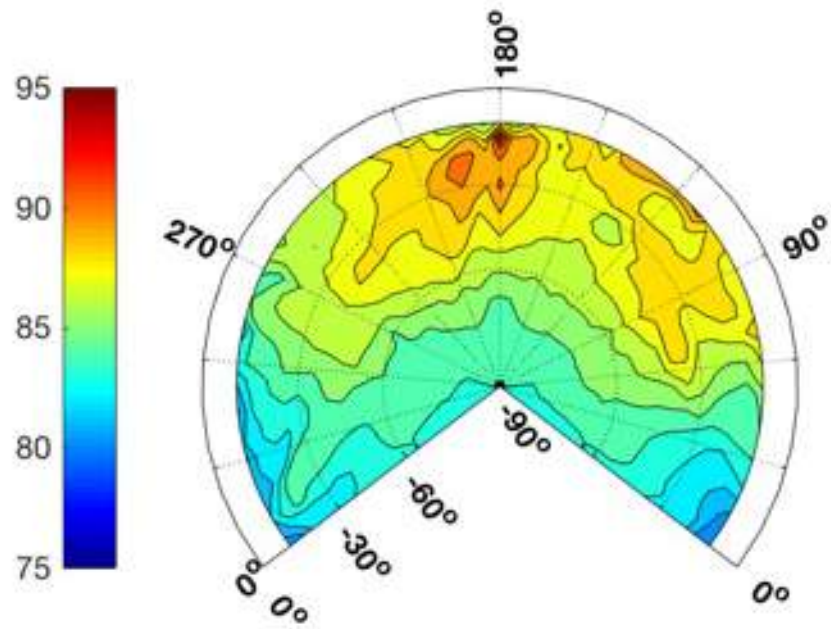


Figure 284: R66, 237705, D15, dBA hemisphere, ground speed 86.9 kts, -6.2° FPA.

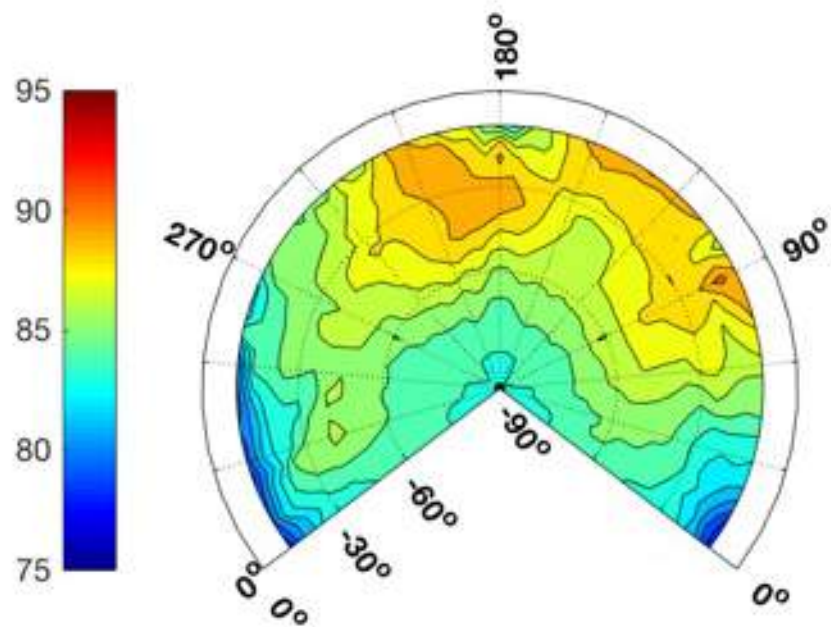


Figure 285: R66, 237706, D15, dBA hemisphere, ground speed 86.7 kts, -5.8° FPA.

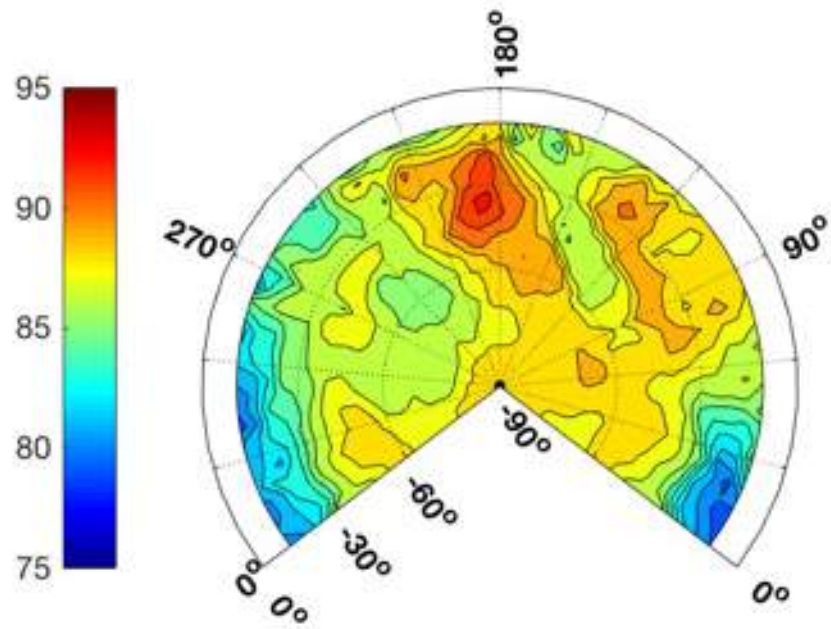


Figure 286: R66, 237707, D36, dBA hemisphere, ground speed 33.2 kts, -8.0° FPA.

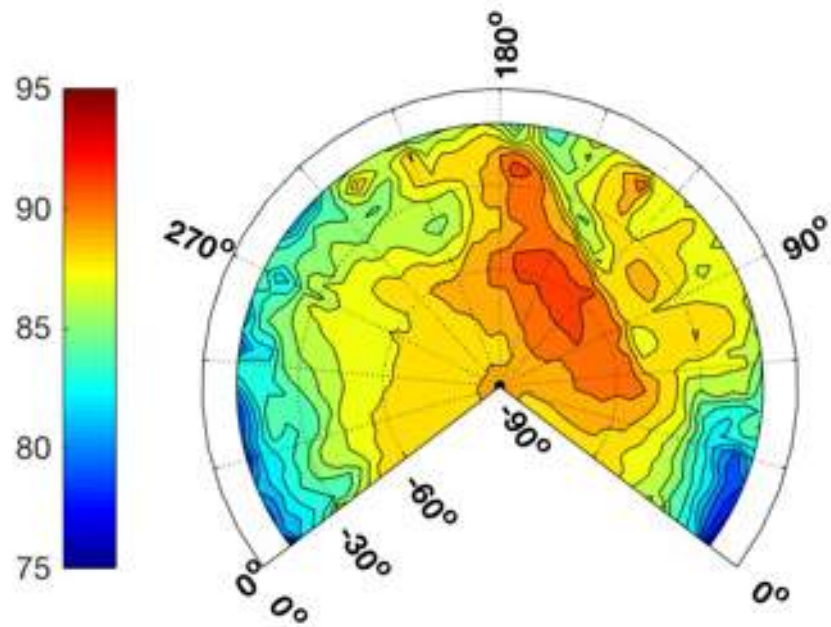


Figure 287: R66, 237708, D36, dBA hemisphere, ground speed 34.0 kts, -7.8° FPA.

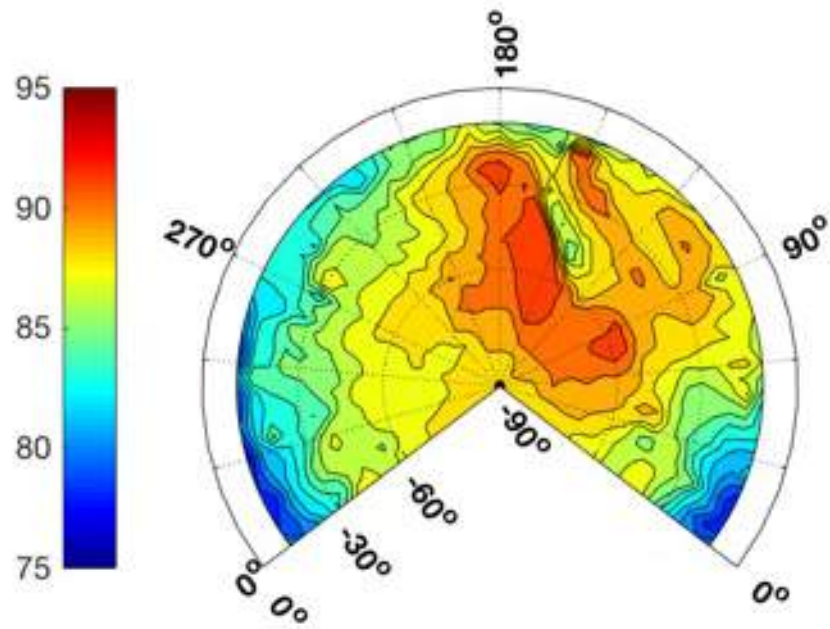


Figure 288: R66, 237709, D37, dBA hemisphere, ground speed 31.8 kts, -9.3° FPA.

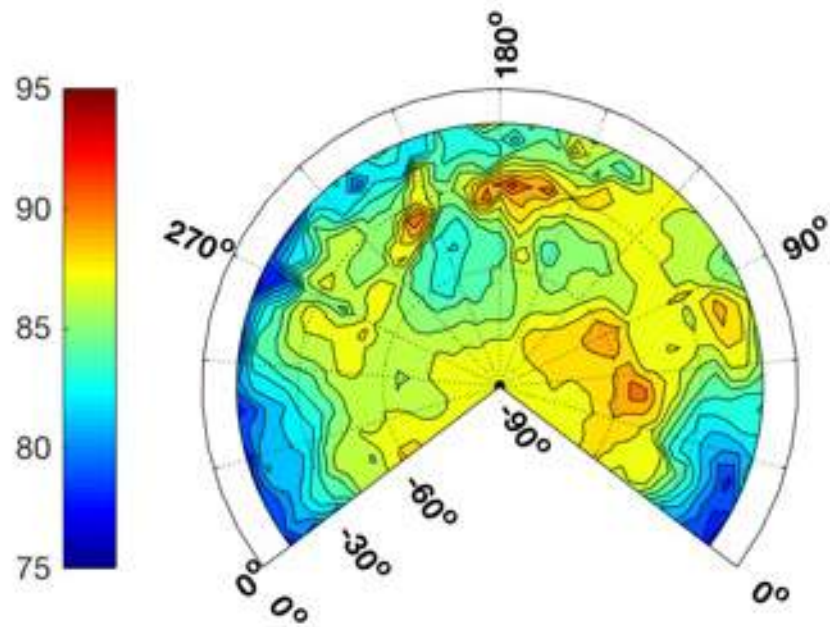


Figure 289: R66, 237710, D37, dBA hemisphere, ground speed 33.0 kts, -9.3° FPA.

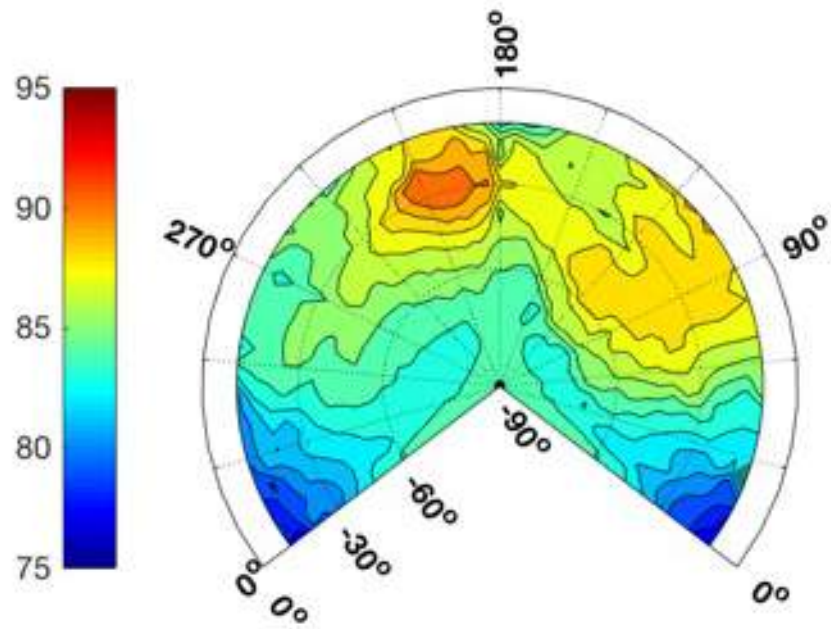


Figure 290: R66, 237711, D14, dBA hemisphere, ground speed 75.9 kts, -5.6° FPA.

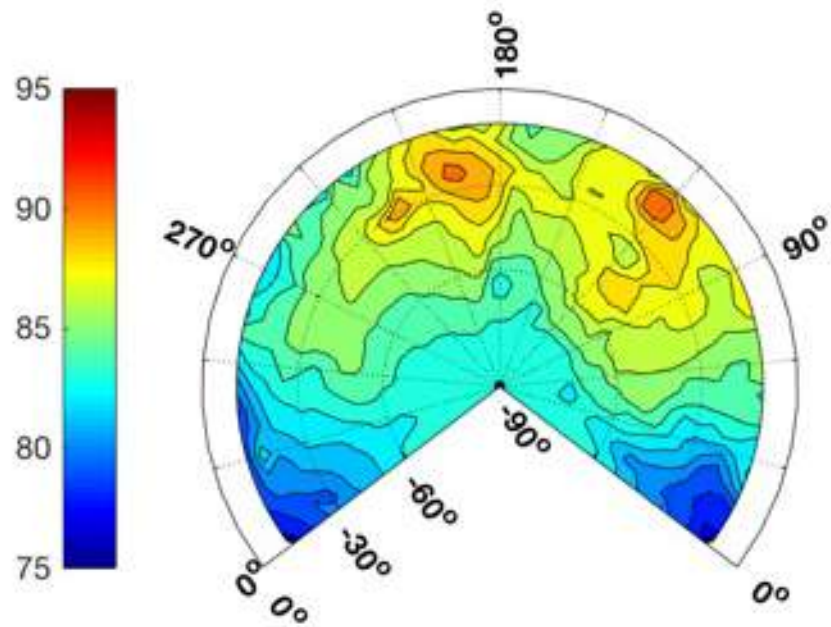


Figure 291: R66, 237712, D14, dBA hemisphere, ground speed 74.6 kts, -5.6° FPA.

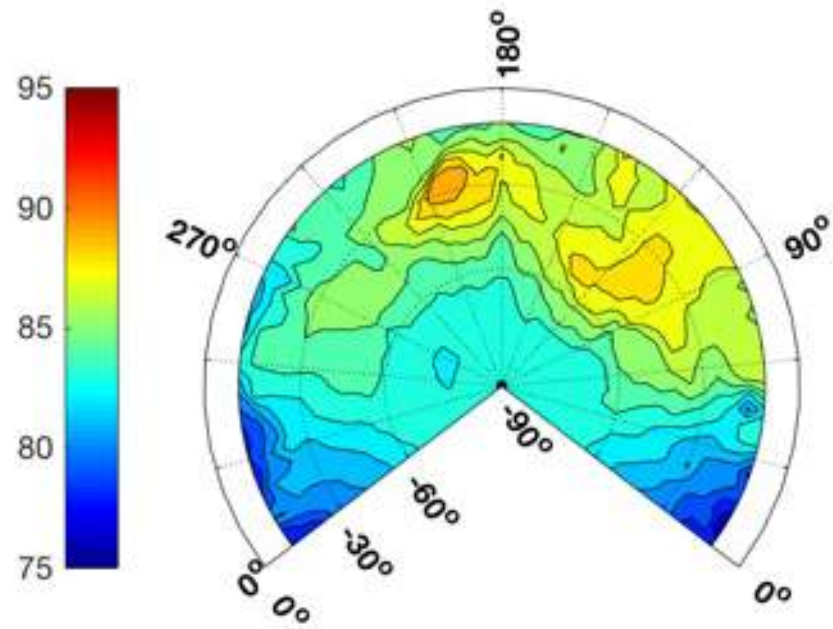


Figure 292: R66, 237713, D14, dBA hemisphere, ground speed 73.9 kts, -6.0° FPA.

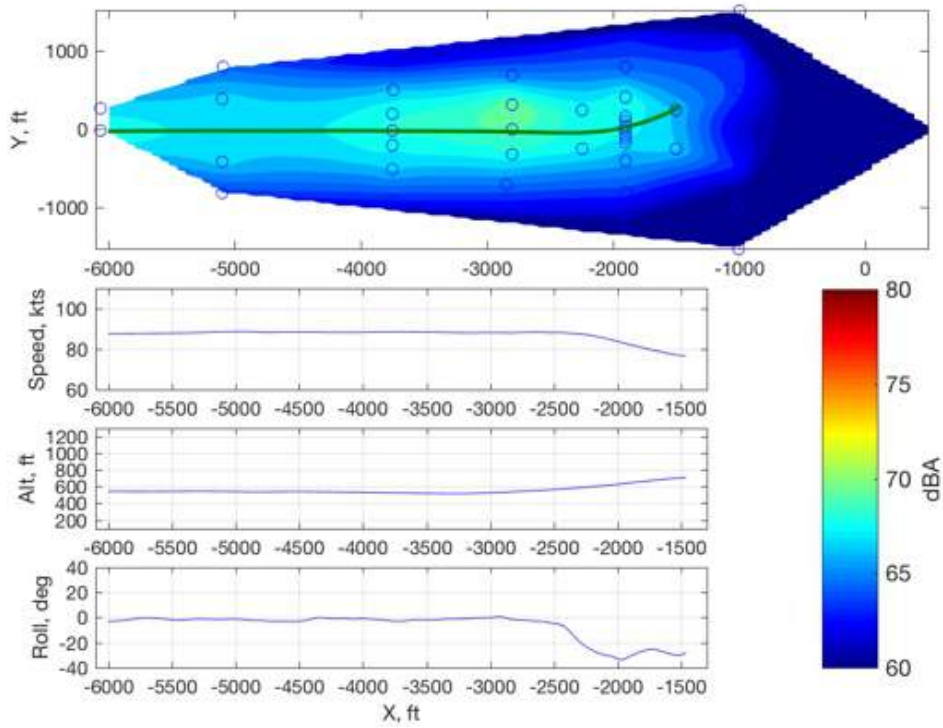


Figure 293: R66, 235633, F17, maximum dBA contour.

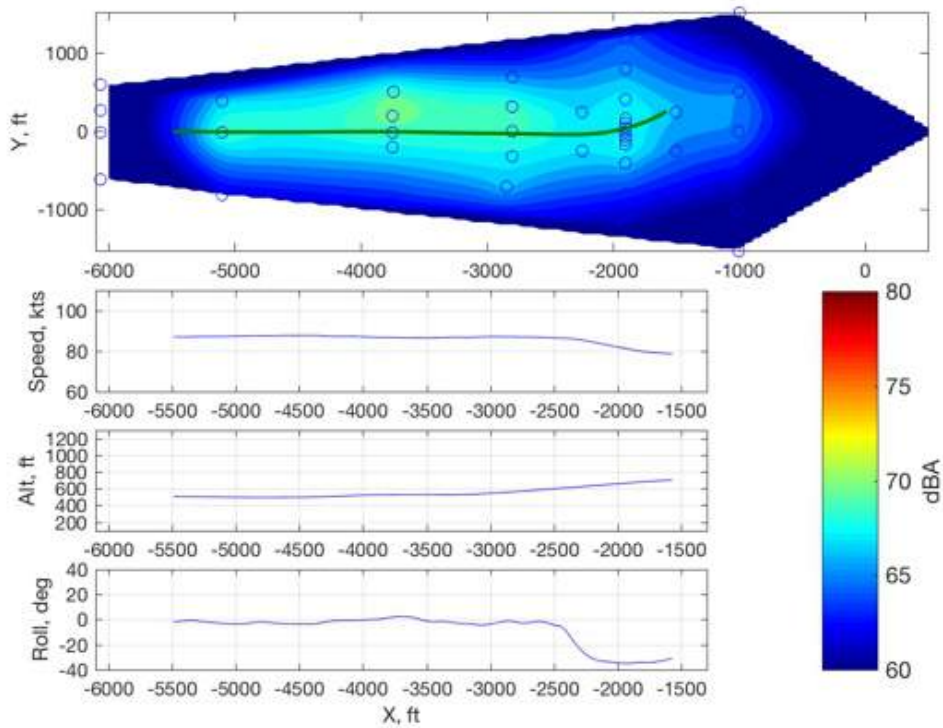


Figure 294: R66, 235634, F17, maximum dBA contour.

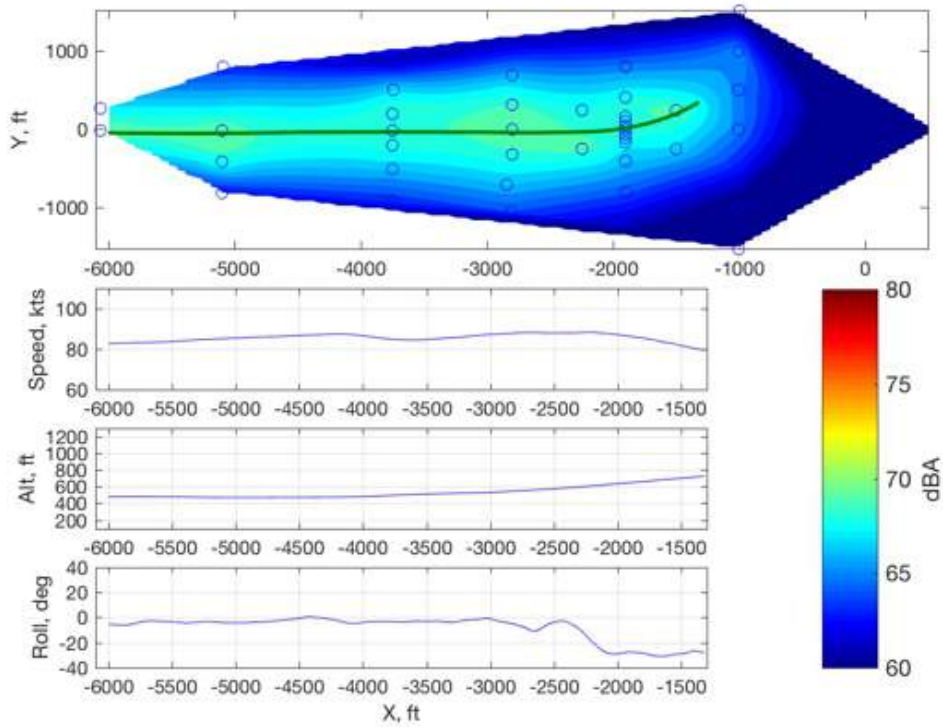


Figure 295: R66, 235635, F17, maximum dBA contour.

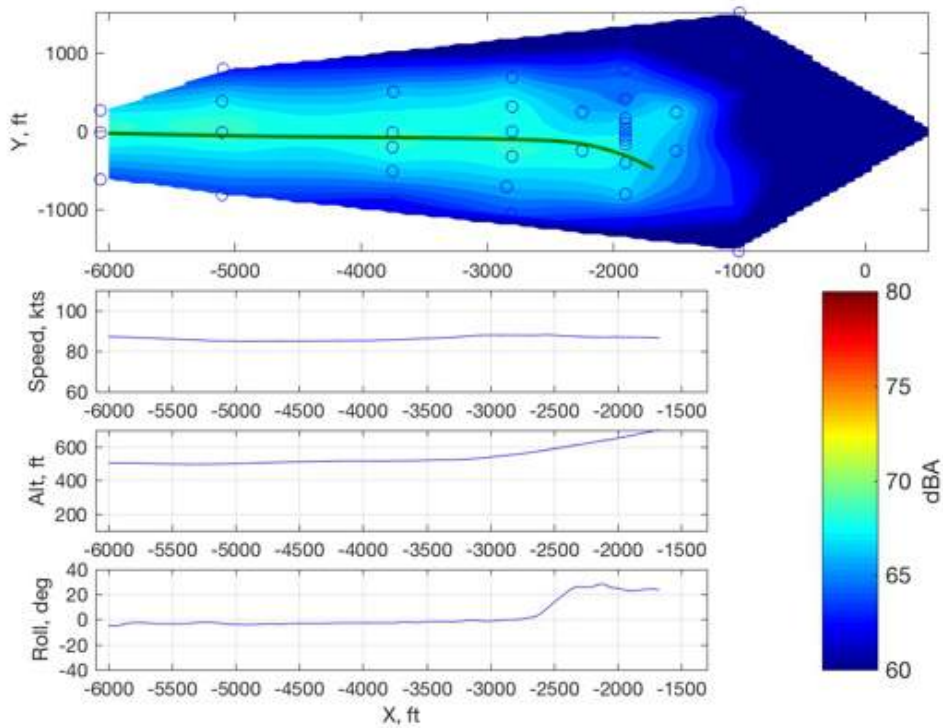


Figure 296: R66, 235636, F18, maximum dBA contour.

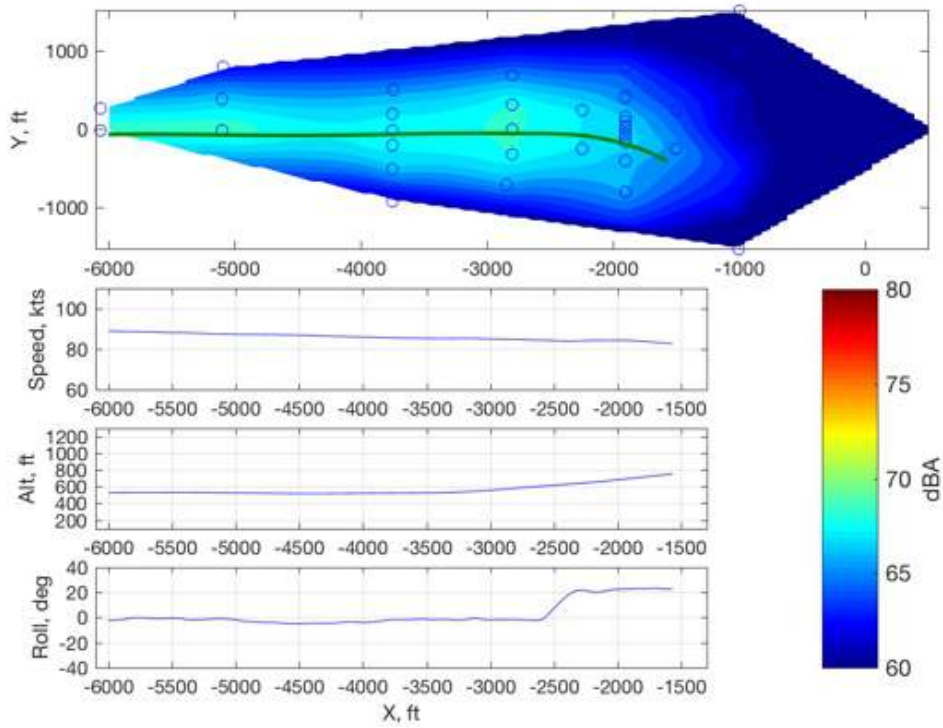


Figure 297: R66, 235637, F18, maximum dBA contour.

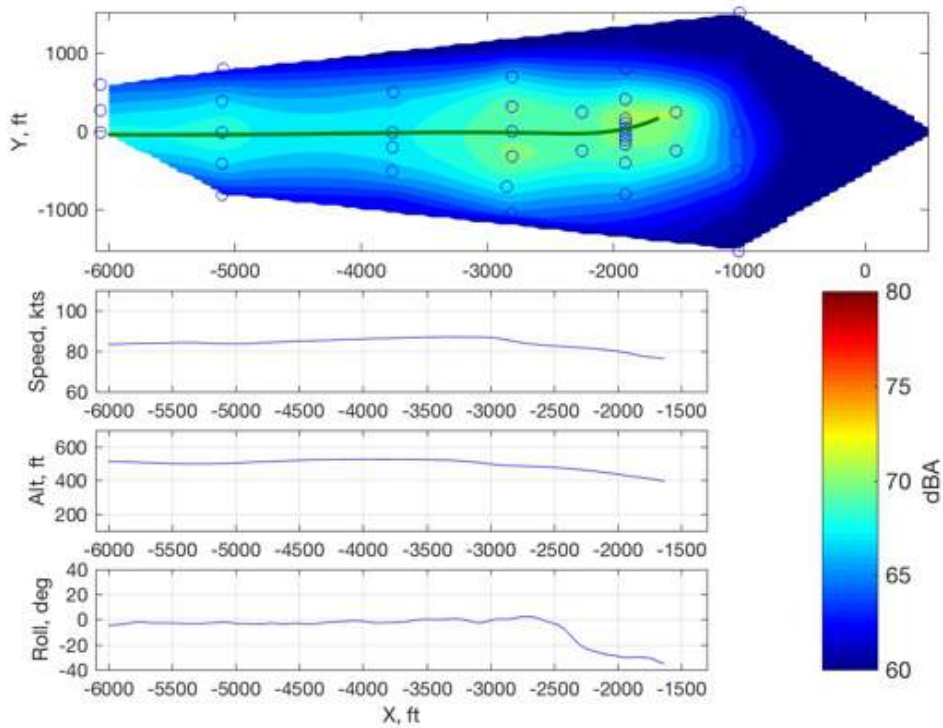


Figure 298: R66, 235638, F19, maximum dBA contour.

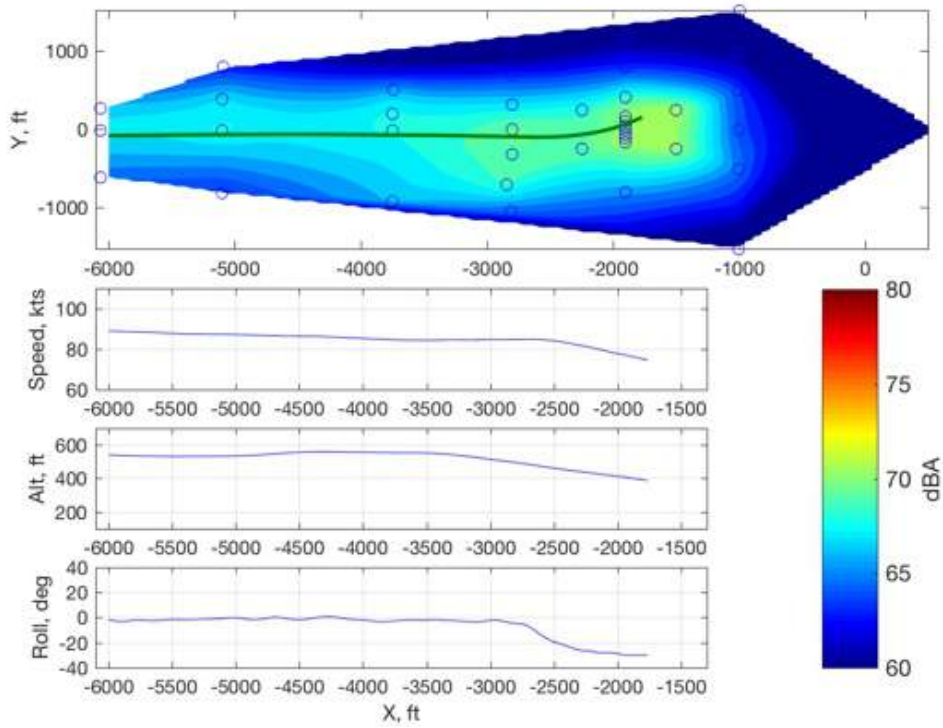


Figure 299: R66, 235639, F19, maximum dBA contour.

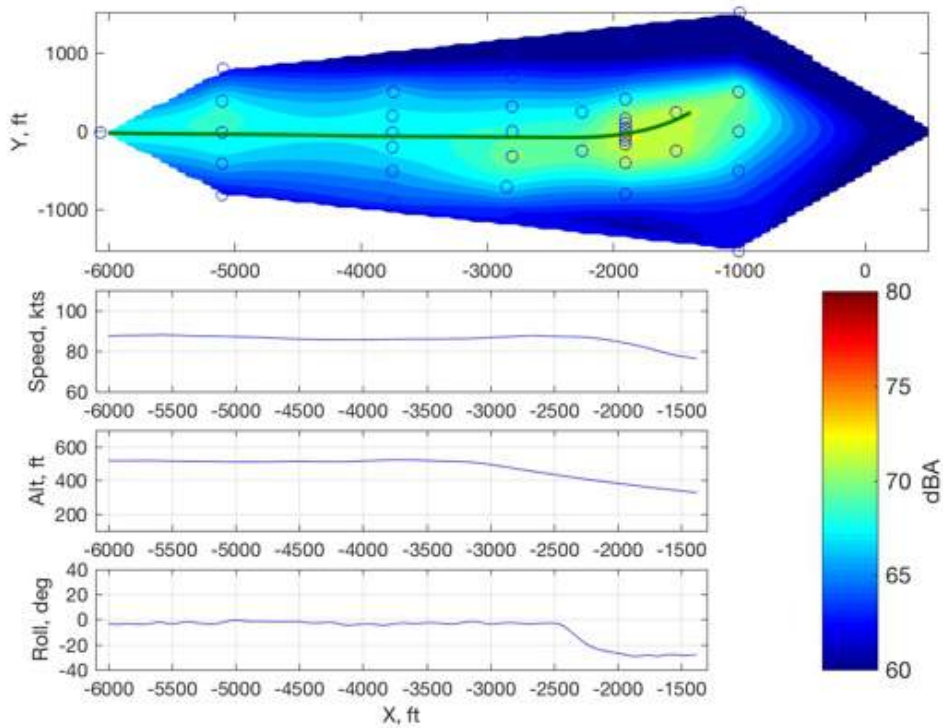


Figure 300: R66, 235640, F19, maximum dBA contour.

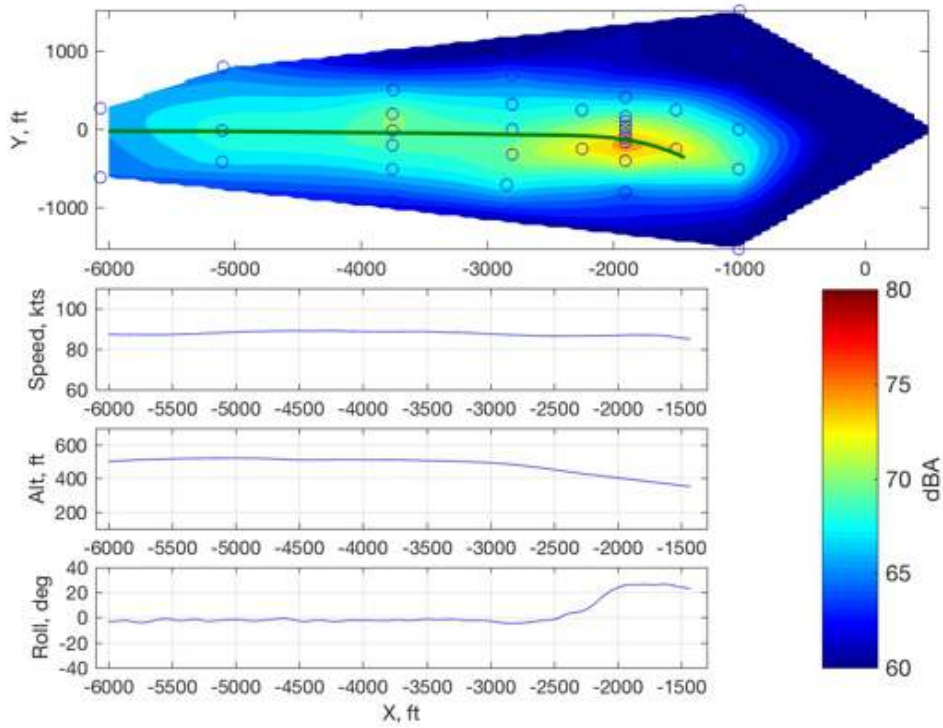


Figure 301: R66, 235641, F20, maximum dBA contour.

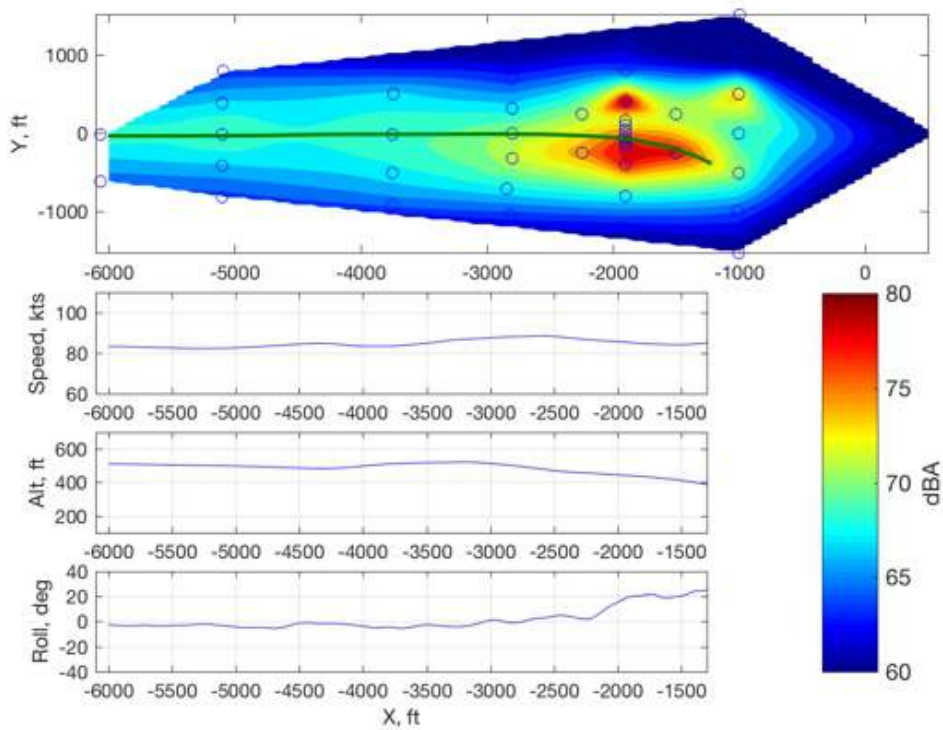


Figure 302: R66, 235642, F20, maximum dBA contour.

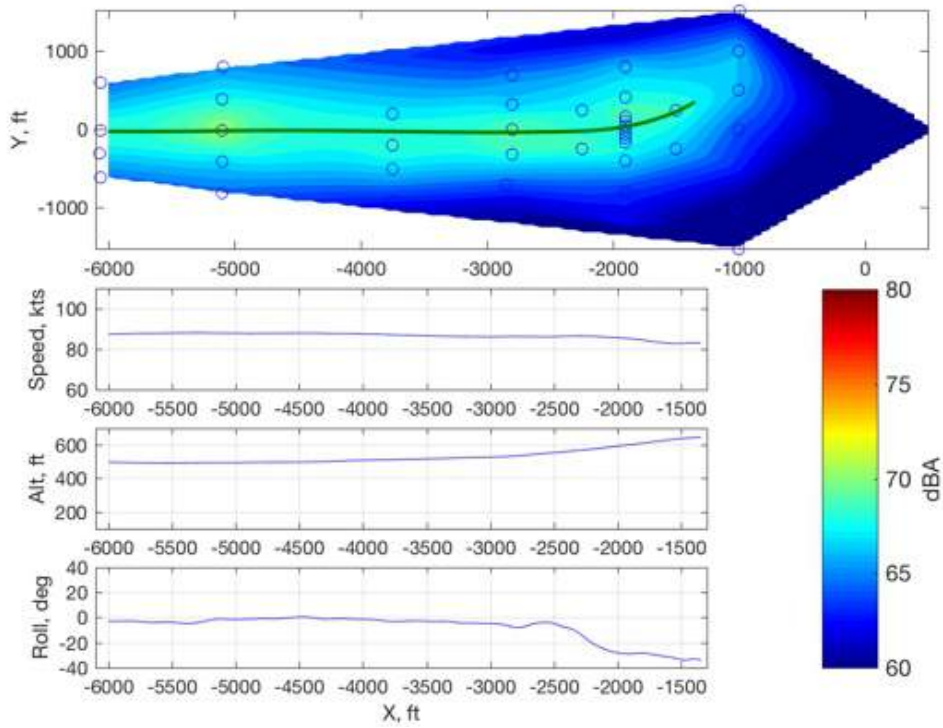


Figure 303: R66, 235603, F21, maximum dBA contour.

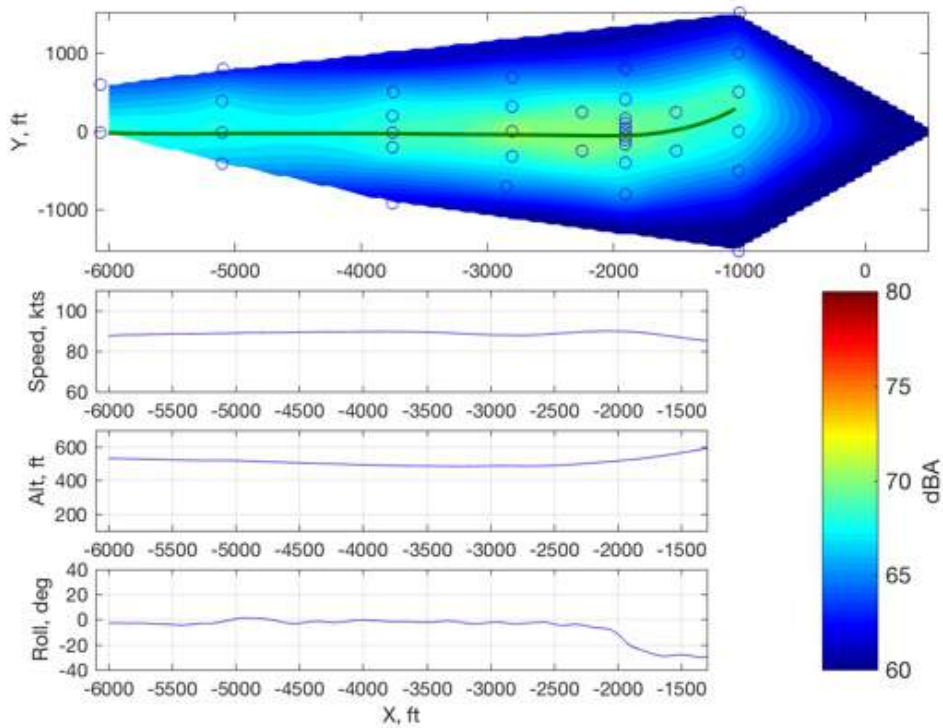


Figure 304: R66, 235604, F21, maximum dBA contour.

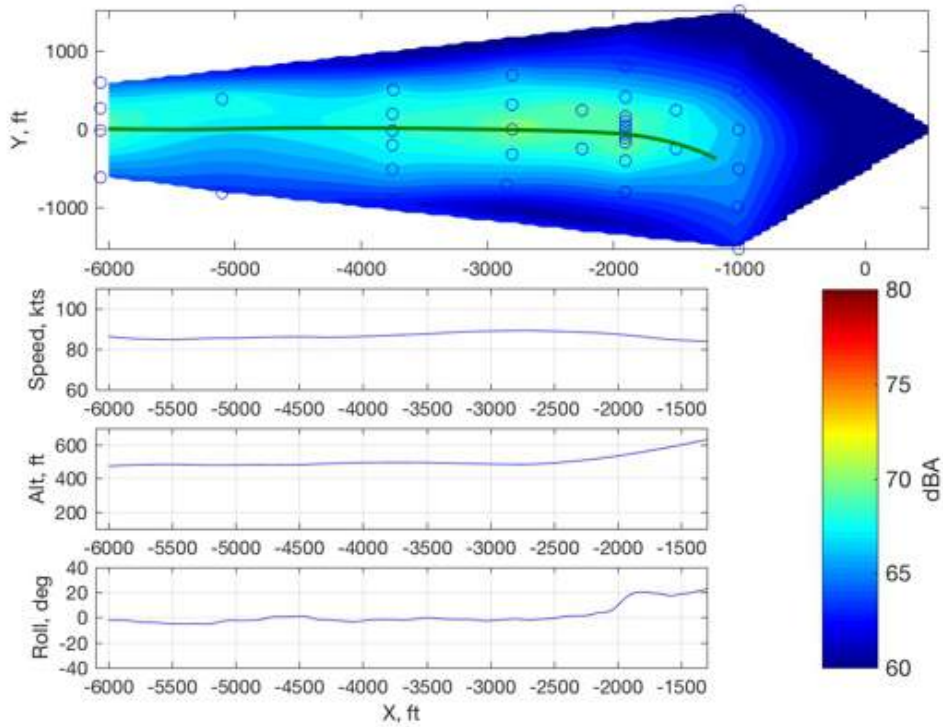


Figure 305: R66, 235605, F22, maximum dBA contour.

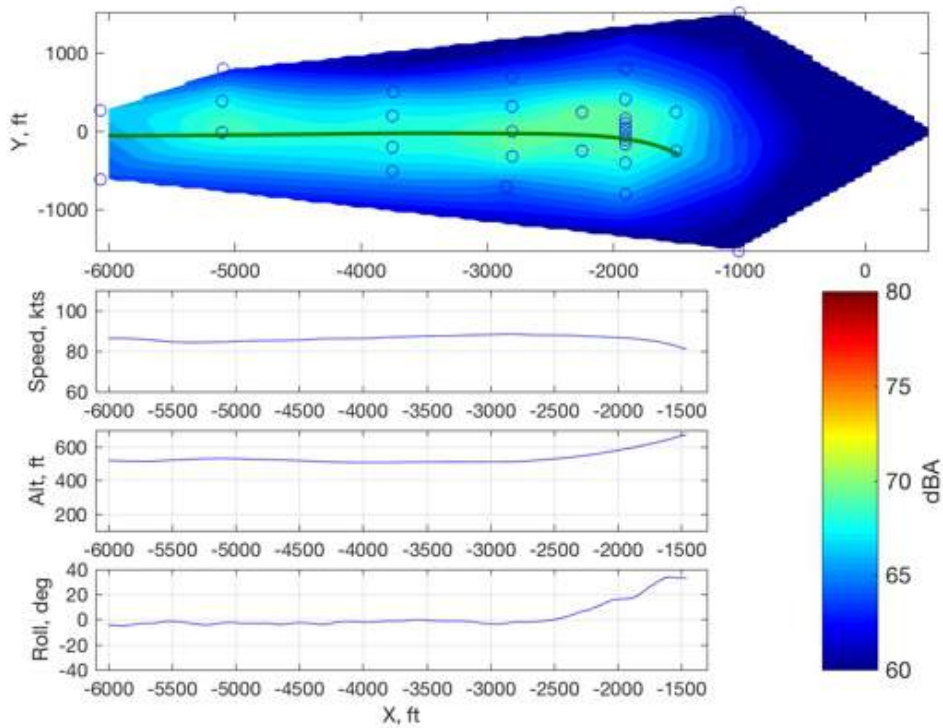


Figure 306: R66, 235606, F22, maximum dBA contour.

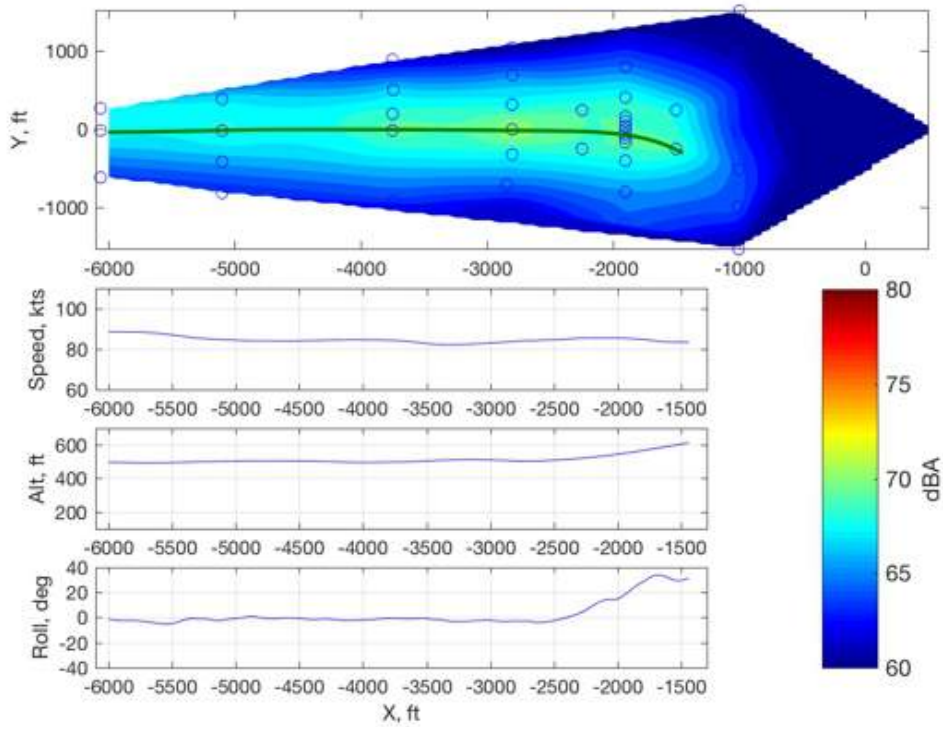


Figure 307: R66, 235607, F22, maximum dBA contour.

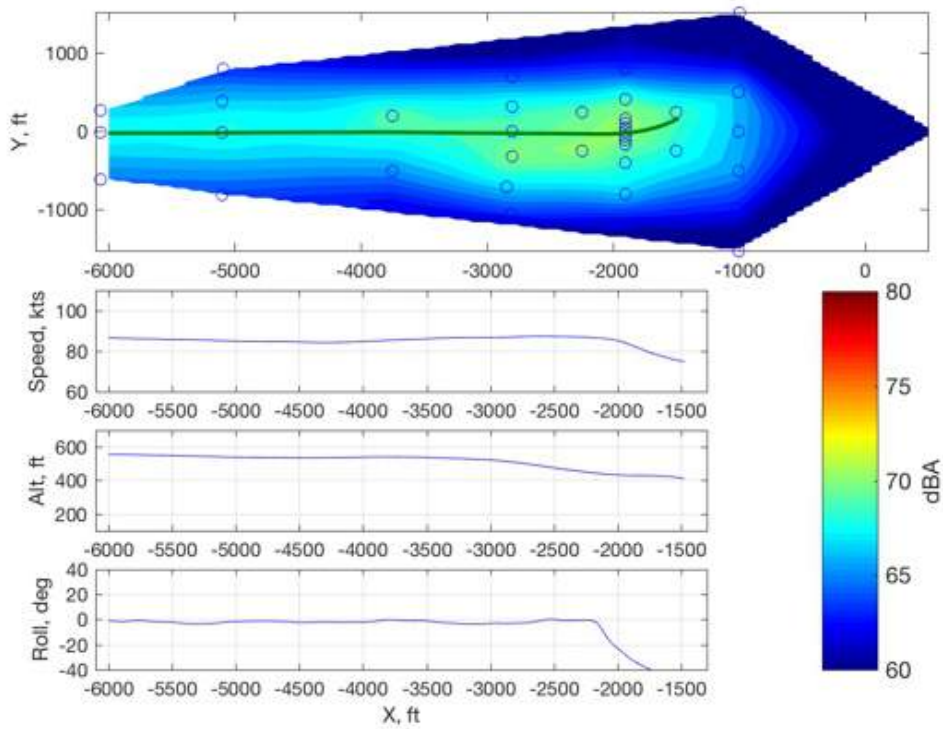


Figure 308: R66, 235610, F23, maximum dBA contour.

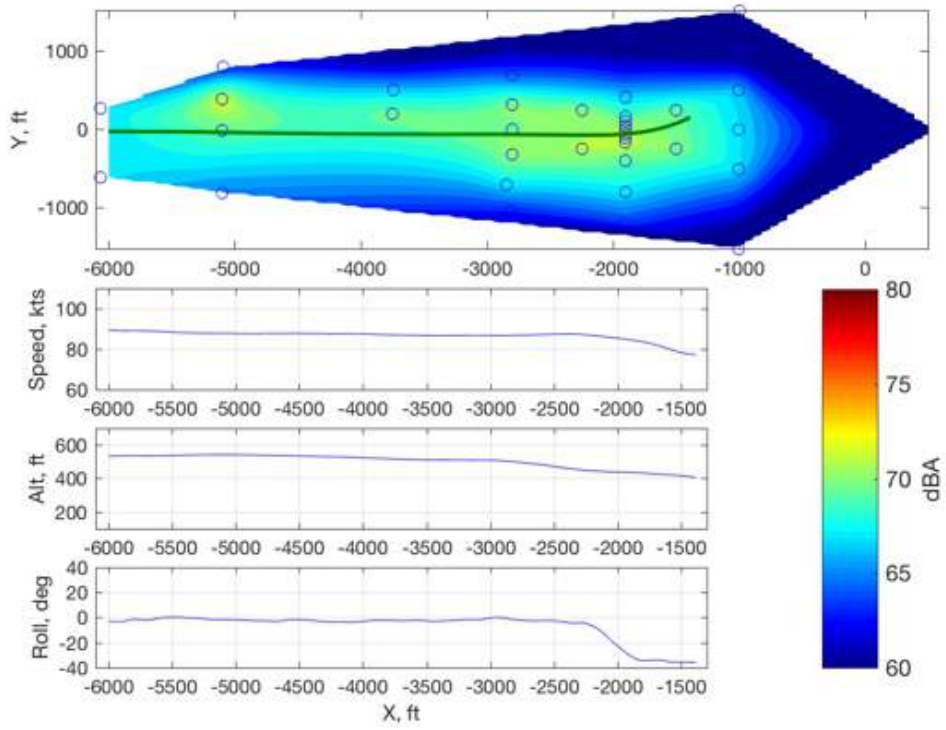


Figure 309: R66, 235611, F23, maximum dBA contour.

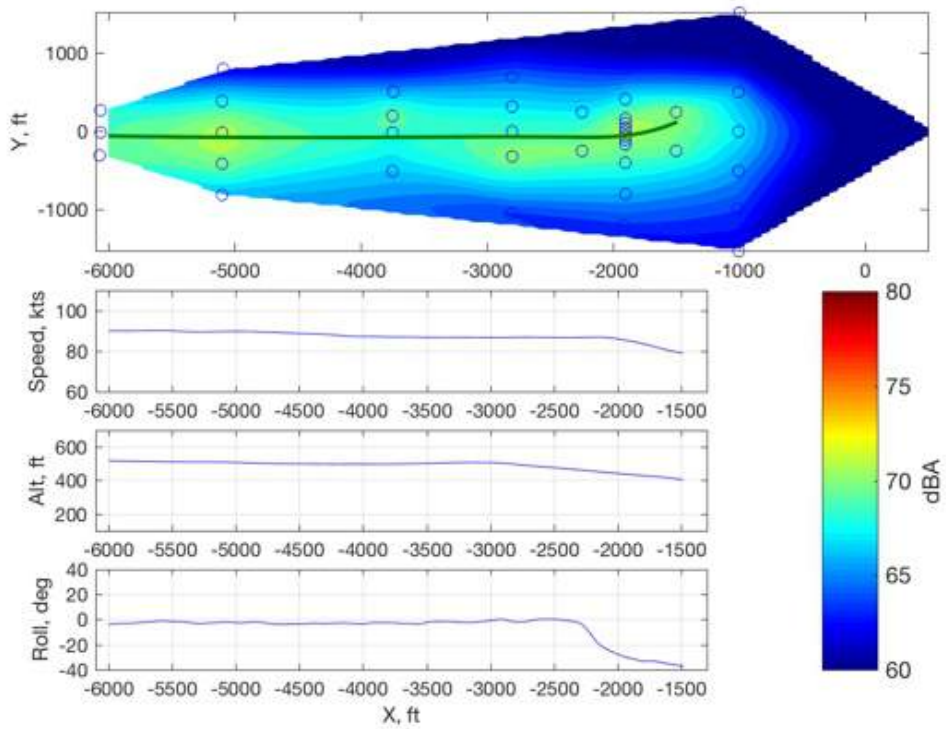


Figure 310: R66, 235612, F23, maximum dBA contour.

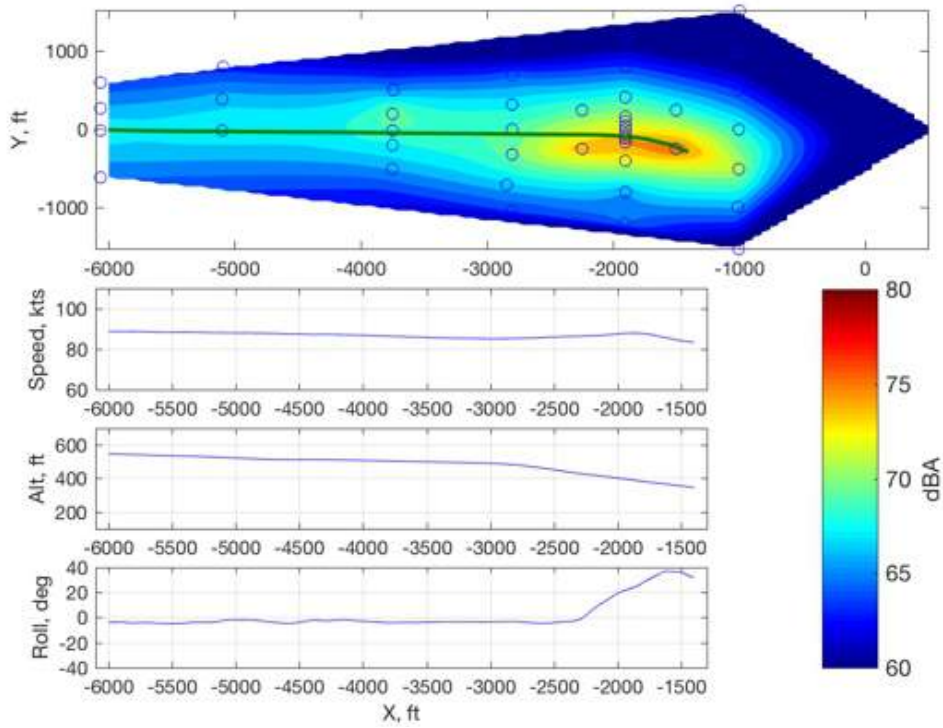


Figure 311: R66, 235613, F24, maximum dBA contour.

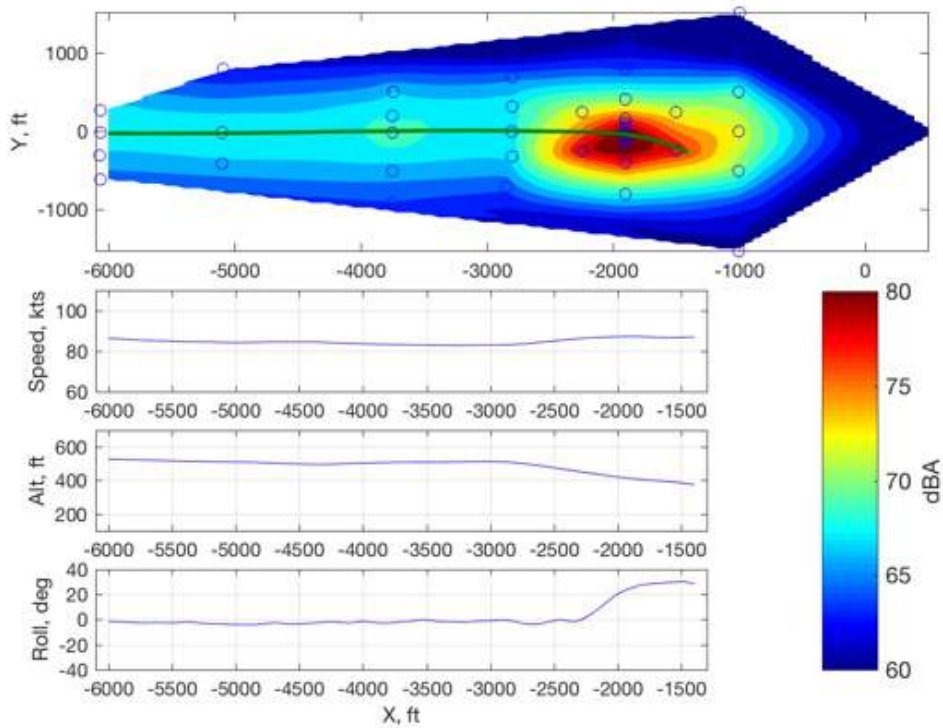


Figure 312: R66, 235614, F24, maximum dBA contour.

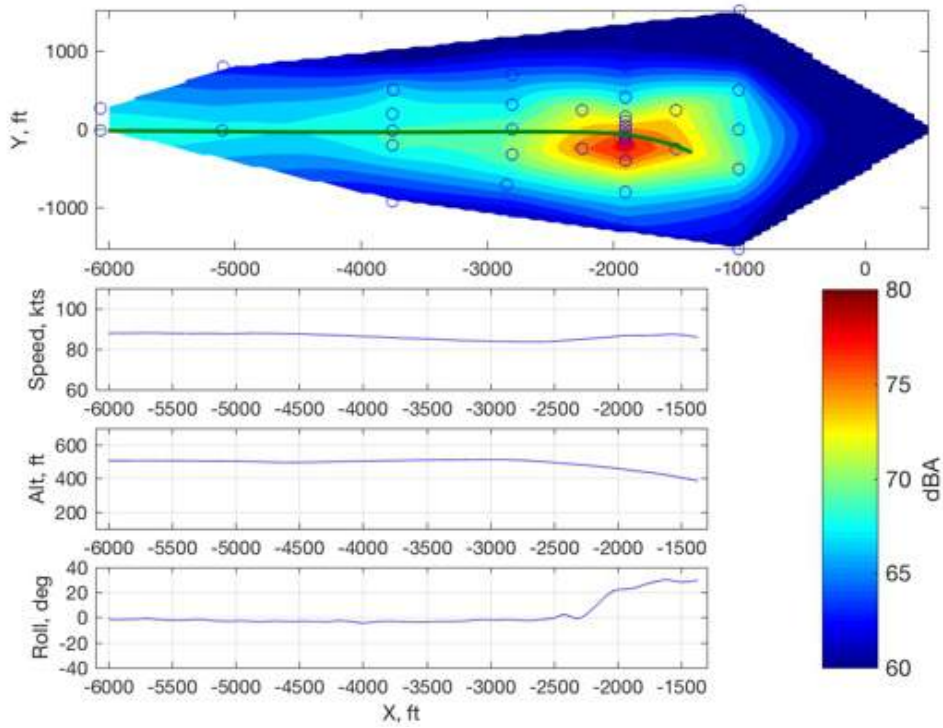


Figure 313: R66, 235615, F24, maximum dBA contour.

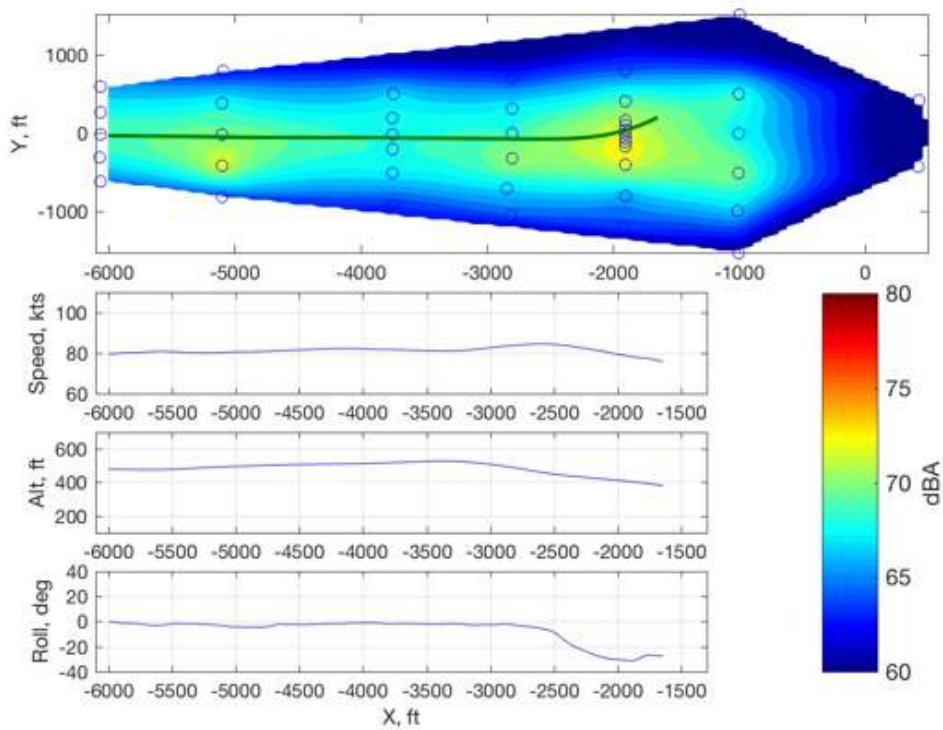


Figure 314: R66, 236685, F25, maximum dBA contour.

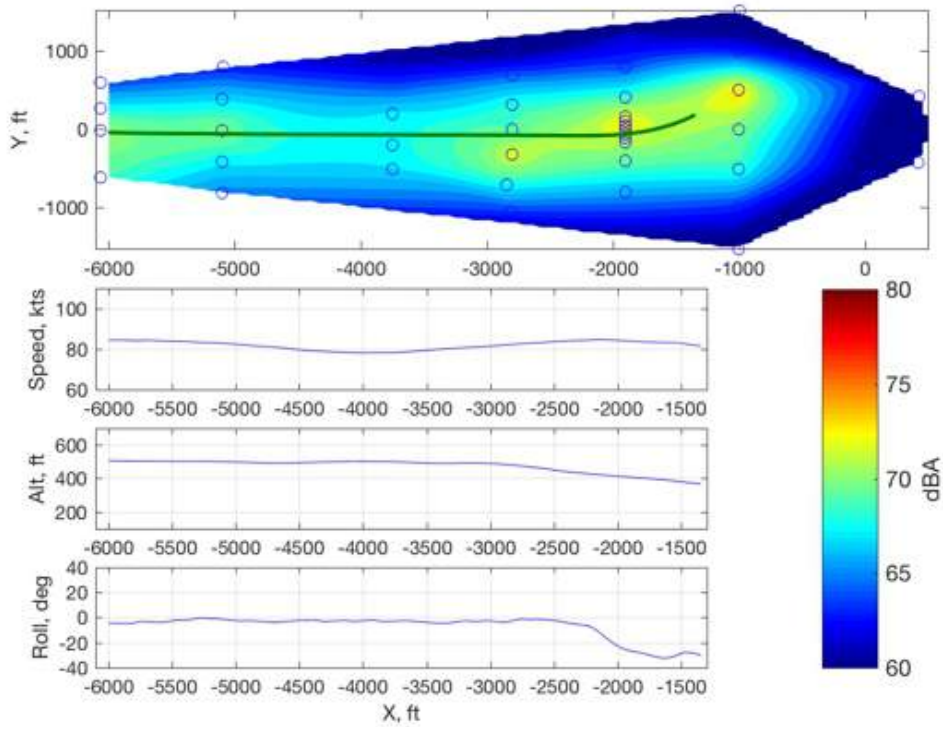


Figure 315: R66, 236686, F25, maximum dBA contour.

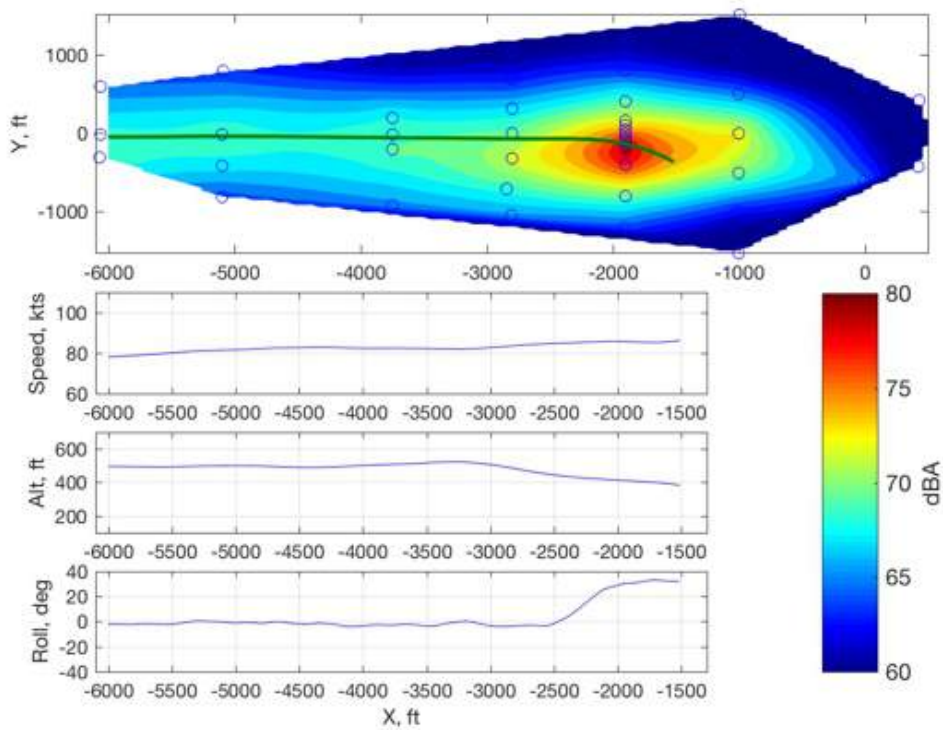


Figure 316: R66, 236687, F26, maximum dBA contour.

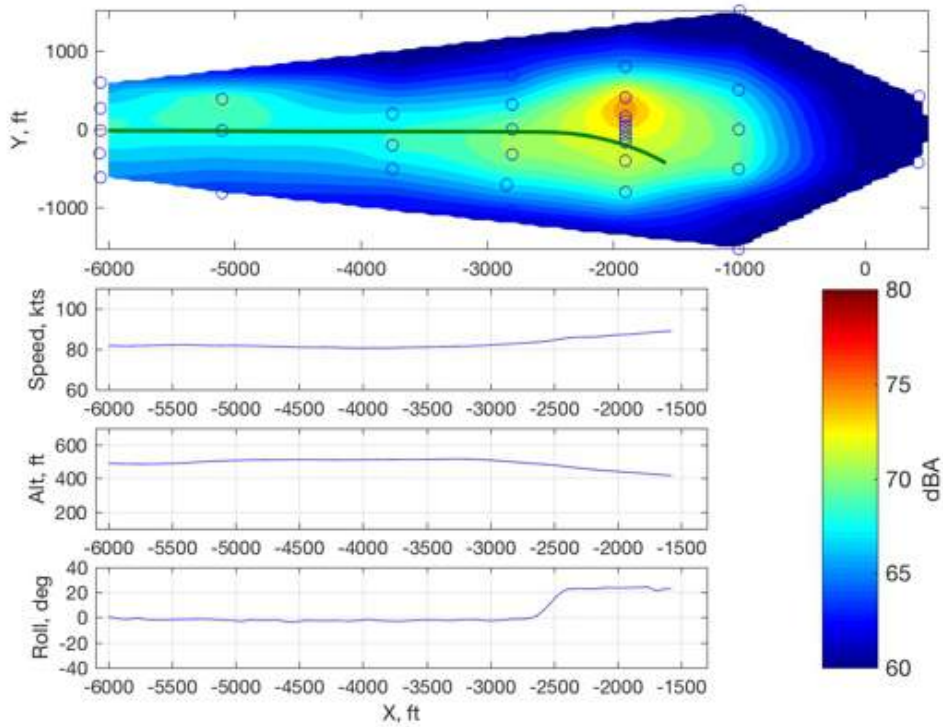


Figure 317: R66, 236688, F26, maximum dBA contour.

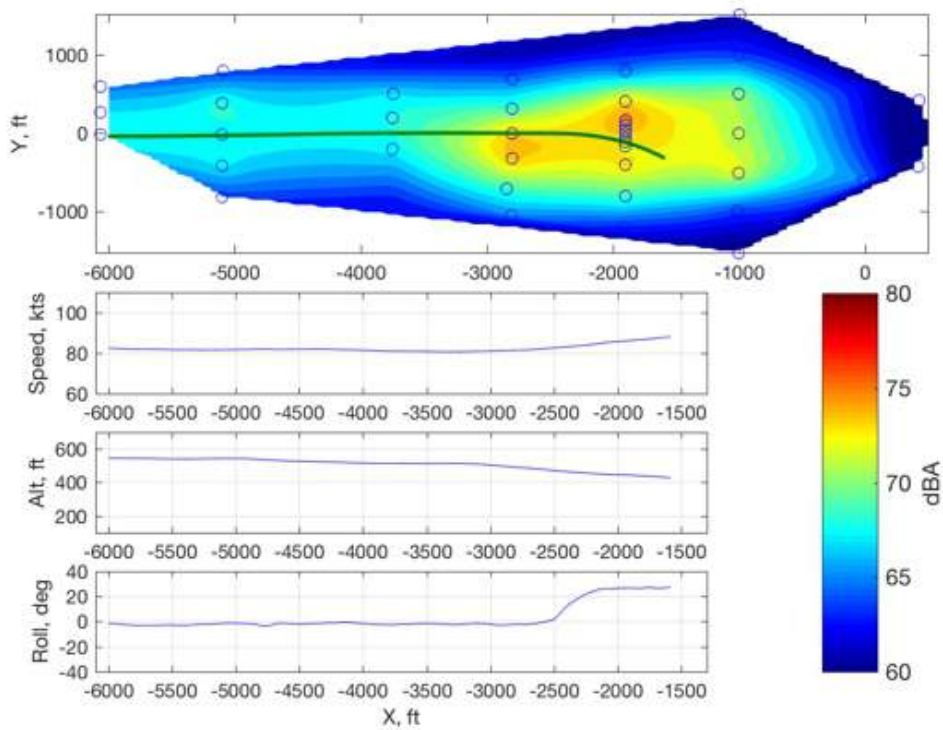


Figure 318: R66, 236689, F26, maximum dBA contour.

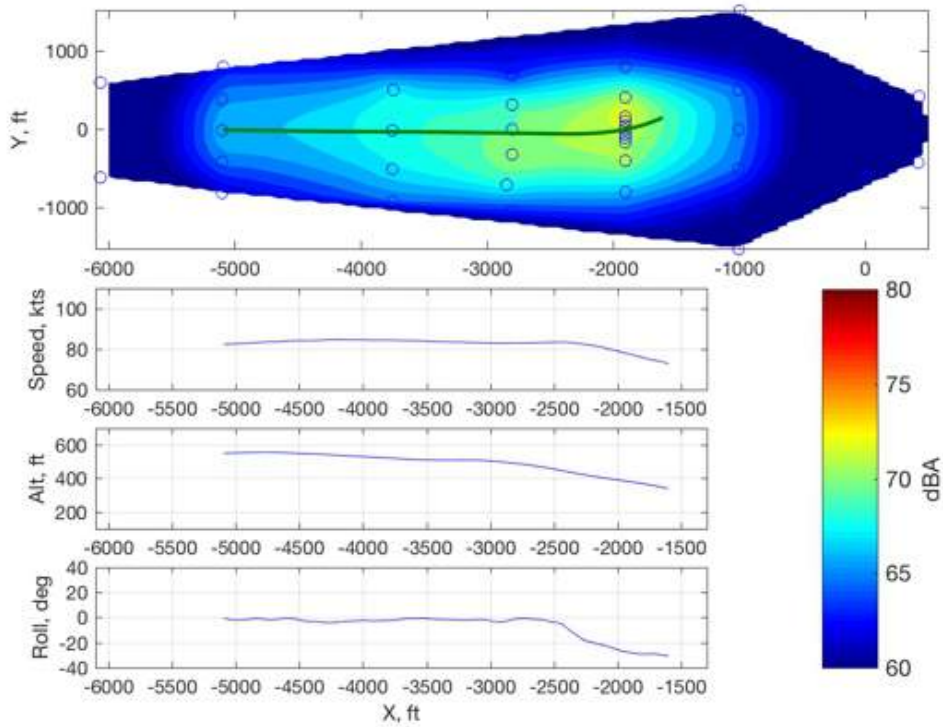


Figure 319: R66, 236690, F27, maximum dBA contour.

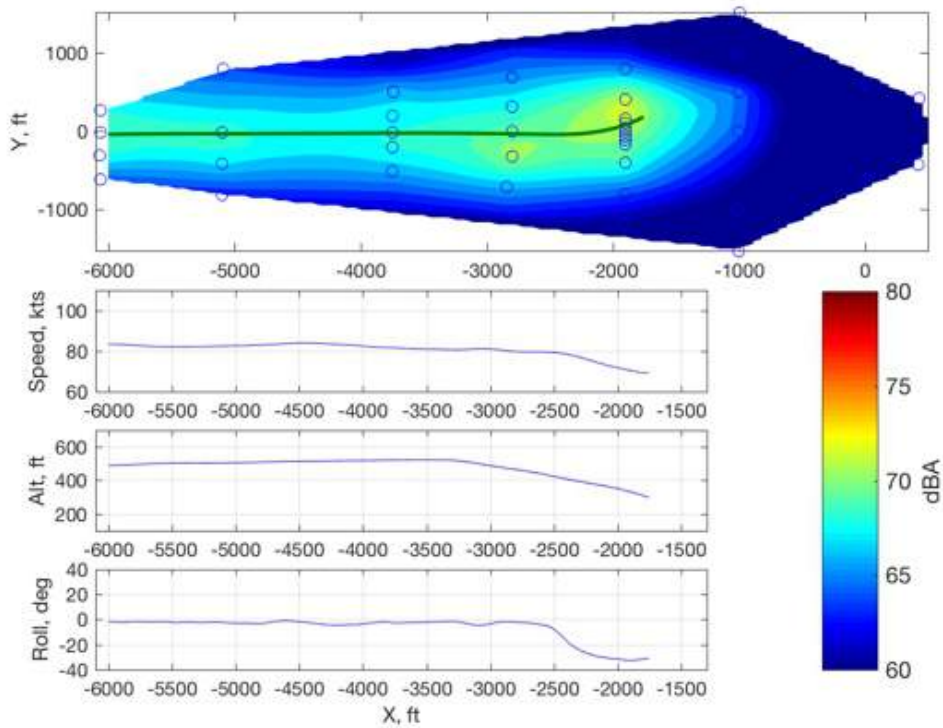


Figure 320: R66, 236691, F27, maximum dBA contour.

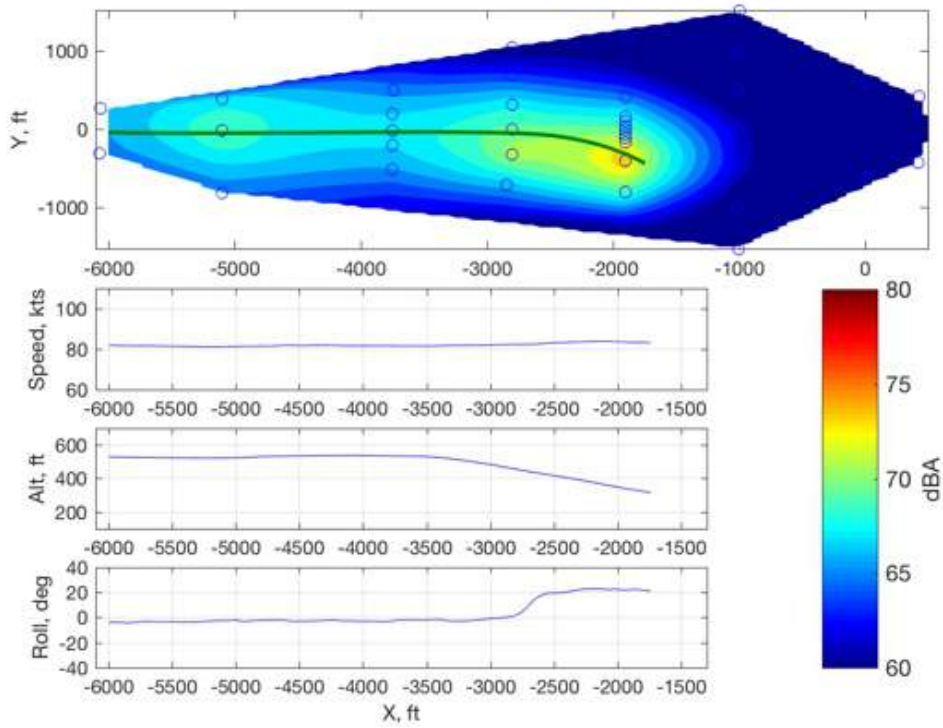


Figure 321: R66, 236692, F28, maximum dBA contour.

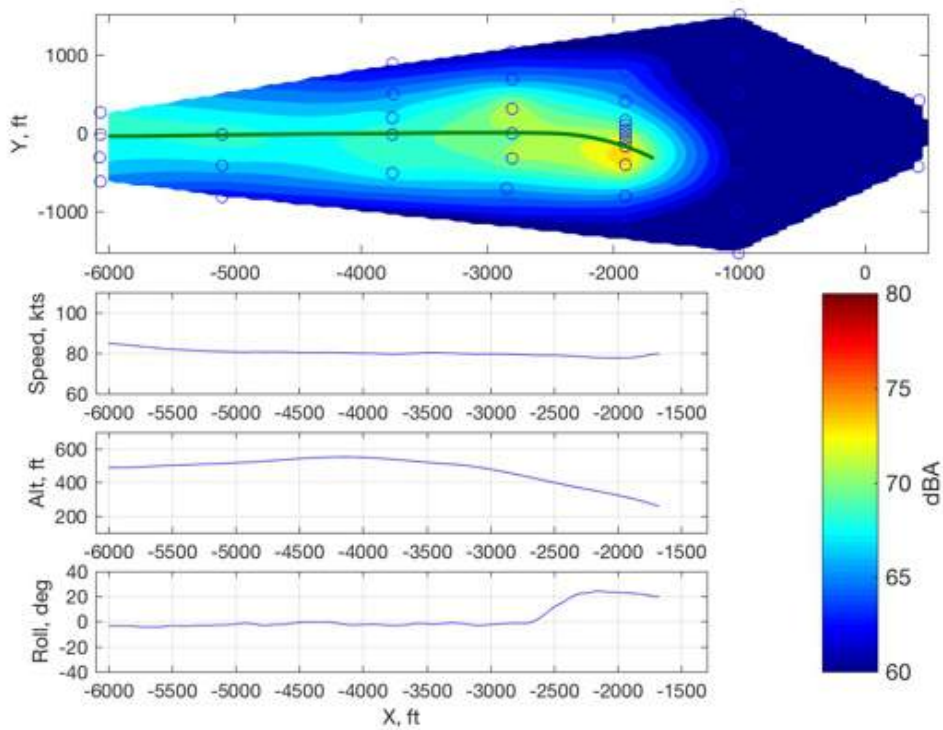


Figure 322: R66, 236693, F28, maximum dBA contour.

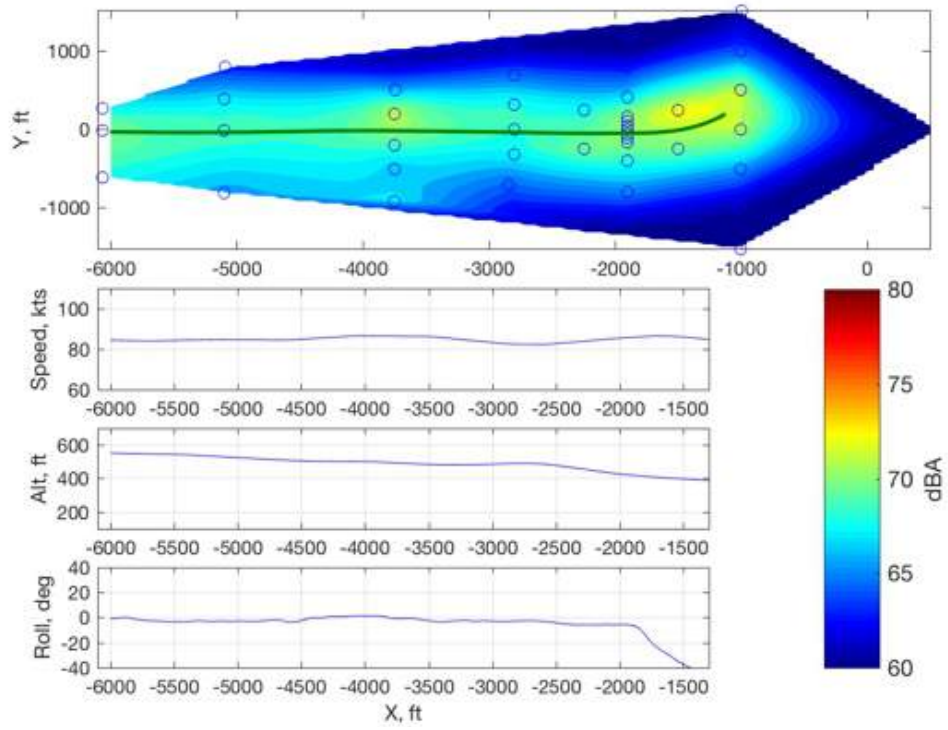


Figure 323: R66, 235620, F29, maximum dBA contour.

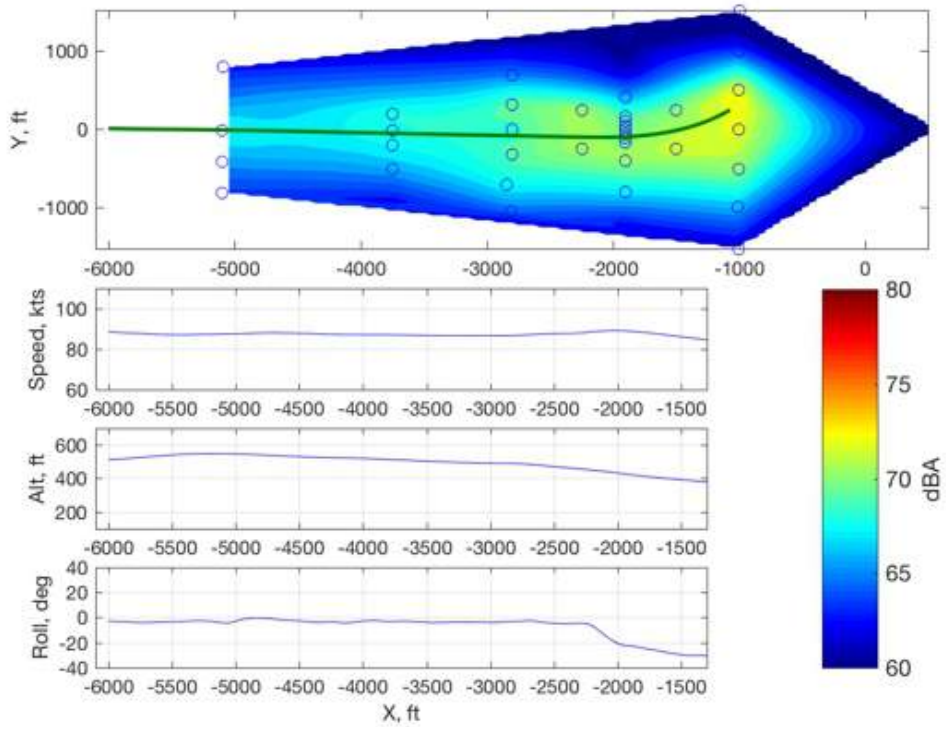


Figure 324: R66, 235622, F29, maximum dBA contour.

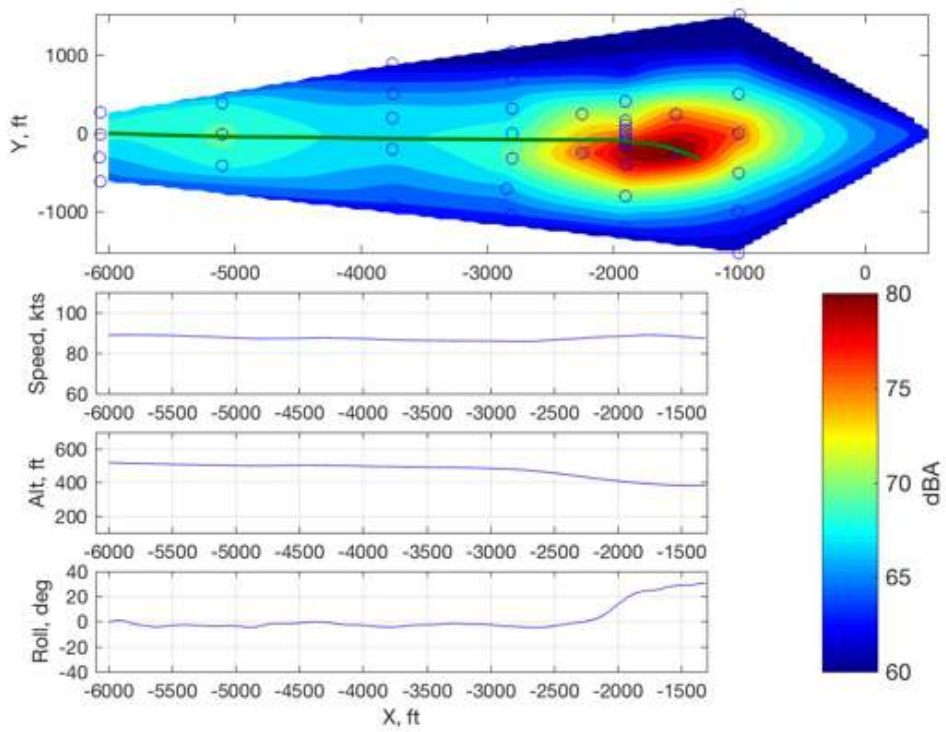


Figure 325: R66, 235623, F30, maximum dBA contour.

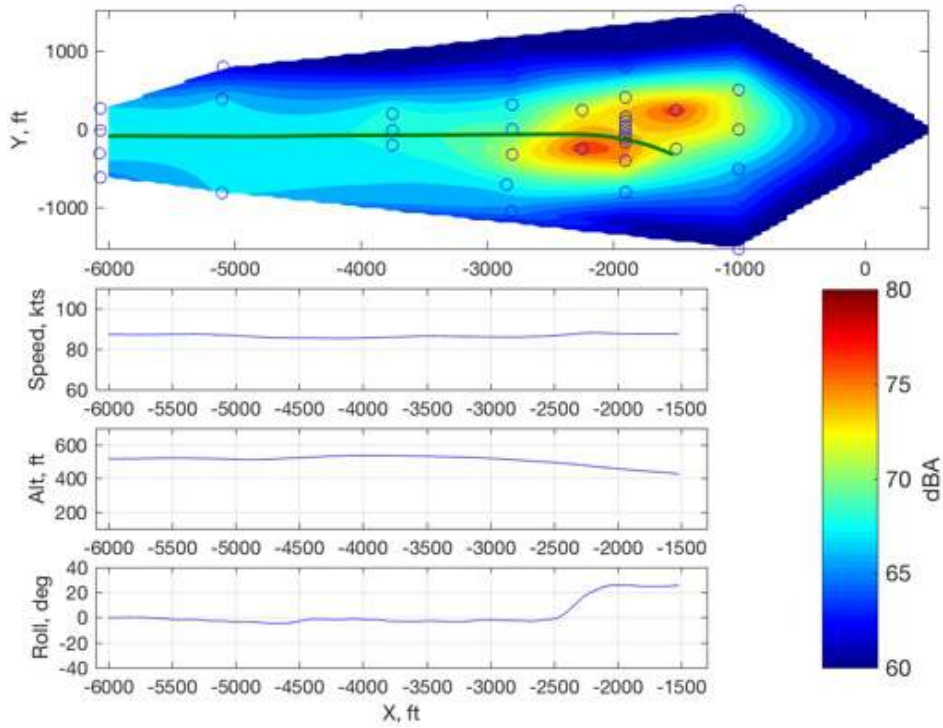


Figure 326: R66, 235624, F30, maximum dBA contour.

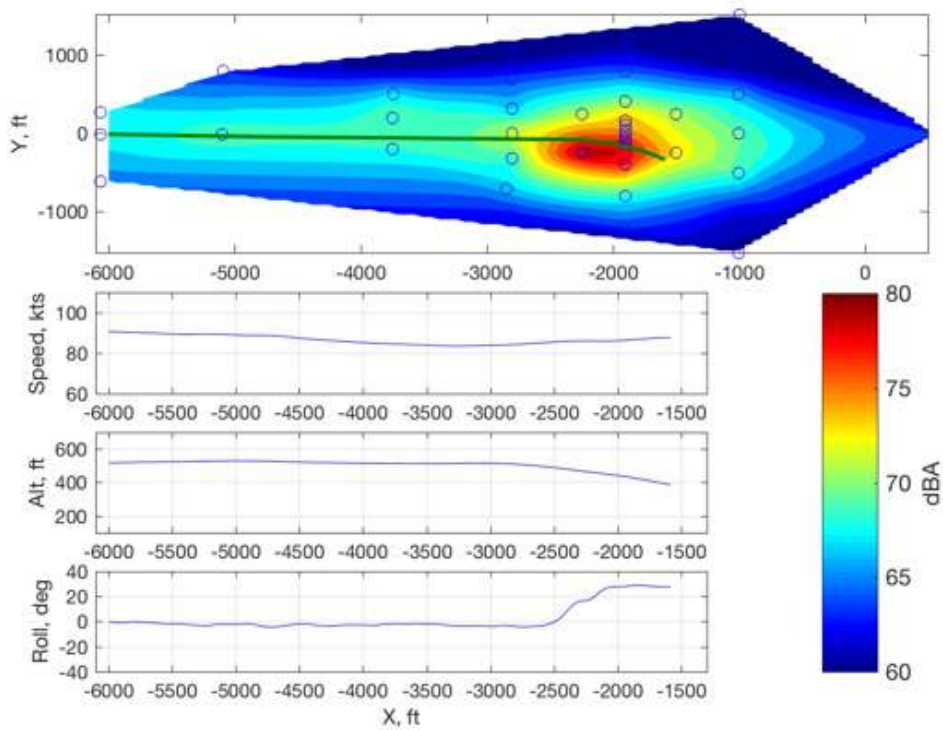


Figure 327: R66, 235625, F30, maximum dBA contour.

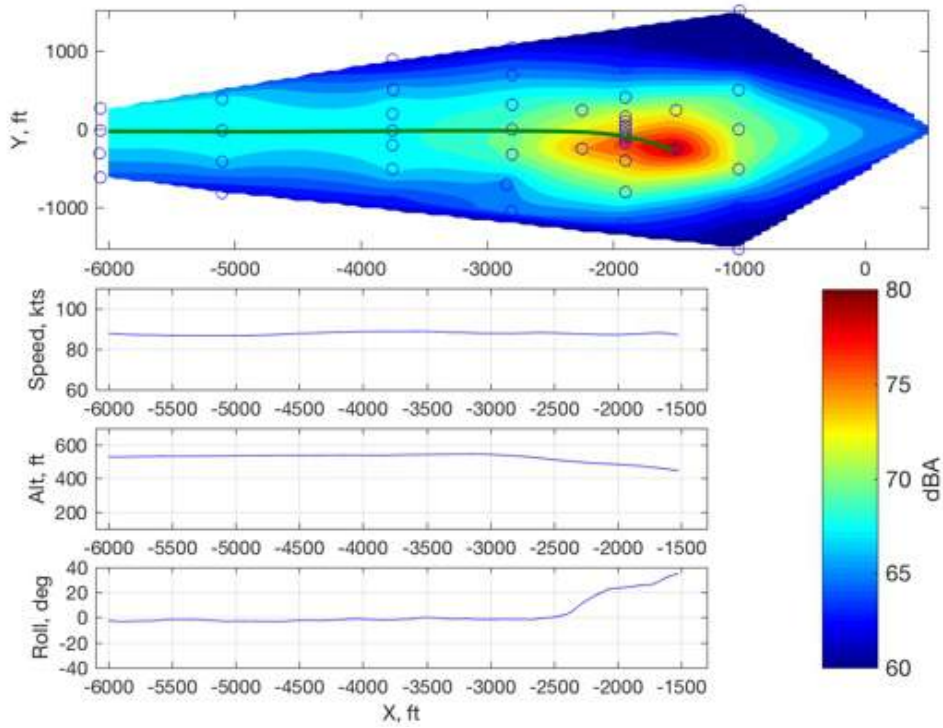


Figure 328: R66, 235626, F30, maximum dBA contour.

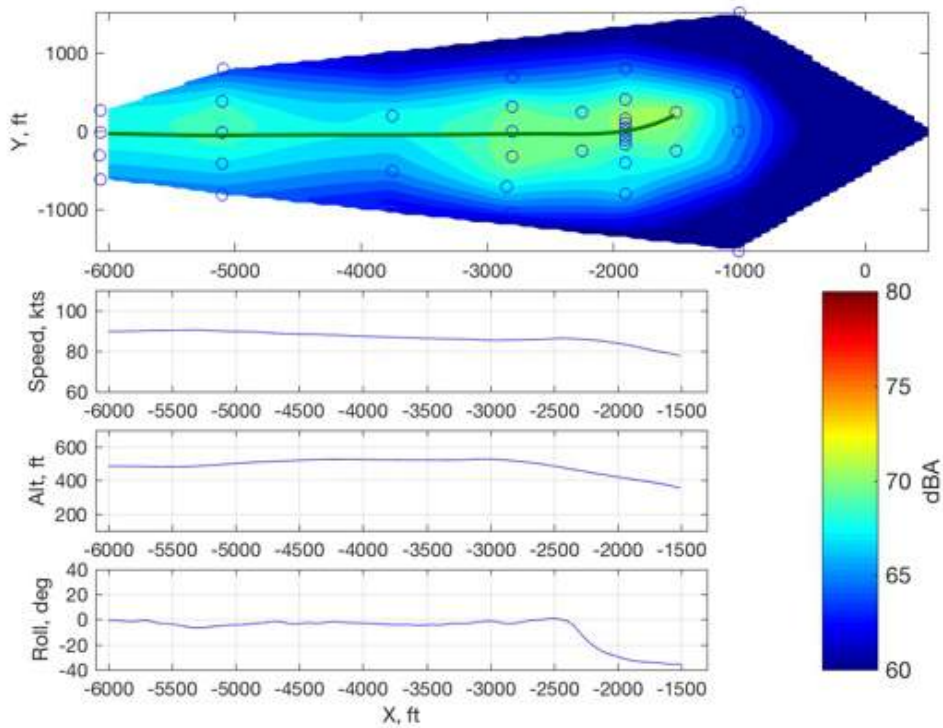


Figure 329: R66, 235627, F31, maximum dBA contour.

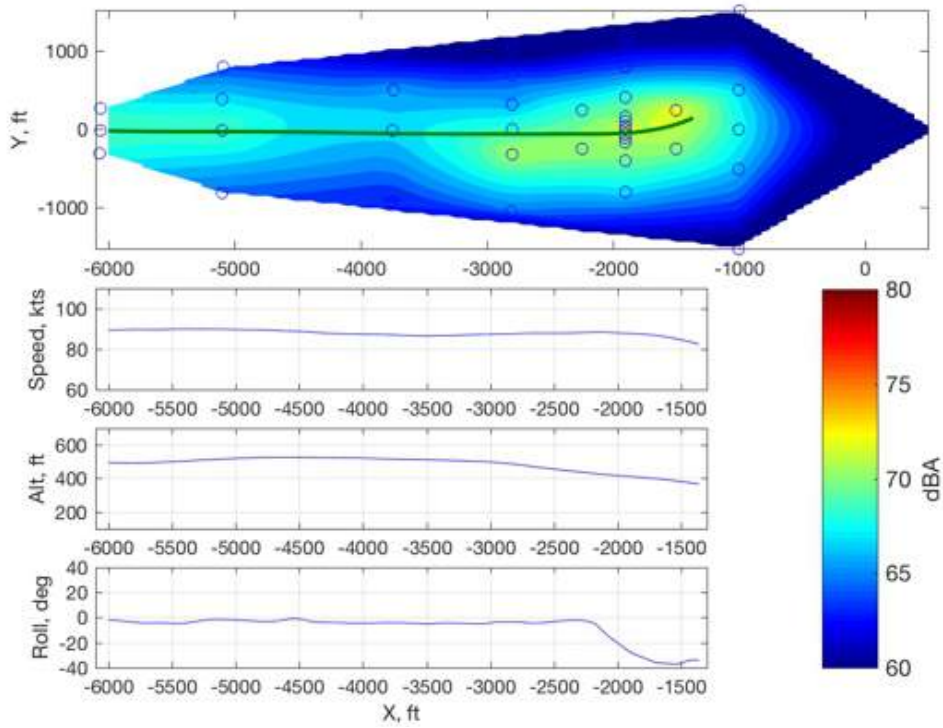


Figure 330: R66, 235628, F31, maximum dBA contour.

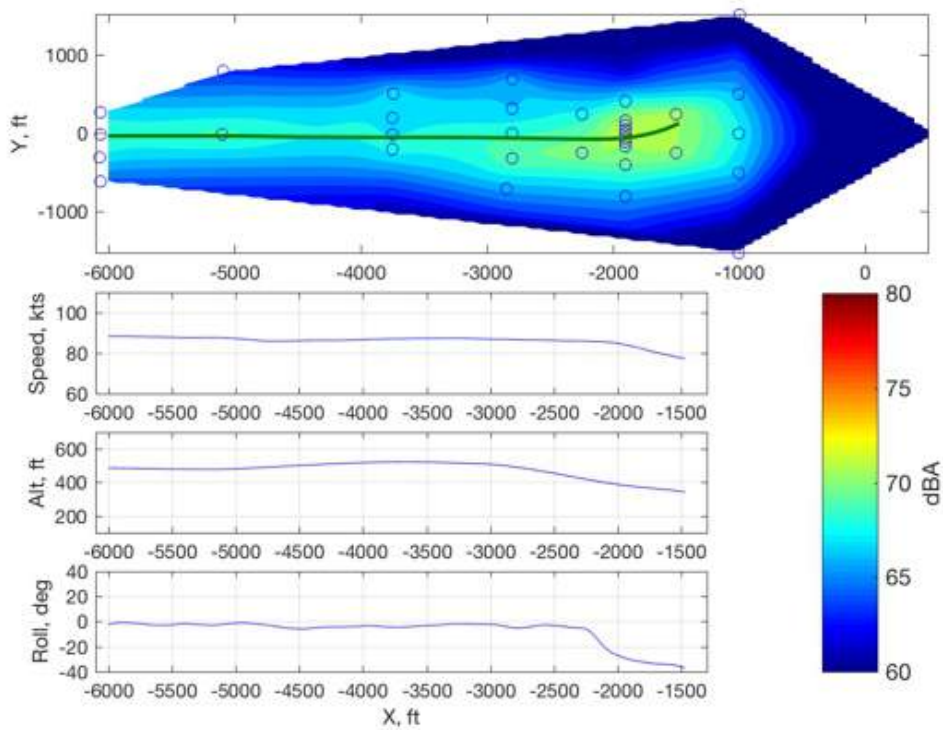


Figure 331: R66, 235629, F31, maximum dBA contour.

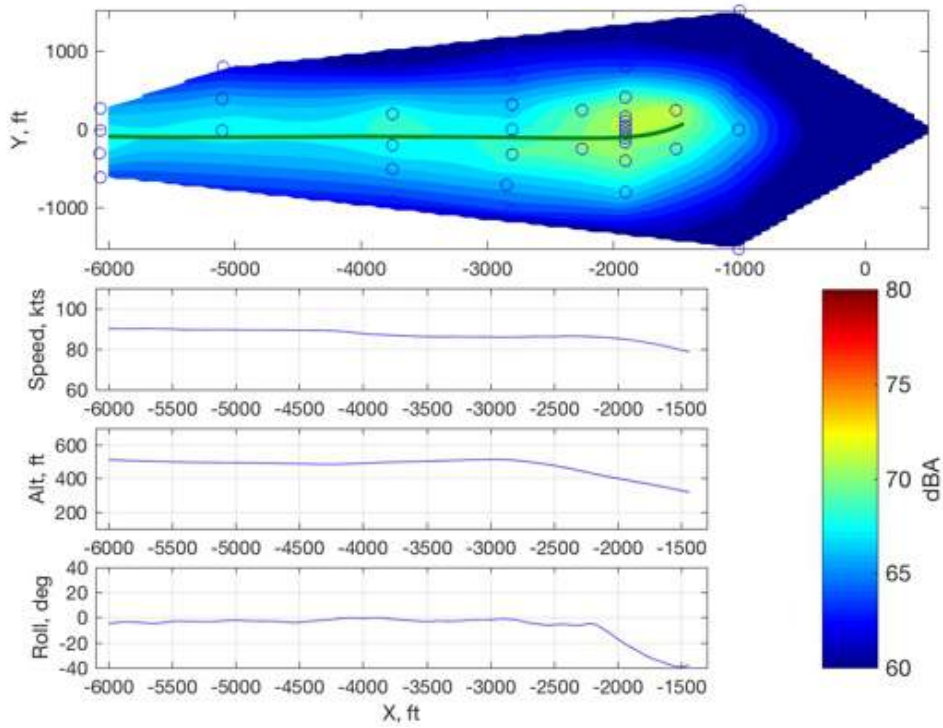


Figure 332: R66, 235630, F31, maximum dBA contour.

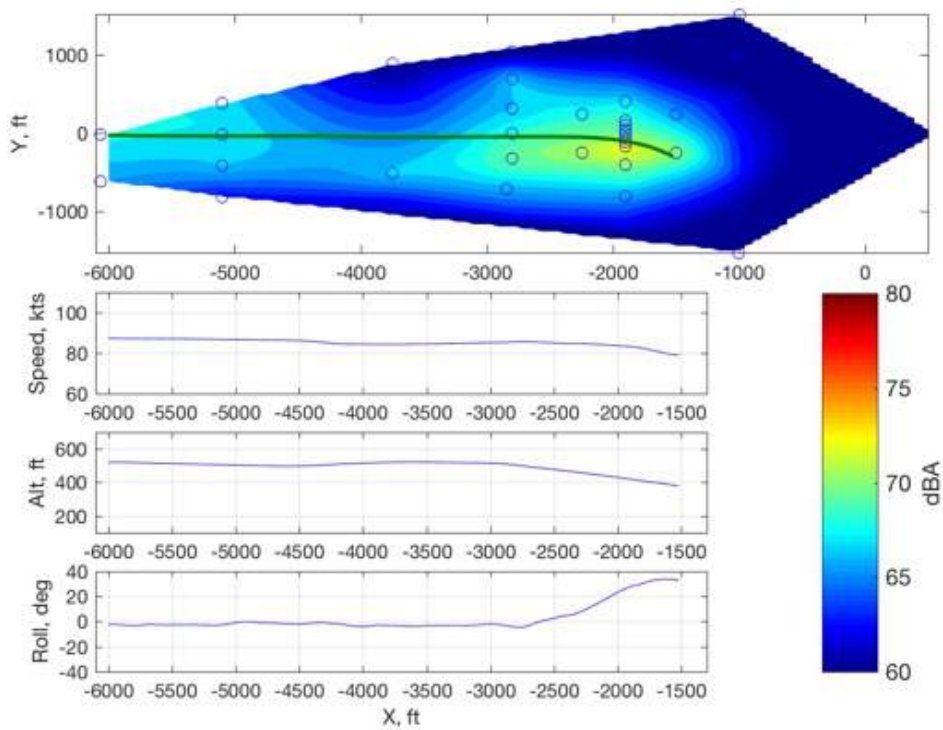


Figure 333: R66, 235631, F32, maximum dBA contour.

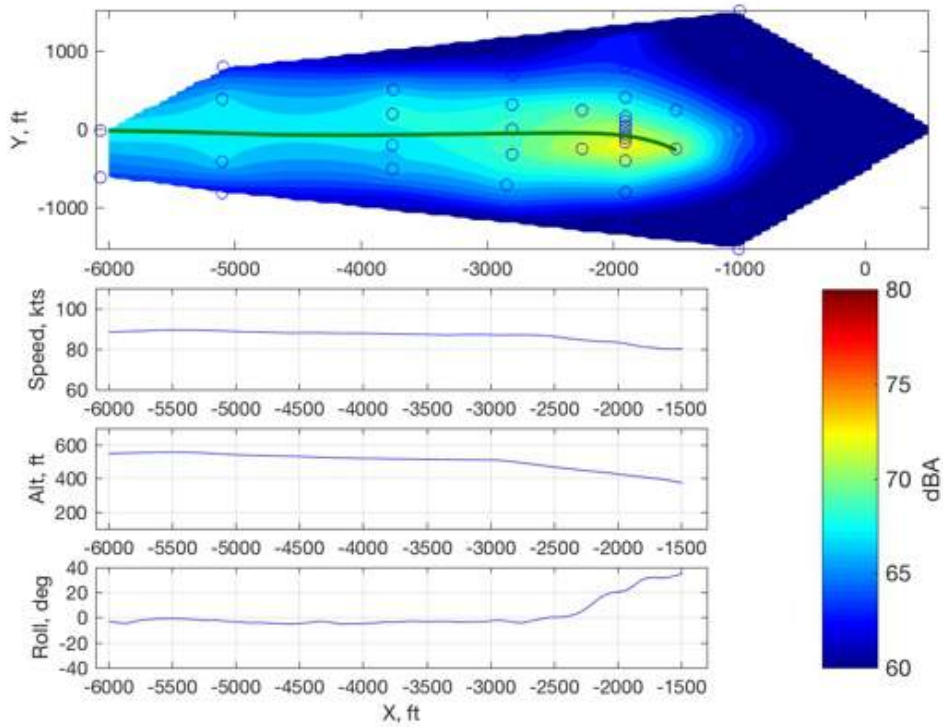


Figure 334: R66, 235632, F32, maximum dBA contour.

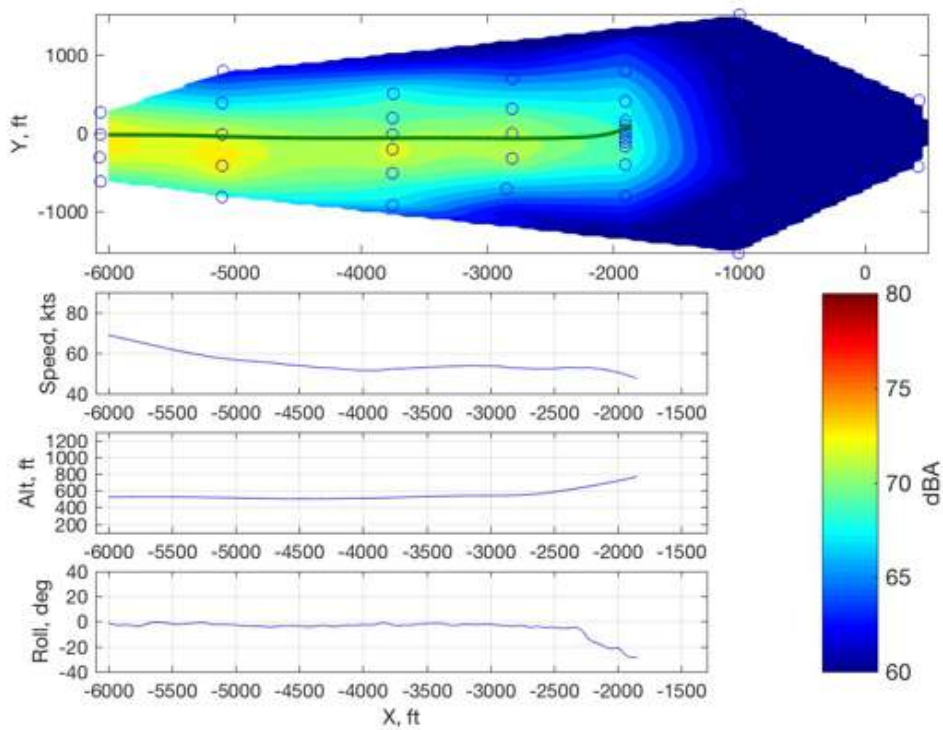


Figure 335: R66, 236694, F53, maximum dBA contour.

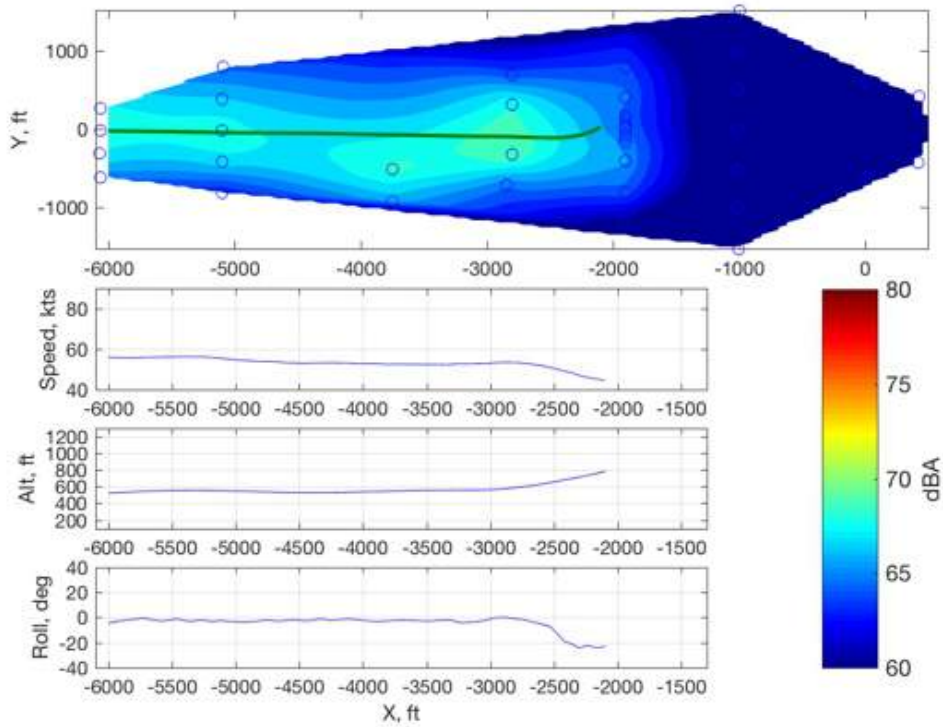


Figure 336: R66, 236695, F53, maximum dBA contour.

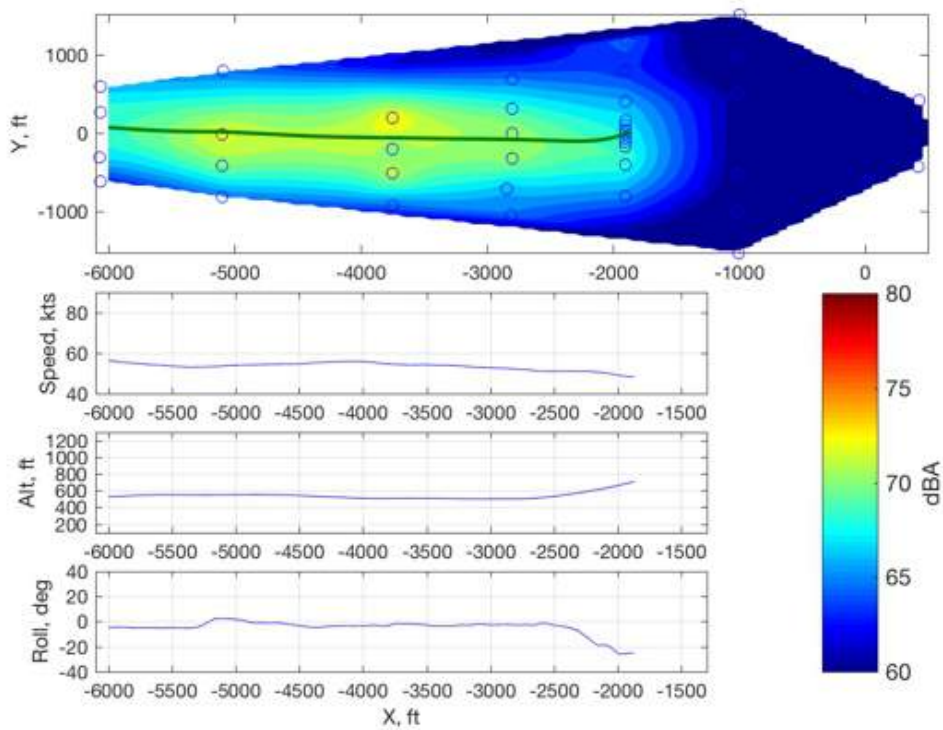


Figure 337: R66, 236696, F53, maximum dBA contour.

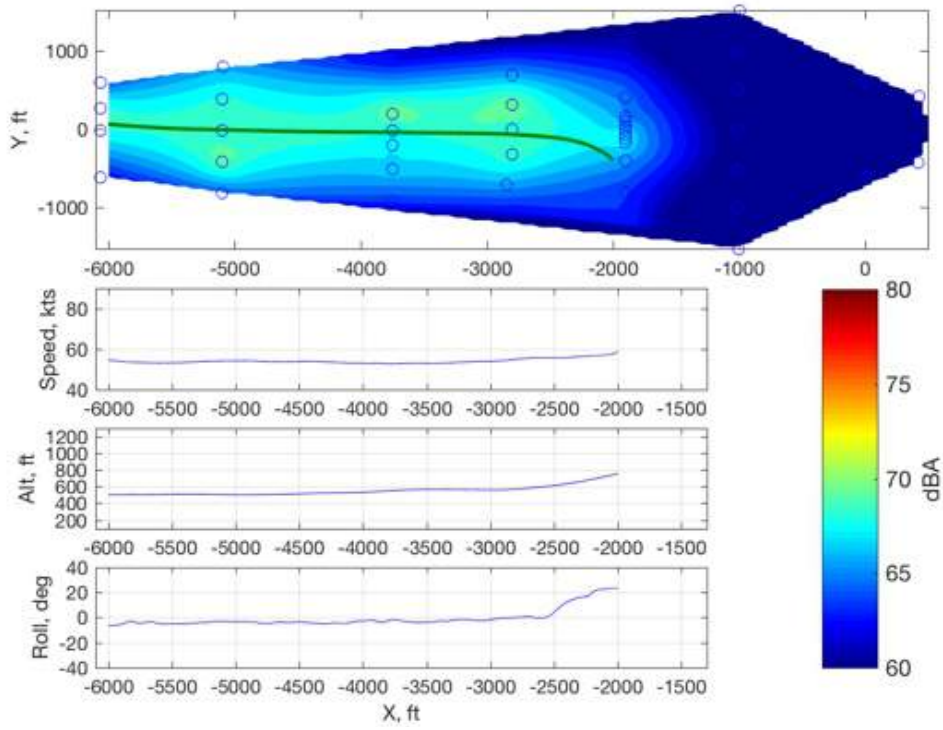


Figure 338: R66, 236697, F54, maximum dBA contour.

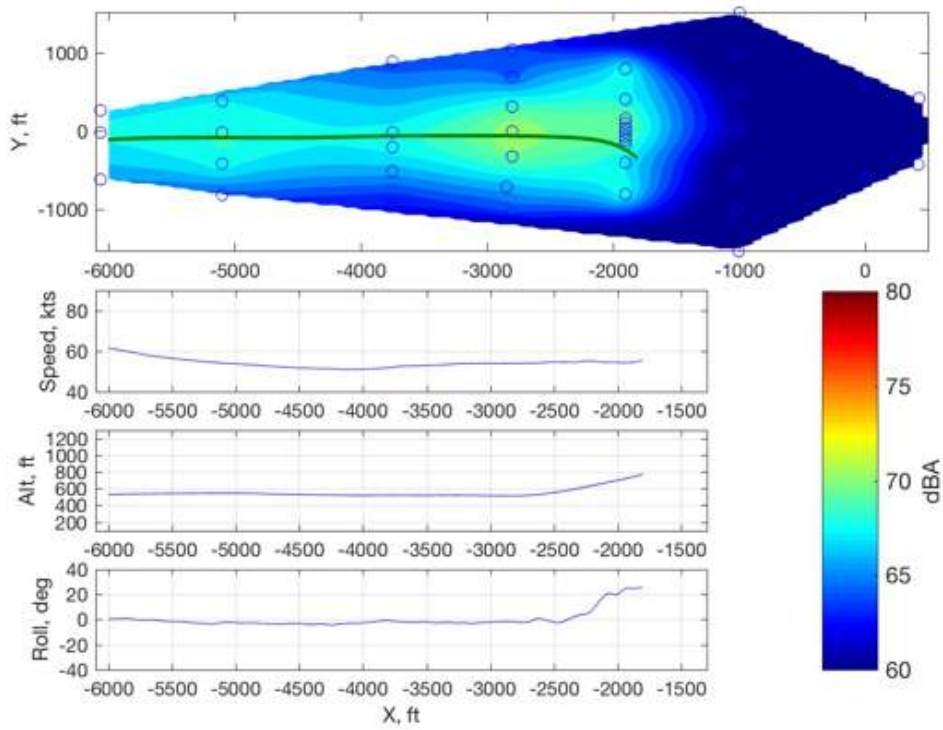


Figure 339: R66, 236698, F54, maximum dBA contour.

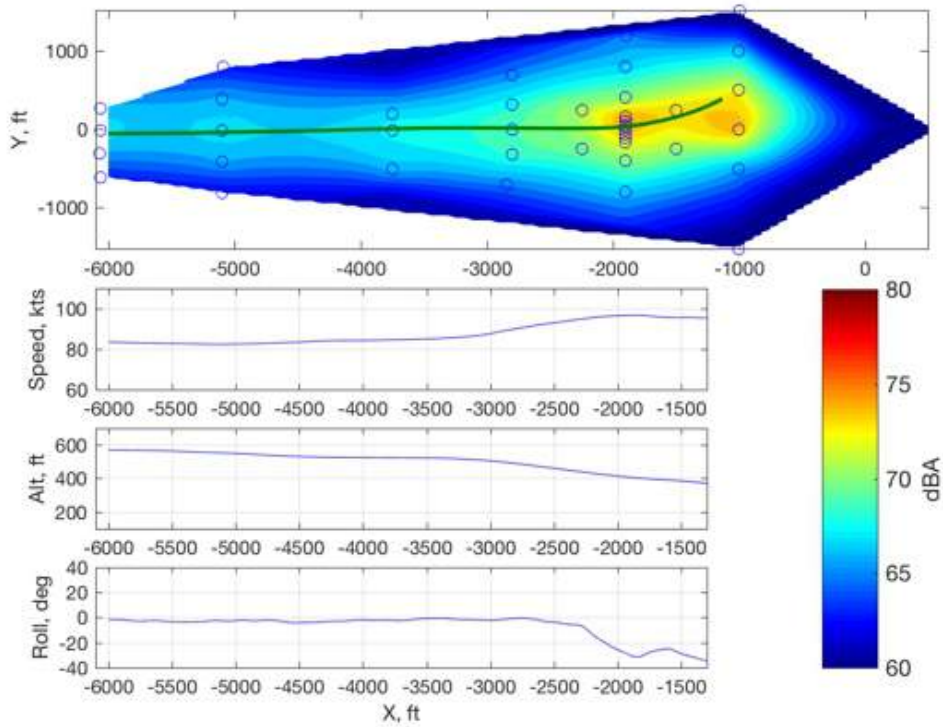


Figure 340: R66, 235643, G13, maximum dBA contour.

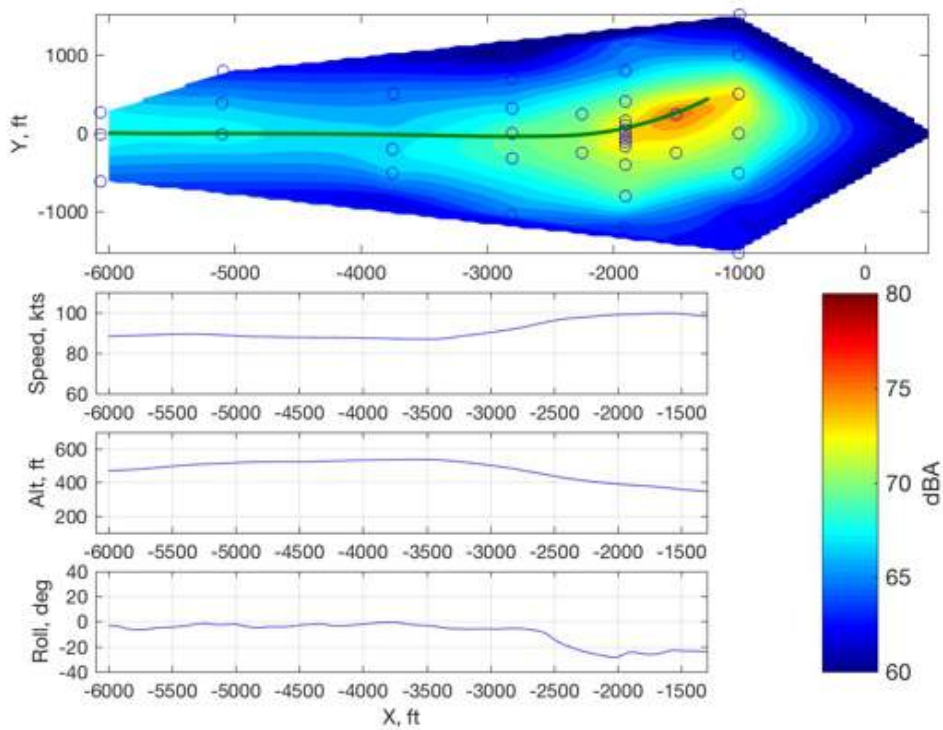


Figure 341: R66, 235644, G13, maximum dBA contour.

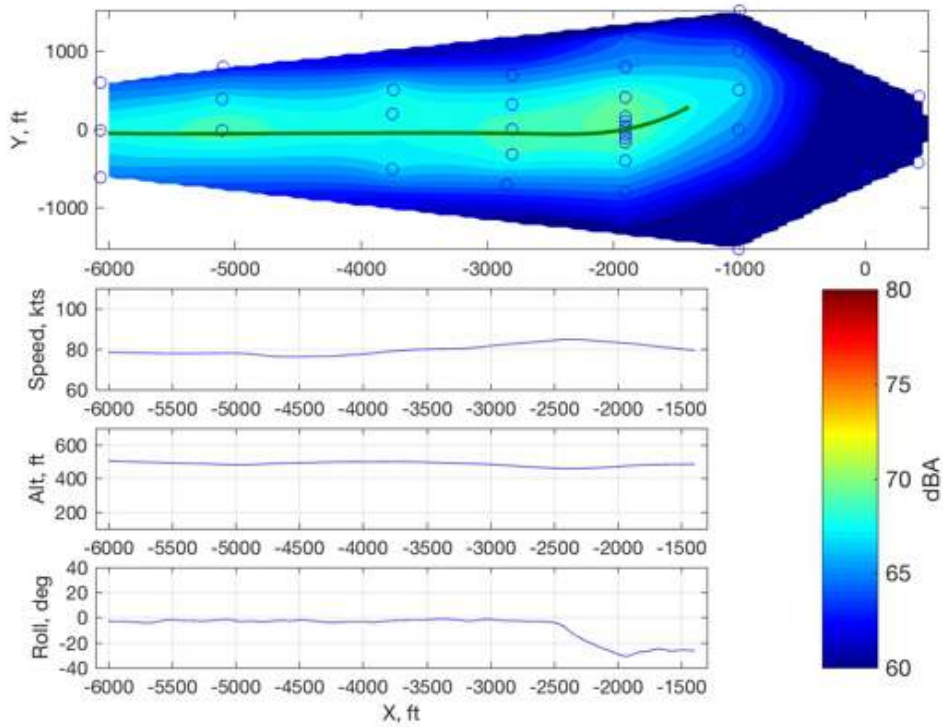


Figure 342: R66, 236680, G13, maximum dBA contour.

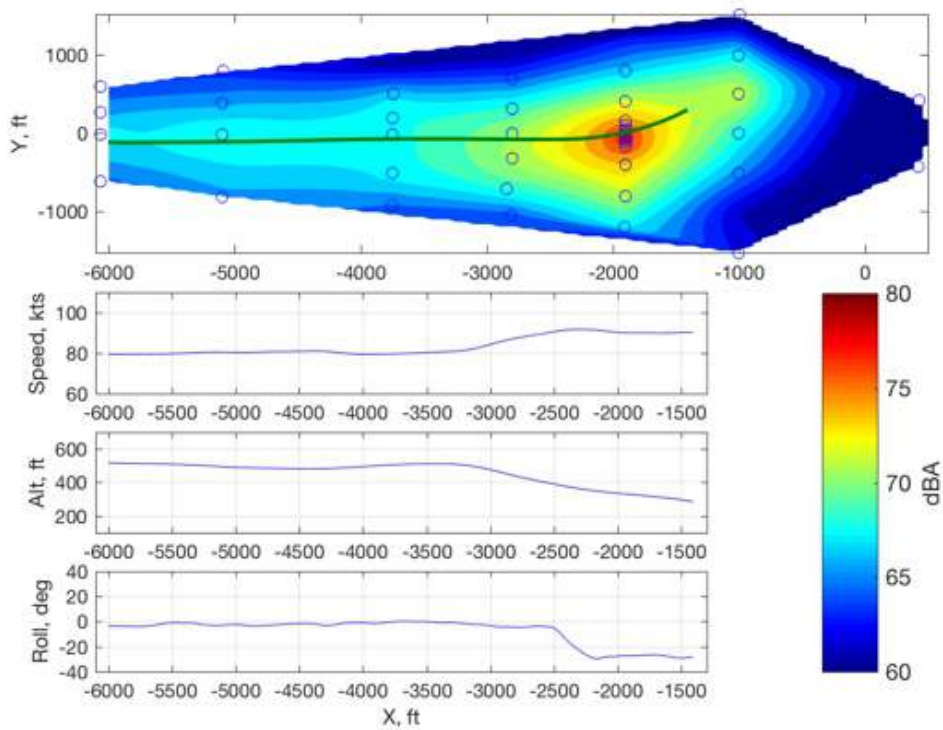


Figure 343: R66, 236681, G13, maximum dBA contour.

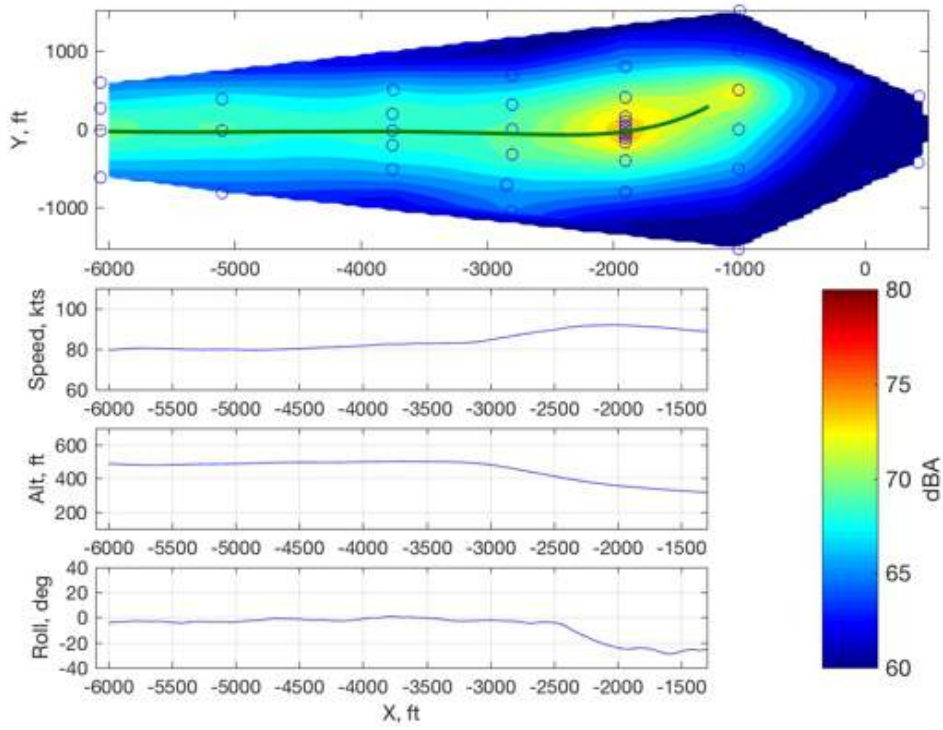


Figure 344: R66, 236682, G13, maximum dBA contour.

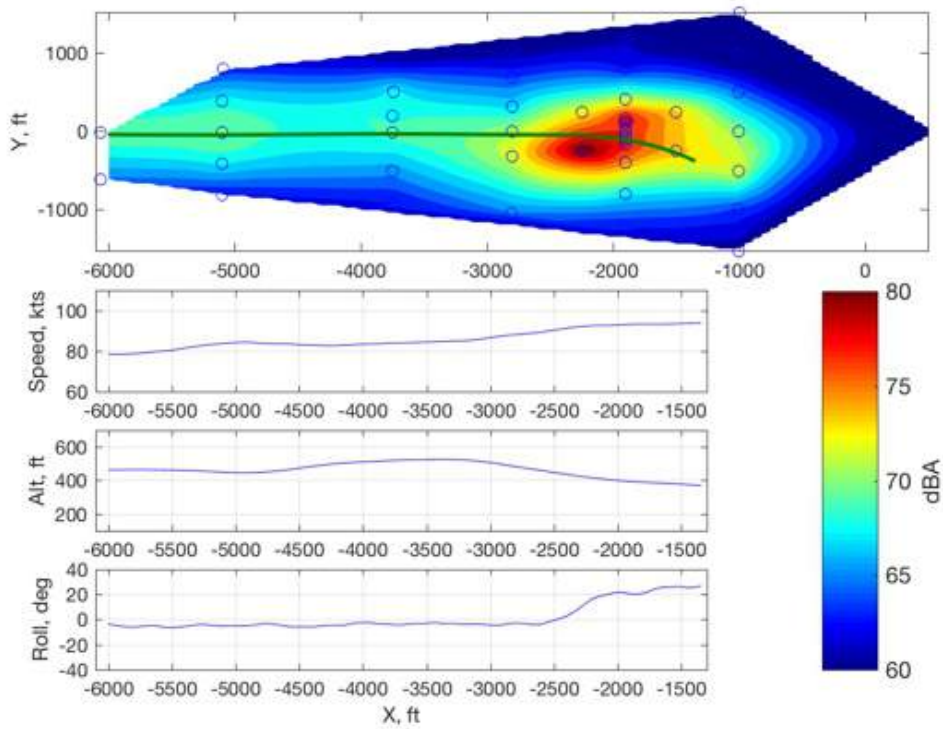


Figure 345: R66, 235645, G14, maximum dBA contour.

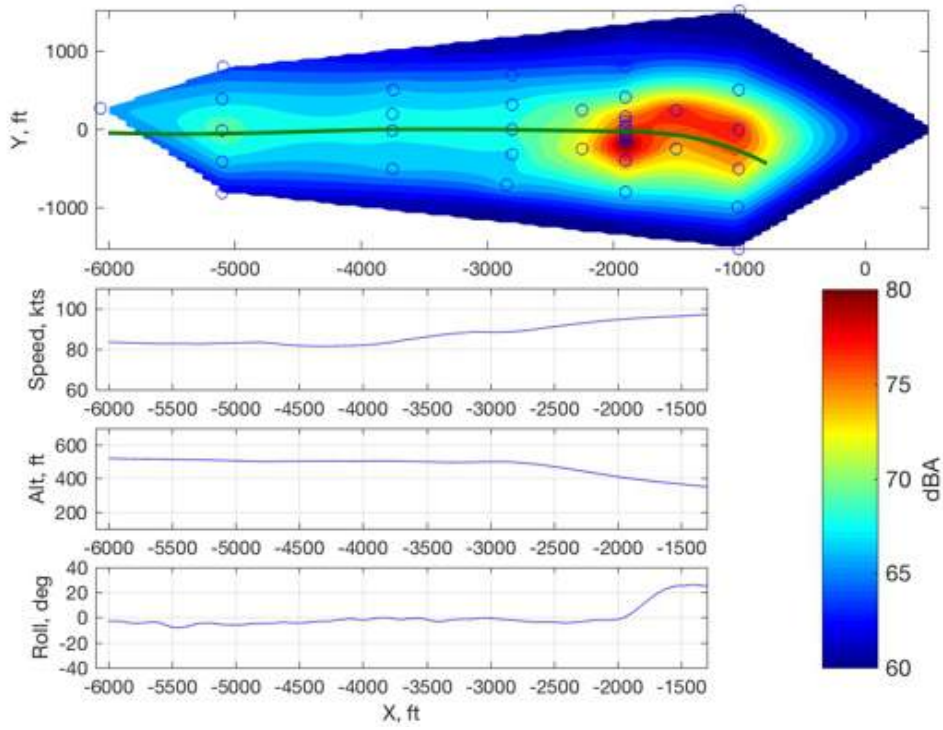


Figure 346: R66, 235646, G14, maximum dBA contour.

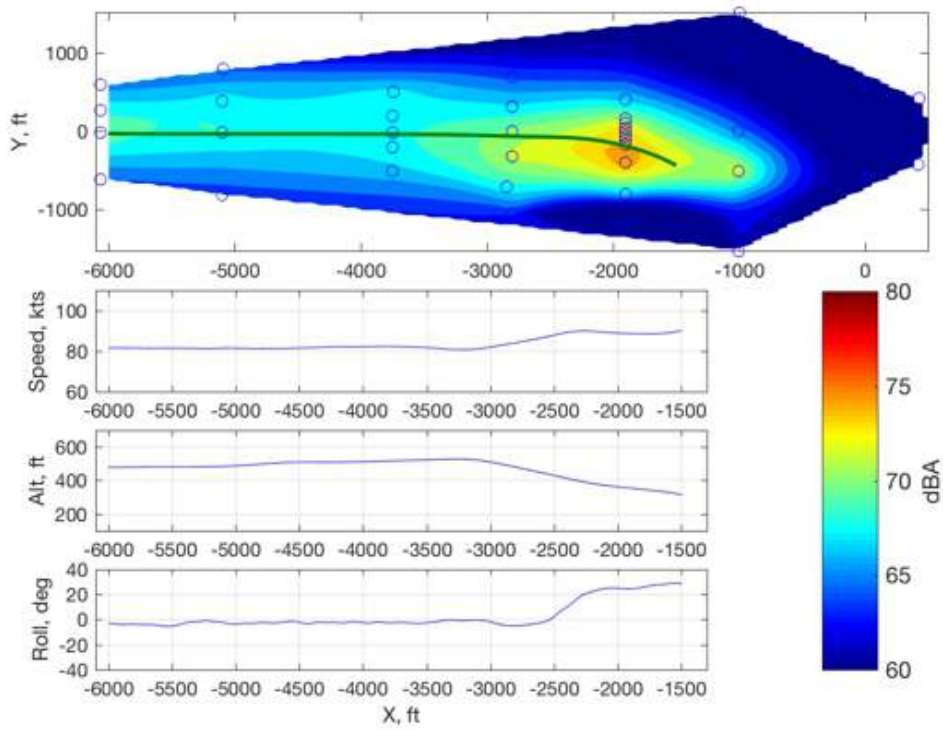


Figure 347: R66, 236683, G14, maximum dBA contour.

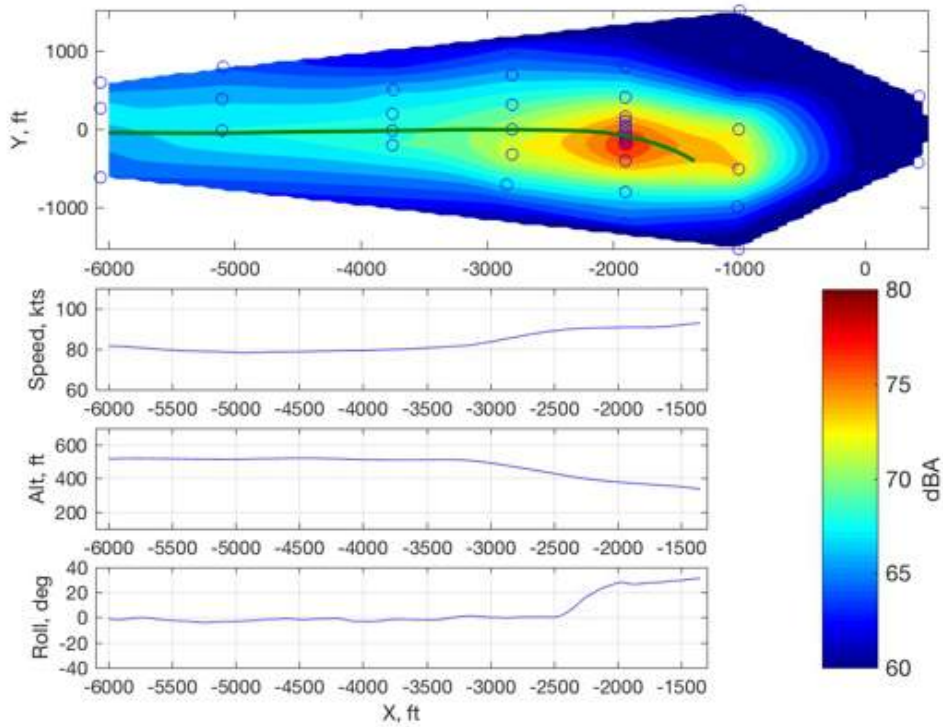


Figure 348: R66, 236684, G14, maximum dBA contour.

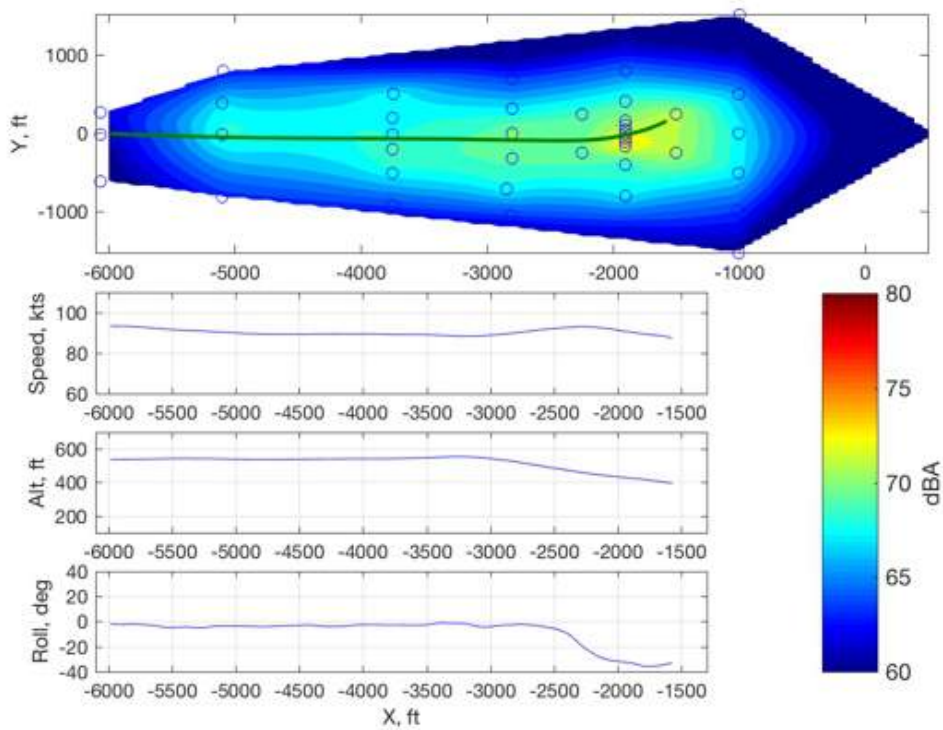


Figure 349: R66, 235617, G15, maximum dBA contour.

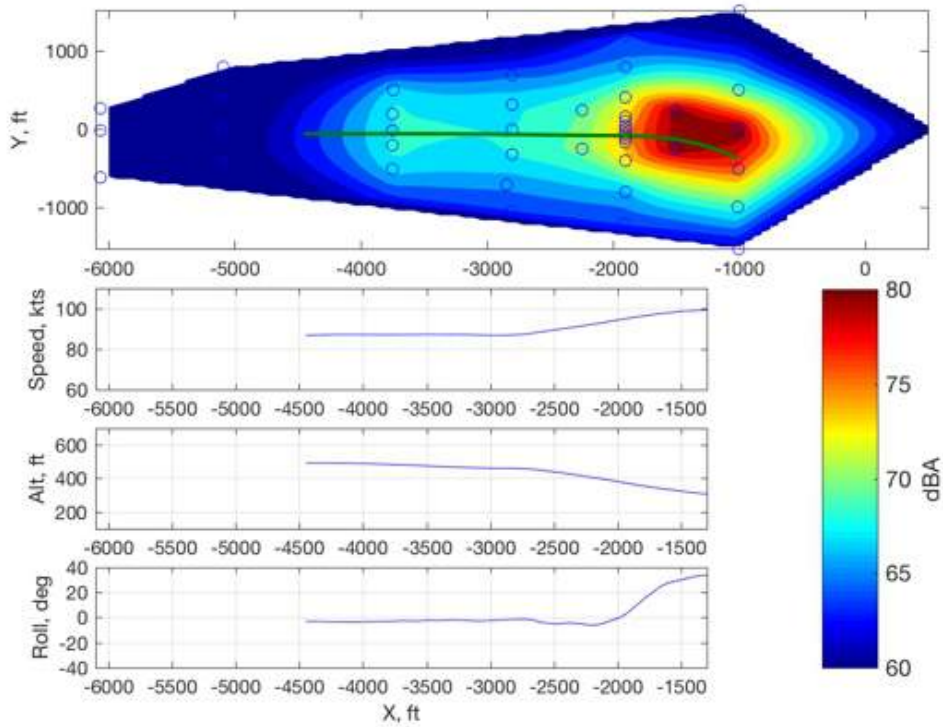


Figure 350: R66, 235618, G16, maximum dBA contour.

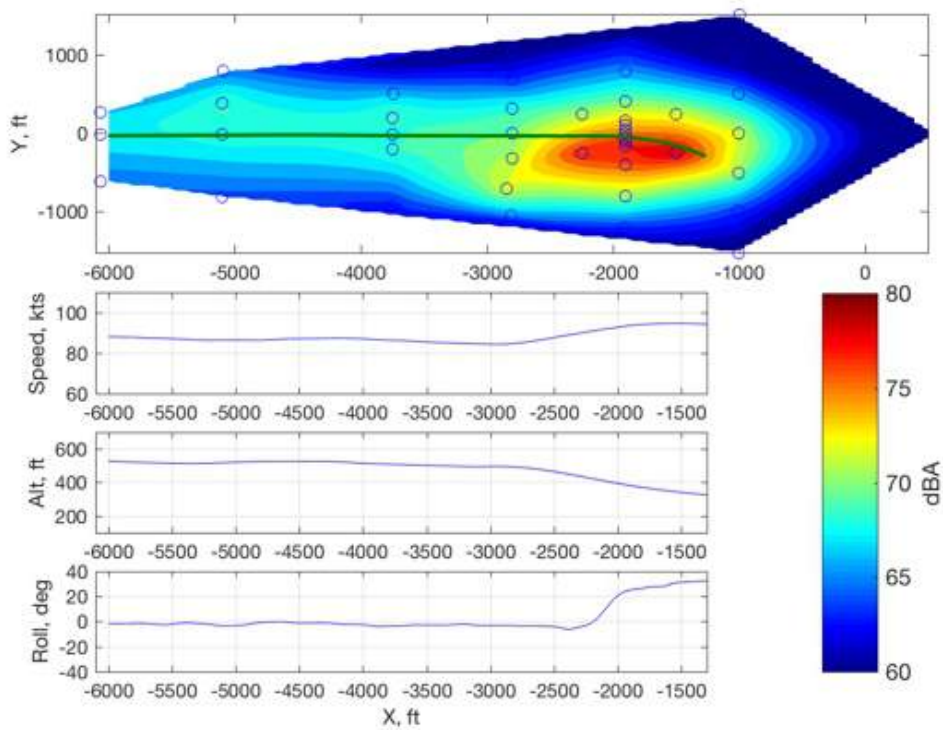


Figure 351: R66, 235619, G16, maximum dBA contour.

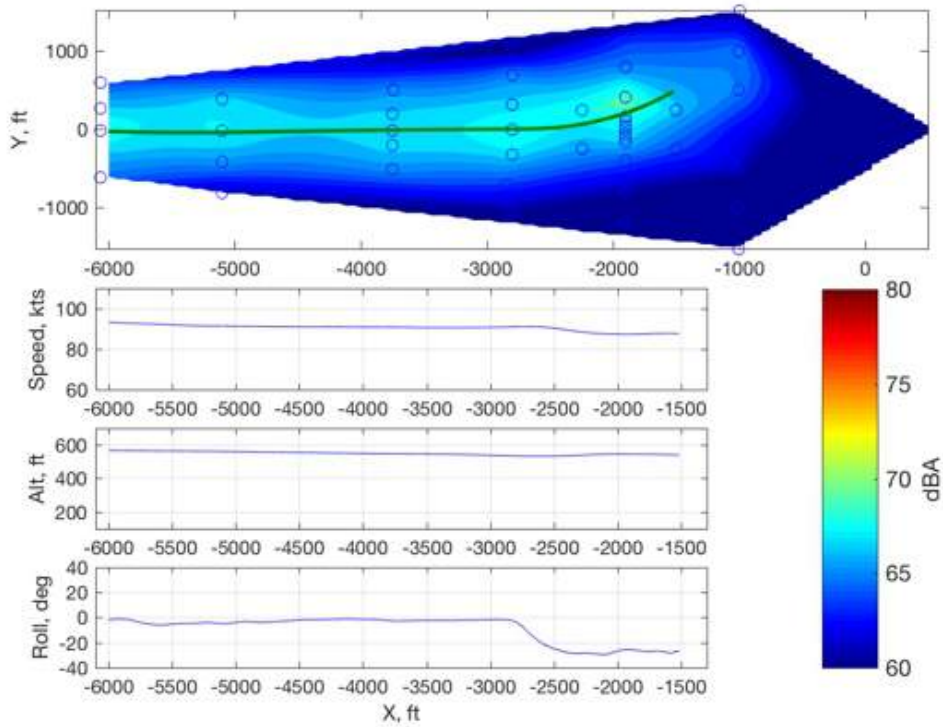


Figure 352: R66, 235568, N11, maximum dBA contour.

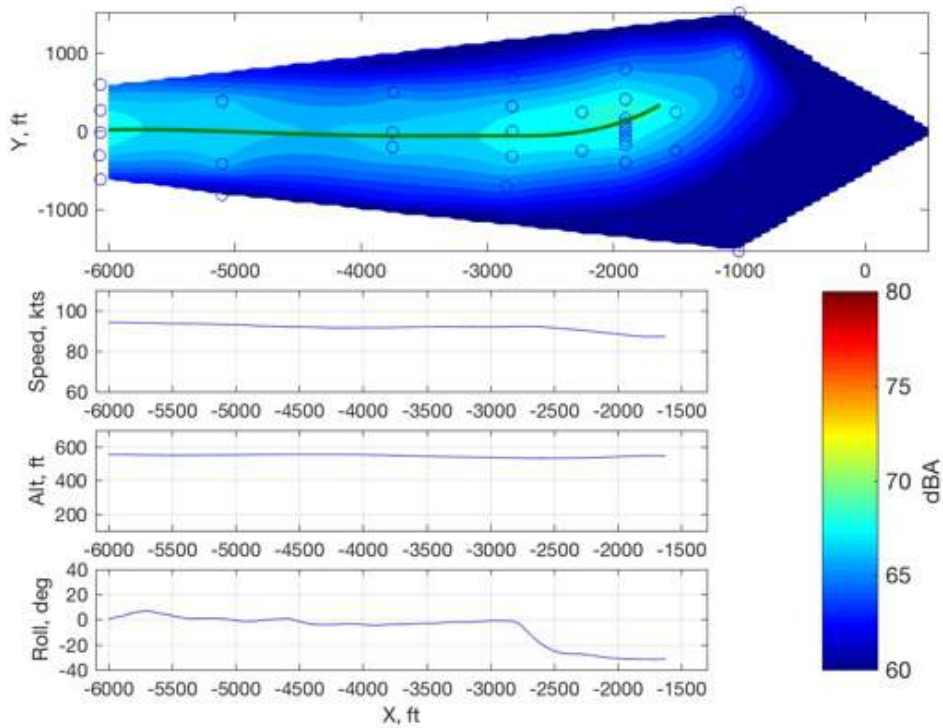


Figure 353: R66, 235569, N11, maximum dBA contour.

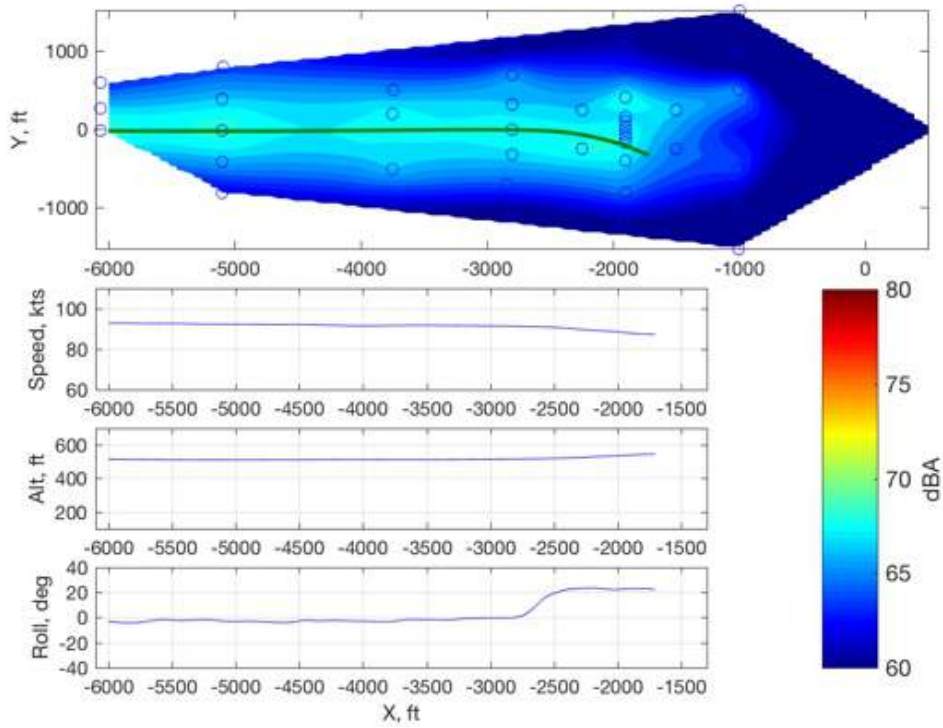


Figure 354: R66, 235570, N12, maximum dBA contour.

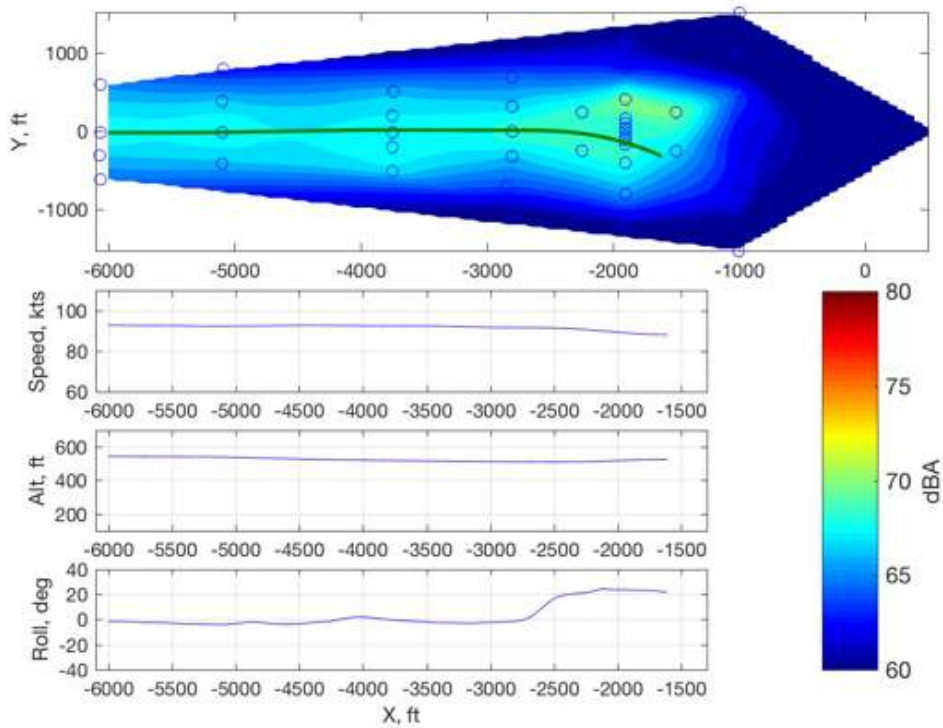


Figure 355: R66, 235571, N12, maximum dBA contour.

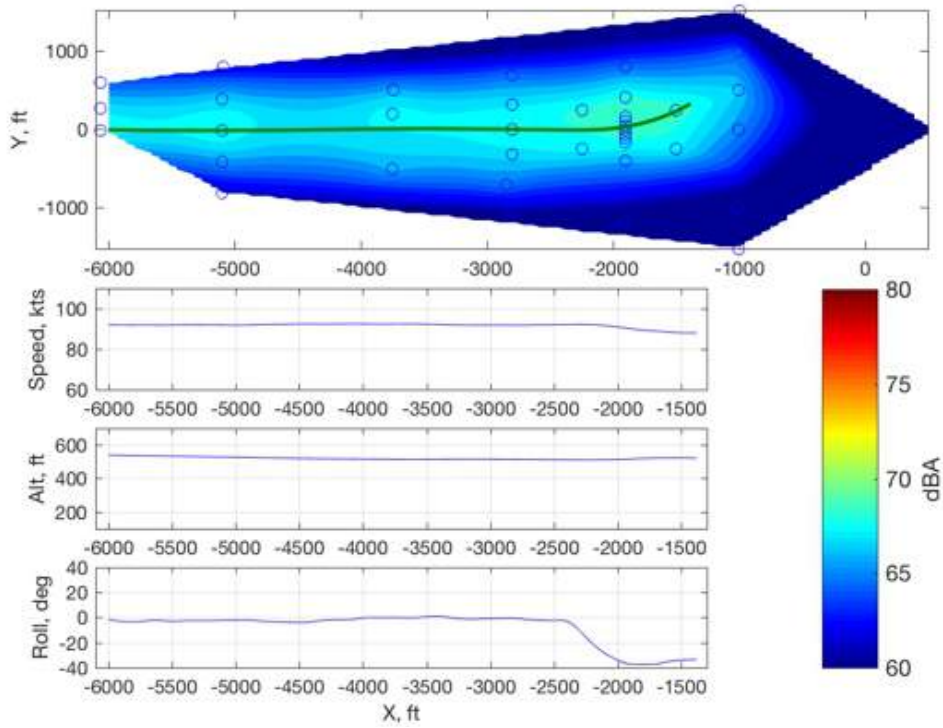


Figure 356: R66, 235572, N13, maximum dBA contour.

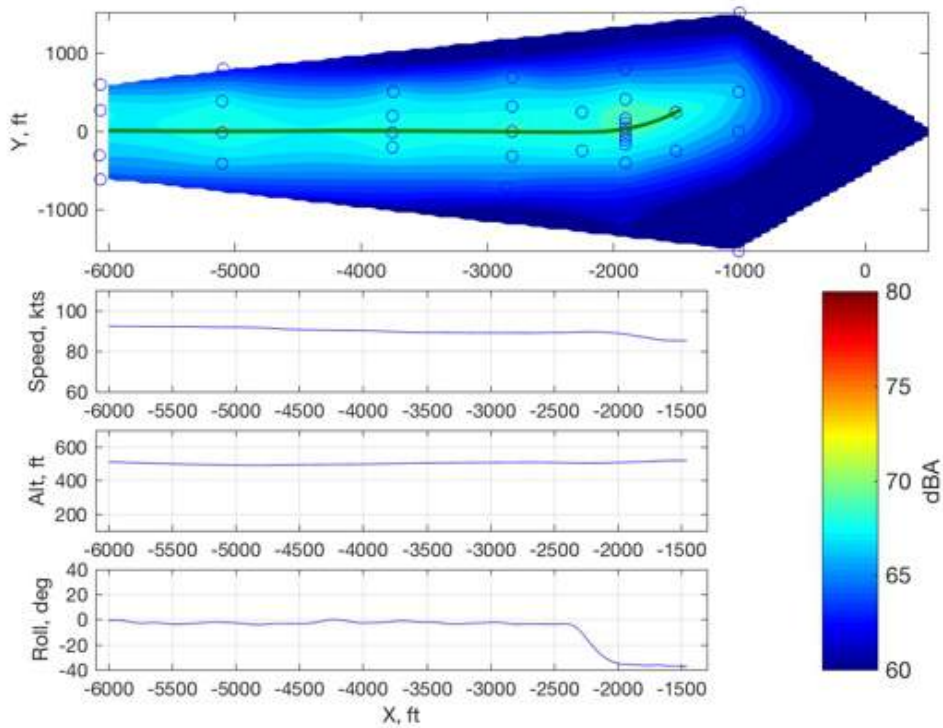


Figure 357: R66, 235573, N13, maximum dBA contour.

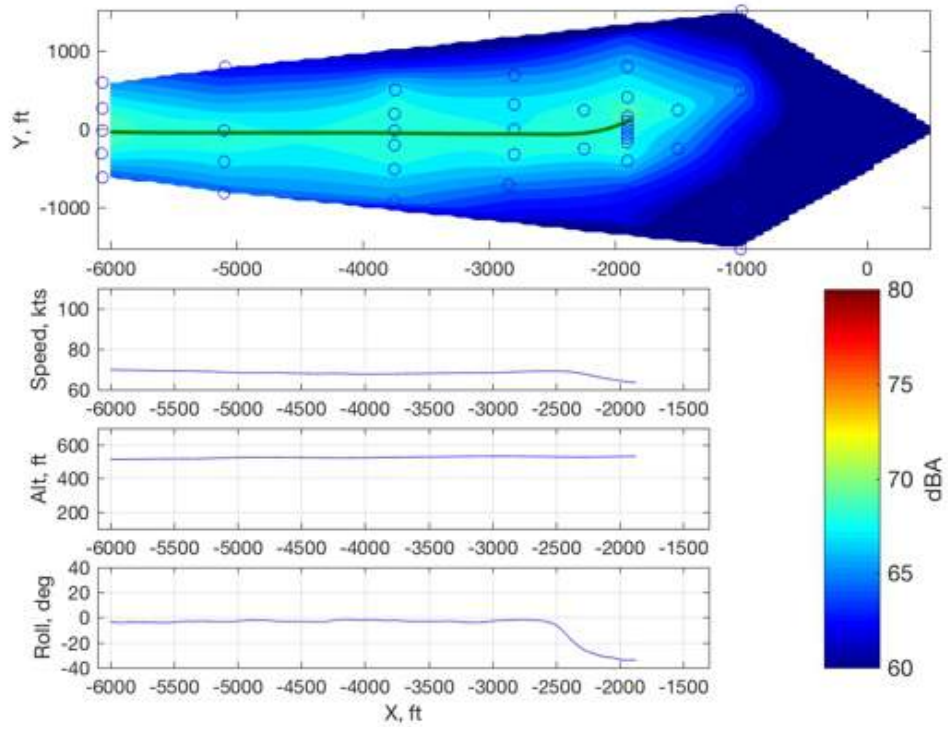


Figure 358: R66, 237714, N13, maximum dBA contour.

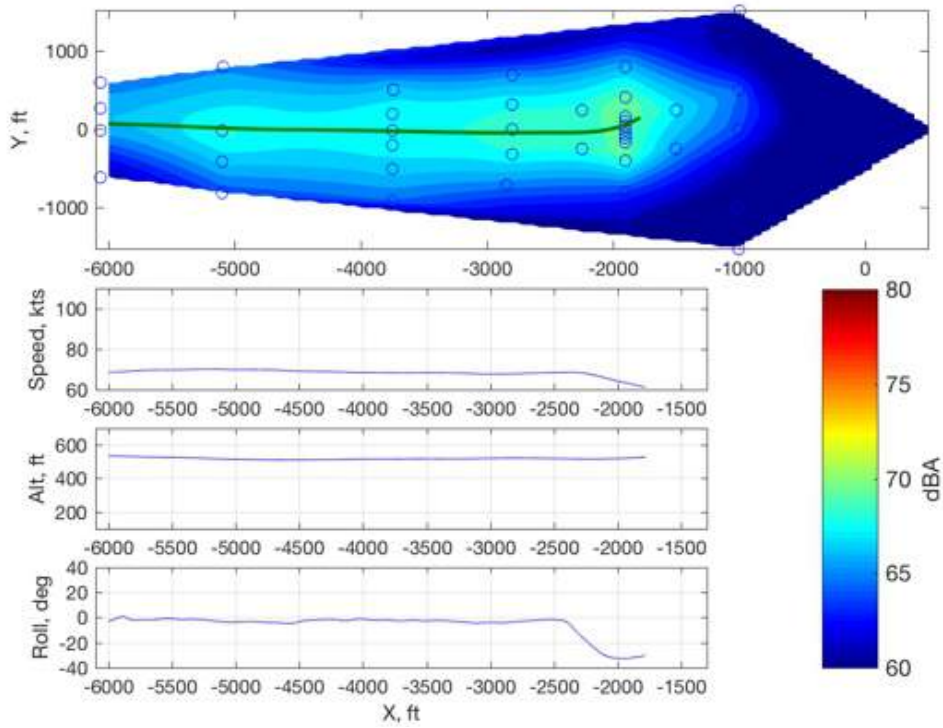


Figure 359: R66, 237715, N13, maximum dBA contour.

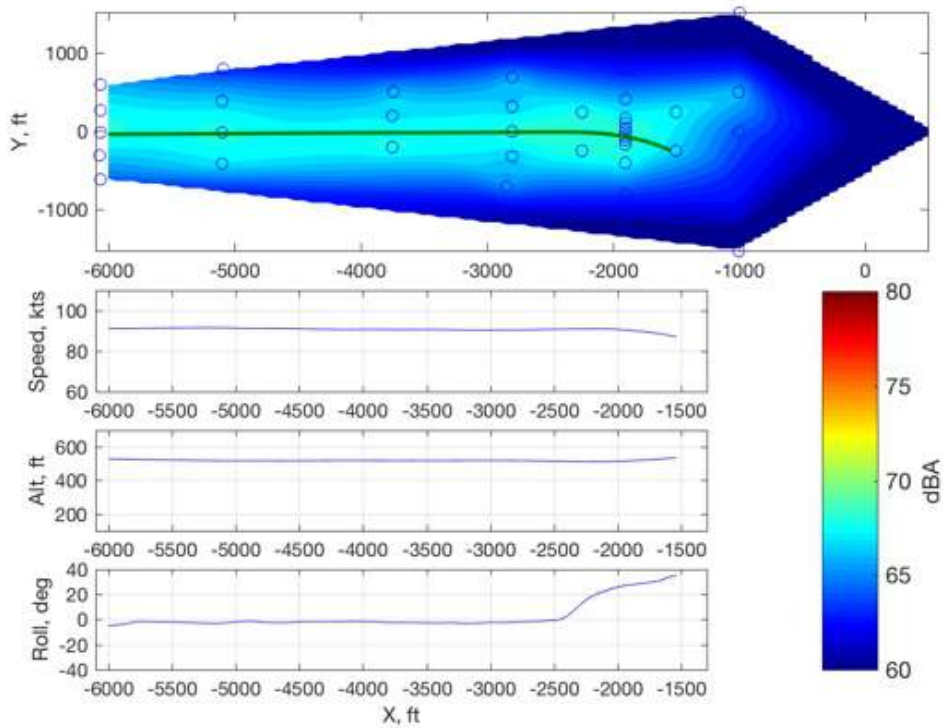


Figure 360: R66, 235575, N14, maximum dBA contour.

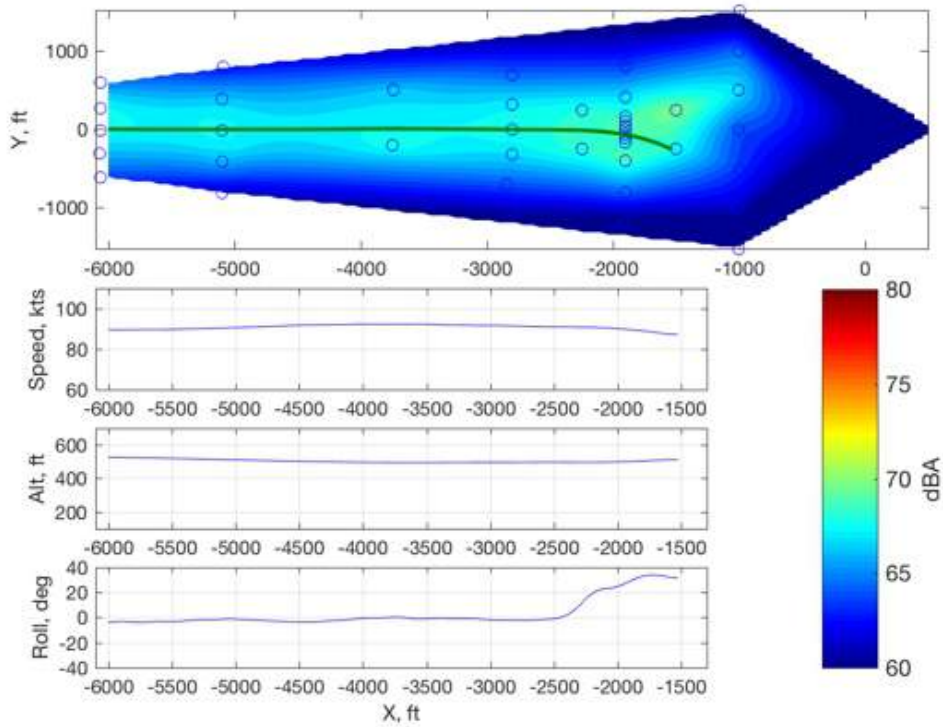


Figure 361: R66, 235576, N14, maximum dBA contour.

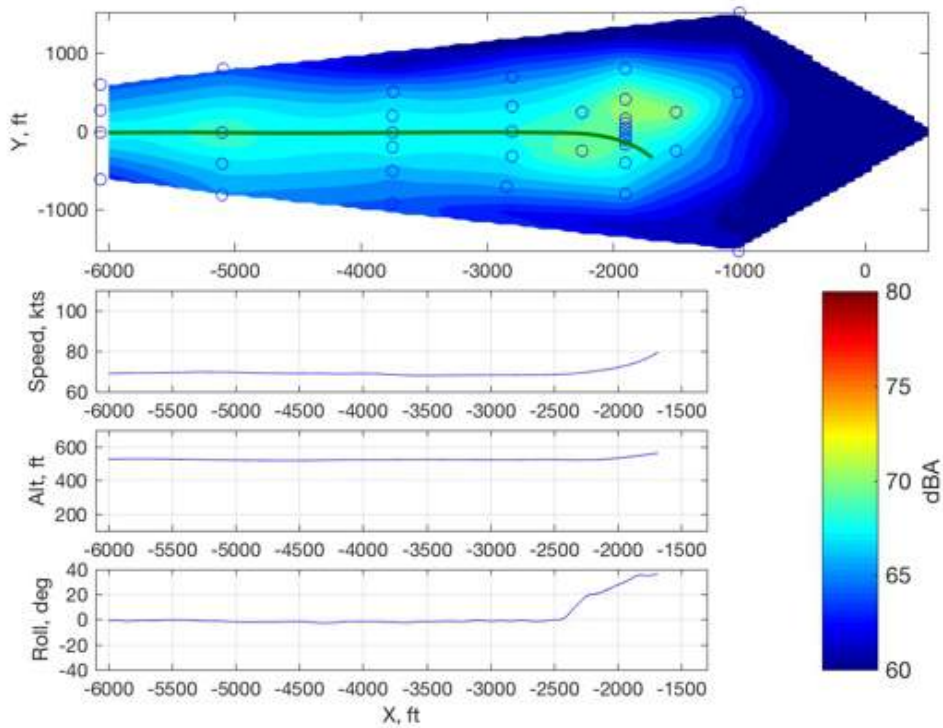


Figure 362: R66, 237716, N14, maximum dBA contour.

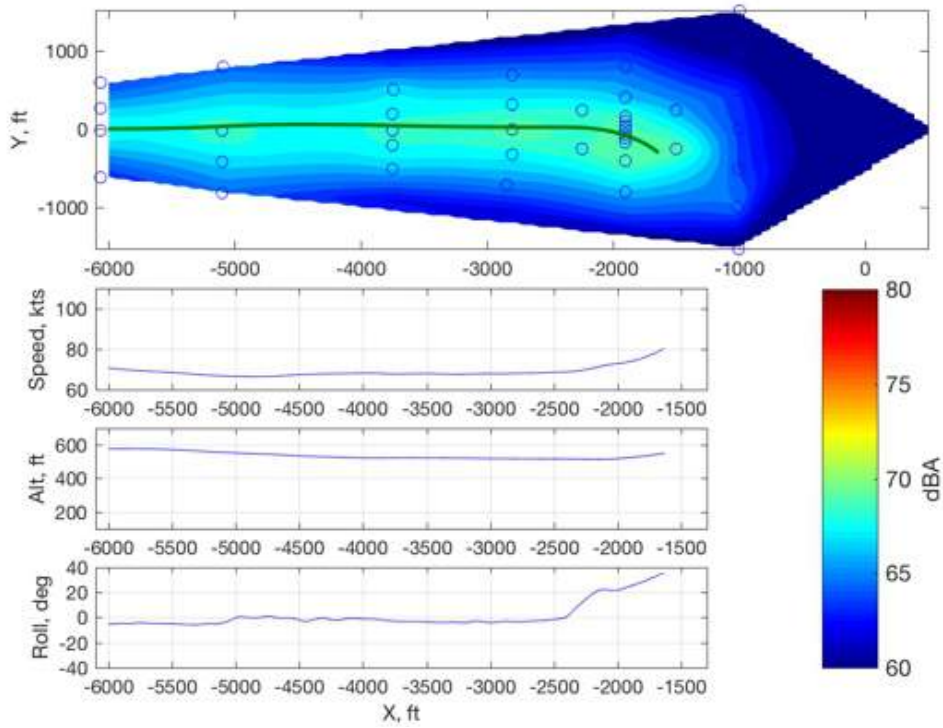


Figure 363: R66, 237717, N14, maximum dBA contour.

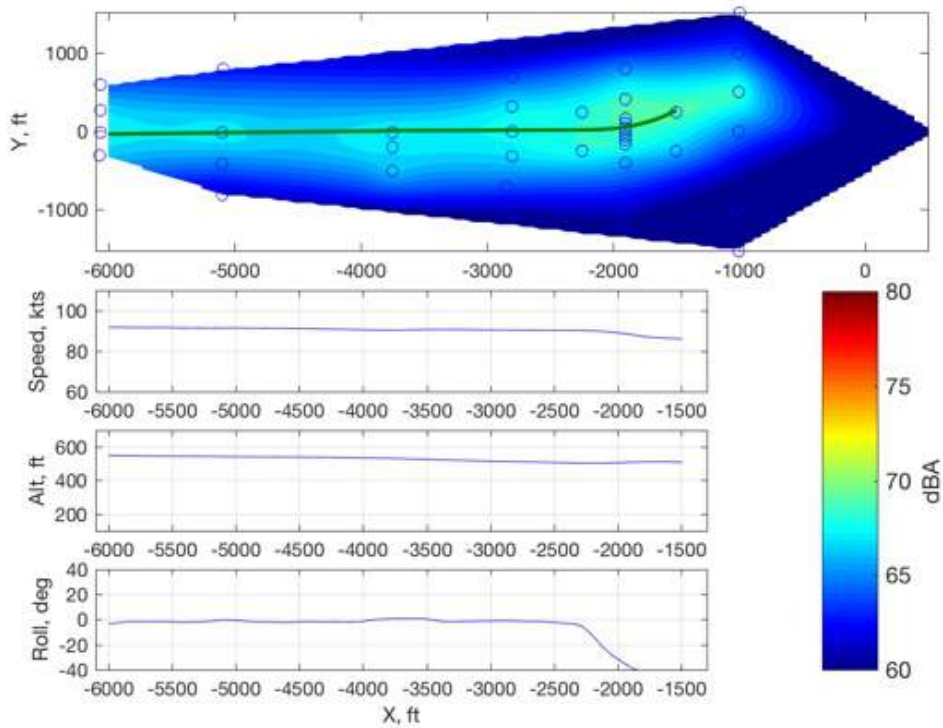


Figure 364: R66, 235577, N15, maximum dBA contour.

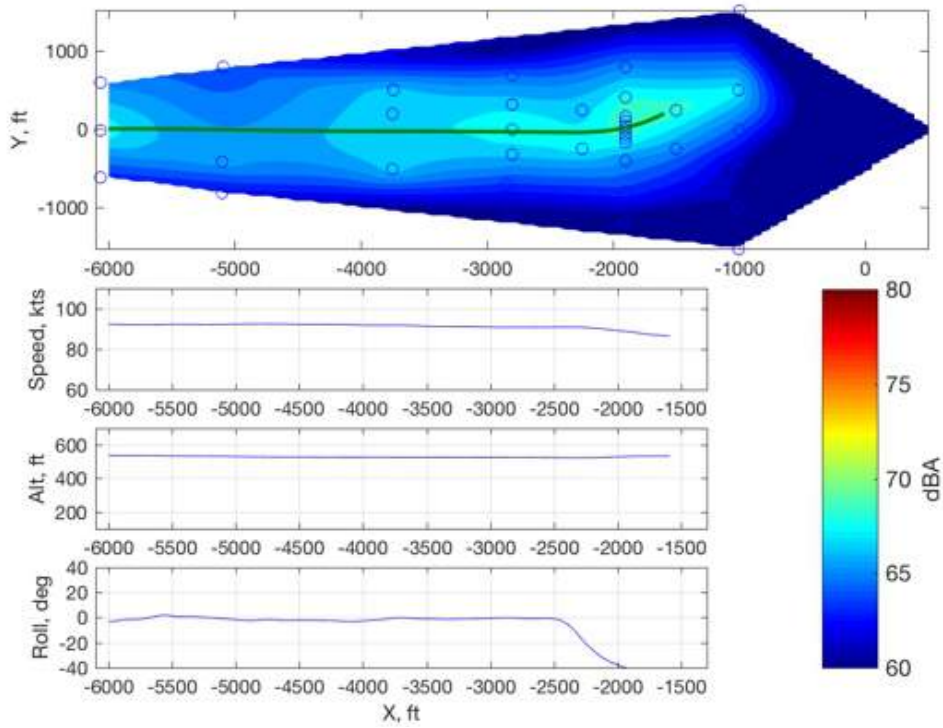


Figure 365: R66, 235578, N15, maximum dBA contour.

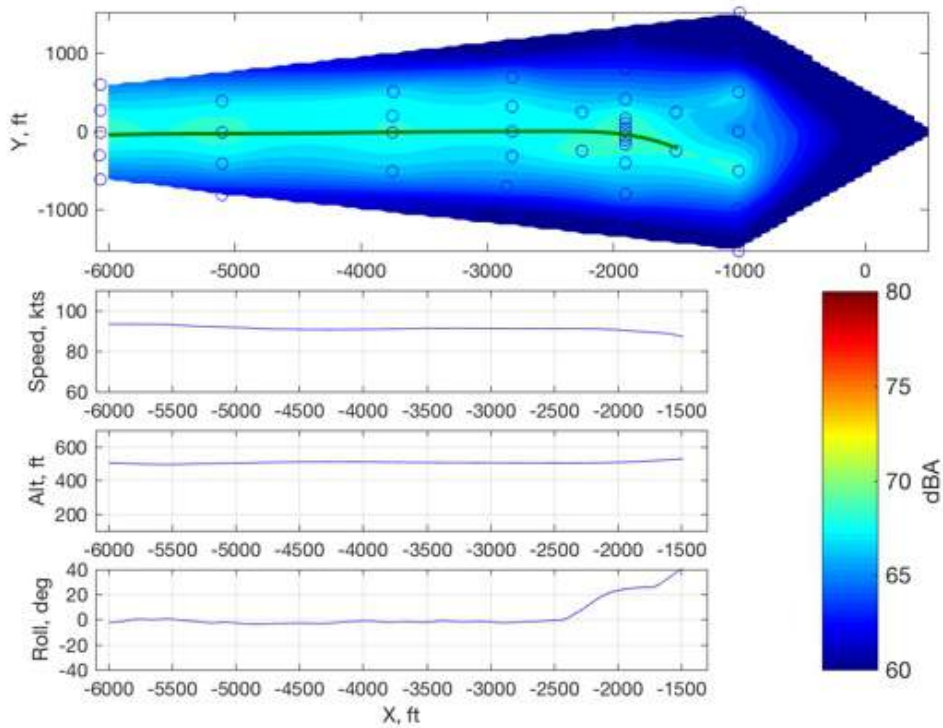


Figure 366: R66, 235579, N16, maximum dBA contour.

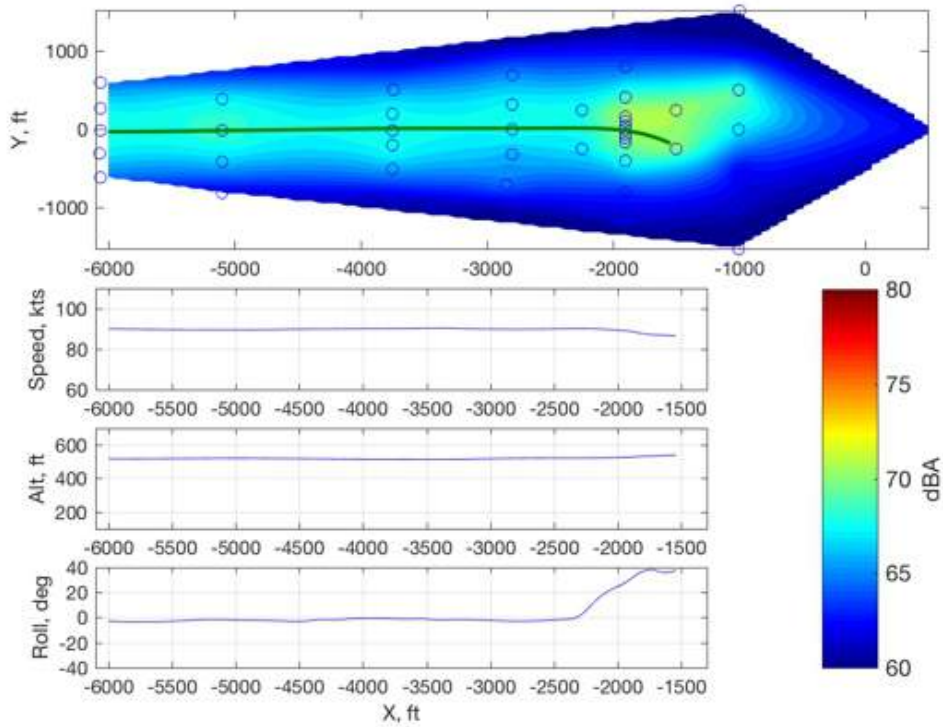


Figure 367: R66, 235580, N16, maximum dBA contour.

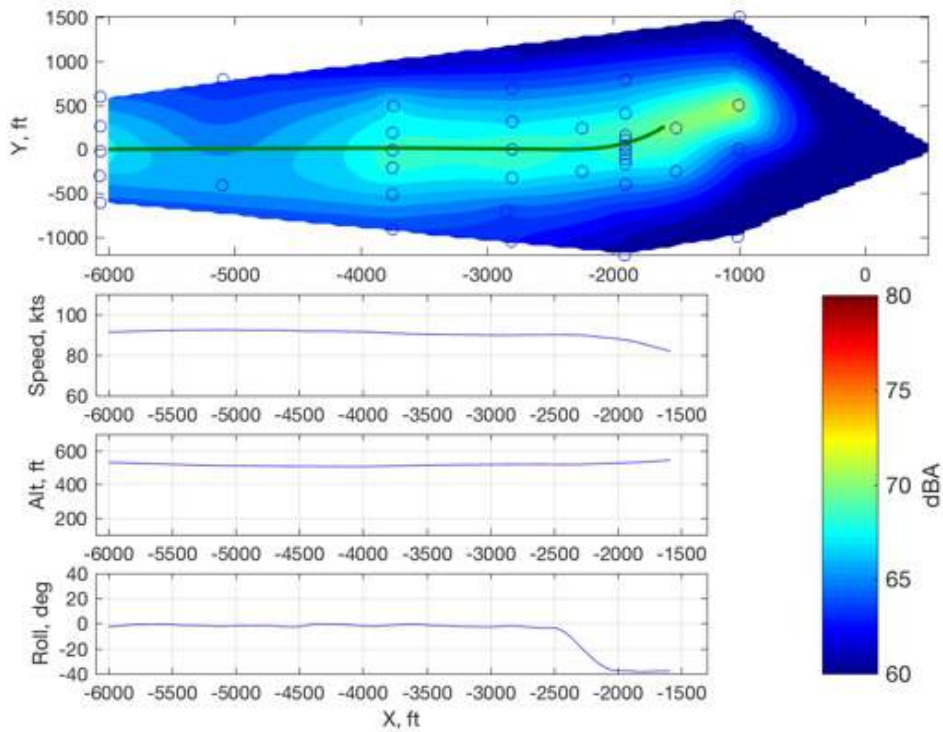


Figure 368: R66, 235581, O7, maximum dBA contour.

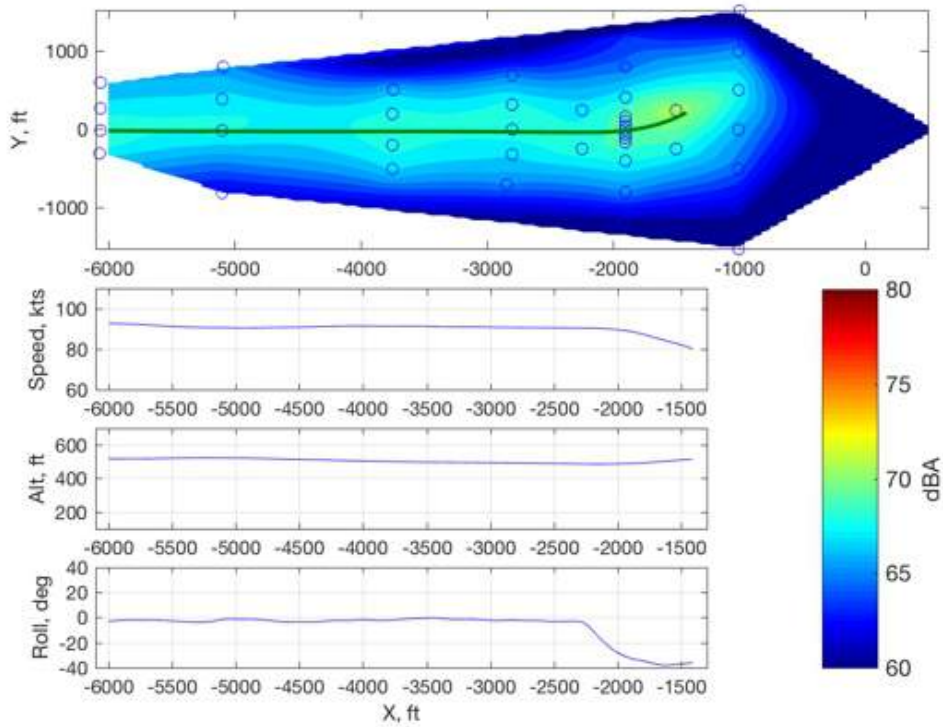


Figure 369: R66, 235582, O7, maximum dBA contour.

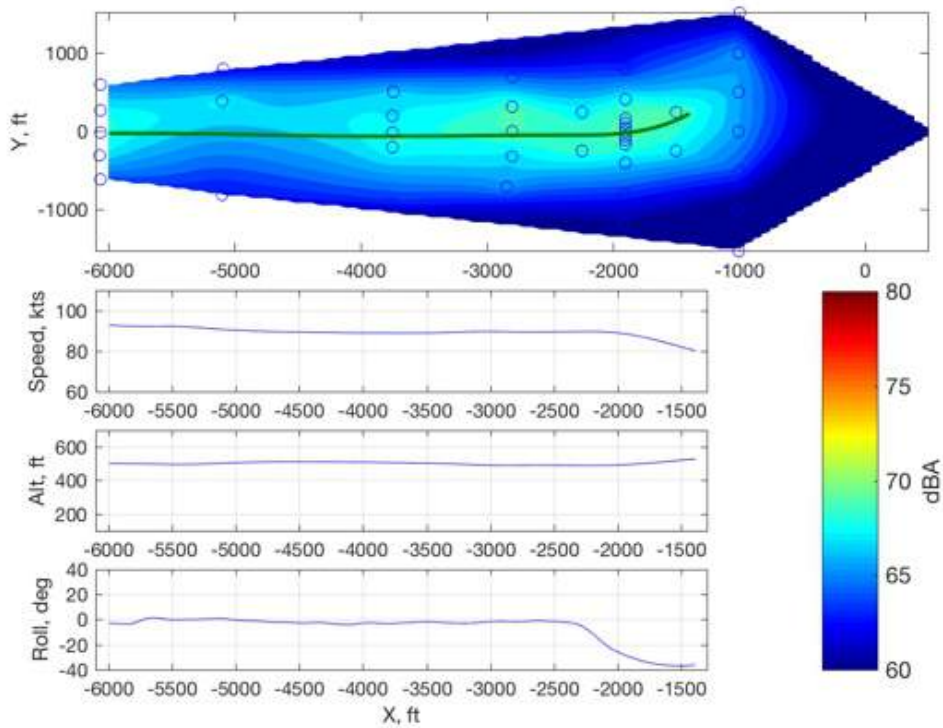


Figure 370: R66, 235583, O7, maximum dBA contour.

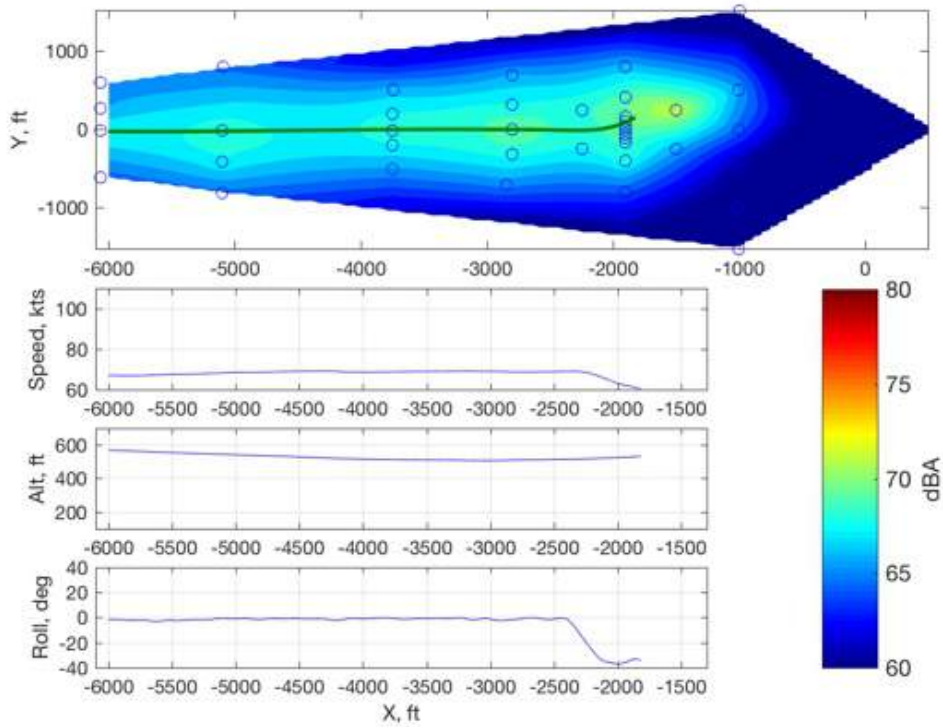


Figure 371: R66, 237718, O7, maximum dBA contour.

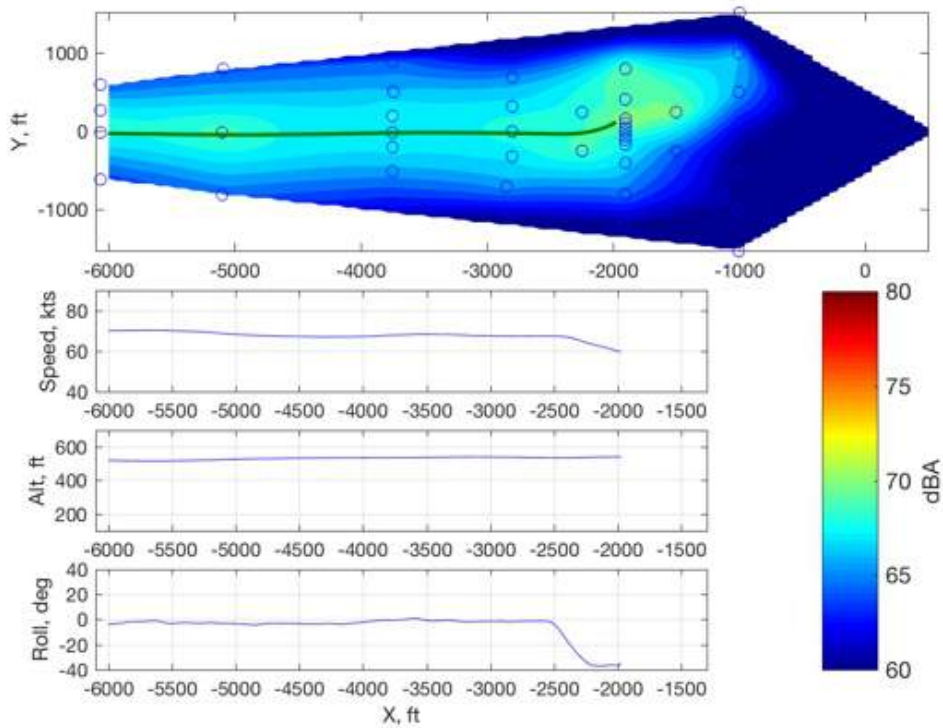


Figure 372: R66, 237719, O7, maximum dBA contour.

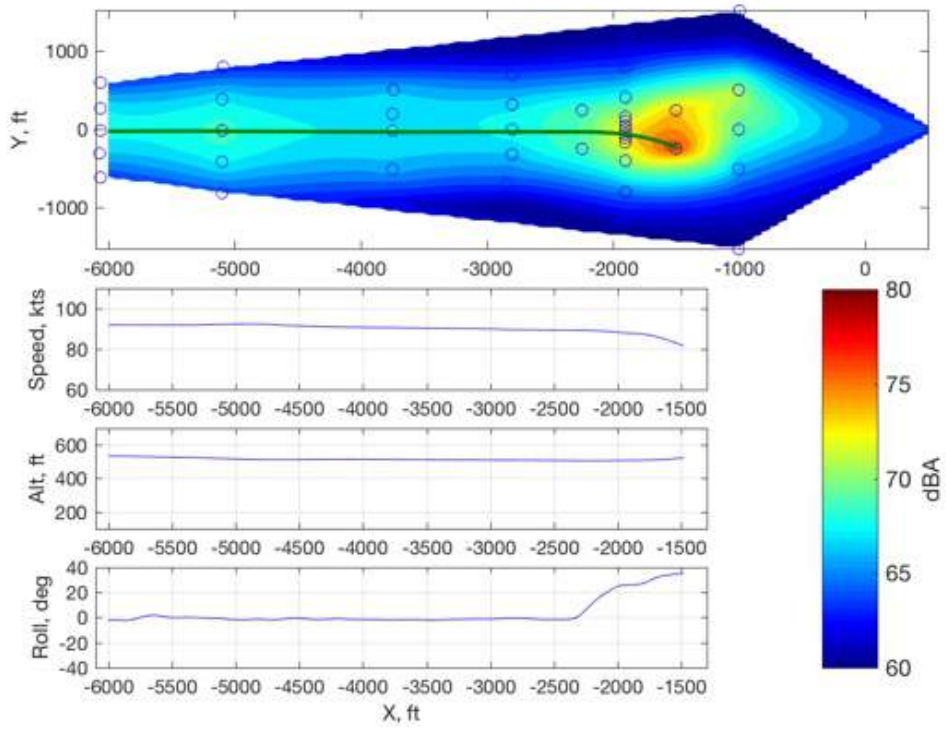


Figure 373: R66, 235584, O8, maximum dBA contour.

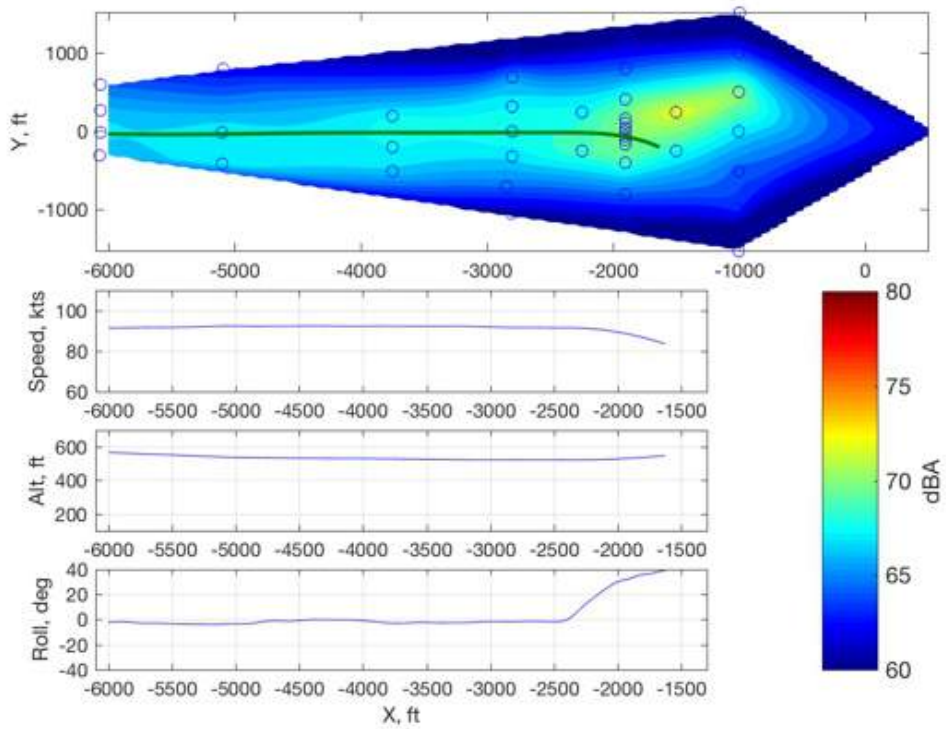


Figure 374: R66, 235585, O8, maximum dBA contour.

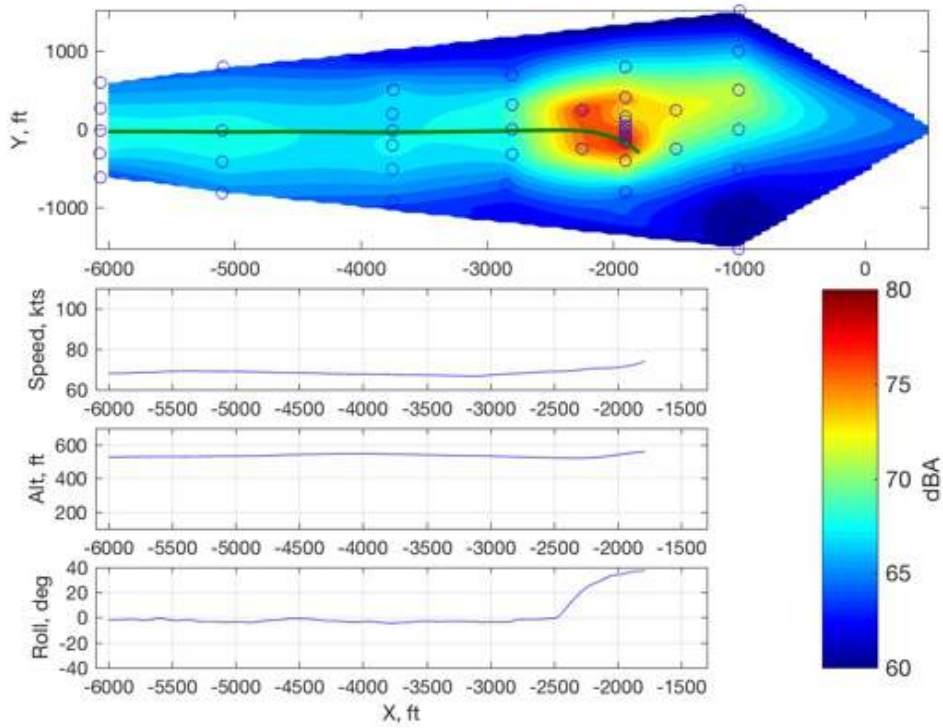


Figure 375: R66, 237720, O8, maximum dBA contour.

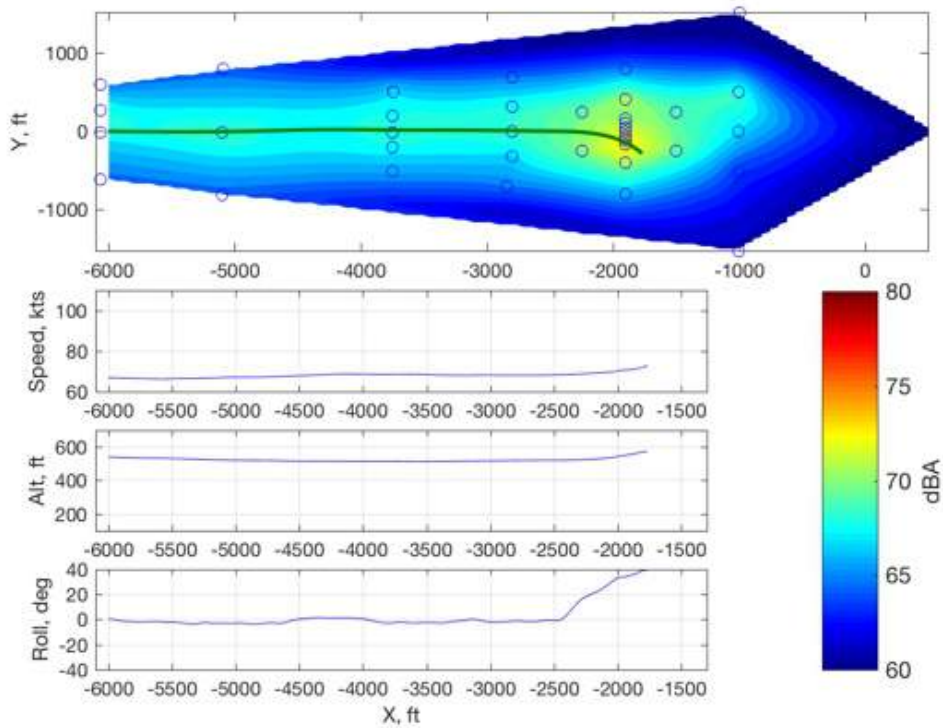


Figure 376: R66, 237721, O8, maximum dBA contour.

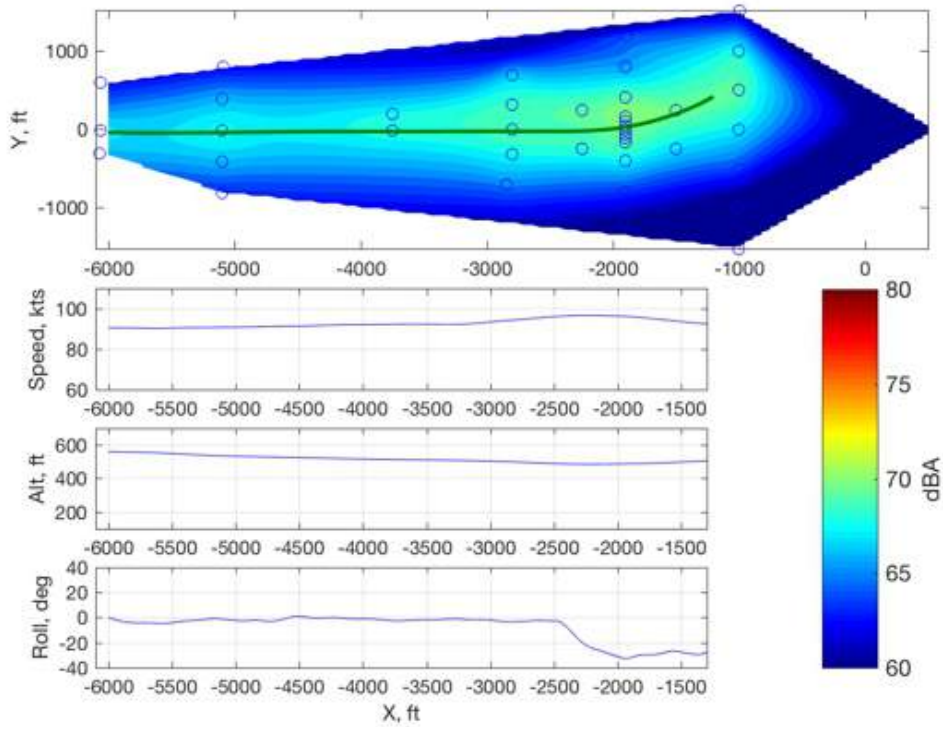


Figure 377: R66, 235586, X27, maximum dBA contour.

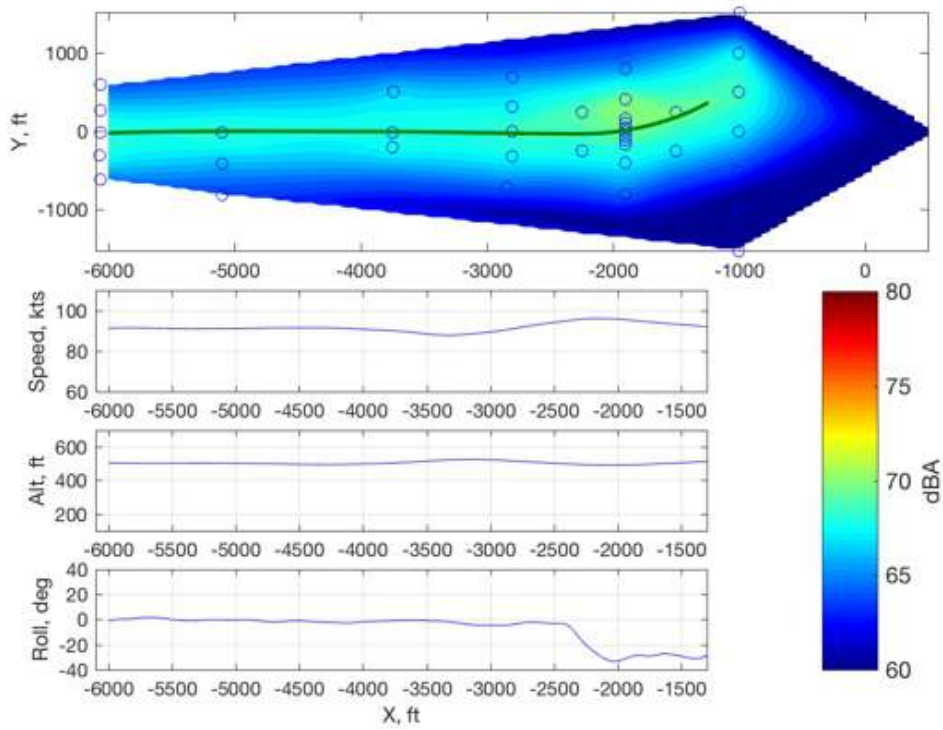


Figure 378: R66, 235587, X27, maximum dBA contour.

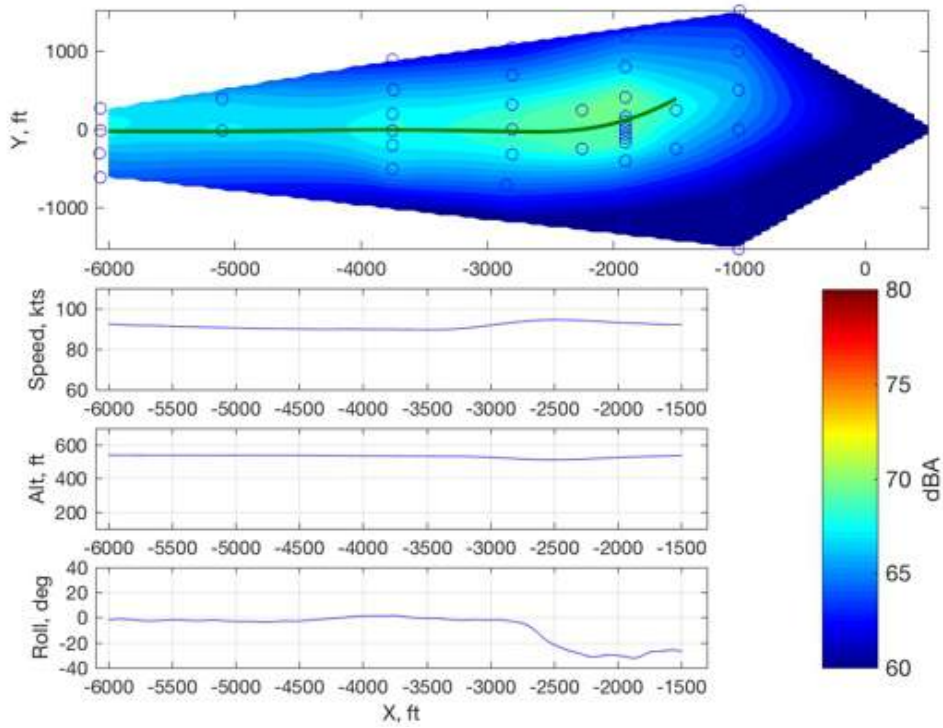


Figure 379: R66, 235588, X27, maximum dBA contour.

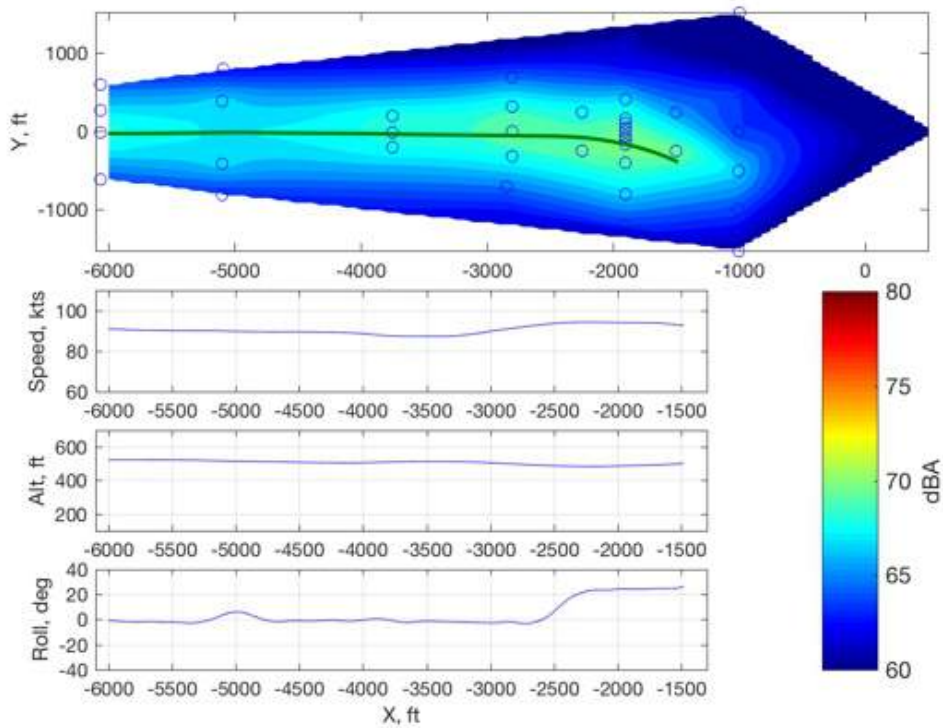


Figure 380: R66, 235589, X28, maximum dBA contour.

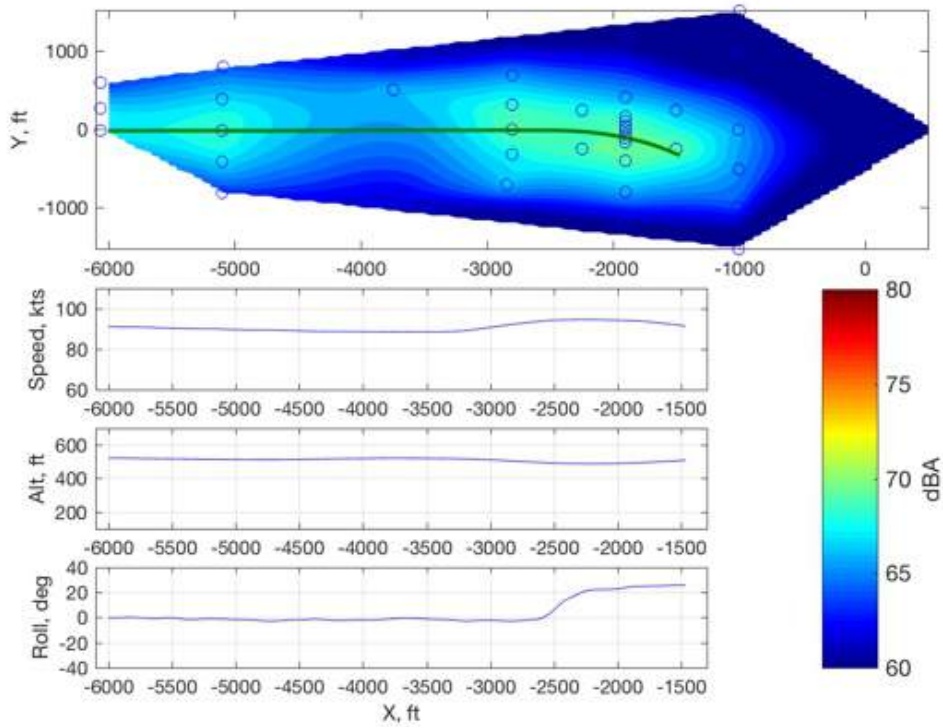


Figure 381: R66, 235590, X28, maximum dBA contour.

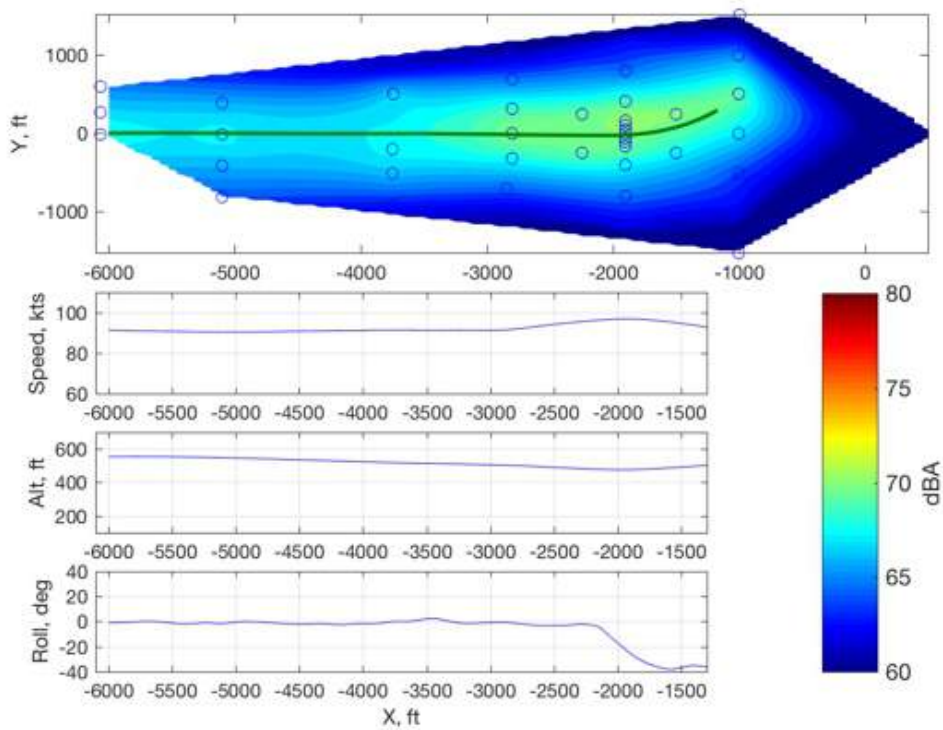


Figure 382: R66, 235591, X31, maximum dBA contour.

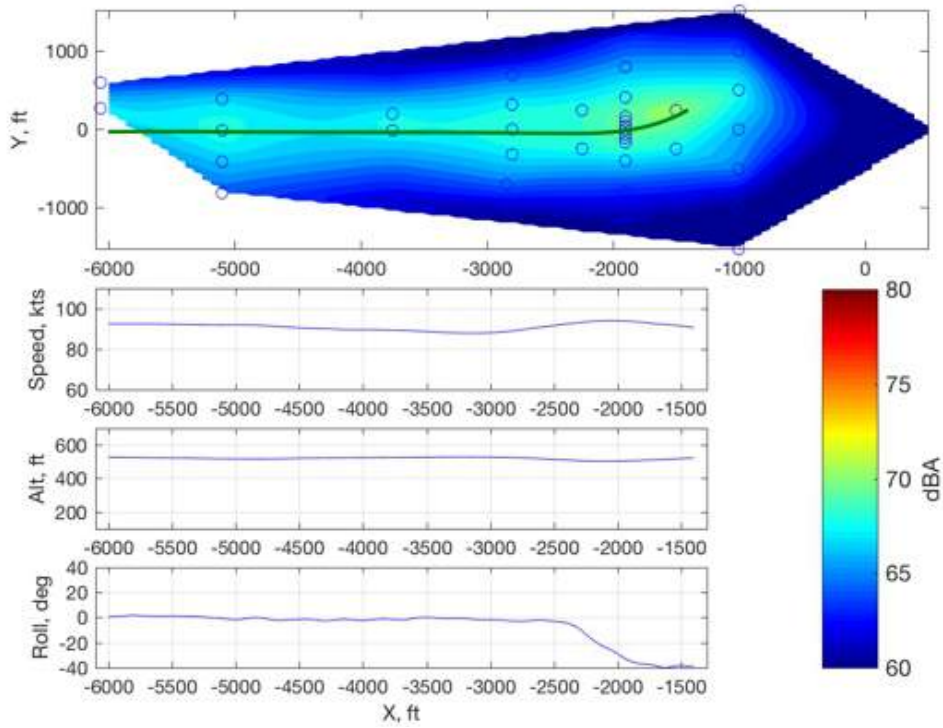


Figure 383: R66, 235592, X31, maximum dBA contour.

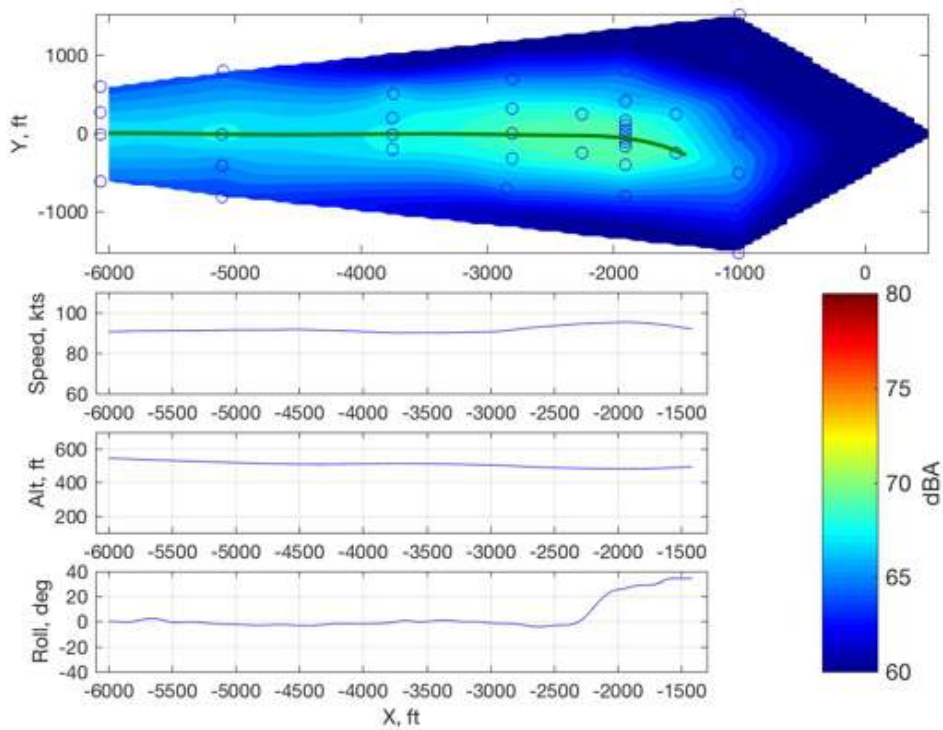


Figure 384: R66, 235593, X32, maximum dBA contour.

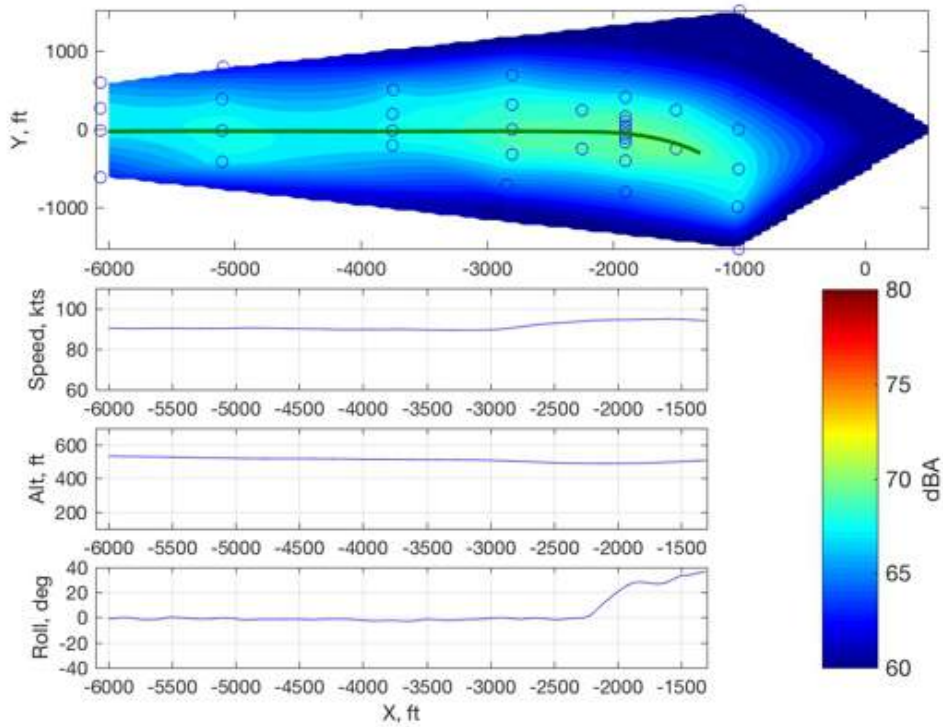


Figure 385: R66, 235594, X32, maximum dBA contour.

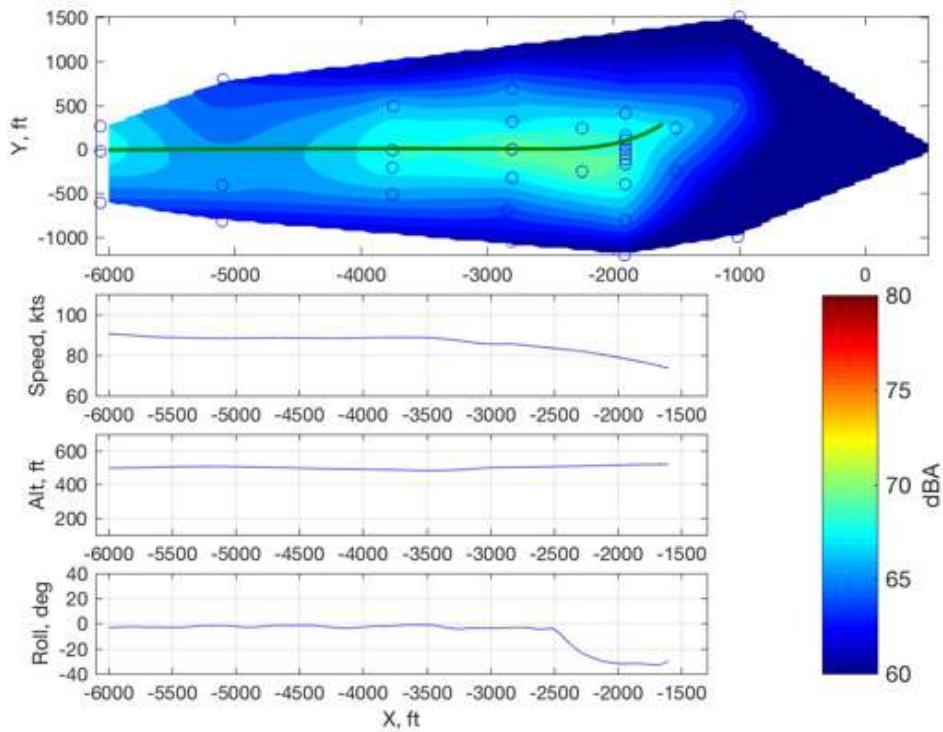


Figure 386: R66, 235595, X39, maximum dBA contour.

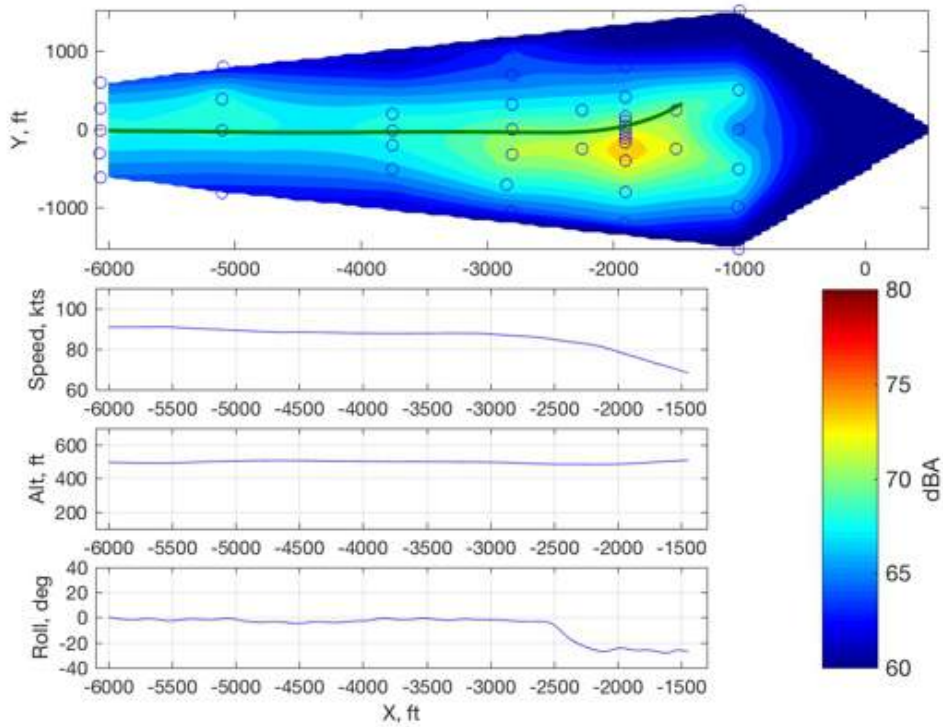


Figure 387: R66, 235596, X39, maximum dBA contour.

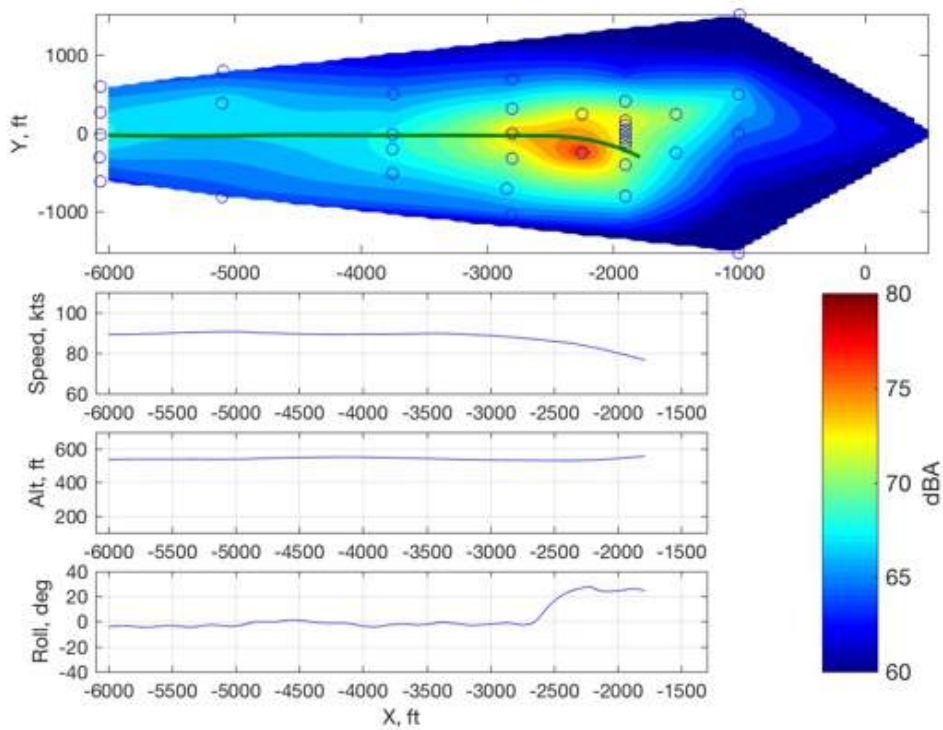


Figure 388: R66, 235597, X40, maximum dBA contour.

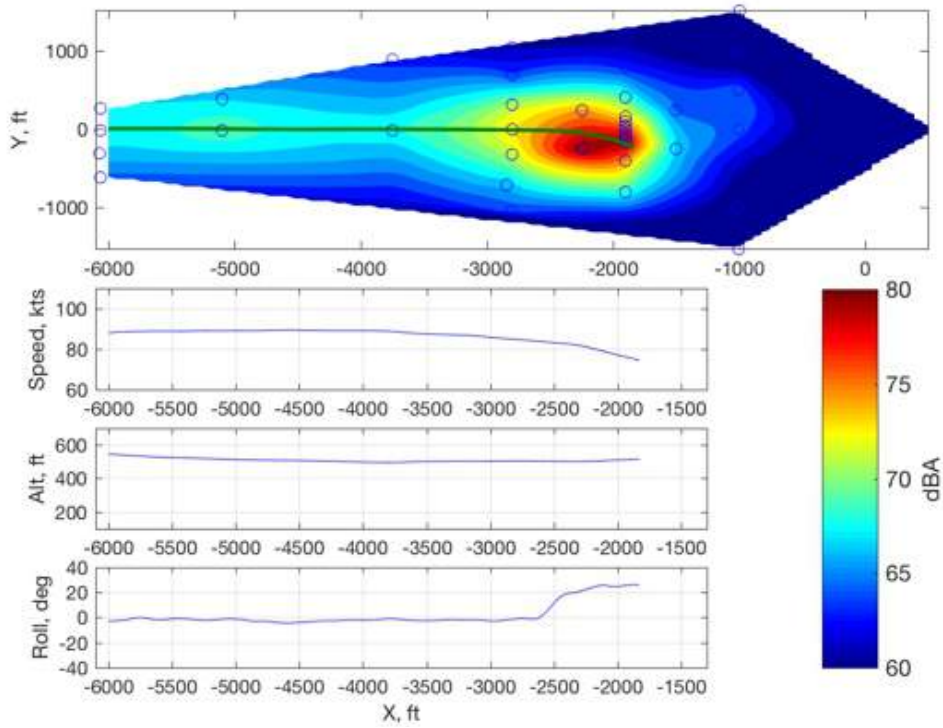


Figure 389: R66, 235598, X40, maximum dBA contour.

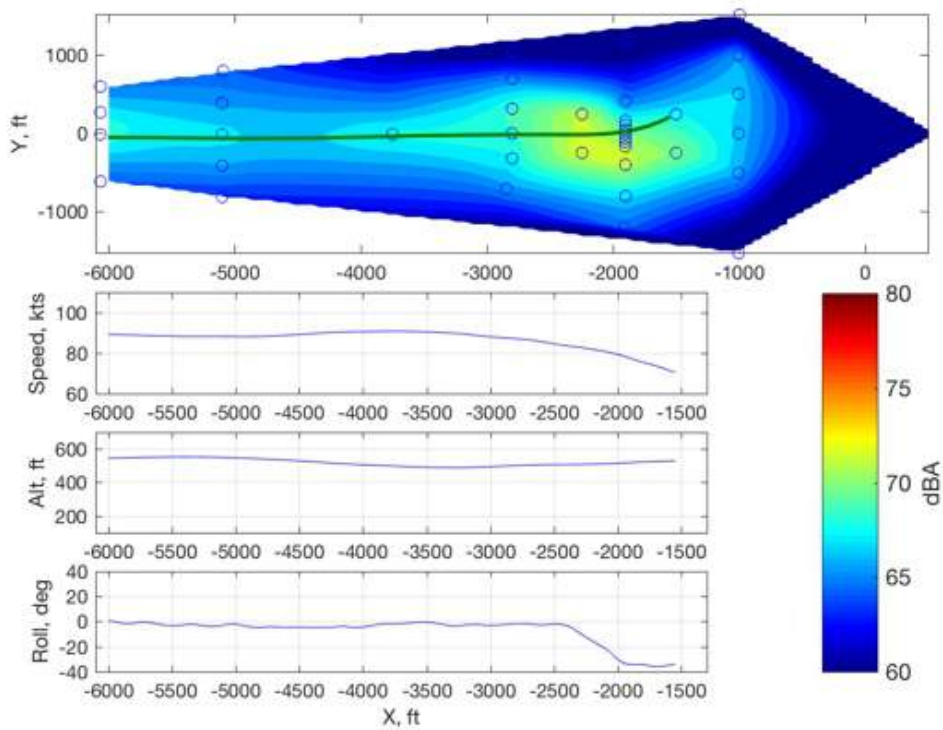


Figure 390: R66, 235599, X43, maximum dBA contour.

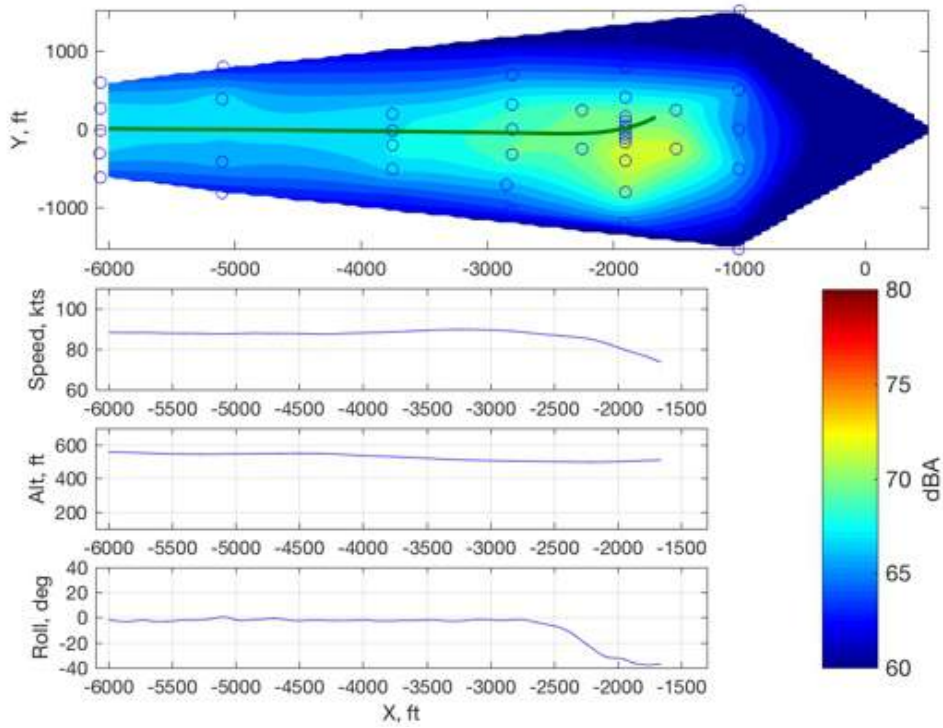


Figure 391: R66, 235600, X43, maximum dBA contour.

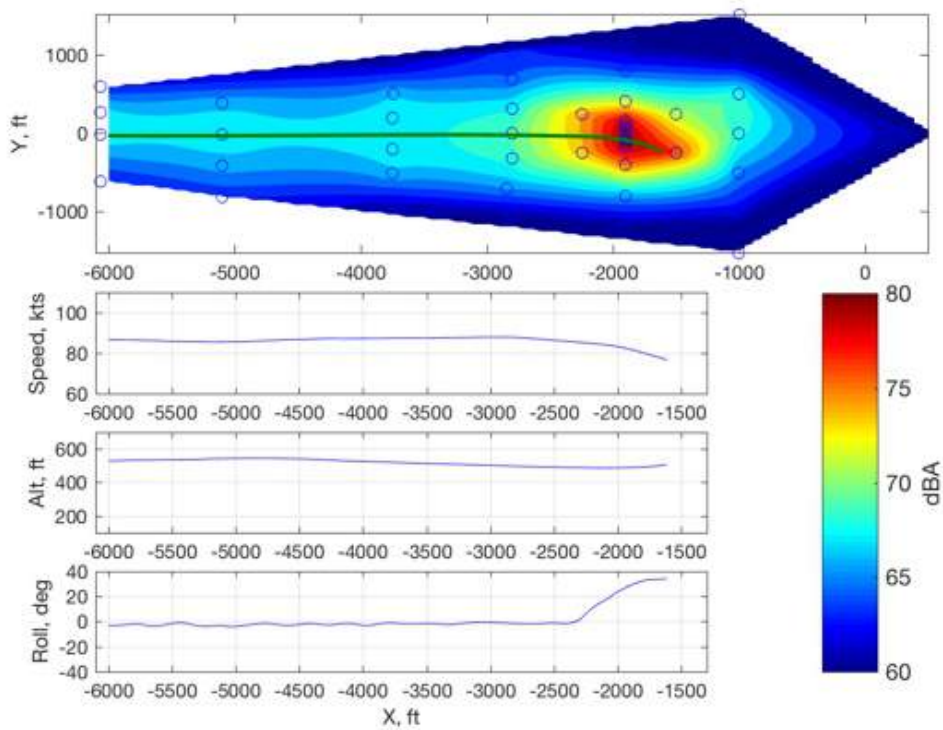


Figure 392: R66, 235601, X44, maximum dBA contour.

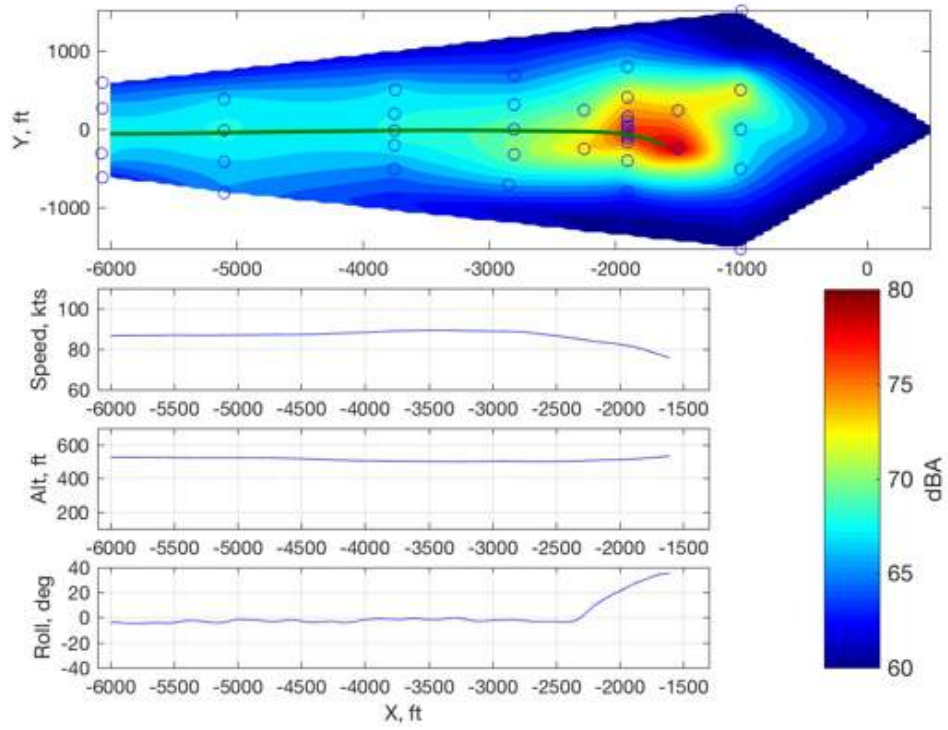


Figure 393: R66, 235602, X44, maximum dBA contour.

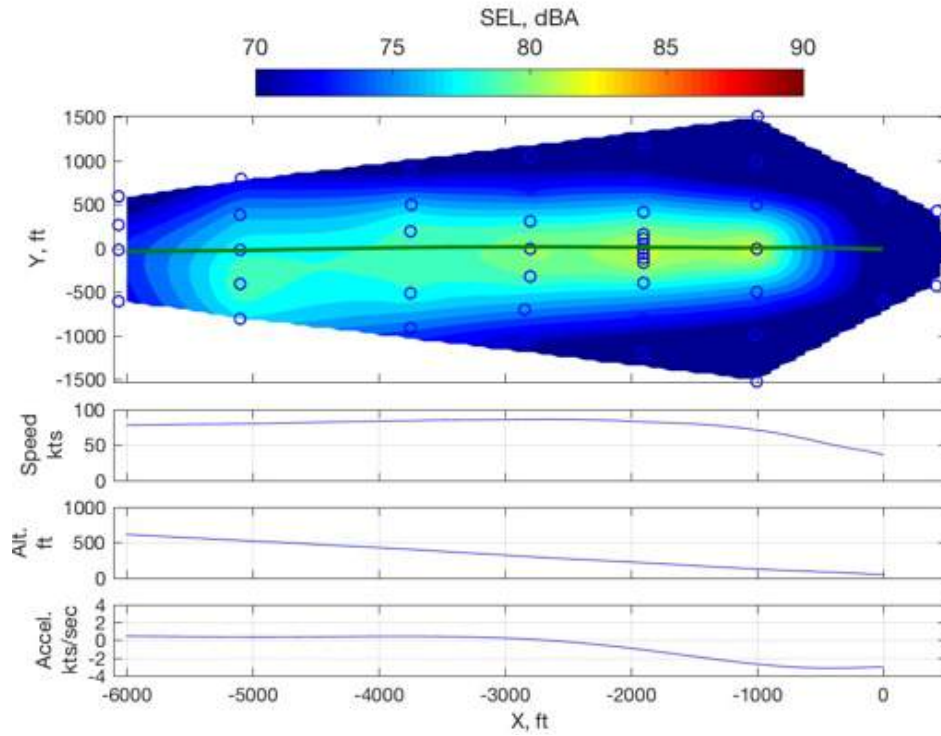


Figure 394: R66, A9, run 236659 A-Weighted SEL contour.

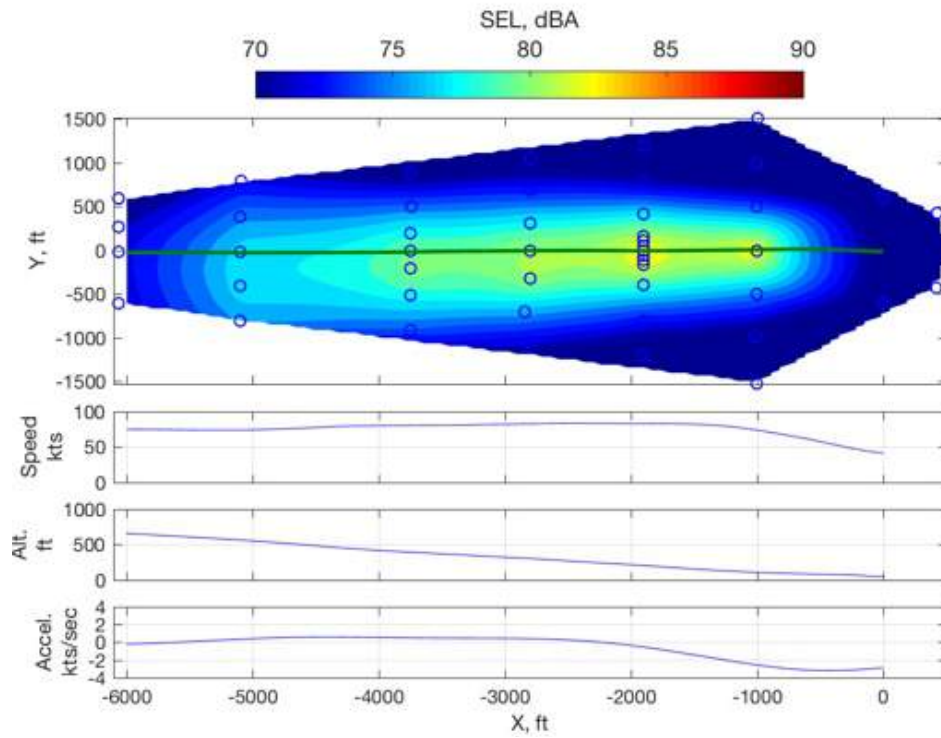


Figure 395: R66, A9, run 236660 A-Weighted SEL contour.

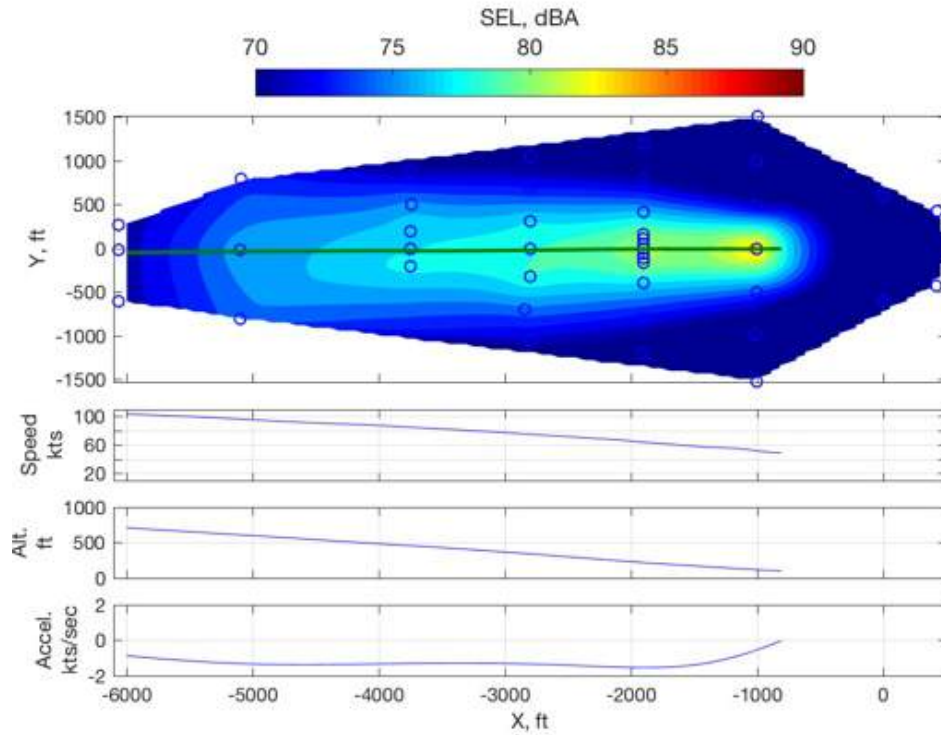


Figure 396: R66, A20, run 236649 A-Weighted SEL contour.

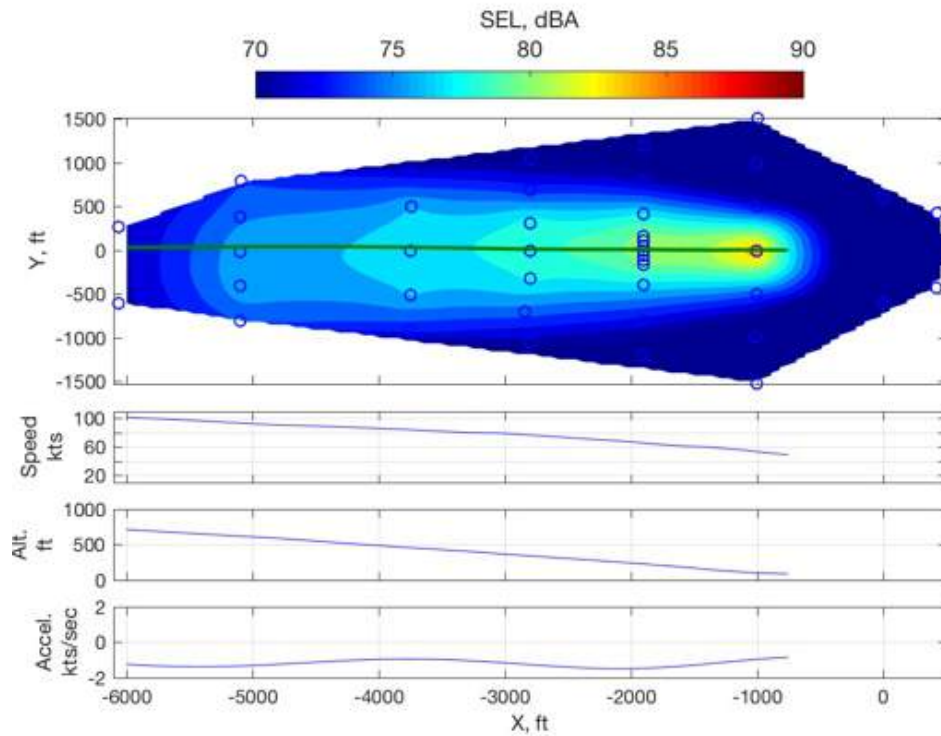


Figure 397: R66, A20, run 236650 A-Weighted SEL contour.

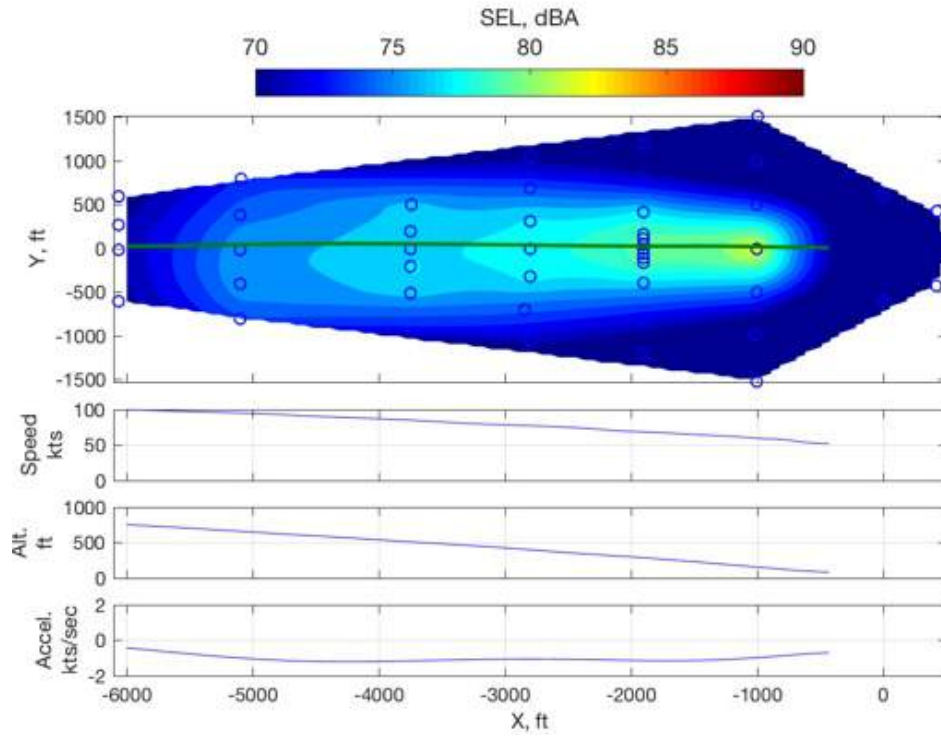


Figure 398: R66, A20, run 236651 A-Weighted SEL contour.

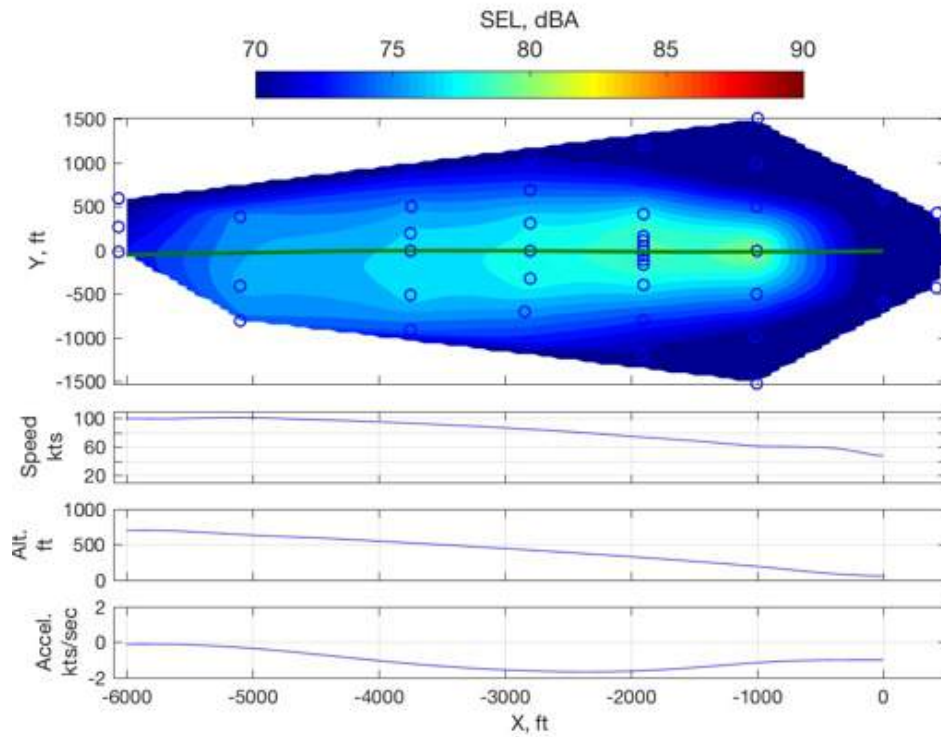


Figure 399: R66, A21, run 236652 A-Weighted SEL contour.

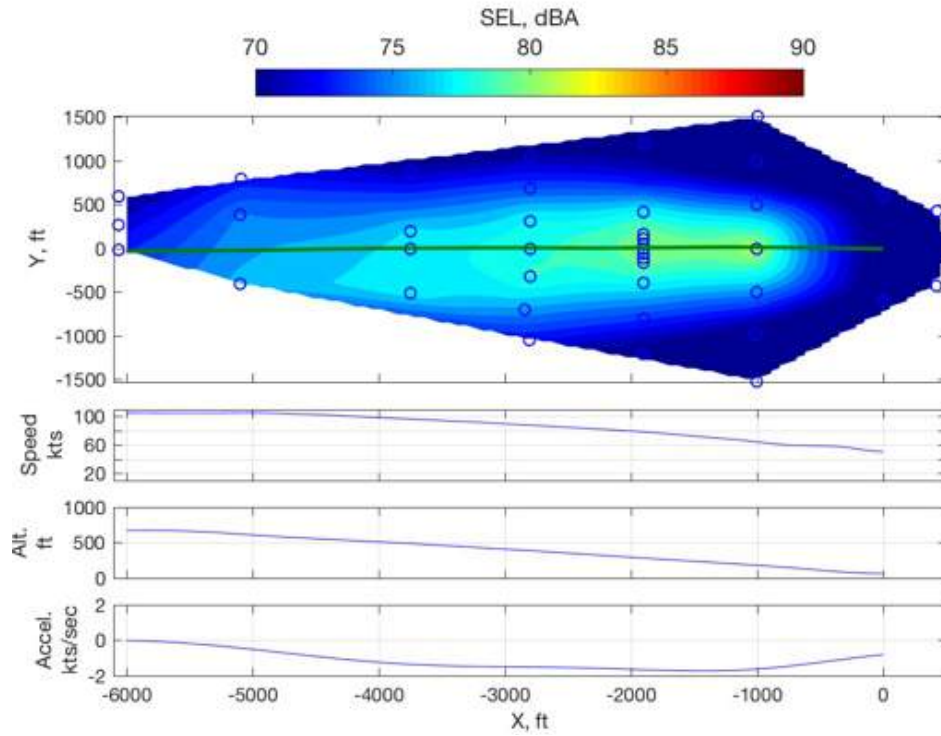


Figure 400: R66, A21, run 236653 A-Weighted SEL contour.

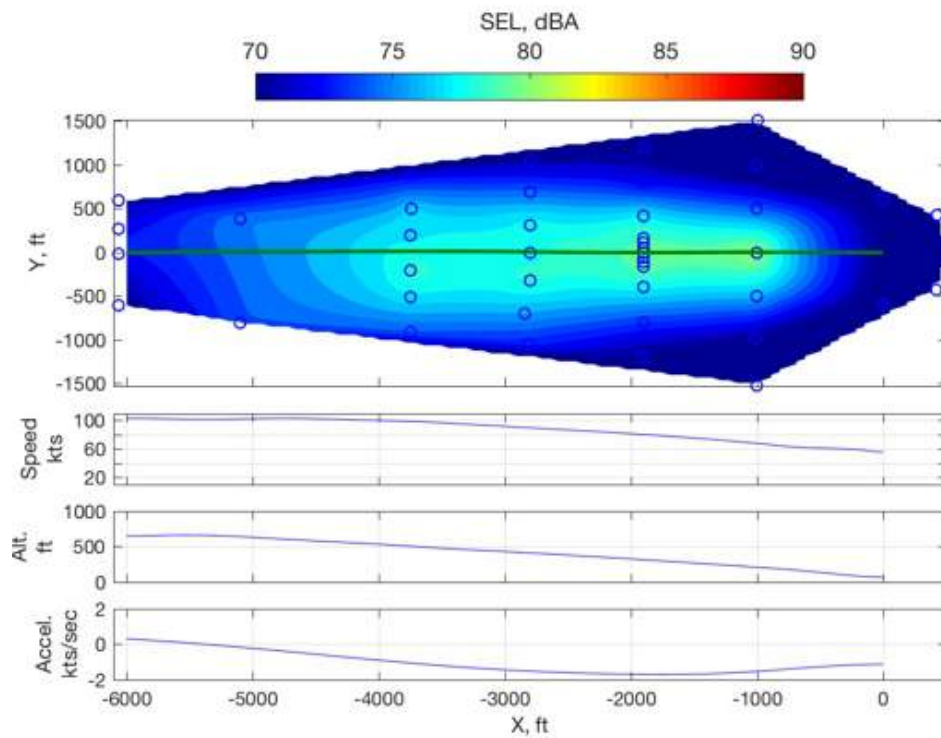


Figure 401: R66, A21, run 236654 A-Weighted SEL contour.

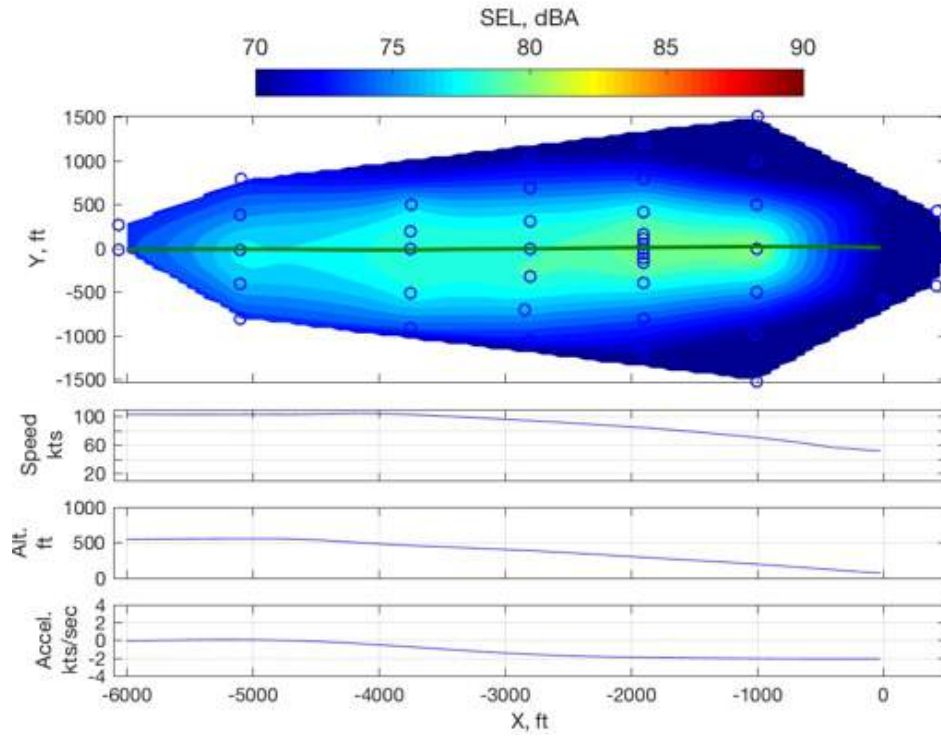


Figure 402: R66, A22, run 236655 A-Weighted SEL contour.

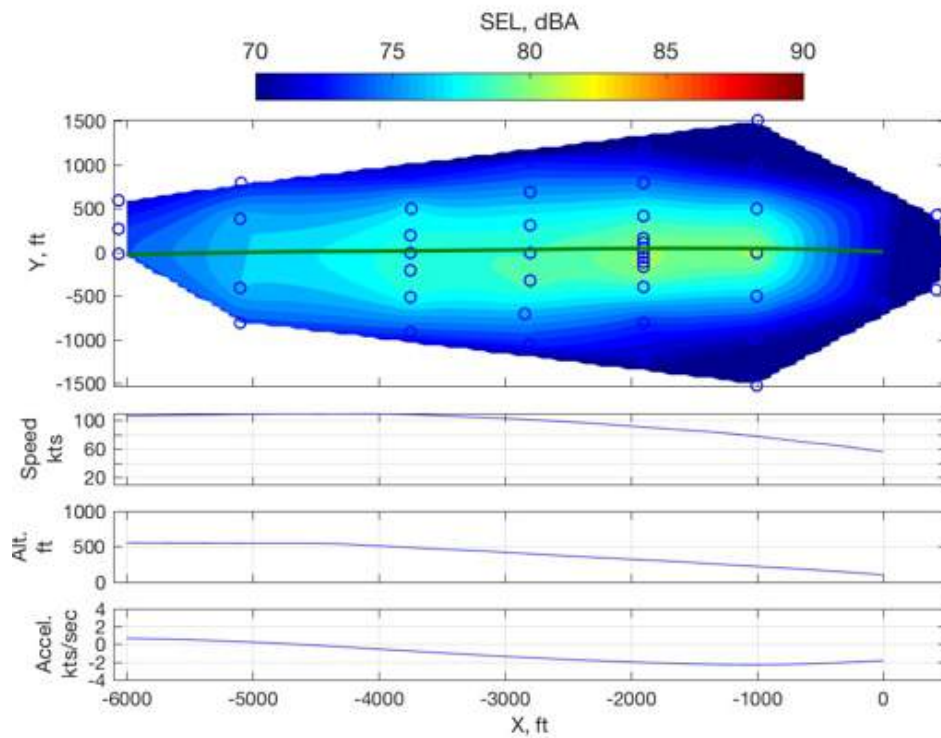


Figure 403: R66, A22, run 236656 A-Weighted SEL contour.

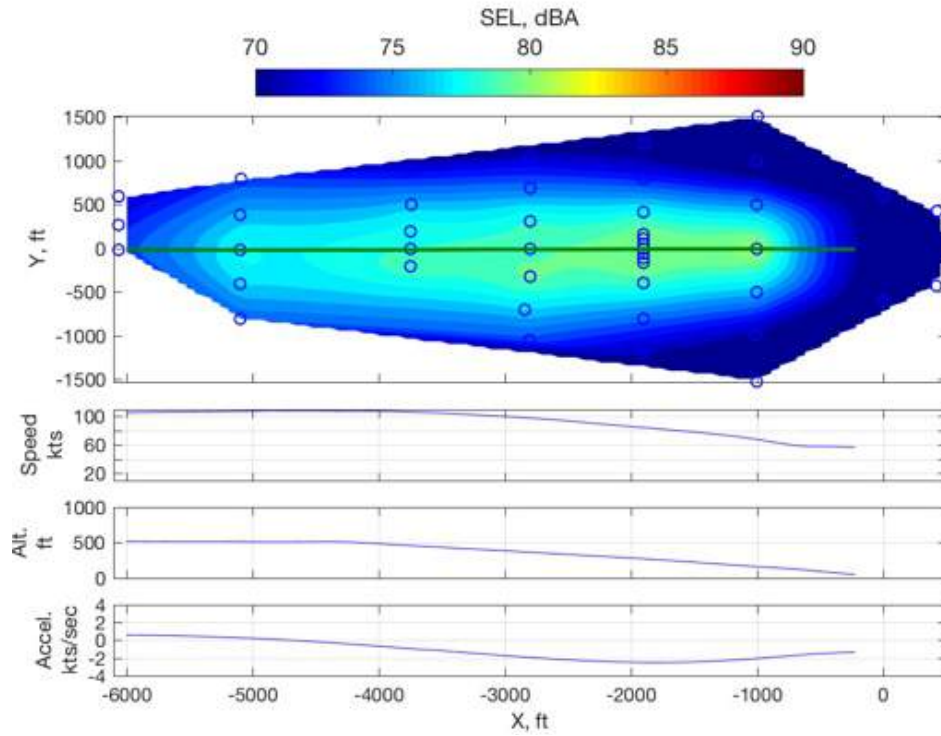


Figure 404: R66, A22, run 236657 A-Weighted SEL contour.

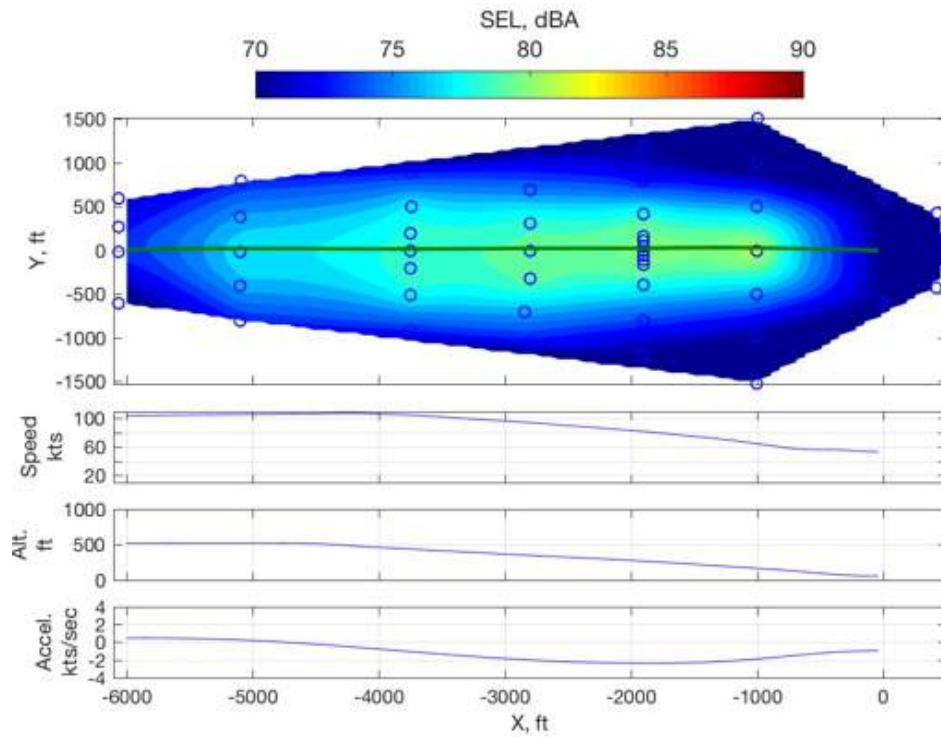


Figure 405: R66, A22, run 236658 A-Weighted SEL contour.

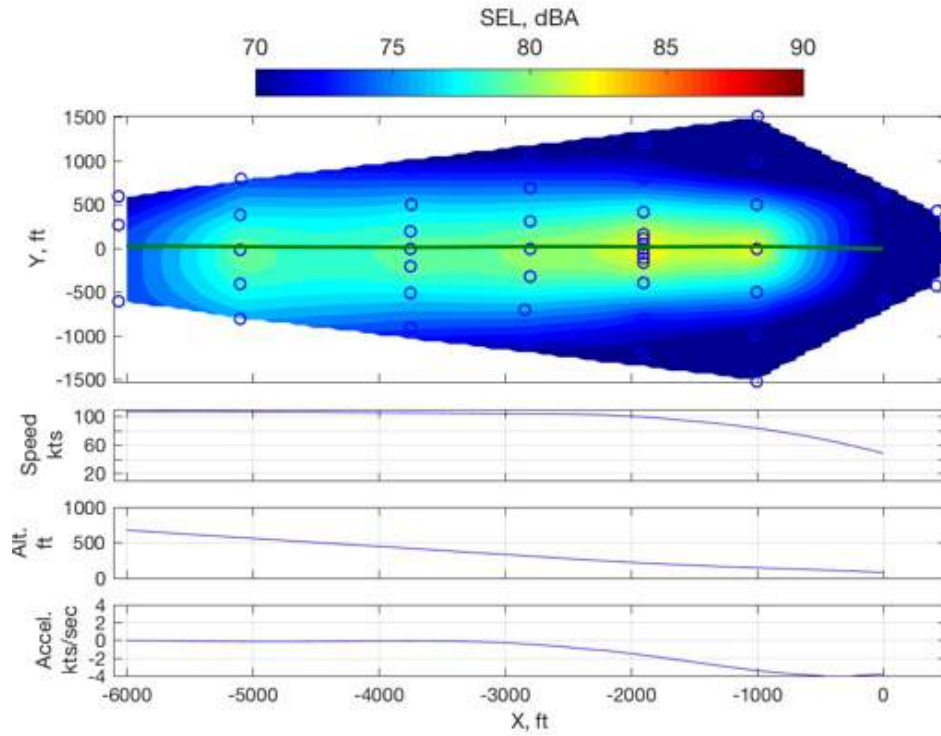


Figure 406: R66, A25, run 236666 A-Weighted SEL contour.

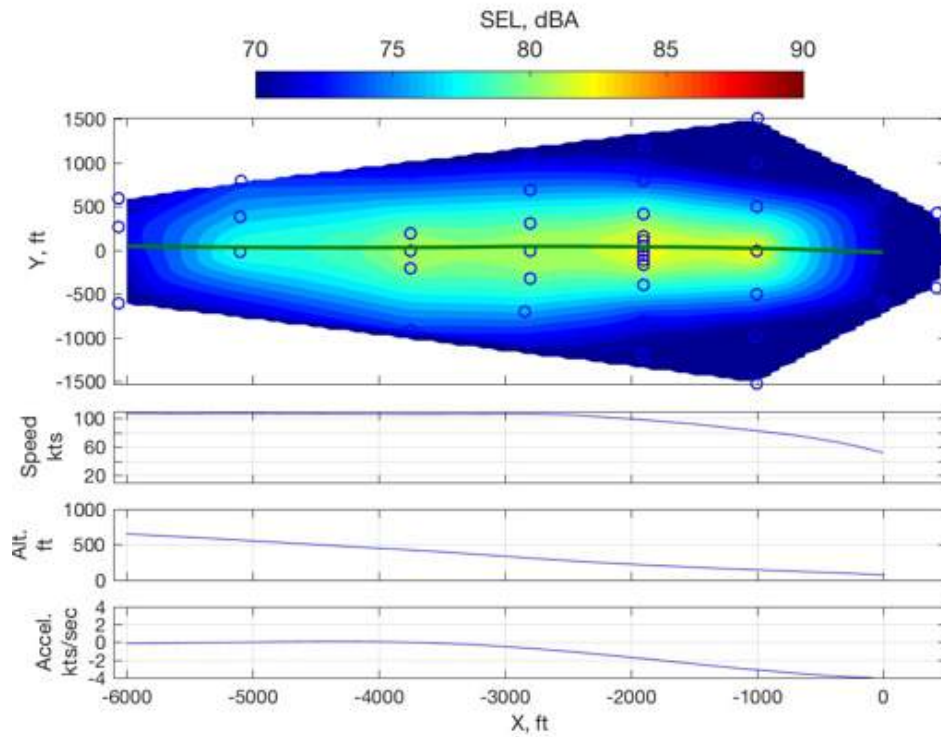


Figure 407: R66, A25, run 236667 A-Weighted SEL contour.

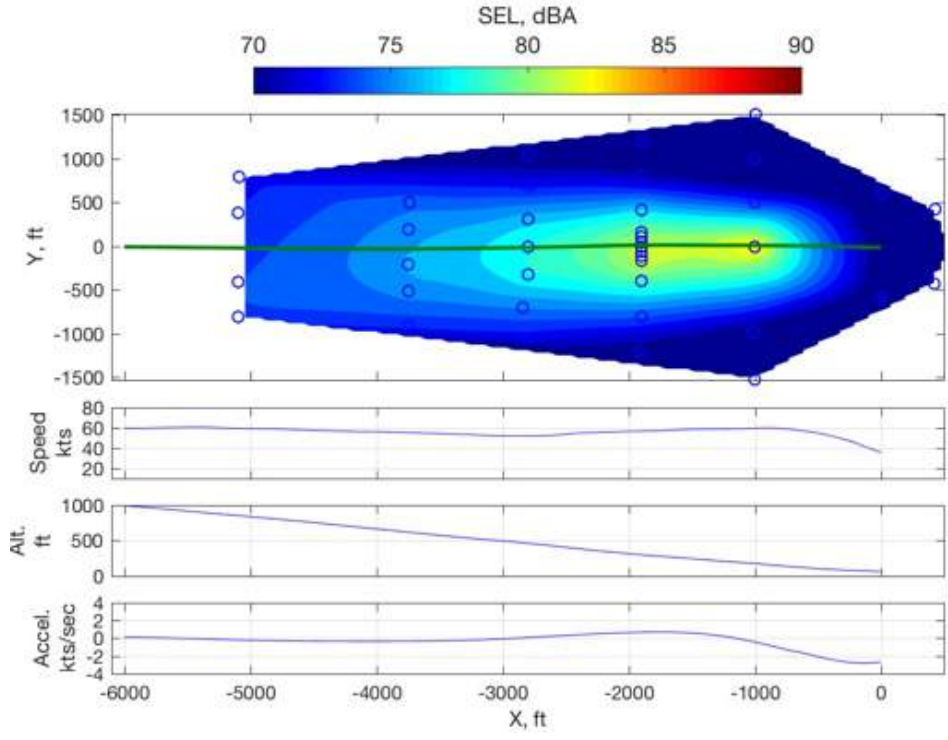


Figure 408: R66, A26, run 236668 A-Weighted SEL contour.

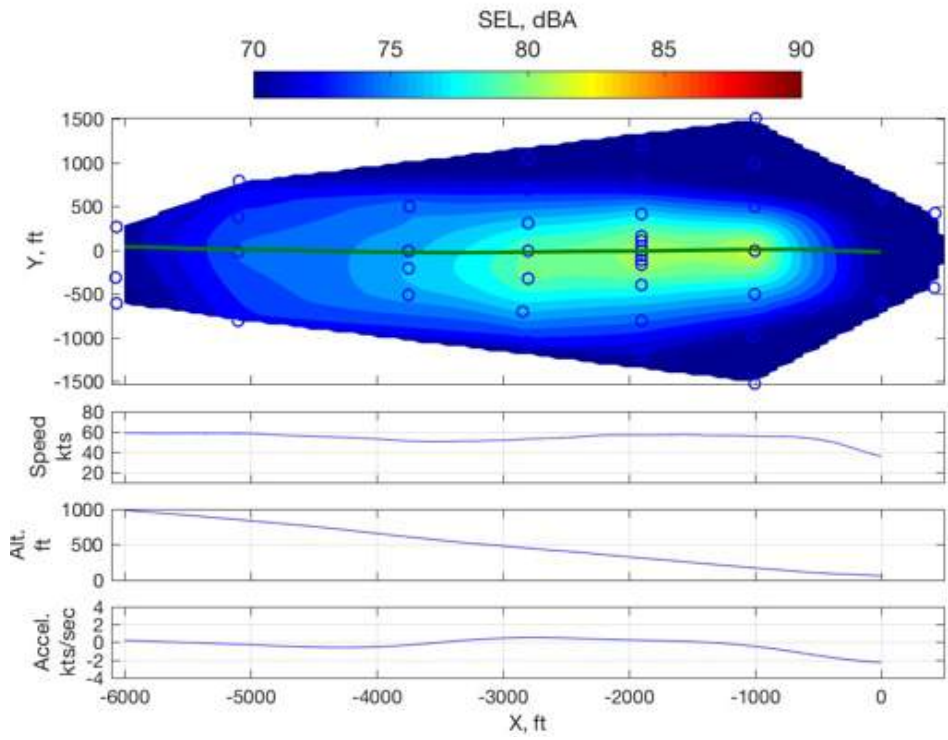


Figure 409: R66, A26, run 236669 A-Weighted SEL contour.

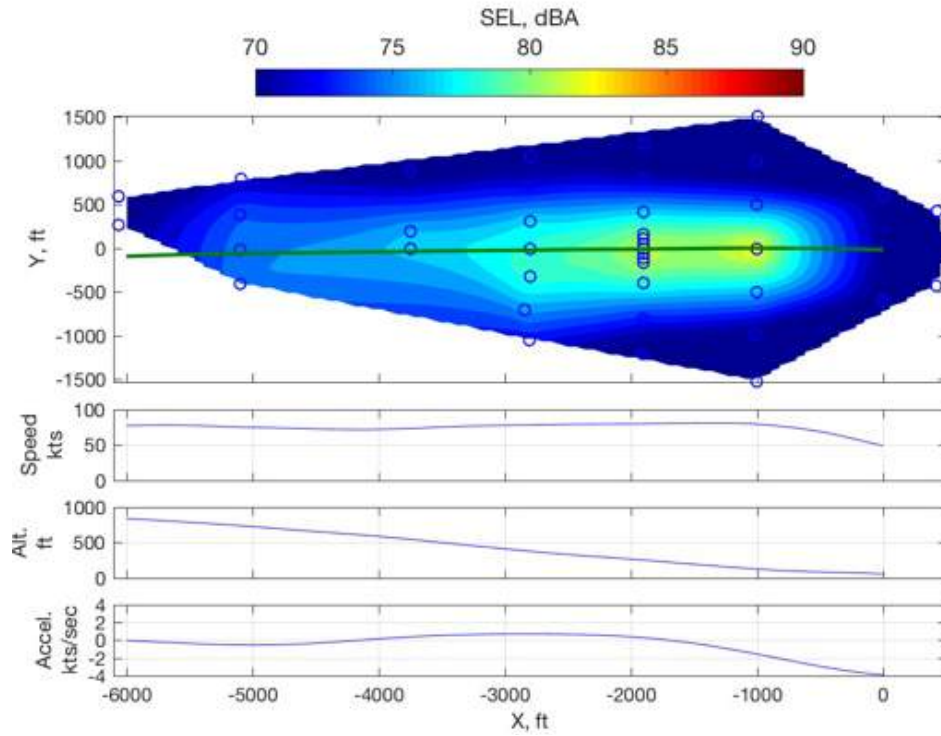


Figure 410: R66, A28, run 236661 A-Weighted SEL contour.

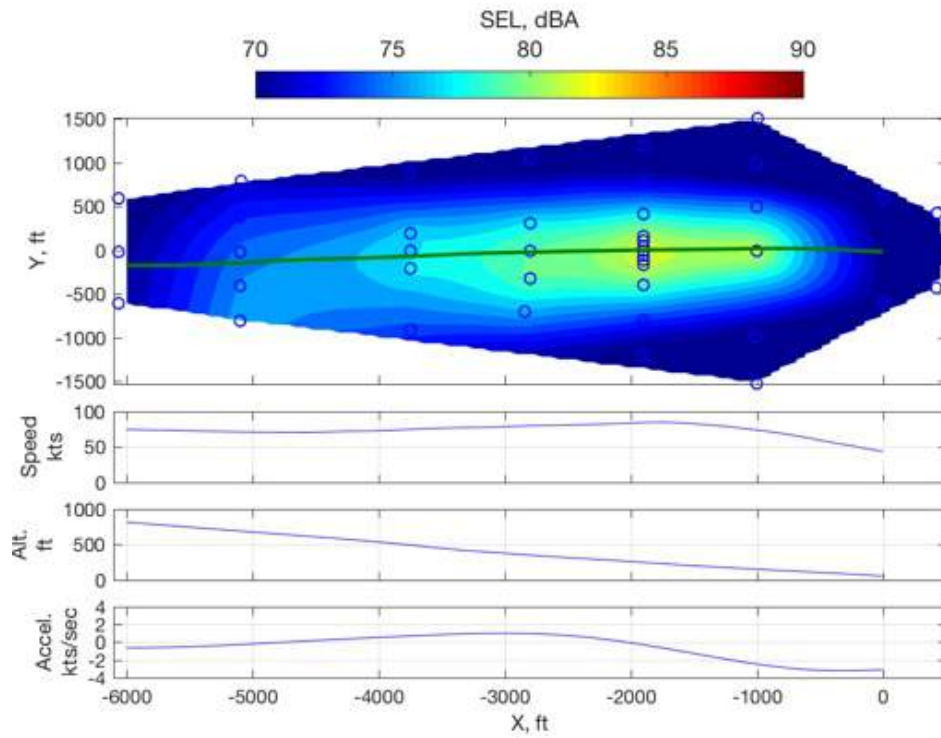


Figure 411: R66, A28, run 236662 A-Weighted SEL contour.

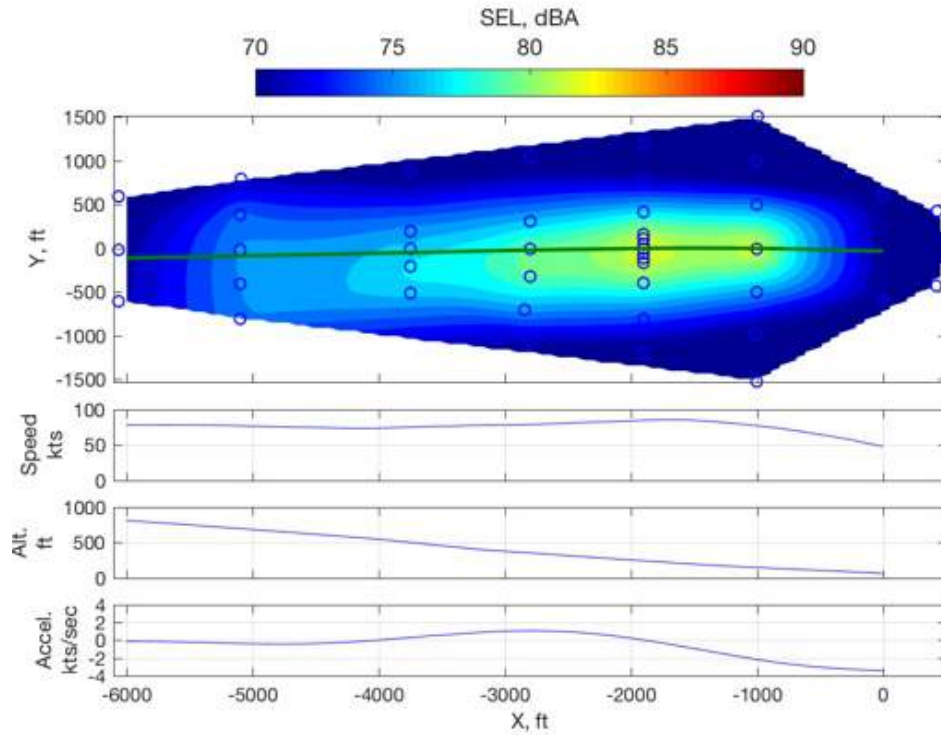


Figure 412: R66, A28, run 236663 A-Weighted SEL contour.

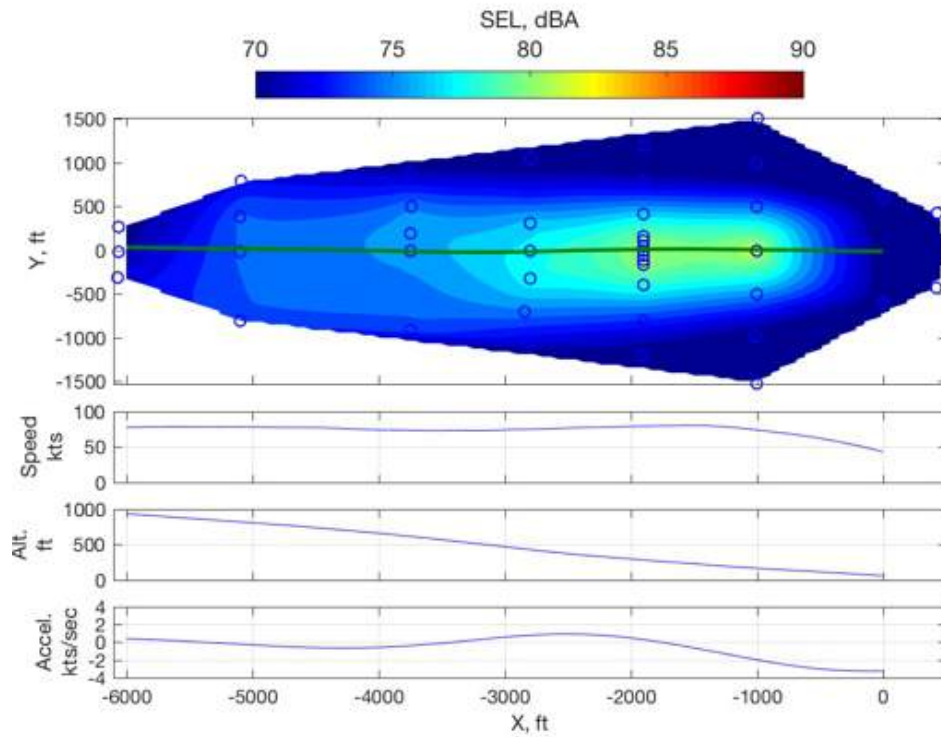


Figure 413: R66, A29, run 236664 A-Weighted SEL contour.

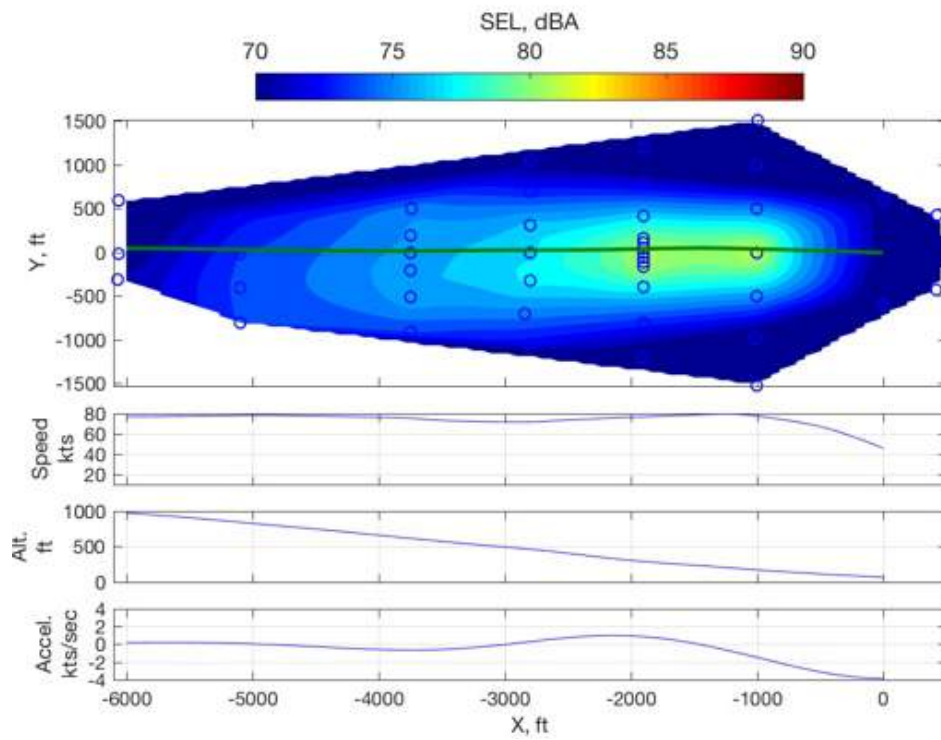


Figure 414: R66, A29, run 236665 A-Weighted SEL contour.

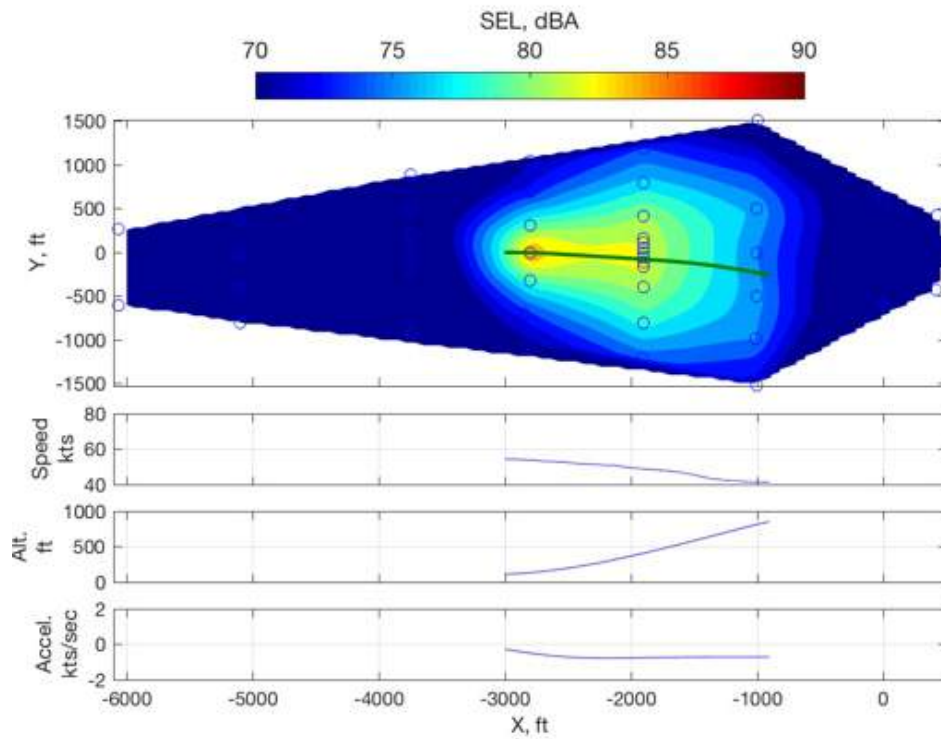


Figure 415: R66, C1, run 236670 A-Weighted SEL contour.

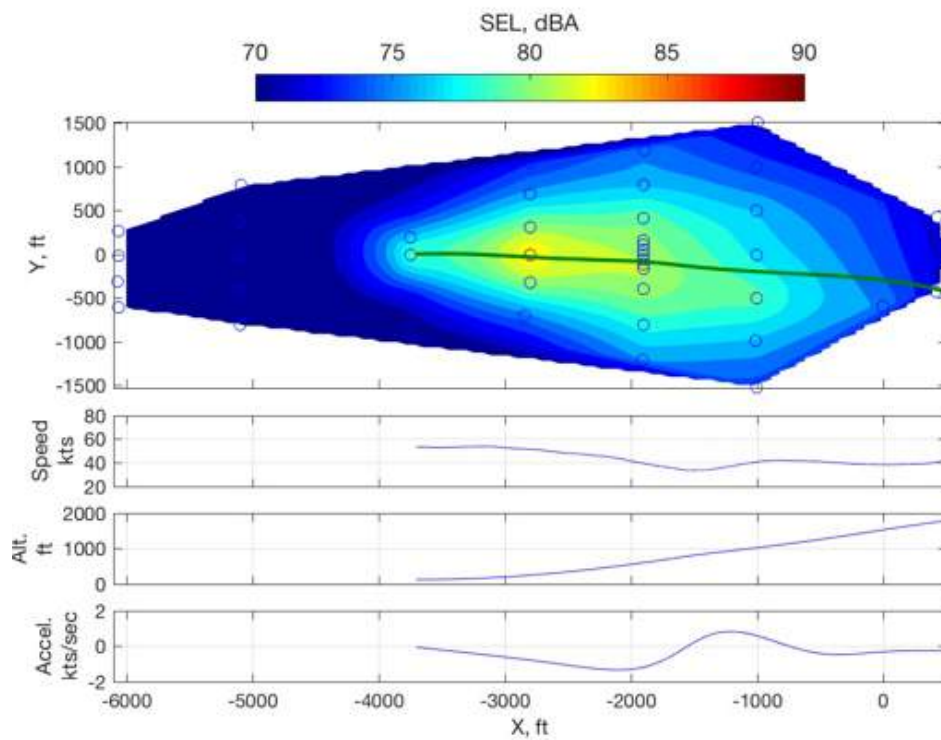


Figure 416: R66, C1, run 236671 A-Weighted SEL contour.

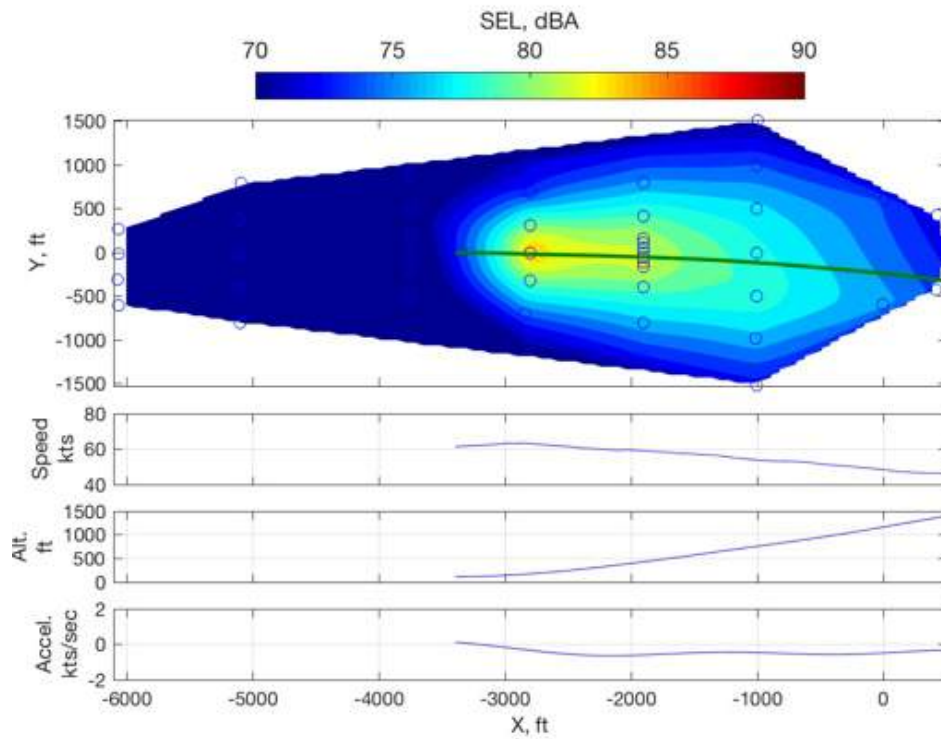


Figure 417: R66, C2, run 236672 A-Weighted SEL contour.

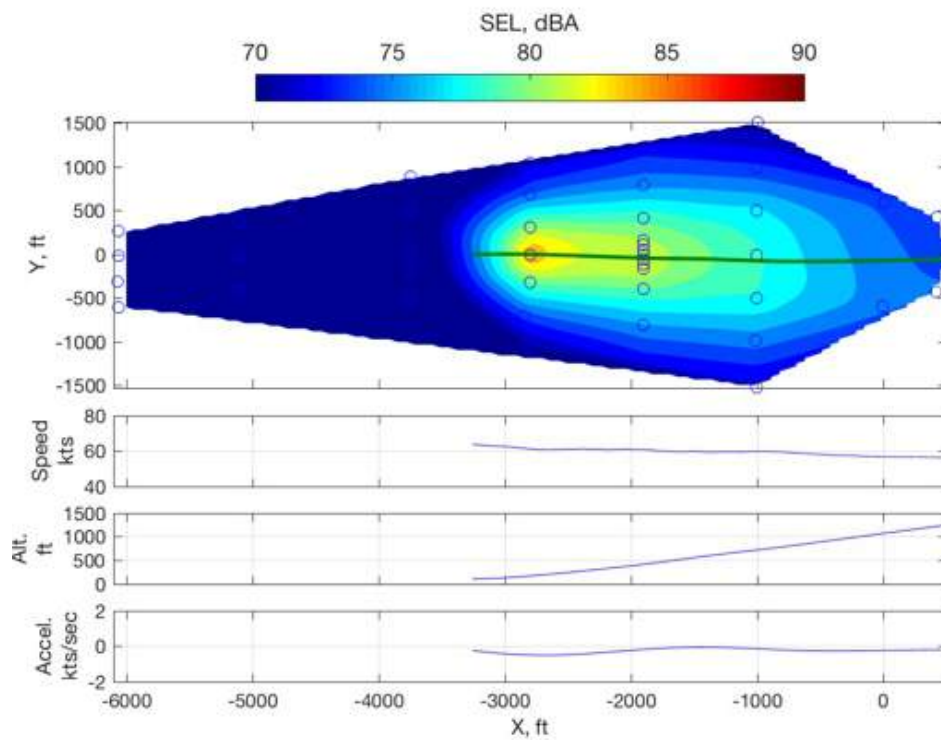


Figure 418: R66, C2, run 236673 A-Weighted SEL contour.

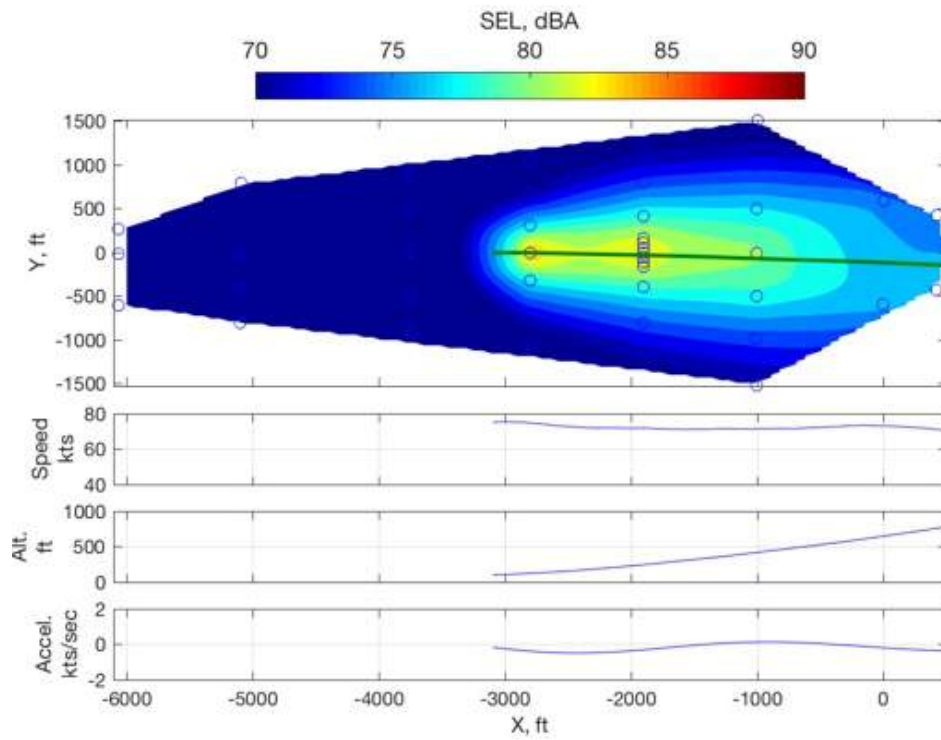


Figure 419: R66, C3, run 236674 A-Weighted SEL contour.

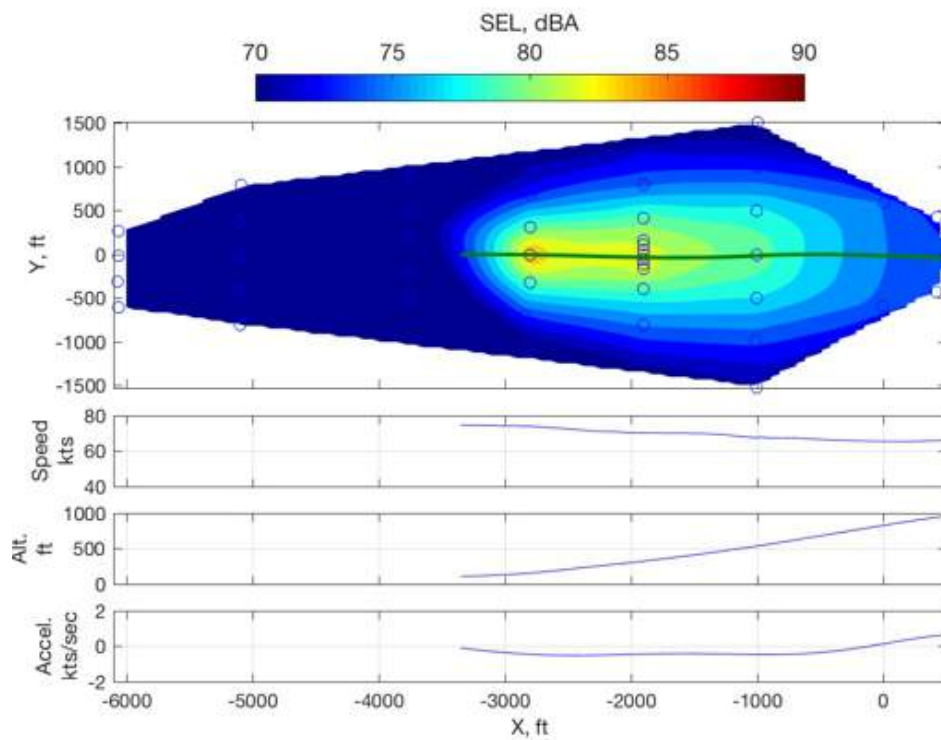


Figure 420: R66, C3, run 236675 A-Weighted SEL contour.

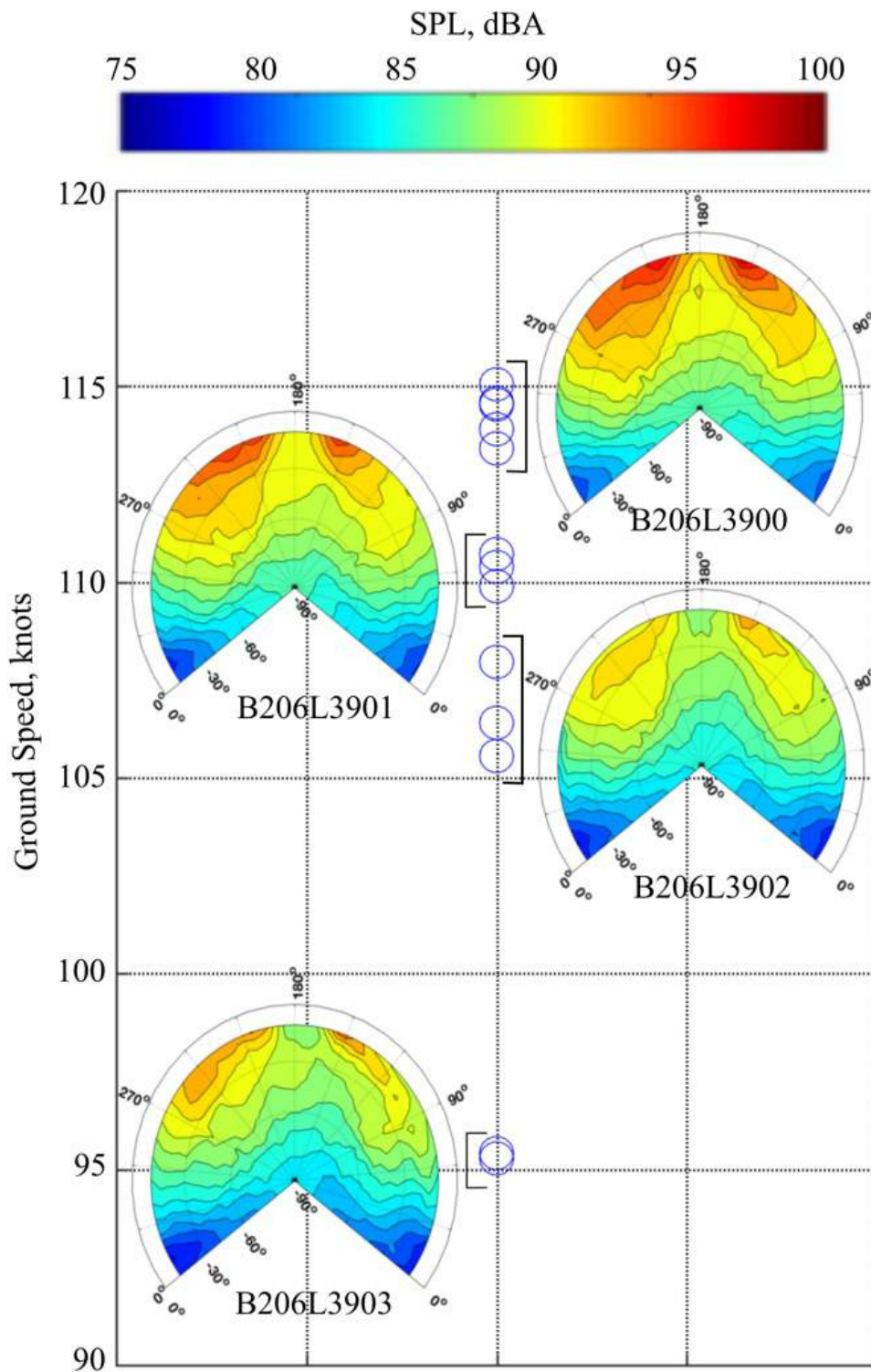


Figure 421: B206L3 average level flight source noise hemispheres, higher speed range.

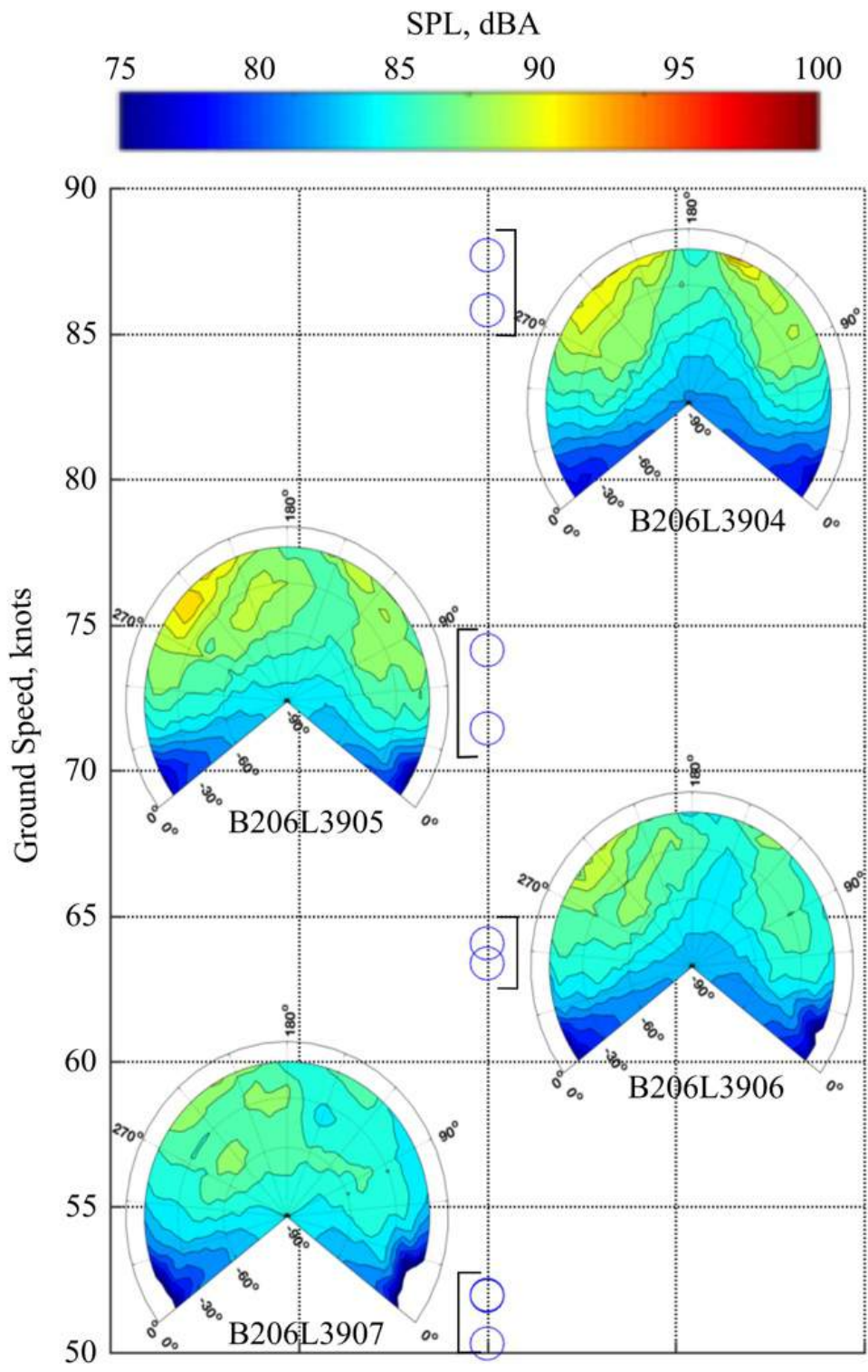


Figure 422: B206L3 average level flight source noise hemispheres, lower speed range.

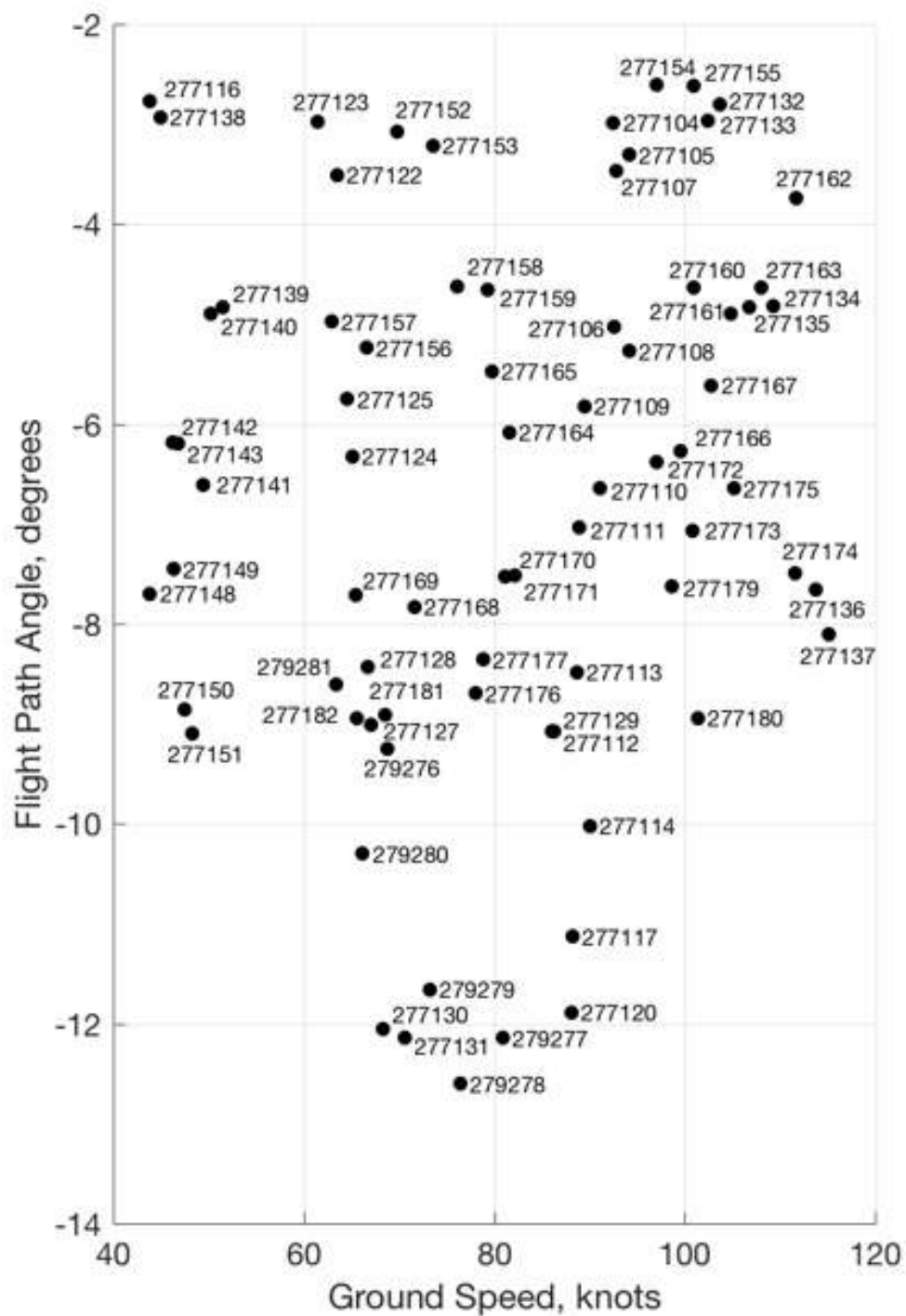


Figure 423: B206L3 source noise descent conditions flown.

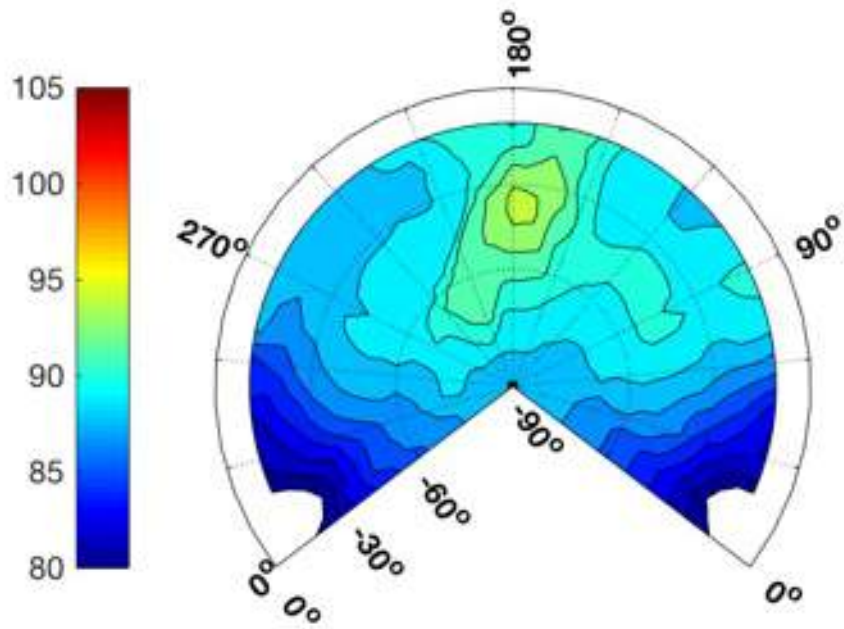


Figure 424: B206L3, 277104, D4, dBA hemisphere, ground speed 92.5 kts, -3.0° FPA.

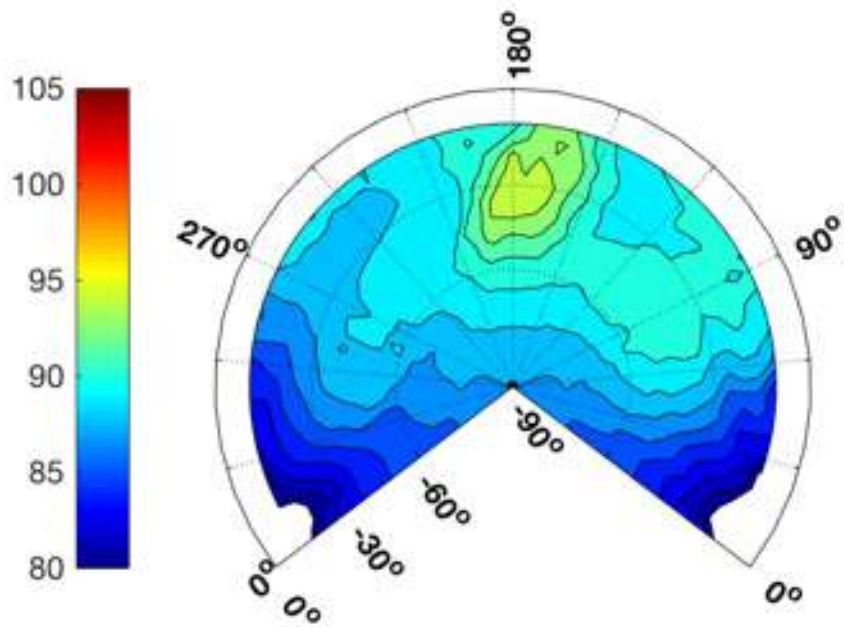


Figure 425: B206L3, 277105, D4, dBA hemisphere, ground speed 94.2 kts, -3.3° FPA.

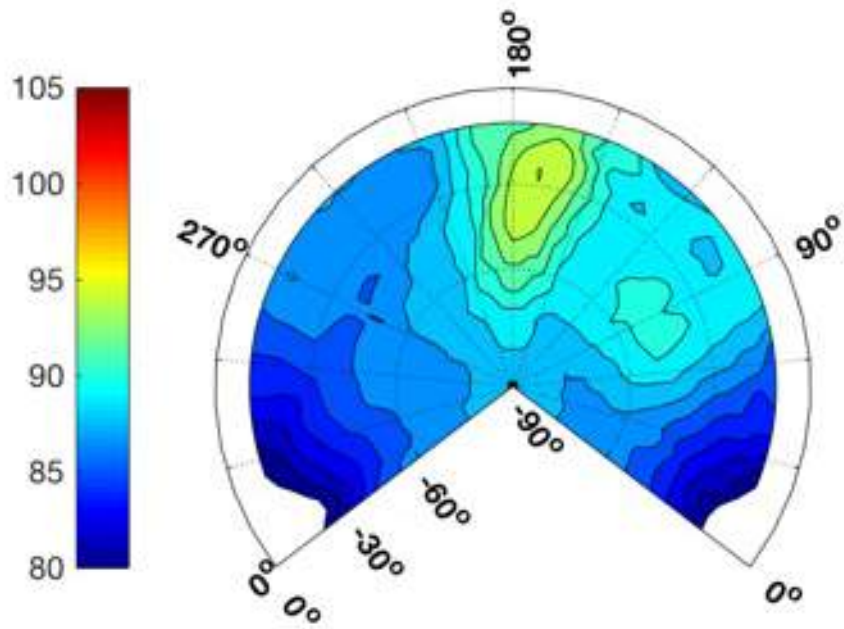


Figure 426: B206L3, 277106, D9, dBA hemisphere, ground speed 92.6 kts, -5.0° FPA.

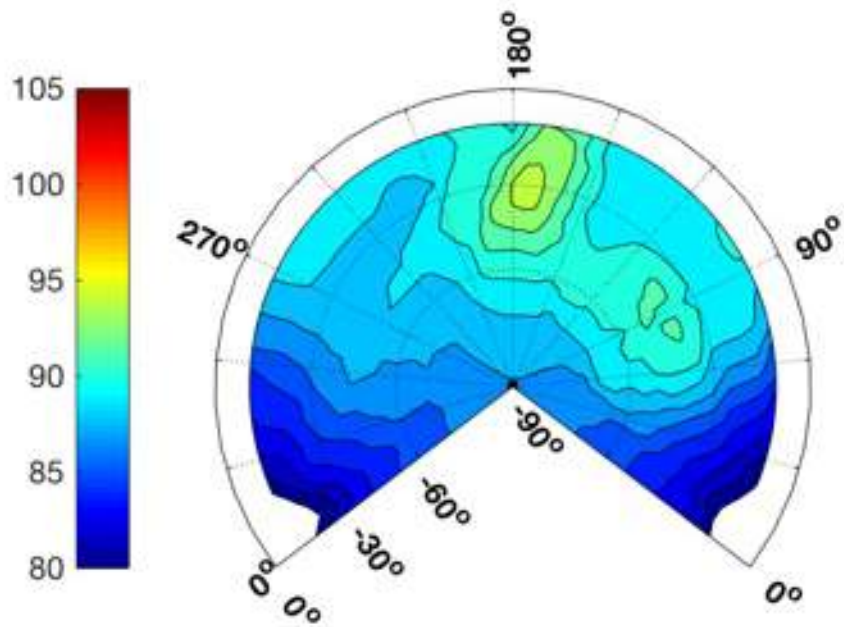


Figure 427: B206L3, 277107, D9, dBA hemisphere, ground speed 92.8 kts, -3.5° FPA.

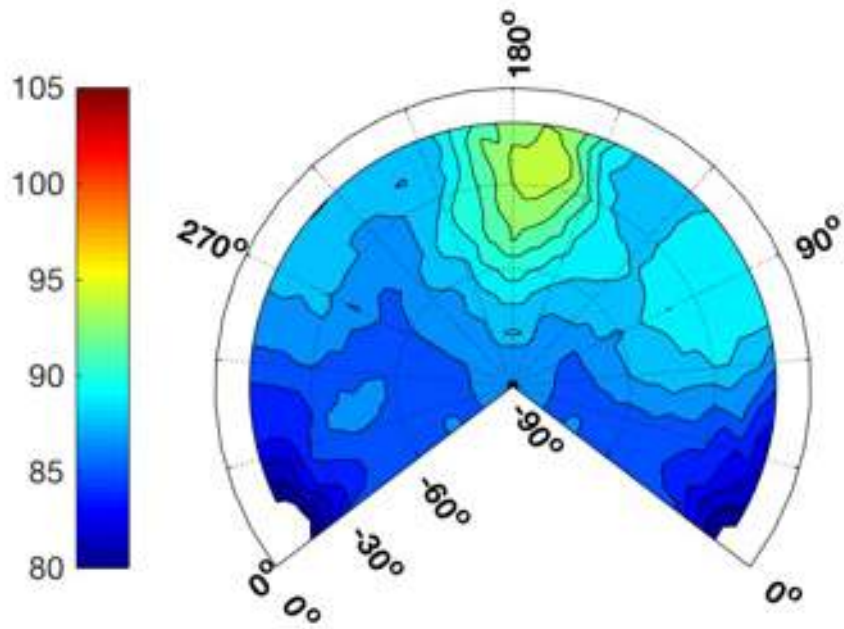


Figure 428: B206L3, 277108, D14, dBA hemisphere, ground speed 94.1 kts, -5.3° FPA.

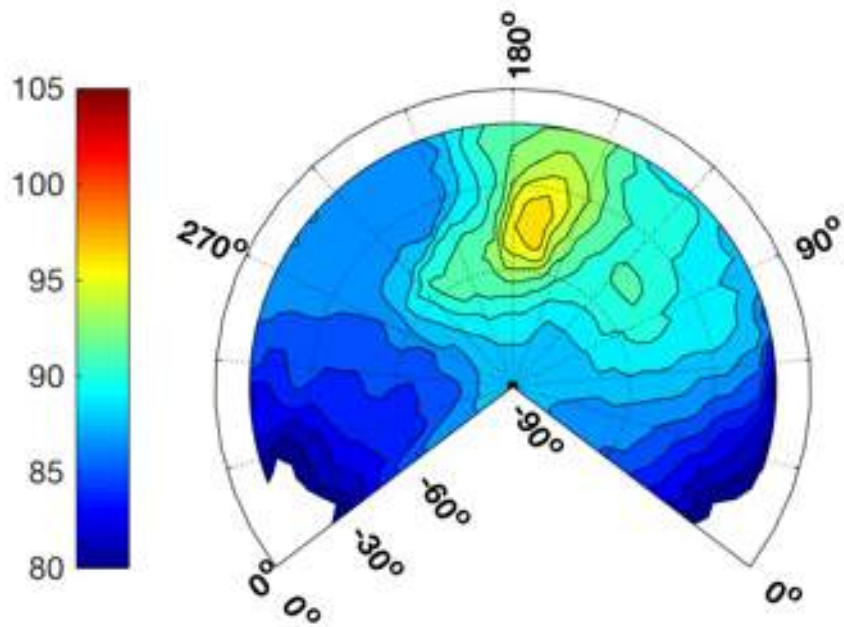


Figure 429: B206L3, 277109, D14, dBA hemisphere, ground speed 89.5 kts, -5.8° FPA.

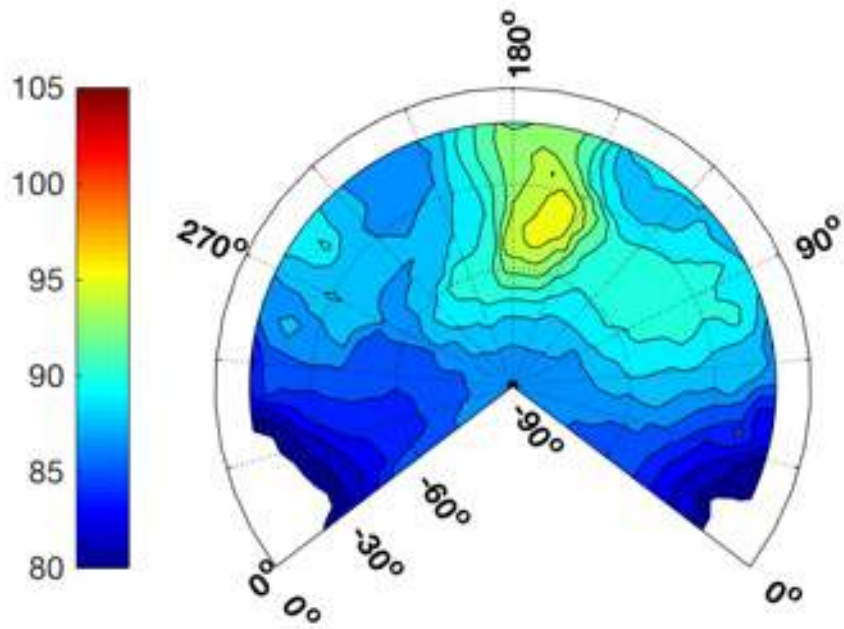


Figure 430: B206L3, 277110, D19, dBA hemisphere, ground speed 91.1 kts, -6.6° FPA.

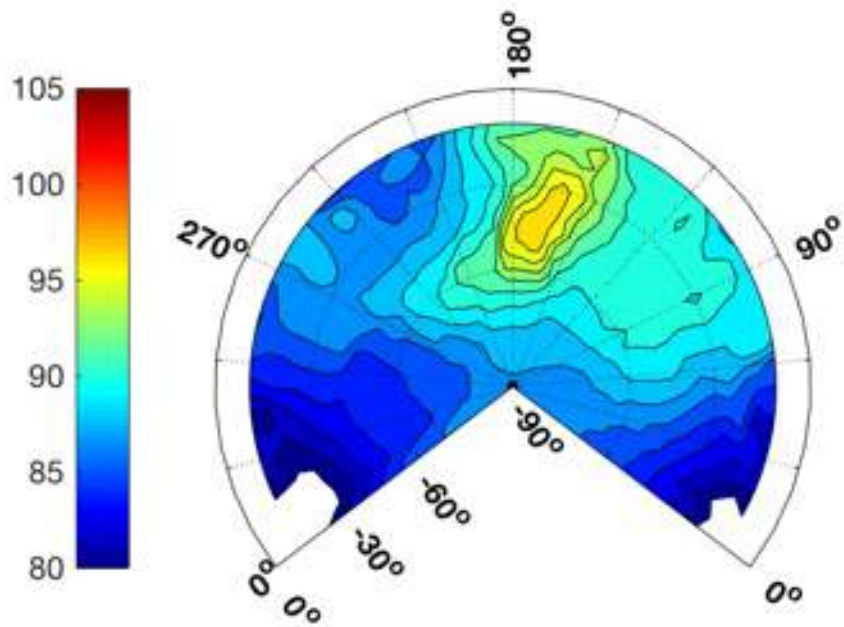


Figure 431: B206L3, 277111, D19, dBA hemisphere, ground speed 88.9 kts, -7.0° FPA.

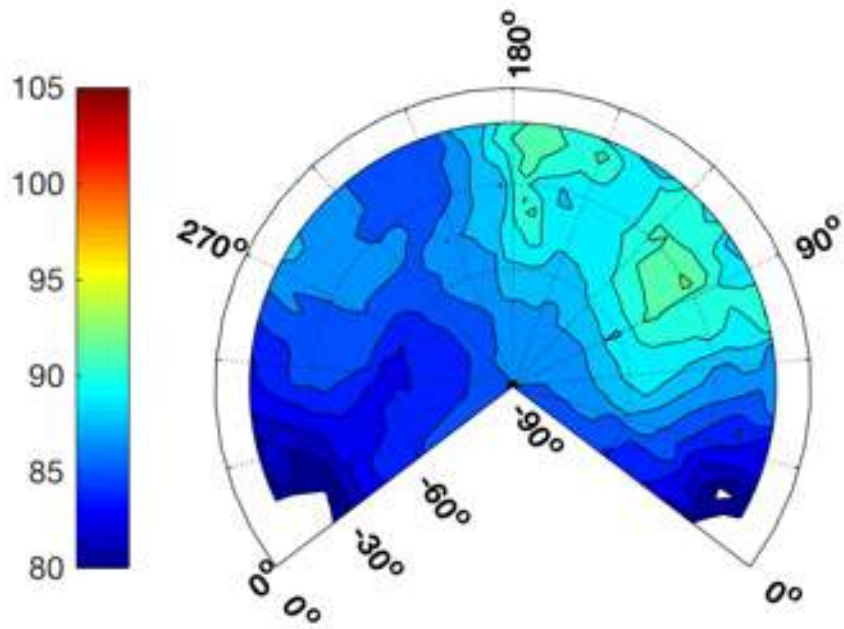


Figure 432: B206L3, 277112, D24, dBA hemisphere, ground speed 86.1 kts, -9.1° FPA.

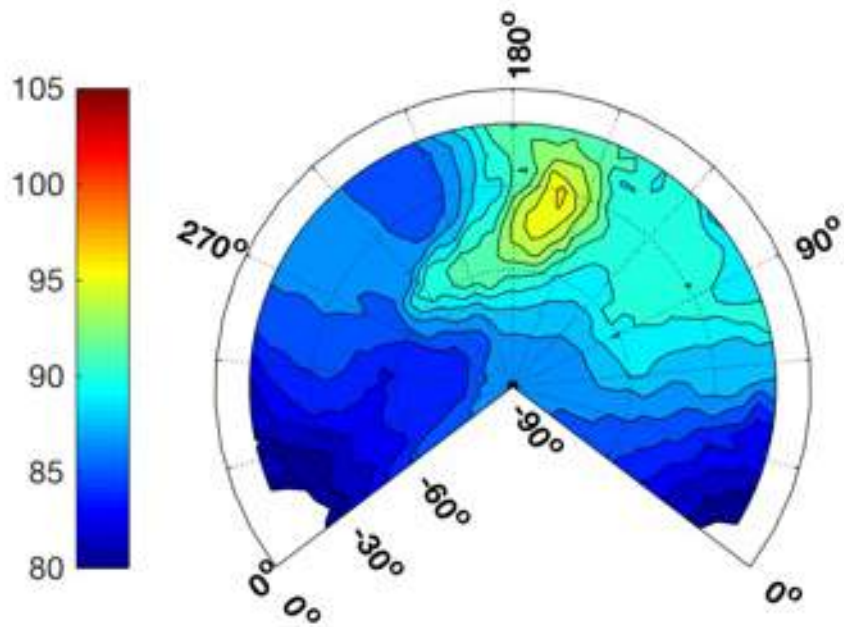


Figure 433: B206L3, 277113, D24, dBA hemisphere, ground speed 88.7 kts, -8.5° FPA.

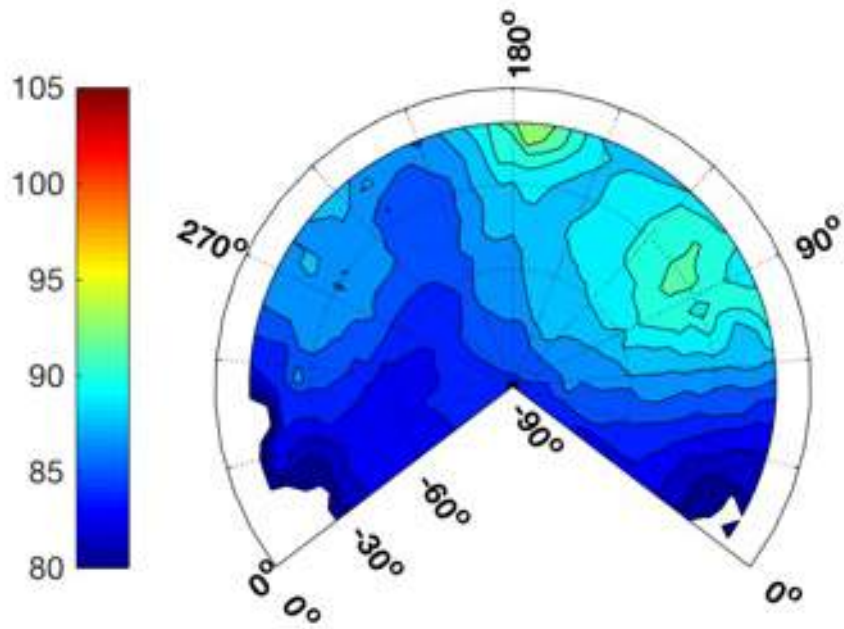


Figure 434: B206L3, 277114, D29, dBA hemisphere, ground speed 90.0 kts, -10.0° FPA.

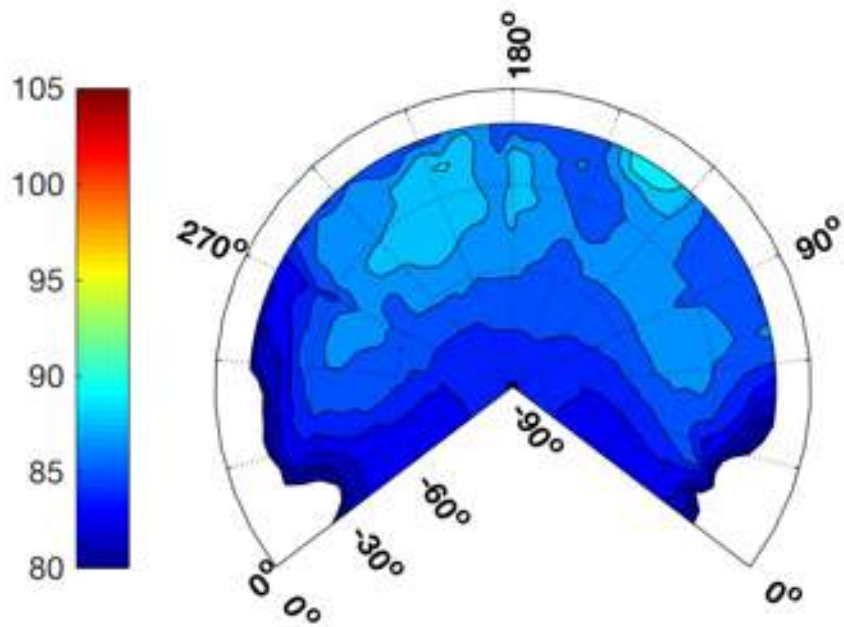


Figure 435: B206L3, 277116, D33, dBA hemisphere, ground speed 43.8 kts, -2.8° FPA.

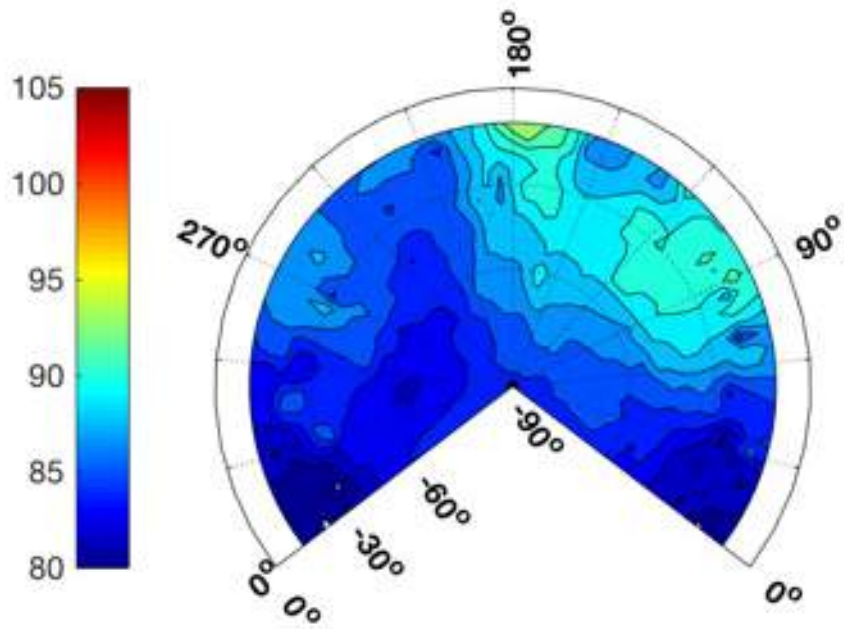


Figure 436: B206L3, 277117, D32, dBA hemisphere, ground speed 88.3 kts, -11.1° FPA.

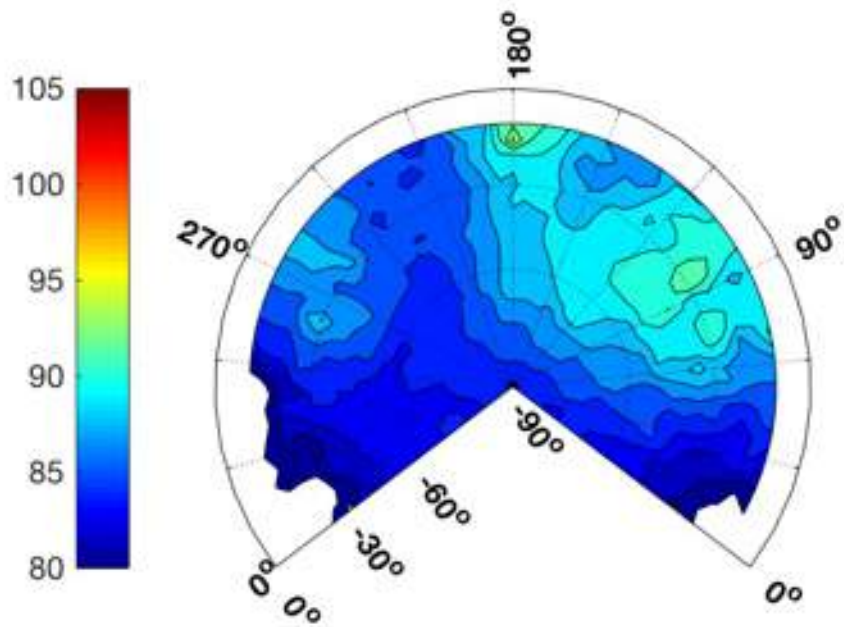


Figure 437: B206L3, 277120, D32, dBA hemisphere, ground speed 88.1 kts, -11.9° FPA.

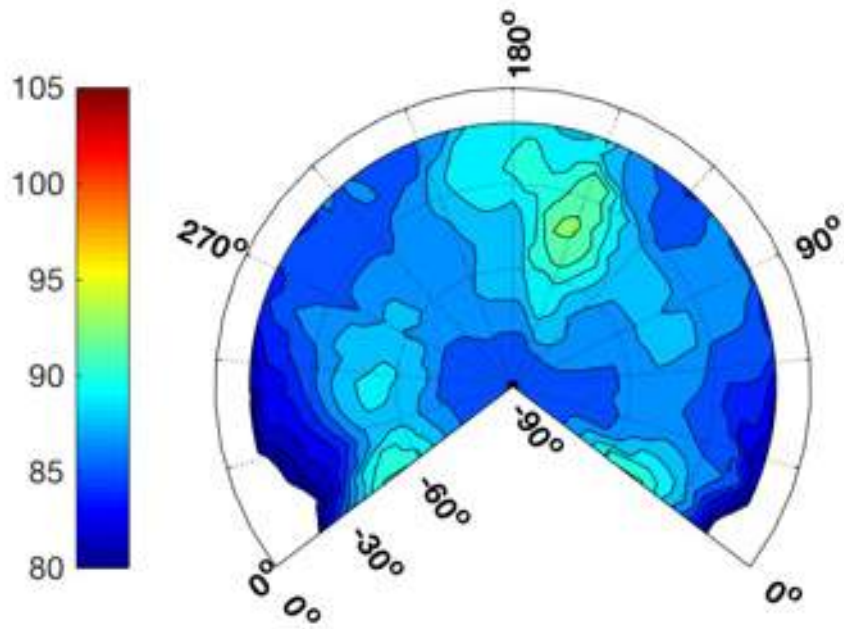


Figure 438: B206L3, 277122, D2, dBA hemisphere, ground speed 63.5 kts, -3.5° FPA.

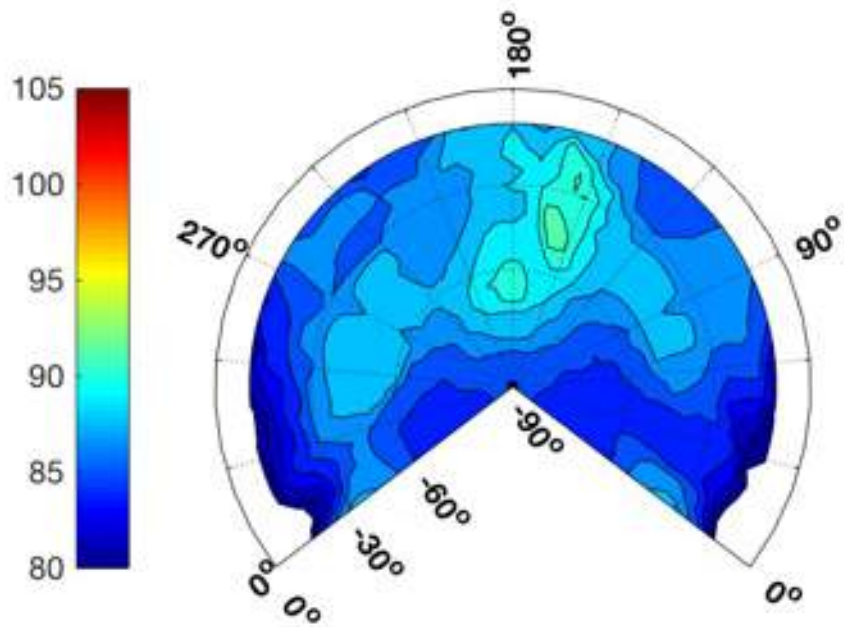


Figure 439: B206L3, 277123, D2, dBA hemisphere, ground speed 61.5 kts, -3.0° FPA.

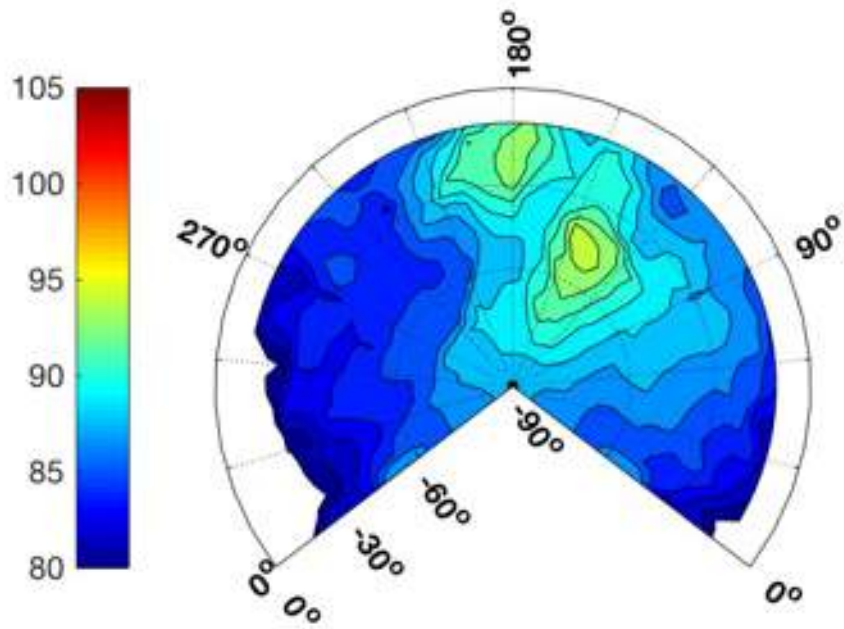


Figure 440: B206L3, 277124, D12, dBA hemisphere, ground speed 65.1 kts, -6.3° FPA.

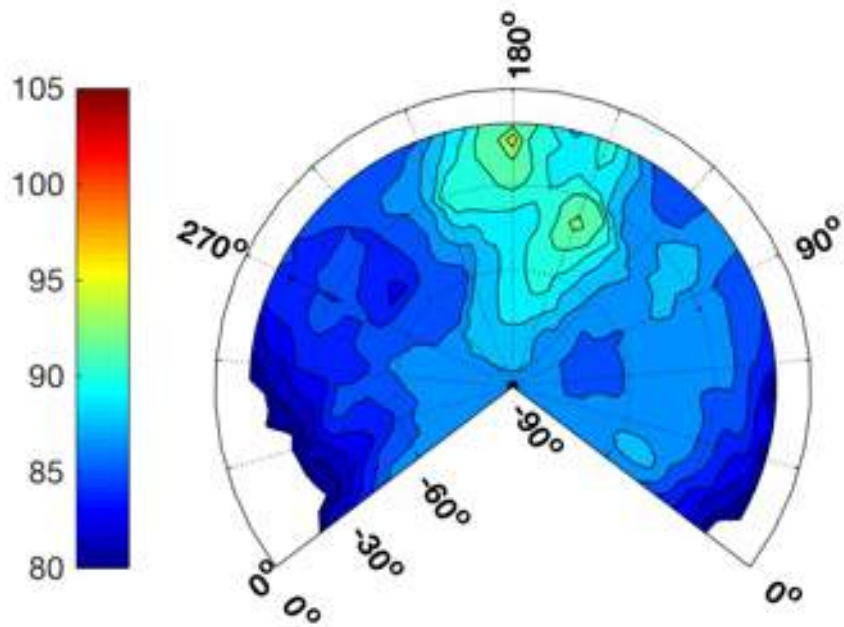


Figure 441: B206L3, 277125, D12, dBA hemisphere, ground speed 64.6 kts, -5.7° FPA.

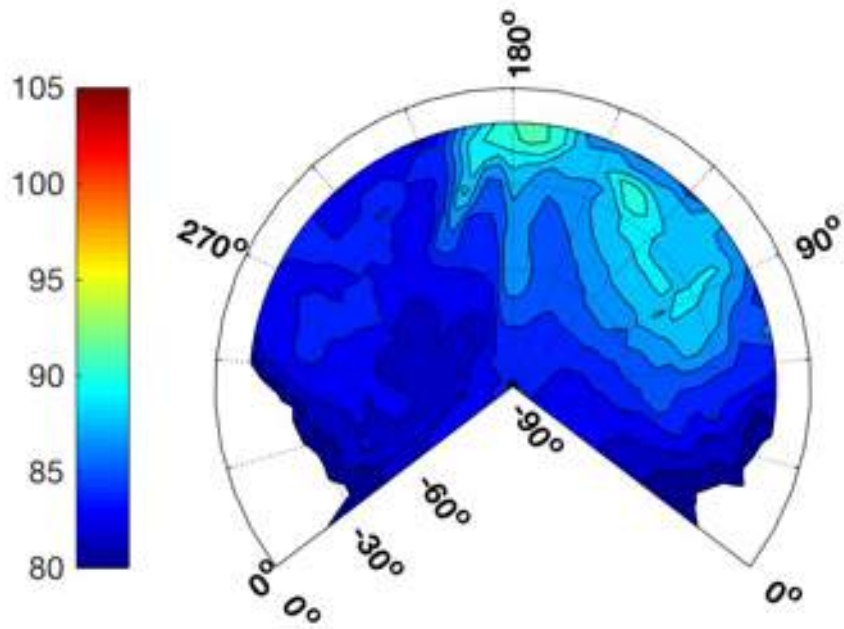


Figure 442: B206L3, 277127, D22, dBA hemisphere, ground speed 67.0 kts, -9.0° FPA.

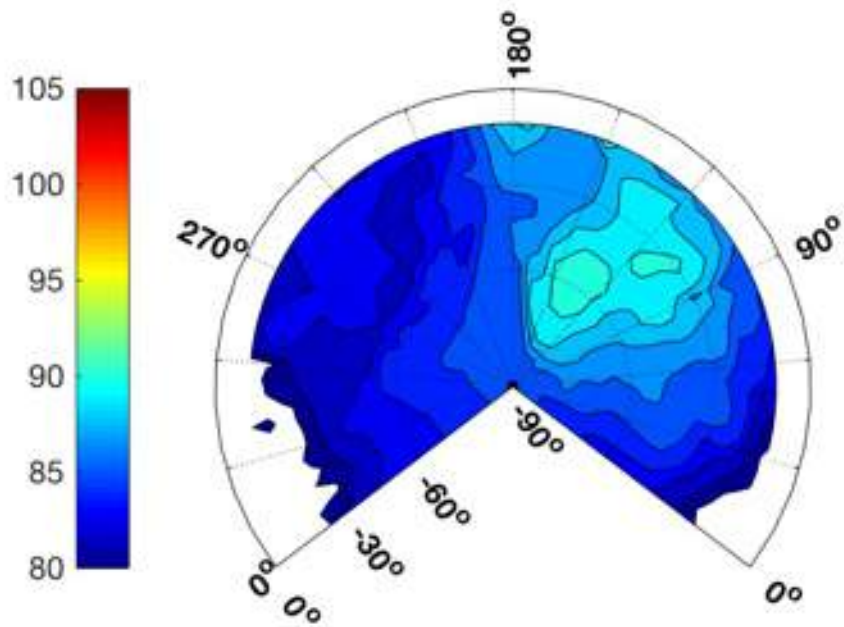


Figure 443: B206L3, 277128, D22, dBA hemisphere, ground speed 66.7 kts, -8.4° FPA.

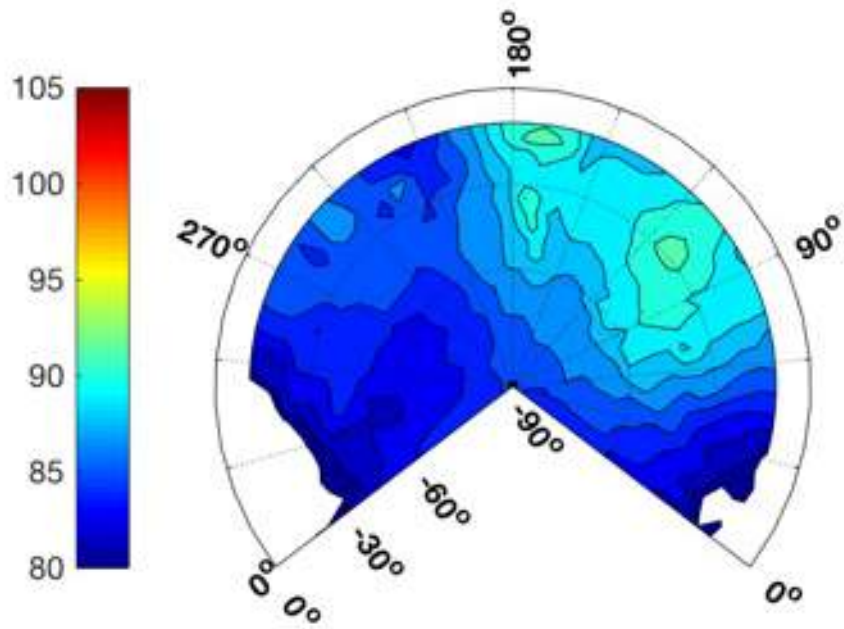


Figure 444: B206L3, 277129, D29, dBA hemisphere, ground speed 86.3 kts, -9.1° FPA.

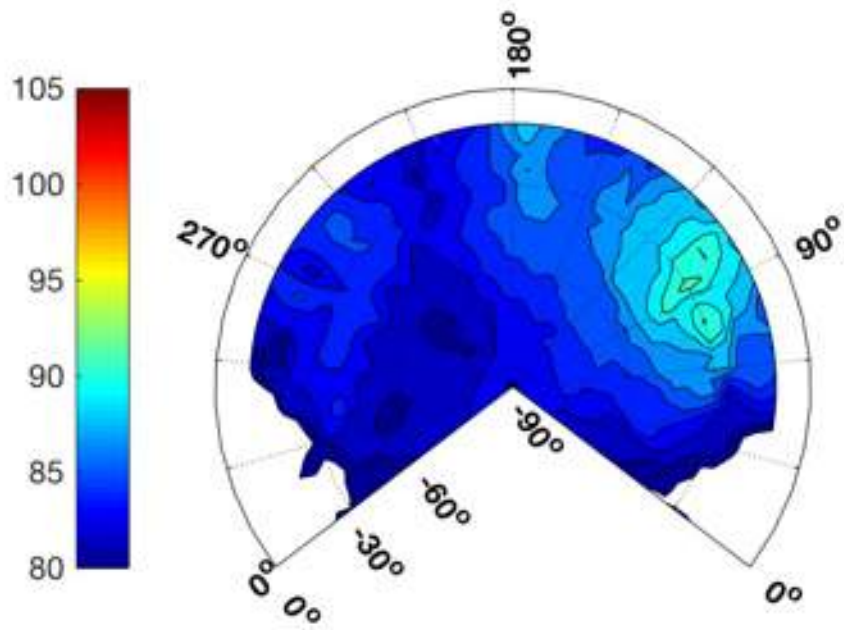


Figure 445: B206L3, 277130, D30, dBA hemisphere, ground speed 68.4 kts, -12.1° FPA.

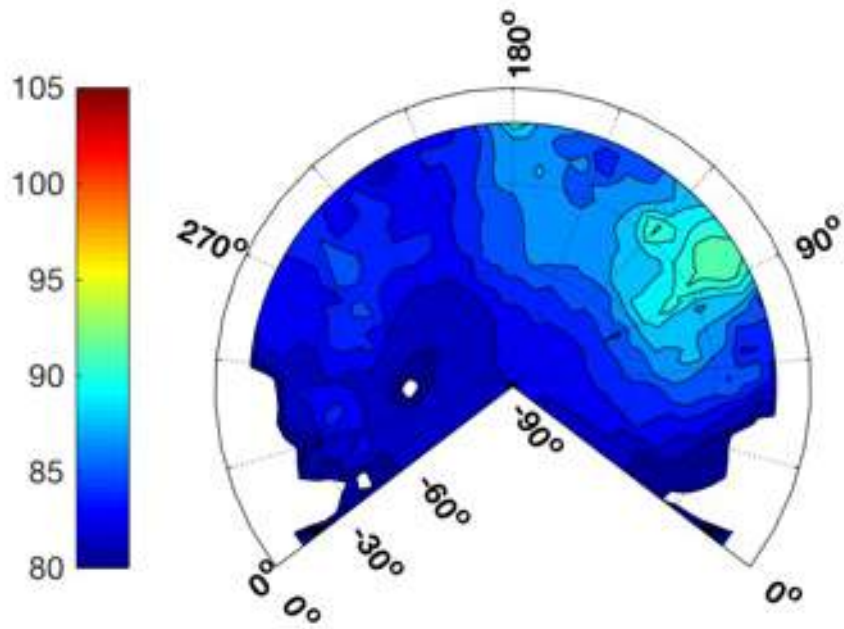


Figure 446: B206L3, 277131, D30, dBA hemisphere, ground speed 70.6 kts, -12.1° FPA.

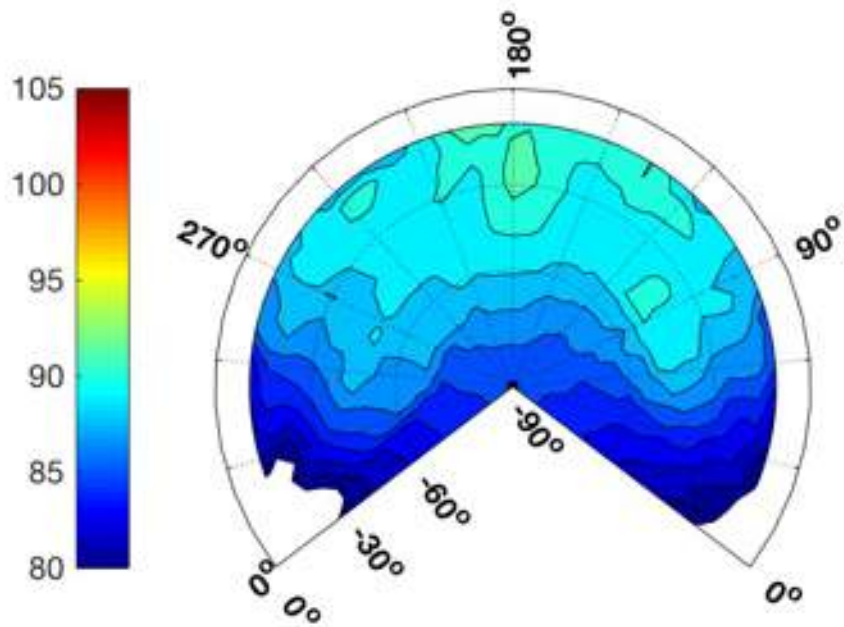


Figure 447: B206L3, 277132, D6, dBA hemisphere, ground speed 103.7 kts, -2.8° FPA.

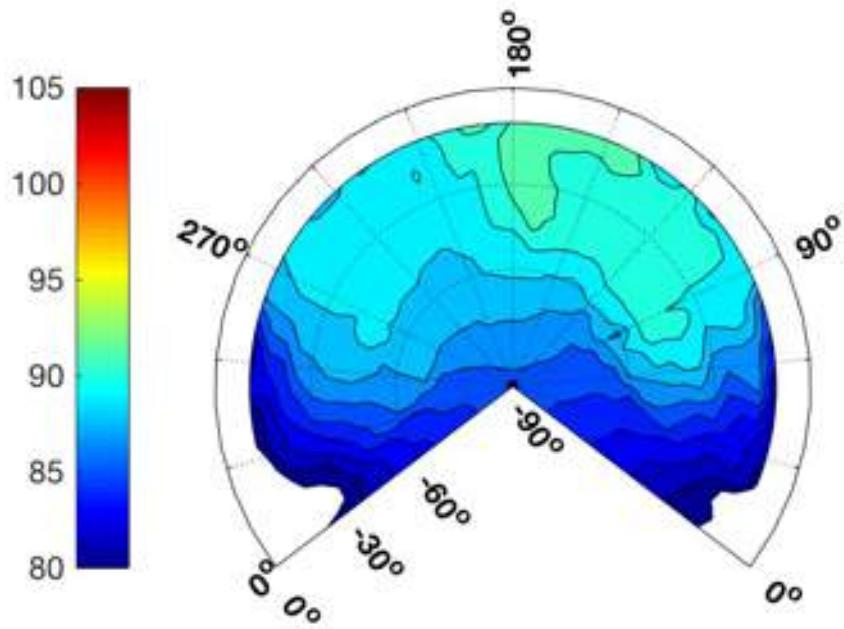


Figure 448: B206L3, 277133, D6, dBA hemisphere, ground speed 102.4 kts, -3.0° FPA.

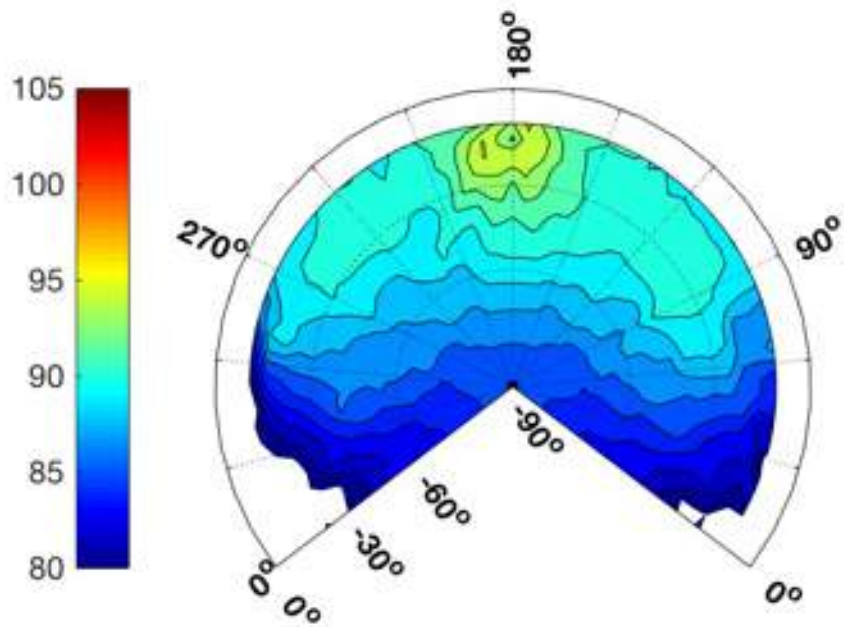


Figure 449: B206L3, 277134, D16, dBA hemisphere, ground speed 109.3 kts, -4.8° FPA.

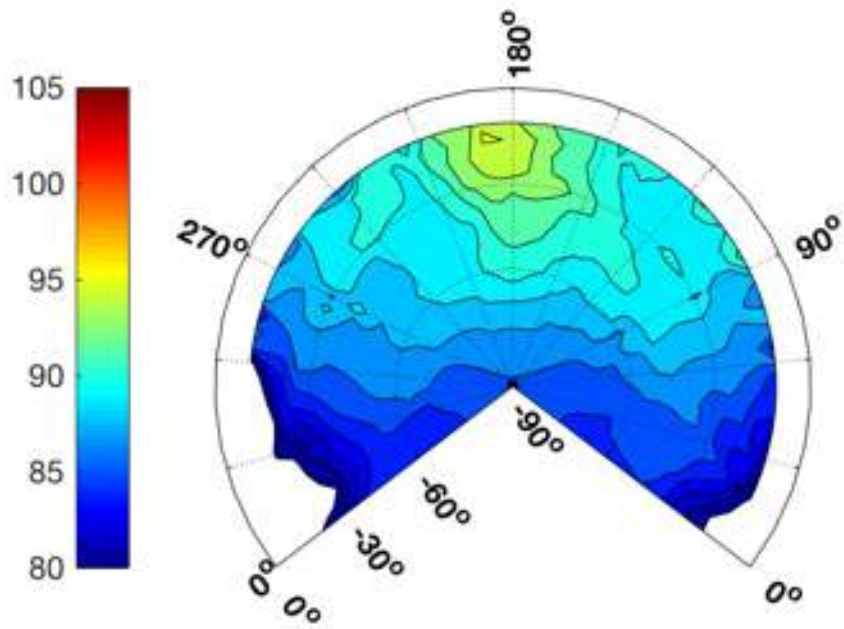


Figure 450: B206L3, 277135, D16, dBA hemisphere, ground speed 106.8 kts, -4.8° FPA.

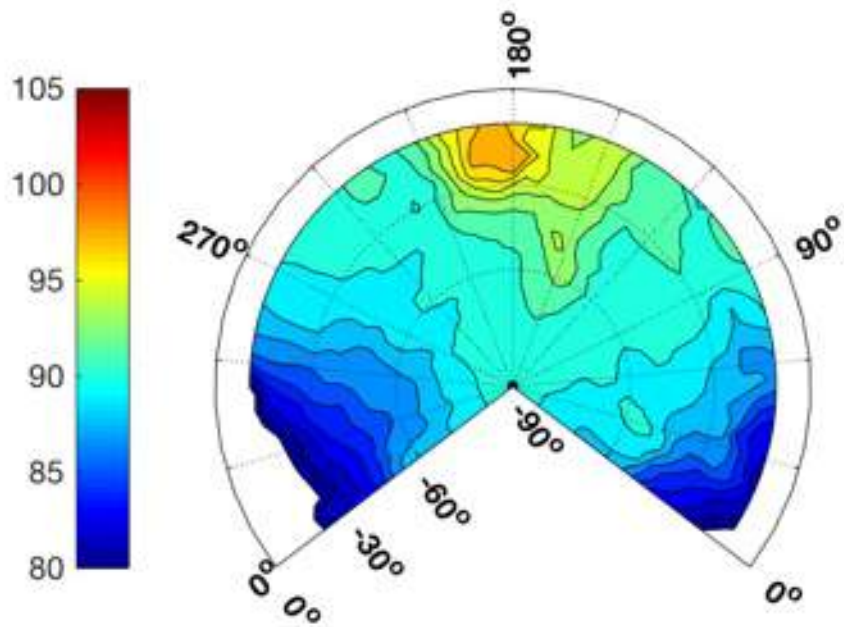


Figure 451: B206L3, 277136, D26, dBA hemisphere, ground speed 113.7 kts, -7.7° FPA.

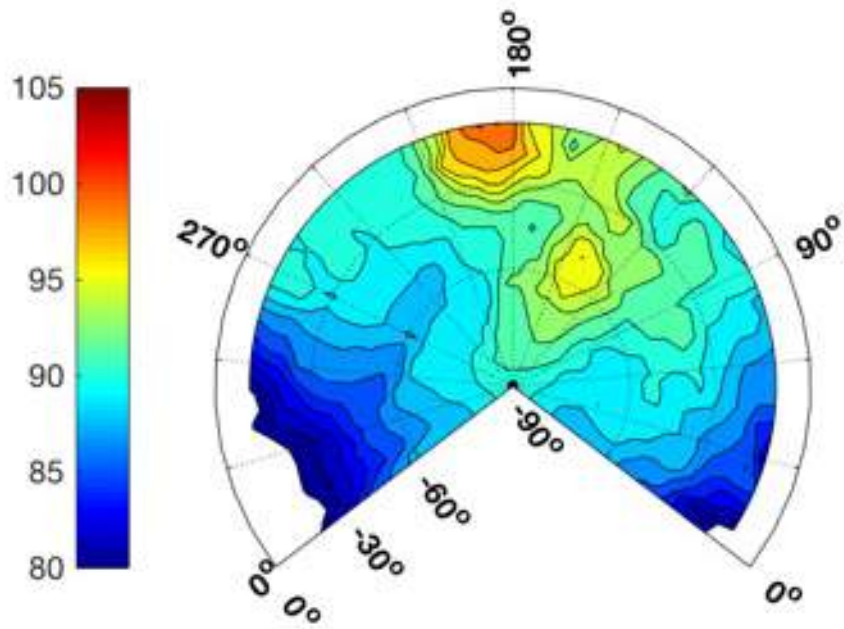


Figure 452: B206L3, 277137, D26, dBA hemisphere, ground speed 115.1 kts, -8.1° FPA.

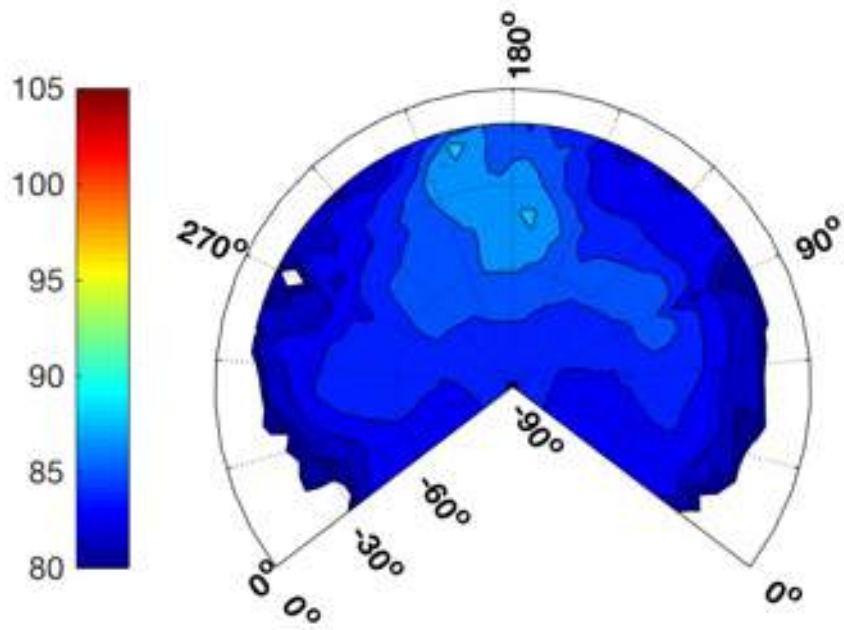


Figure 453: B206L3, 277138, D33, dBA hemisphere, ground speed 45.0 kts, -2.9° FPA.

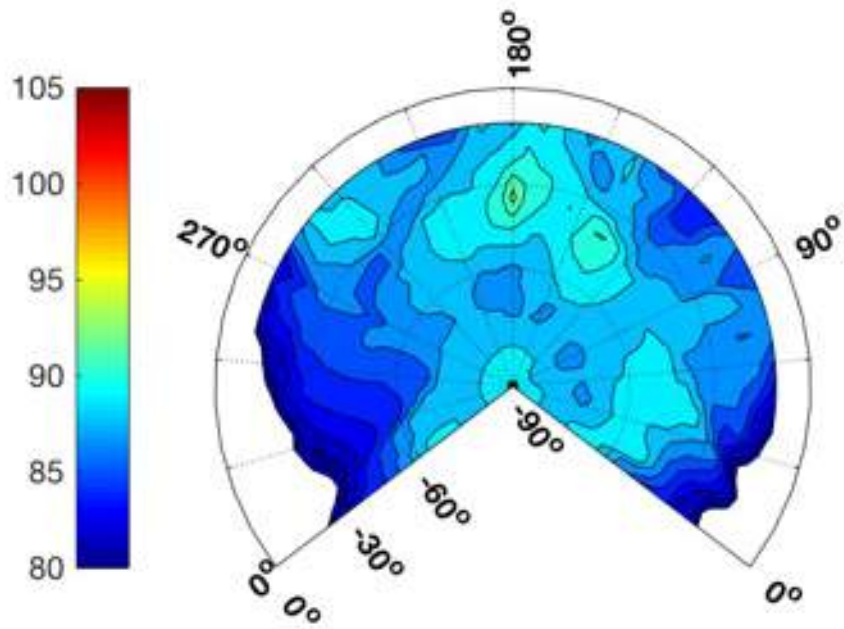


Figure 454: B206L3, 277139, D34, dBA hemisphere, ground speed 51.5 kts, -4.8° FPA.

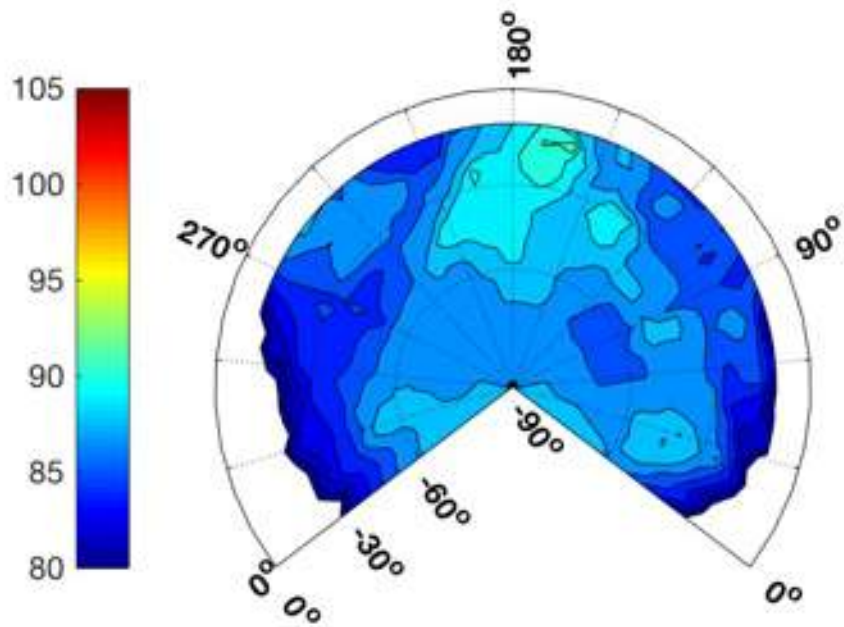


Figure 455: B206L3, 277140, D34, dBA hemisphere, ground speed 50.3 kts, -4.9° FPA.

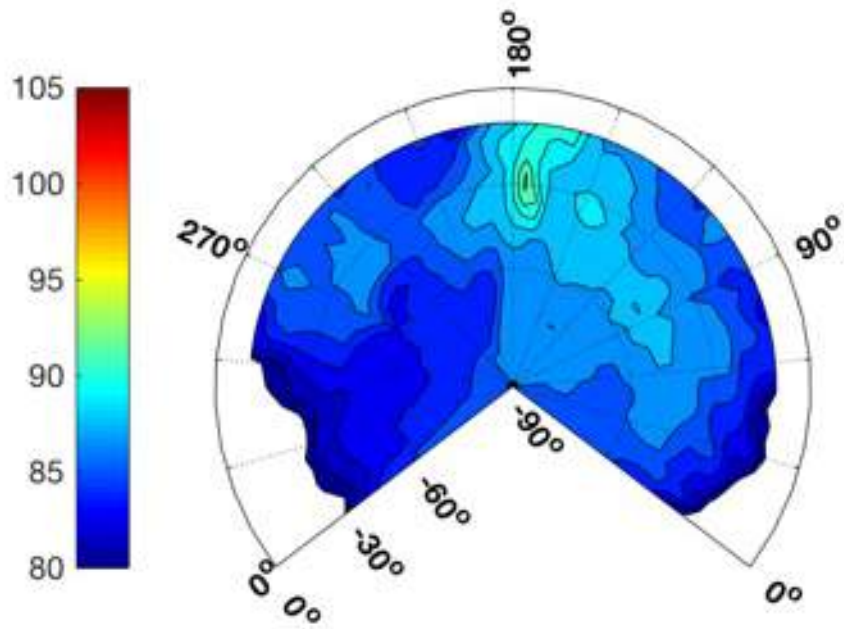


Figure 456: B206L3, 277141, D35, dBA hemisphere, ground speed 49.5 kts, -6.6° FPA.

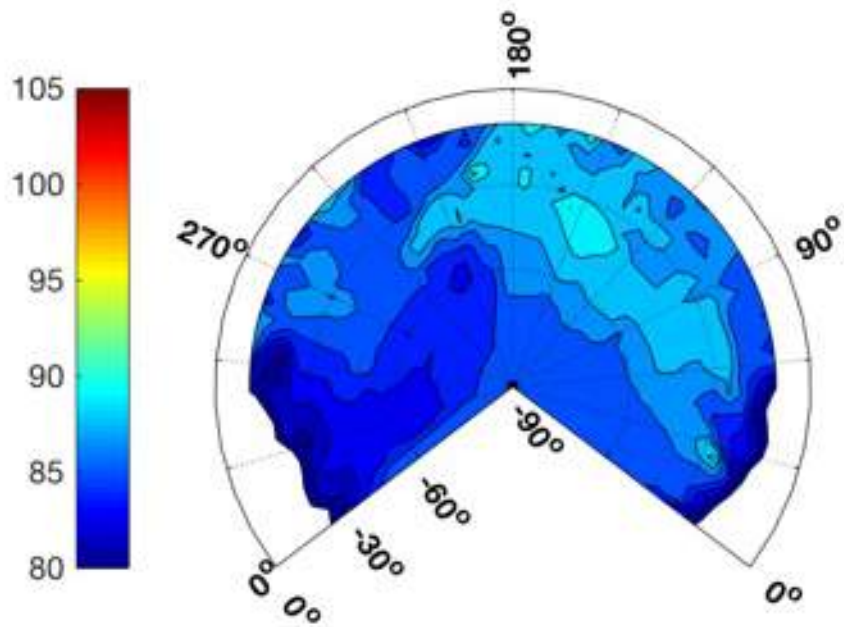


Figure 457: B206L3, 277142, D35, dBA hemisphere, ground speed 46.2 kts, -6.2° FPA.

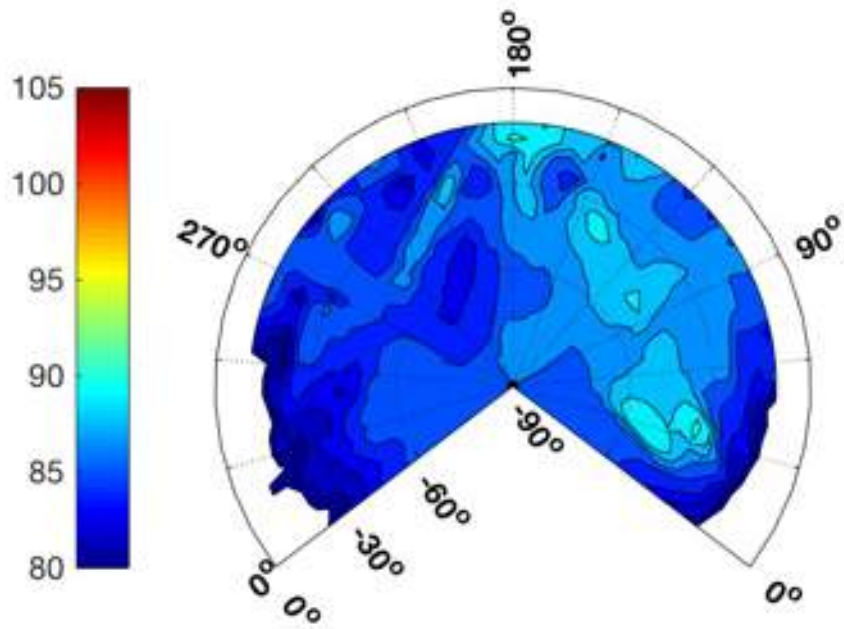


Figure 458: B206L3, 277143, D35, dBA hemisphere, ground speed 46.8 kts, -6.2° FPA.

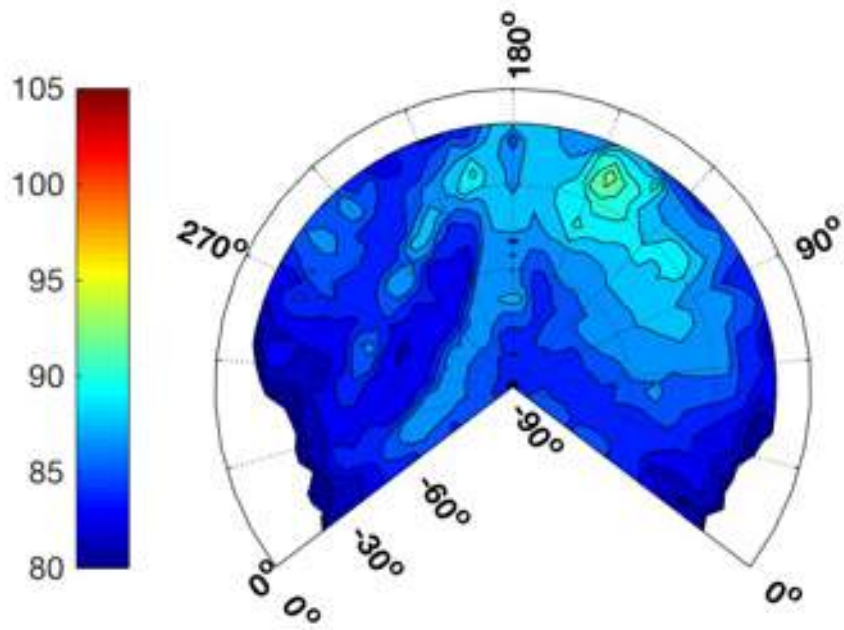


Figure 459: B206L3, 277148, D36, dBA hemisphere, ground speed 43.9 kts, -7.7° FPA.

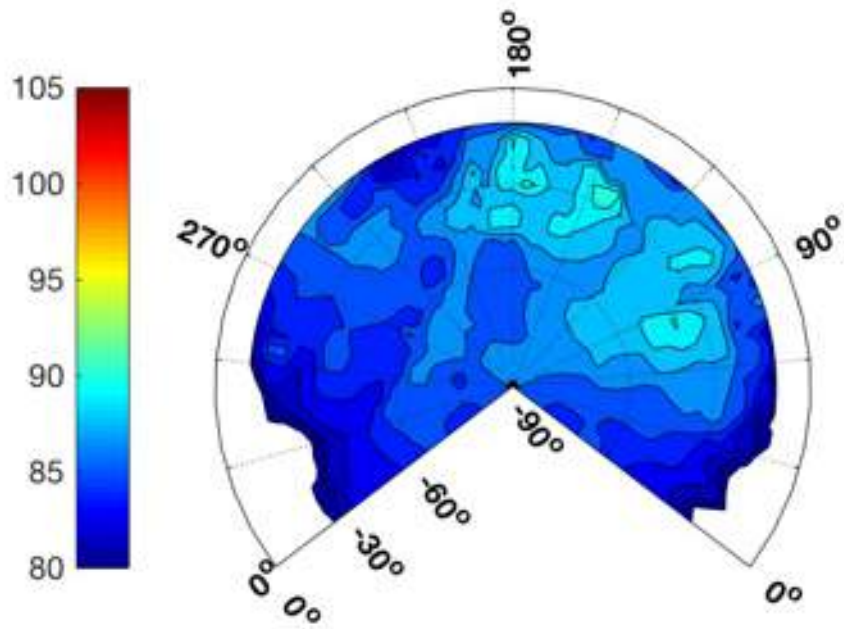


Figure 460: B206L3, 277149, D36, dBA hemisphere, ground speed 46.3 kts, -7.5° FPA.

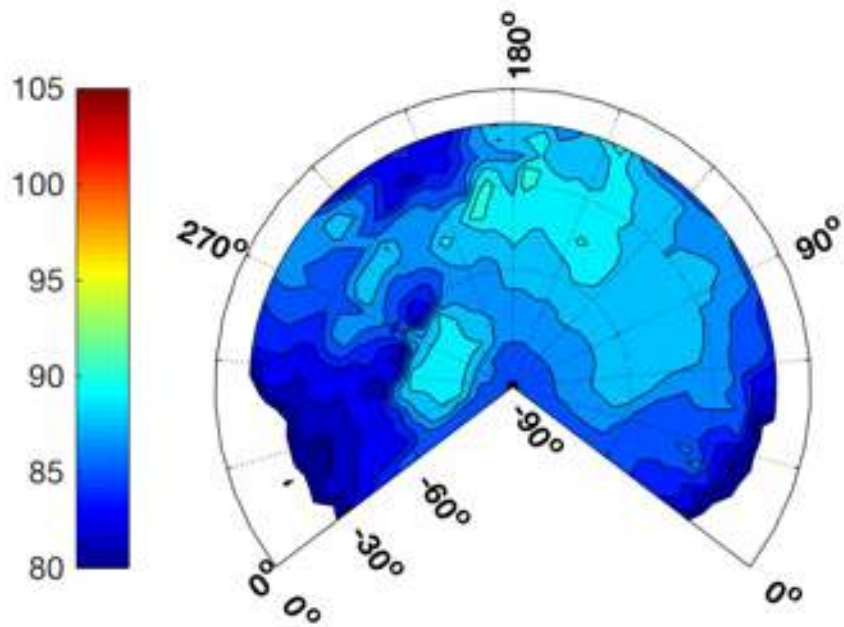


Figure 461: B206L3, 277150, D37, dBA hemisphere, ground speed 47.4 kts, -8.9° FPA.

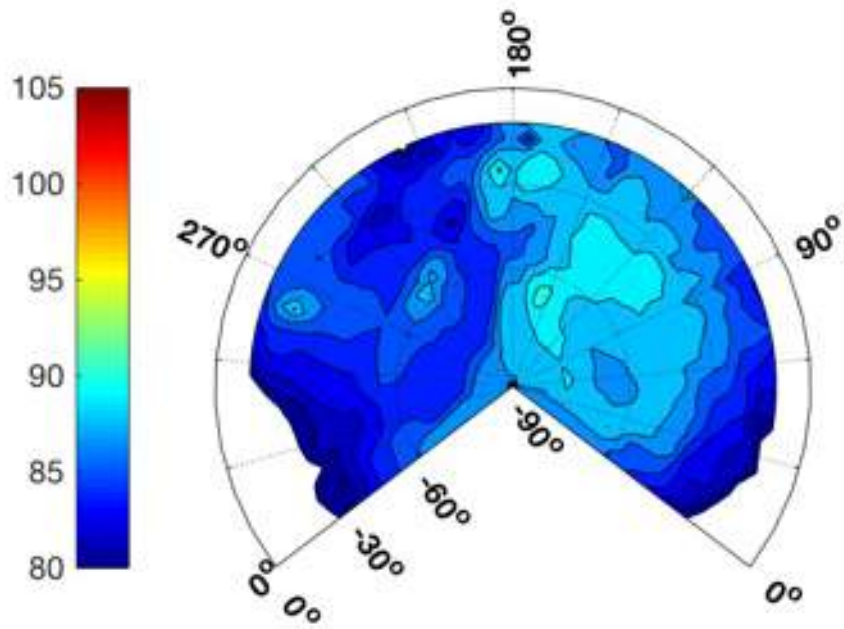


Figure 462: B206L3, 277151, D37, dBA hemisphere, ground speed 48.3 kts, -9.1° FPA.

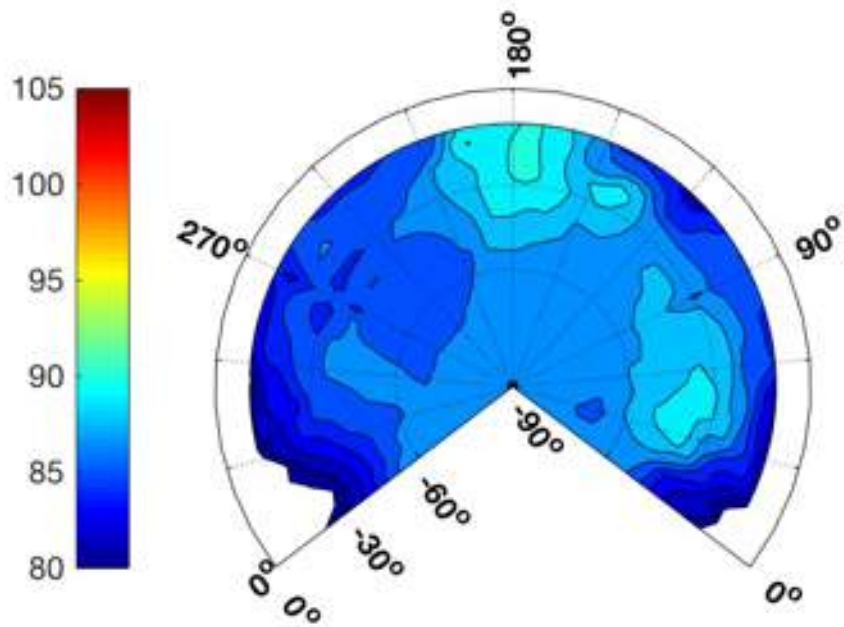


Figure 463: B206L3, 277152, D3, dBA hemisphere, ground speed 69.8 kts, -3.1° FPA.

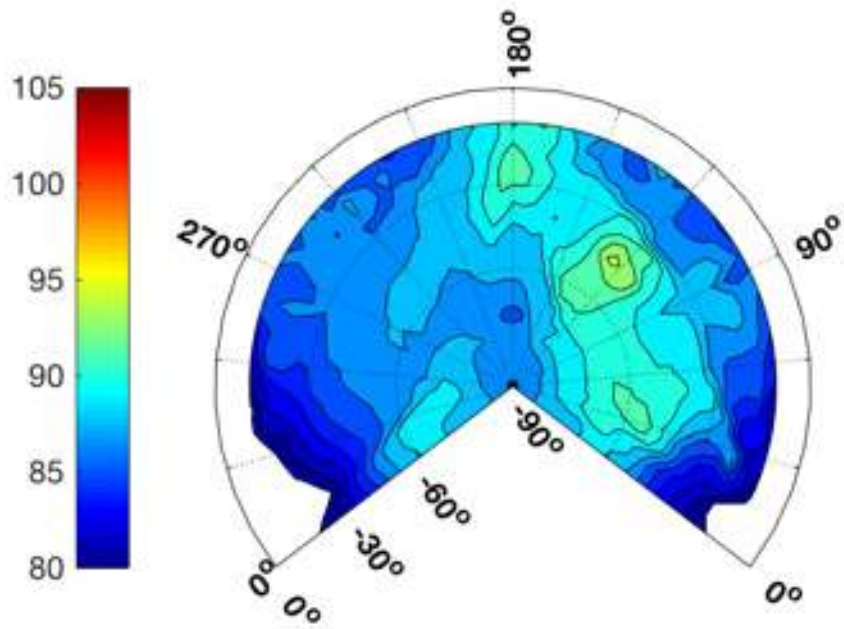


Figure 464: B206L3, 277153, D3, dBA hemisphere, ground speed 73.6 kts, -3.2° FPA.

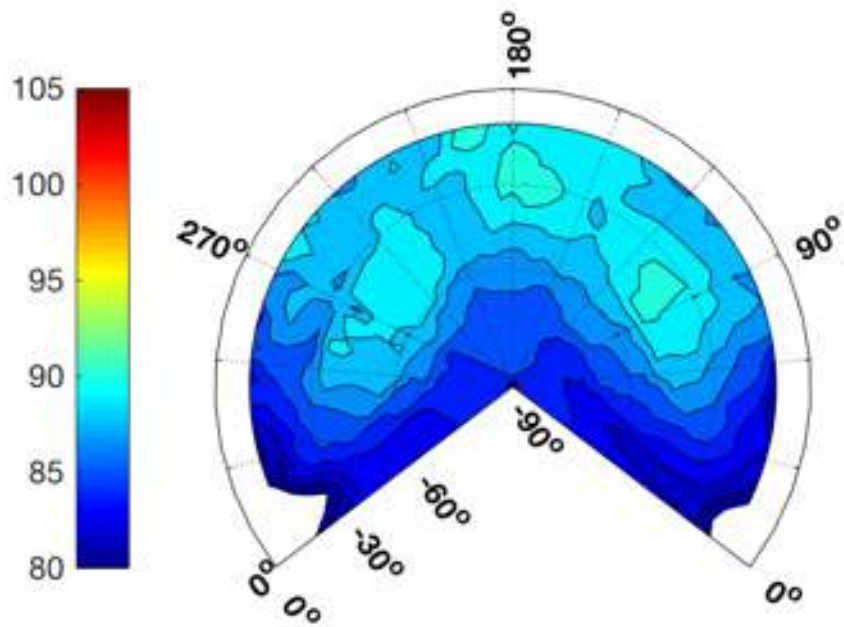


Figure 465: B206L3, 277154, D5, dBA hemisphere, ground speed 97.1 kts, -2.6° FPA.

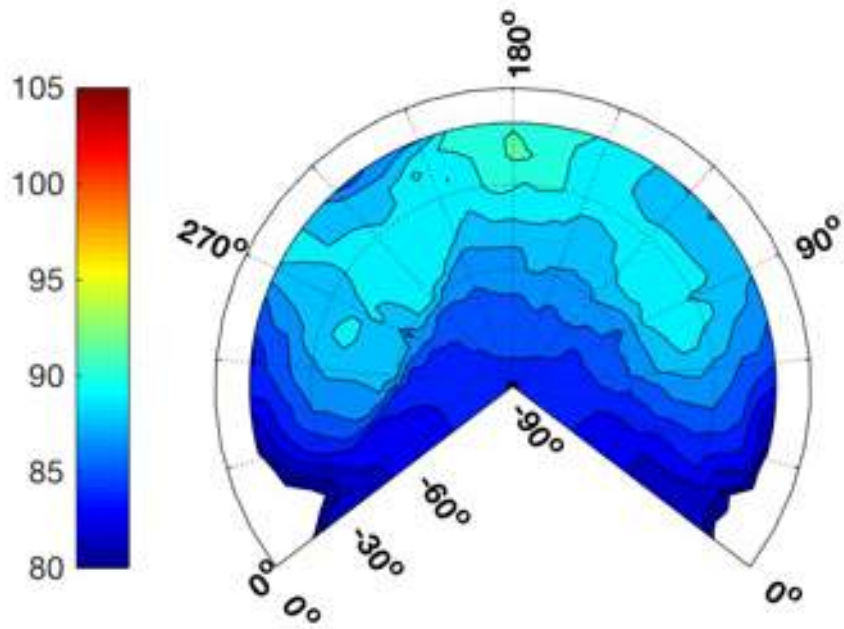


Figure 466: B206L3, 277155, D5, dBA hemisphere, ground speed 101.0 kts, -2.6° FPA.

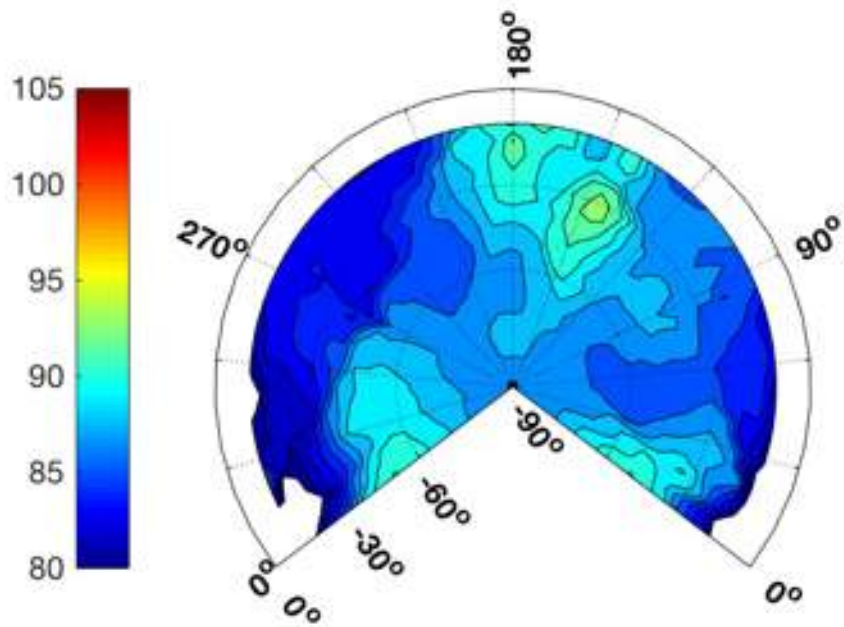


Figure 467: B206L3, 277156, D7, dBA hemisphere, ground speed 66.6 kts, -5.2° FPA.

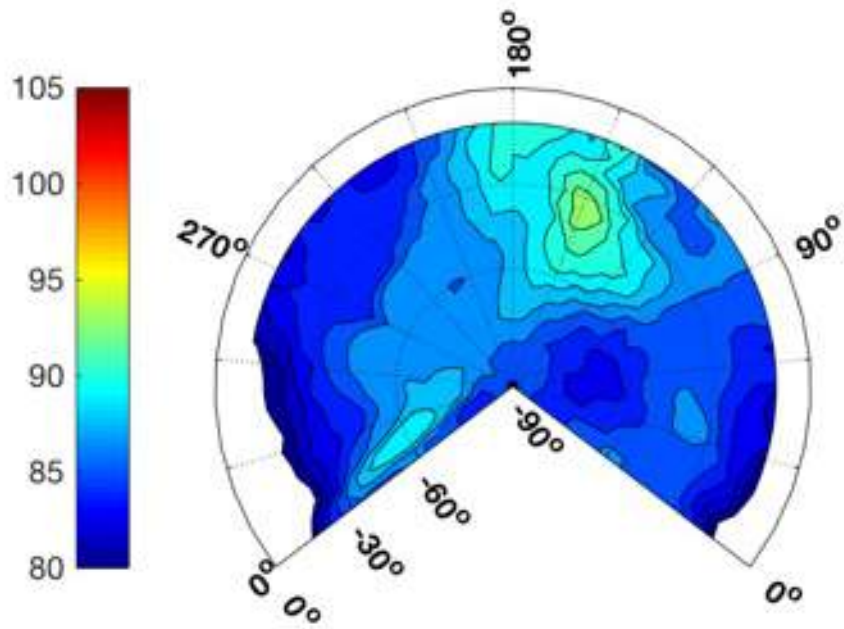


Figure 468: B206L3, 277157, D7, dBA hemisphere, ground speed 62.9 kts, -5.0° FPA.

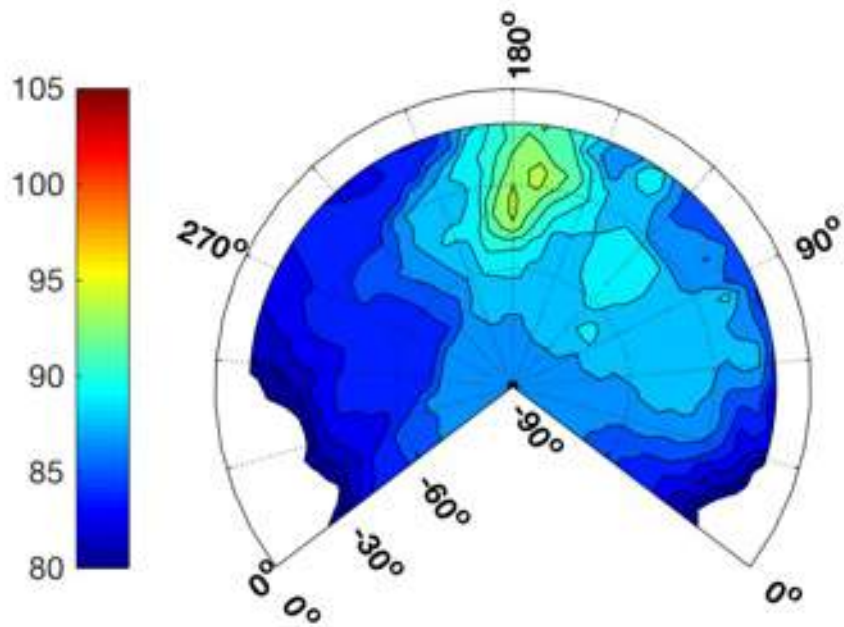


Figure 469: B206L3, 277158, D8, dBA hemisphere, ground speed 76.2 kts, -4.6° FPA.

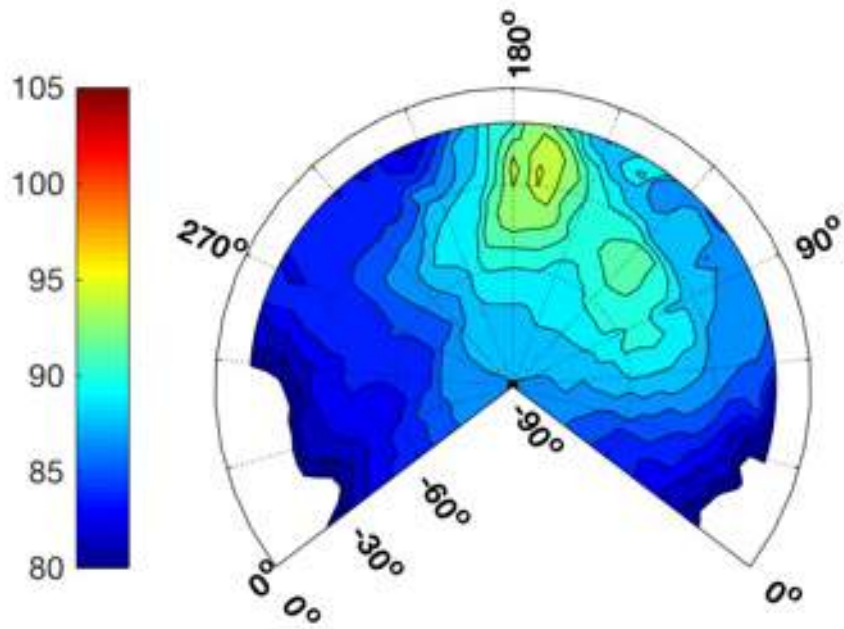


Figure 470: B206L3, 277159, D8, dBA hemisphere, ground speed 79.3 kts, -4.7° FPA.

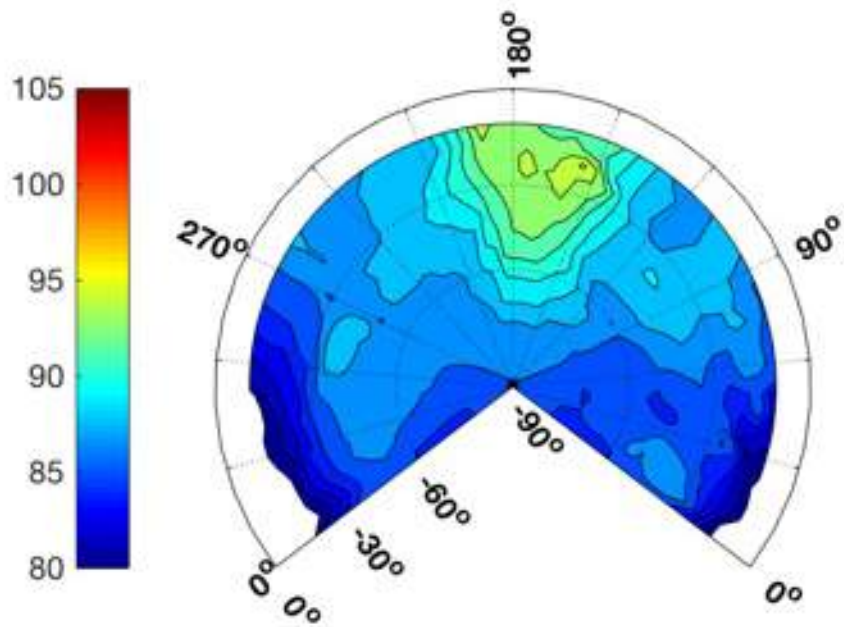


Figure 471: B206L3, 277160, D10, dBA hemisphere, ground speed 101.0 kts, -4.6° FPA.

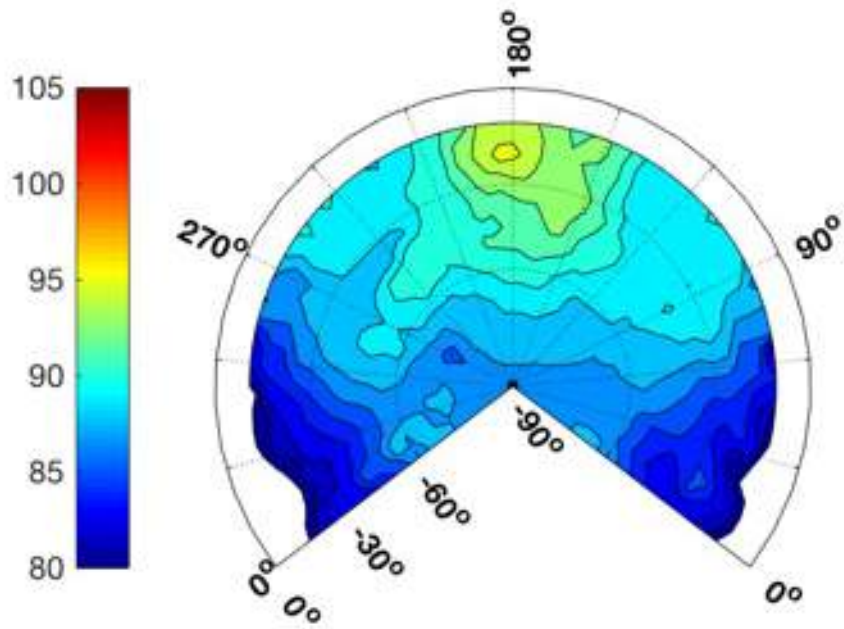


Figure 472: B206L3, 277161, D10, dBA hemisphere, ground speed 104.9 kts, -4.9° FPA.

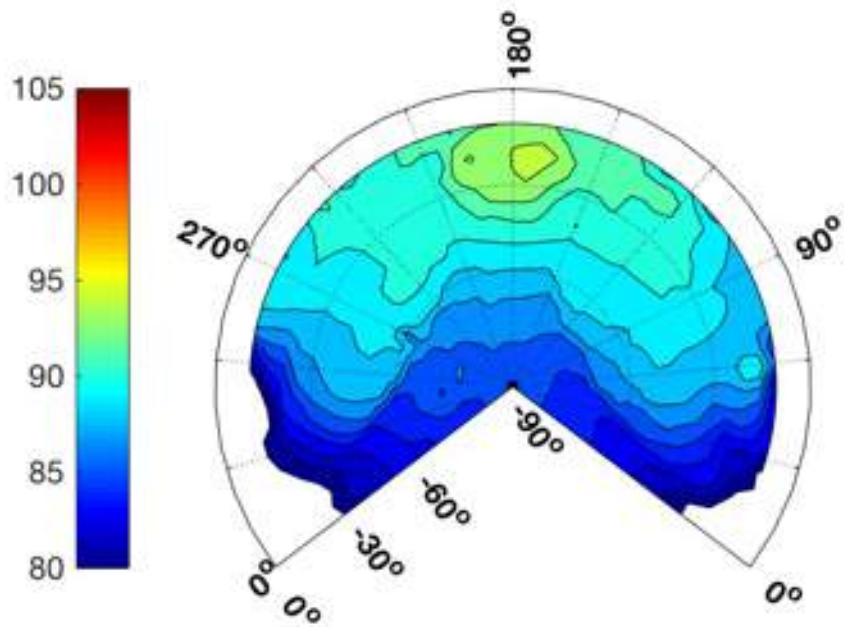


Figure 473: B206L3, 277162, D11, dBA hemisphere, ground speed 111.7 kts, -3.7° FPA.

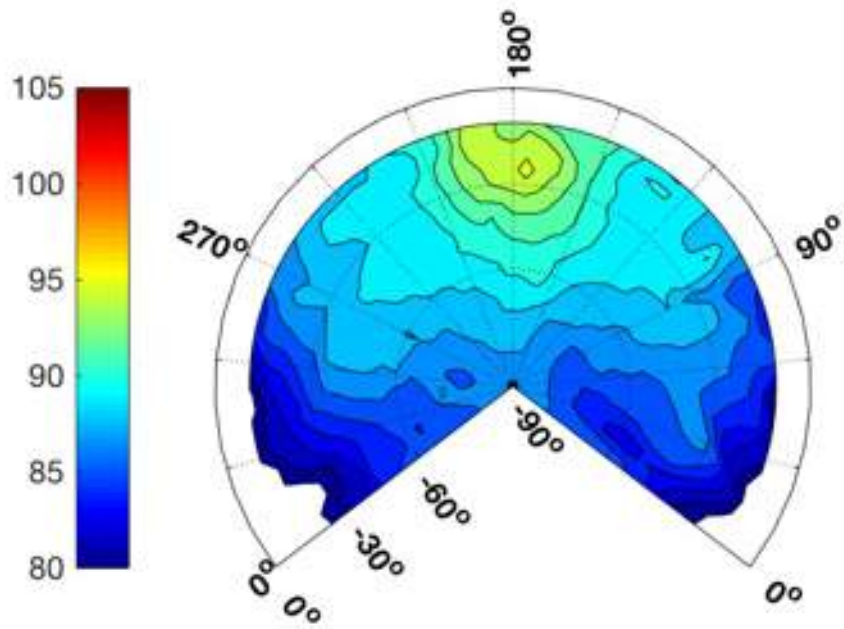


Figure 474: B206L3, 277163, D11, dBA hemisphere, ground speed 108.1 kts, -4.6° FPA.

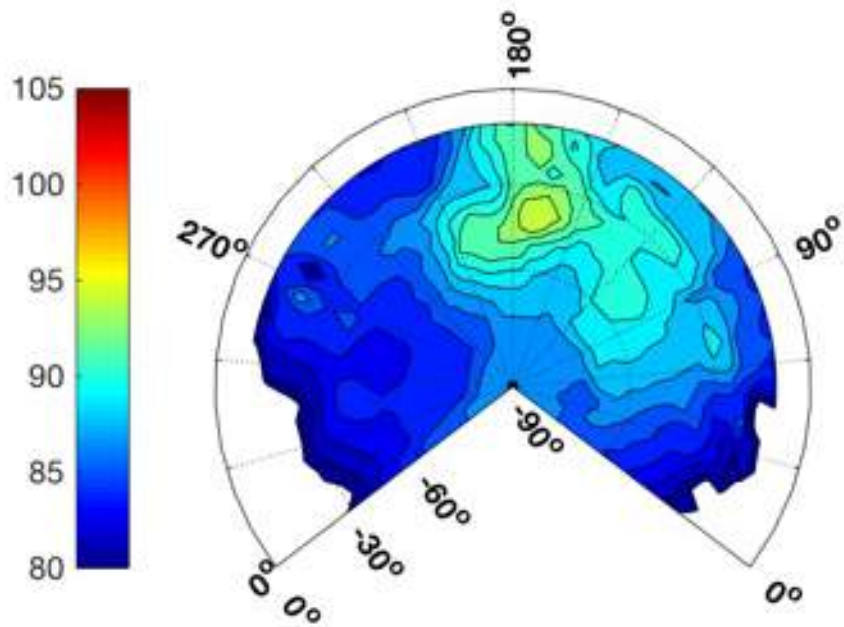


Figure 475: B206L3, 277164, D13, dBA hemisphere, ground speed 81.6 kts, -6.1° FPA.

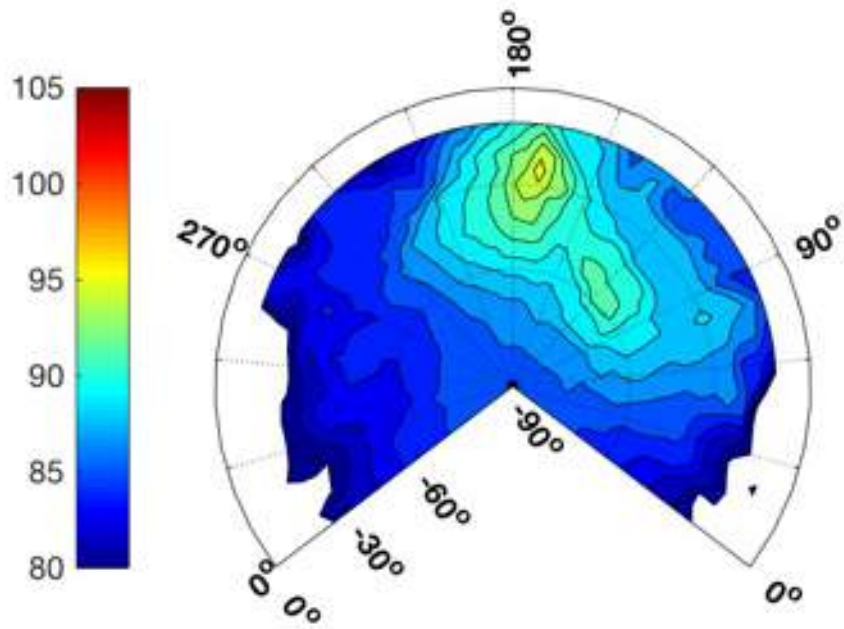


Figure 476: B206L3, 277165, D13, dBA hemisphere, ground speed 79.7 kts, -5.5° FPA.

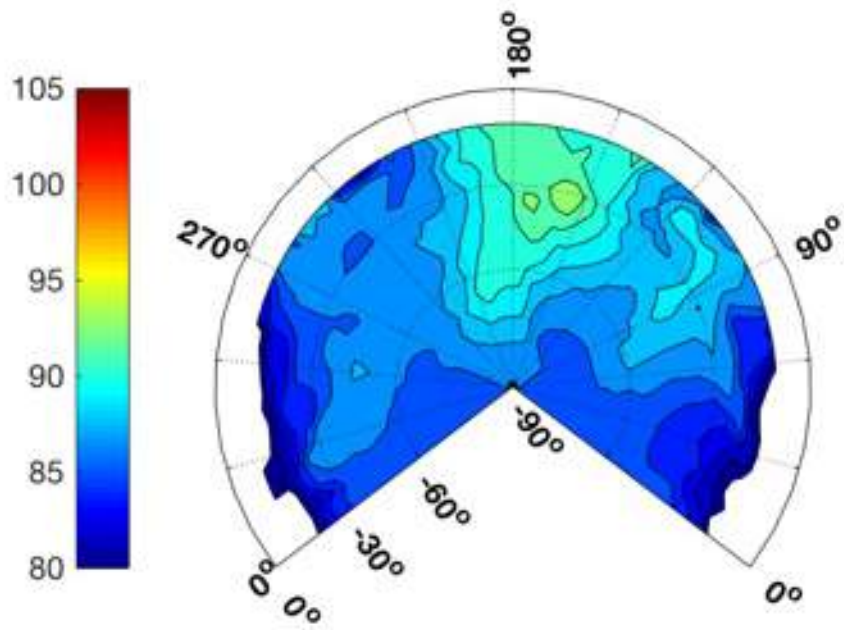


Figure 477: B206L3, 277166, D15, dBA hemisphere, ground speed 99.6 kts, -6.3° FPA.

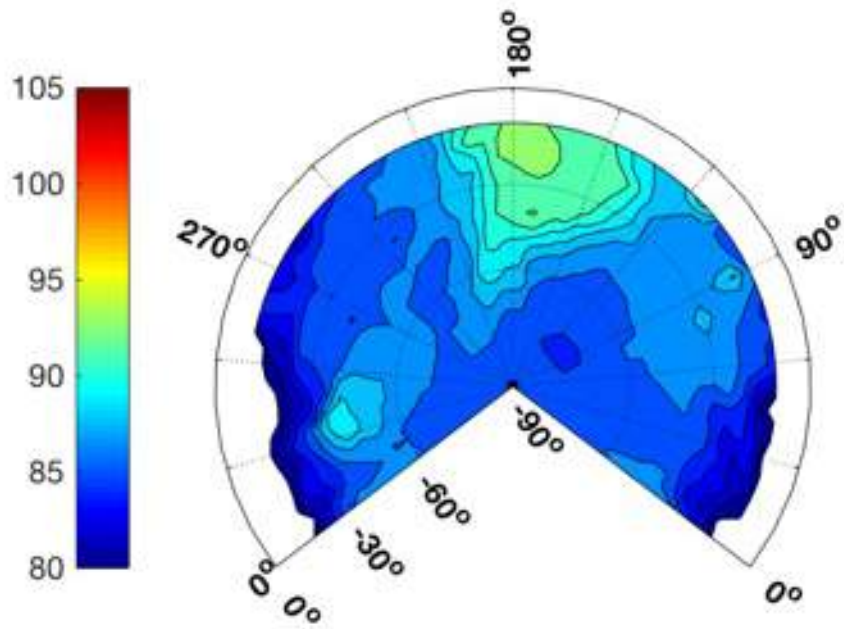


Figure 478: B206L3, 277167, D15, dBA hemisphere, ground speed 102.8 kts, -5.6° FPA.

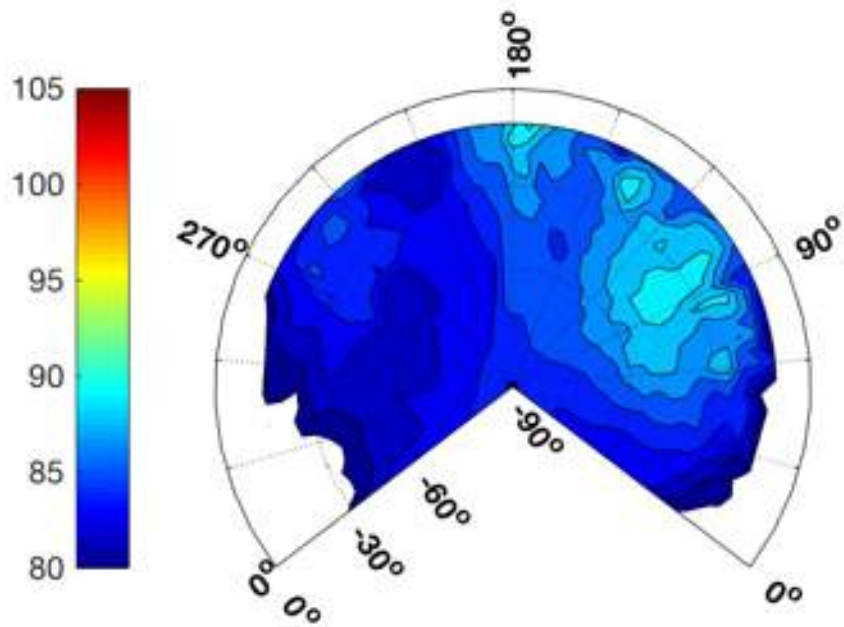


Figure 479: B206L3, 277168, D17, dBA hemisphere, ground speed 71.7 kts, -7.8° FPA.

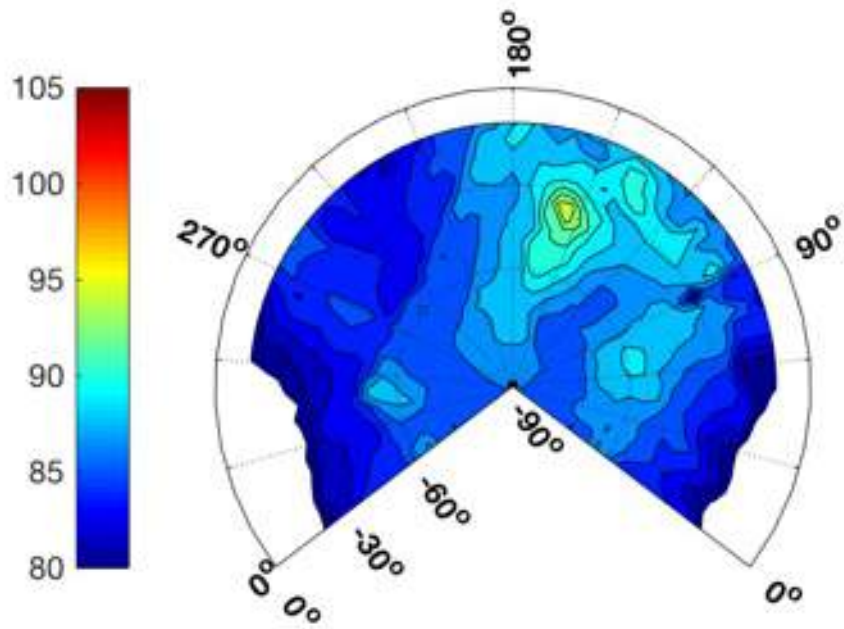


Figure 480: B206L3, 277169, D17, dBA hemisphere, ground speed 65.4 kts, -7.7° FPA.

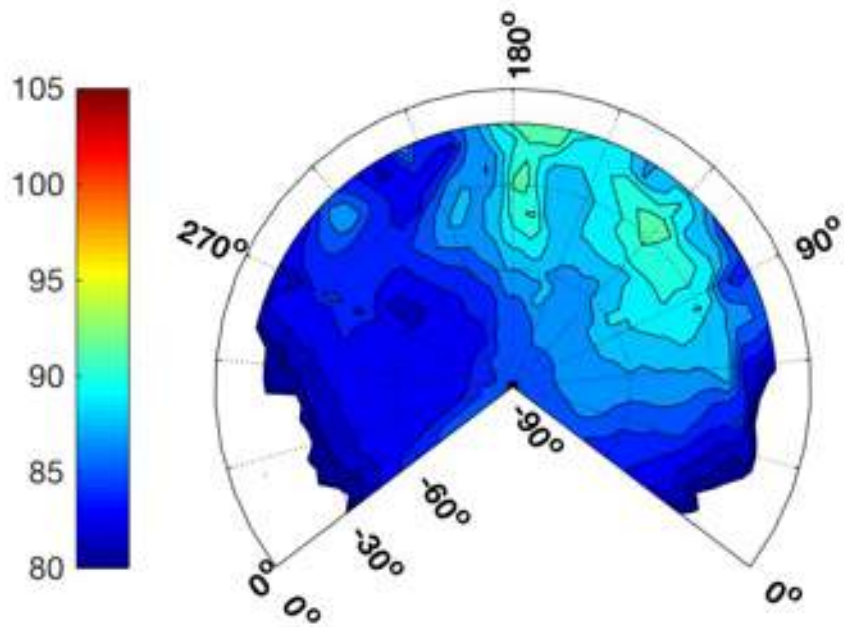


Figure 481: B206L3, 277170, D18, dBA hemisphere, ground speed 81.2 kts, -7.5° FPA.

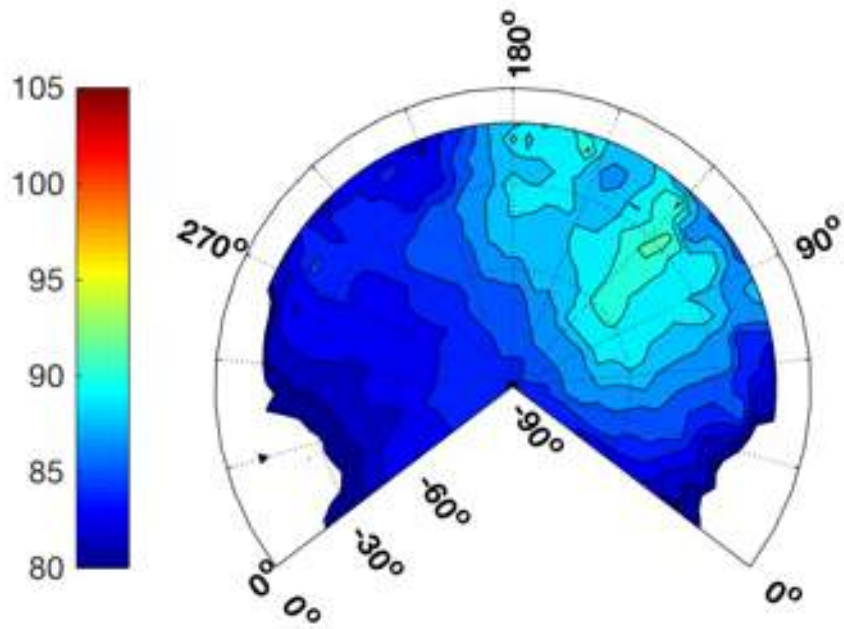


Figure 482: B206L3, 277171, D18, dBA hemisphere, ground speed 82.1 kts, -7.5° FPA.

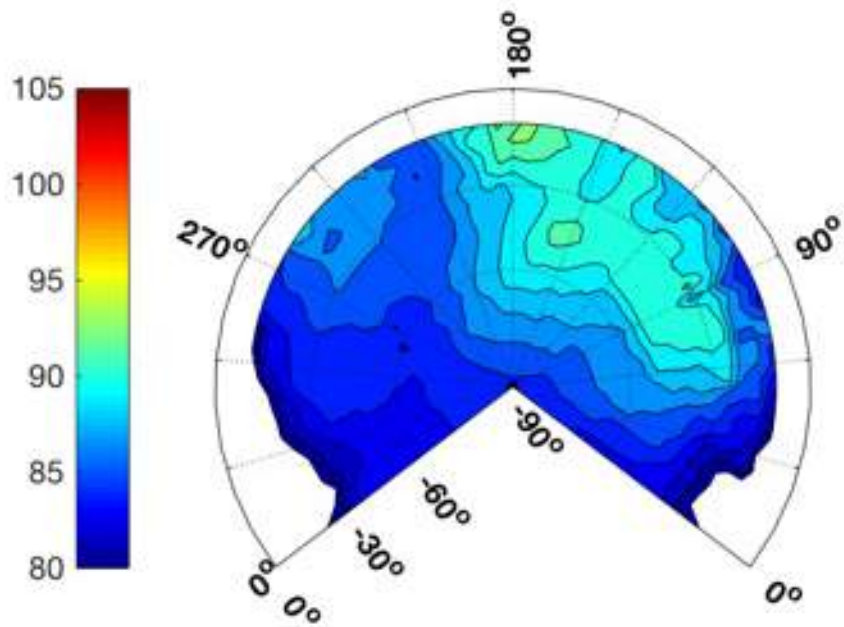


Figure 483: B206L3, 277172, D20, dBA hemisphere, ground speed 97.0 kts, -6.4° FPA.

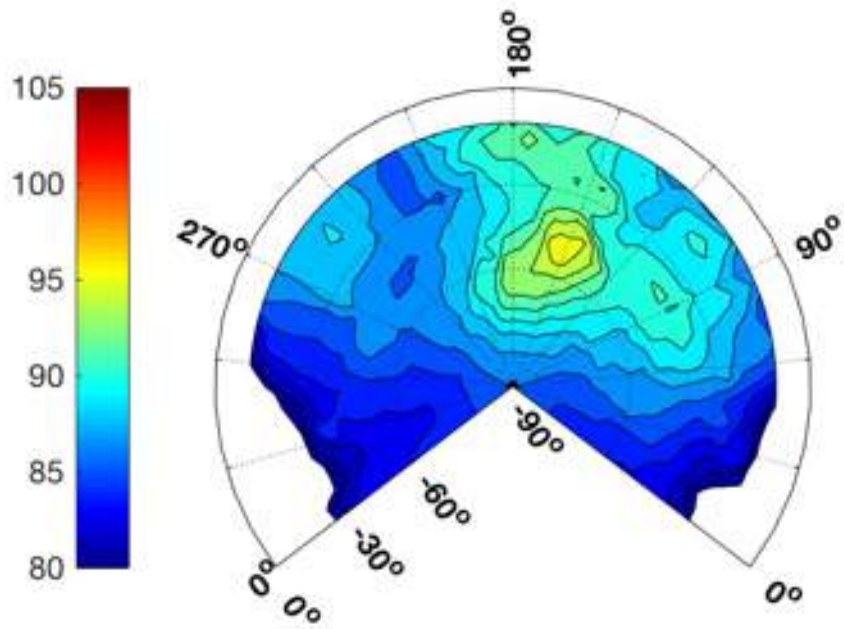


Figure 484: B206L3, 277173, D20, dBA hemisphere, ground speed 100.8 kts, -7.1° FPA.

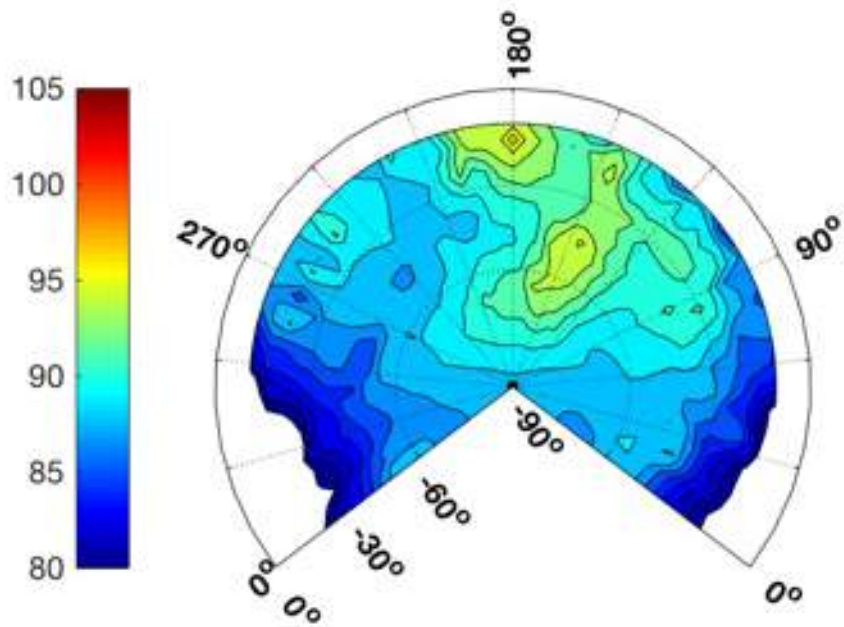


Figure 485: B206L3, 277174, D21, dBA hemisphere, ground speed 111.6 kts, -7.5° FPA.

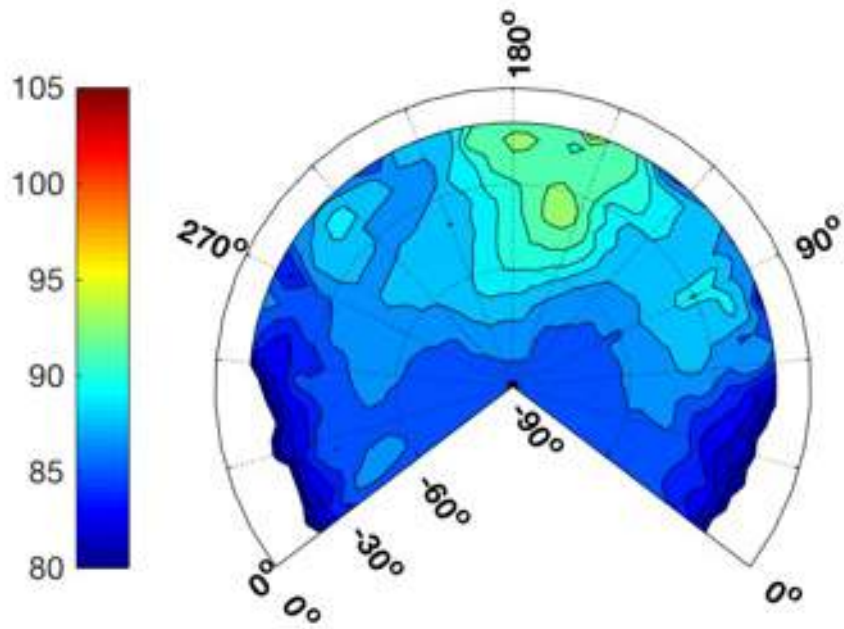


Figure 486: B206L3, 277175, D21, dBA hemisphere, ground speed 105.2 kts, -6.6° FPA.

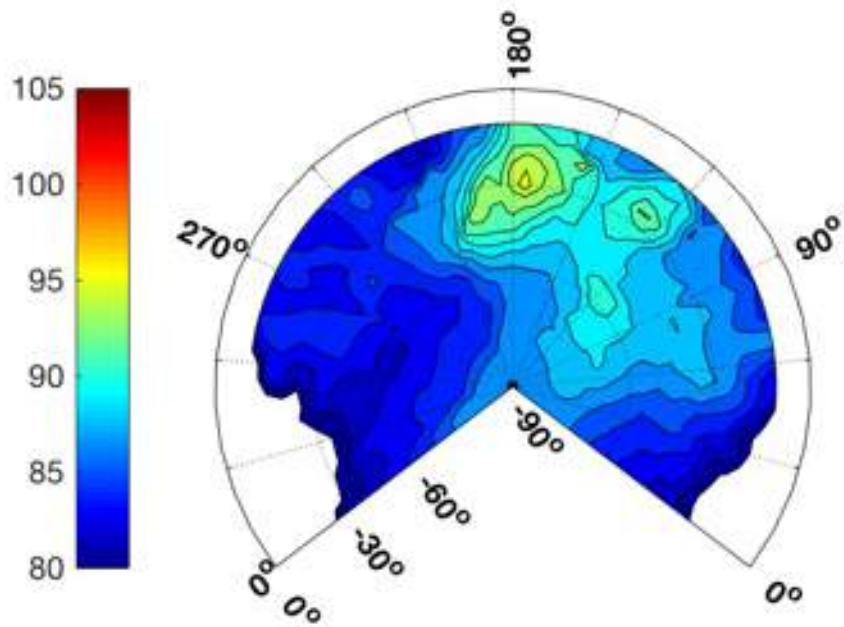


Figure 487: B206L3, 277176, D23, dBA hemisphere, ground speed 78.1 kts, -8.7° FPA.

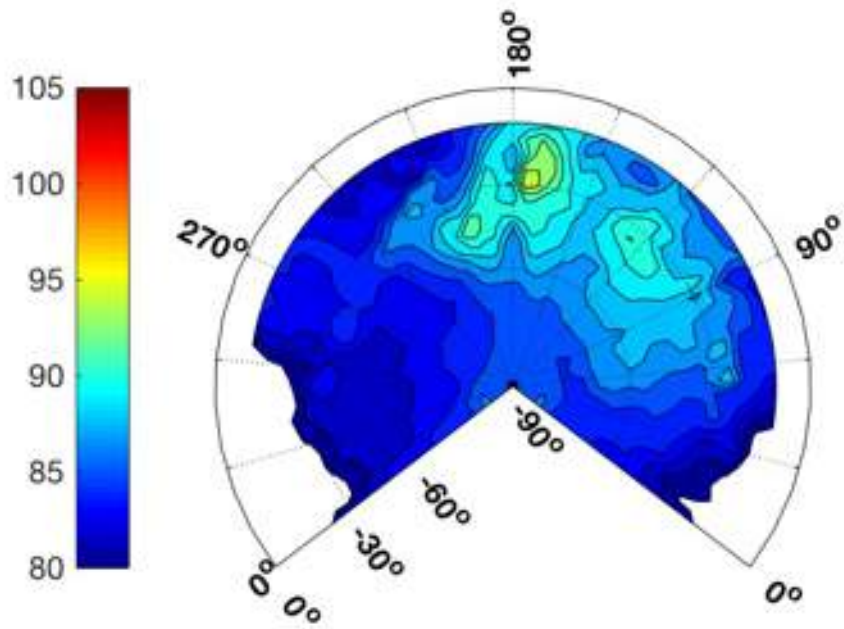


Figure 488: B206L3, 277177, D23, dBA hemisphere, ground speed 78.9 kts, -8.4° FPA.

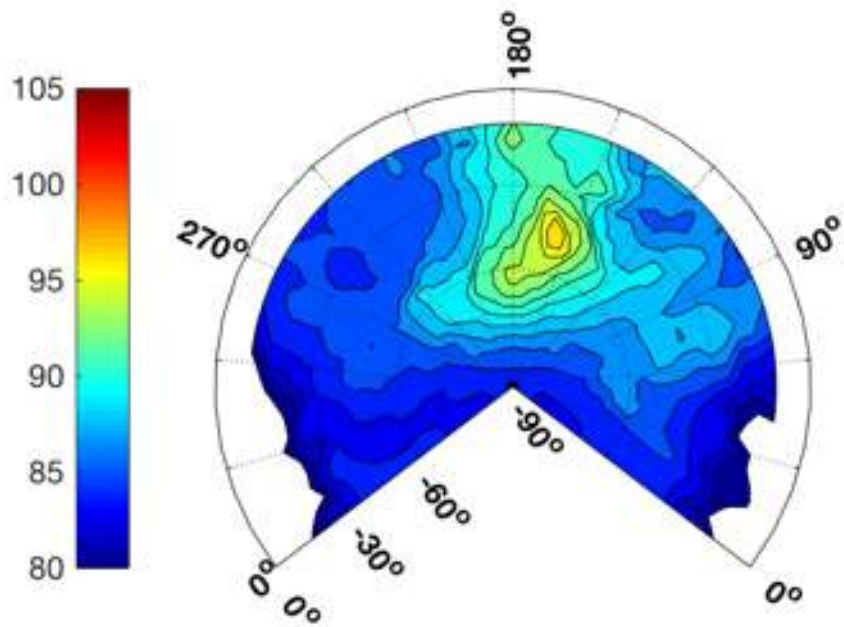


Figure 489: B206L3, 277179, D25, dBA hemisphere, ground speed 98.7 kts, -7.6° FPA.

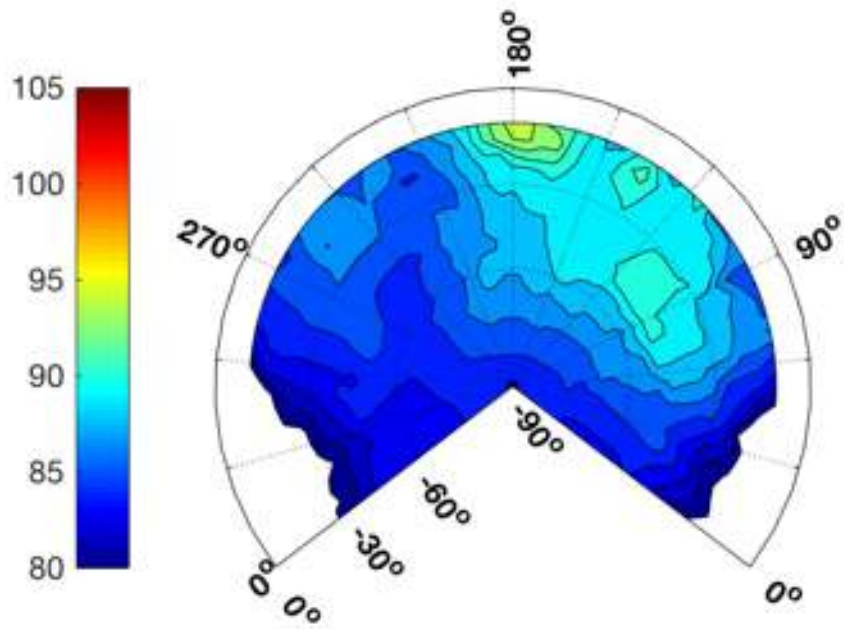


Figure 490: B206L3, 277180, D25, dBA hemisphere, ground speed 101.4 kts, -8.9° FPA.

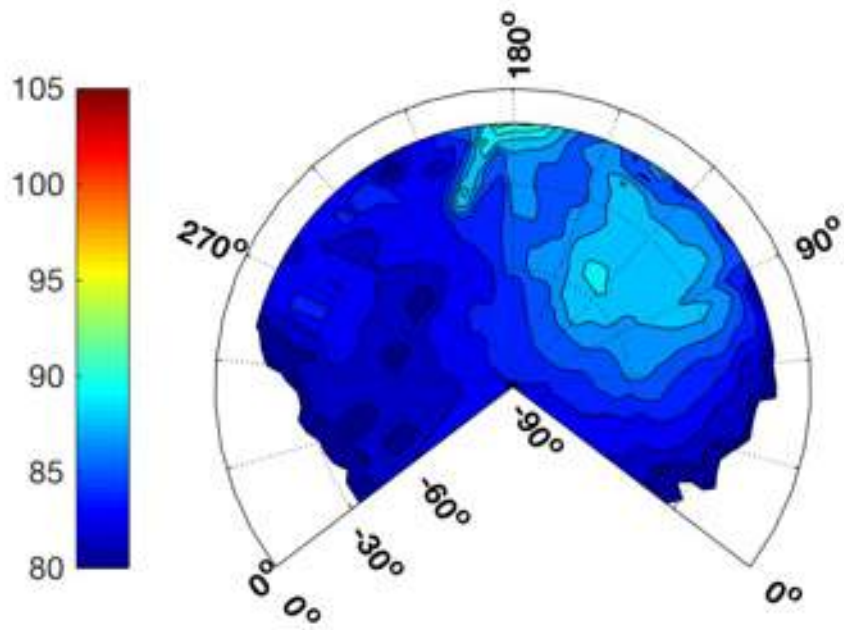


Figure 491: B206L3, 277181, D27, dBA hemisphere, ground speed 68.5 kts, -8.9° FPA.

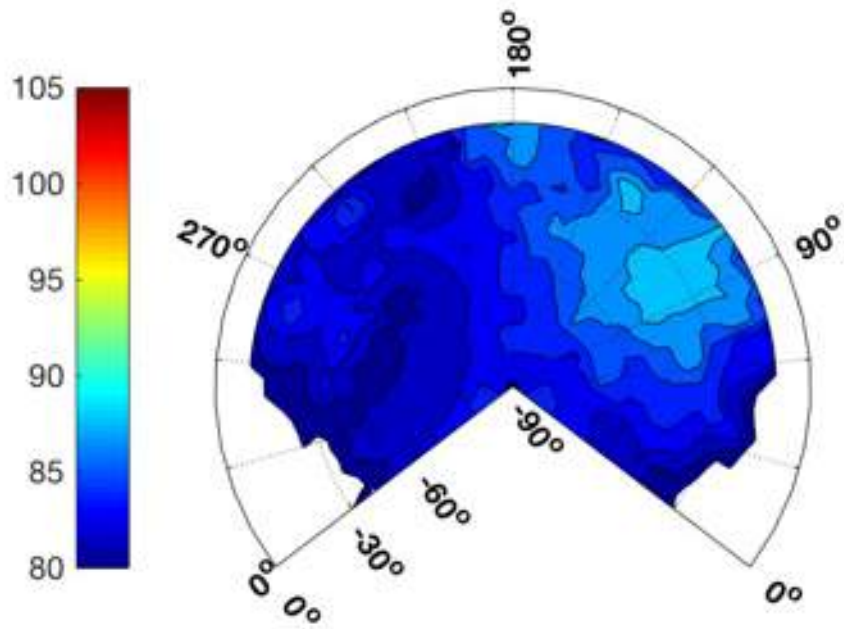


Figure 492: B206L3, 277182, D27, dBA hemisphere, ground speed 65.5 kts, -8.9° FPA.

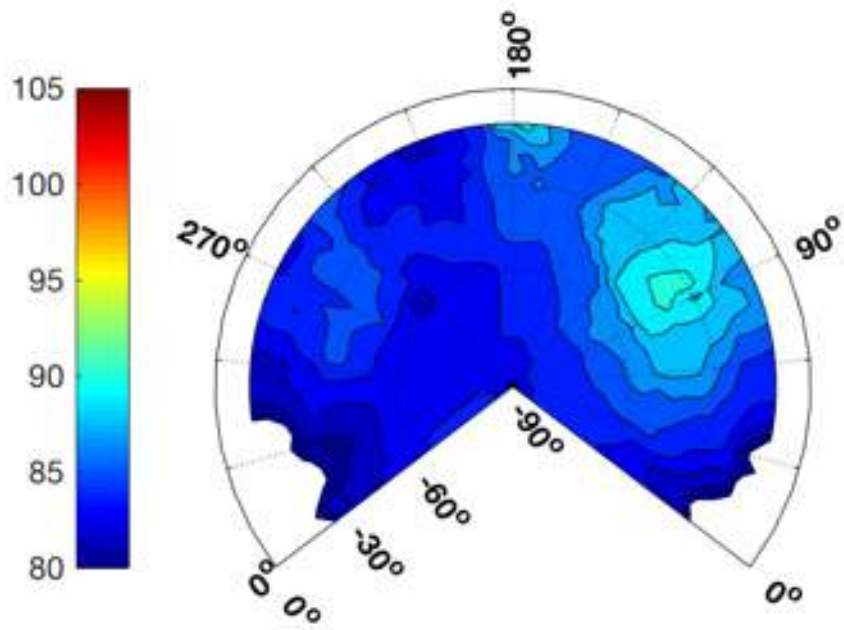


Figure 493: B206L3, 279276, D28, dBA hemisphere, ground speed 68.7 kts, -9.3° FPA.

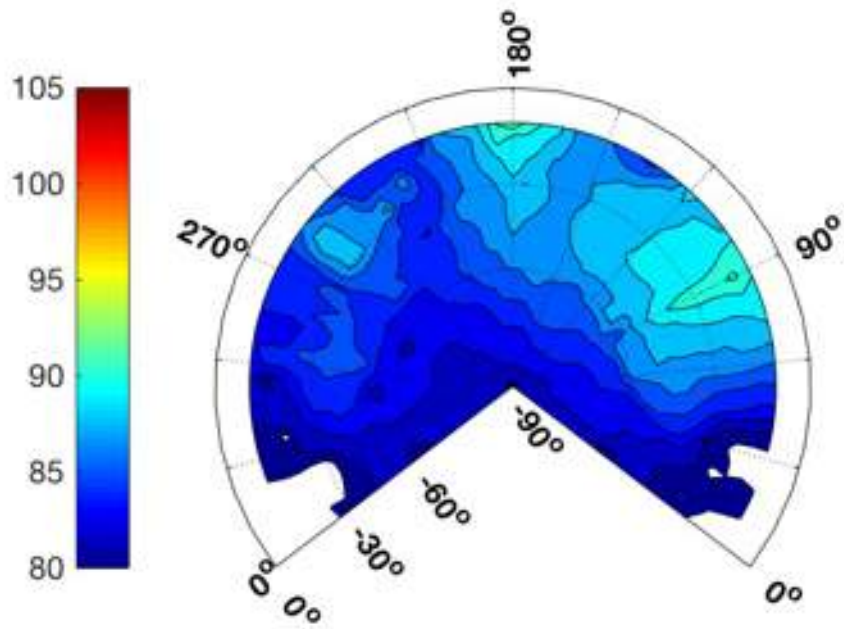


Figure 494: B206L3, 279277, D28, dBA hemisphere, ground speed 80.9 kts, -12.1° FPA.

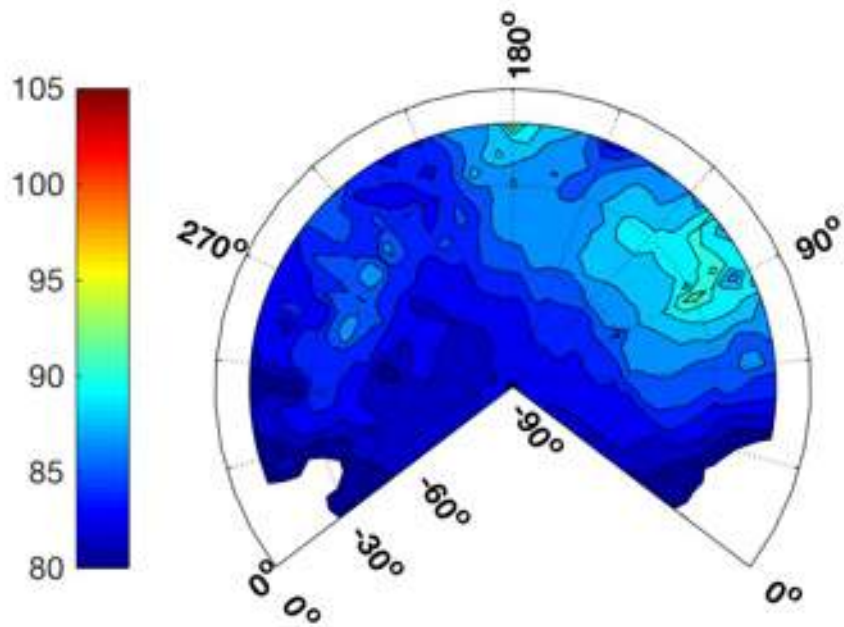


Figure 495: B206L3, 279278, D31, dBA hemisphere, ground speed 76.4 kts, -12.6° FPA.

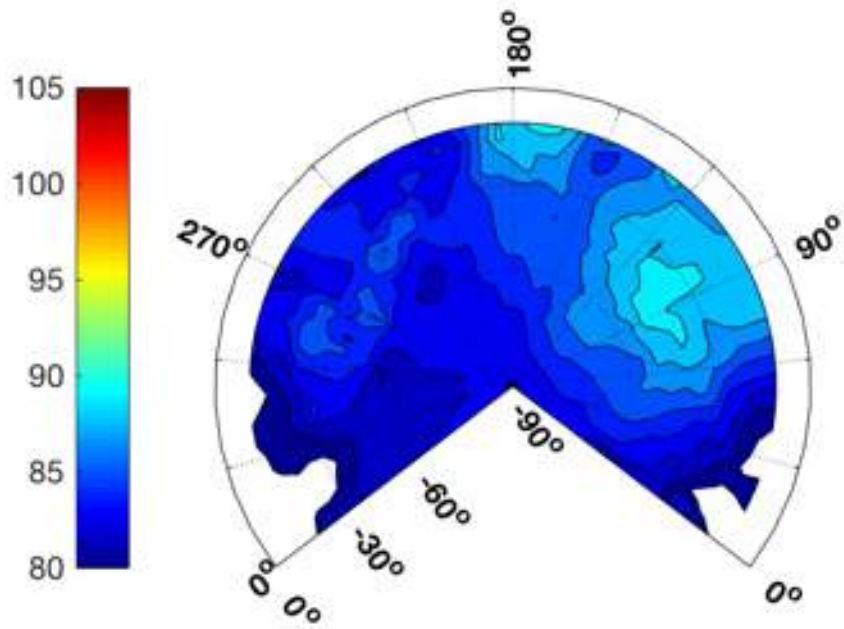


Figure 496: B206L3, 279279, D31, dBA hemisphere, ground speed 73.2 kts, -11.7° FPA.

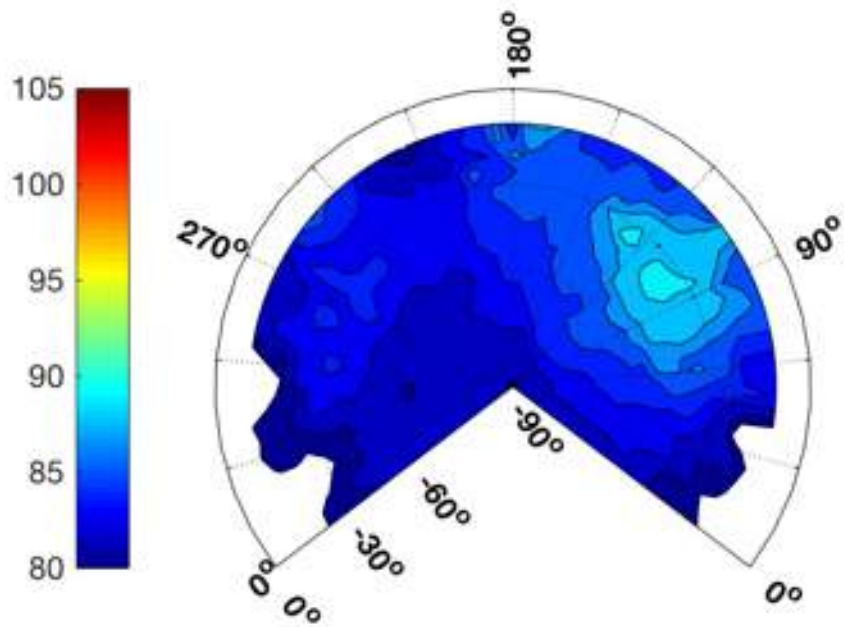


Figure 497: B206L3, 279280, D27, dBA hemisphere, ground speed 66.2 kts, -10.3° FPA.

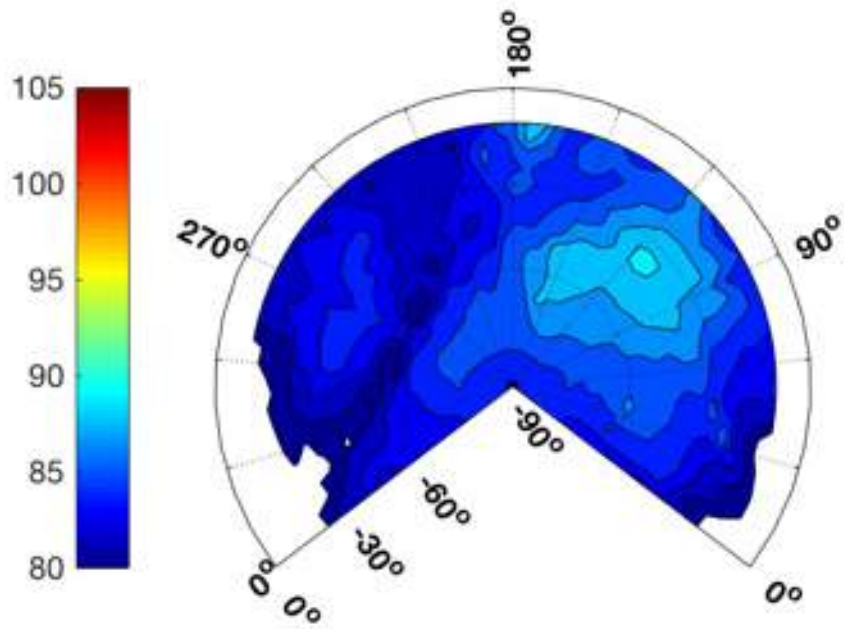


Figure 498: B206L3, 279281, D27, dBA hemisphere, ground speed 63.4 kts, -8.6° FPA.

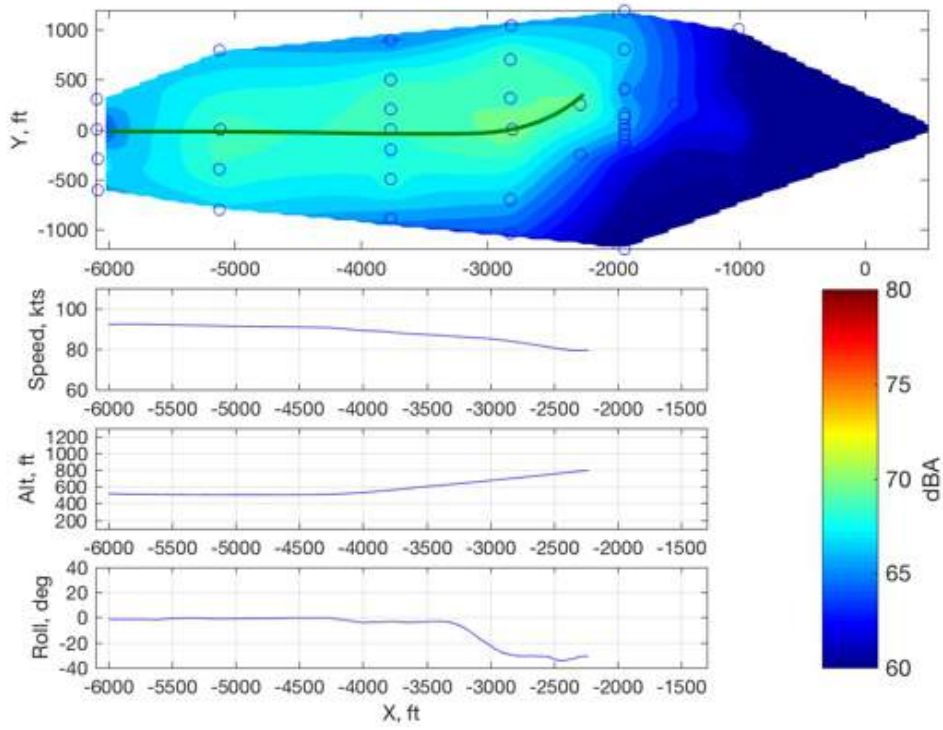


Figure 499: B206L3, 278236, F21, maximum dBA contour.

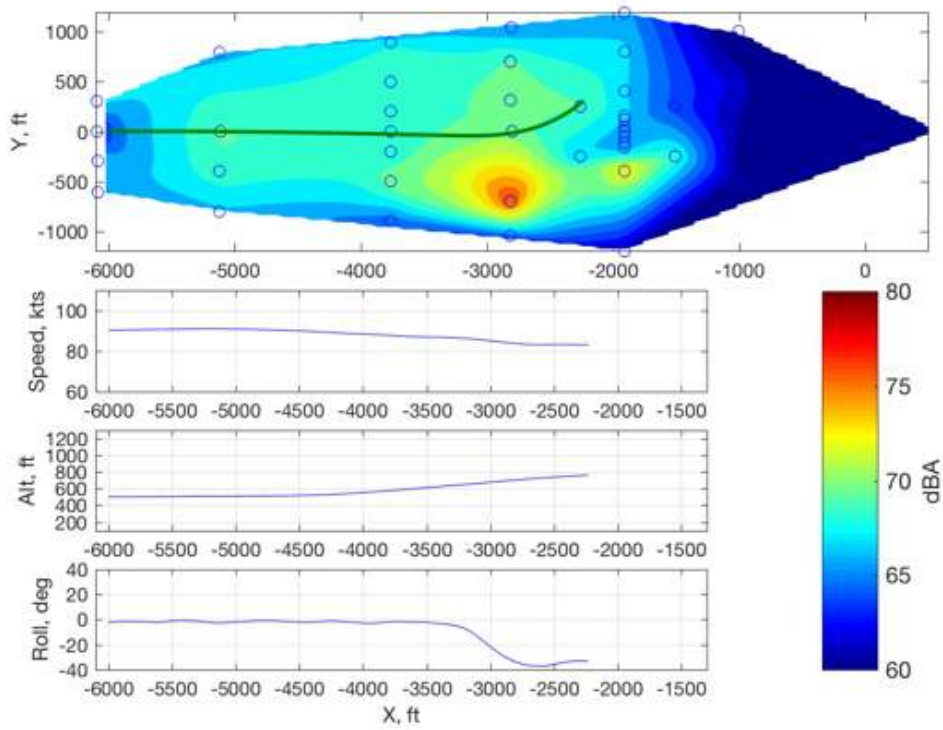


Figure 500: B206L3, 278237, F21, maximum dBA contour.

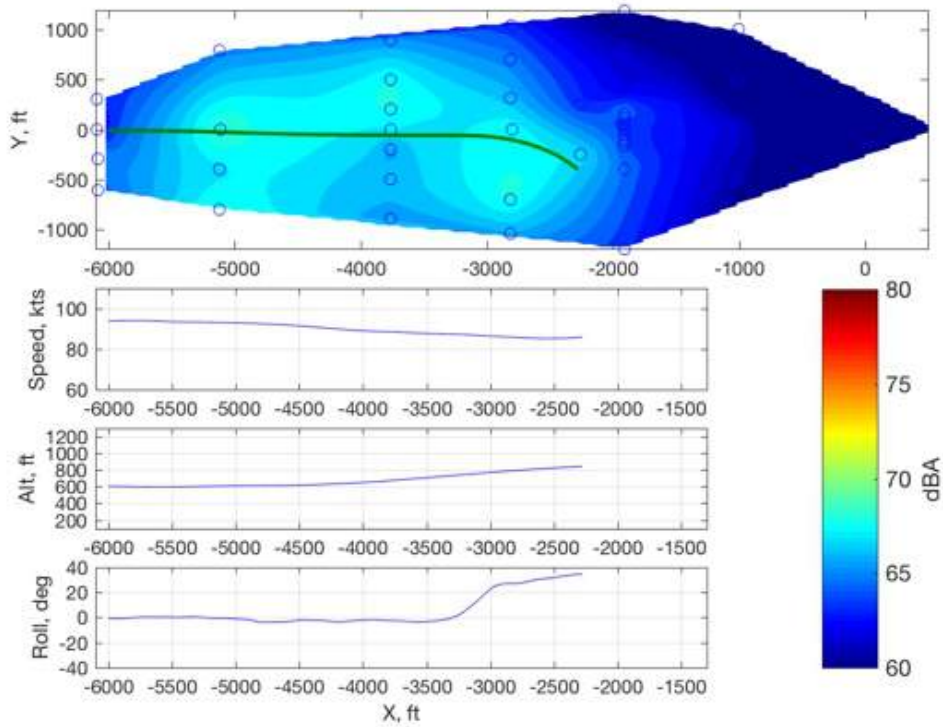


Figure 501: B206L3, 278238, F22, maximum dBA contour.

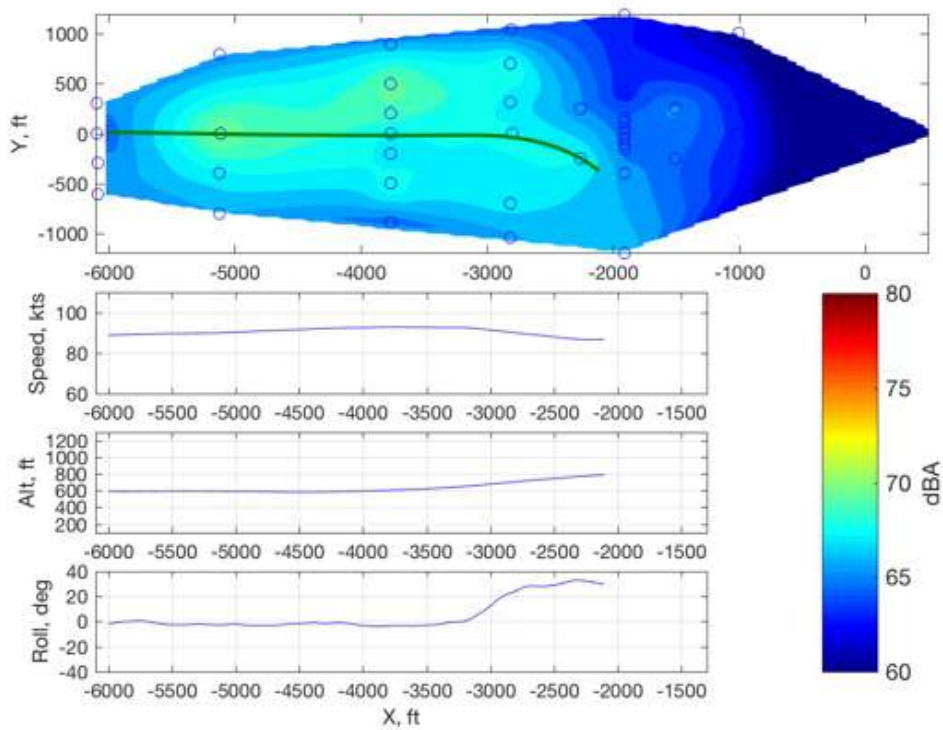


Figure 502: B206L3, 278240, F22, maximum dBA contour.

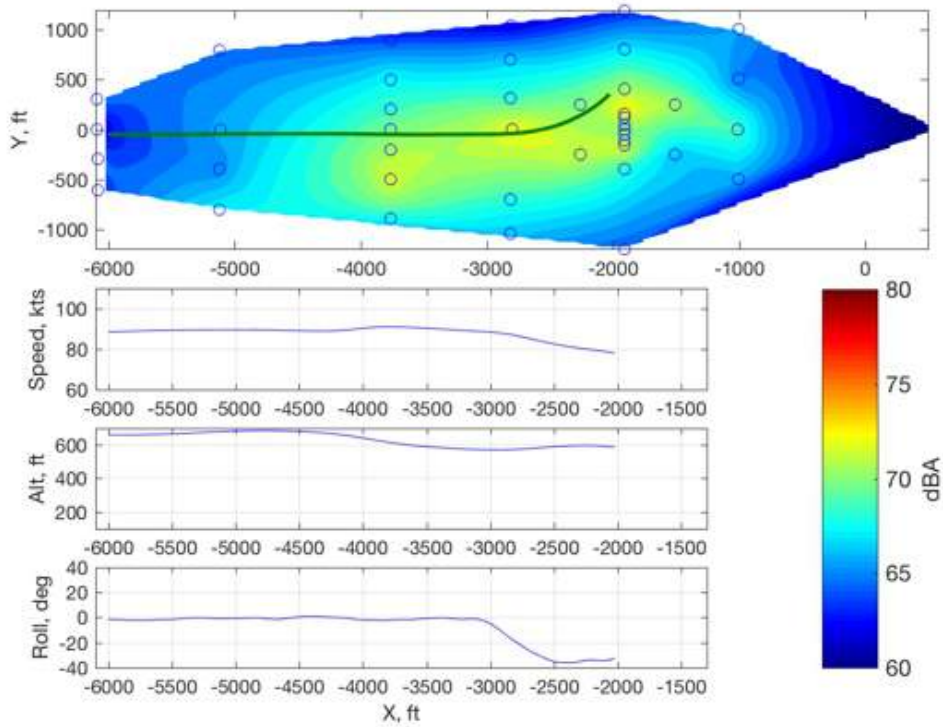


Figure 503: B206L3, 278241, F23, maximum dBA contour.

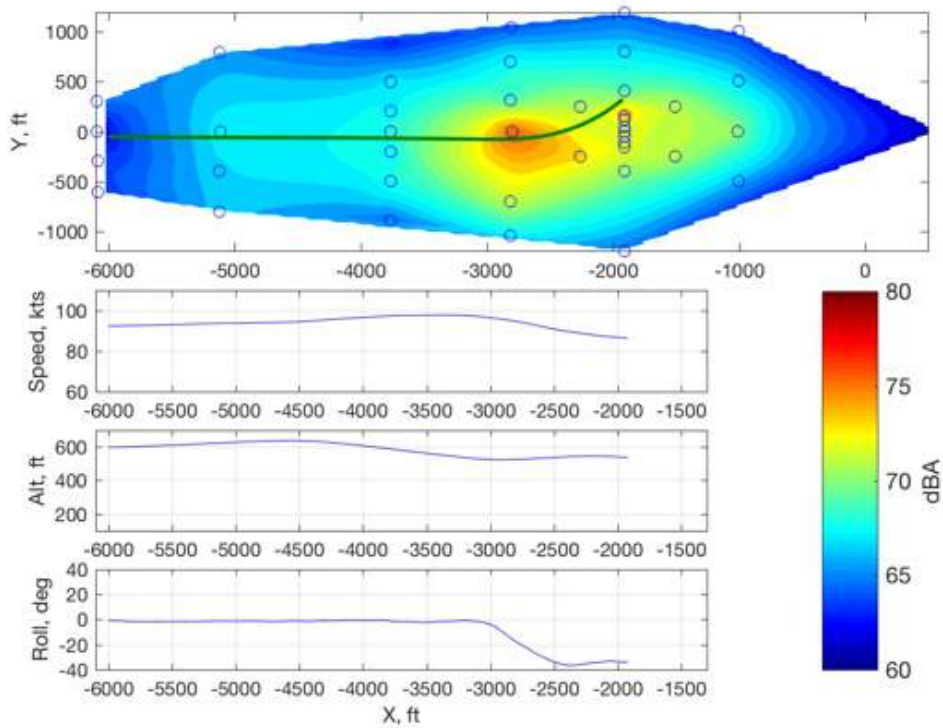


Figure 504: B206L3, 278242, F23, maximum dBA contour.

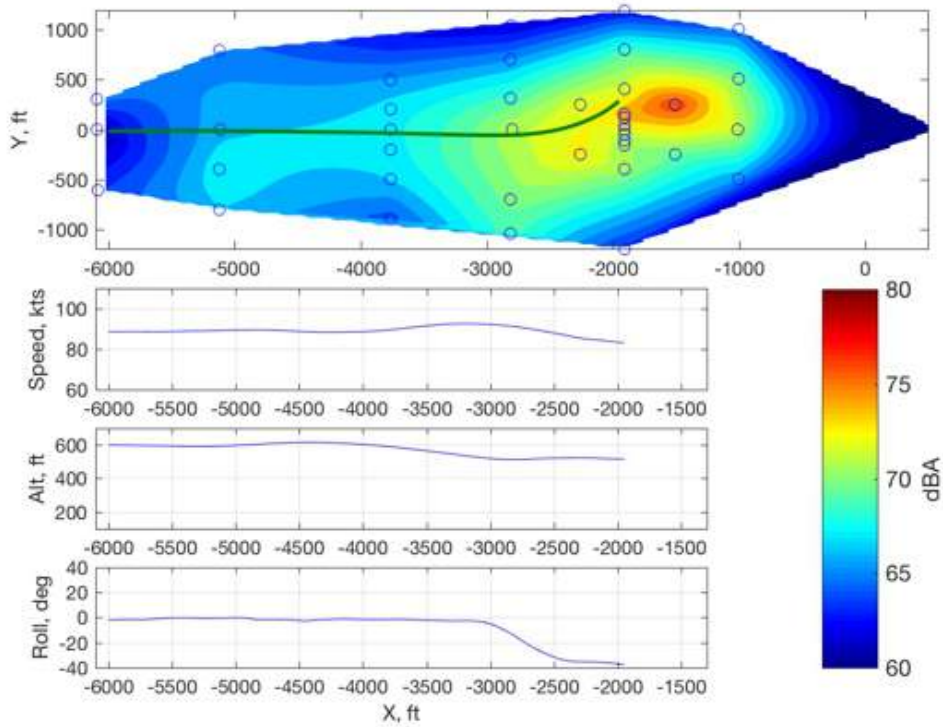


Figure 505: B206L3, 278243, F23, maximum dBA contour.

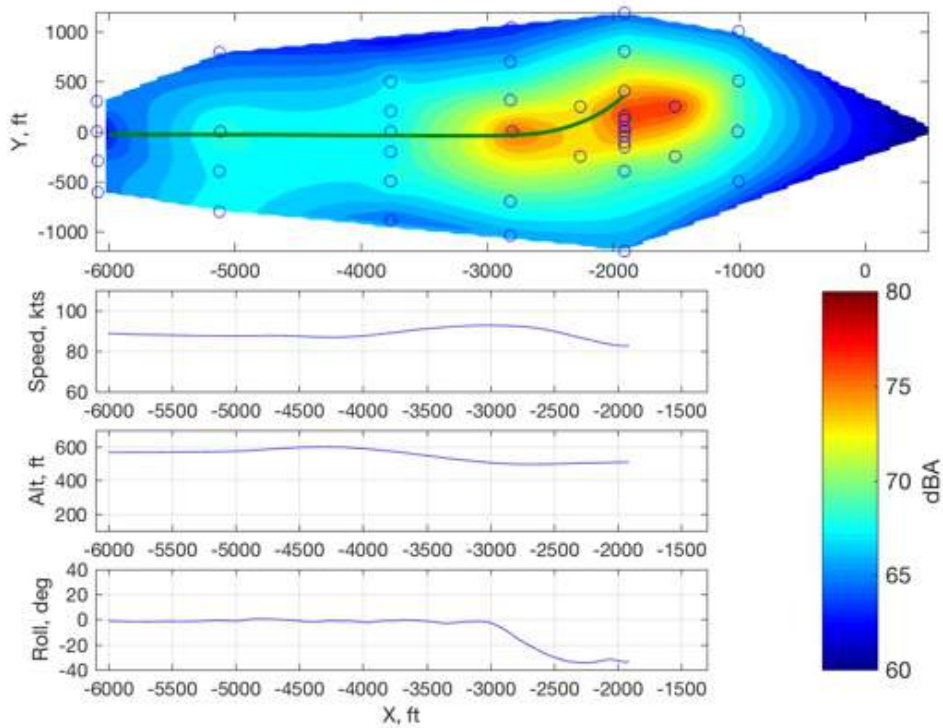


Figure 506: B206L3, 278244, F23, maximum dBA contour.

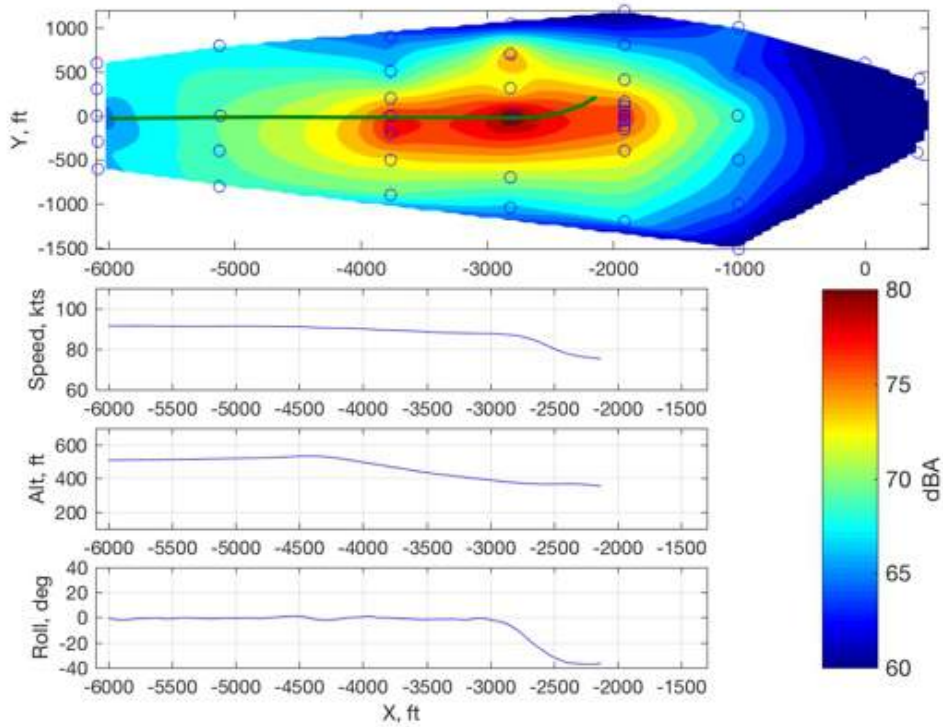


Figure 507: B206L3, 279288, F23, maximum dBA contour.

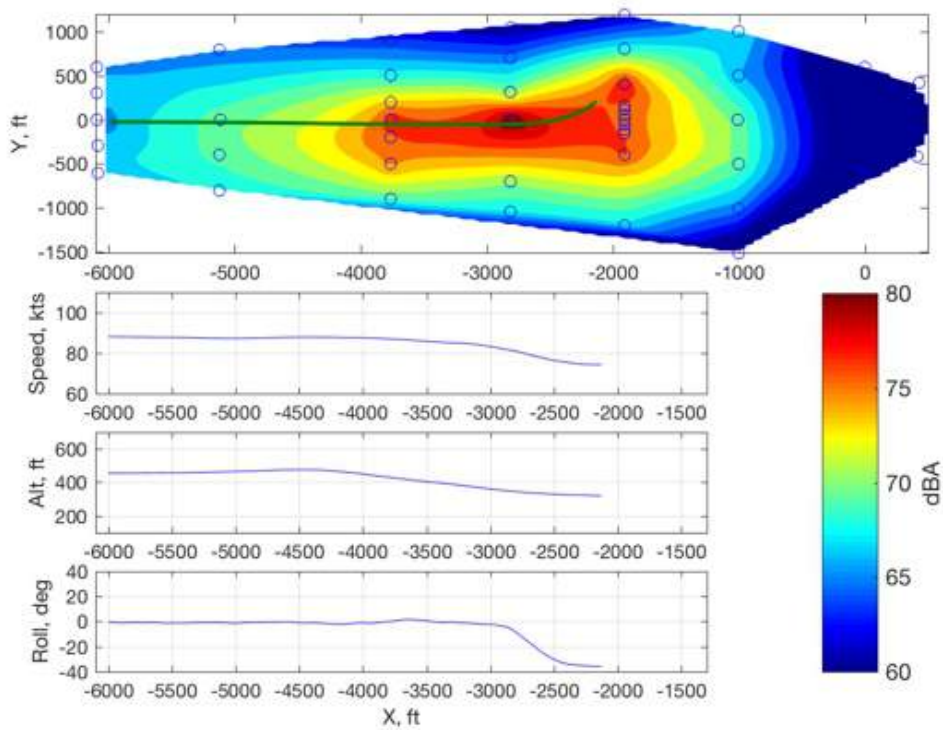


Figure 508: B206L3, 279289, F23, maximum dBA contour.

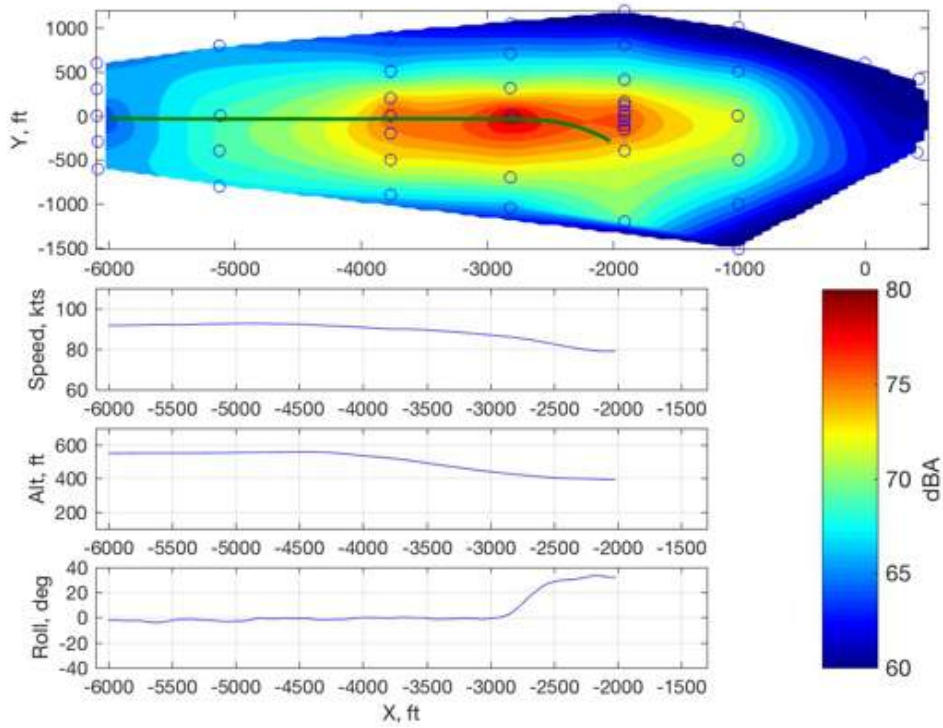


Figure 509: B206L3, 279290, F24, maximum dBA contour.

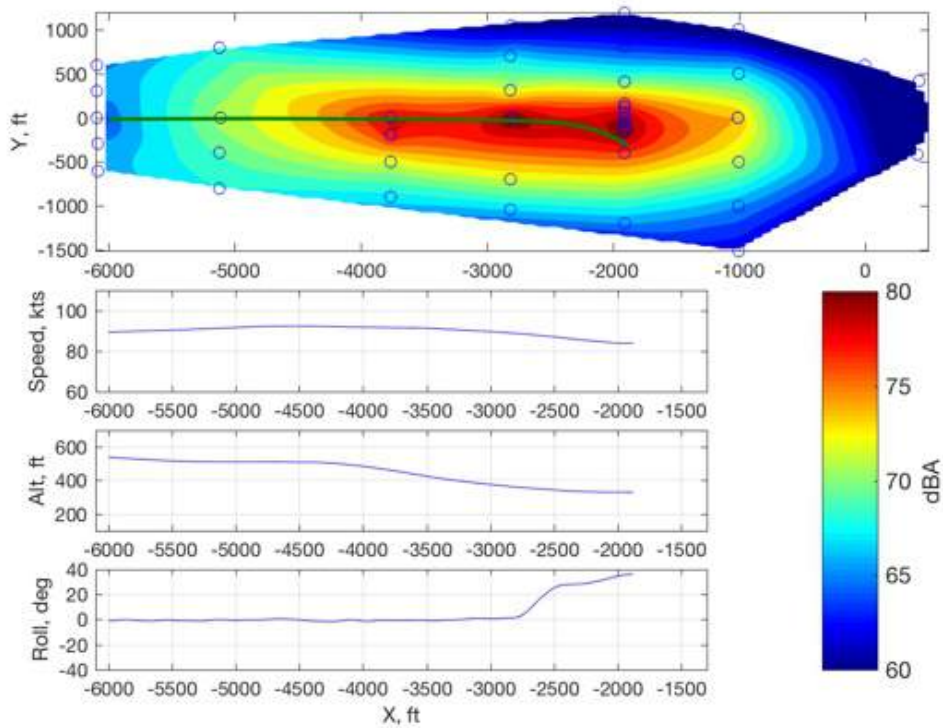


Figure 510: B206L3, 279291, F24, maximum dBA contour.

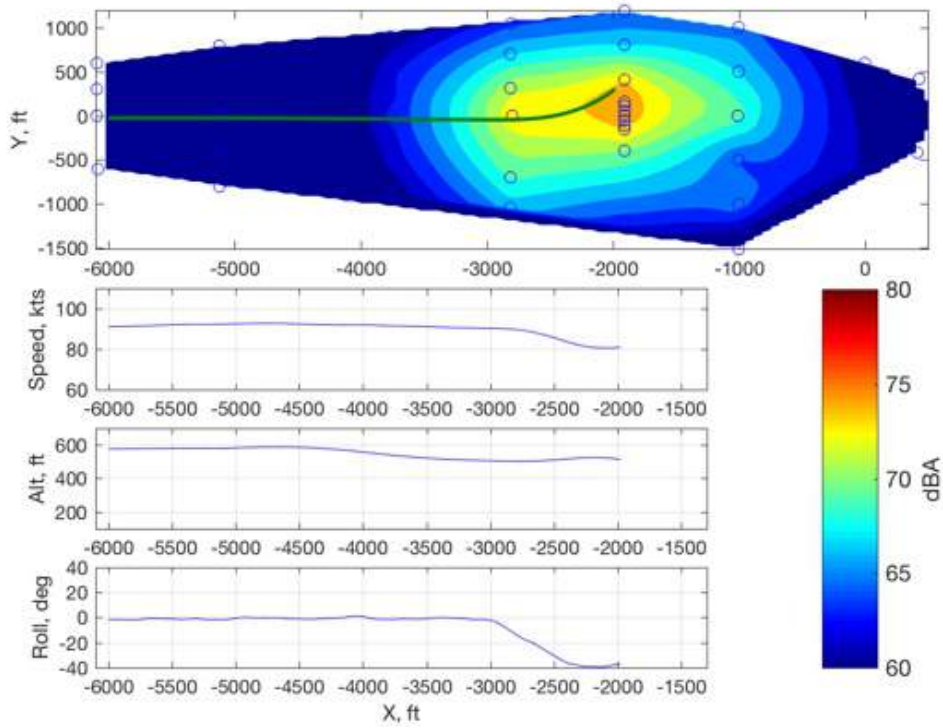


Figure 511: B206L3, 279302, F29, maximum dBA contour.

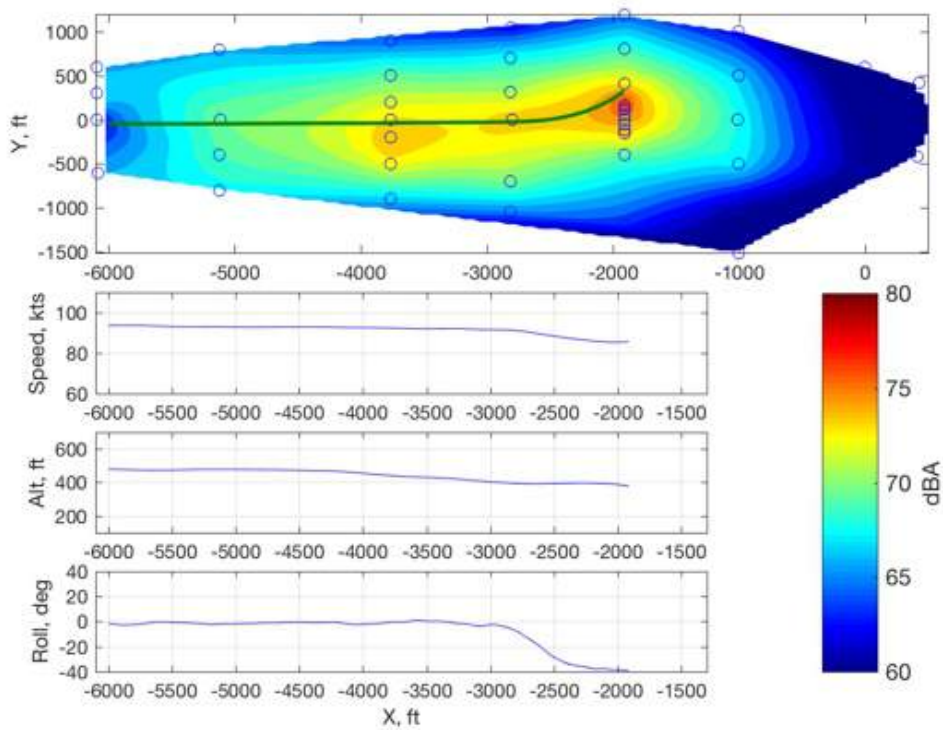


Figure 512: B206L3, 279303, F29, maximum dBA contour.

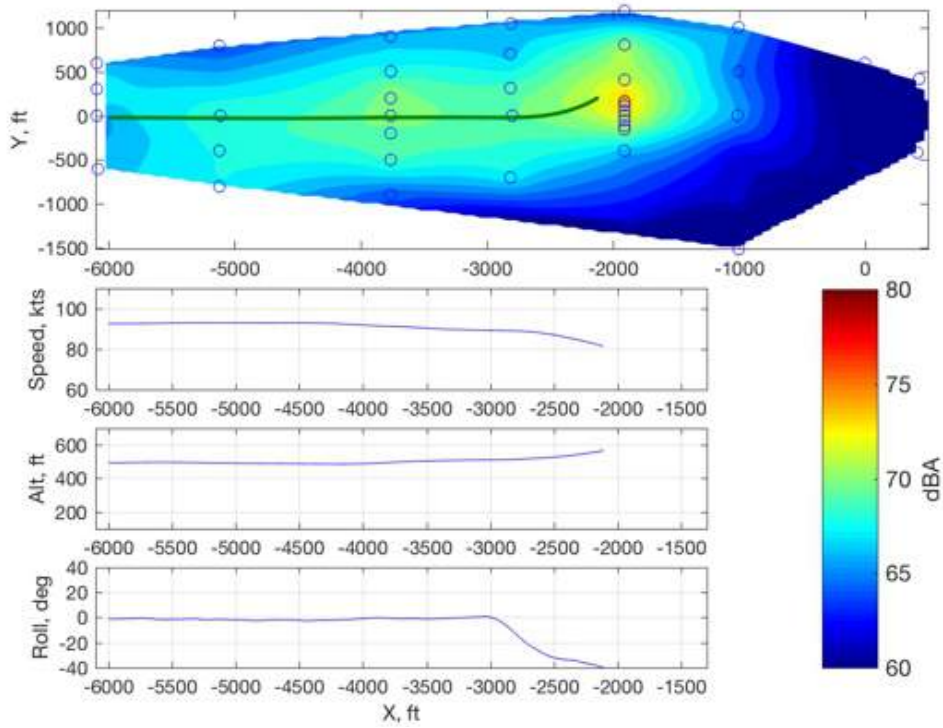


Figure 513: B206L3, 279304, F30, maximum dBA contour.

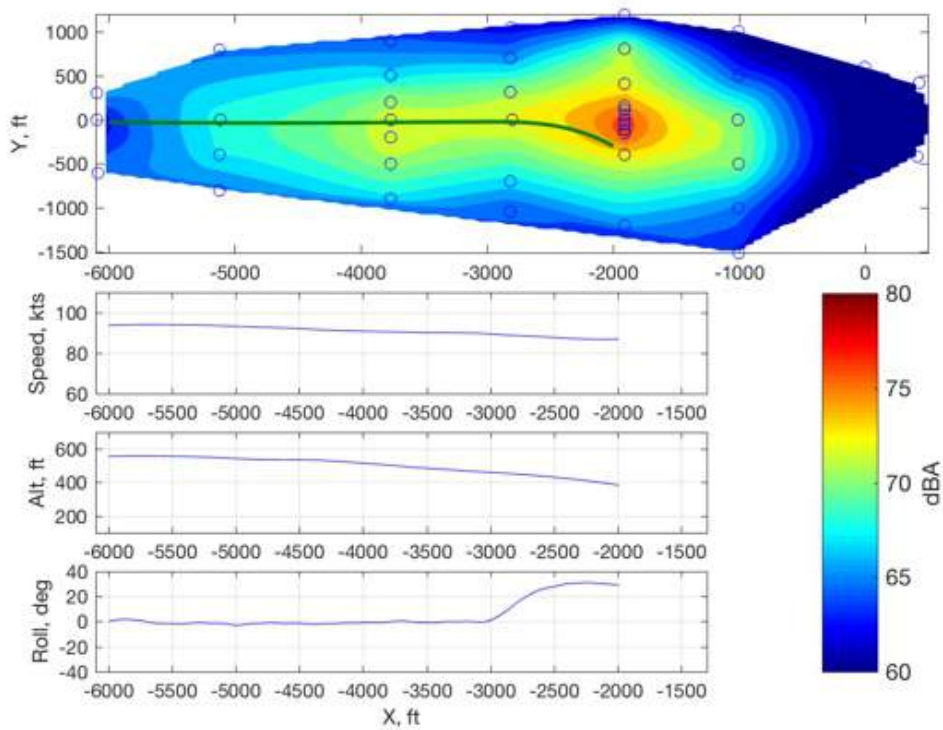


Figure 514: B206L3, 279305, F30, maximum dBA contour.

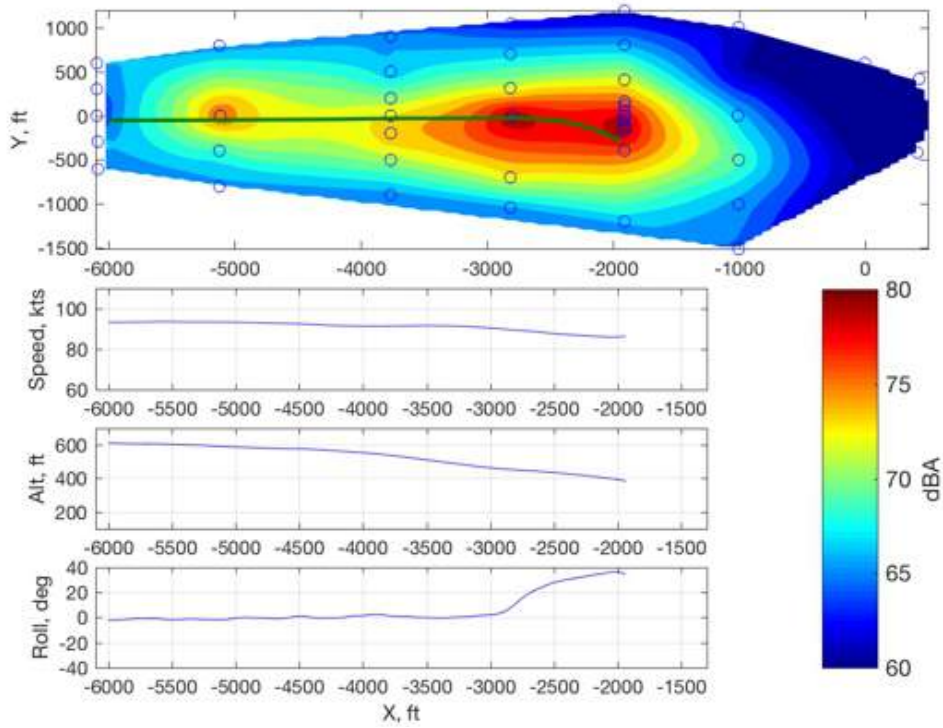


Figure 515: B206L3, 279306, F30, maximum dBA contour.

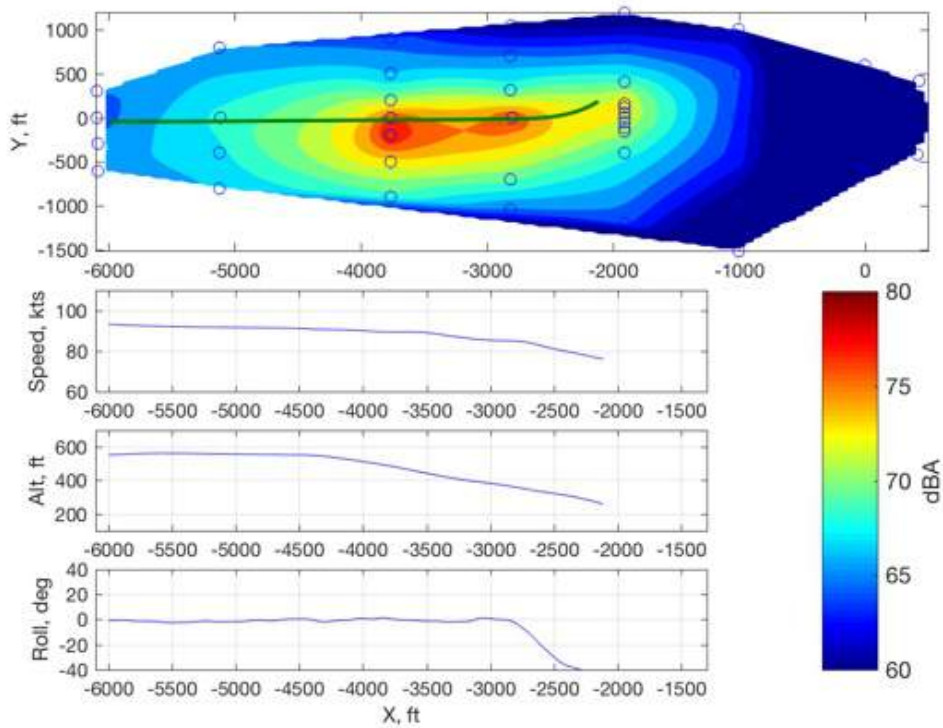


Figure 516: B206L3, 279307, F31, maximum dBA contour.

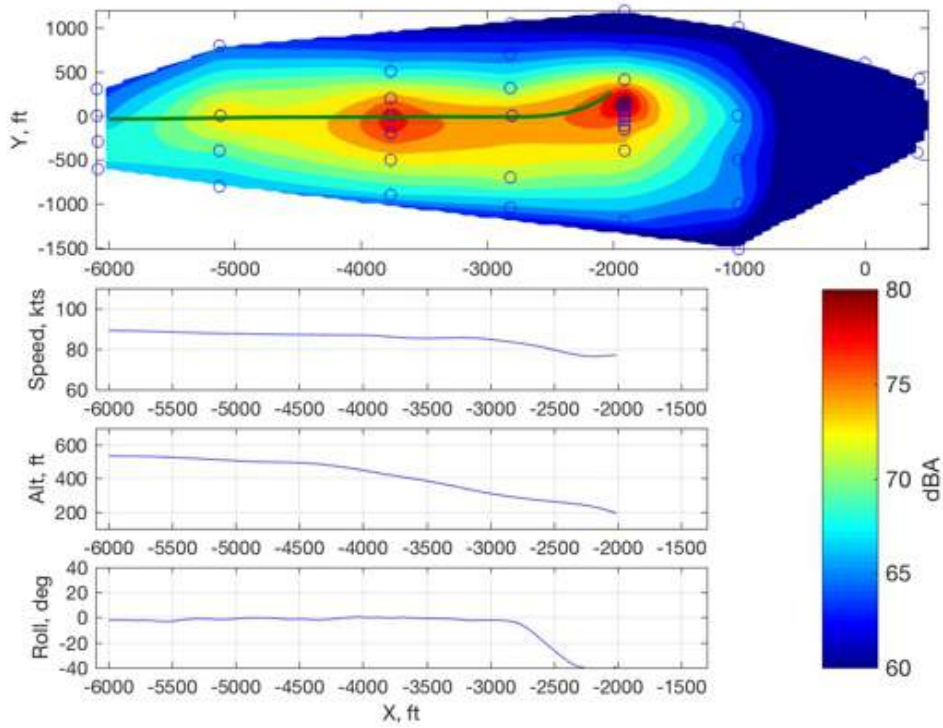


Figure 517: B206L3, 279308, F31, maximum dBA contour.

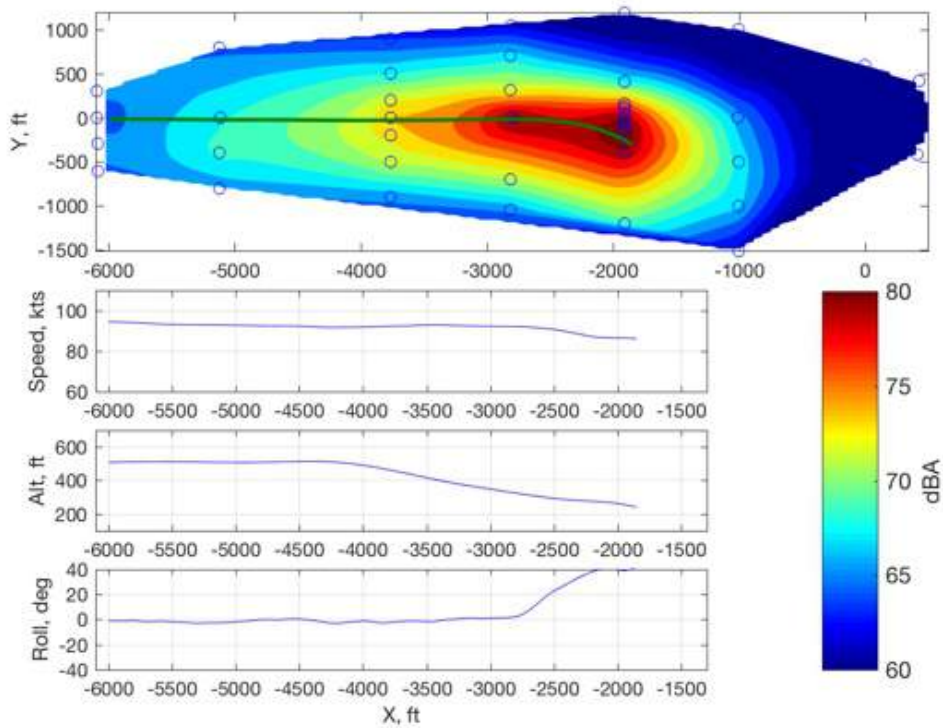


Figure 518: B206L3, 279309, F32, maximum dBA contour.

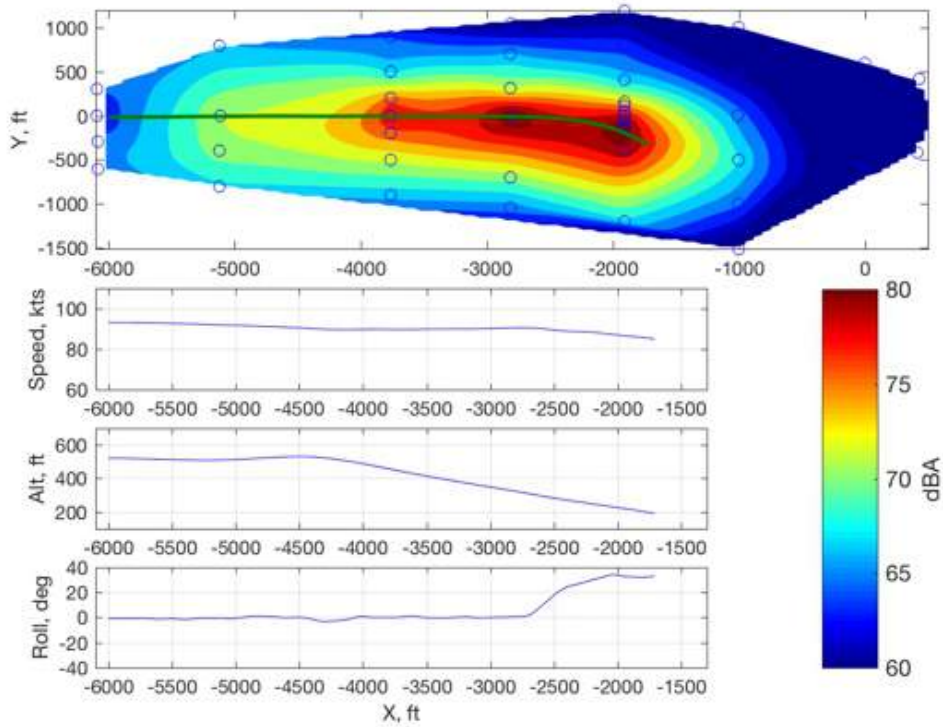


Figure 519: B206L3, 279310, F32, maximum dBA contour.

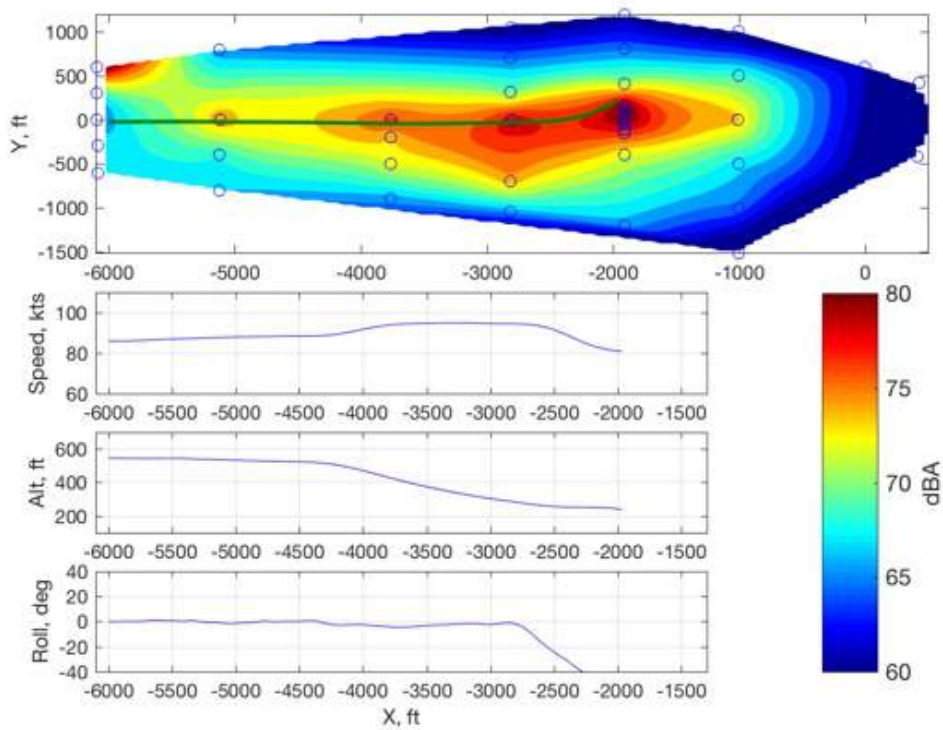


Figure 520: B206L3, 279292, G15, maximum dBA contour.

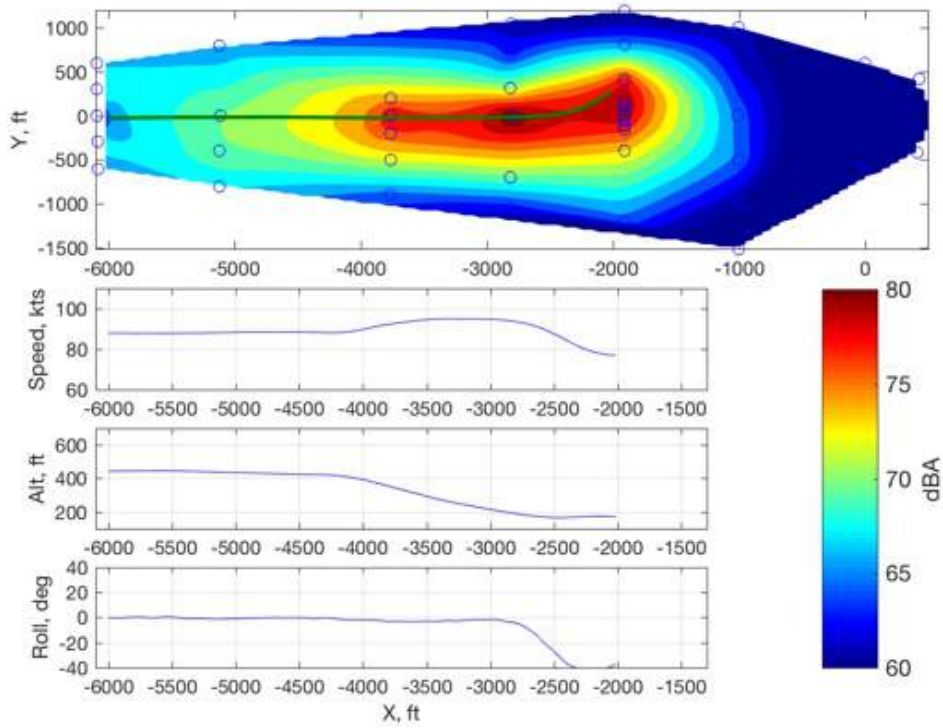


Figure 521: B206L3, 279293, G15, maximum dBA contour.

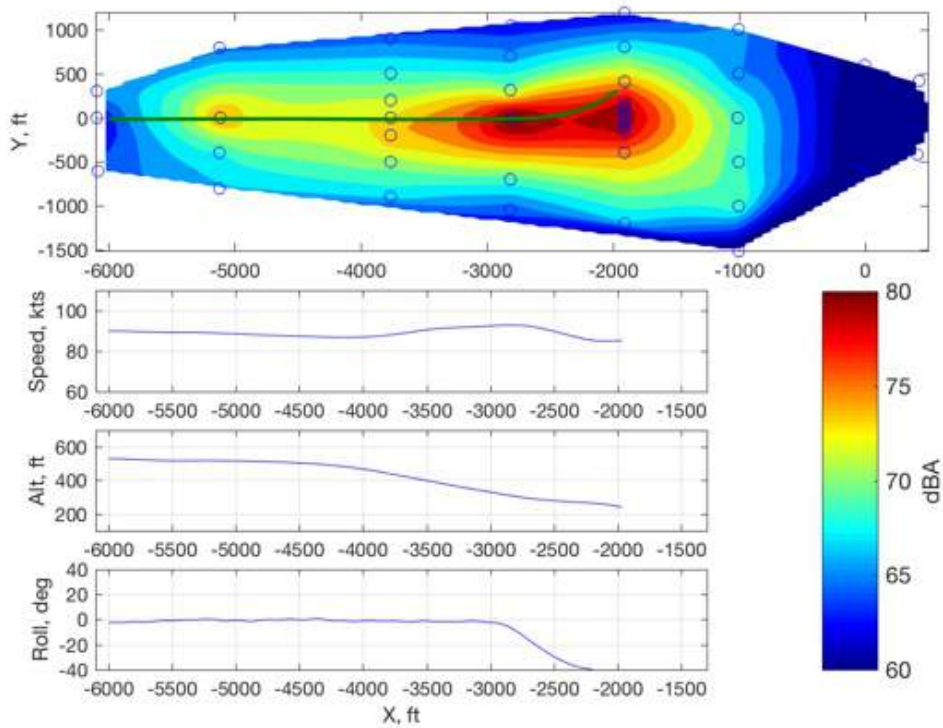


Figure 522: B206L3, 279311, G15, maximum dBA contour.

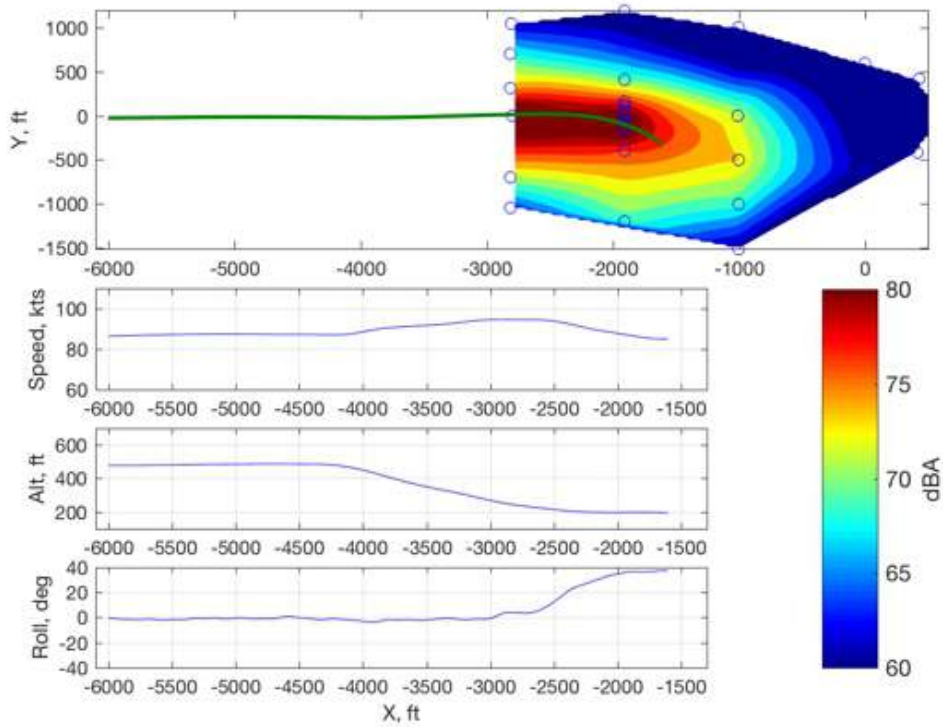


Figure 523: B206L3, 279294, G16, maximum dBA contour.

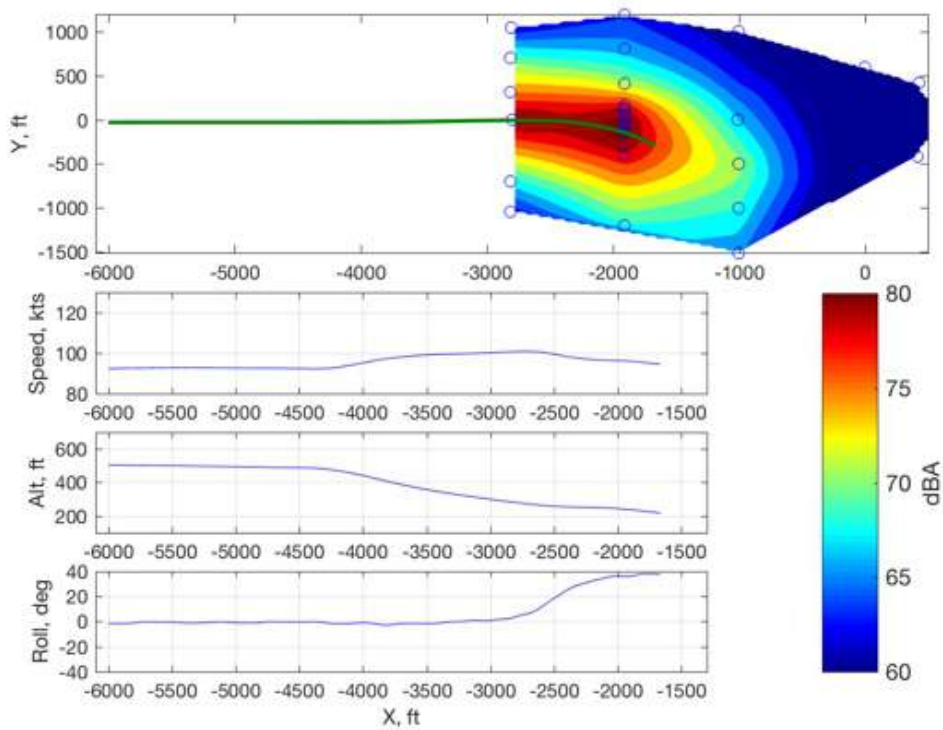


Figure 524: B206L3, 279295, G16, maximum dBA contour.

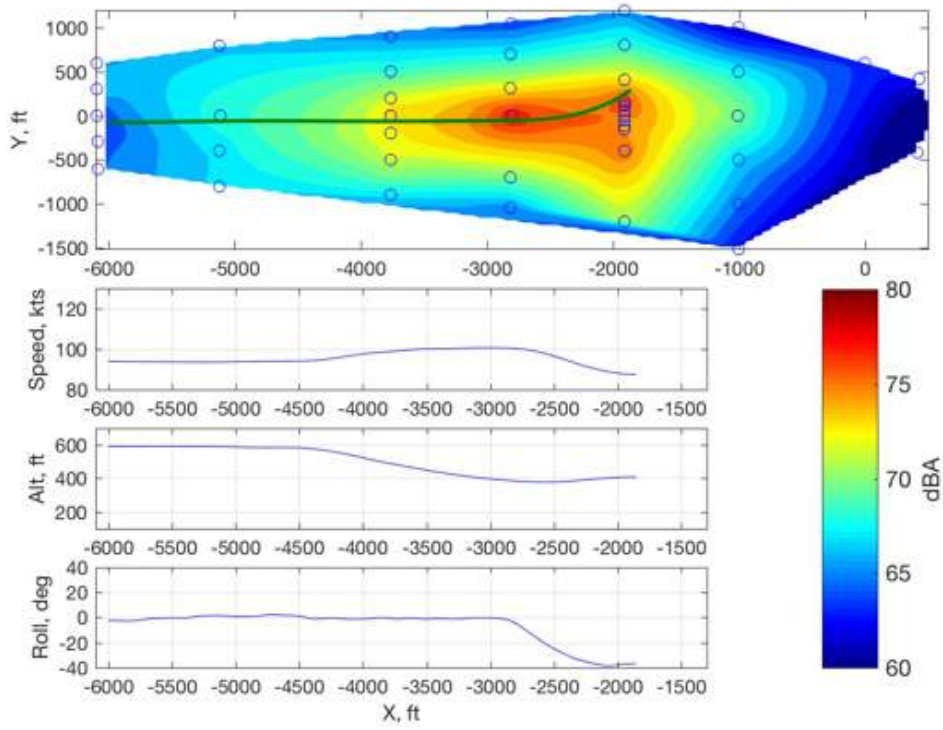


Figure 525: B206L3, 279301, G16, maximum dBA contour.

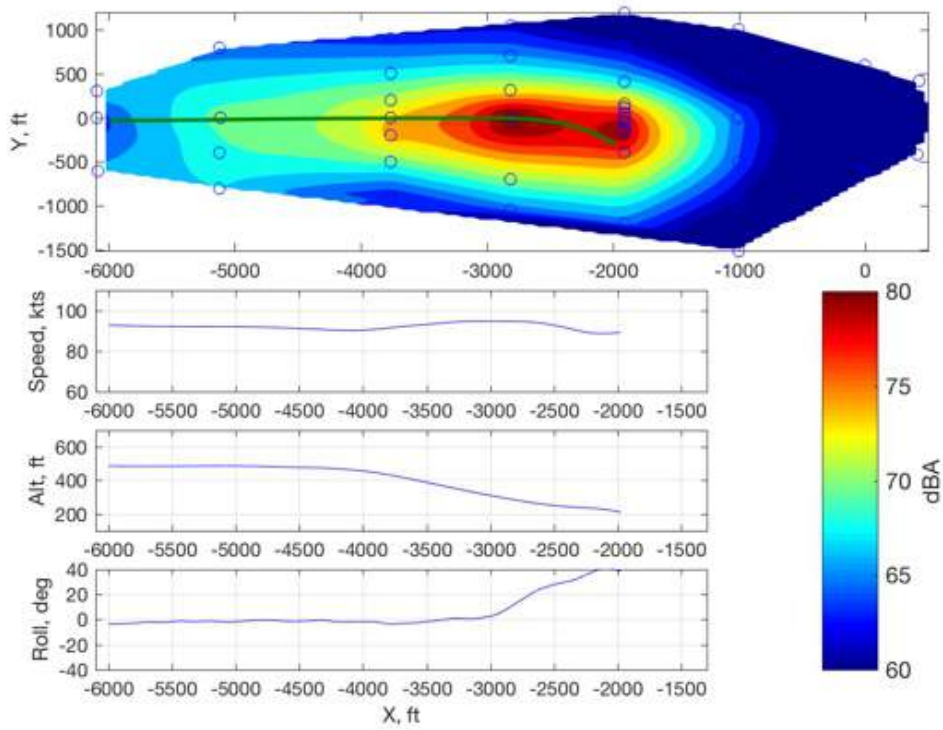


Figure 526: B206L3, 279312, G16, maximum dBA contour.

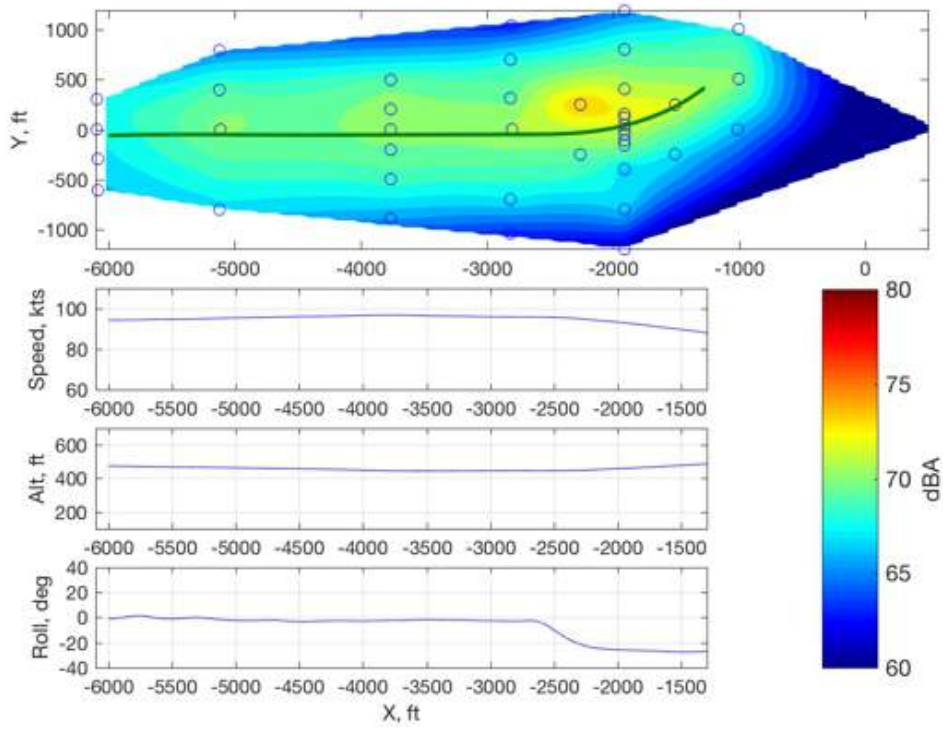


Figure 527: B206L3, 278203, N11, maximum dBA contour.

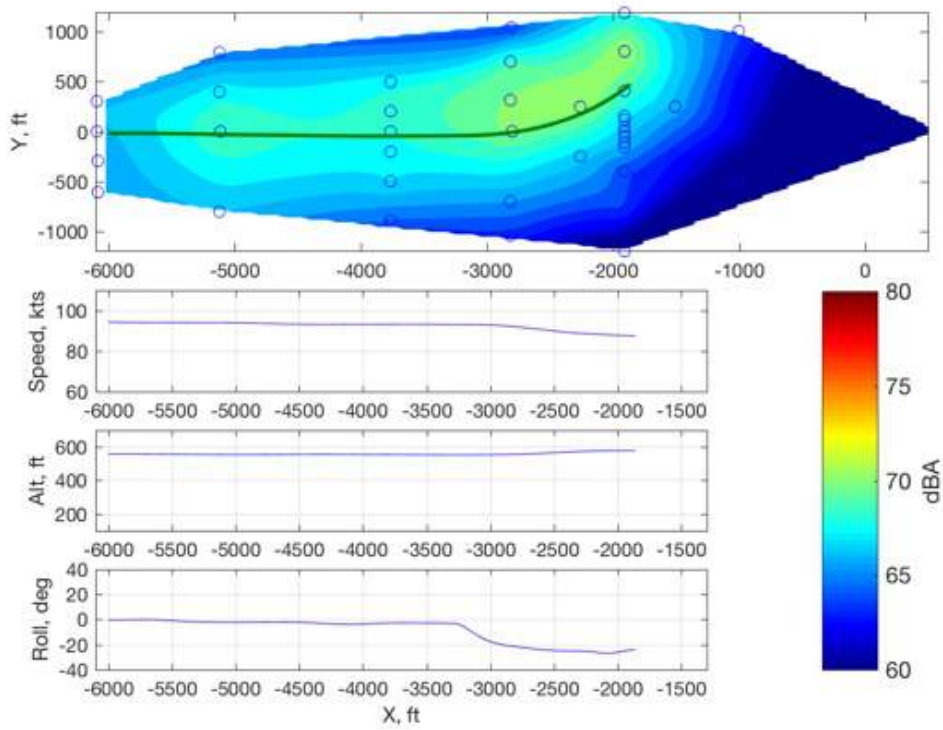


Figure 528: B206L3, 278204, N11, maximum dBA contour.

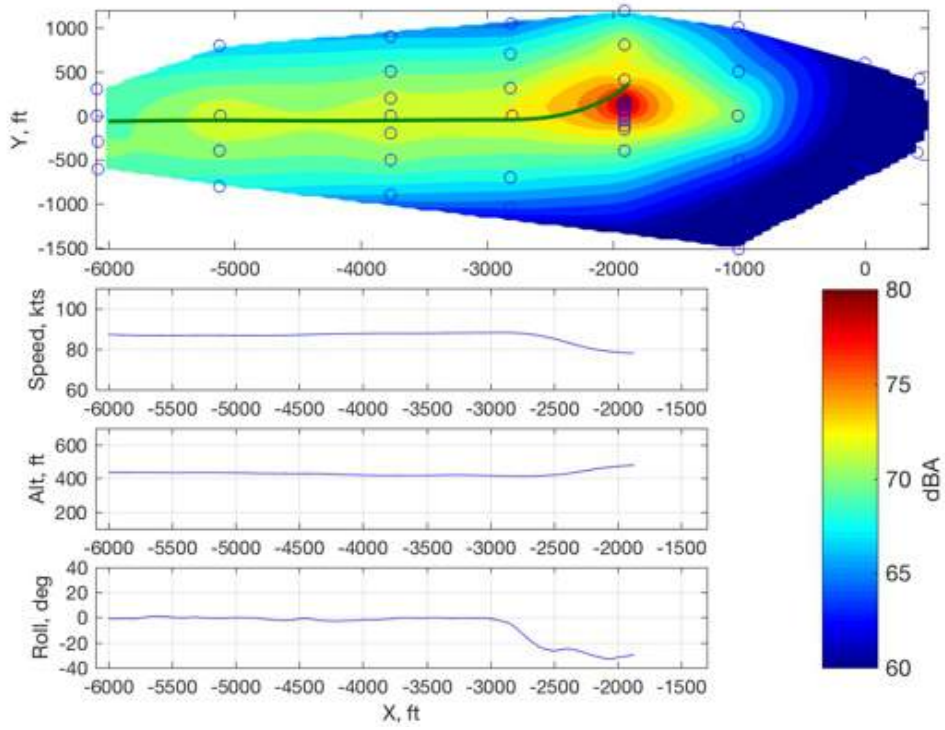


Figure 529: B206L3, 279283, N11, maximum dBA contour.

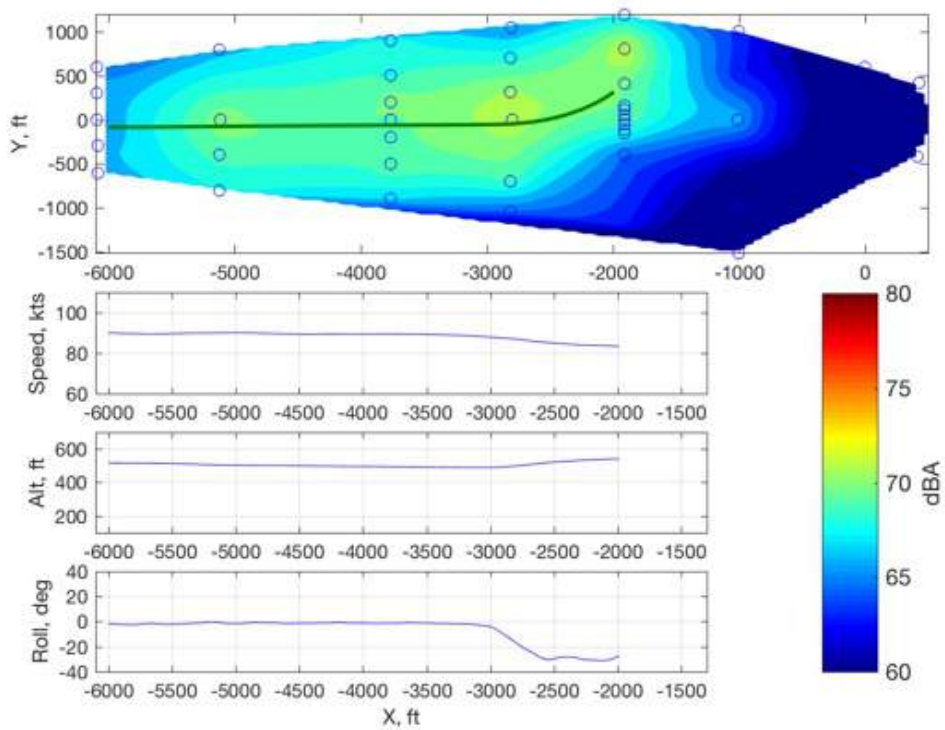


Figure 530: B206L3, 279284, N11, maximum dBA contour.

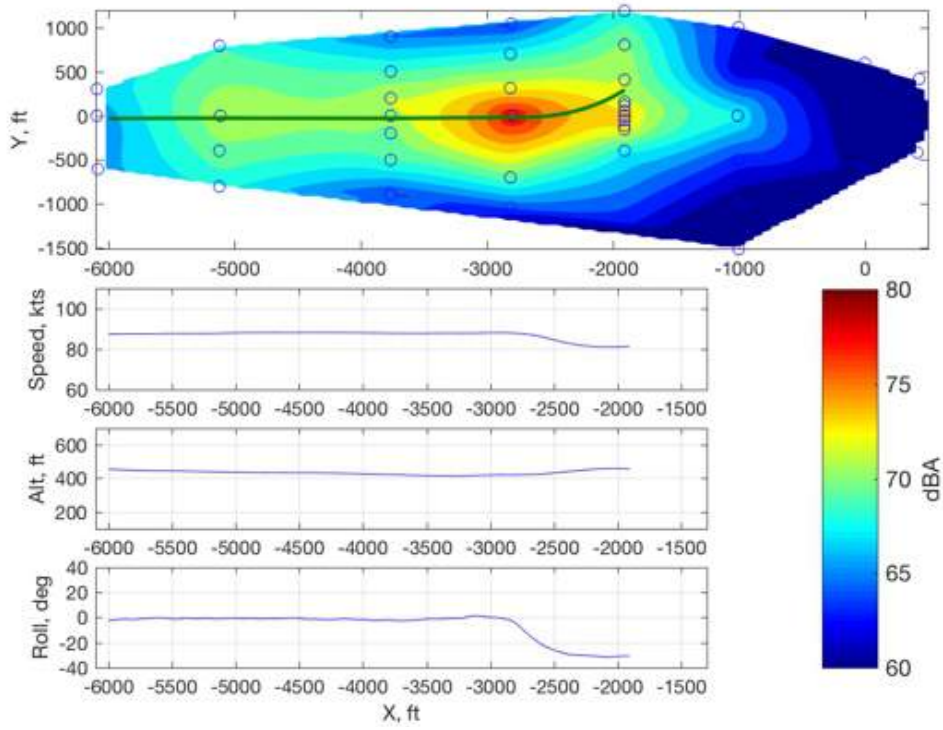


Figure 531: B206L3, 279285, N11, maximum dBA contour.

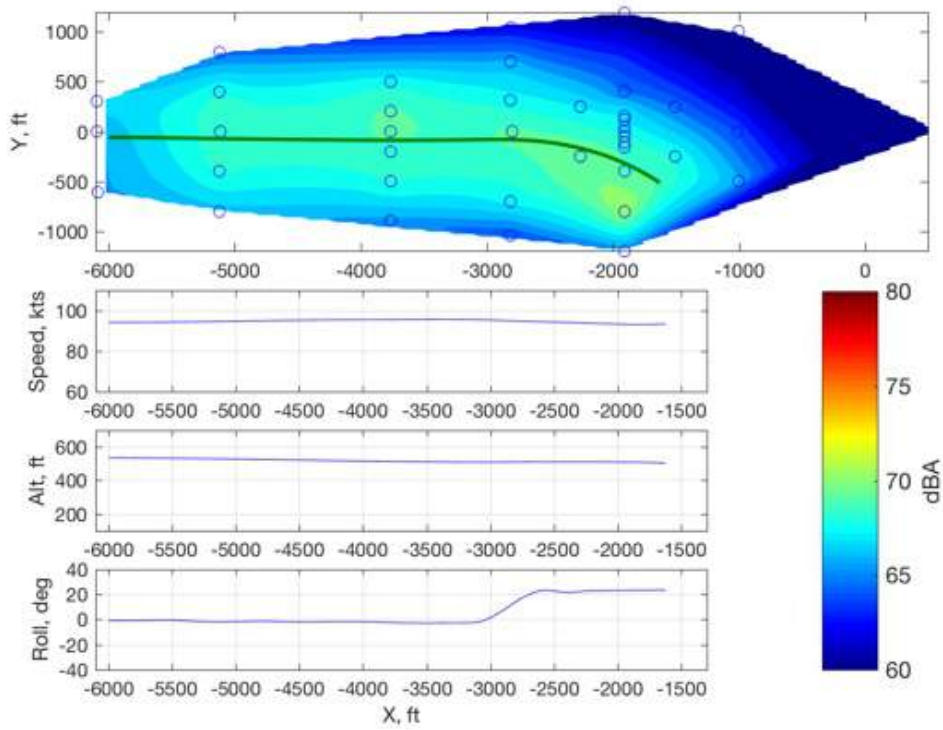


Figure 532: B206L3, 278205, N12, maximum dBA contour.

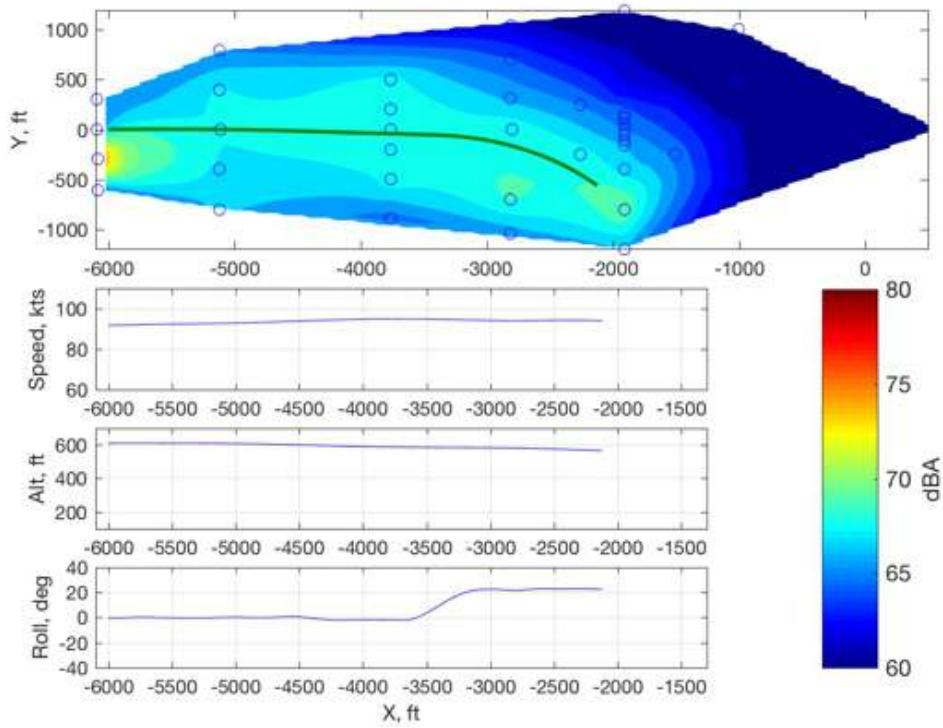


Figure 533: B206L3, 278206, N12, maximum dBA contour.

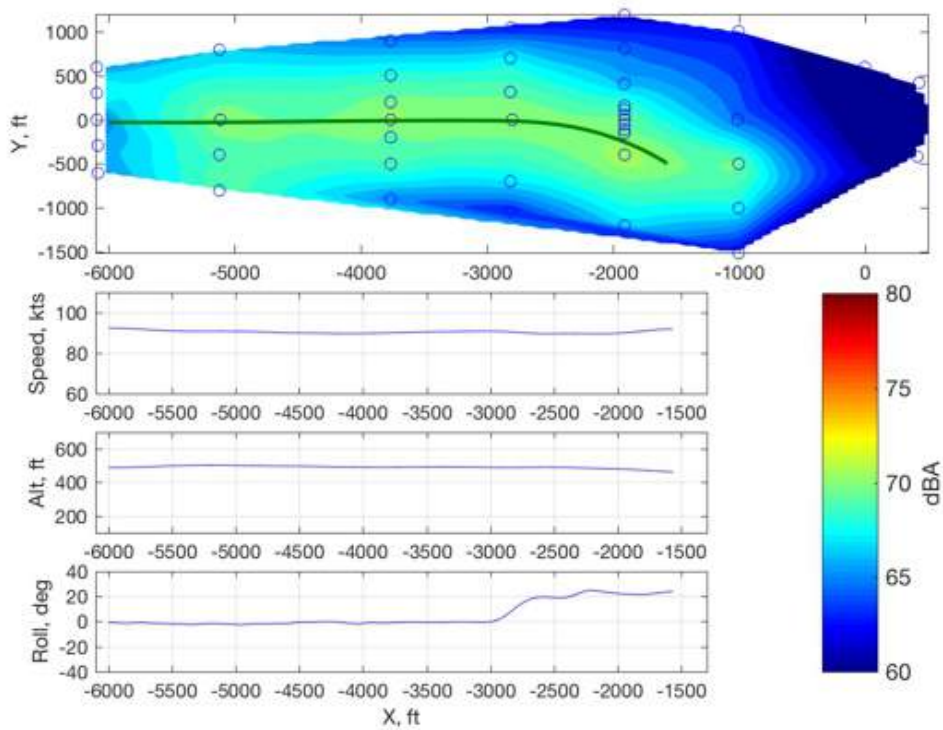


Figure 534: B206L3, 279286, N12, maximum dBA contour.

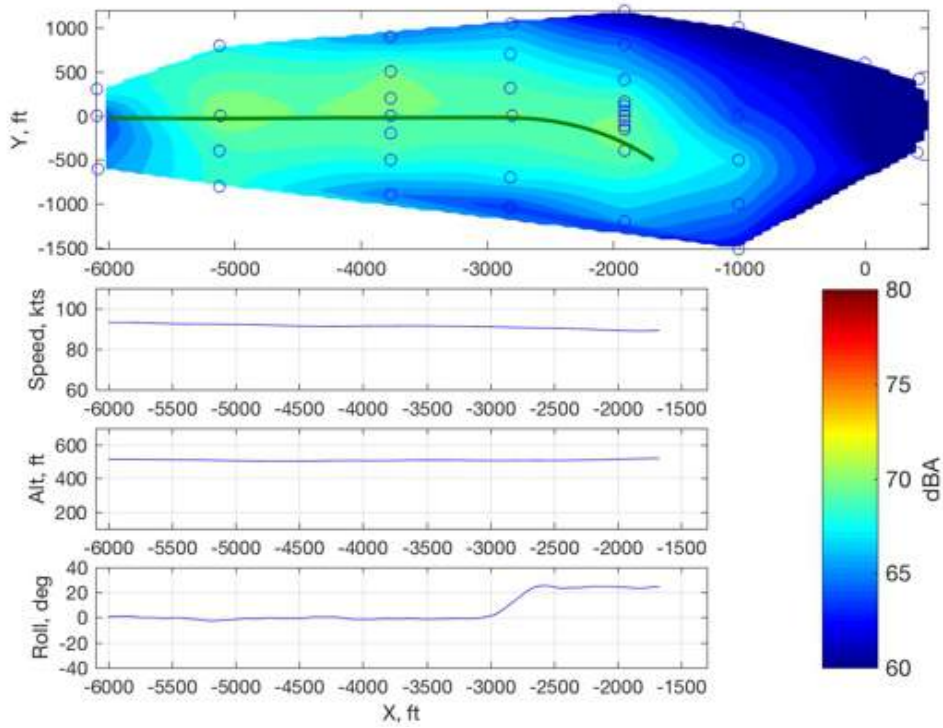


Figure 535: B206L3, 279287, N12, maximum dBA contour.

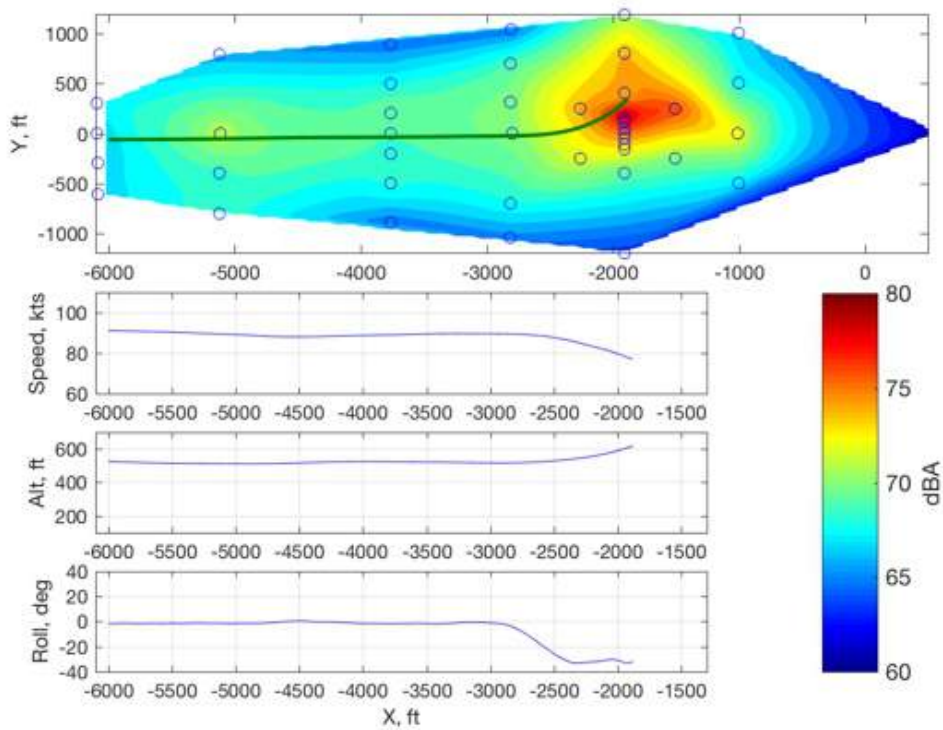


Figure 536: B206L3, 278207, N13, maximum dBA contour.

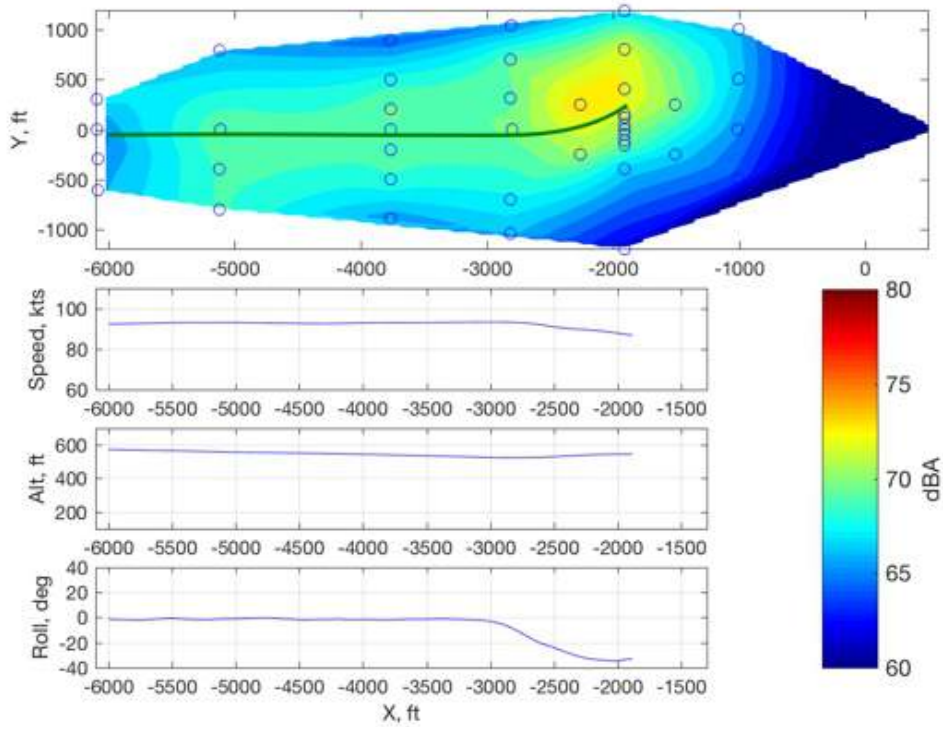


Figure 537: B206L3, 278208, N13, maximum dBA contour.

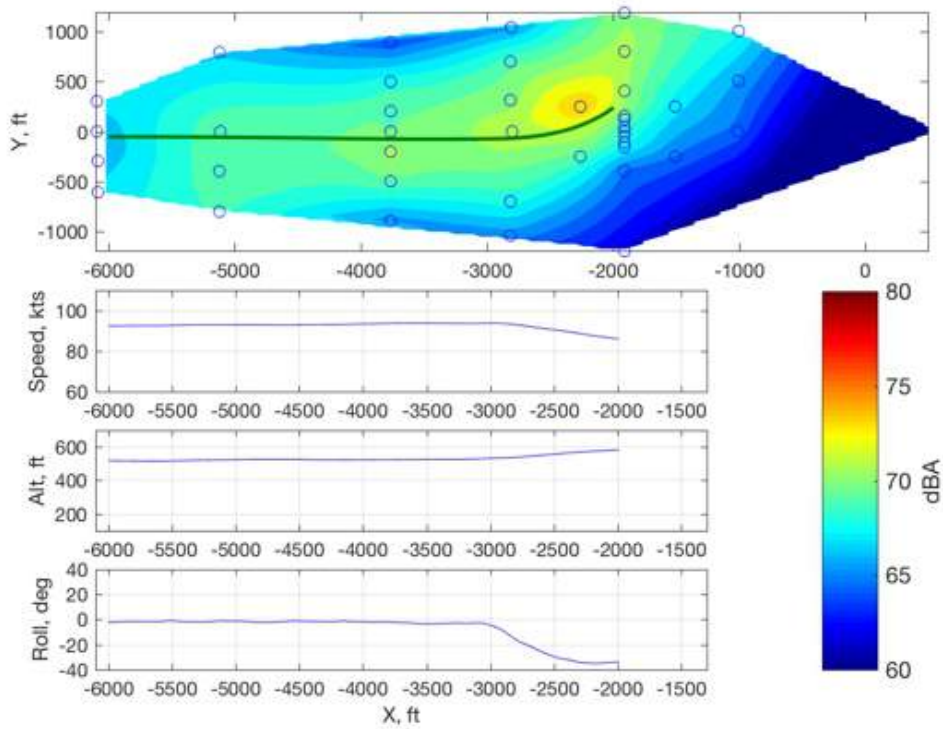


Figure 538: B206L3, 278209, N13, maximum dBA contour.

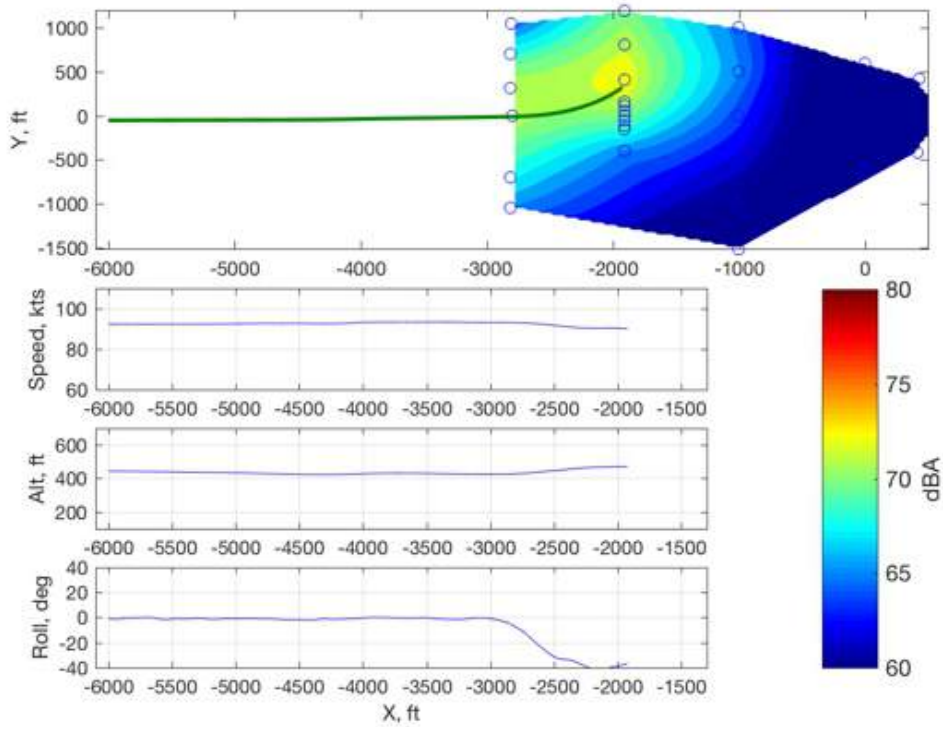


Figure 539: B206L3, 279296, N13, maximum dBA contour.

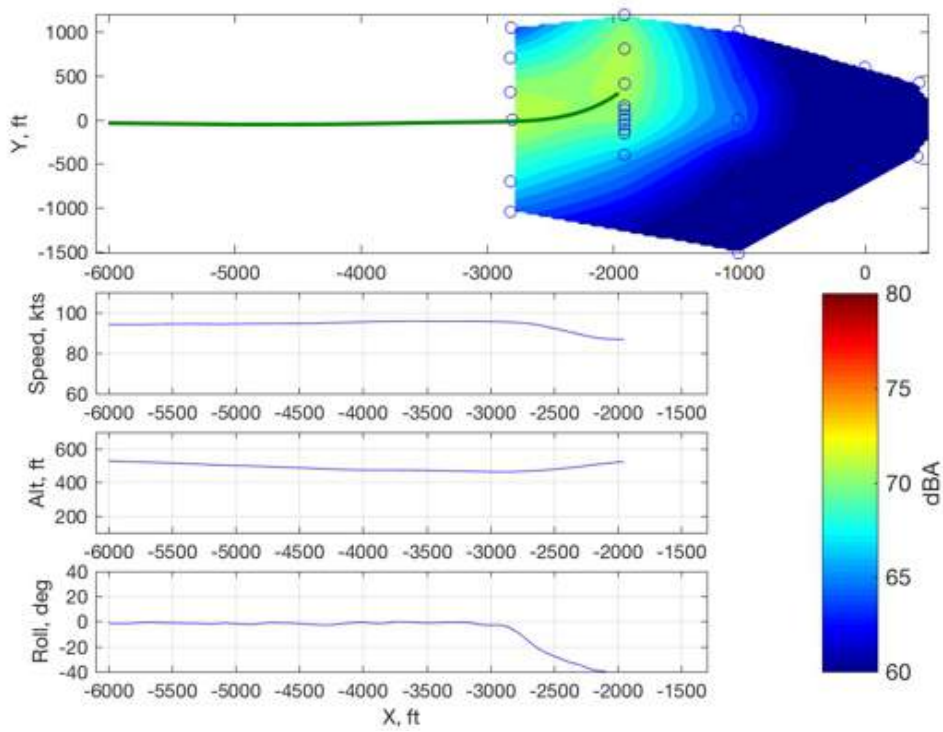


Figure 540: B206L3, 279297, N13, maximum dBA contour.

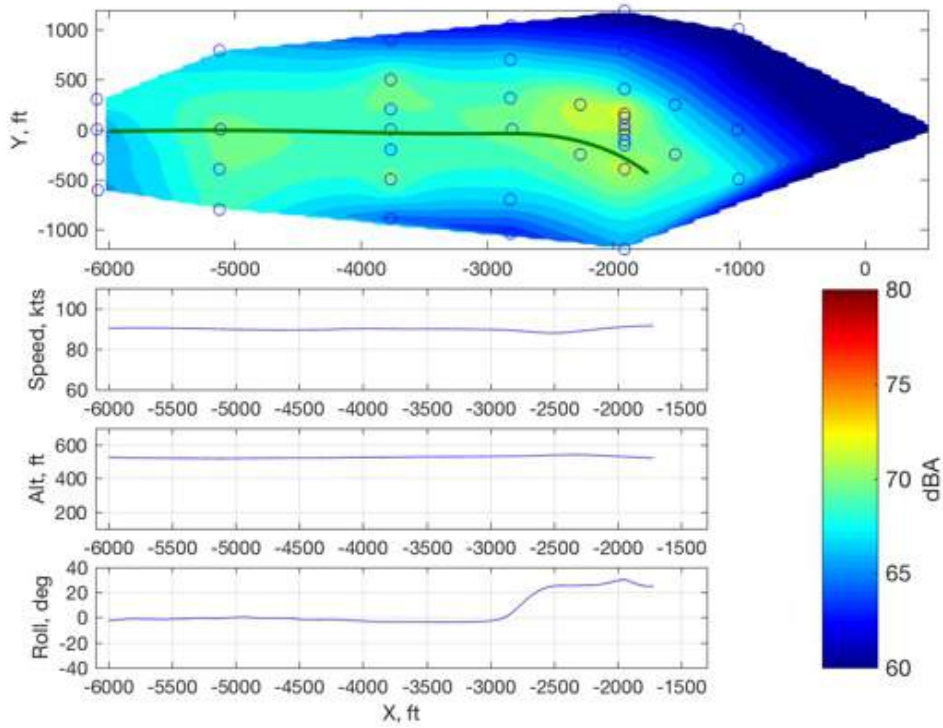


Figure 541: B206L3, 278210, N14, maximum dBA contour.

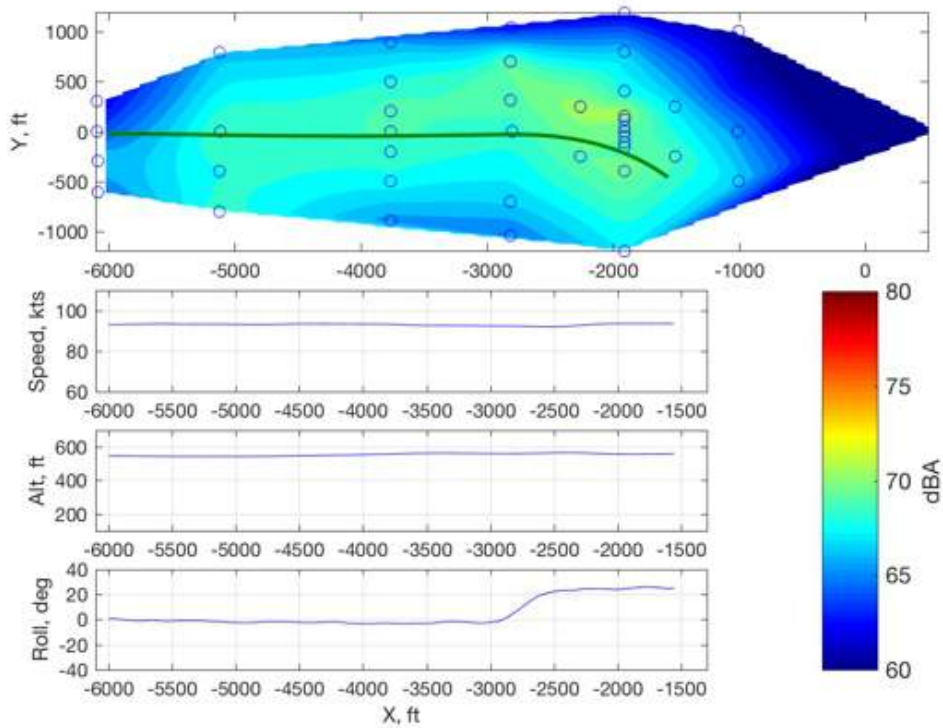


Figure 542: B206L3, 278211, N14, maximum dBA contour.

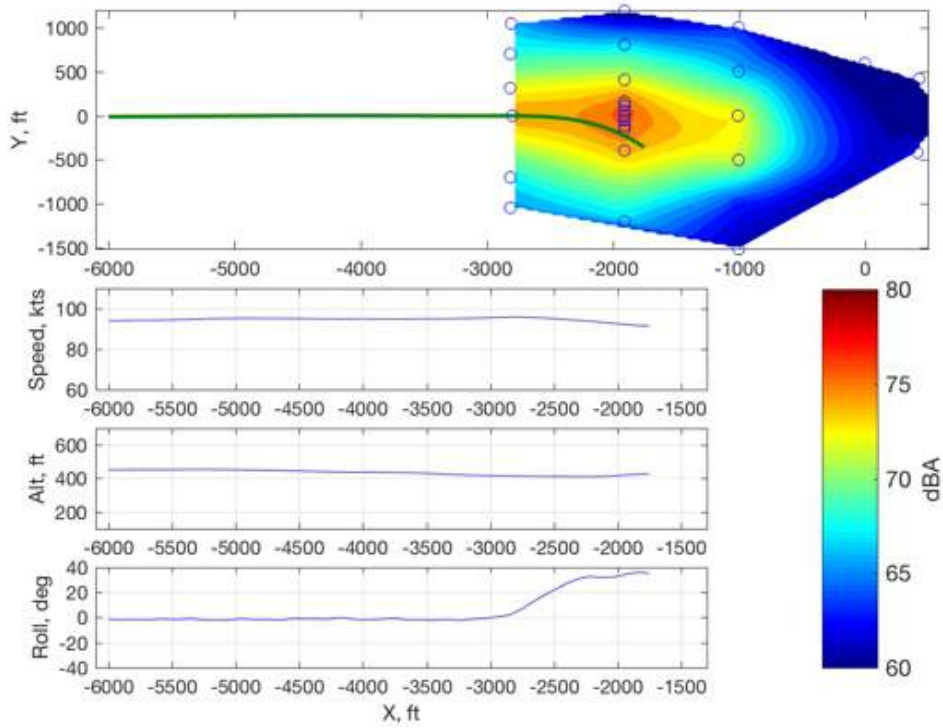


Figure 543: B206L3, 279298, N14, maximum dBA contour.

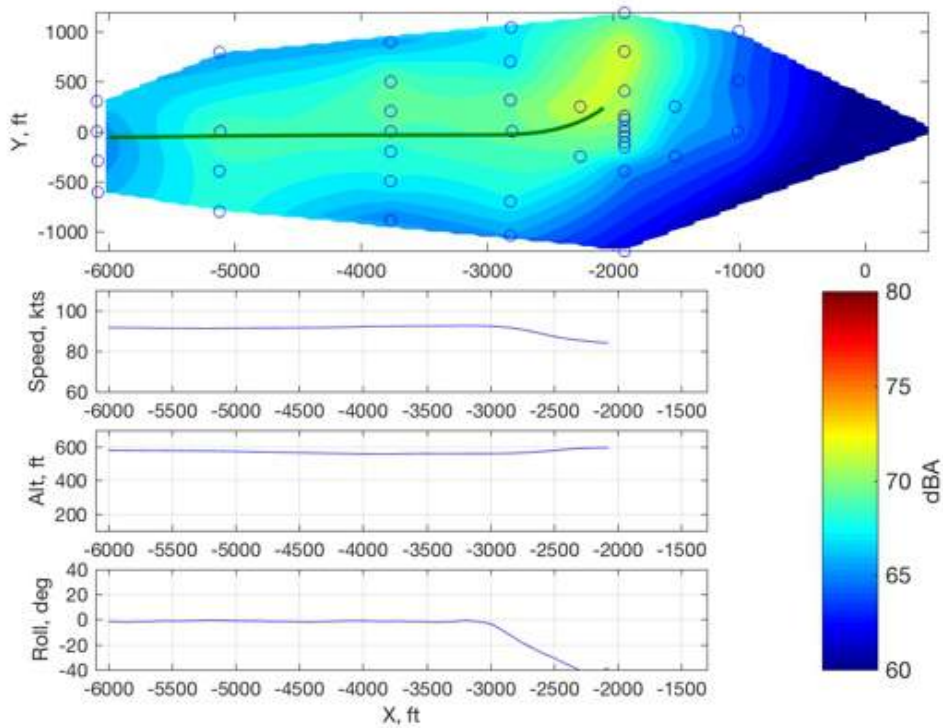


Figure 544: B206L3, 278212, N15, maximum dBA contour.

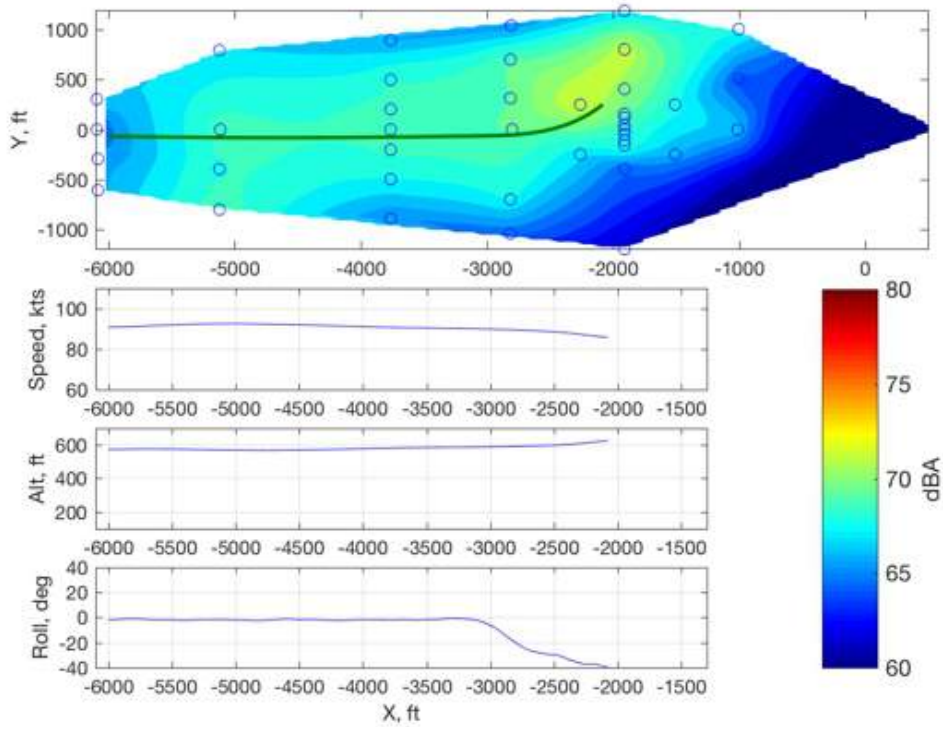


Figure 545: B206L3, 278213, N15, maximum dBA contour.

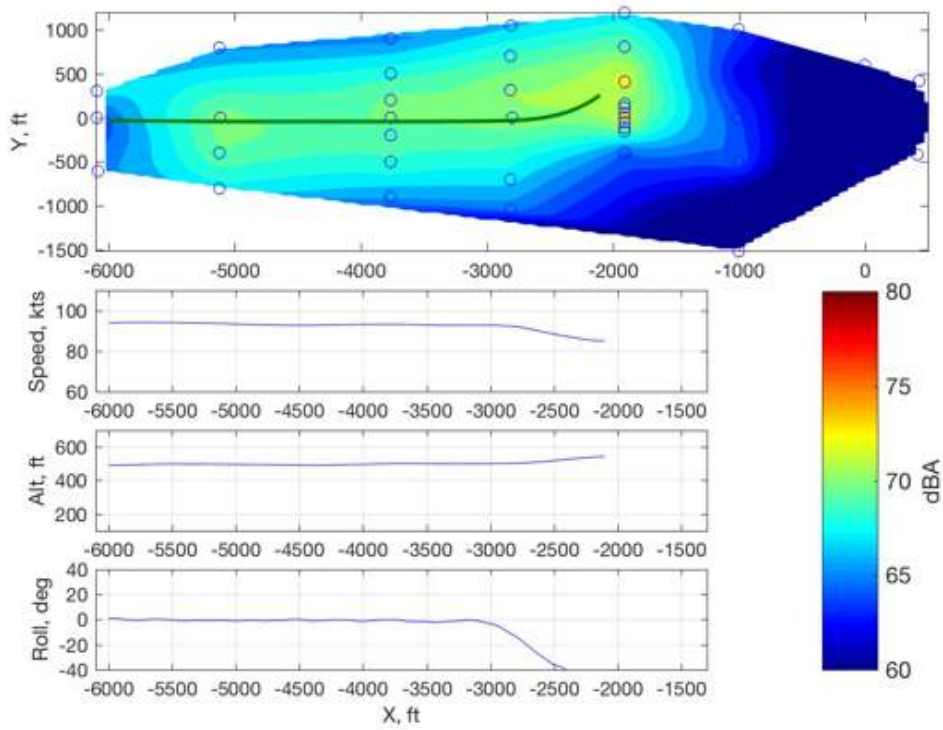


Figure 546: B206L3, 279299, N15, maximum dBA contour.

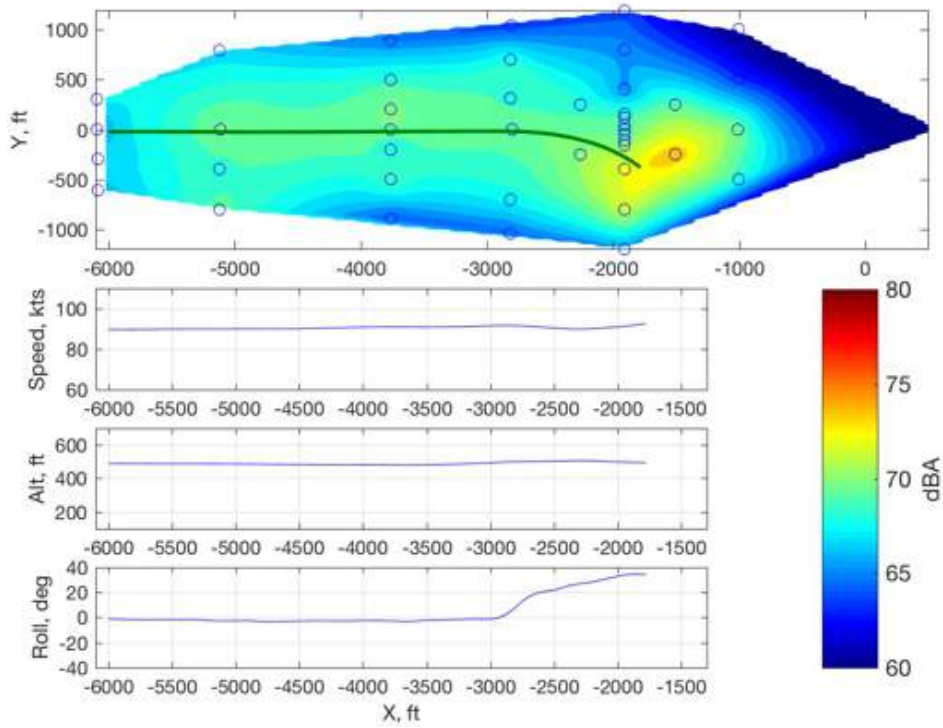


Figure 547: B206L3, 278214, N16, maximum dBA contour.

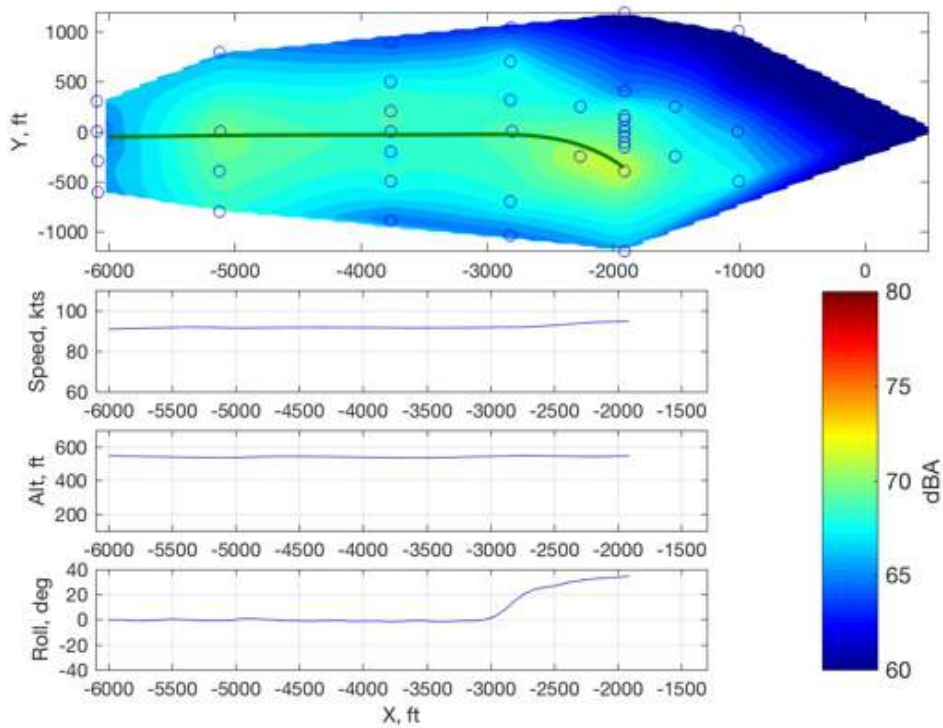


Figure 548: B206L3, 278215, N16, maximum dBA contour.

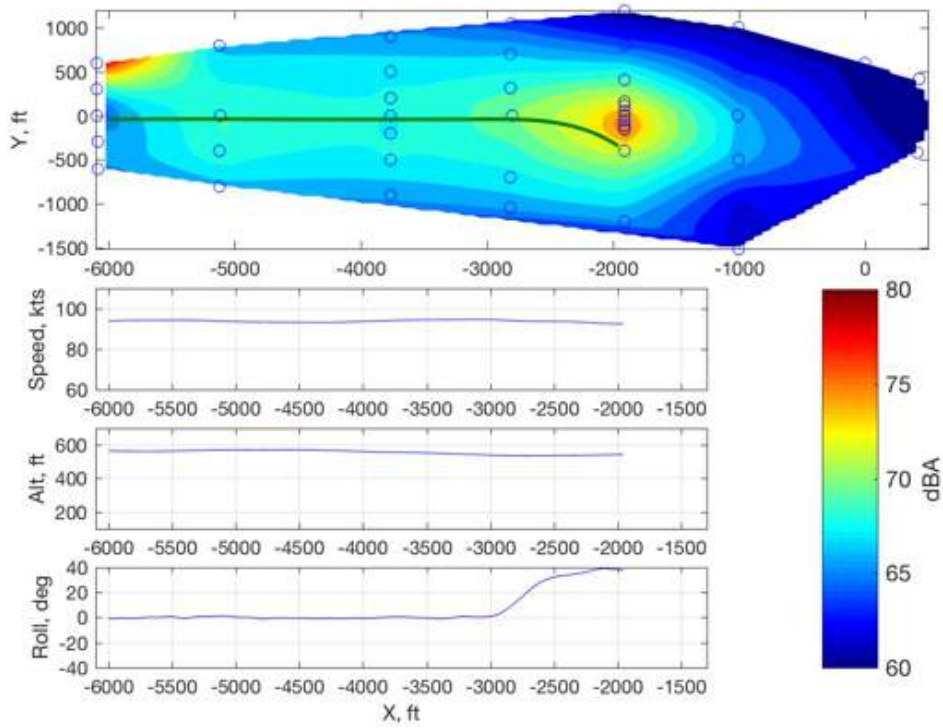


Figure 549: B206L3, 279300, N16, maximum dBA contour.

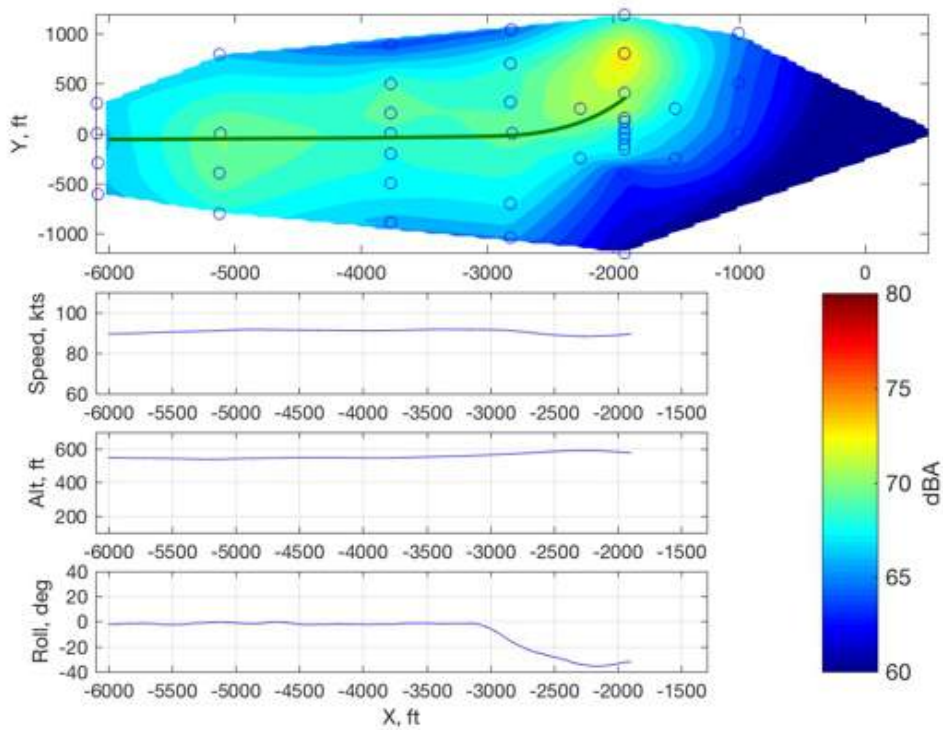


Figure 550: B206L3, 278216, O7, maximum dBA contour.

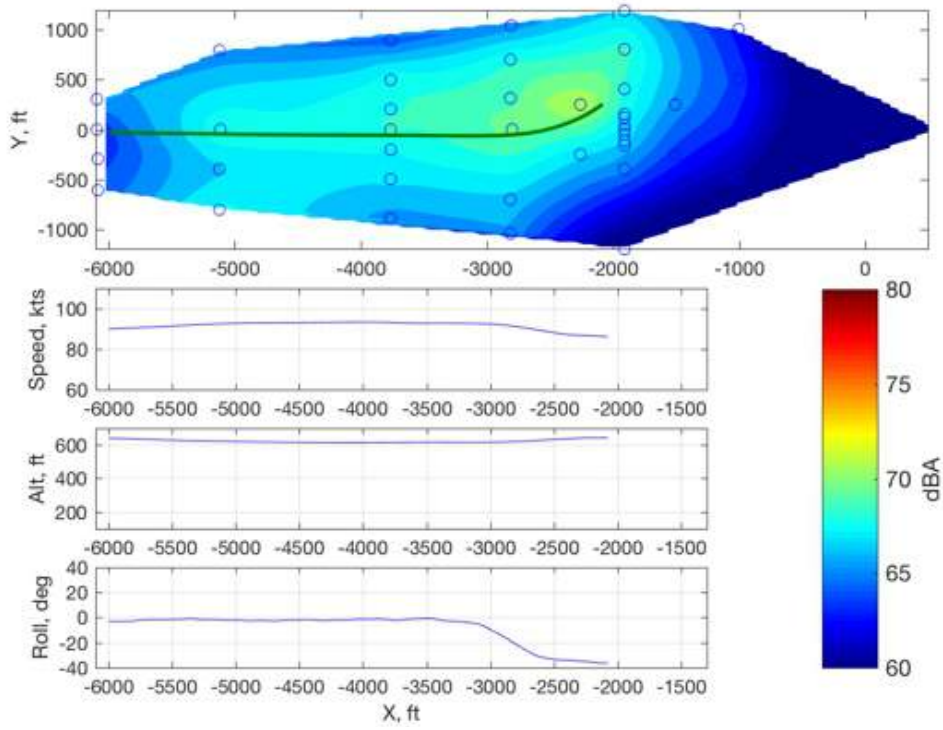


Figure 551: B206L3, 278217, O7, maximum dBA contour.

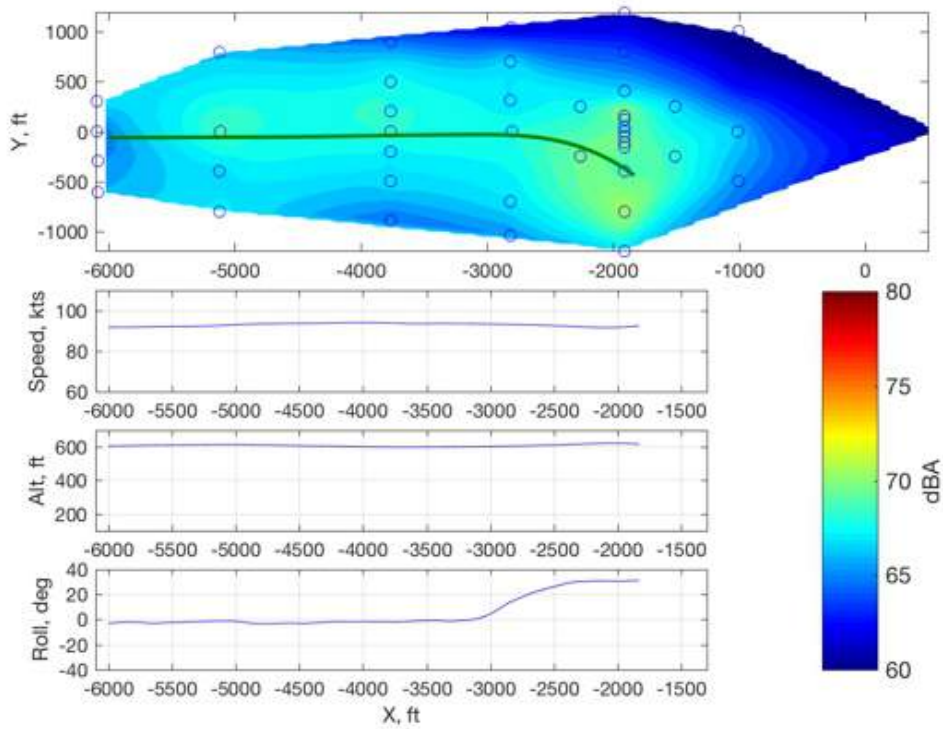


Figure 552: B206L3, 278218, O8, maximum dBA contour.

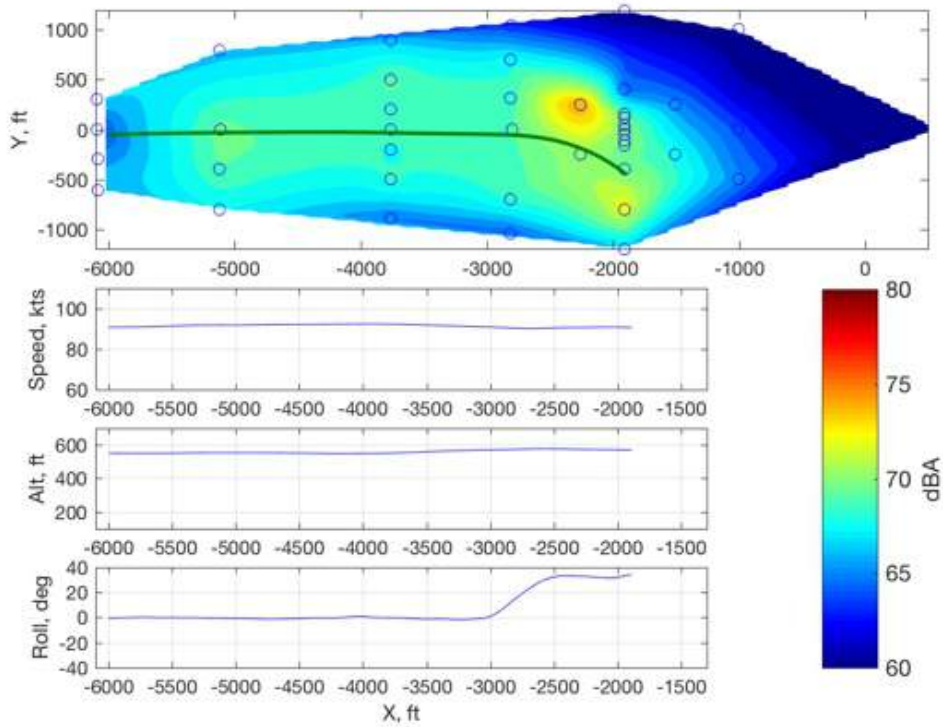


Figure 553: B206L3, 278219, O8, maximum dBA contour.

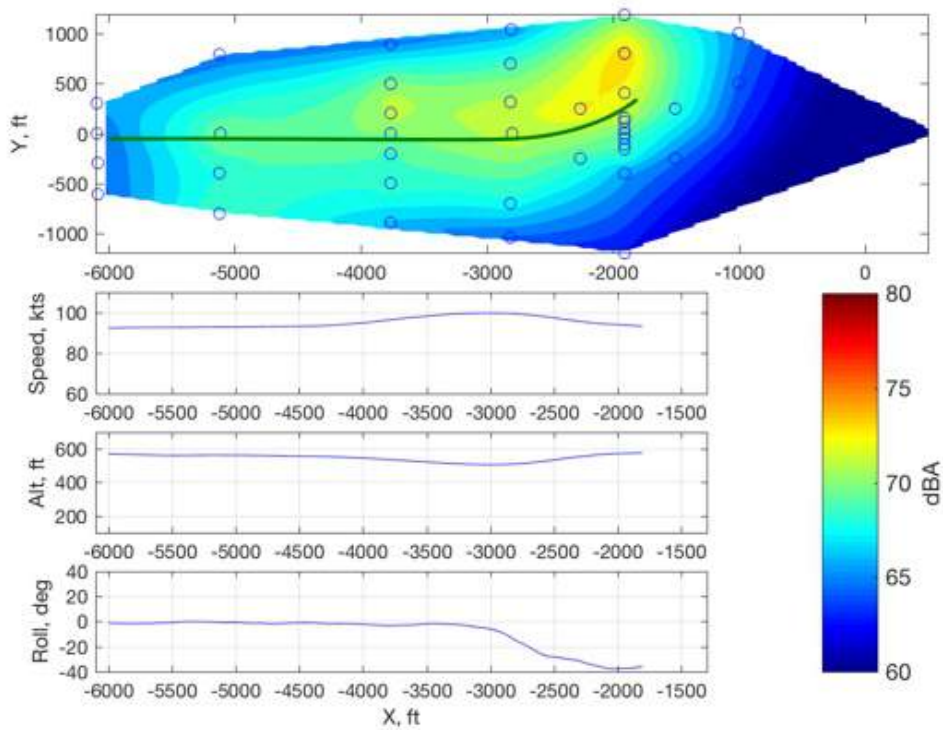


Figure 554: B206L3, 278220, X27, maximum dBA contour.

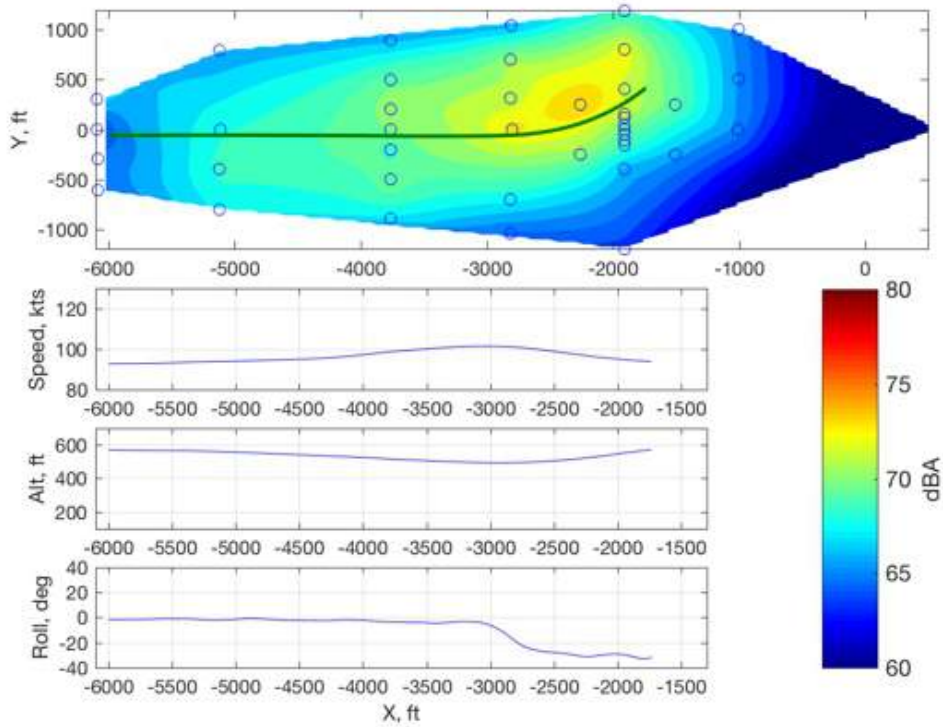


Figure 555: B206L3, 278221, X27, maximum dBA contour.

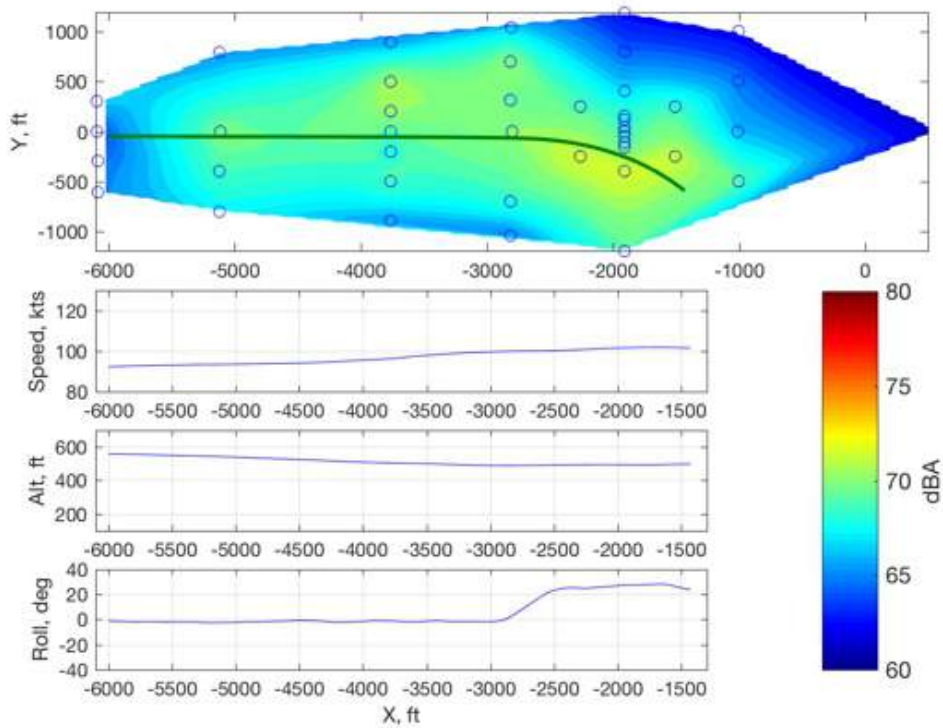


Figure 556: B206L3, 278222, X28, maximum dBA contour.

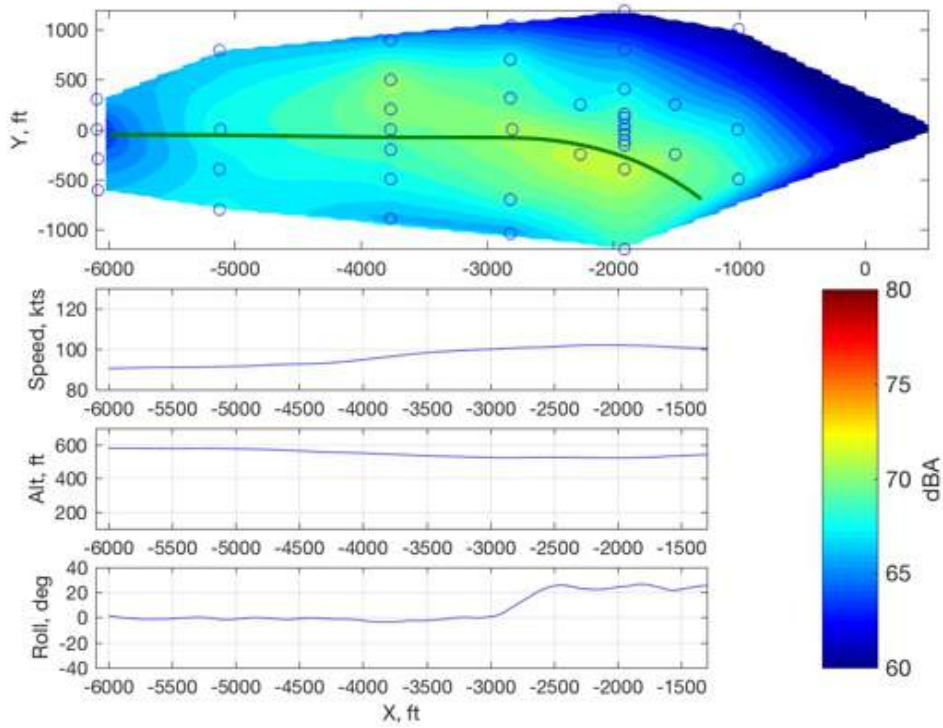


Figure 557: B206L3, 278223, X28, maximum dBA contour.

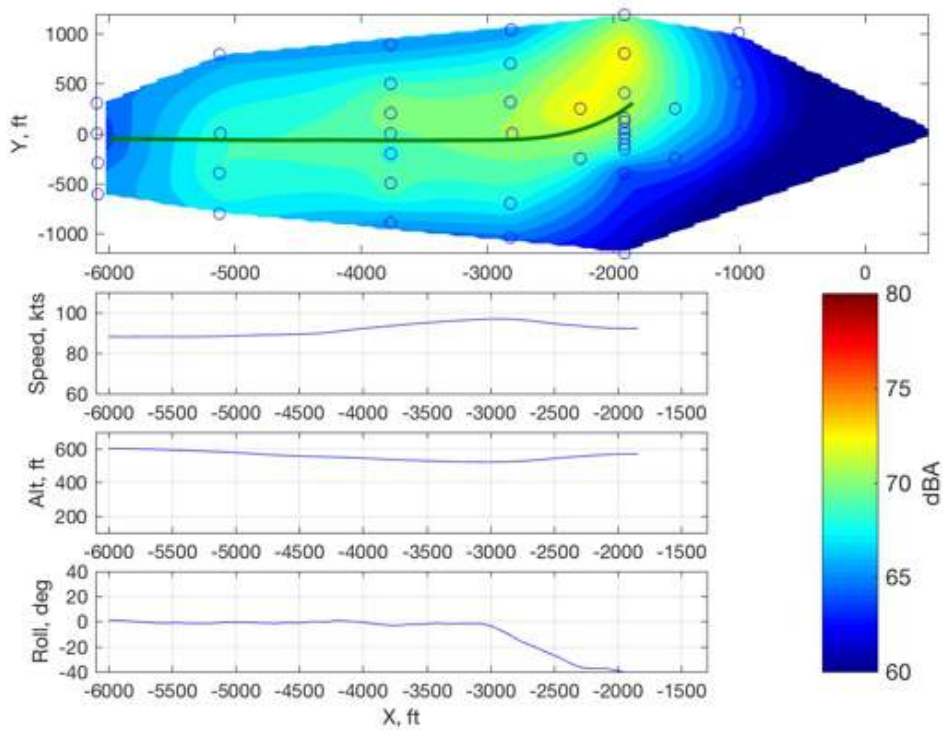


Figure 558: B206L3, 278224, X31, maximum dBA contour.

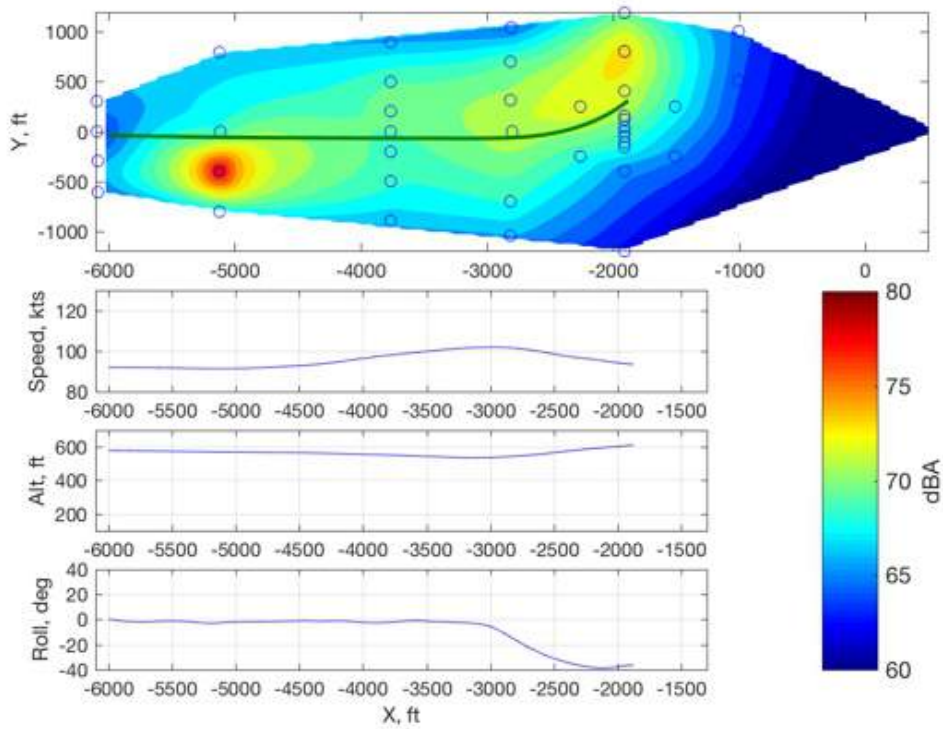


Figure 559: B206L3, 278225, X31, maximum dBA contour.

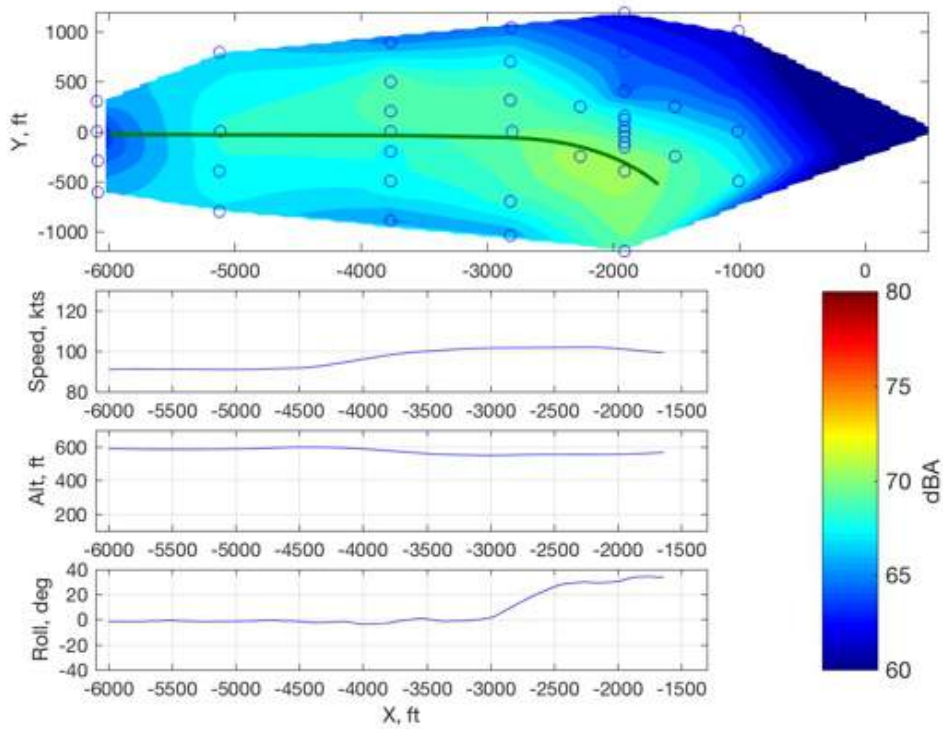


Figure 560: B206L3, 278226, X32, maximum dBA contour.

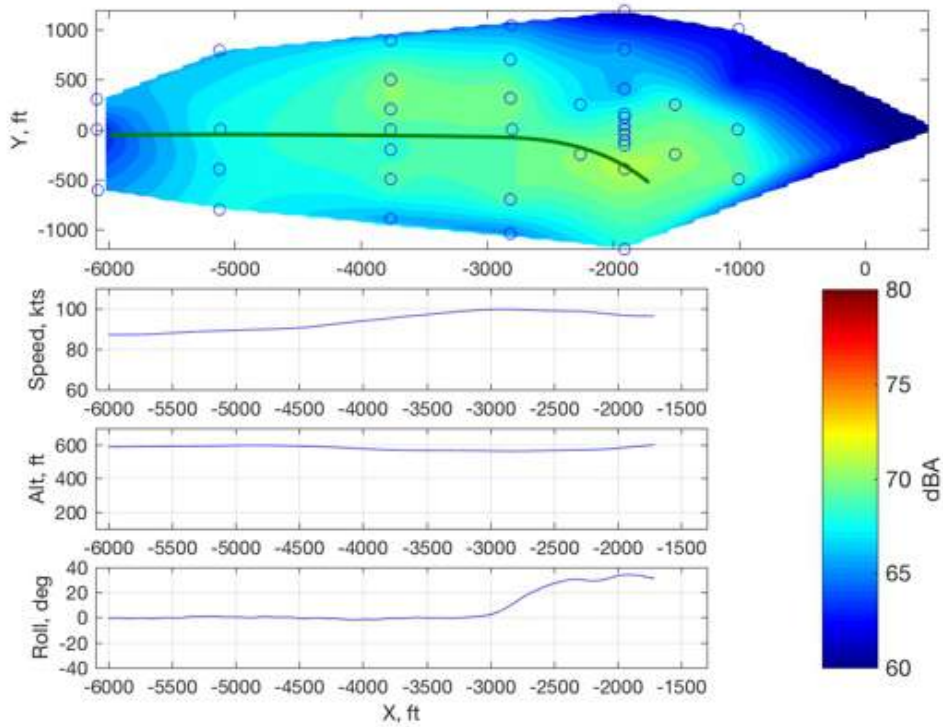


Figure 561: B206L3, 278227, X32, maximum dBA contour.

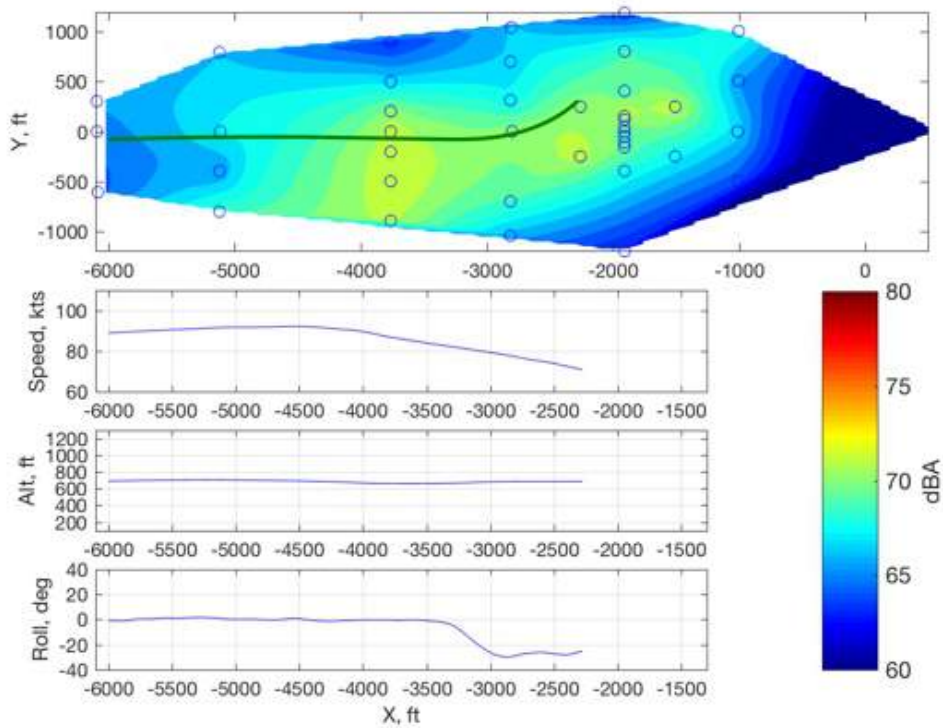


Figure 562: B206L3, 278228, X39, maximum dBA contour.

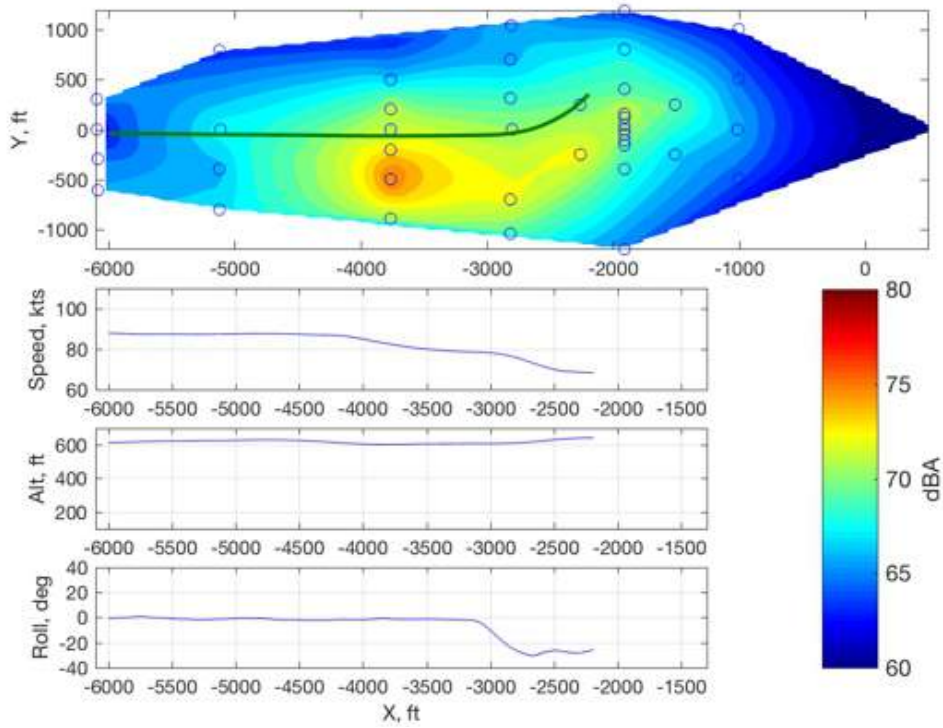


Figure 563: B206L3, 278229, X39, maximum dBA contour.

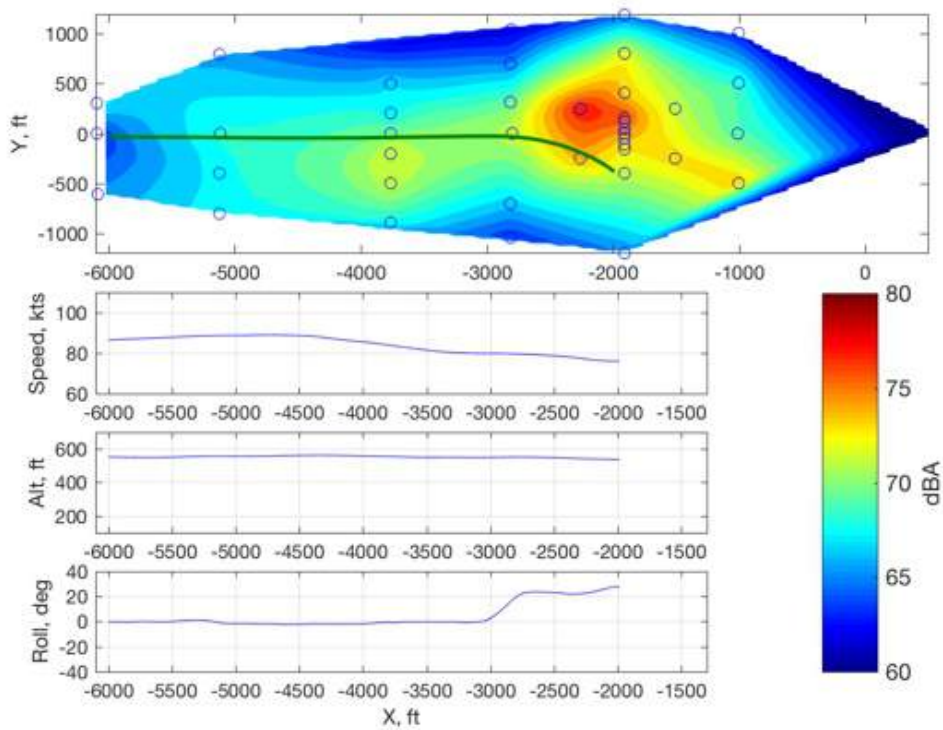


Figure 564: B206L3, 278230, X40, maximum dBA contour.

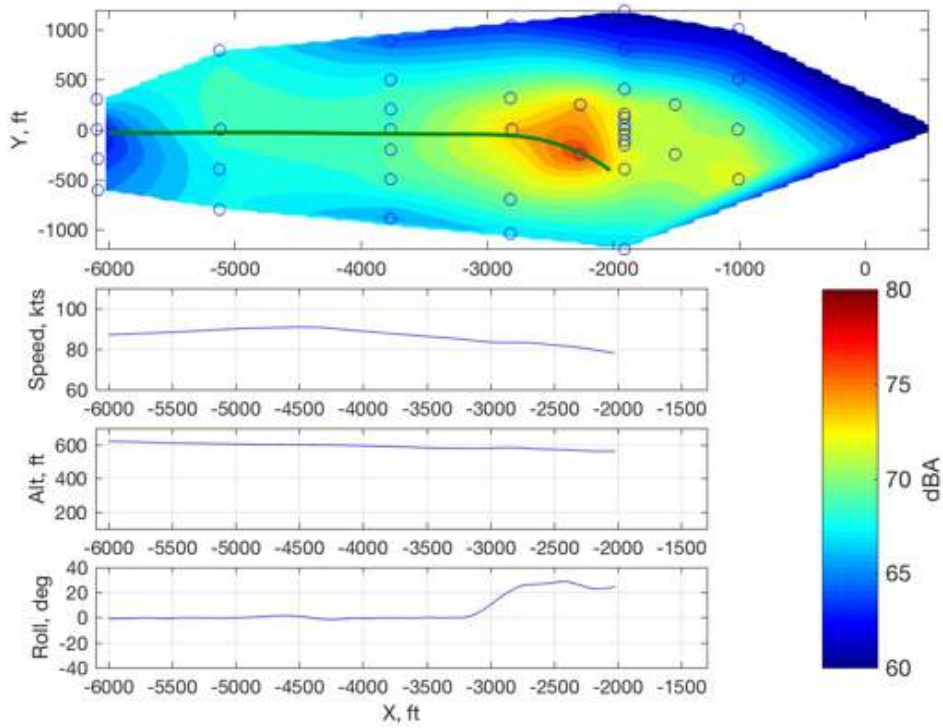


Figure 565: B206L3, 278231, X40, maximum dBA contour.

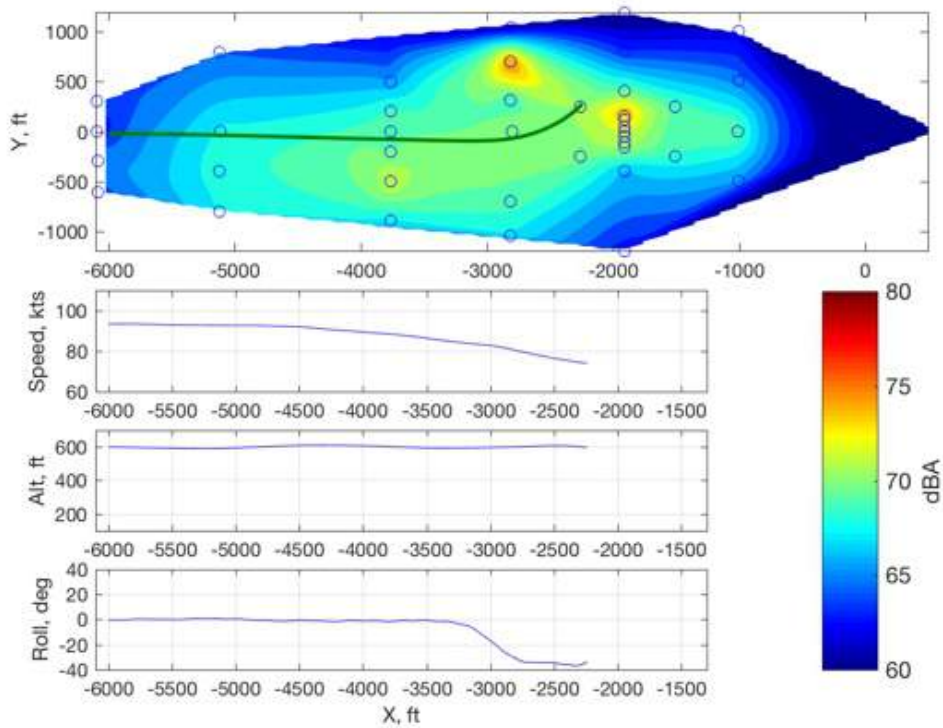


Figure 566: B206L3, 278232, X43, maximum dBA contour.

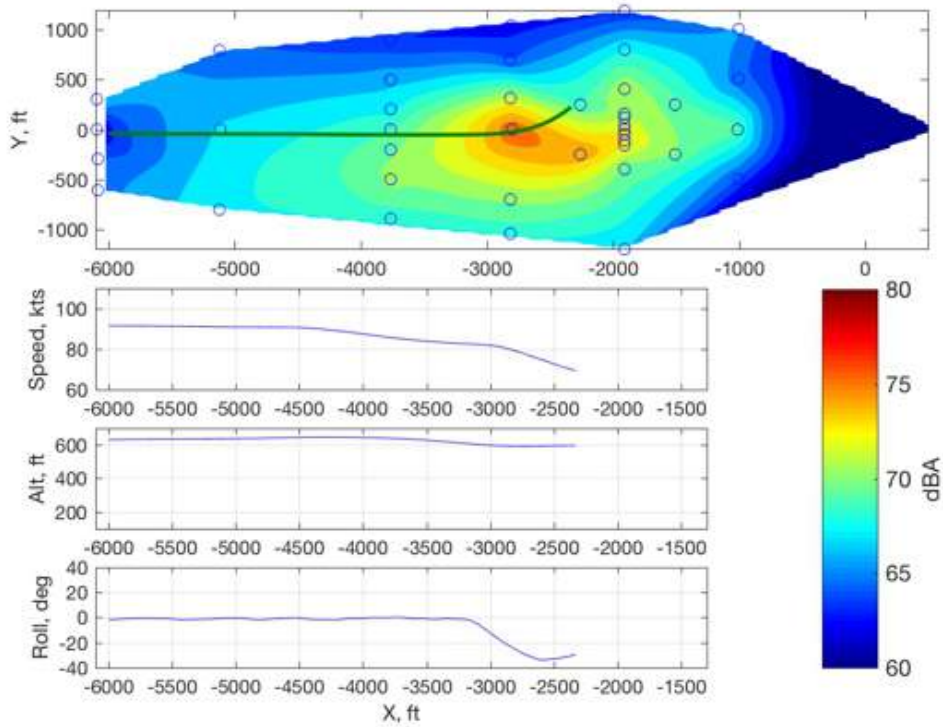


Figure 567: B206L3, 278233, X43, maximum dBA contour.

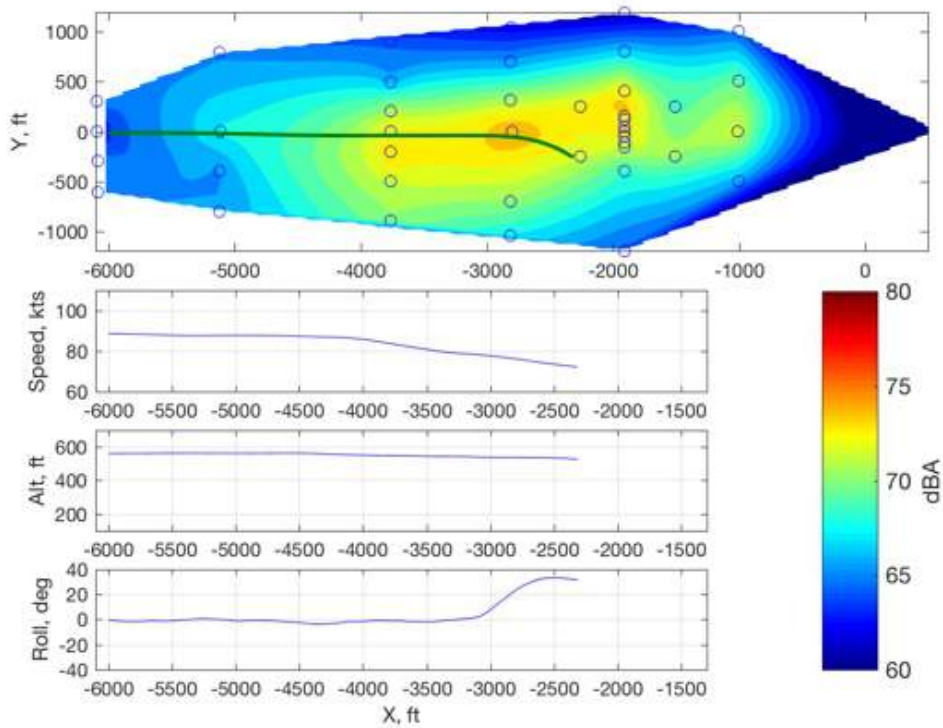


Figure 568: B206L3, 278234, X44, maximum dBA contour.

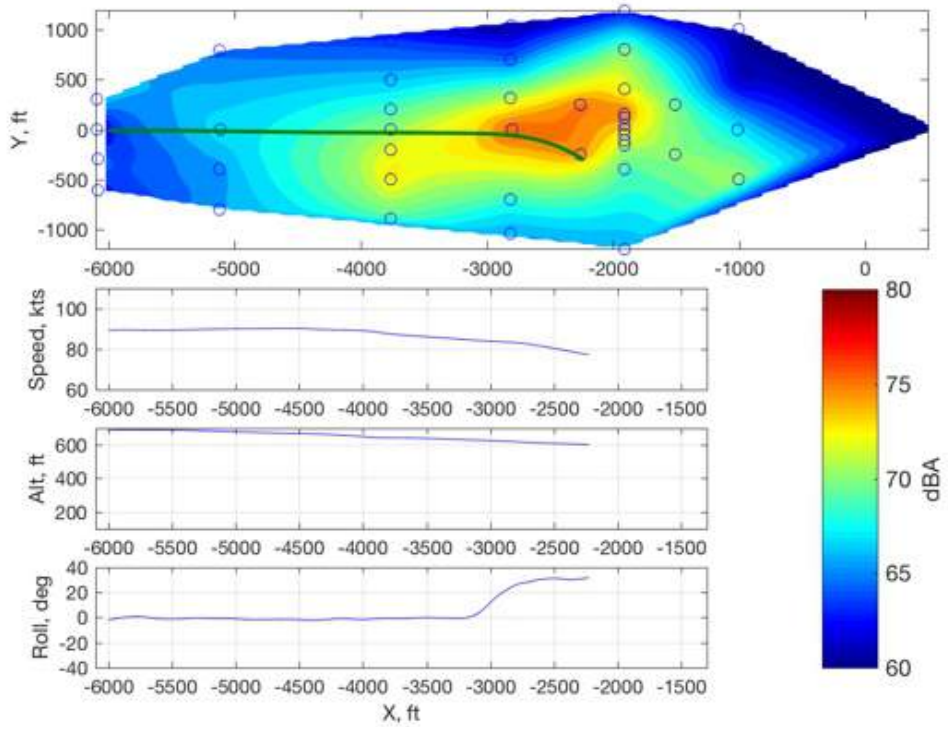


Figure 569: B206L3, 278235, X44, maximum dBA contour.

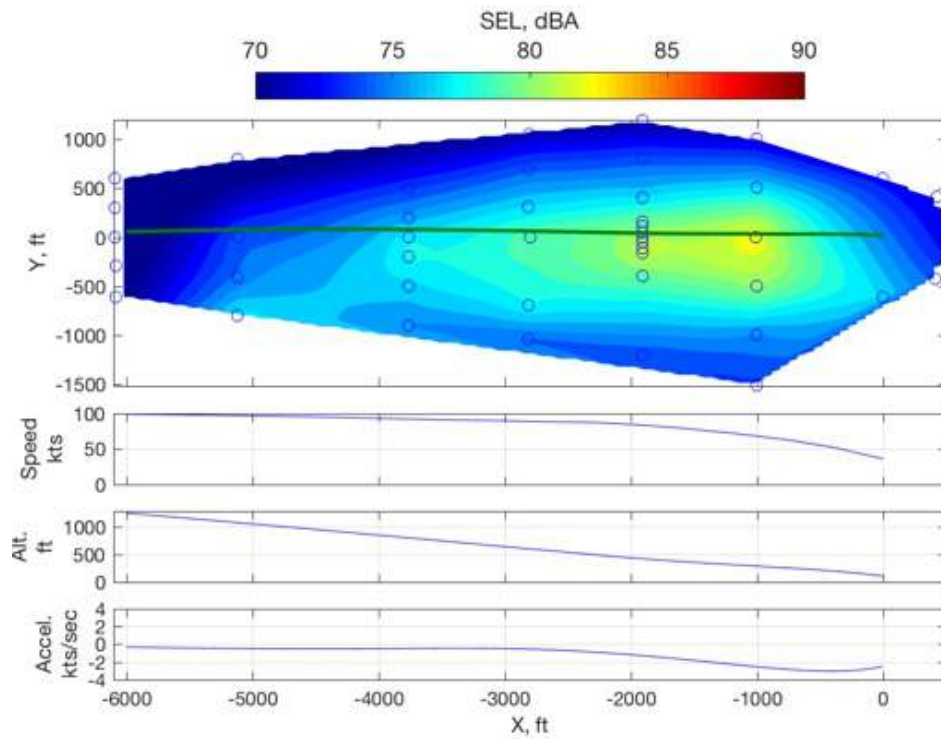


Figure 570: B206L3, A9, run 279263 A-Weighted SEL contour.

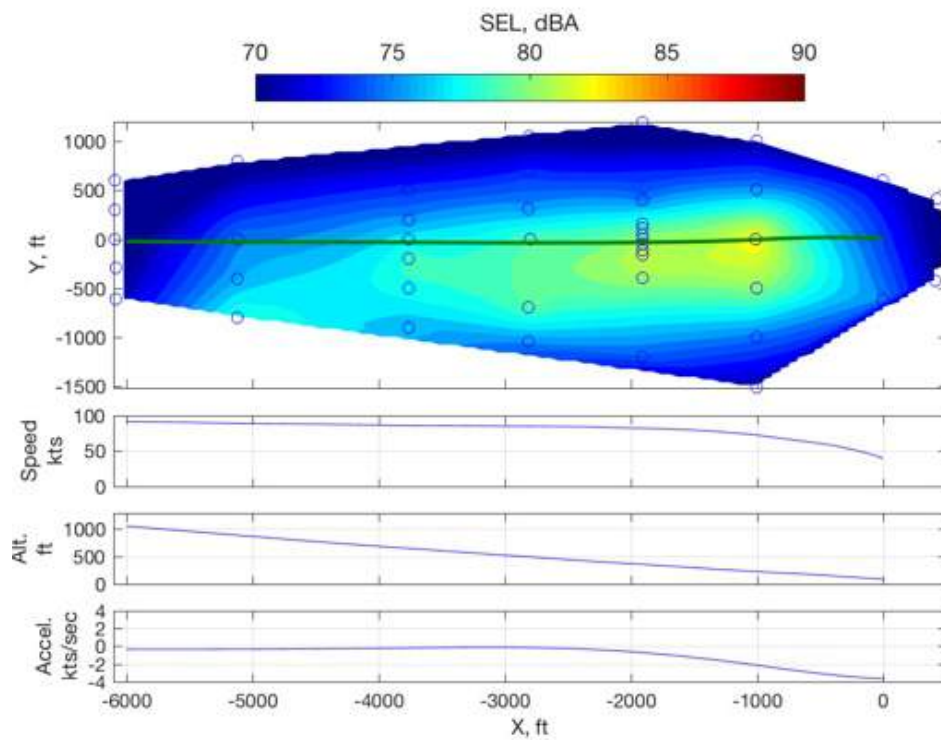


Figure 571: B206L3, A9, run 279264 A-Weighted SEL contour.

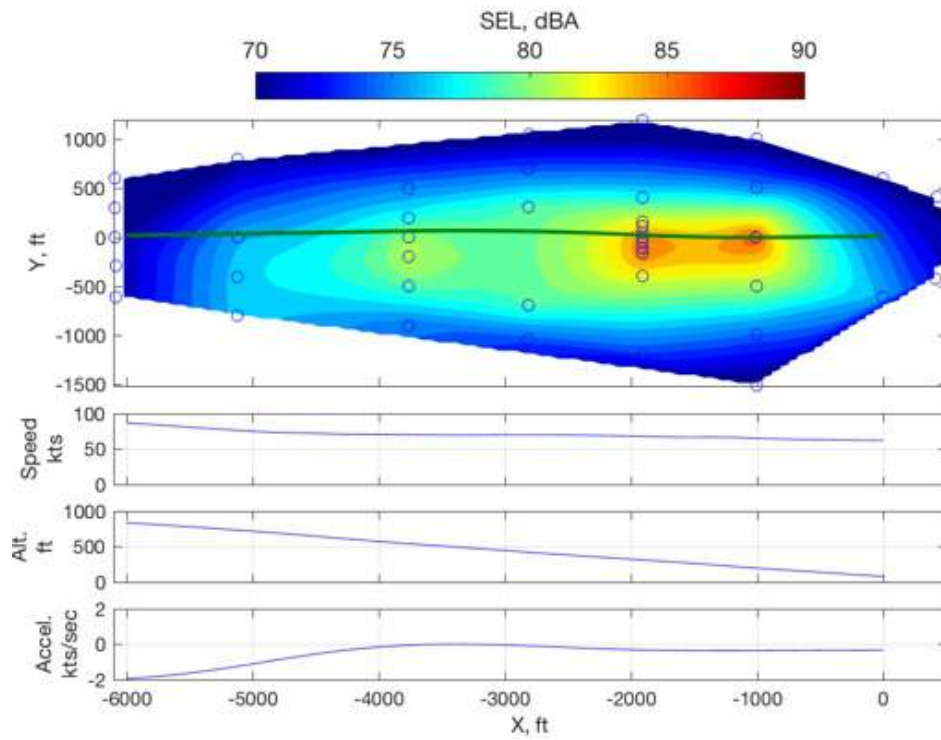


Figure 572: B206L3, A20, run 279252 A-Weighted SEL contour.

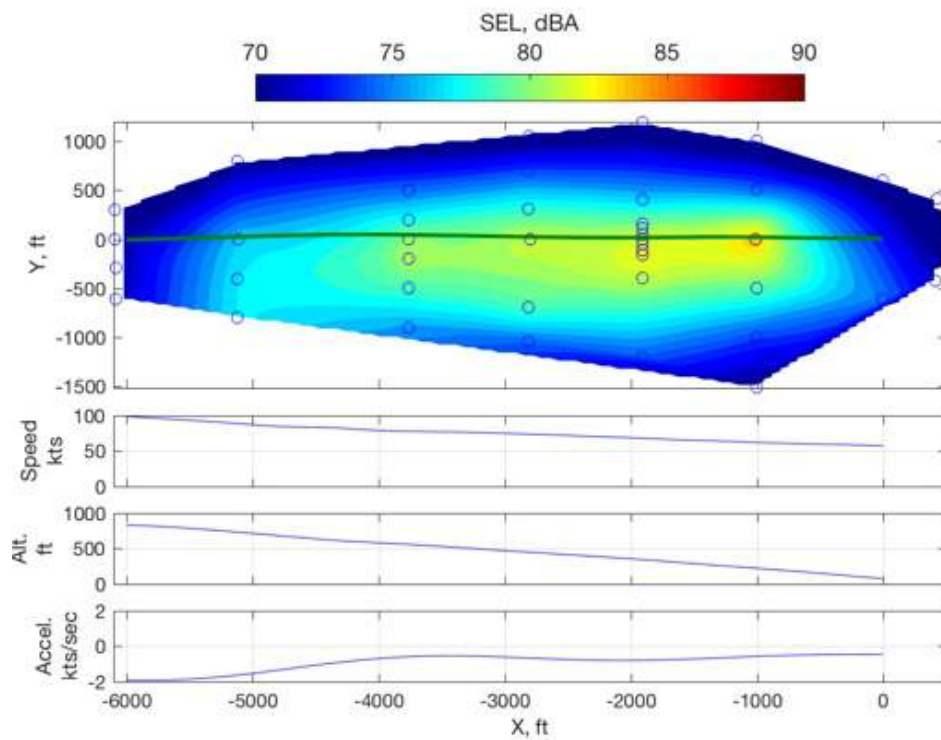


Figure 573: B206L3, A20, run 279253 A-Weighted SEL contour.

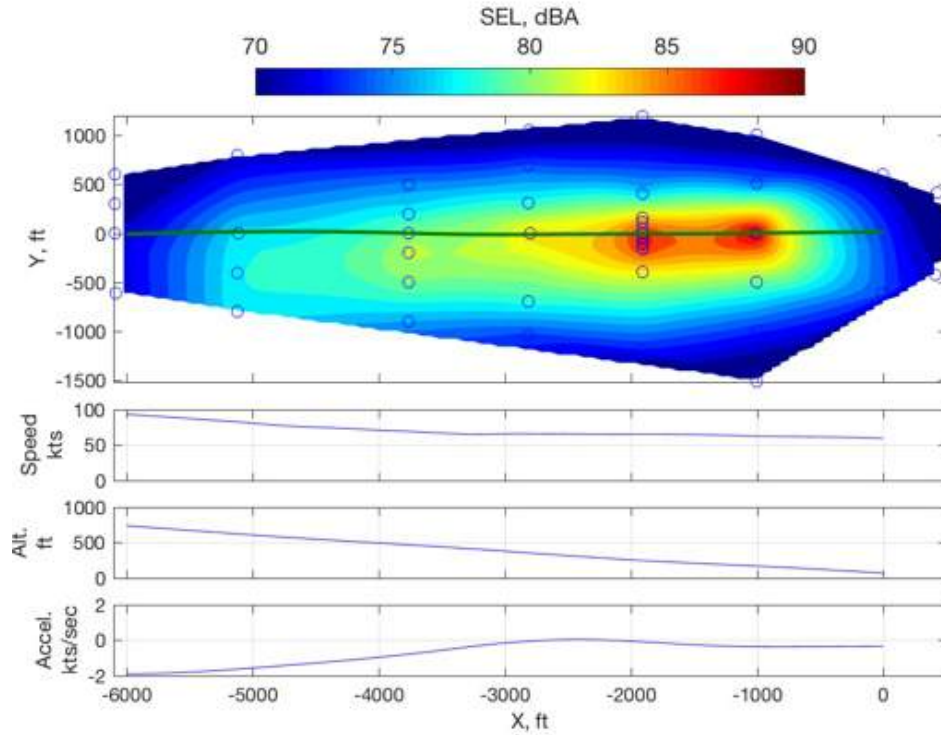


Figure 574: B206L3, A20, run 279254 A-Weighted SEL contour.

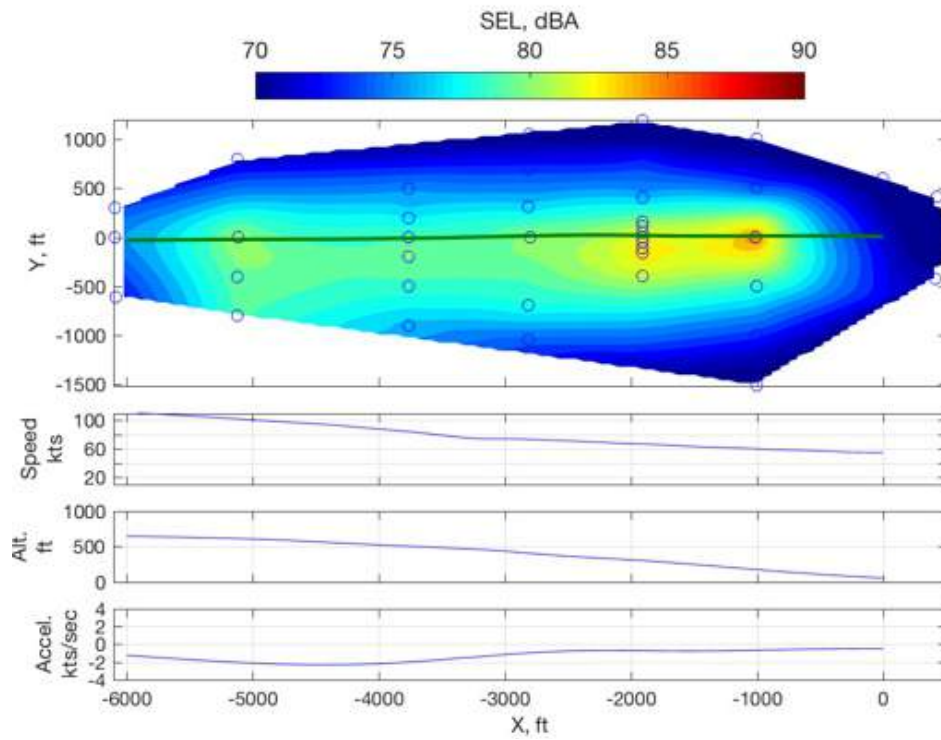


Figure 575: B206L3, A21, run 279255 A-Weighted SEL contour.

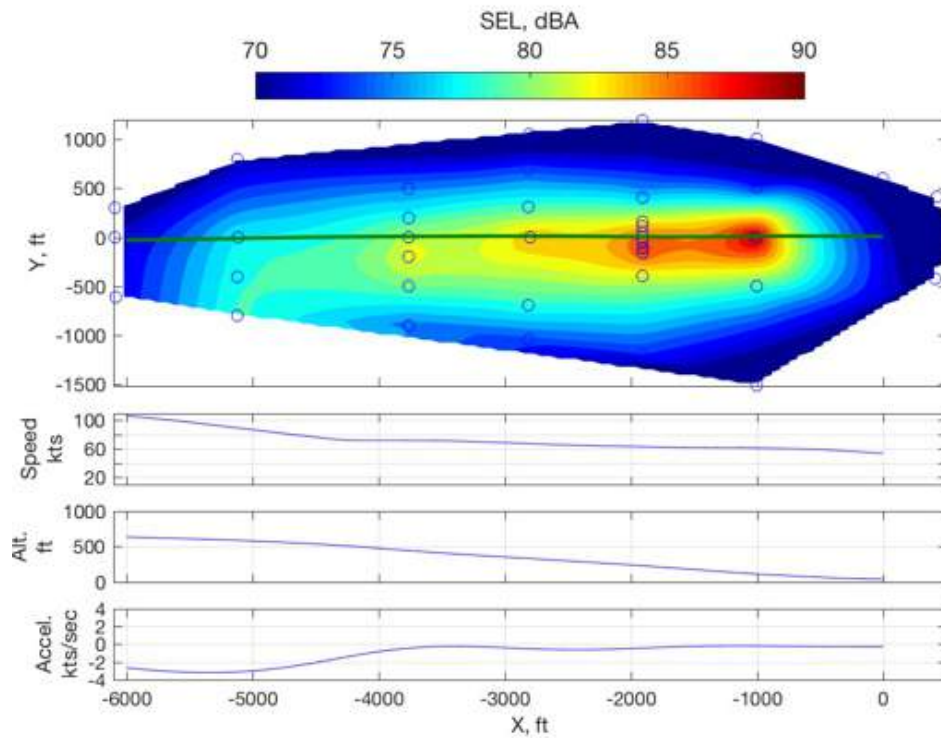


Figure 576: B206L3, A21, run 279256 A-Weighted SEL contour.

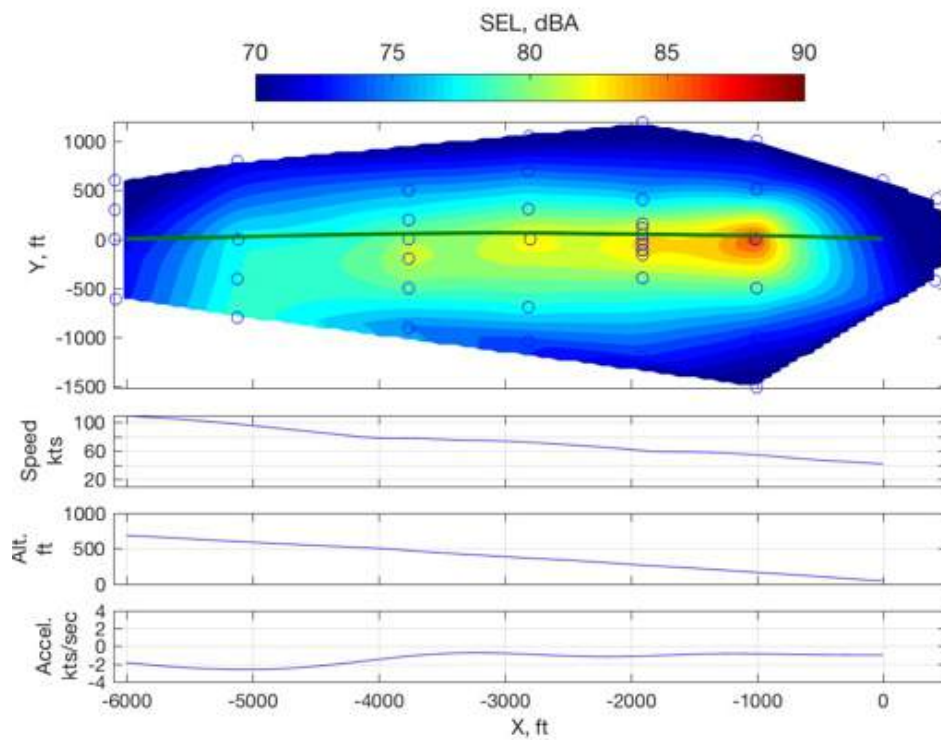


Figure 577: B206L3, A21, run 279257 A-Weighted SEL contour.

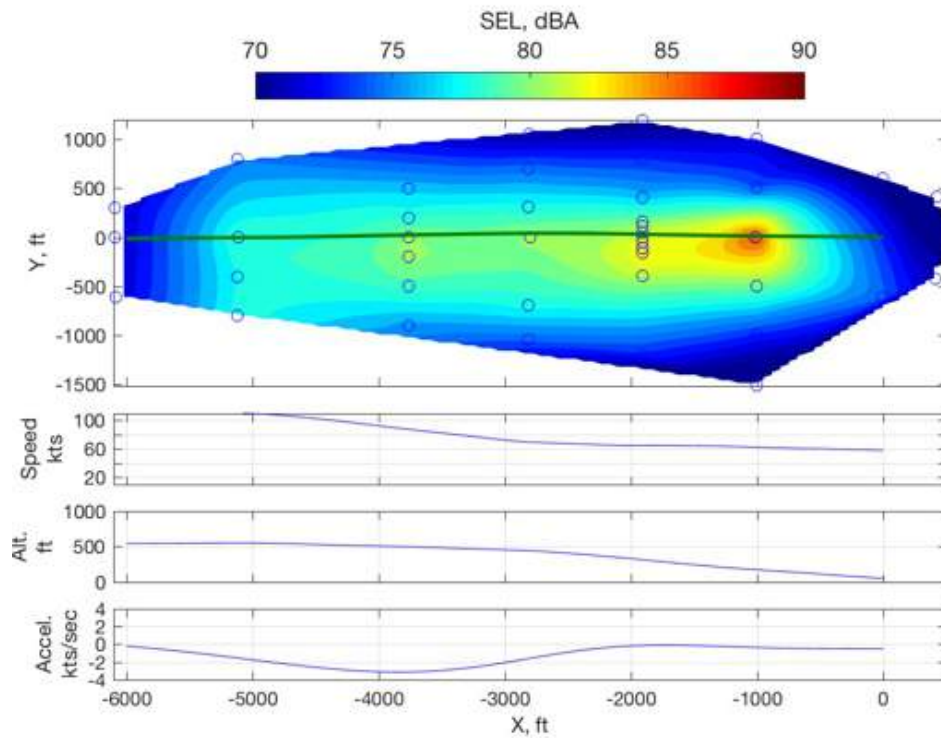


Figure 578: B206L3, A22, run 279258 A-Weighted SEL contour.

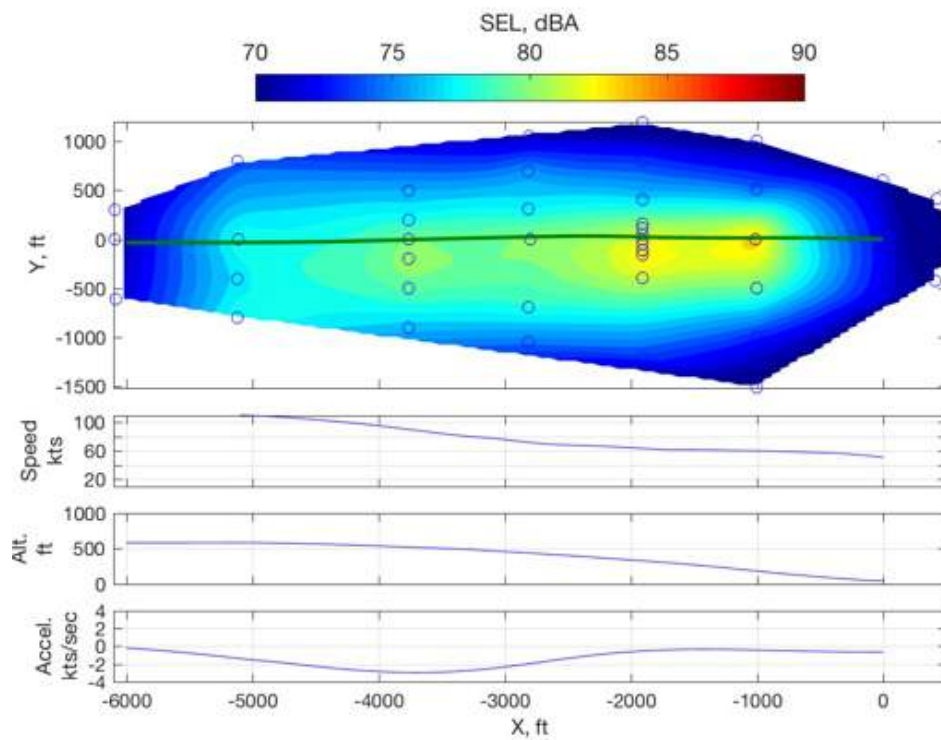


Figure 579: B206L3, A22, run 279259 A-Weighted SEL contour.

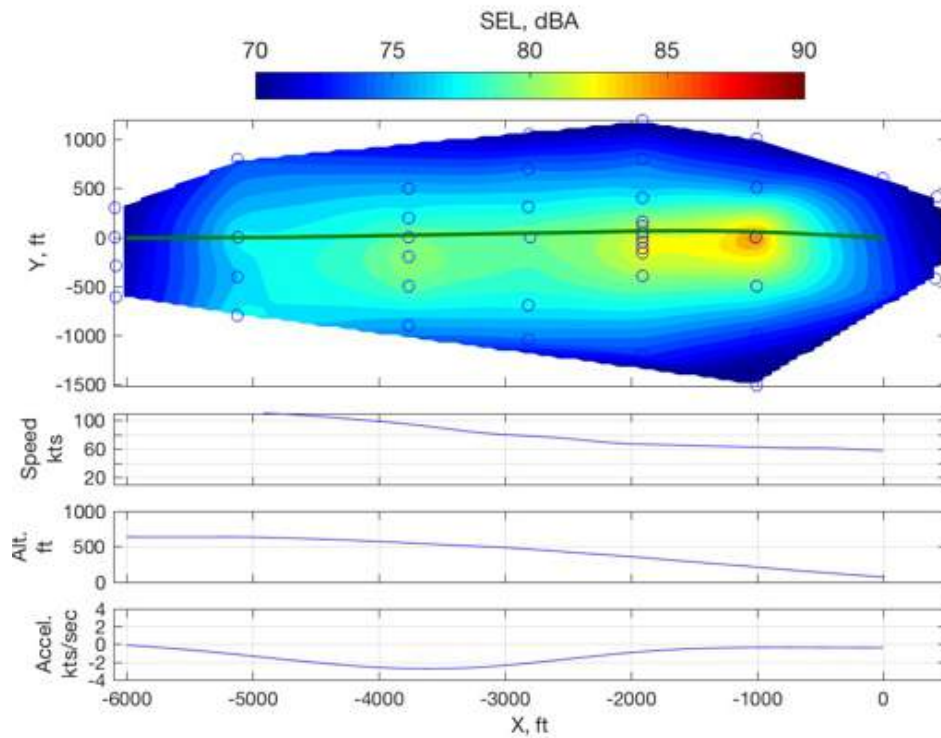


Figure 580: B206L3, A22, run 279260 A-Weighted SEL contour.

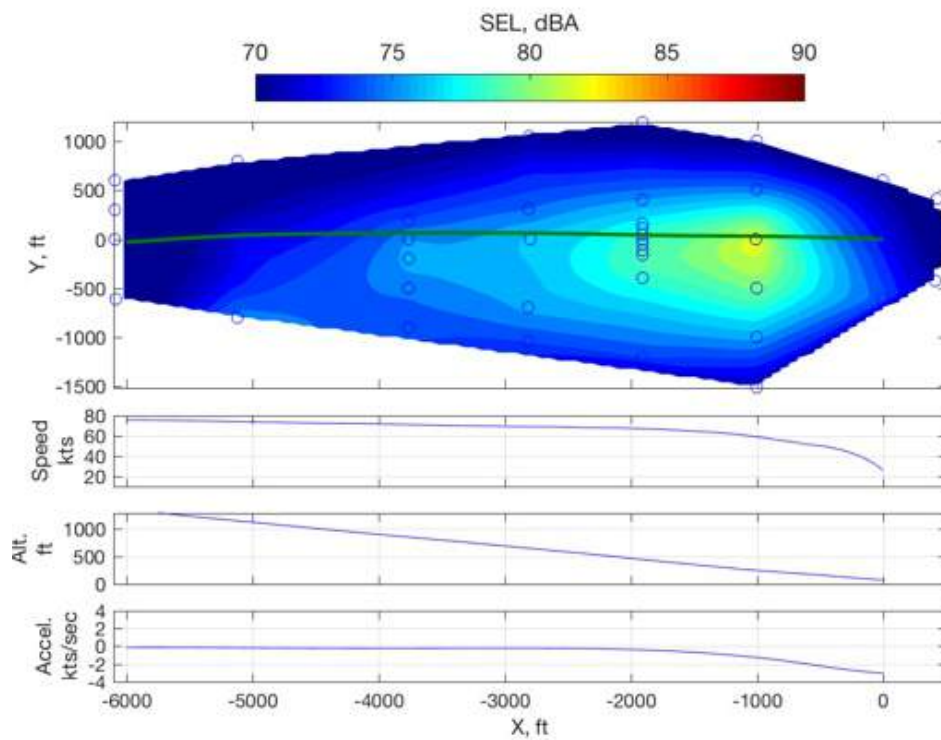


Figure 581: B206L3, A23, run 279265 A-Weighted SEL contour.

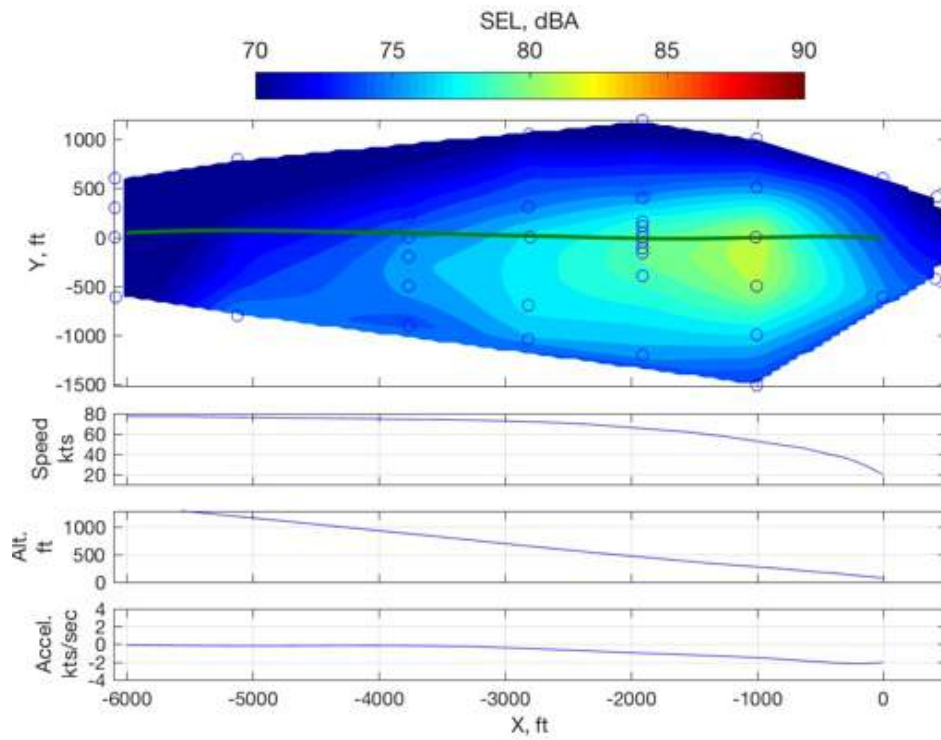


Figure 582: B206L3, A23, run 279266 A-Weighted SEL contour.

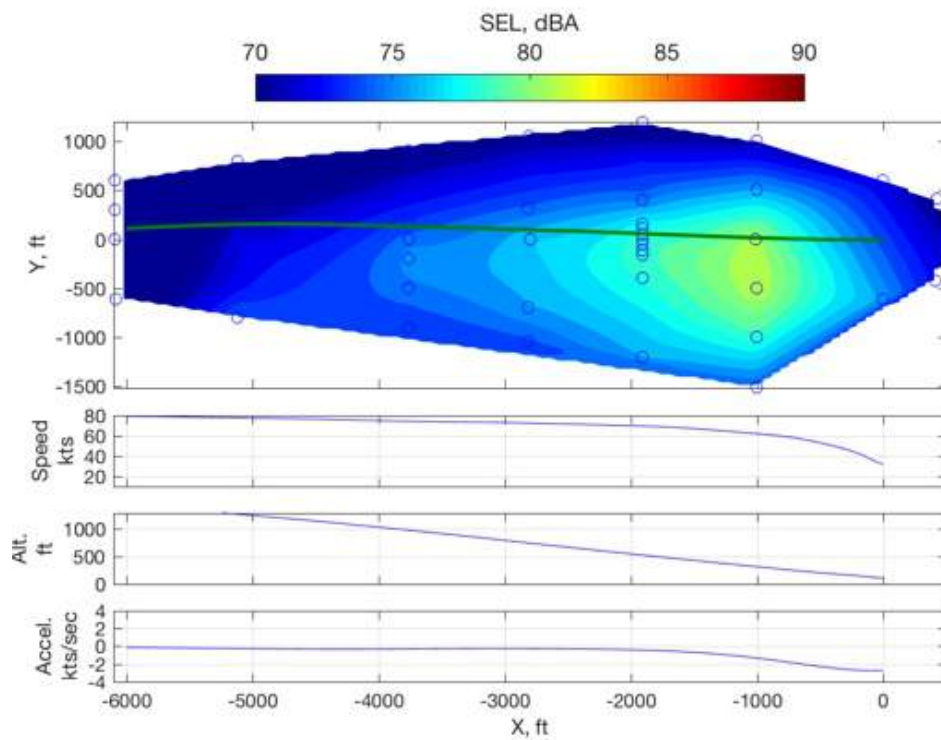


Figure 583: B206L3, A23, run 279267 A-Weighted SEL contour.

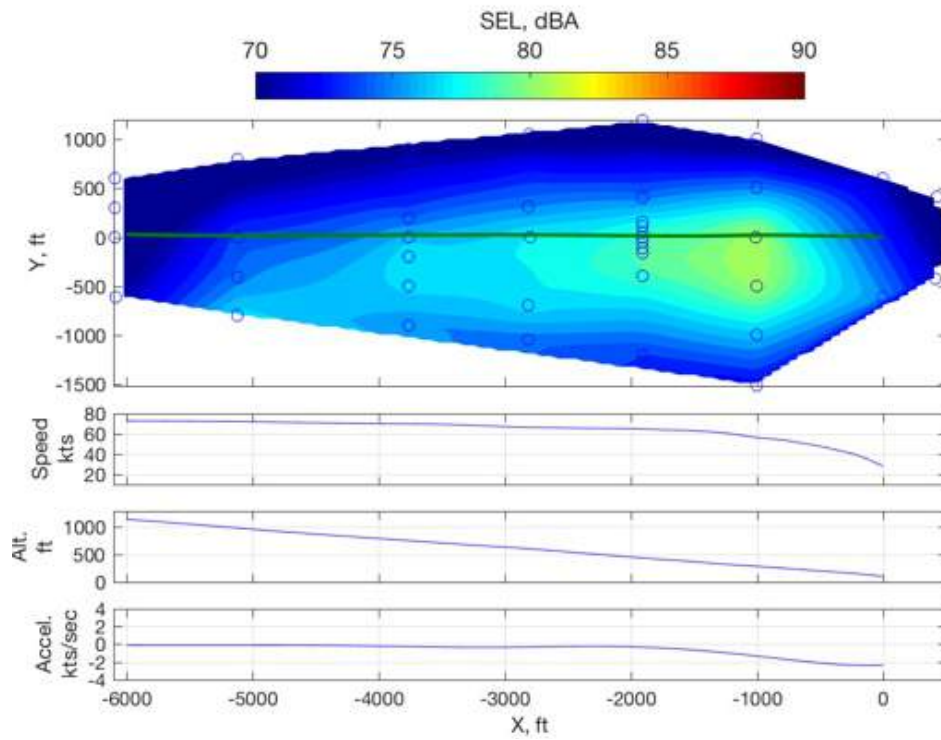


Figure 584: B206L3, A24, run 279268 A-Weighted SEL contour.

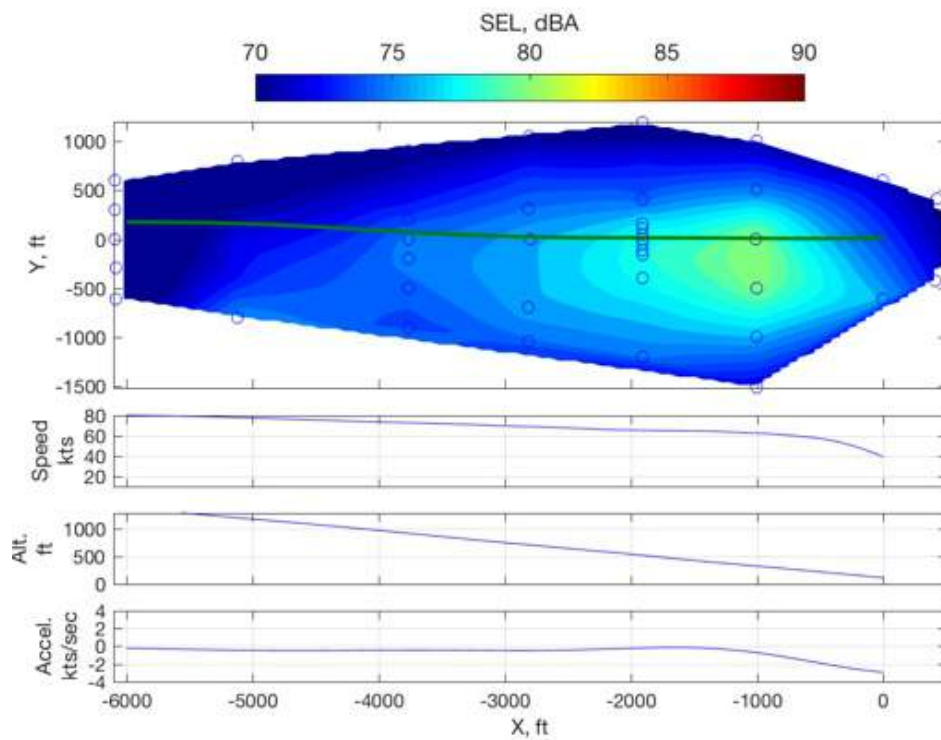


Figure 585: B206L3, A24, run 279269 A-Weighted SEL contour.

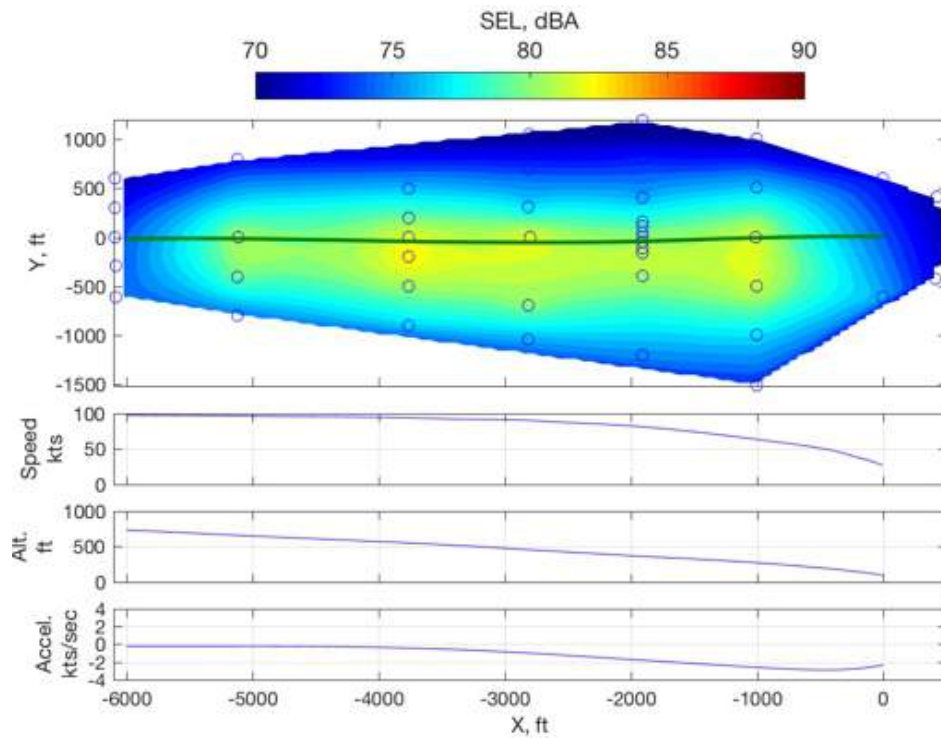


Figure 586: B206L3, A25, run 279247 A-Weighted SEL contour.

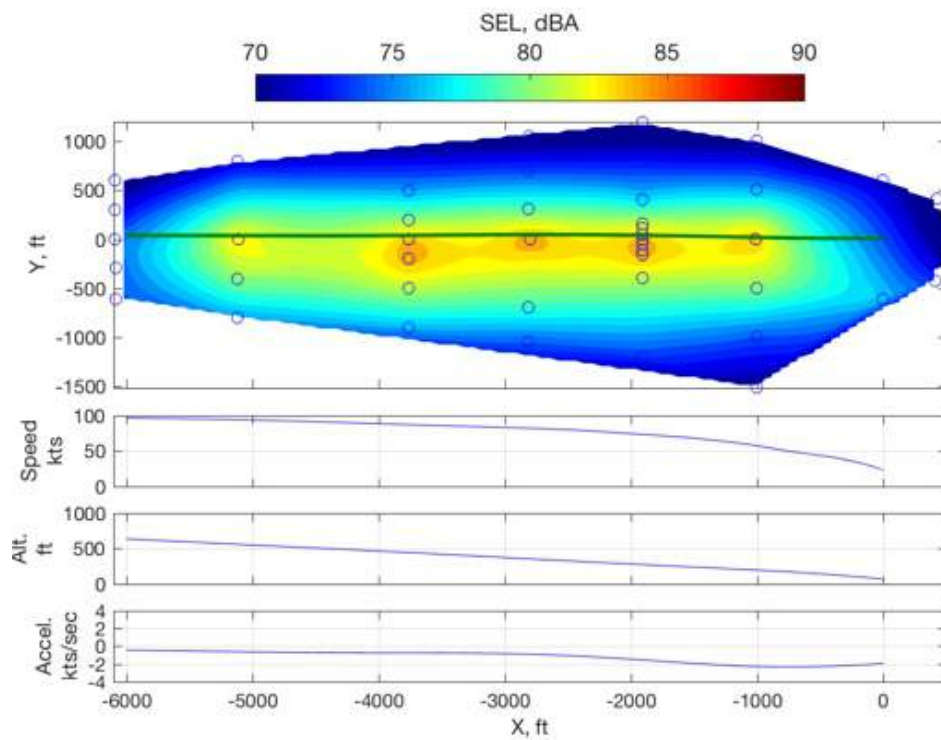


Figure 587: B206L3, A25, run 279248 A-Weighted SEL contour.

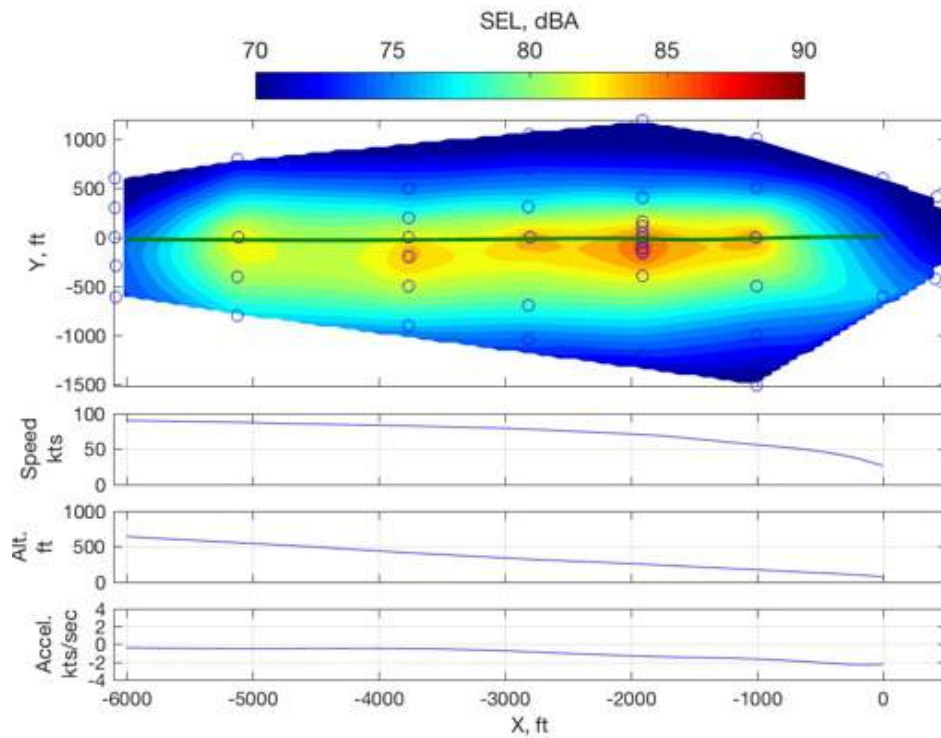


Figure 588: B206L3, A26, run 279249 A-Weighted SEL contour.

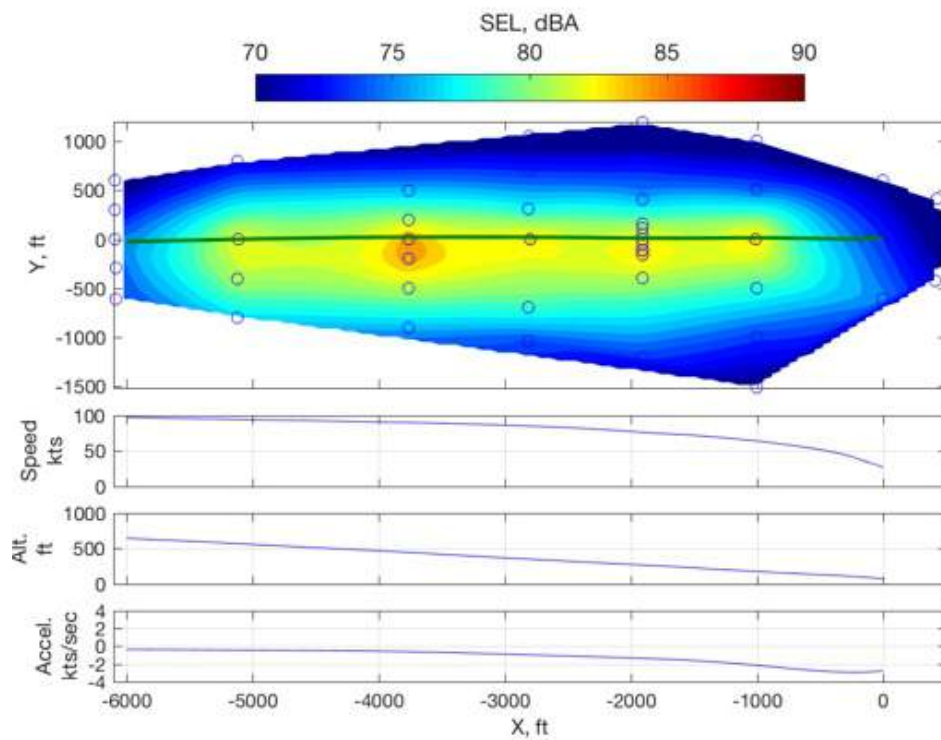


Figure 589: B206L3, A26, run 279250 A-Weighted SEL contour.

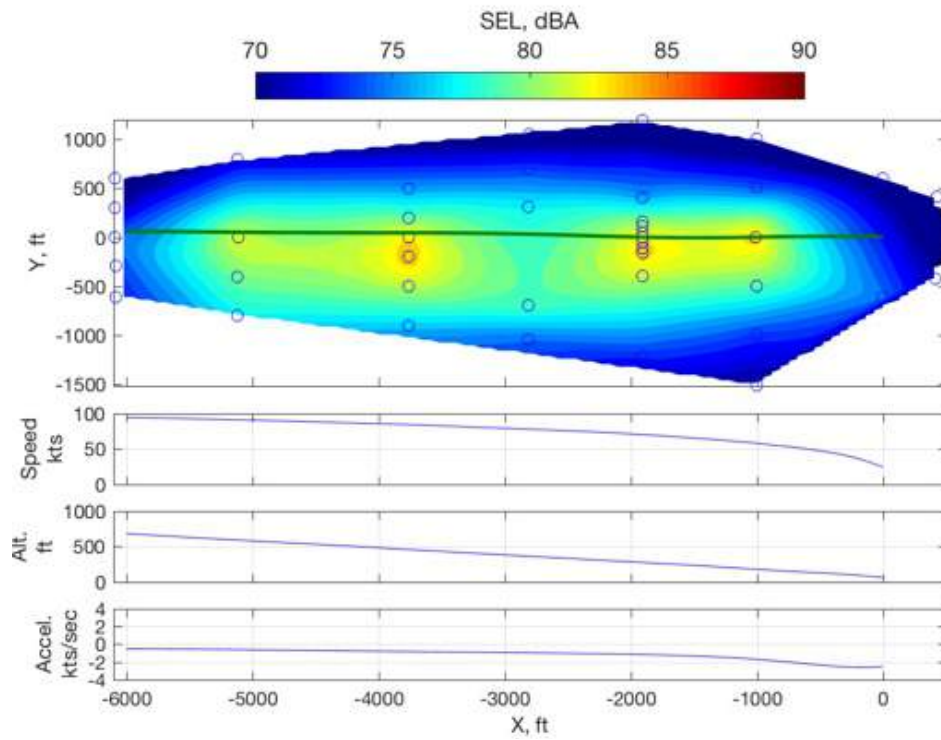


Figure 590: B206L3, A26, run 279251 A-Weighted SEL contour.

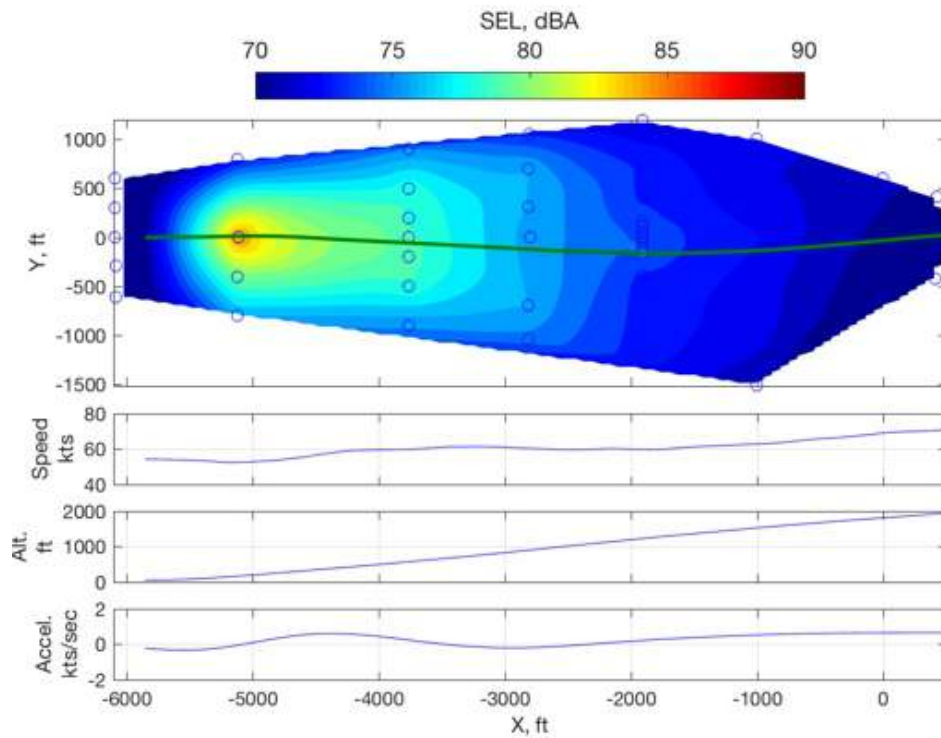


Figure 591: B206L3, C1, run 279270 A-Weighted SEL contour.

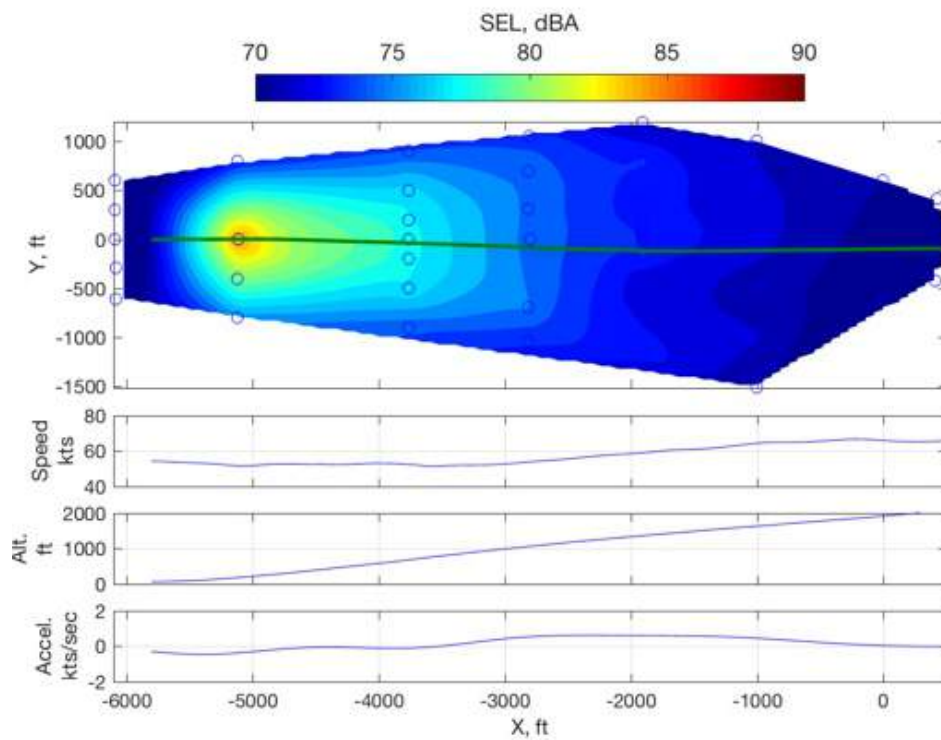


Figure 592: B206L3, C1, run 279271 A-Weighted SEL contour.

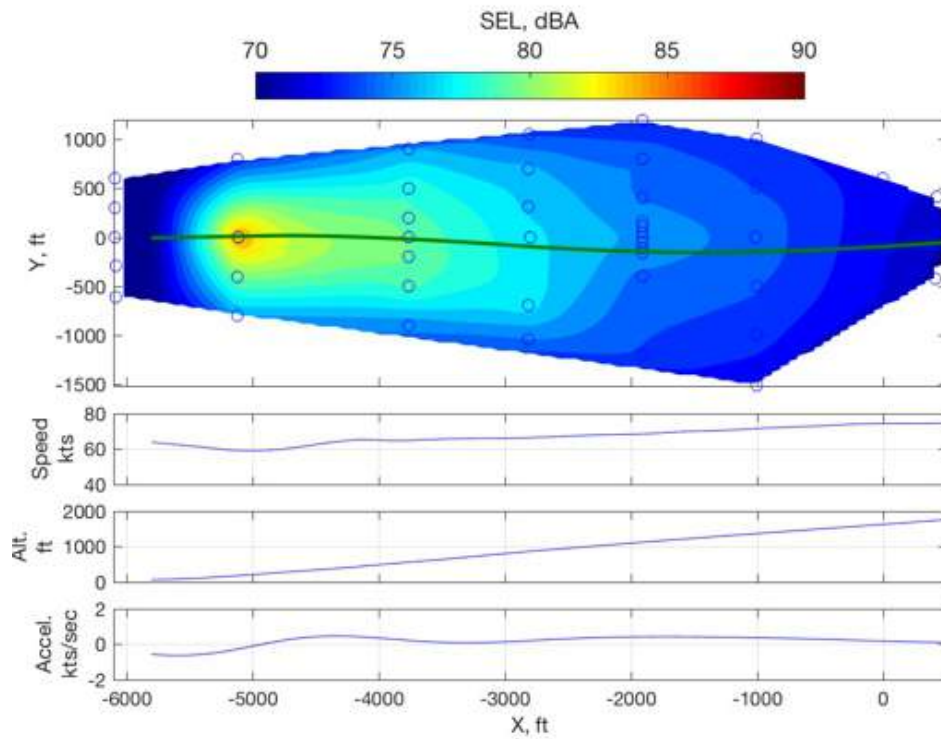


Figure 593: B206L3, C2, run 279272 A-Weighted SEL contour.

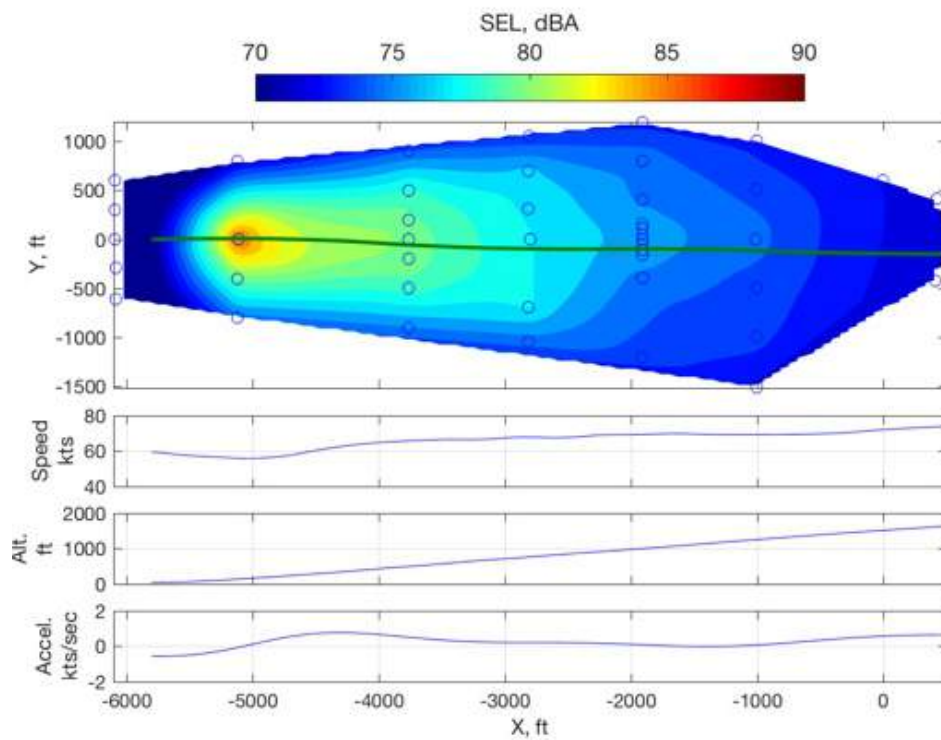


Figure 594: B206L3, C2, run 279273 A-Weighted SEL contour.

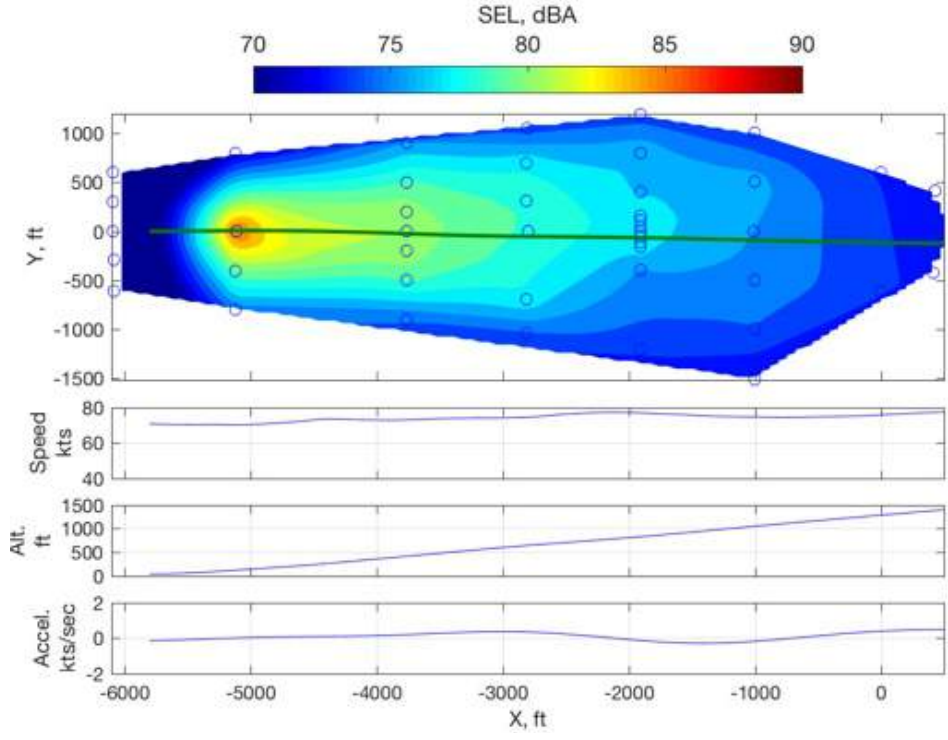


Figure 595: B206L3, C3, run 279274 A-Weighted SEL contour.

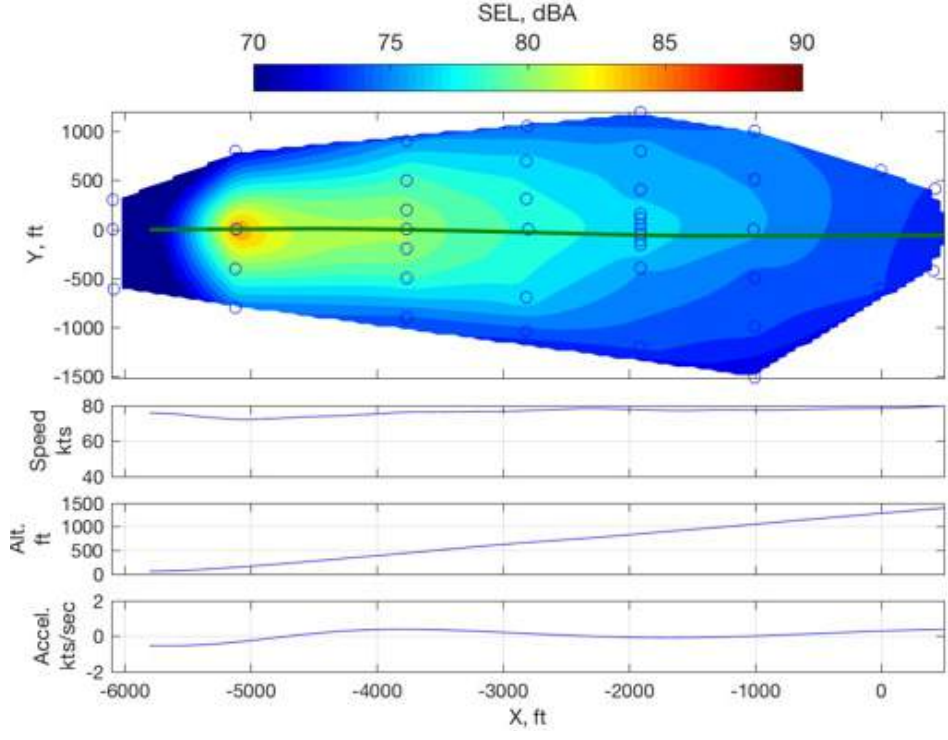


Figure 596: B206L3, C3, run 279275 A-Weighted SEL contour.

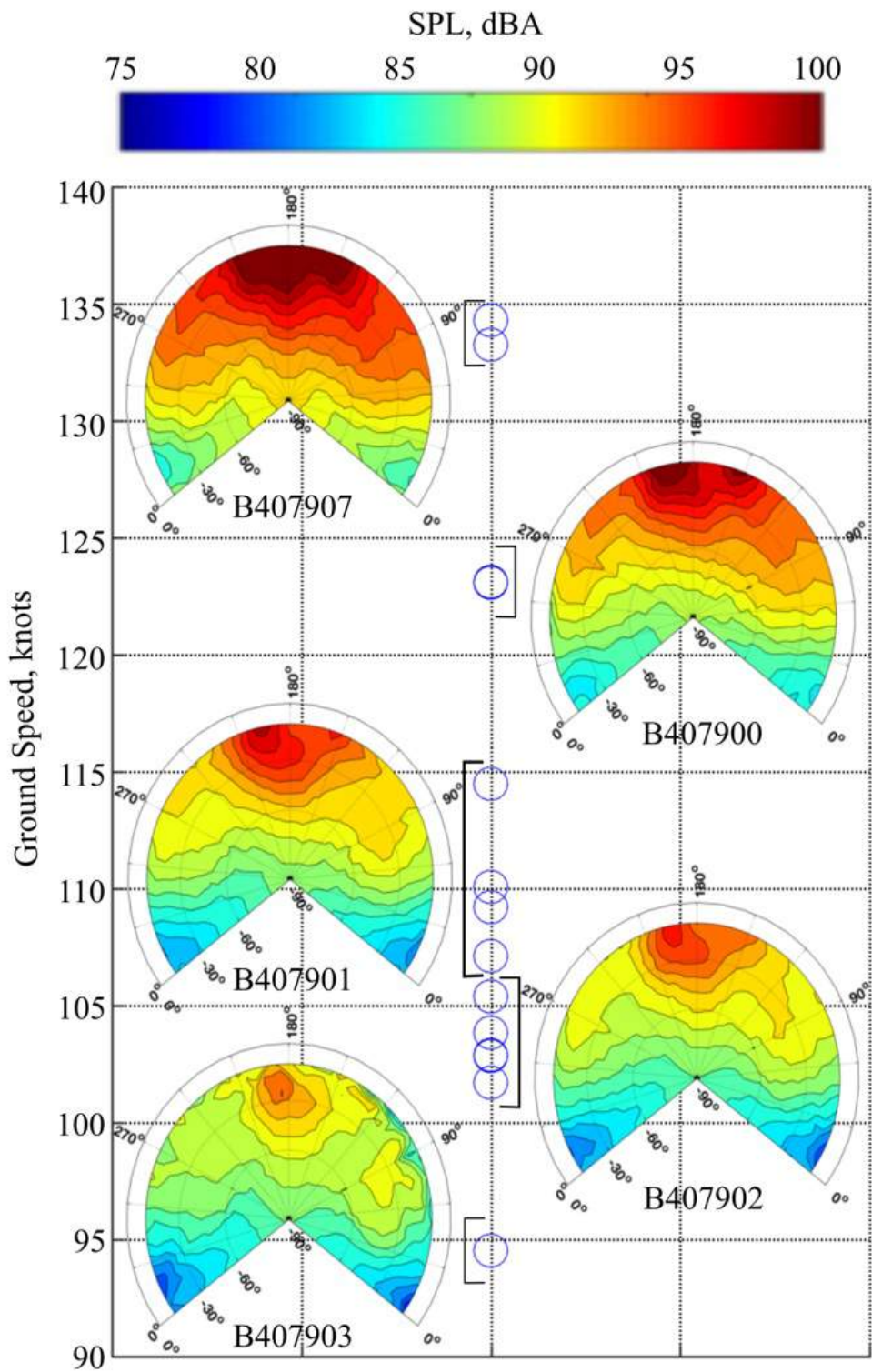


Figure 597: B407 average level flight source noise hemispheres, higher speed range.

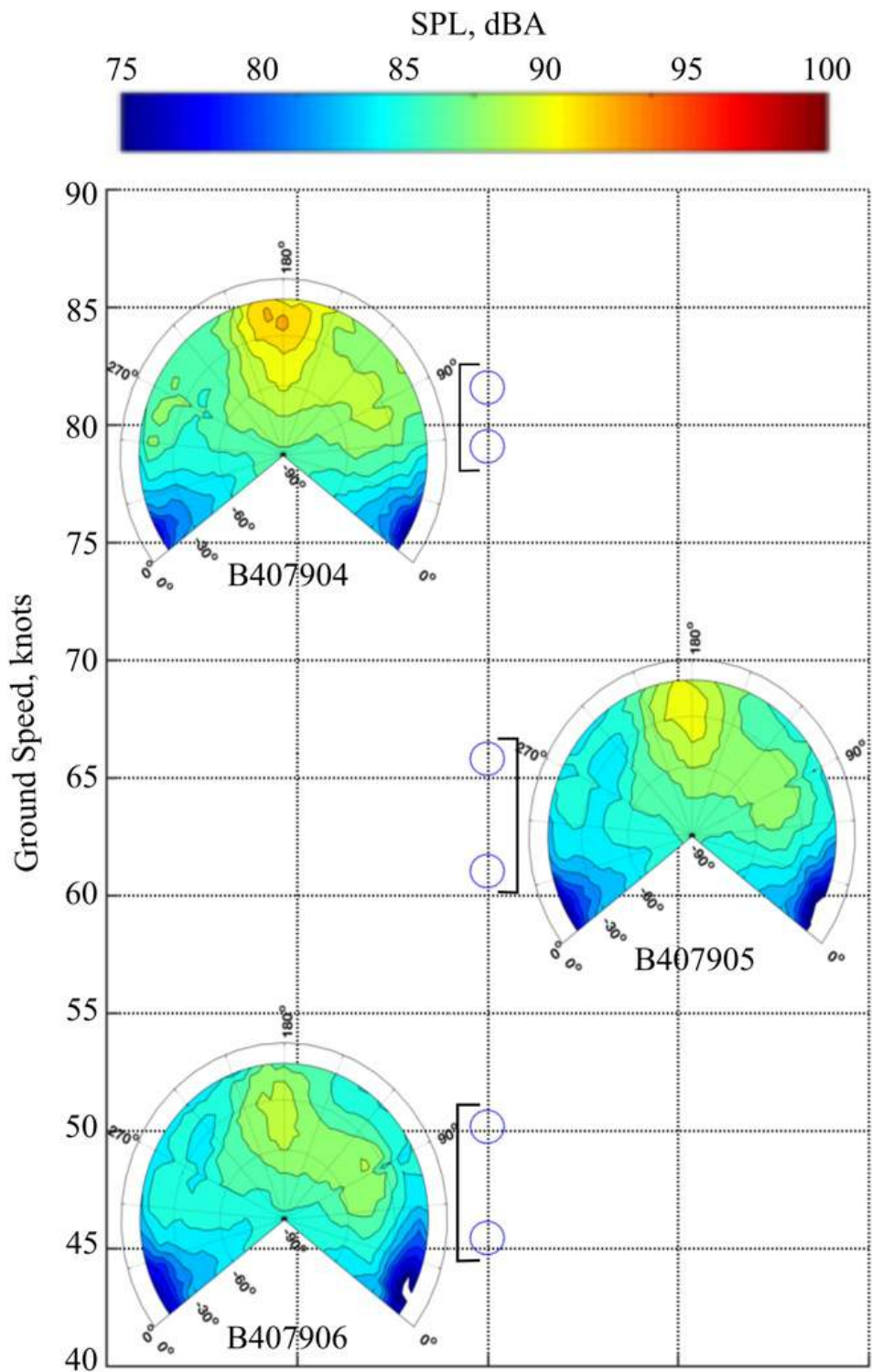


Figure 598: B407 average level flight source noise hemispheres, lower speed range.

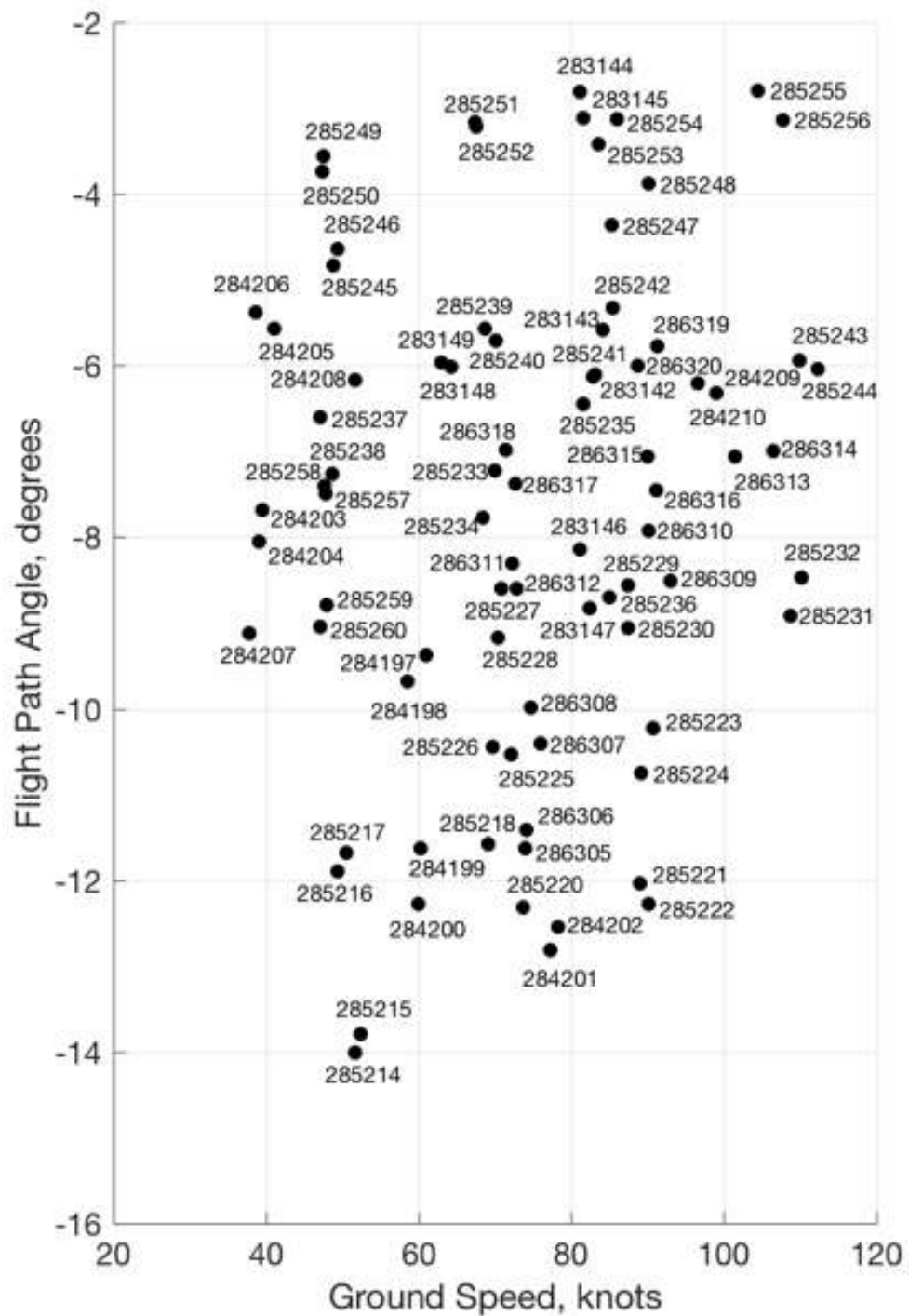


Figure 599: B407 source noise descent conditions flown.

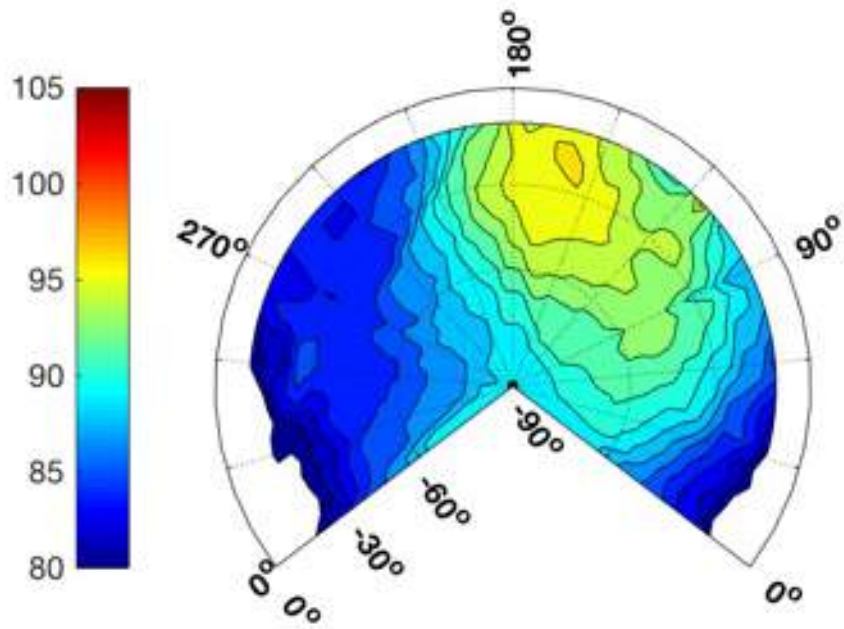


Figure 600: B407, 283142, D14, dBA hemisphere, ground speed 82.8 kts, -6.1° FPA.

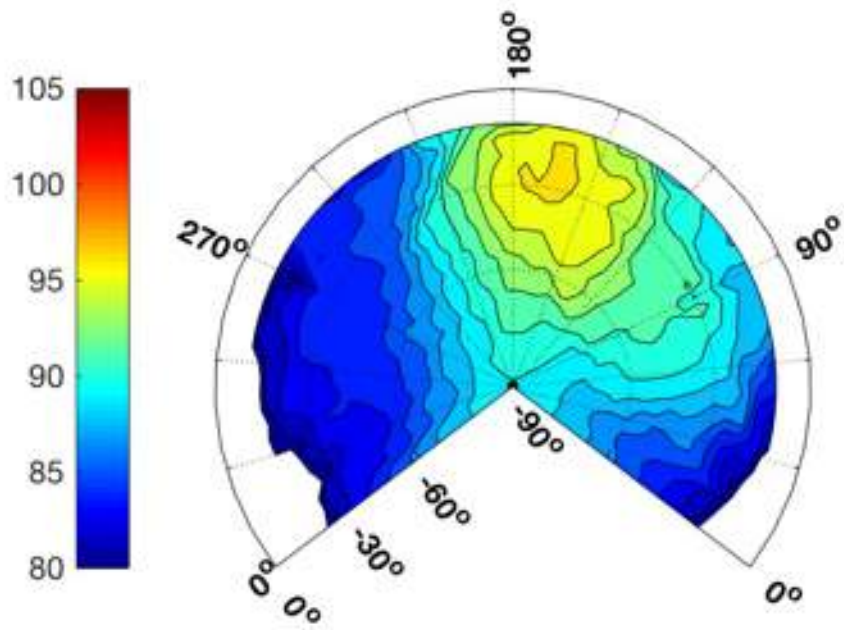


Figure 601: B407, 283143, D14, dBA hemisphere, ground speed 84.2 kts, -5.6° FPA.

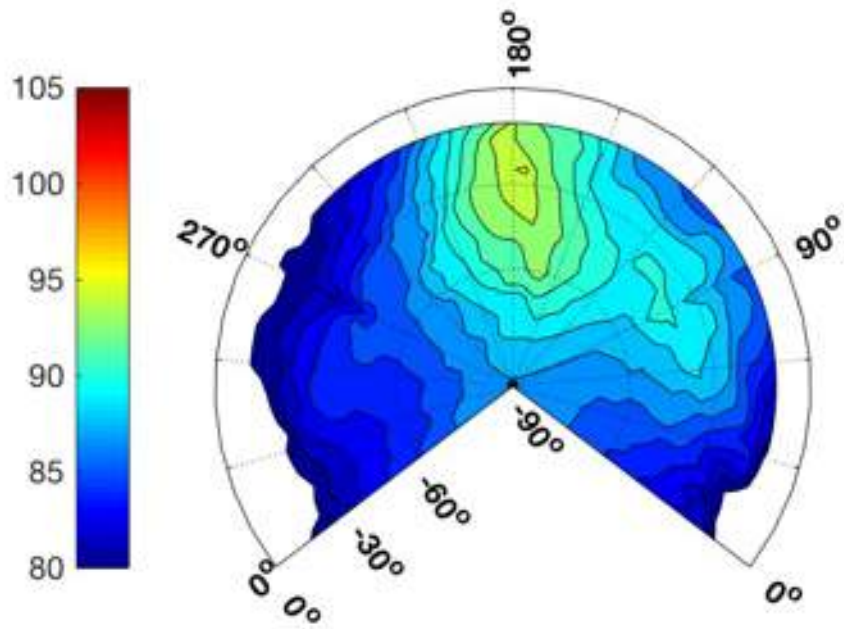


Figure 602: B407, 283144, D4, dBA hemisphere, ground speed 81.2 kts, -2.8° FPA.

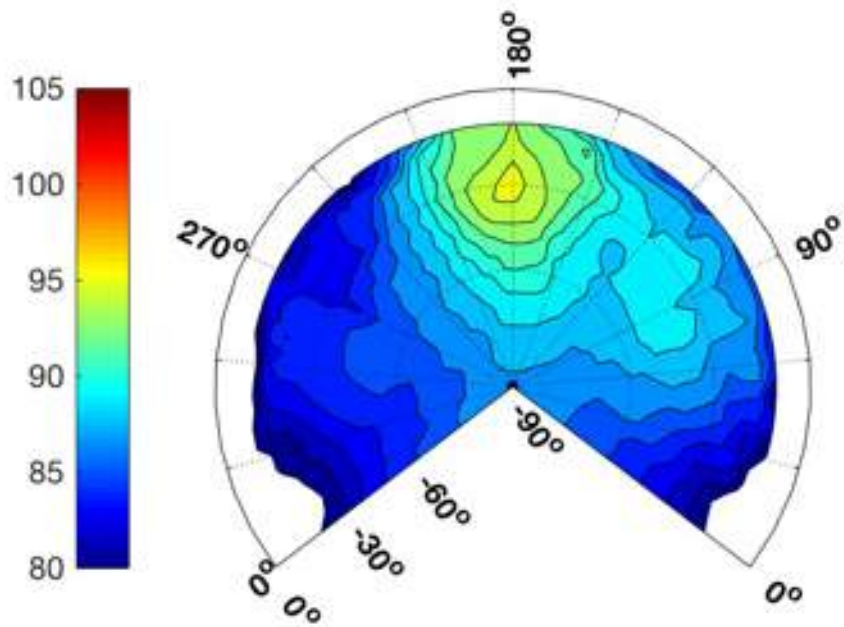


Figure 603: B407, 283145, D4, dBA hemisphere, ground speed 81.6 kts, -3.1° FPA.

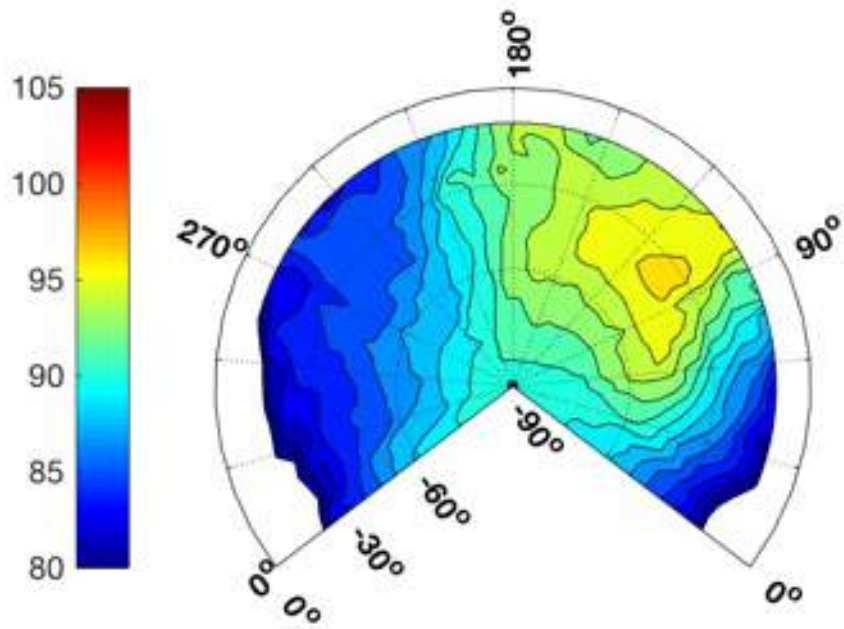


Figure 604: B407, 283146, D24, dBA hemisphere, ground speed 81.1 kts, -8.1° FPA.

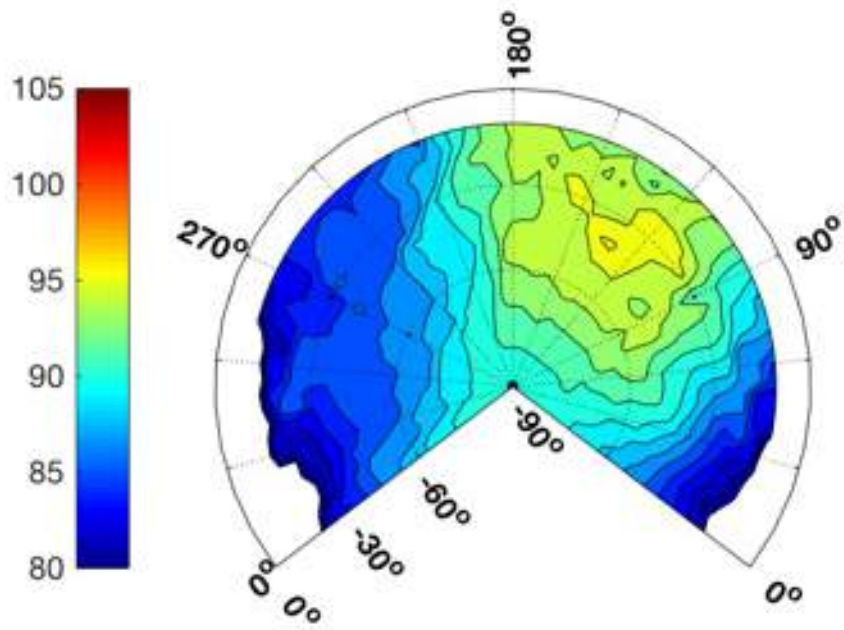


Figure 605: B407, 283147, D24, dBA hemisphere, ground speed 82.4 kts, -8.8° FPA.

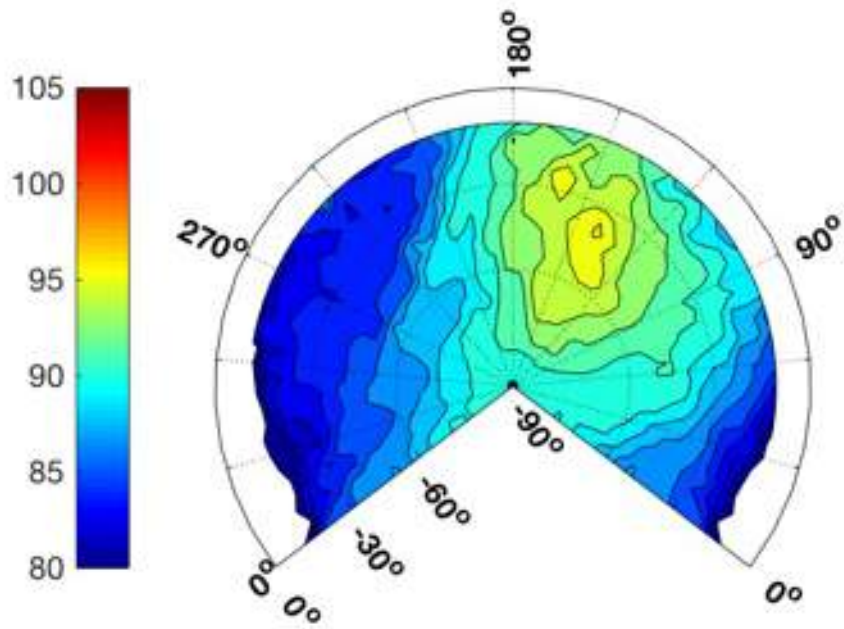


Figure 606: B407, 283148, D12, dBA hemisphere, ground speed 64.3 kts, -6.0° FPA.

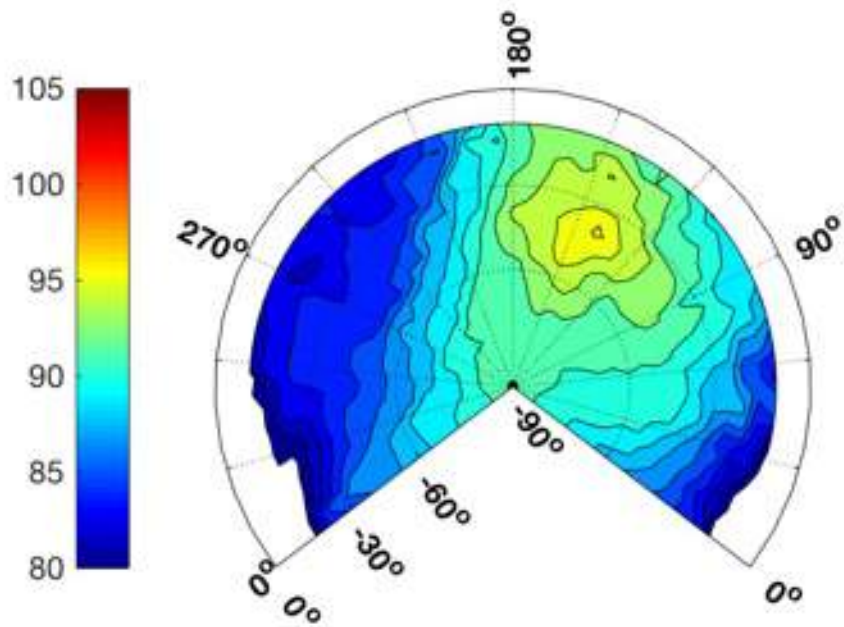


Figure 607: B407, 283149, D12, dBA hemisphere, ground speed 63.0 kts, -6.0° FPA.

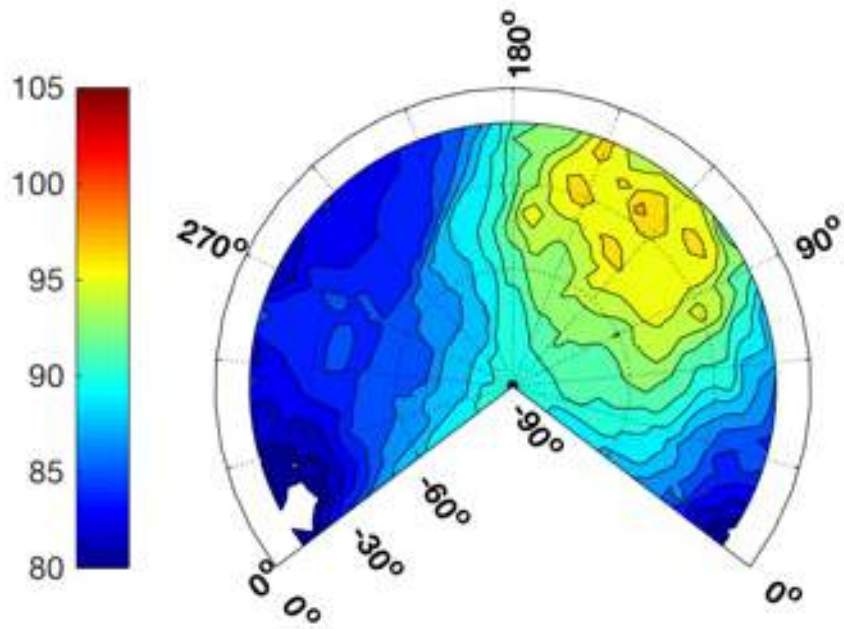


Figure 608: B407, 284197, D22, dBA hemisphere, ground speed 61.0 kts, -9.4° FPA.

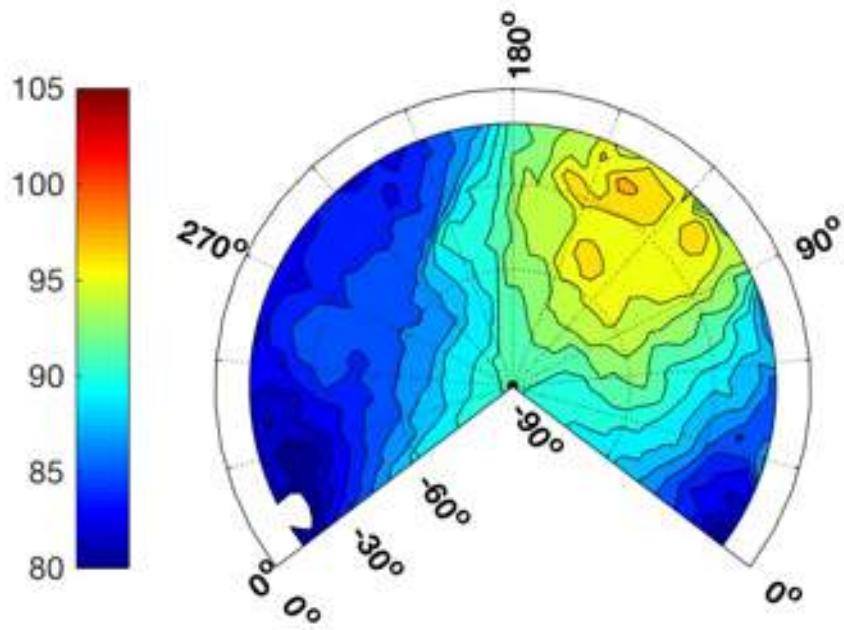


Figure 609: B407, 284198, D22, dBA hemisphere, ground speed 58.6 kts, -9.7° FPA.

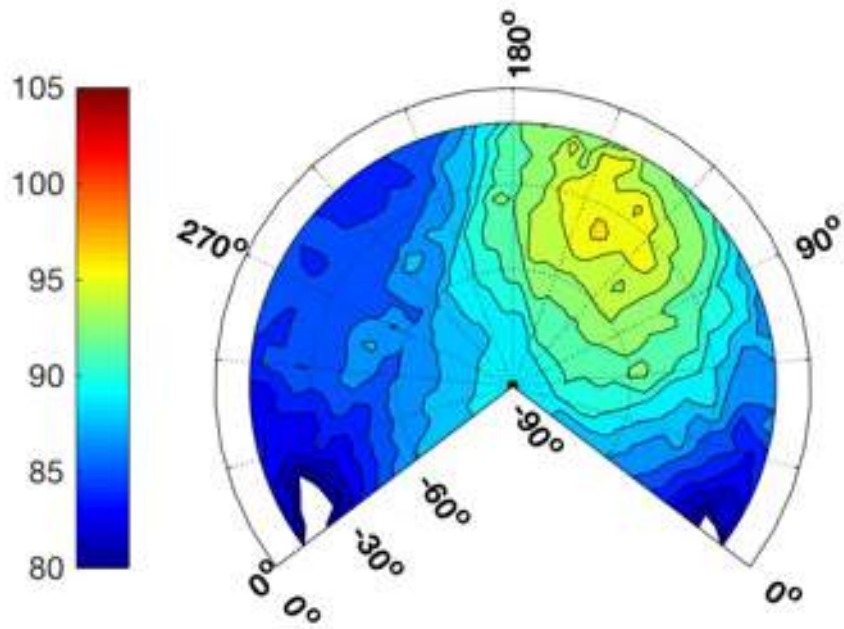


Figure 610: B407, 284199, D30, dBA hemisphere, ground speed 60.3 kts, -11.6° FPA.

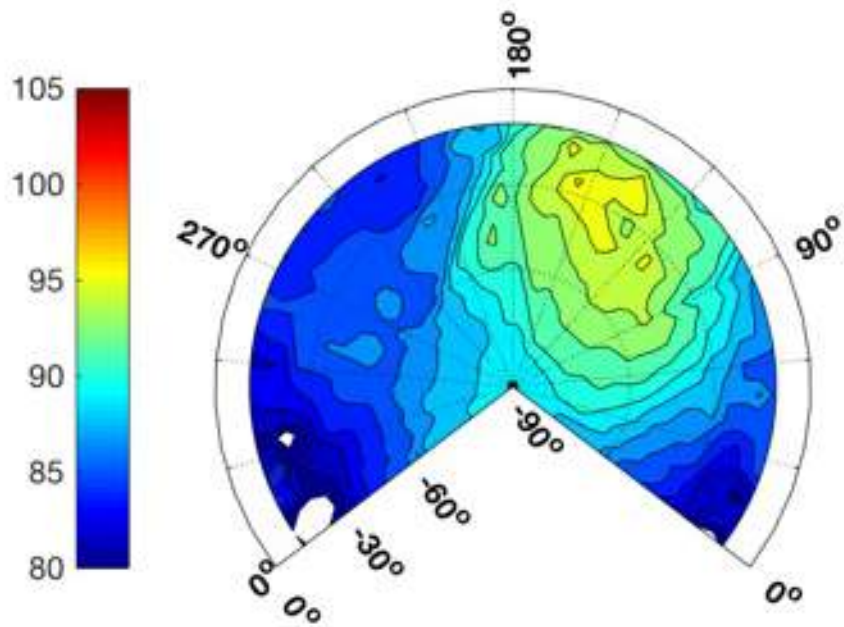


Figure 611: B407, 284200, D30, dBA hemisphere, ground speed 59.9 kts, -12.3° FPA.

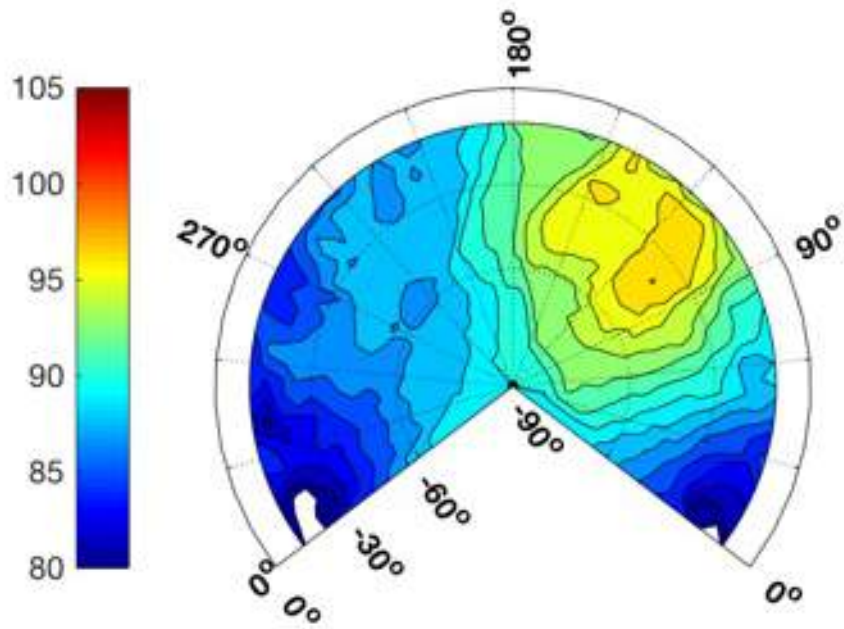


Figure 612: B407, 284201, D32, dBA hemisphere, ground speed 77.3 kts, -12.8° FPA.

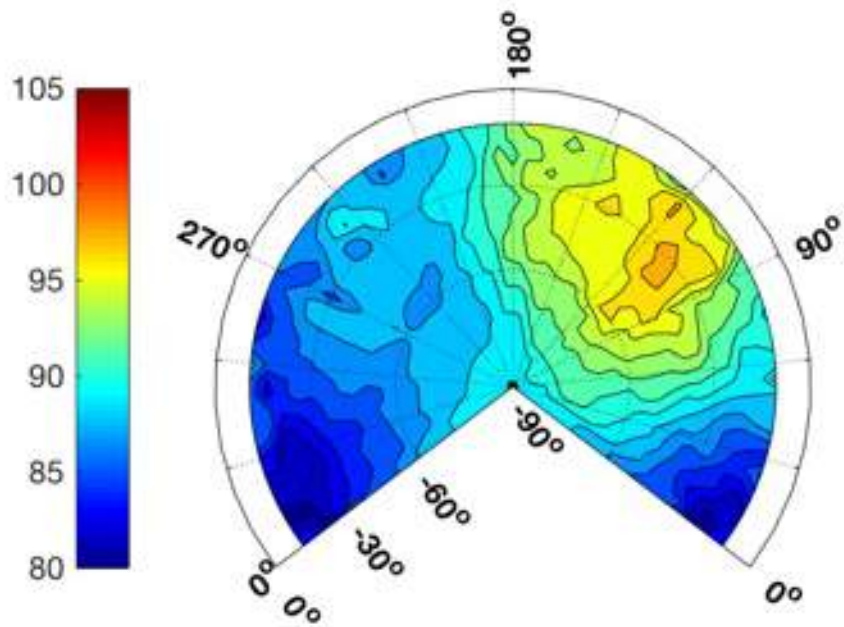


Figure 613: B407, 284202, D32, dBA hemisphere, ground speed 78.3 kts, -12.5° FPA.

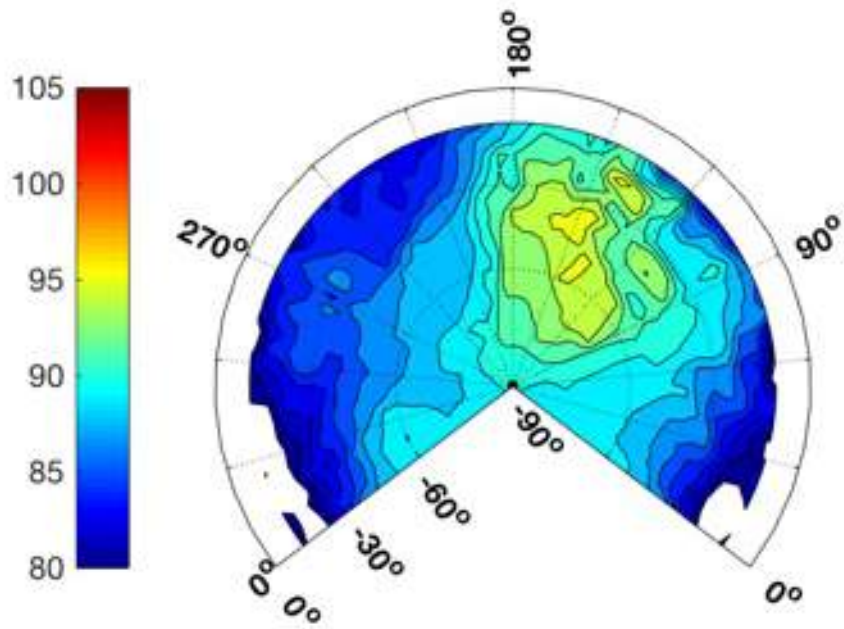


Figure 614: B407, 284203, D36, dBA hemisphere, ground speed 39.5 kts, -7.7° FPA.

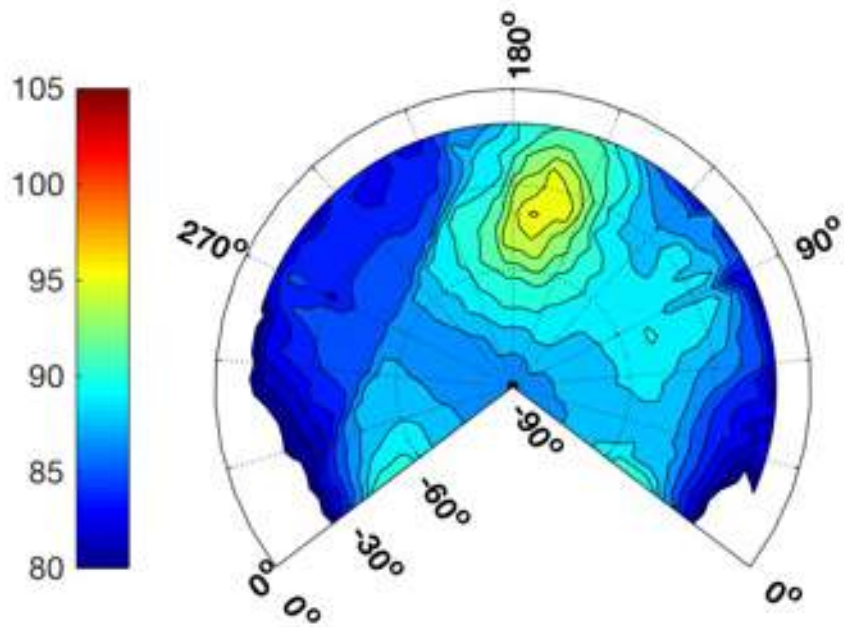


Figure 615: B407, 284204, D36, dBA hemisphere, ground speed 39.1 kts, -8.1° FPA.

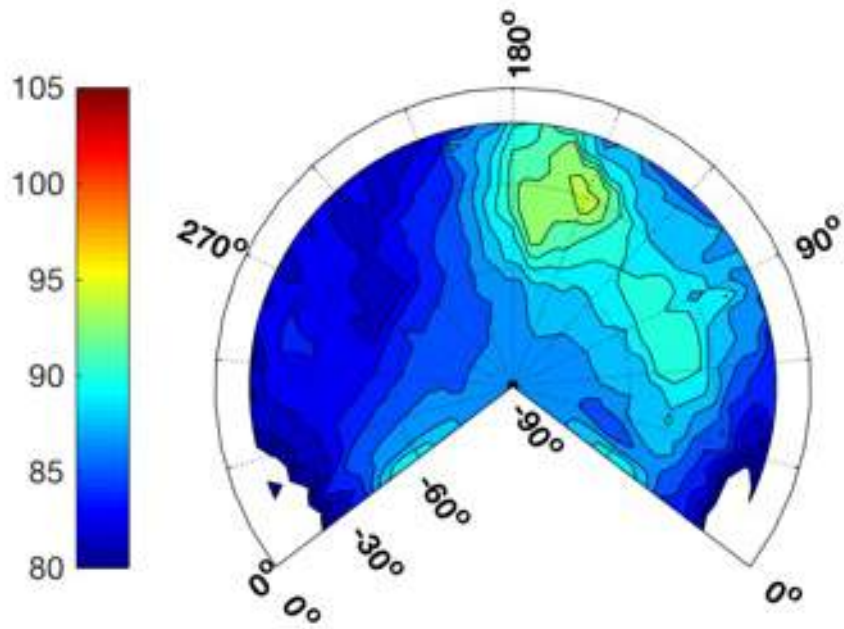


Figure 616: B407, 284205, D34, dBA hemisphere, ground speed 41.1 kts, -5.6° FPA.

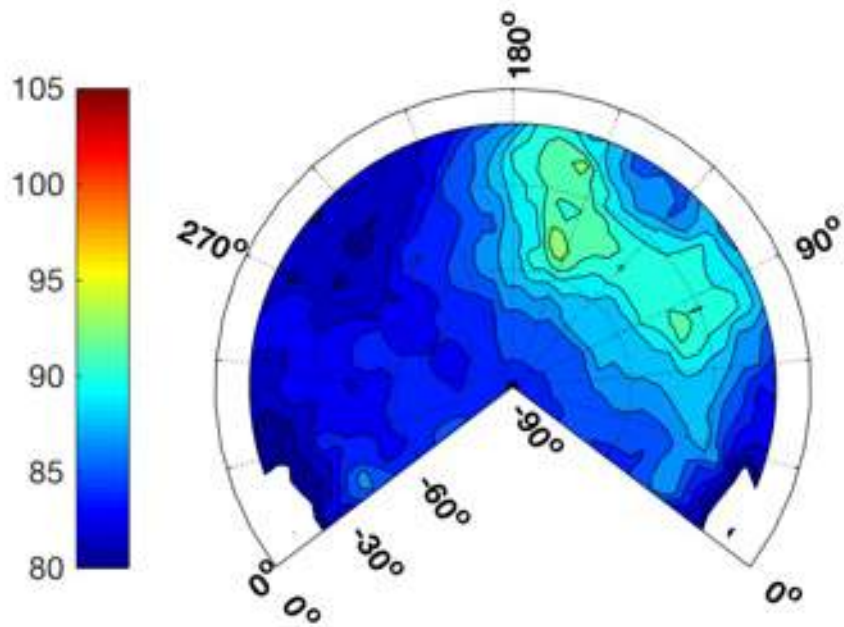


Figure 617: B407, 284206, D34, dBA hemisphere, ground speed 38.6 kts, -5.4° FPA.

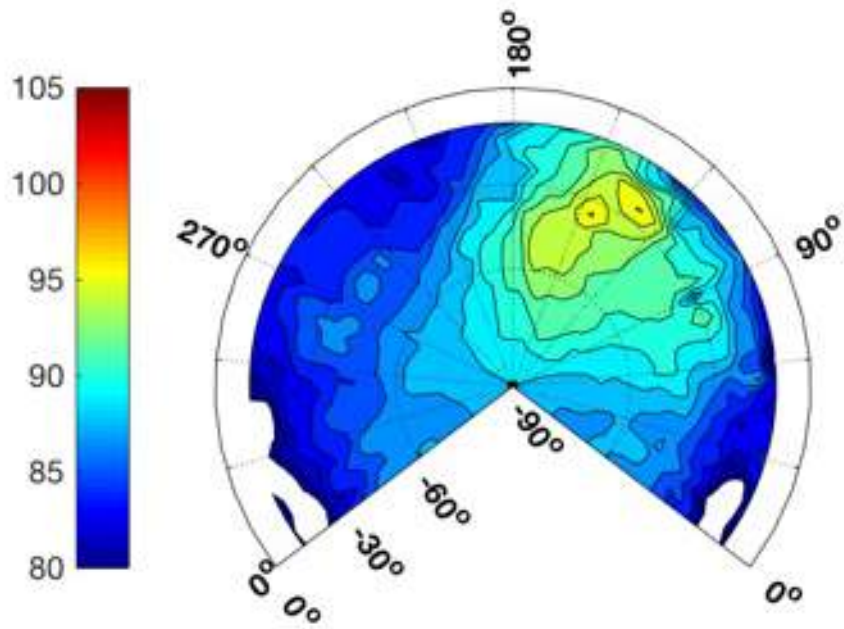


Figure 618: B407, 284207, D37, dBA hemisphere, ground speed 37.7 kts, -9.1° FPA.

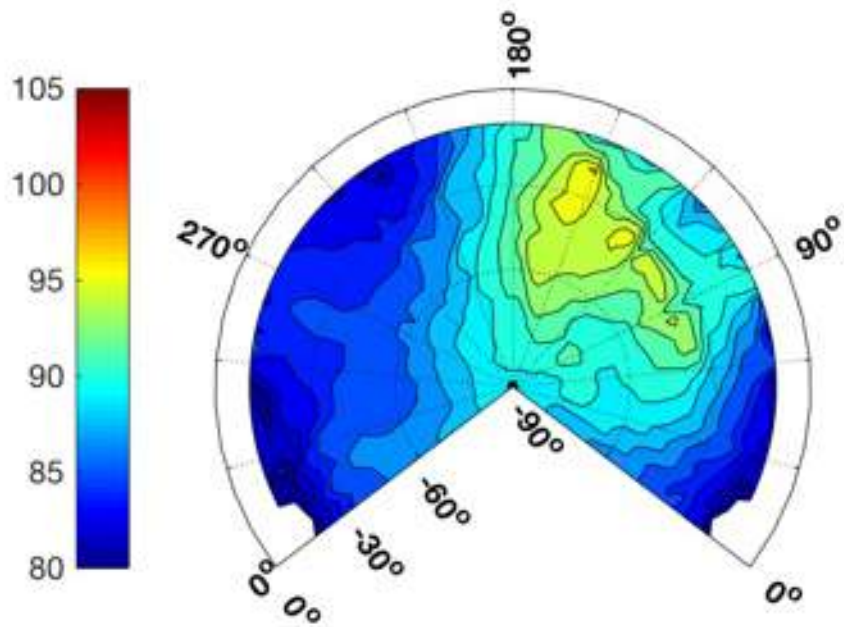


Figure 619: B407, 284208, D12, dBA hemisphere, ground speed 51.7 kts, -6.2° FPA.

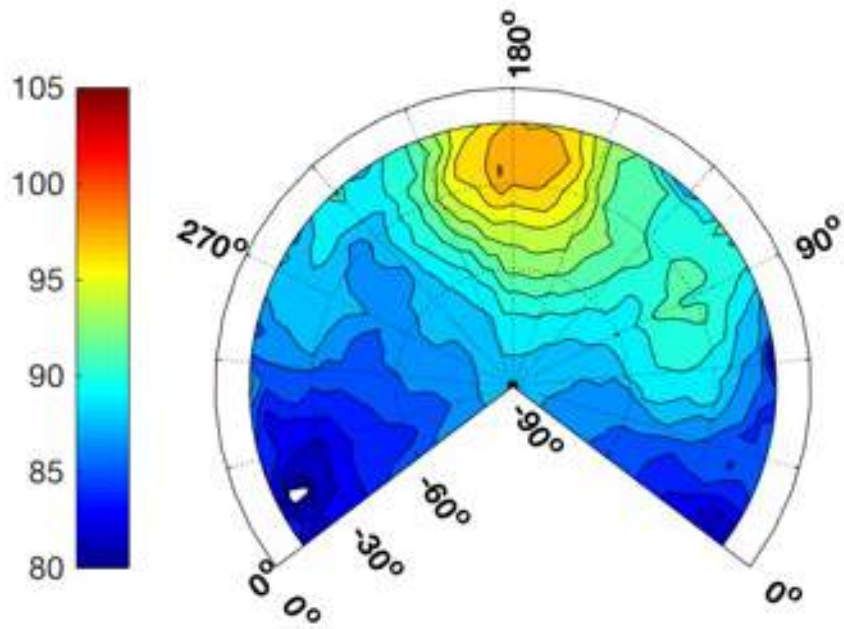


Figure 620: B407, 284209, D16, dBA hemisphere, ground speed 96.6 kts, -6.2° FPA.

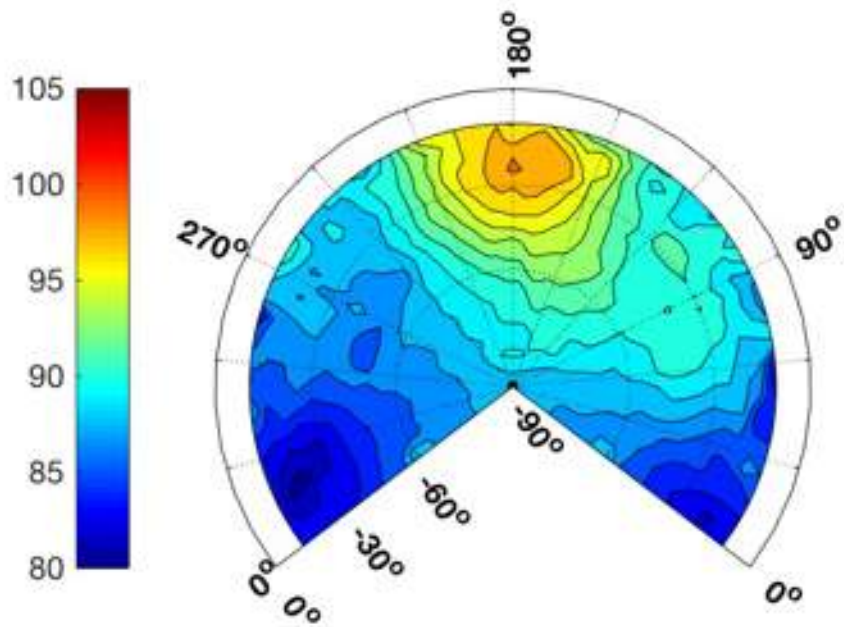


Figure 621: B407, 284210, D16, dBA hemisphere, ground speed 99.1 kts, -6.3° FPA.

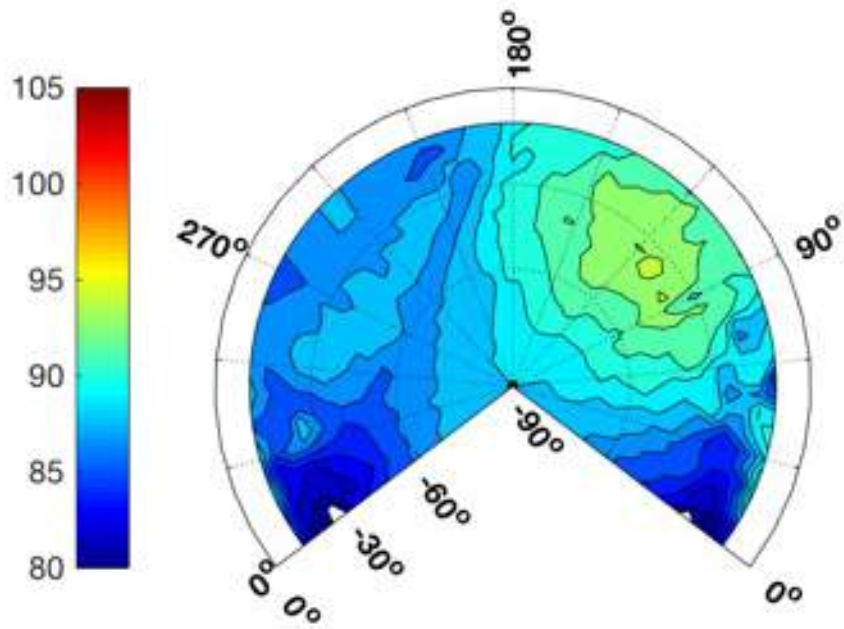


Figure 622: B407, 285214, D39, dBA hemisphere, ground speed 51.7 kts, -14.0° FPA.

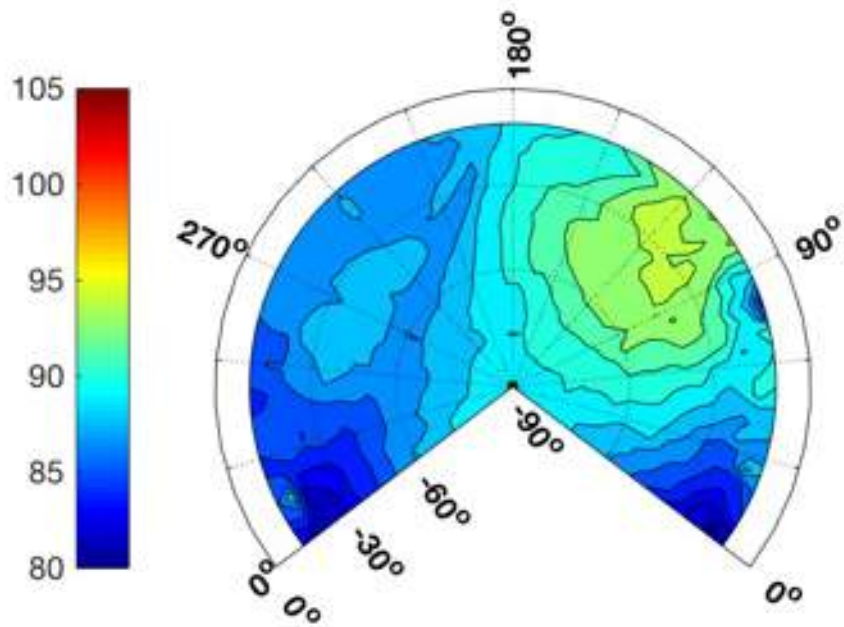


Figure 623: B407, 285215, D39, dBA hemisphere, ground speed 52.3 kts, -13.8° FPA.

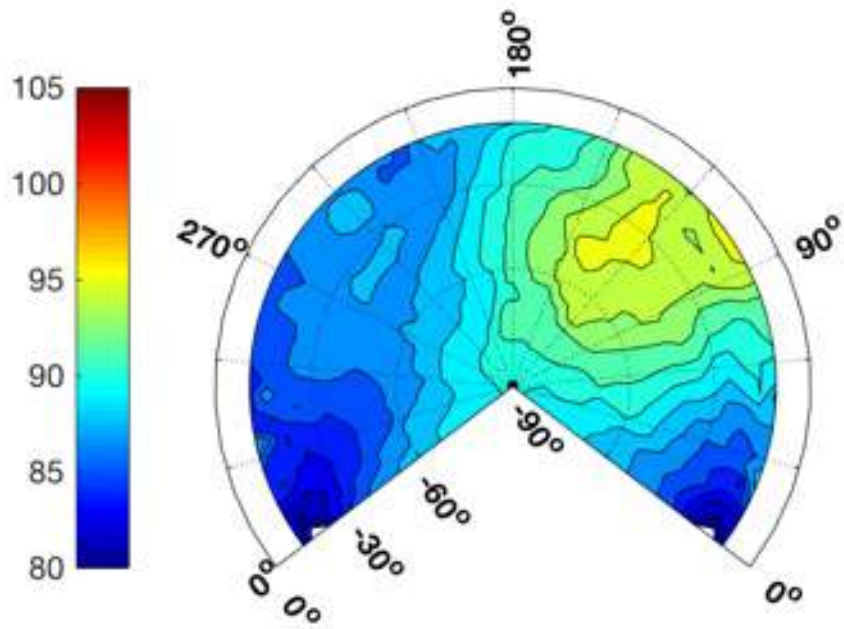


Figure 624: B407, 285216, D38, dBA hemisphere, ground speed 49.4 kts, -11.9° FPA.

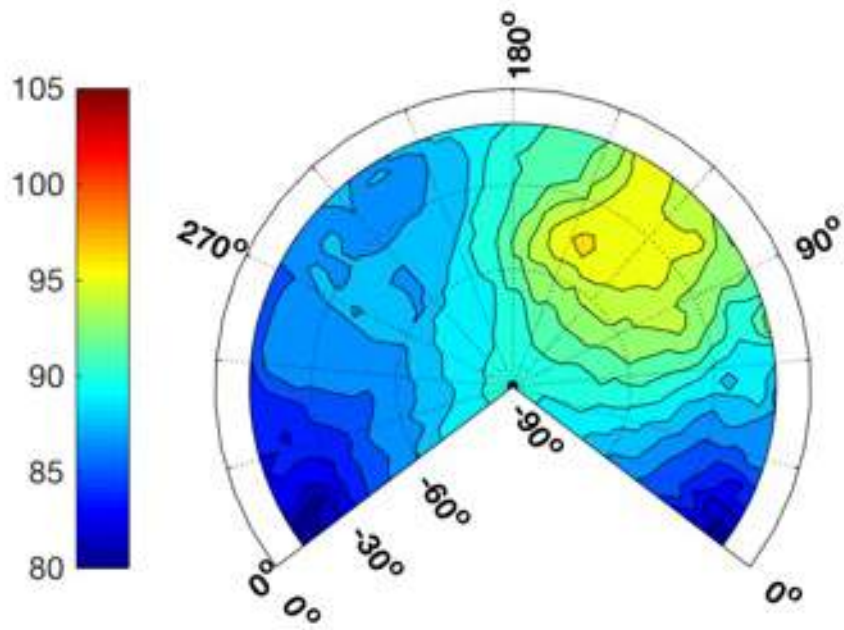


Figure 625: B407, 285217, D38, dBA hemisphere, ground speed 50.5 kts, -11.7° FPA.

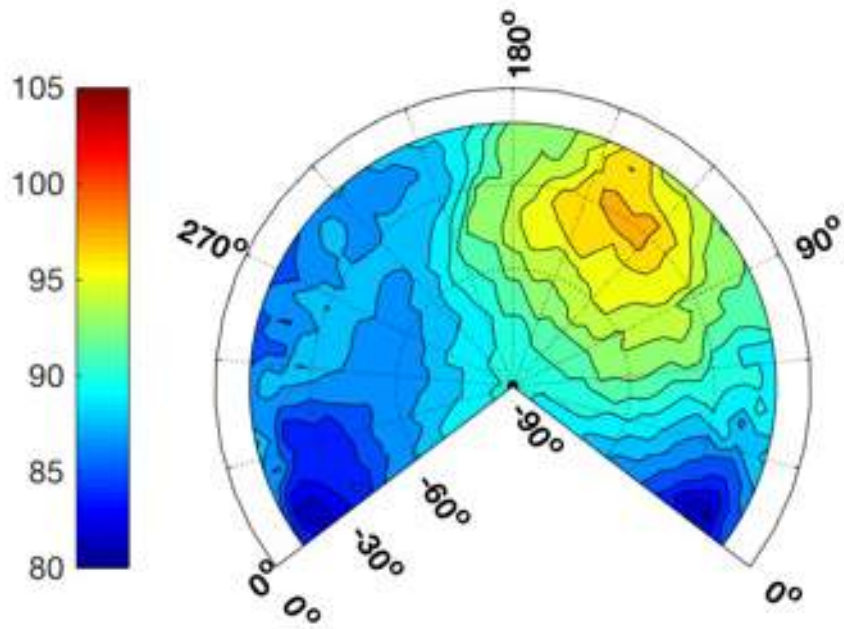


Figure 626: B407, 285218, D30, dBA hemisphere, ground speed 69.1 kts, -11.6° FPA.

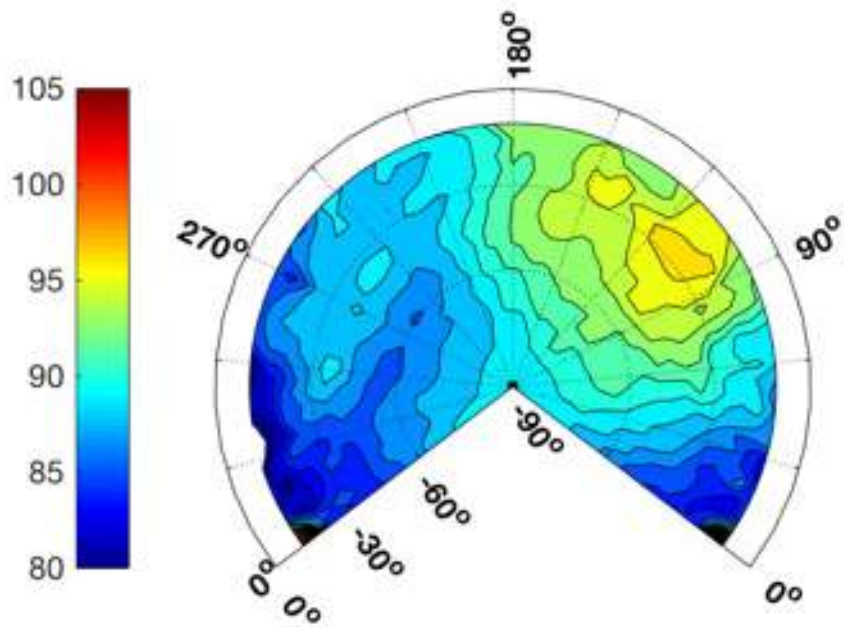


Figure 627: B407, 285220, D30, dBA hemisphere, ground speed 73.7 kts, -12.3° FPA.

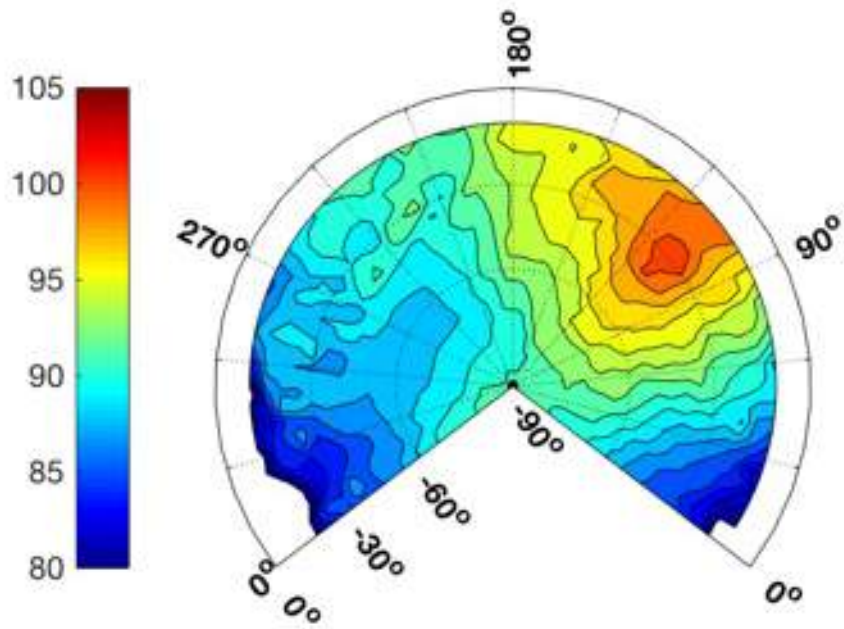


Figure 628: B407, 285221, D32, dBA hemisphere, ground speed 89.1 kts, -12.0° FPA.

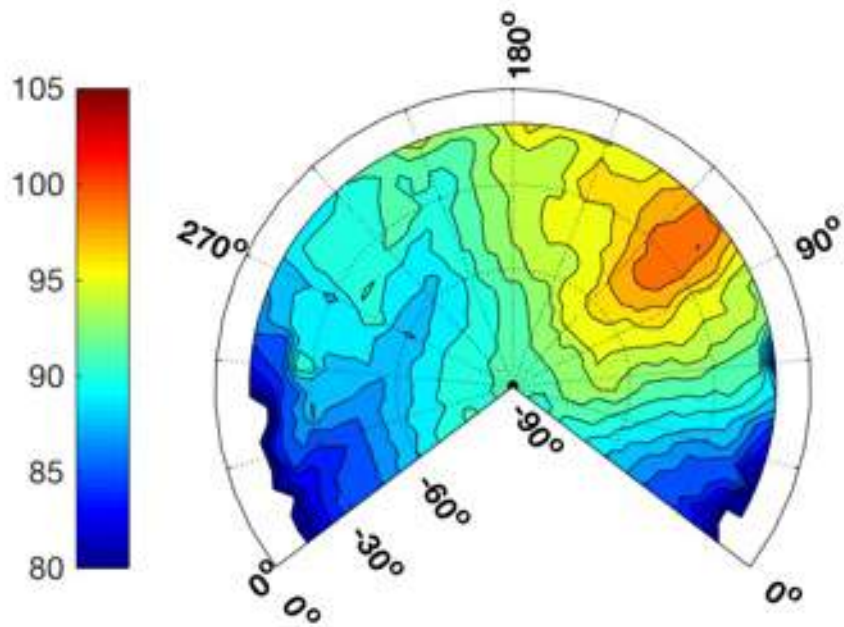


Figure 629: B407, 285222, D32, dBA hemisphere, ground speed 90.1 kts, -12.3° FPA.

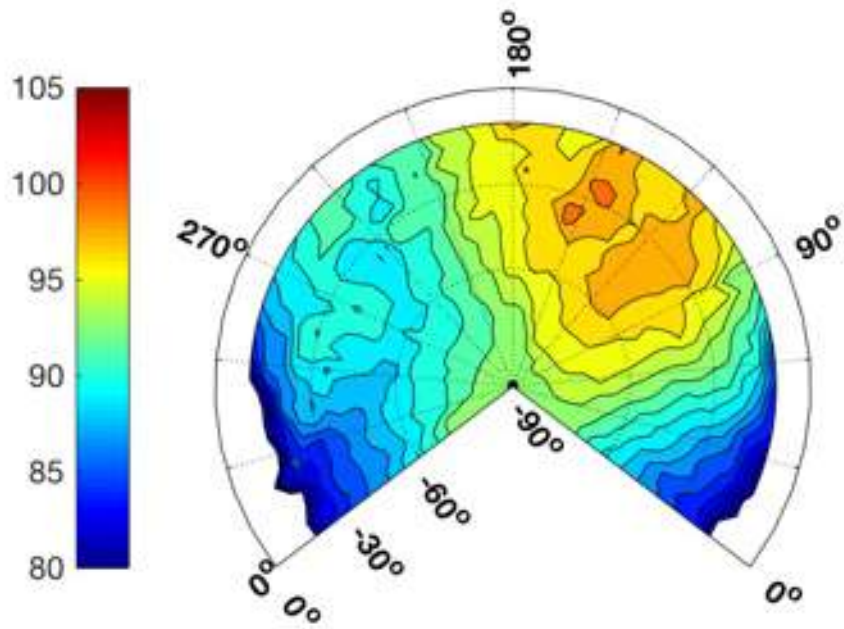


Figure 630: B407, 285223, D29, dBA hemisphere, ground speed 90.8 kts, -10.2° FPA.

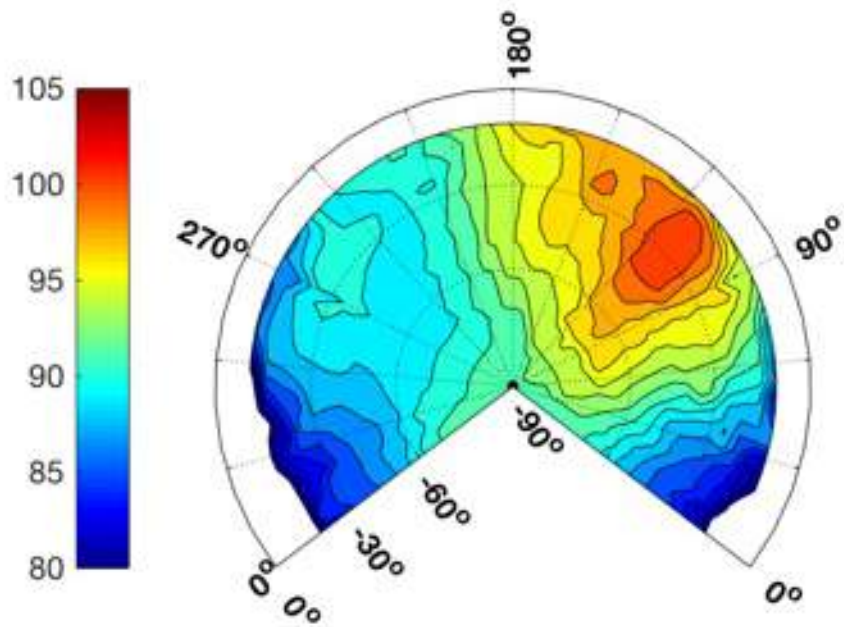


Figure 631: B407, 285224, D29, dBA hemisphere, ground speed 89.1 kts, -10.8° FPA.

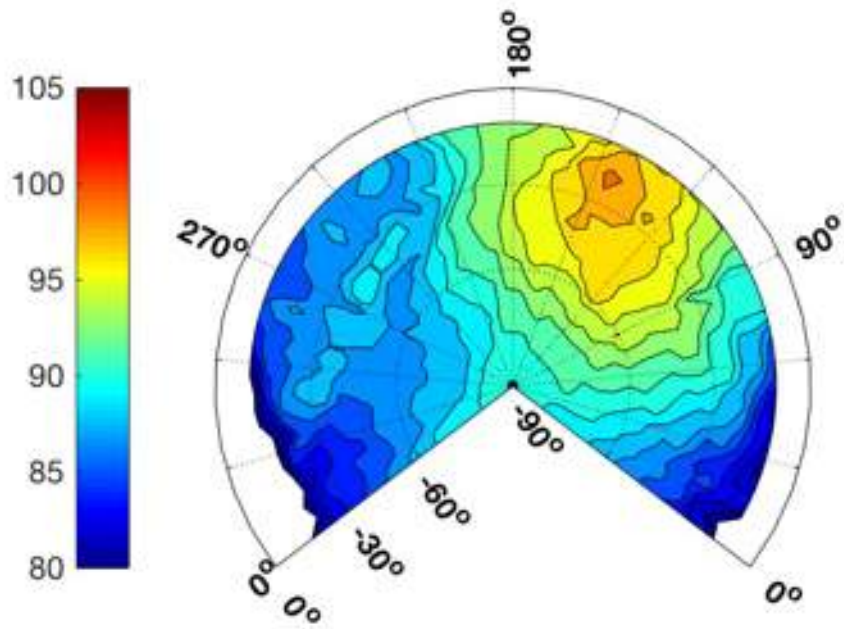


Figure 632: B407, 285225, D27, dBA hemisphere, ground speed 72.1 kts, -10.5° FPA.

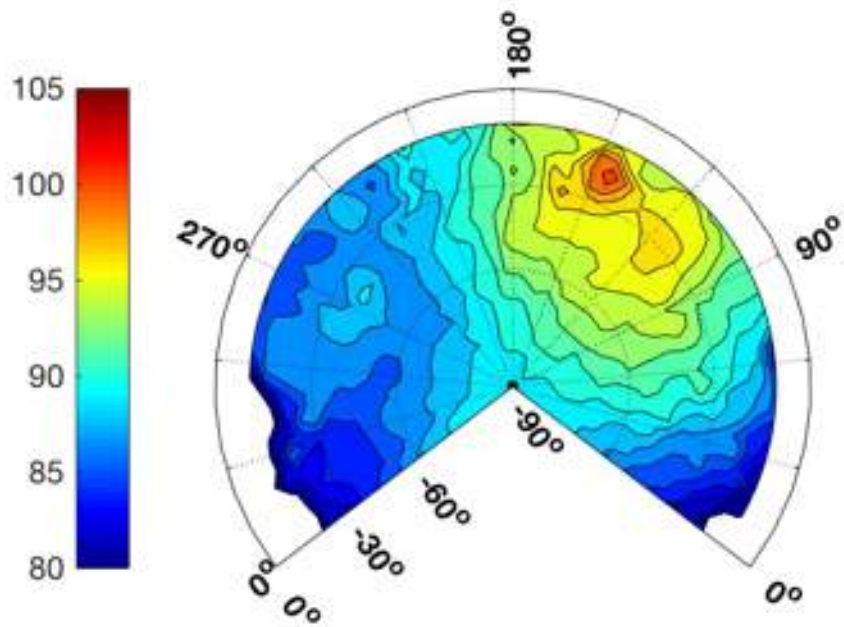


Figure 633: B407, 285226, D27, dBA hemisphere, ground speed 69.7 kts, -10.4° FPA.

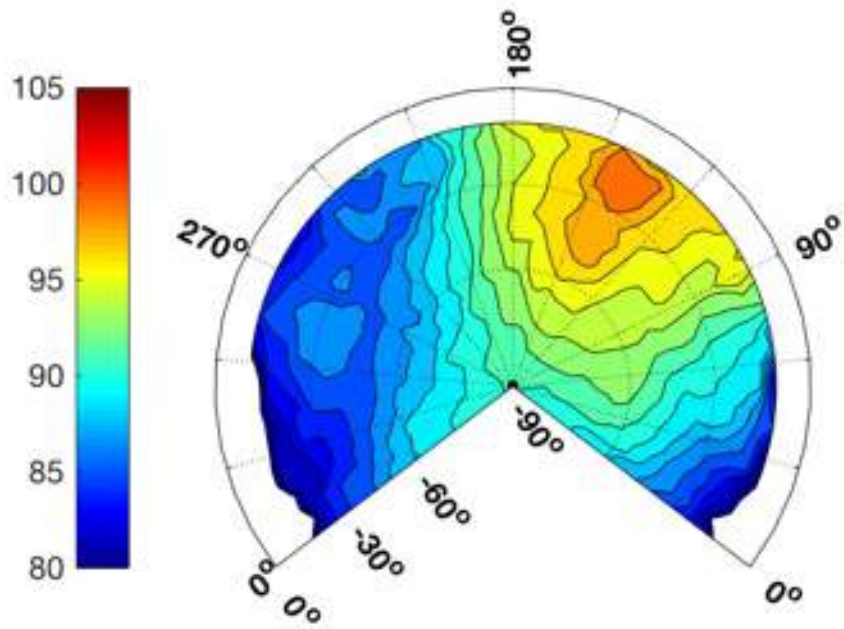


Figure 634: B407, 285227, D22, dBA hemisphere, ground speed 70.9 kts, -8.6° FPA.

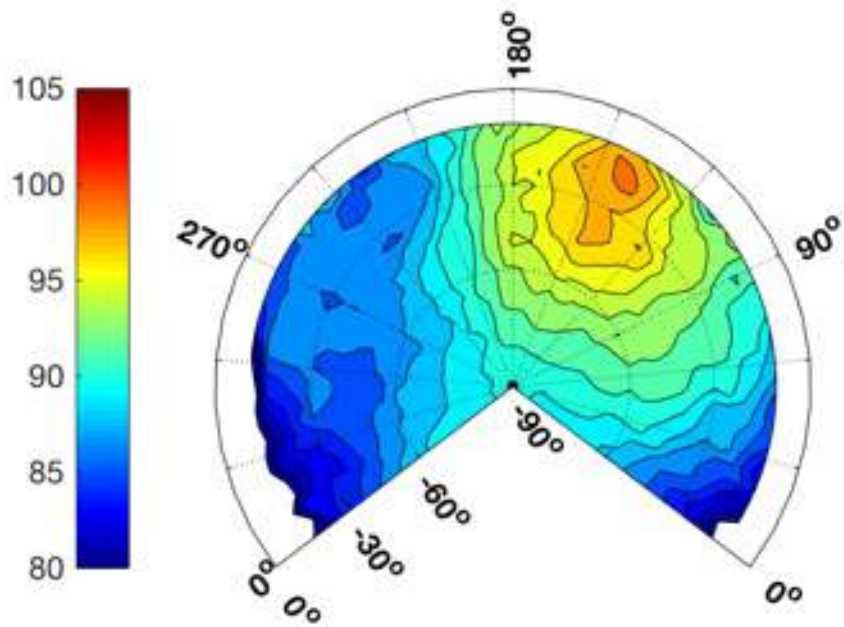


Figure 635: B407, 285228, D22, dBA hemisphere, ground speed 70.4 kts, -9.2° FPA.

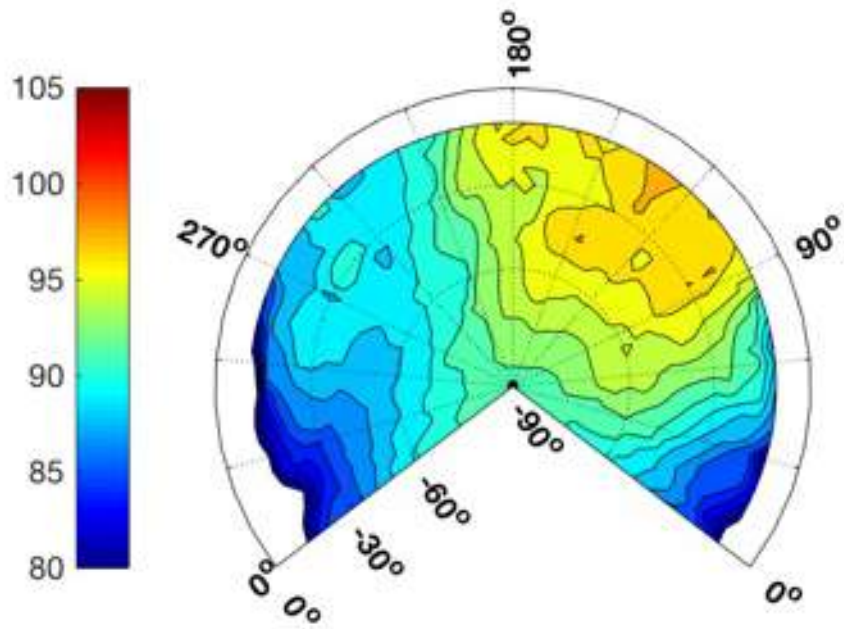


Figure 636: B407, 285229, D24, dBA hemisphere, ground speed 87.4 kts, -8.6° FPA.

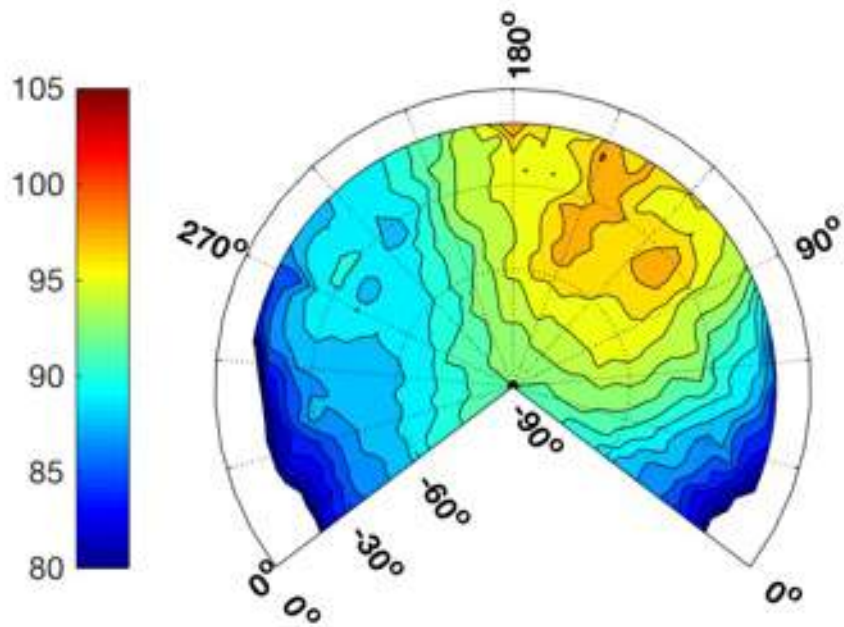


Figure 637: B407, 285230, D24, dBA hemisphere, ground speed 87.4 kts, -9.1° FPA.

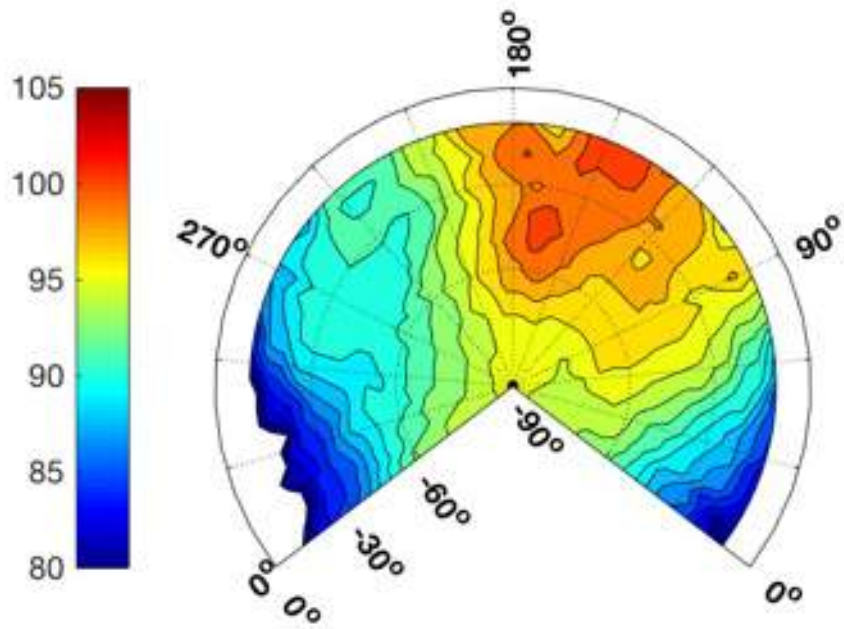


Figure 638: B407, 285231, D26, dBA hemisphere, ground speed 108.8 kts, -8.9° FPA.

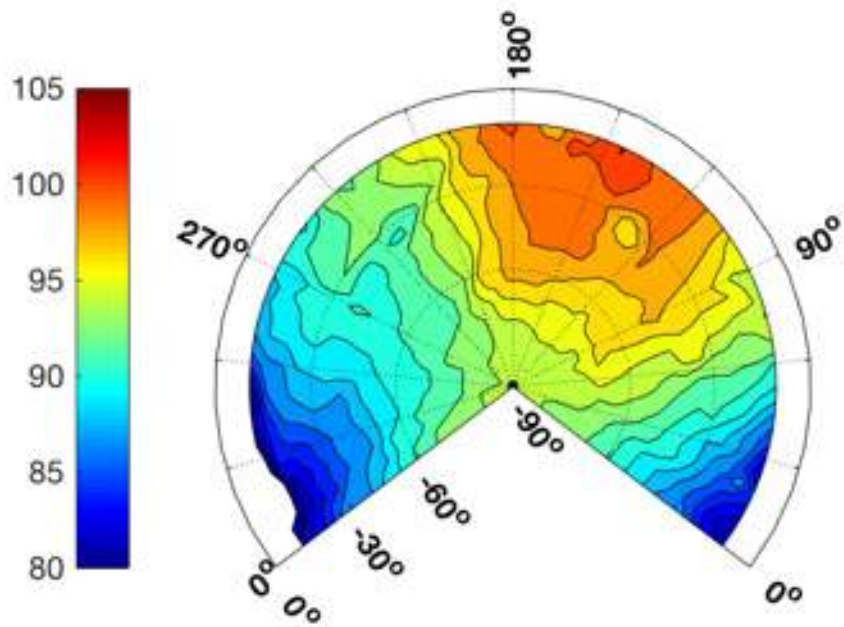


Figure 639: B407, 285232, D26, dBA hemisphere, ground speed 110.2 kts, -8.5° FPA.

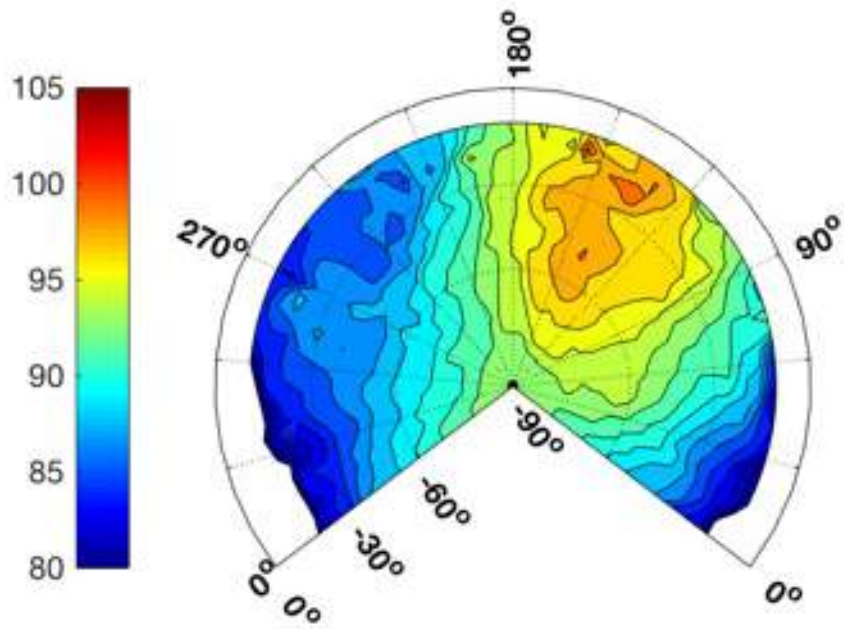


Figure 640: B407, 285233, D17, dBA hemisphere, ground speed 70.1 kts, -7.2° FPA.

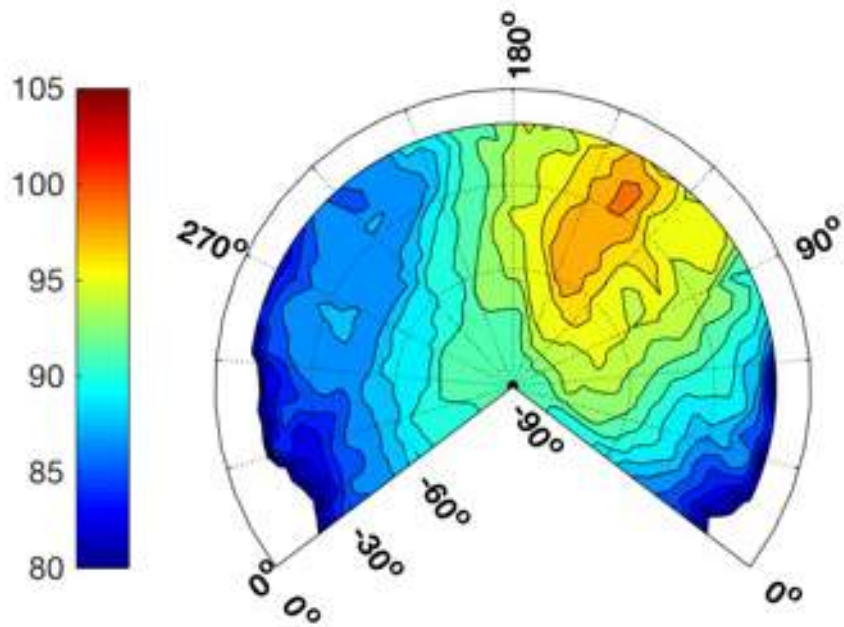


Figure 641: B407, 285234, D17, dBA hemisphere, ground speed 68.5 kts, -7.8° FPA.

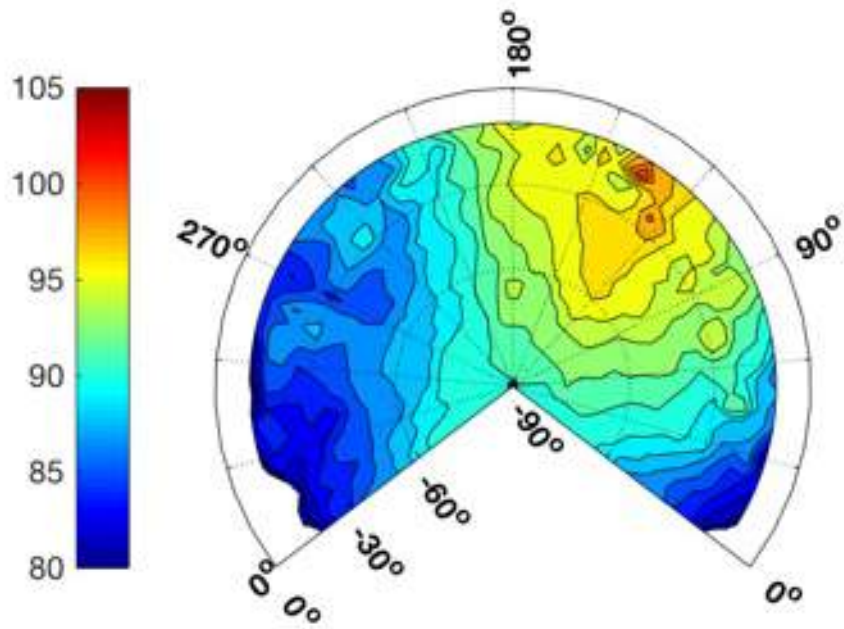


Figure 642: B407, 285235, D19, dBA hemisphere, ground speed 81.5 kts, -6.5° FPA.

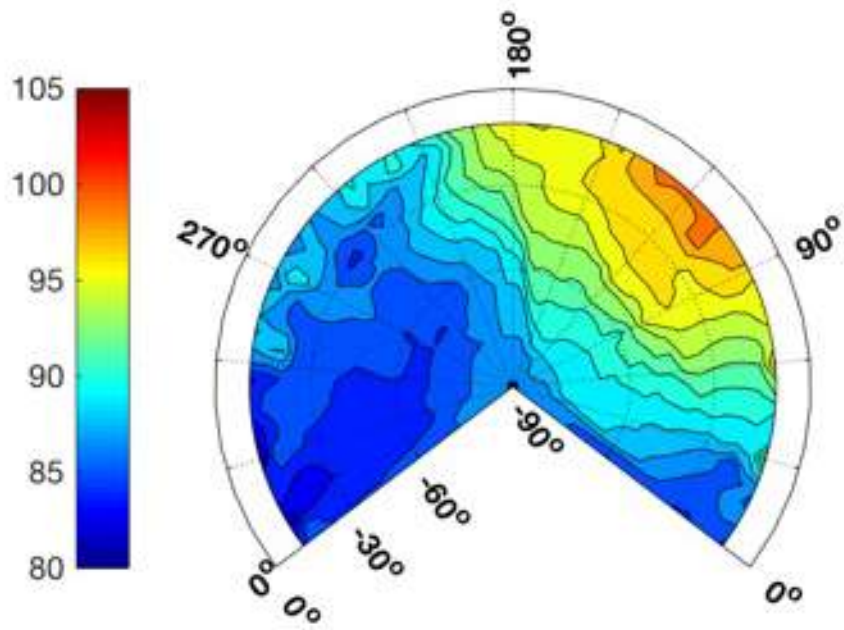


Figure 643: B407, 285236, D19, dBA hemisphere, ground speed 85.0 kts, -8.7° FPA.

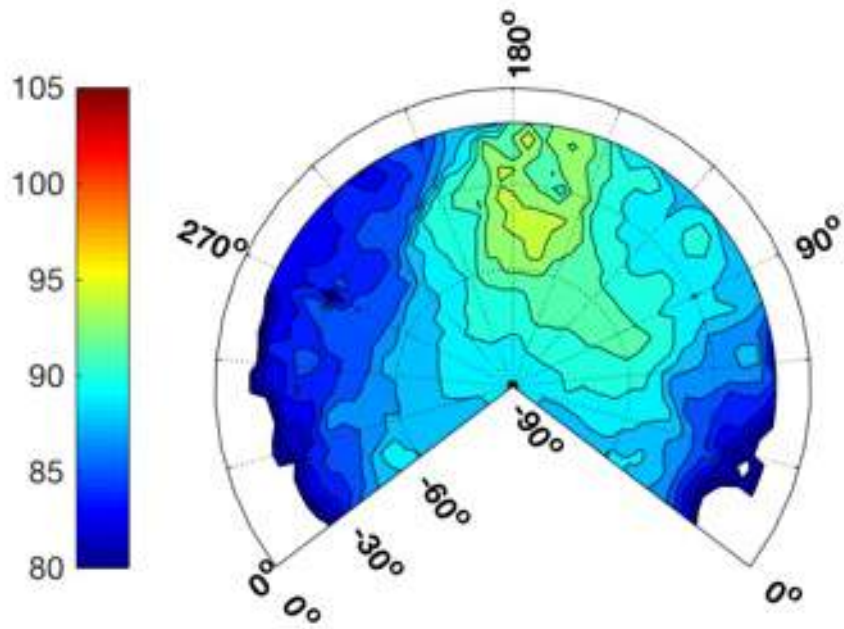


Figure 644: B407, 285237, D35, dBA hemisphere, ground speed 47.1 kts, -6.6° FPA.

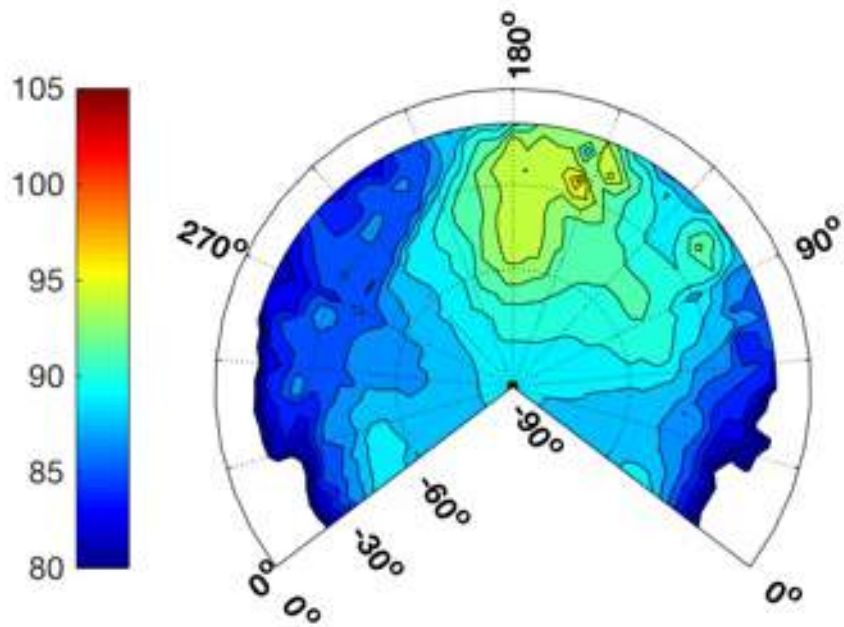


Figure 645: B407, 285238, D35, dBA hemisphere, ground speed 48.7 kts, -7.3° FPA.

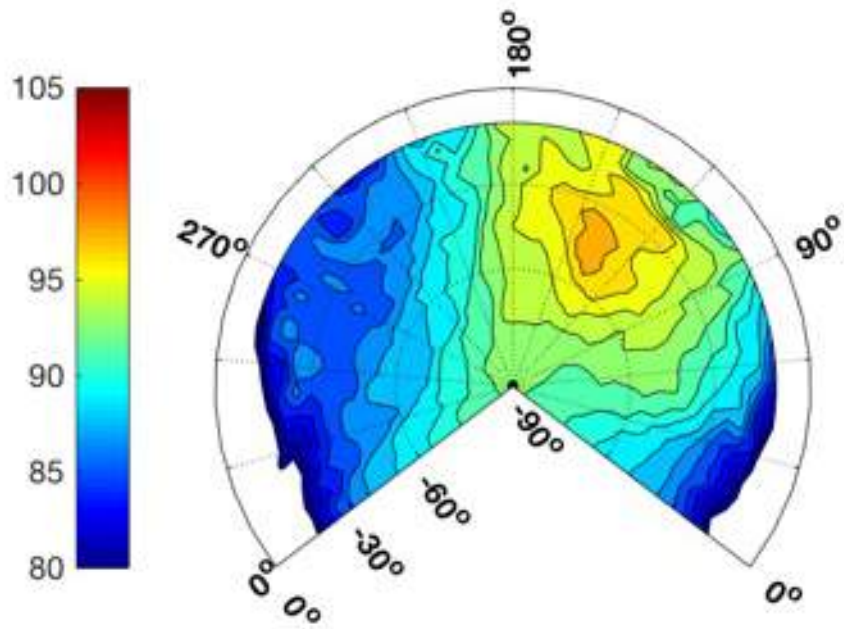


Figure 646: B407, 285239, D12, dBA hemisphere, ground speed 68.8 kts, -5.6° FPA.

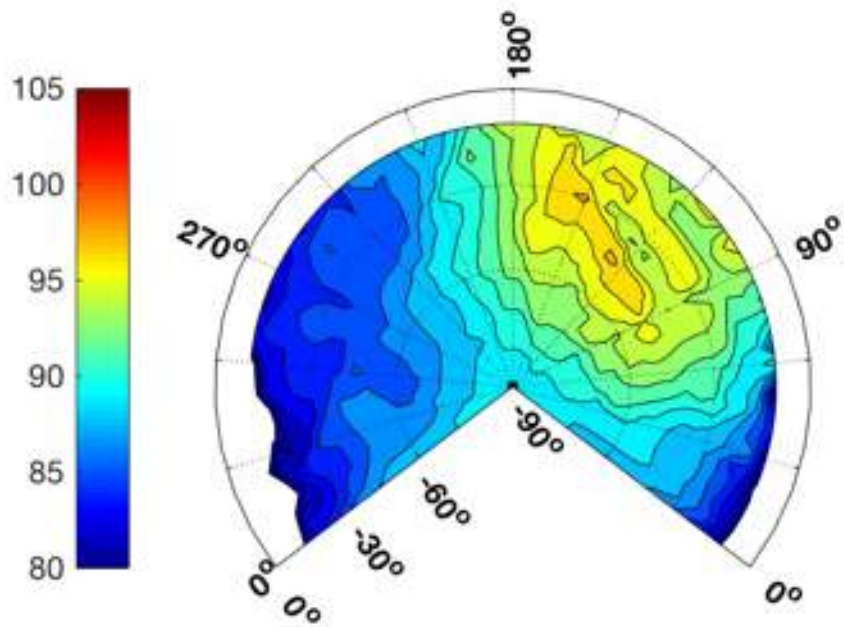


Figure 647: B407, 285240, D12, dBA hemisphere, ground speed 70.2 kts, -5.7° FPA.

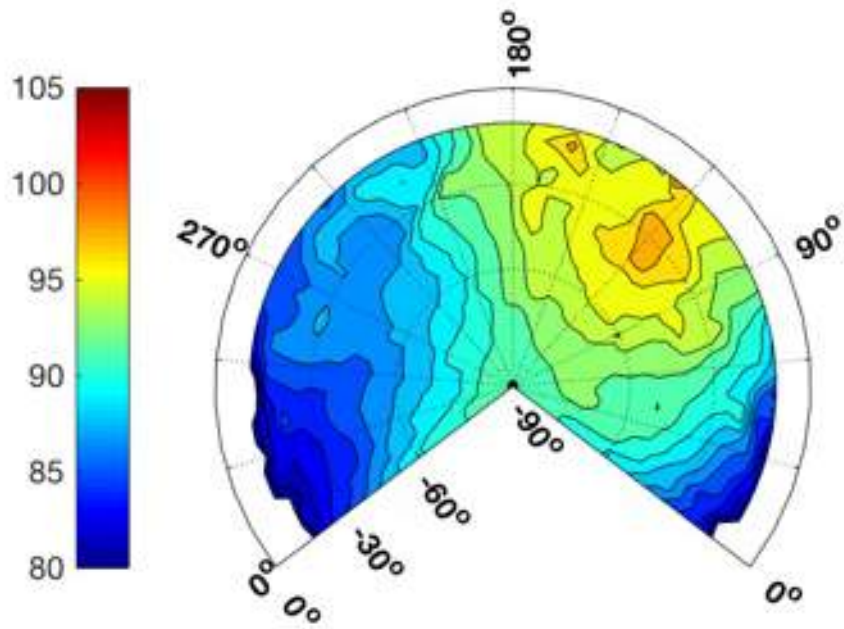


Figure 648: B407, 285241, D14, dBA hemisphere, ground speed 83.1 kts, -6.1° FPA.

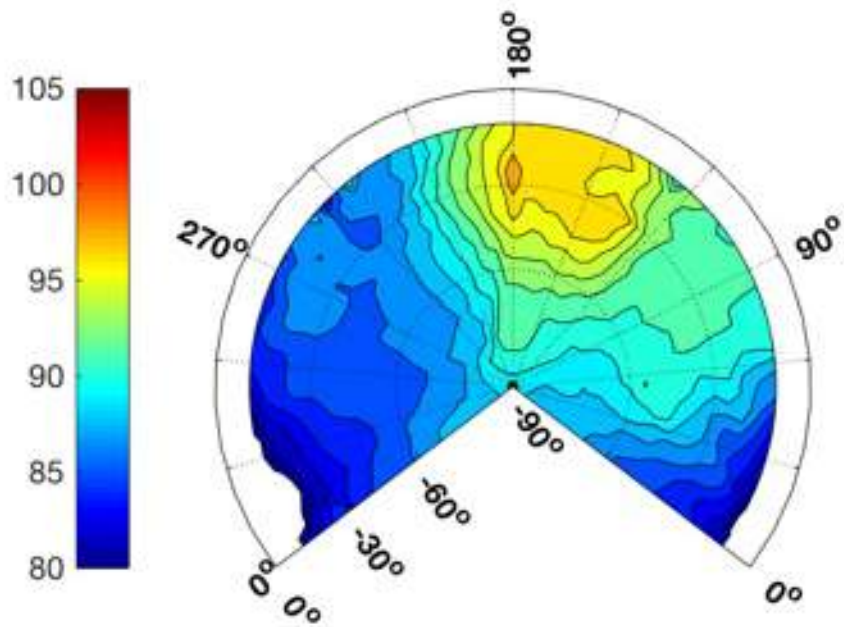


Figure 649: B407, 285242, D14, dBA hemisphere, ground speed 85.5 kts, -5.3° FPA.

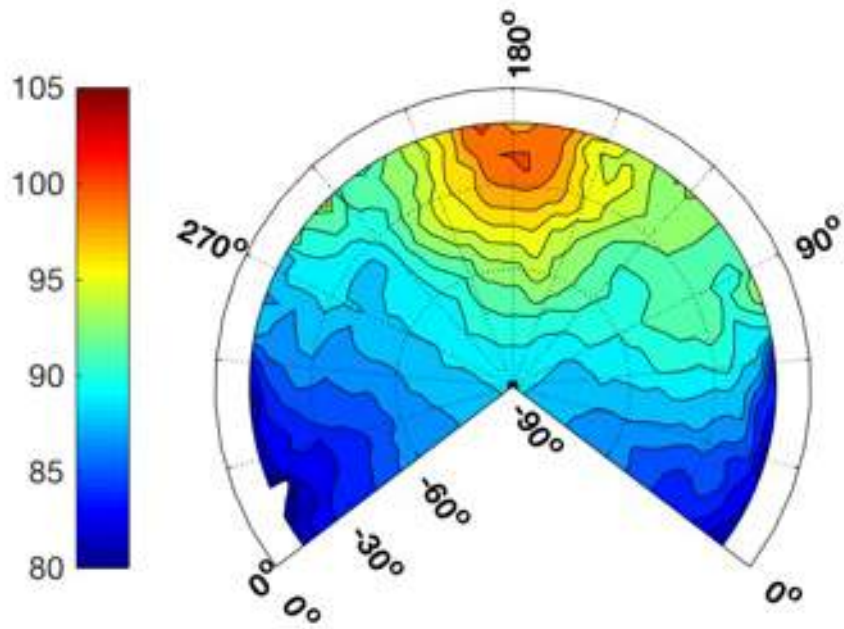


Figure 650: B407, 285243, D16, dBA hemisphere, ground speed 110.0 kts, -5.9° FPA.

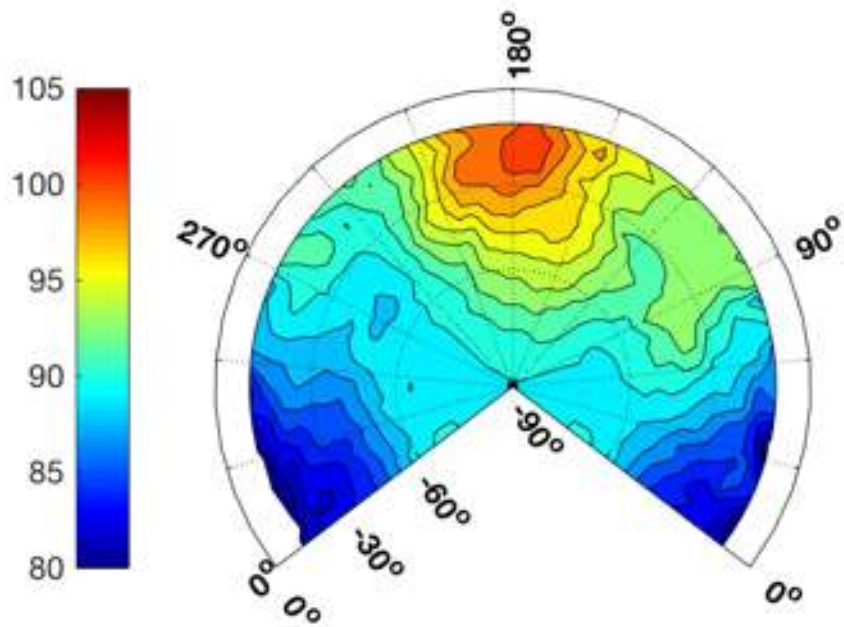


Figure 651: B407, 285244, D16, dBA hemisphere, ground speed 112.4 kts, -6.0° FPA.

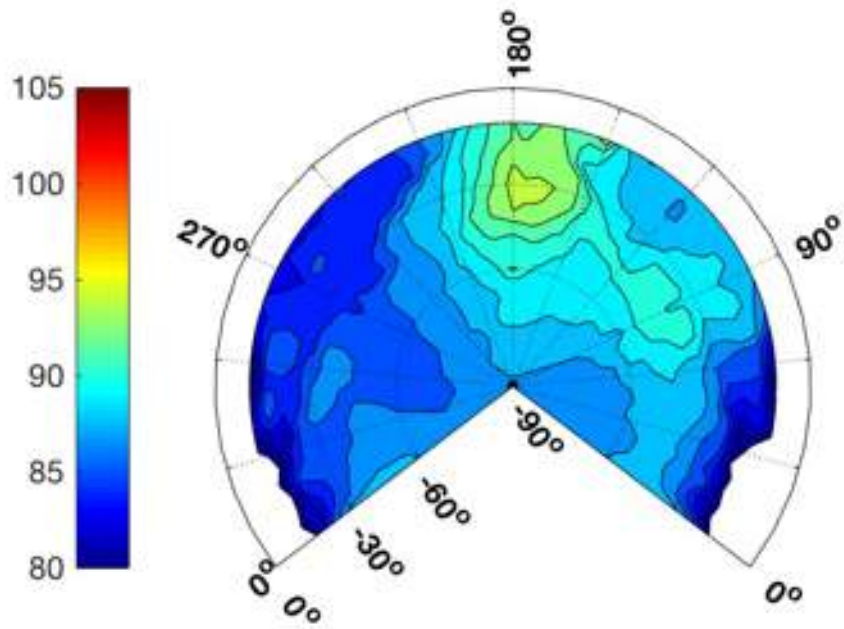


Figure 652: B407, 285245, D34, dBA hemisphere, ground speed 48.8 kts, -4.8° FPA.

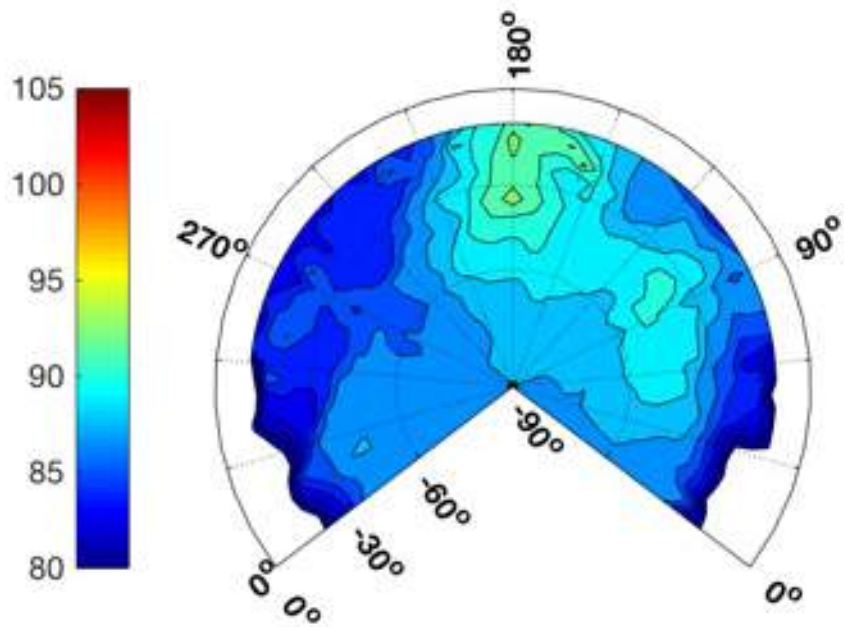


Figure 653: B407, 285246, D34, dBA hemisphere, ground speed 49.4 kts, -4.6° FPA.

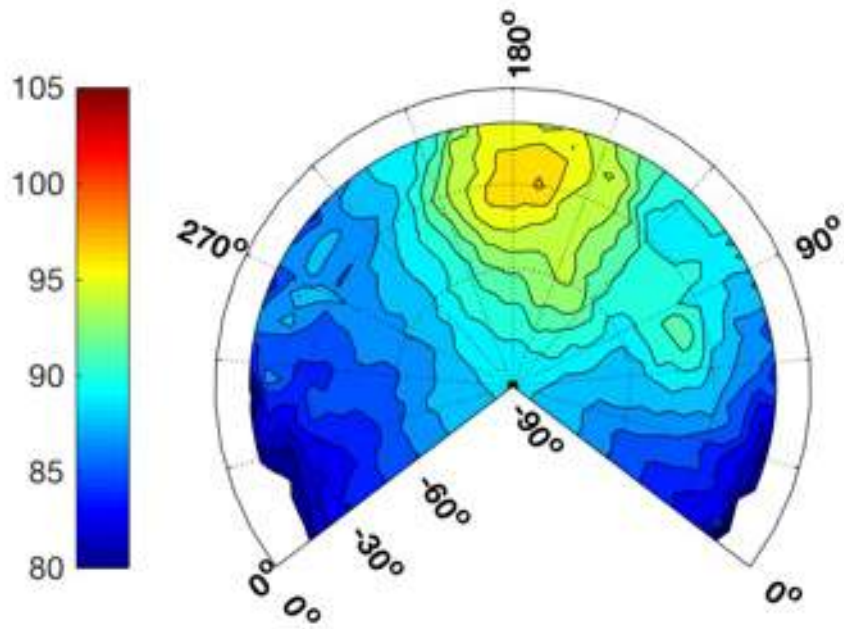


Figure 654: B407, 285247, D9, dBA hemisphere, ground speed 85.3 kts, -4.4° FPA.

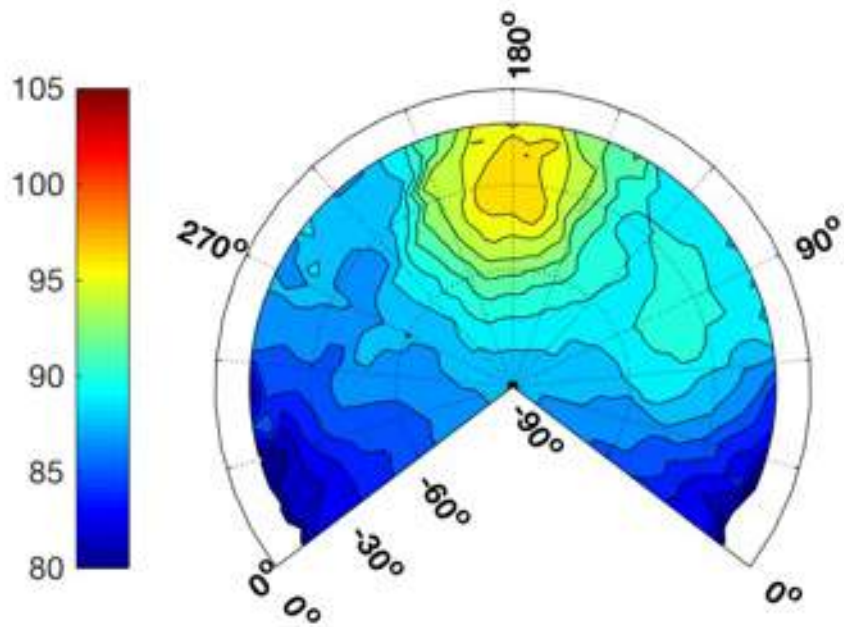


Figure 655: B407, 285248, D9, dBA hemisphere, ground speed 90.2 kts, -3.9° FPA.

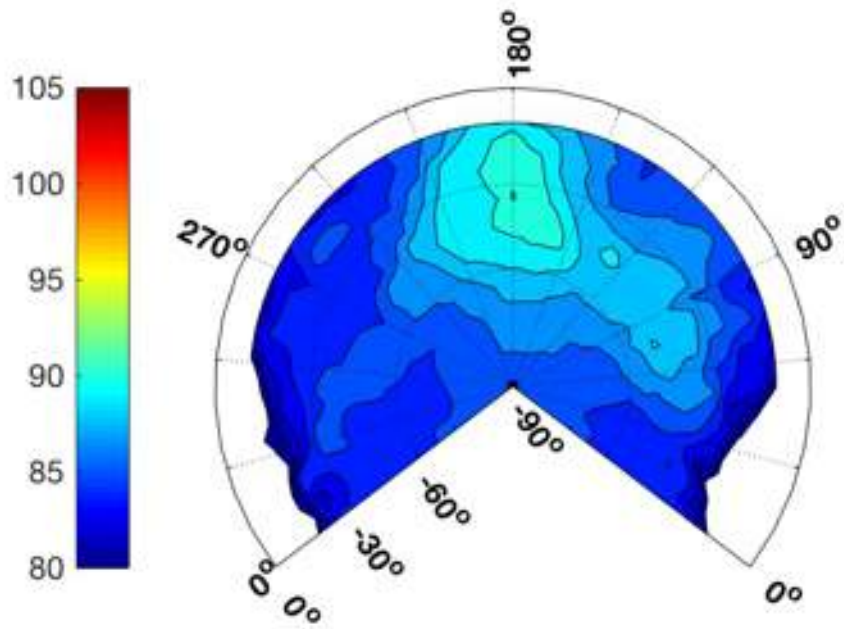


Figure 656: B407, 285249, D33, dBA hemisphere, ground speed 47.5 kts, -3.6° FPA.

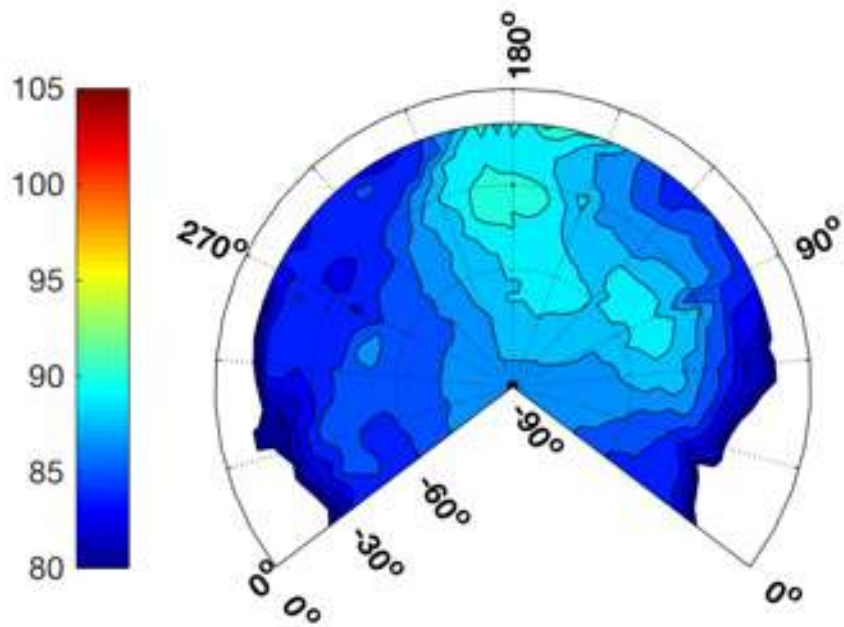


Figure 657: B407, 285250, D33, dBA hemisphere, ground speed 47.3 kts, -3.7° FPA.

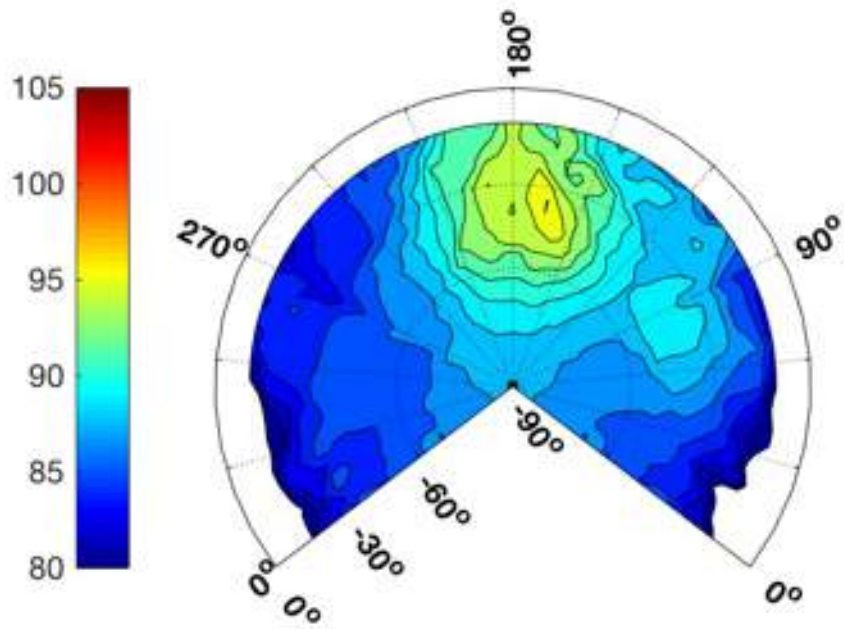


Figure 658: B407, 285251, D2, dBA hemisphere, ground speed 67.4 kts, -3.2° FPA.

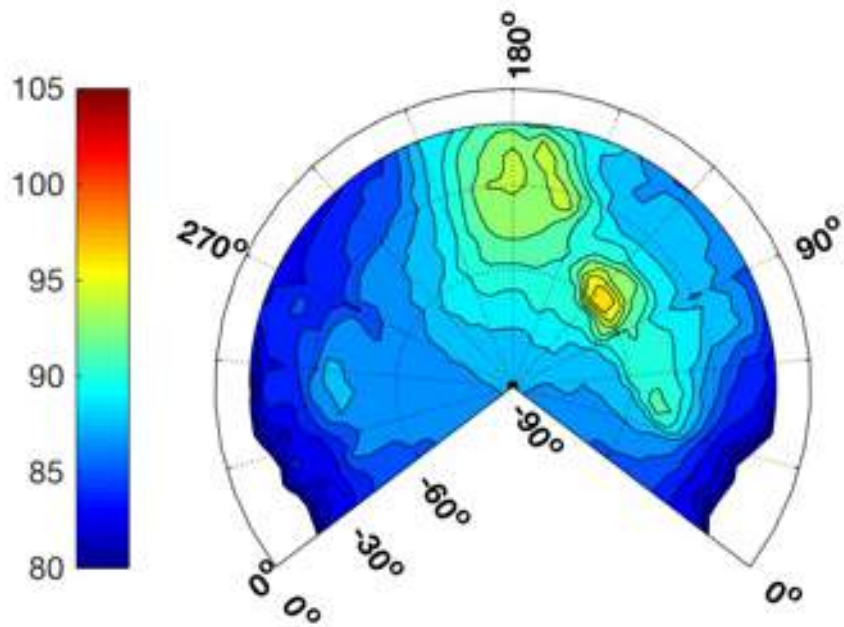


Figure 659: B407, 285252, D2, dBA hemisphere, ground speed 67.6 kts, -3.2° FPA.

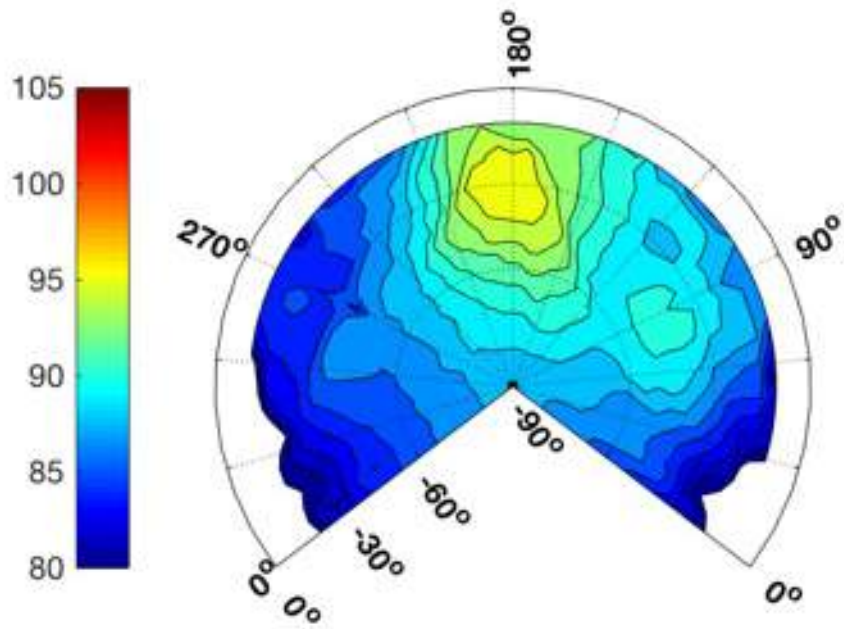


Figure 660: B407, 285253, D4, dBA hemisphere, ground speed 83.6 kts, -3.4° FPA.

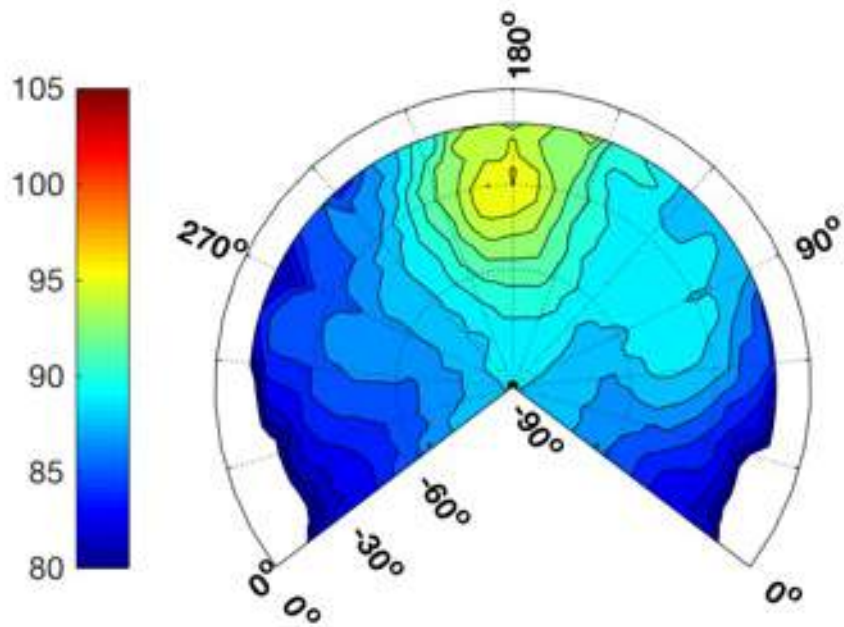


Figure 661: B407, 285254, D4, dBA hemisphere, ground speed 86.1 kts, -3.1° FPA.

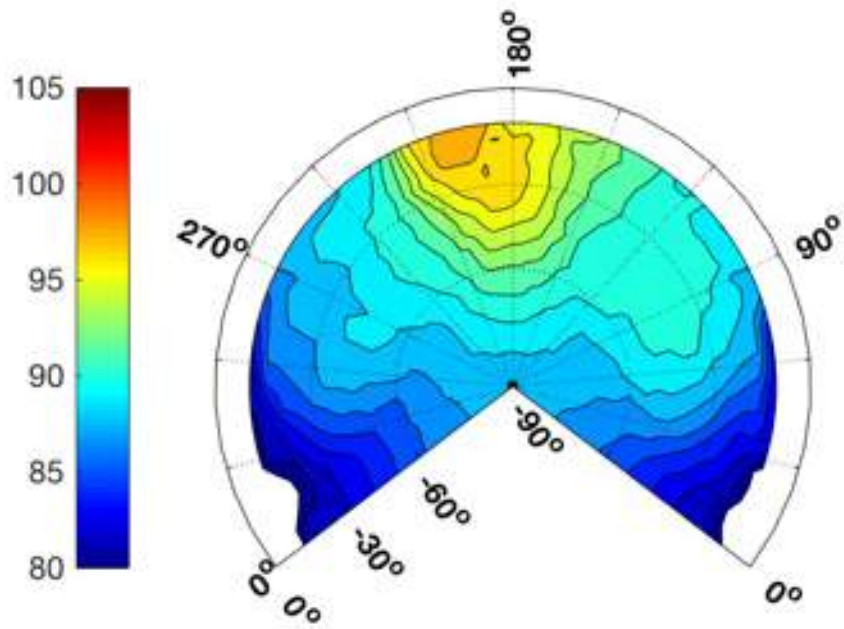


Figure 662: B407, 285255, D6, dBA hemisphere, ground speed 104.4 kts, -2.8° FPA.

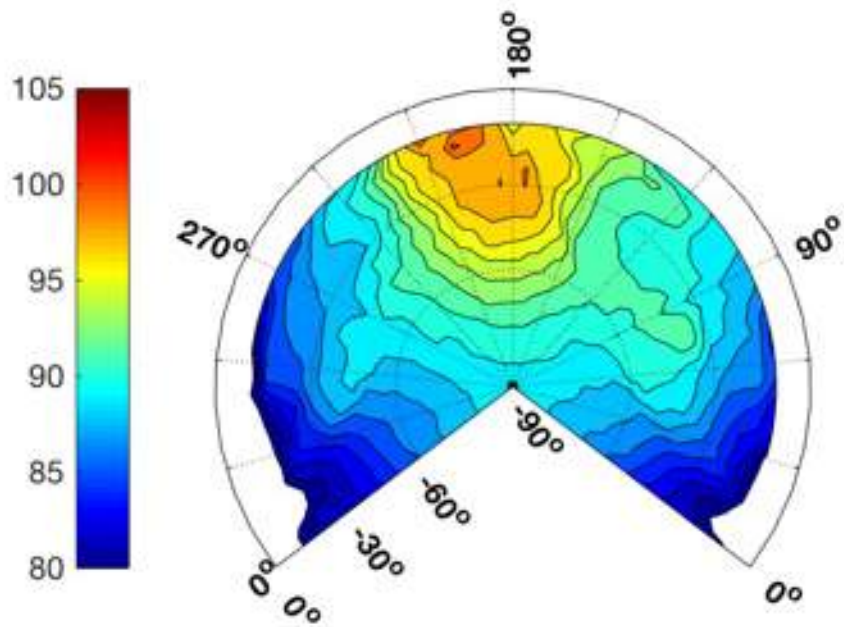


Figure 663: B407, 285256, D6, dBA hemisphere, ground speed 107.8 kts, -3.1° FPA.

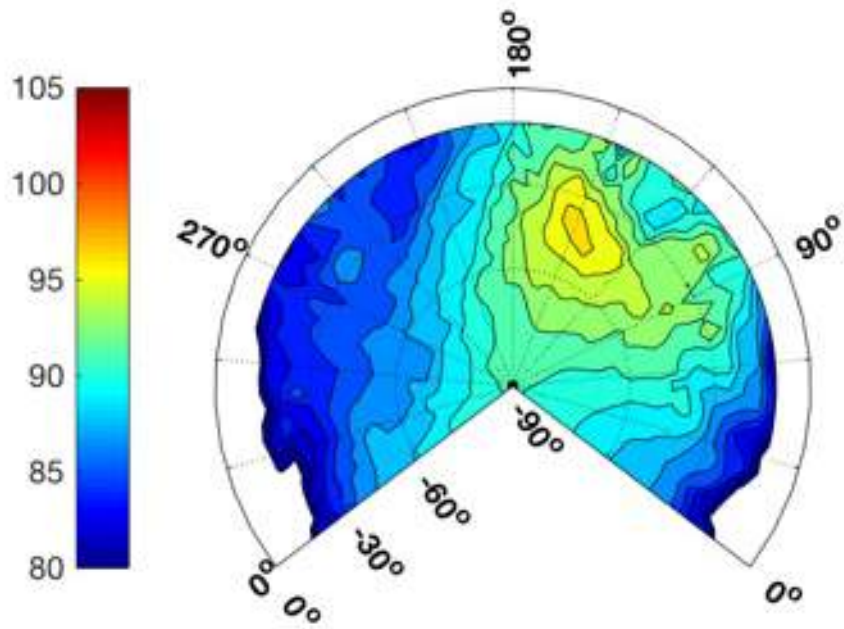


Figure 664: B407, 285257, D36, dBA hemisphere, ground speed 47.8 kts, -7.5° FPA.

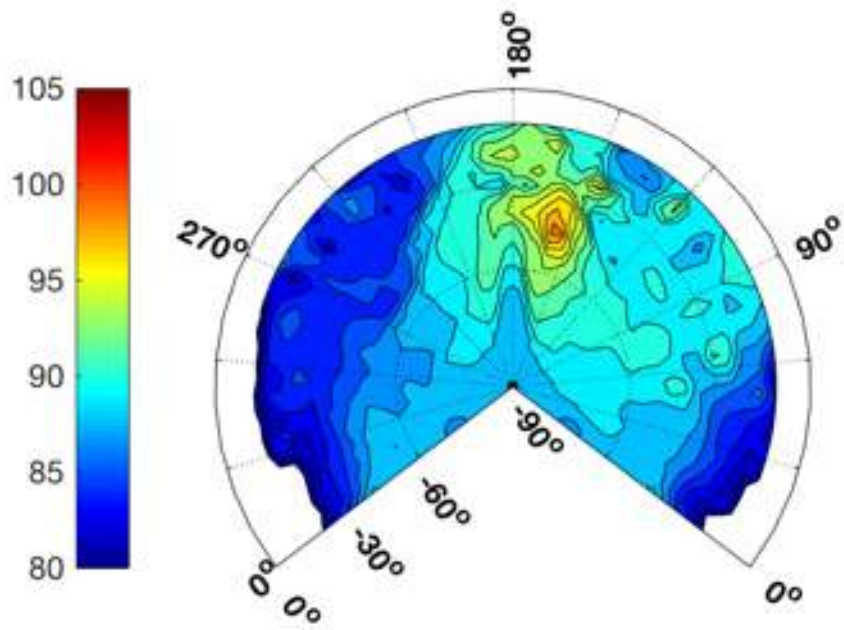


Figure 665: B407, 285258, D36, dBA hemisphere, ground speed 47.6 kts, -7.4° FPA.

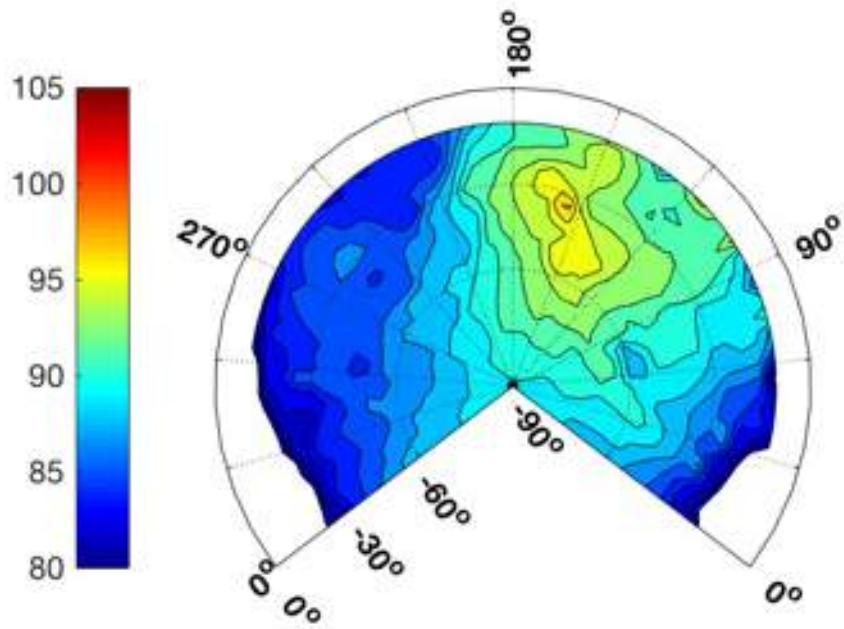


Figure 666: B407, 285259, D37, dBA hemisphere, ground speed 48.0 kts, -8.8° FPA.

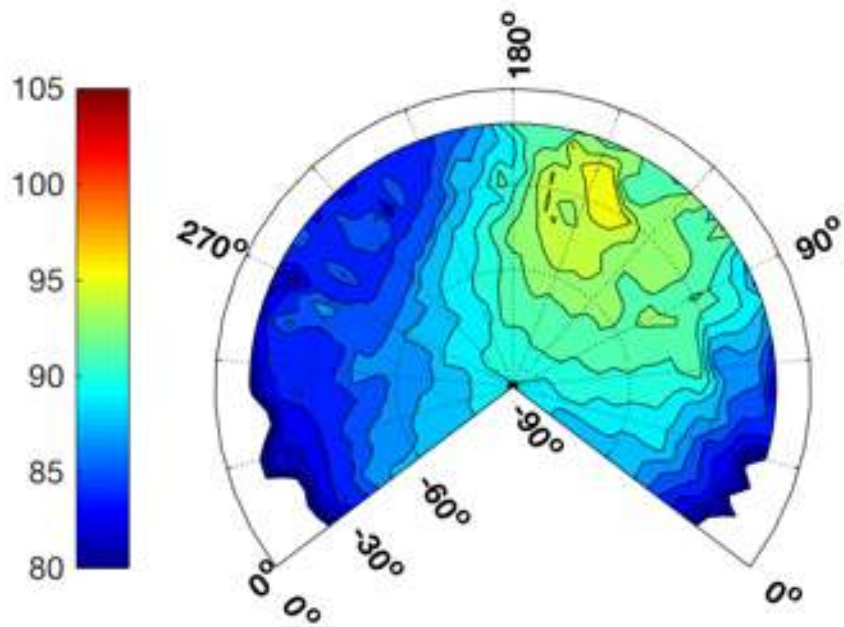


Figure 667: B407, 285260, D37, dBA hemisphere, ground speed 47.1 kts, -9.0° FPA.

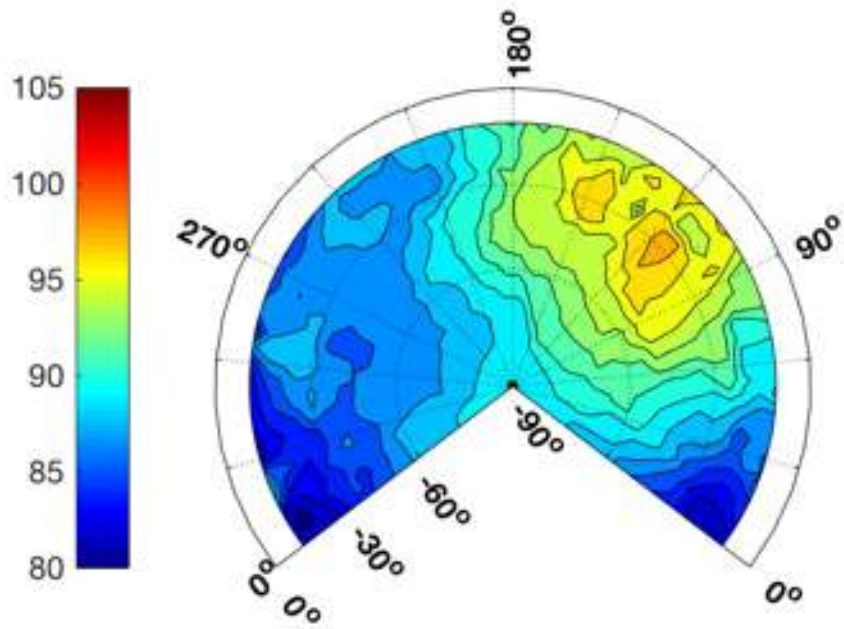


Figure 668: B407, 286305, D31, dBA hemisphere, ground speed 74.0 kts, -11.6° FPA.

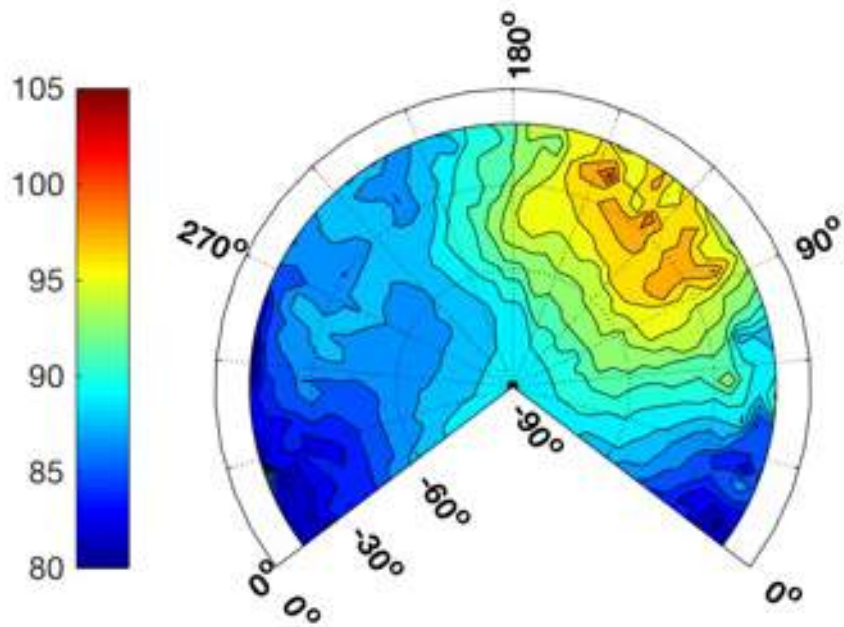


Figure 669: B407, 286306, D31, dBA hemisphere, ground speed 74.1 kts, -11.4° FPA.

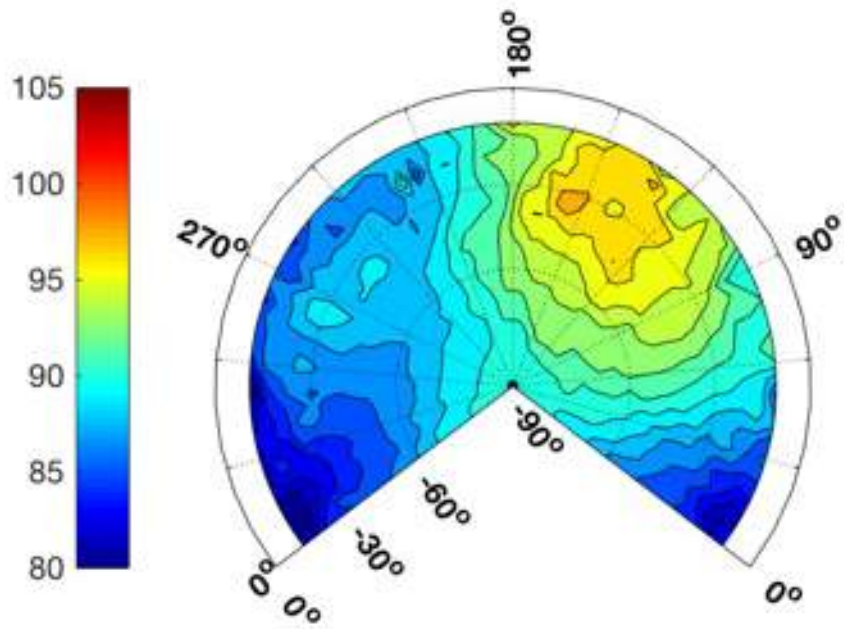


Figure 670: B407, 286307, D28, dBA hemisphere, ground speed 76.0 kts, -10.4° FPA.

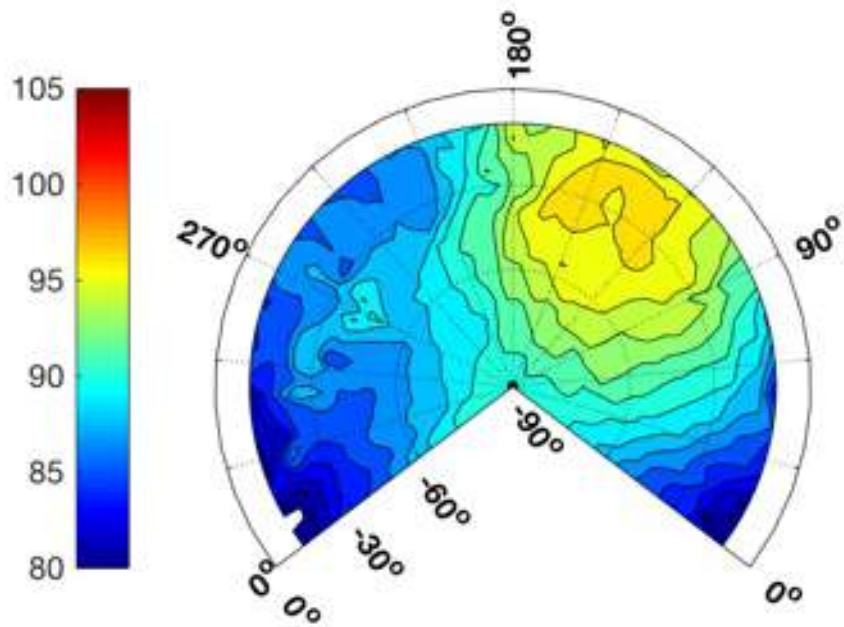


Figure 671: B407, 286308, D28, dBA hemisphere, ground speed 74.7 kts, -10.0° FPA.

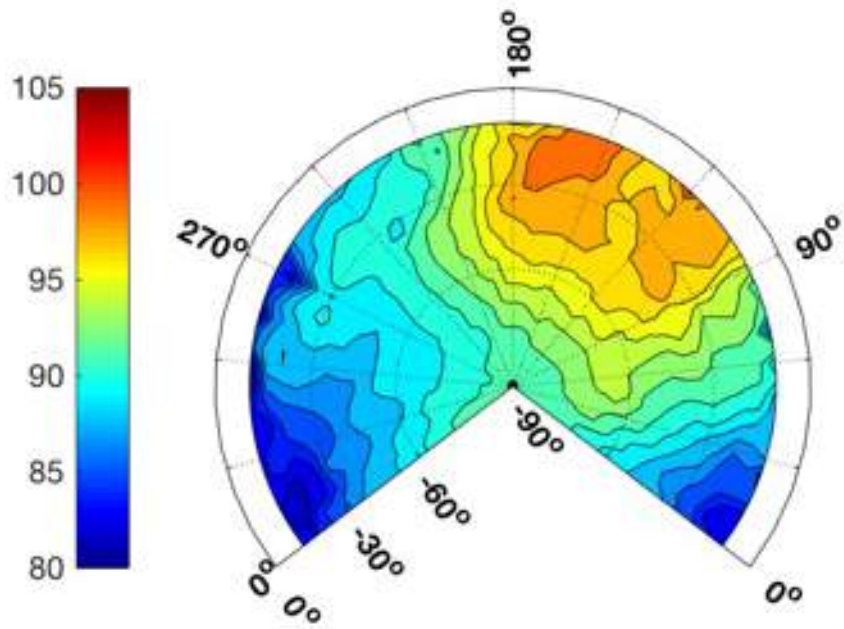


Figure 672: B407, 286309, D25, dBA hemisphere, ground speed 93.1 kts, -8.5° FPA.

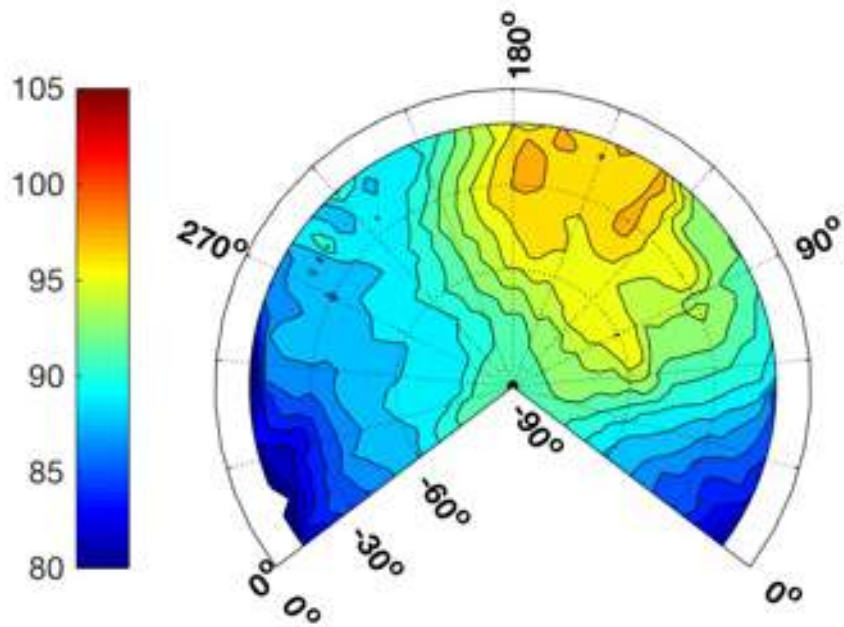


Figure 673: B407, 286310, D25, dBA hemisphere, ground speed 90.2 kts, -7.9° FPA.

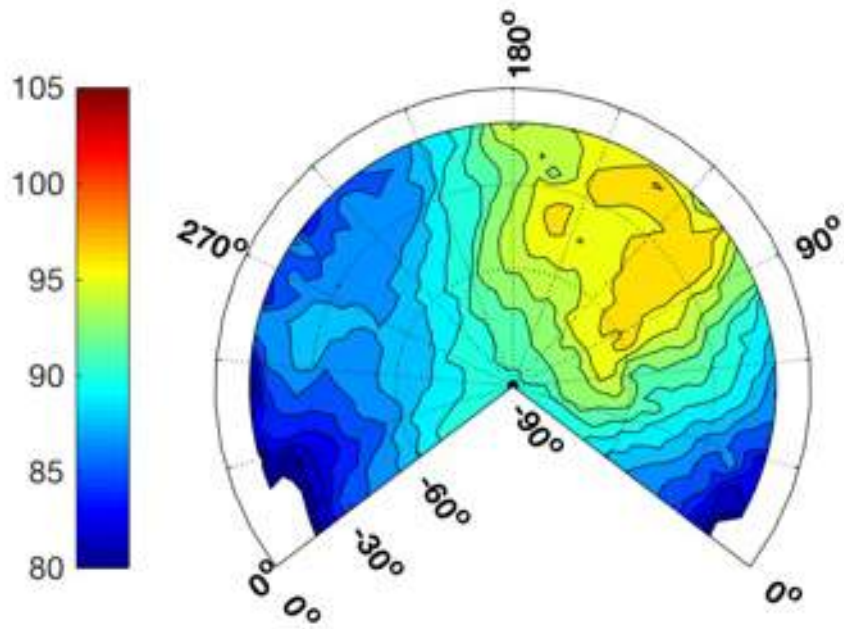


Figure 674: B407, 286311, D23, dBA hemisphere, ground speed 72.3 kts, -8.3° FPA.

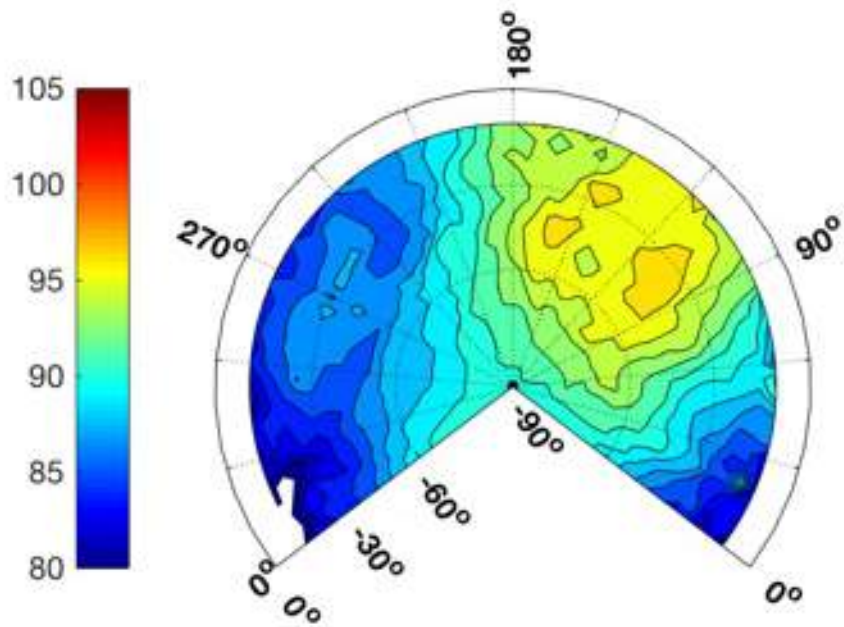


Figure 675: B407, 286312, D23, dBA hemisphere, ground speed 72.9 kts, -8.6° FPA.

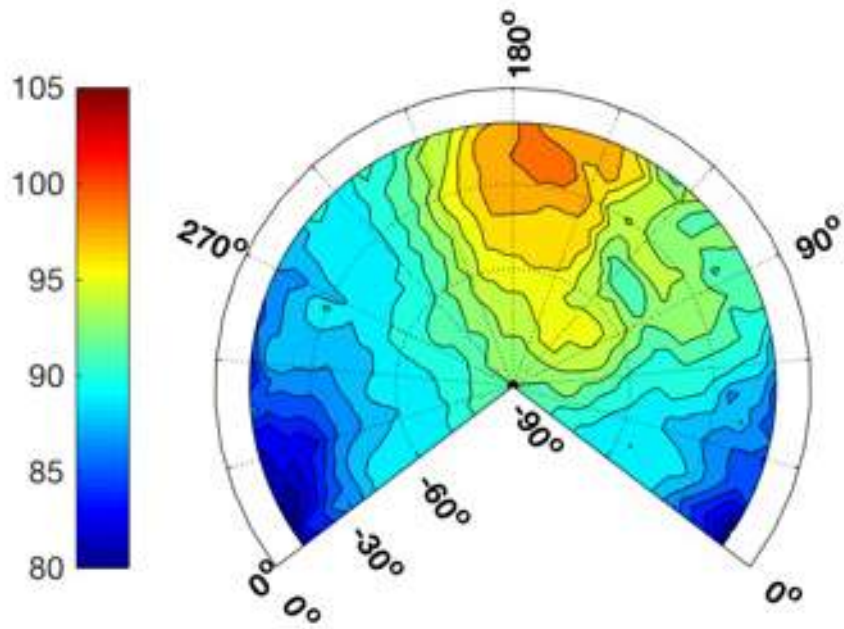


Figure 676: B407, 286313, D21, dBA hemisphere, ground speed 101.4 kts, -7.1° FPA.

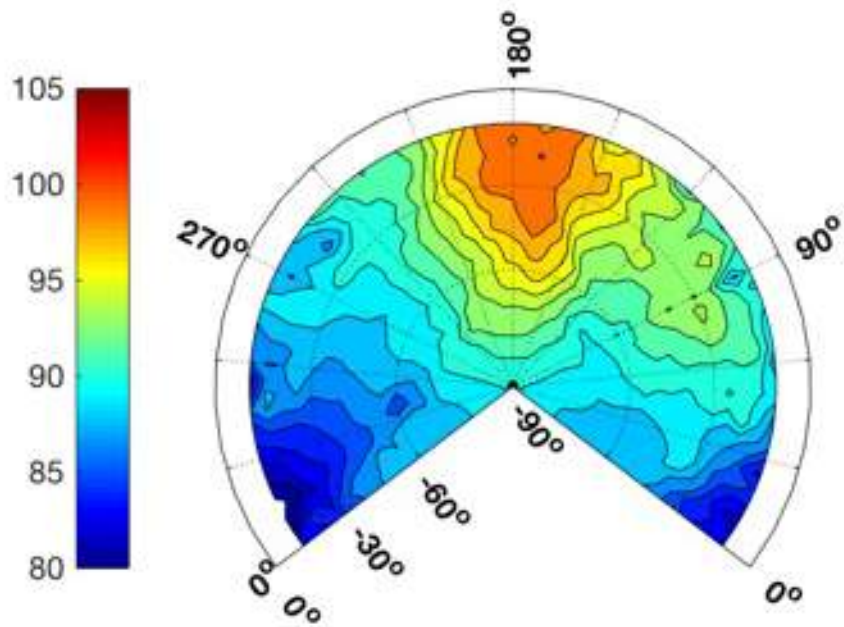


Figure 677: B407, 286314, D21, dBA hemisphere, ground speed 106.5 kts, -7.0° FPA.

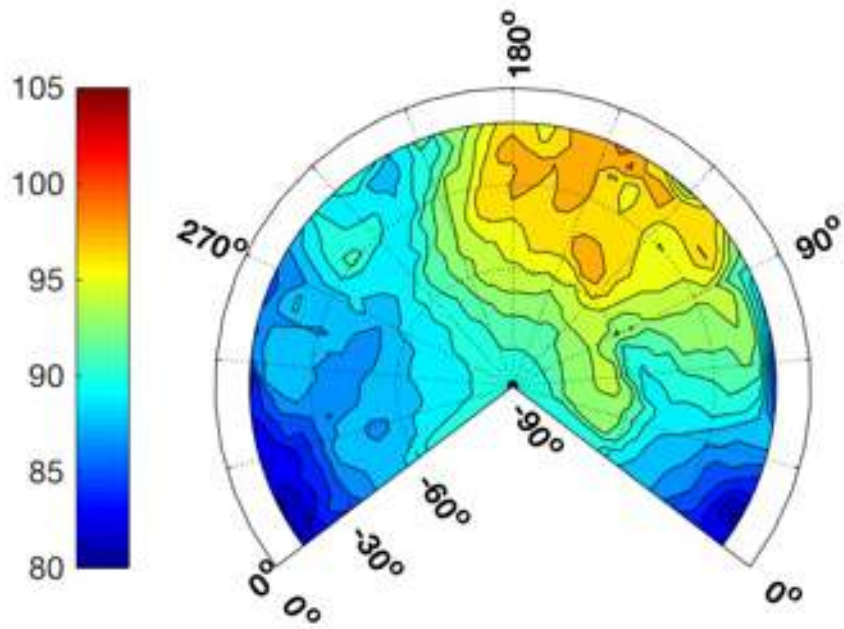


Figure 678: B407, 286315, D20, dBA hemisphere, ground speed 90.0 kts, -7.1° FPA.

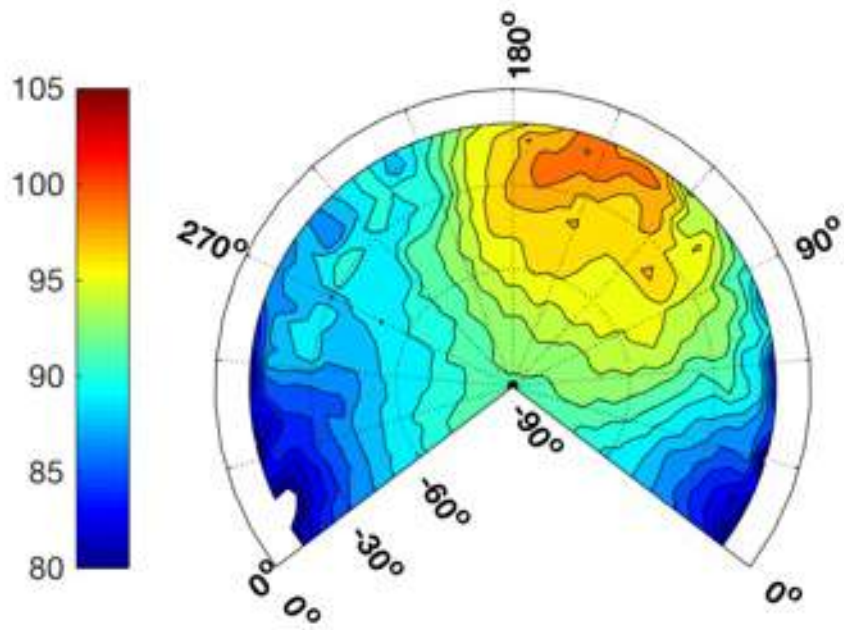


Figure 679: B407, 286316, D20, dBA hemisphere, ground speed 91.2 kts, -7.5° FPA.

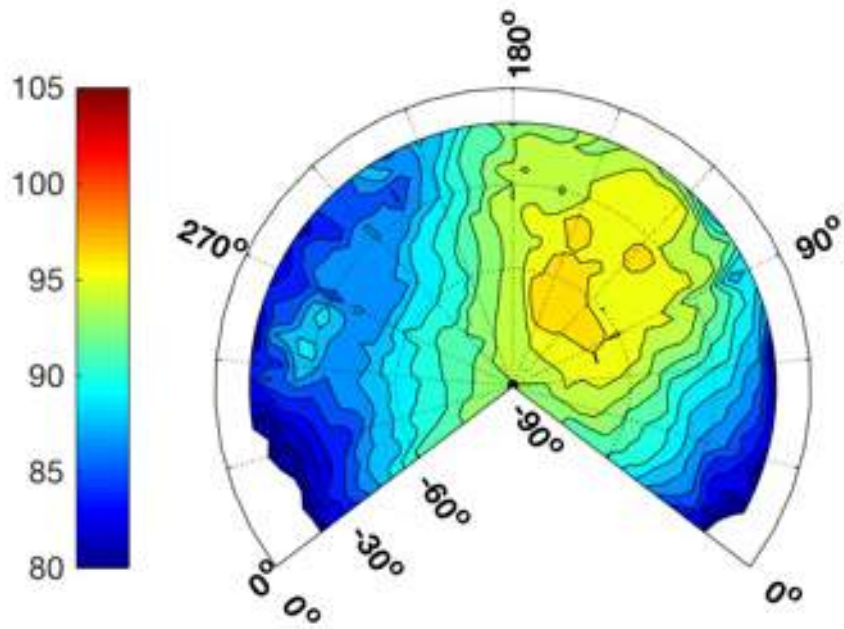


Figure 680: B407, 286317, D18, dBA hemisphere, ground speed 72.7 kts, -7.4° FPA.

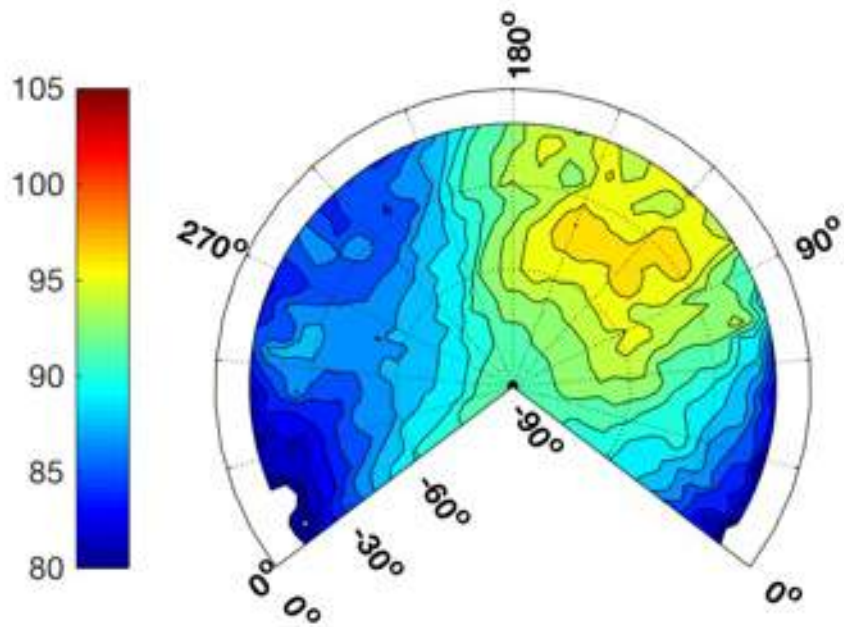


Figure 681: B407, 286318, D18, dBA hemisphere, ground speed 71.5 kts, -7.0° FPA.

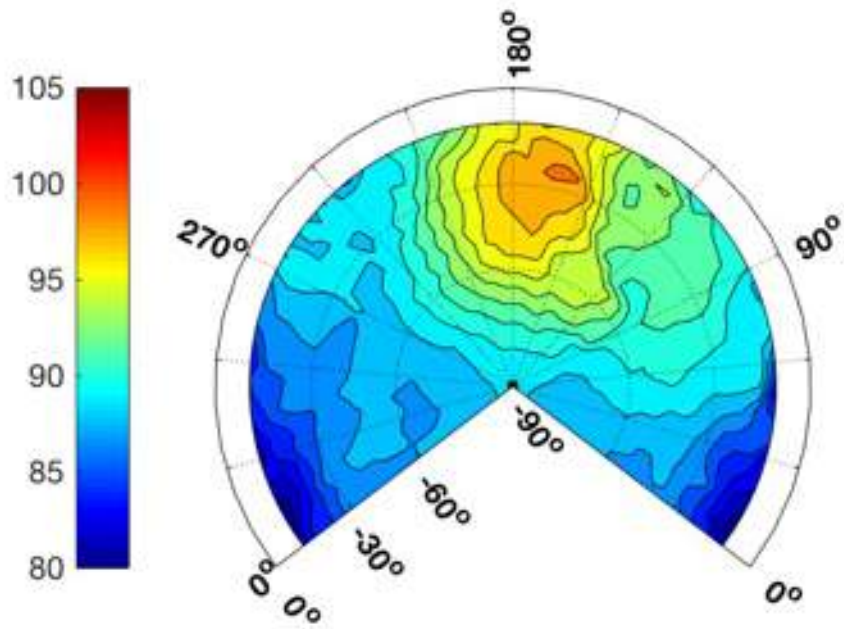


Figure 682: B407, 286319, D15, dBA hemisphere, ground speed 91.3 kts, -5.8° FPA.

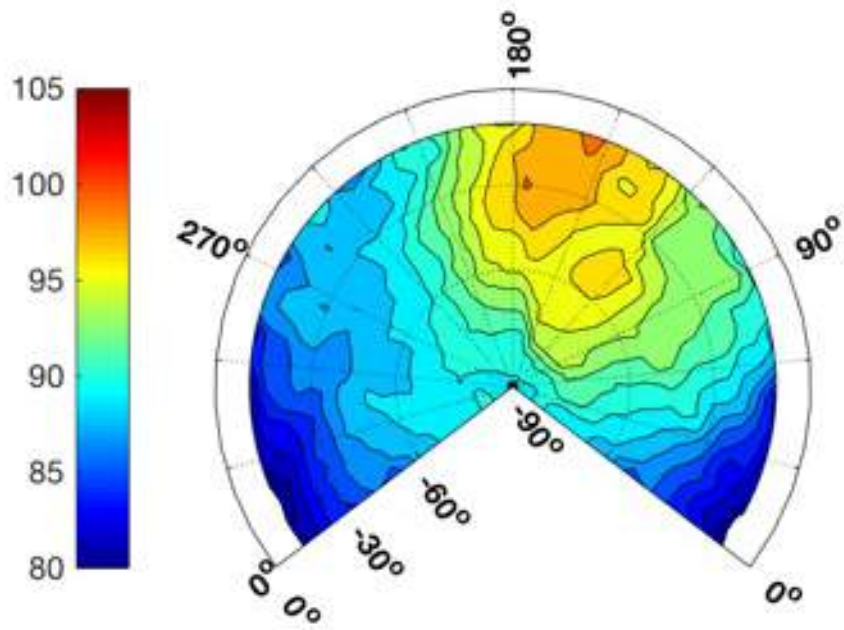


Figure 683: B407, 286320, D15, dBA hemisphere, ground speed 88.8 kts, -6.0° FPA.

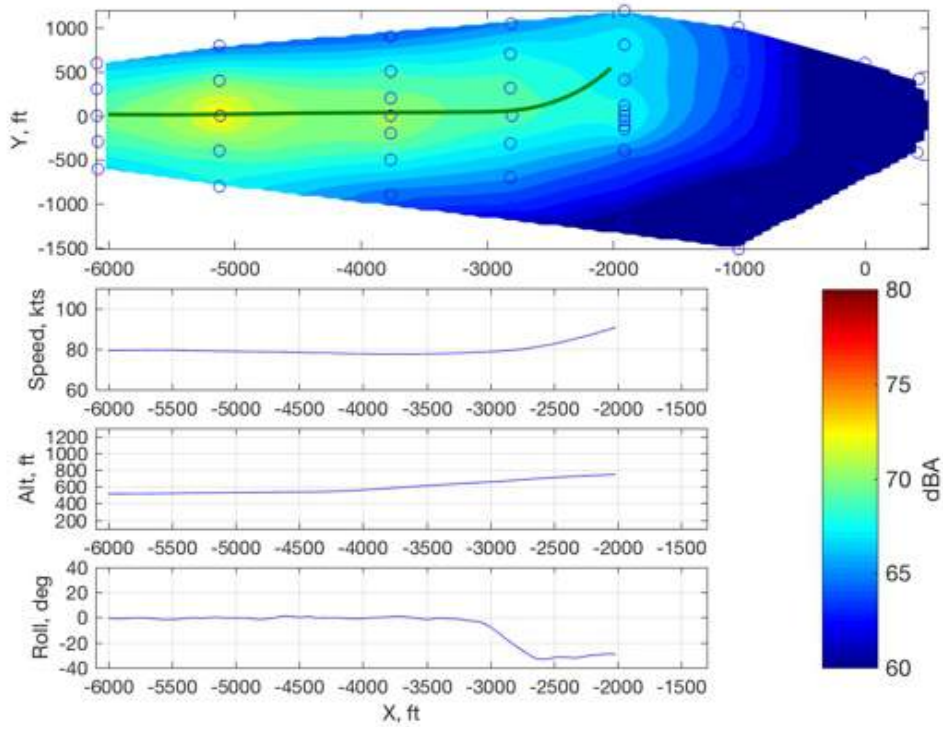


Figure 684: B407, 284184, F17, maximum dBA contour.

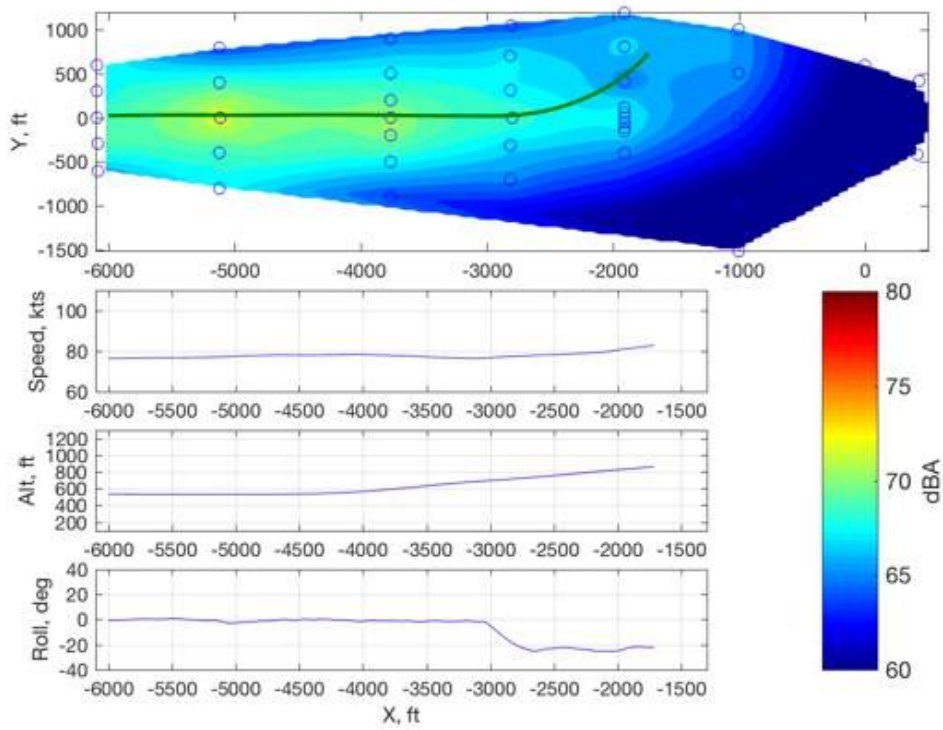


Figure 685: B407, 284185, F17, maximum dBA contour.

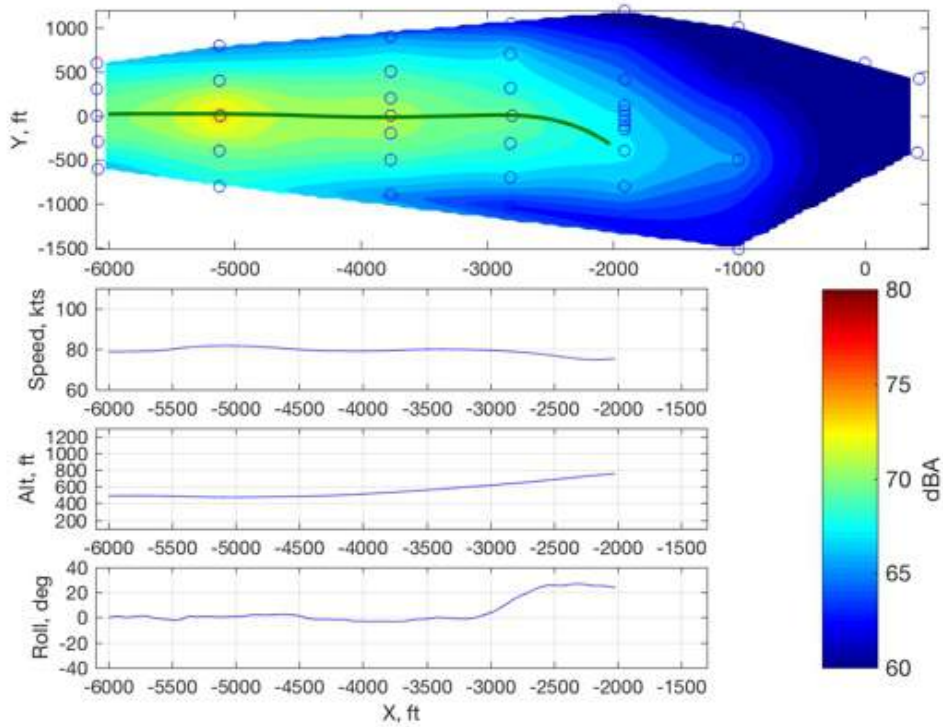


Figure 686: B407, 284186, F18, maximum dBA contour.

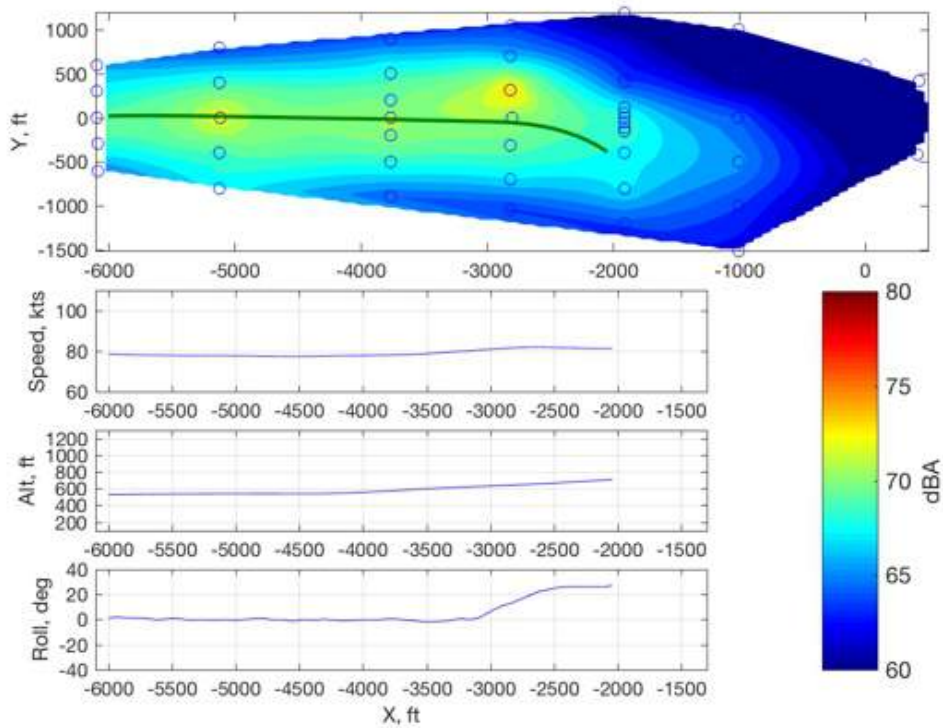


Figure 687: B407, 284187, F18, maximum dBA contour.

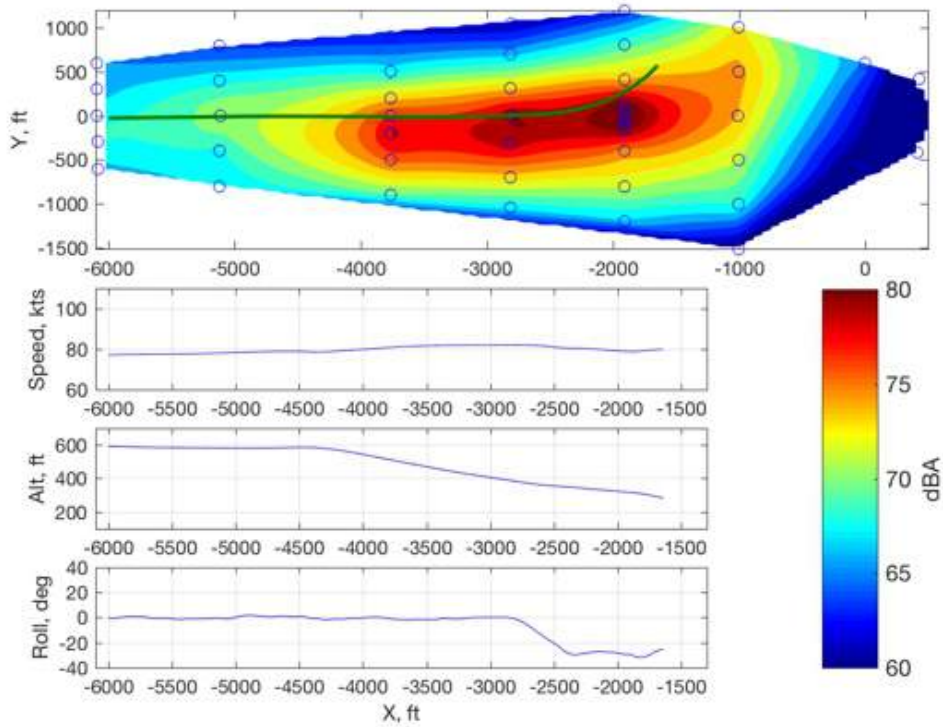


Figure 688: B407, 284188, F19, maximum dBA contour.

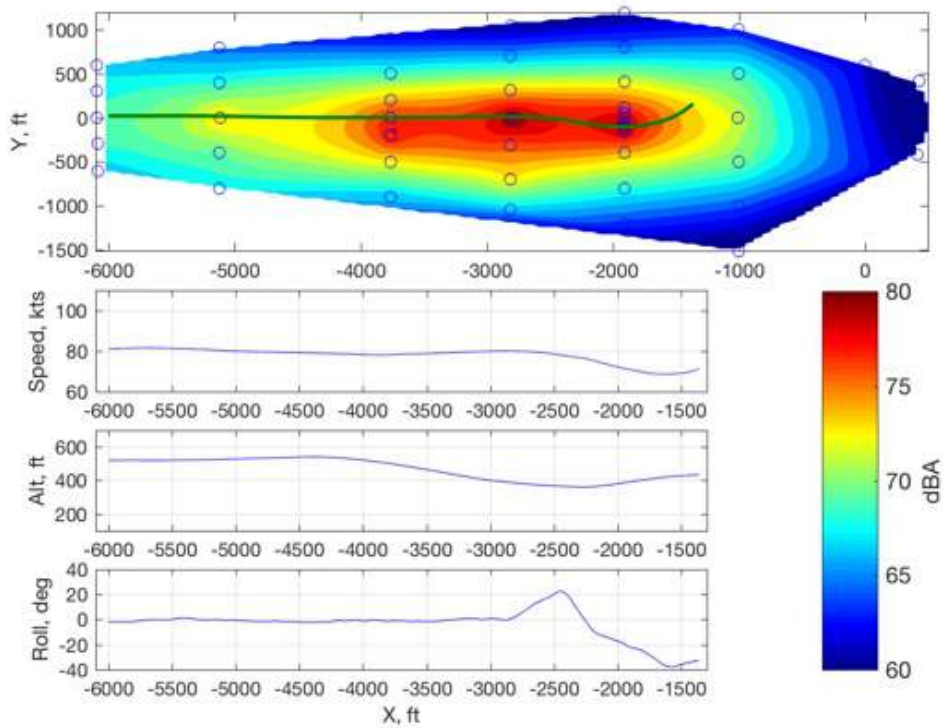


Figure 689: B407, 284189, F19, maximum dBA contour.

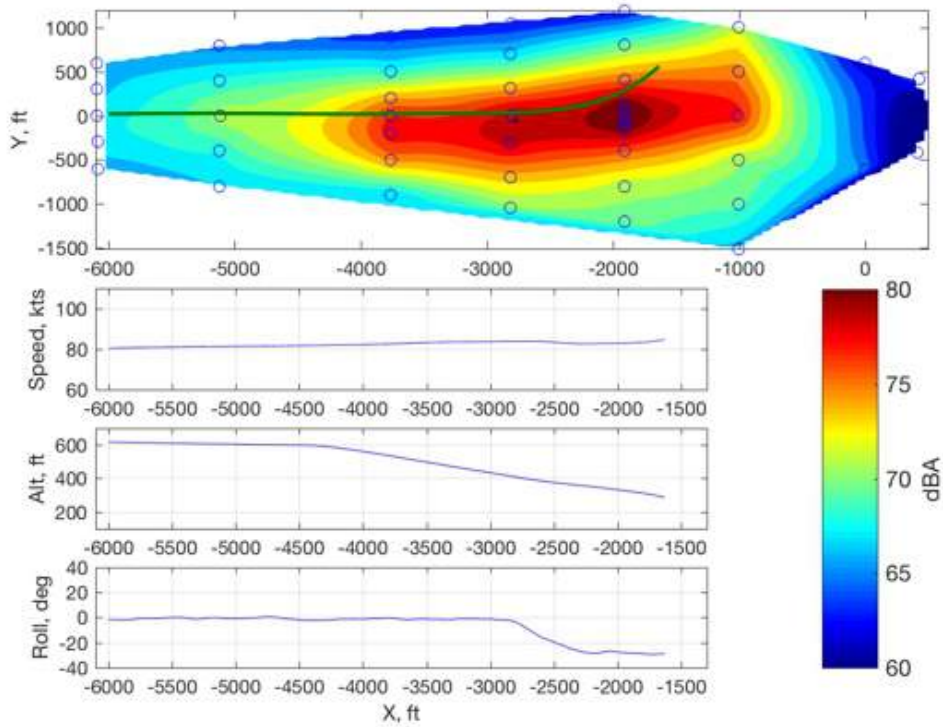


Figure 690: B407, 284190, F19, maximum dBA contour.

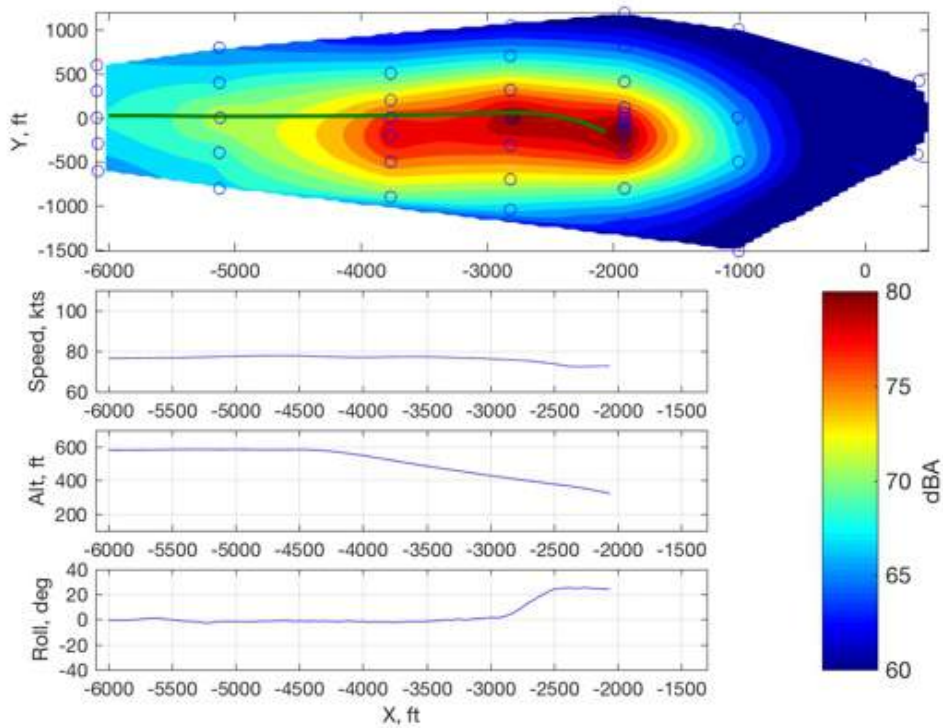


Figure 691: B407, 284191, F20, maximum dBA contour.

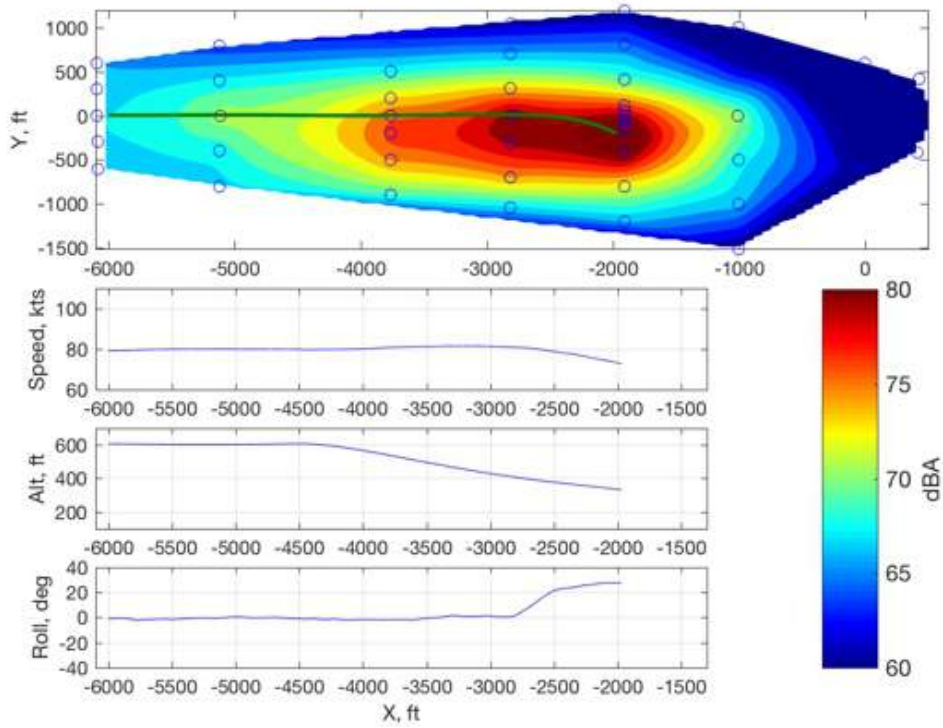


Figure 692: B407, 284192, F20, maximum dBA contour.

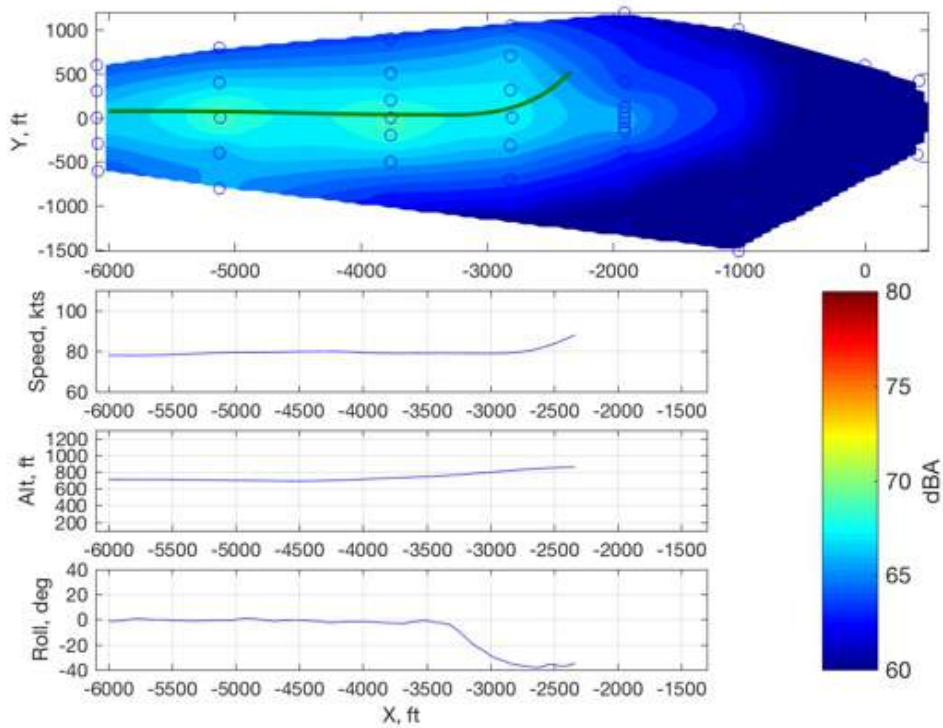


Figure 693: B407, 284162, F21, maximum dBA contour.

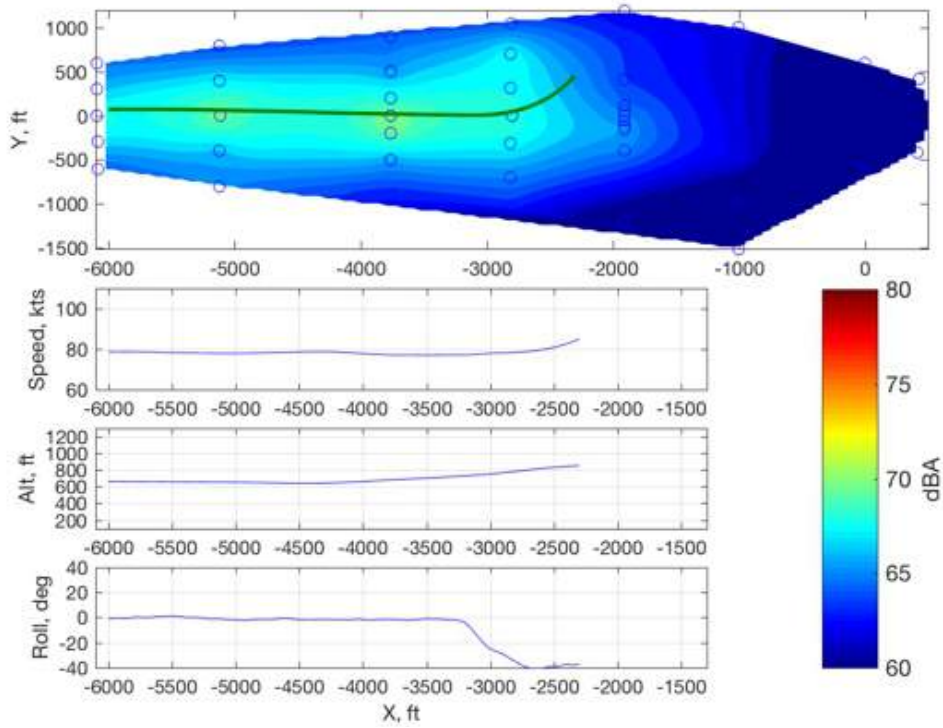


Figure 694: B407, 284163, F21, maximum dBA contour.

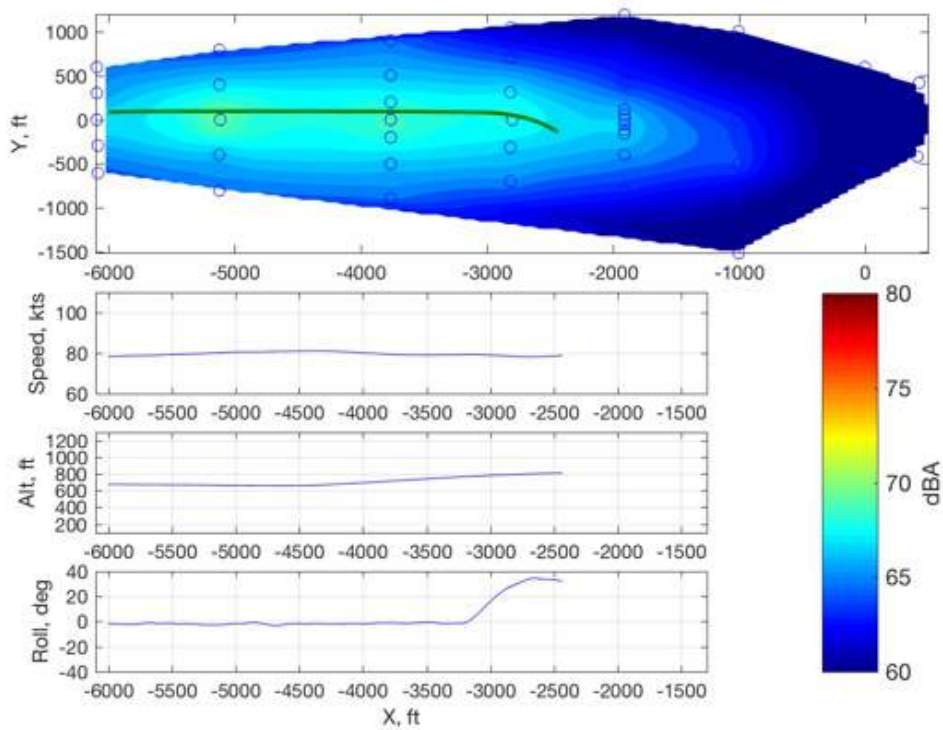


Figure 695: B407, 284164, F22, maximum dBA contour.

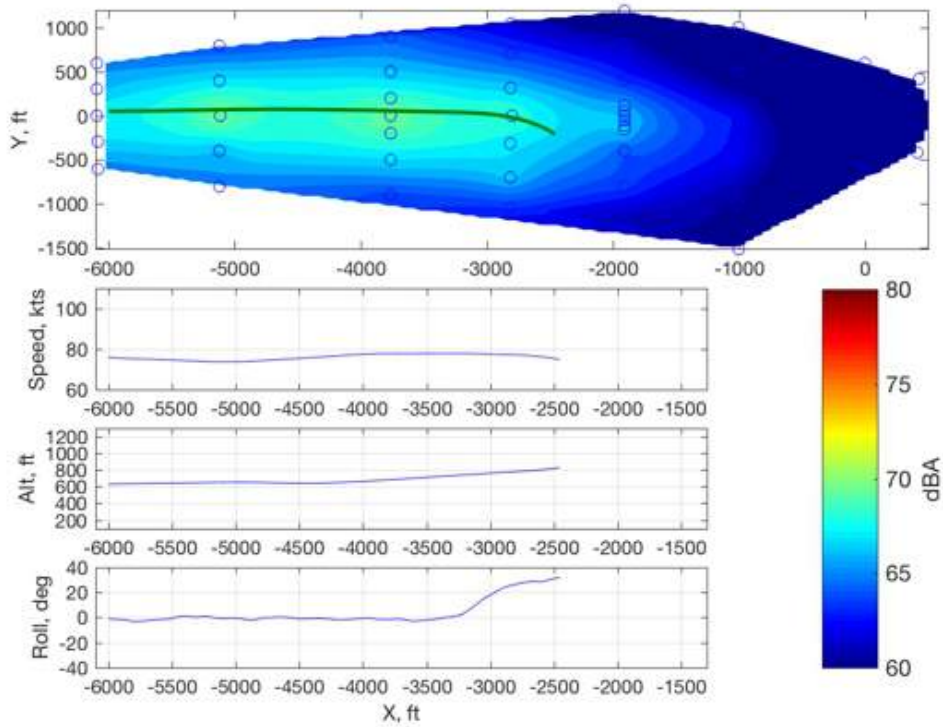


Figure 696: B407, 284165, F22, maximum dBA contour.

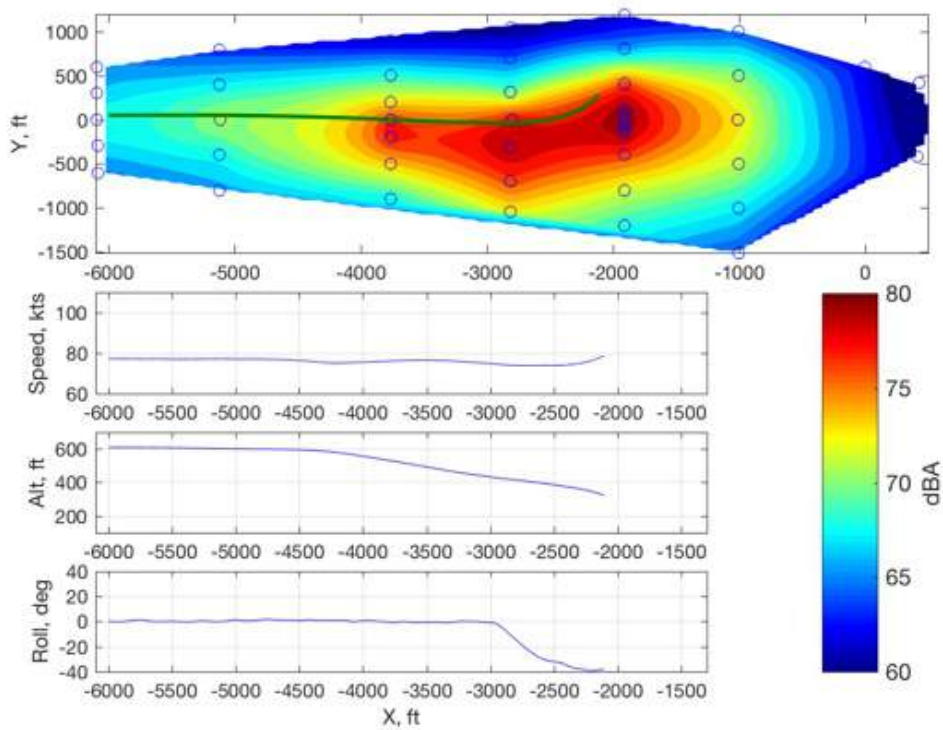


Figure 697: B407, 284166, F23, maximum dBA contour.

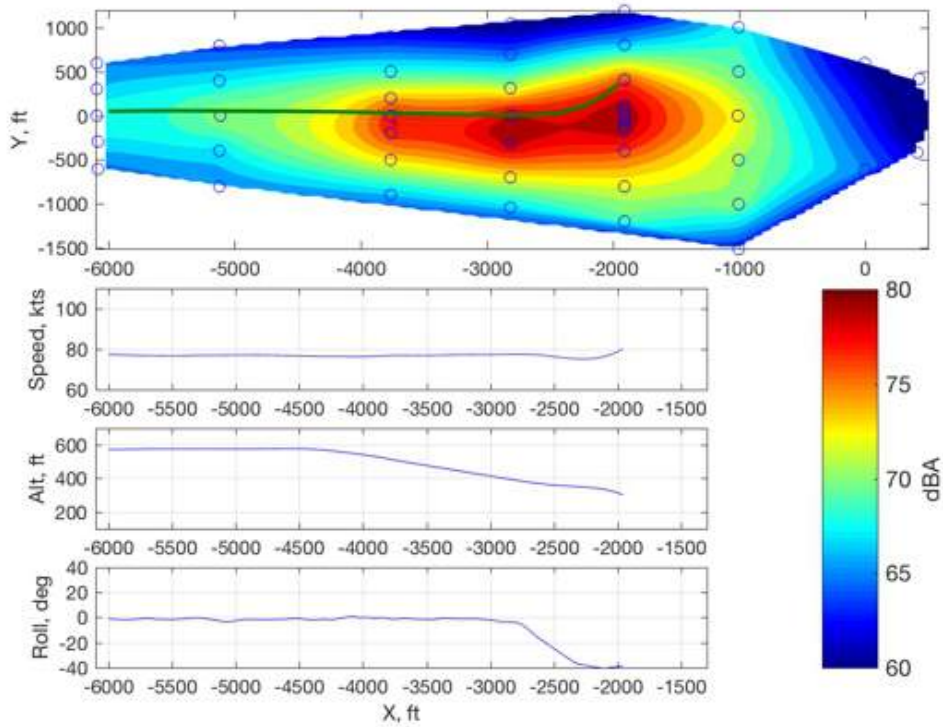


Figure 698: B407, 284167, F23, maximum dBA contour.

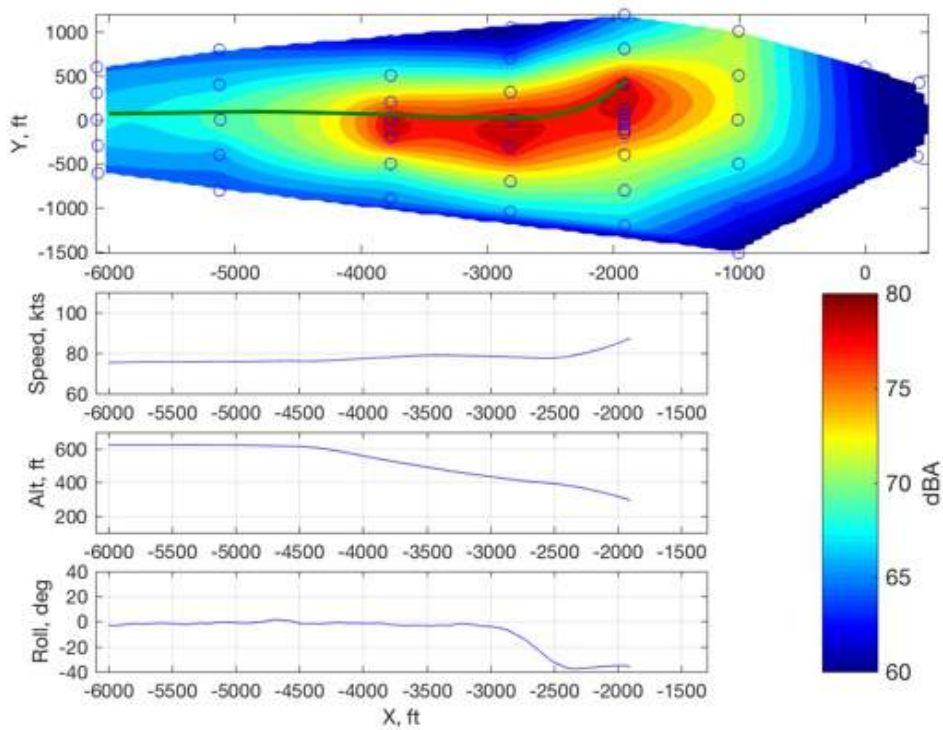


Figure 699: B407, 284168, F23, maximum dBA contour.

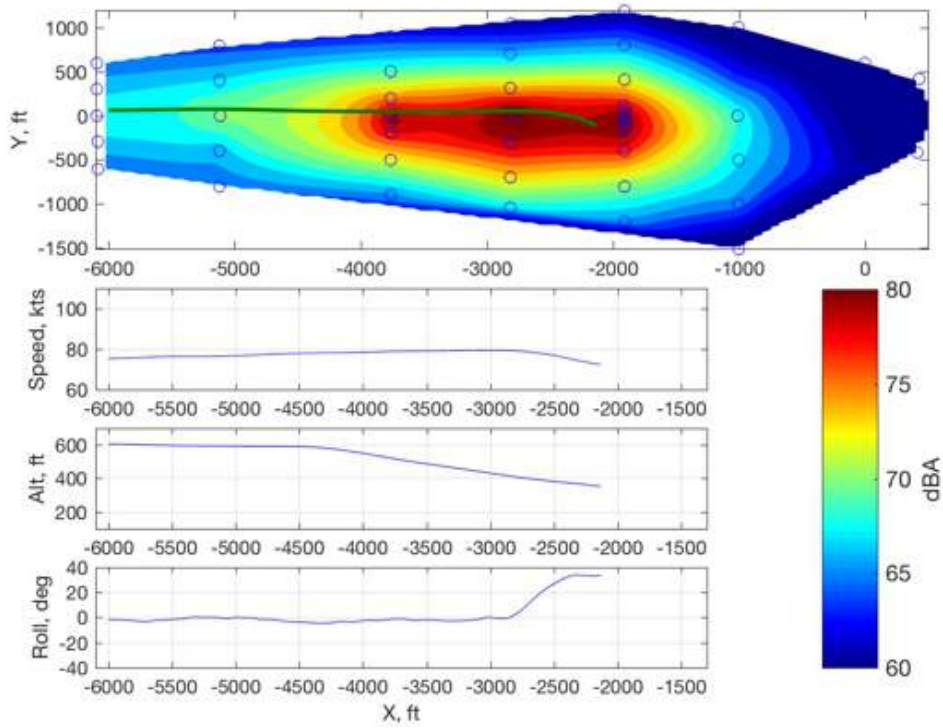


Figure 700: B407, 284169, F24, maximum dBA contour.

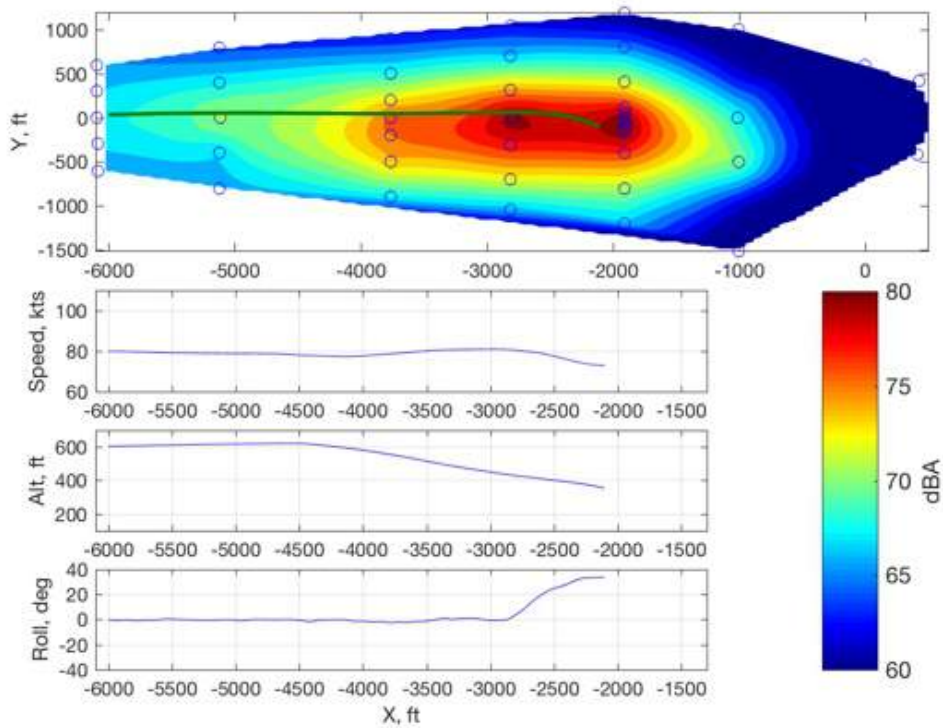


Figure 701: B407, 284170, F24, maximum dBA contour.

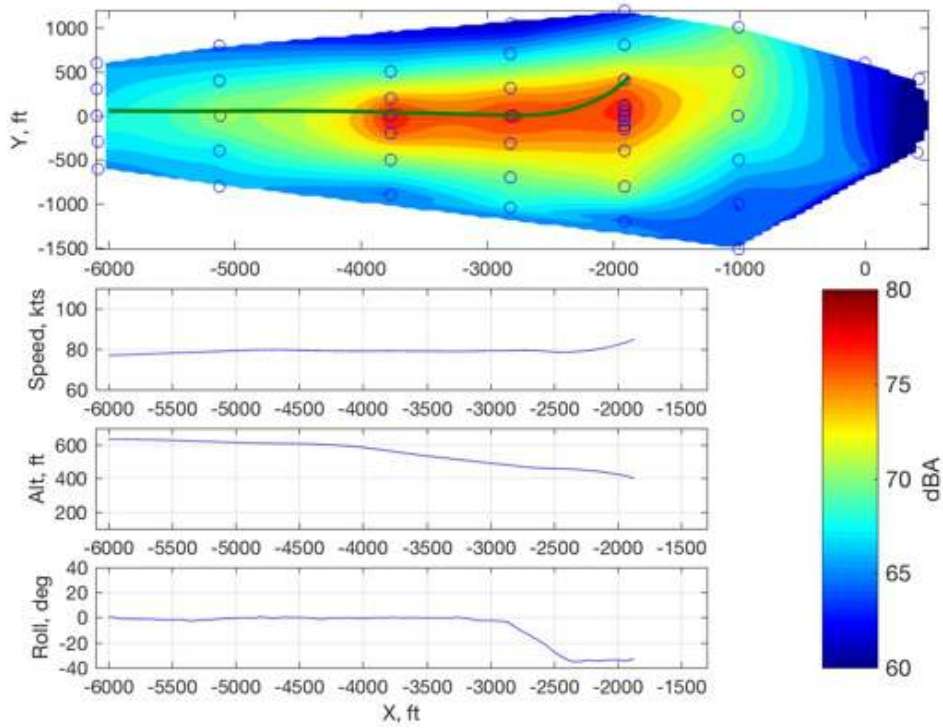


Figure 702: B407, 284175, F29, maximum dBA contour.

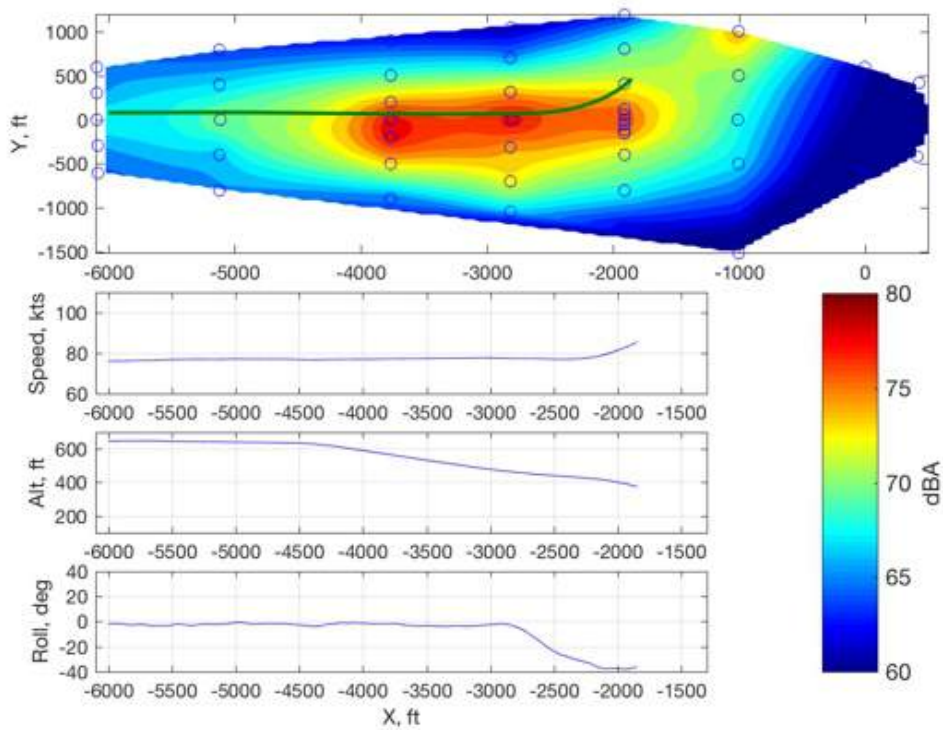


Figure 703: B407, 284176, F29, maximum dBA contour.

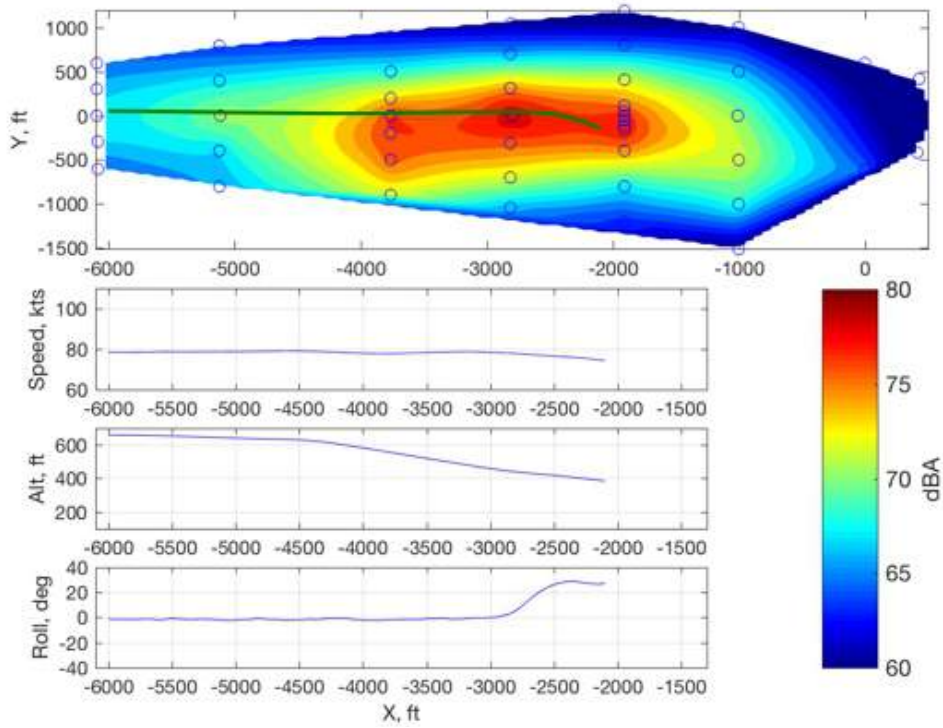


Figure 704: B407, 284177, F30, maximum dBA contour.

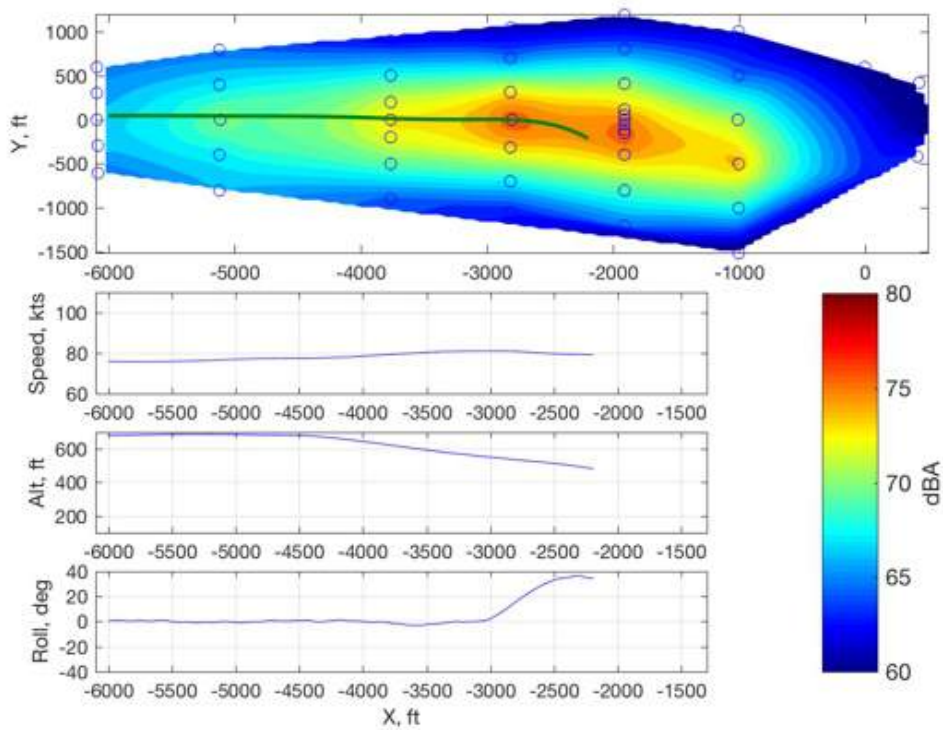


Figure 705: B407, 284178, F30, maximum dBA contour.

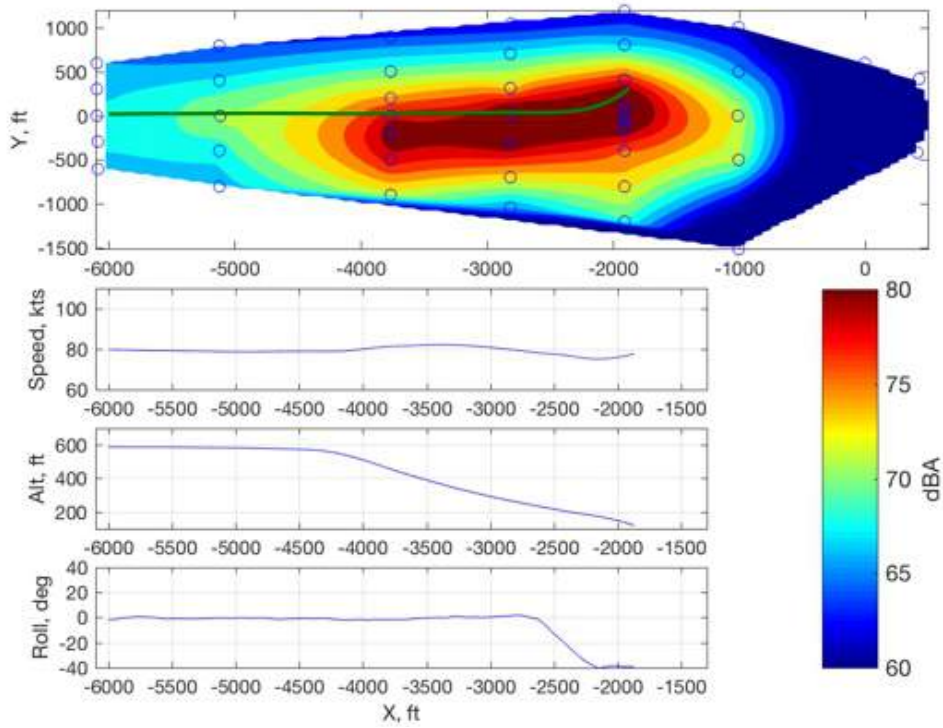


Figure 706: B407, 284179, F31, maximum dBA contour.

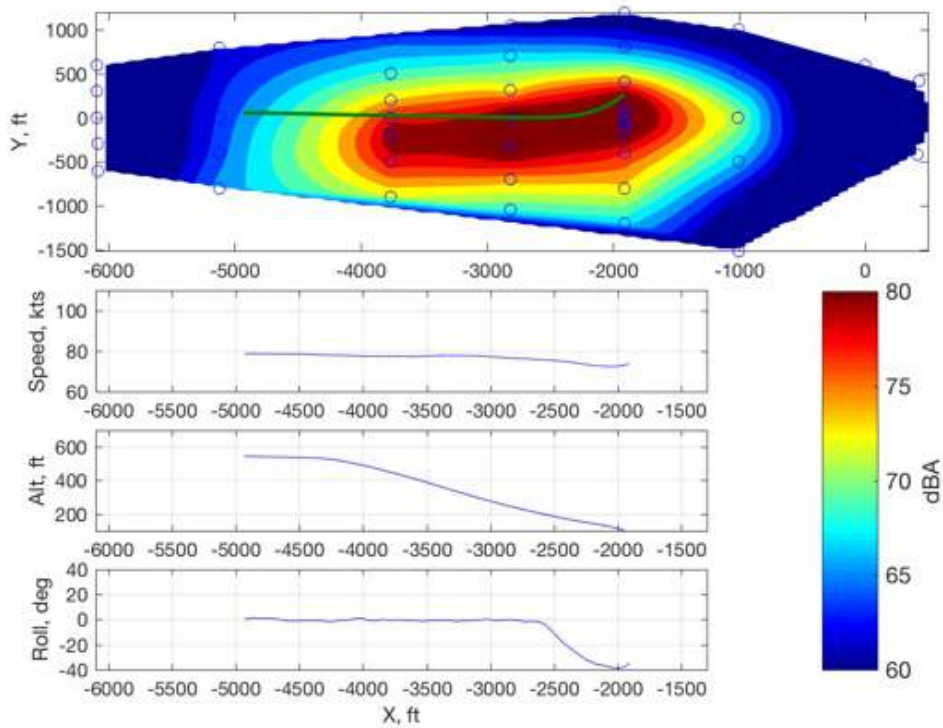


Figure 707: B407, 284180, F31, maximum dBA contour.

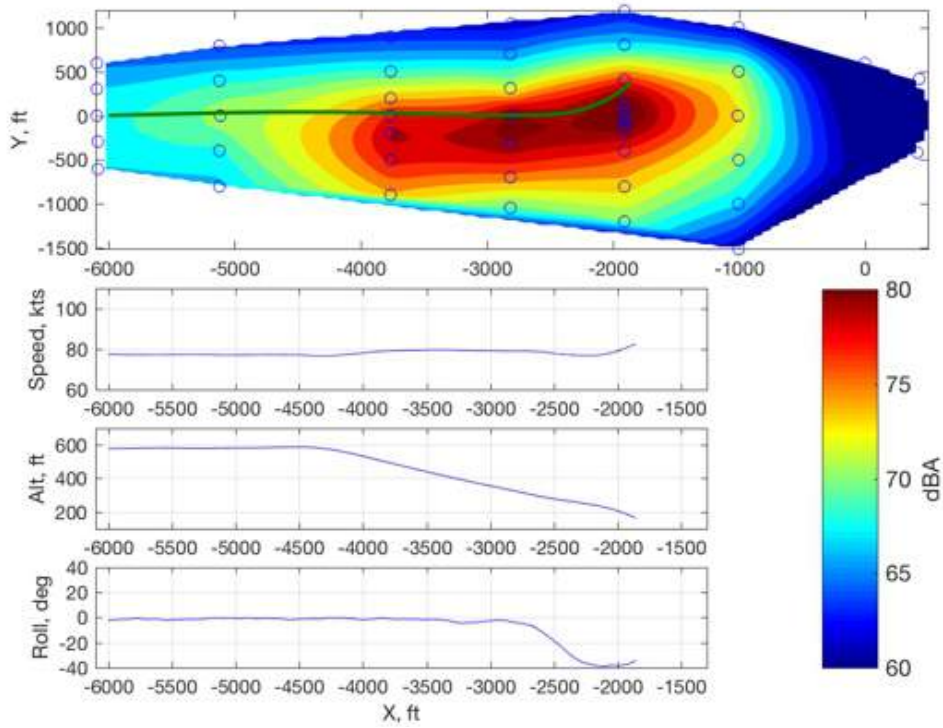


Figure 708: B407, 284181, F31, maximum dBA contour.

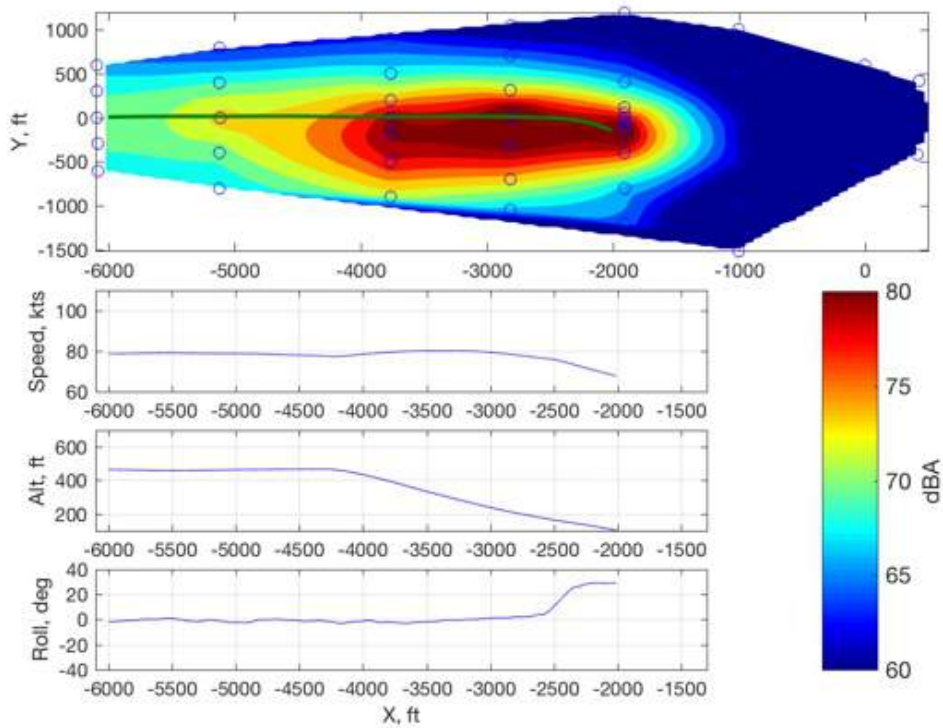


Figure 709: B407, 284182, F32, maximum dBA contour.

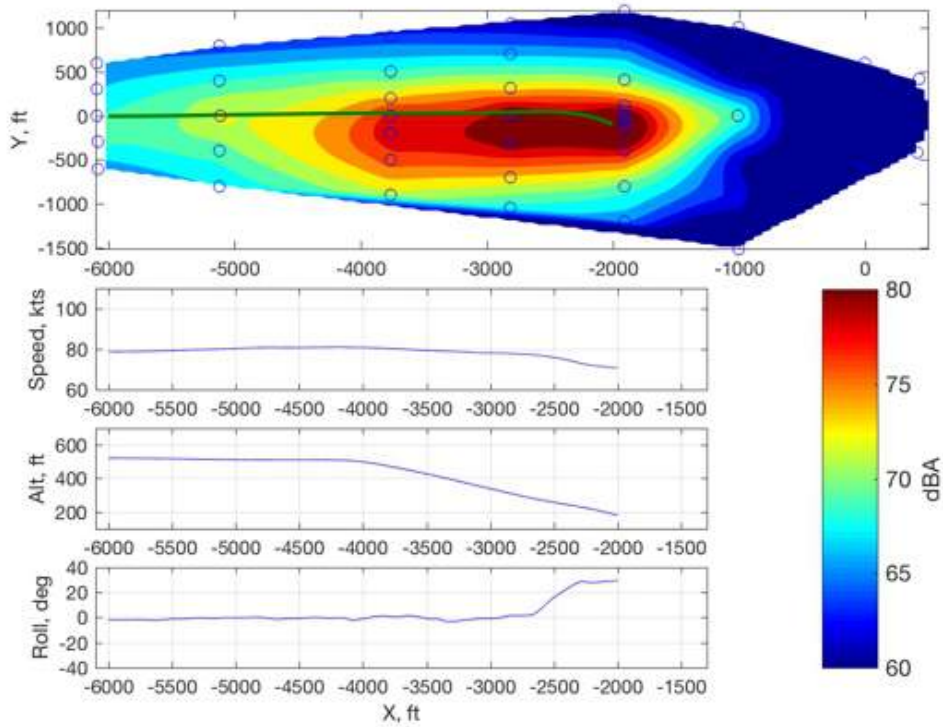


Figure 710: B407, 284183, F32, maximum dBA contour.

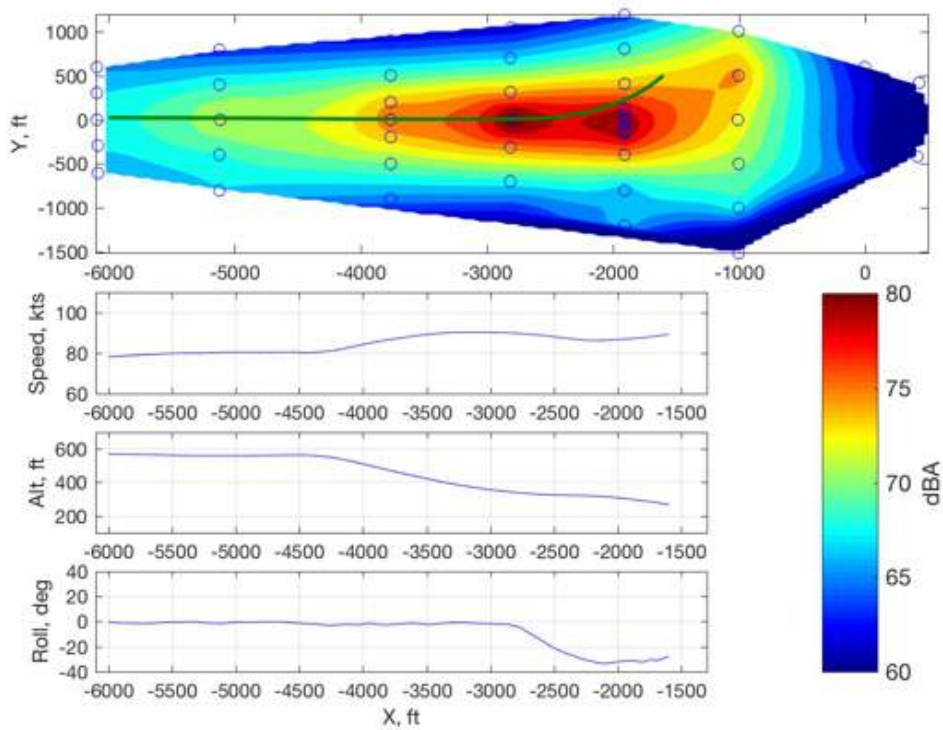


Figure 711: B407, 284193, G13, maximum dBA contour.

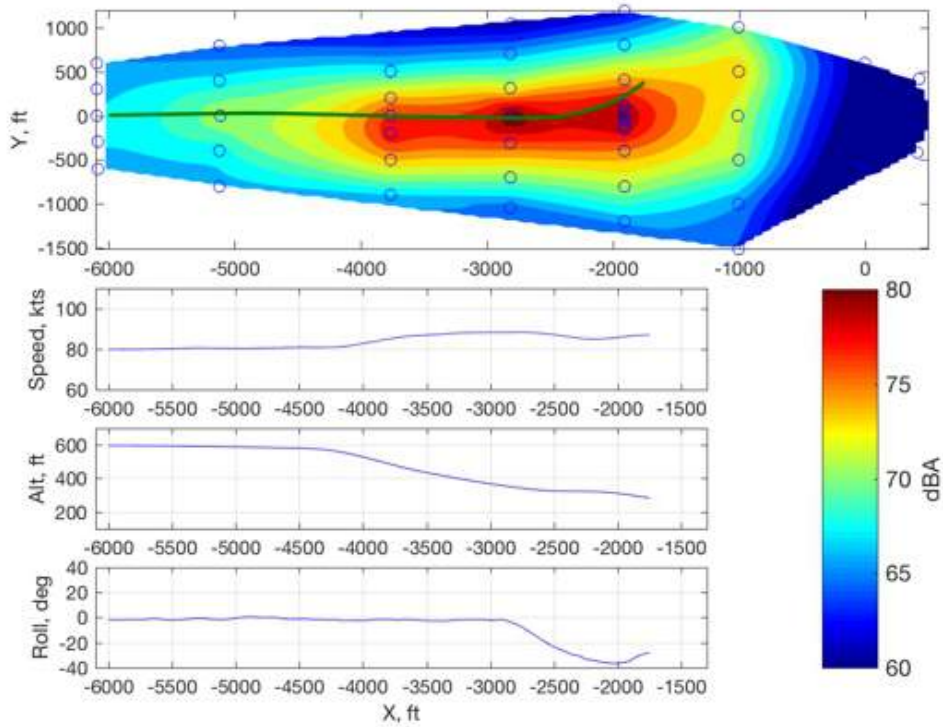


Figure 712: B407, 284194, G13, maximum dBA contour.

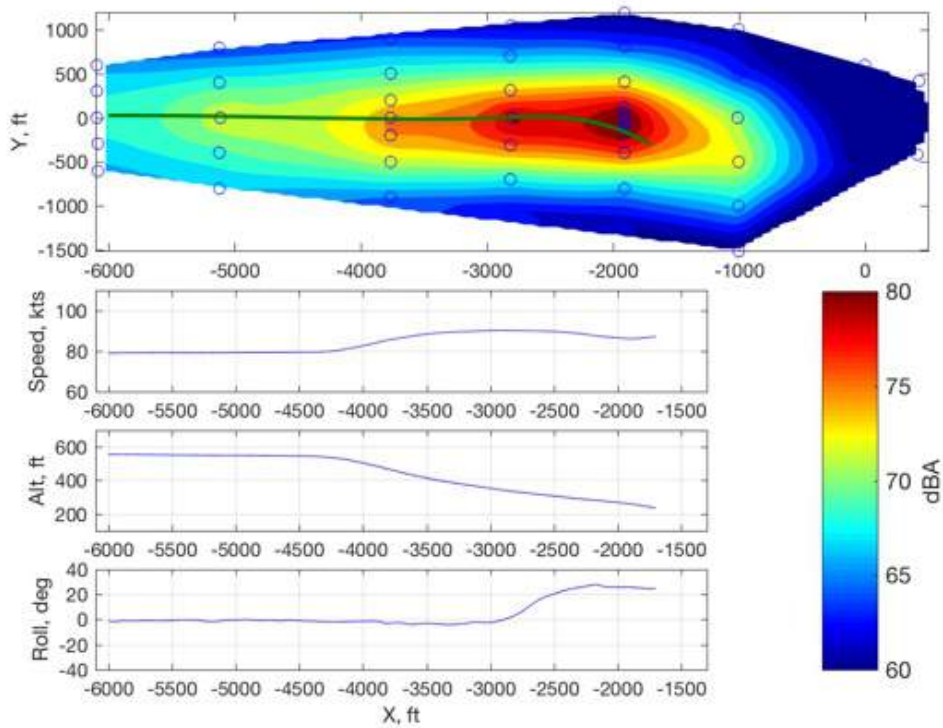


Figure 713: B407, 284195, G14, maximum dBA contour.

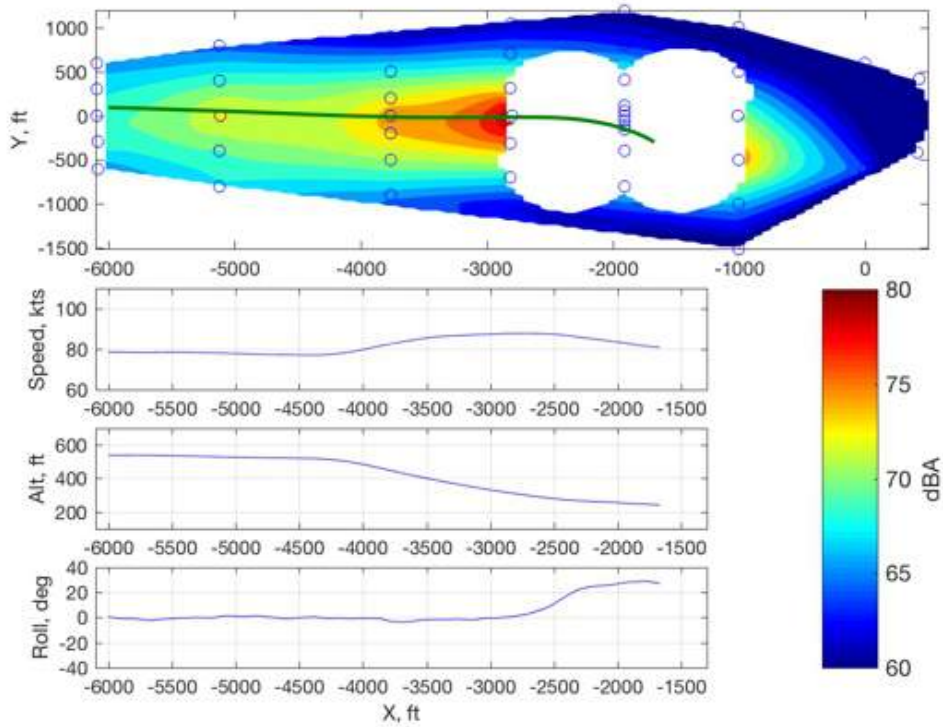


Figure 714: B407, 284196, G14, maximum dBA contour.

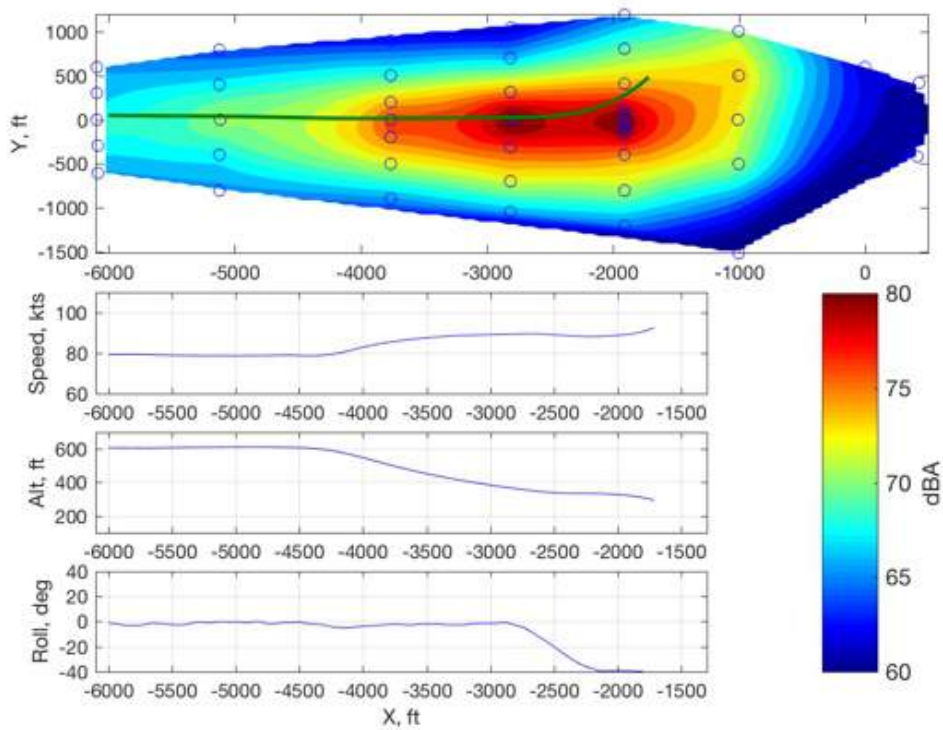


Figure 715: B407, 284172, G15, maximum dBA contour.

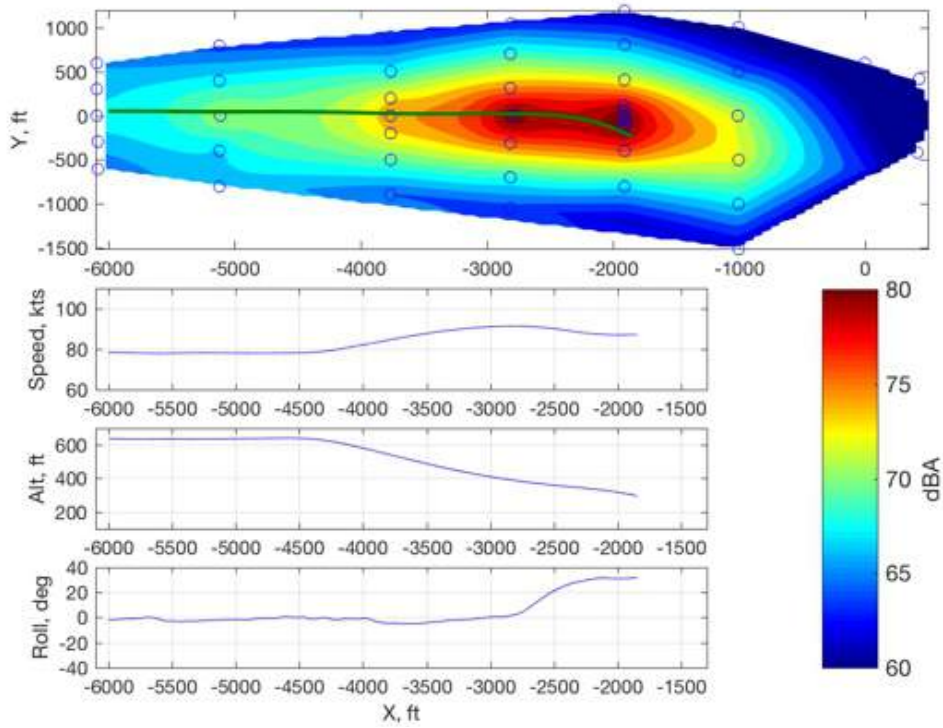


Figure 716: B407, 284173, G16, maximum dBA contour.

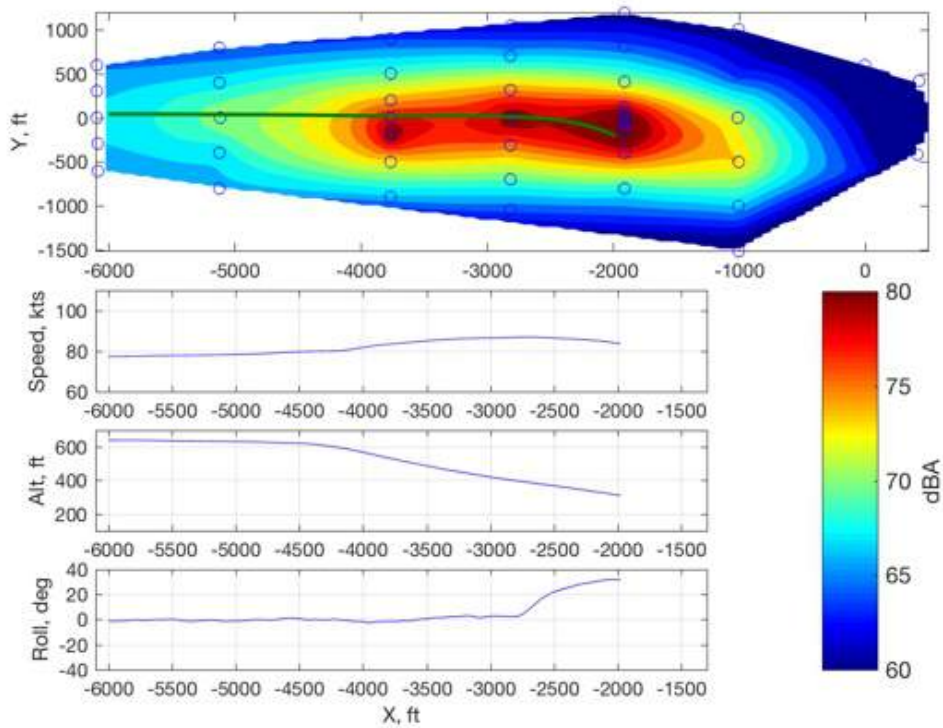


Figure 717: B407, 284174, G16, maximum dBA contour.

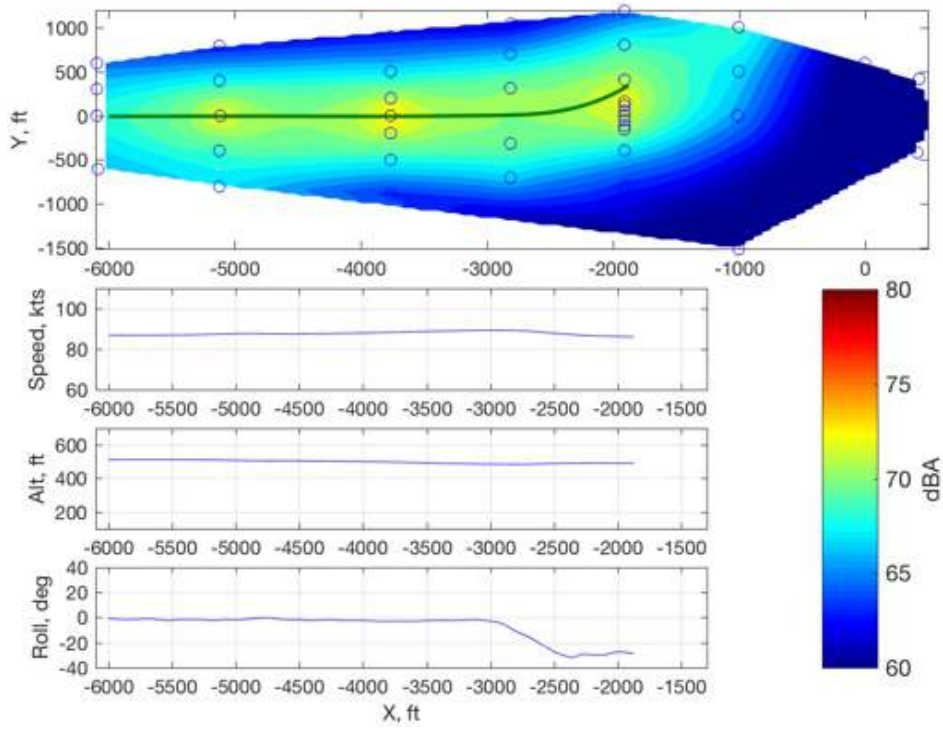


Figure 718: B407, 283118, N11, maximum dBA contour.

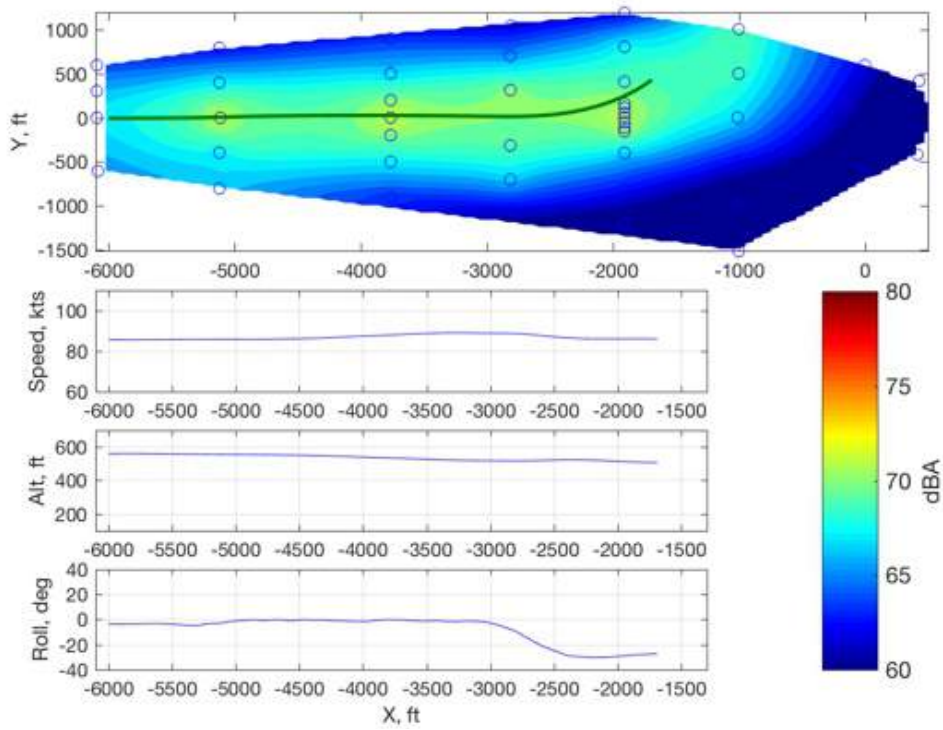


Figure 719: B407, 283119, N11, maximum dBA contour.

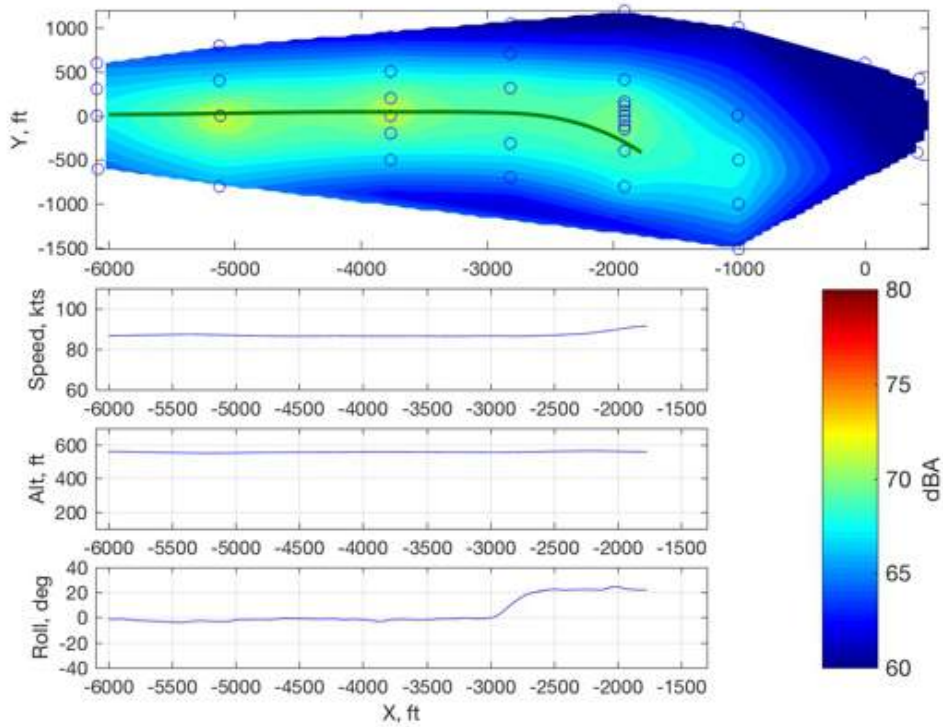


Figure 720: B407, 283120, N12, maximum dBA contour.

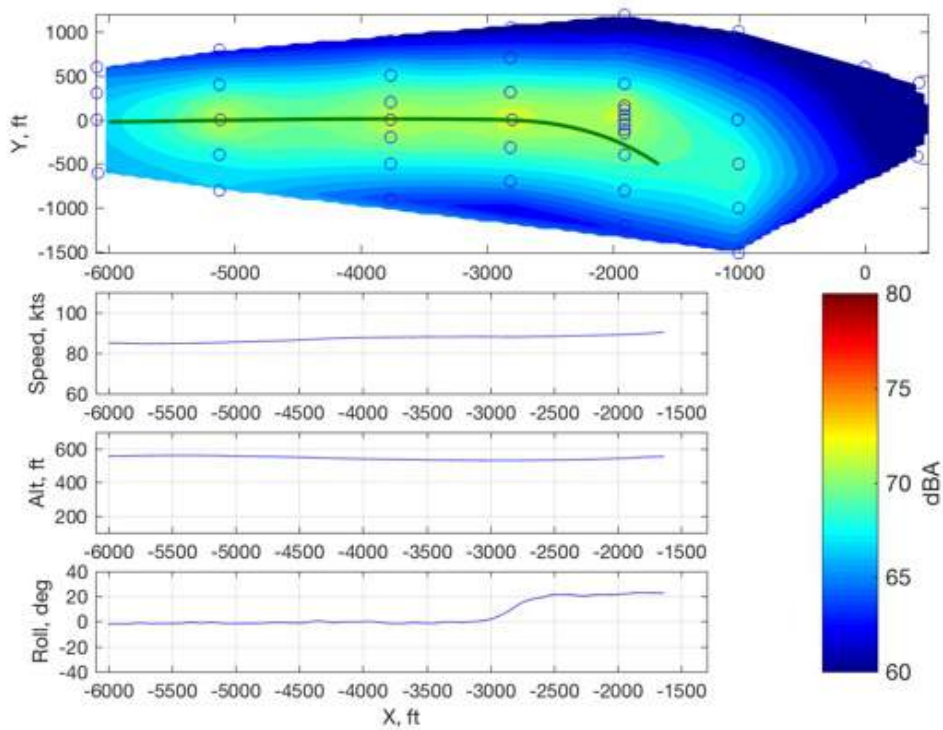


Figure 721: B407, 283121, N12, maximum dBA contour.

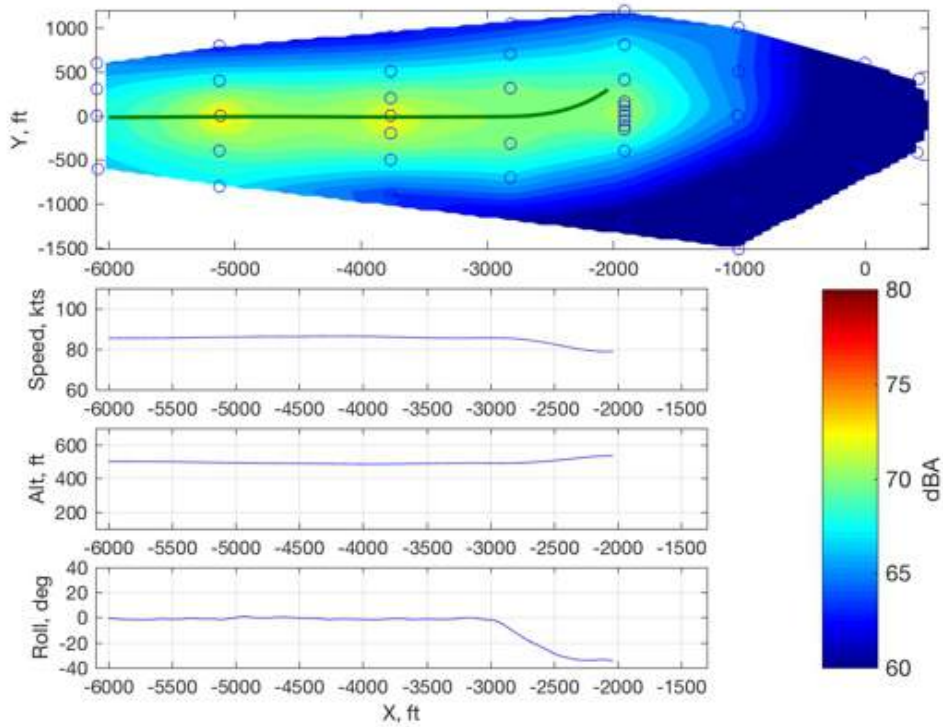


Figure 722: B407, 283122, N13, maximum dBA contour.

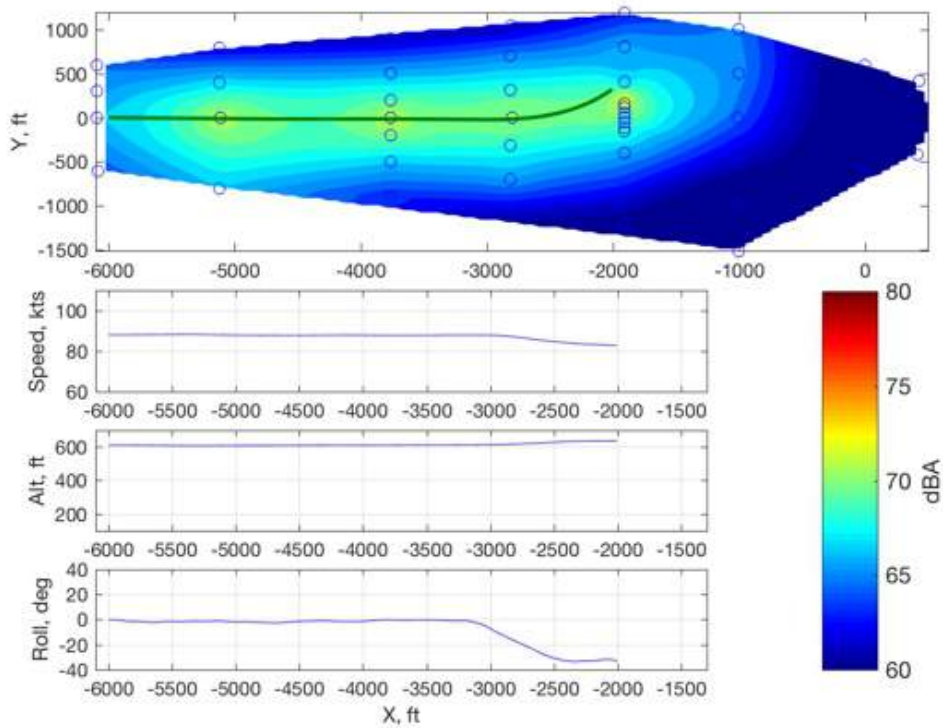


Figure 723: B407, 283123, N13, maximum dBA contour.

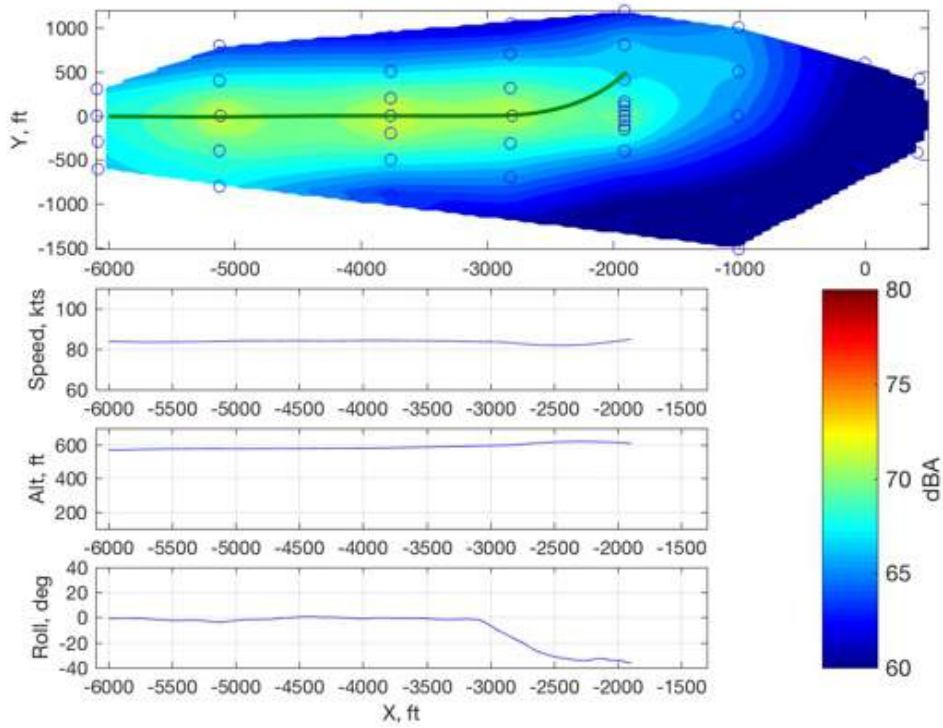


Figure 724: B407, 286289, N13, maximum dBA contour.

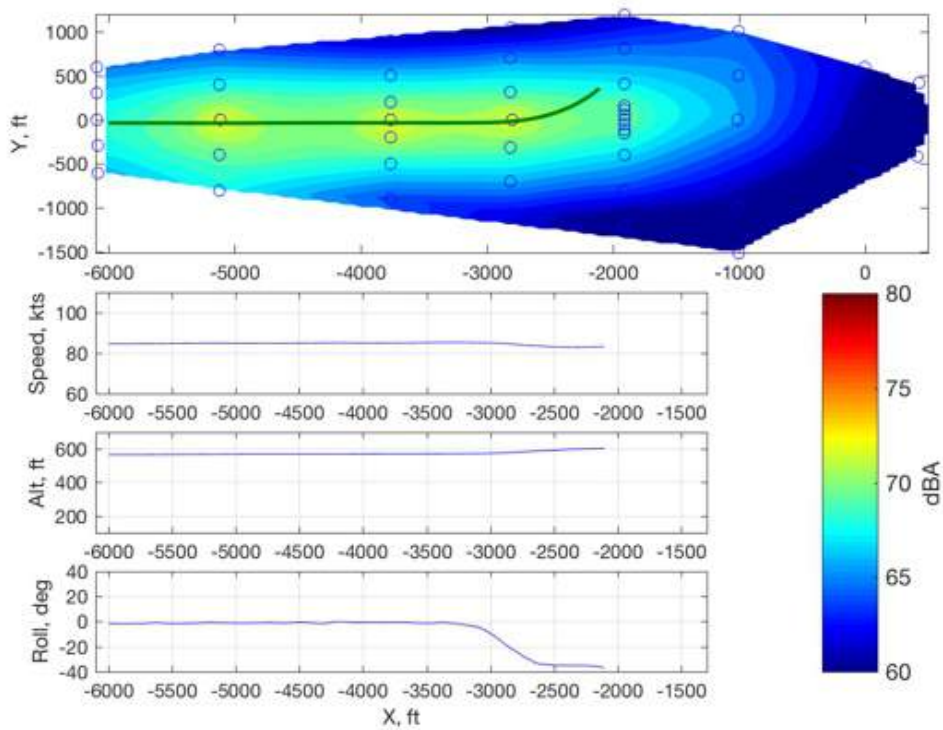


Figure 725: B407, 286290, N13, maximum dBA contour.

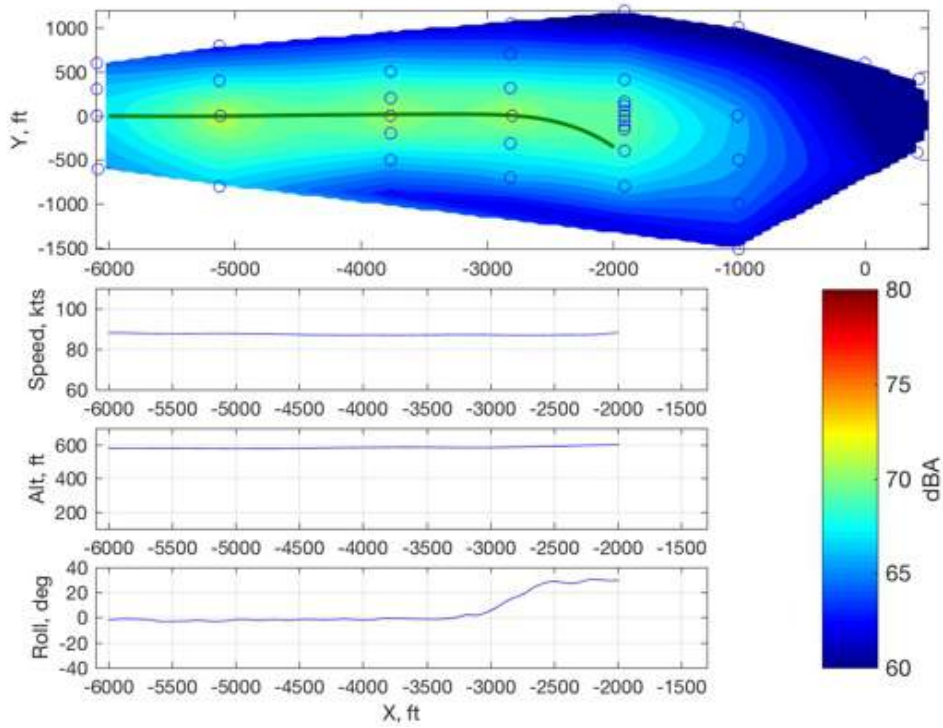


Figure 726: B407, 283124, N14, maximum dBA contour.

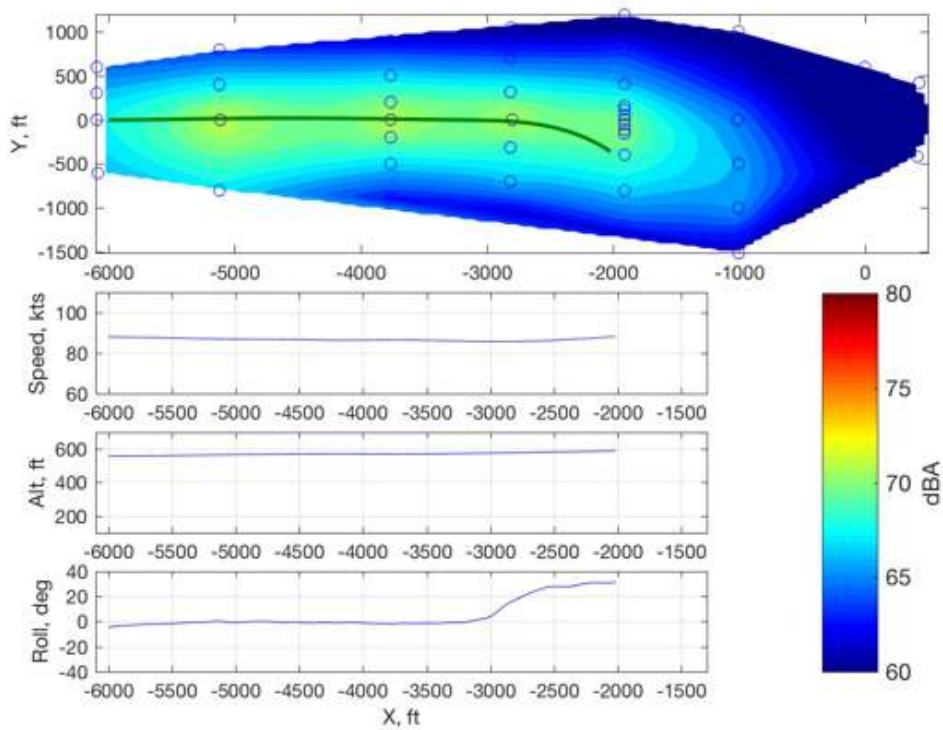


Figure 727: B407, 283125, N14, maximum dBA contour.

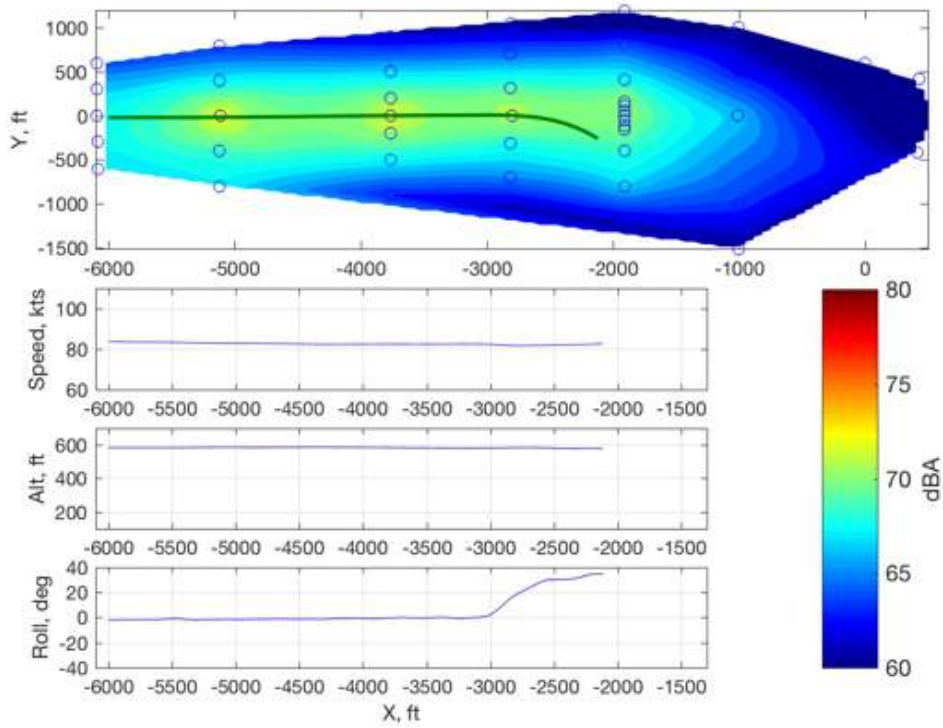


Figure 728: B407, 286291, N14, maximum dBA contour.

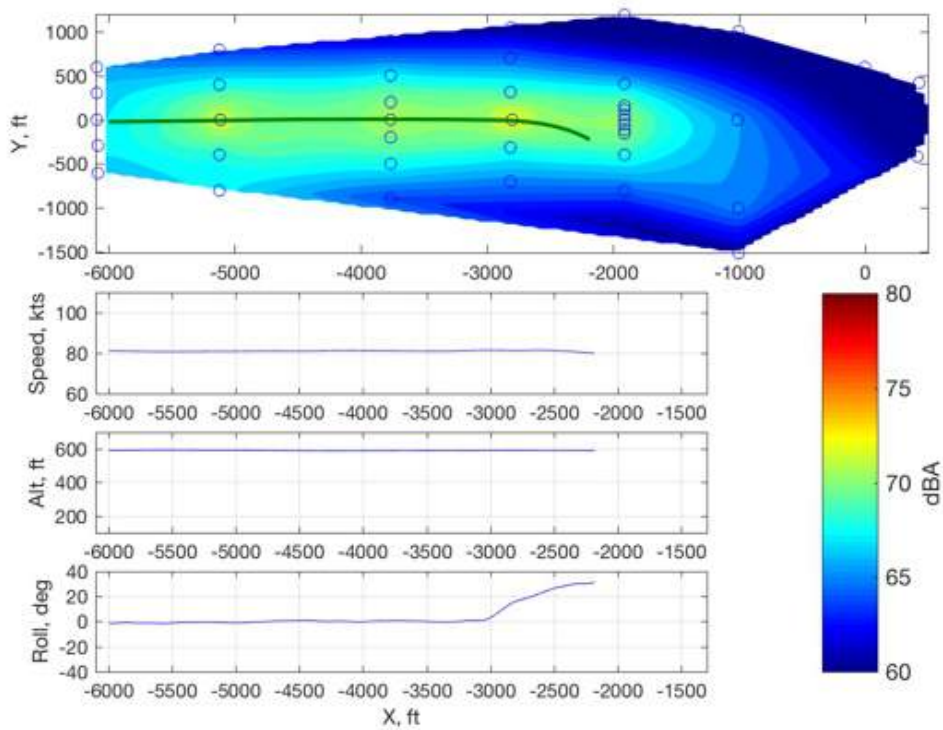


Figure 729: B407, 286292, N14, maximum dBA contour.

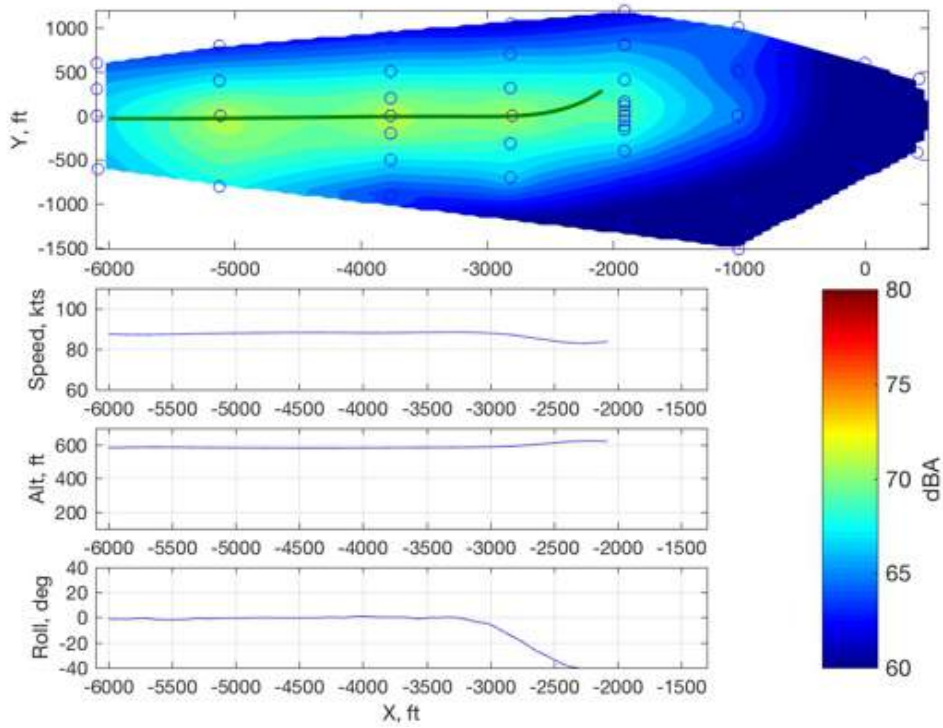


Figure 730: B407, 283126, N15, maximum dBA contour.

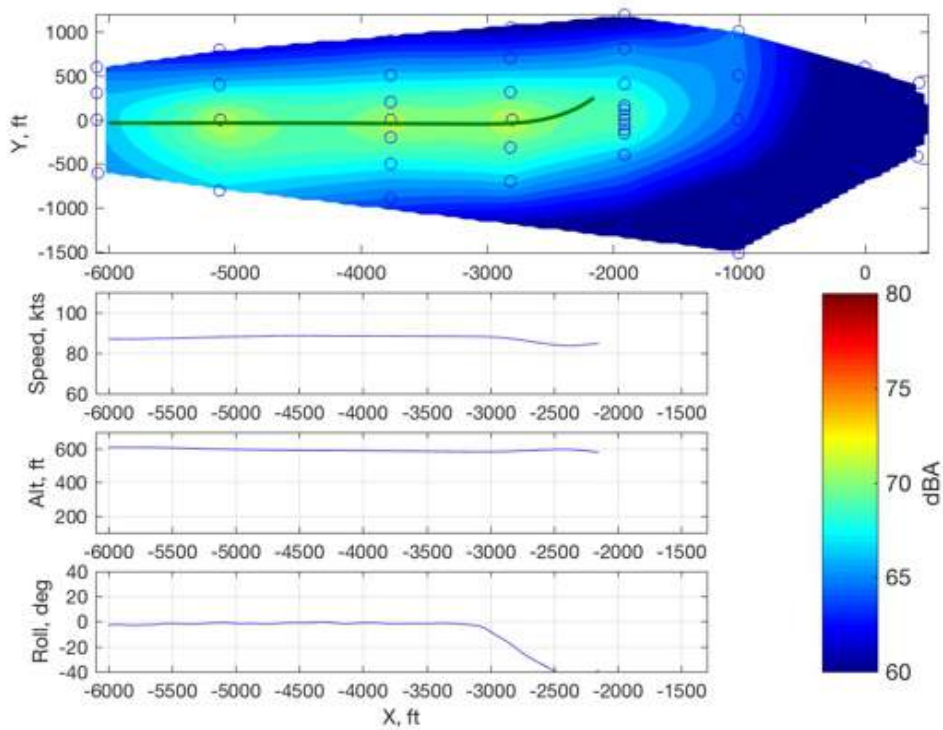


Figure 731: B407, 283127, N15, maximum dBA contour.

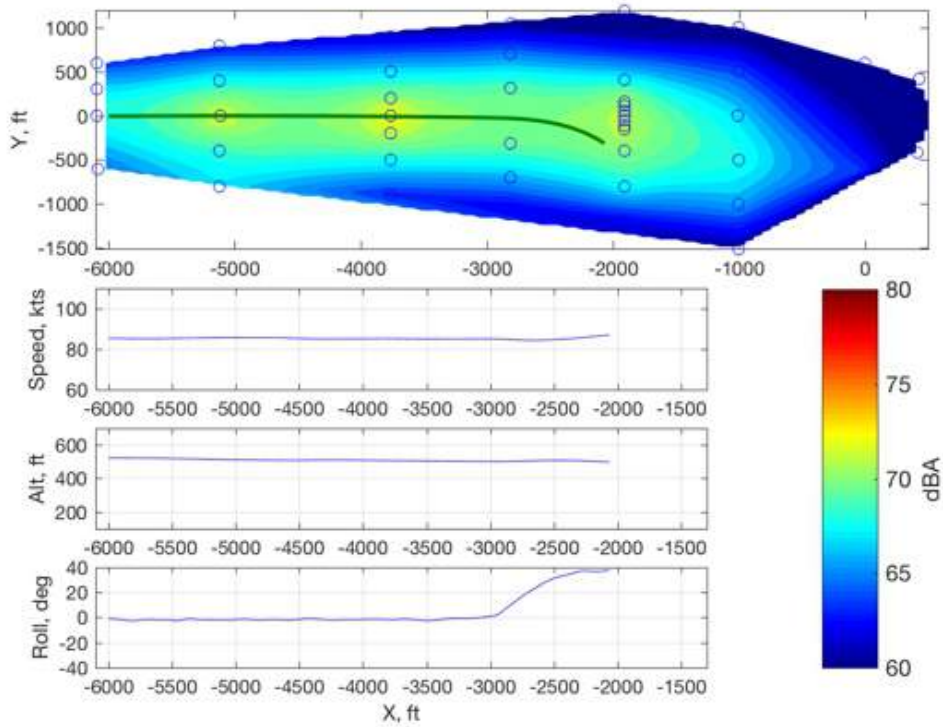


Figure 732: B407, 283128, N16, maximum dBA contour.

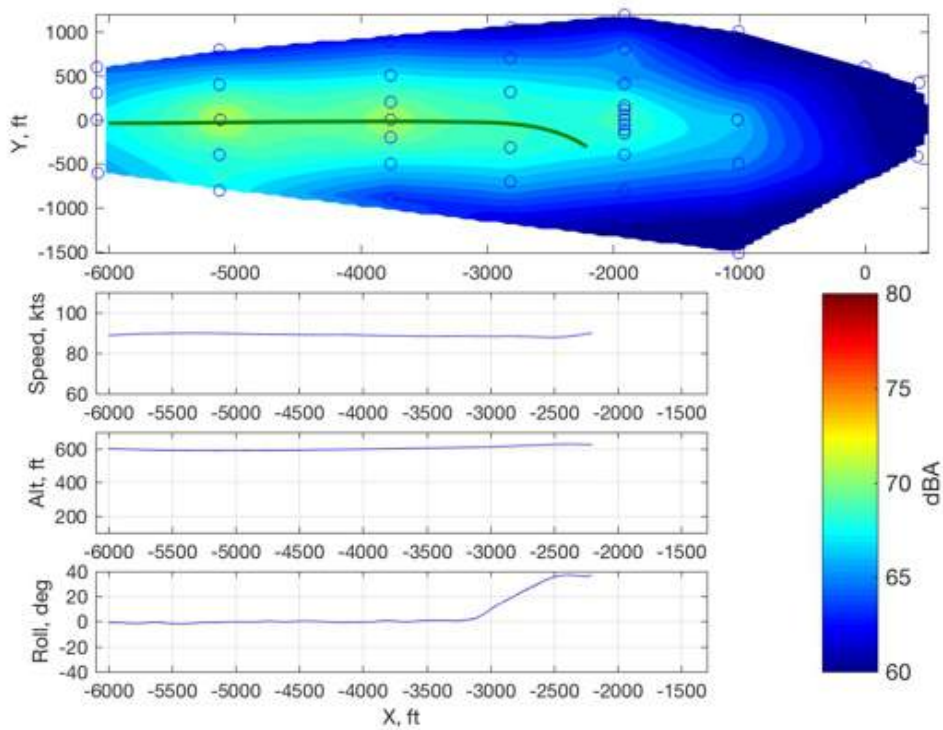


Figure 733: B407, 283129, N16, maximum dBA contour.

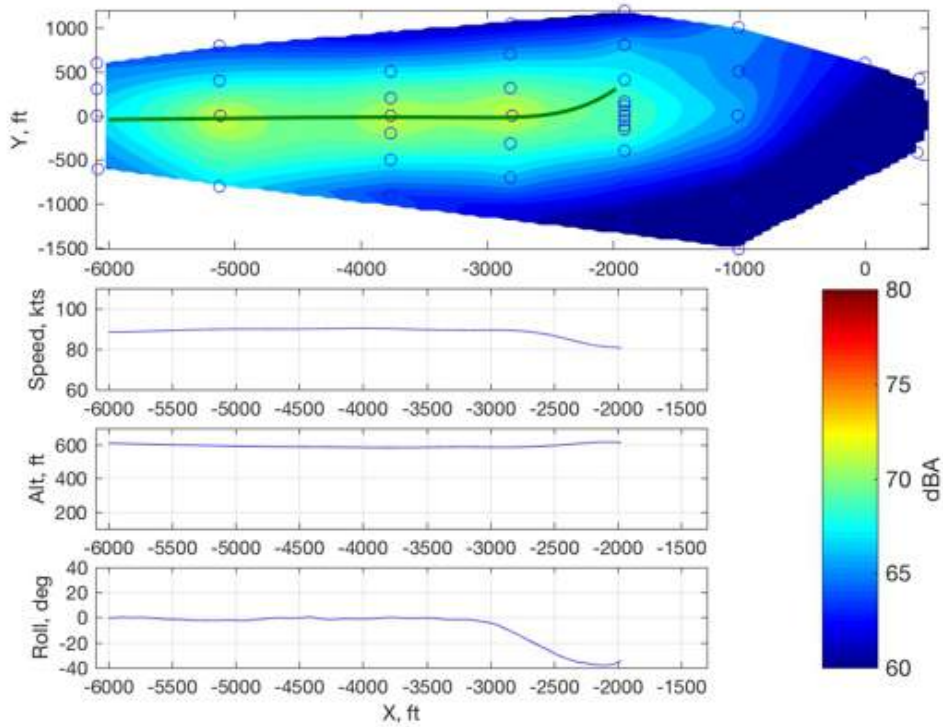


Figure 734: B407, 283130, O7, maximum dBA contour.

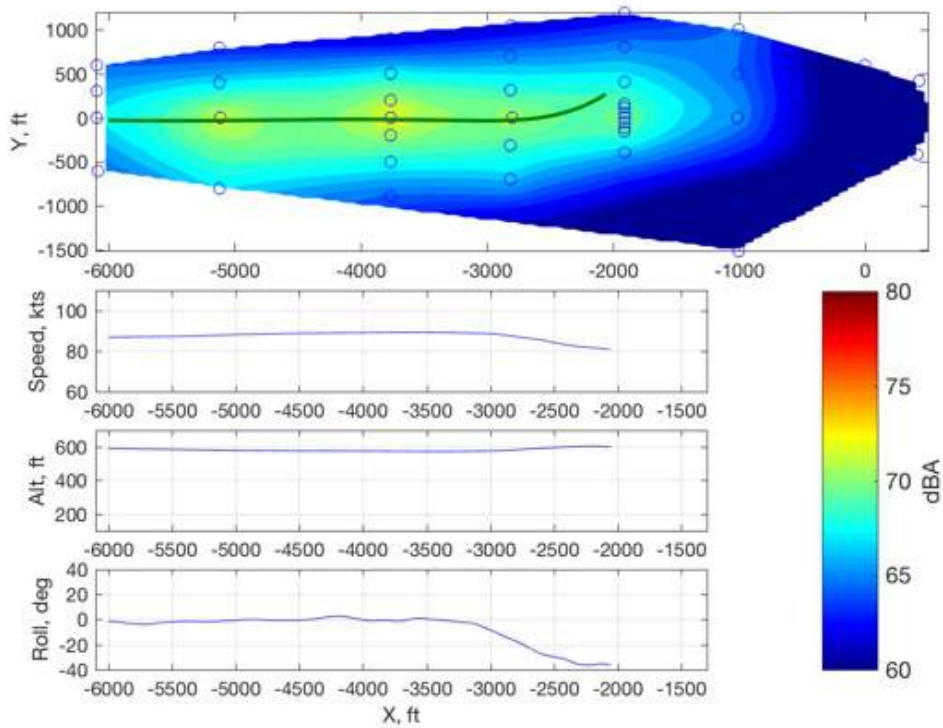


Figure 735: B407, 283131, O7, maximum dBA contour.

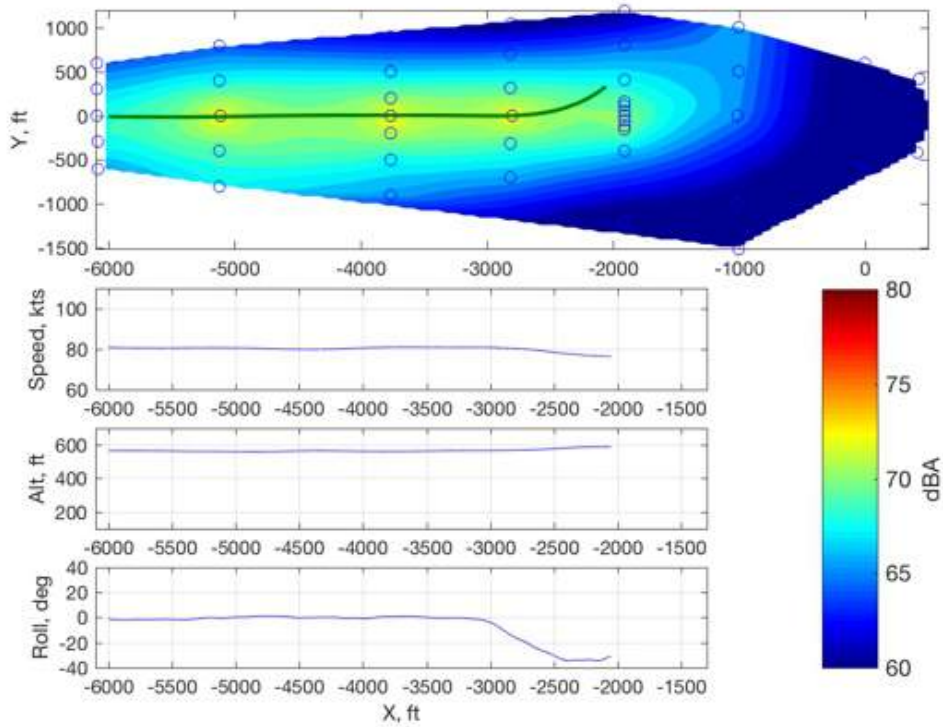


Figure 736: B407, 286293, O7, maximum dBA contour.

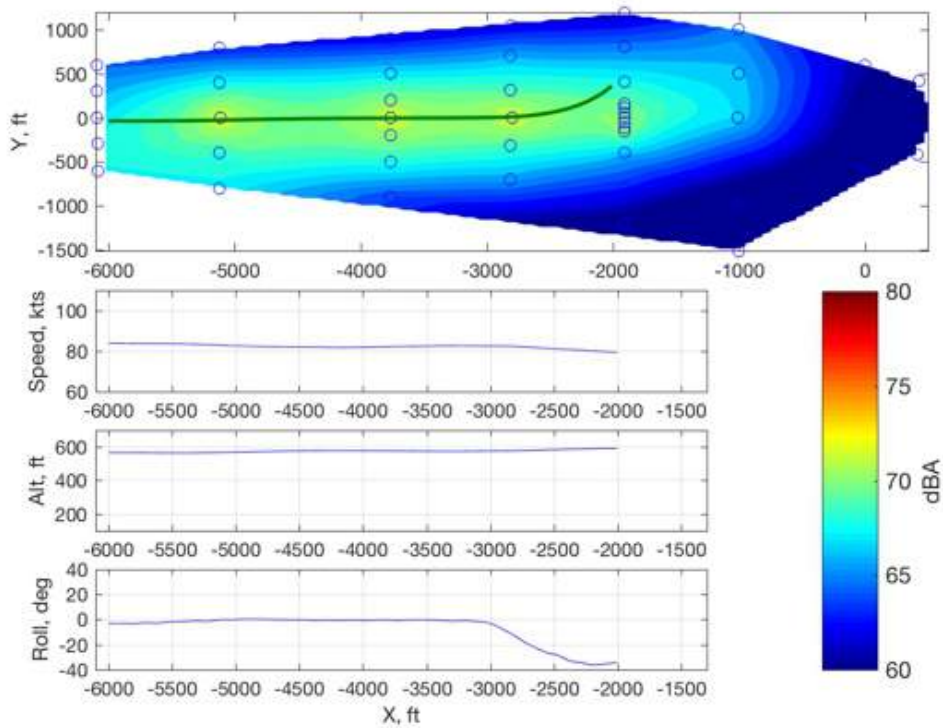


Figure 737: B407, 286294, O7, maximum dBA contour.

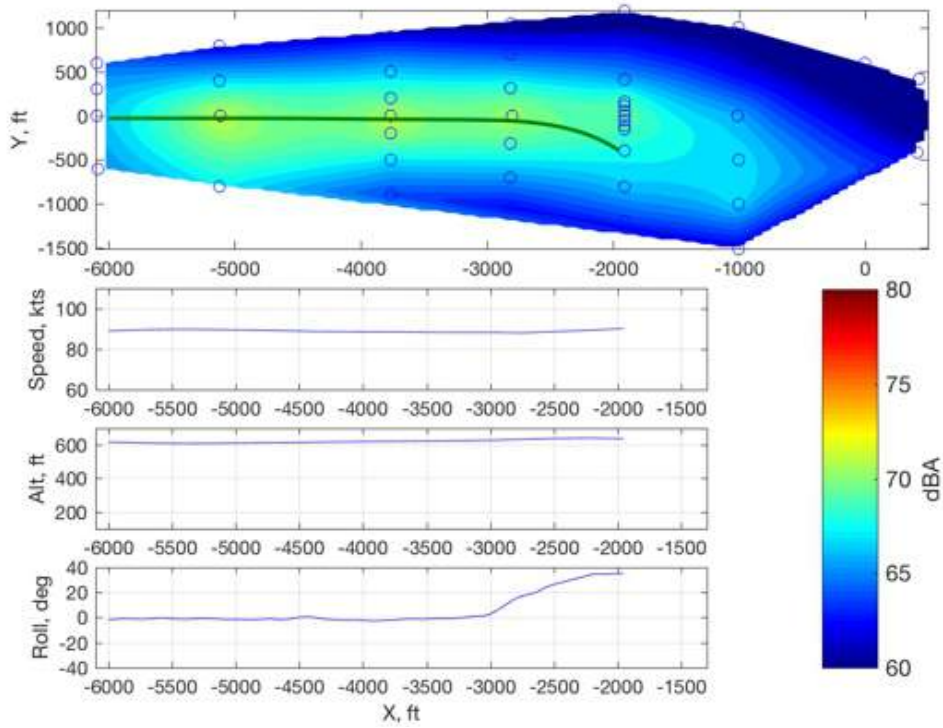


Figure 738: B407, 283132, O8, maximum dBA contour.

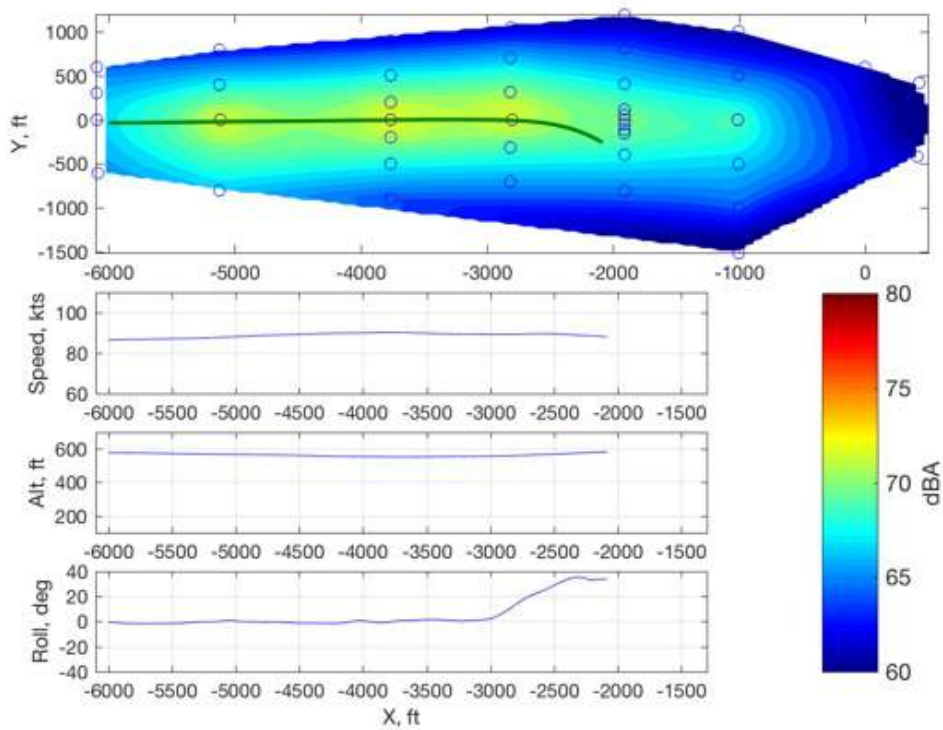


Figure 739: B407, 283133, O8, maximum dBA contour.

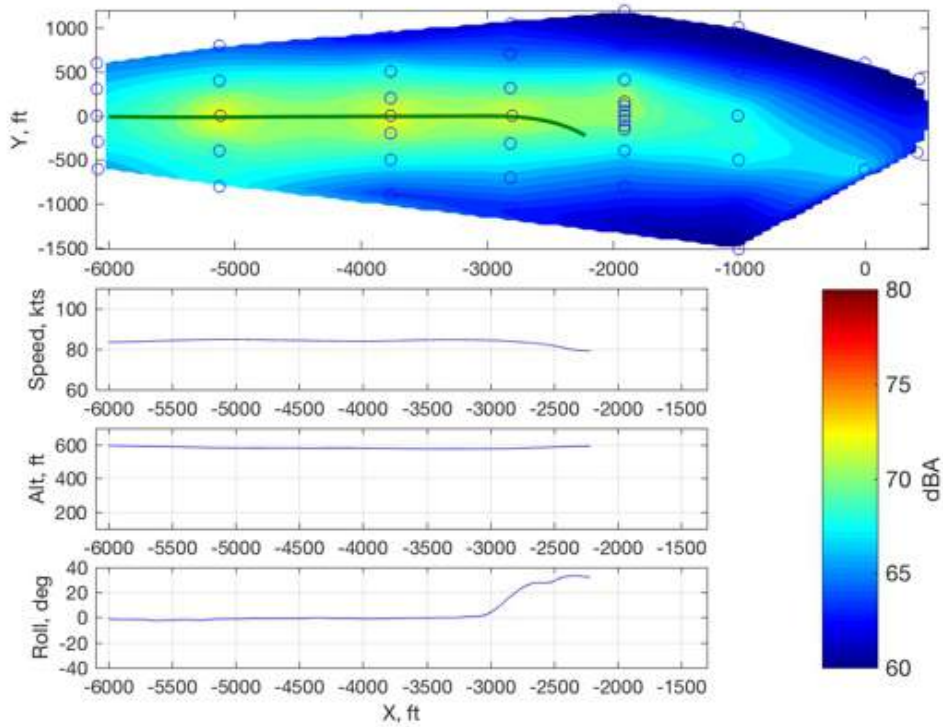


Figure 740: B407, 286295, O8, maximum dBA contour.

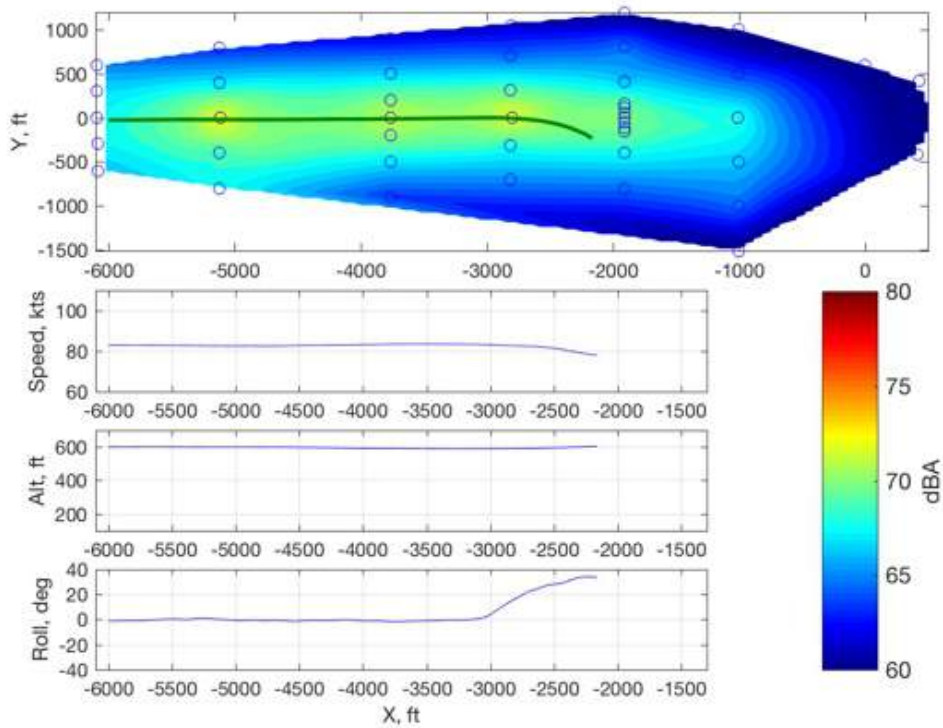


Figure 741: B407, 286296, O8, maximum dBA contour.

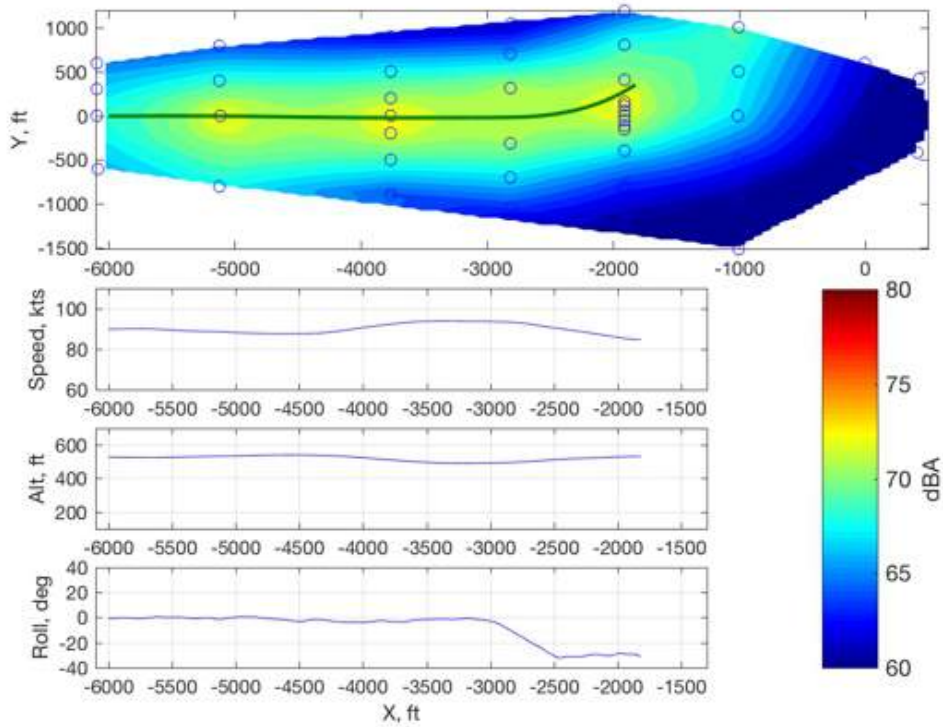


Figure 742: B407, 283134, X27, maximum dBA contour.

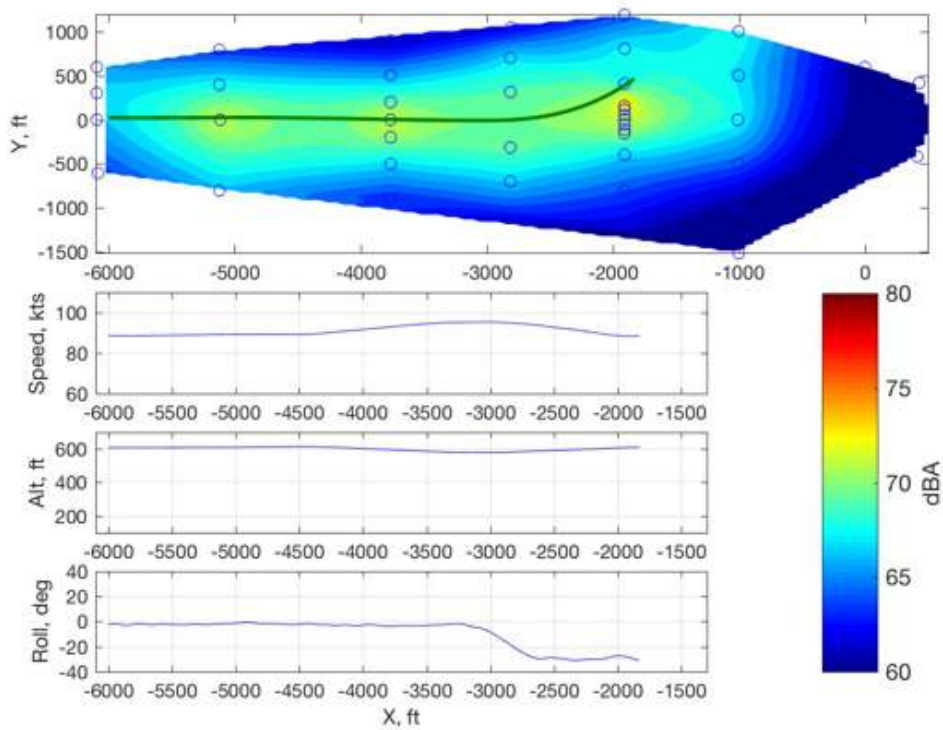


Figure 743: B407, 283135, X27, maximum dBA contour.

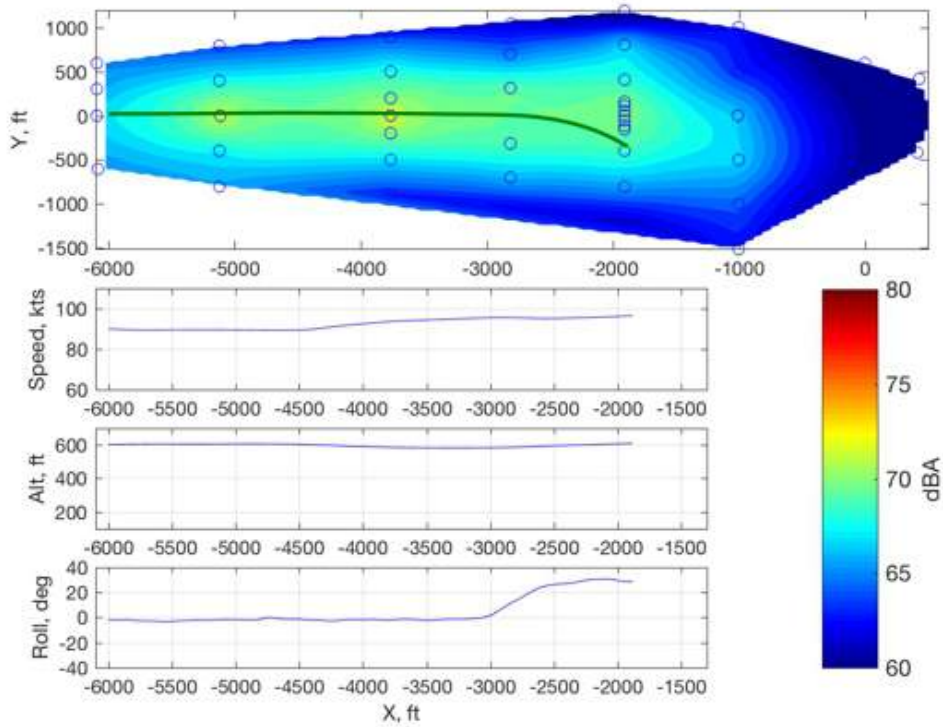


Figure 744: B407, 283136, X28, maximum dBA contour.

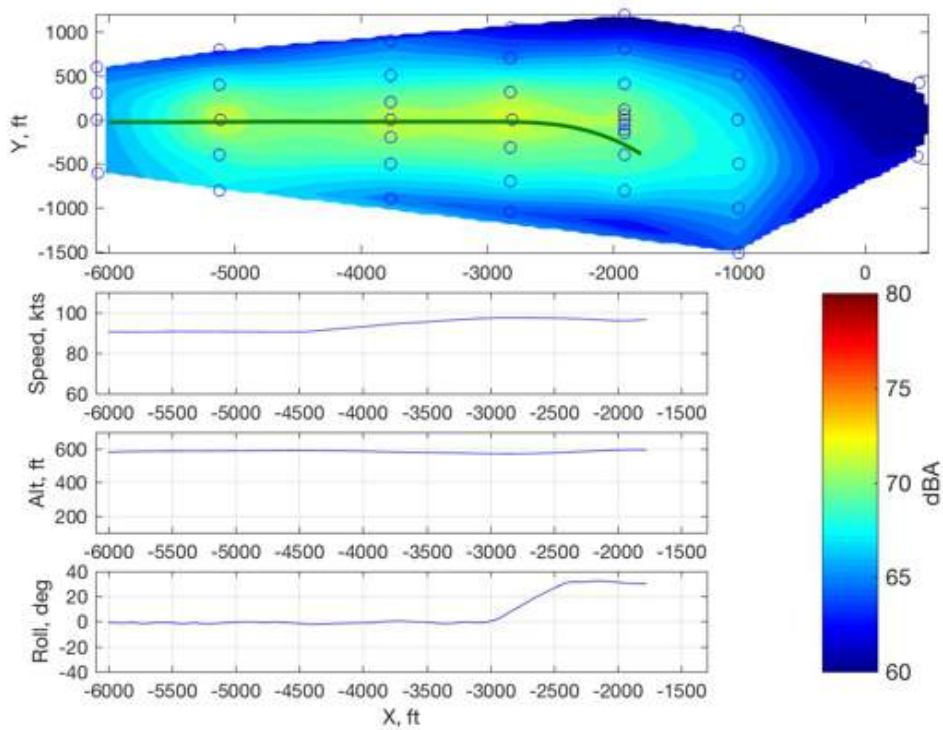


Figure 745: B407, 283137, X28, maximum dBA contour.

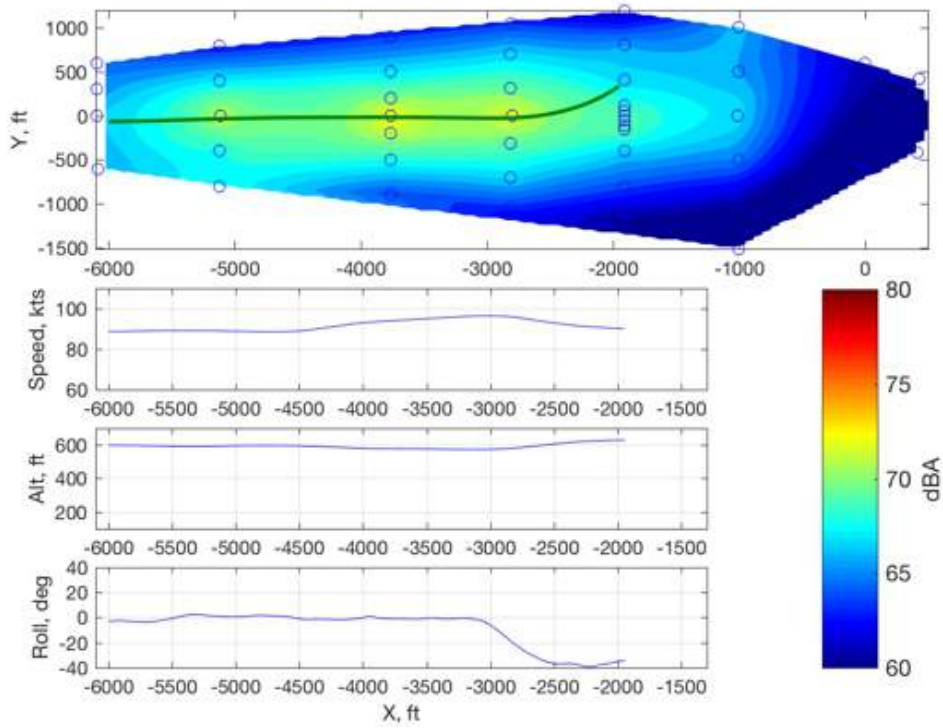


Figure 746: B407, 283138, X31, maximum dBA contour.

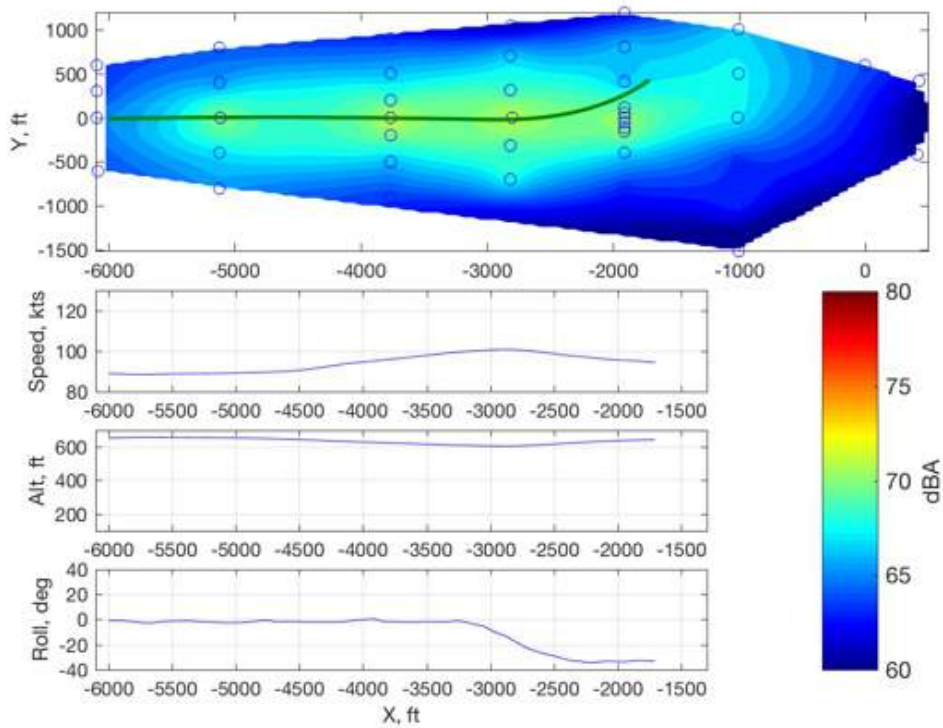


Figure 747: B407, 283139, X31, maximum dBA contour.

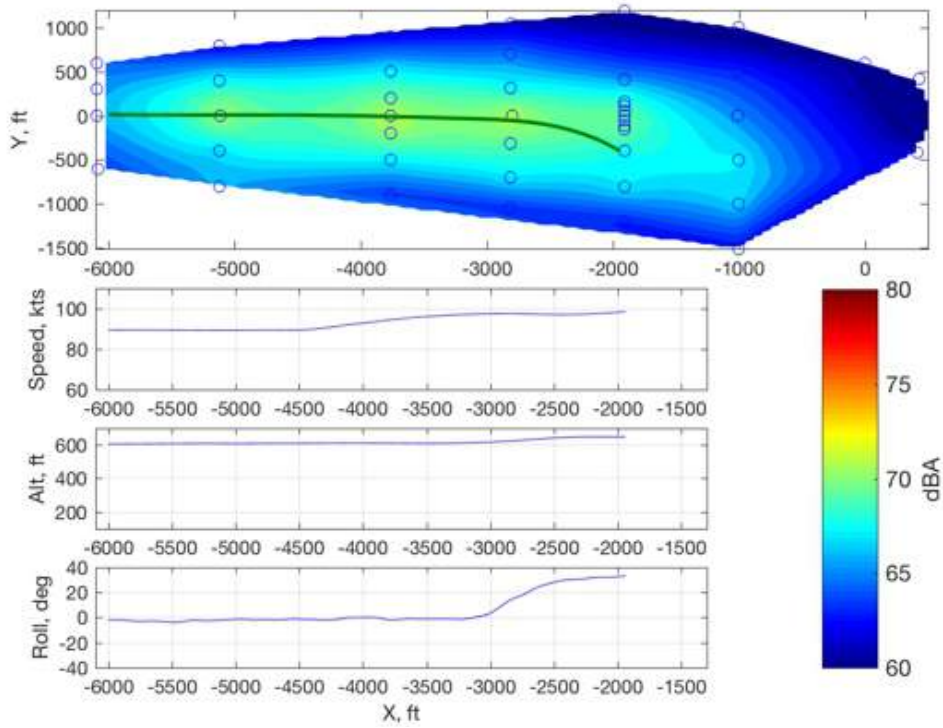


Figure 748: B407, 283140, X32, maximum dBA contour.

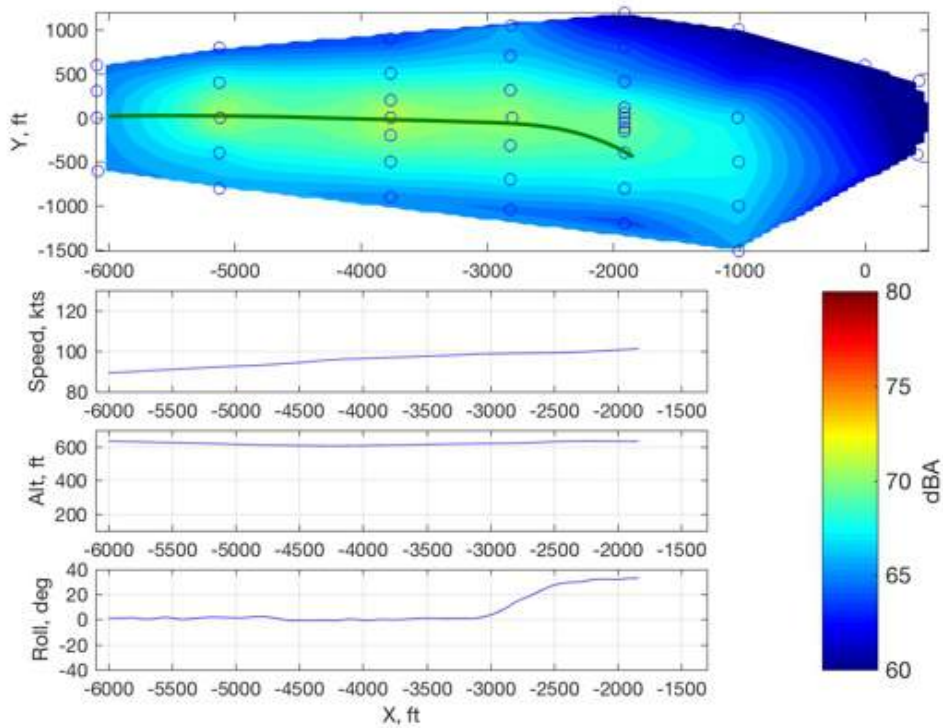


Figure 749: B407, 283141, X32, maximum dBA contour.

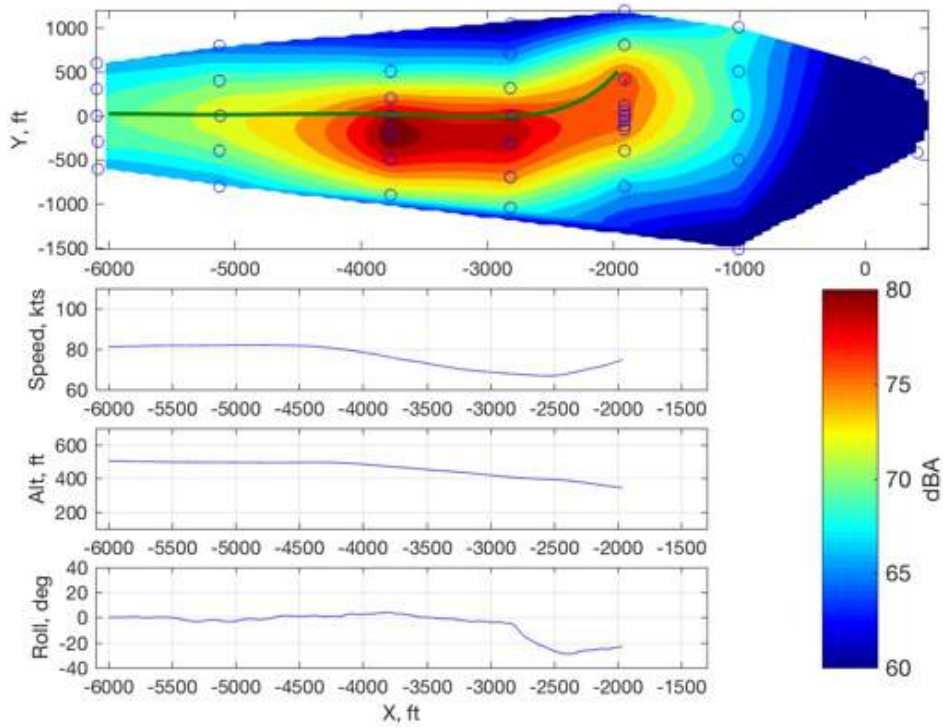


Figure 750: B407, 284154, X39, maximum dBA contour.

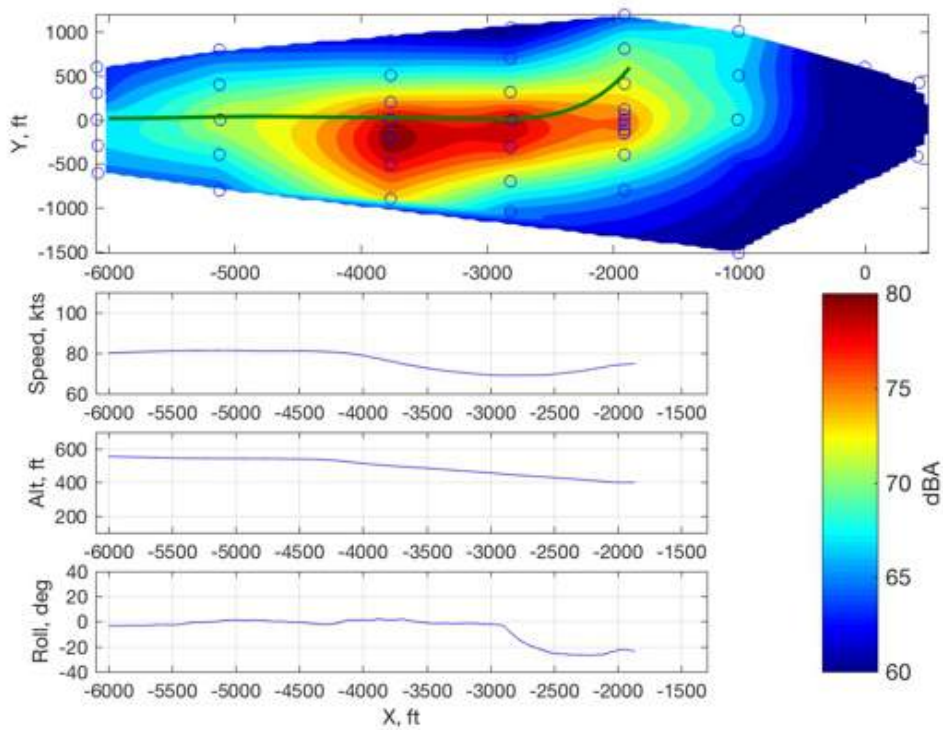


Figure 751: B407, 284155, X39, maximum dBA contour.

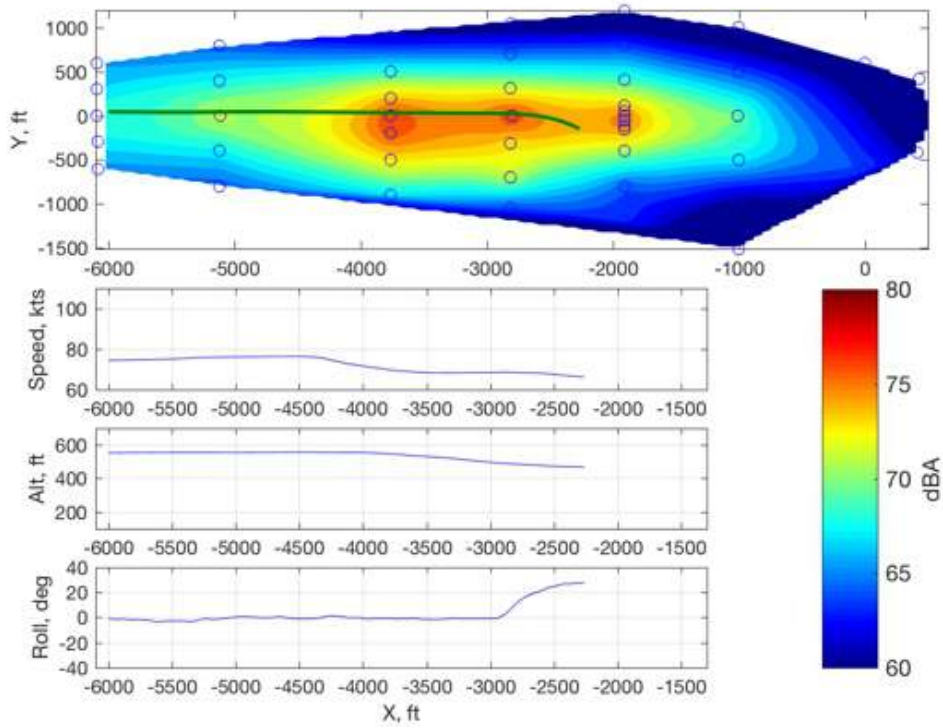


Figure 752: B407, 284156, X40, maximum dBA contour.

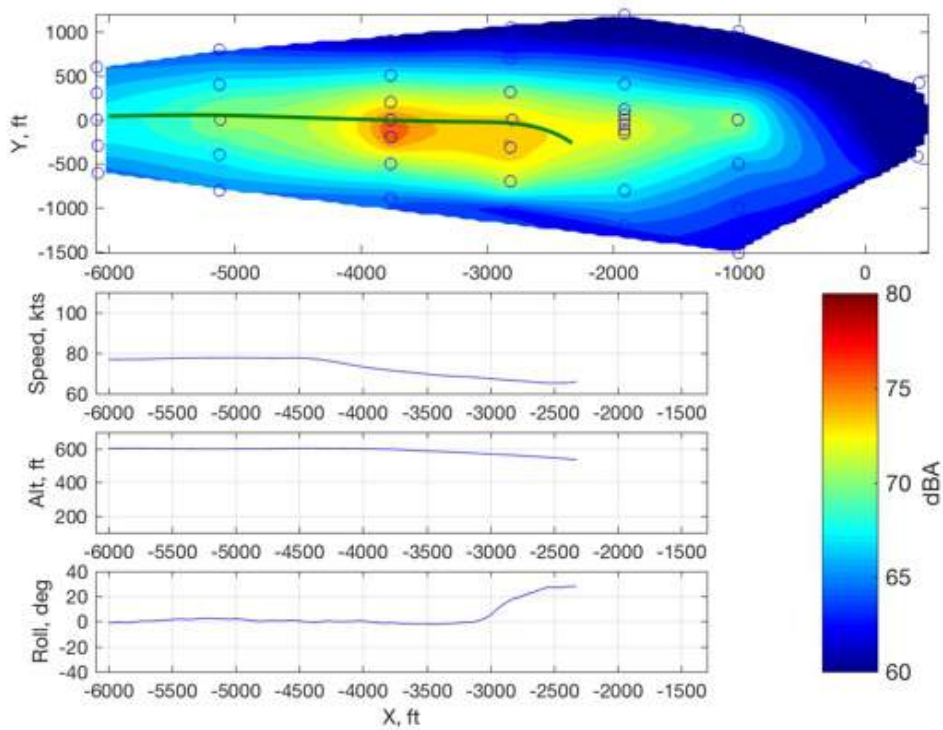


Figure 753: B407, 284157, X40, maximum dBA contour.

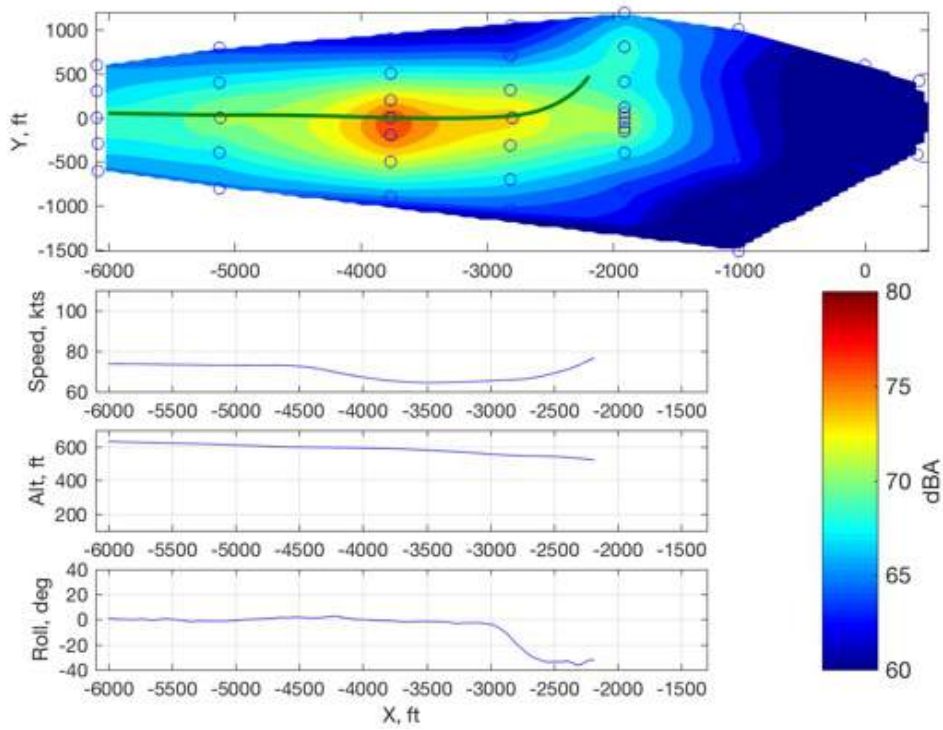


Figure 754: B407, 284158, X43, maximum dBA contour.

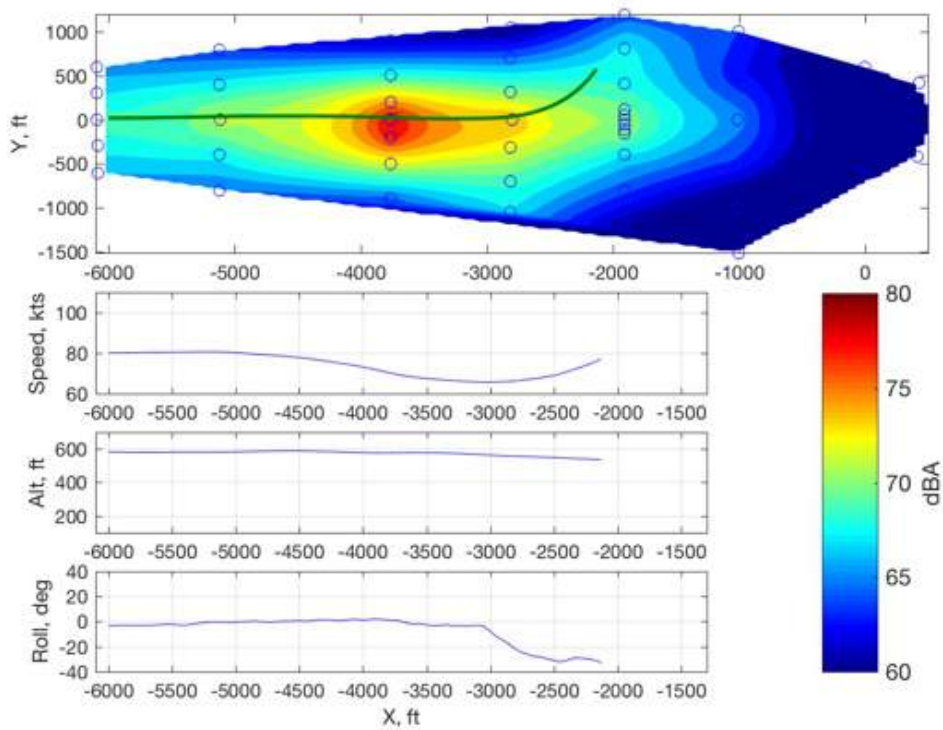


Figure 755: B407, 284159, X43, maximum dBA contour.

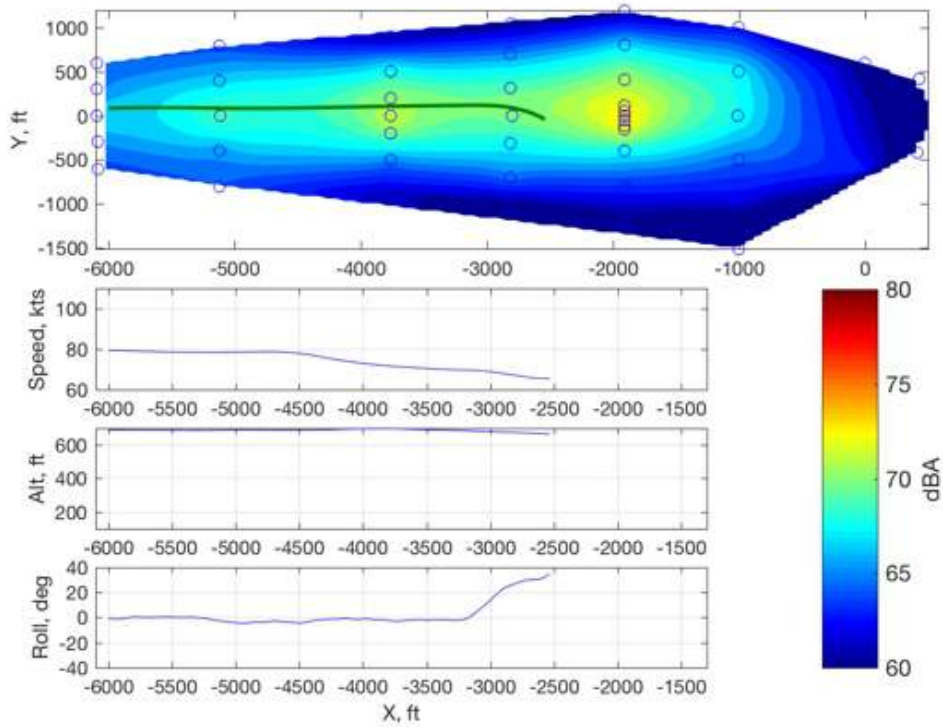


Figure 756: B407, 284160, X44, maximum dBA contour.

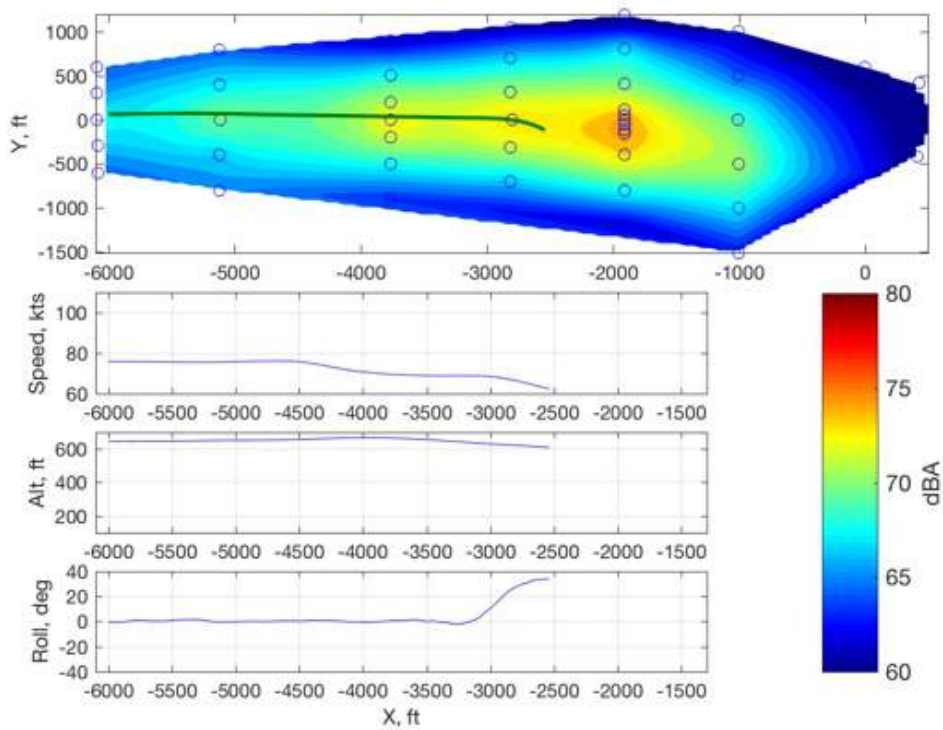


Figure 757: B407, 284161, X44, maximum dBA contour.

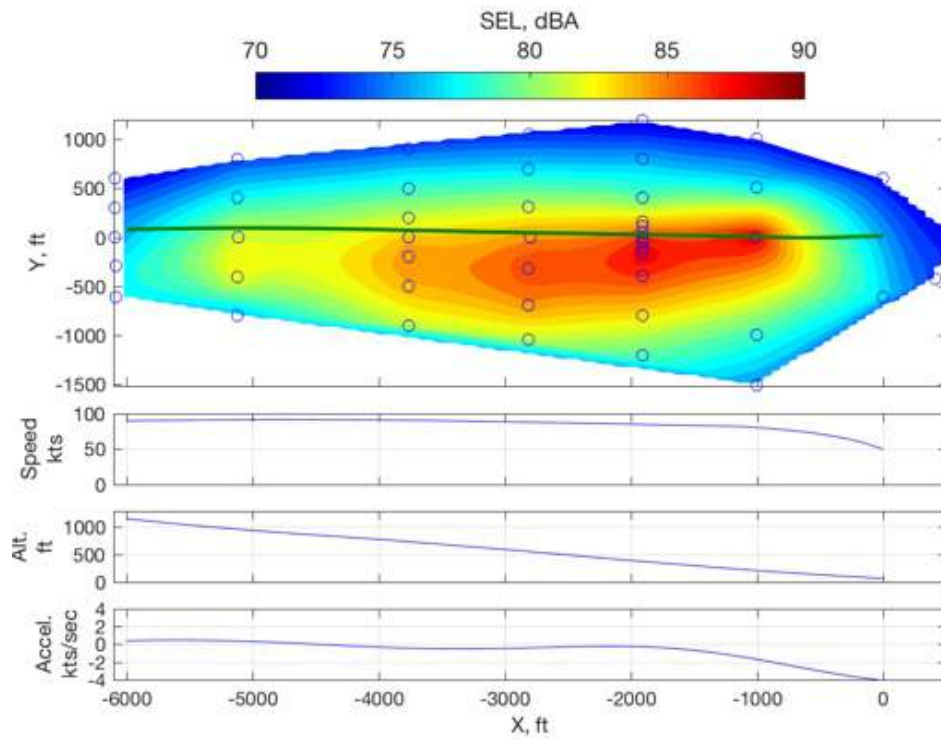


Figure 758: B407, A9, run 286270 A-Weighted SEL contour.

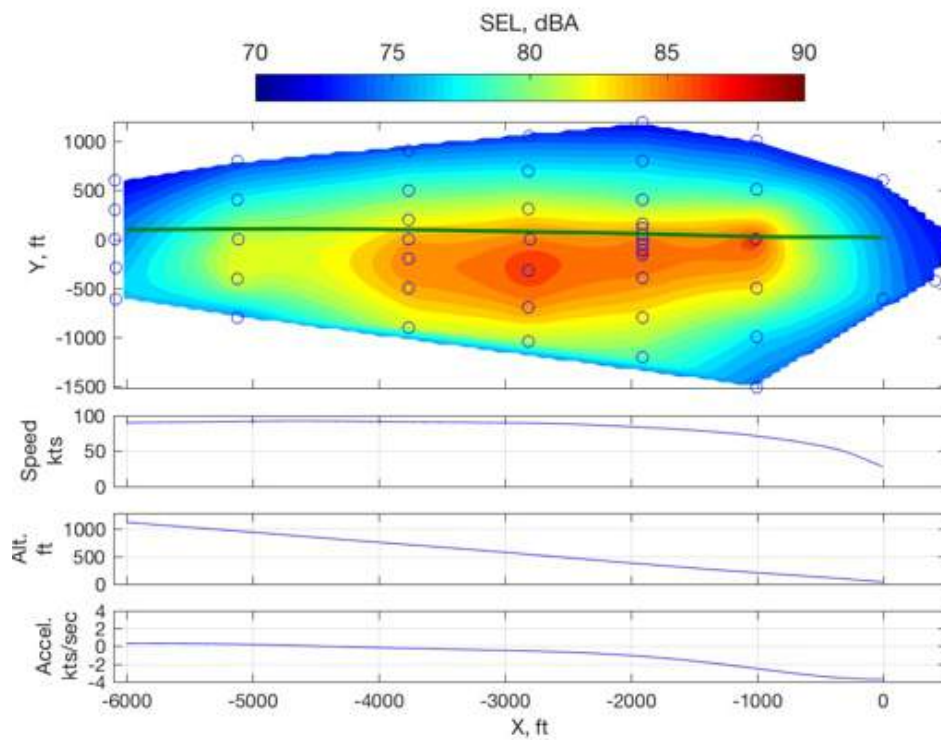


Figure 759: B407, A9, run 286271 A-Weighted SEL contour.

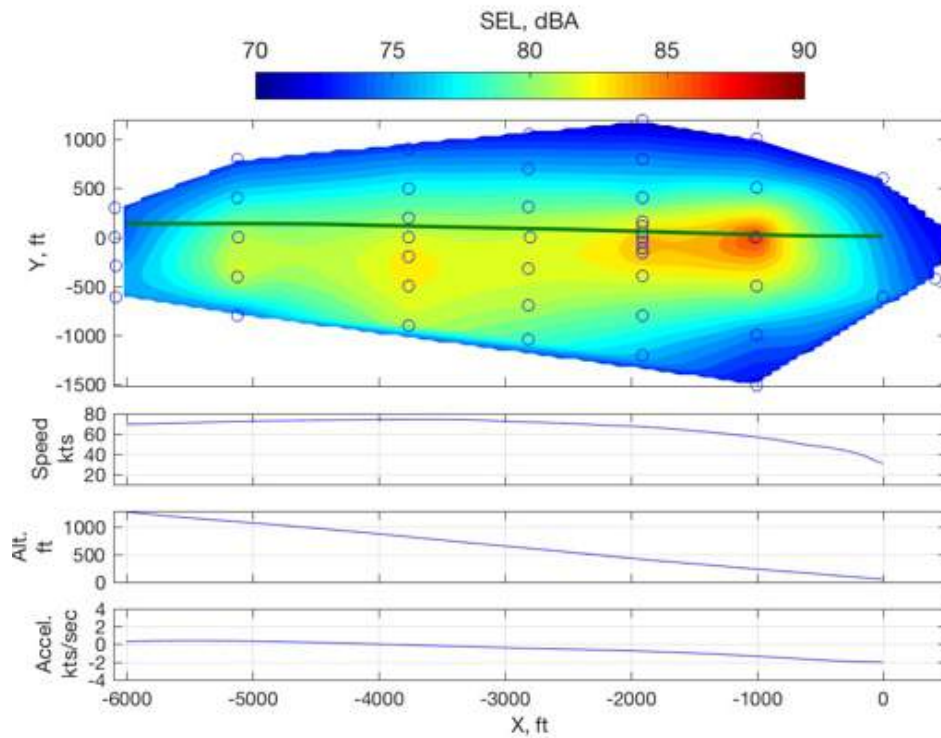


Figure 760: B407, A23, run 286266 A-Weighted SEL contour.

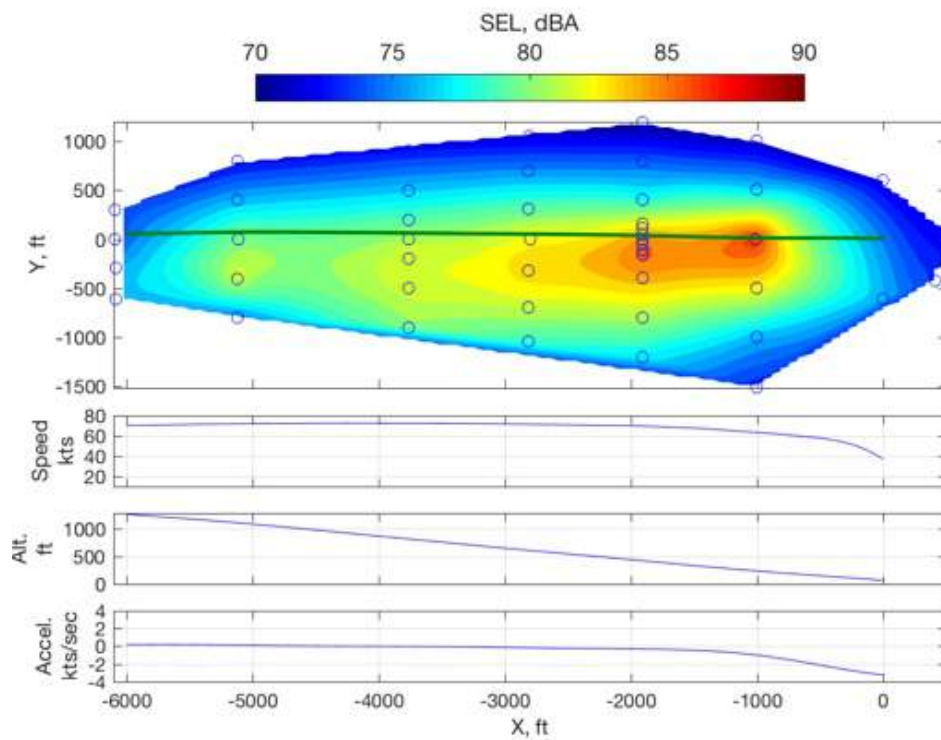


Figure 761: B407, A23, run 286267 A-Weighted SEL contour.

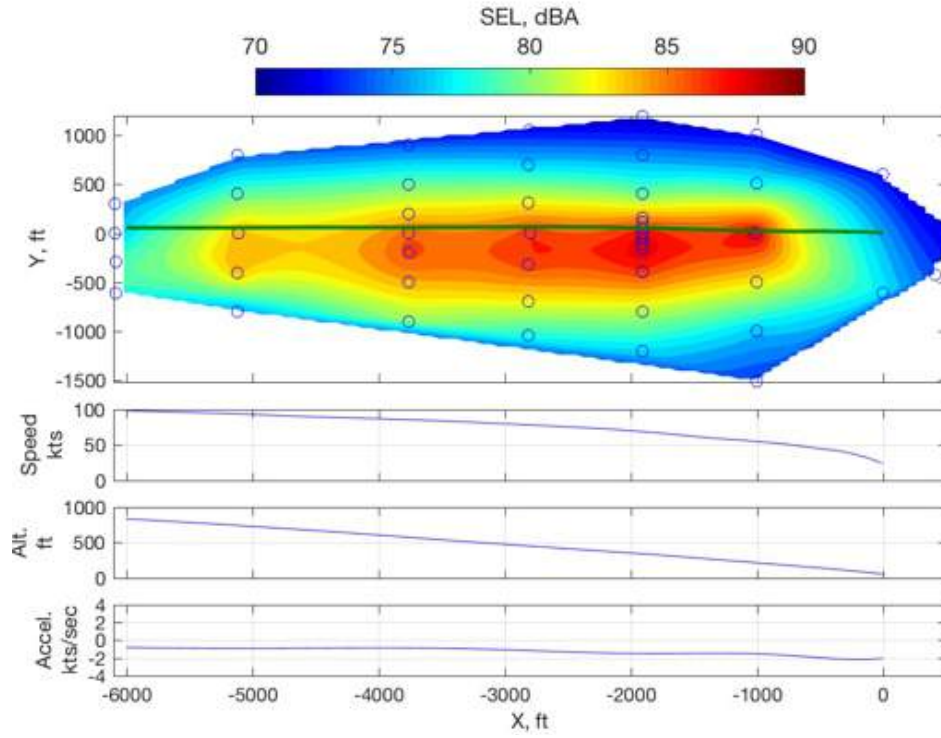


Figure 762: B407, A25, run 286264 A-Weighted SEL contour.

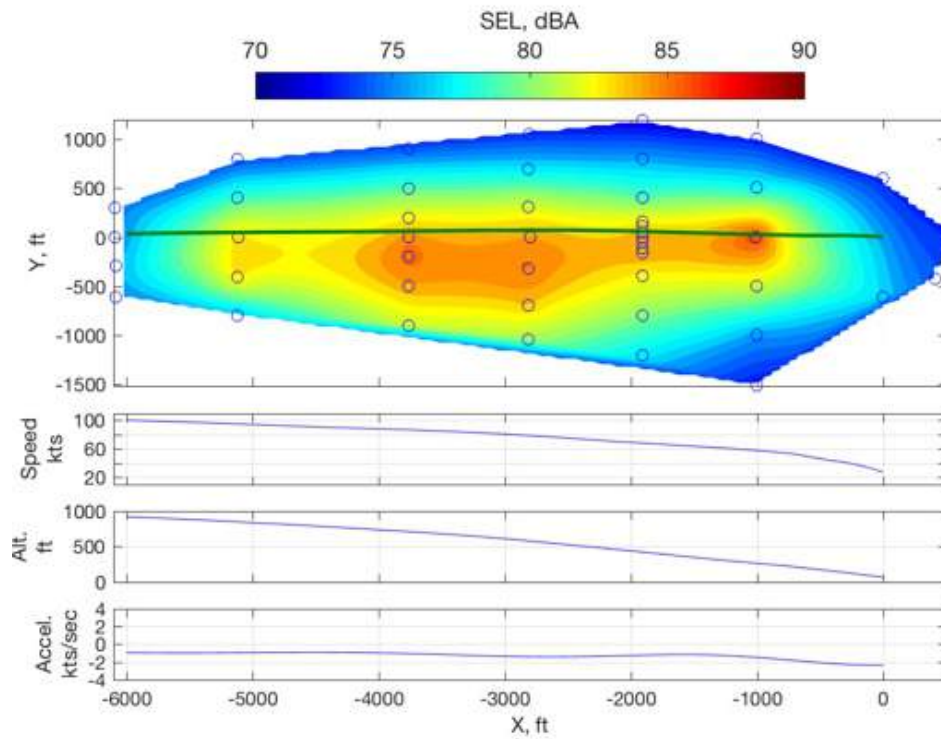


Figure 763: B407, A25, run 286265 A-Weighted SEL contour.

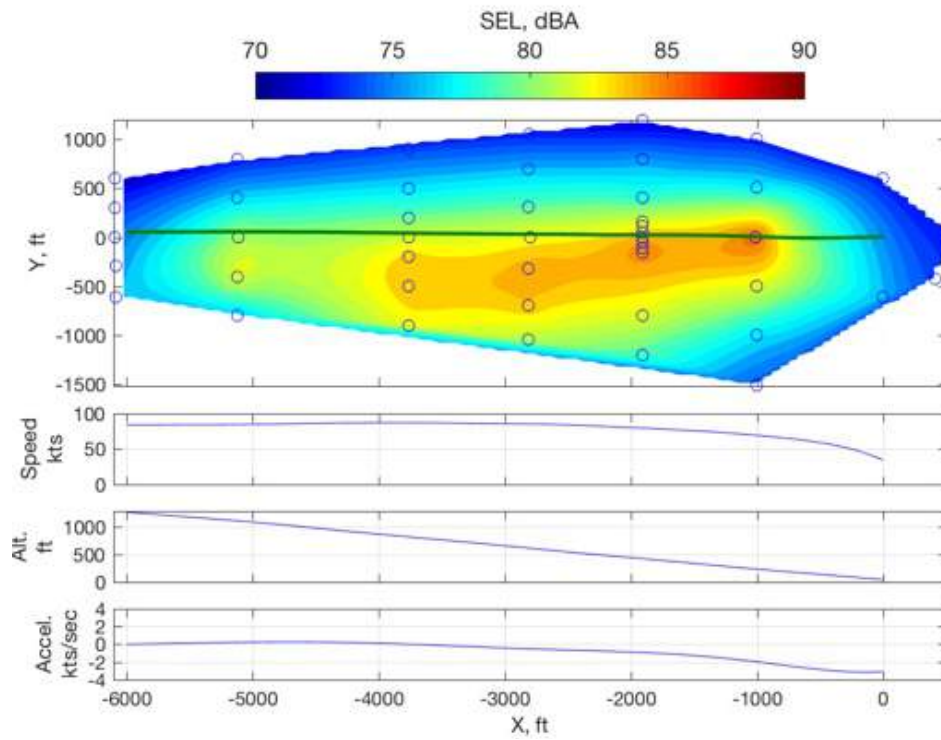


Figure 764: B407, A27, run 286272 A-Weighted SEL contour.

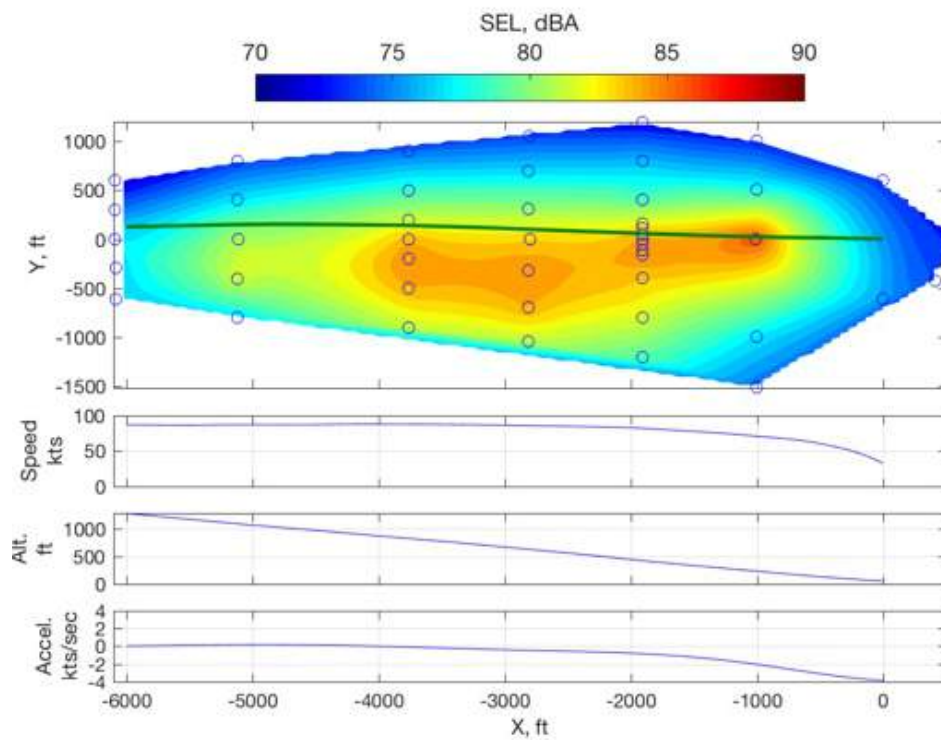


Figure 765: B407, A27, run 286273 A-Weighted SEL contour.

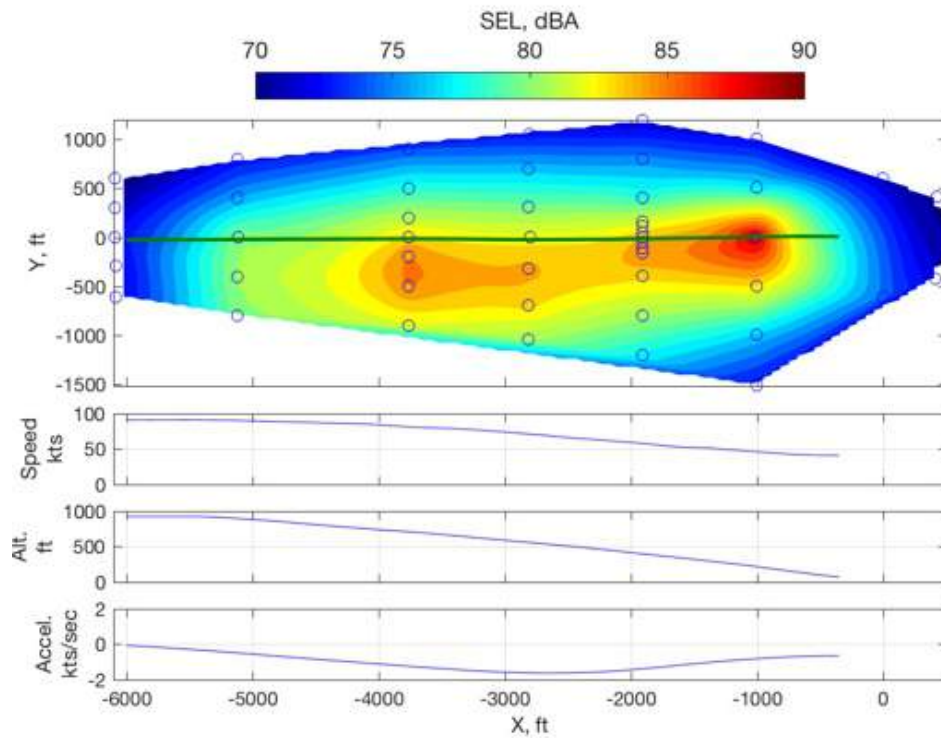


Figure 766: B407, A33, run 286281 A-Weighted SEL contour.

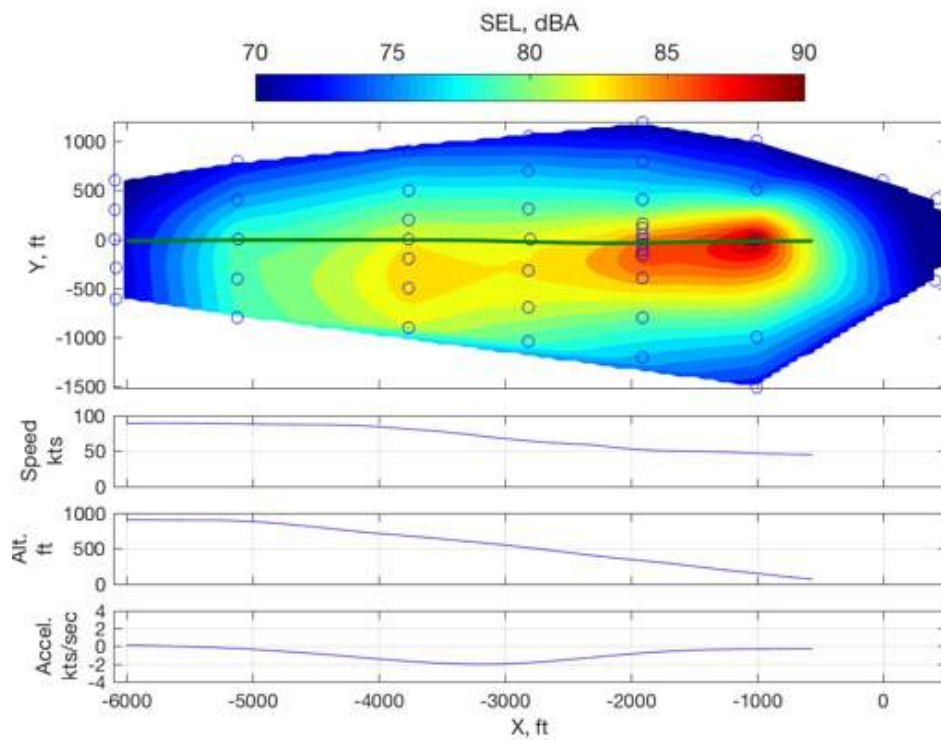


Figure 767: B407, A33, run 286282 A-Weighted SEL contour.

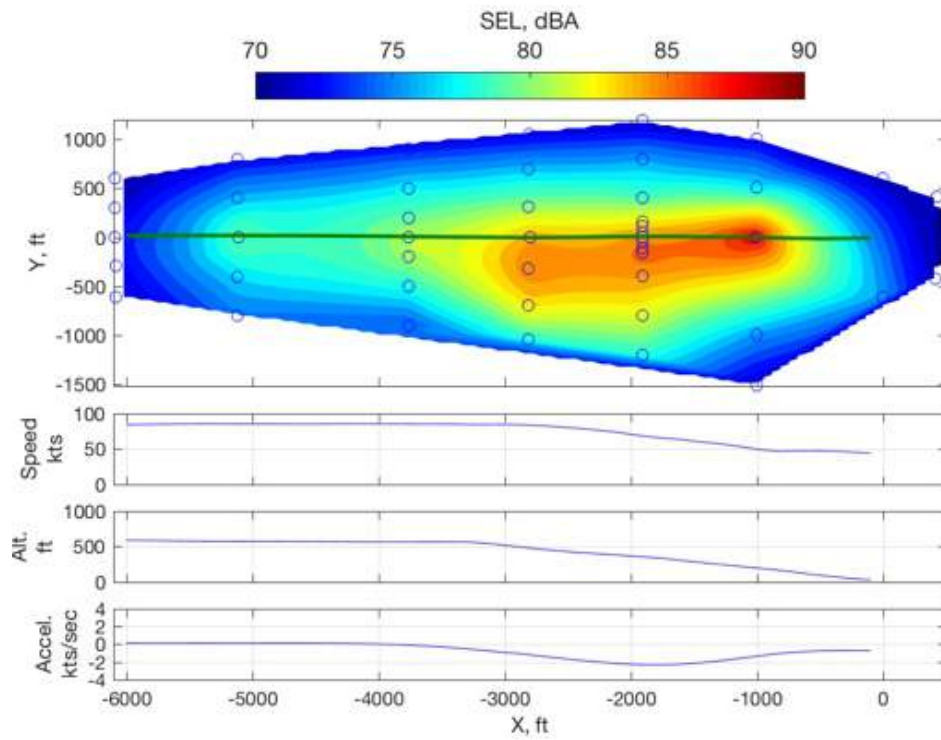


Figure 768: B407, A35, run 286283 A-Weighted SEL contour.

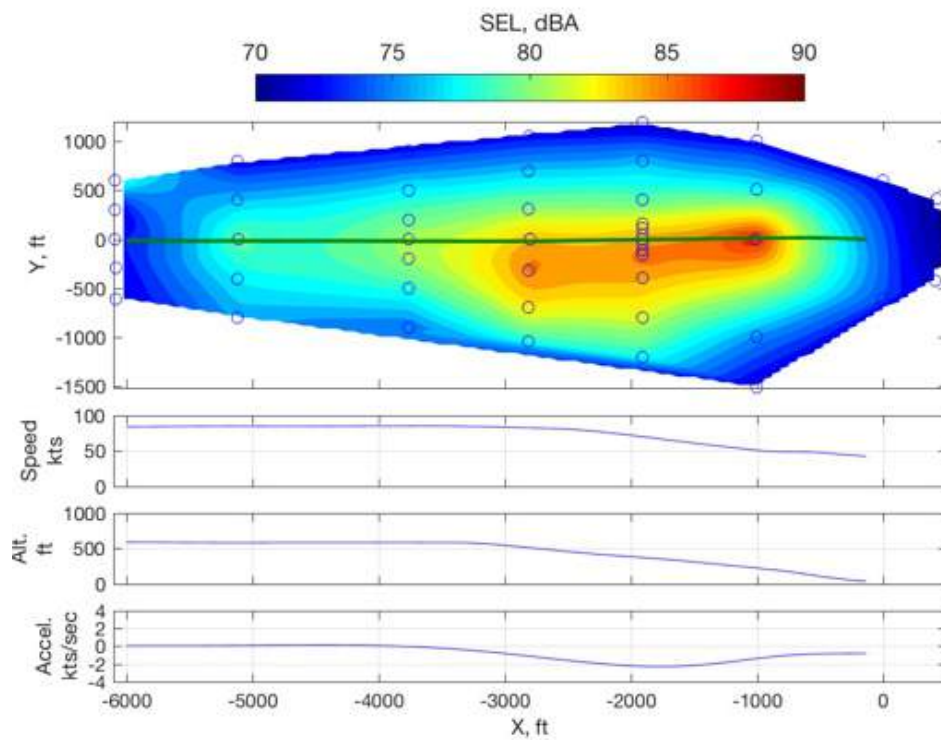


Figure 769: B407, A35, run 286284 A-Weighted SEL contour.

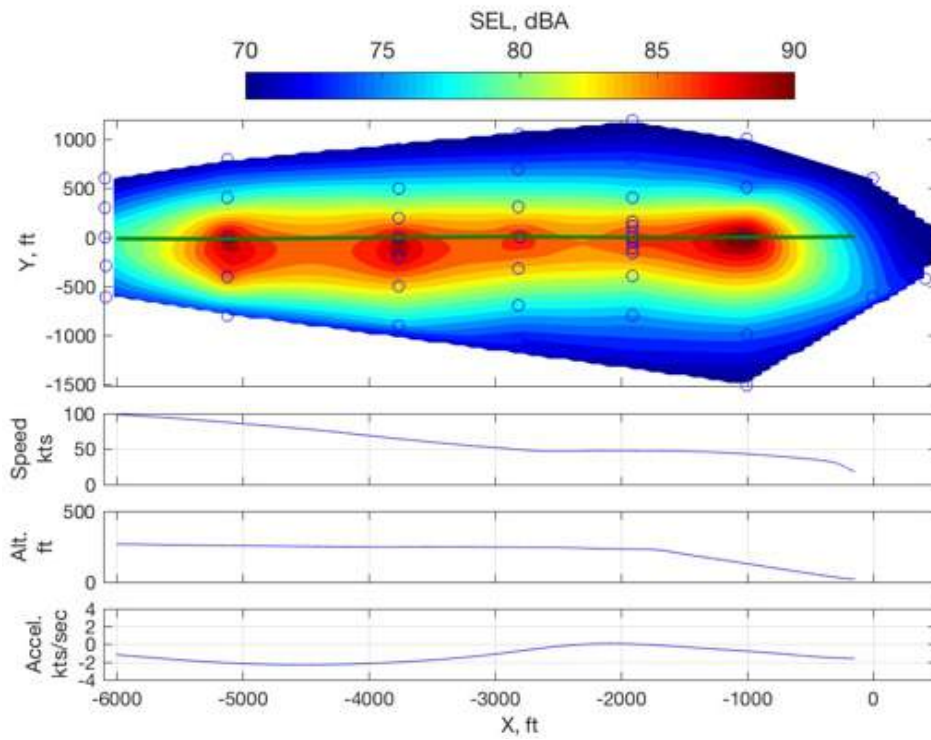


Figure 770: B407, A36, run 286274 A-Weighted SEL contour.

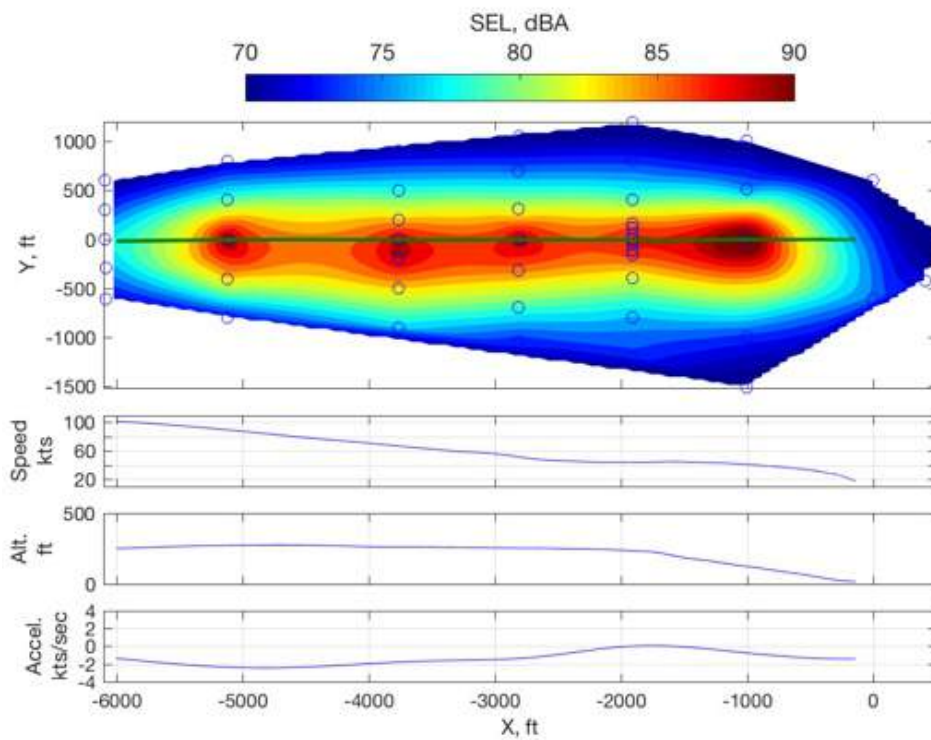


Figure 771: B407, A36, run 286275 A-Weighted SEL contour.

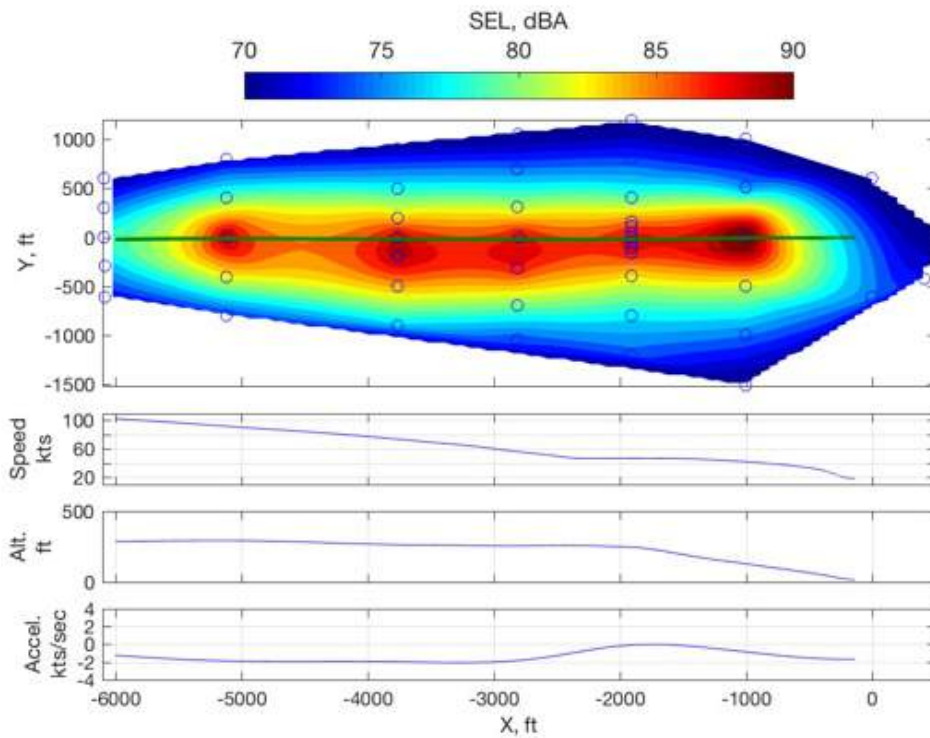


Figure 772: B407, A36, run 286276 A-Weighted SEL contour.

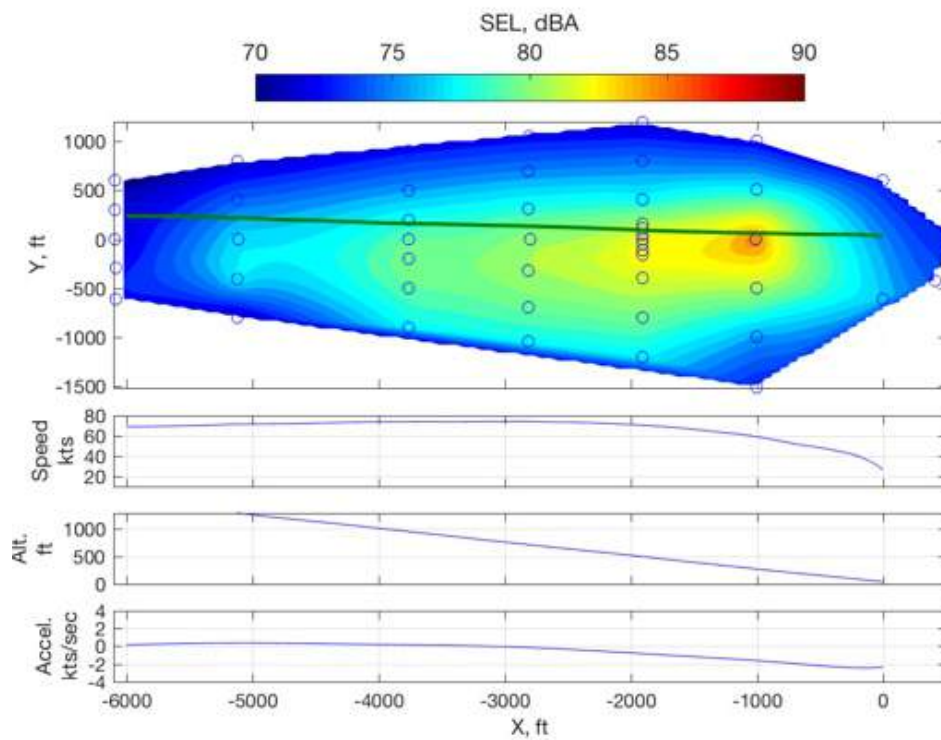


Figure 773: B407, A37, run 286268 A-Weighted SEL contour.

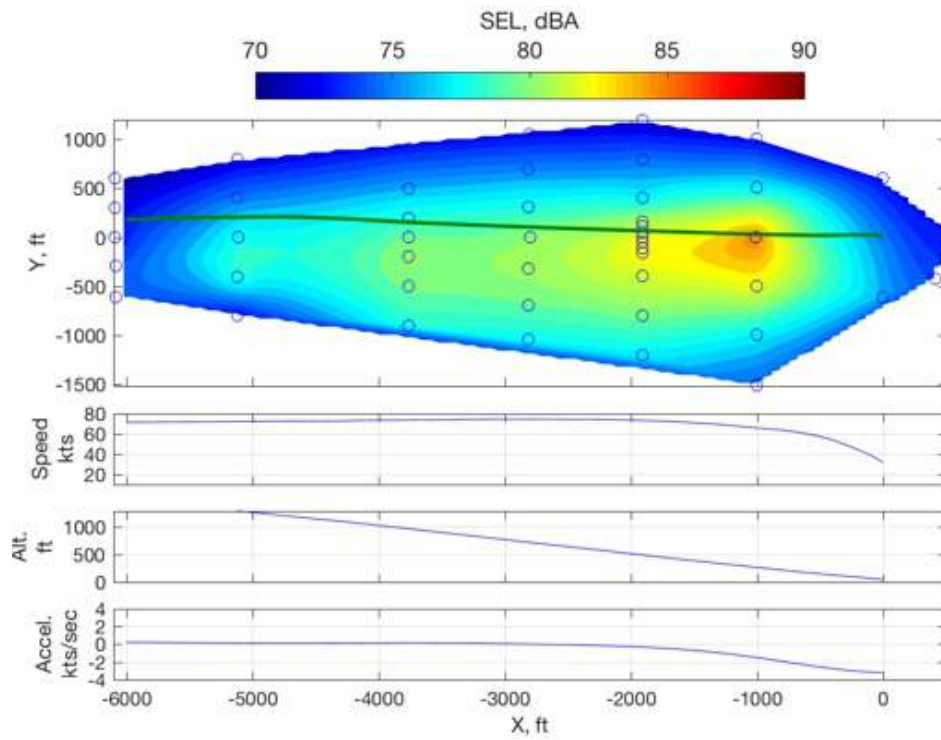


Figure 774: B407, A37, run 286269 A-Weighted SEL contour.

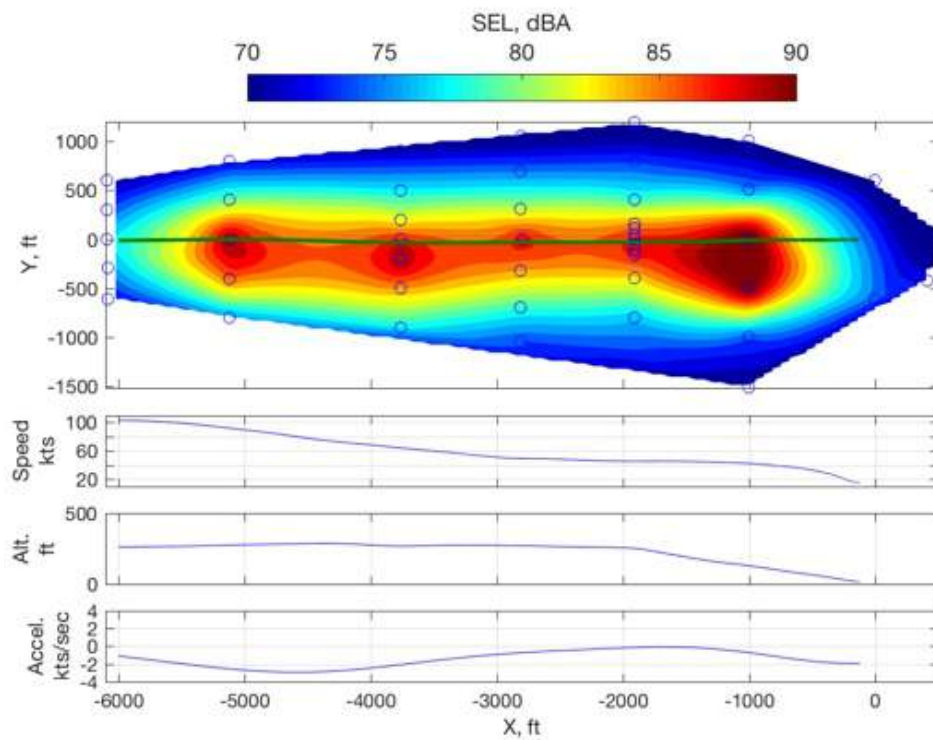


Figure 775: B407, A38, run 286277 A-Weighted SEL contour.

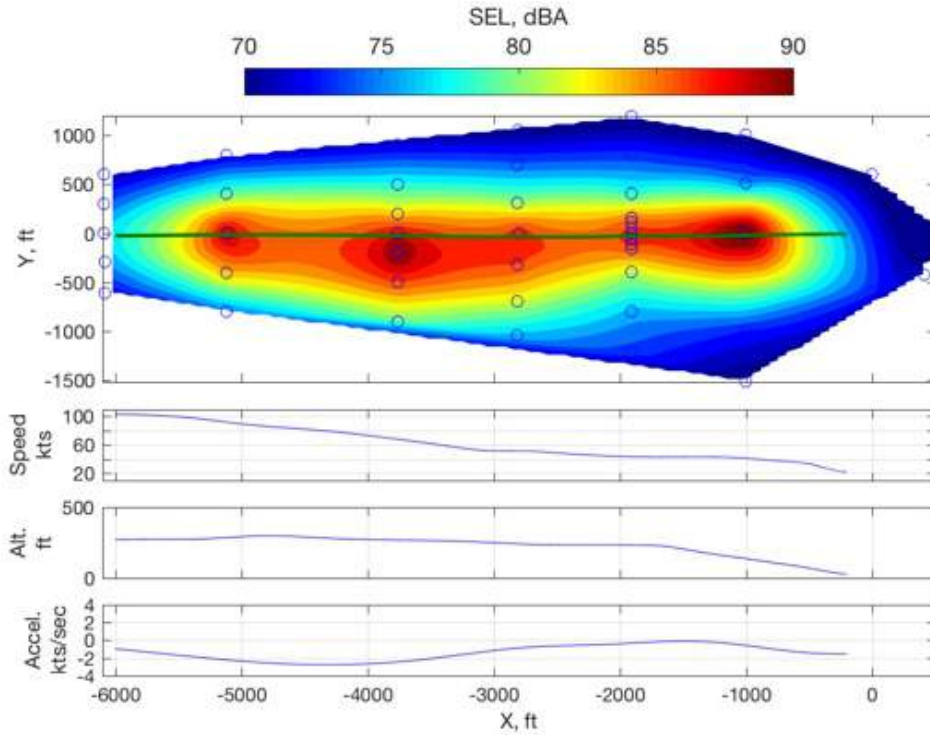


Figure 776: B407, A38, run 286278 A-Weighted SEL contour.

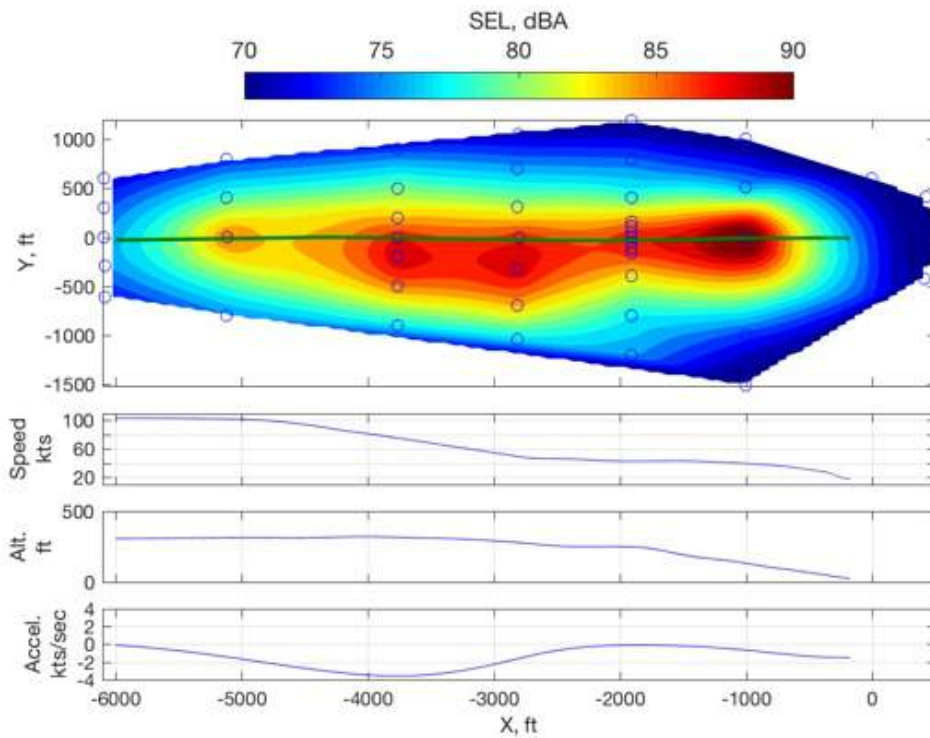


Figure 777: B407, A39, run 286279 A-Weighted SEL contour.

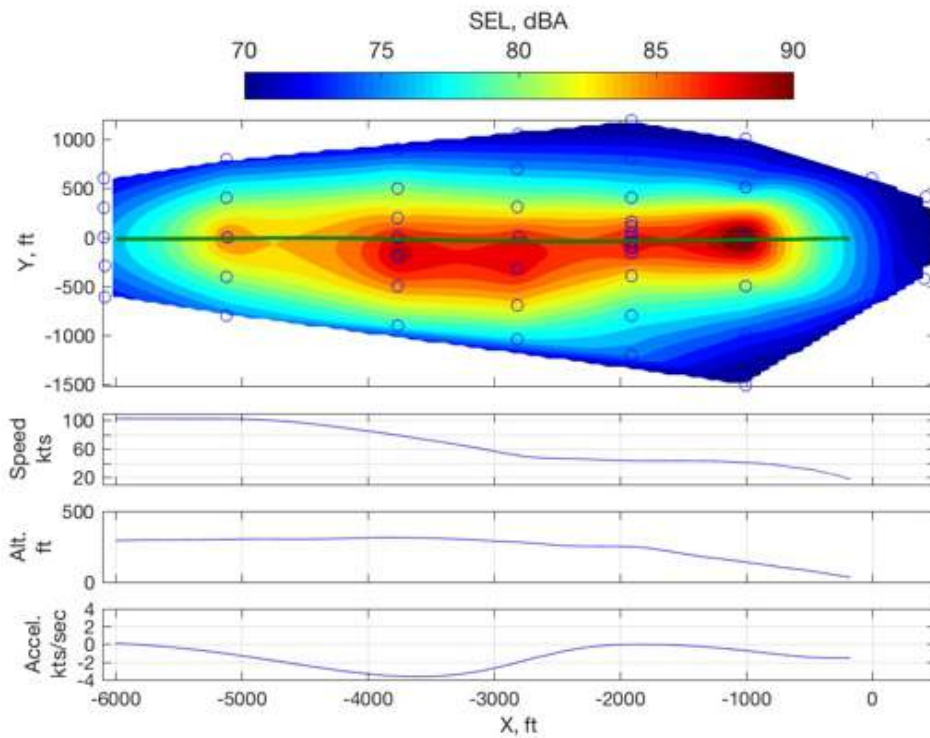


Figure 778: B407, A39, run 286280 A-Weighted SEL contour.

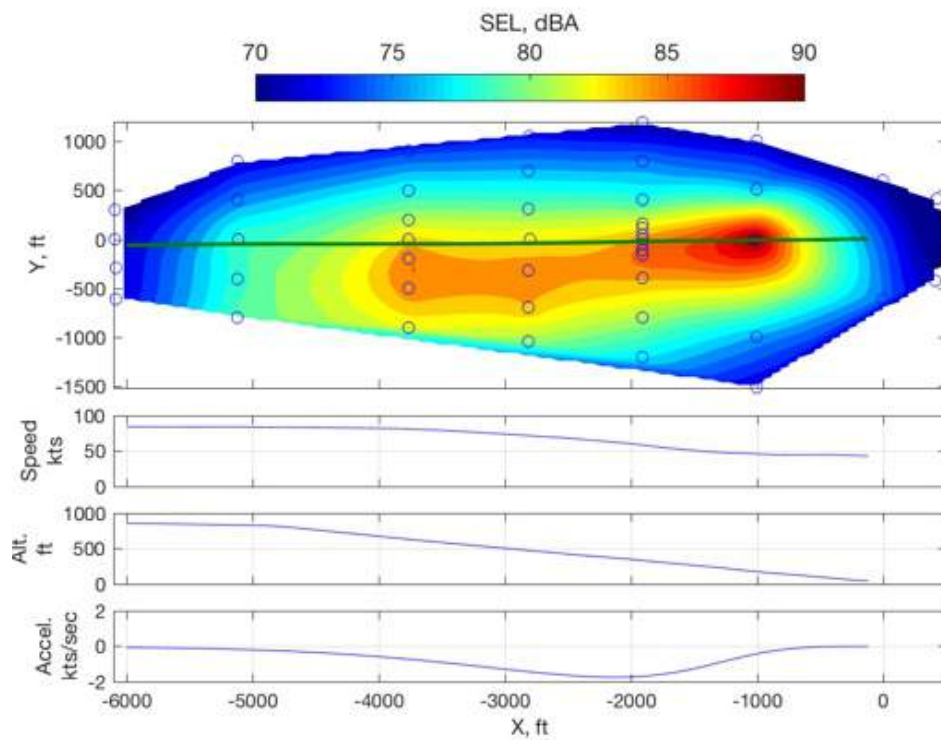


Figure 779: B407, A40, run 286285 A-Weighted SEL contour.

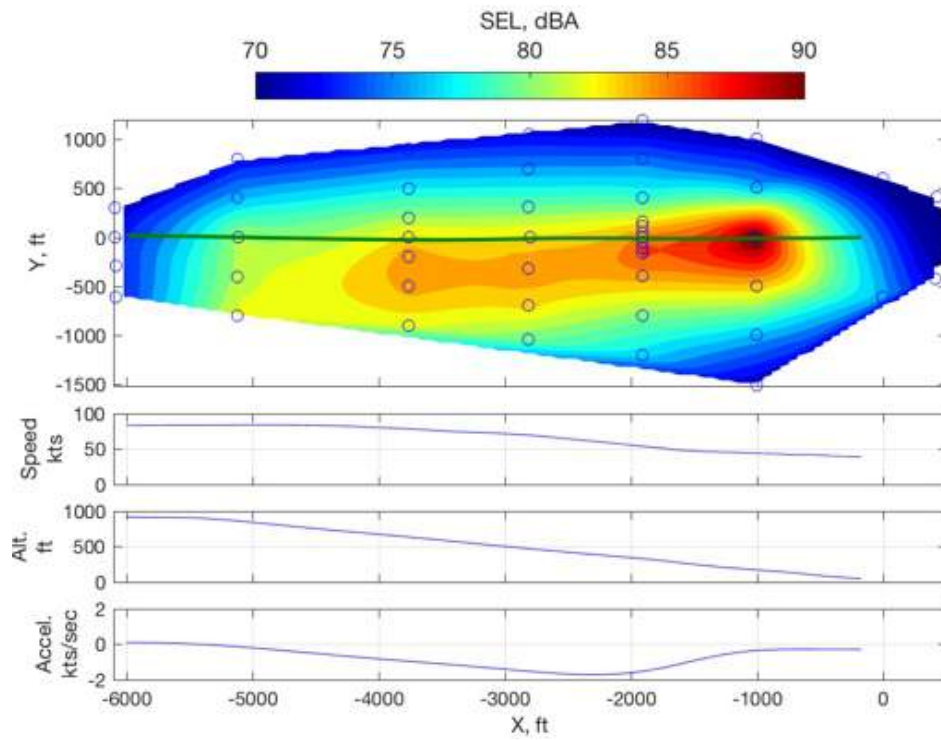


Figure 780: B407, A40, run 286286 A-Weighted SEL contour.

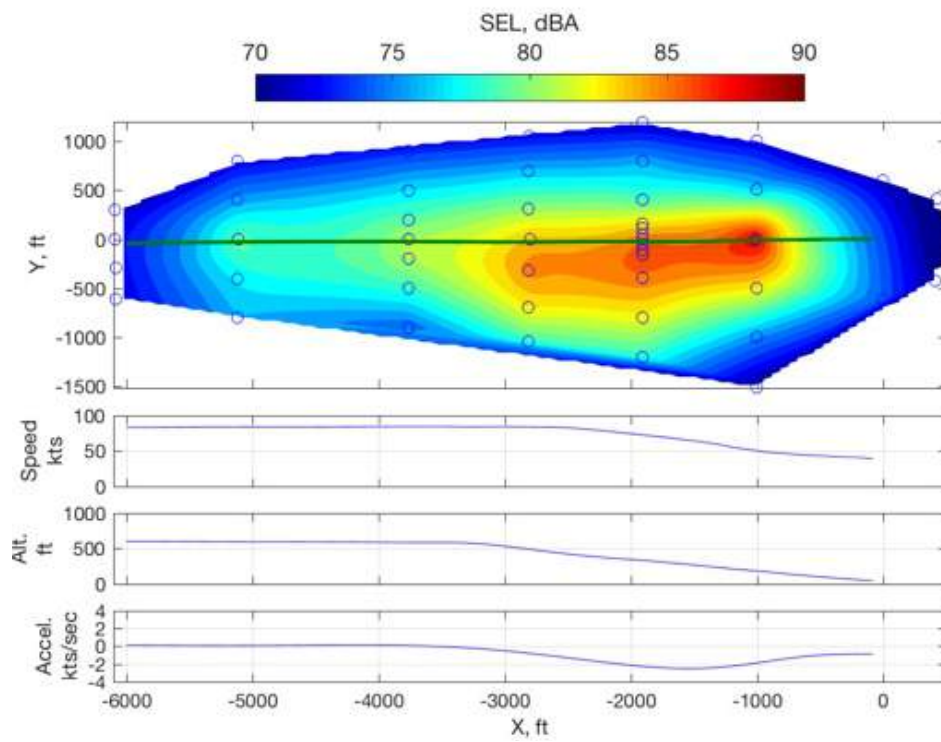


Figure 781: B407, A42, run 286287 A-Weighted SEL contour.

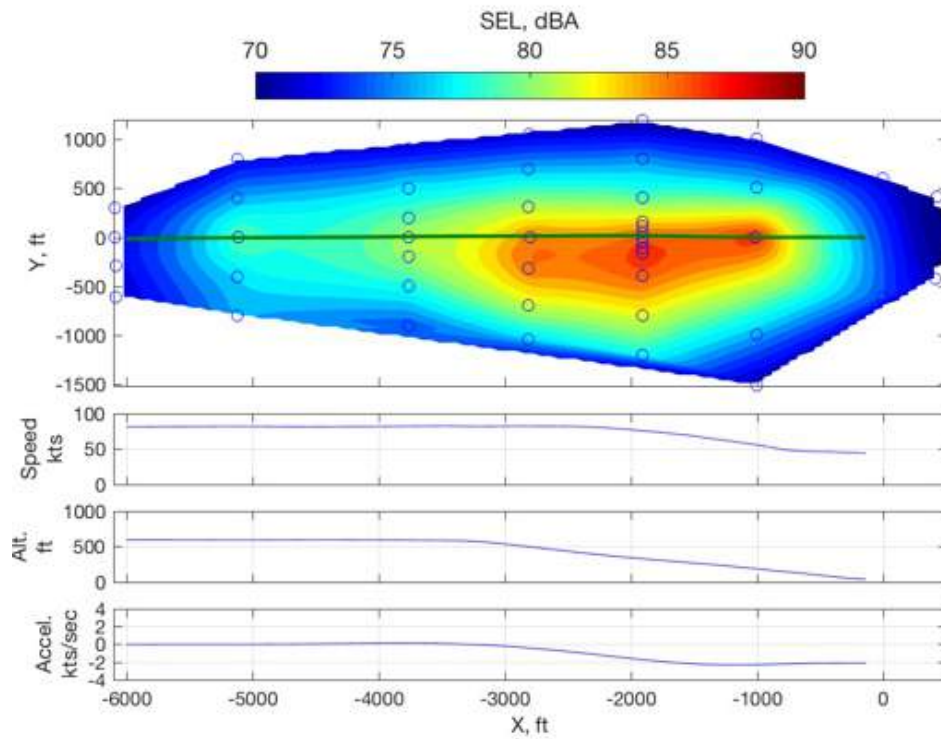


Figure 782: B407, A42, run 286288 A-Weighted SEL contour.

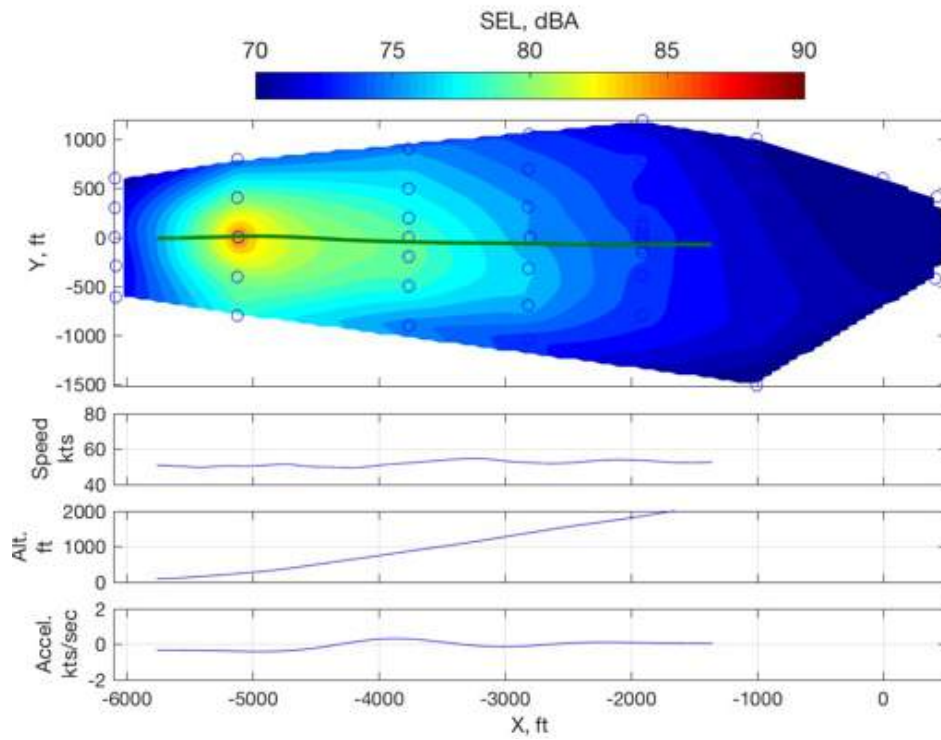


Figure 783: B407, C1, run 286297 A-Weighted SEL contour.

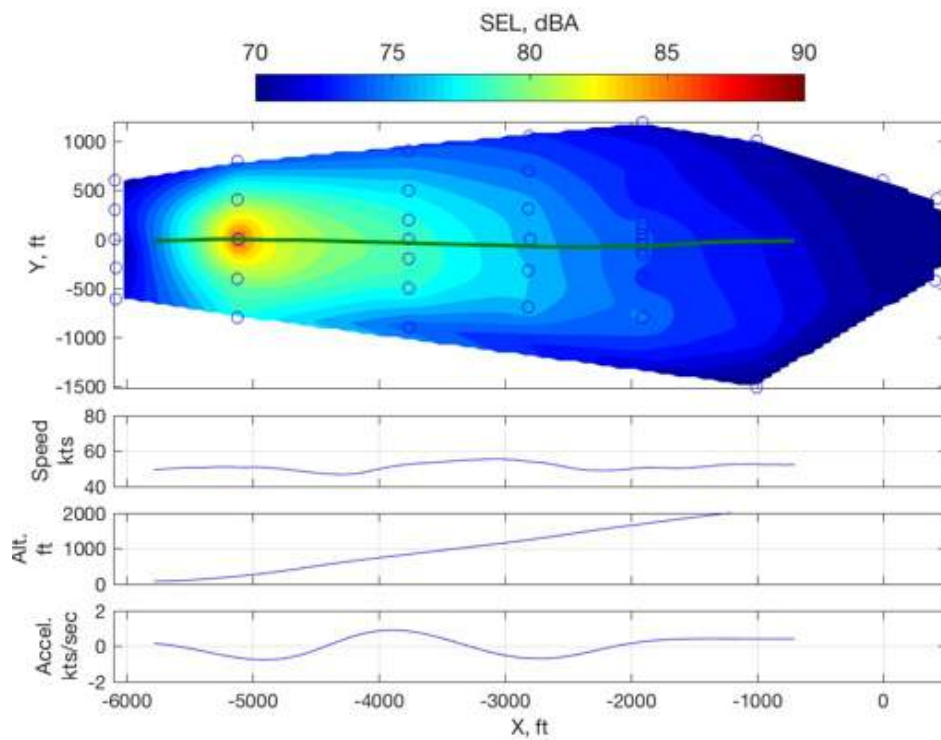


Figure 784: B407, C1, run 286298 A-Weighted SEL contour.

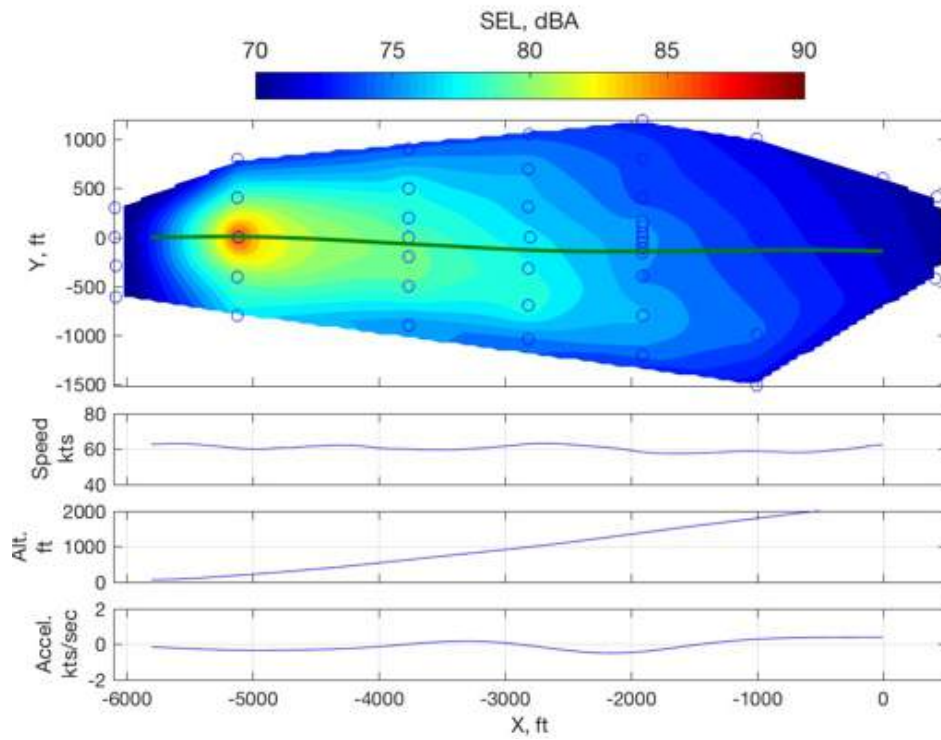


Figure 785: B407, C2, run 286299 A-Weighted SEL contour.

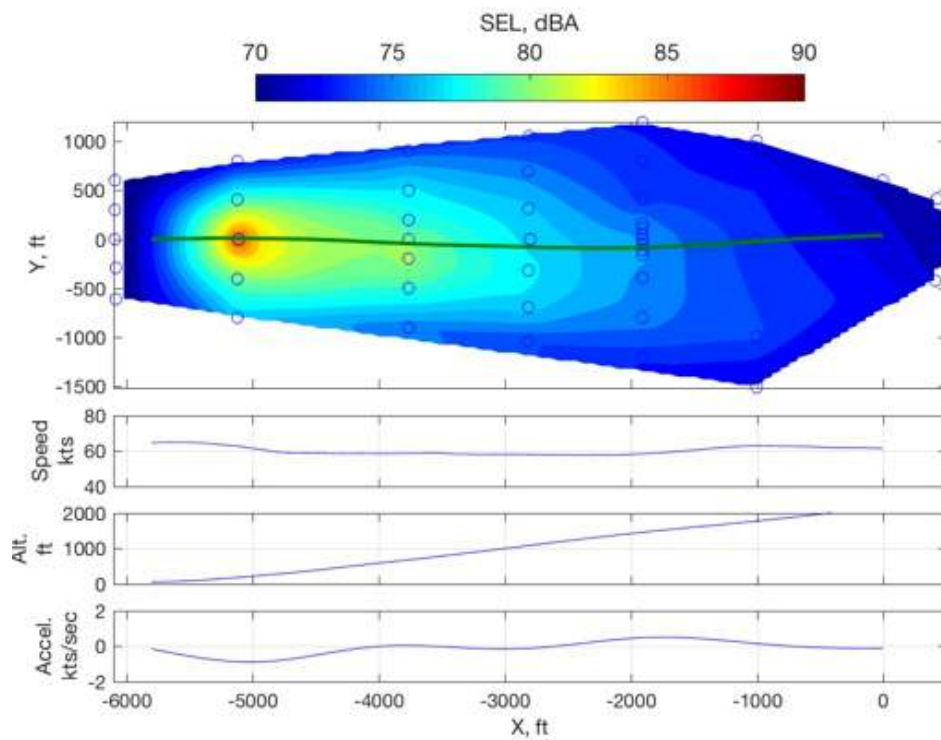


Figure 786: B407, C2, run 286300 A-Weighted SEL contour.

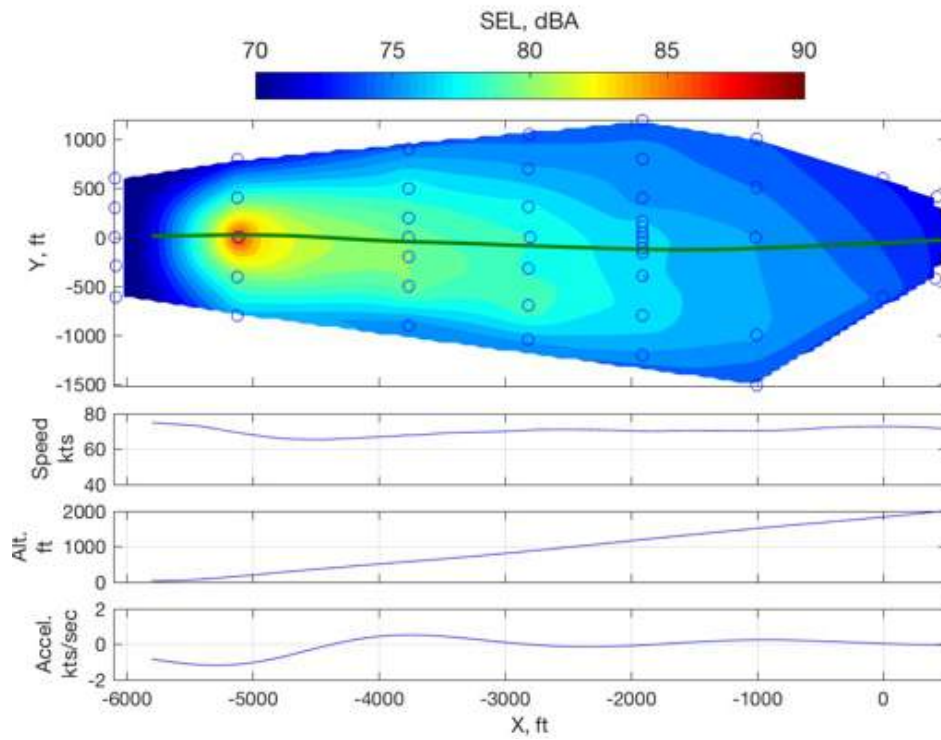


Figure 787: B407, C3, run 286301 A-Weighted SEL contour.

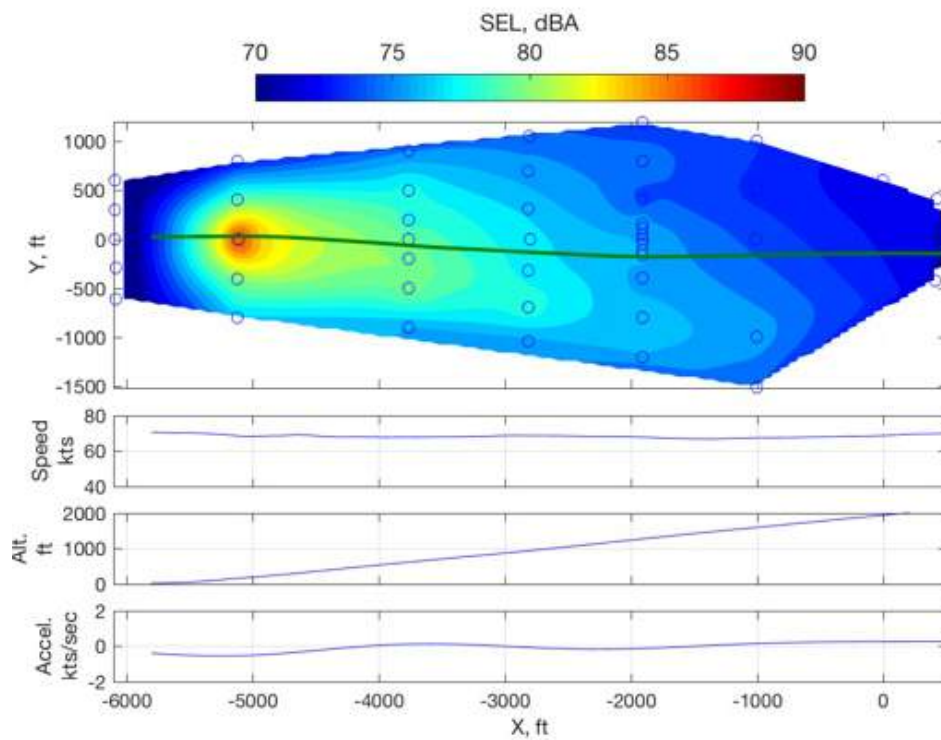


Figure 788: B407, C3, run 286302 A-Weighted SEL contour.

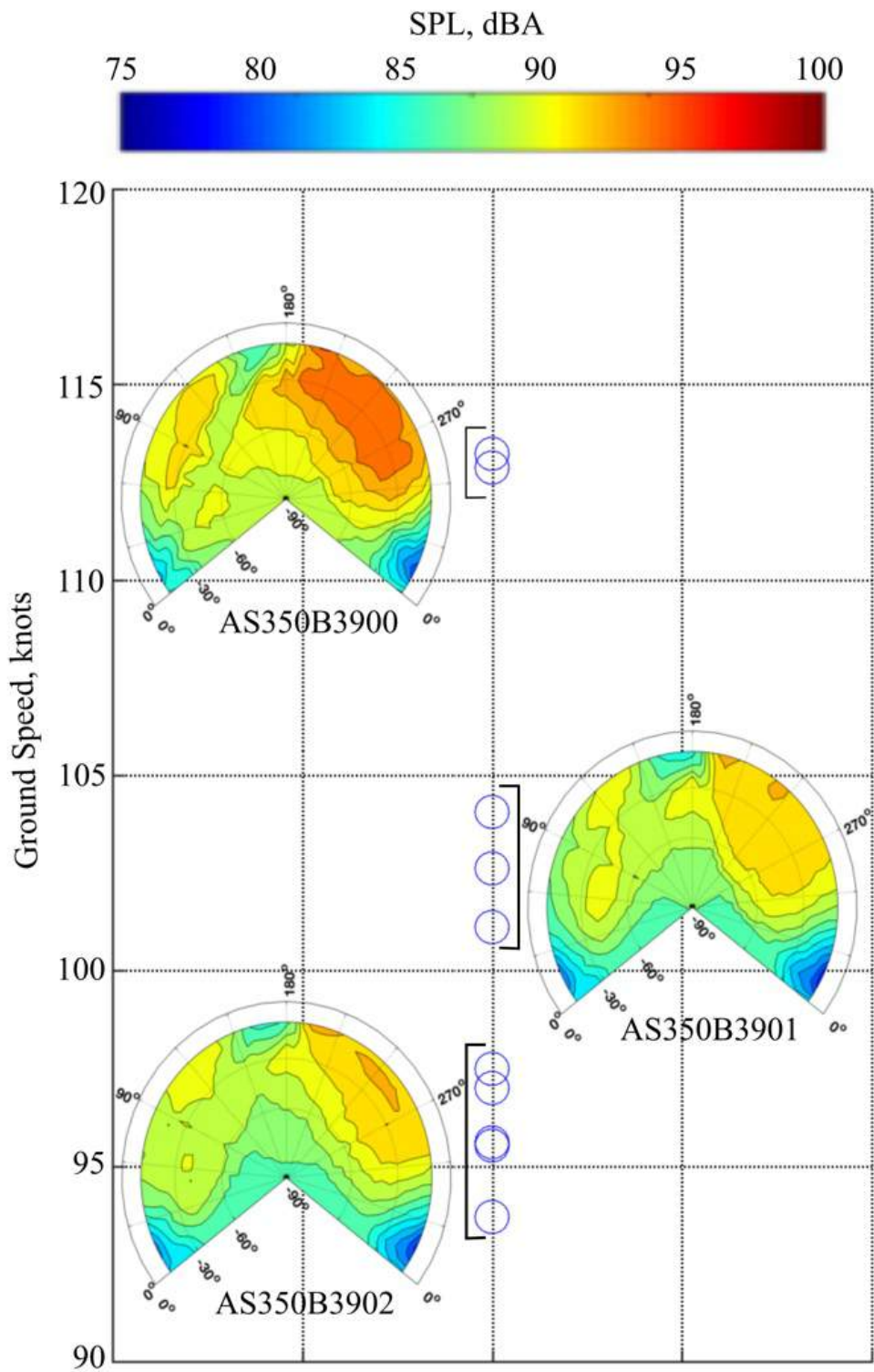


Figure 789: AS350B3 average level flight source noise hemispheres, higher speed range.

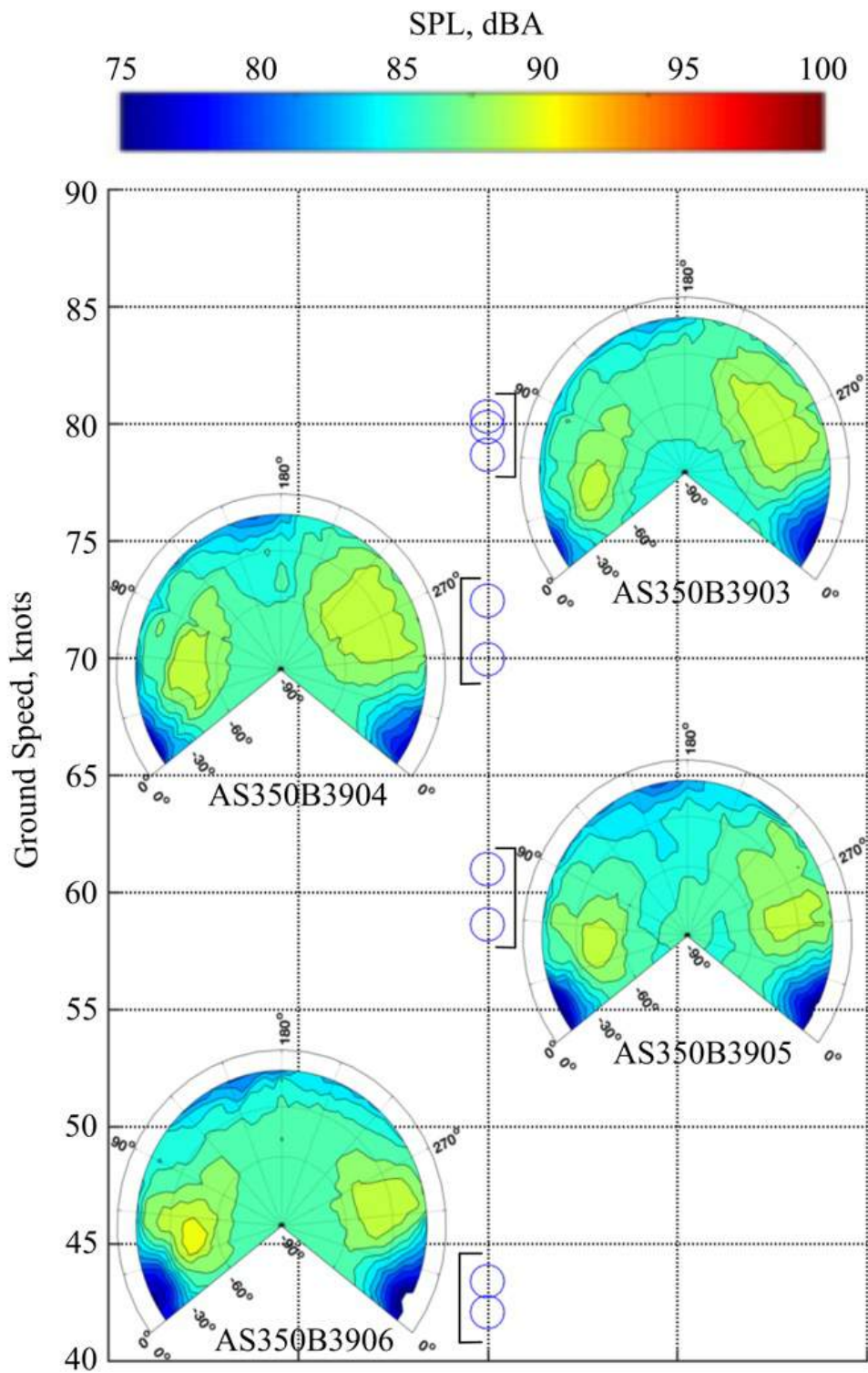
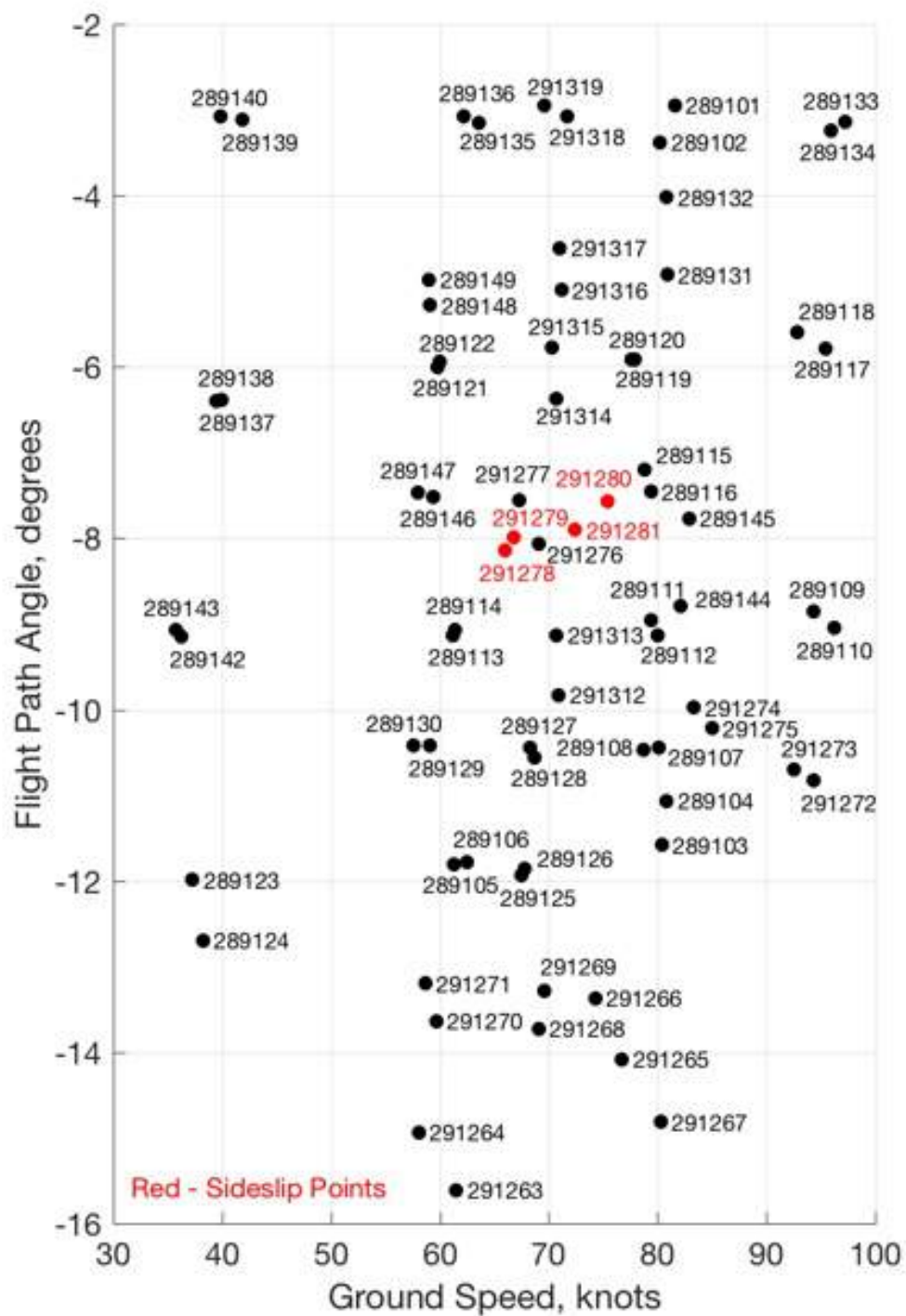


Figure 790: AS350B3 average level flight source noise hemispheres, lower speed range.



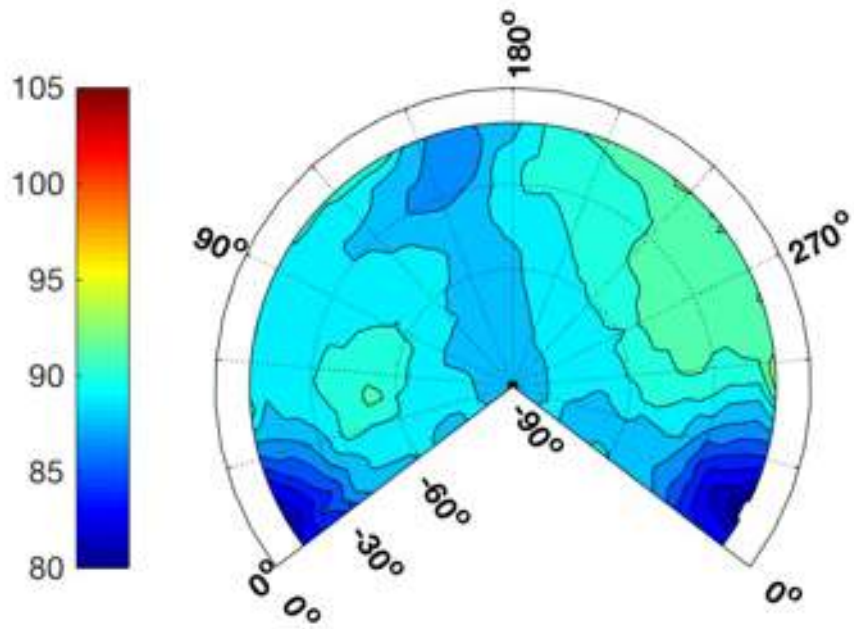


Figure 792: AS350B3, 289101, D4, dBA hemisphere, ground speed 81.6 kts, -2.9° FPA.

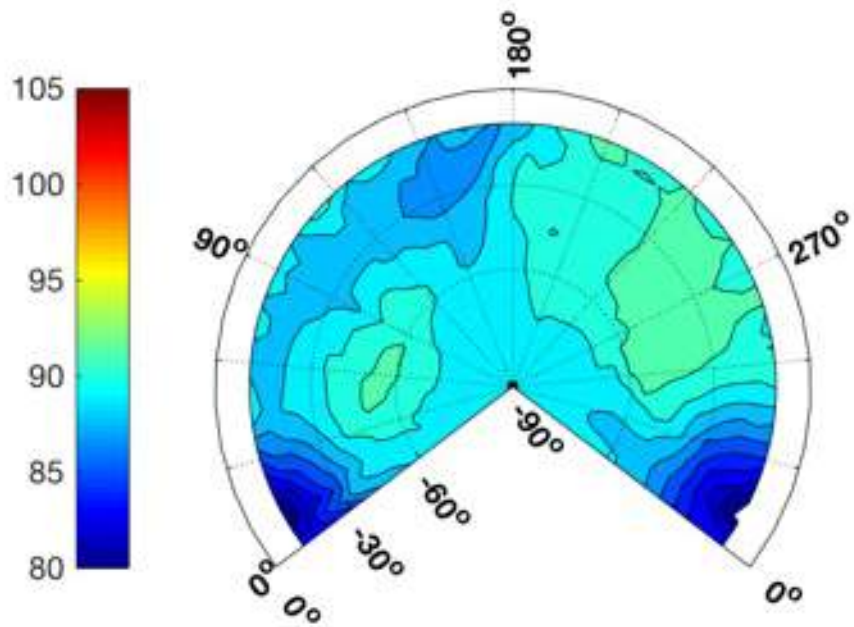


Figure 793: AS350B3, 289102, D4, dBA hemisphere, ground speed 80.2 kts, -3.4° FPA.

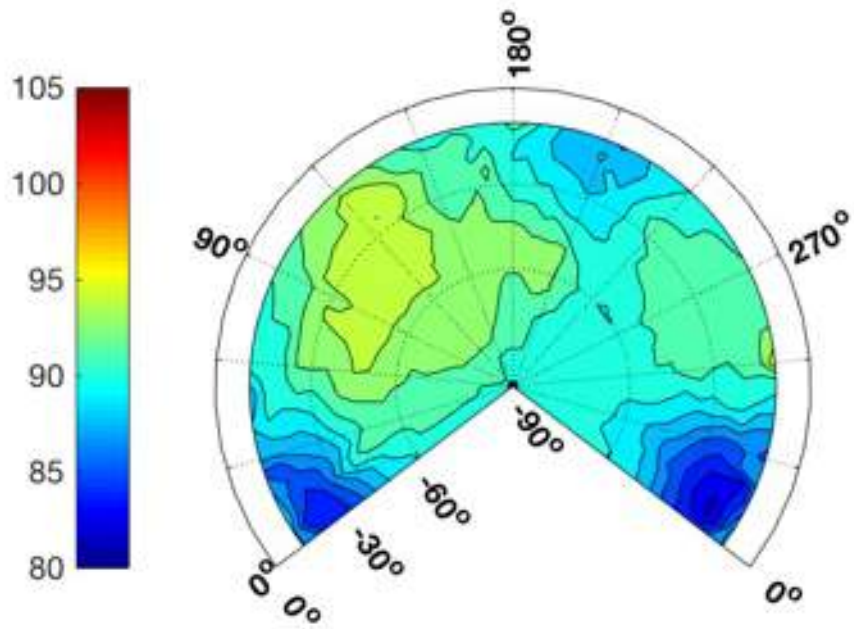


Figure 794: AS350B3, 289103, D32, dBA hemisphere, ground speed 80.4 kts, -11.6° FPA.

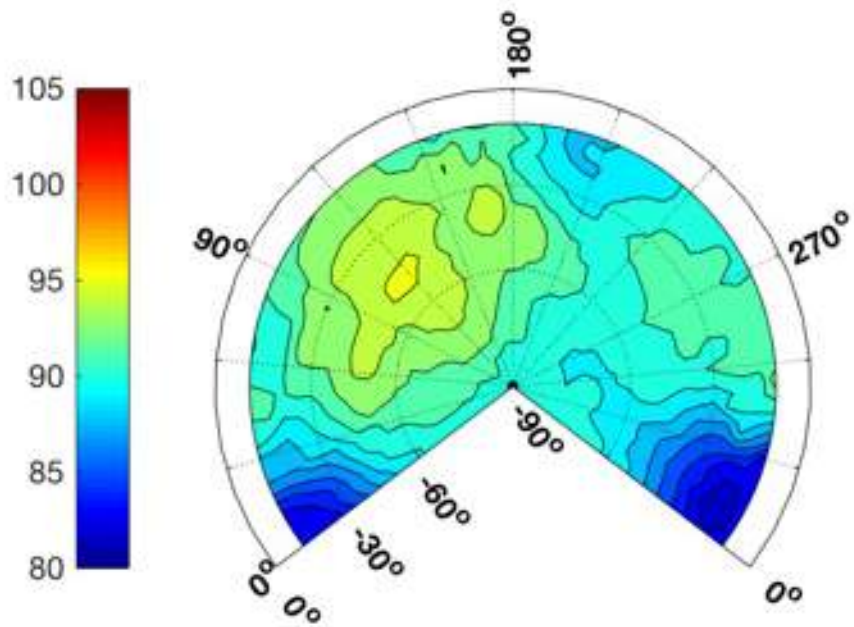


Figure 795: AS350B3, 289104, D32, dBA hemisphere, ground speed 80.9 kts, -11.1° FPA.

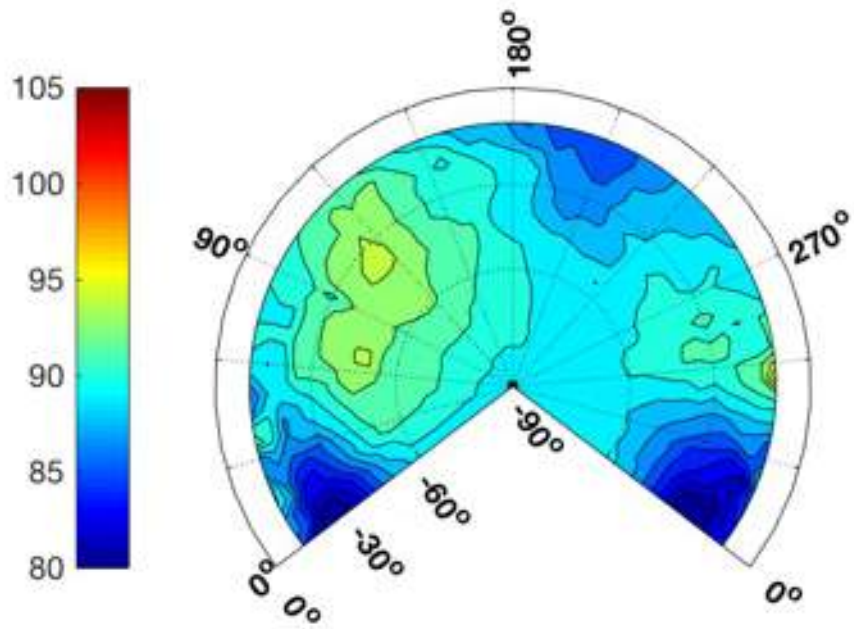


Figure 796: AS350B3, 289105, D30, dBA hemisphere, ground speed 61.3 kts, -11.8° FPA.

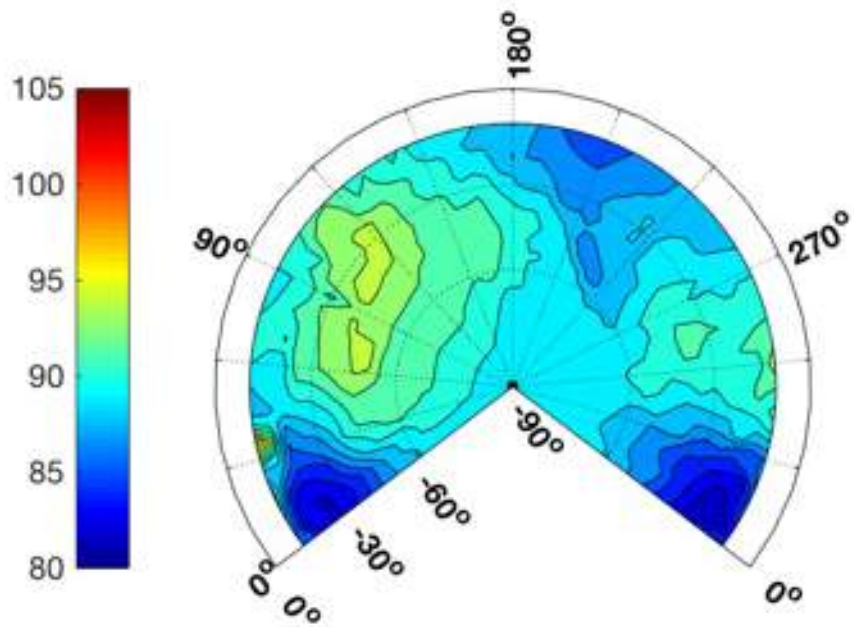


Figure 797: AS350B3, 289106, D30, dBA hemisphere, ground speed 62.5 kts, -11.8° FPA.

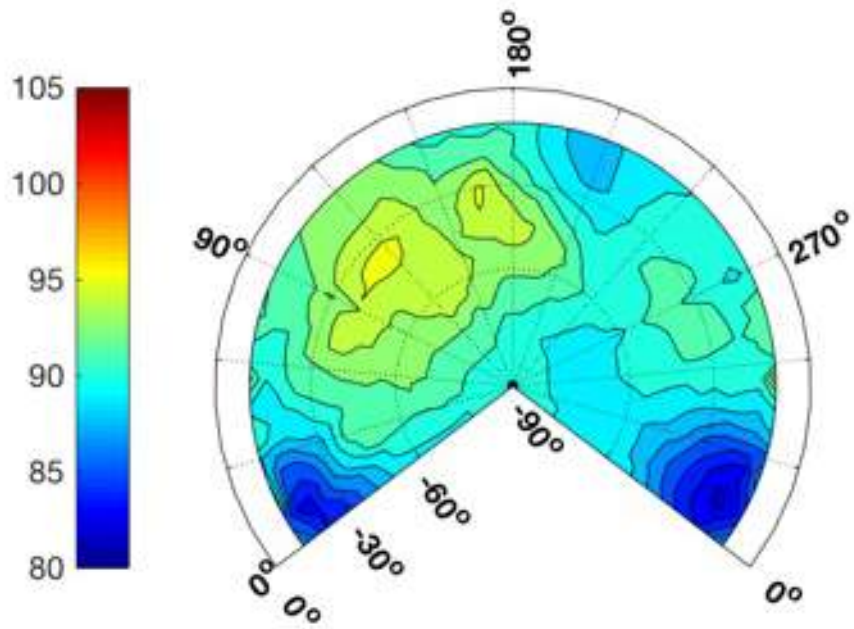


Figure 798: AS350B3, 289107, D29, dBA hemisphere, ground speed 80.1 kts, -10.5° FPA.

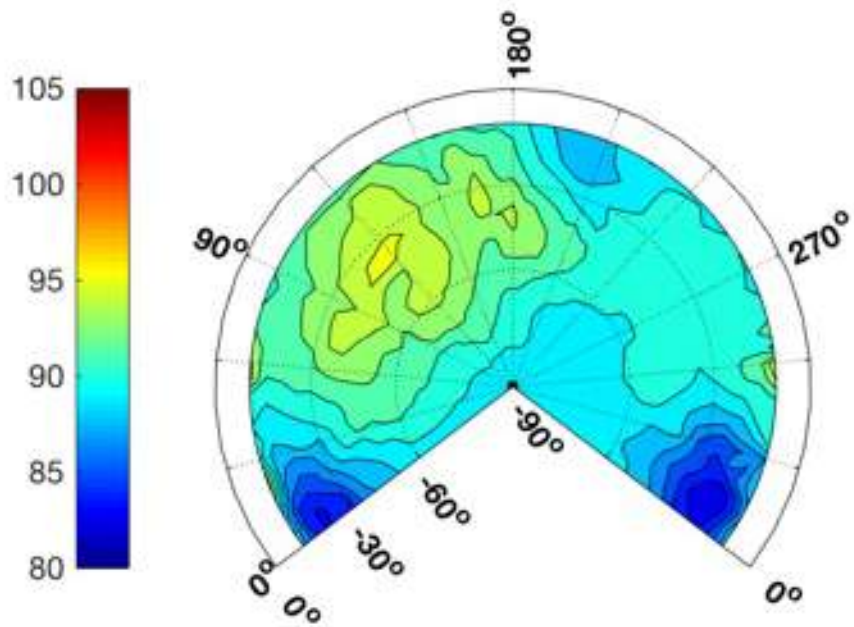


Figure 799: AS350B3, 289108, D29, dBA hemisphere, ground speed 78.7 kts, -10.5° FPA.

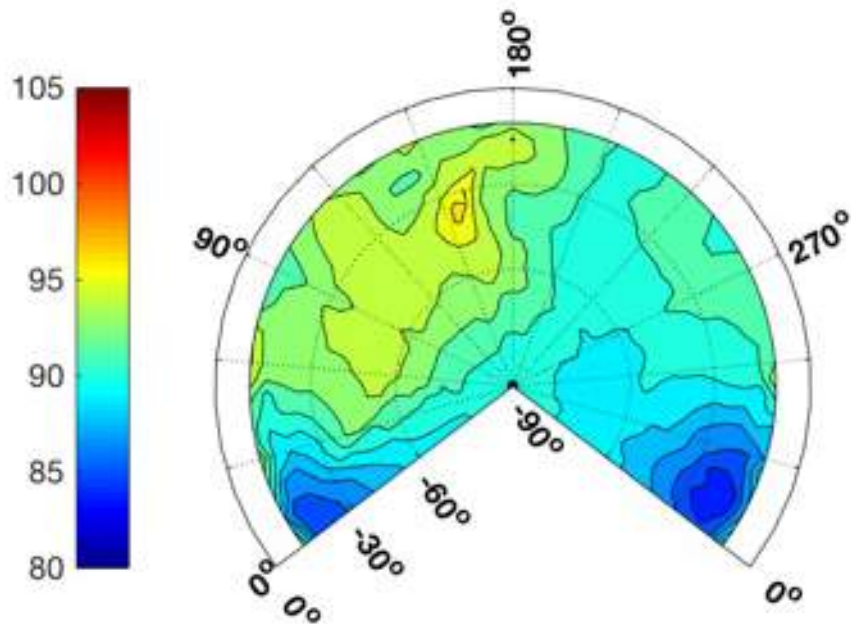


Figure 800: AS350B3, 289109, D26, dBA hemisphere, ground speed 94.4 kts, -8.9° FPA.

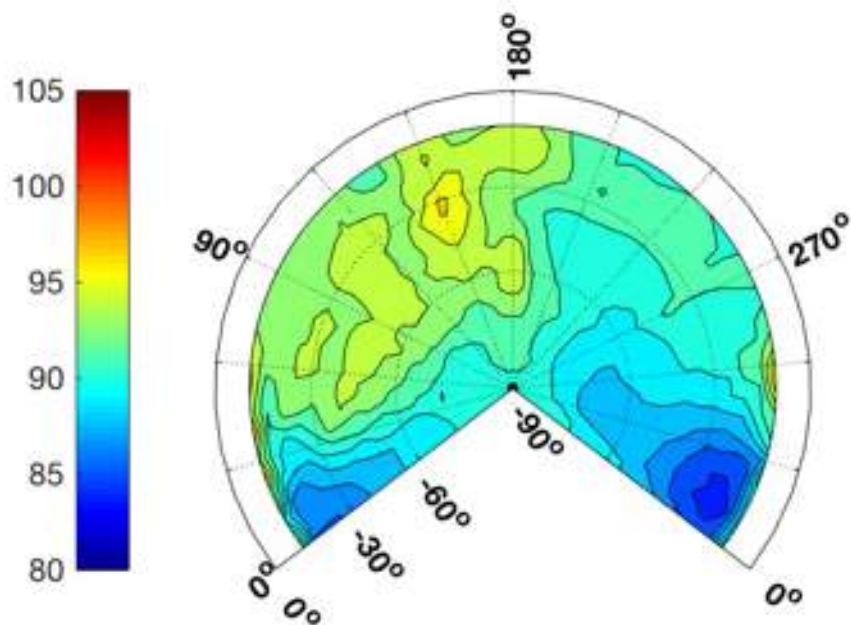


Figure 801: AS350B3, 289110, D26, dBA hemisphere, ground speed 96.3 kts, -9.0° FPA.

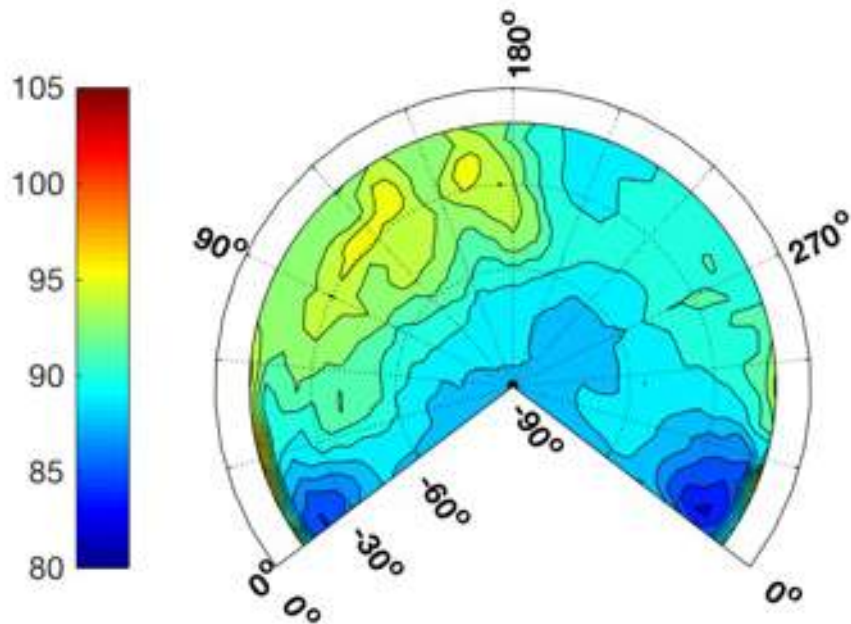


Figure 802: AS350B3, 289111, D24, dBA hemisphere, ground speed 79.4 kts, -9.0° FPA.

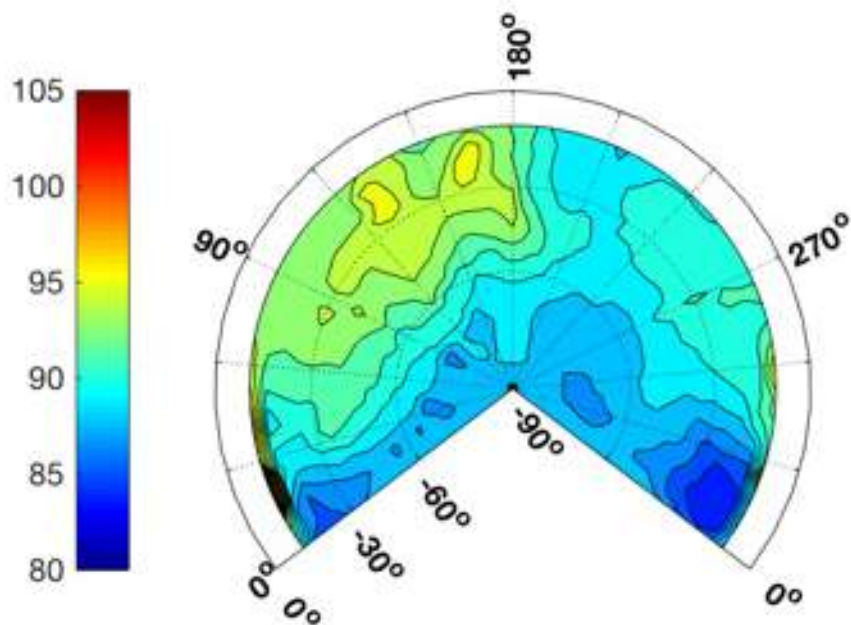


Figure 803: AS350B3, 289112, D24, dBA hemisphere, ground speed 80.0 kts, -9.1° FPA.

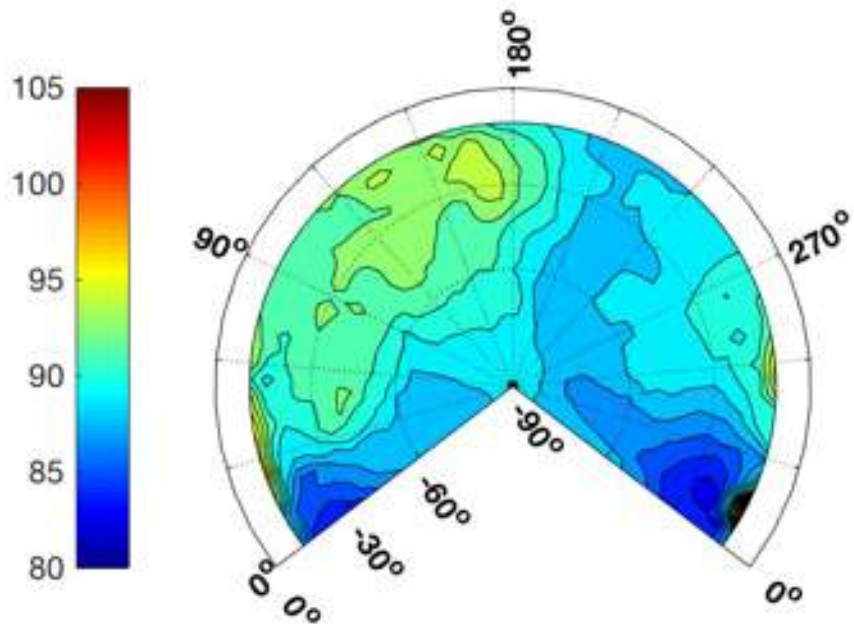


Figure 804: AS350B3, 289113, D22, dBA hemisphere, ground speed 61.2 kts, -9.1° FPA.

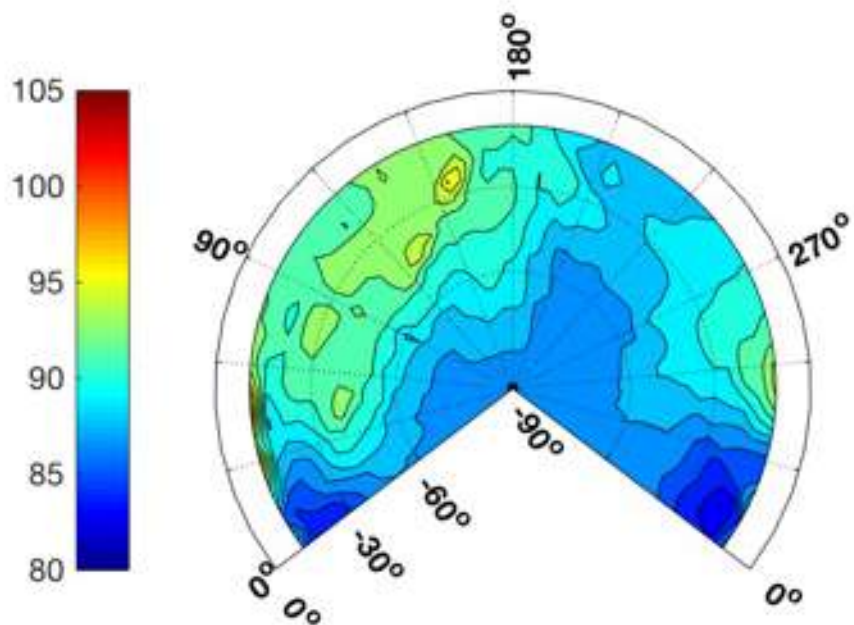


Figure 805: AS350B3, 289114, D22, dBA hemisphere, ground speed 61.3 kts, -9.1° FPA.

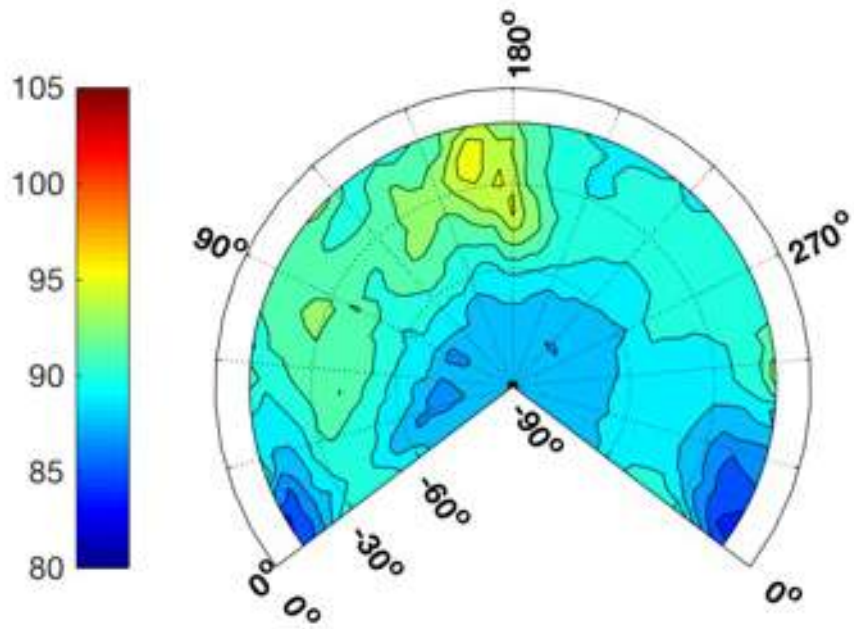


Figure 806: AS350B3, 289115, D19, dBA hemisphere, ground speed 78.9 kts, -7.2° FPA.

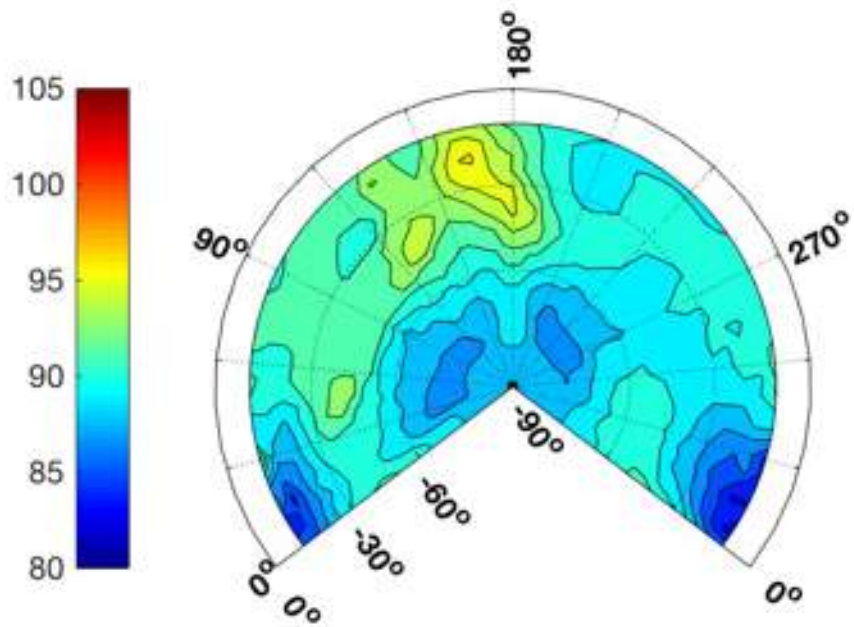


Figure 807: AS350B3, 289116, D19, dBA hemisphere, ground speed 79.4 kts, -7.5° FPA.

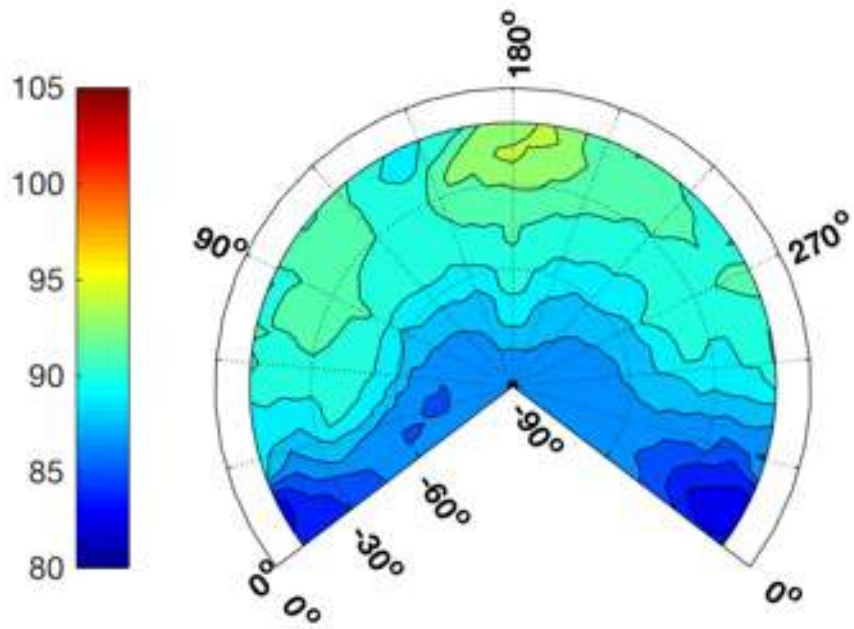


Figure 808: AS350B3, 289117, D16, dBA hemisphere, ground speed 95.5 kts, -5.8° FPA.

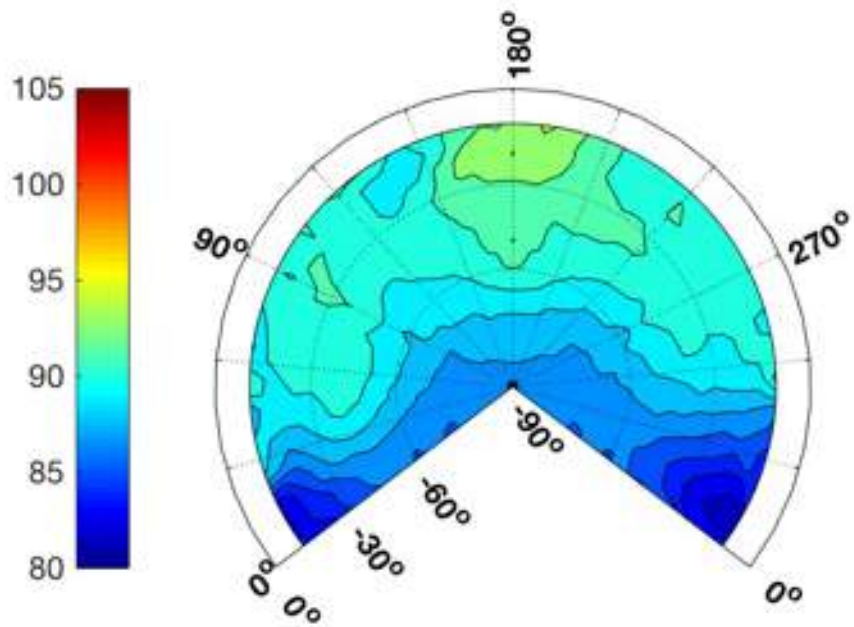


Figure 809: AS350B3, 289118, D16, dBA hemisphere, ground speed 92.8 kts, -5.6° FPA.

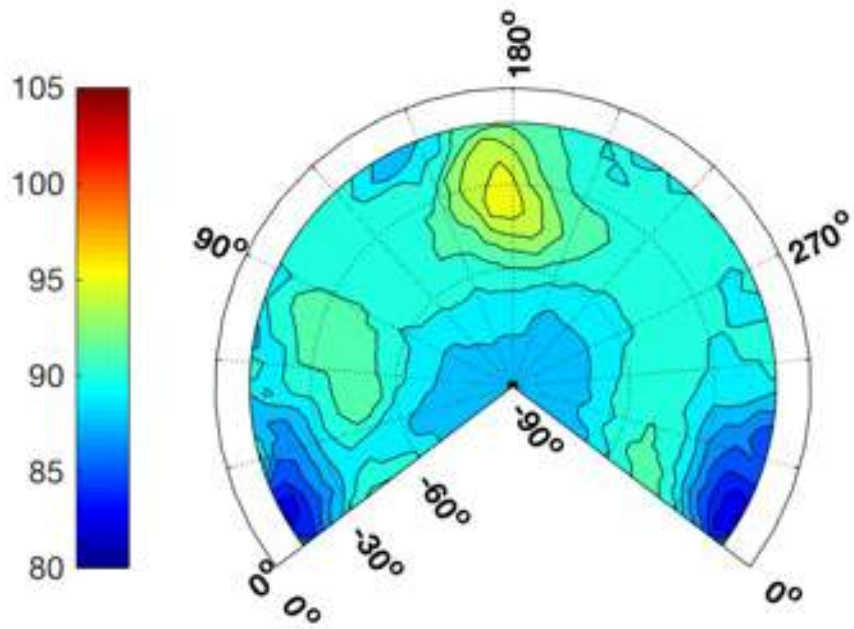


Figure 810: AS350B3, 289119, D14, dBA hemisphere, ground speed 77.6 kts, -5.9° FPA.

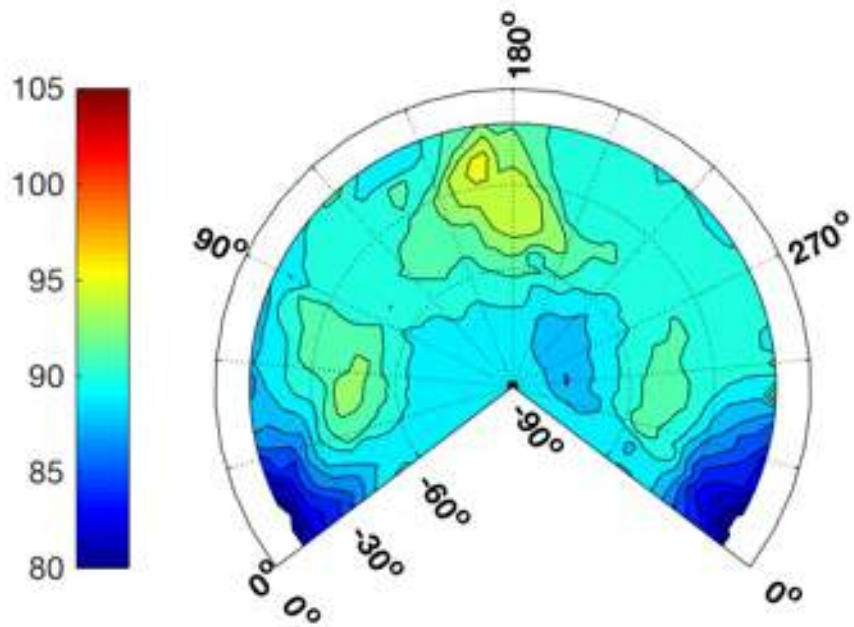


Figure 811: AS350B3, 289120, D14, dBA hemisphere, ground speed 77.9 kts, -5.9° FPA.

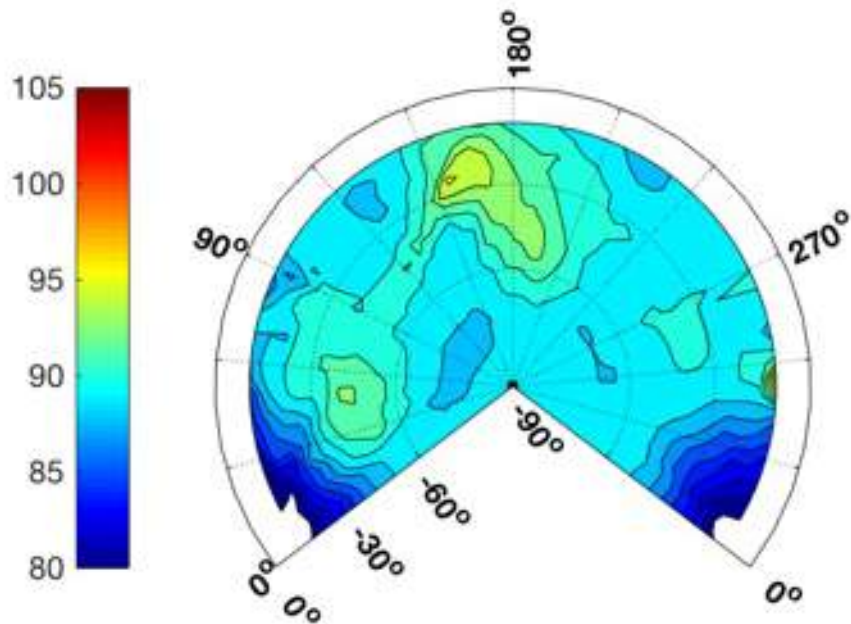


Figure 812: AS350B3, 289121, D12, dBA hemisphere, ground speed 59.8 kts, -6.0° FPA.

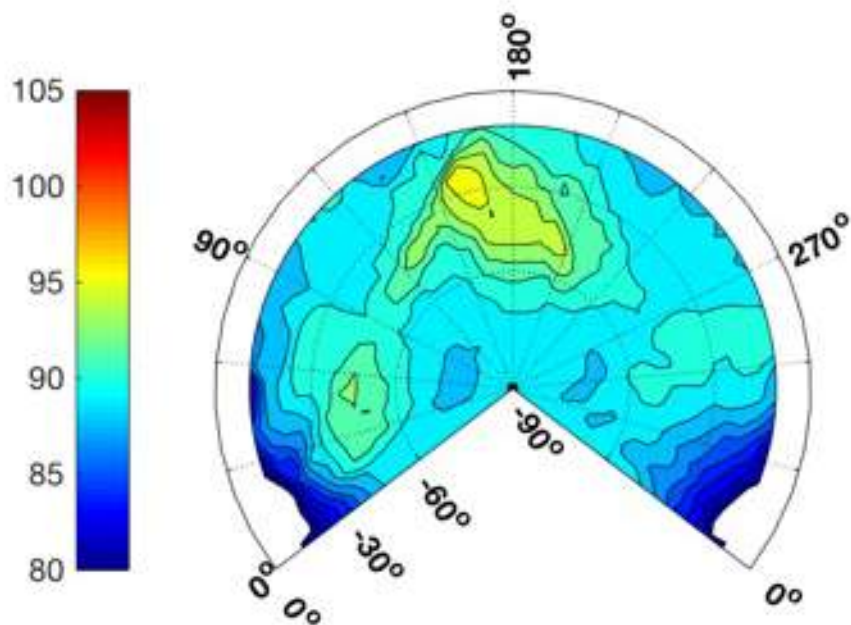


Figure 813: AS350B3, 289122, D12, dBA hemisphere, ground speed 60.0 kts, -5.9° FPA.

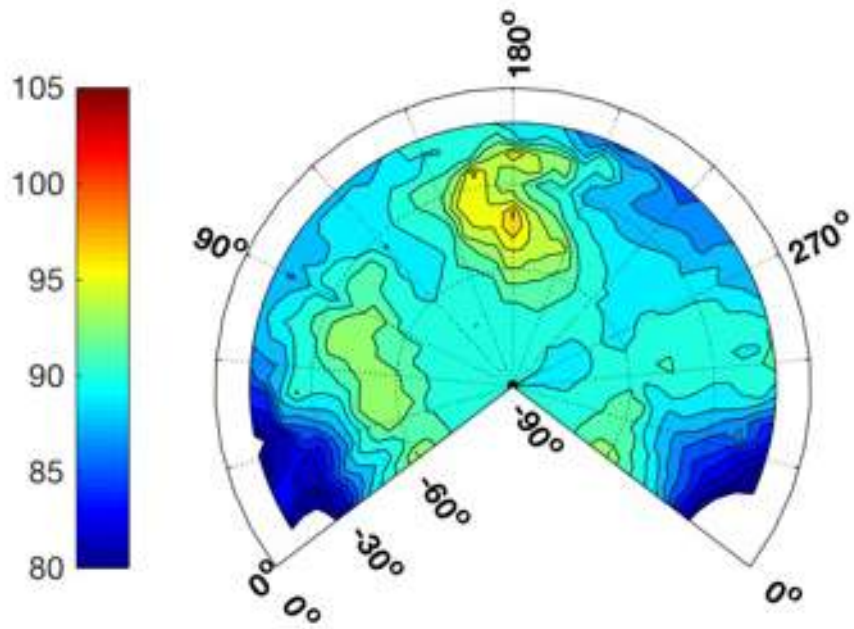


Figure 814: AS350B3, 289123, D38, dBA hemisphere, ground speed 37.3 kts, -12.0° FPA.

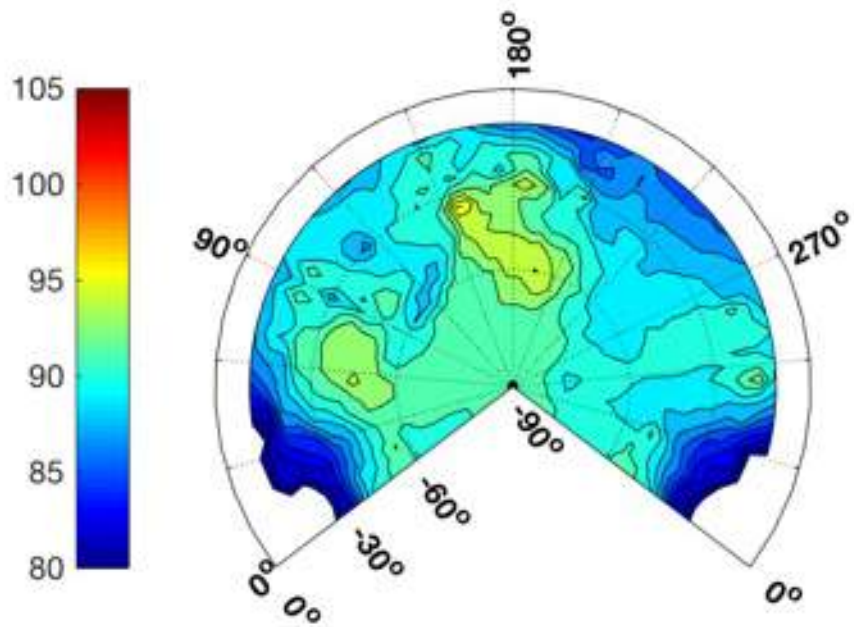


Figure 815: AS350B3, 289124, D38, dBA hemisphere, ground speed 38.2 kts, -12.7° FPA.

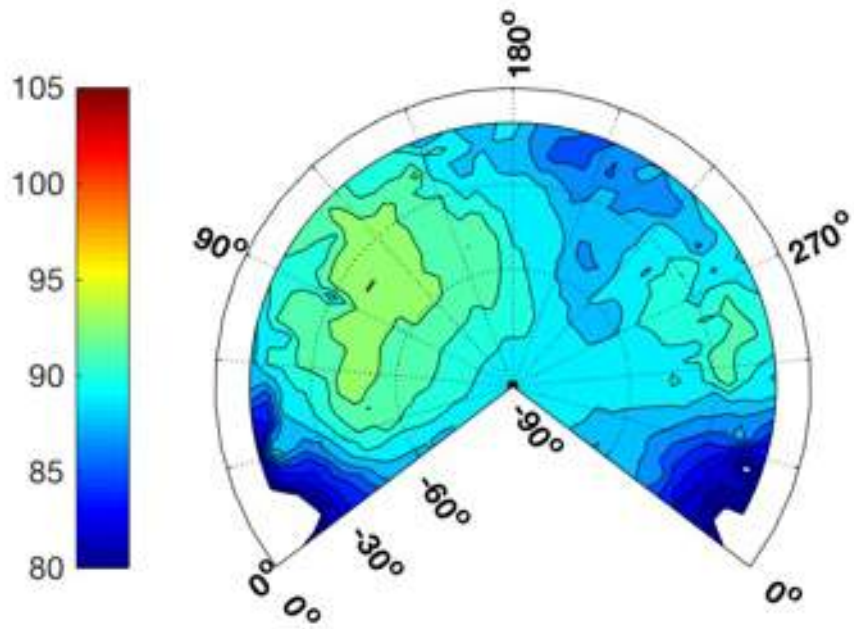


Figure 816: AS350B3, 289125, D31, dBA hemisphere, ground speed 67.6 kts, -11.9° FPA.

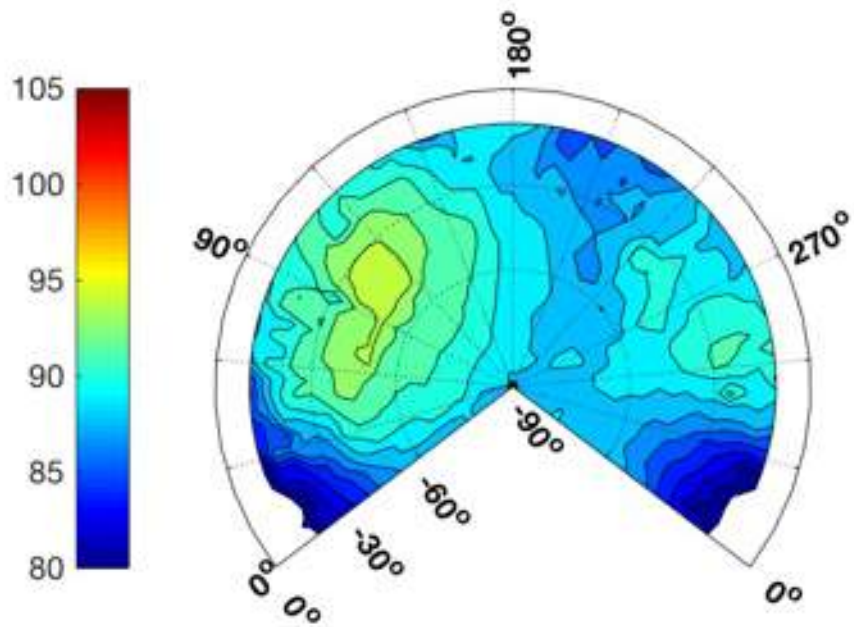


Figure 817: AS350B3, 289126, D31, dBA hemisphere, ground speed 67.8 kts, -11.9° FPA.

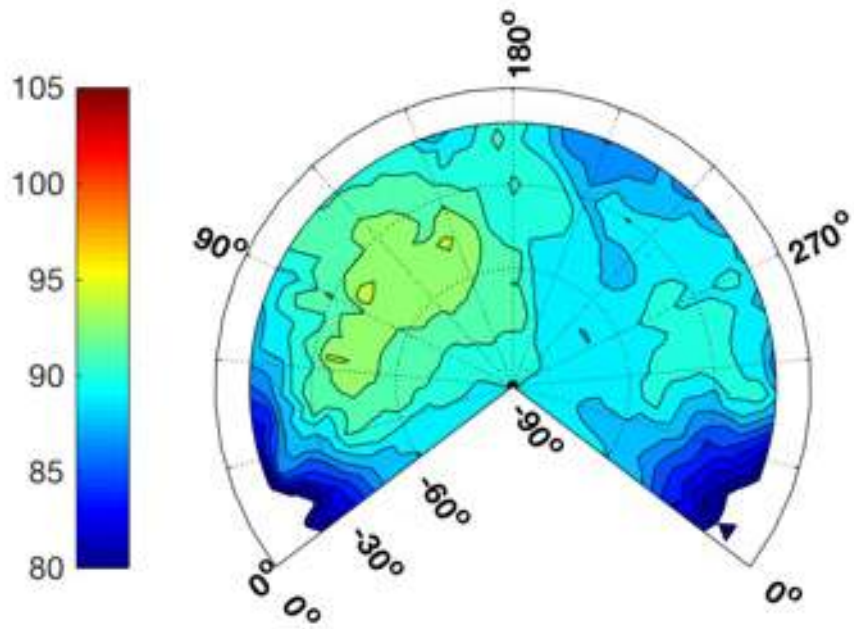


Figure 818: AS350B3, 289127, D28, dBA hemisphere, ground speed 68.3 kts, -10.5° FPA.

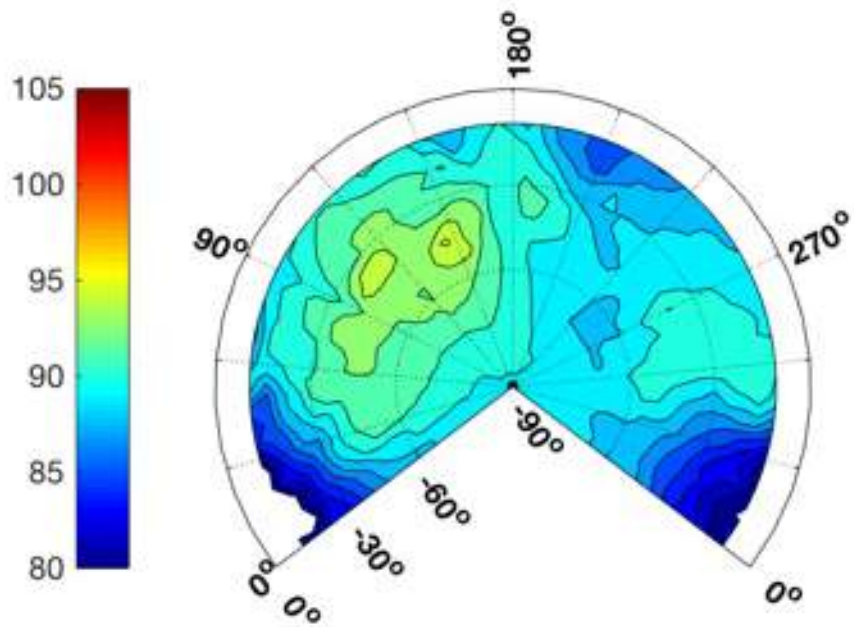


Figure 819: AS350B3, 289128, D28, dBA hemisphere, ground speed 68.7 kts, -10.6° FPA.

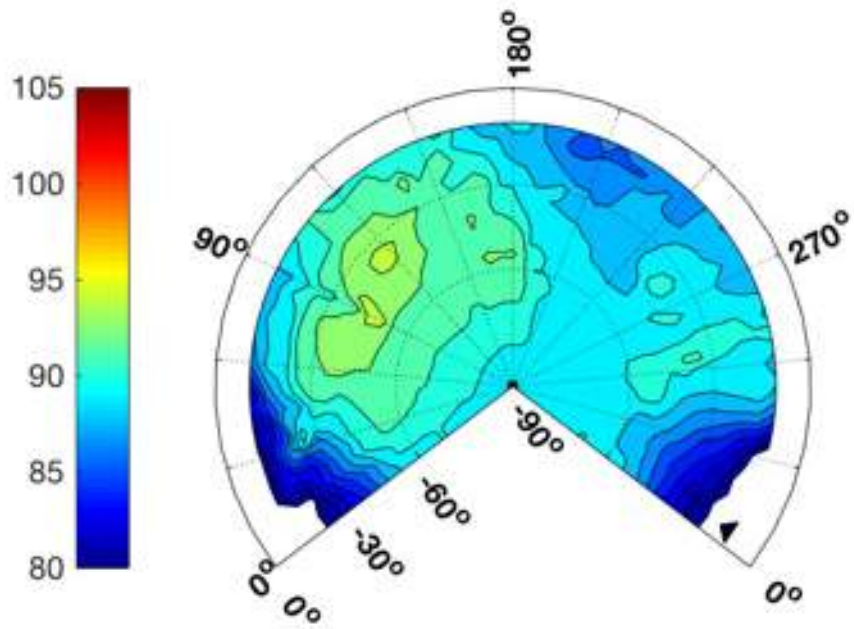


Figure 820: AS350B3, 289129, D27, dBA hemisphere, ground speed 59.1 kts, -10.4° FPA.

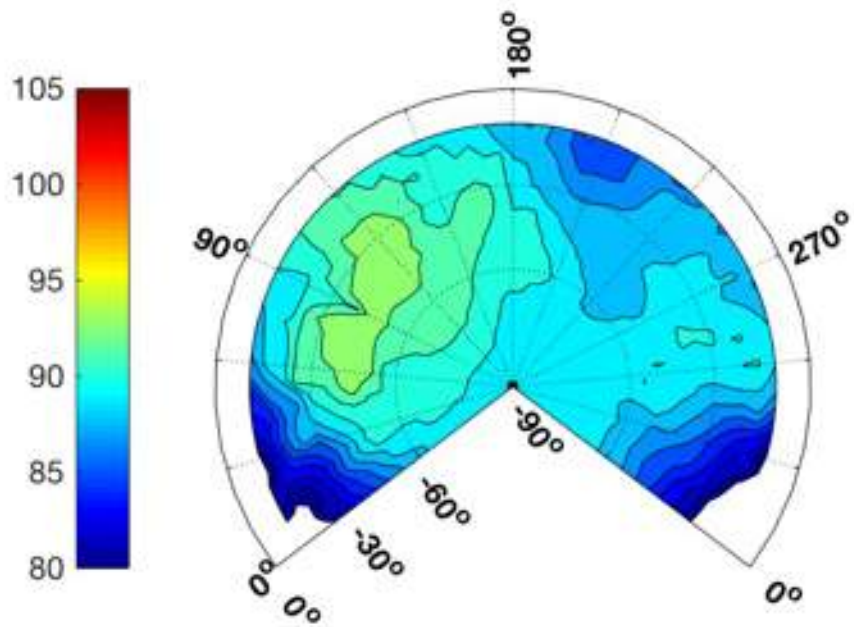


Figure 821: AS350B3, 289130, D27, dBA hemisphere, ground speed 57.5 kts, -10.4° FPA.

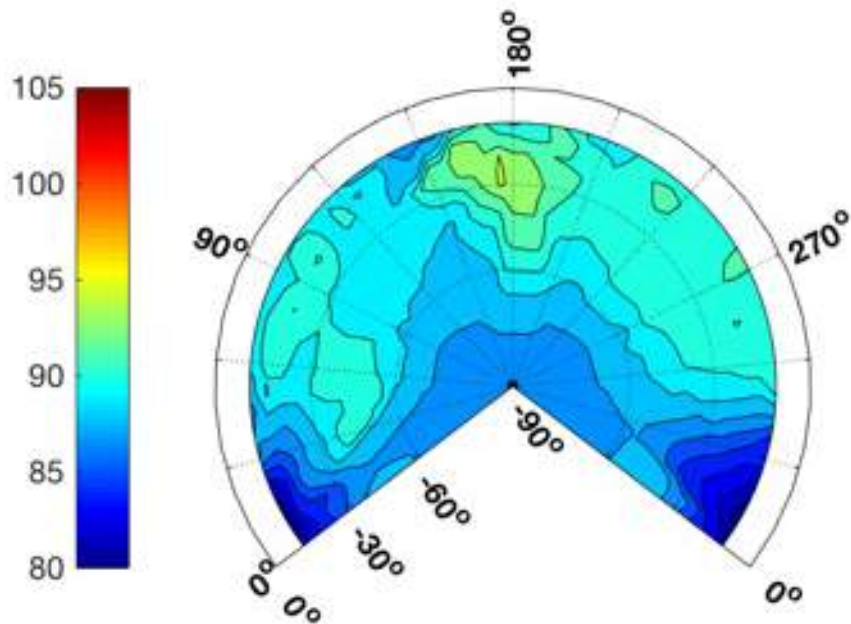


Figure 822: AS350B3, 289131, D9, dBA hemisphere, ground speed 80.9 kts, -4.9° FPA.

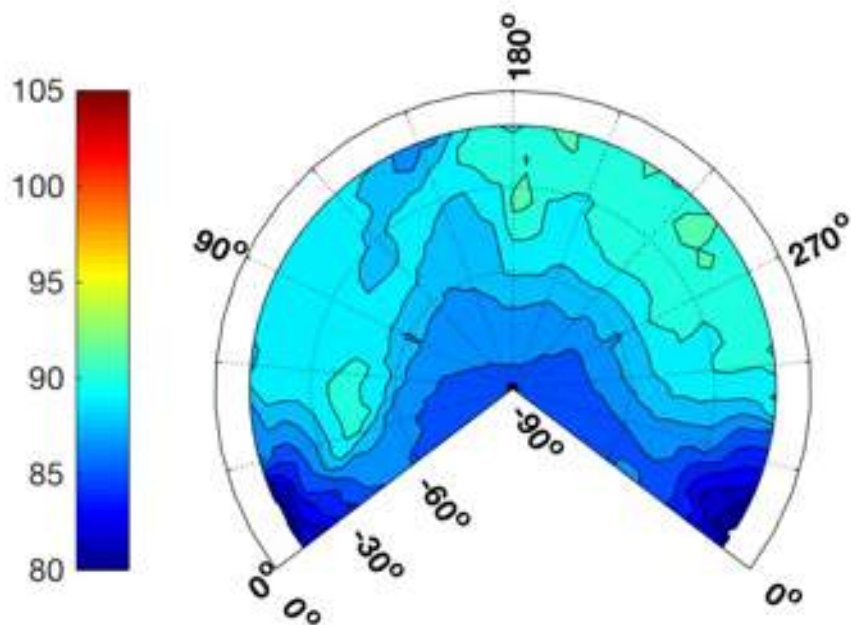


Figure 823: AS350B3, 289132, D9, dBA hemisphere, ground speed 80.9 kts, -4.0° FPA.

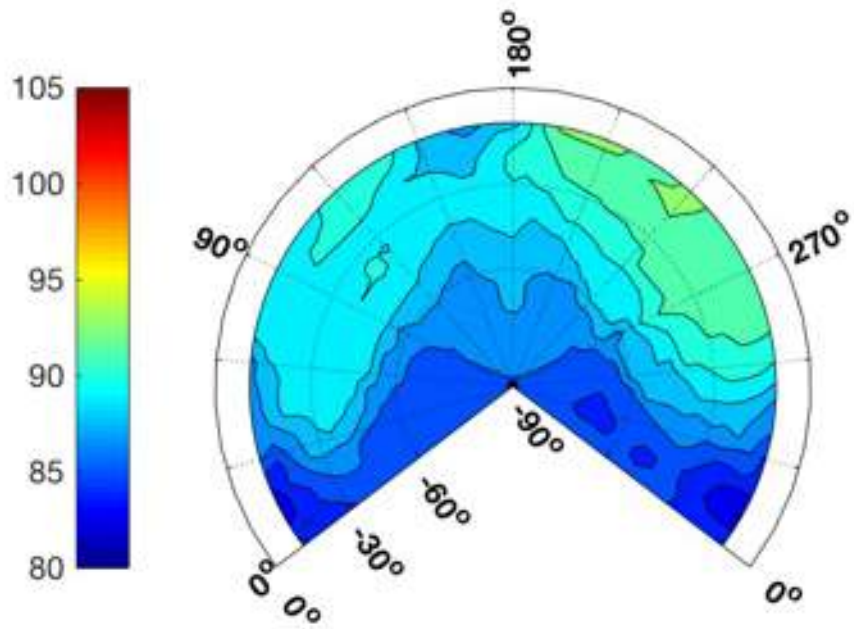


Figure 824: AS350B3, 289133, D6, dBA hemisphere, ground speed 97.3 kts, -3.1° FPA.

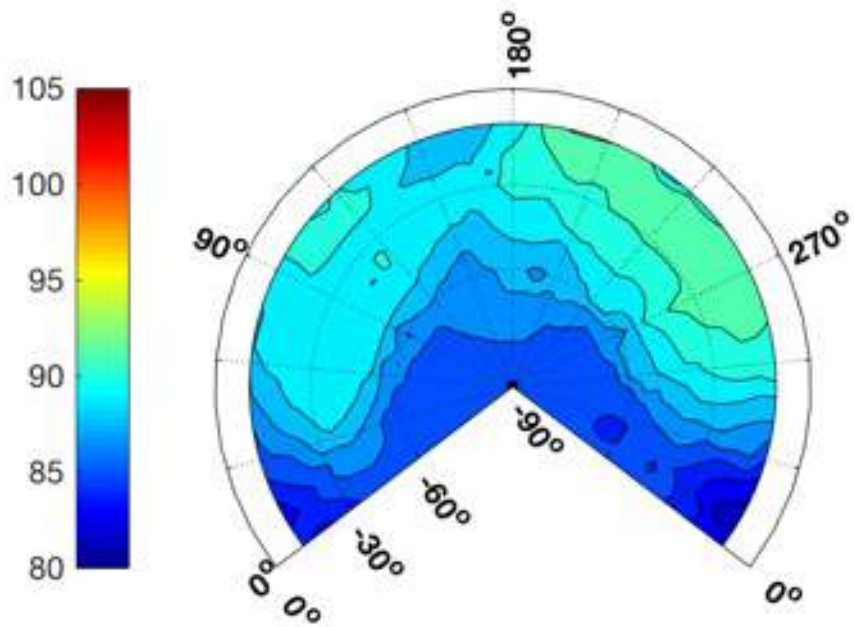


Figure 825: AS350B3, 289134, D6, dBA hemisphere, ground speed 95.9 kts, -3.2° FPA.

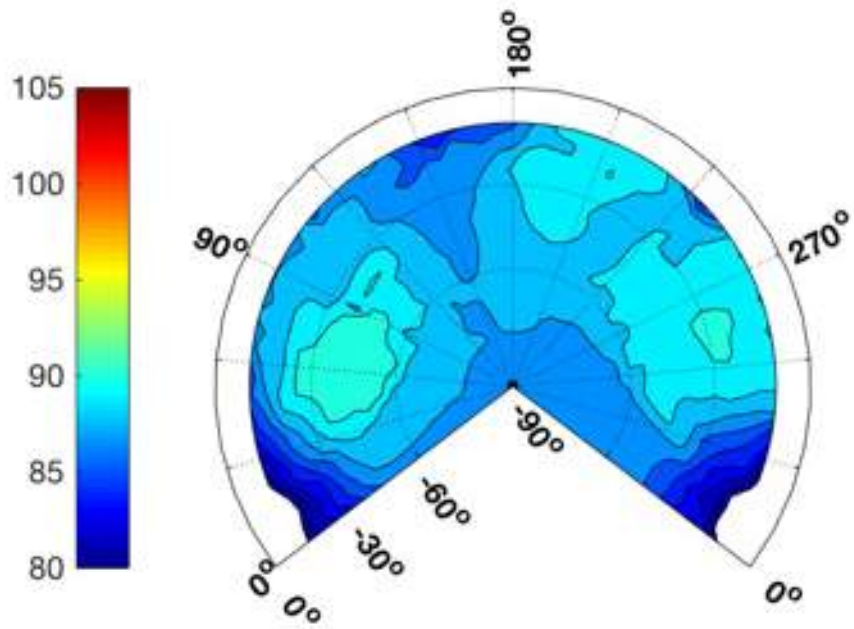


Figure 826: AS350B3, 289135, D2, dBA hemisphere, ground speed 63.5 kts, -3.2° FPA.

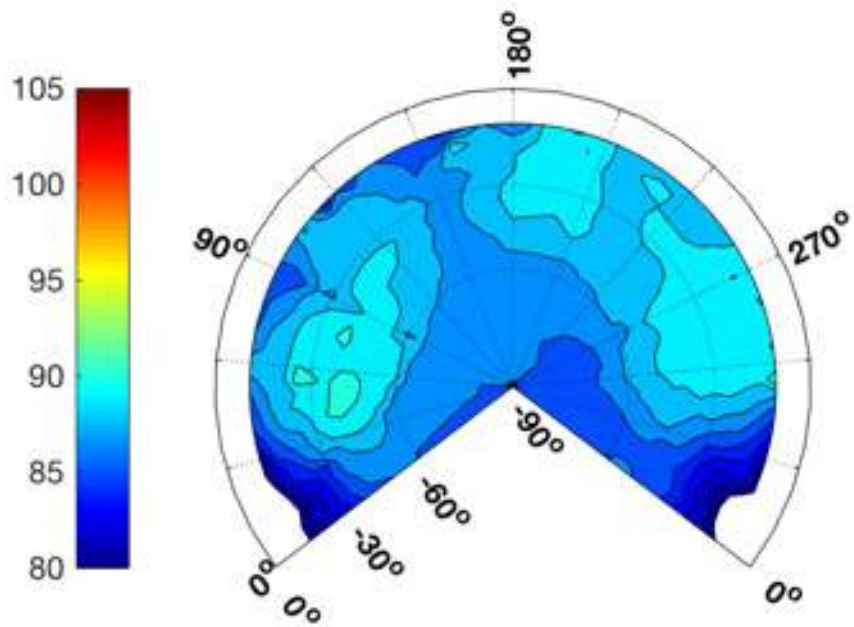


Figure 827: AS350B3, 289136, D2, dBA hemisphere, ground speed 62.2 kts, -3.1° FPA.

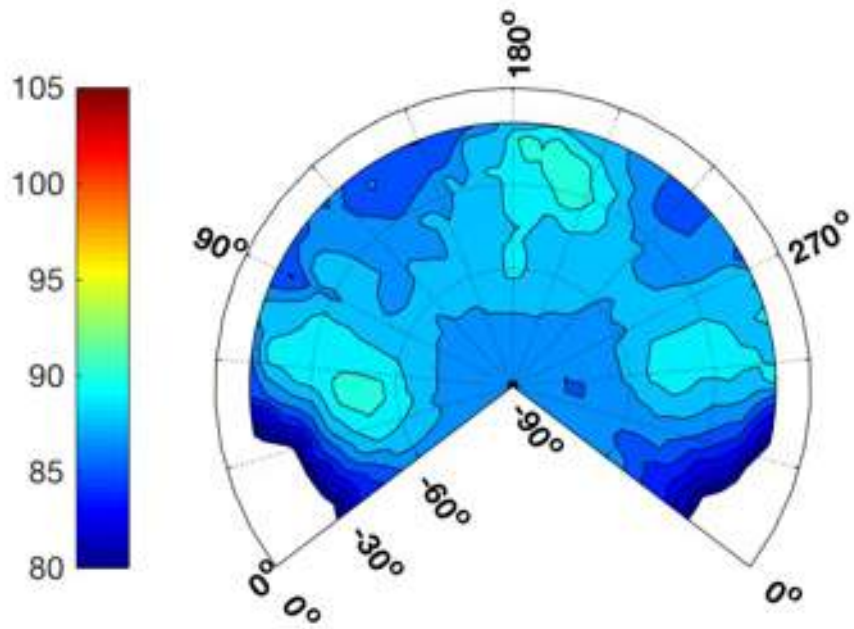


Figure 828: AS350B3, 289137, D35, dBA hemisphere, ground speed 39.5 kts, -6.4° FPA.

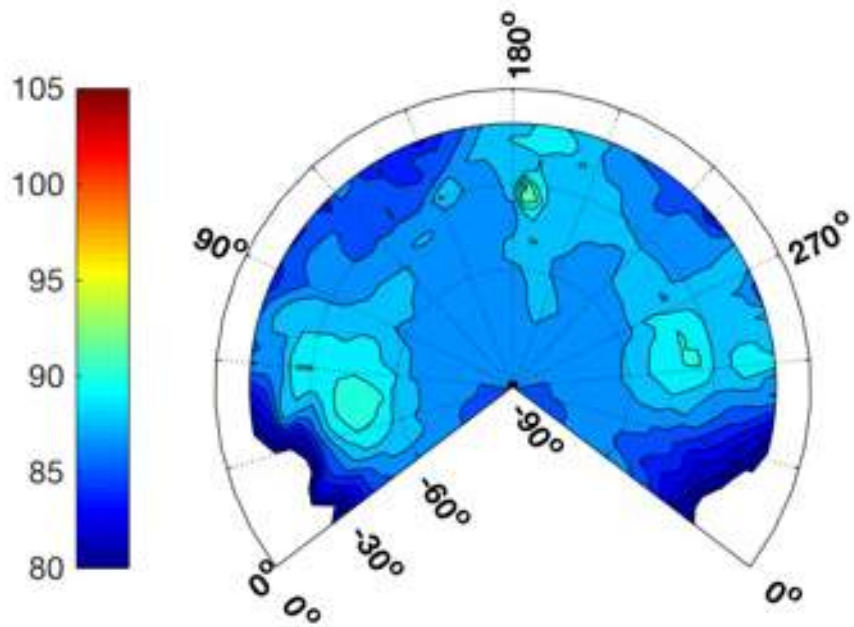


Figure 829: AS350B3, 289138, D35, dBA hemisphere, ground speed 39.9 kts, -6.4° FPA.

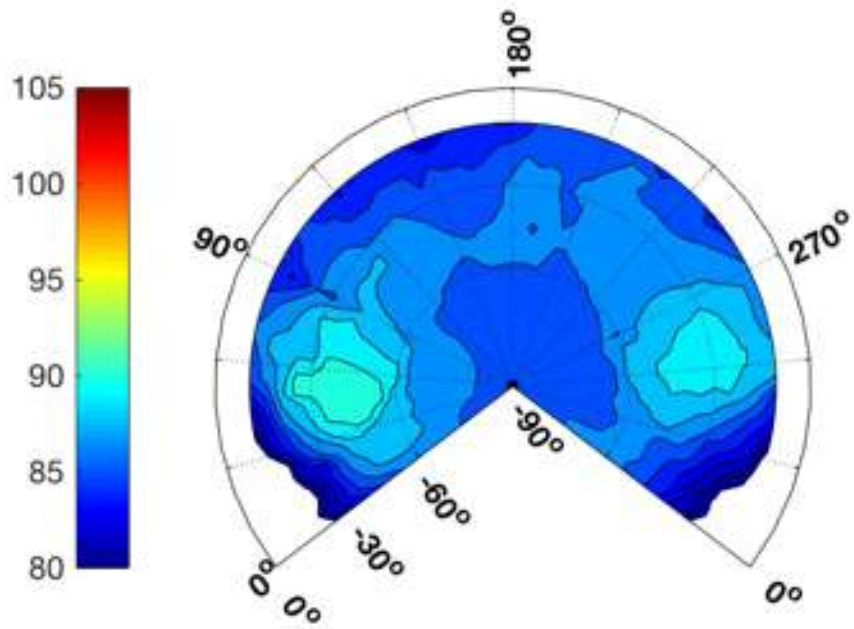


Figure 830: AS350B3, 289139, D33, dBA hemisphere, ground speed 41.8 kts, -3.1° FPA.

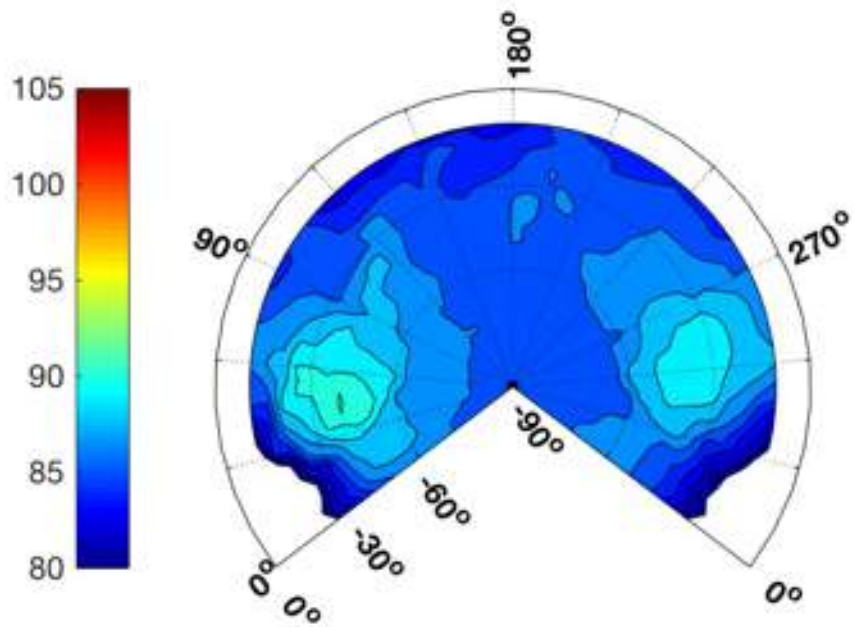


Figure 831: AS350B3, 289140, D33, dBA hemisphere, ground speed 39.8 kts, -3.1° FPA.

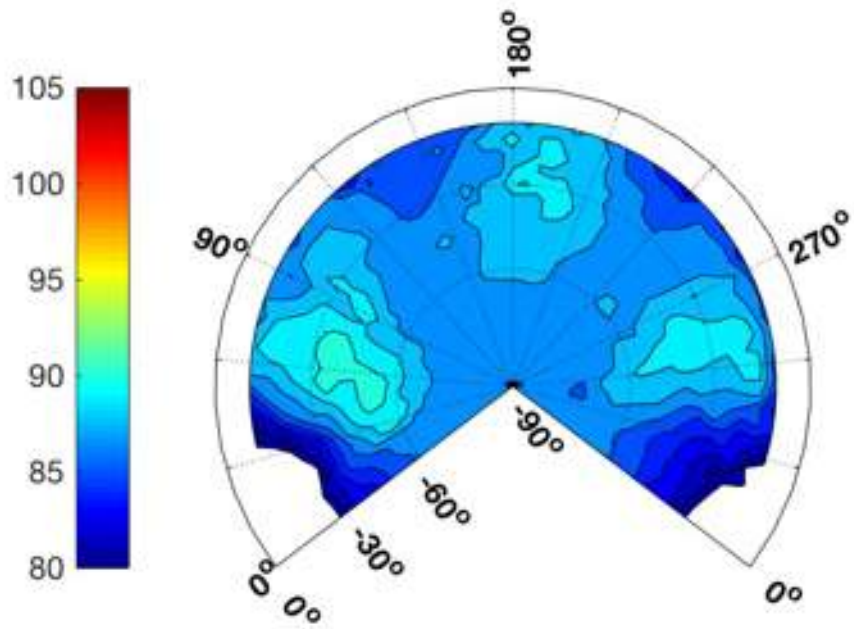


Figure 832: AS350B3, 289142, D37, dBA hemisphere, ground speed 35.7 kts, -9.1° FPA.

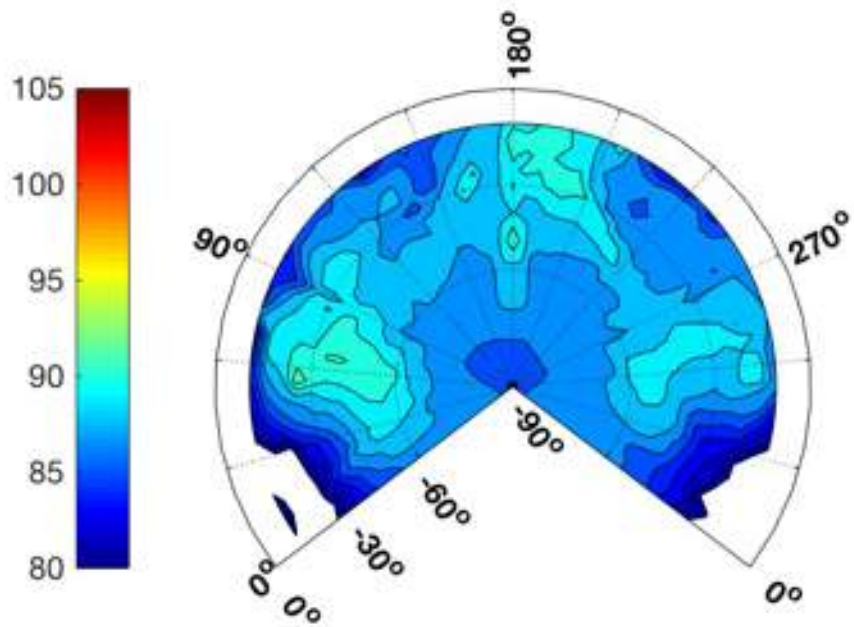


Figure 833: AS350B3, 289143, D37, dBA hemisphere, ground speed 36.3 kts, -9.1° FPA.

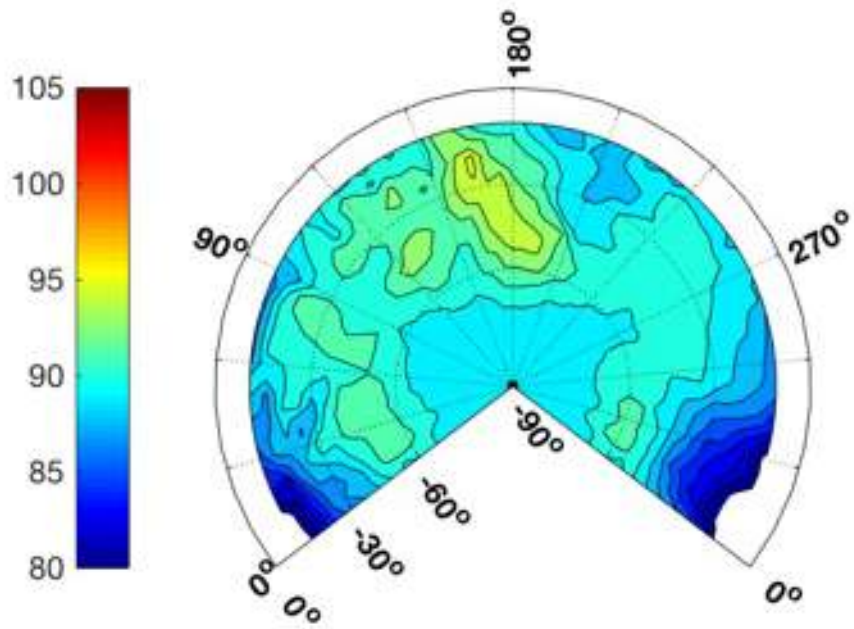


Figure 834: AS350B3, 289144, D25, dBA hemisphere, ground speed 82.1 kts, -8.8° FPA.

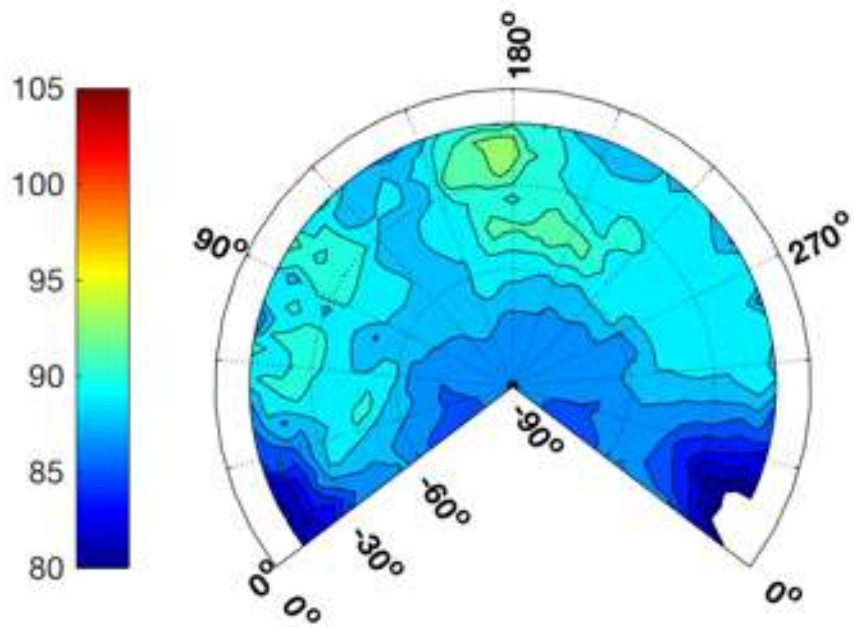


Figure 835: AS350B3, 289145, D25, dBA hemisphere, ground speed 82.9 kts, -7.8° FPA.

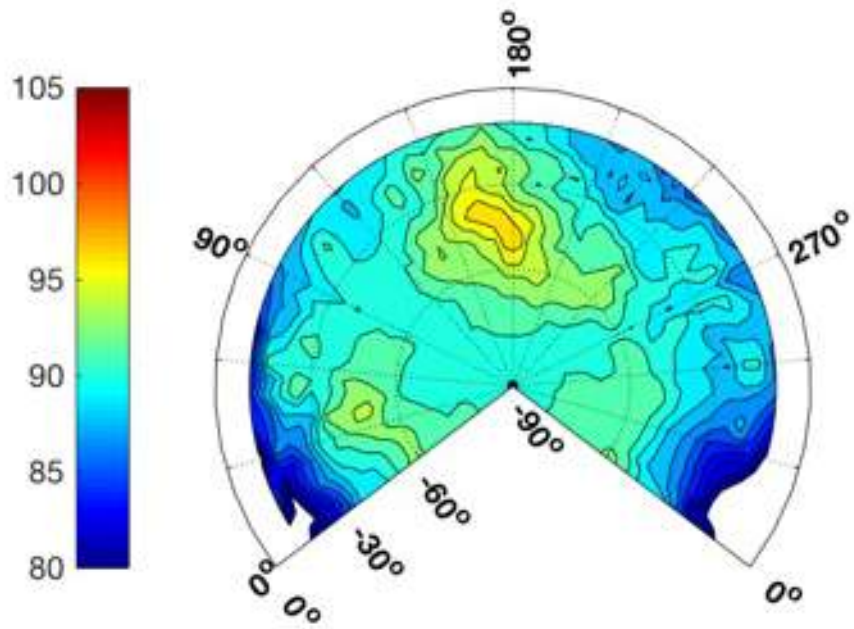


Figure 836: AS350B3, 289146, D17, dBA hemisphere, ground speed 59.4 kts, -7.5° FPA.

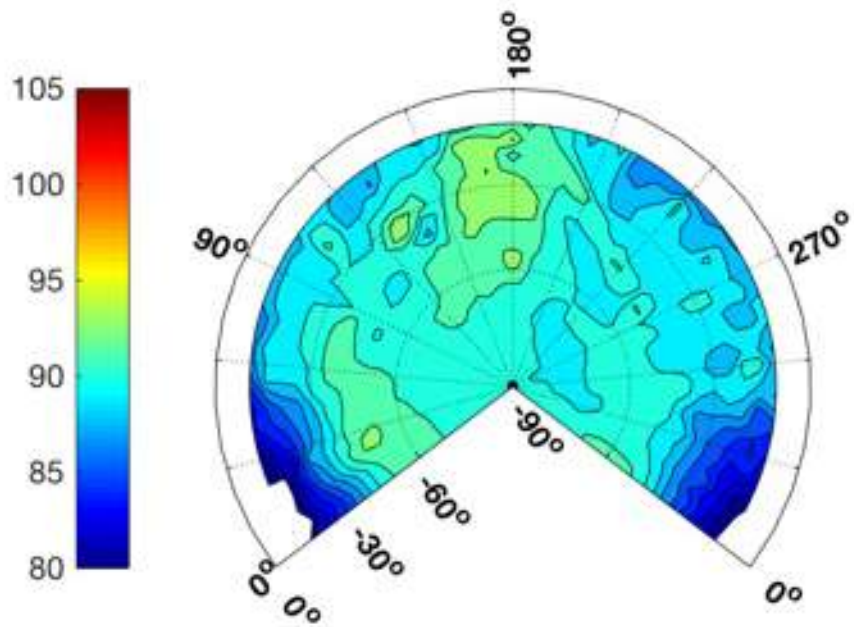


Figure 837: AS350B3, 289147, D17, dBA hemisphere, ground speed 58.0 kts, -7.5° FPA.

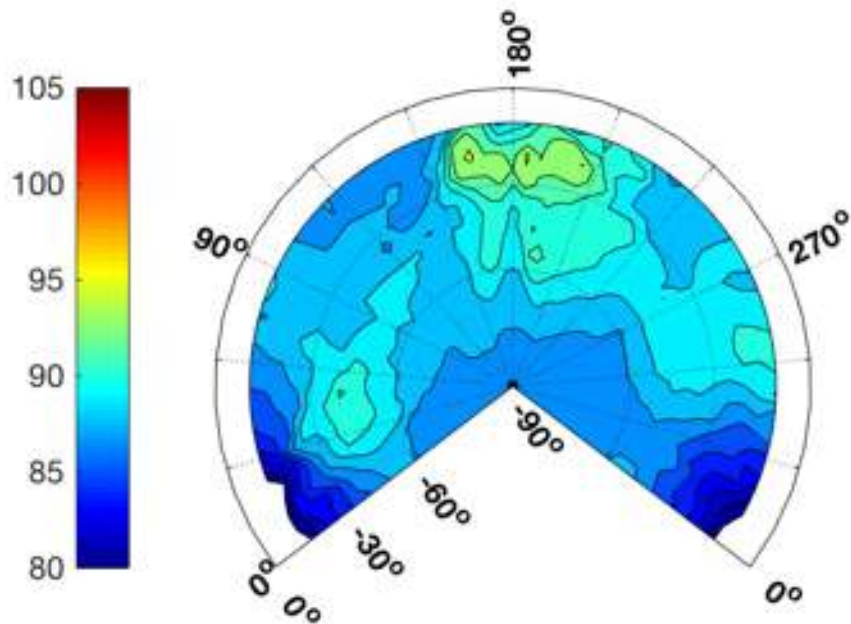


Figure 838: AS350B3, 289148, D7, dBA hemisphere, ground speed 59.1 kts, -5.3° FPA.

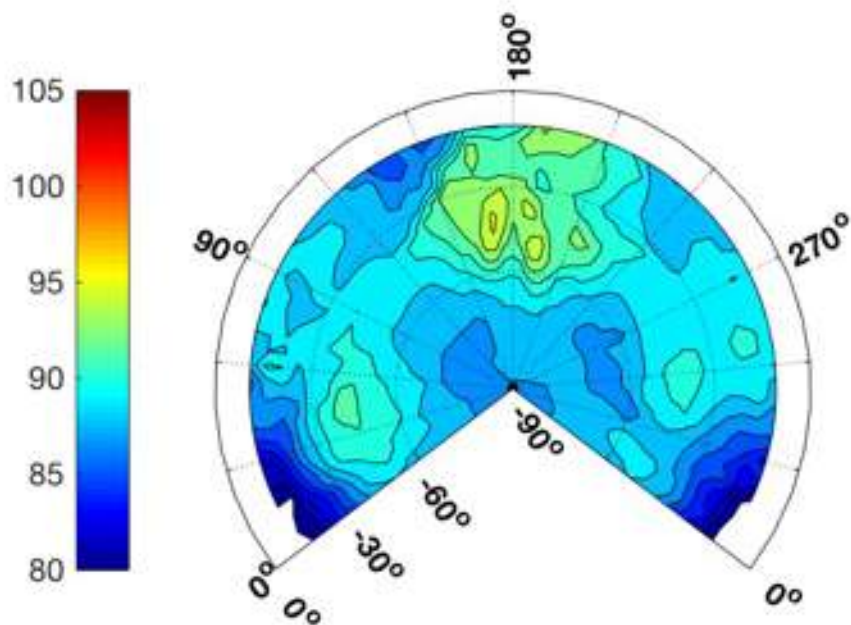


Figure 839: AS350B3, 289149, D7, dBA hemisphere, ground speed 59.0 kts, -5.0° FPA.

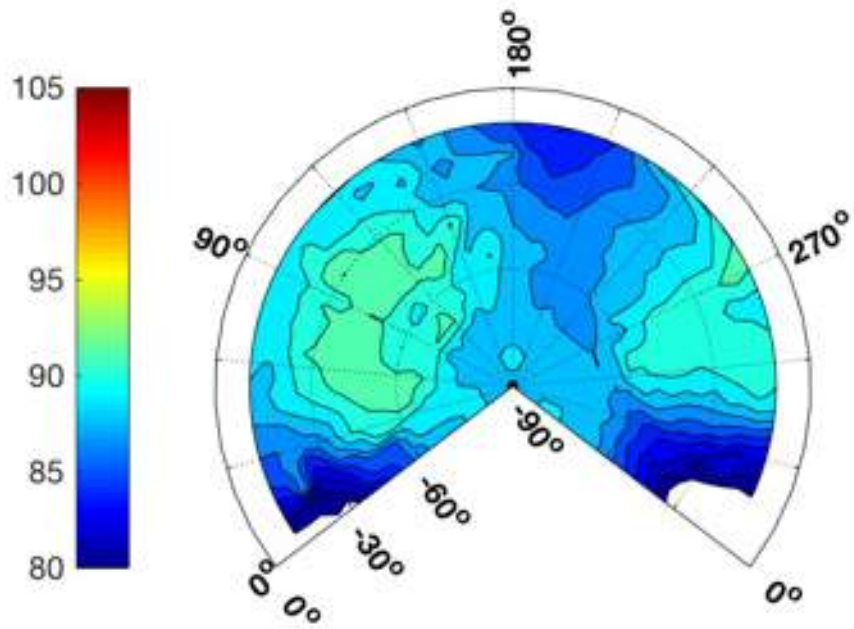


Figure 840: AS350B3, 291263, D39, dBA hemisphere, ground speed 61.5 kts, -15.6° FPA.

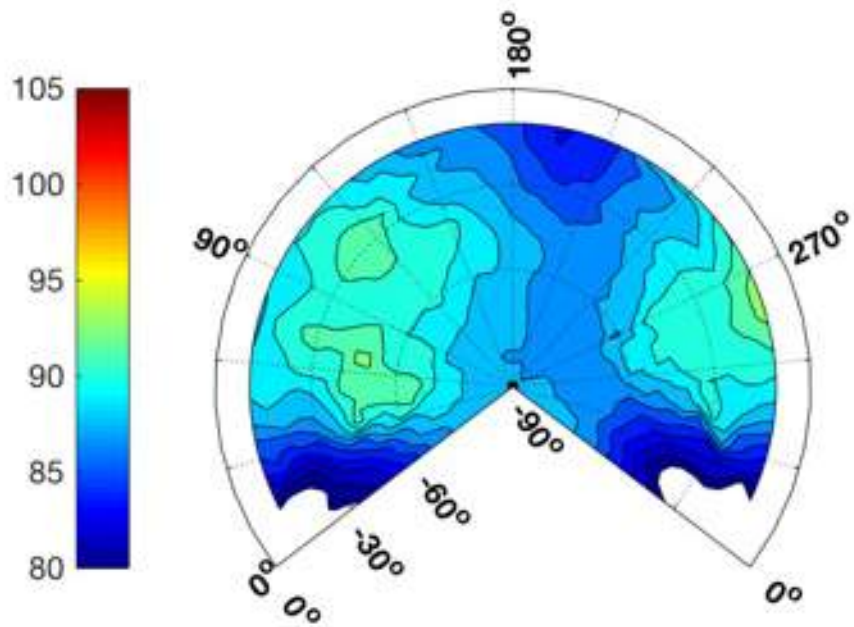


Figure 841: AS350B3, 291264, D39, dBA hemisphere, ground speed 58.1 kts, -14.9° FPA.

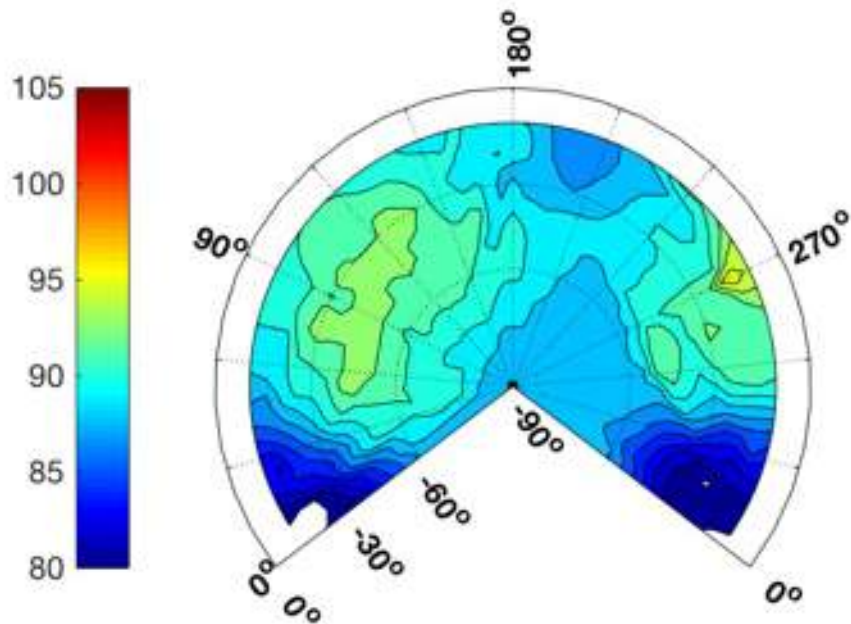


Figure 842: AS350B3, 291265, D40, dBA hemisphere, ground speed 76.7 kts, -14.1° FPA.

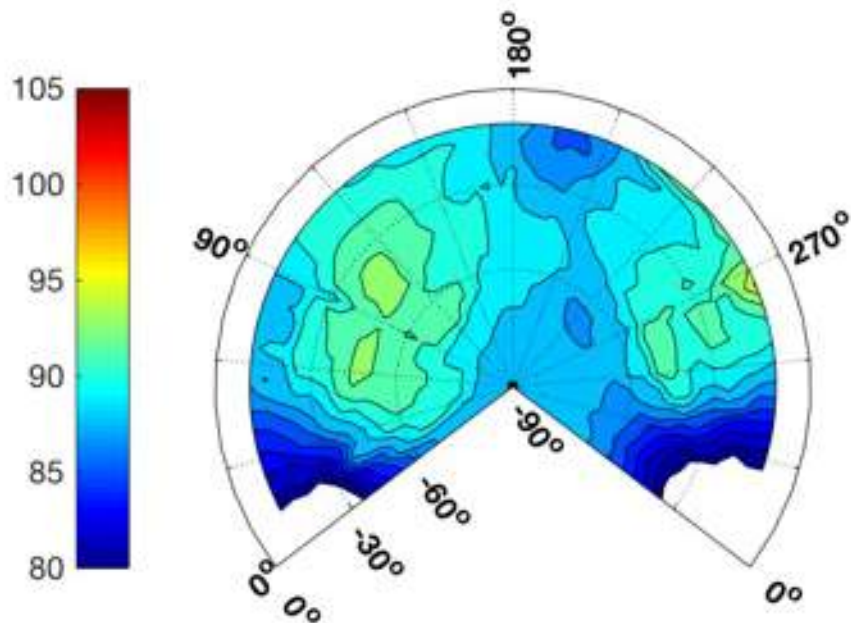


Figure 843: AS350B3, 291266, D40, dBA hemisphere, ground speed 74.3 kts, -13.4° FPA.

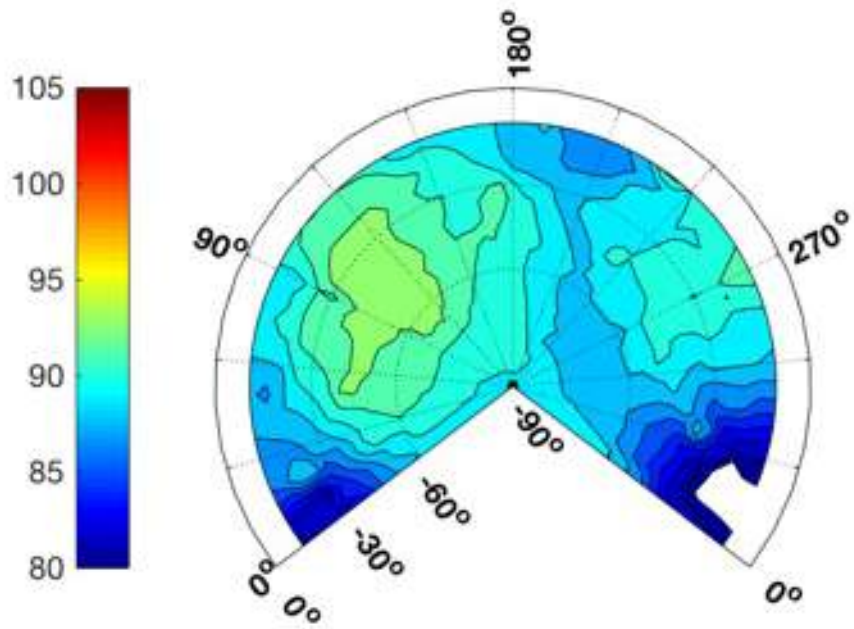


Figure 844: AS350B3, 291267, D40, dBA hemisphere, ground speed 80.3 kts, -14.8° FPA.

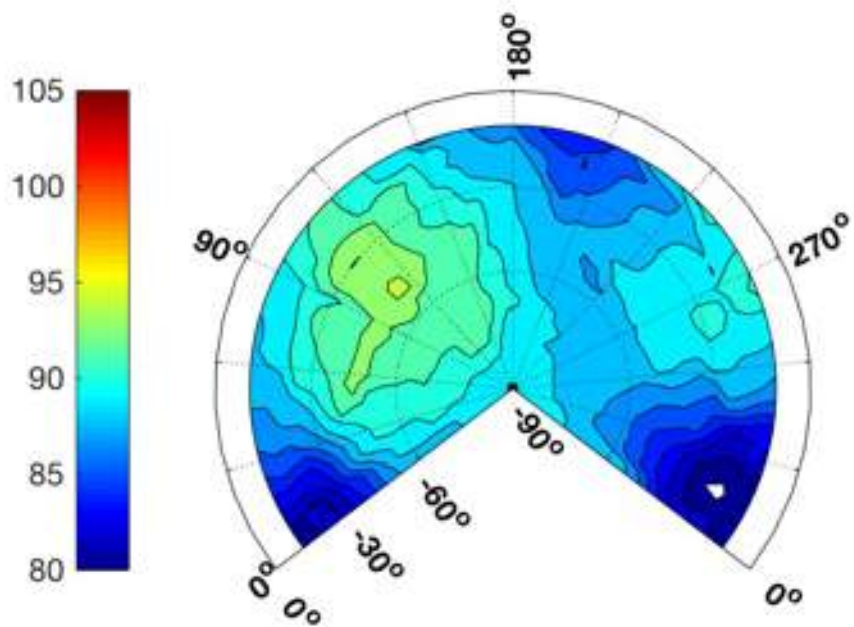


Figure 845: AS350B3, 291268, D41, dBA hemisphere, ground speed 69.1 kts, -13.7° FPA.

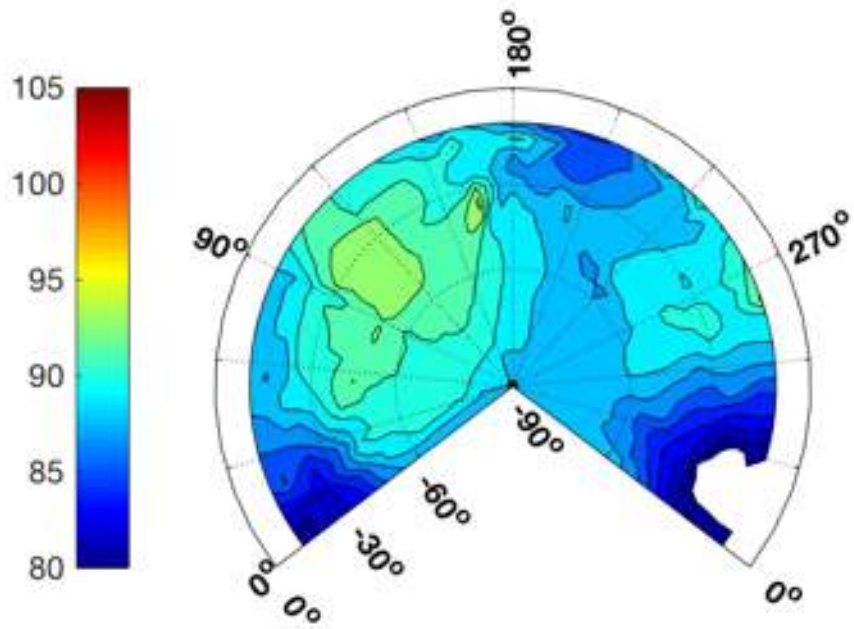


Figure 846: AS350B3, 291269, D41, dBA hemisphere, ground speed 69.6 kts, -13.3° FPA.

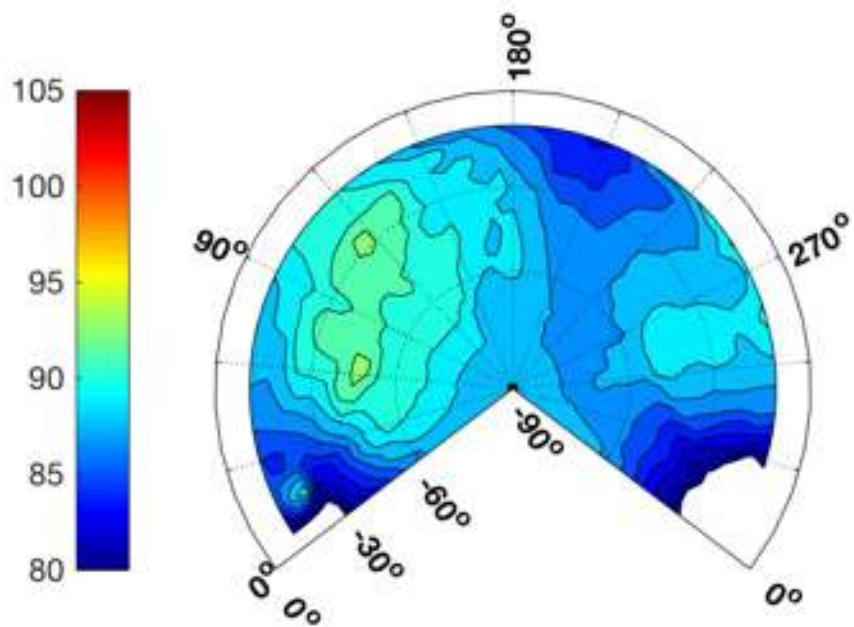


Figure 847: AS350B3, 291270, D42, dBA hemisphere, ground speed 59.6 kts, -13.6° FPA.

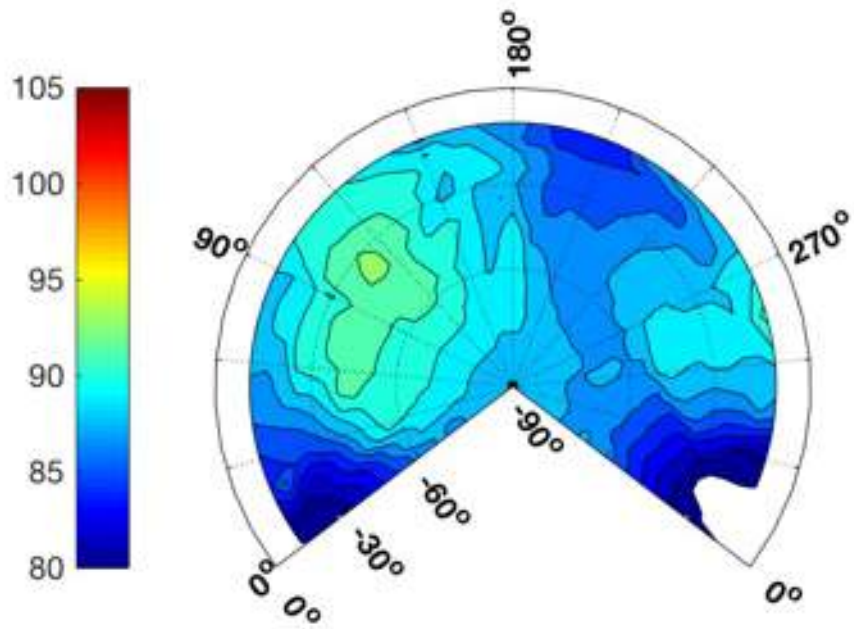


Figure 848: AS350B3, 291271, D42, dBA hemisphere, ground speed 58.6 kts, -13.2° FPA.

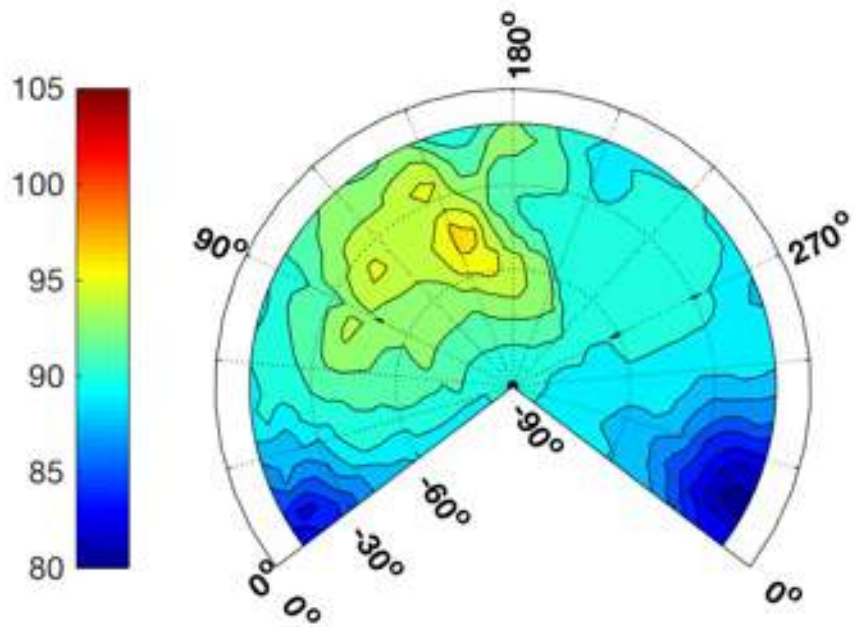


Figure 849: AS350B3, 291272, D43, dBA hemisphere, ground speed 94.3 kts, -10.8° FPA.

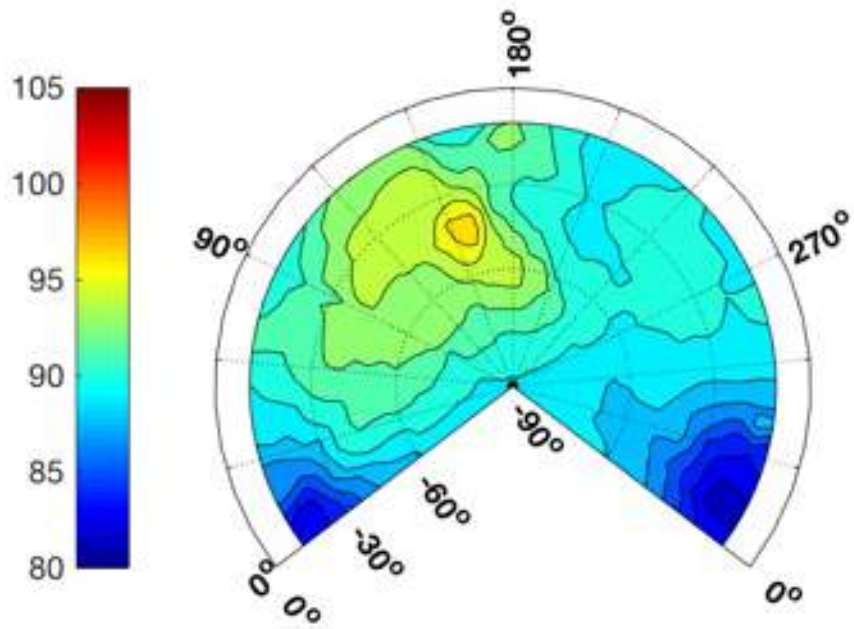


Figure 850: AS350B3, 291273, D43, dBA hemisphere, ground speed 92.6 kts, -10.7° FPA.

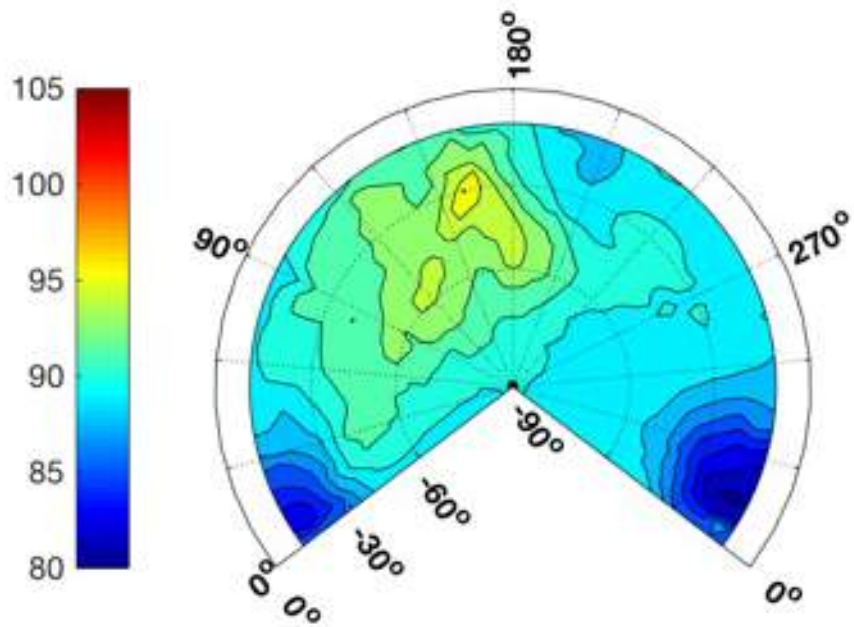


Figure 851: AS350B3, 291274, D44, dBA hemisphere, ground speed 83.4 kts, -10.0° FPA.

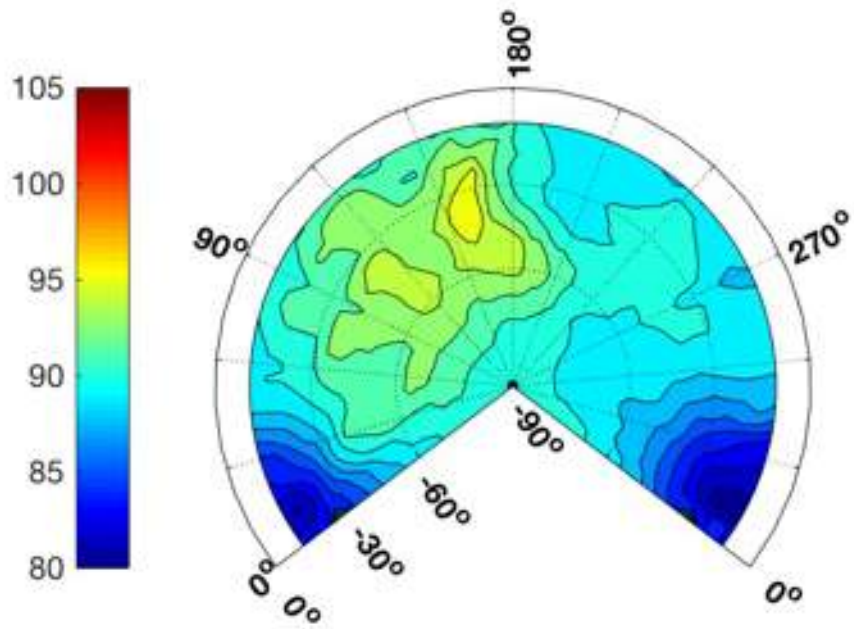


Figure 852: AS350B3, 291275, D44, dBA hemisphere, ground speed 85.0 kts, -10.2° FPA.

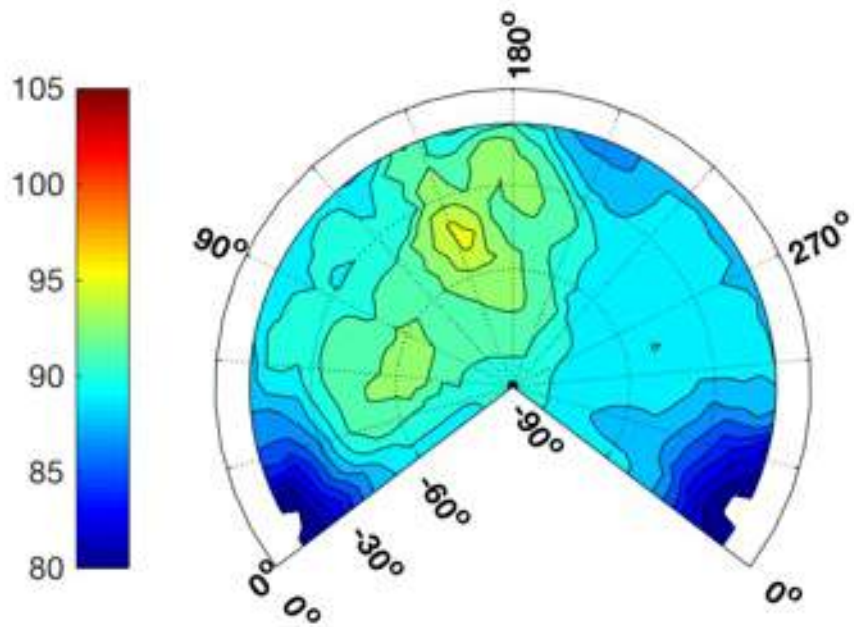


Figure 853: AS350B3, 291276, D18, dBA hemisphere, ground speed 69.1 kts, -8.1° FPA.

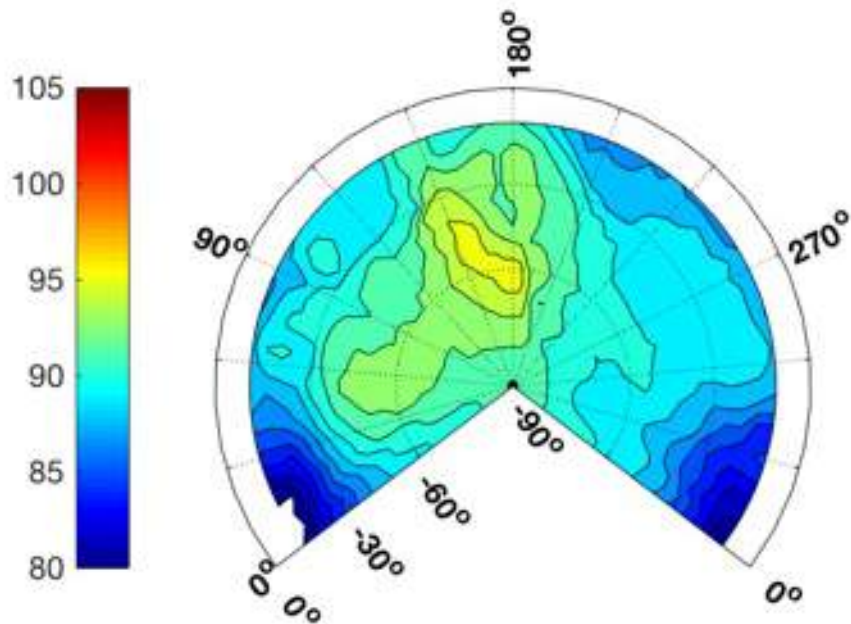


Figure 854: AS350B3, 291277, D18, dBA hemisphere, ground speed 67.3 kts, -7.6° FPA.

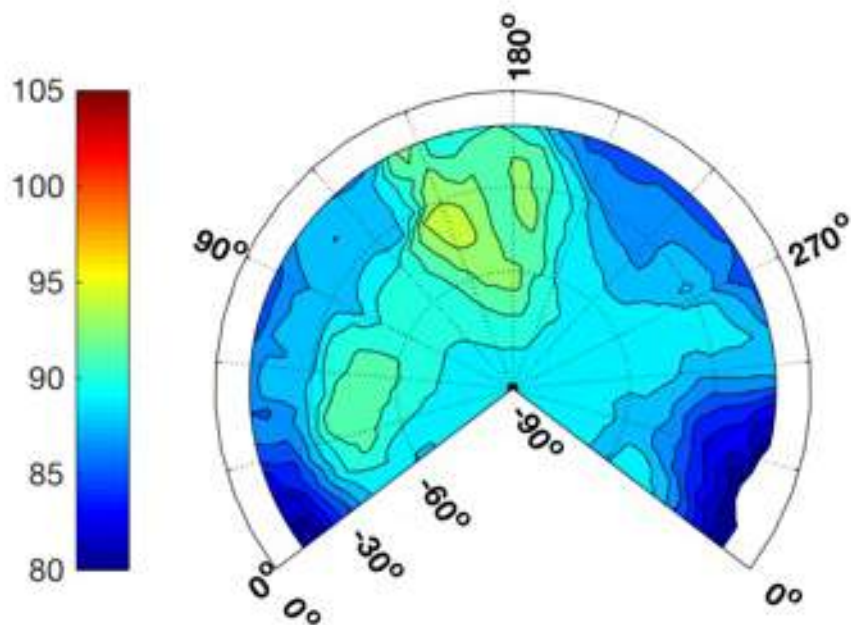


Figure 855: AS350B3, 291278, D47, dBA hemisphere, ground speed 66.0 kts, -8.1° FPA.

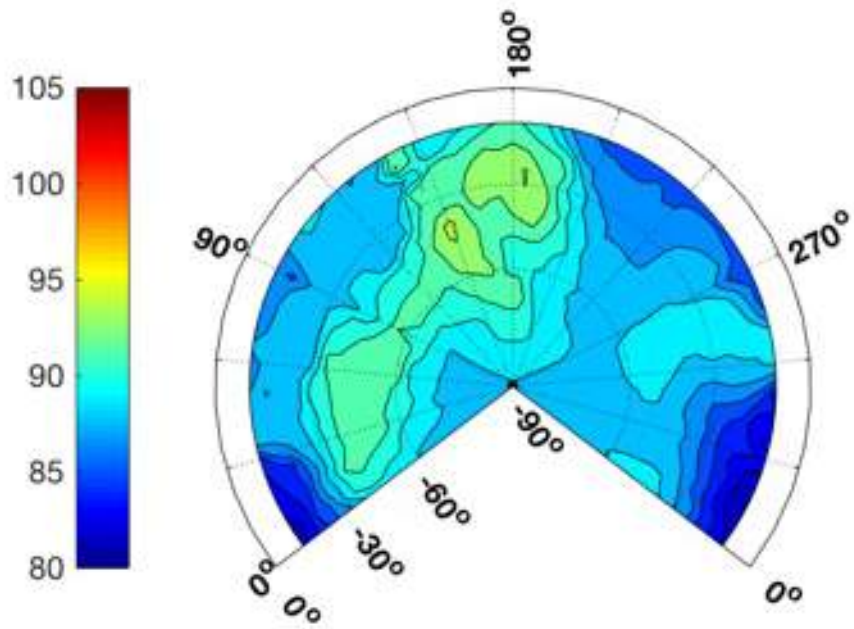


Figure 856: AS350B3, 291279, D47, dBA hemisphere, ground speed 66.8 kts, -8.0° FPA.

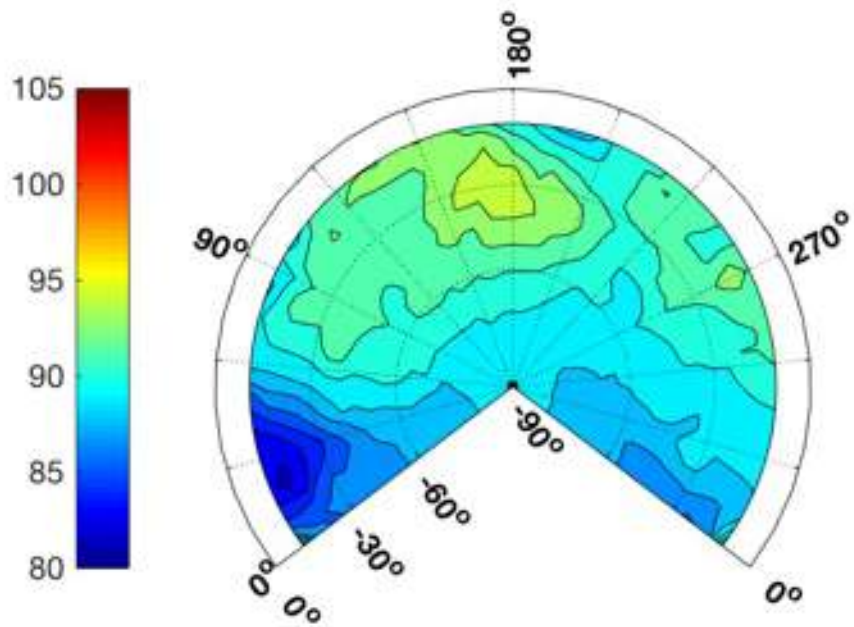


Figure 857: AS350B3, 291280, D48, dBA hemisphere, ground speed 75.5 kts, -7.6° FPA.

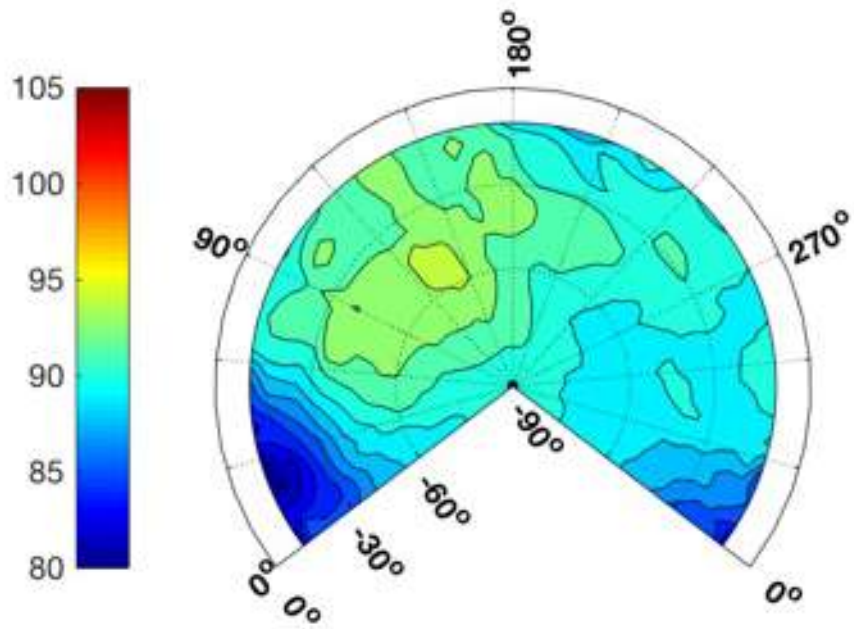


Figure 858: AS350B3, 291281, D48, dBA hemisphere, ground speed 72.4 kts, -7.9° FPA.

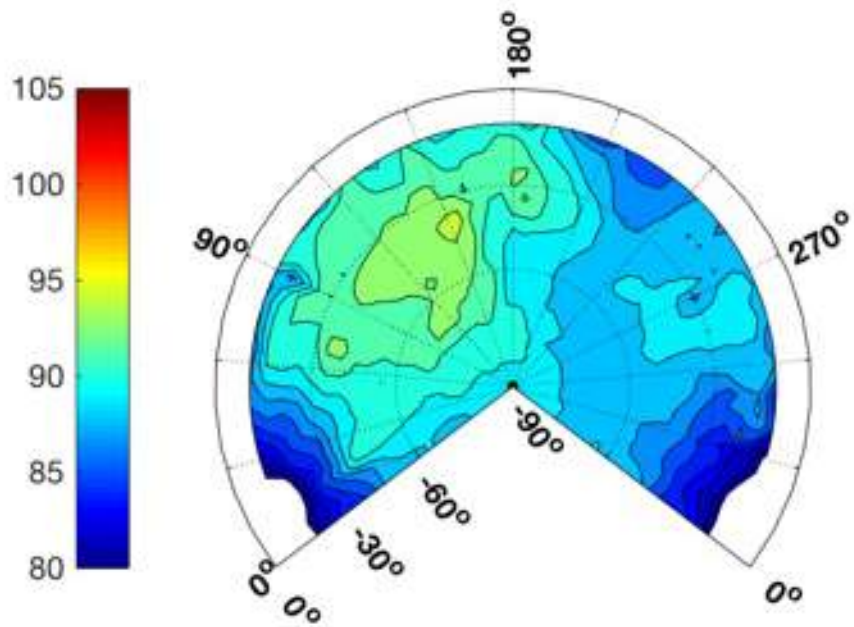


Figure 859: AS350B3, 291312, D23, dBA hemisphere, ground speed 70.9 kts, -9.8° FPA.

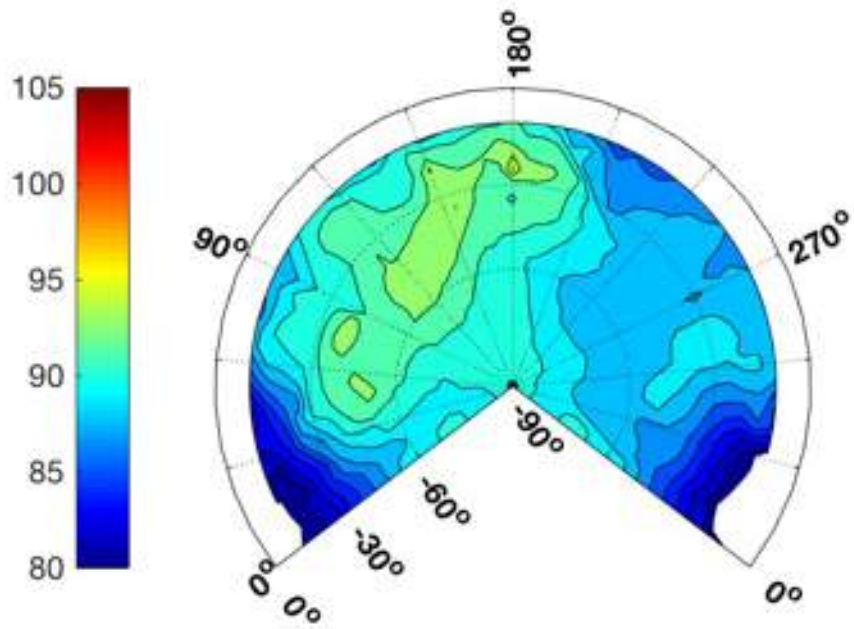


Figure 860: AS350B3, 291313, D23, dBA hemisphere, ground speed 70.7 kts, -9.1° FPA.

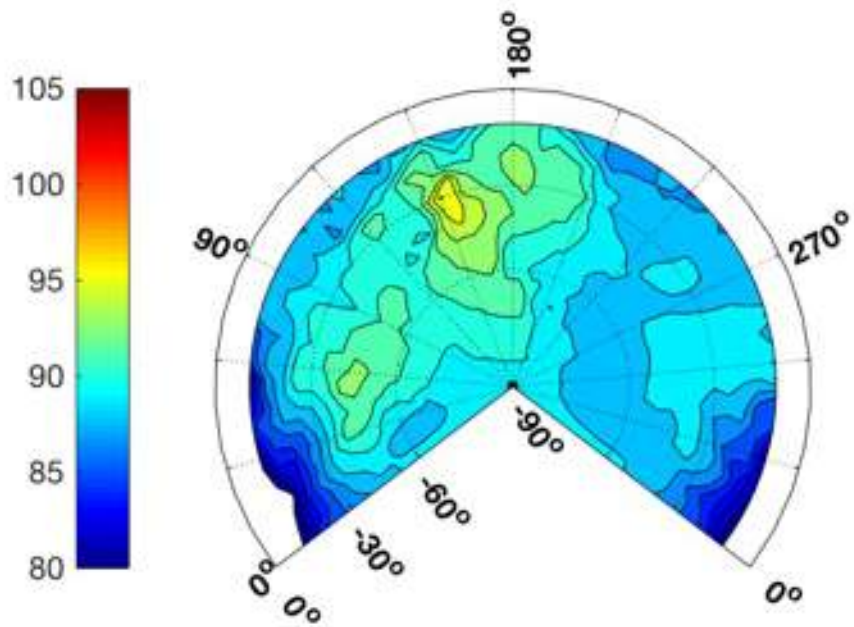


Figure 861: AS350B3, 291314, D13, dBA hemisphere, ground speed 70.7 kts, -6.4° FPA.

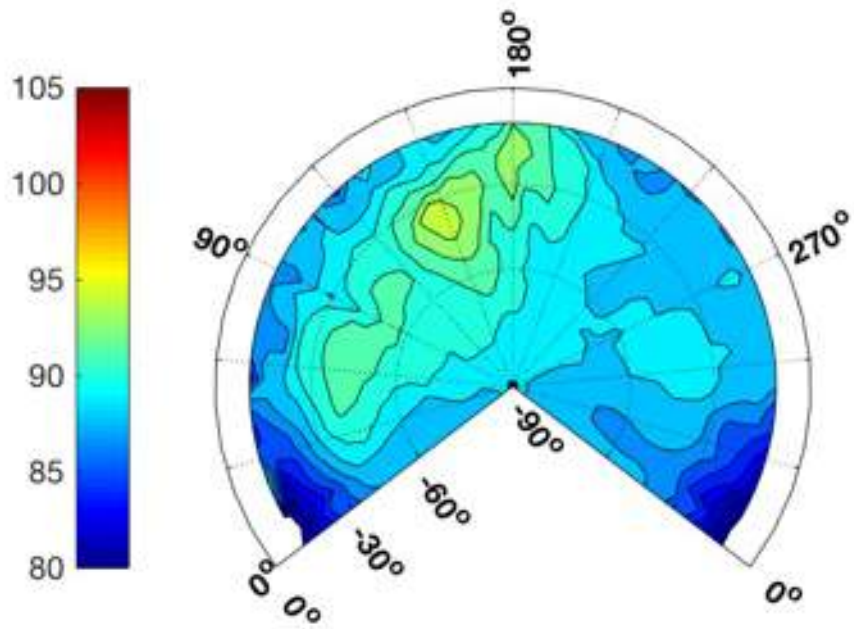


Figure 862: AS350B3, 291315, D13, dBA hemisphere, ground speed 70.3 kts, -5.8° FPA.

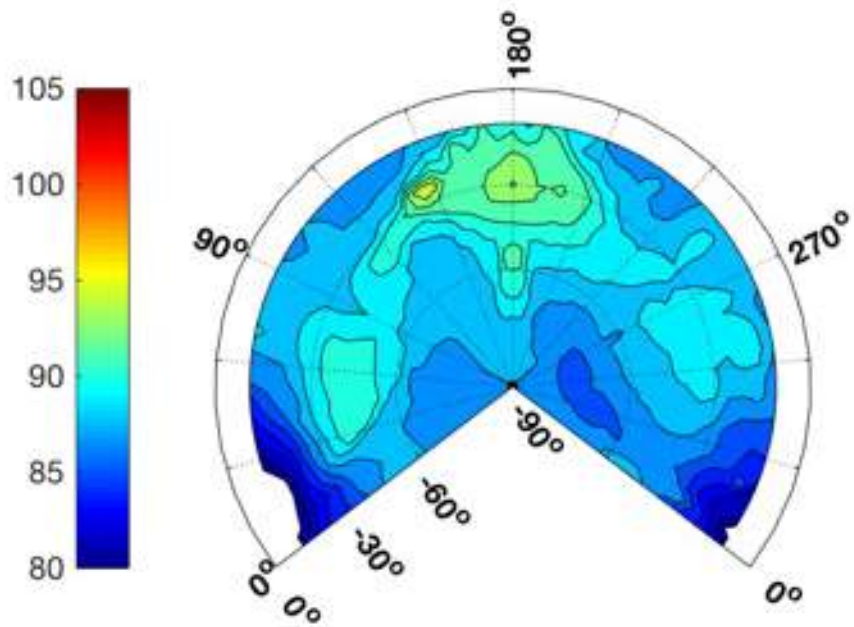


Figure 863: AS350B3, 291316, D8, dBA hemisphere, ground speed 71.2 kts, -5.1° FPA.

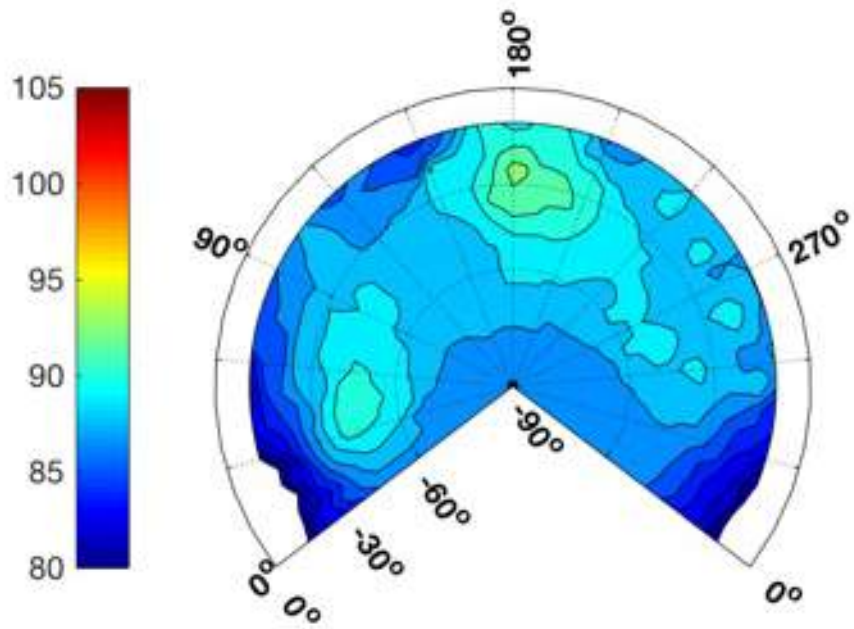


Figure 864: AS350B3, 291317, D8, dBA hemisphere, ground speed 71.0 kts, -4.6° FPA.

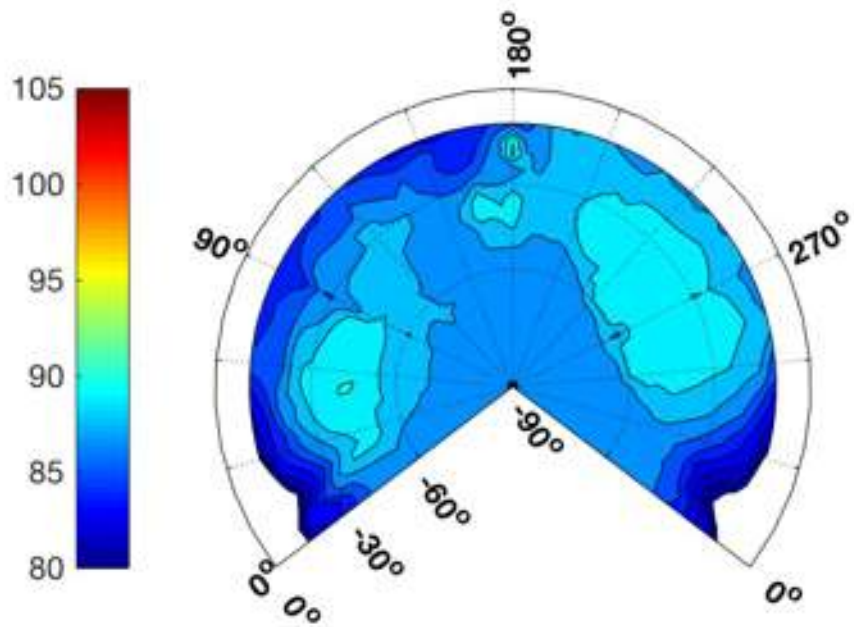


Figure 865: AS350B3, 291318, D3, dBA hemisphere, ground speed 71.7 kts, -3.1° FPA.

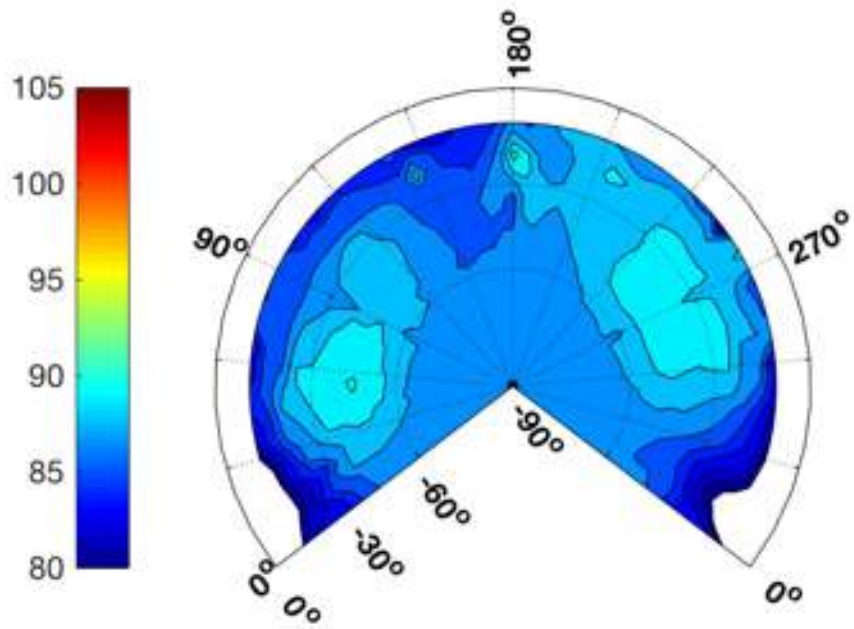


Figure 866: AS350B3, 291319, D3, dBA hemisphere, ground speed 69.6 kts, -2.9° FPA.

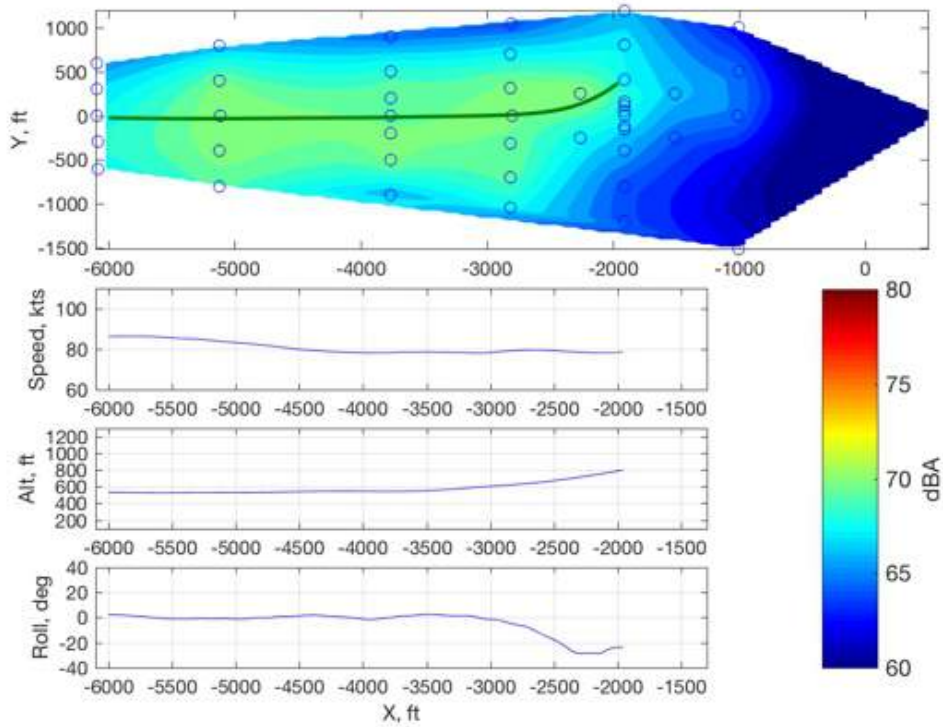


Figure 867: AS350B3, 290234, F17, maximum dBA contour.

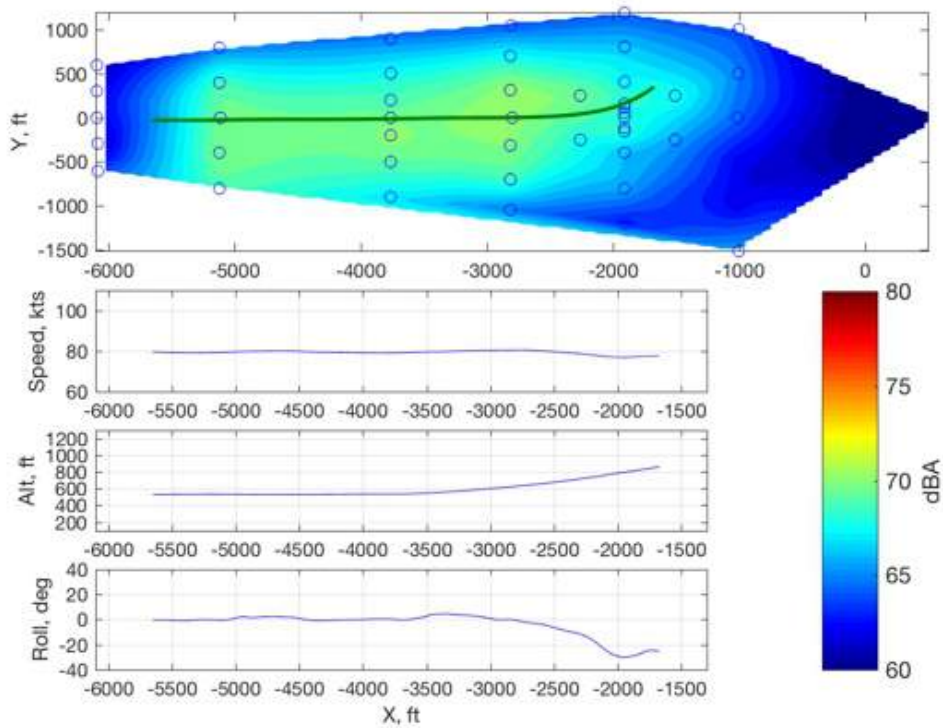


Figure 868: AS350B3, 290235, F17, maximum dBA contour.

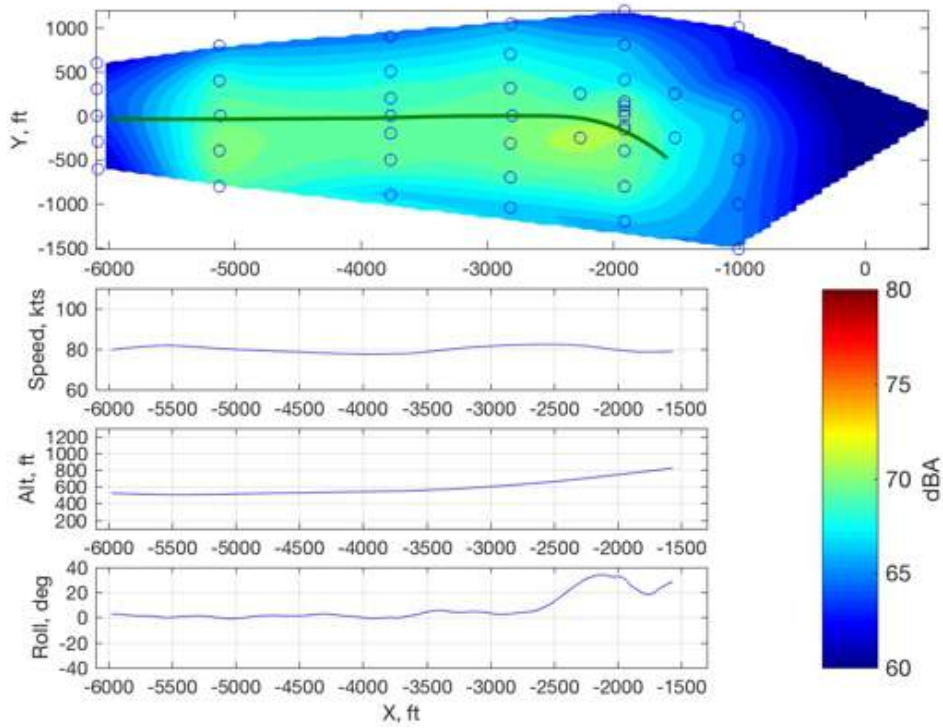


Figure 869: AS350B3, 290236, F18, maximum dBA contour.

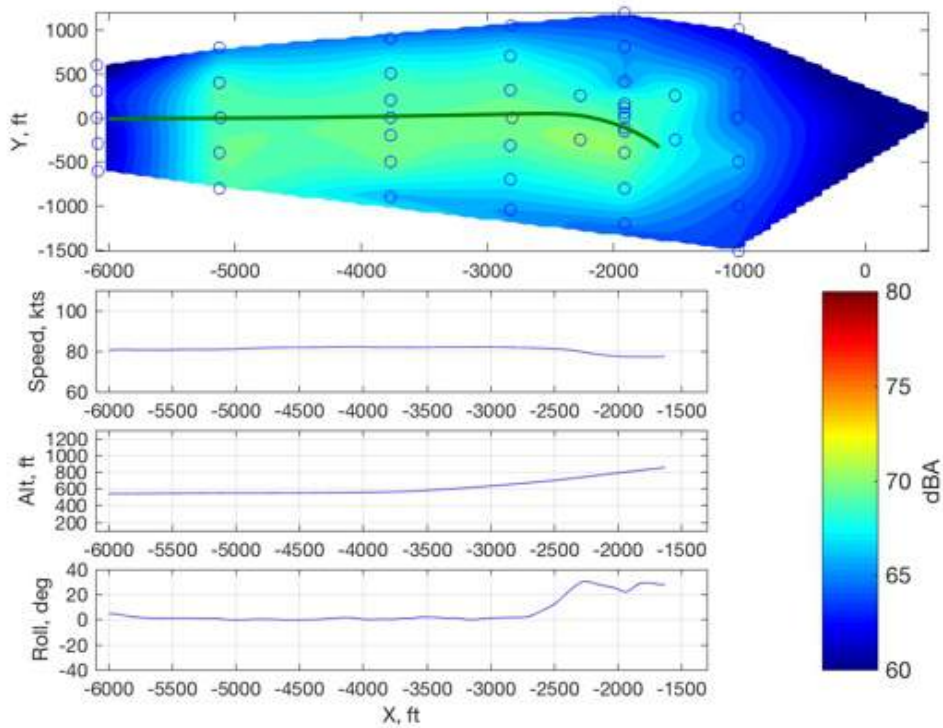


Figure 870: AS350B3, 290237, F18, maximum dBA contour.

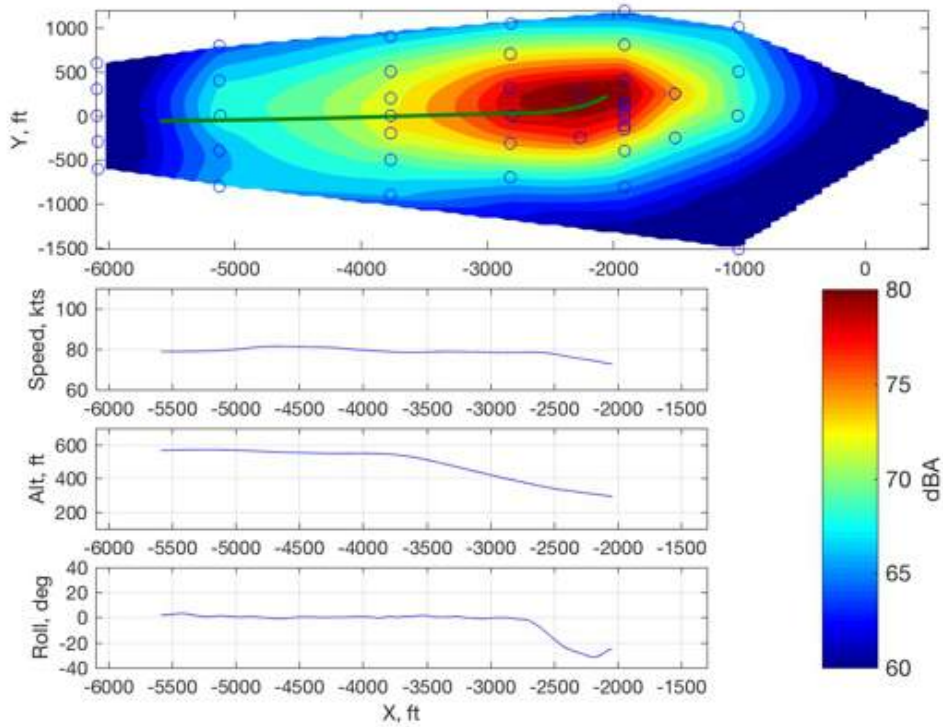


Figure 871: AS350B3, 290238, F19, maximum dBA contour.

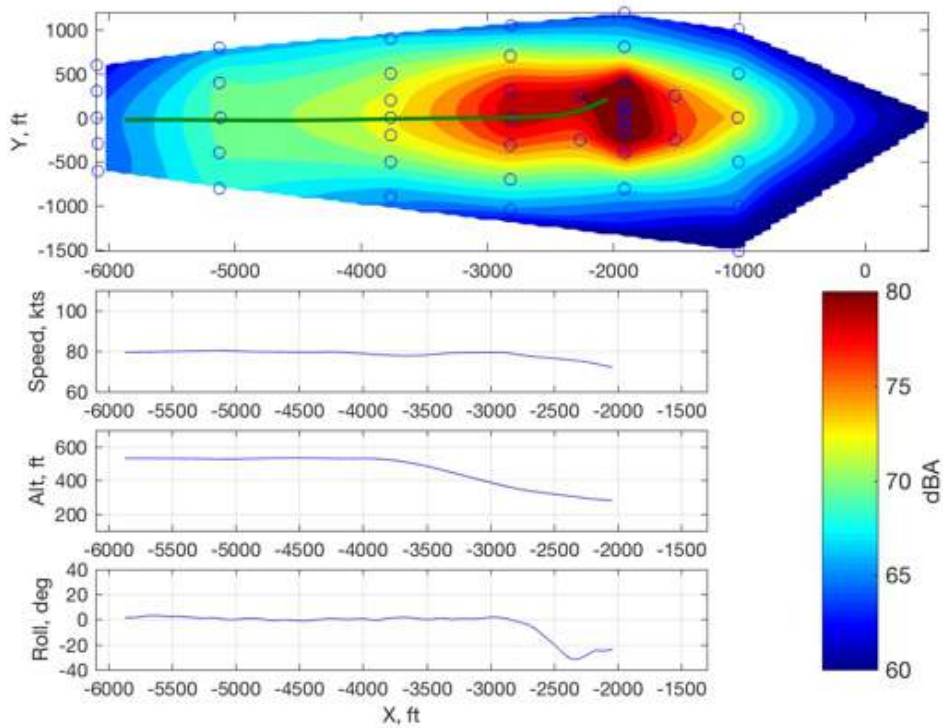


Figure 872: AS350B3, 290239, F19, maximum dBA contour.

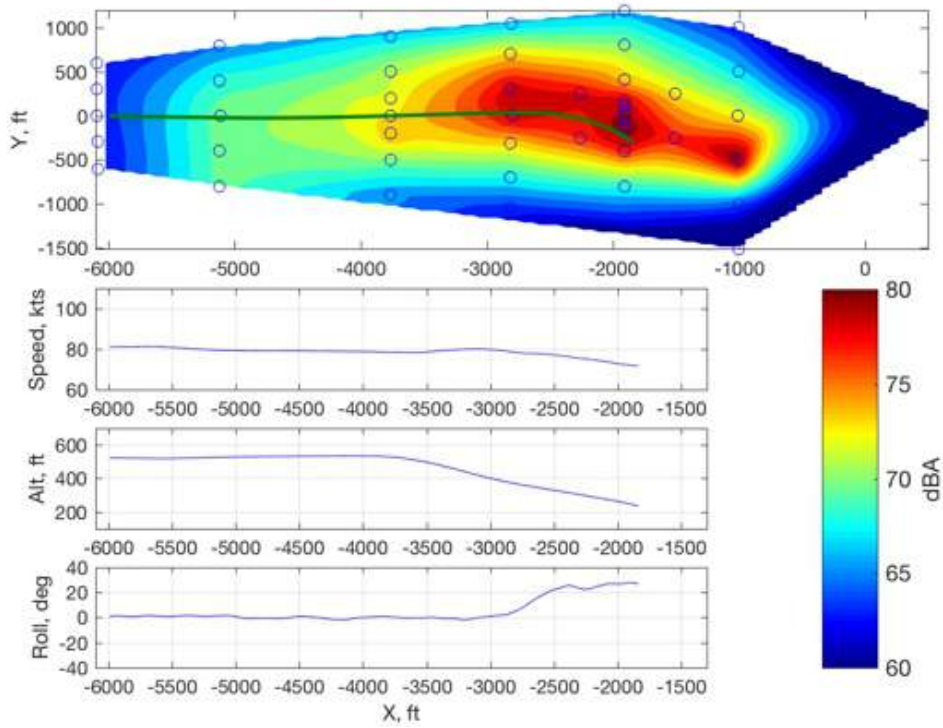


Figure 873: AS350B3, 290240, F20, maximum dBA contour.

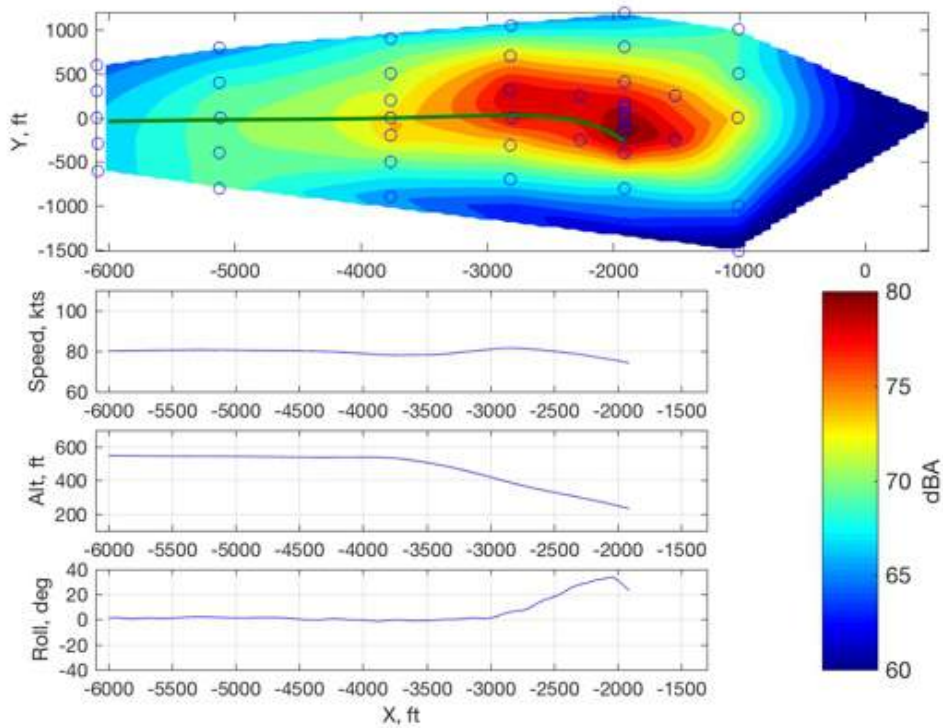


Figure 874: AS350B3, 290241, F20, maximum dBA contour.

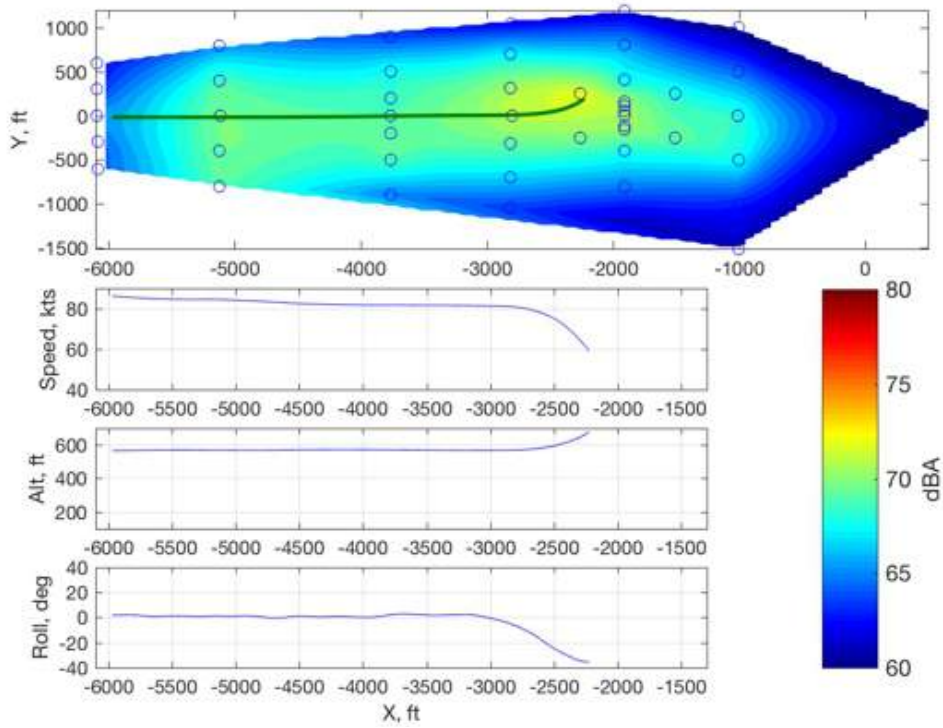


Figure 875: AS350B3, 290206, F21, maximum dBA contour.

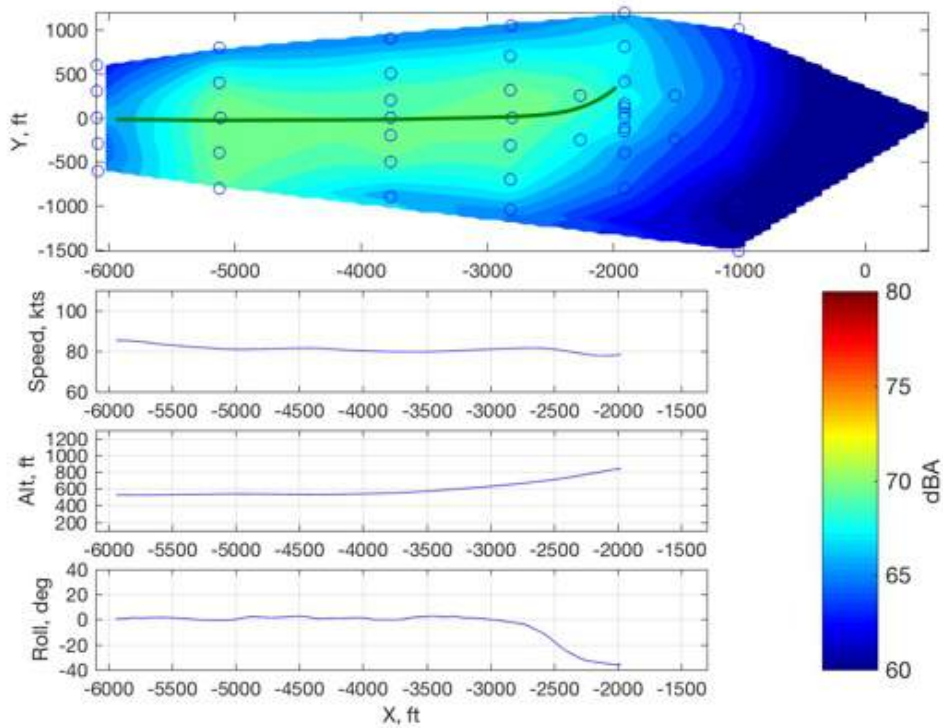


Figure 876: AS350B3, 290207, F21, maximum dBA contour.

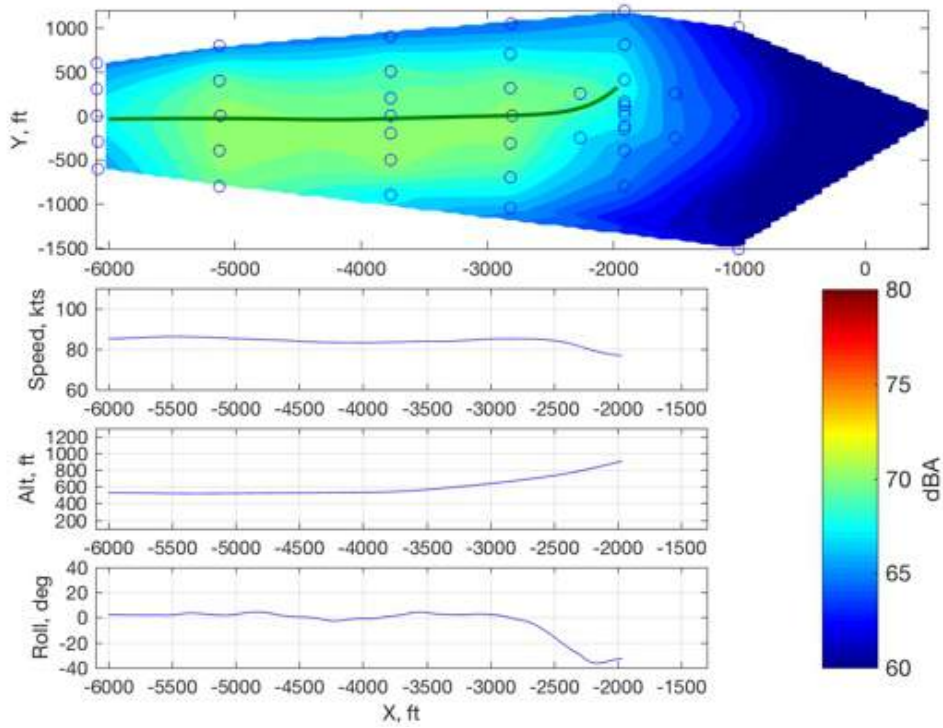


Figure 877: AS350B3, 290208, F21, maximum dBA contour.

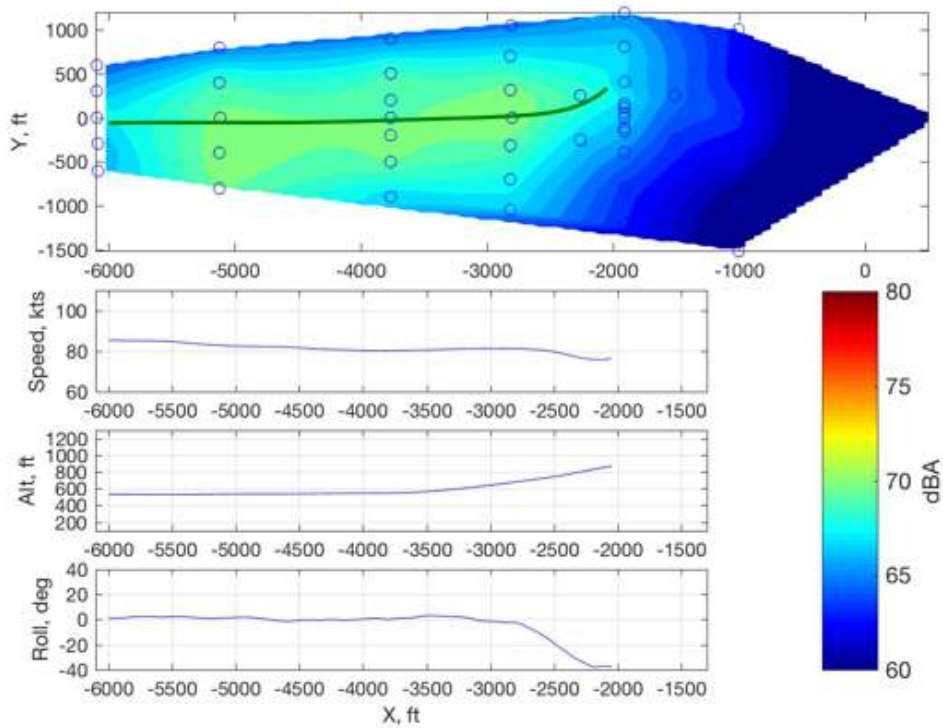


Figure 878: AS350B3, 290209, F21, maximum dBA contour.

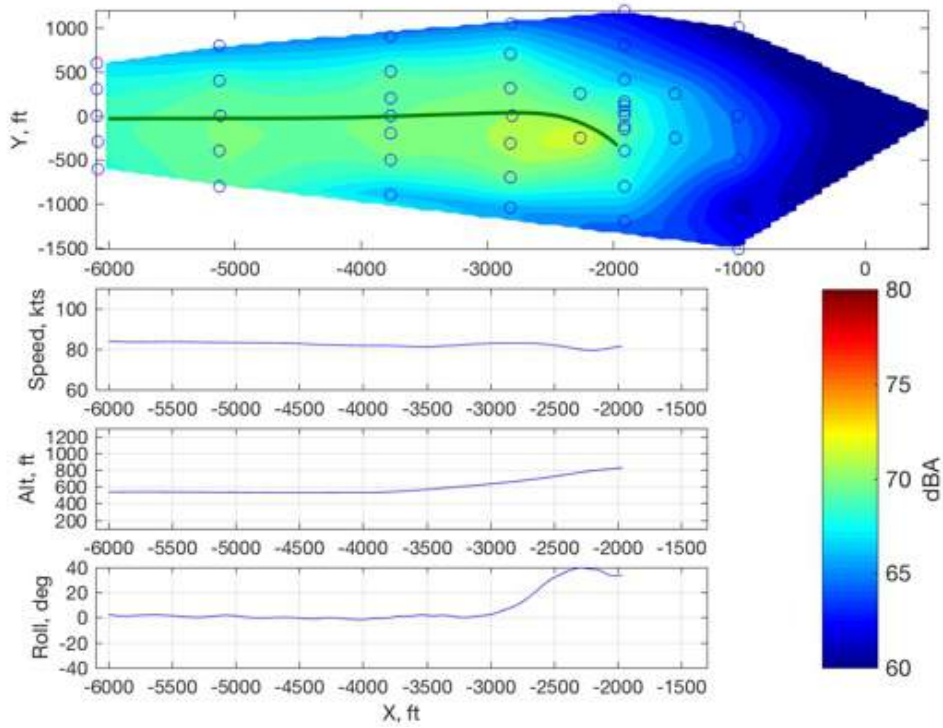


Figure 879: AS350B3, 290210, F22, maximum dBA contour.

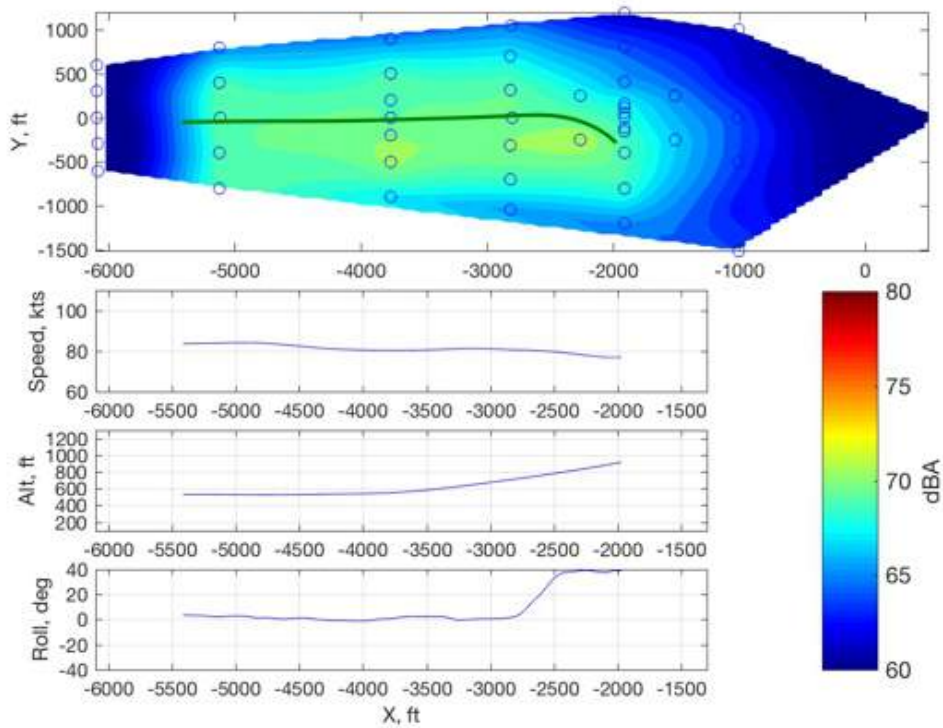


Figure 880: AS350B3, 290211, F22, maximum dBA contour.

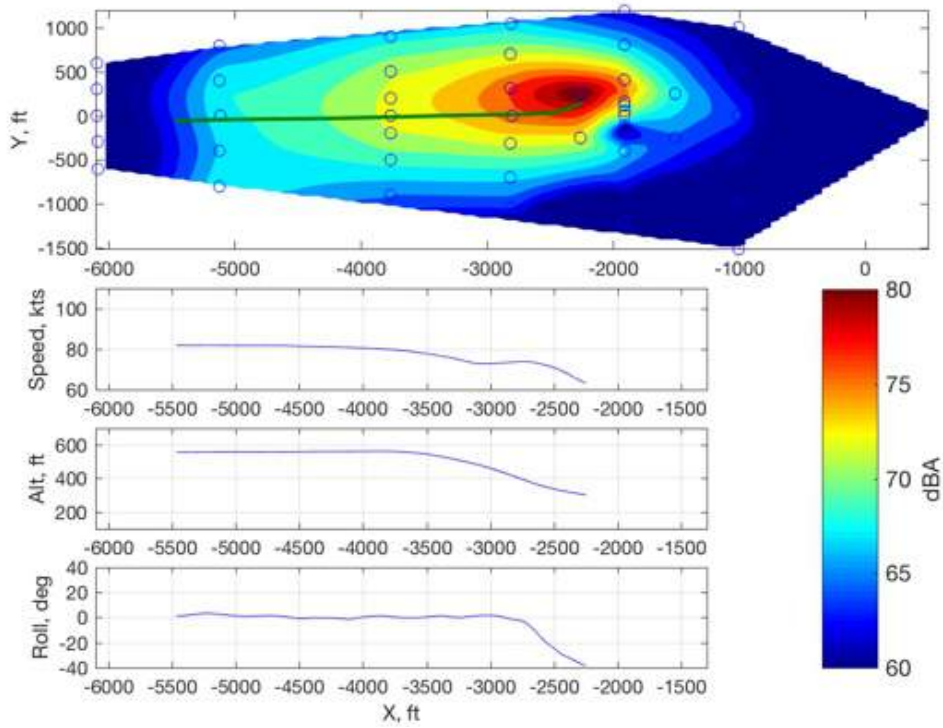


Figure 881: AS350B3, 290212, F23, maximum dBA contour.

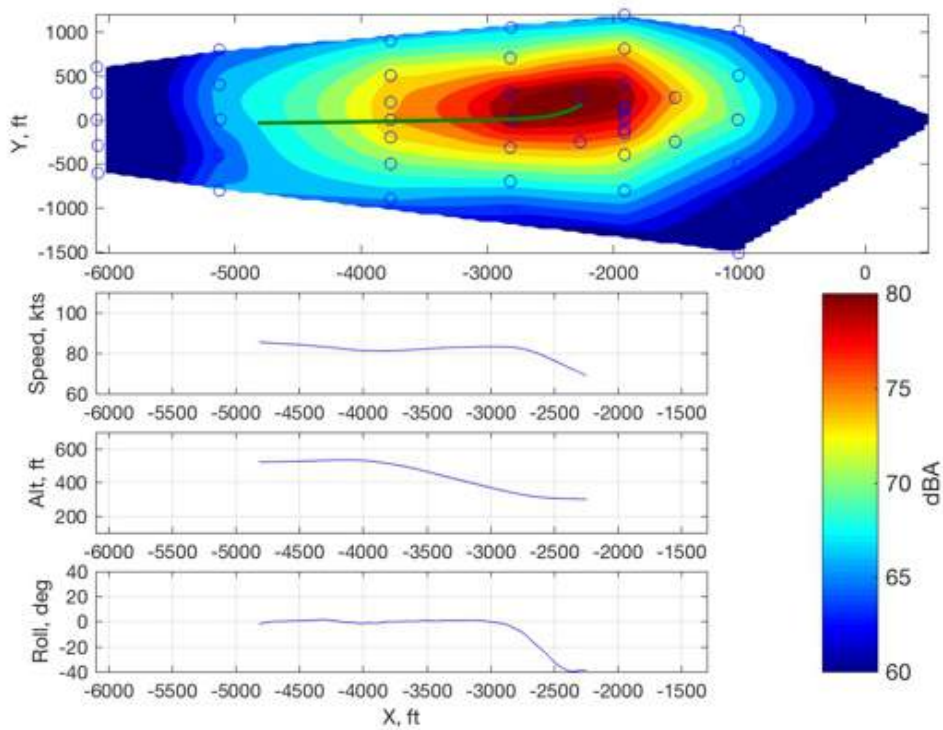


Figure 882: AS350B3, 290213, F23, maximum dBA contour.

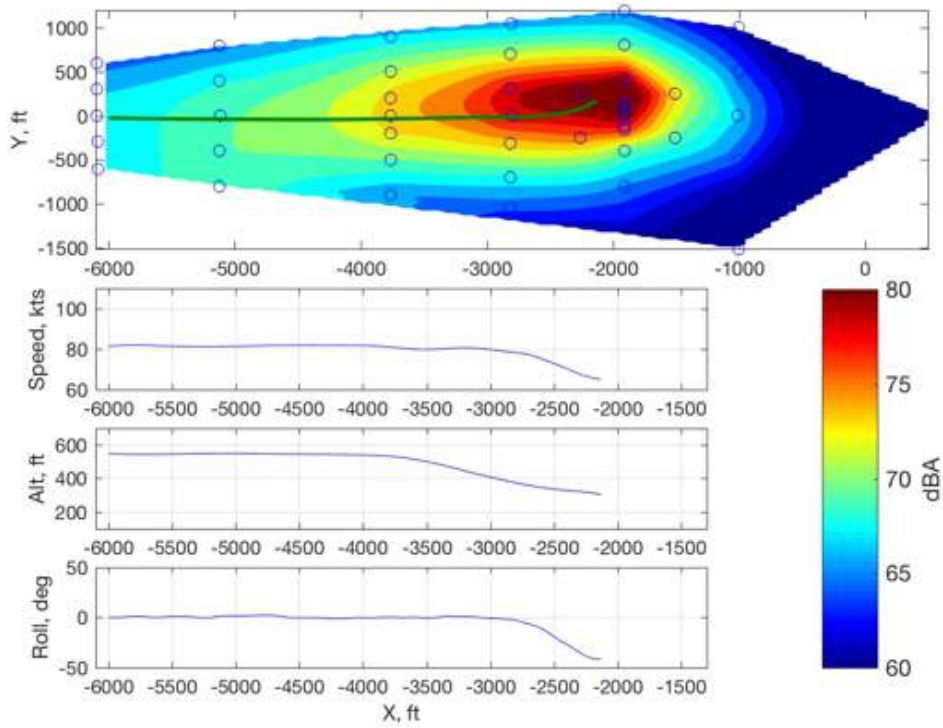


Figure 883: AS350B3, 290214, F23, maximum dBA contour.

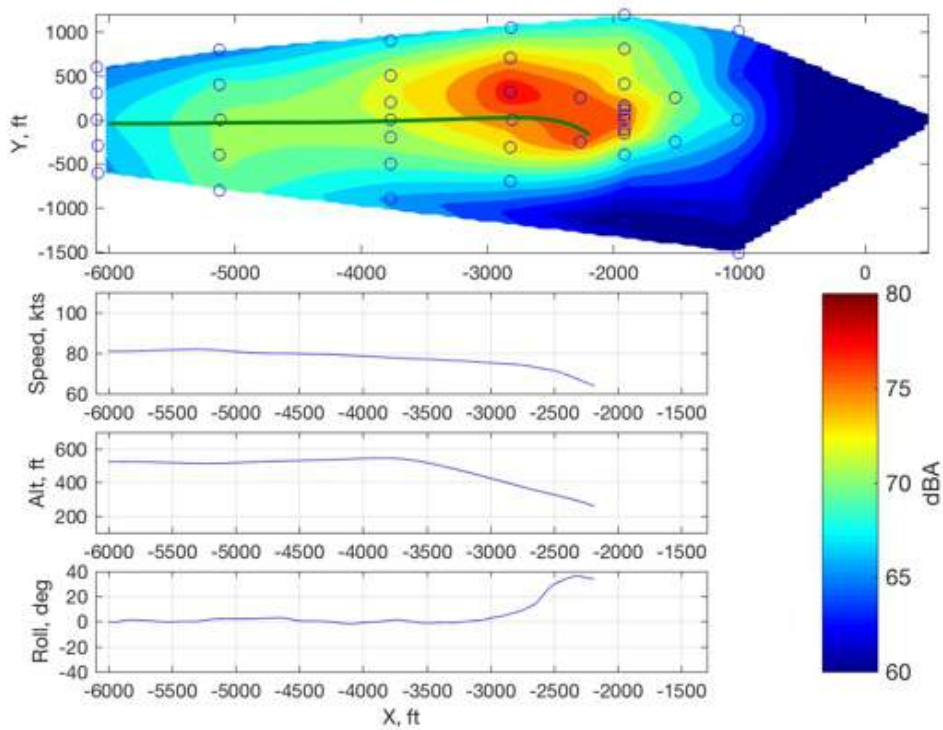


Figure 884: AS350B3, 290215, F24, maximum dBA contour.

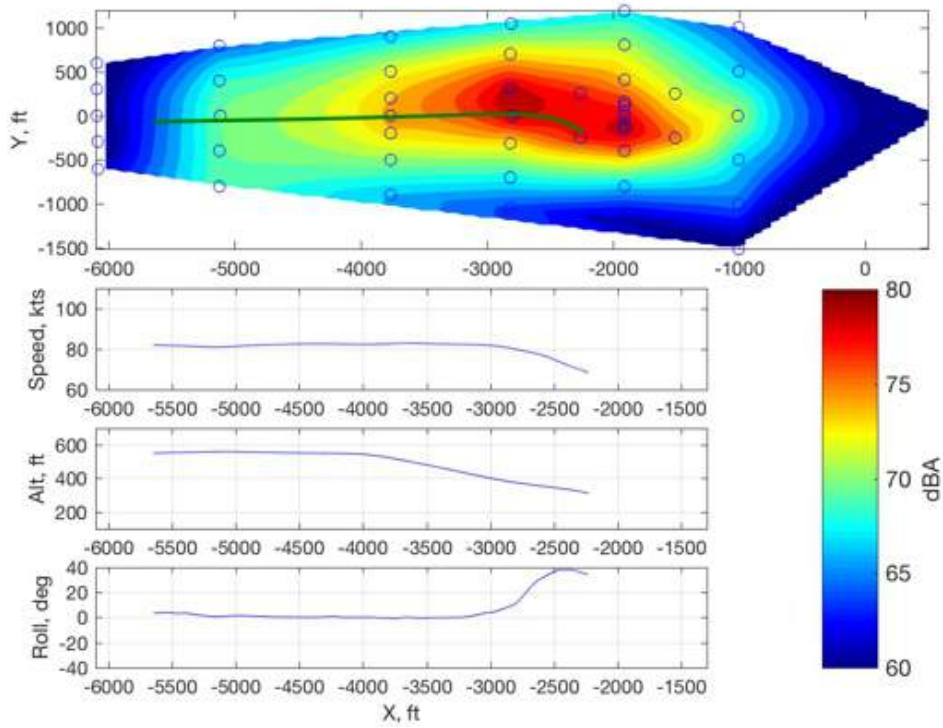


Figure 885: AS350B3, 290216, F24, maximum dBA contour.

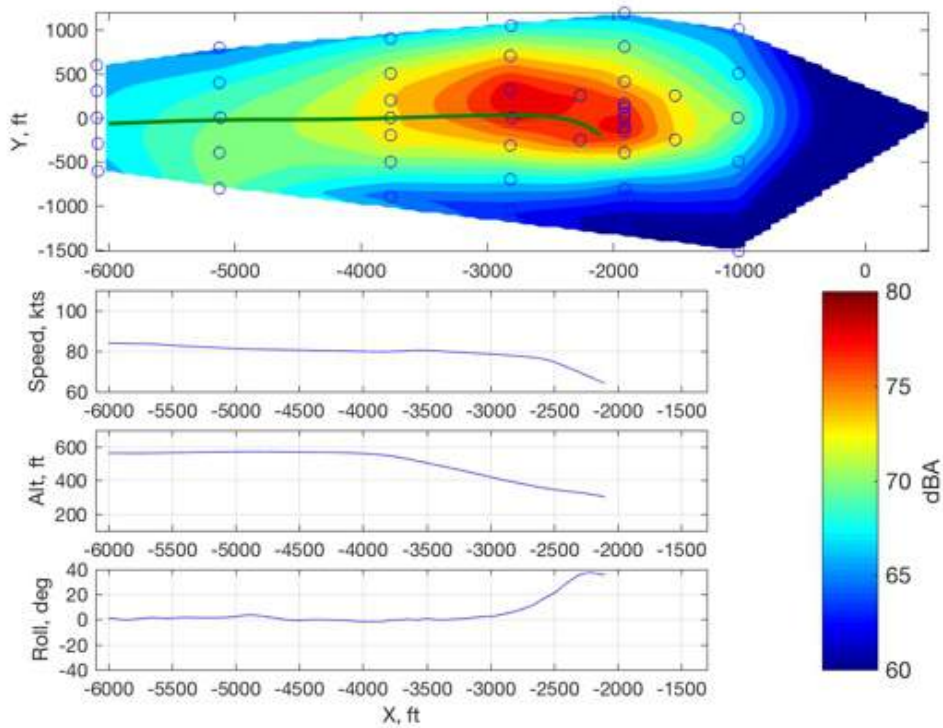


Figure 886: AS350B3, 290217, F24, maximum dBA contour.

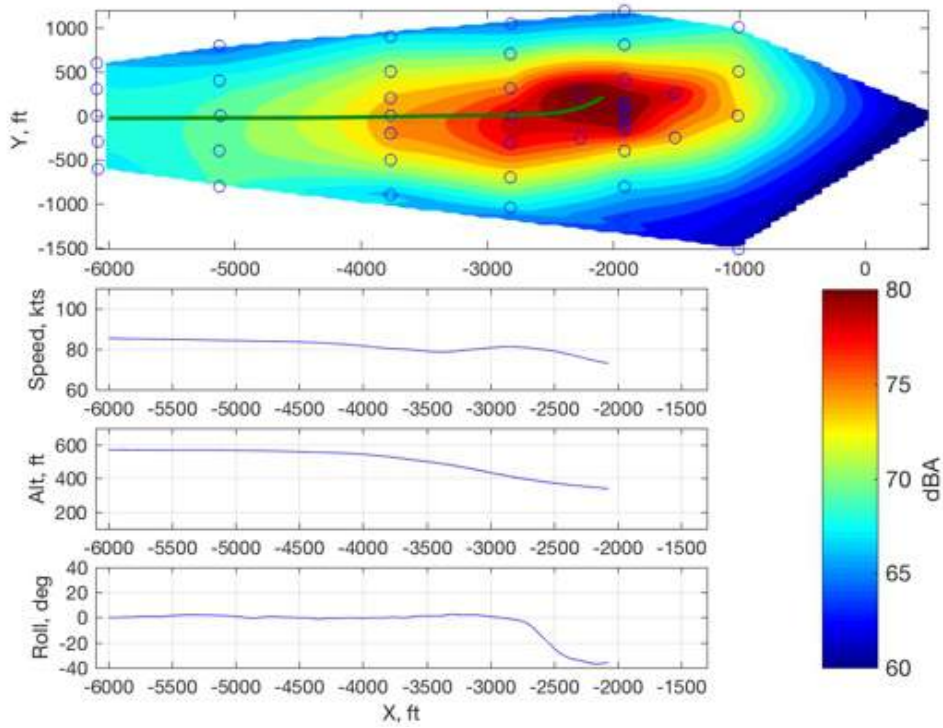


Figure 887: AS350B3, 290224, F29, maximum dBA contour.

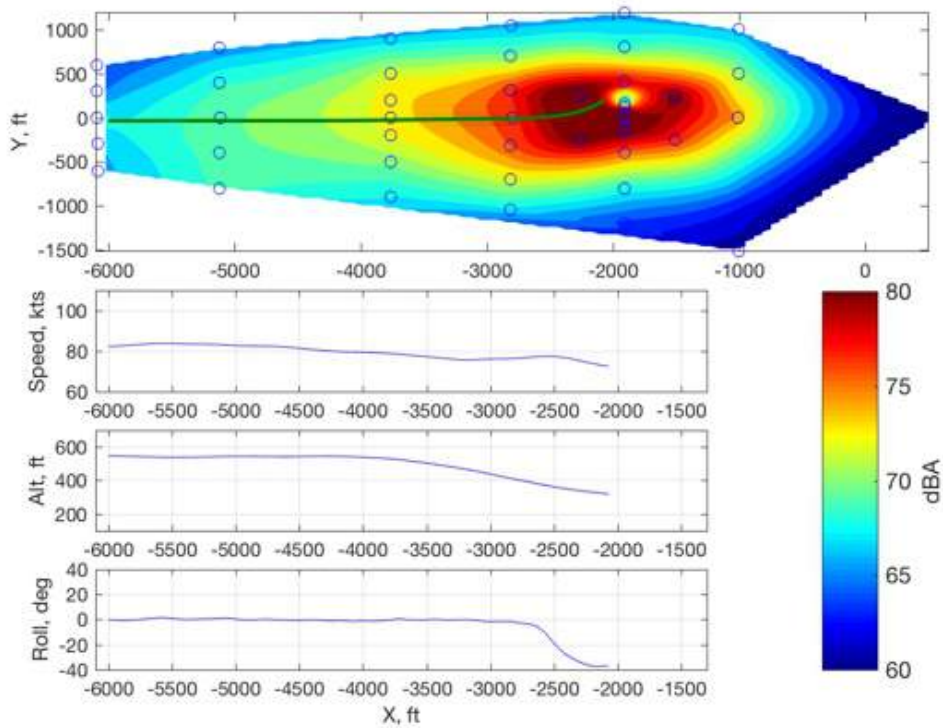


Figure 888: AS350B3, 290225, F29, maximum dBA contour.

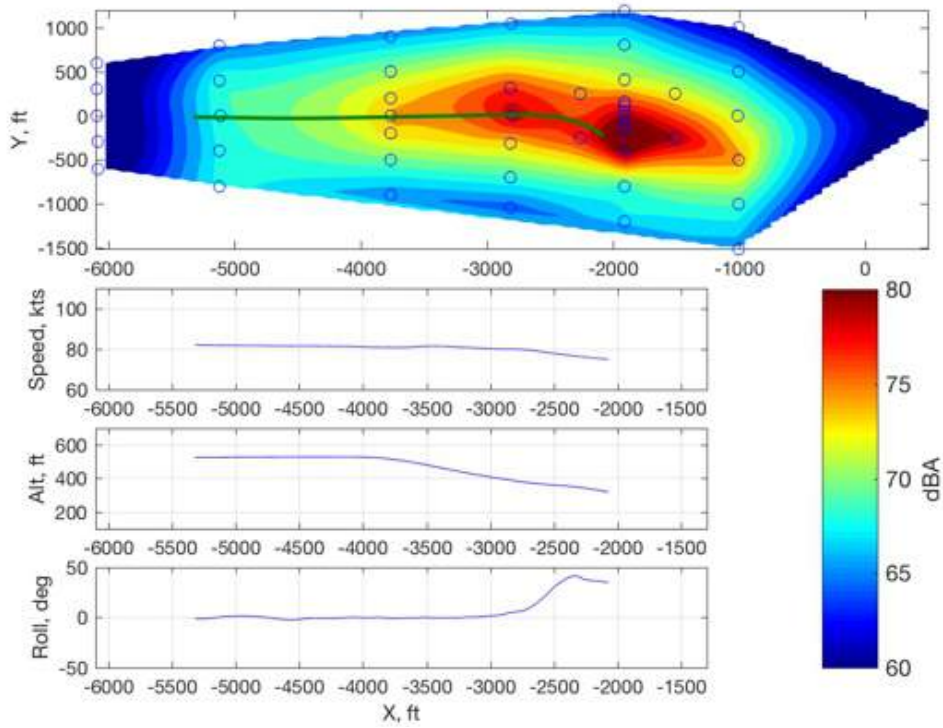


Figure 889: AS350B3, 290226, F30, maximum dBA contour.

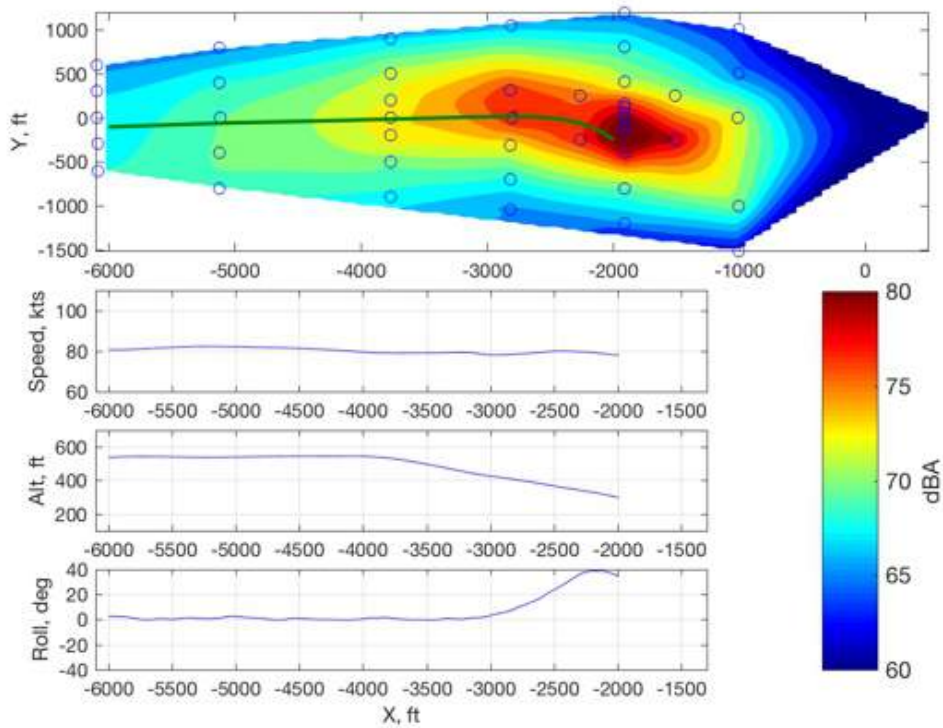


Figure 890: AS350B3, 290227, F30, maximum dBA contour.

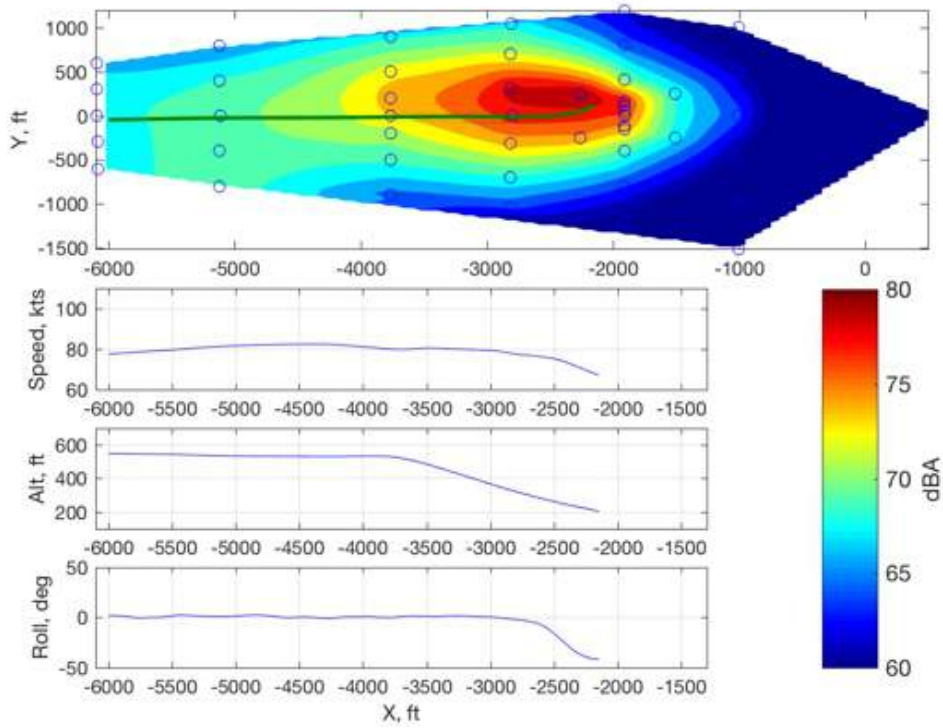


Figure 891: AS350B3, 290228, F31, maximum dBA contour.

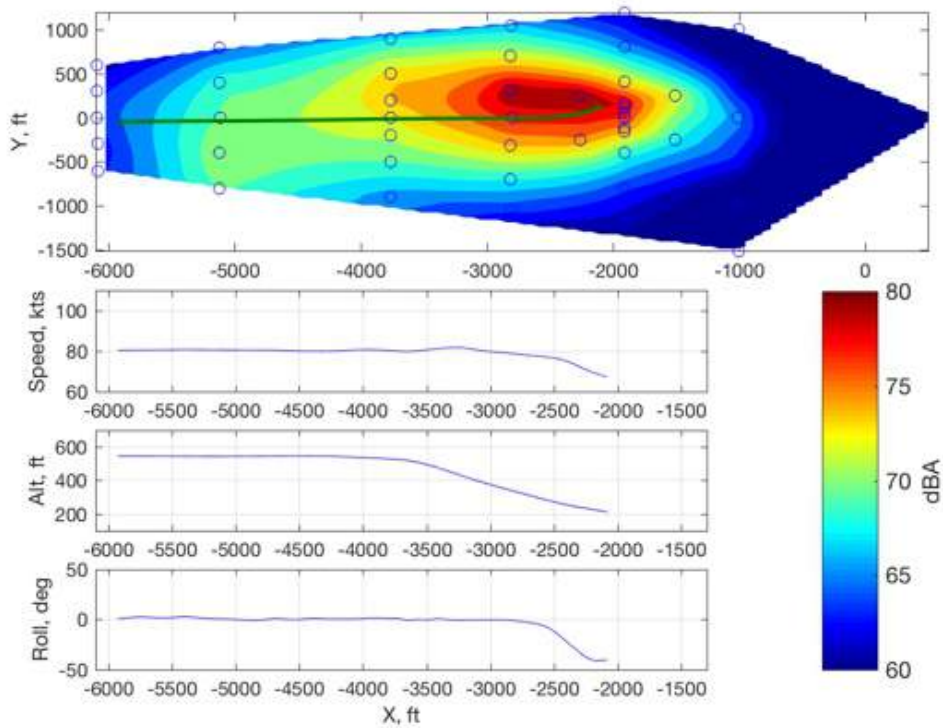


Figure 892: AS350B3, 290229, F31, maximum dBA contour.

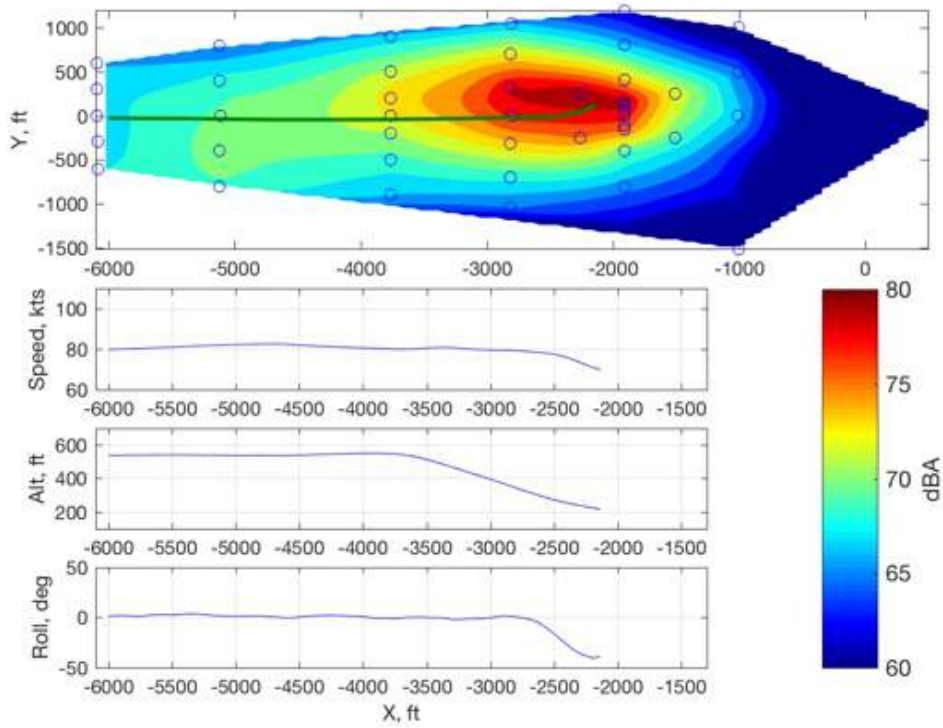


Figure 893: AS350B3, 290230, F31, maximum dBA contour.

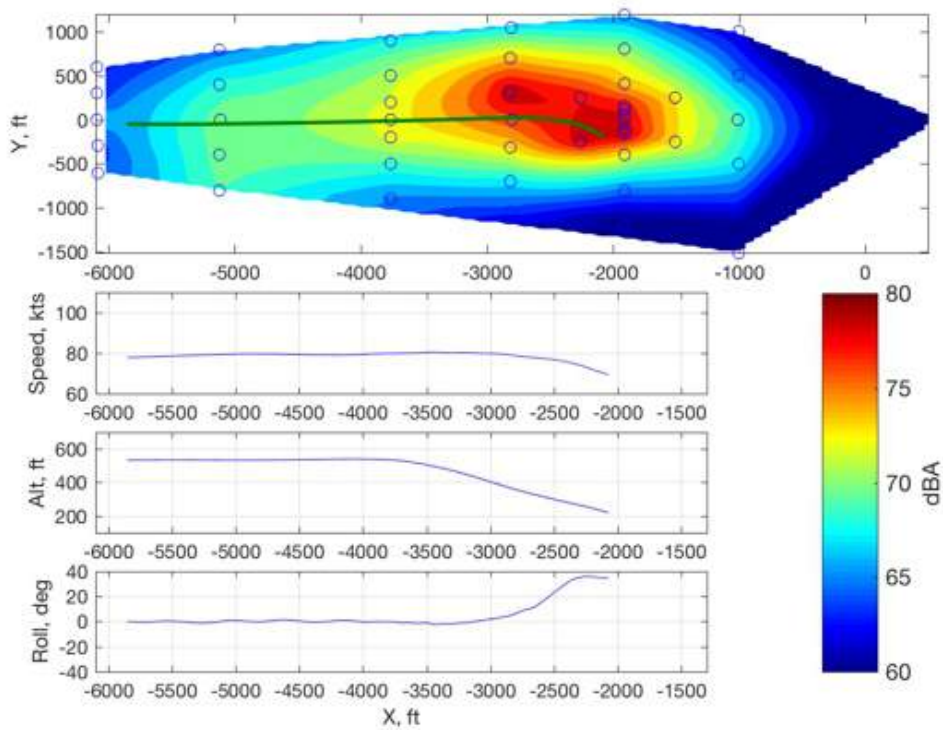


Figure 894: AS350B3, 290231, F32, maximum dBA contour.

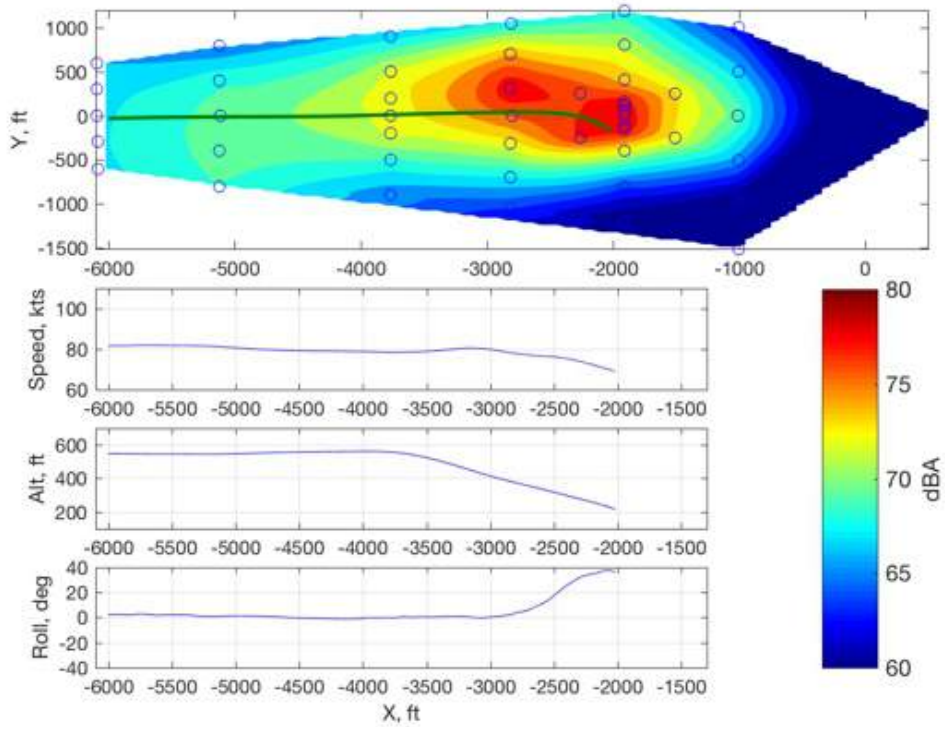


Figure 895: AS350B3, 290232, F32, maximum dBA contour.

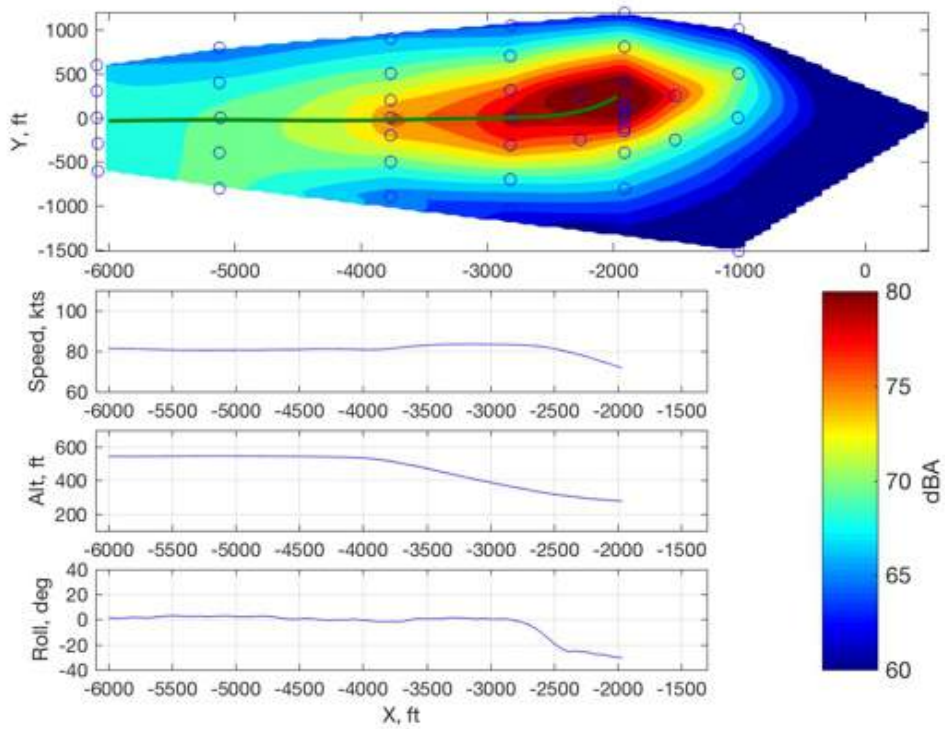


Figure 896: AS350B3, 290242, G13, maximum dBA contour.

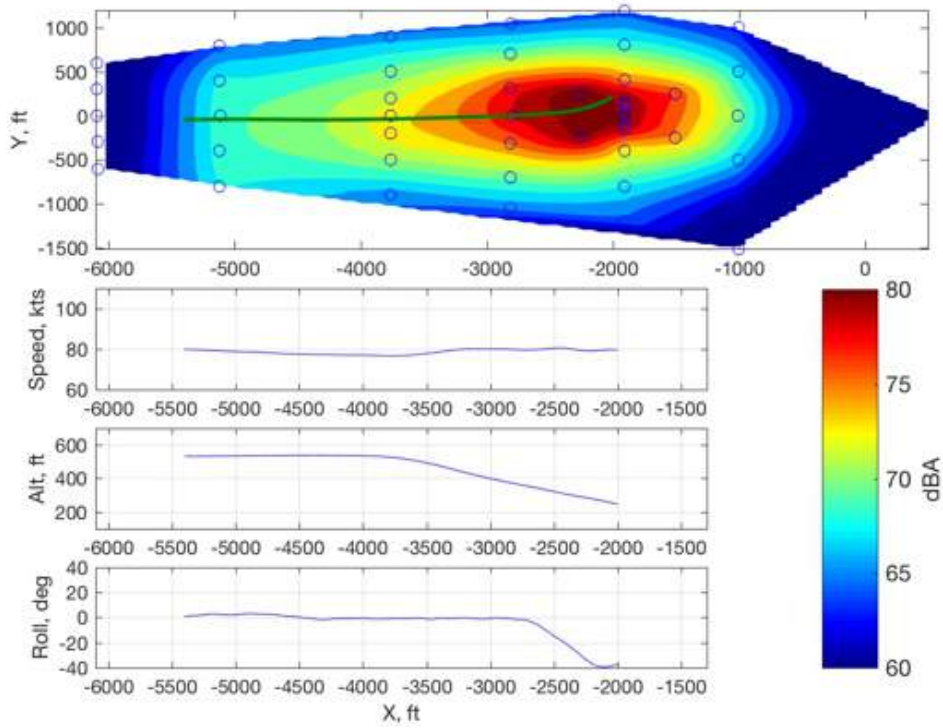


Figure 897: AS350B3, 290243, G13, maximum dBA contour.

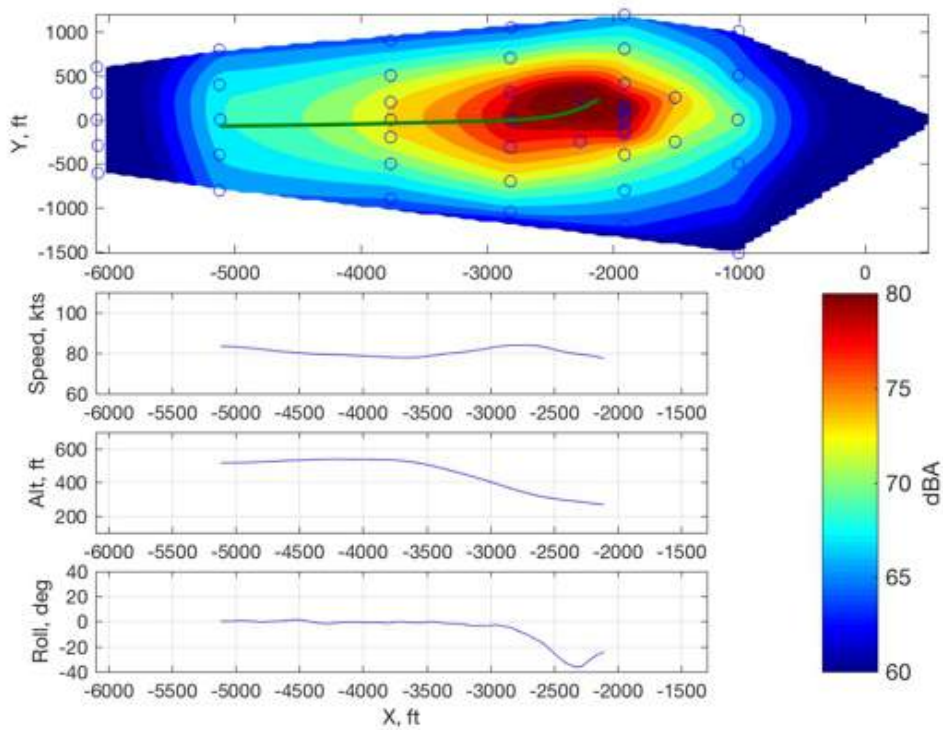


Figure 898: AS350B3, 290244, G13, maximum dBA contour.

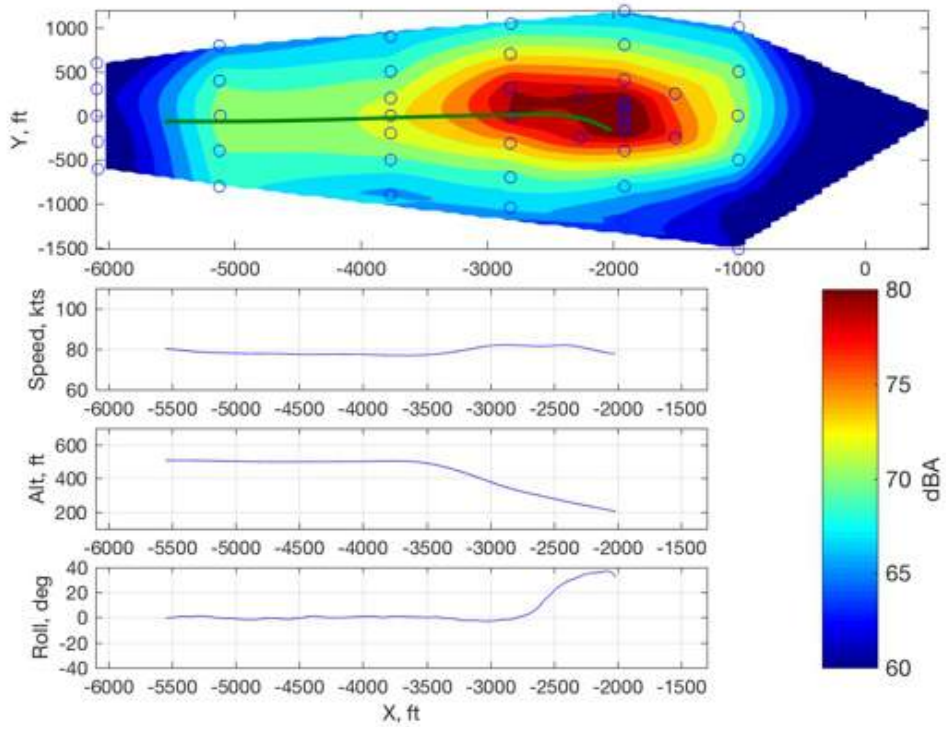


Figure 899: AS350B3, 290245, G14, maximum dBA contour.

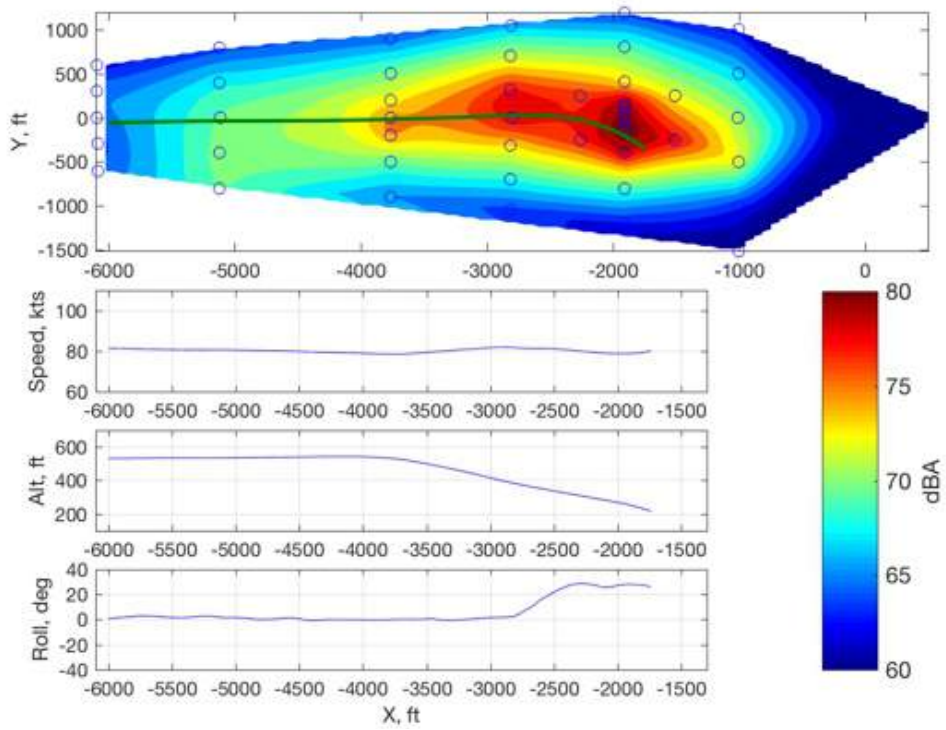


Figure 900: AS350B3, 290246, G14, maximum dBA contour.

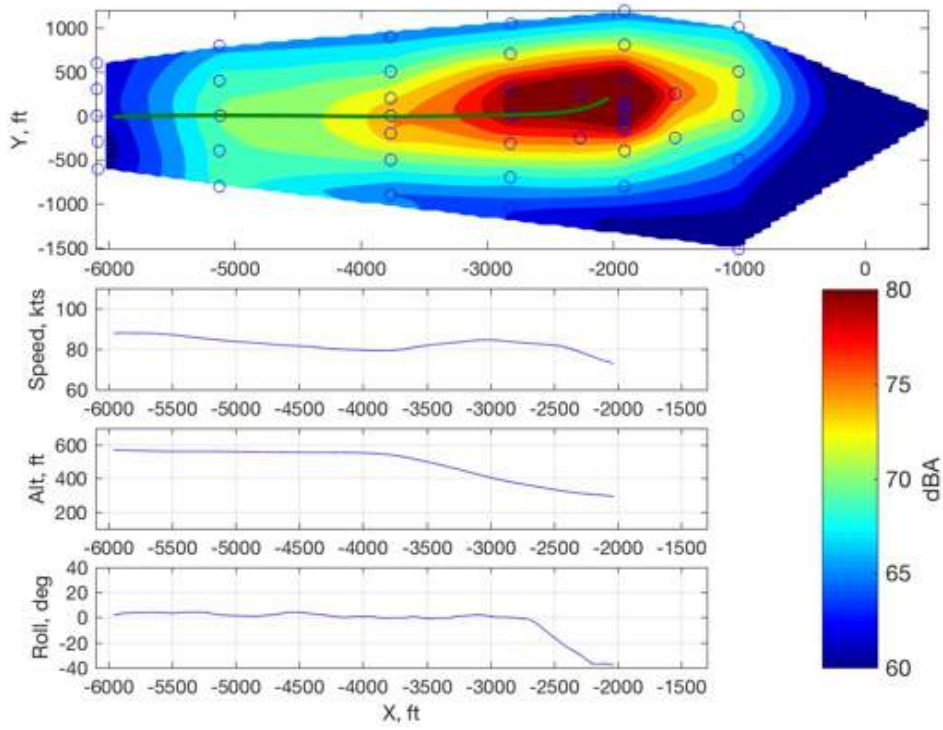


Figure 901: AS350B3, 290218, G15, maximum dBA contour.

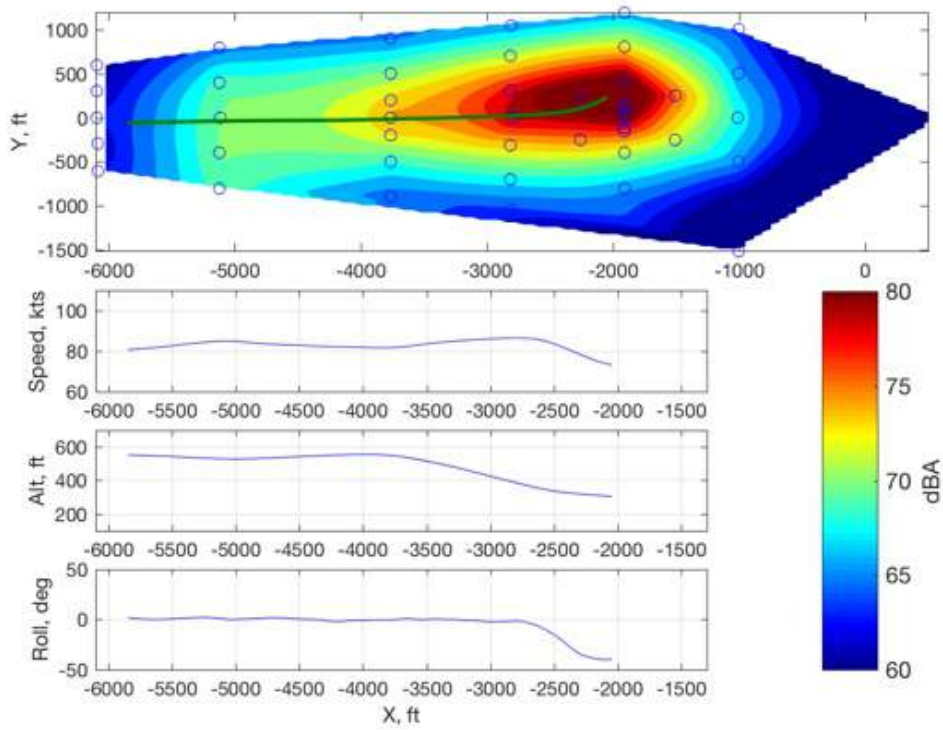


Figure 902: AS350B3, 290219, G15, maximum dBA contour.

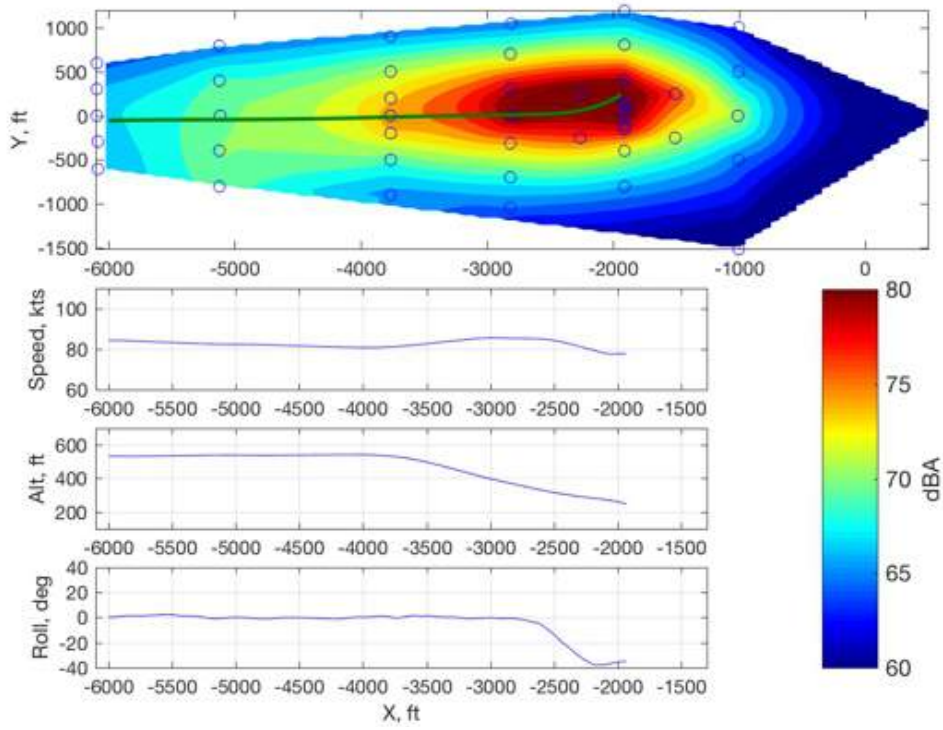


Figure 903: AS350B3, 290220, G15, maximum dBA contour.

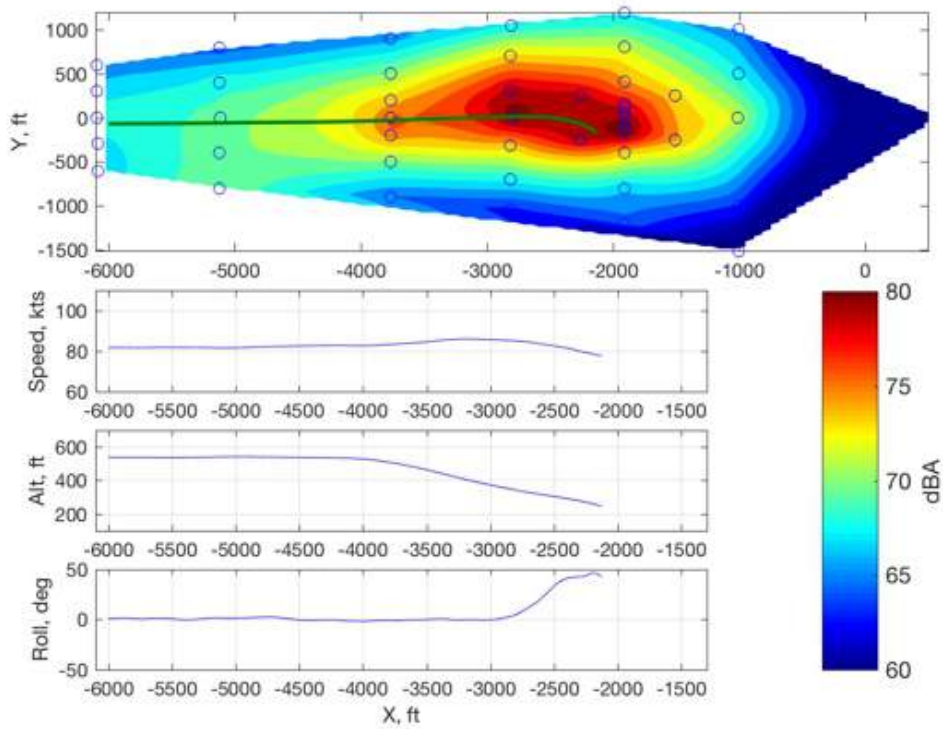


Figure 904: AS350B3, 290221, G16, maximum dBA contour.

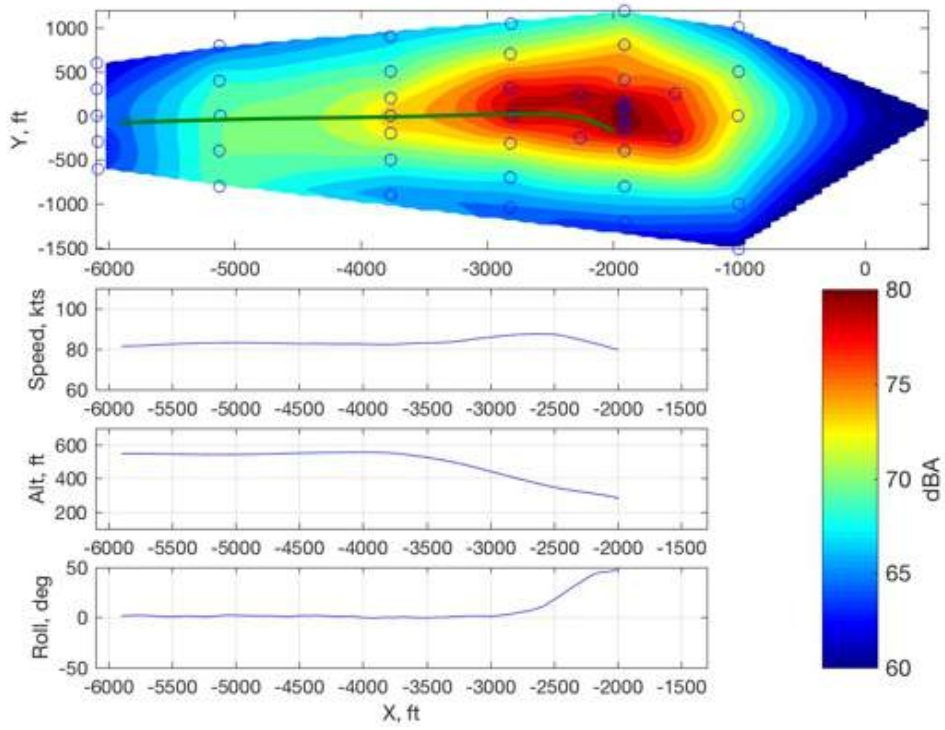


Figure 905: AS350B3, 290222, G16, maximum dBA contour.

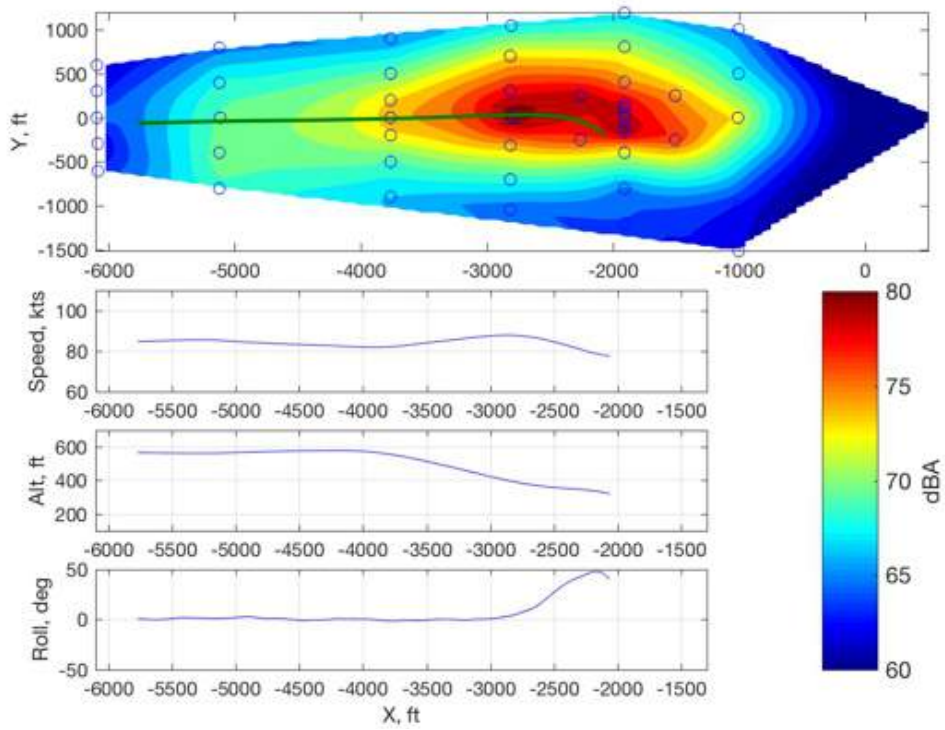


Figure 906: AS350B3, 290223, G16, maximum dBA contour.

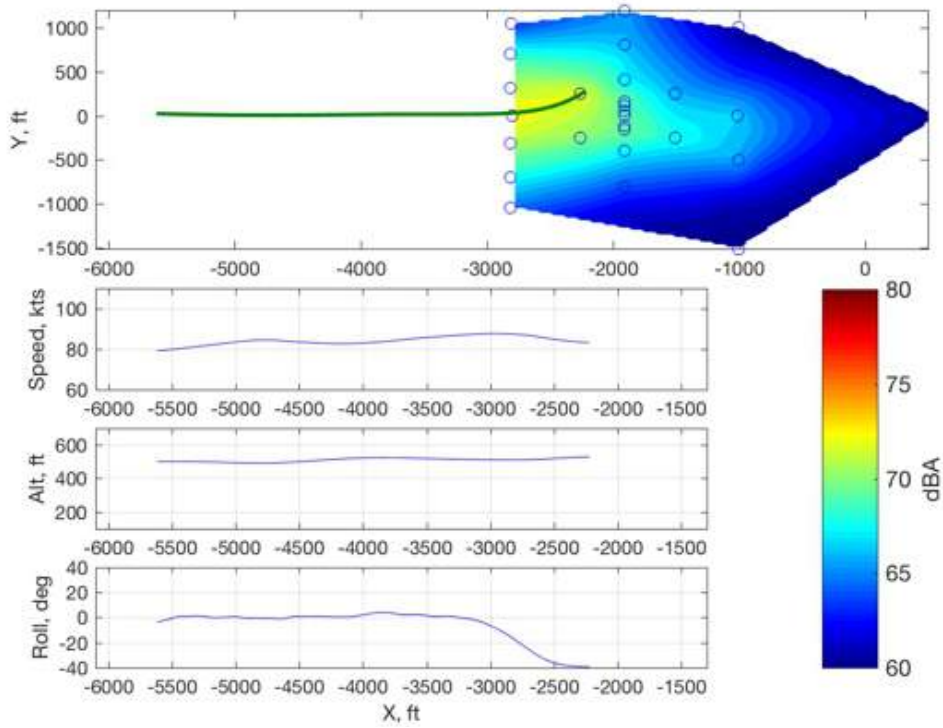


Figure 907: AS350B3, 290168, N11, maximum dBA contour.

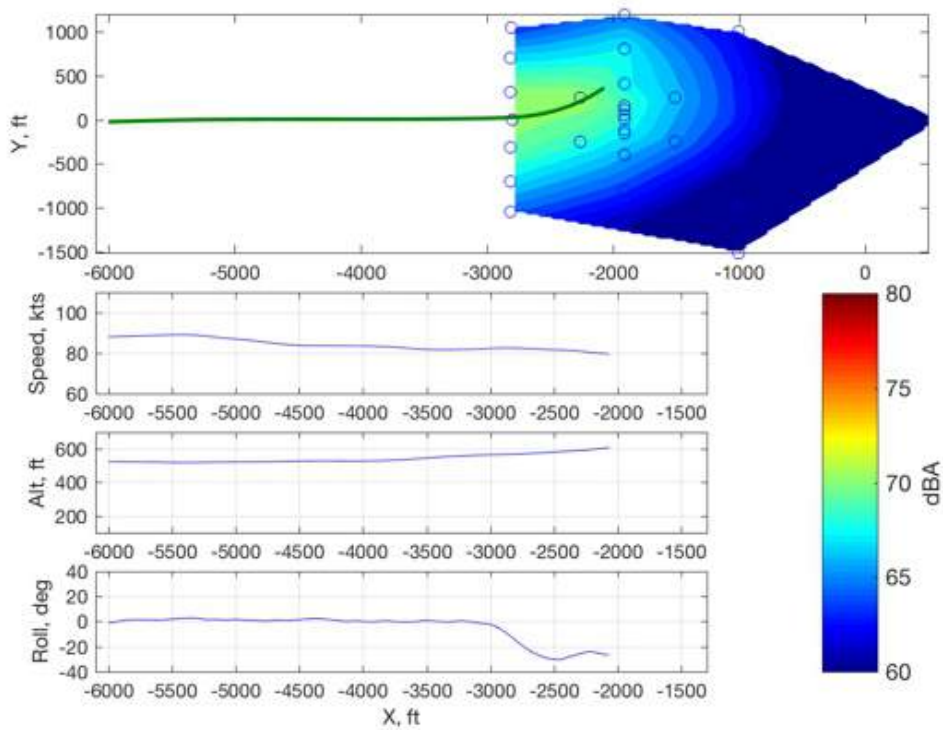


Figure 908: AS350B3, 290169, N11, maximum dBA contour.

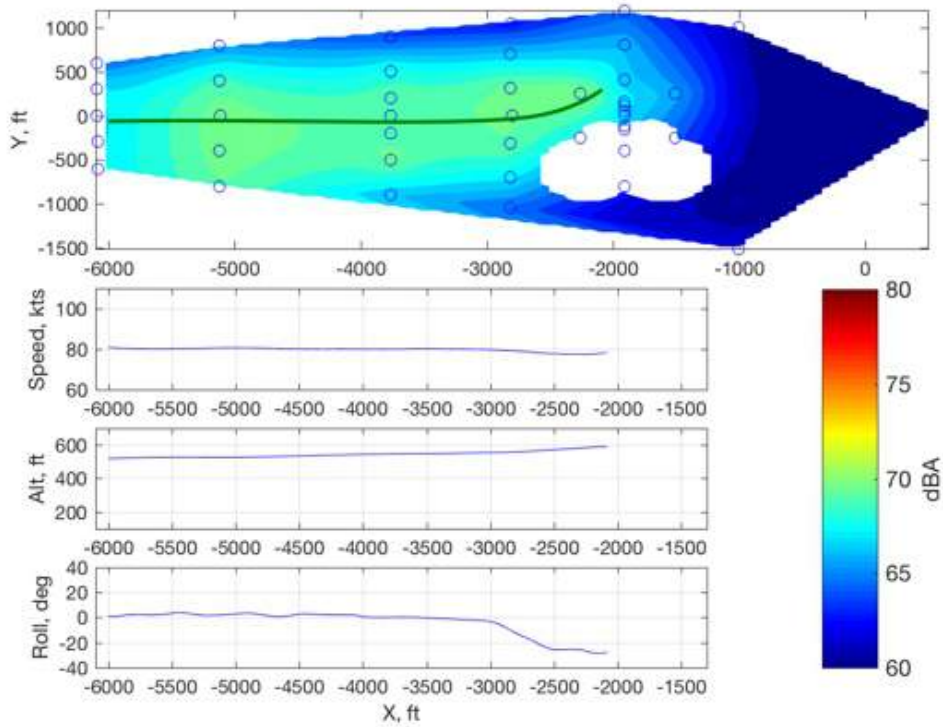


Figure 909: AS350B3, 290247, N11, maximum dBA contour.

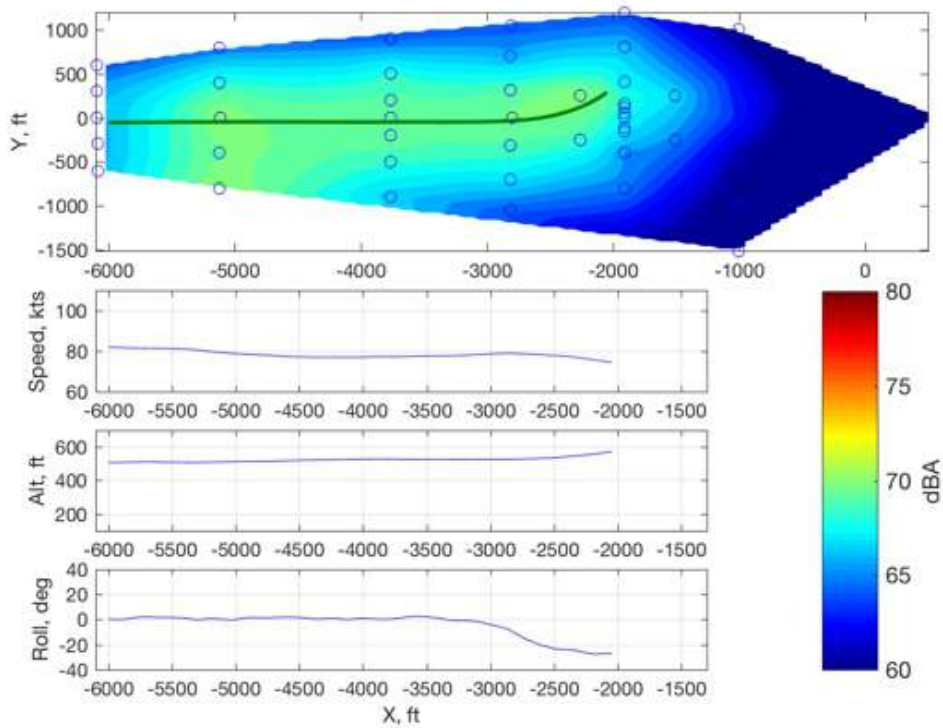


Figure 910: AS350B3, 290248, N11, maximum dBA contour.

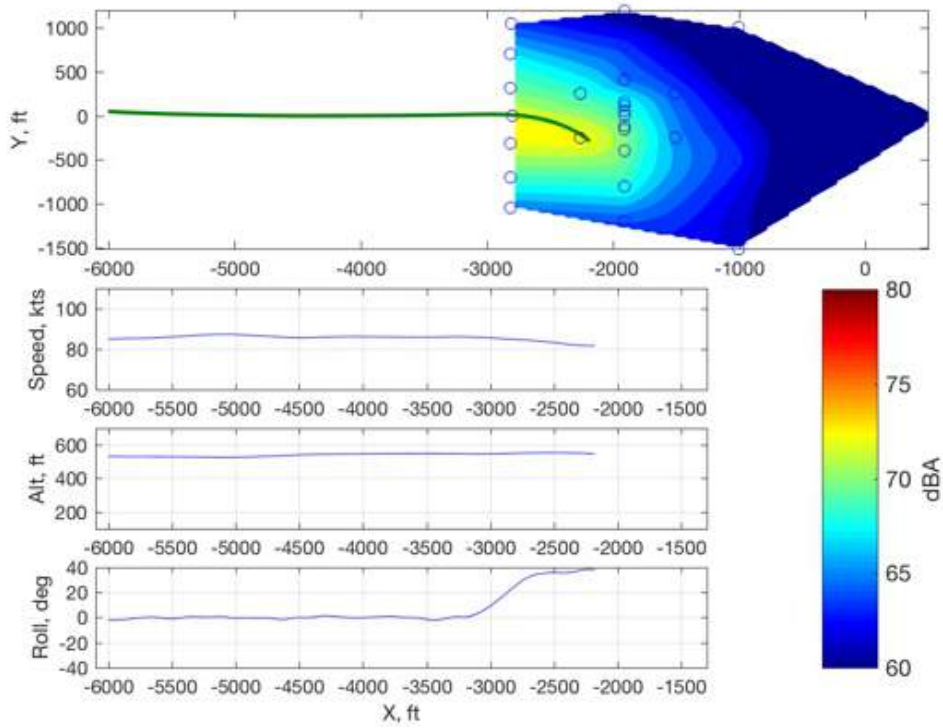


Figure 911: AS350B3, 290170, N12, maximum dBA contour.

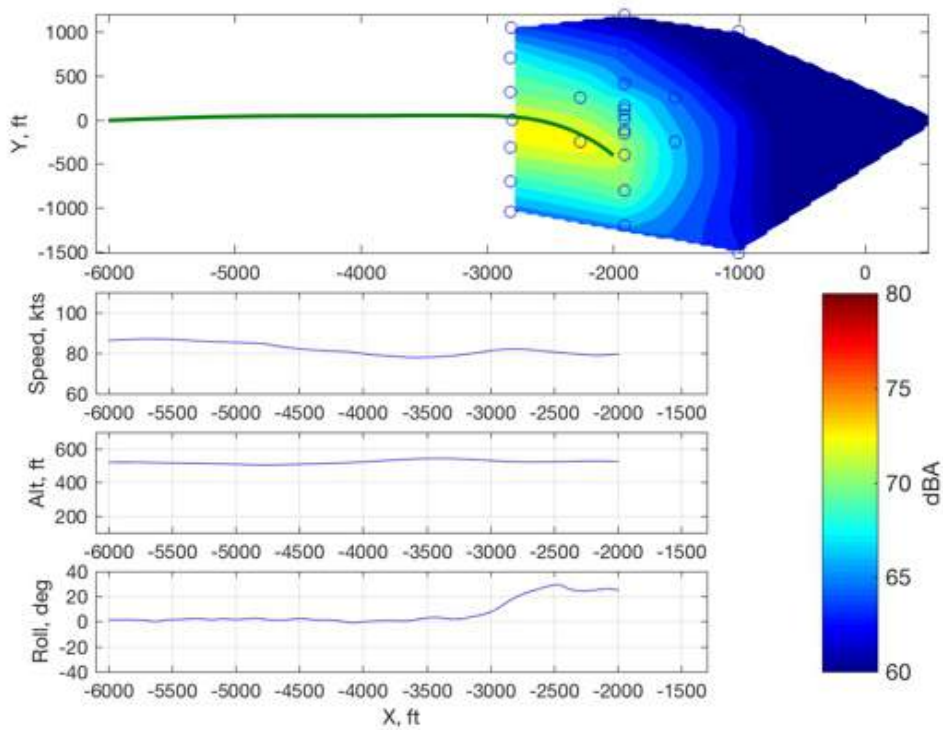


Figure 912: AS350B3, 290171, N12, maximum dBA contour.

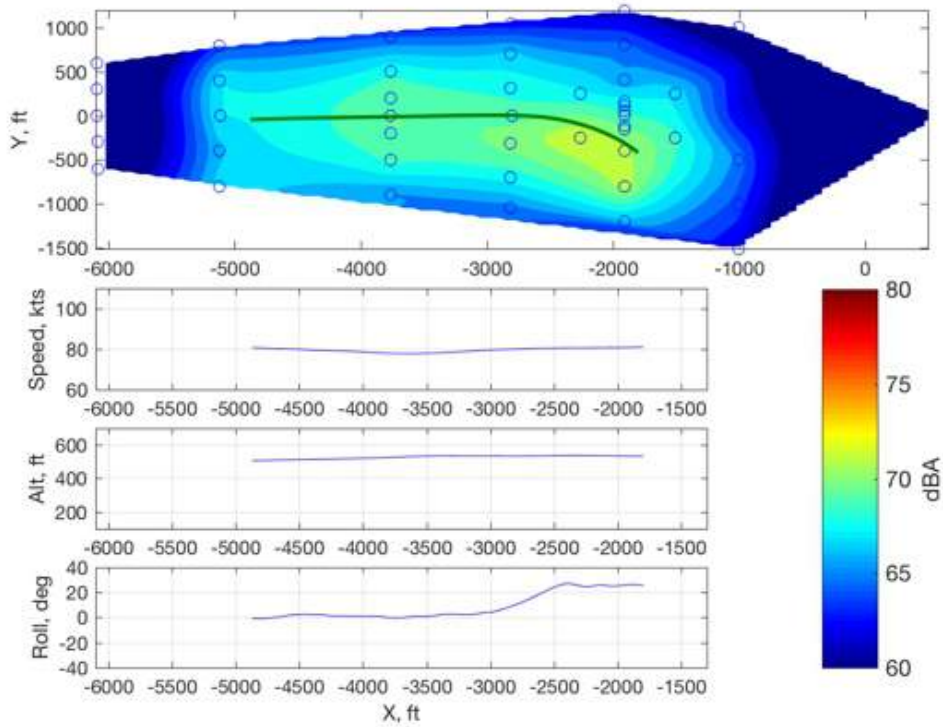


Figure 913: AS350B3, 290249, N12, maximum dBA contour.

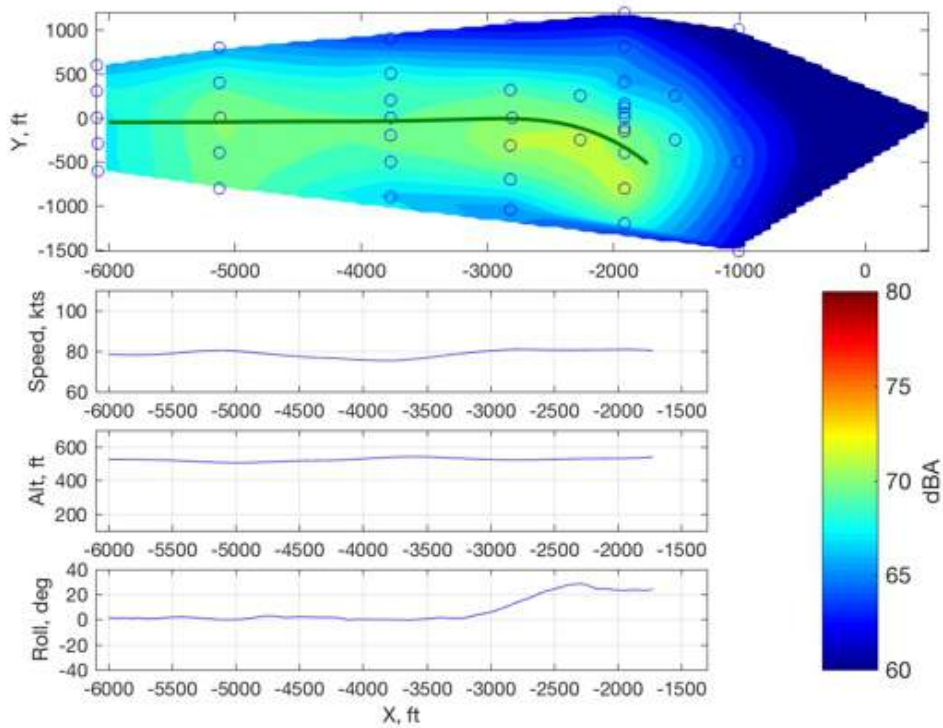


Figure 914: AS350B3, 290250, N12, maximum dBA contour.

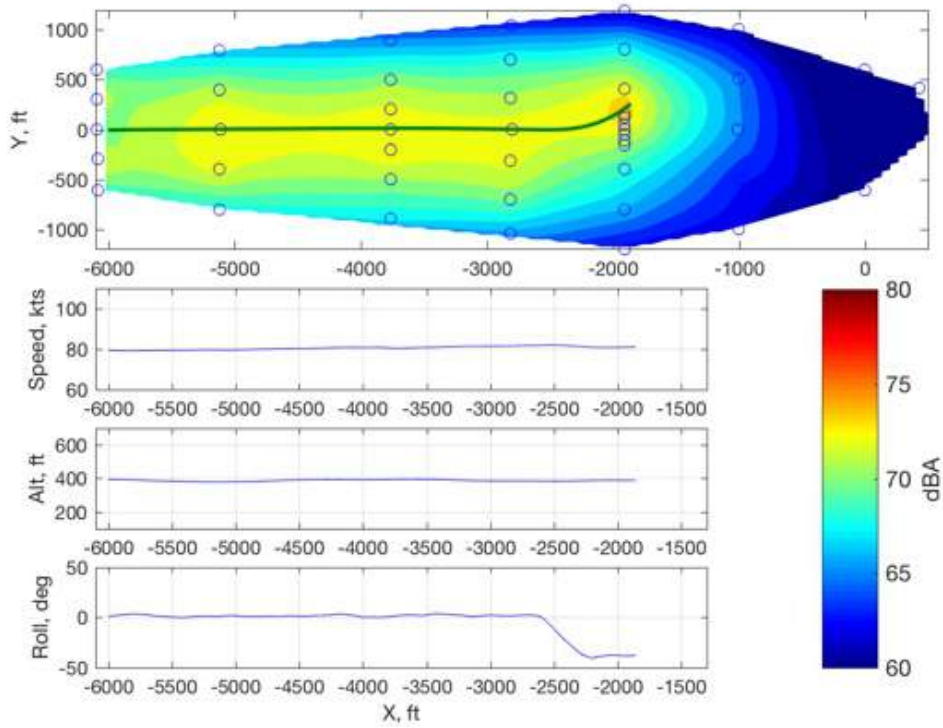


Figure 915: AS350B3, 289163, N13, maximum dBA contour.

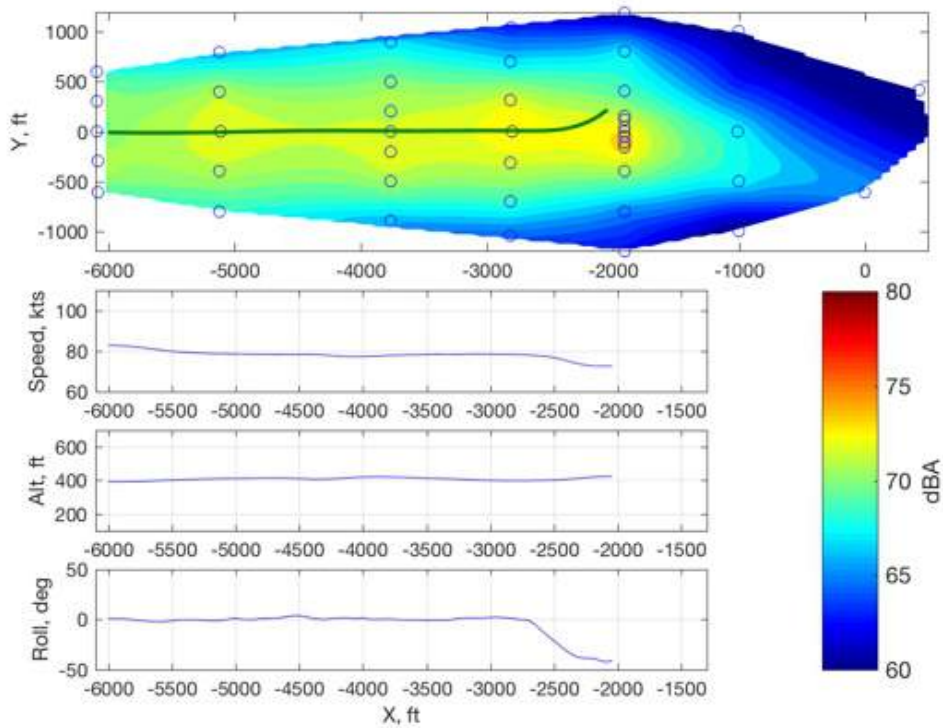


Figure 916: AS350B3, 289164, N13, maximum dBA contour.

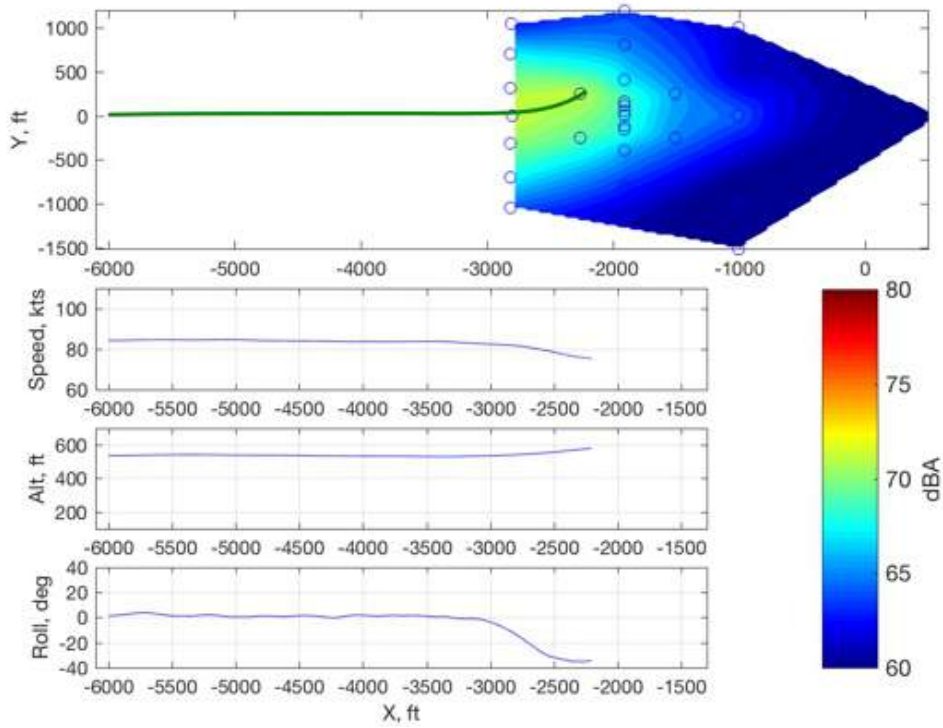


Figure 917: AS350B3, 290172, N13, maximum dBA contour.

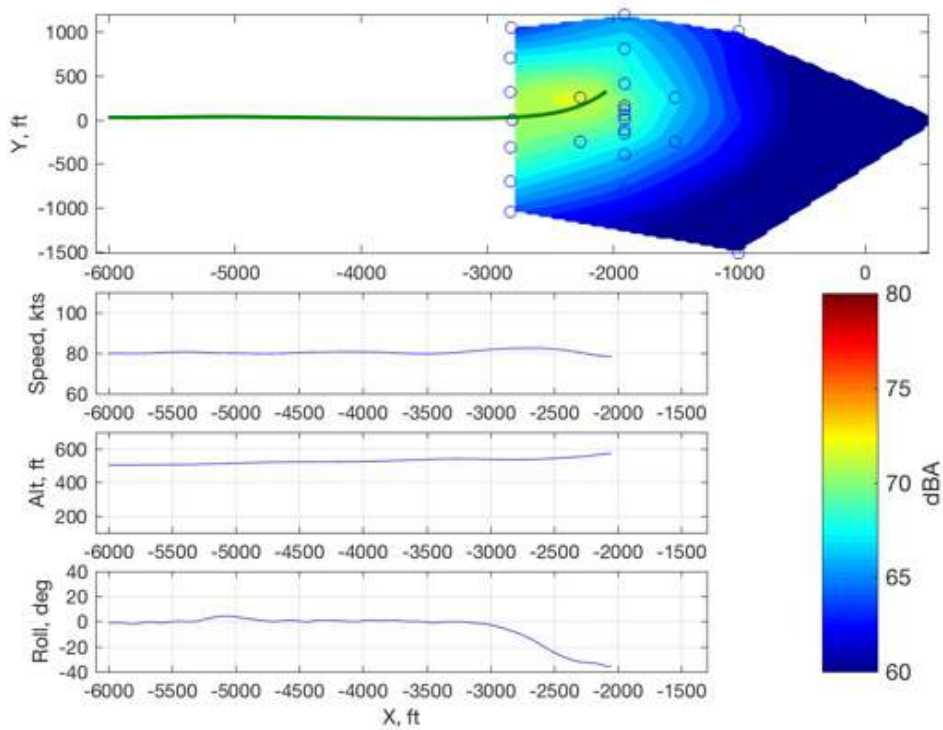


Figure 918: AS350B3, 290173, N13, maximum dBA contour.

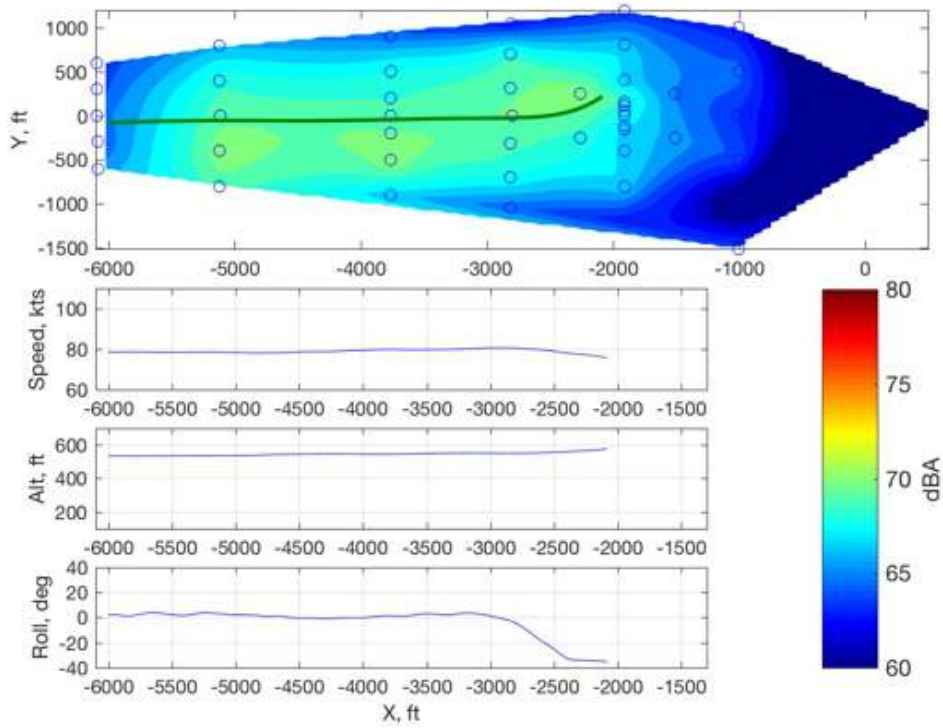


Figure 919: AS350B3, 290251, N13, maximum dBA contour.

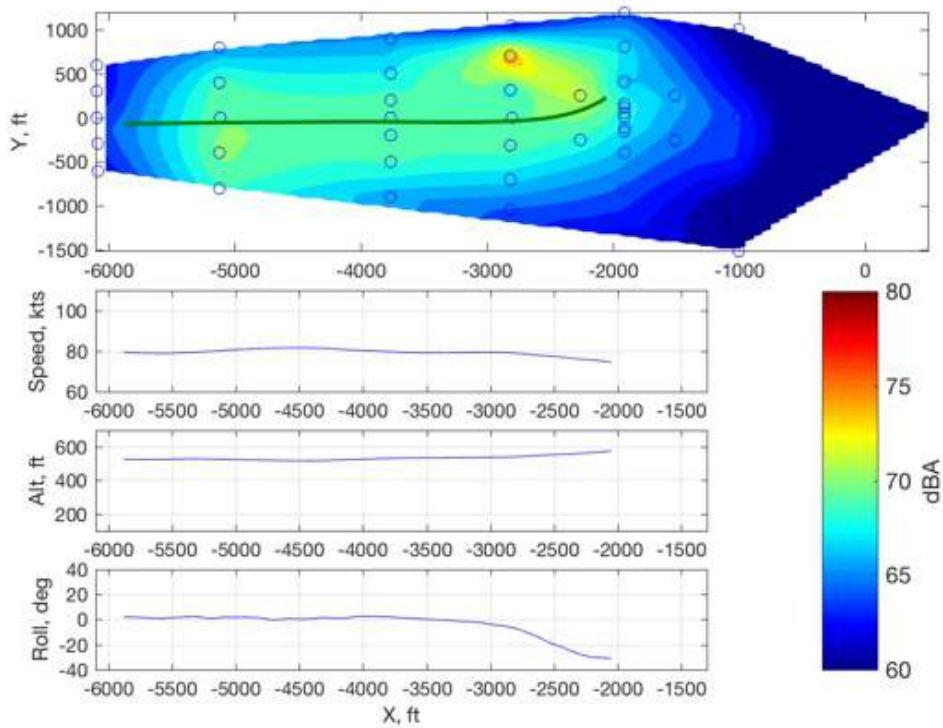


Figure 920: AS350B3, 290252, N13, maximum dBA contour.

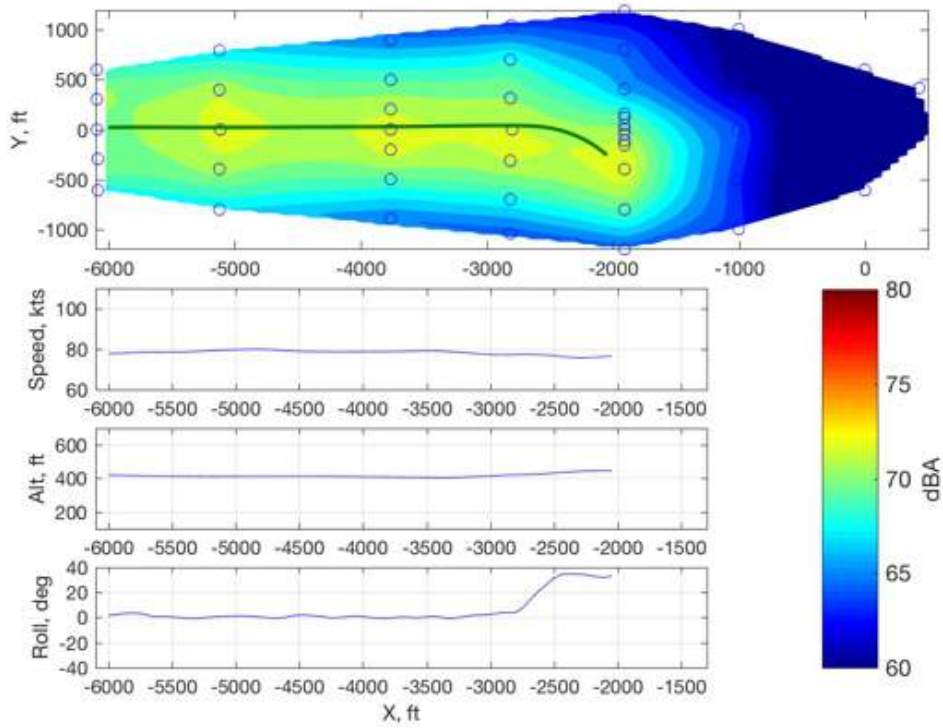


Figure 921: AS350B3, 289165, N14, maximum dBA contour.

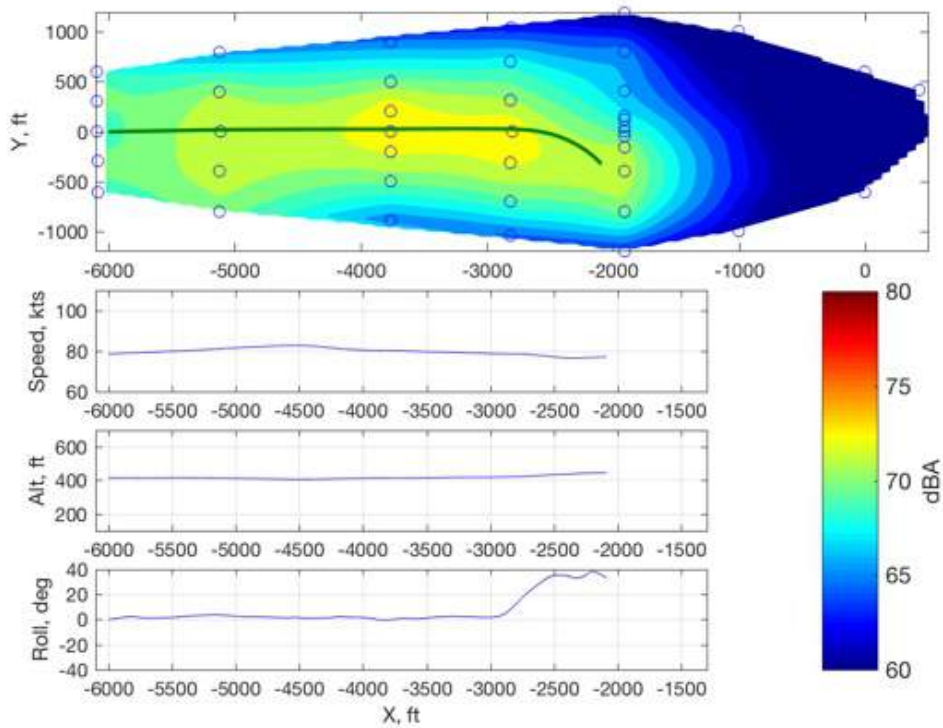


Figure 922: AS350B3, 289166, N14, maximum dBA contour.

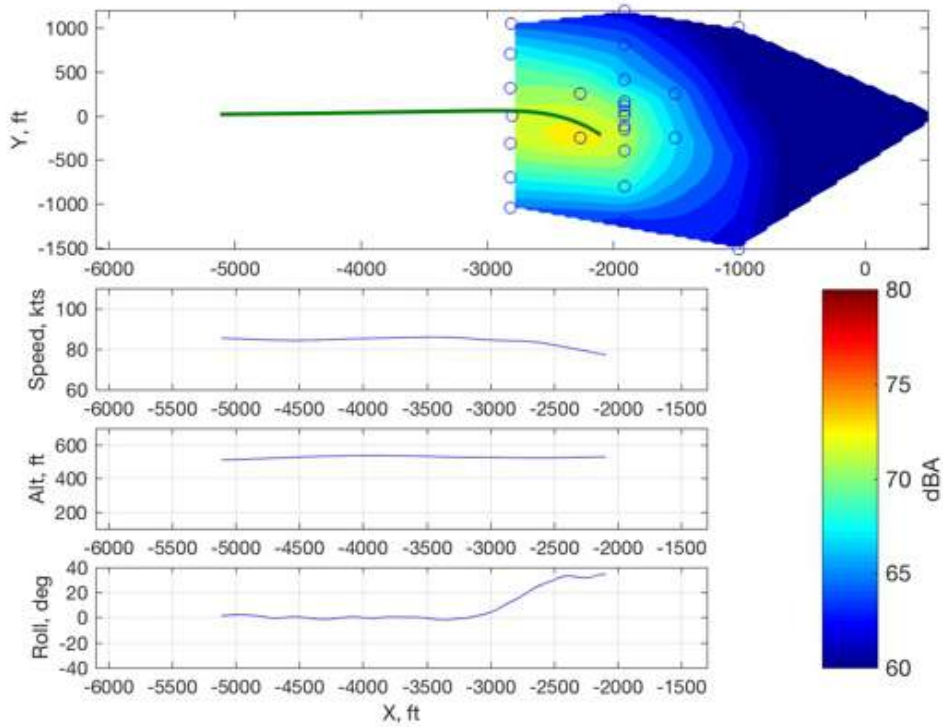


Figure 923: AS350B3, 290174, N14, maximum dBA contour.

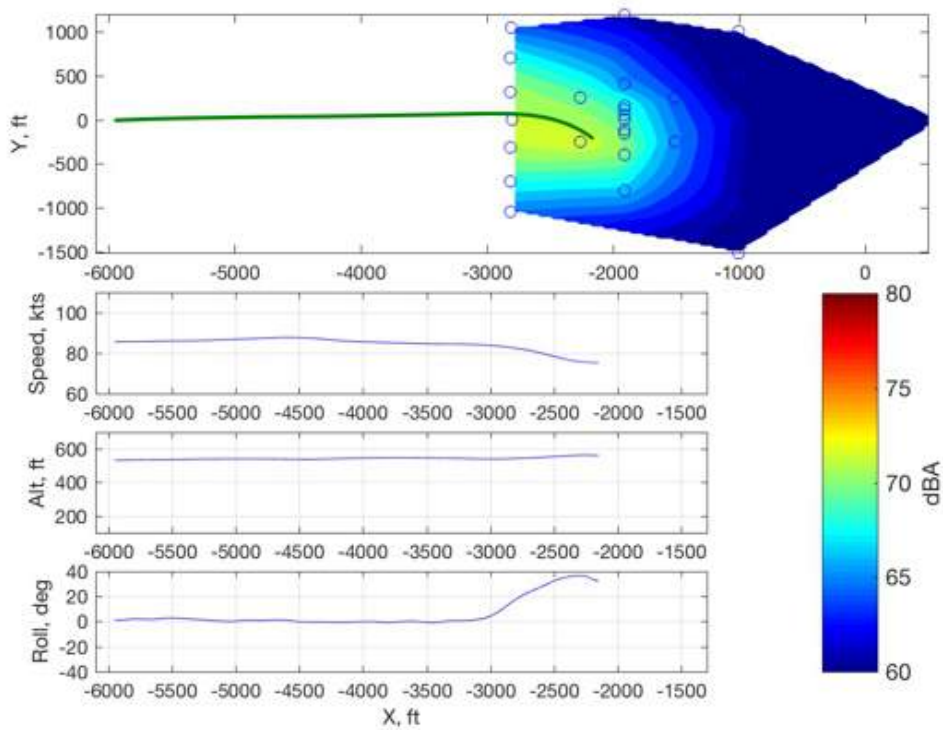


Figure 924: AS350B3, 290175, N14, maximum dBA contour.

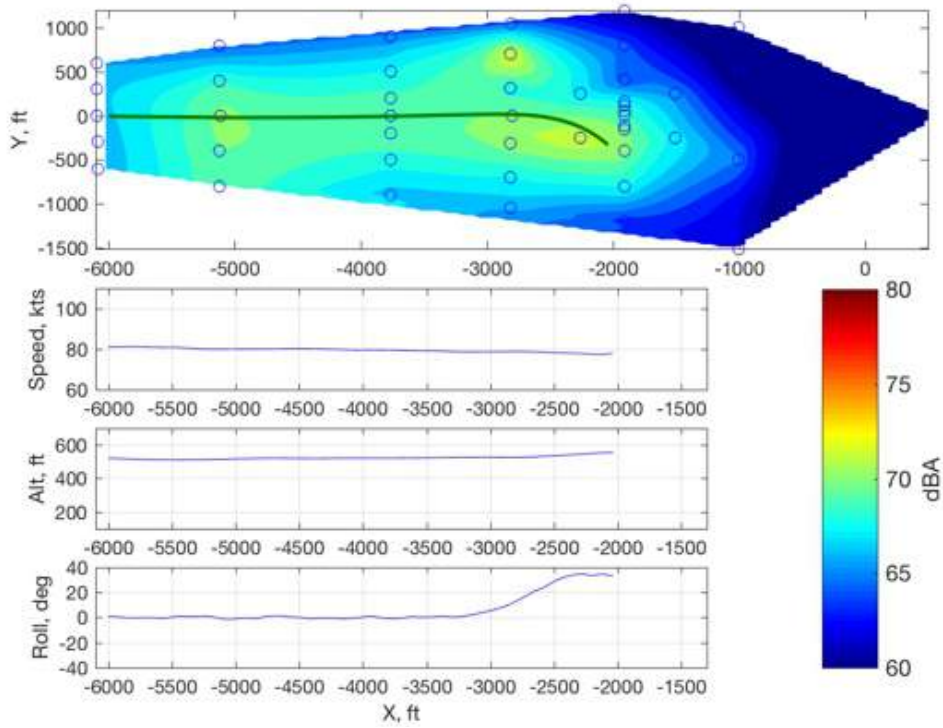


Figure 925: AS350B3, 290253, N14, maximum dBA contour.

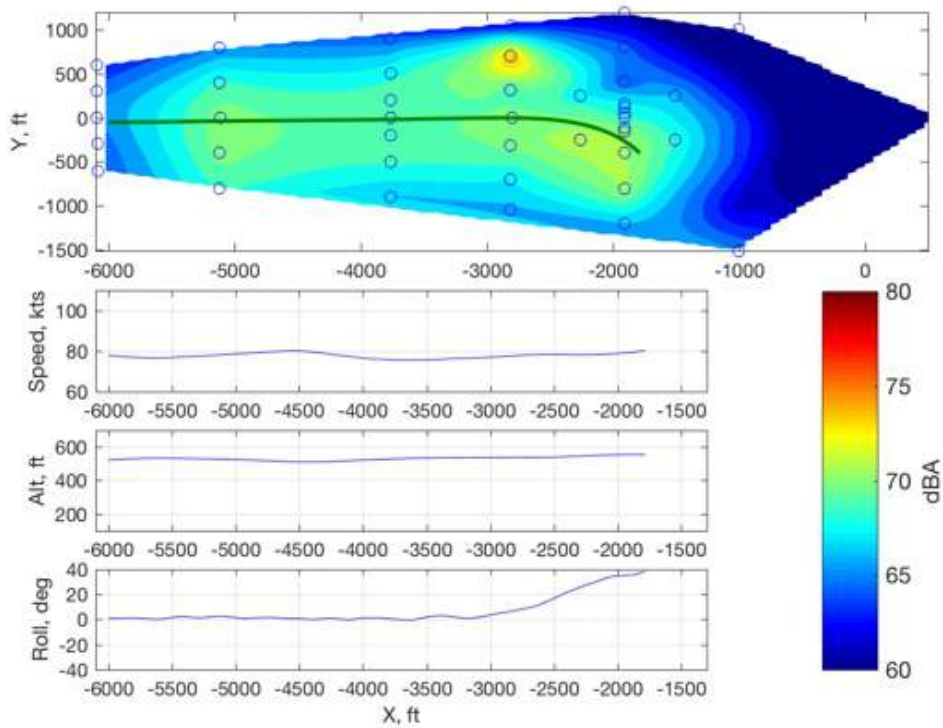


Figure 926: AS350B3, 290254, N14, maximum dBA contour.

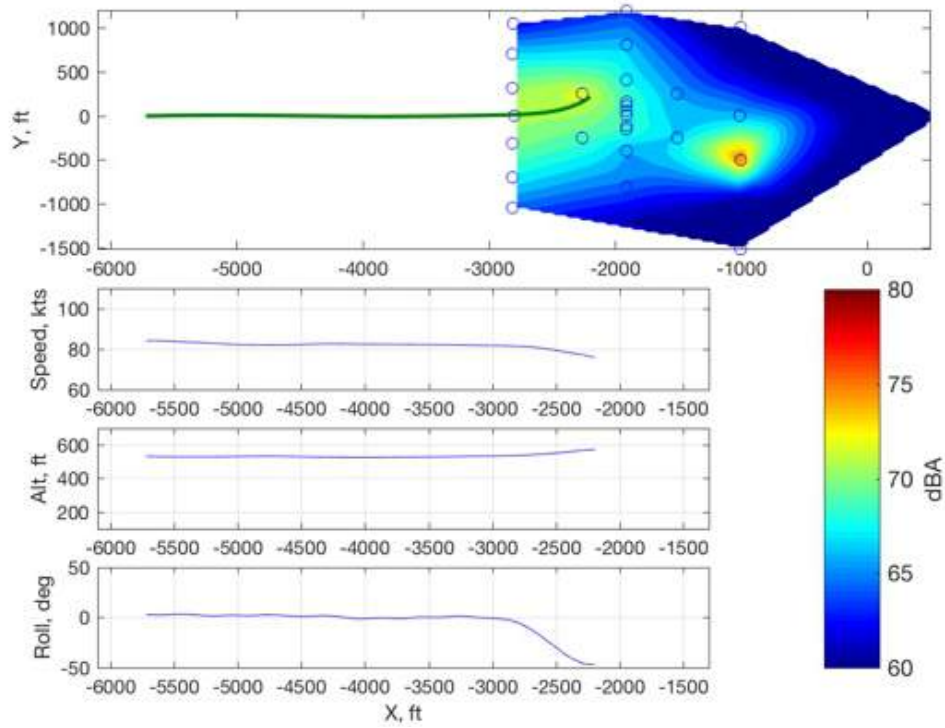


Figure 927: AS350B3, 290176, N15, maximum dBA contour.

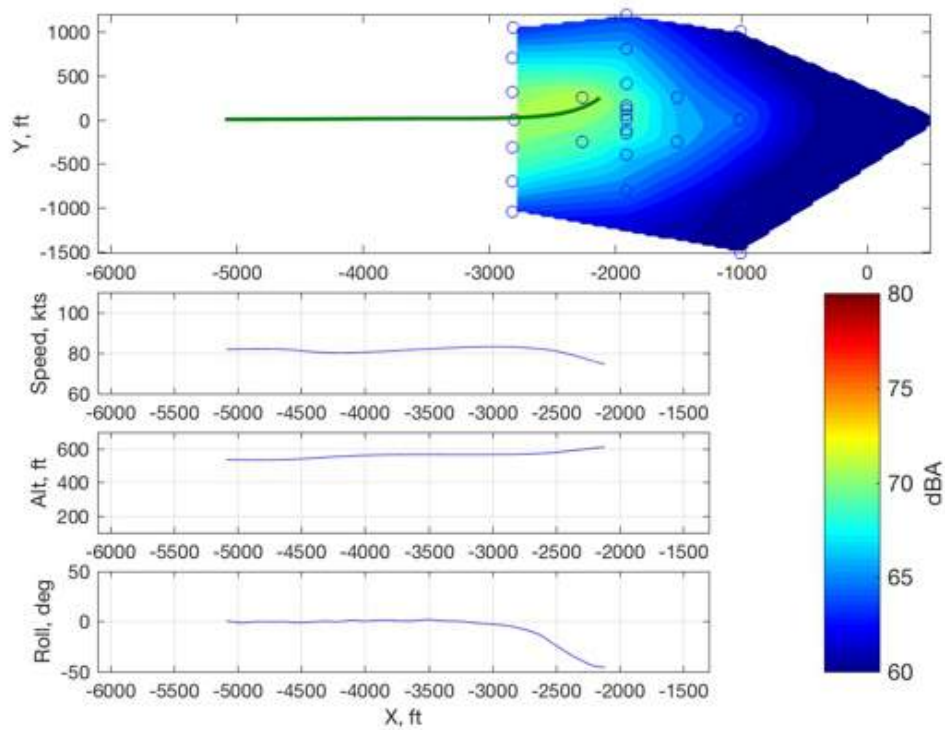


Figure 928: AS350B3, 290177, N15, maximum dBA contour.

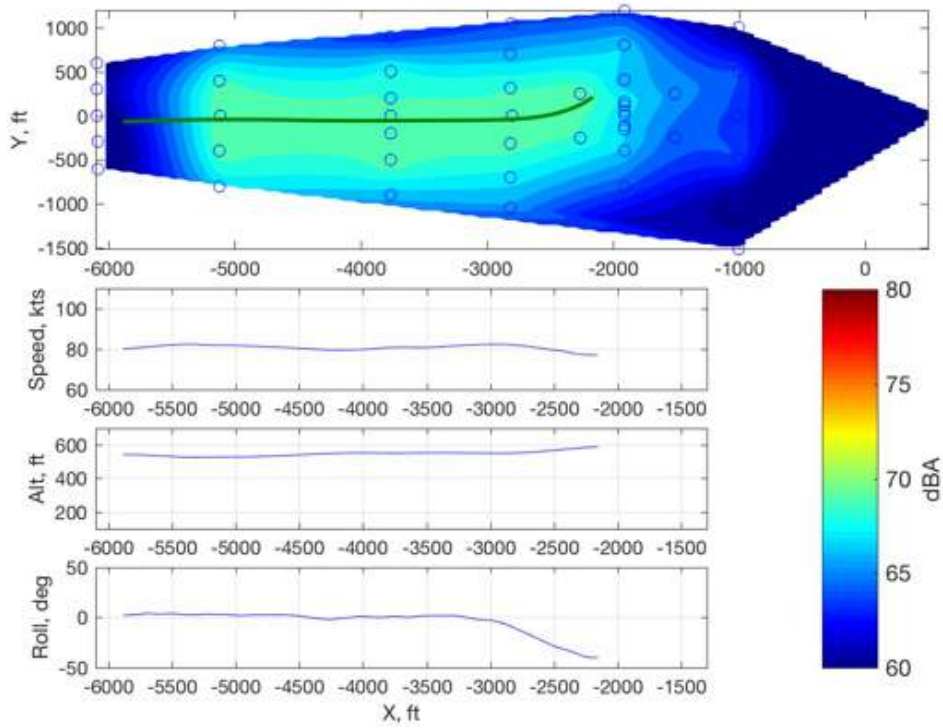


Figure 929: AS350B3, 290255, N15, maximum dBA contour.

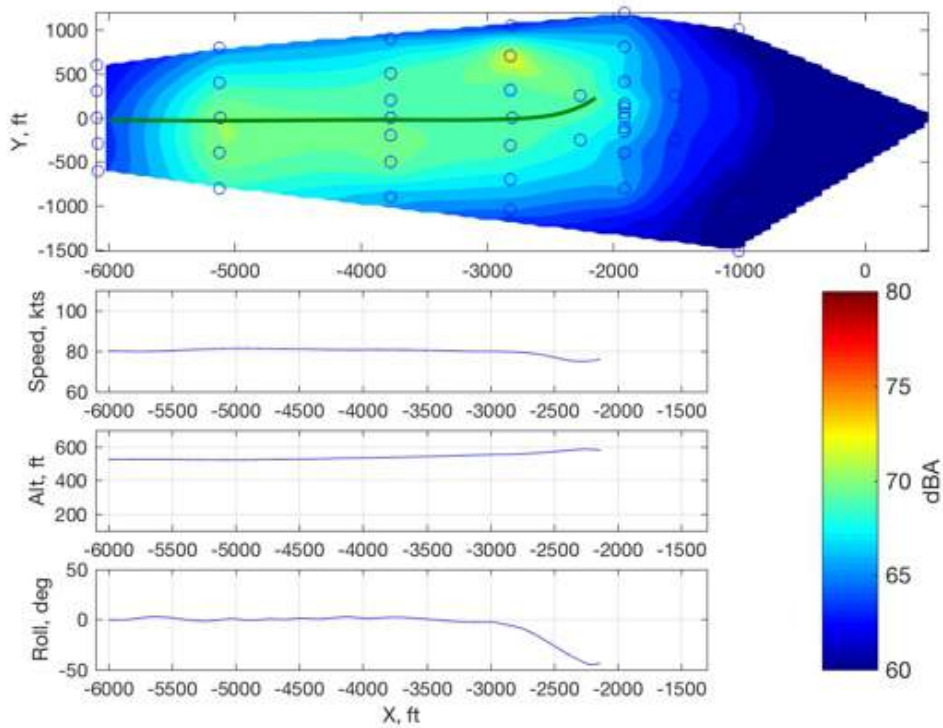


Figure 930: AS350B3, 290256, N15, maximum dBA contour.

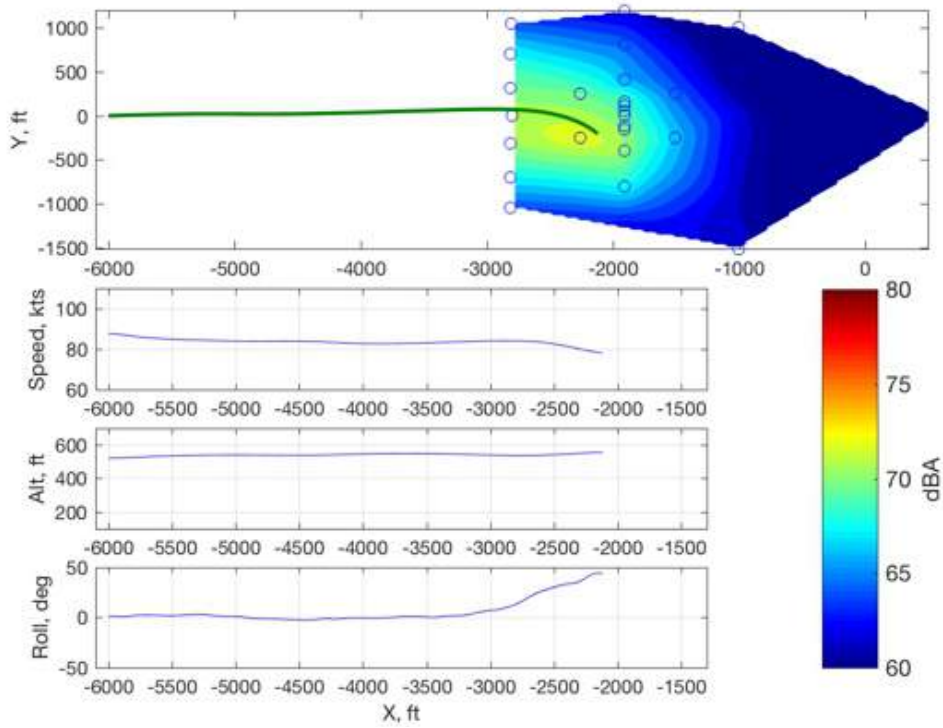


Figure 931: AS350B3, 290179, N16, maximum dBA contour.

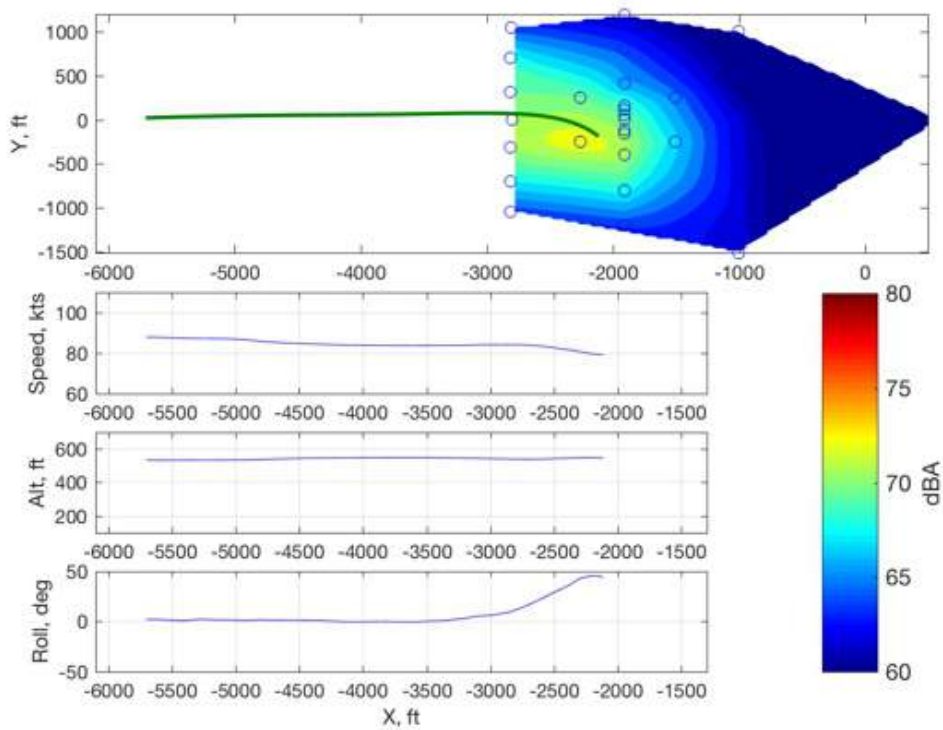


Figure 932: AS350B3, 290180, N16, maximum dBA contour.

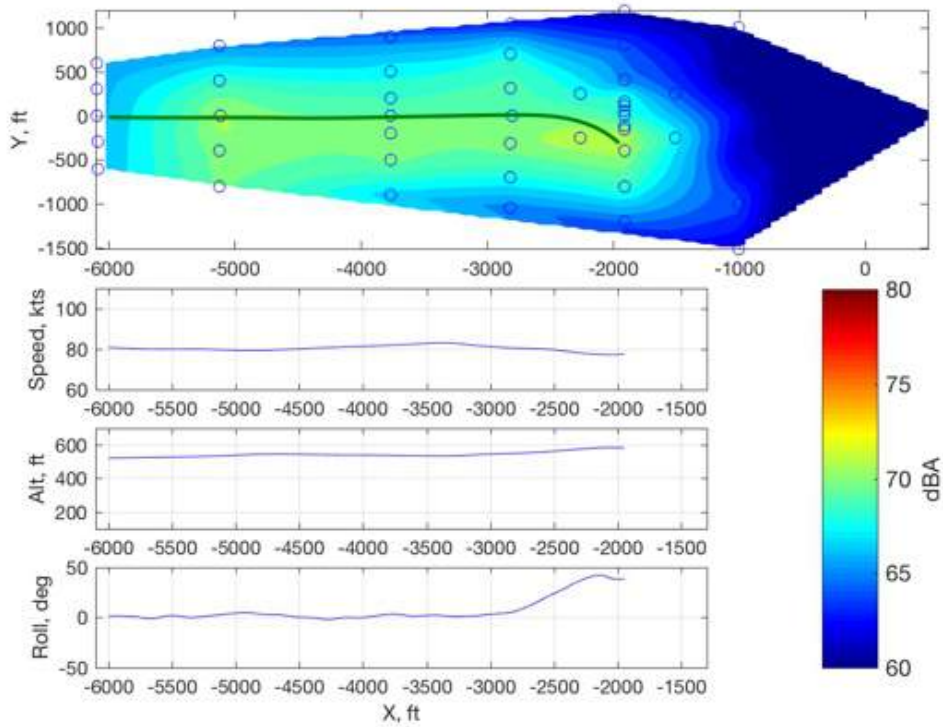


Figure 933: AS350B3, 290257, N16, maximum dBA contour.

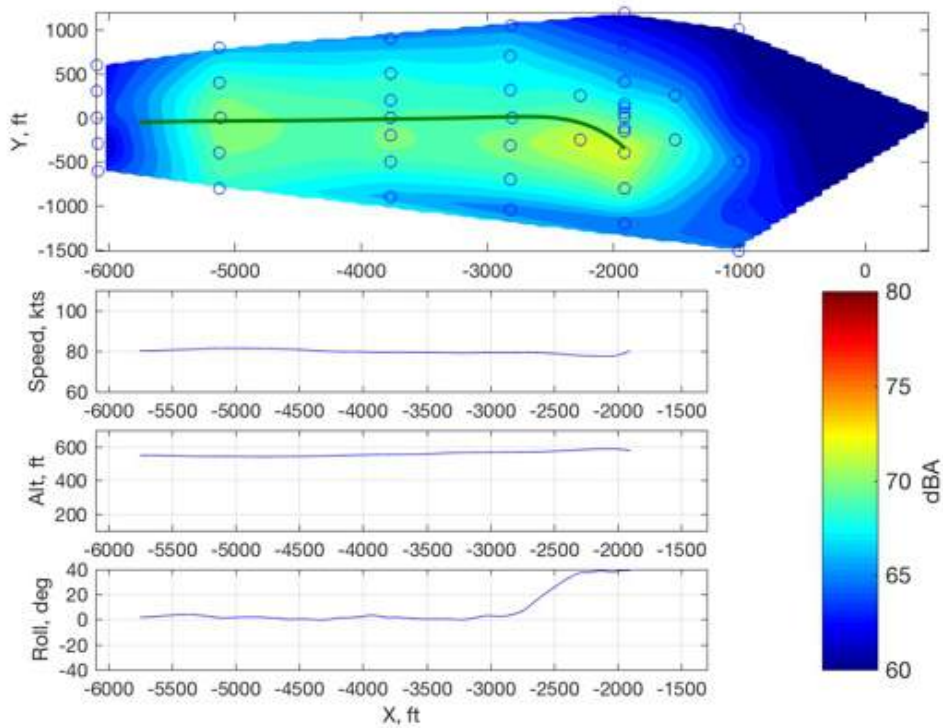


Figure 934: AS350B3, 290258, N16, maximum dBA contour.

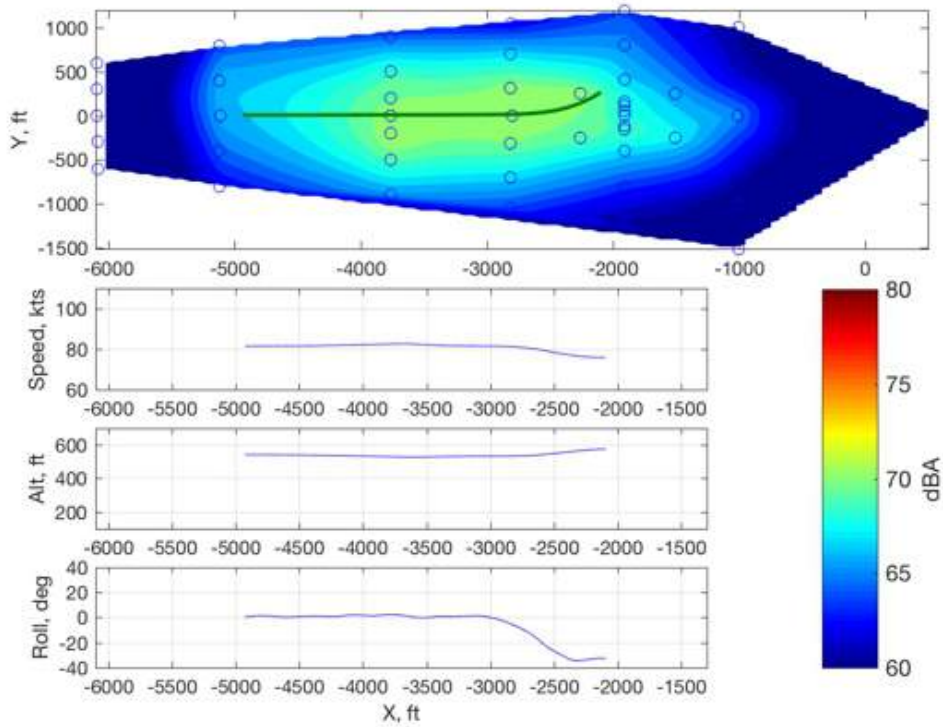


Figure 935: AS350B3, 290181, O7, maximum dBA contour.

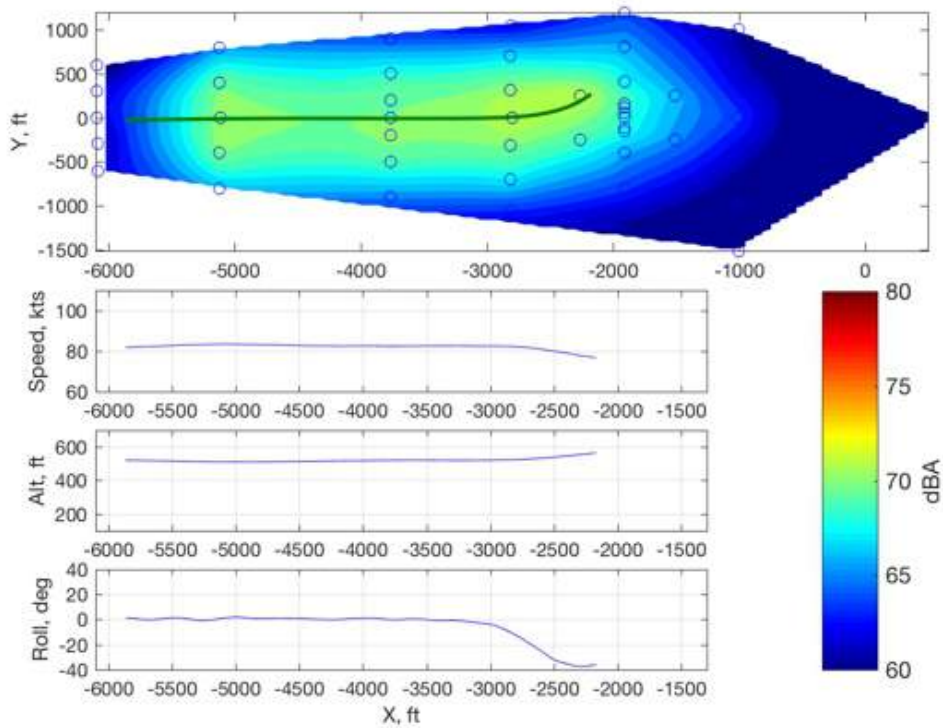


Figure 936: AS350B3, 290183, O7, maximum dBA contour.

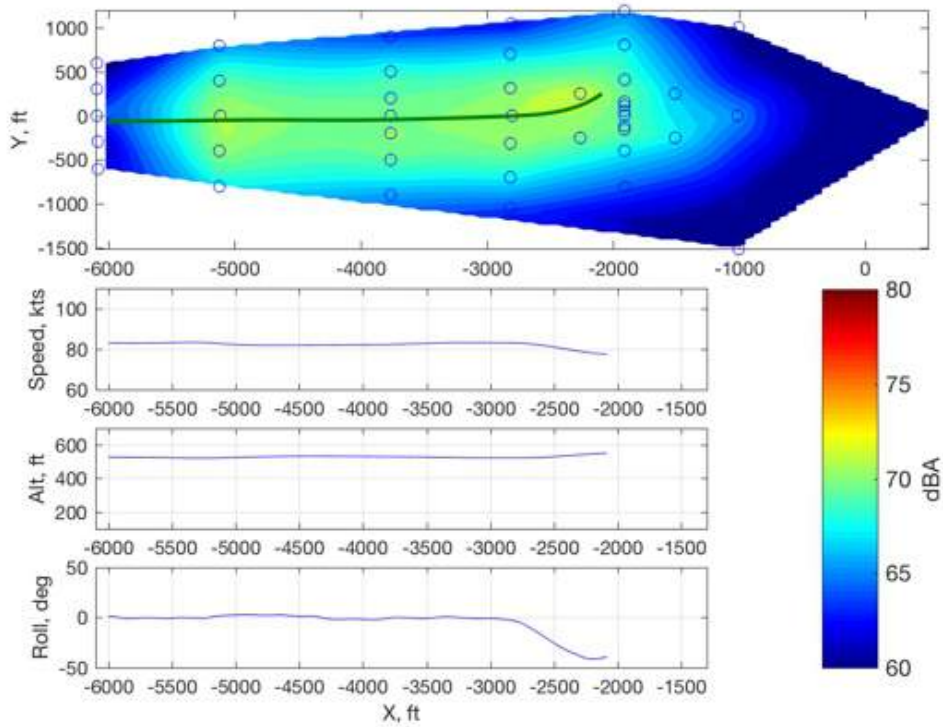


Figure 937: AS350B3, 290184, O7, maximum dBA contour.

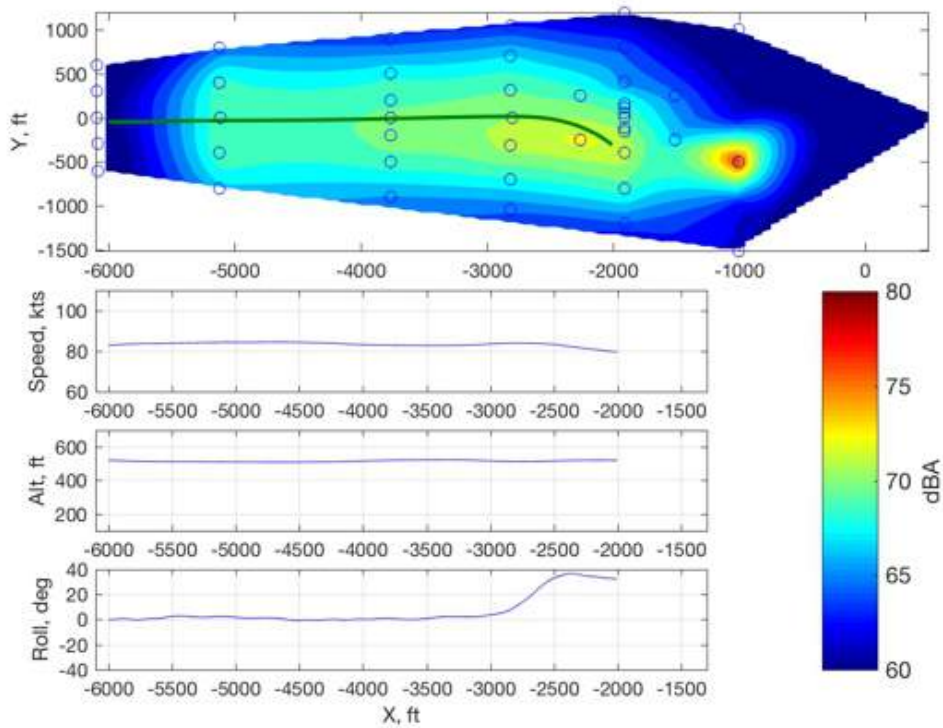


Figure 938: AS350B3, 290185, O8, maximum dBA contour.

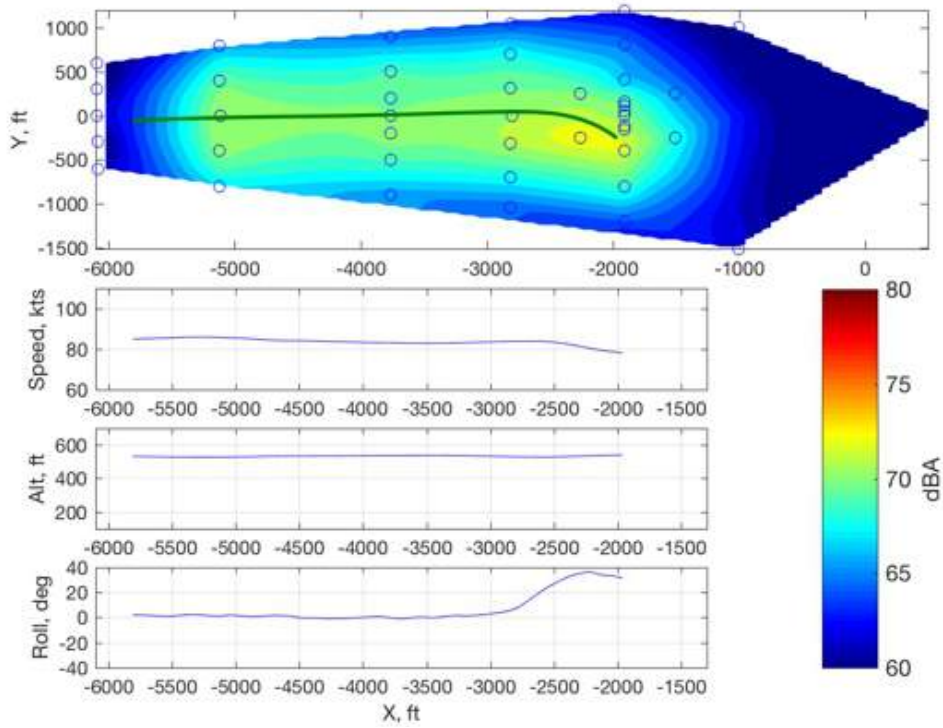


Figure 939: AS350B3, 290186, O8, maximum dBA contour.

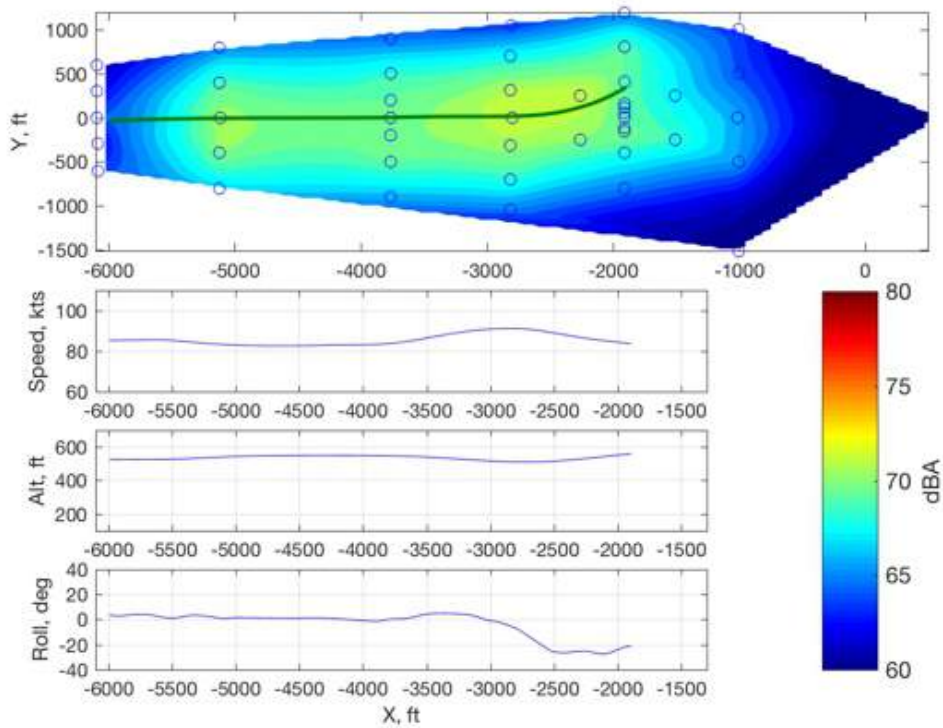


Figure 940: AS350B3, 290187, X27, maximum dBA contour.

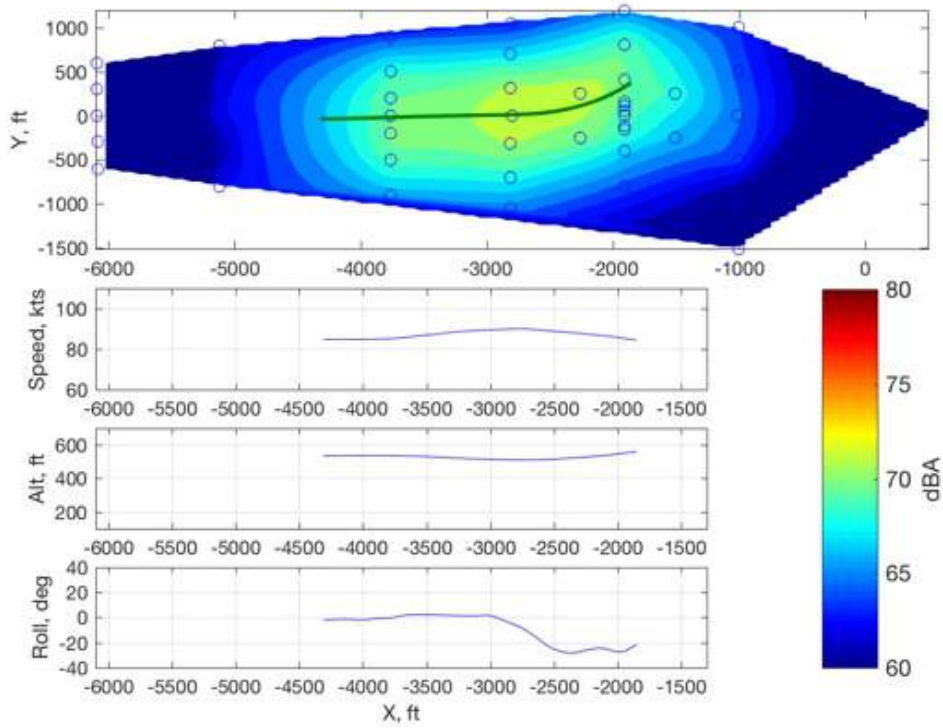


Figure 941: AS350B3, 290188, X27, maximum dBA contour.

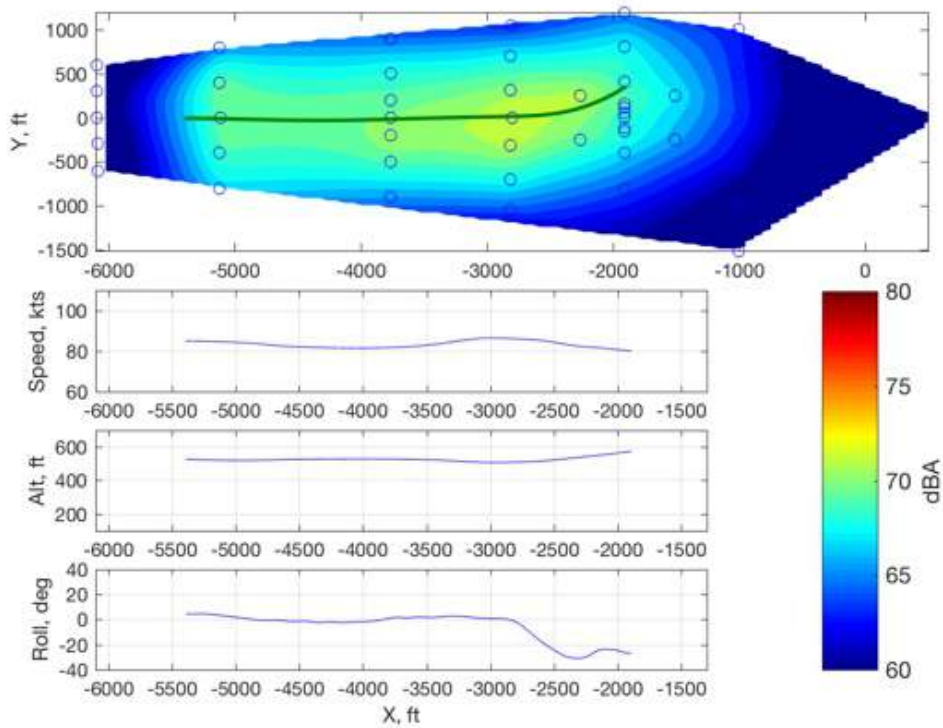


Figure 942: AS350B3, 290189, X27, maximum dBA contour.

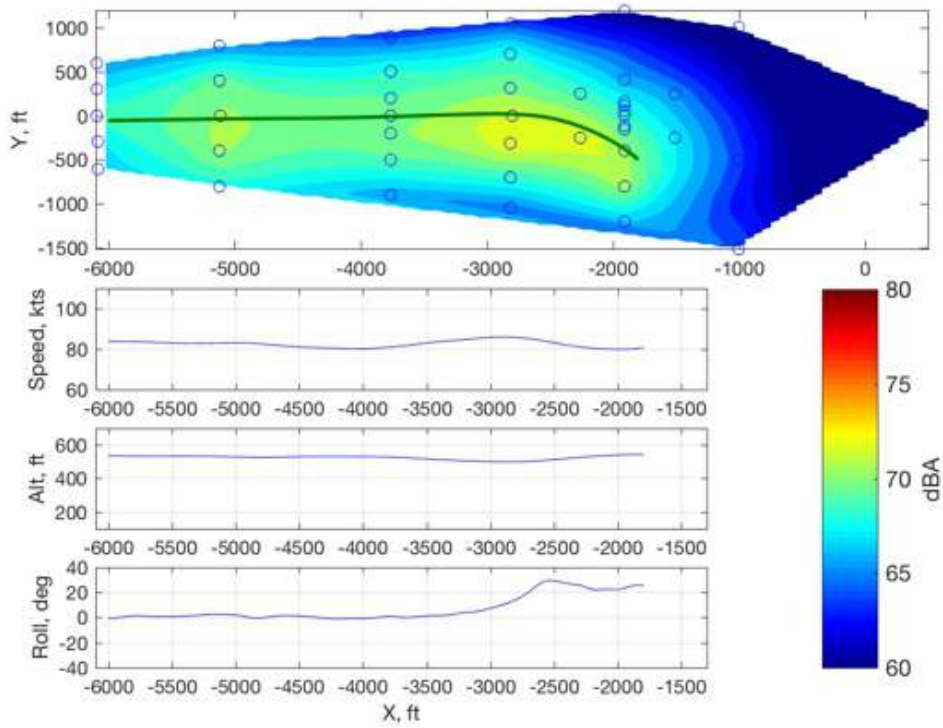


Figure 943: AS350B3, 290190, X28, maximum dBA contour.

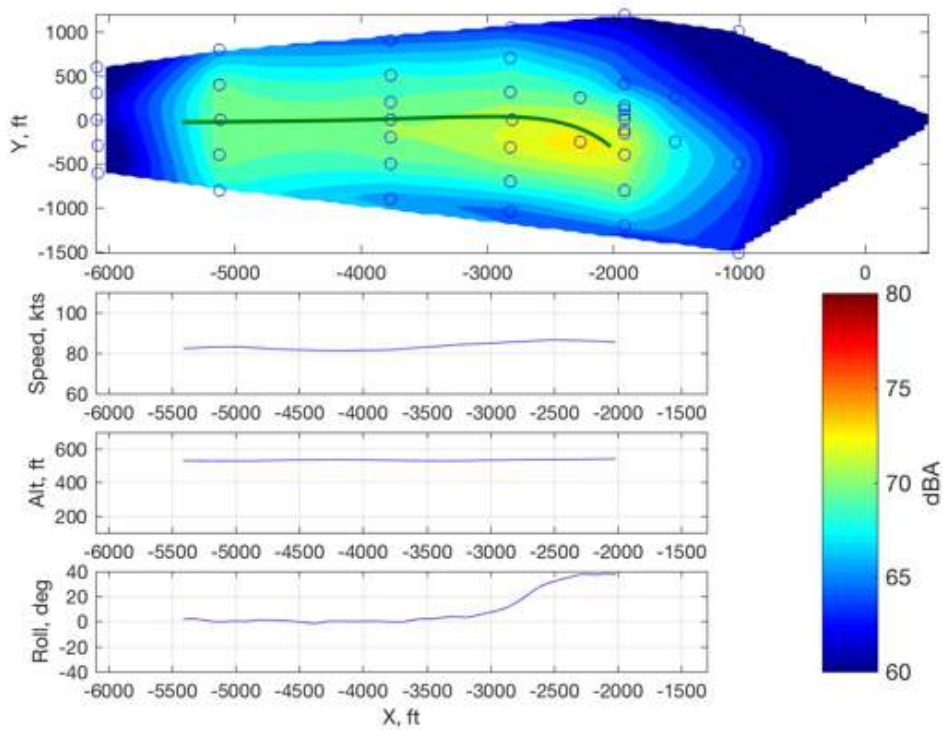


Figure 944: AS350B3, 290191, X28, maximum dBA contour.

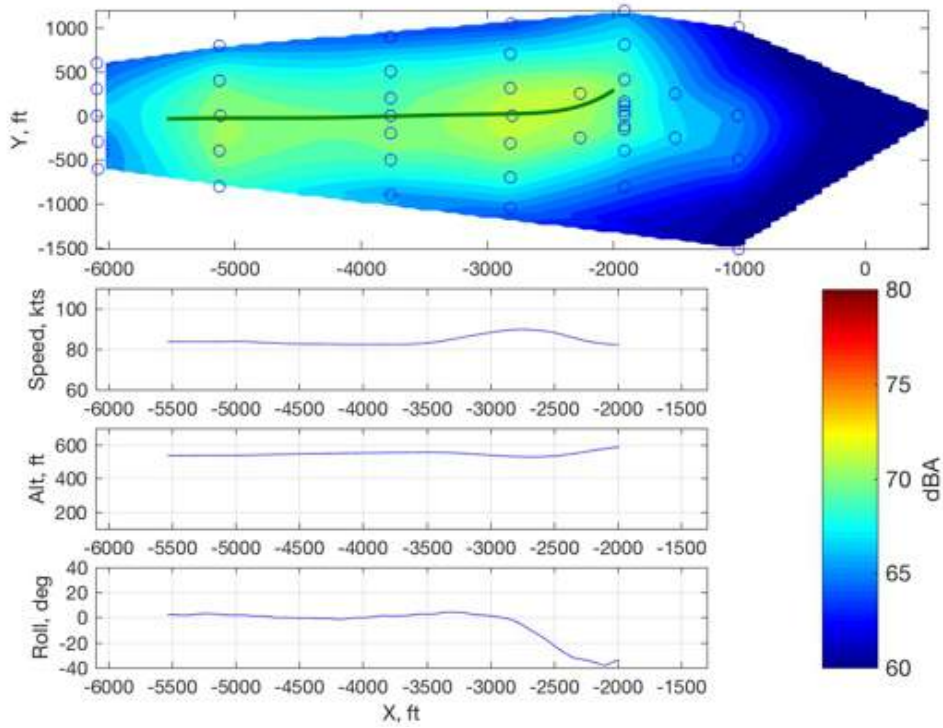


Figure 945: AS350B3, 290192, X31, maximum dBA contour.

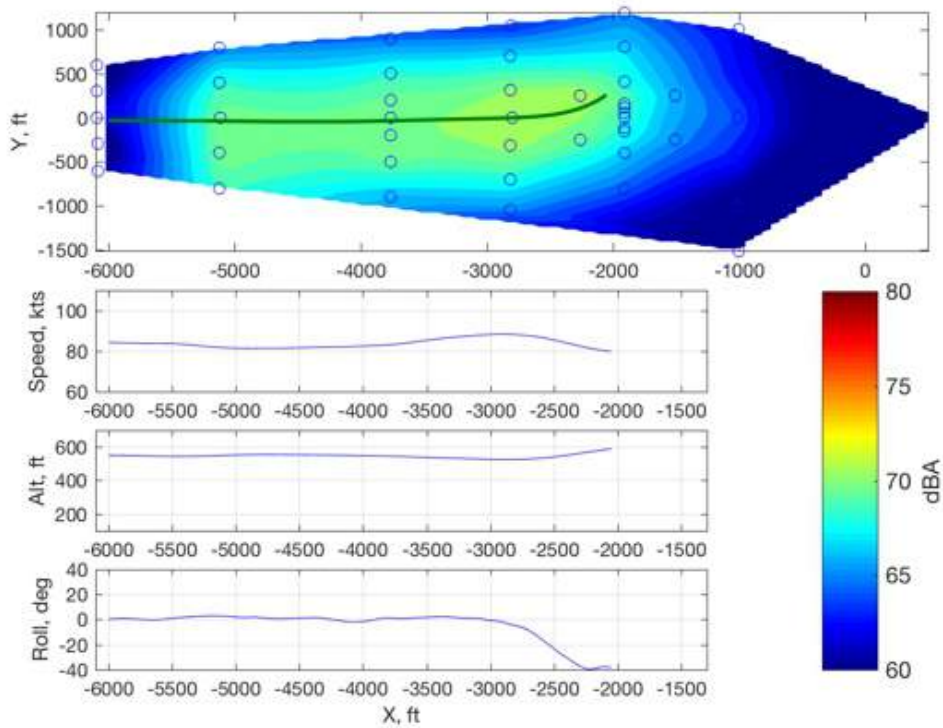


Figure 946: AS350B3, 290193, X31, maximum dBA contour.

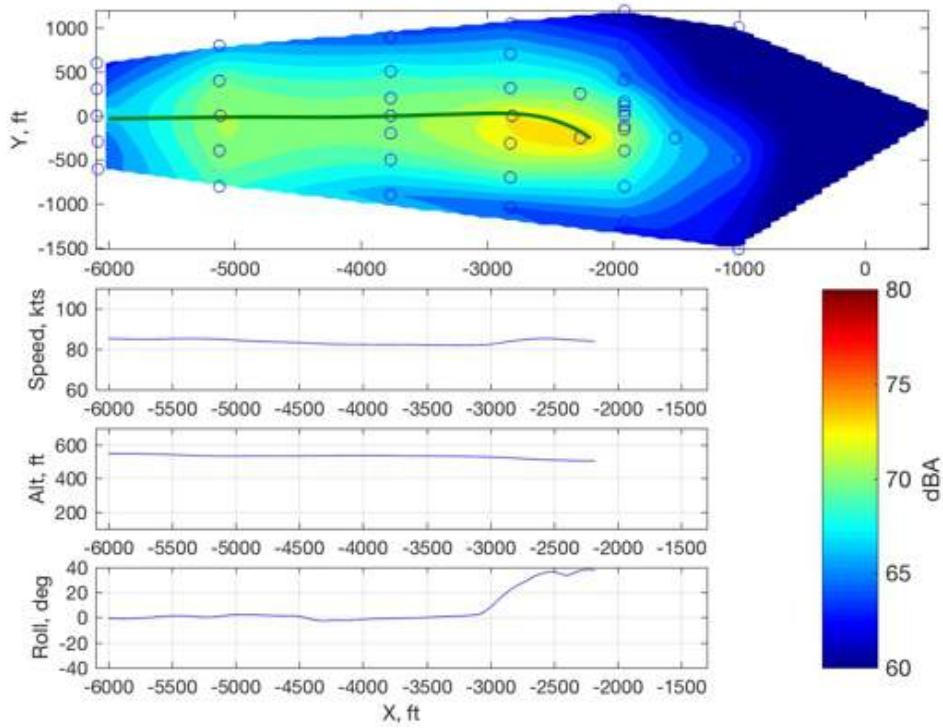


Figure 947: AS350B3, 290194, X32, maximum dBA contour.

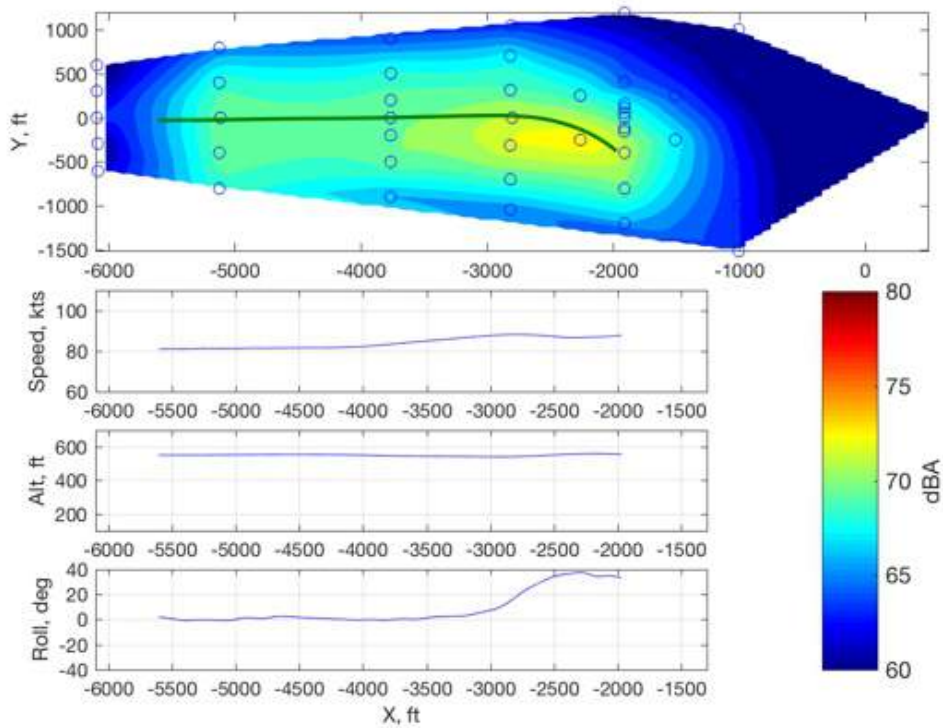


Figure 948: AS350B3, 290195, X32, maximum dBA contour.

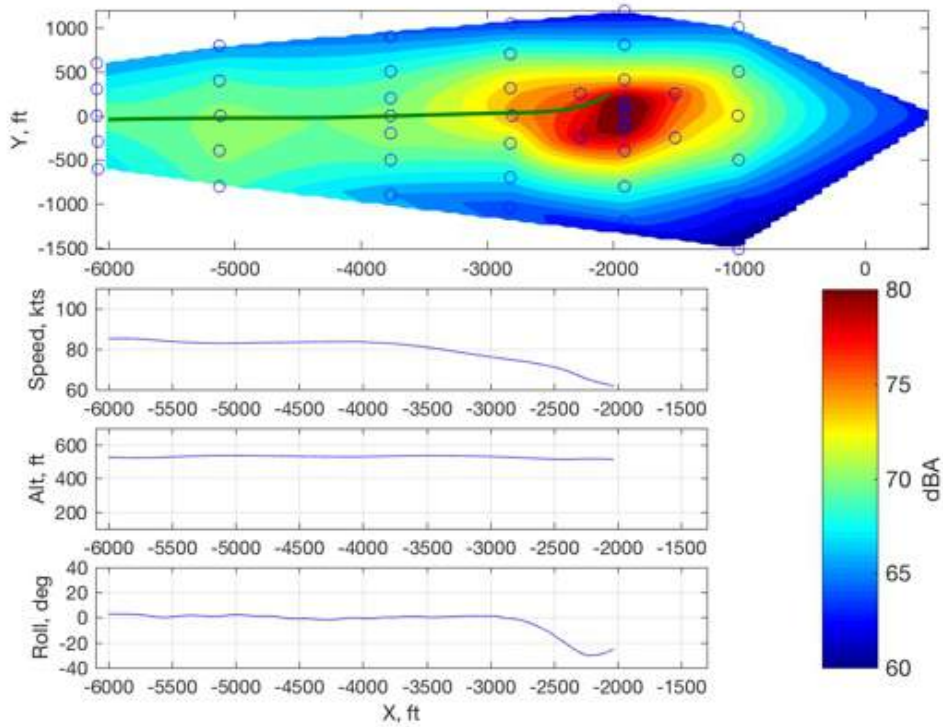


Figure 949: AS350B3, 290196, X39, maximum dBA contour.

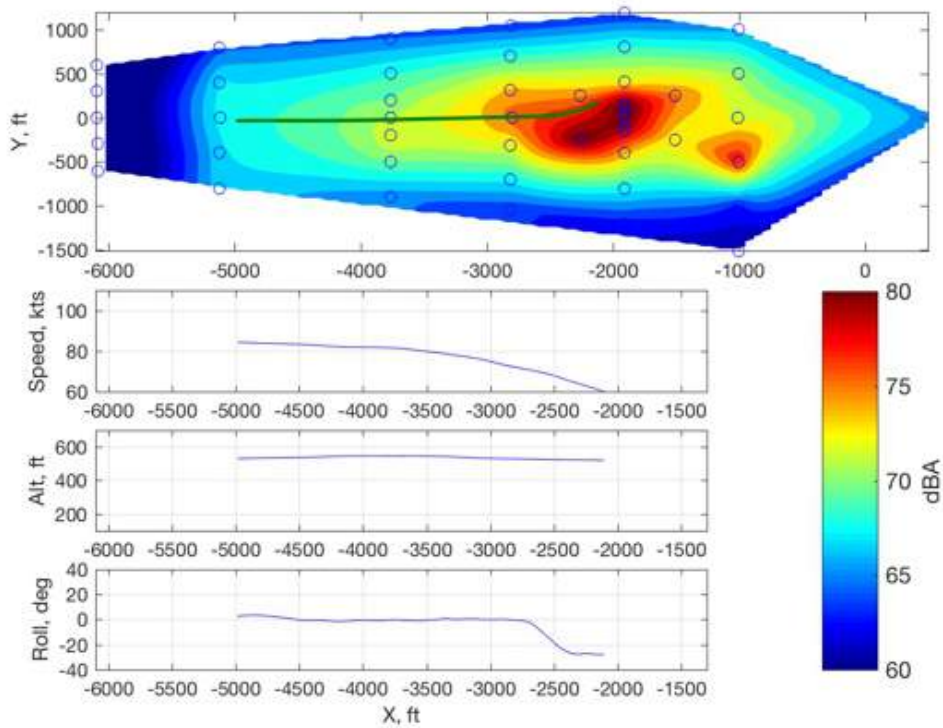


Figure 950: AS350B3, 290197, X39, maximum dBA contour.

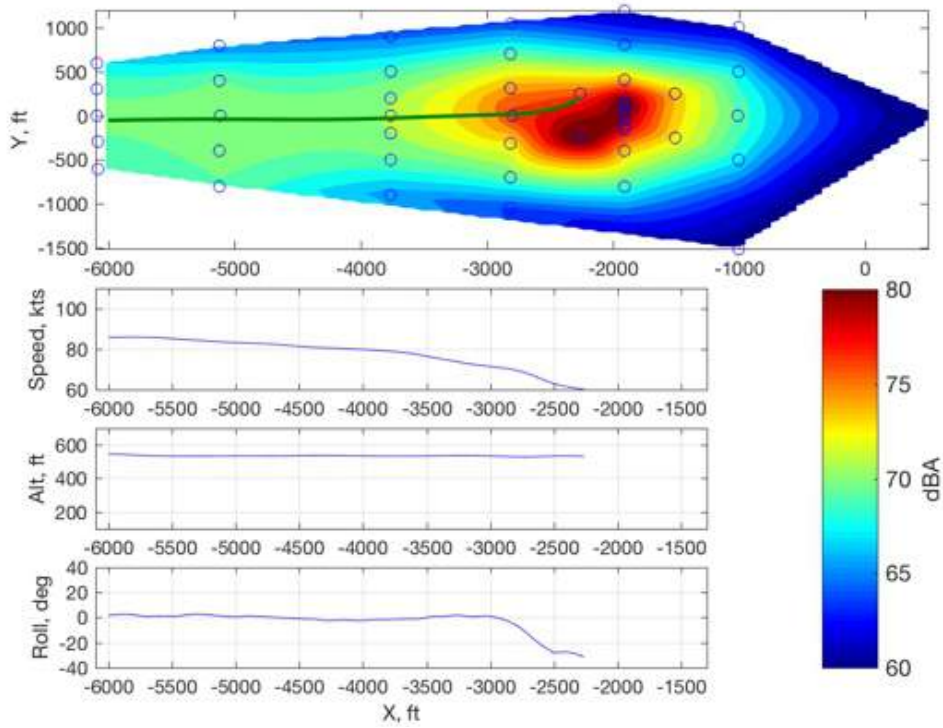


Figure 951: AS350B3, 290198, X39, maximum dBA contour.

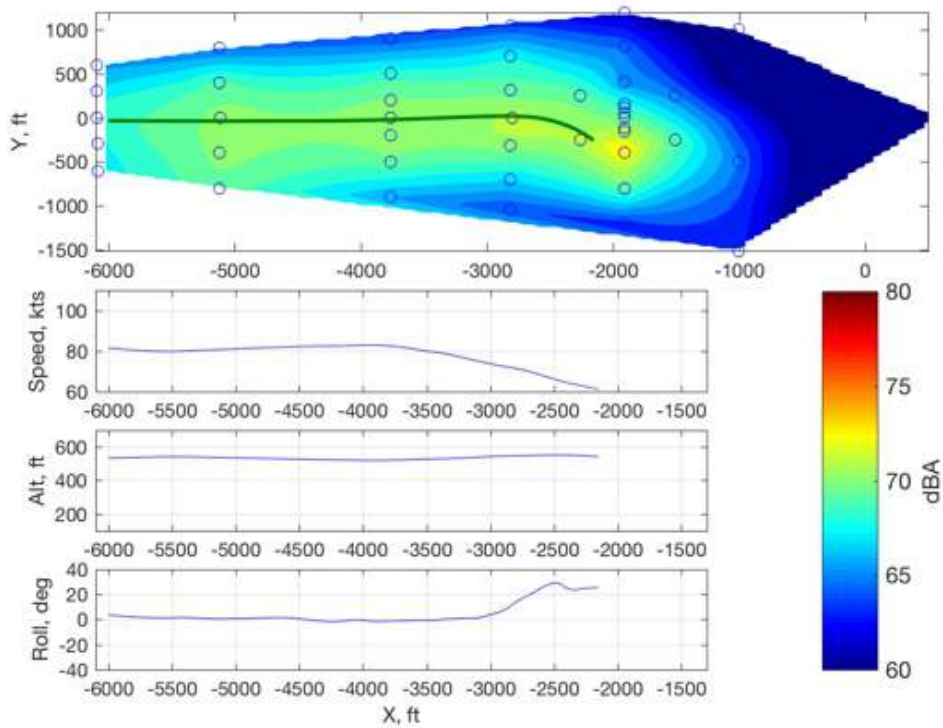


Figure 952: AS350B3, 290199, X40, maximum dBA contour.

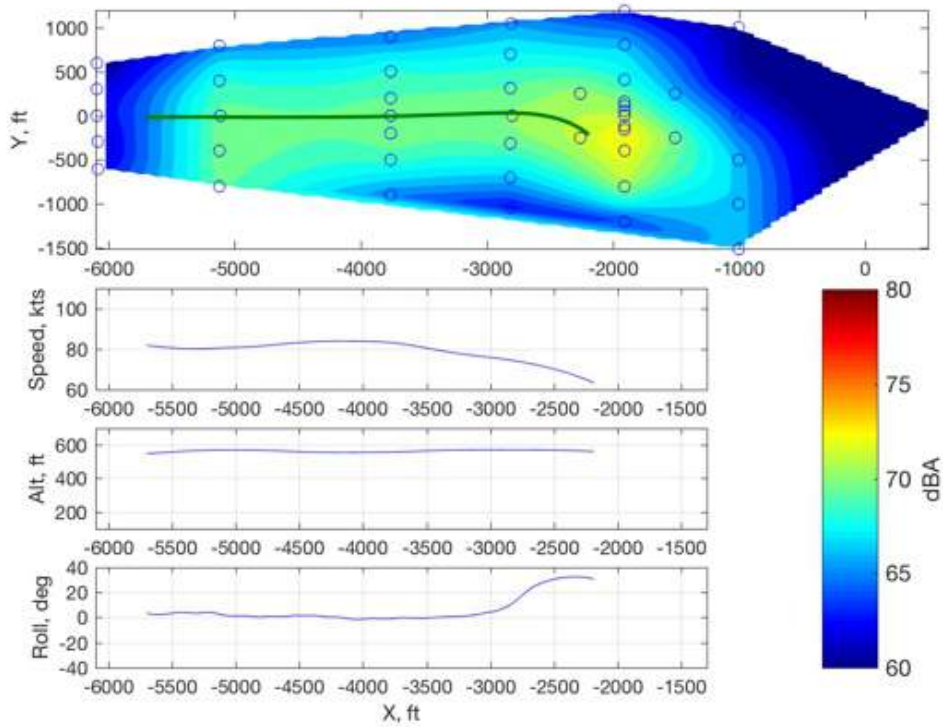


Figure 953: AS350B3, 290200, X40, maximum dBA contour.

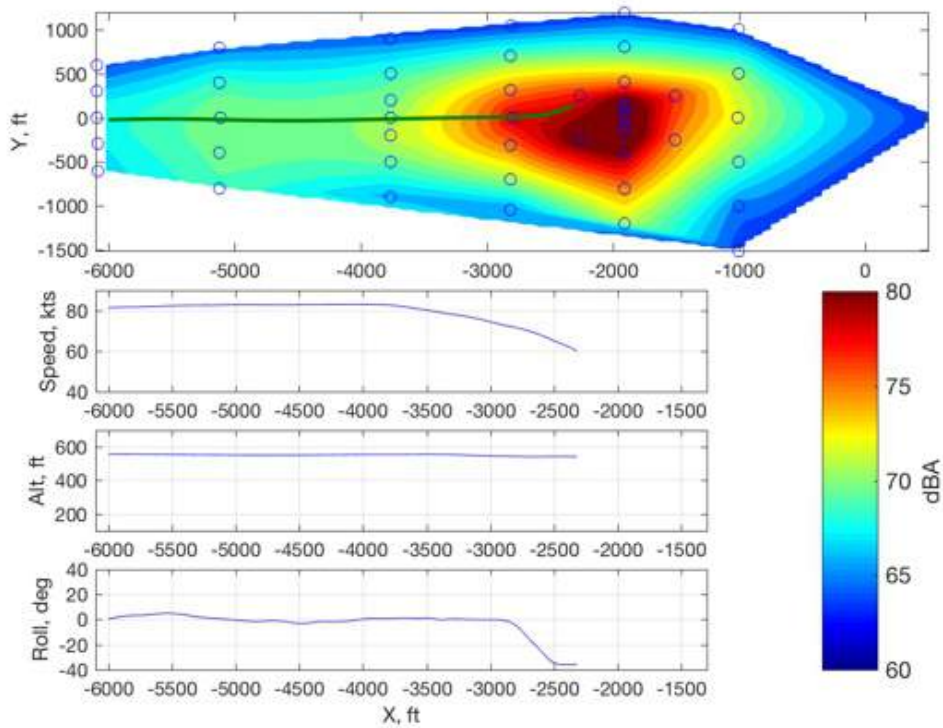


Figure 954: AS350B3, 290201, X43, maximum dBA contour.

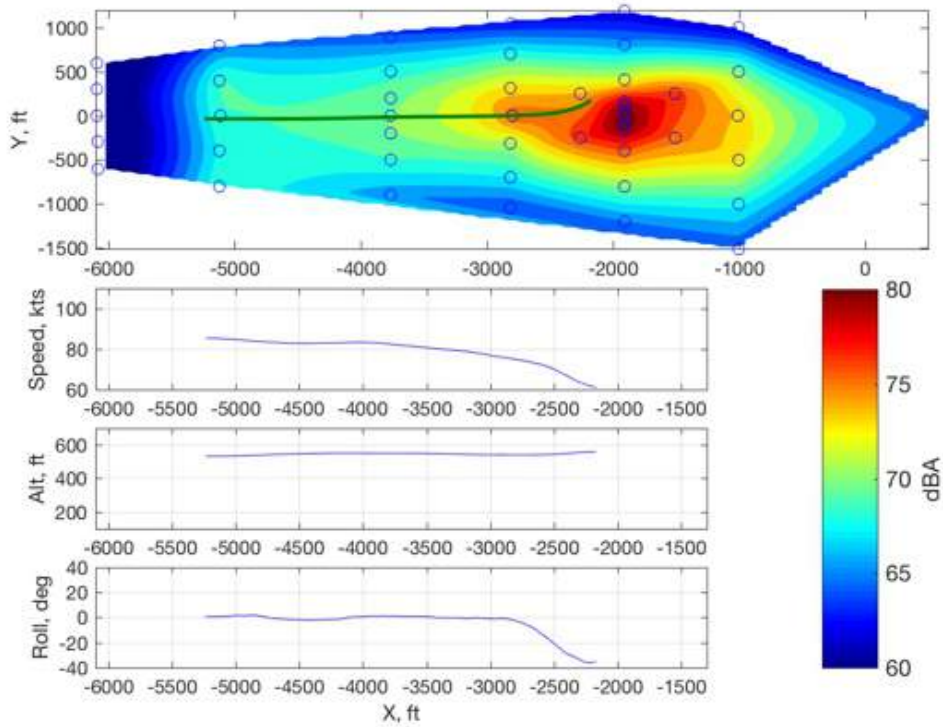


Figure 955: AS350B3, 290202, X43, maximum dBA contour.

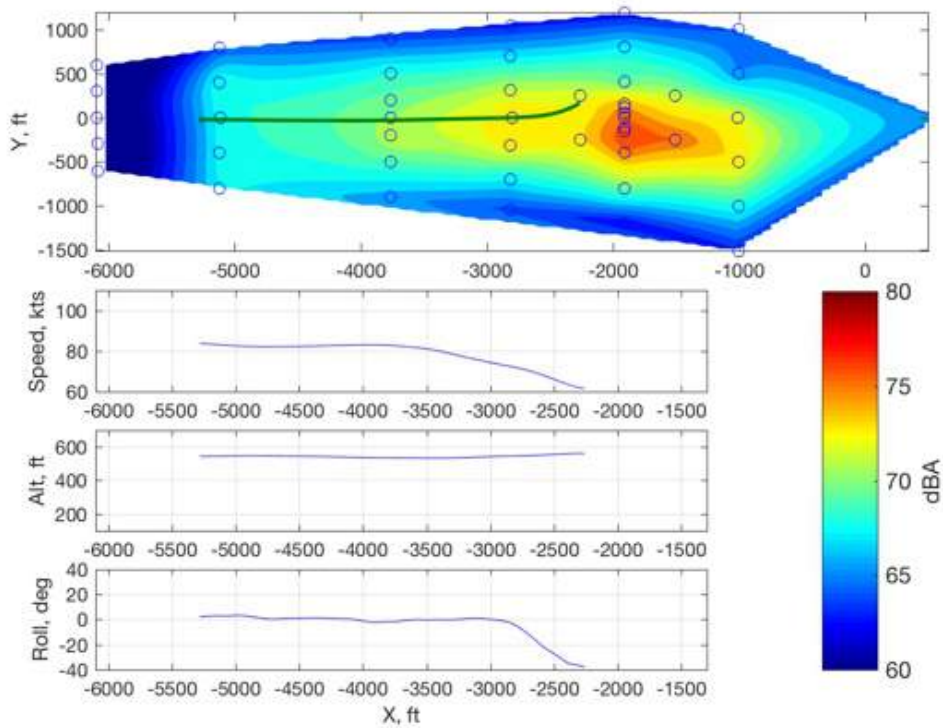


Figure 956: AS350B3, 290203, X43, maximum dBA contour.

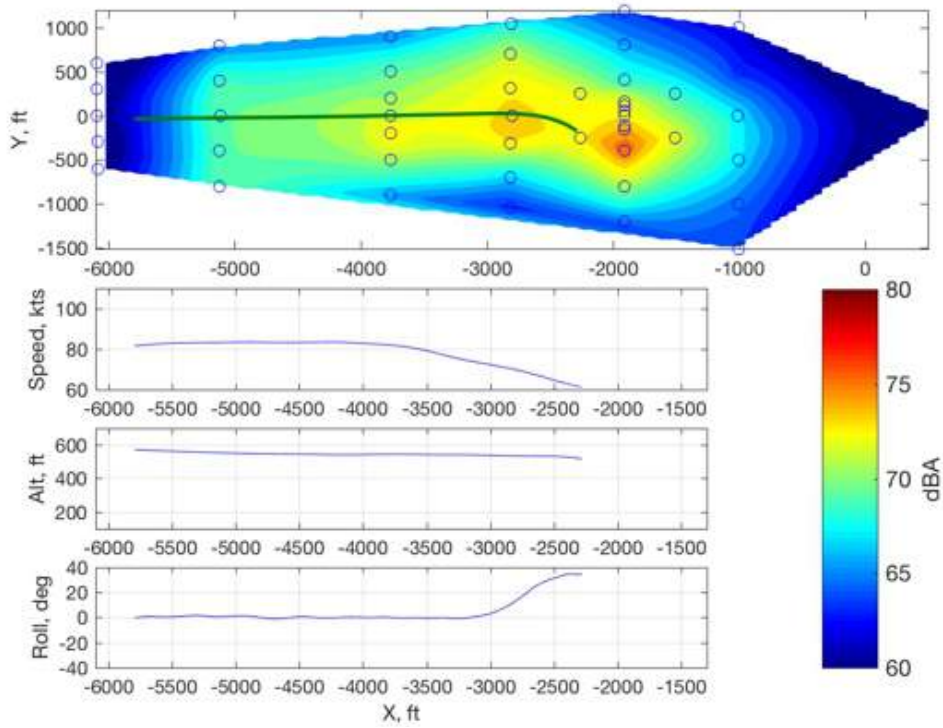


Figure 957: AS350B3, 290204, X44, maximum dBA contour.

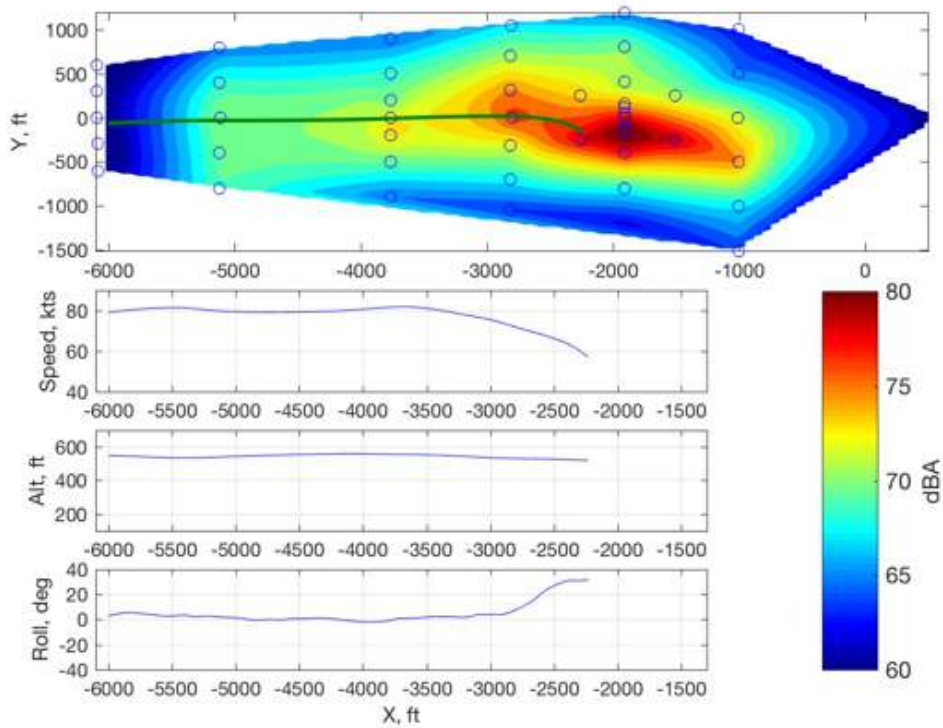


Figure 958: AS350B3, 290205, X44, maximum dBA contour.

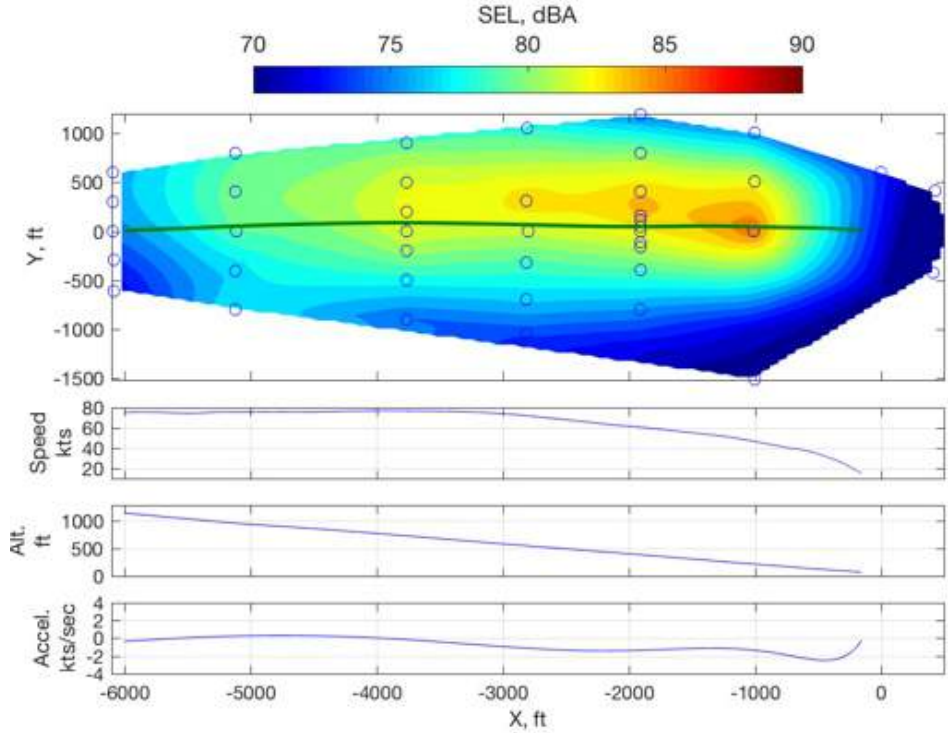


Figure 959: AS350B3, A9, run 291290 A-Weighted SEL contour.

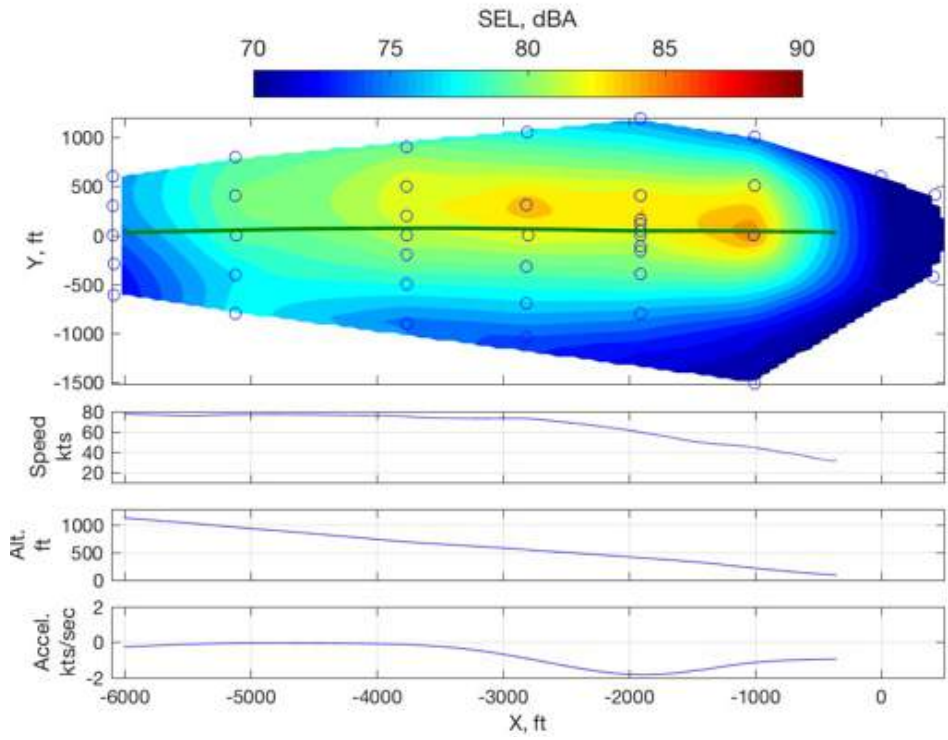


Figure 960: AS350B3, A9, run 291291 A-Weighted SEL contour.

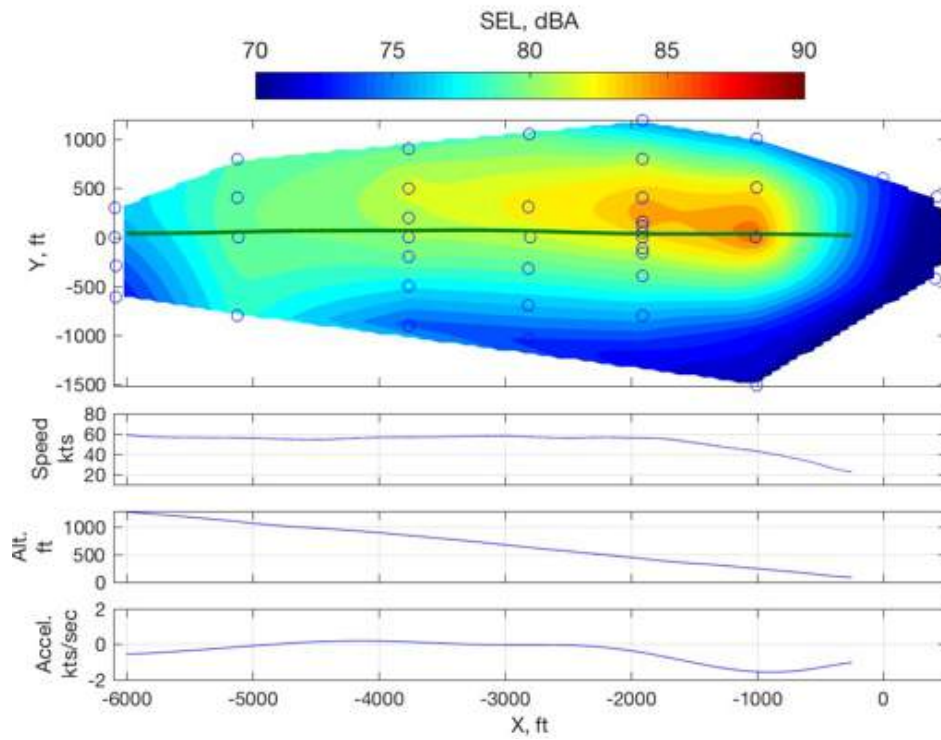


Figure 961: AS350B3, A23, run 291287 A-Weighted SEL contour.

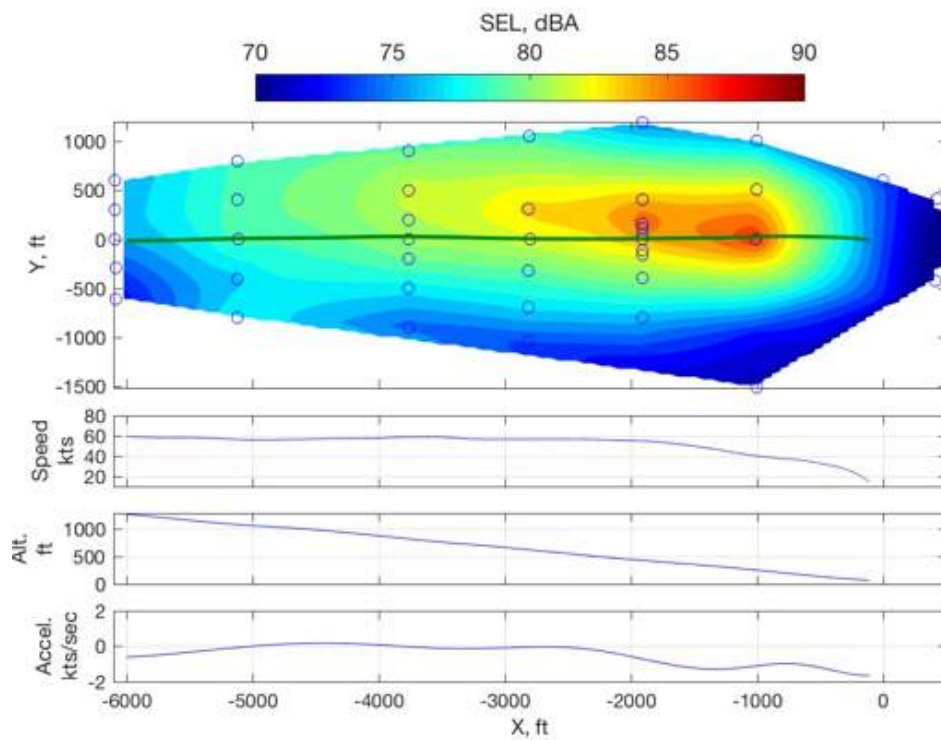


Figure 962: AS350B3, A23, run 291288 A-Weighted SEL contour.

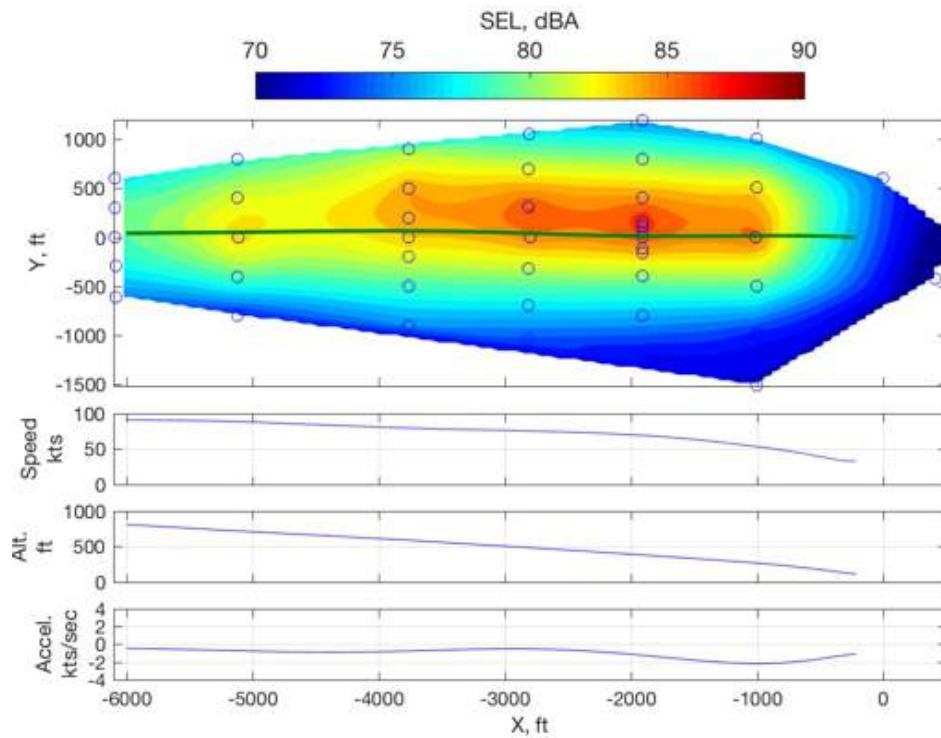


Figure 963: AS350B3, A25, run 291261 A-Weighted SEL contour.

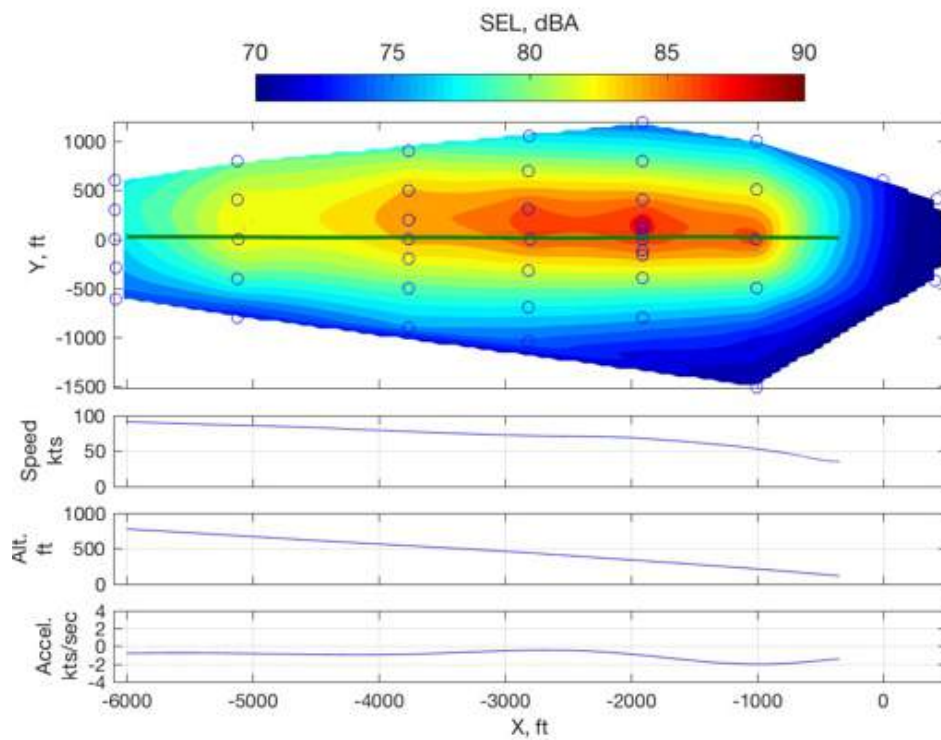


Figure 964: AS350B3, A25, run 291262 A-Weighted SEL contour.

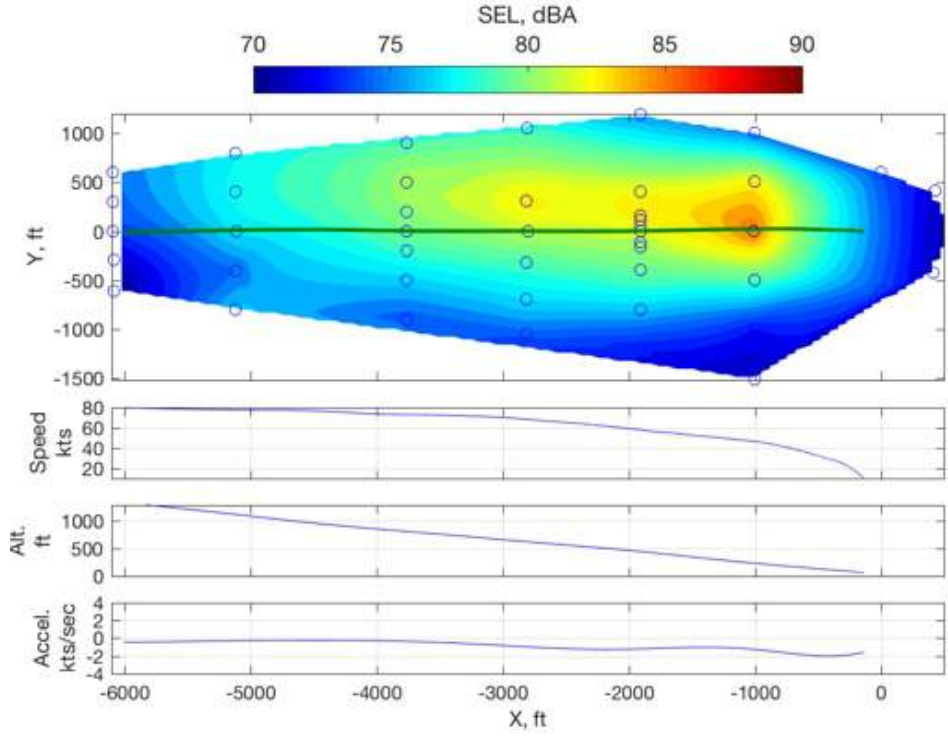


Figure 965: AS350B3, A27, run 291283 A-Weighted SEL contour.

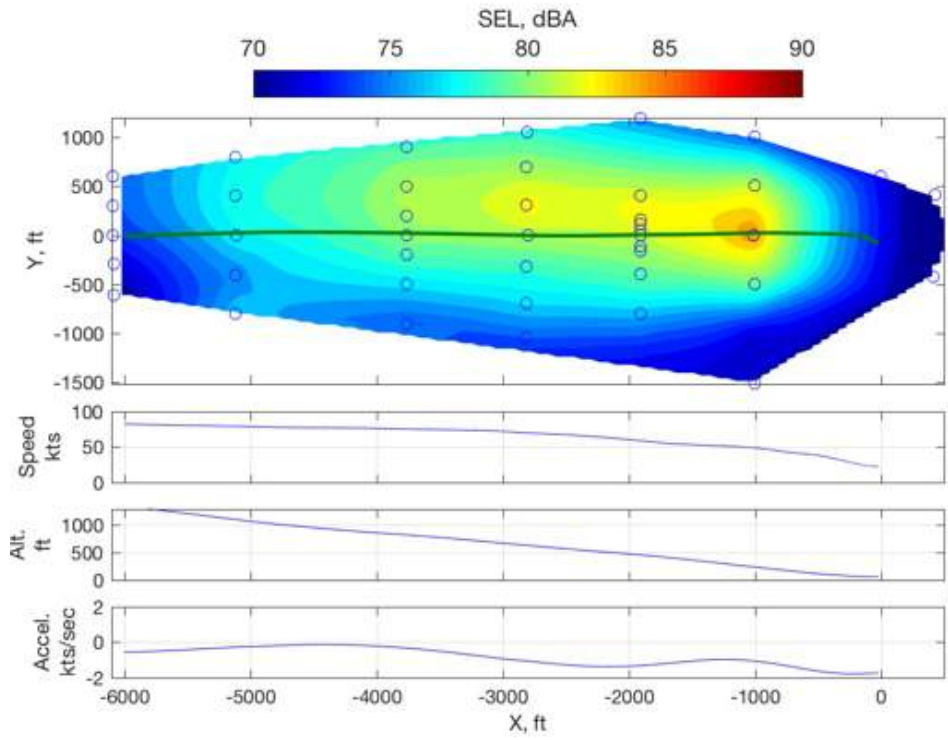


Figure 966: AS350B3, A27, run 291284 A-Weighted SEL contour.

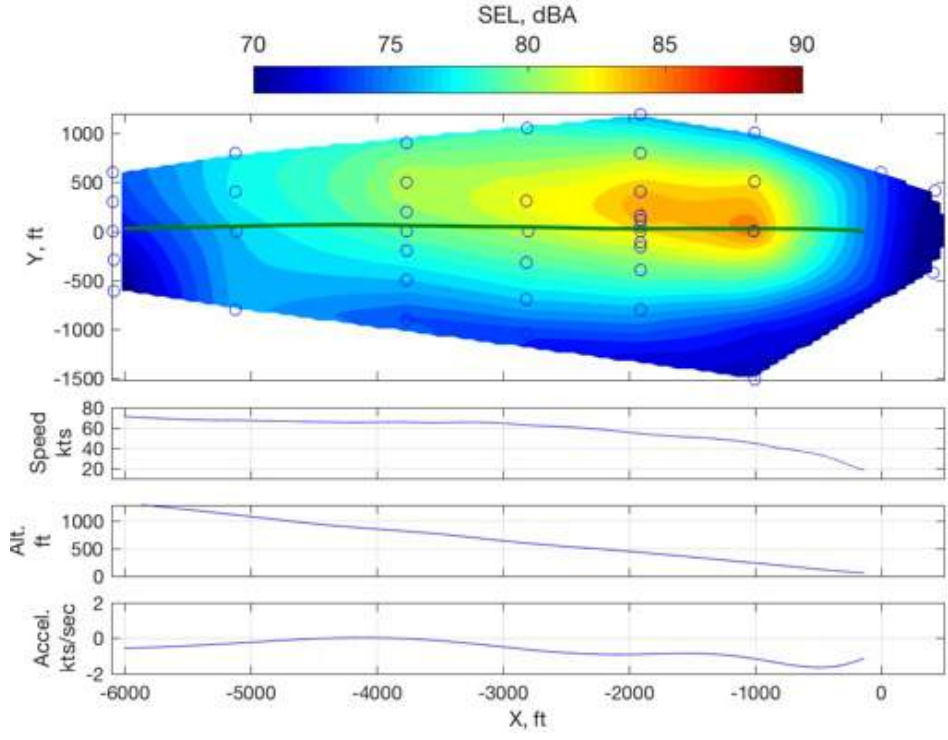


Figure 967: AS350B3, A43, run 291285 A-Weighted SEL contour.

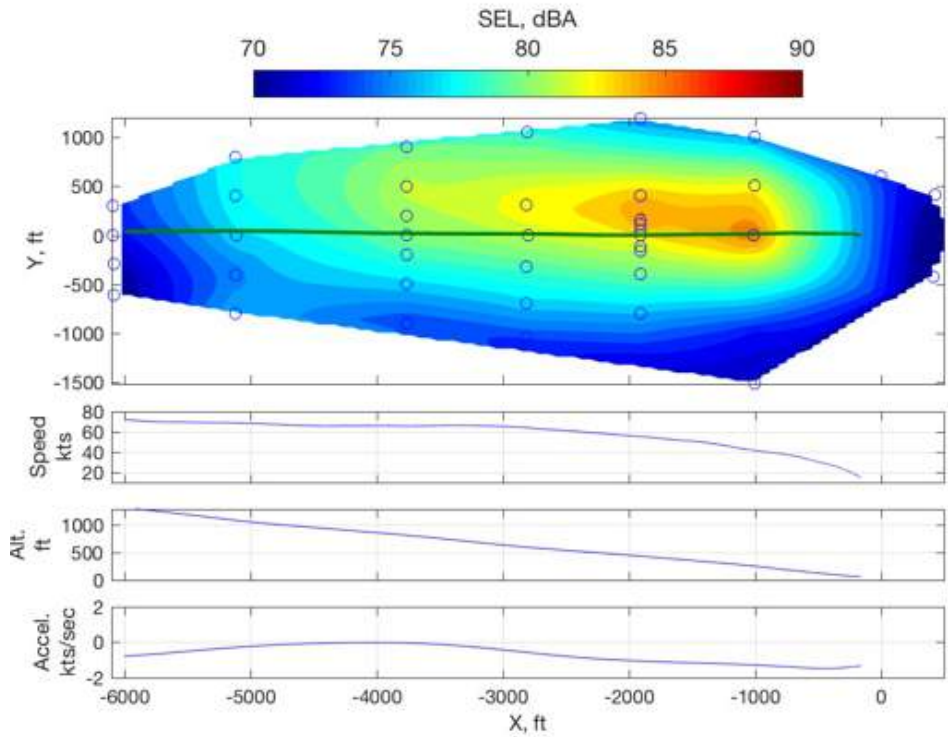


Figure 968: AS350B3, A43, run 291286 A-Weighted SEL contour.

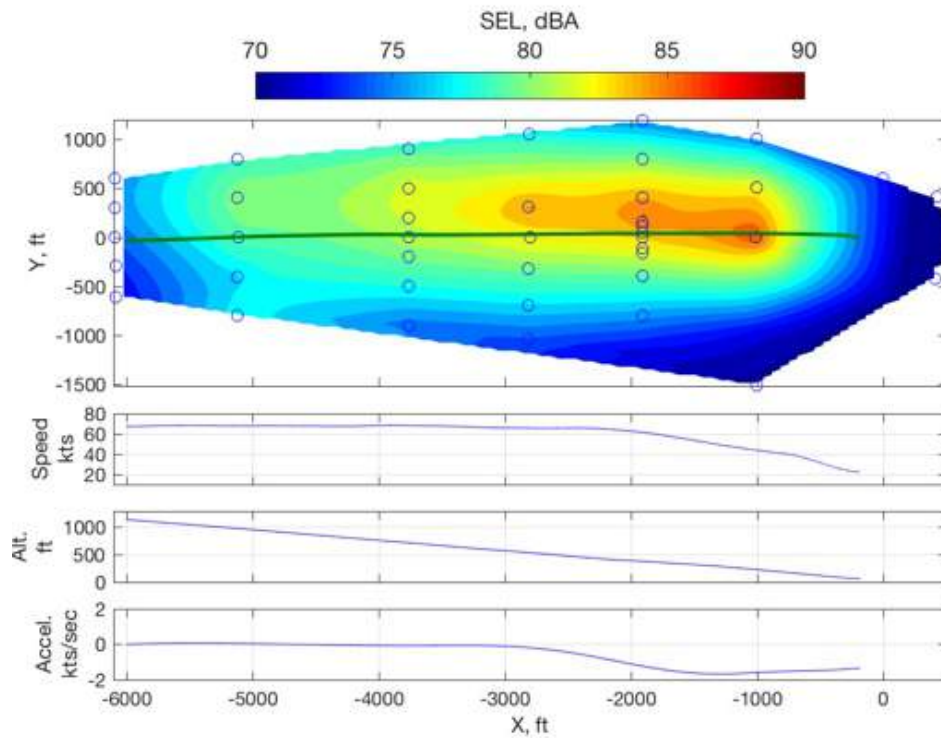


Figure 969: AS350B3, A44, run 291292 A-Weighted SEL contour.

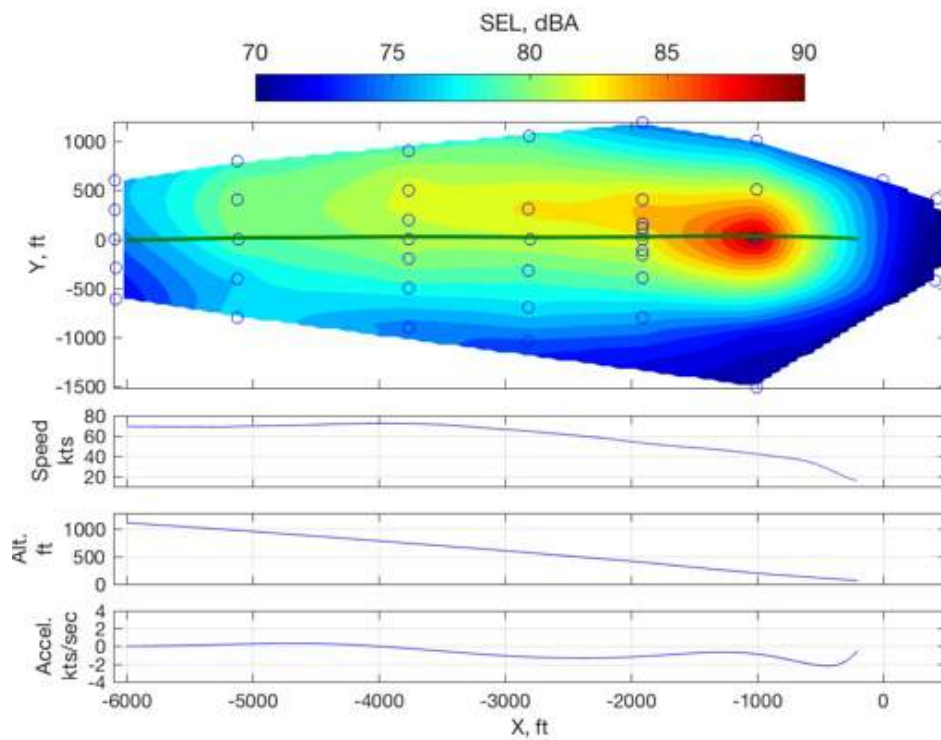


Figure 970: AS350B3, A44, run 291293 A-Weighted SEL contour.

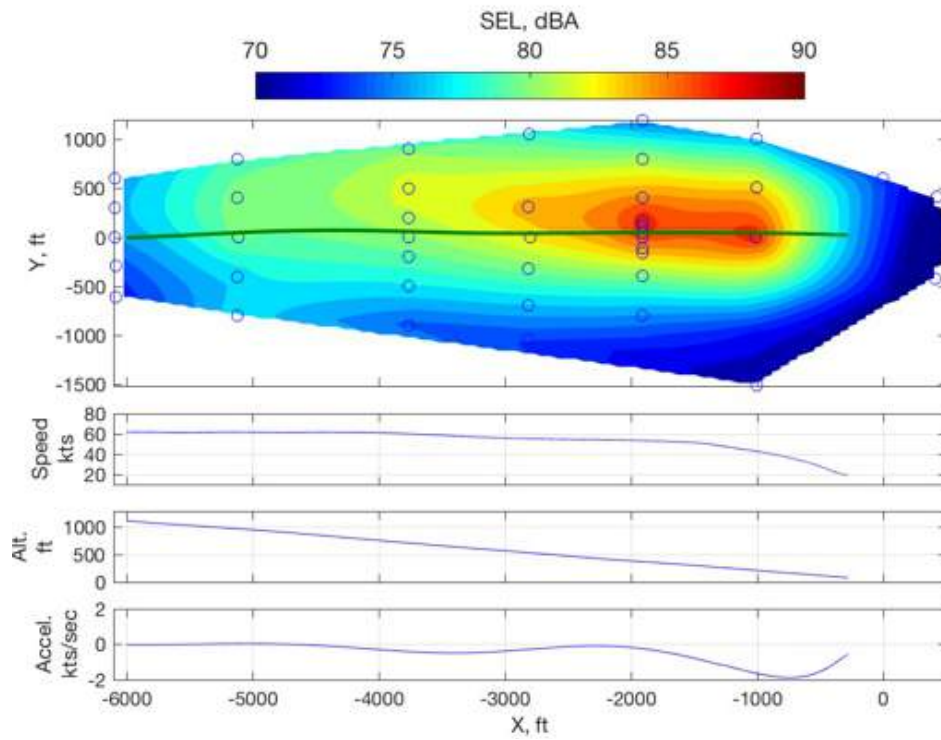


Figure 971: AS350B3, A45, run 291294 A-Weighted SEL contour.

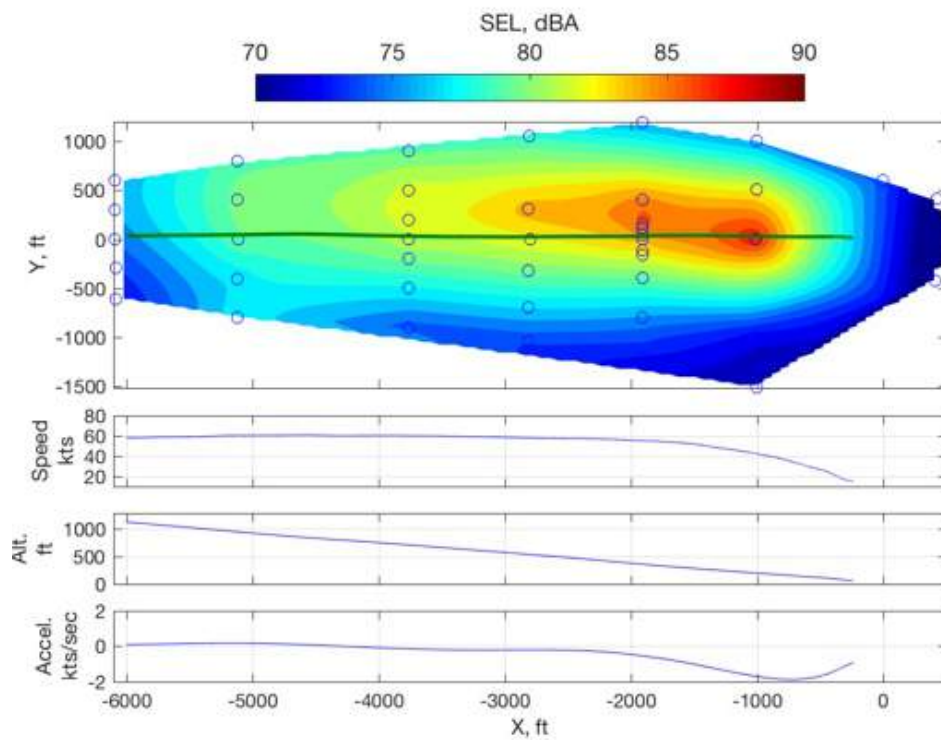


Figure 972: AS350B3, A45, run 291295 A-Weighted SEL contour.

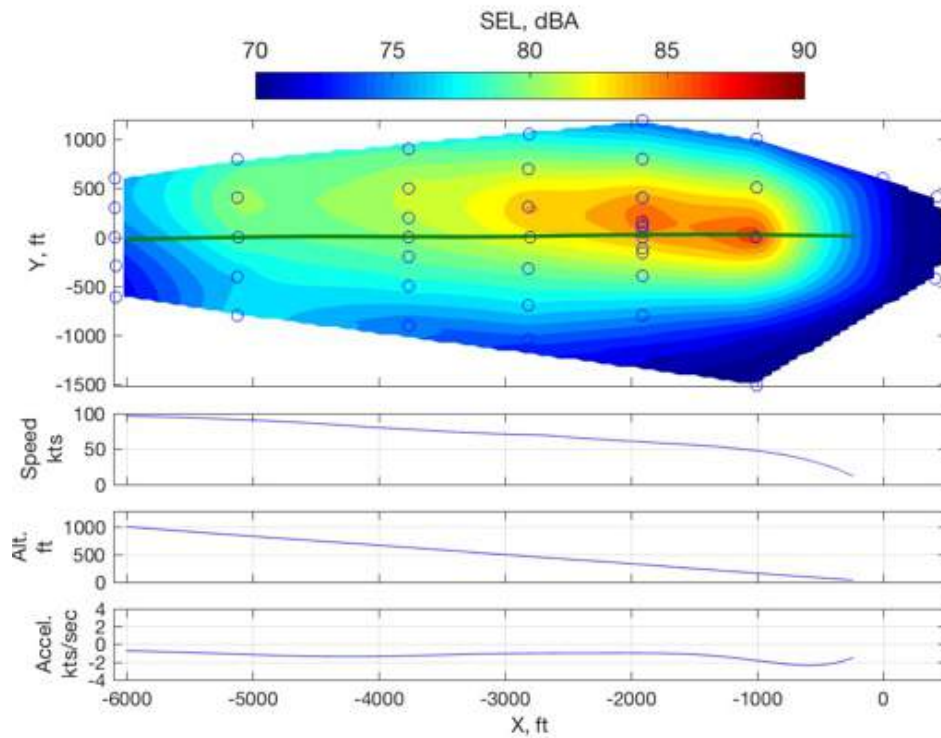


Figure 973: AS350B3, A46, run 291296 A-Weighted SEL contour.

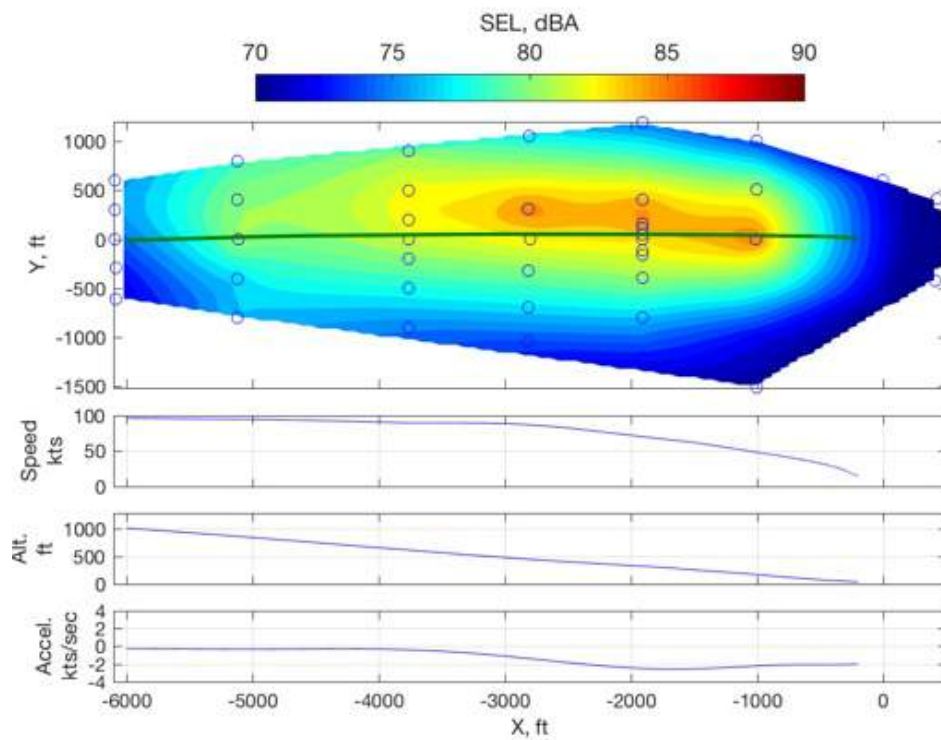


Figure 974: AS350B3, A46, run 291297 A-Weighted SEL contour.

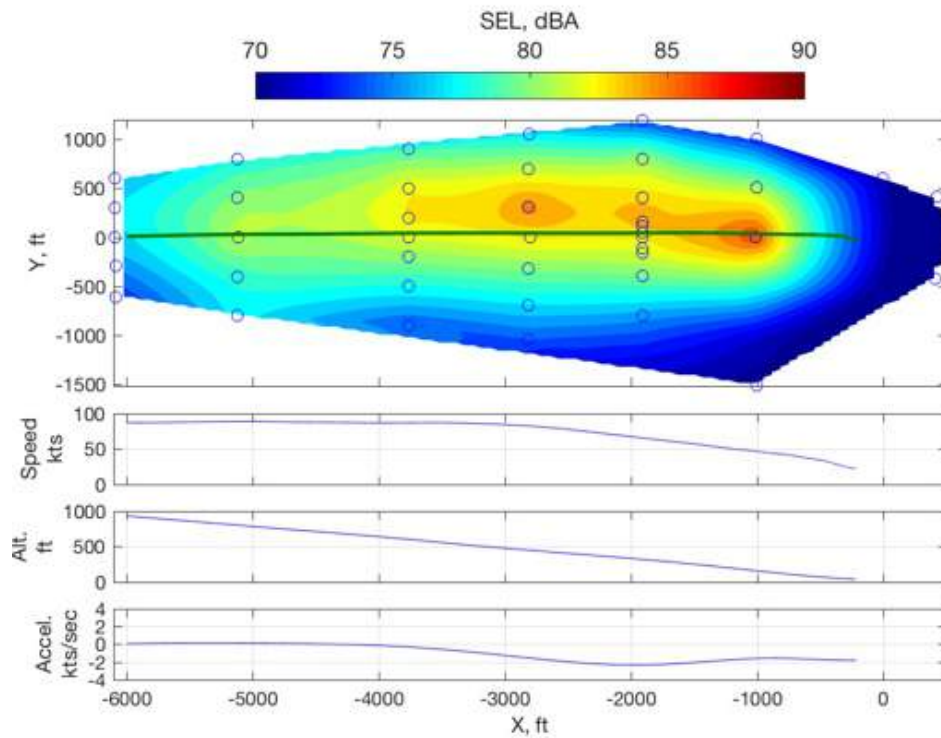


Figure 975: AS350B3, A47, run 291298 A-Weighted SEL contour.

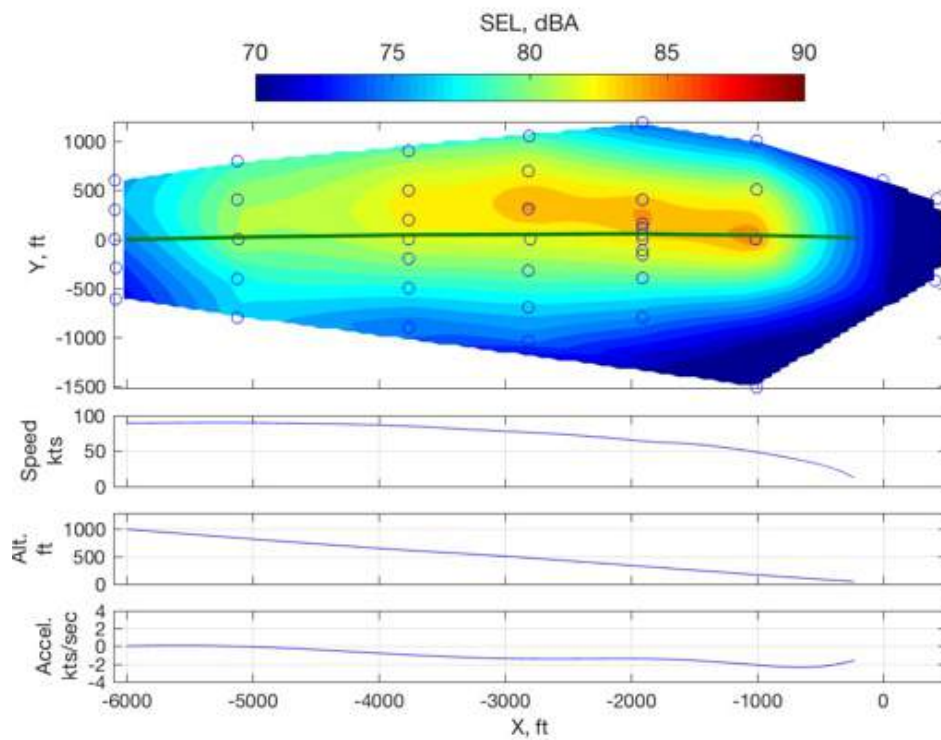


Figure 976: AS350B3, A47, run 291299 A-Weighted SEL contour.

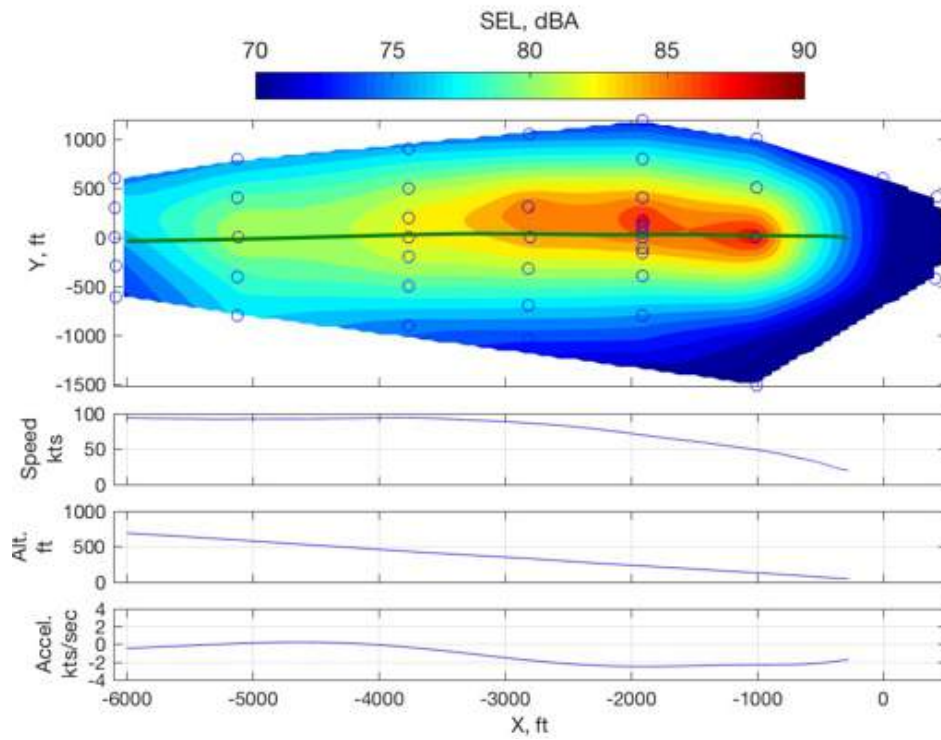


Figure 977: AS350B3, A48, run 291300 A-Weighted SEL contour.

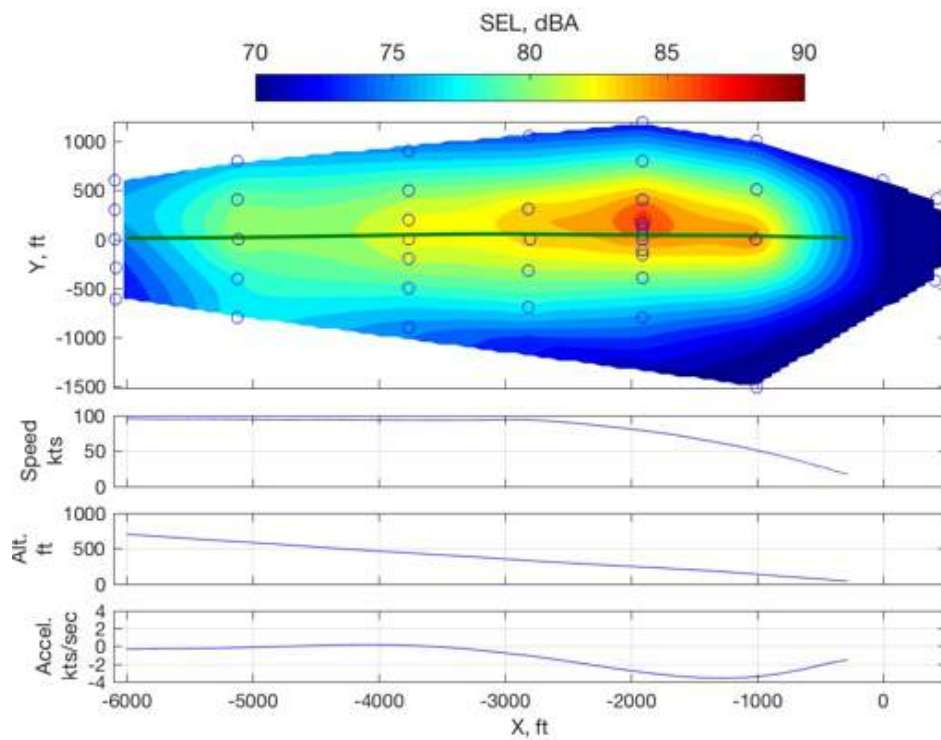


Figure 978: AS350B3, A48, run 291301 A-Weighted SEL contour.

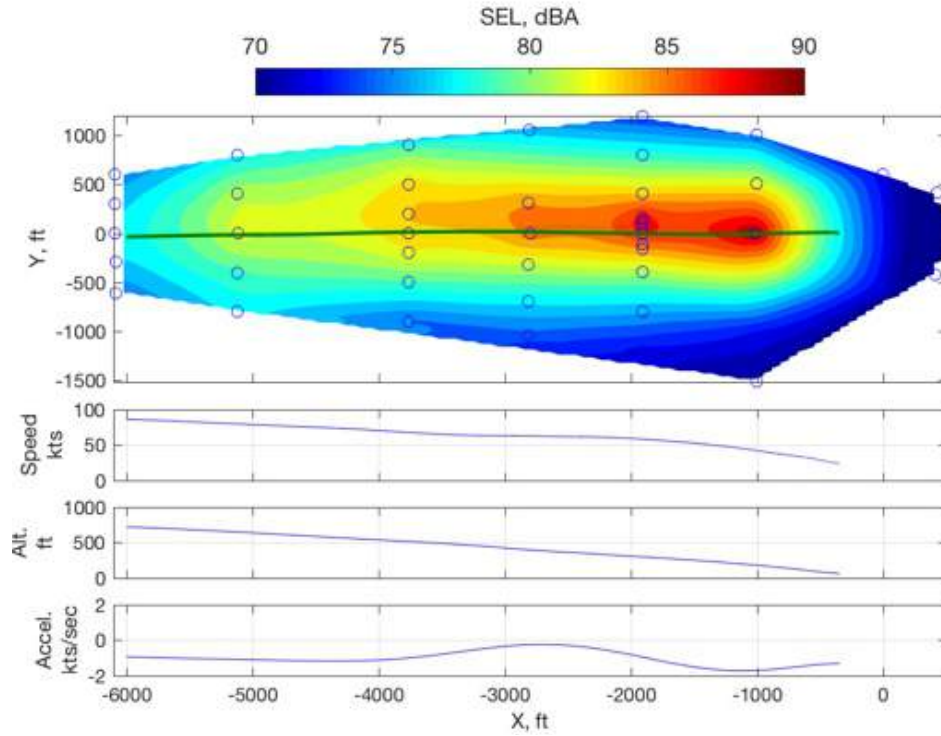


Figure 979: AS350B3, A49, run 291302 A-Weighted SEL contour.

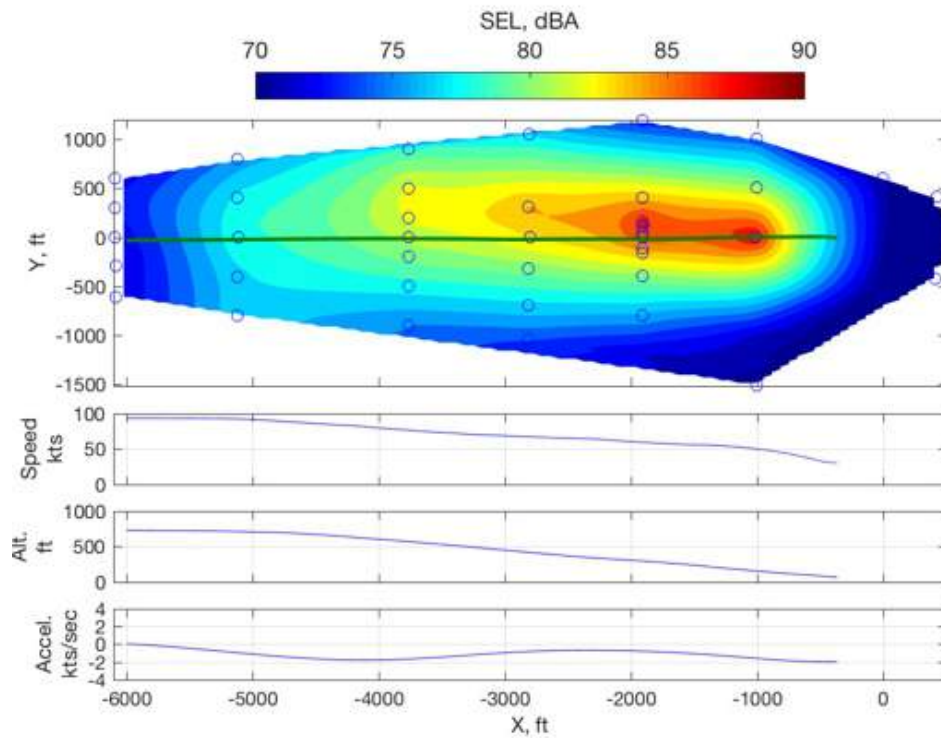


Figure 980: AS350B3, A49, run 291303 A-Weighted SEL contour.

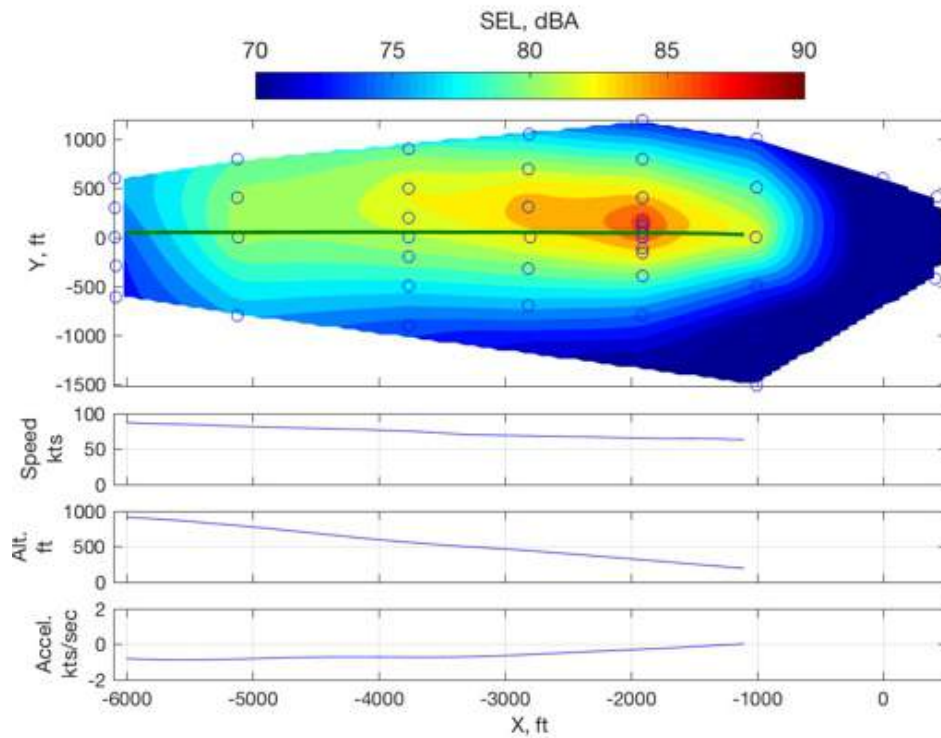


Figure 981: AS350B3, A49, run 291306 A-Weighted SEL contour.

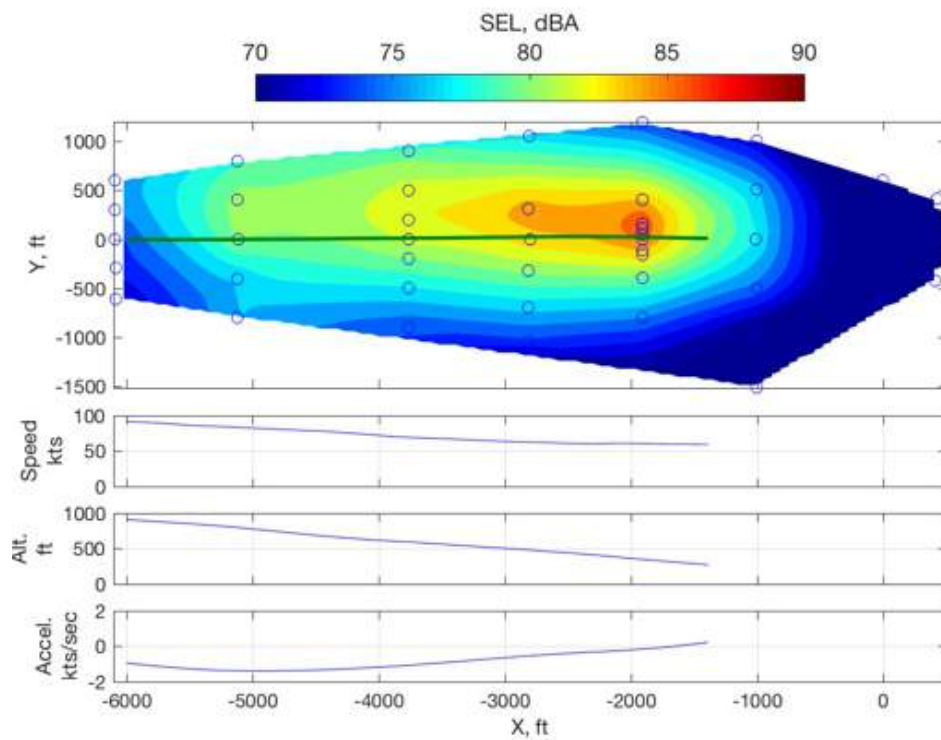


Figure 982: AS350B3, A49, run 291307 A-Weighted SEL contour.

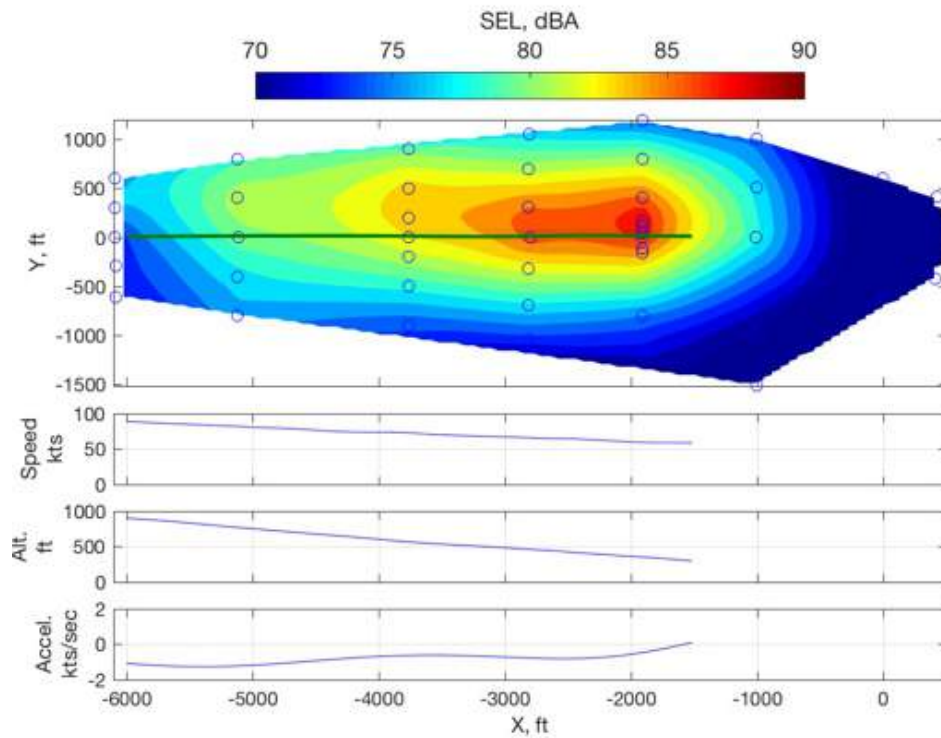


Figure 983: AS350B3, A49, run 291309 A-Weighted SEL contour.

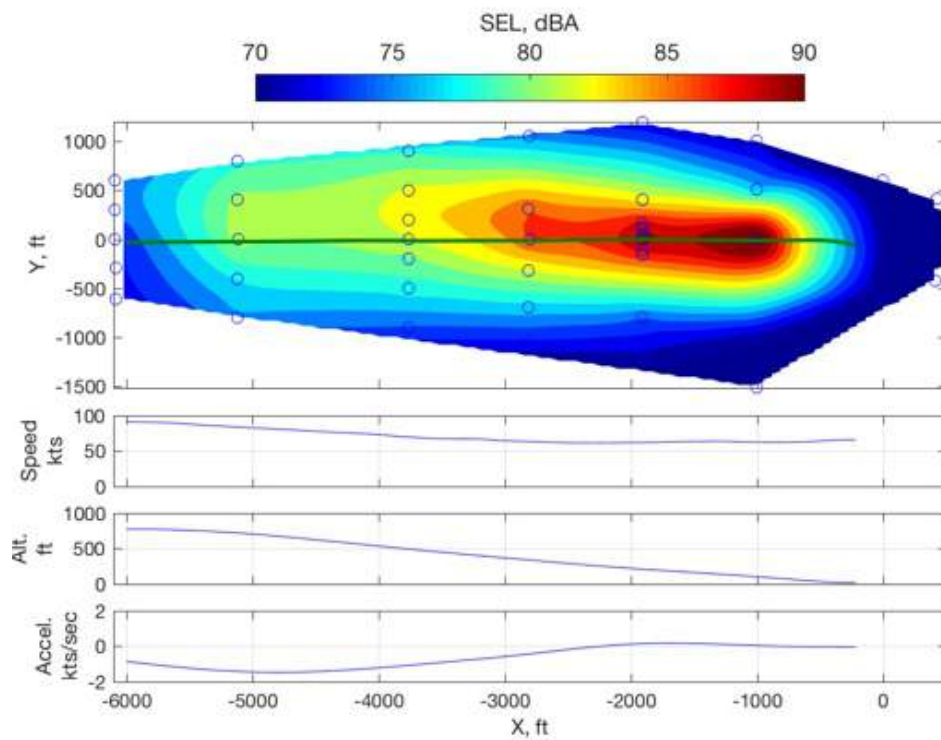


Figure 984: AS350B3, A50, run 291310 A-Weighted SEL contour.

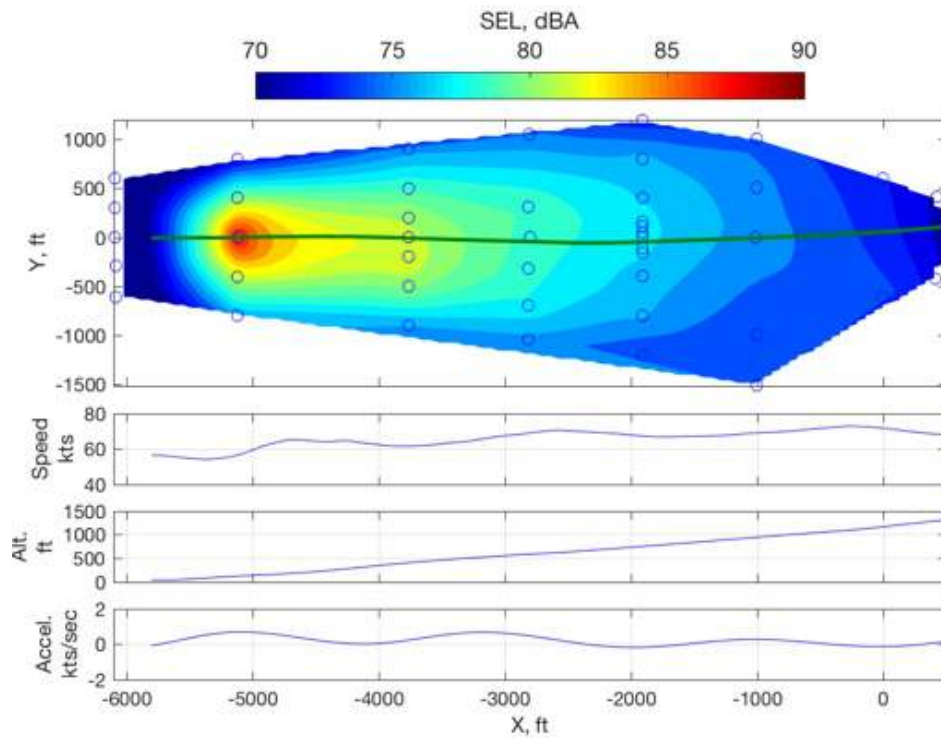


Figure 985: AS350B3, C1, run 291326 A-Weighted SEL contour.

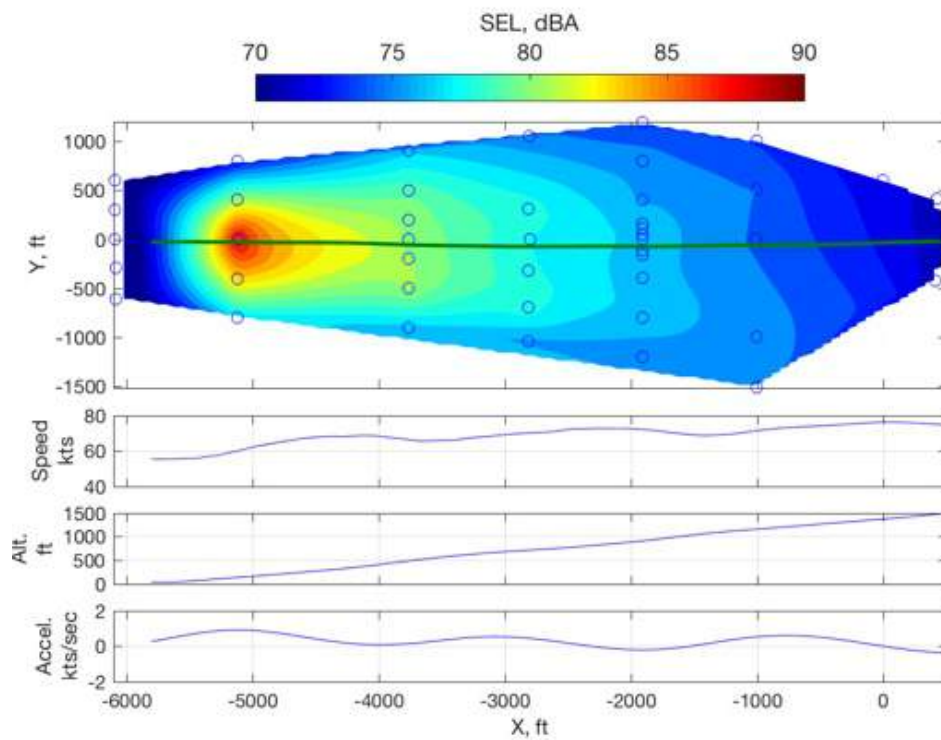


Figure 986: AS350B3, C1, run 291327 A-Weighted SEL contour.

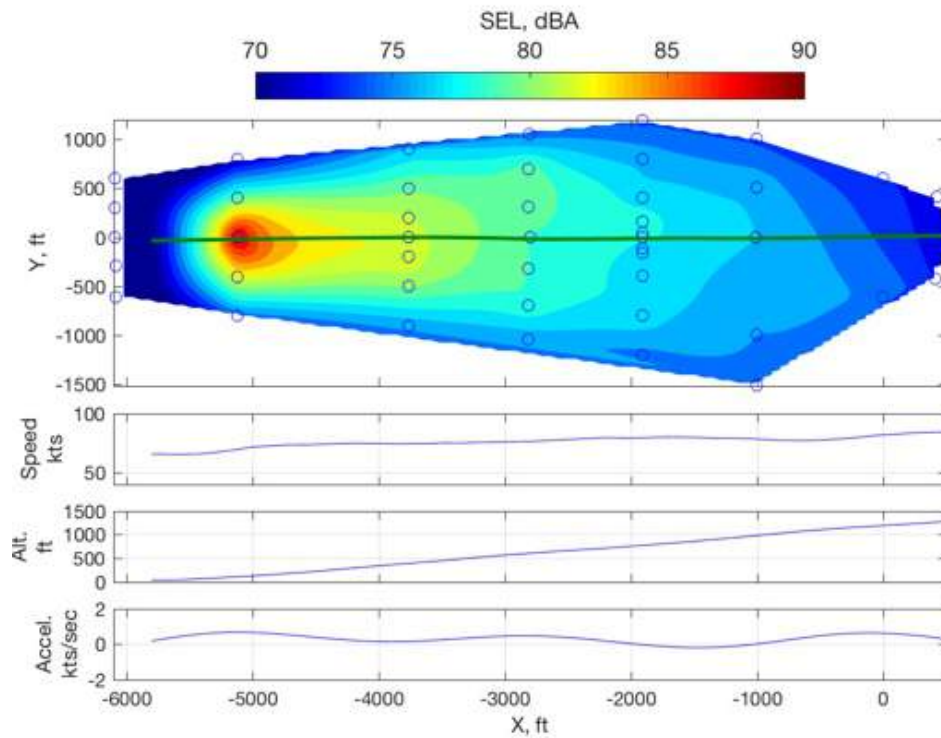


Figure 987: AS350B3, C2, run 291328 A-Weighted SEL contour.

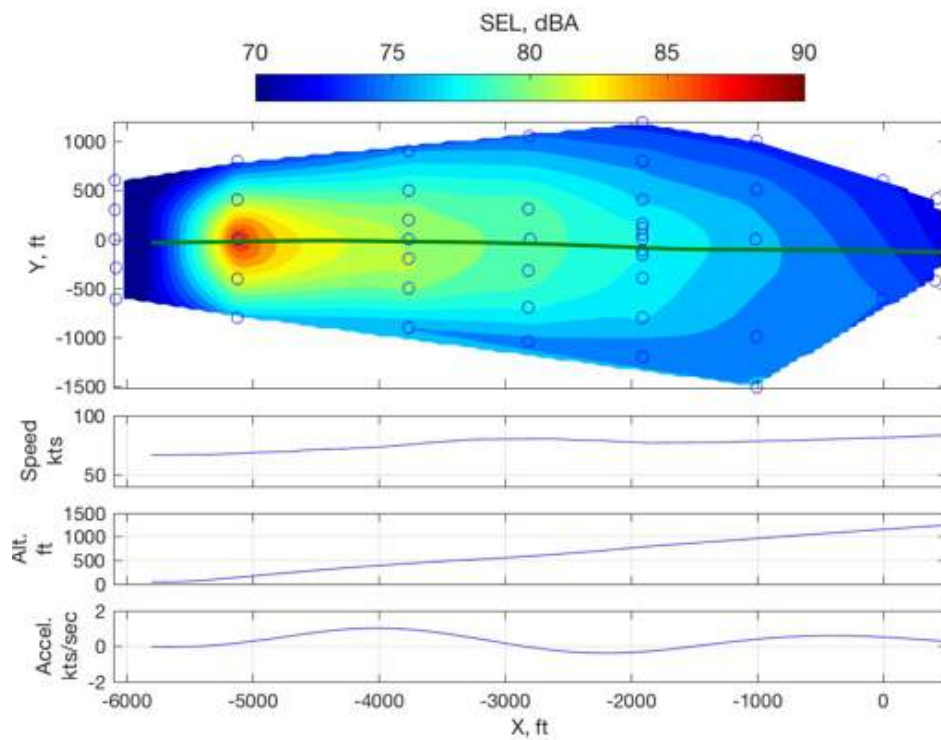


Figure 988: AS350B3, C2, run 291329 A-Weighted SEL contour.

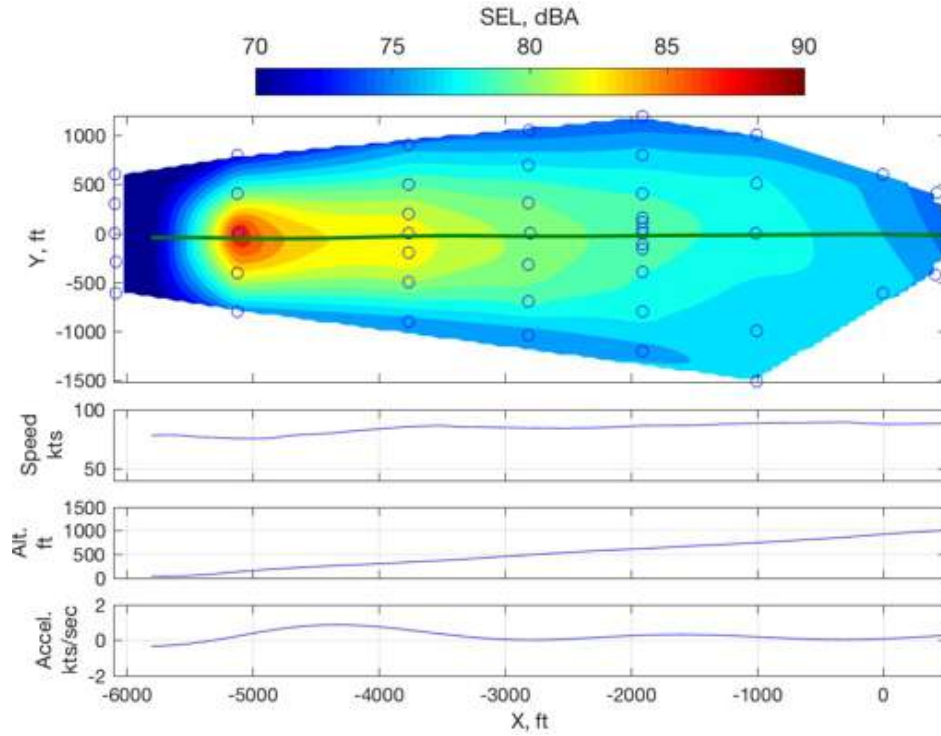


Figure 989: AS350B3, C3, run 291330 A-Weighted SEL contour.

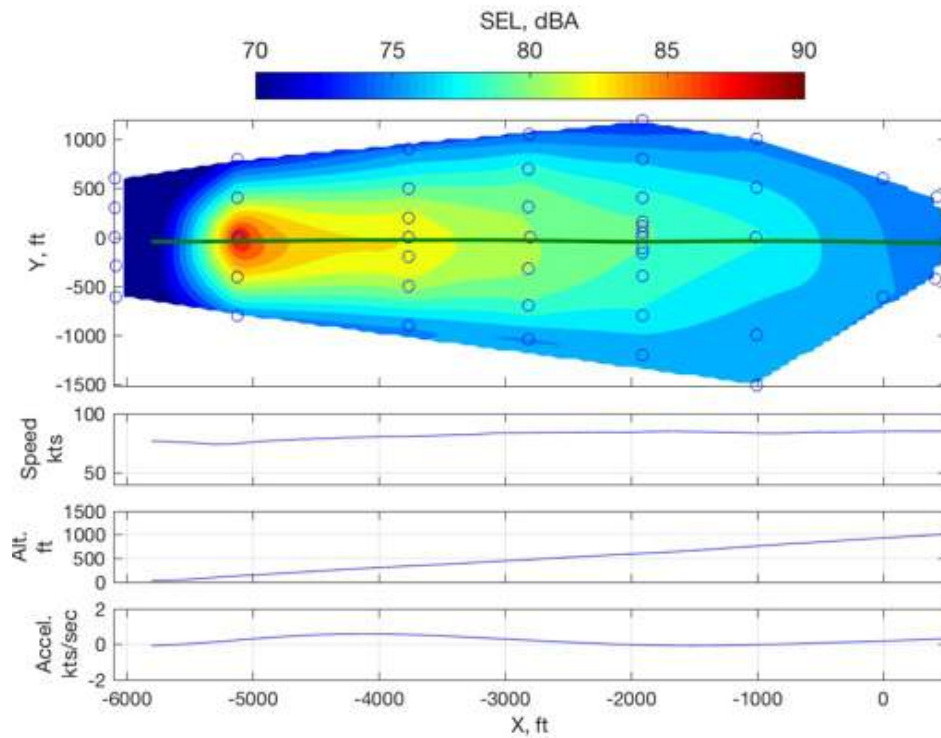


Figure 990: AS350B3, C3, run 291331 A-Weighted SEL contour.

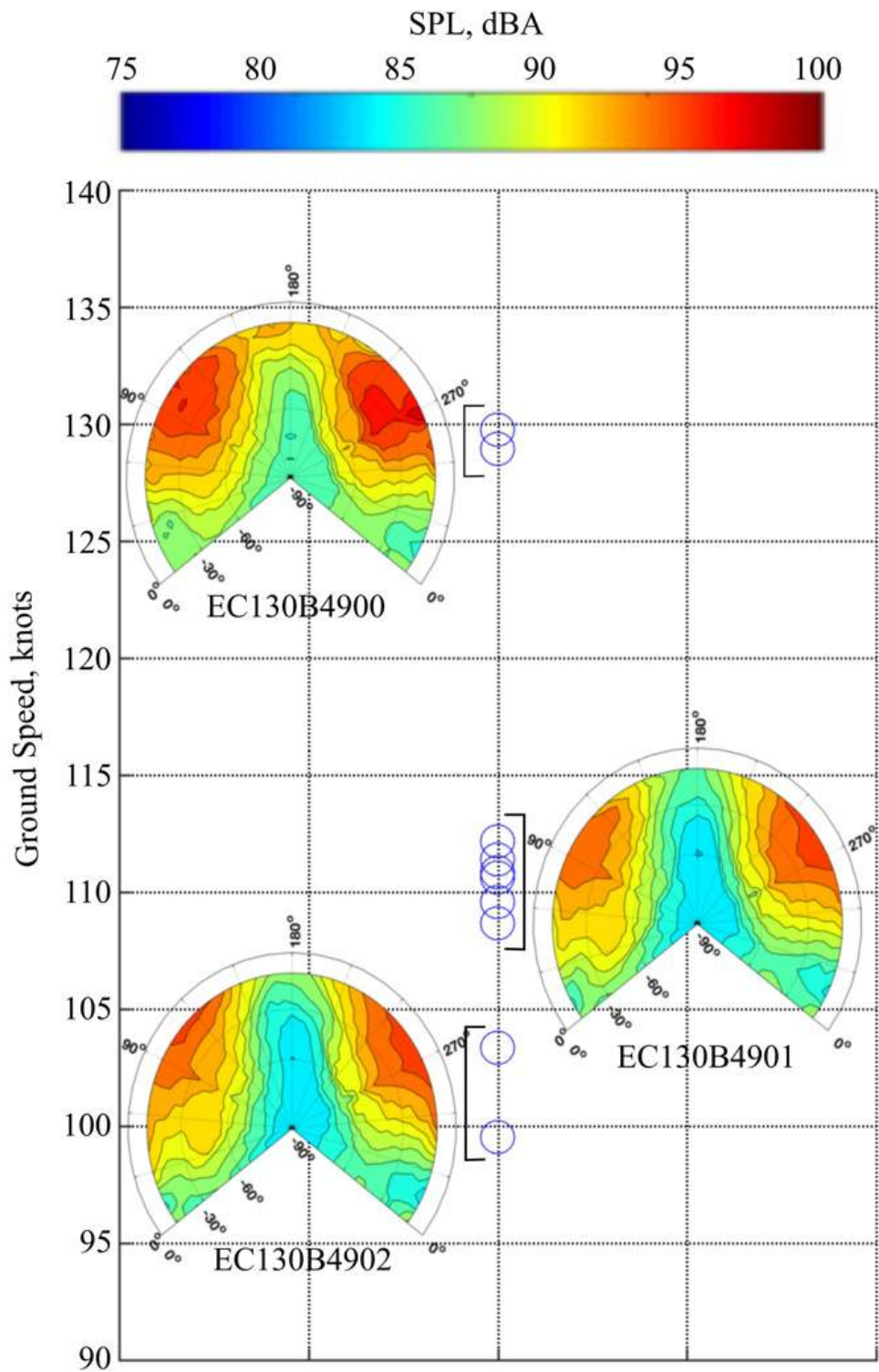


Figure 991: EC130B4 average level flight source noise hemispheres, higher speed range.

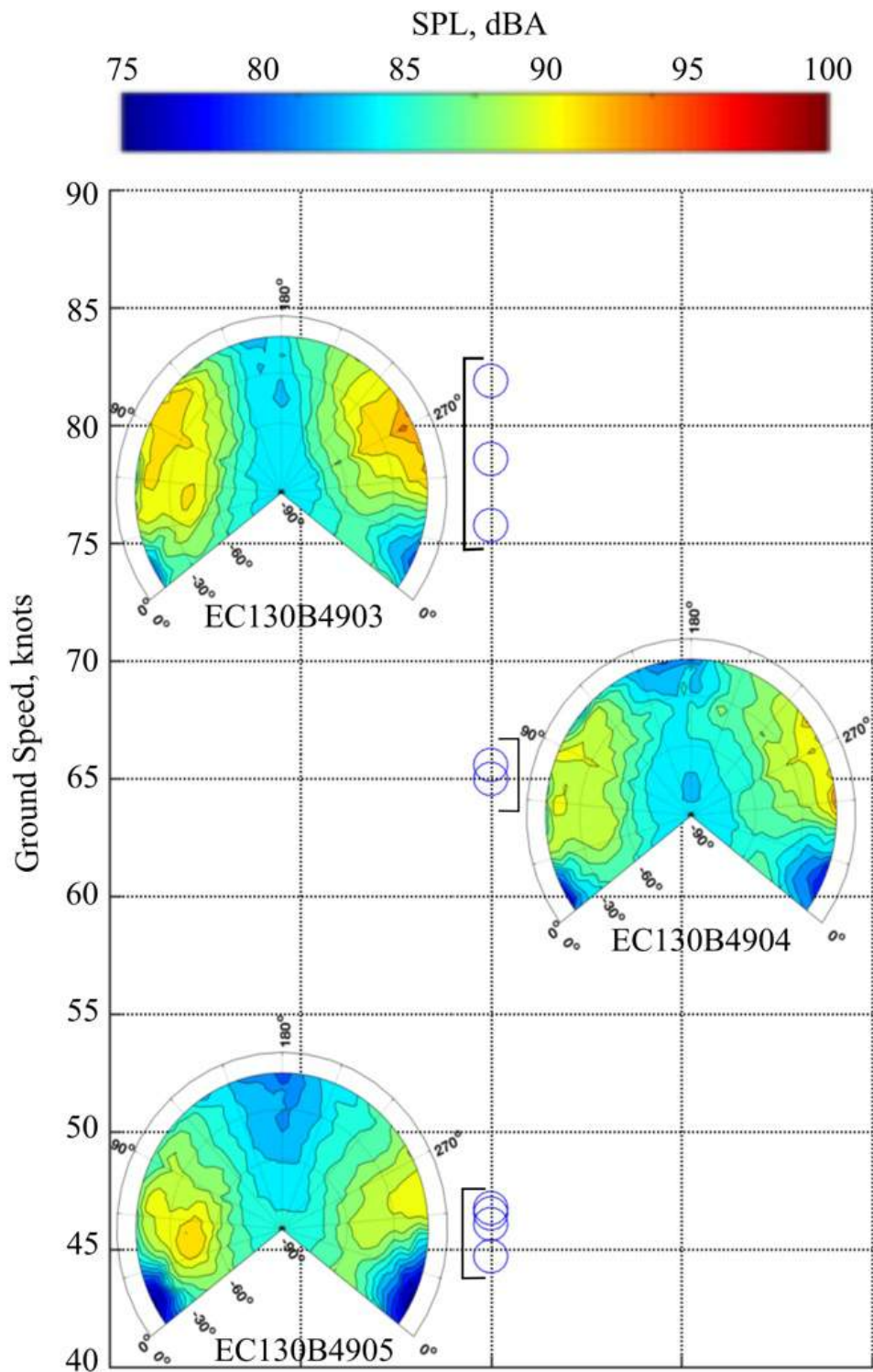


Figure 992: EC130B4 average level flight source noise hemispheres, lower speed range.

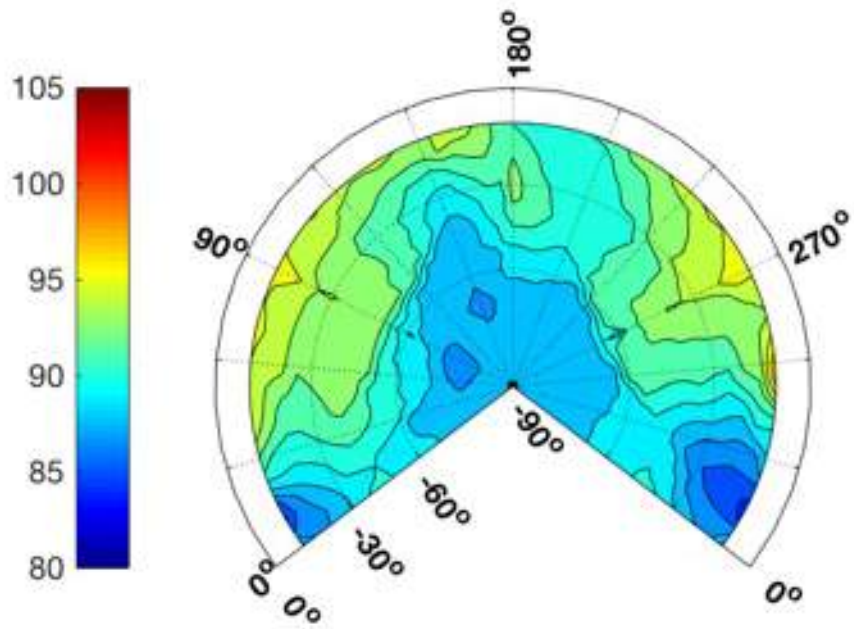


Figure 994: EC130B4, 296101, D4, dBA hemisphere, ground speed 81.8 kts, -3.6° FPA.

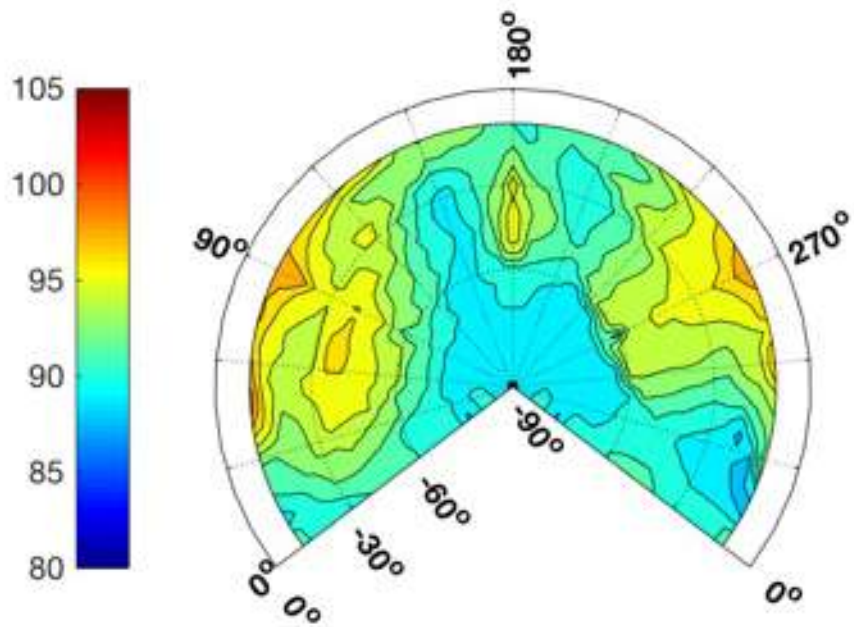


Figure 995: EC130B4, 296102, D4, dBA hemisphere, ground speed 82.7 kts, -3.9° FPA.

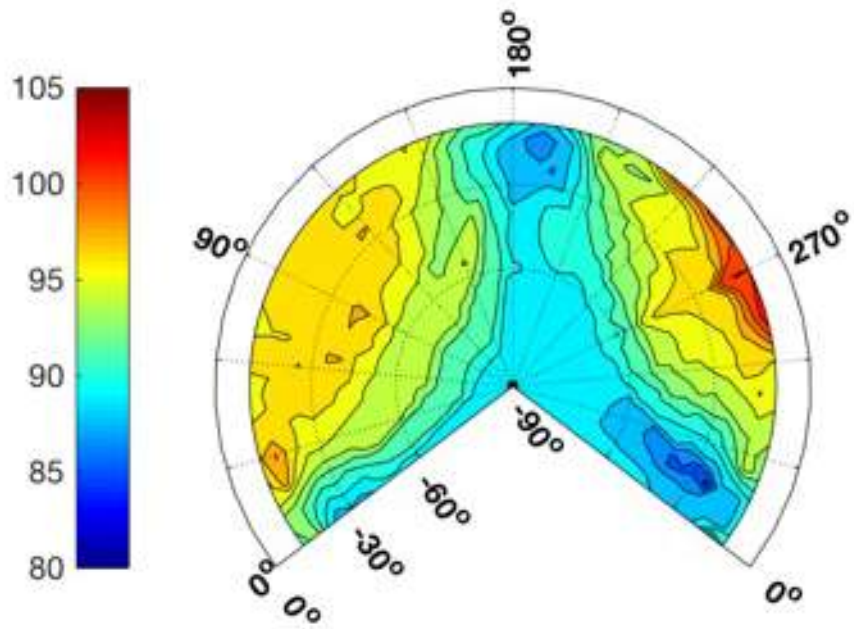


Figure 996: EC130B4, 296103, D30, dBA hemisphere, ground speed 69.4 kts, -12.1° FPA.

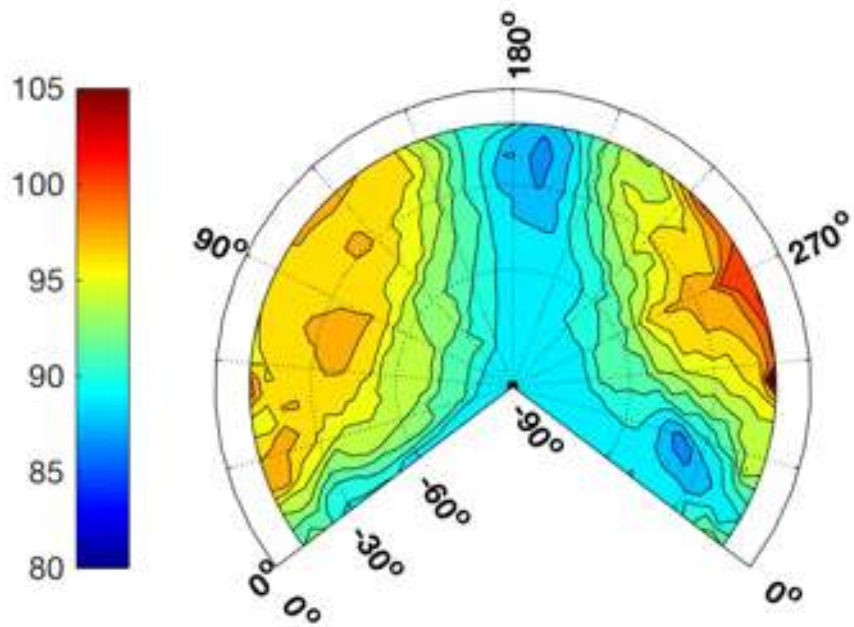


Figure 997: EC130B4, 296104, D30, dBA hemisphere, ground speed 70.8 kts, -12.3° FPA.

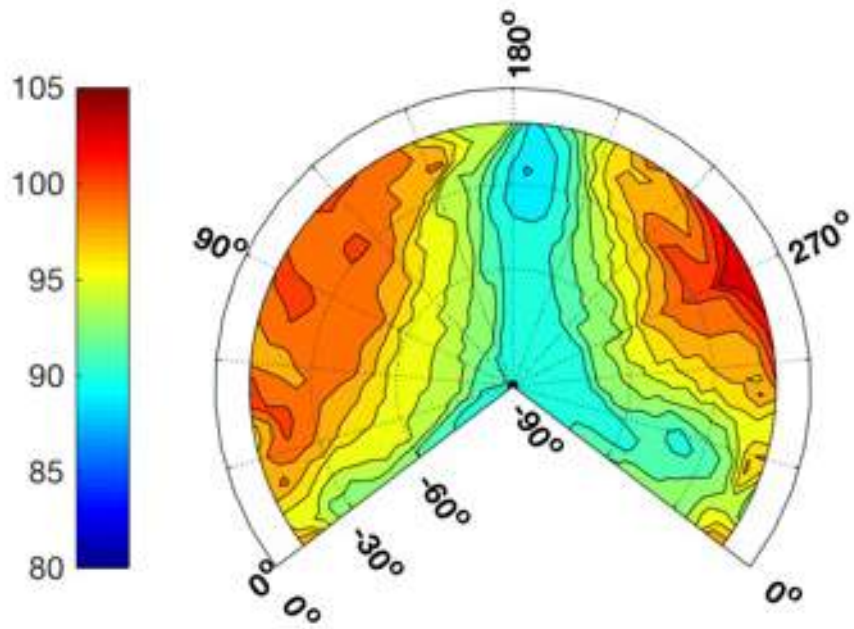


Figure 998: EC130B4, 296105, D31, dBA hemisphere, ground speed 81.4 kts, -12.1° FPA.

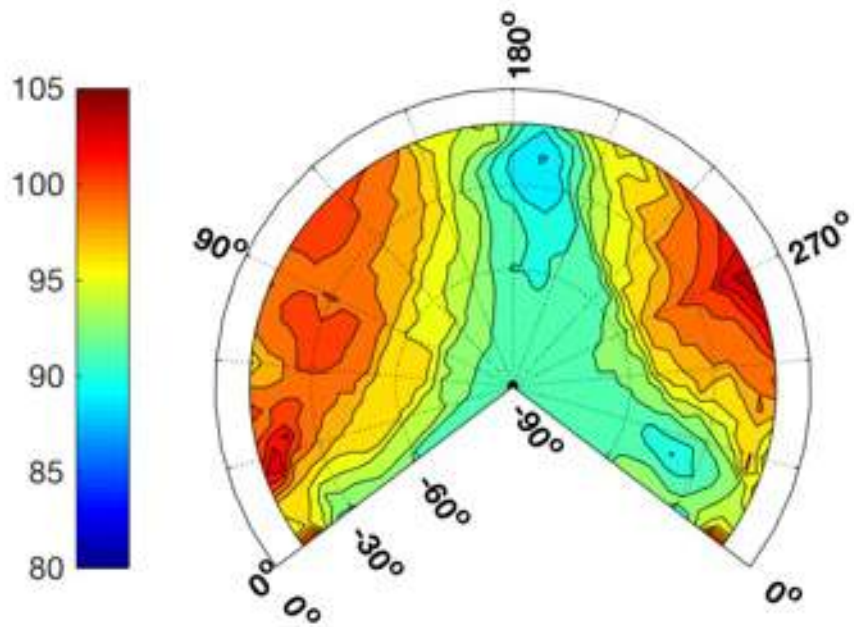


Figure 999: EC130B4, 296106, D31, dBA hemisphere, ground speed 81.2 kts, -12.4° FPA.

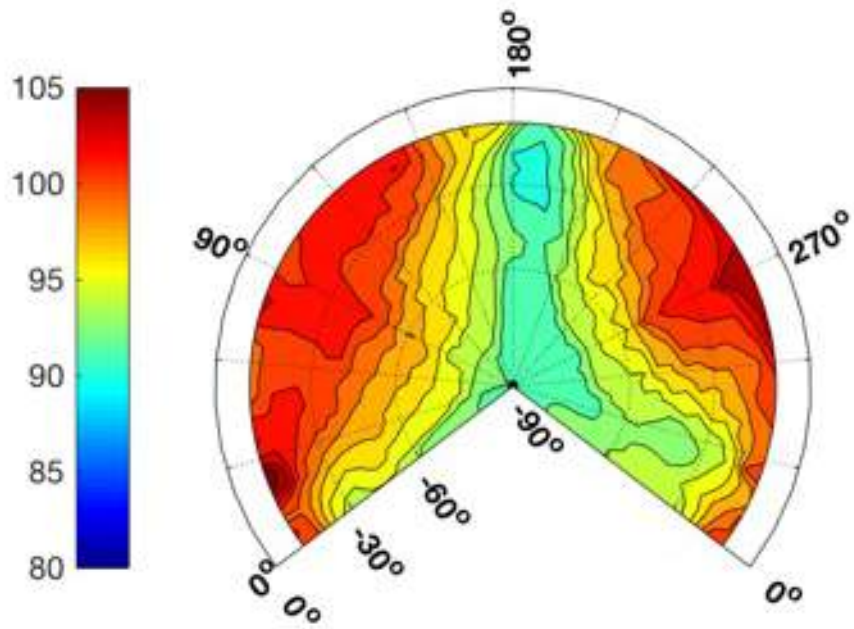


Figure 1000: EC130B4, 296107, D32, dBA hemisphere, ground speed 91.4 kts, -12.2° FPA.

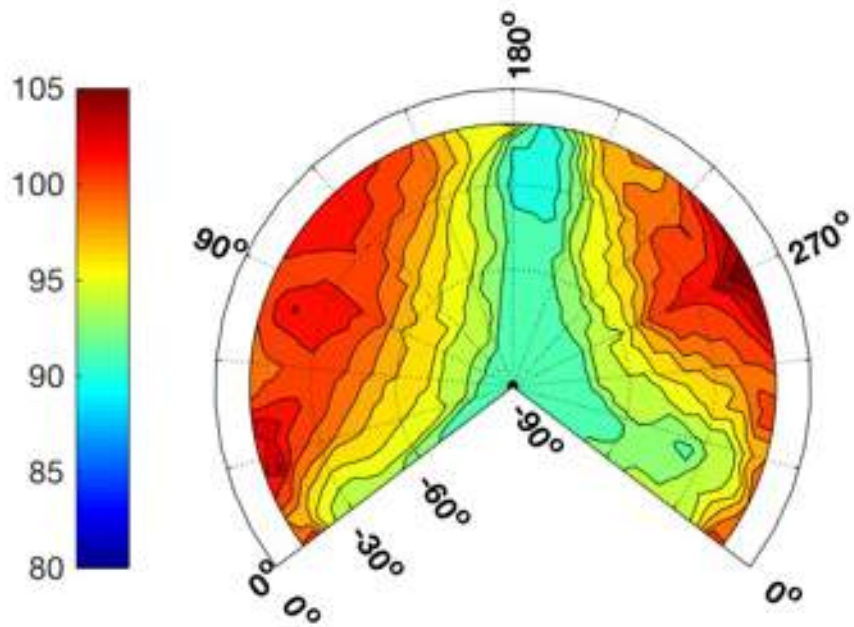


Figure 1001: EC130B4, 296108, D32, dBA hemisphere, ground speed 90.8 kts, -12.1° FPA.

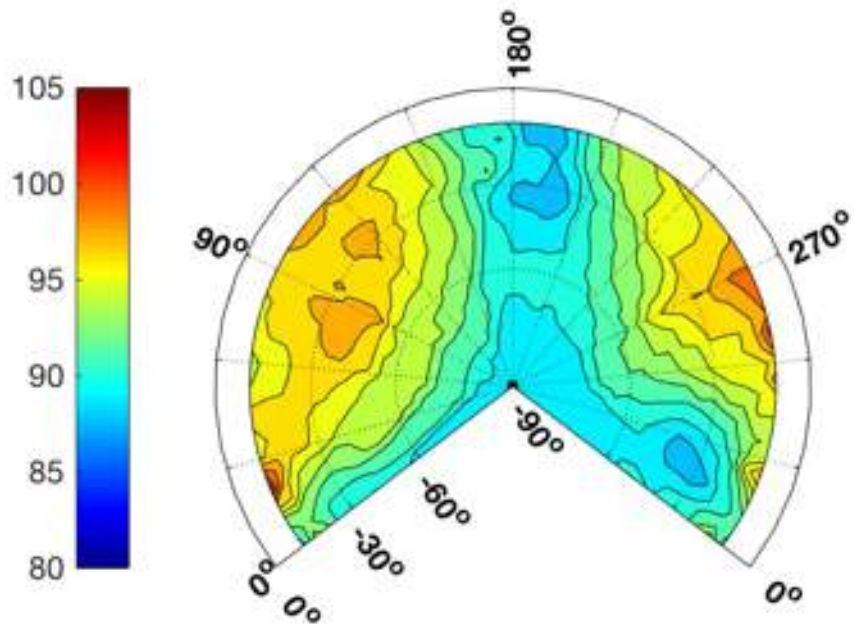


Figure 1002: EC130B4, 296109, D27, dBA hemisphere, ground speed 69.3 kts, -11.0° FPA.

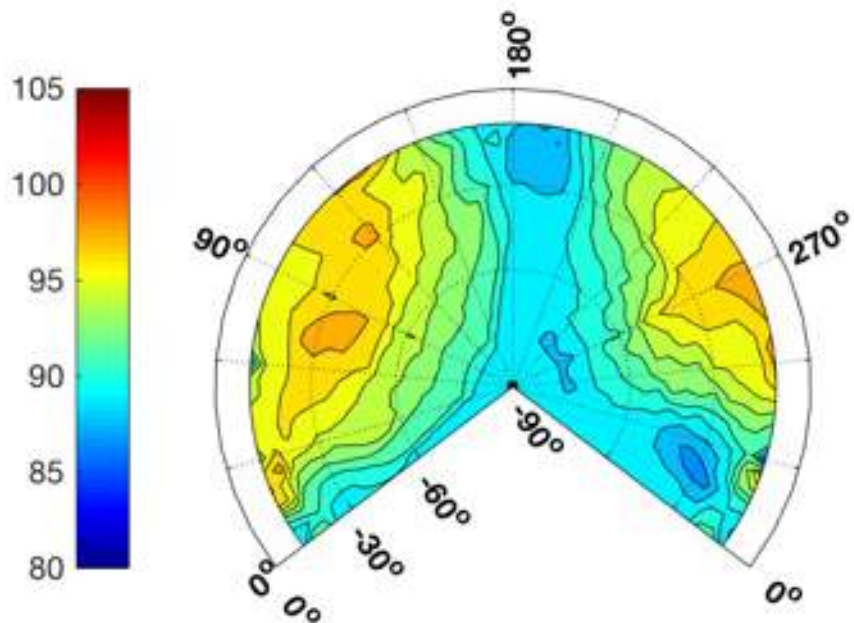


Figure 1003: EC130B4, 296110, D27, dBA hemisphere, ground speed 68.9 kts, -11.1° FPA.

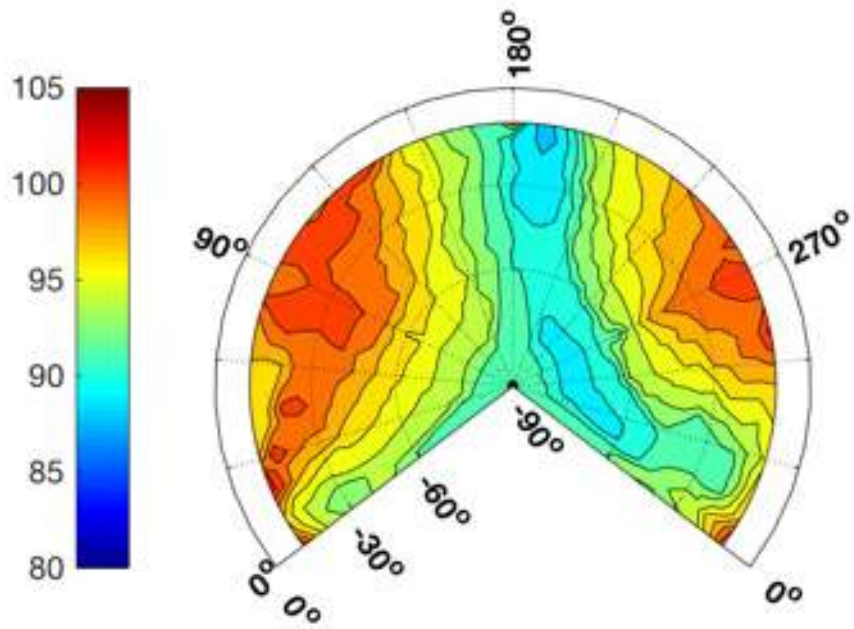


Figure 1004: EC130B4, 296111, D28, dBA hemisphere, ground speed 80.1 kts, -10.9° FPA.

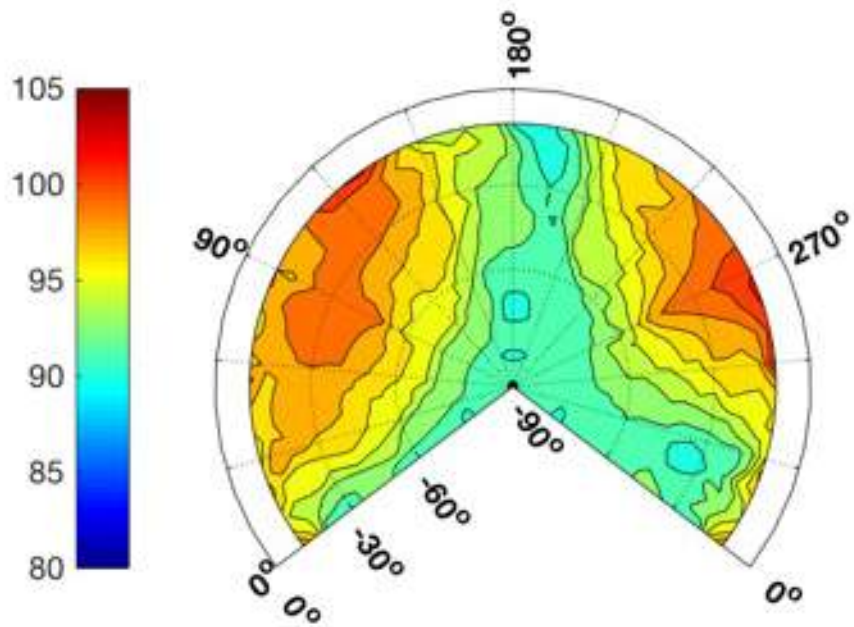


Figure 1005: EC130B4, 296112, D28, dBA hemisphere, ground speed 80.4 kts, -10.7° FPA.

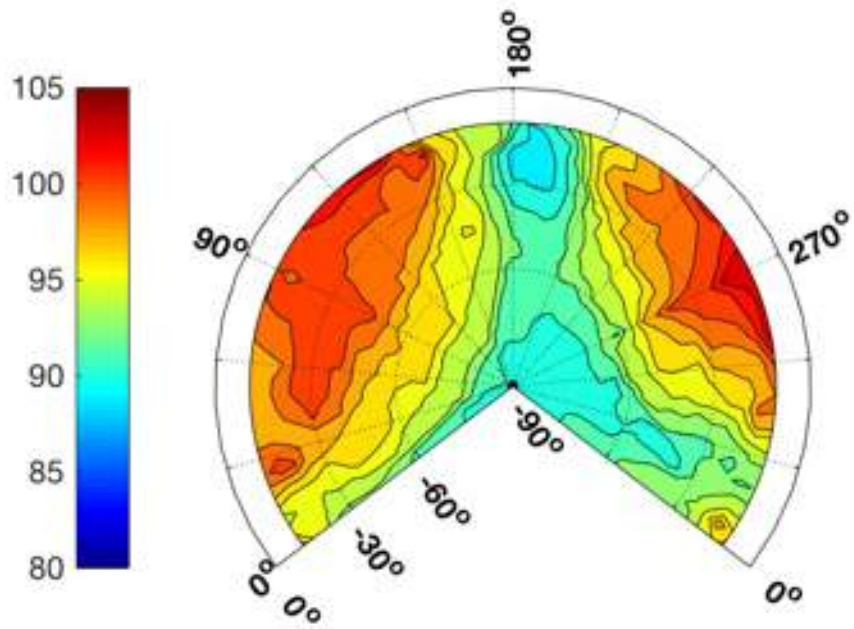


Figure 1006: EC130B4, 296113, D29, dBA hemisphere, ground speed 88.6 kts, -10.8° FPA.

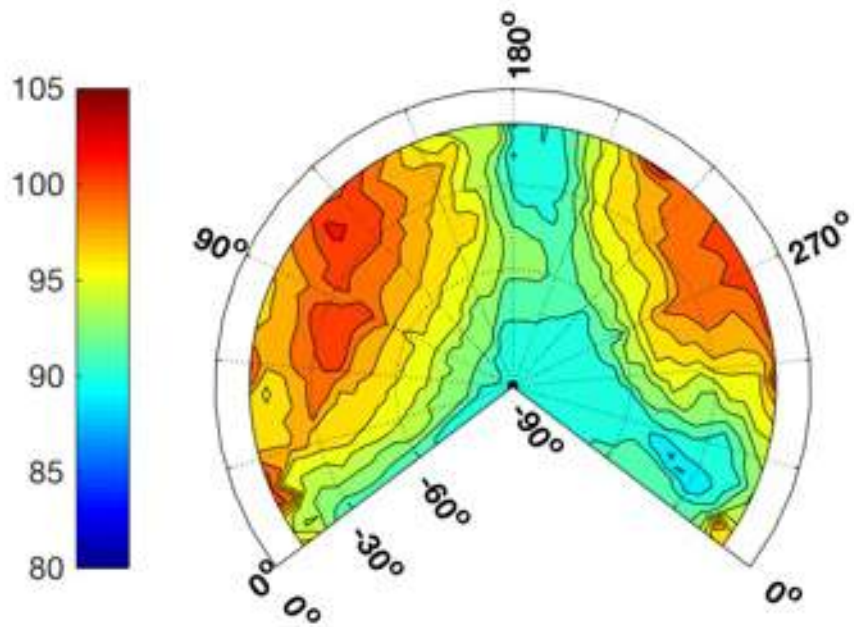


Figure 1007: EC130B4, 296114, D29, dBA hemisphere, ground speed 89.7 kts, -10.5° FPA.

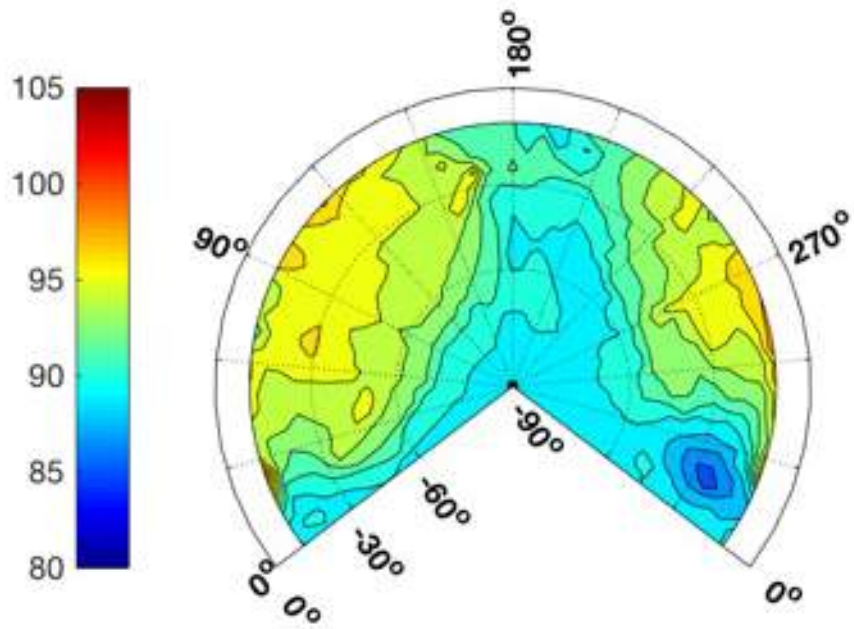


Figure 1008: EC130B4, 296115, D22, dBA hemisphere, ground speed 70.8 kts, -9.8° FPA.

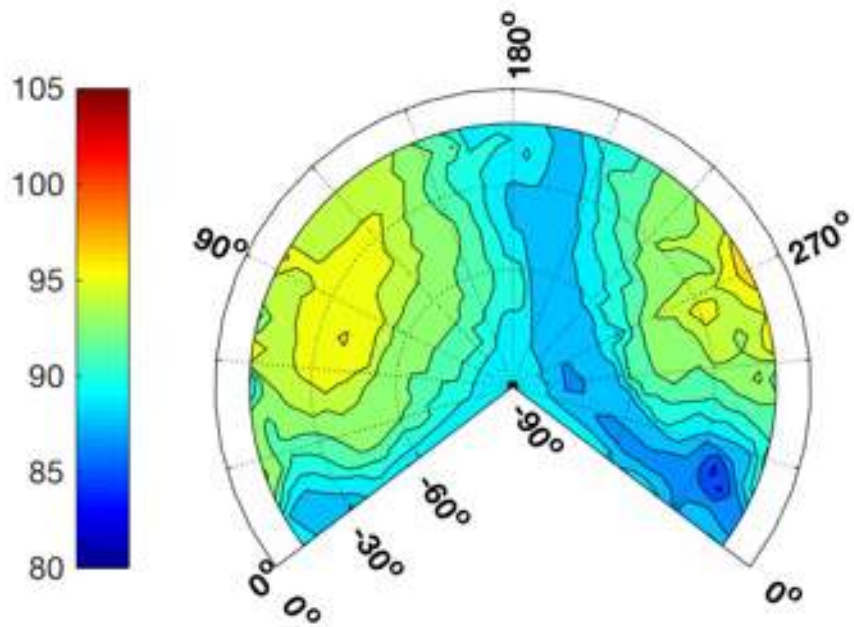


Figure 1009: EC130B4, 296116, D22, dBA hemisphere, ground speed 70.6 kts, -9.7° FPA.

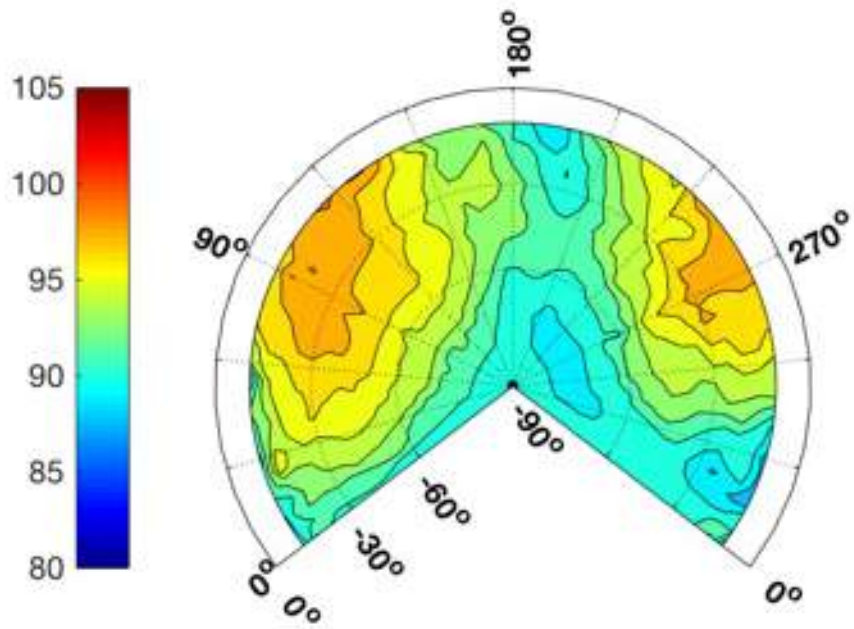


Figure 1010: EC130B4, 296117, D23, dBA hemisphere, ground speed 80.9 kts, -9.7° FPA.

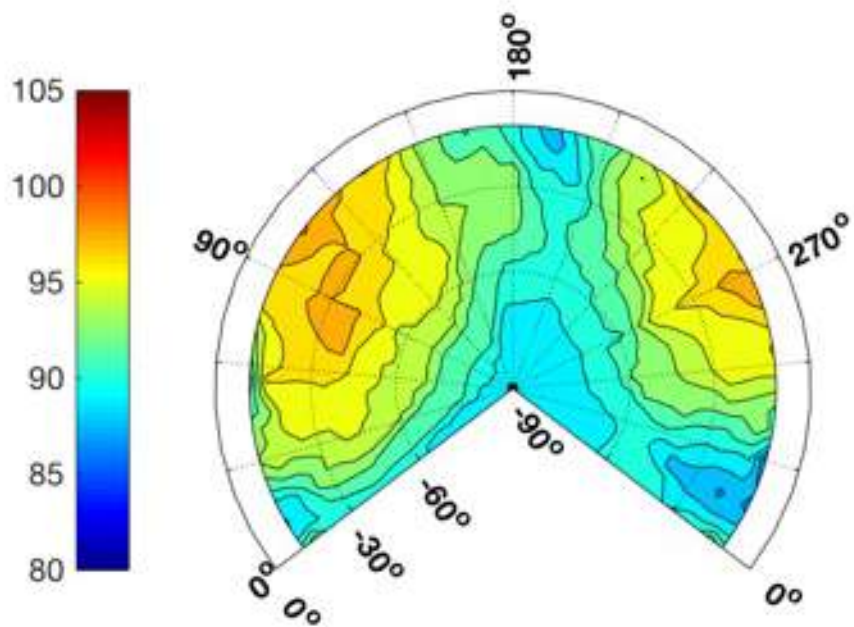


Figure 1011: EC130B4, 296118, D23, dBA hemisphere, ground speed 79.6 kts, -9.5° FPA.

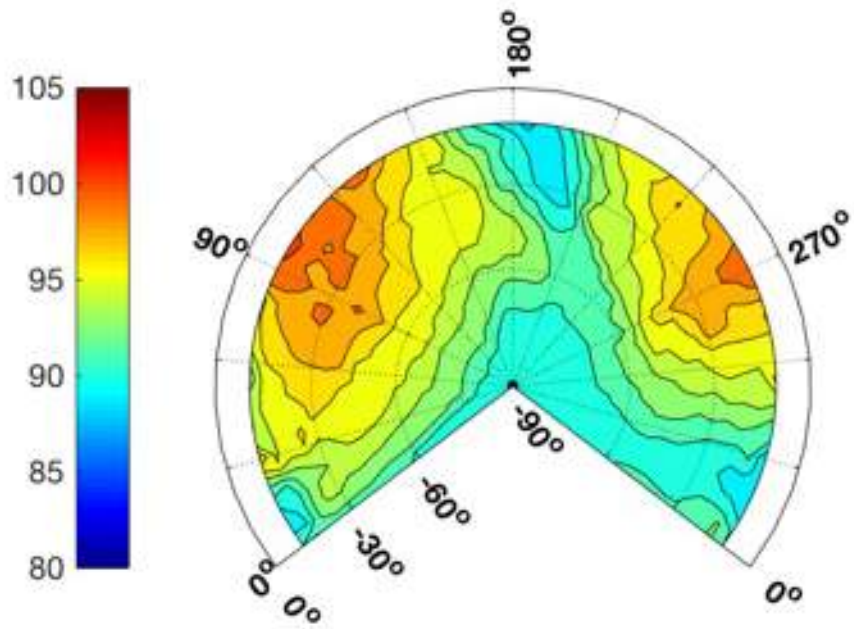


Figure 1012: EC130B4, 296119, D24, dBA hemisphere, ground speed 86.6 kts, -8.8° FPA.

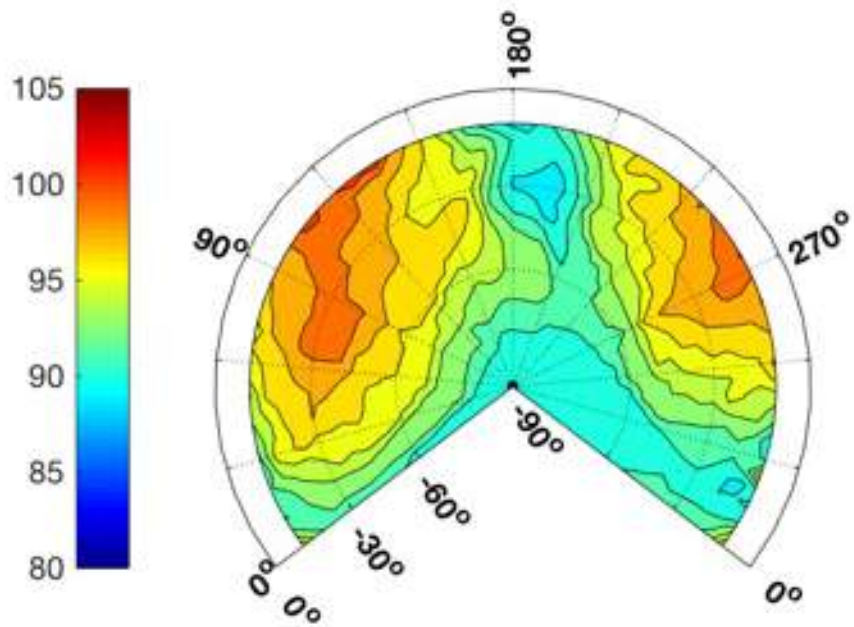


Figure 1013: EC130B4, 296120, D24, dBA hemisphere, ground speed 90.7 kts, -9.3° FPA.

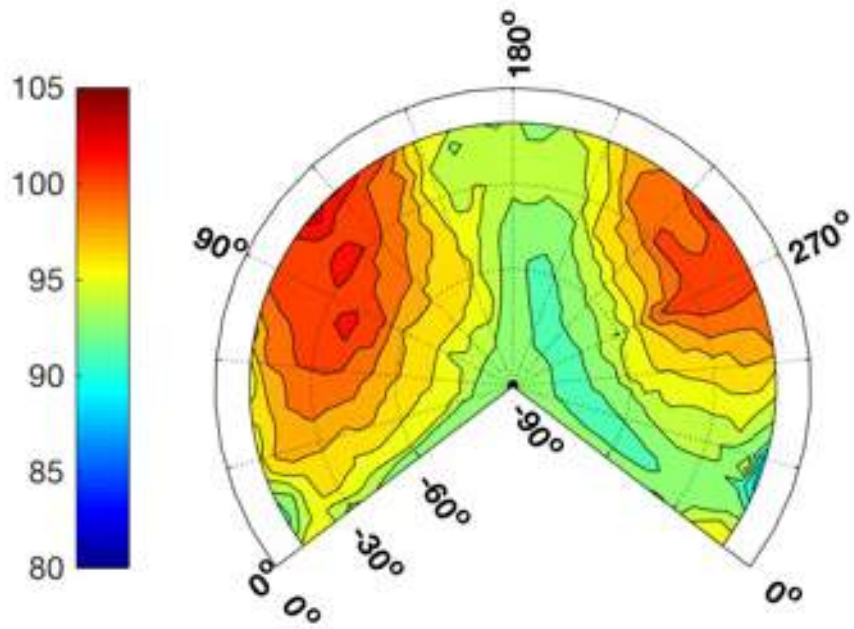


Figure 1014: EC130B4, 296121, D26, dBA hemisphere, ground speed 110.0 kts, -9.3° FPA.

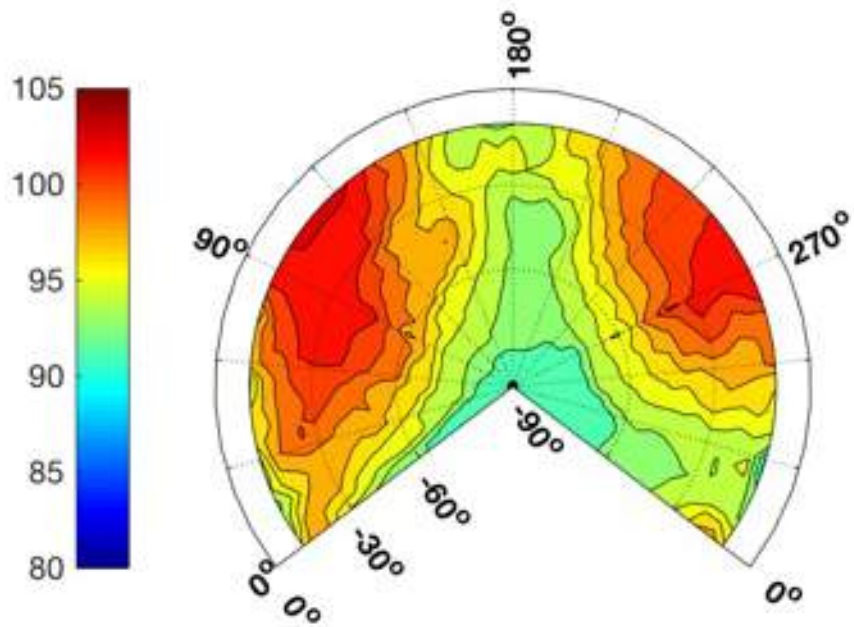


Figure 1015: EC130B4, 296122, D26, dBA hemisphere, ground speed 107.8 kts, -9.6° FPA.

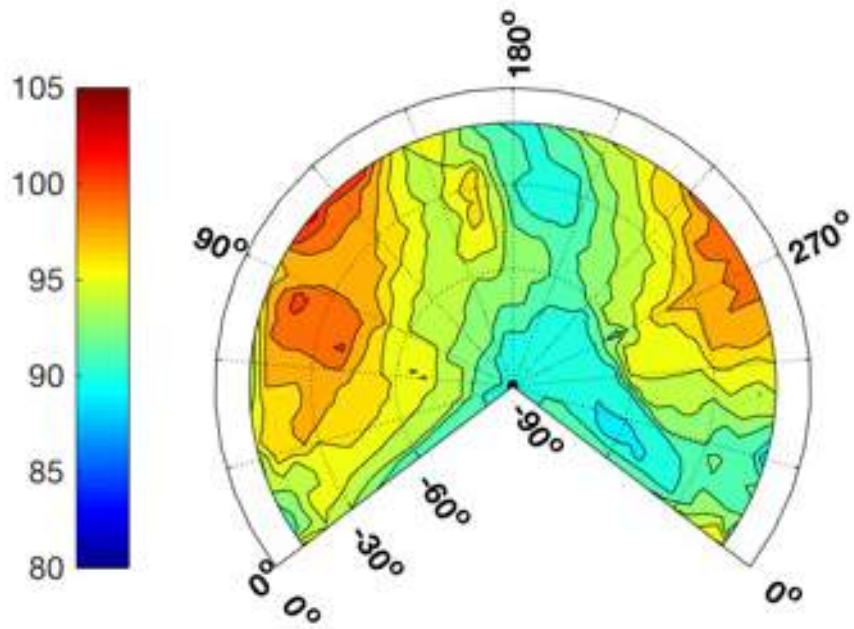


Figure 1016: EC130B4, 296123, D19, dBA hemisphere, ground speed 88.2 kts, -7.8° FPA.

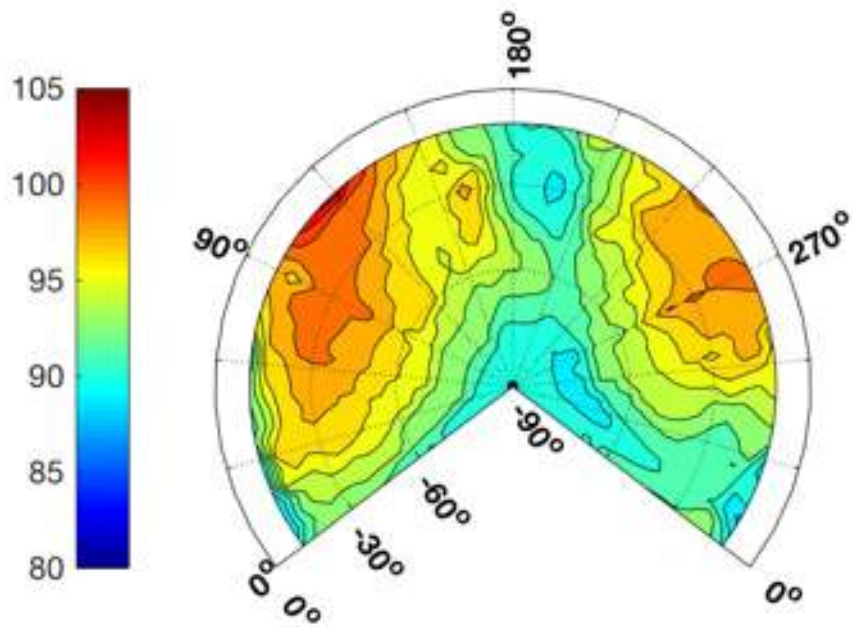


Figure 1017: EC130B4, 296124, D19, dBA hemisphere, ground speed 89.2 kts, -8.8° FPA.

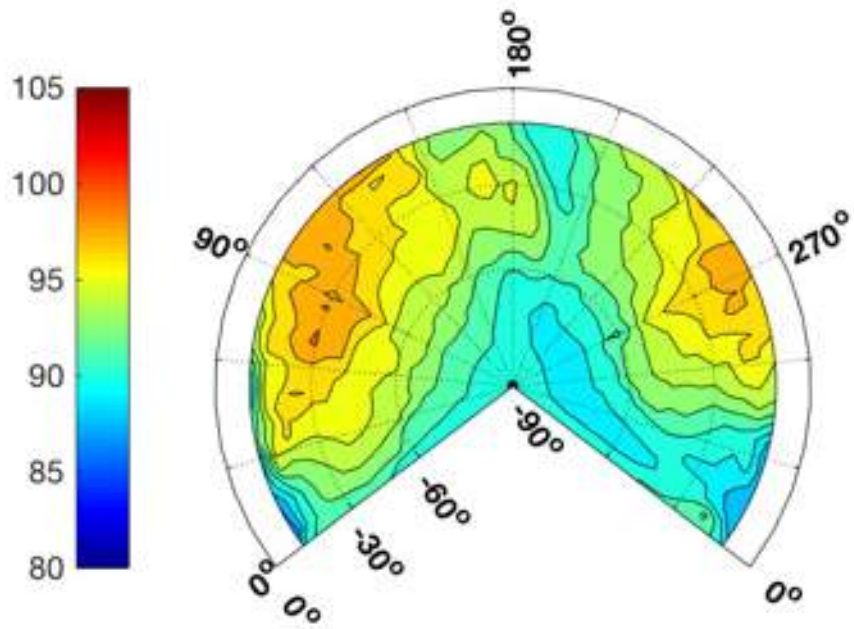


Figure 1018: EC130B4, 296125, D18, dBA hemisphere, ground speed 77.9 kts, -7.9° FPA.

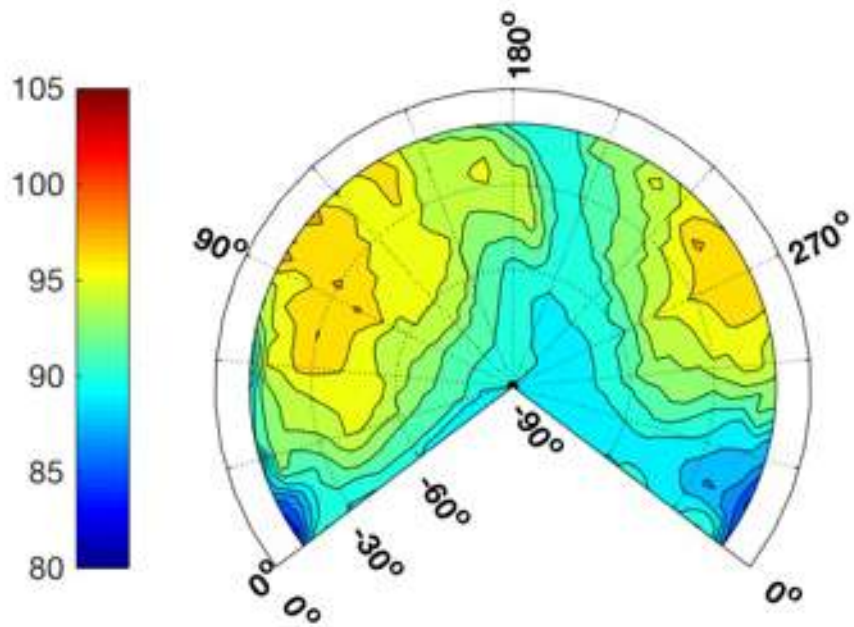


Figure 1019: EC130B4, 296126, D18, dBA hemisphere, ground speed 78.2 kts, -8.0° FPA.

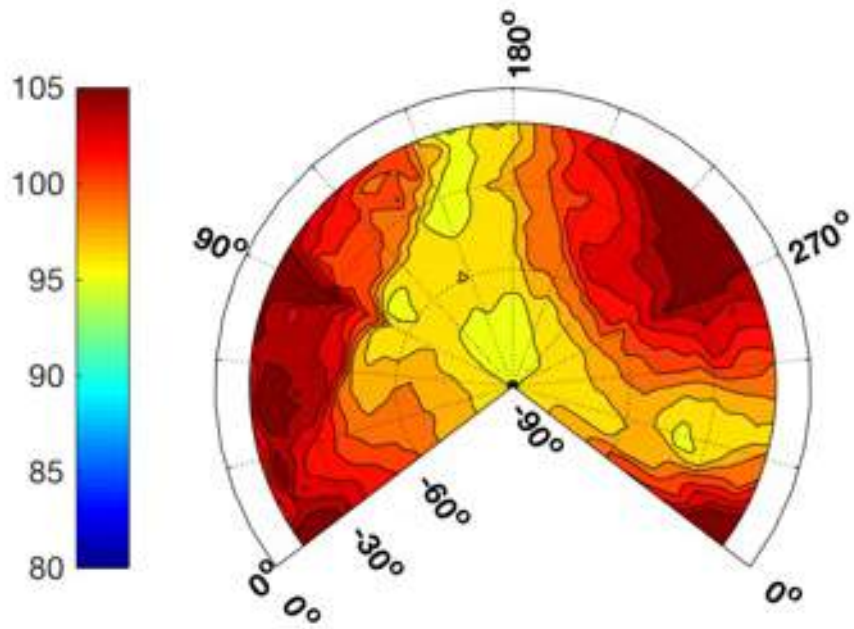


Figure 1020: EC130B4, 296127, D47, dBA hemisphere, ground speed 78.1 kts, -7.6° FPA.

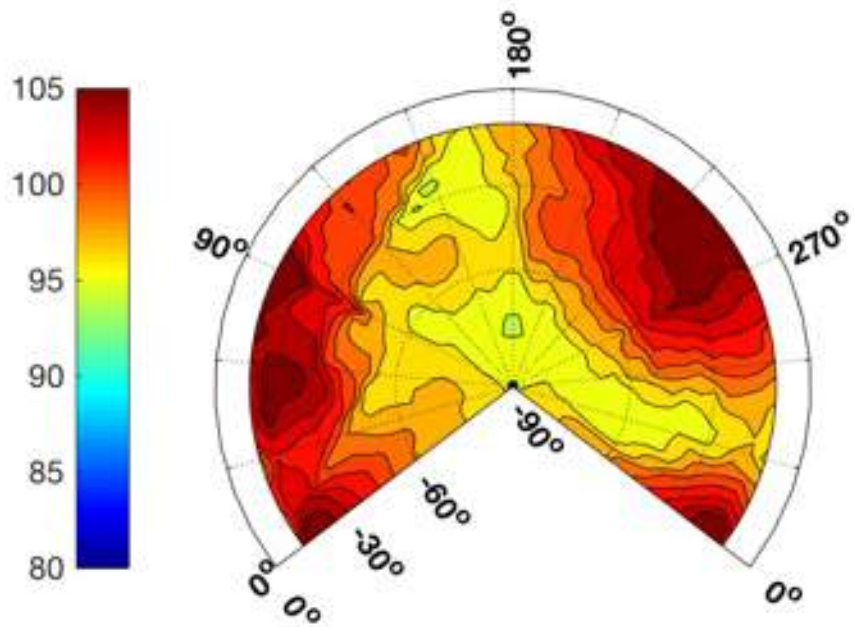


Figure 1021: EC130B4, 296128, D47, dBA hemisphere, ground speed 75.5 kts, -8.6° FPA.

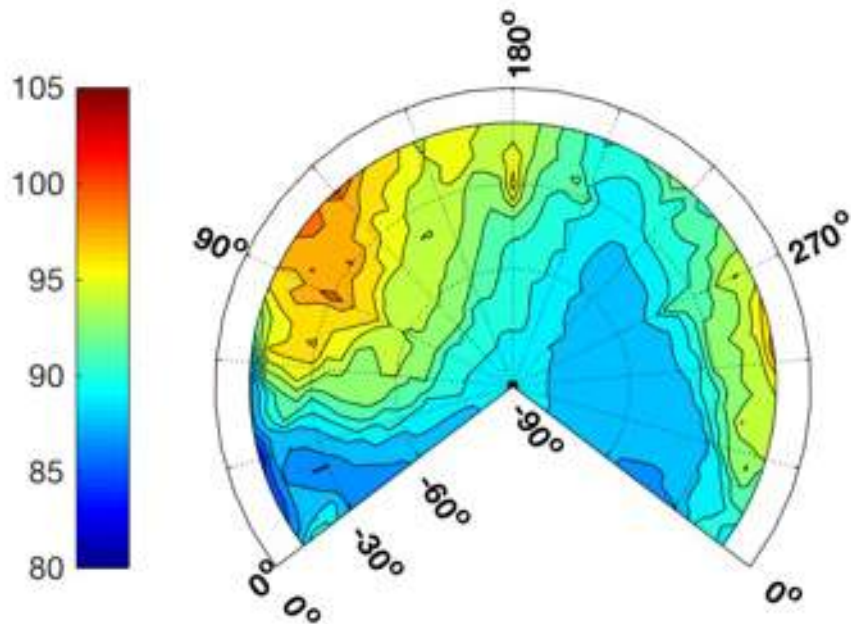


Figure 1022: EC130B4, 296129, D48, dBA hemisphere, ground speed 87.9 kts, -8.4° FPA.

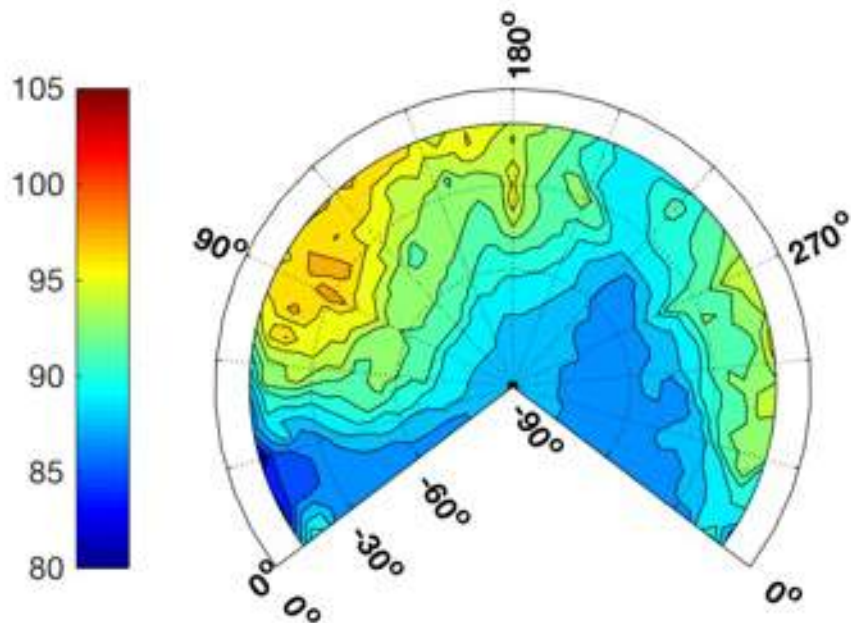


Figure 1023: EC130B4, 296130, D48, dBA hemisphere, ground speed 87.2 kts, -7.7° FPA.

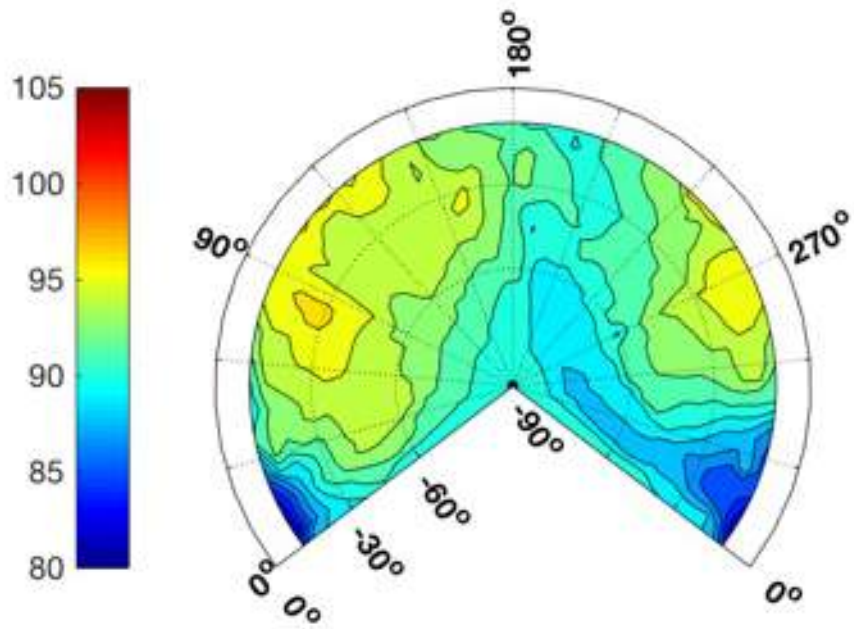


Figure 1024: EC130B4, 296131, D17, dBA hemisphere, ground speed 68.0 kts, -7.9° FPA.

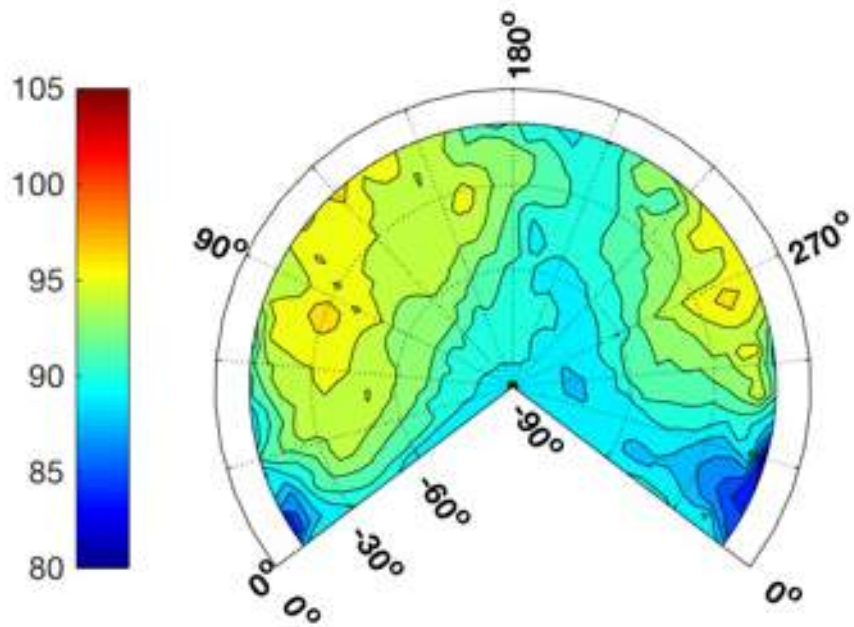


Figure 1025: EC130B4, 296132, D17, dBA hemisphere, ground speed 68.8 kts, -8.0° FPA.

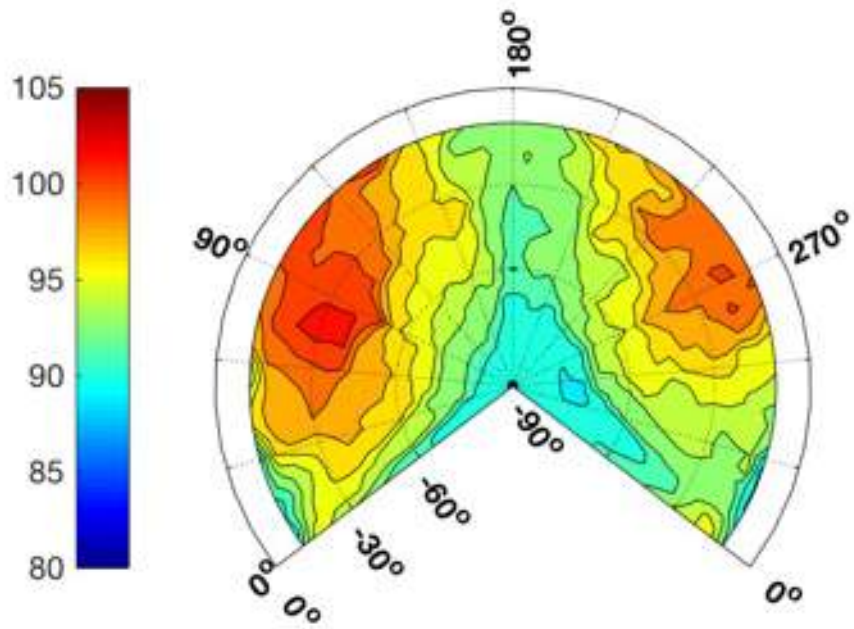


Figure 1026: EC130B4, 296133, D21, dBA hemisphere, ground speed 107.6 kts, -8.0° FPA.

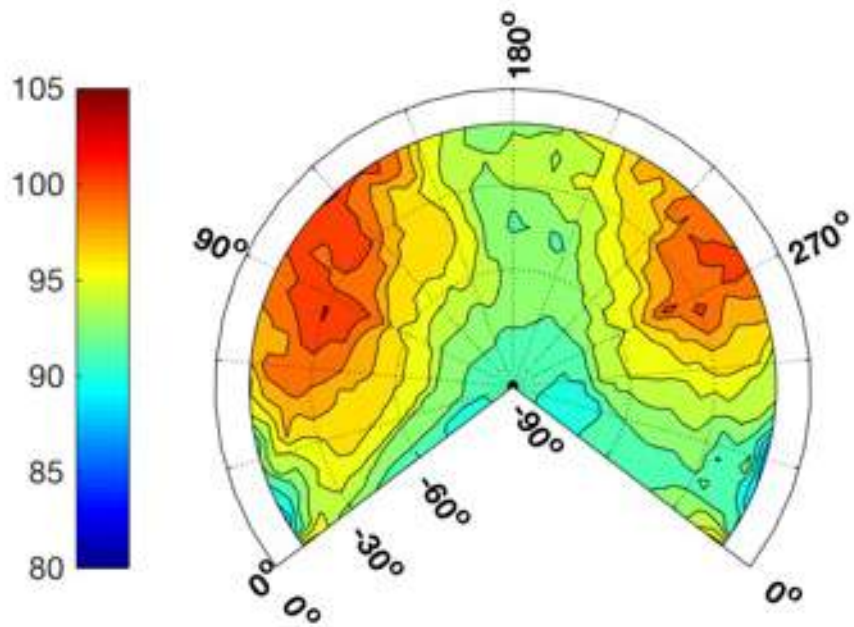


Figure 1027: EC130B4, 296134, D21, dBA hemisphere, ground speed 110.9 kts, -8.2° FPA.

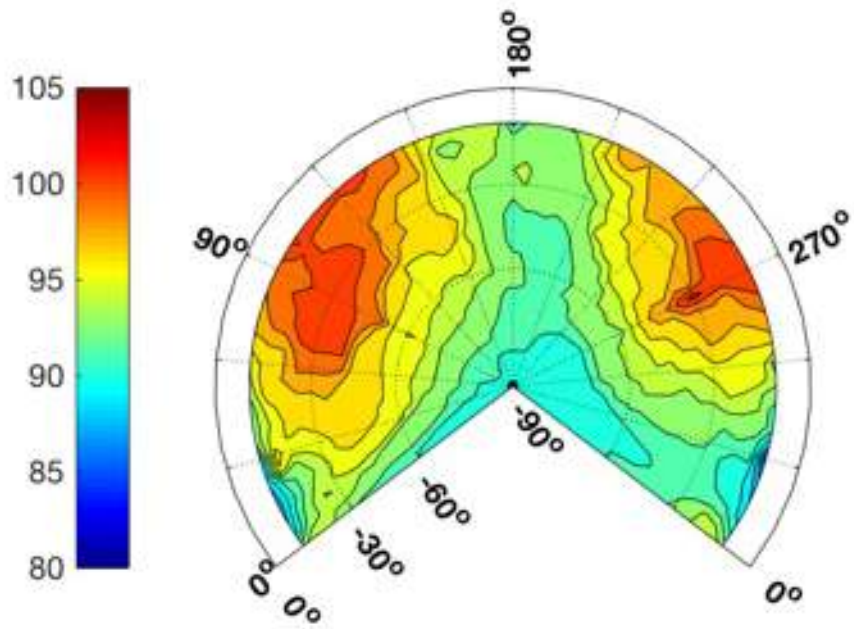


Figure 1028: EC130B4, 296135, D21, dBA hemisphere, ground speed 112.8 kts, -8.0° FPA.

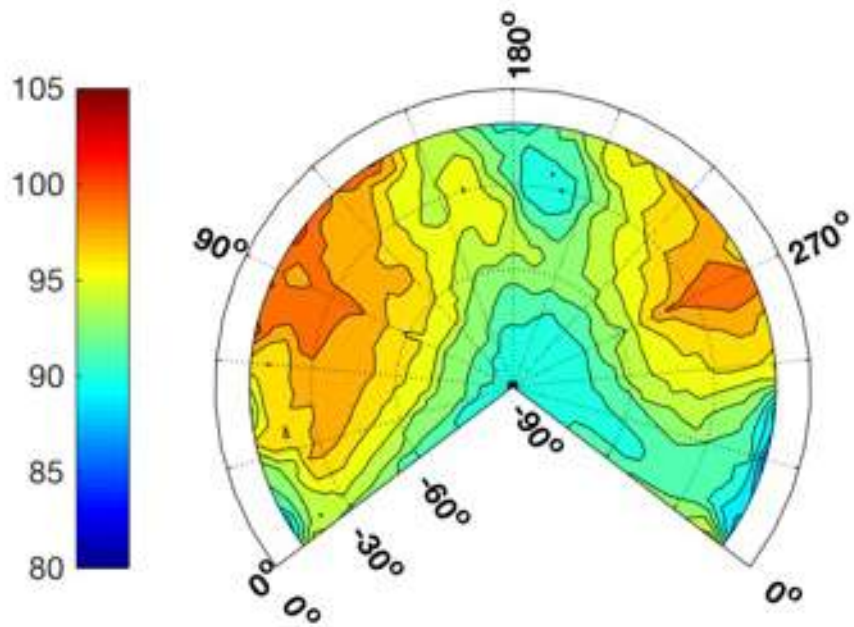


Figure 1029: EC130B4, 296136, D14, dBA hemisphere, ground speed 88.5 kts, -6.4° FPA.

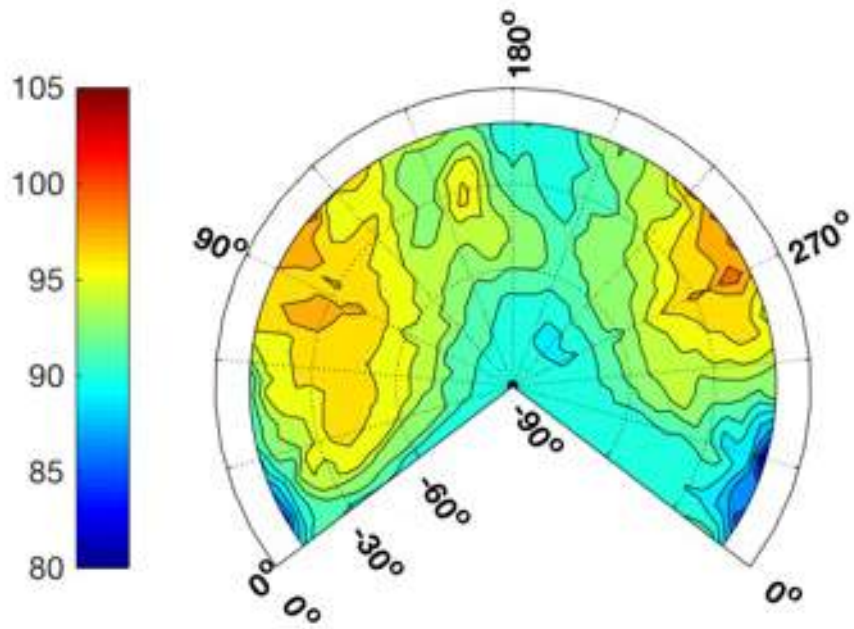


Figure 1030: EC130B4, 296137, D14, dBA hemisphere, ground speed 88.2 kts, -6.3° FPA.

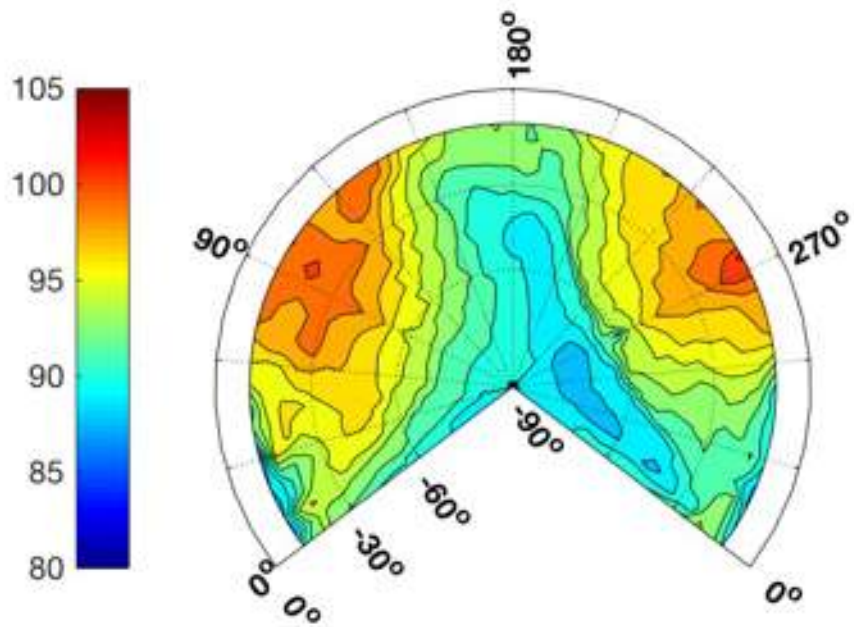


Figure 1031: EC130B4, 296138, D16, dBA hemisphere, ground speed 111.1 kts, -6.5° FPA.

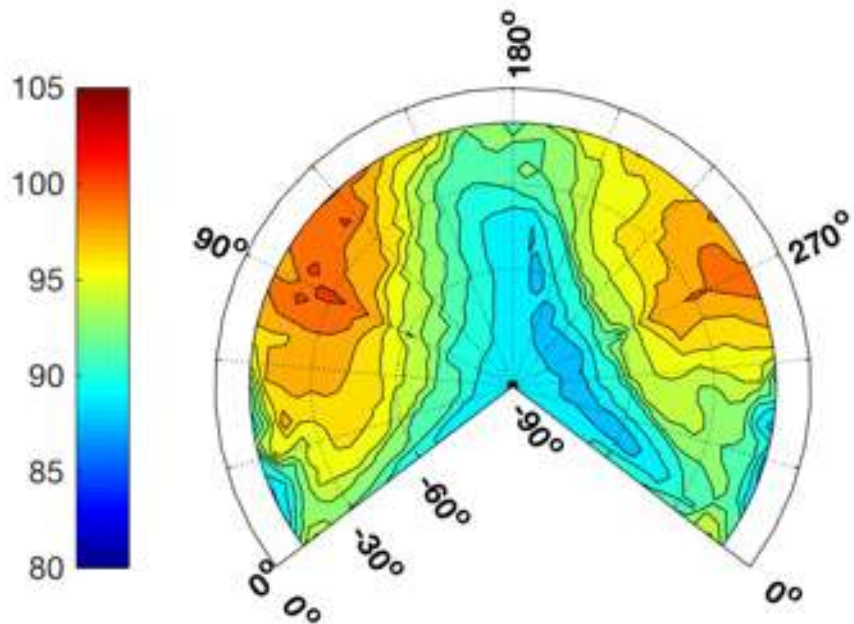


Figure 1032: EC130B4, 296139, D16, dBA hemisphere, ground speed 110.7 kts, -6.3° FPA.

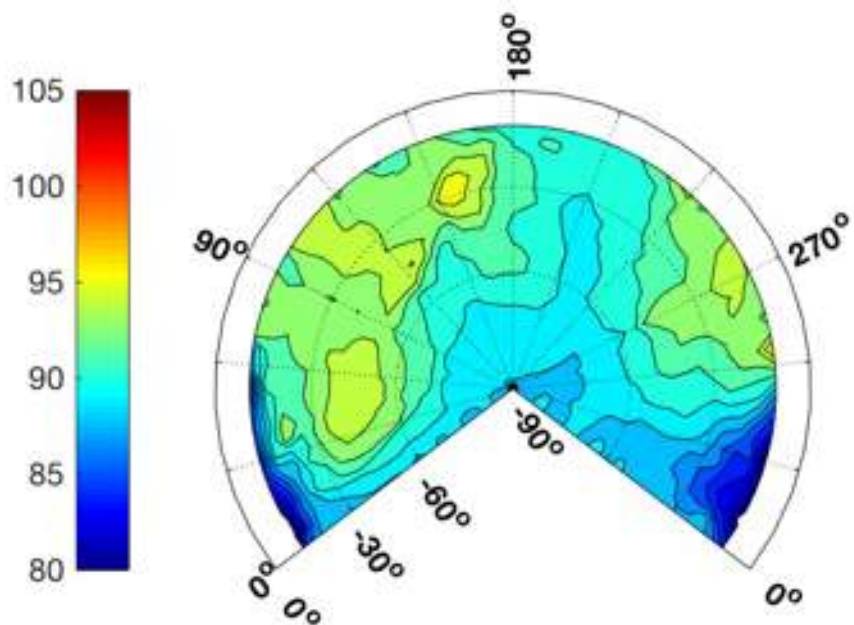


Figure 1033: EC130B4, 296140, D12, dBA hemisphere, ground speed 68.9 kts, -6.7° FPA.

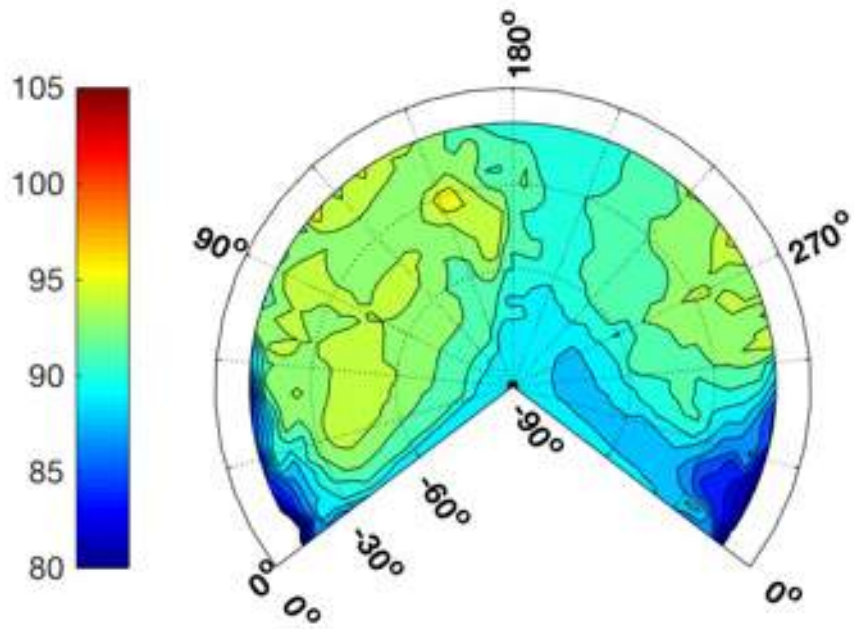


Figure 1034: EC130B4, 296141, D12, dBA hemisphere, ground speed 68.6 kts, -6.6° FPA.

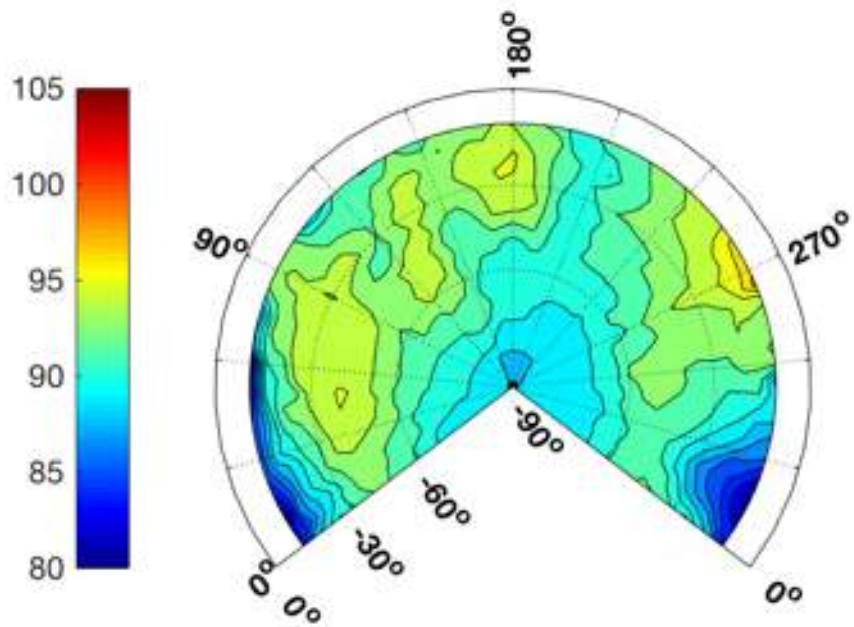


Figure 1035: EC130B4, 296144, D13, dBA hemisphere, ground speed 77.6 kts, -6.2° FPA.

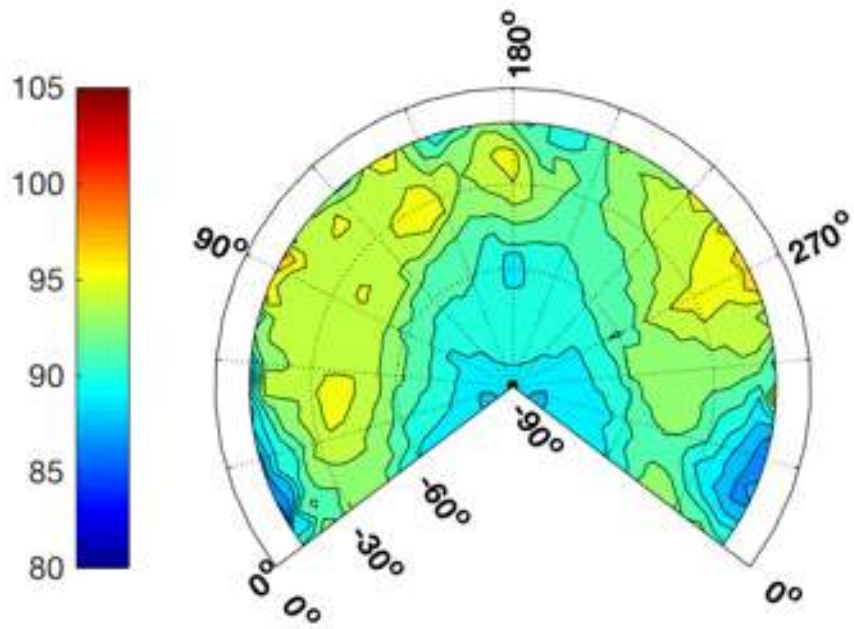


Figure 1036: EC130B4, 296145, D13, dBA hemisphere, ground speed 75.4 kts, -6.4° FPA.

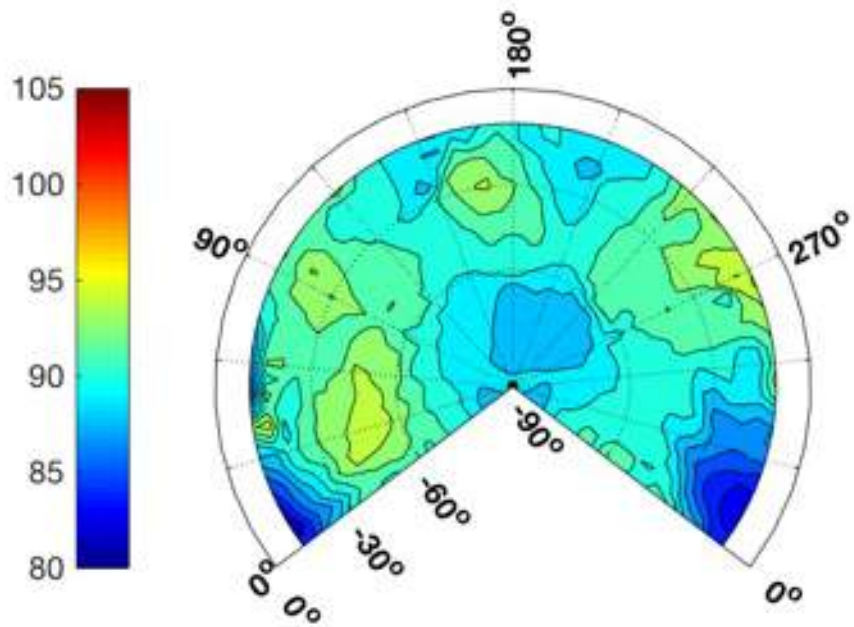


Figure 1037: EC130B4, 296146, D9, dBA hemisphere, ground speed 85.7 kts, -4.9° FPA.

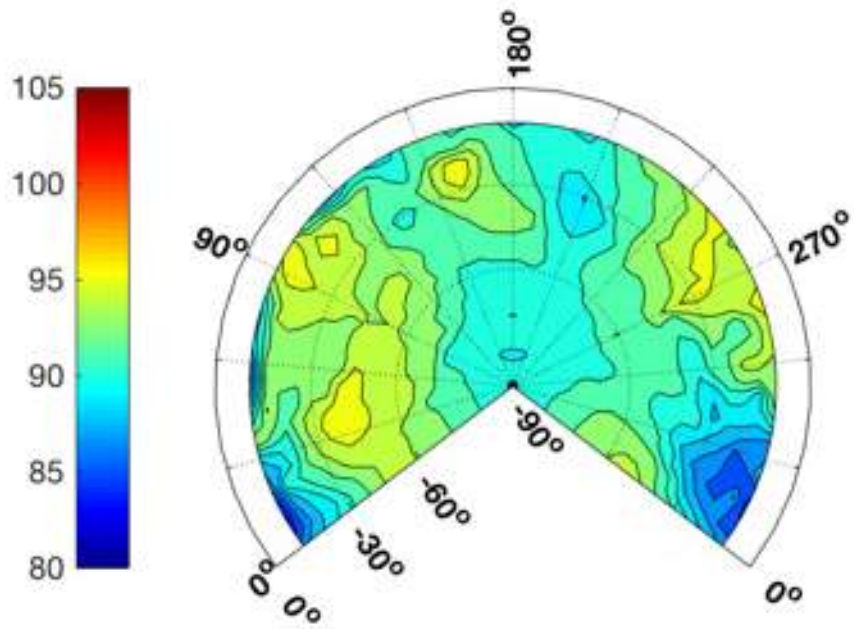


Figure 1038: EC130B4, 296147, D9, dBA hemisphere, ground speed 85.4 kts, -4.9° FPA.

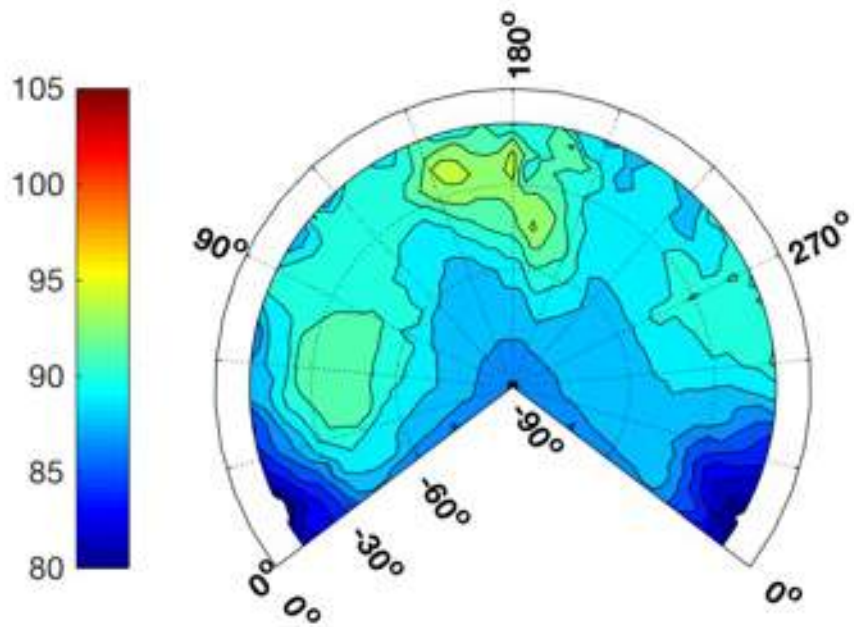


Figure 1039: EC130B4, 296148, D2, dBA hemisphere, ground speed 63.9 kts, -3.9° FPA.

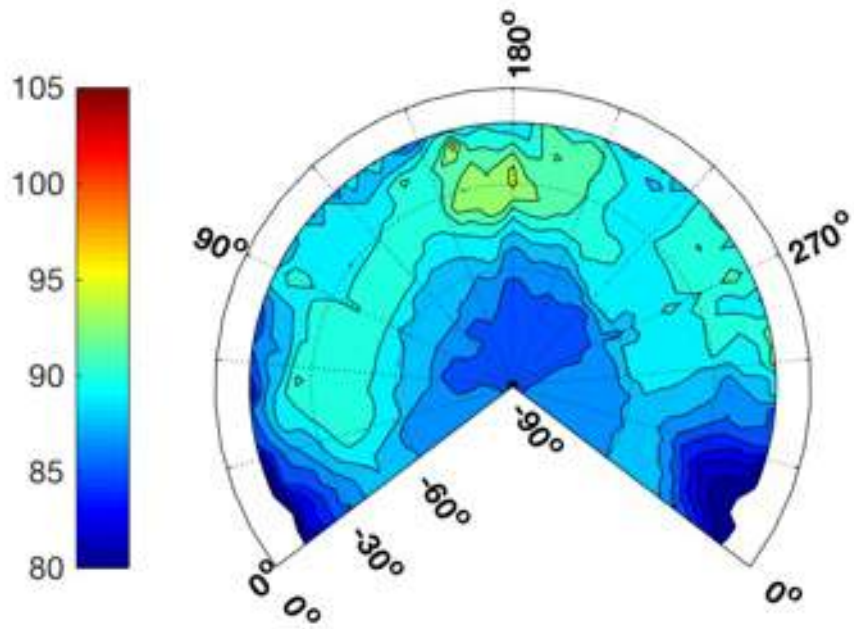


Figure 1040: EC130B4, 296149, D2, dBA hemisphere, ground speed 63.0 kts, -3.9° FPA.

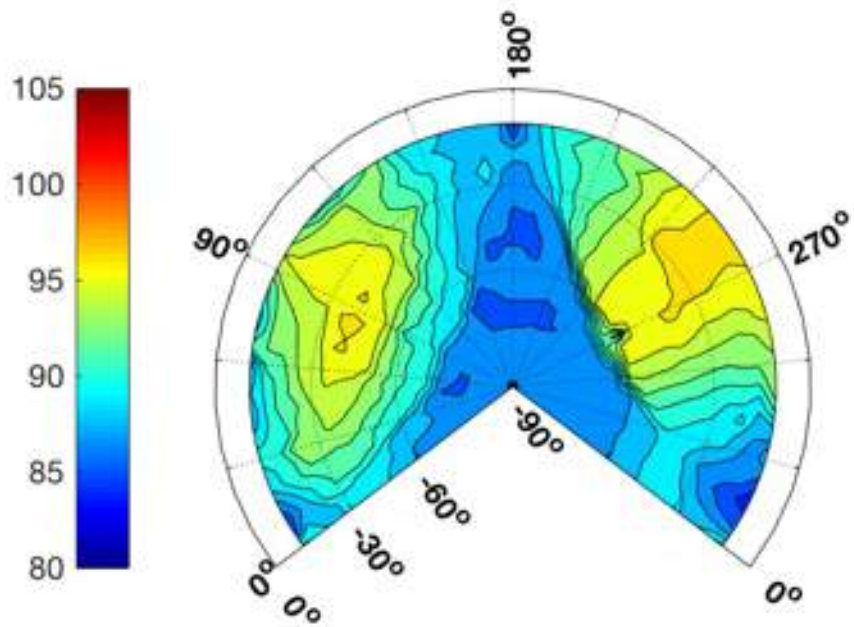


Figure 1041: EC130B4, 296150, D6, dBA hemisphere, ground speed 109.3 kts, -3.6° FPA.

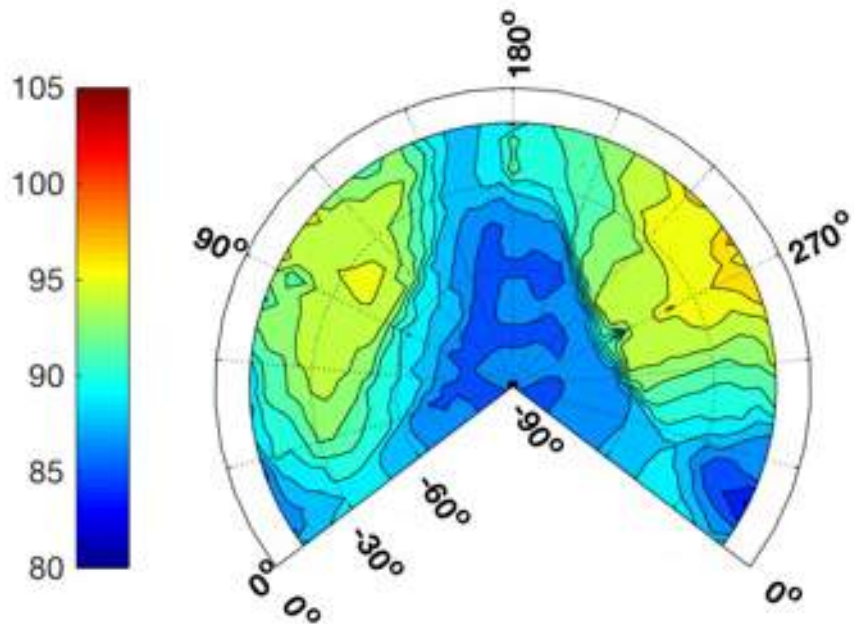


Figure 1042: EC130B4, 296151, D6, dBA hemisphere, ground speed 107.6 kts, -3.7° FPA.

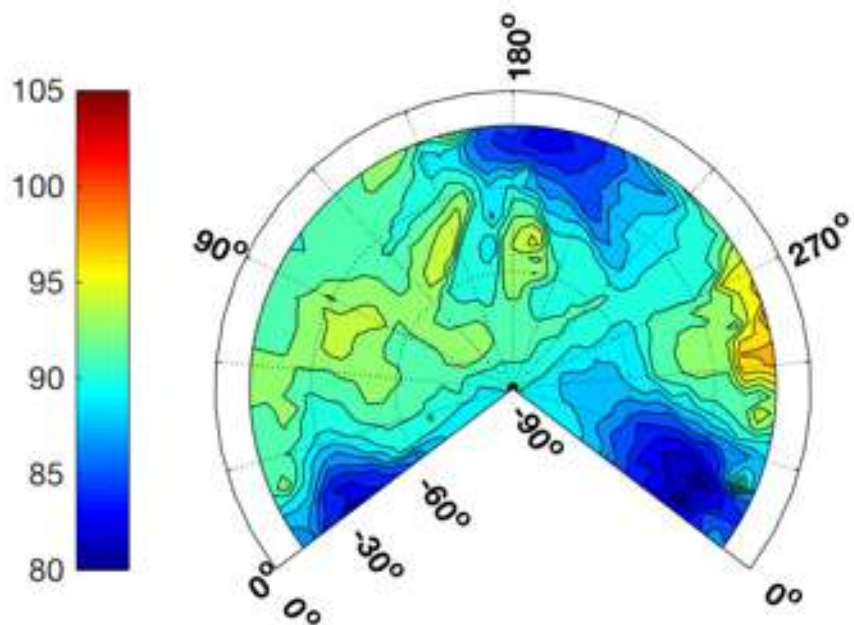


Figure 1043: EC130B4, 298256, D39, dBA hemisphere, ground speed 48.2 kts, -15.2° FPA.

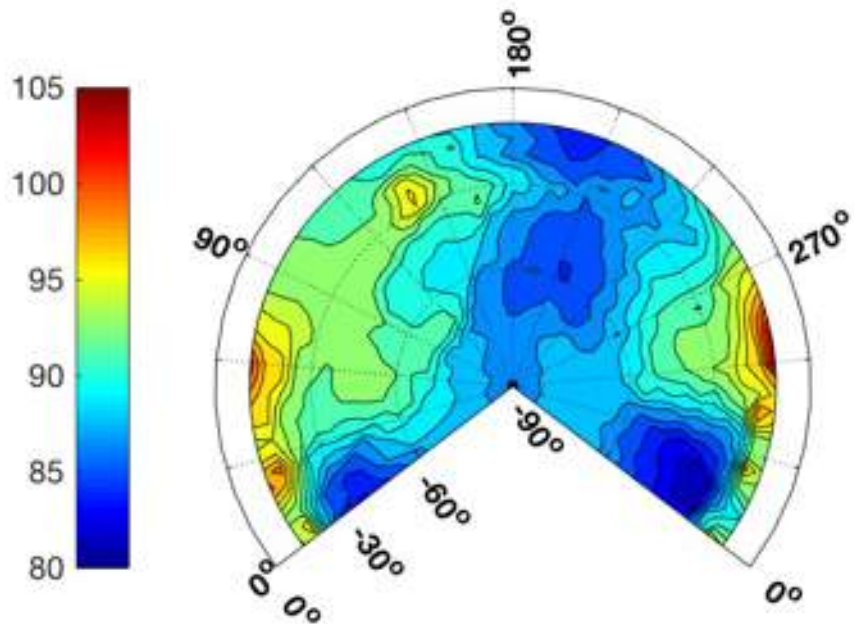


Figure 1044: EC130B4, 298257, D39, dBA hemisphere, ground speed 47.6 kts, -14.5° FPA.

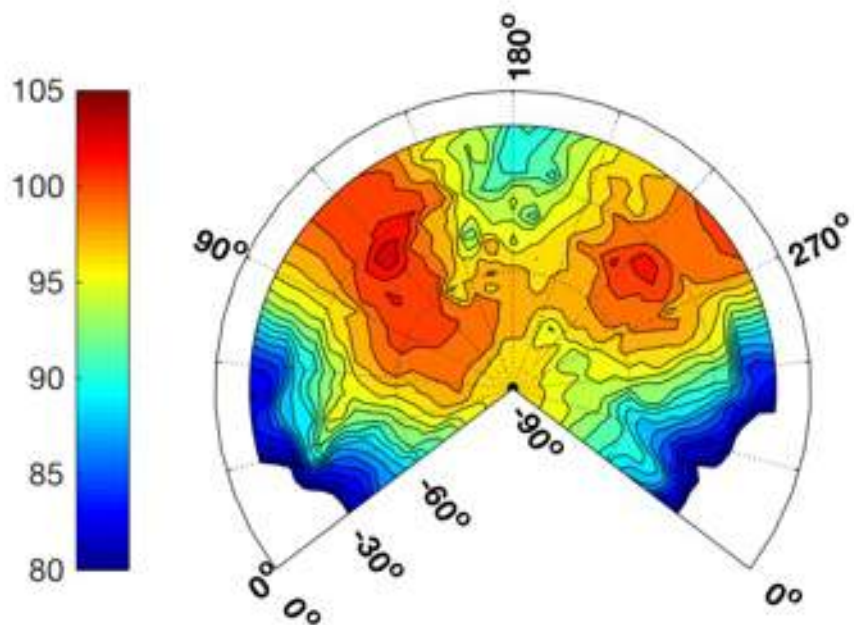


Figure 1045: EC130B4, 298258, D49, dBA hemisphere, ground speed 63.4 kts, -18.5° FPA.

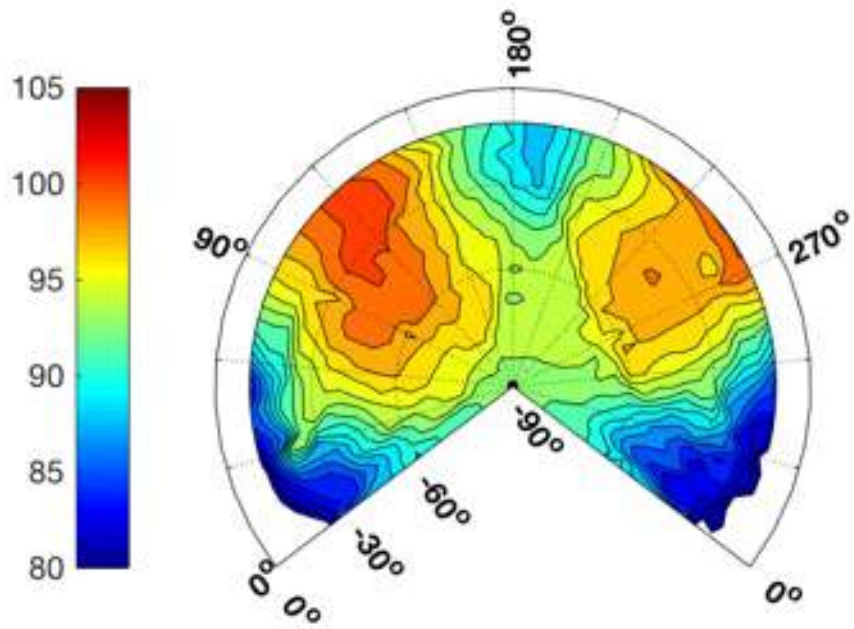


Figure 1046: EC130B4, 298259, D49, dBA hemisphere, ground speed 59.5 kts, -17.2° FPA.

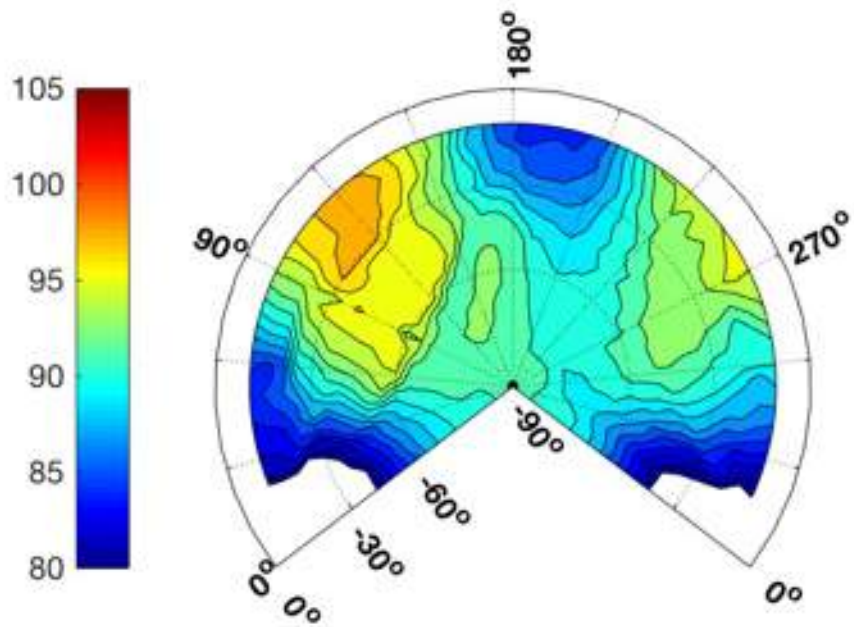


Figure 1047: EC130B4, 298260, D50, dBA hemisphere, ground speed 60.6 kts, -16.3° FPA.

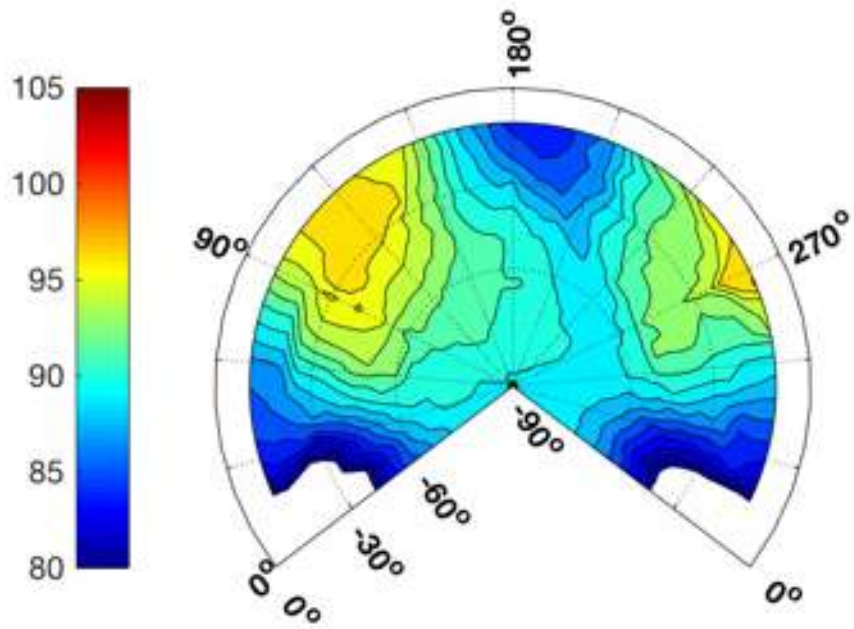


Figure 1048: EC130B4, 298261, D50, dBA hemisphere, ground speed 59.2 kts, -13.7° FPA.

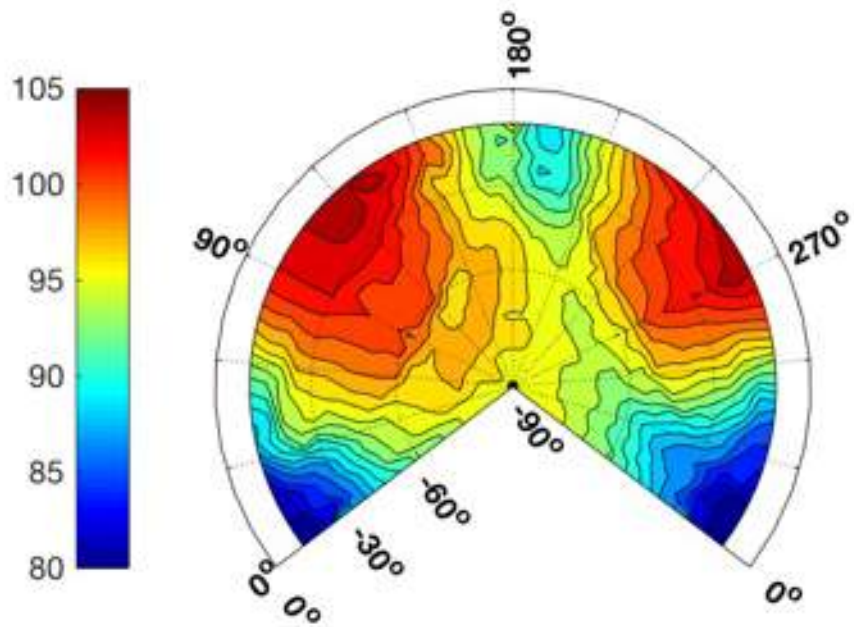


Figure 1049: EC130B4, 298262, D51, dBA hemisphere, ground speed 64.5 kts, -14.3° FPA.

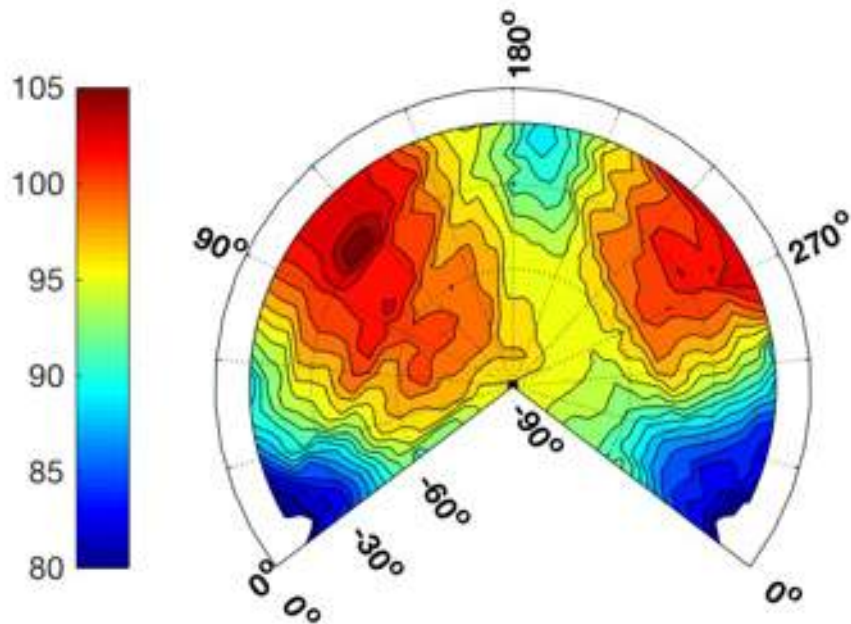


Figure 1050: EC130B4, 298263, D51, dBA hemisphere, ground speed 64.3 kts, -14.8° FPA.

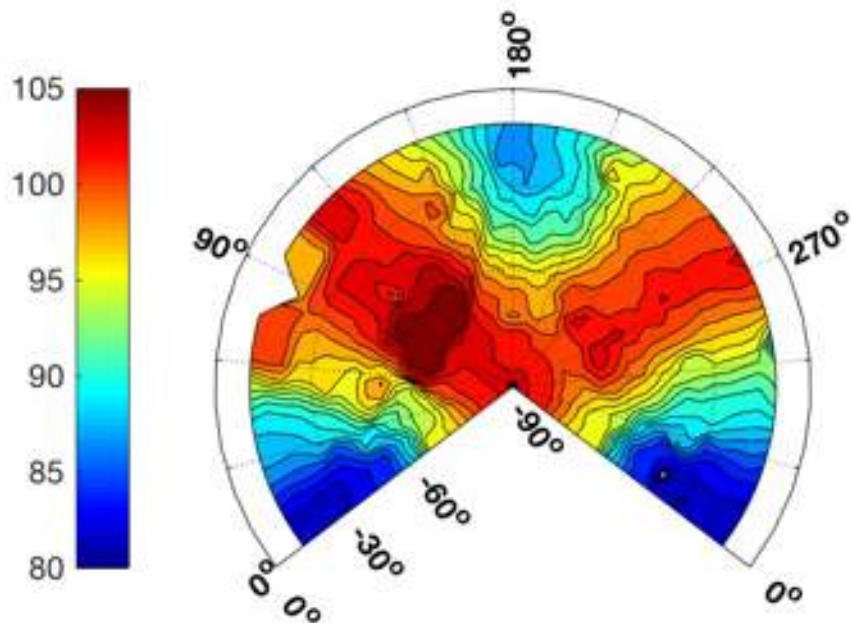


Figure 1051: EC130B4, 298264, D52, dBA hemisphere, ground speed 64.1 kts, -9.6° FPA.

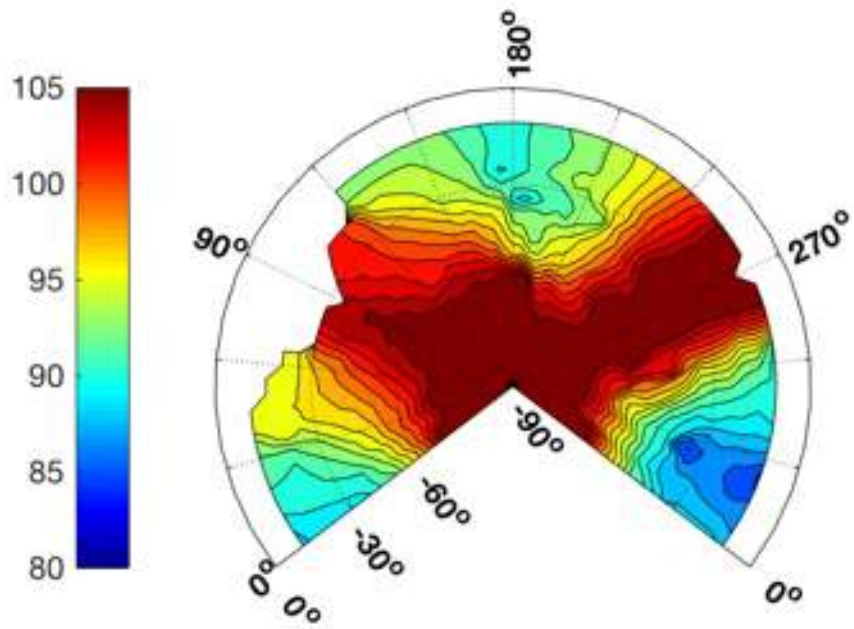


Figure 1052: EC130B4, 298265, D52, dBA hemisphere, ground speed 64.0 kts, -2.3° FPA.

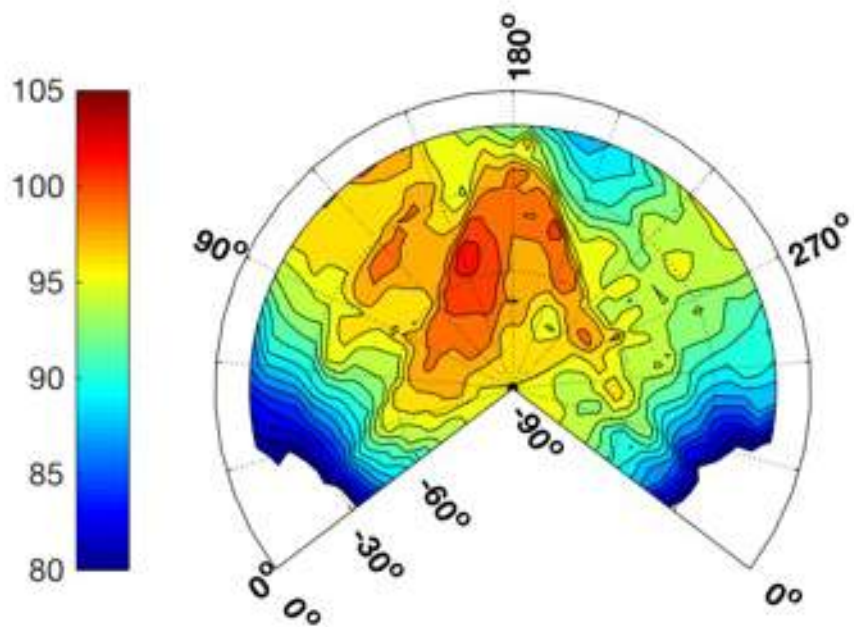


Figure 1053: EC130B4, 298266, D53, dBA hemisphere, ground speed 60.5 kts, -7.8° FPA.

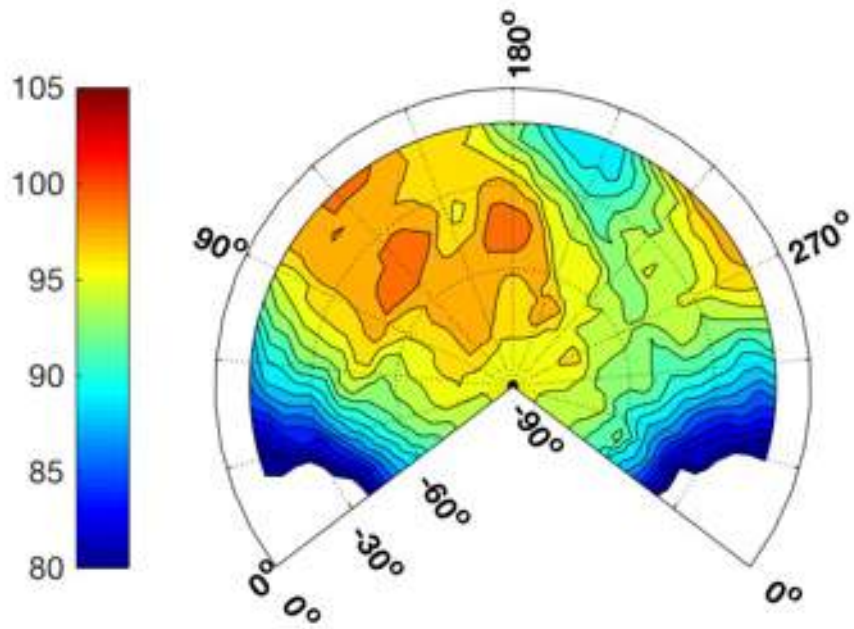


Figure 1054: EC130B4, 298267, D53, dBA hemisphere, ground speed 62.0 kts, -9.6° FPA.

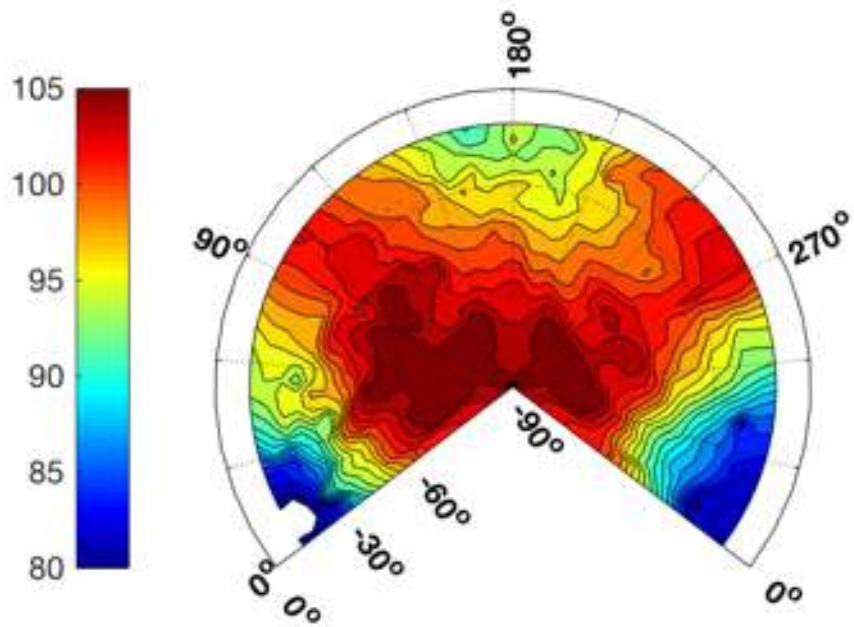


Figure 1055: EC130B4, 298268, D54, dBA hemisphere, ground speed 59.1 kts, -5.7° FPA.

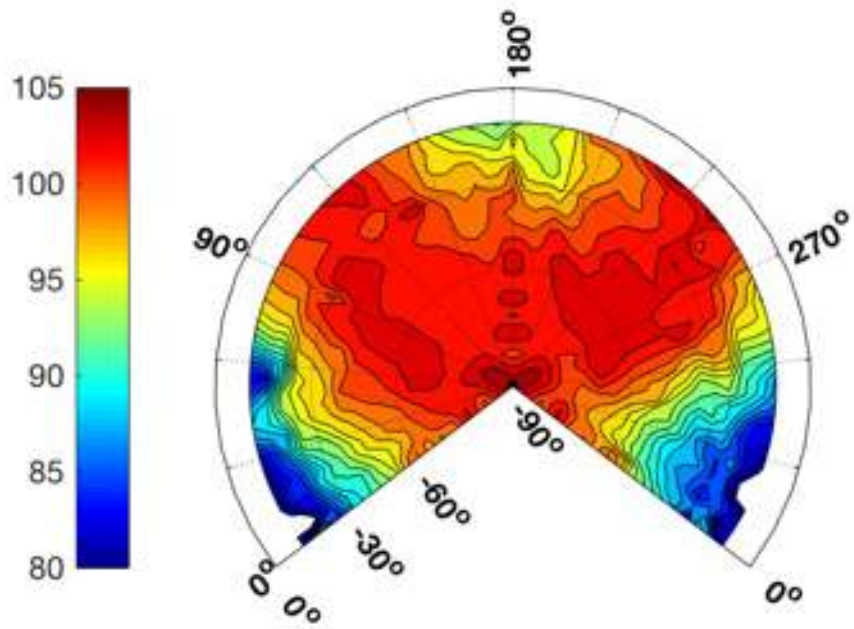


Figure 1056: EC130B4, 298269, D54, dBA hemisphere, ground speed 59.3 kts, -9.1° FPA.

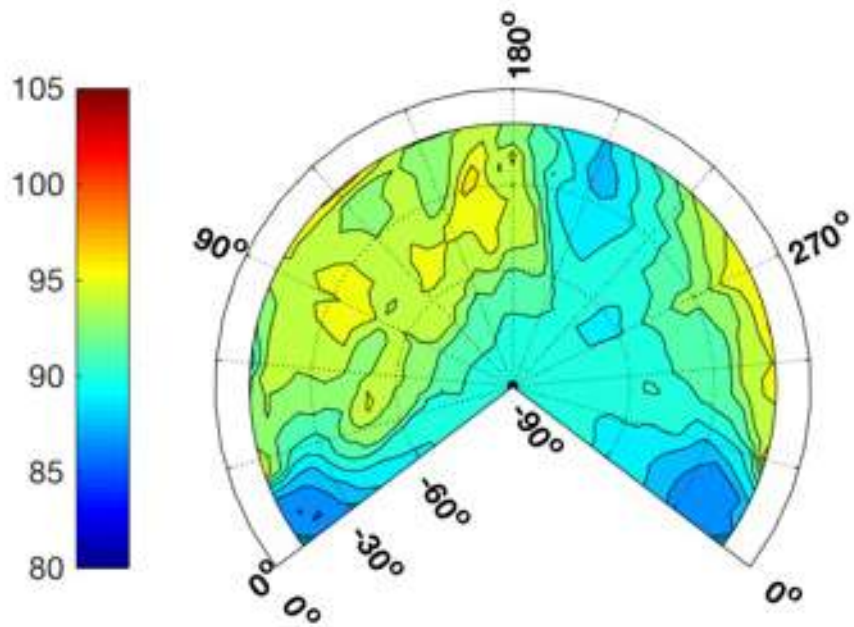


Figure 1057: EC130B4, 299314, D53, dBA hemisphere, ground speed 84.3 kts, -7.5° FPA.

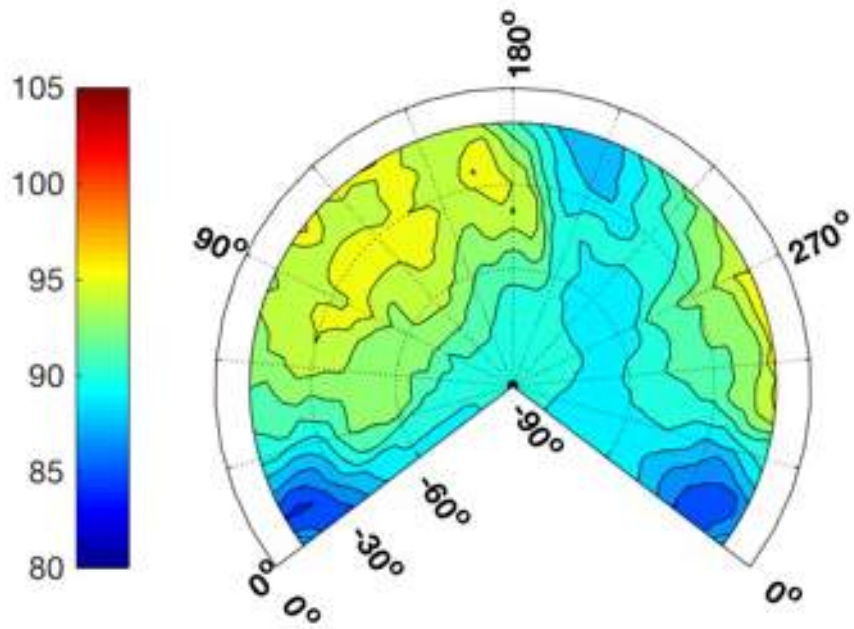


Figure 1058: EC130B4, 299315, D53, dBA hemisphere, ground speed 81.5 kts, -7.7° FPA.

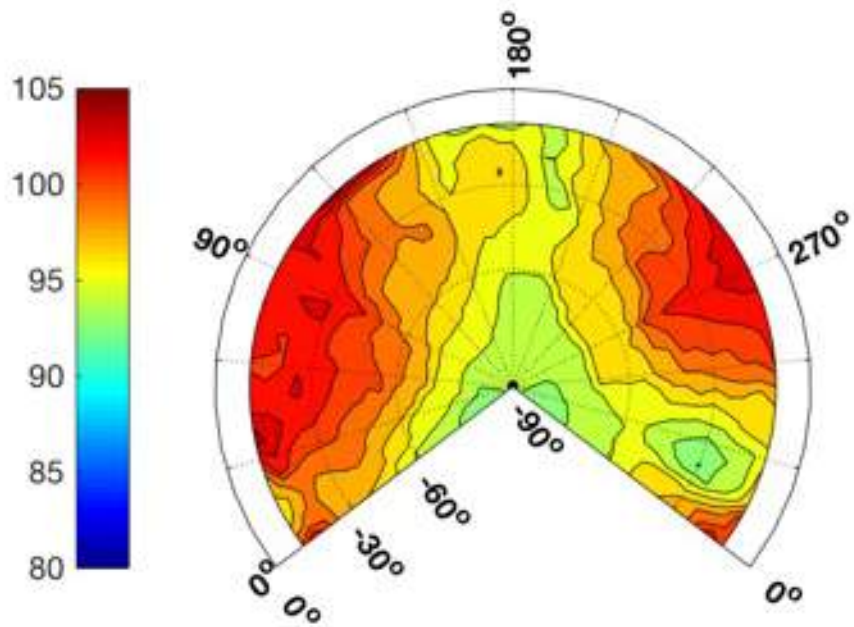


Figure 1059: EC130B4, 299316, D54, dBA hemisphere, ground speed 78.0 kts, -7.9° FPA.

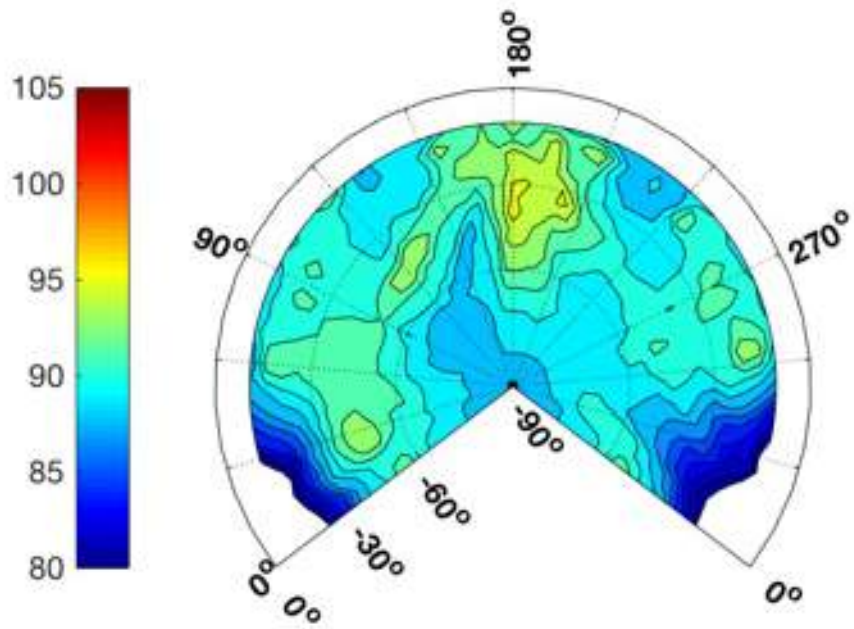


Figure 1060: EC130B4, 299356, D35, dBA hemisphere, ground speed 46.5 kts, -8.1° FPA.

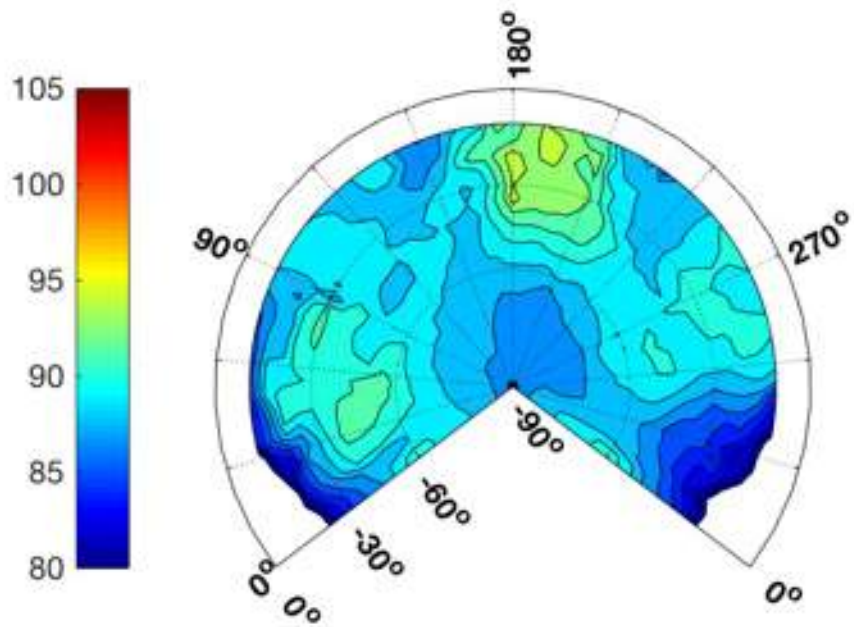


Figure 1061: EC130B4, 299357, D35, dBA hemisphere, ground speed 45.3 kts, -6.9° FPA.

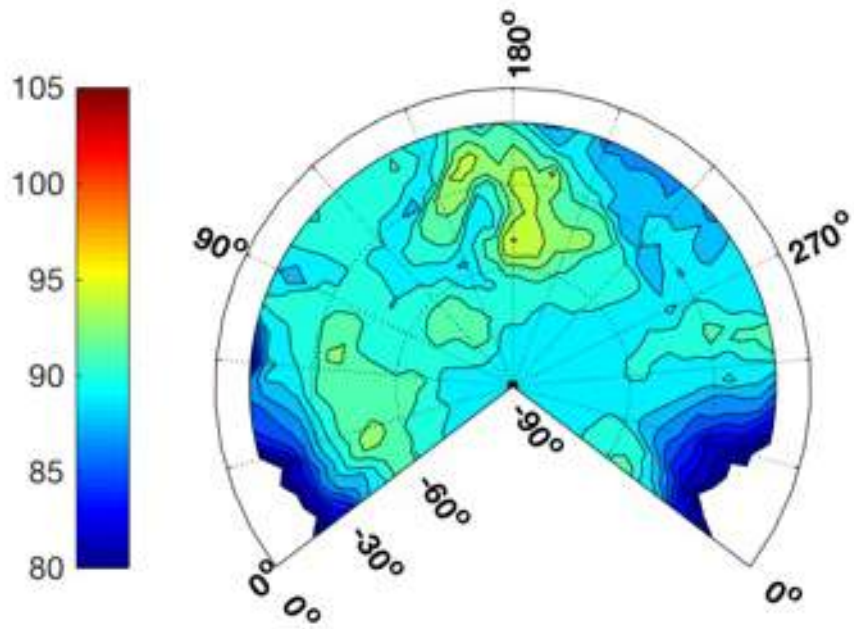


Figure 1062: EC130B4, 299362, D37, dBA hemisphere, ground speed 45.0 kts, -9.7° FPA.

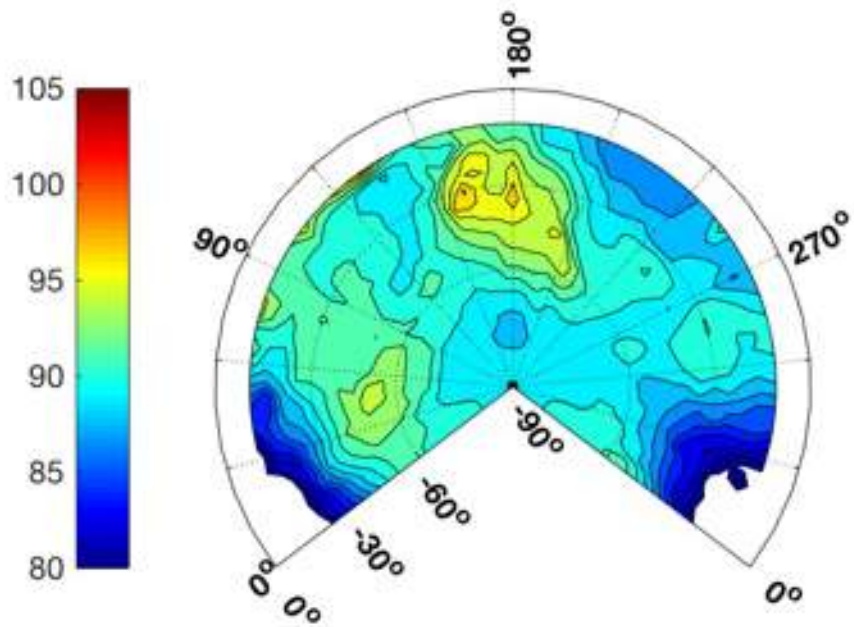


Figure 1063: EC130B4, 299363, D37, dBA hemisphere, ground speed 43.8 kts, -9.9° FPA.

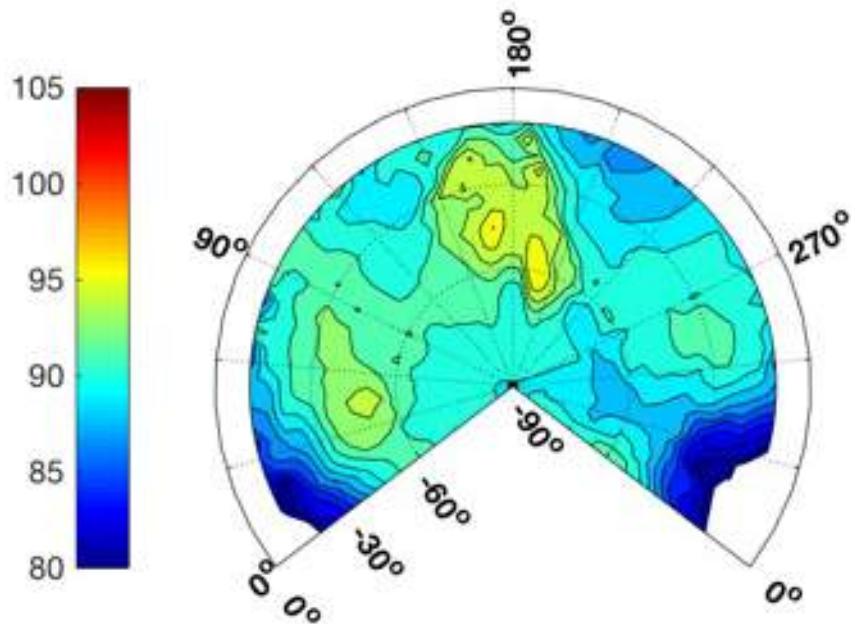


Figure 1064: EC130B4, 299364, D37, dBA hemisphere, ground speed 45.4 kts, -10.0° FPA.

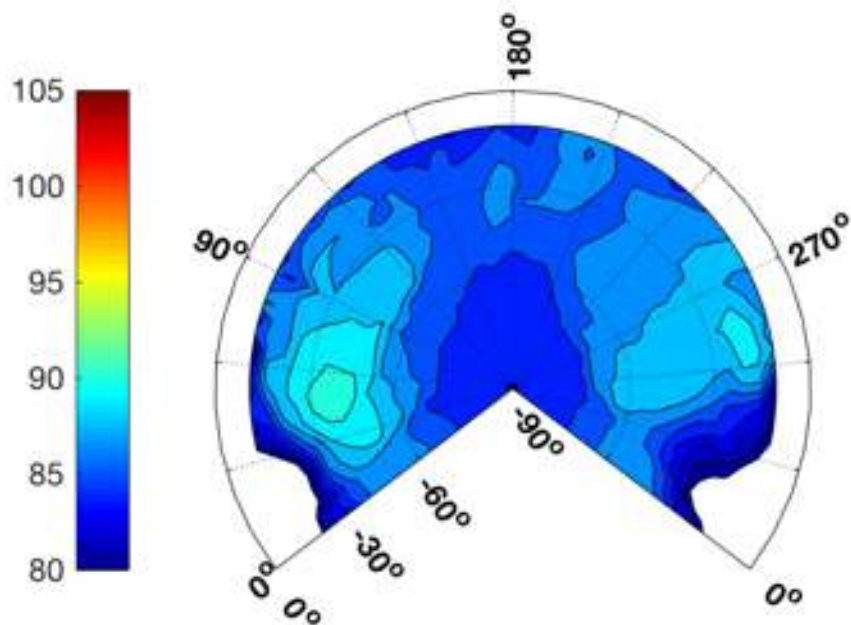


Figure 1065: EC130B4, 299365, D33, dBA hemisphere, ground speed 43.3 kts, -3.8° FPA.

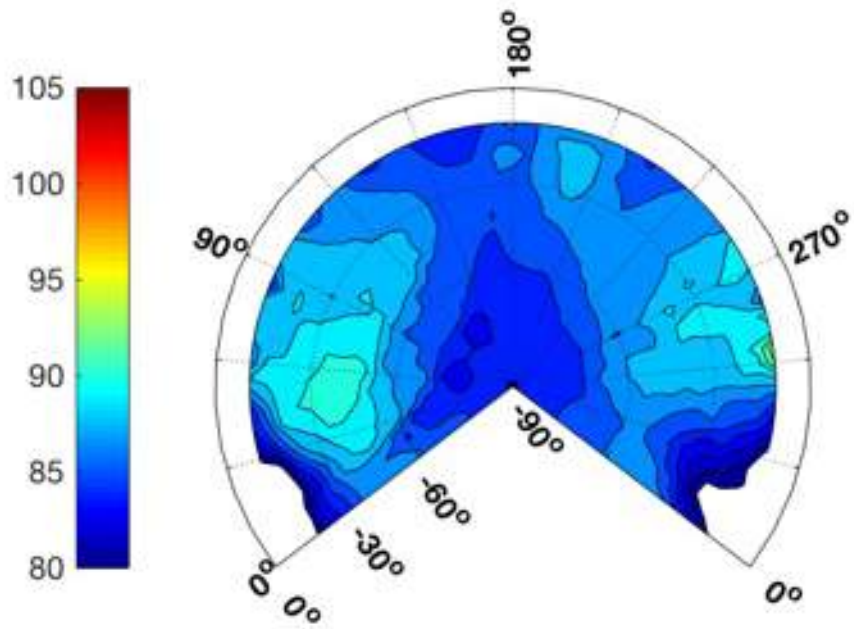


Figure 1066: EC130B4, 299366, D33, dBA hemisphere, ground speed 46.1 kts, -3.9° FPA.

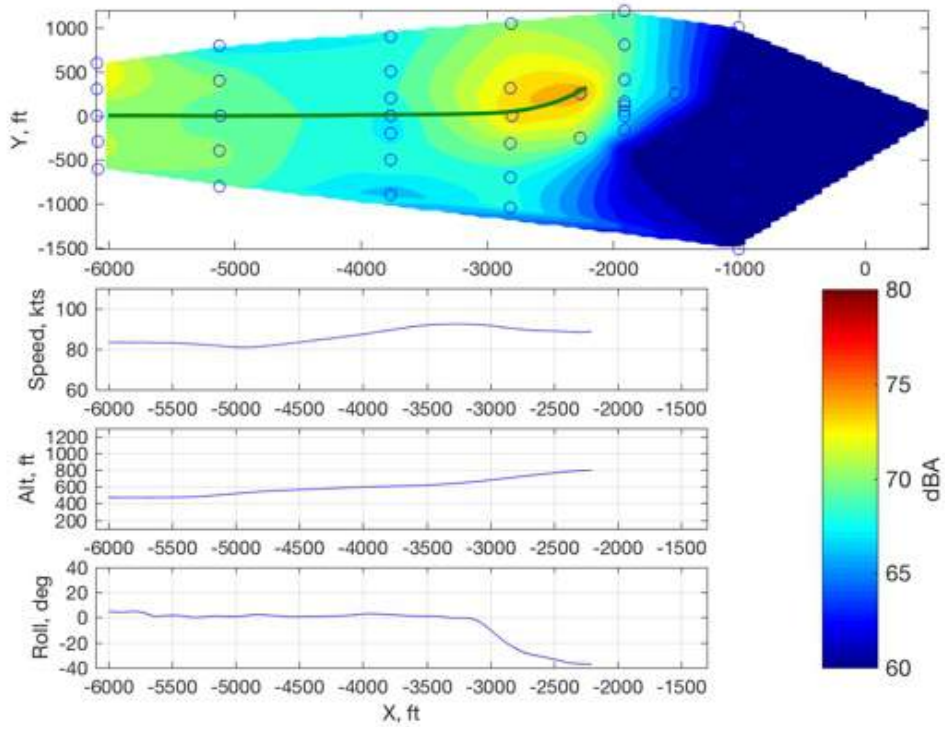


Figure 1067: EC130B4, 297232, F17, maximum dBA contour.

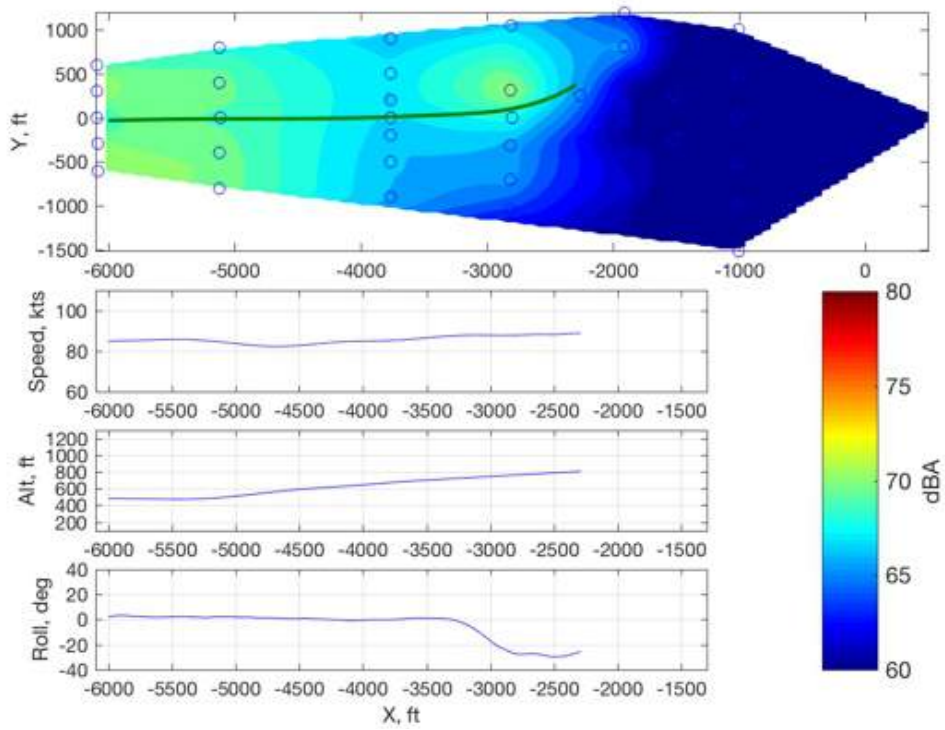


Figure 1068: EC130B4, 297233, F17, maximum dBA contour.

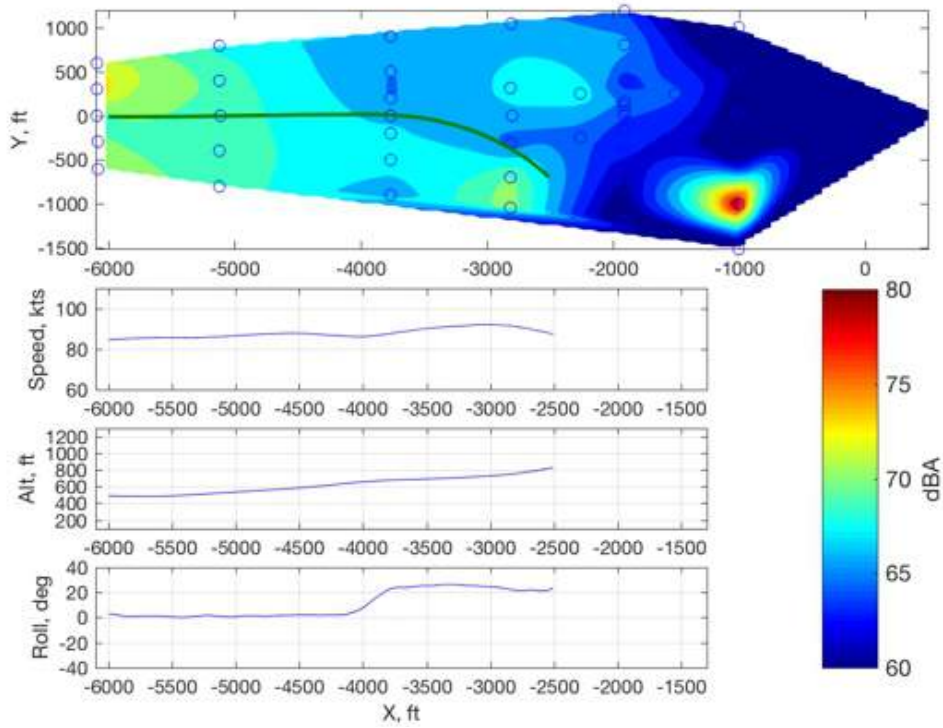


Figure 1069: EC130B4, 297234, F18, maximum dBA contour.

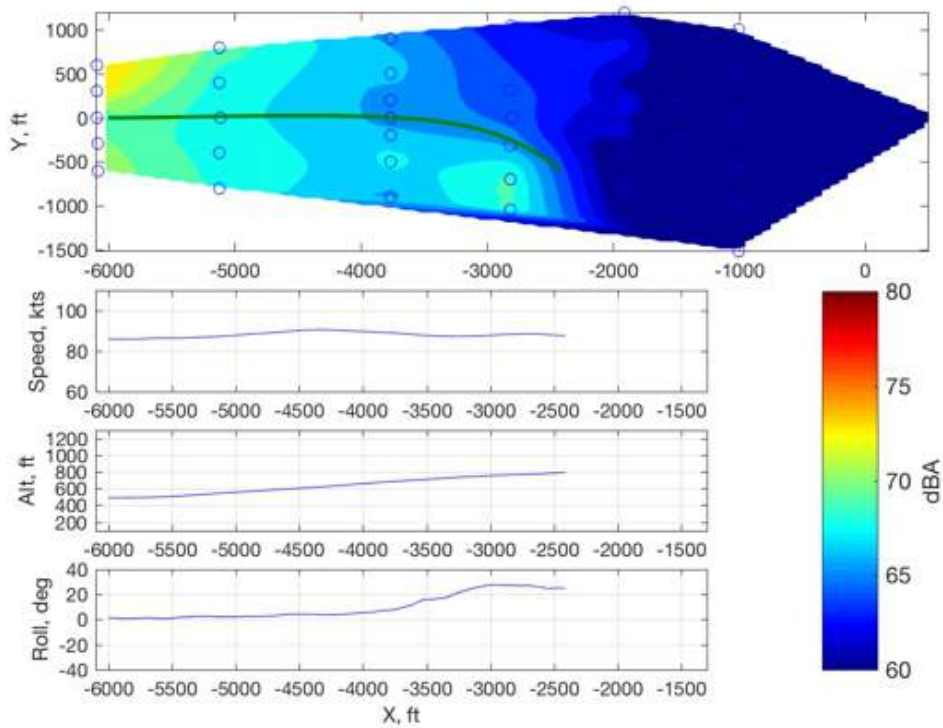


Figure 1070: EC130B4, 297235, F18, maximum dBA contour.

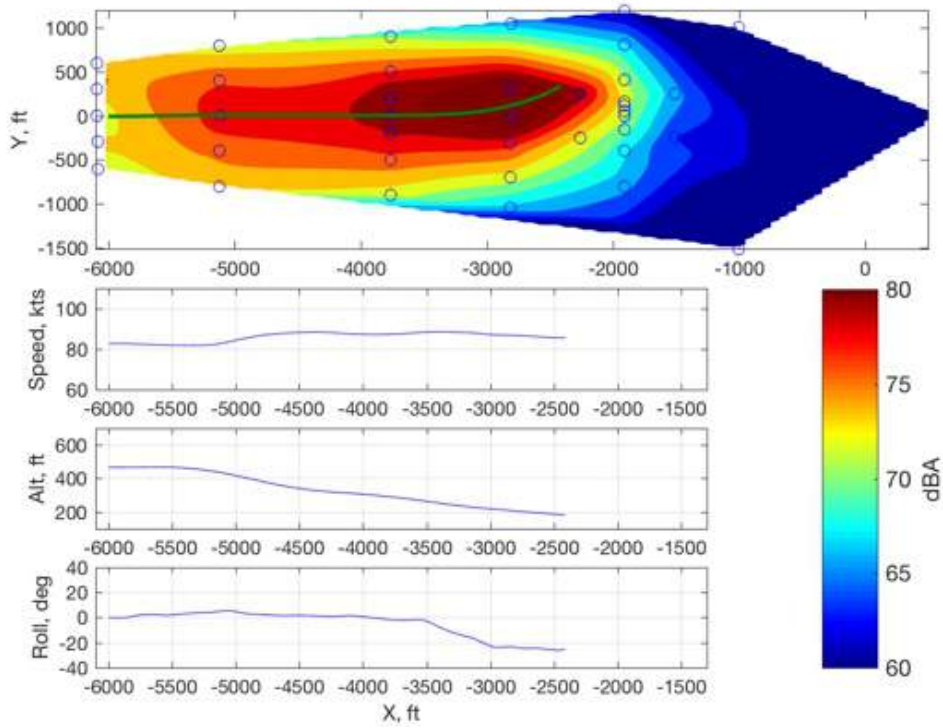


Figure 1071: EC130B4, 297236, F19, maximum dBA contour.

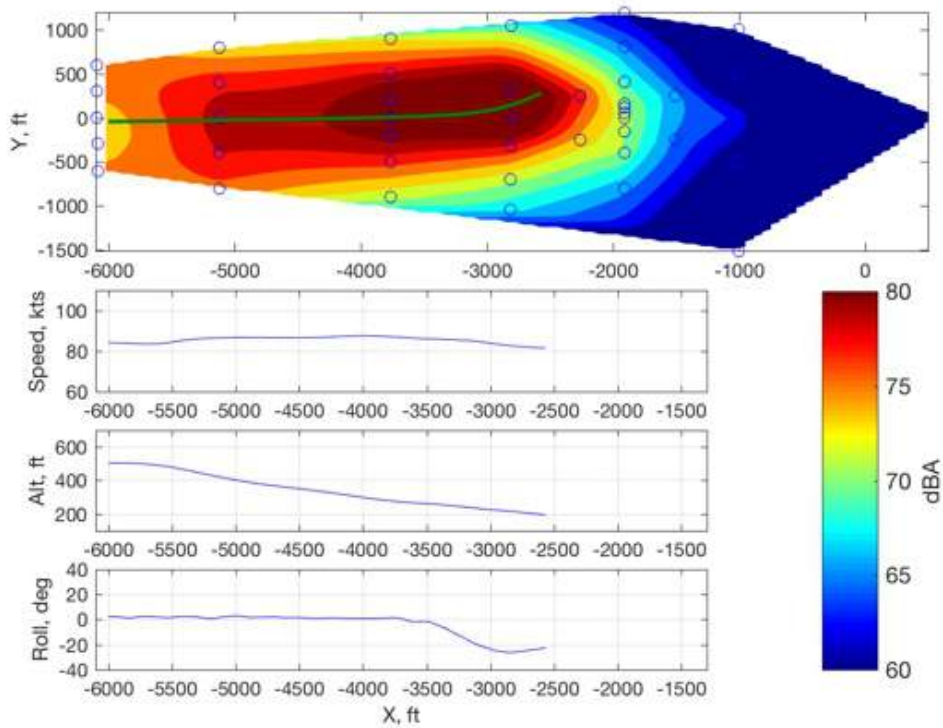


Figure 1072: EC130B4, 297237, F19, maximum dBA contour.

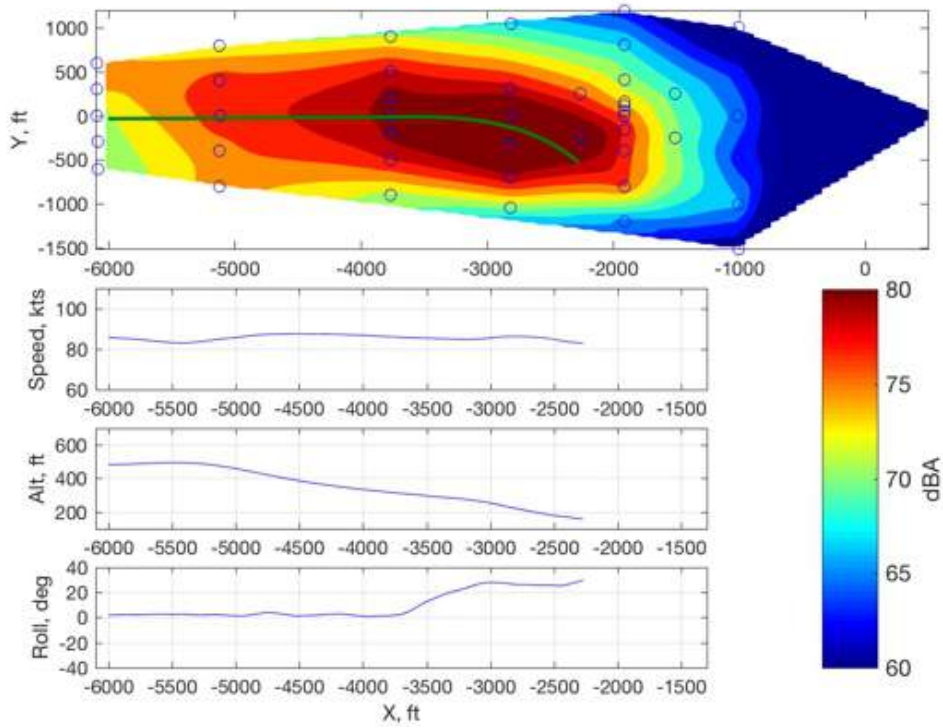


Figure 1073: EC130B4, 297238, F20, maximum dBA contour.

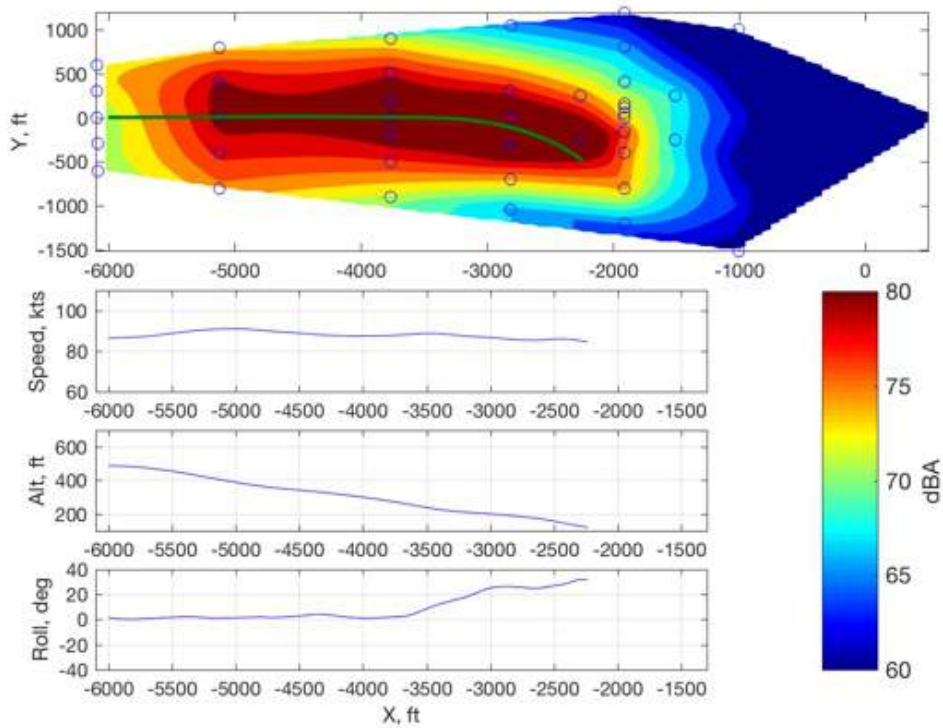


Figure 1074: EC130B4, 297239, F20, maximum dBA contour.

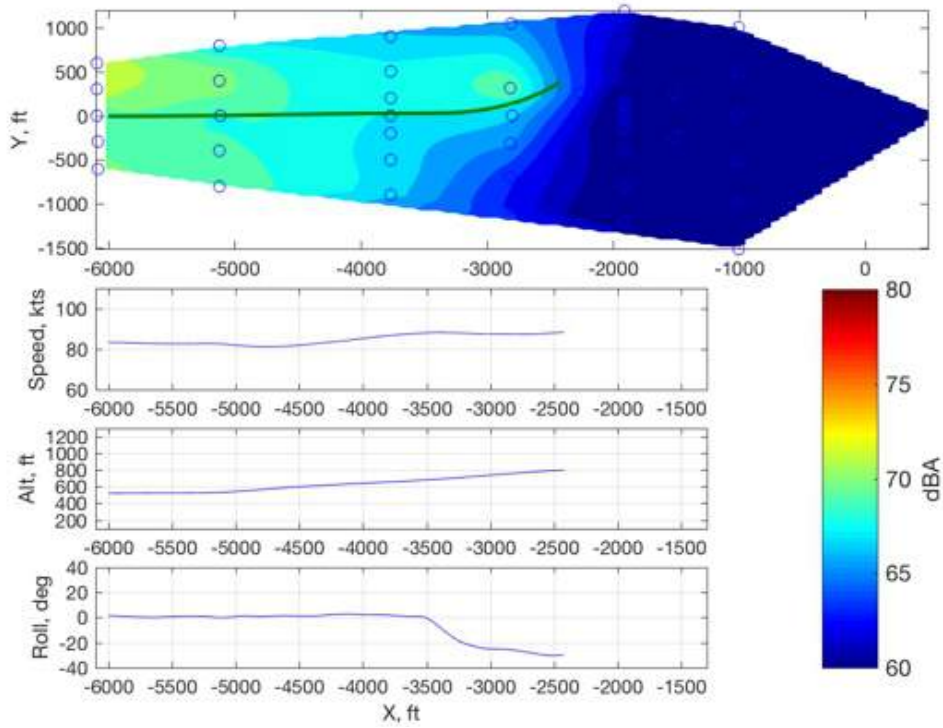


Figure 1075: EC130B4, 297208, F21, maximum dBA contour.

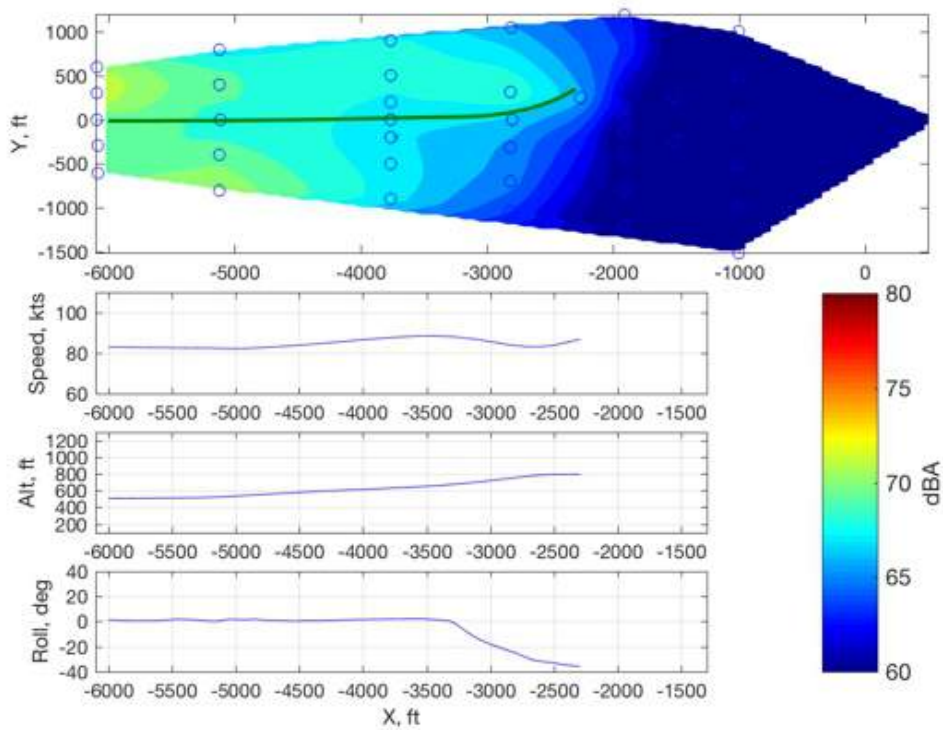


Figure 1076: EC130B4, 297209, F21, maximum dBA contour.

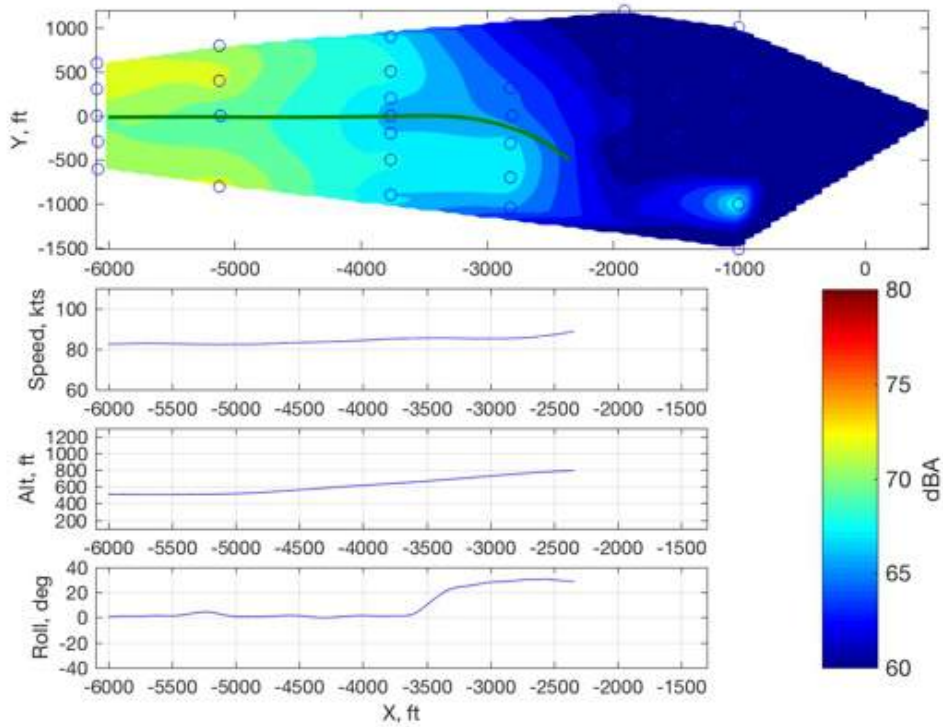


Figure 1077: EC130B4, 297210, F22, maximum dBA contour.

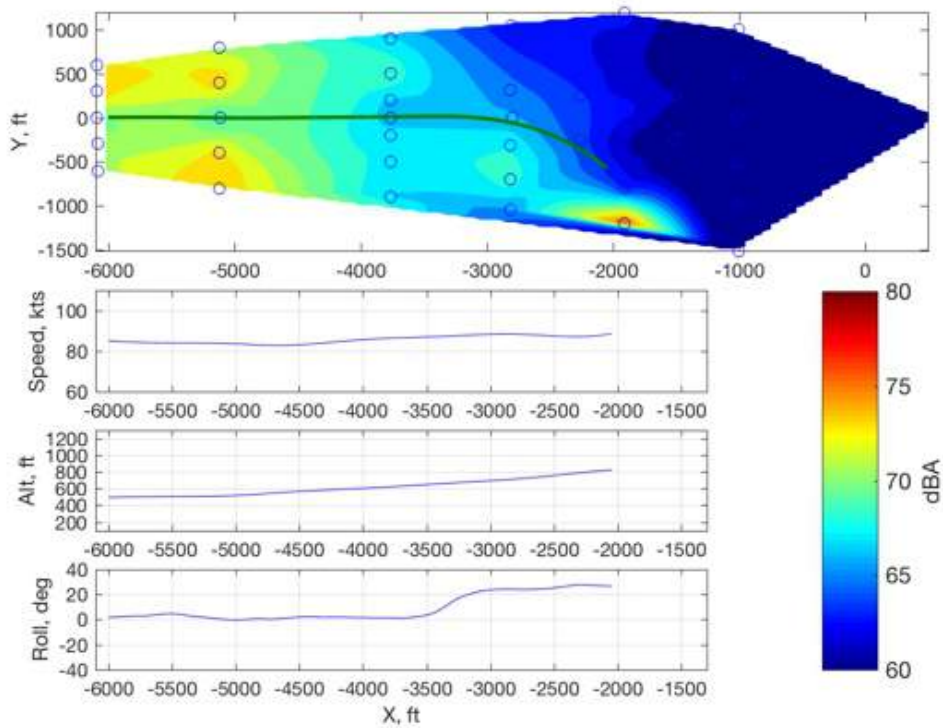


Figure 1078: EC130B4, 297211, F22, maximum dBA contour.

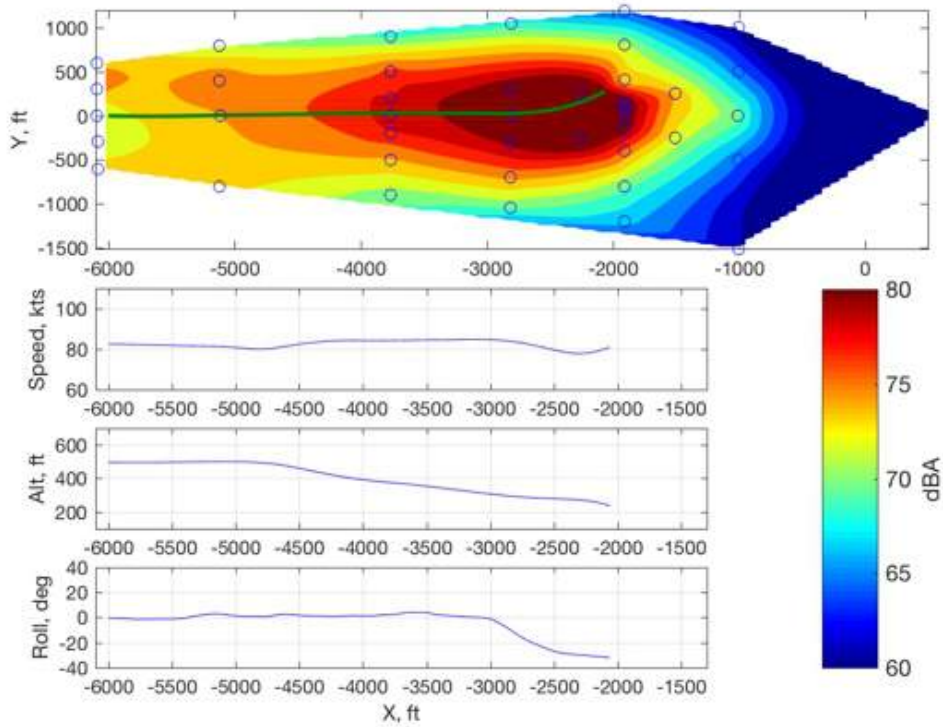


Figure 1079: EC130B4, 297212, F23, maximum dBA contour.

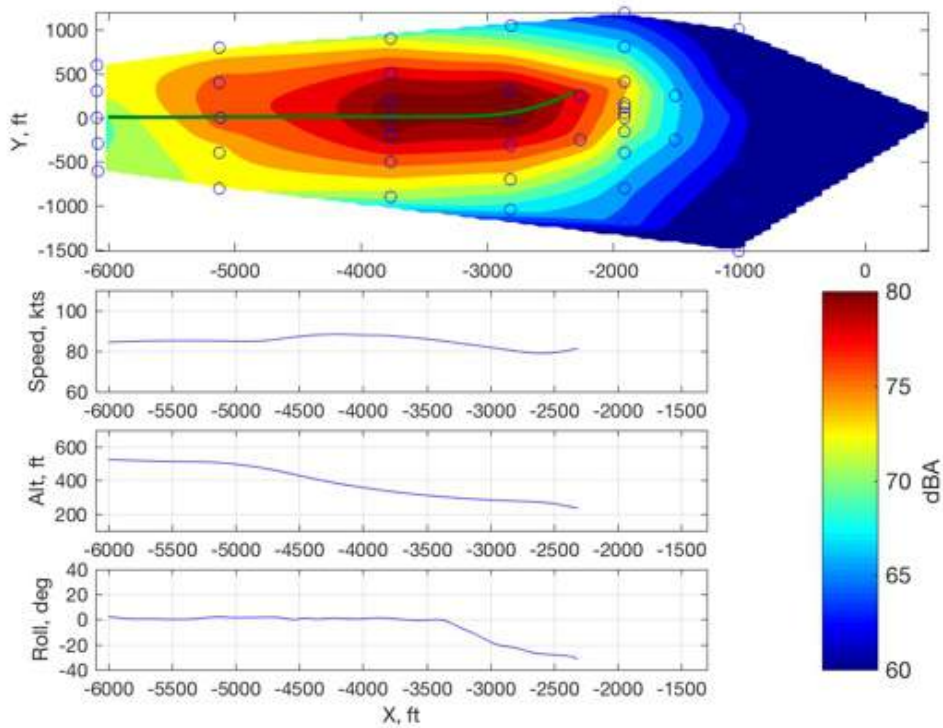


Figure 1080: EC130B4, 297213, F23, maximum dBA contour.

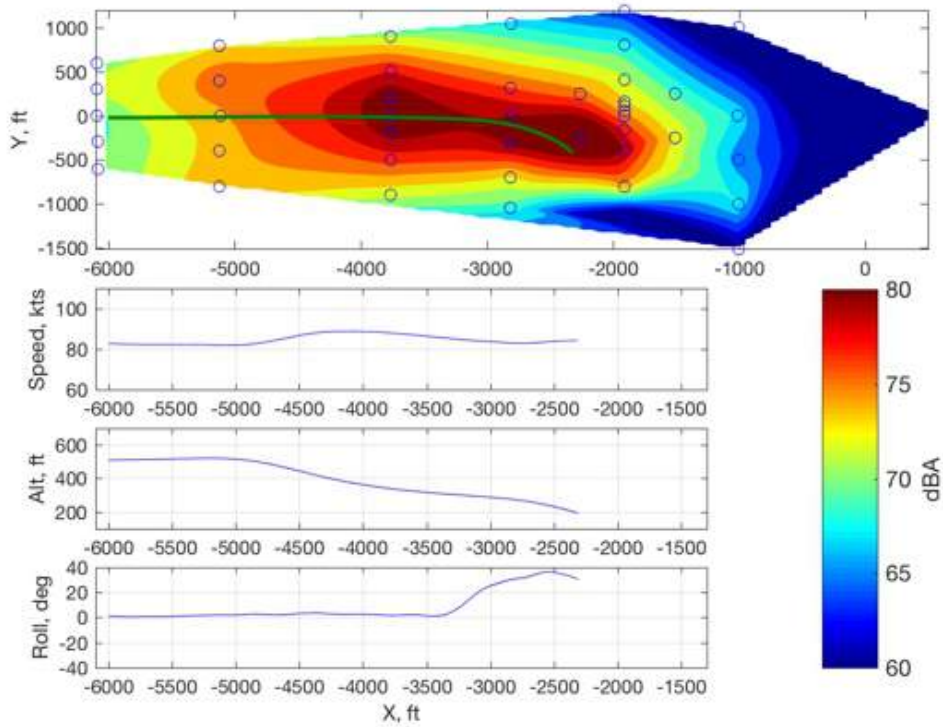


Figure 1081: EC130B4, 297214, F24, maximum dBA contour.

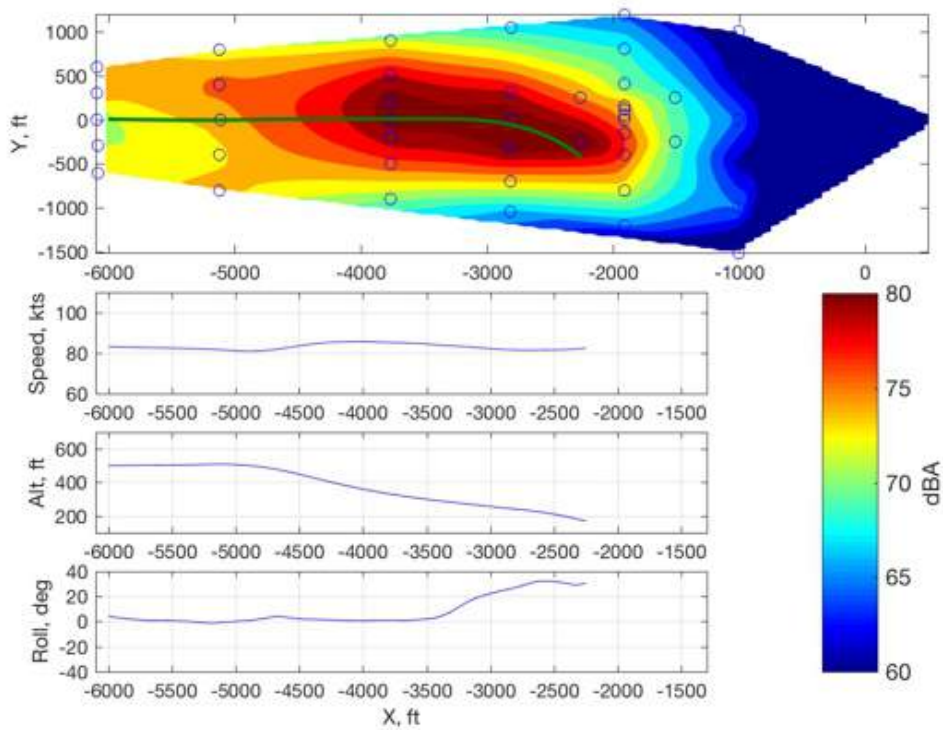


Figure 1082: EC130B4, 297215, F24, maximum dBA contour.

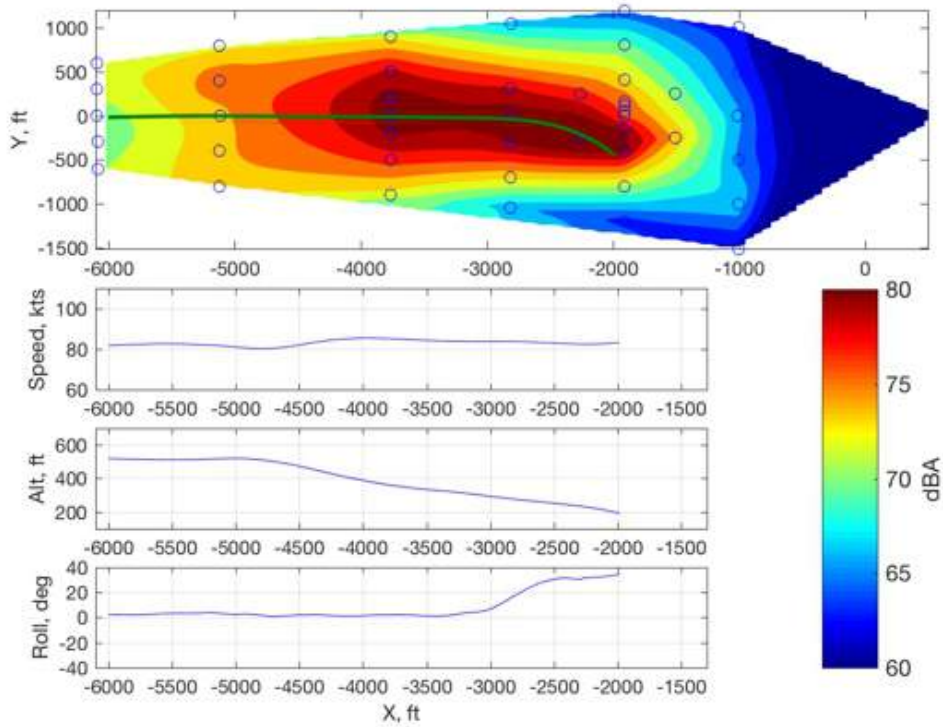


Figure 1083: EC130B4, 297216, F24, maximum dBA contour.

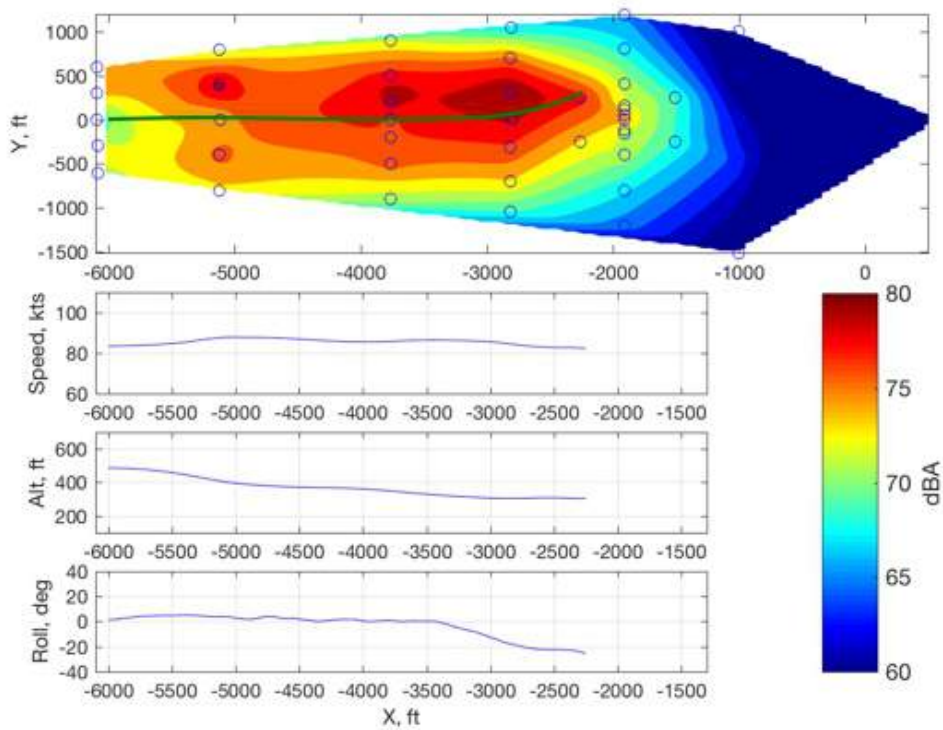


Figure 1084: EC130B4, 297244, F25, maximum dBA contour.

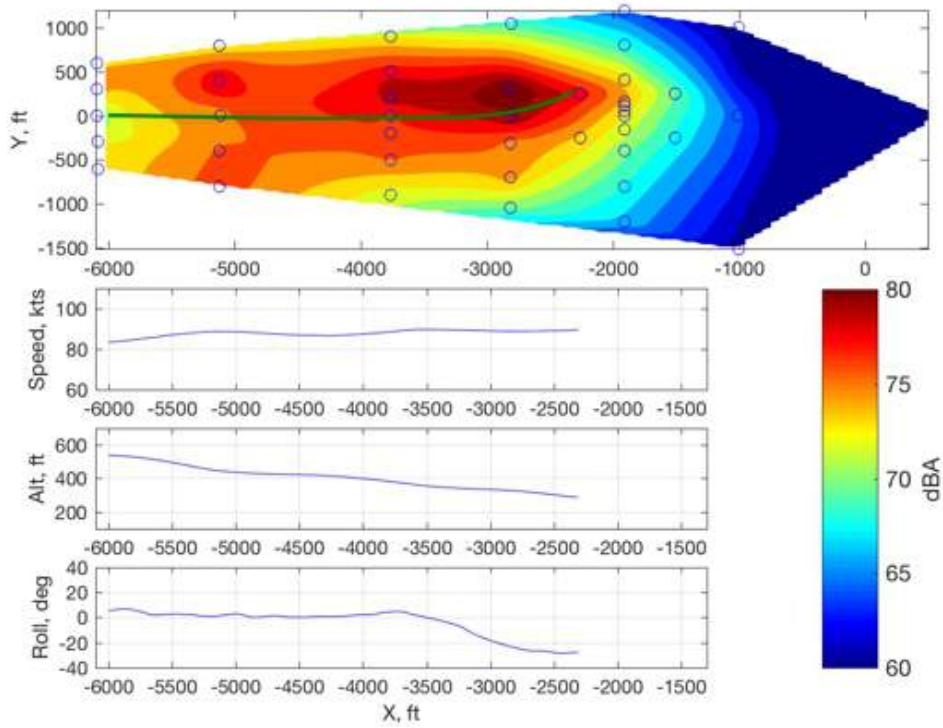


Figure 1085: EC130B4, 297245, F25, maximum dBA contour.

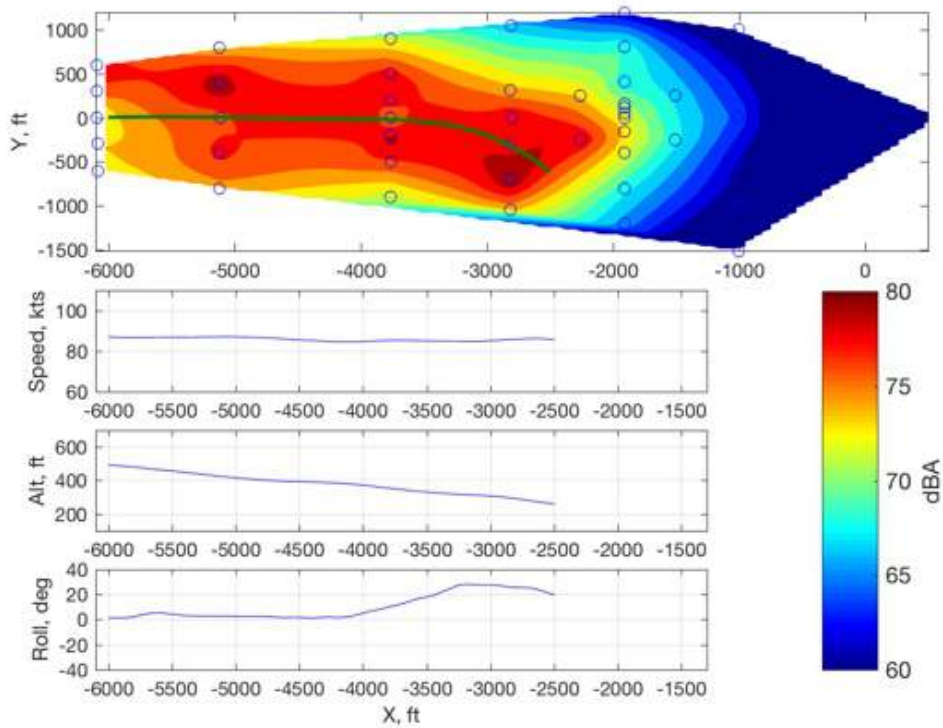


Figure 1086: EC130B4, 297246, F26, maximum dBA contour.

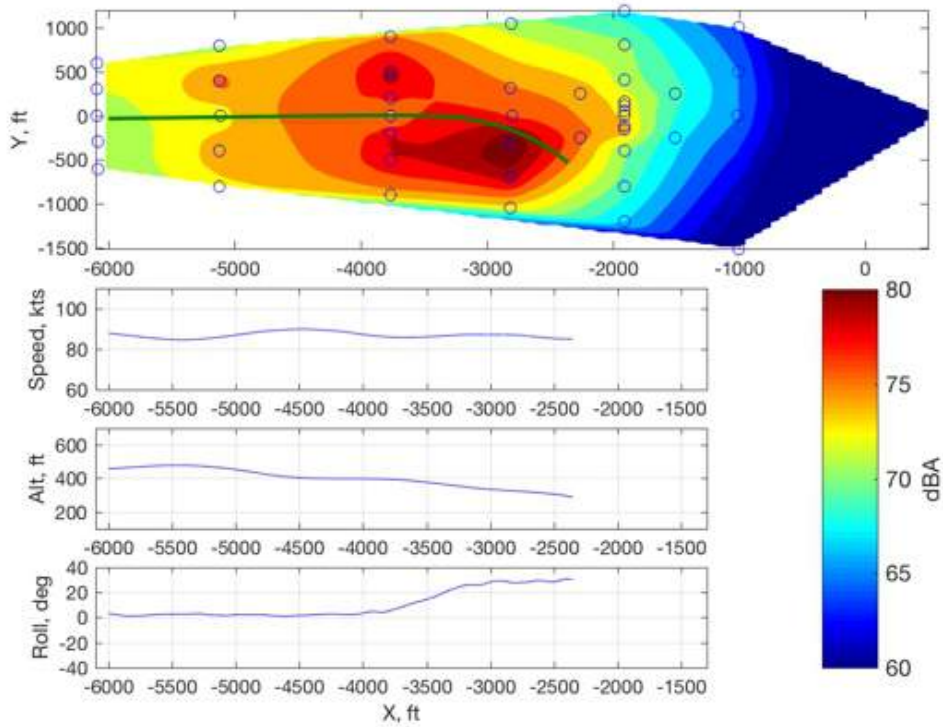


Figure 1087: EC130B4, 297247, F26, maximum dBA contour.

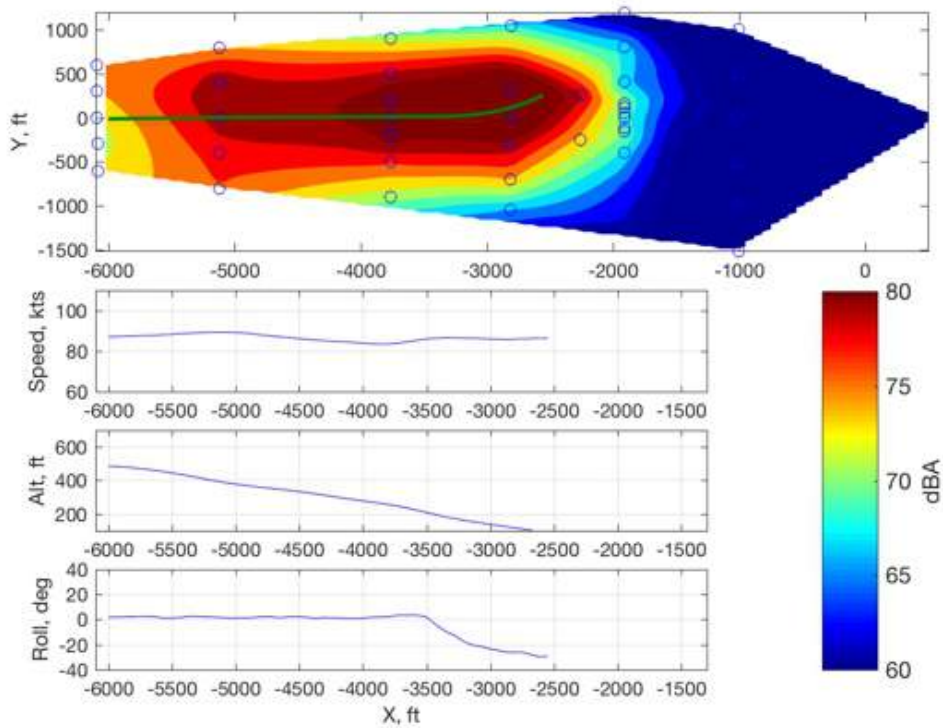


Figure 1088: EC130B4, 297248, F27, maximum dBA contour.

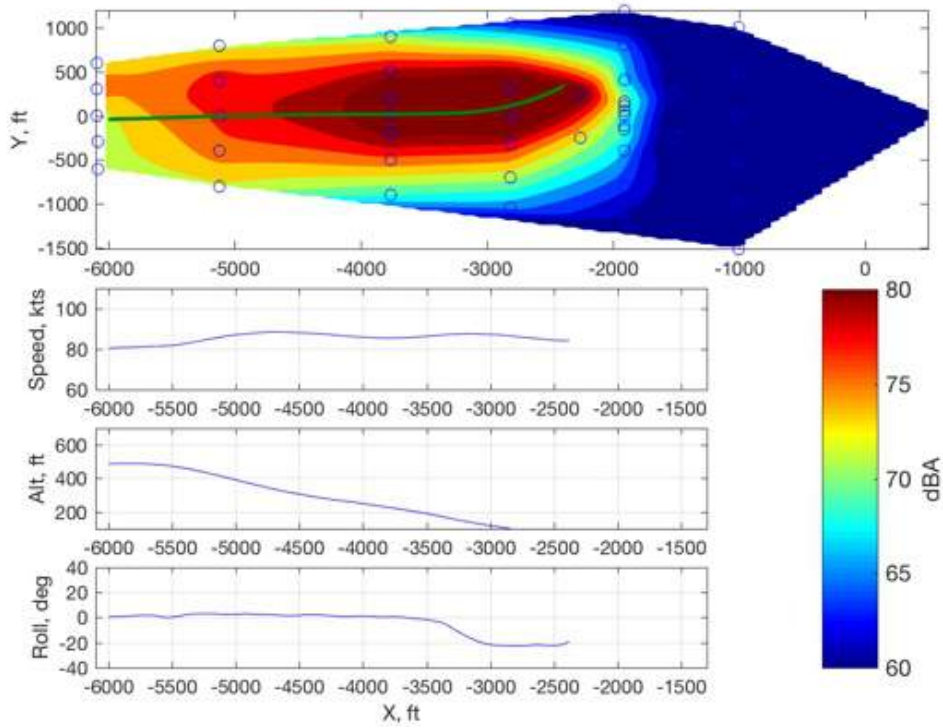


Figure 1089: EC130B4, 297249, F27, maximum dBA contour.

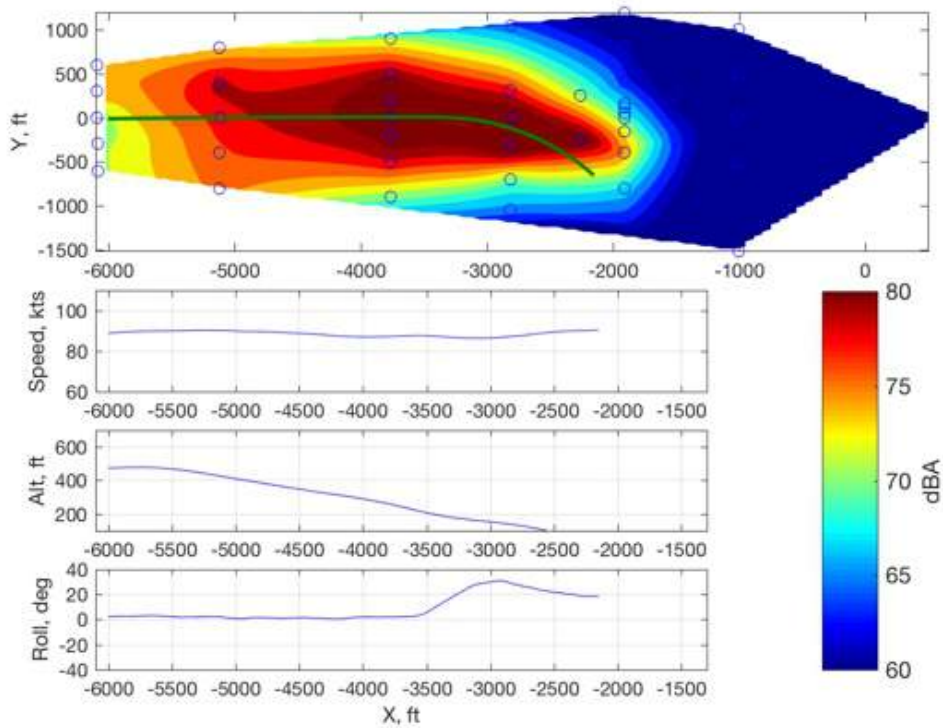


Figure 1090: EC130B4, 297250, F28, maximum dBA contour.

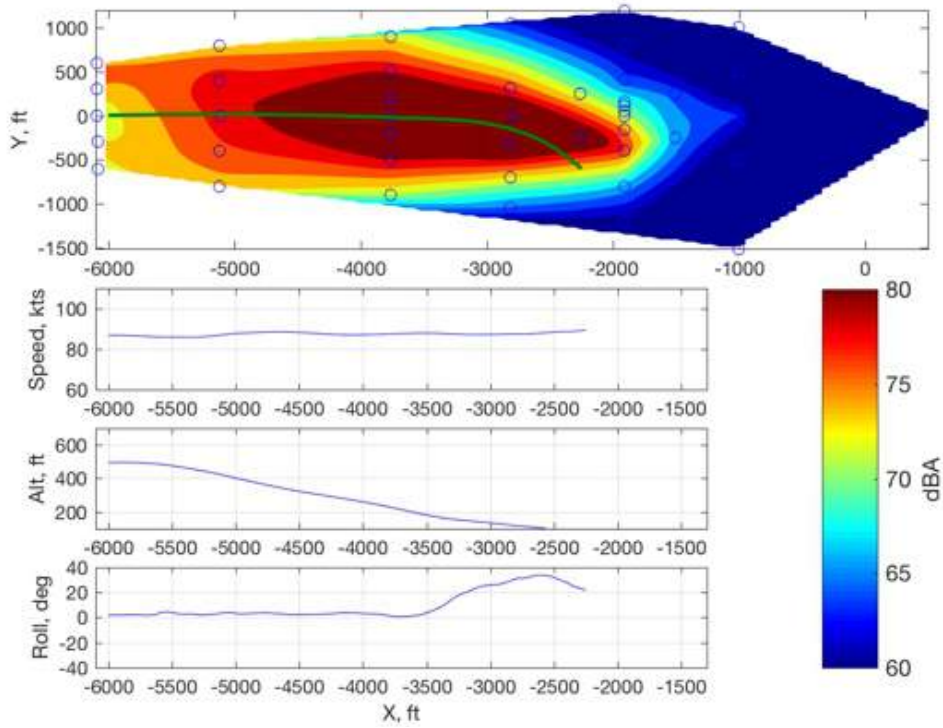


Figure 1091: EC130B4, 297251, F28, maximum dBA contour.

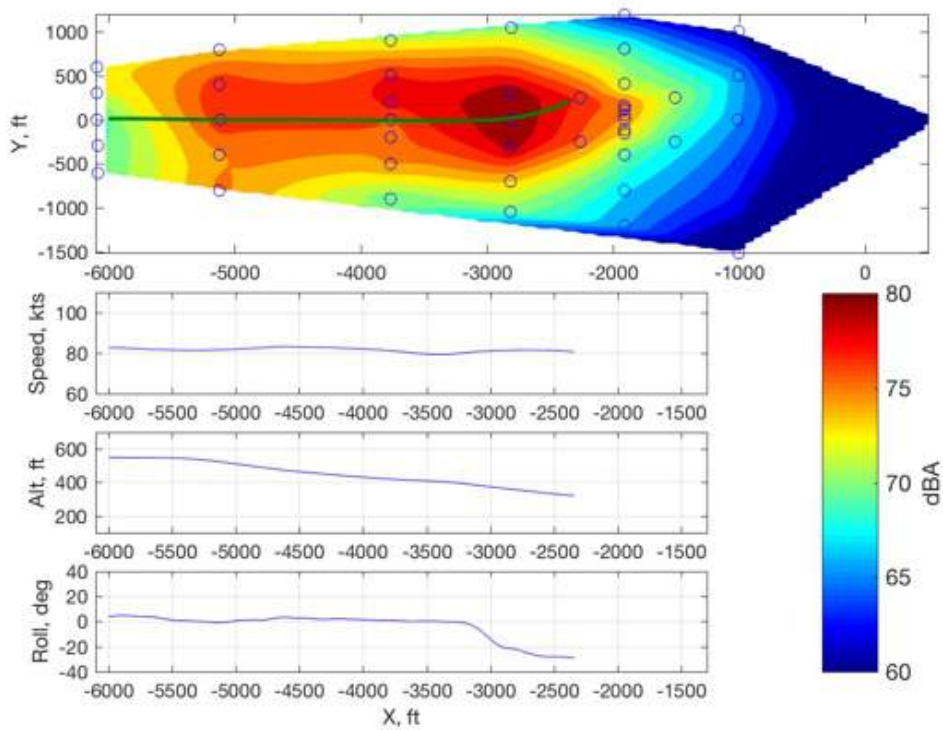


Figure 1092: EC130B4, 297223, F29, maximum dBA contour.

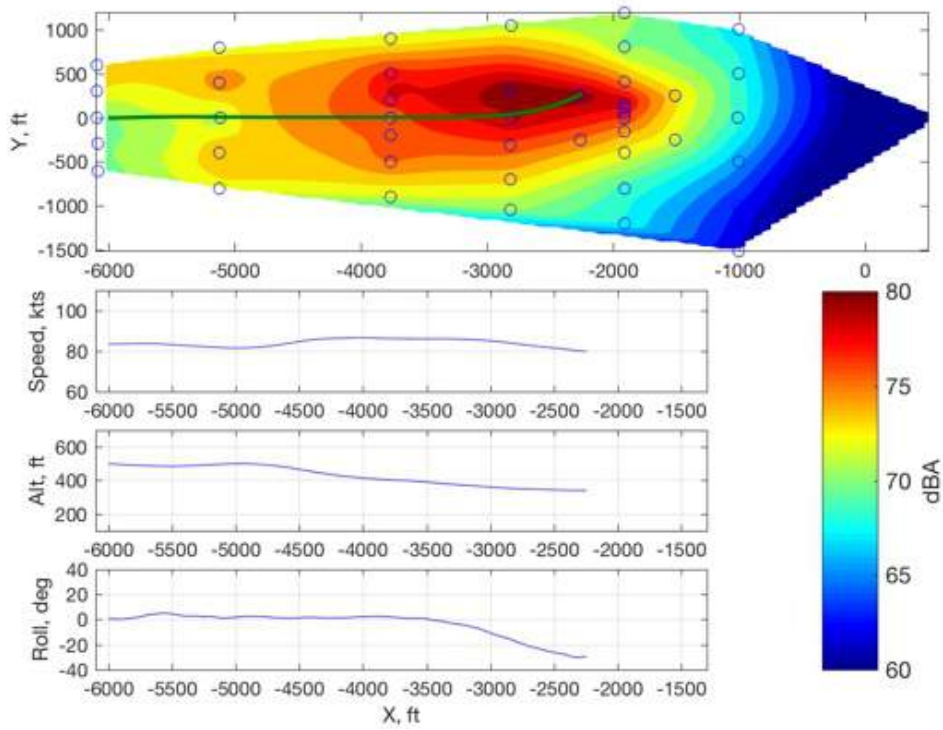


Figure 1093: EC130B4, 297224, F29, maximum dBA contour.

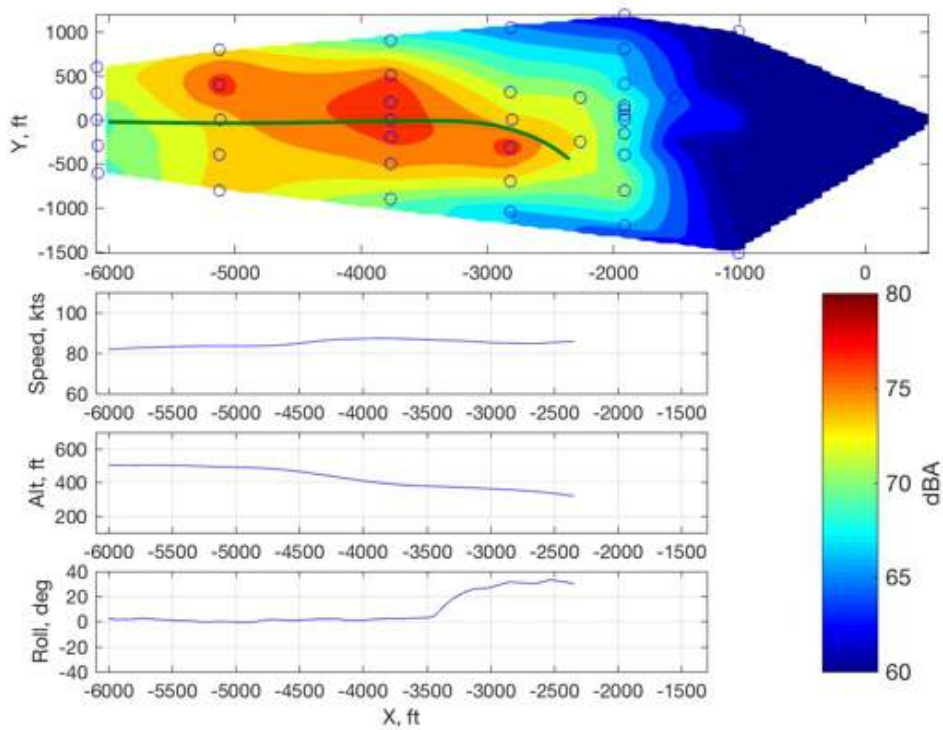


Figure 1094: EC130B4, 297225, F30, maximum dBA contour.

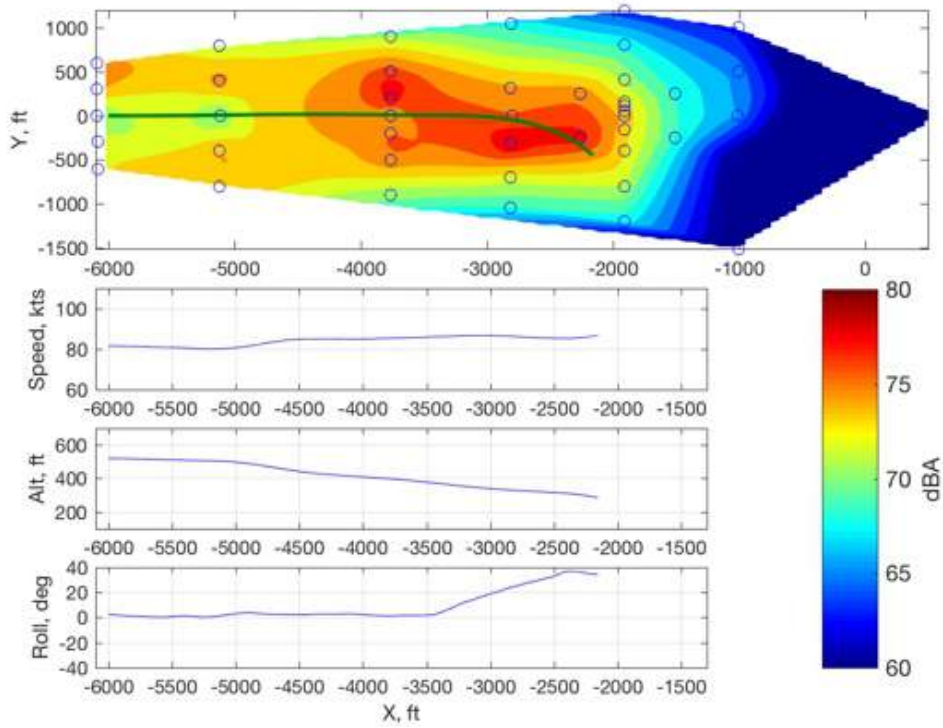


Figure 1095: EC130B4, 297226, F30, maximum dBA contour.

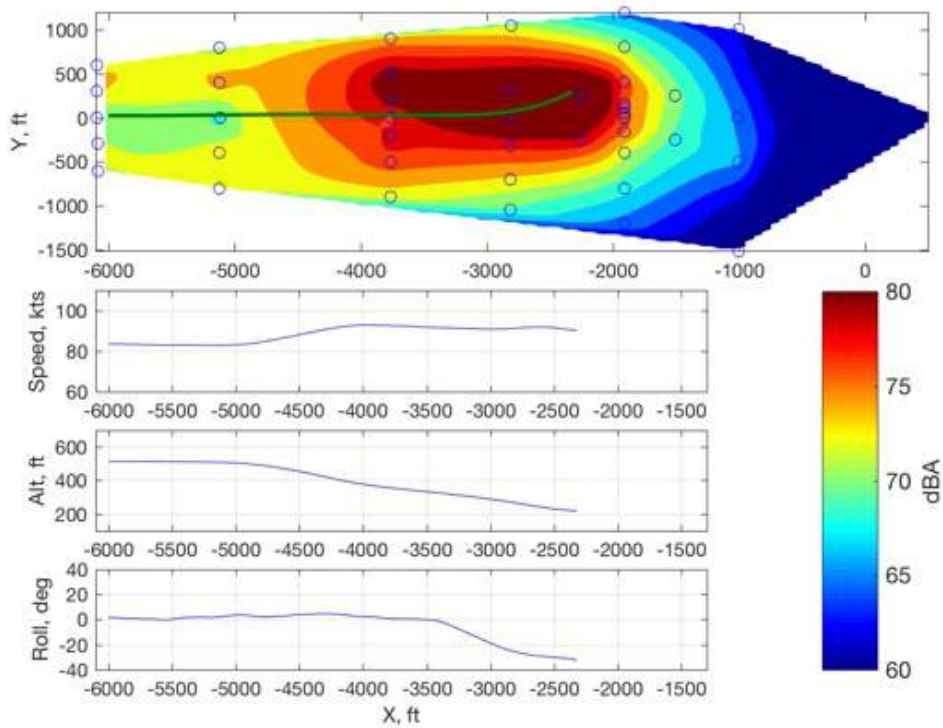


Figure 1096: EC130B4, 297227, F31, maximum dBA contour.

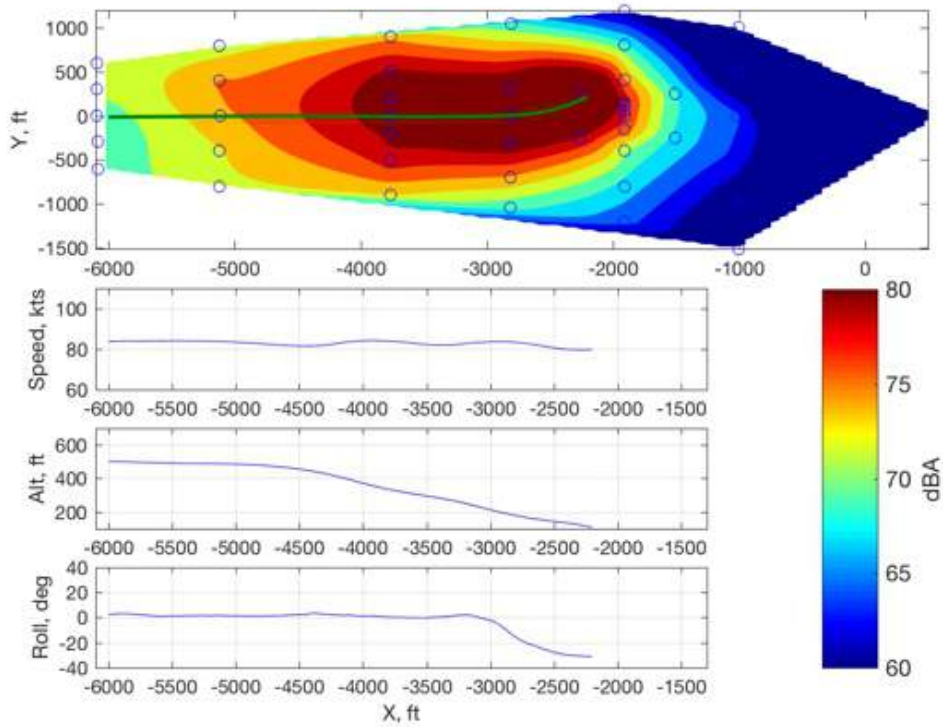


Figure 1097: EC130B4, 297228, F31, maximum dBA contour.

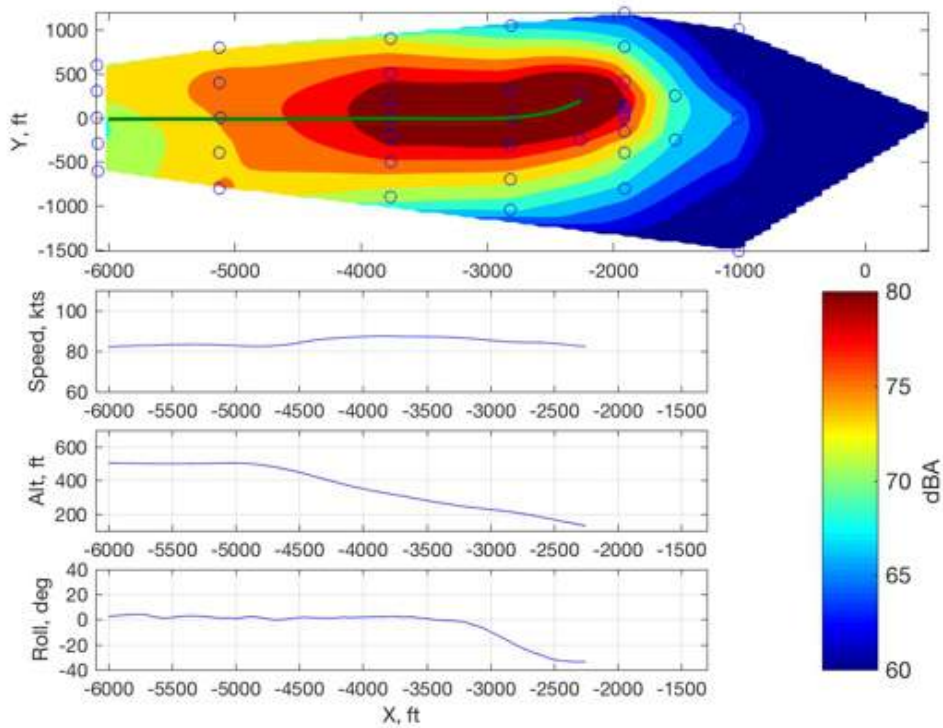


Figure 1098: EC130B4, 297229, F31, maximum dBA contour.

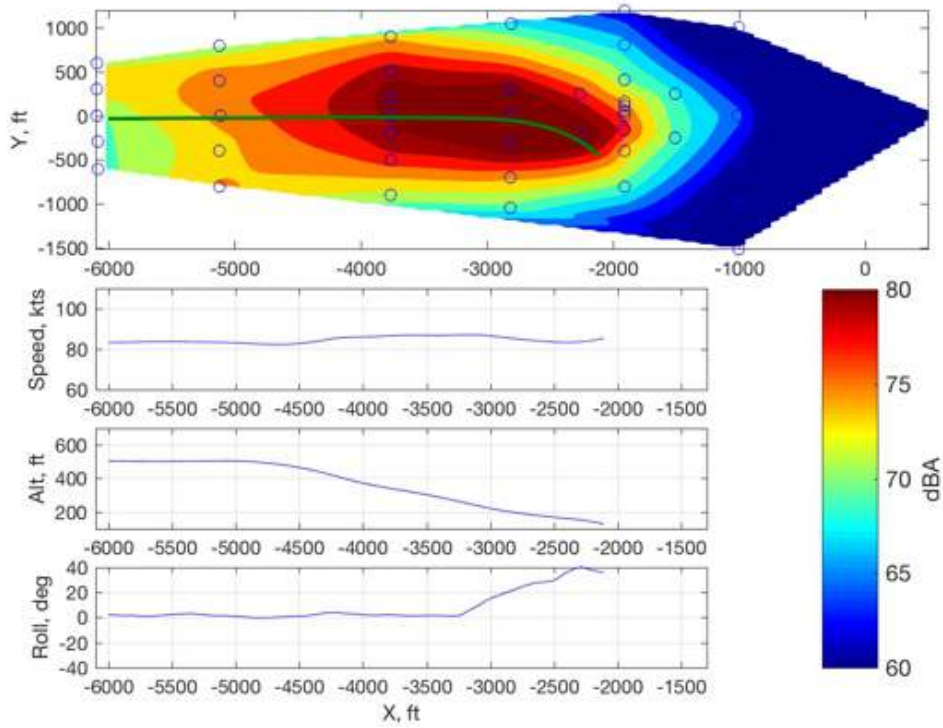


Figure 1099: EC130B4, 297230, F32, maximum dBA contour.

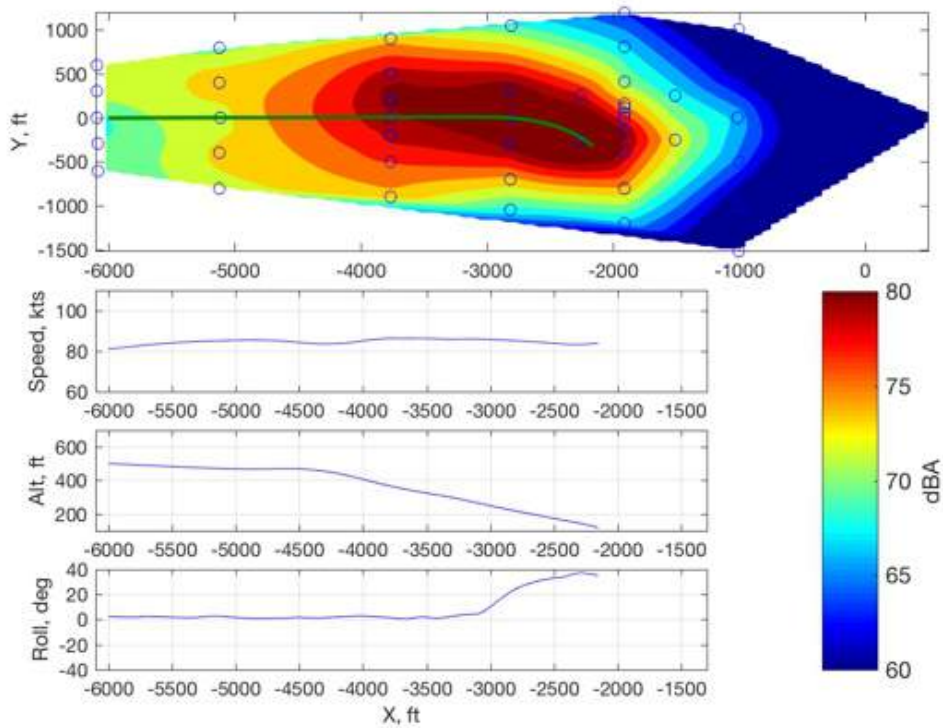


Figure 1100: EC130B4, 297231, F32, maximum dBA contour.

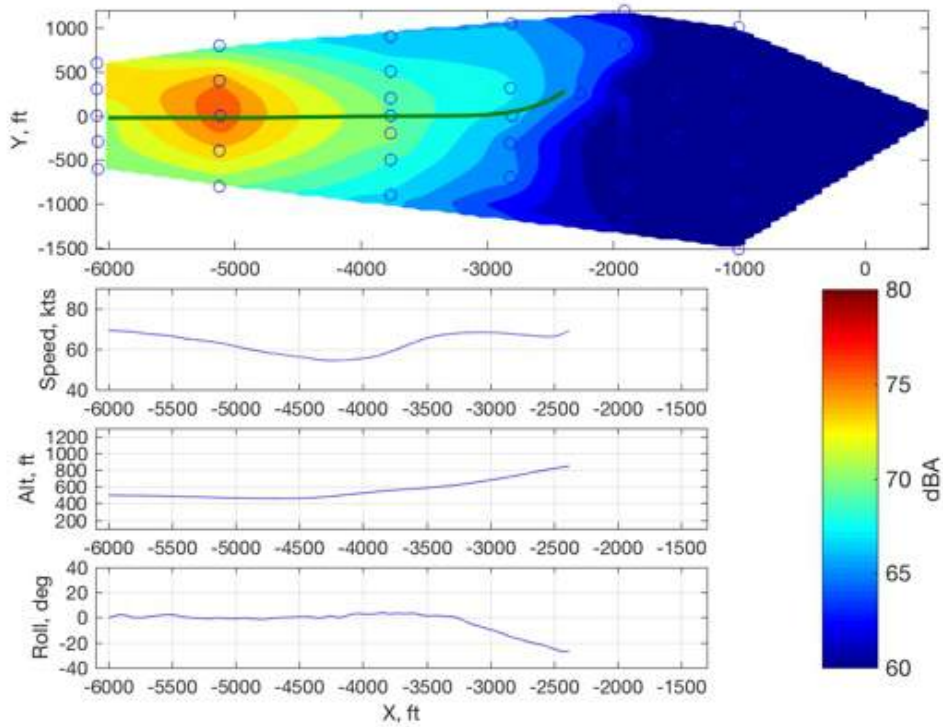


Figure 1101: EC130B4, 297252, F55, maximum dBA contour.

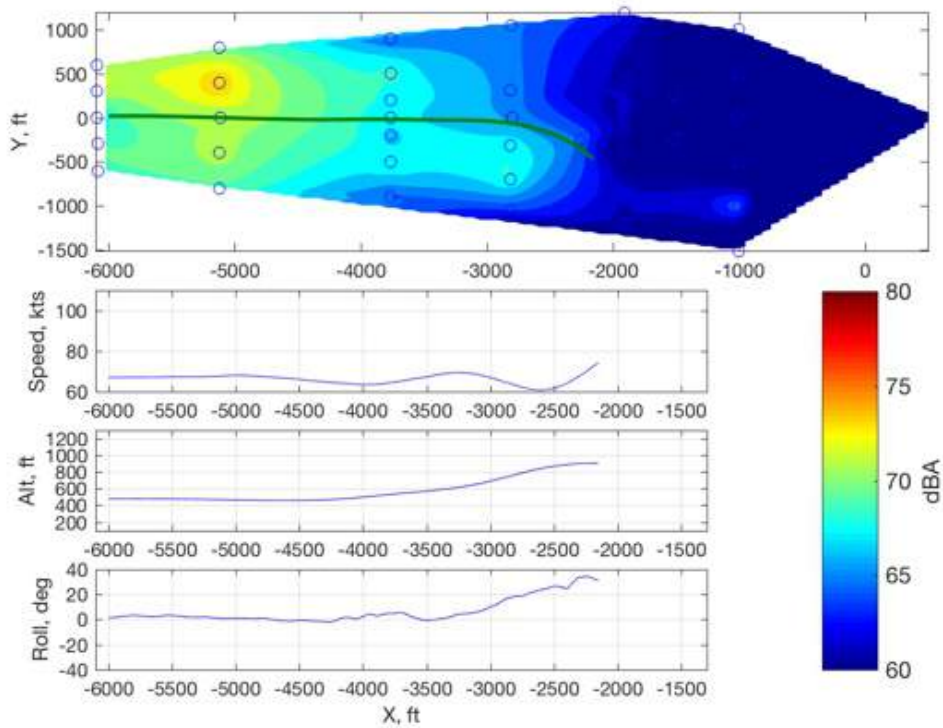


Figure 1102: EC130B4, 297253, F56, maximum dBA contour.

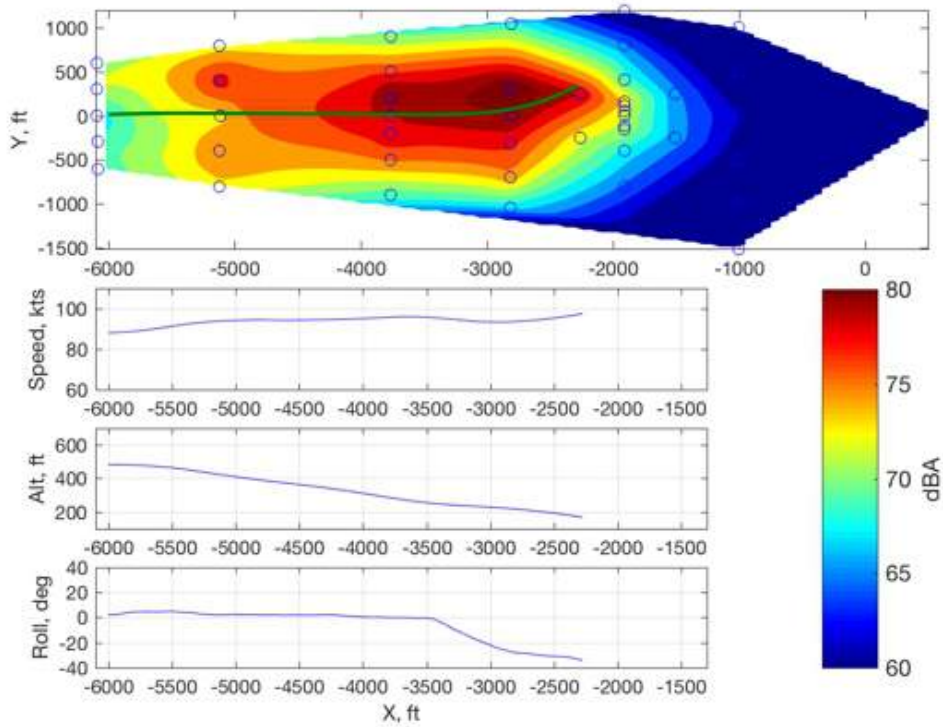


Figure 1103: EC130B4, 297240, G13, maximum dBA contour.

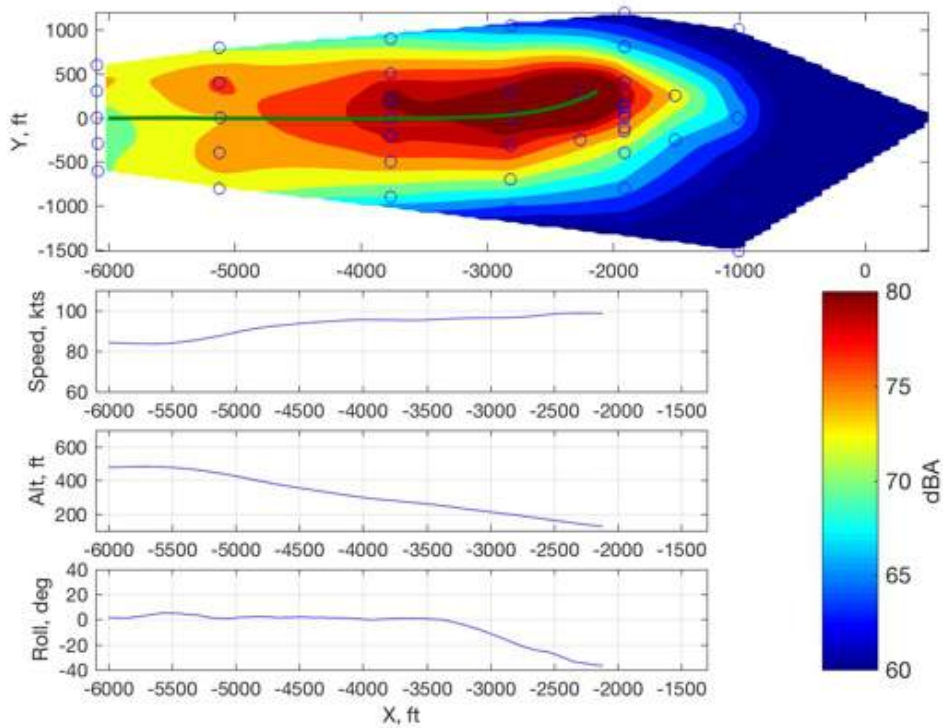


Figure 1104: EC130B4, 297241, G13, maximum dBA contour.

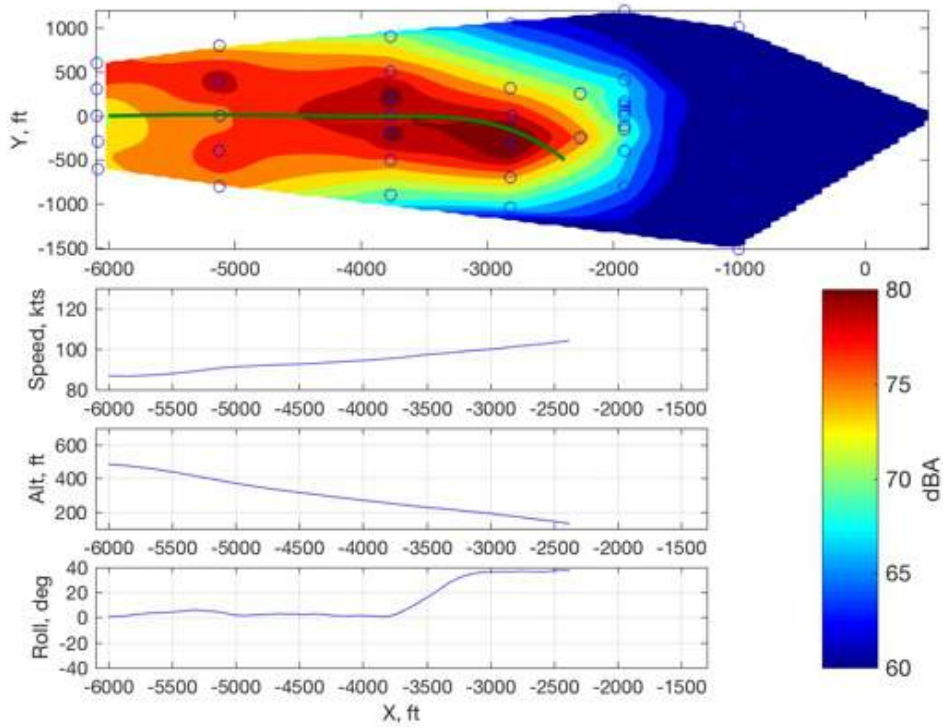


Figure 1105: EC130B4, 297242, G14, maximum dBA contour.

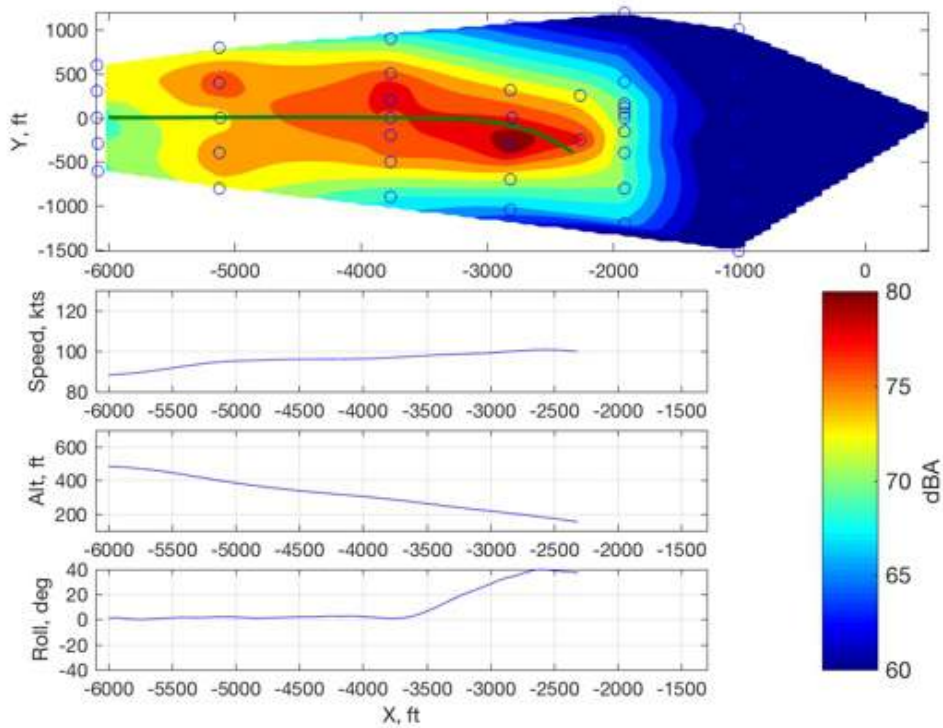


Figure 1106: EC130B4, 297243, G14, maximum dBA contour.

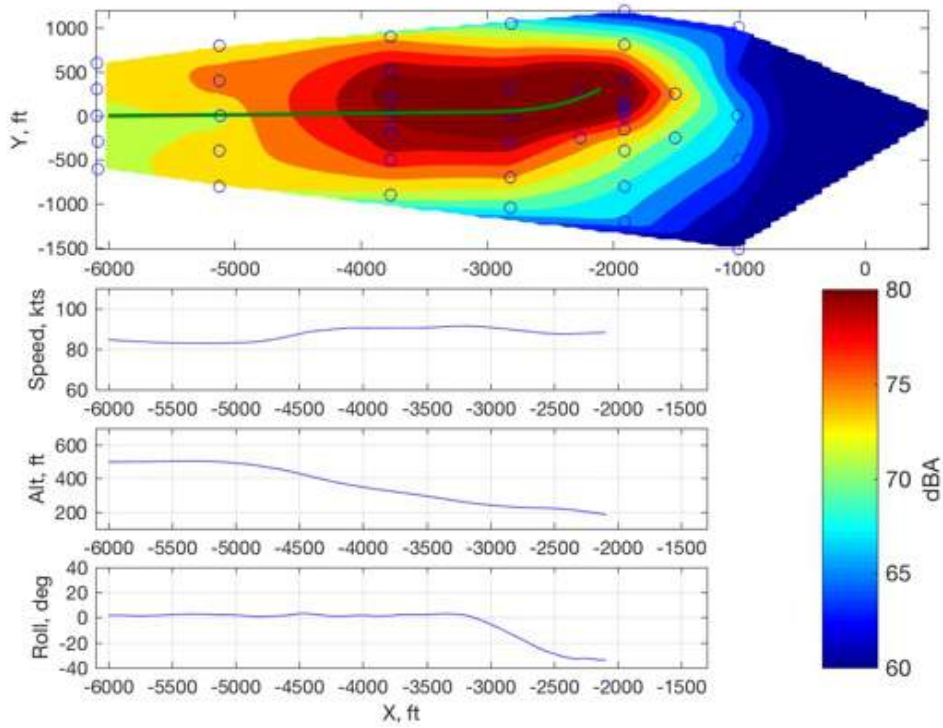


Figure 1107: EC130B4, 297217, G15, maximum dBA contour.

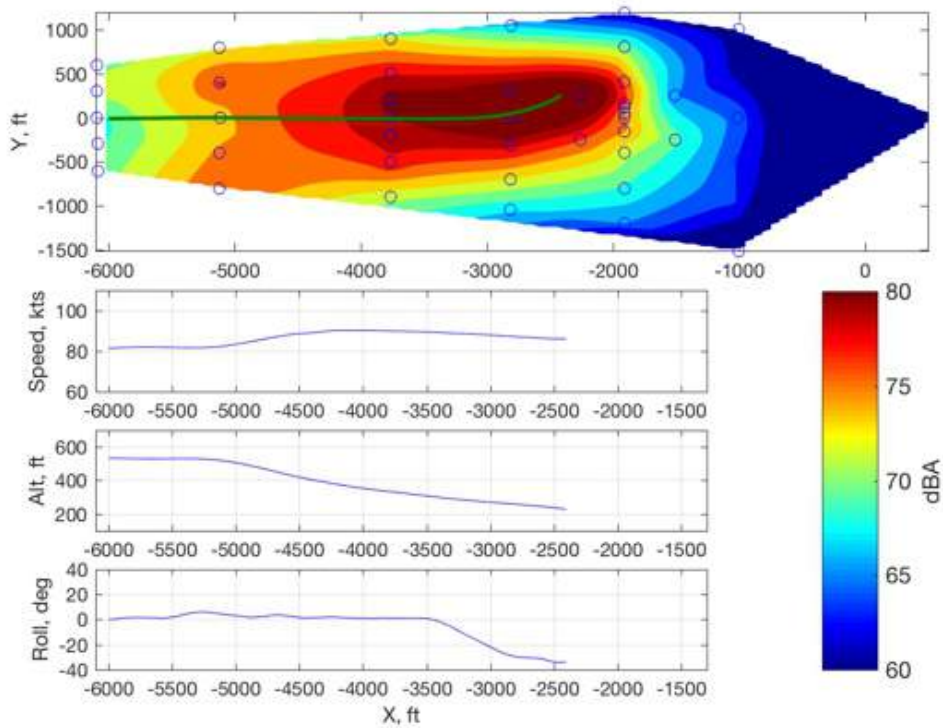


Figure 1108: EC130B4, 297218, G15, maximum dBA contour.

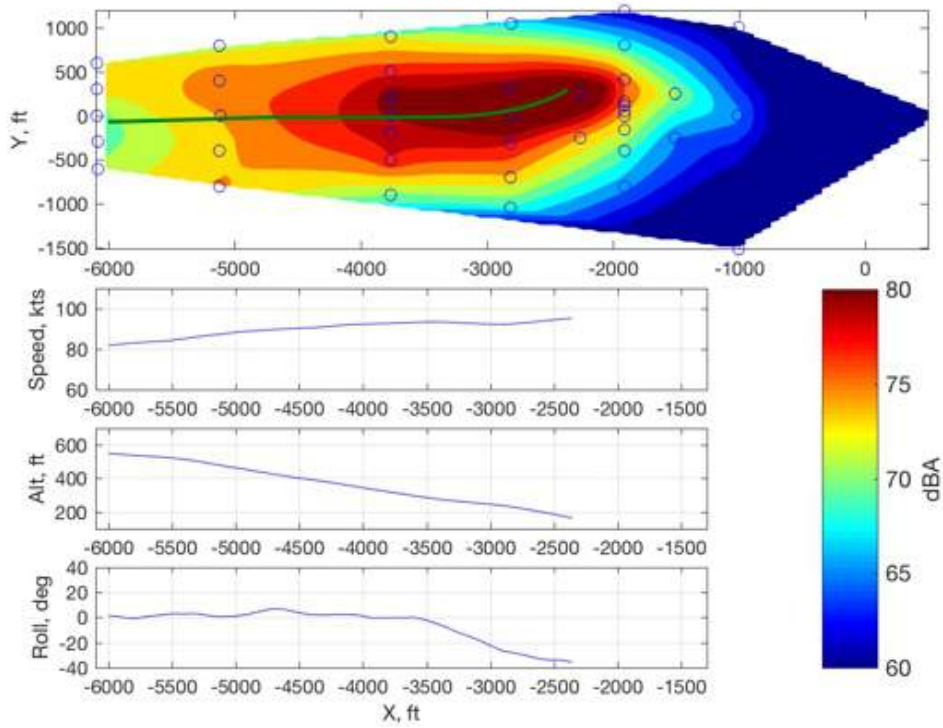


Figure 1109: EC130B4, 297219, G15, maximum dBA contour.

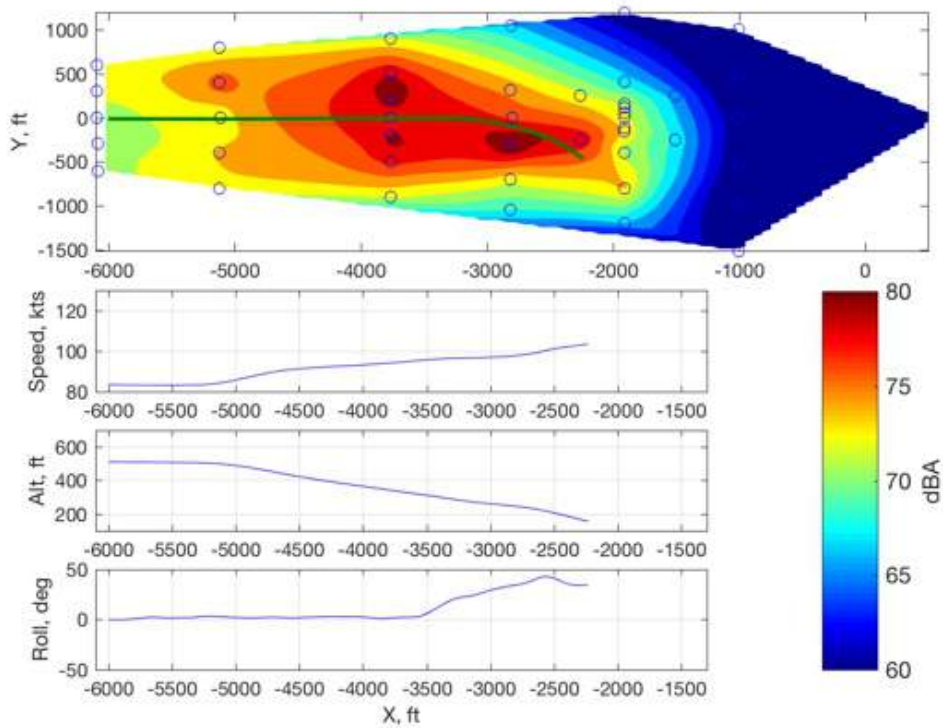


Figure 1110: EC130B4, 297220, G16, maximum dBA contour.

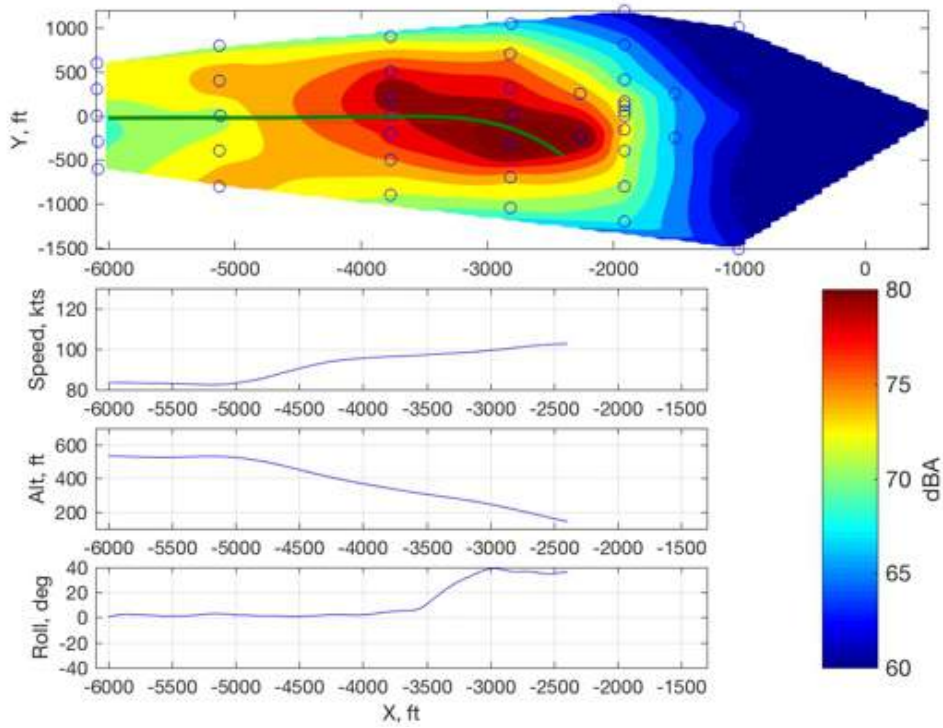


Figure 1111: EC130B4, 297221, G16, maximum dBA contour.

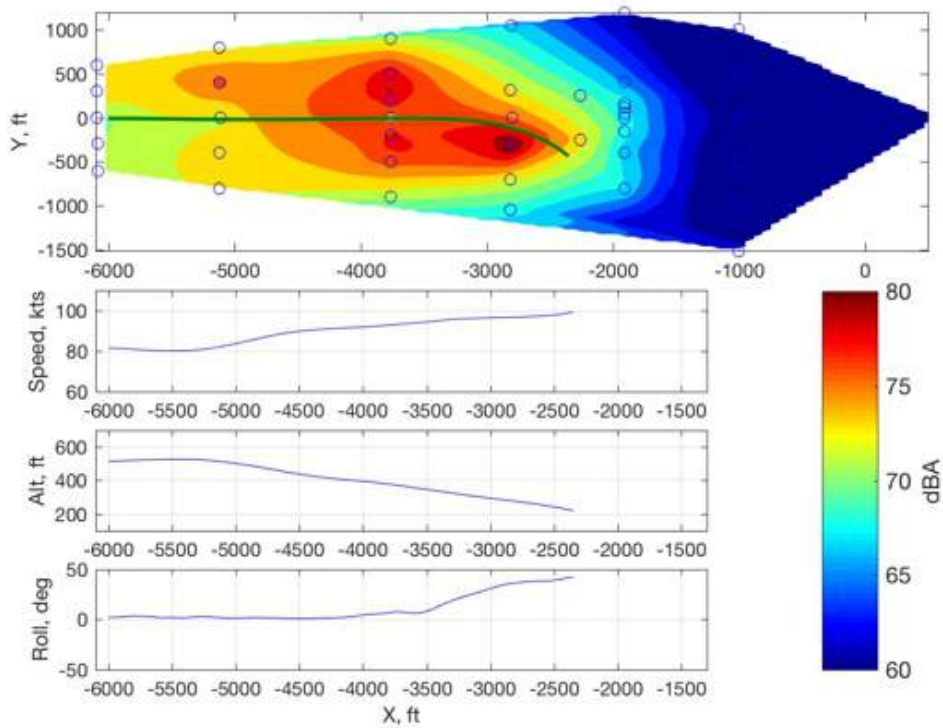


Figure 1112: EC130B4, 297222, G16, maximum dBA contour.

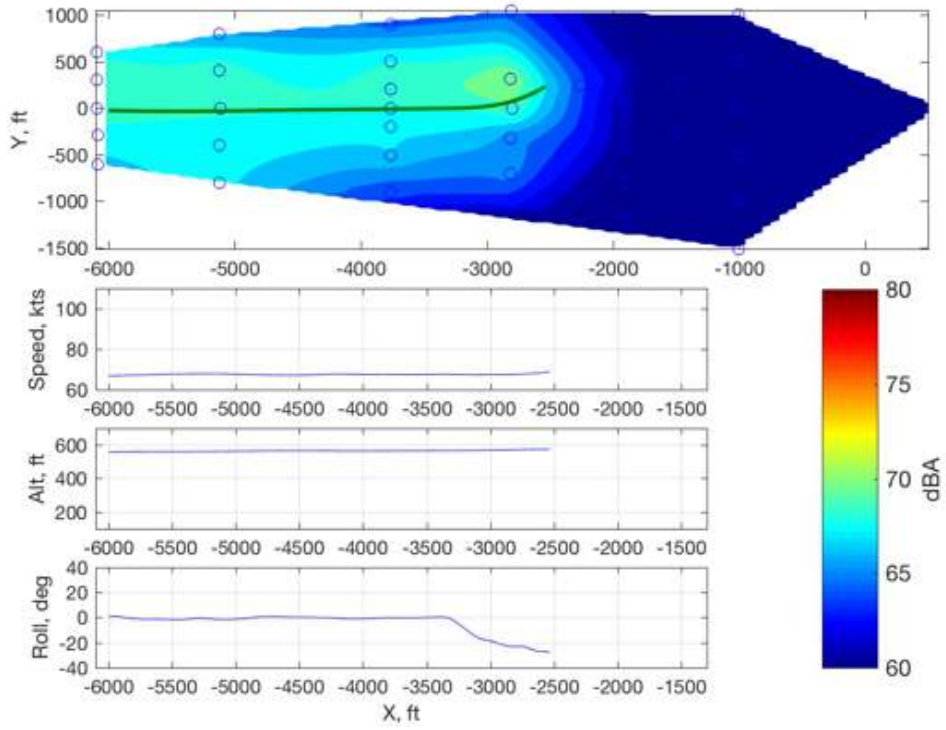


Figure 1113: EC130B4, 299331, N5, maximum dBA contour.

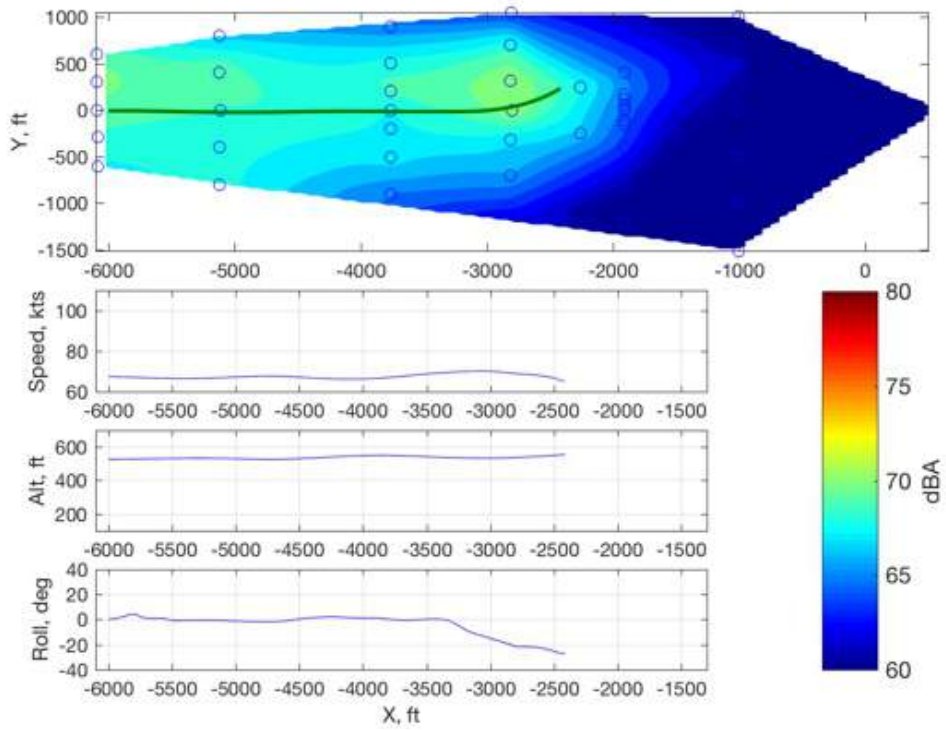


Figure 1114: EC130B4, 299332, N5, maximum dBA contour.

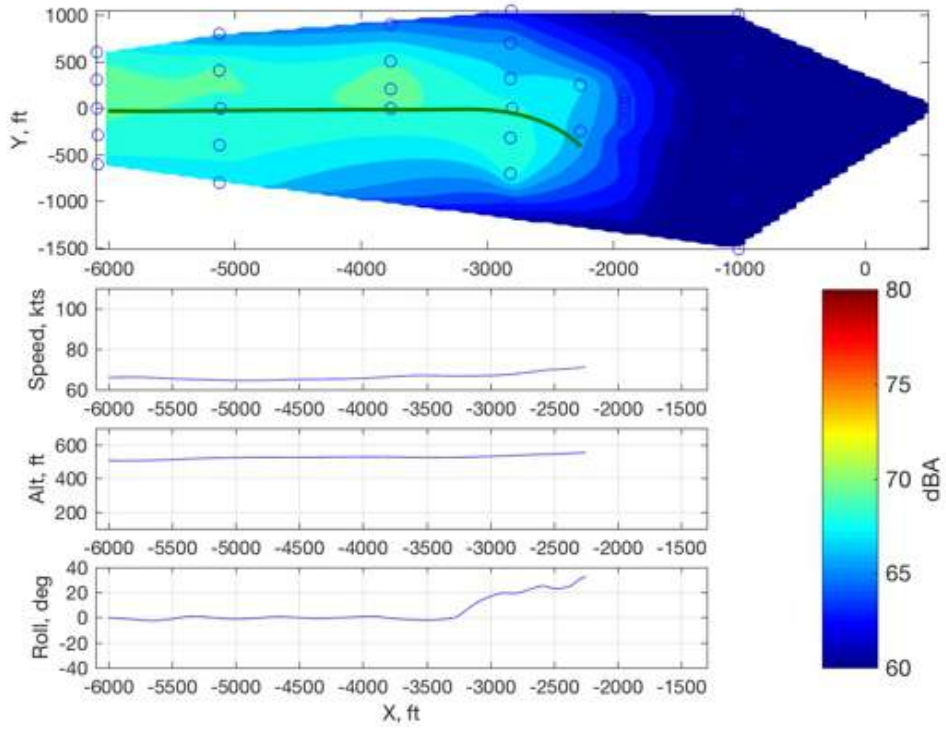


Figure 1115: EC130B4, 299333, N6, maximum dBA contour.

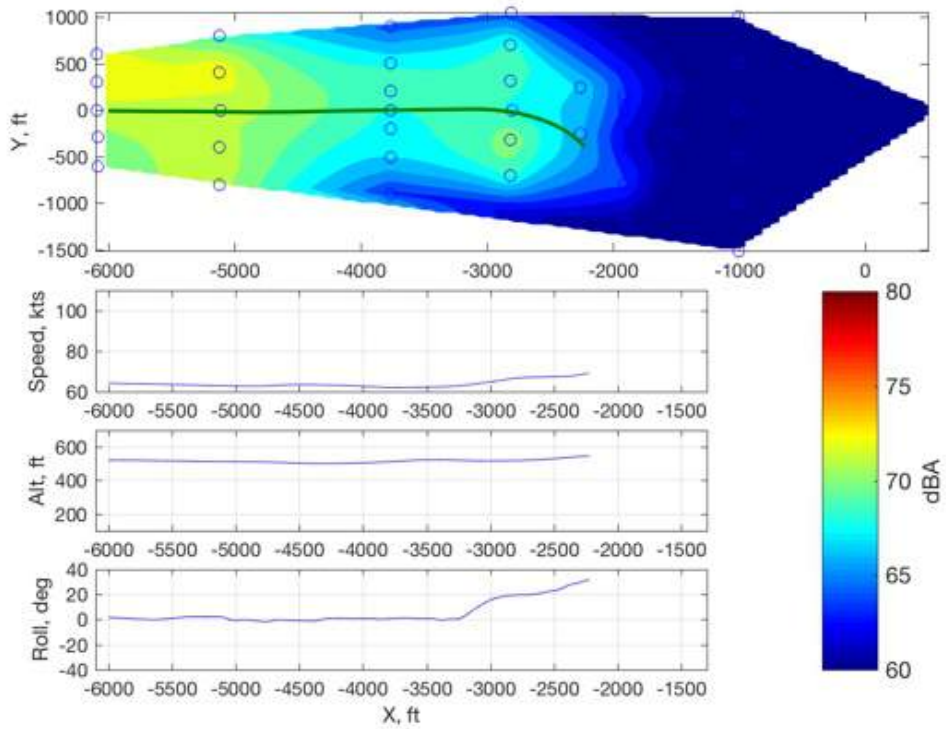


Figure 1116: EC130B4, 299334, N6, maximum dBA contour.

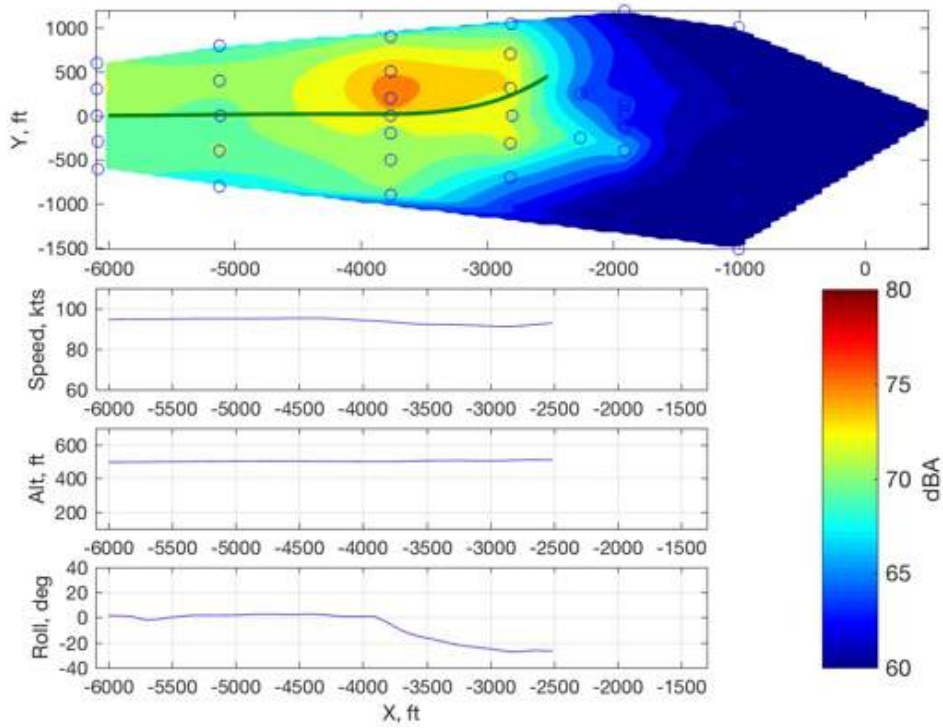


Figure 1117: EC130B4, 297173, N11, maximum dBA contour.

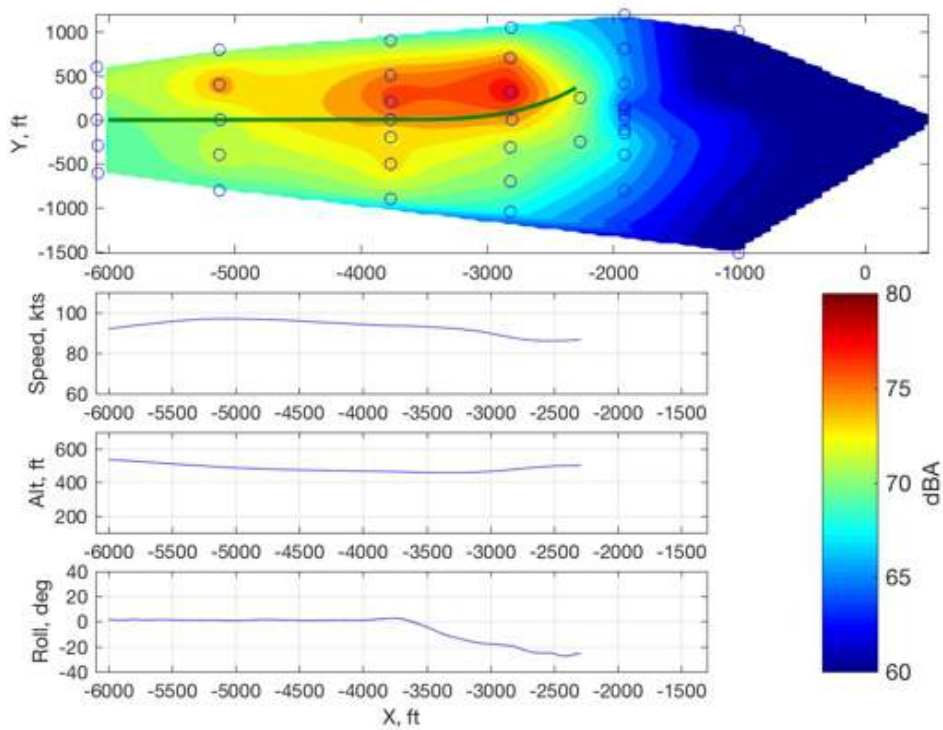


Figure 1118: EC130B4, 297174, N11, maximum dBA contour.

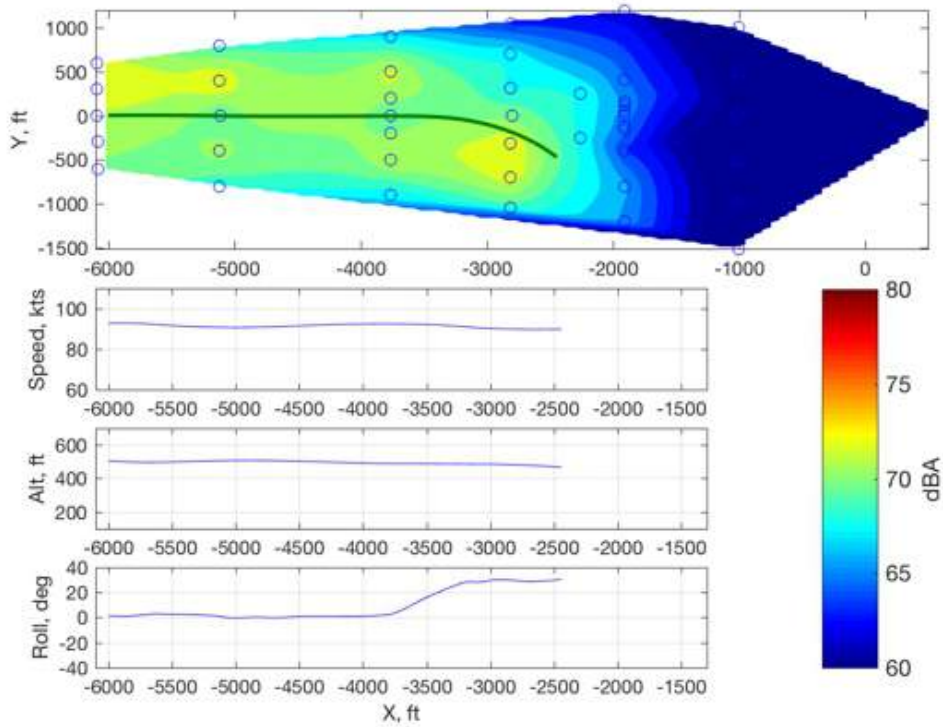


Figure 1119: EC130B4, 297175, N12, maximum dBA contour.

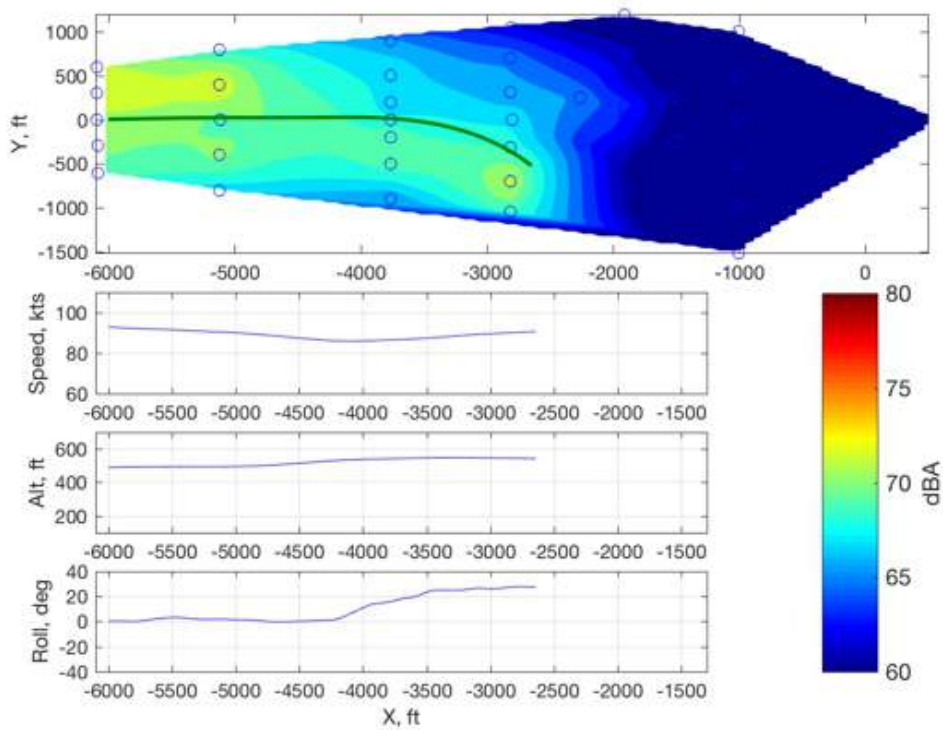


Figure 1120: EC130B4, 297176, N12, maximum dBA contour.

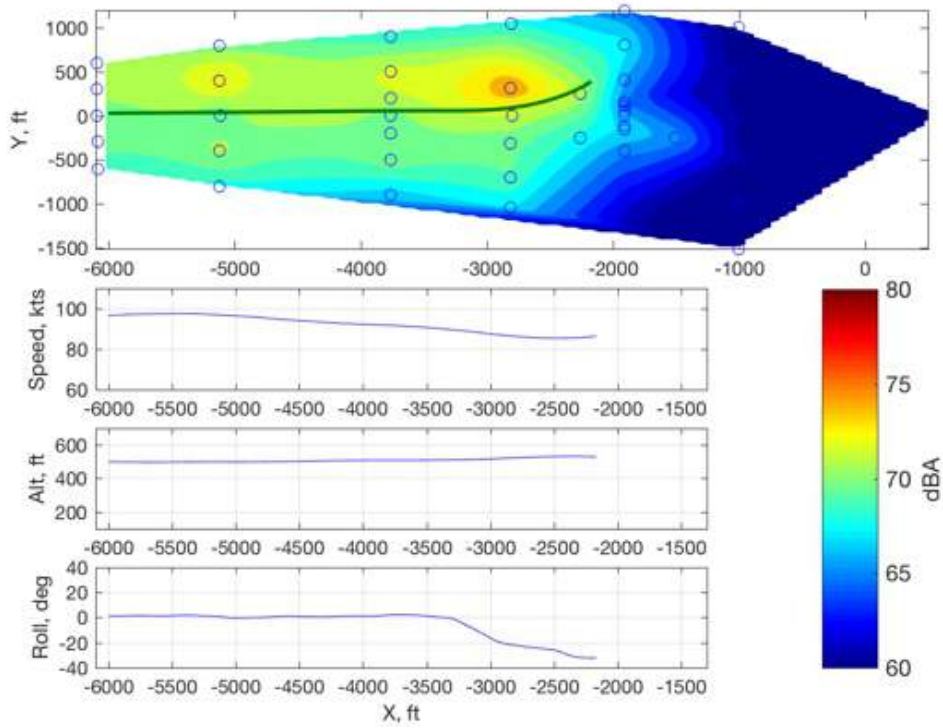


Figure 1121: EC130B4, 297177, N13, maximum dBA contour.

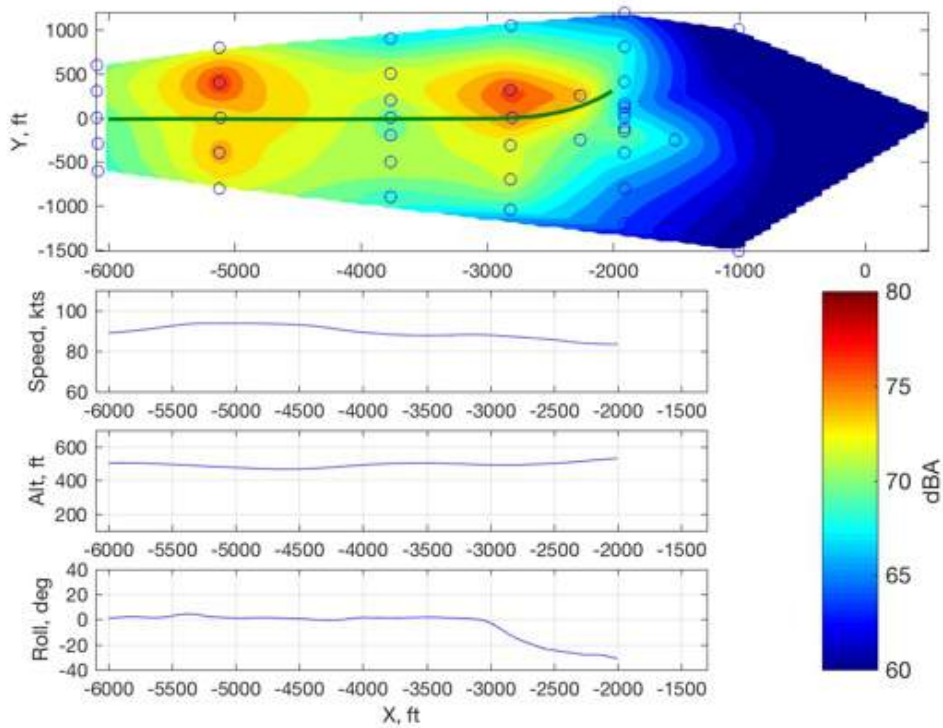


Figure 1122: EC130B4, 297178, N13, maximum dBA contour.

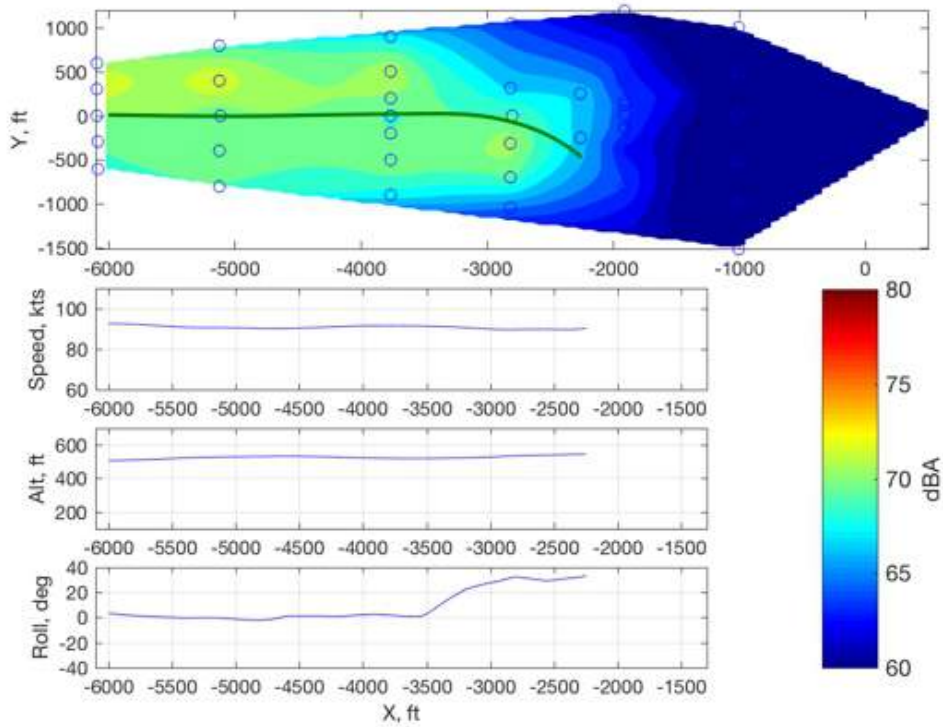


Figure 1123: EC130B4, 297179, N14, maximum dBA contour.

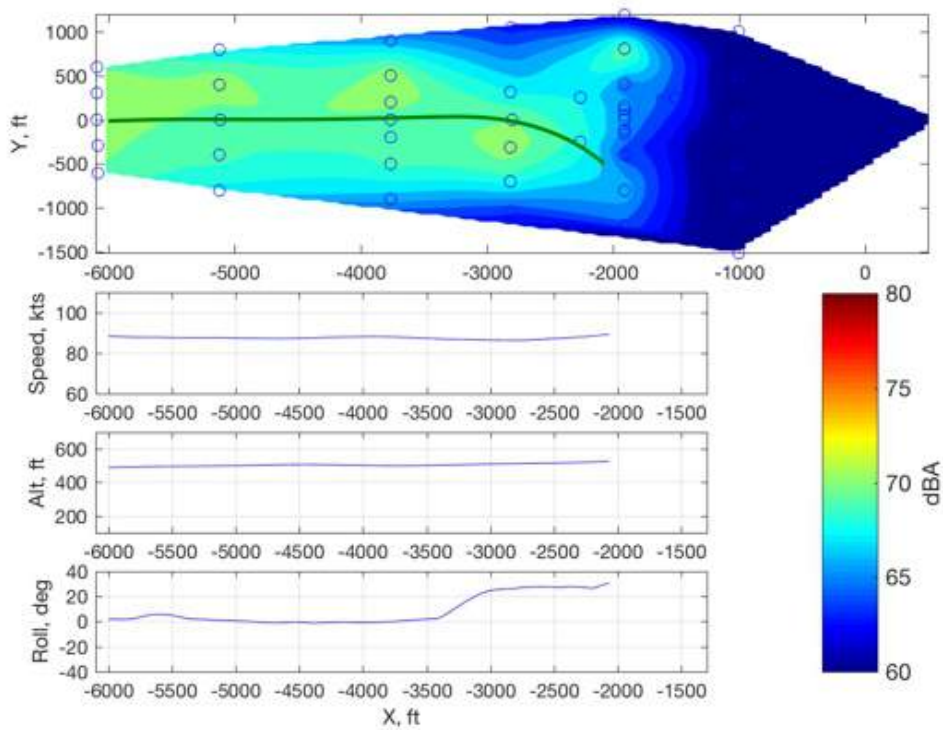


Figure 1124: EC130B4, 297180, N14, maximum dBA contour.

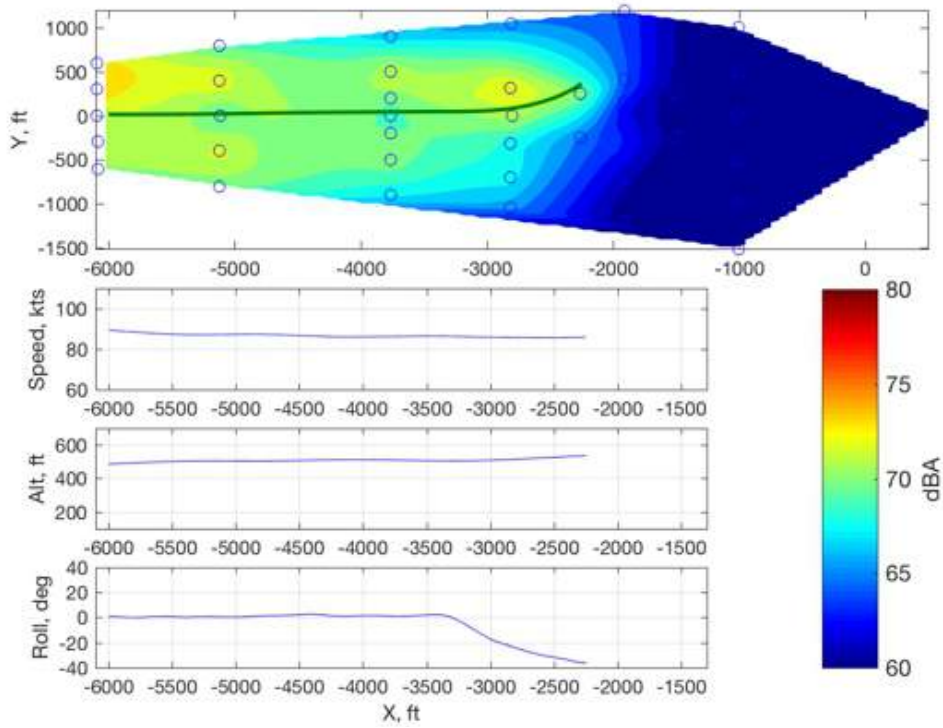


Figure 1125: EC130B4, 297181, N15, maximum dBA contour.

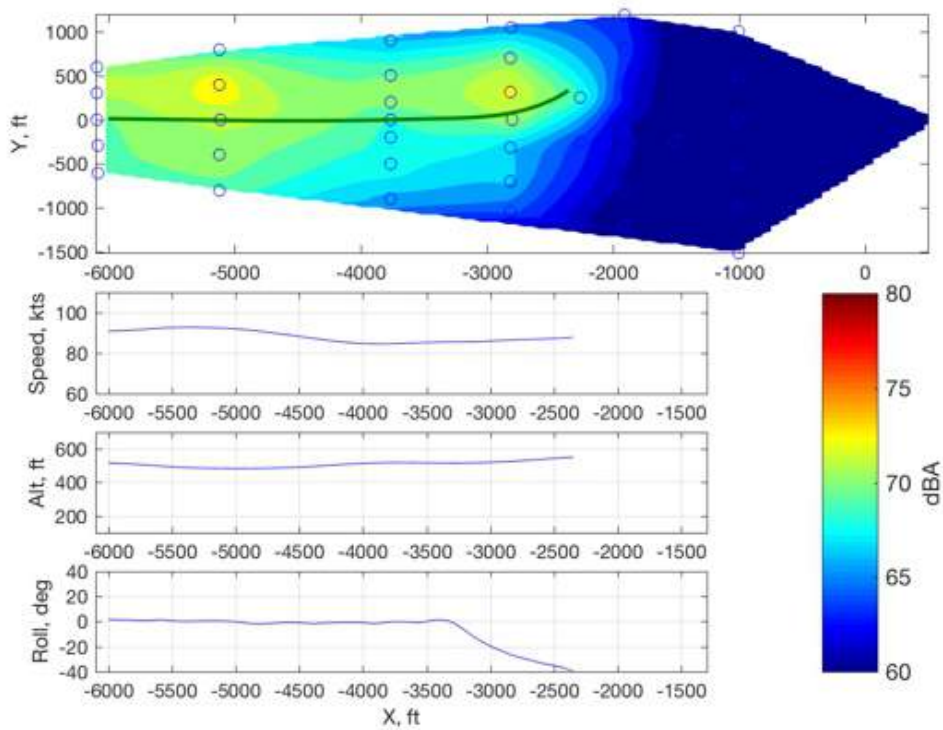


Figure 1126: EC130B4, 297182, N15, maximum dBA contour.

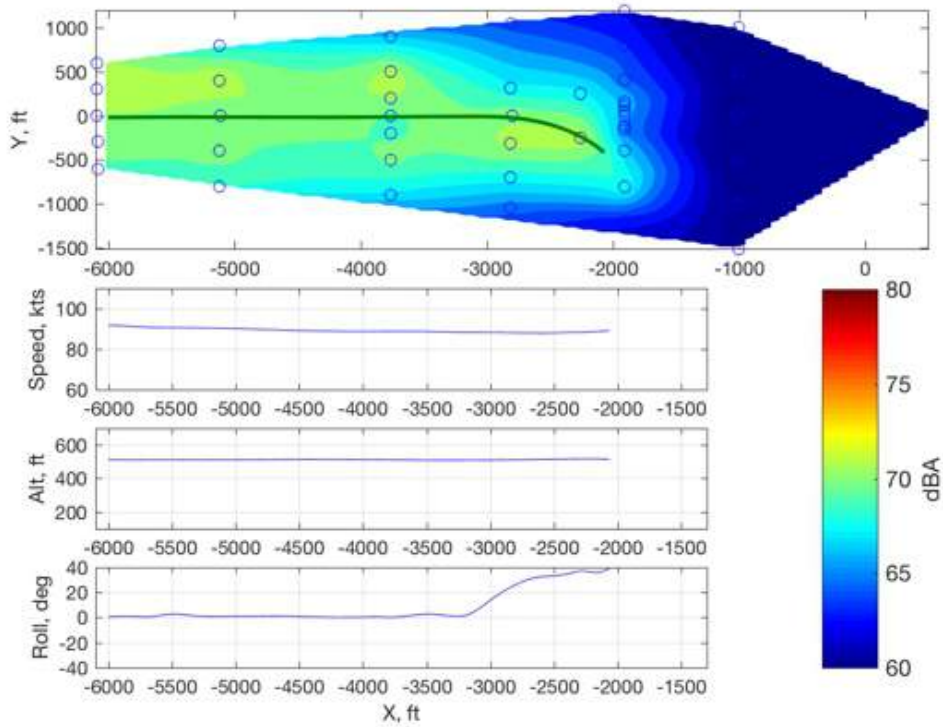


Figure 1127: EC130B4, 297183, N16, maximum dBA contour.

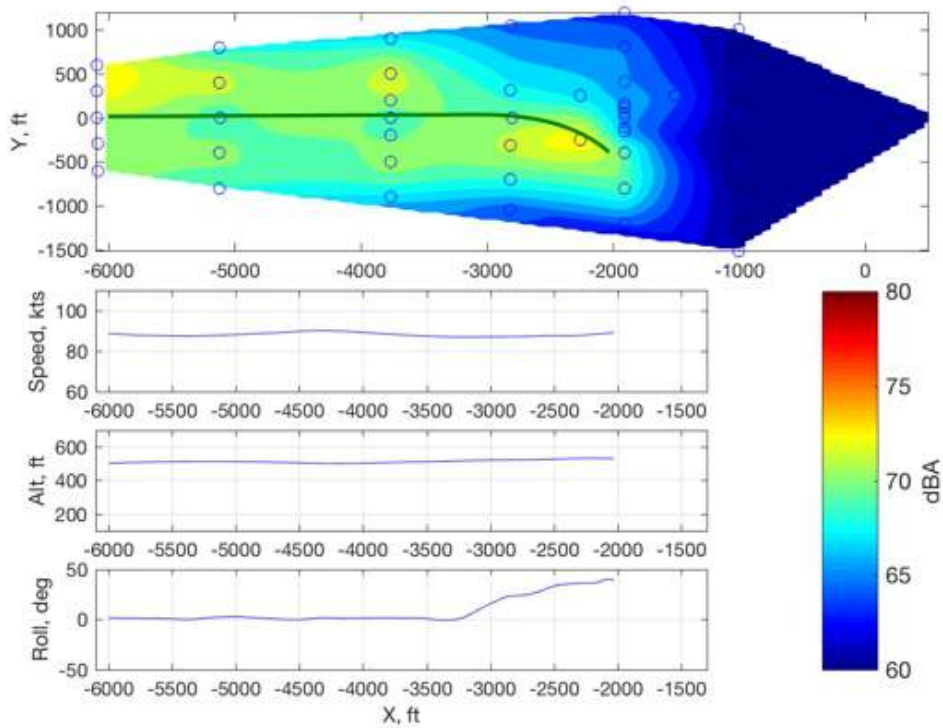


Figure 1128: EC130B4, 297184, N16, maximum dBA contour.

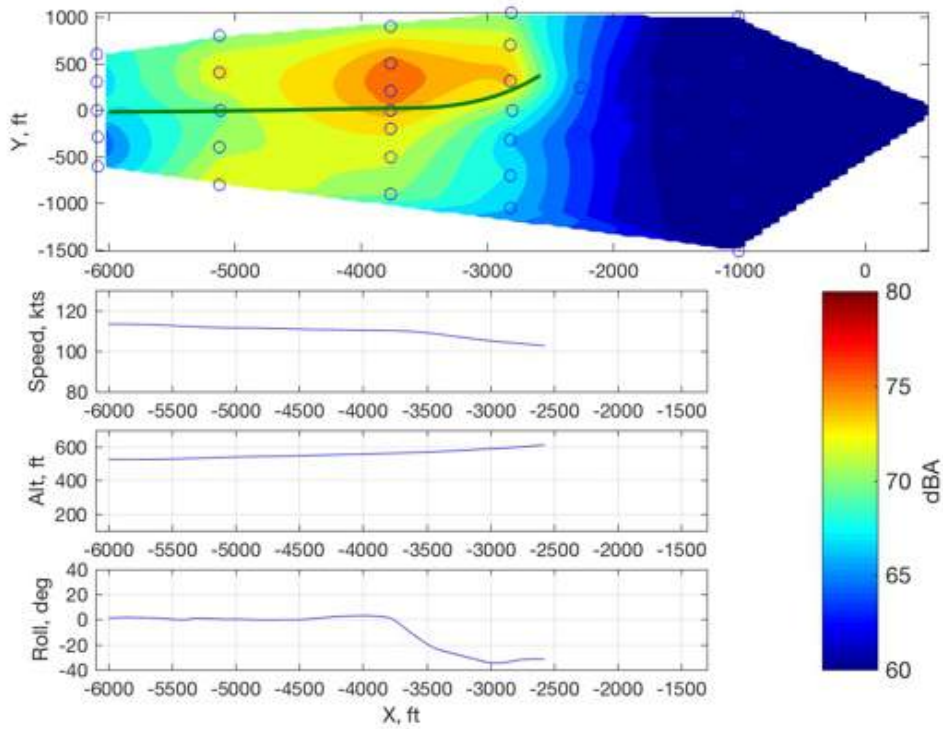


Figure 1129: EC130B4, 299335, N21, maximum dBA contour.

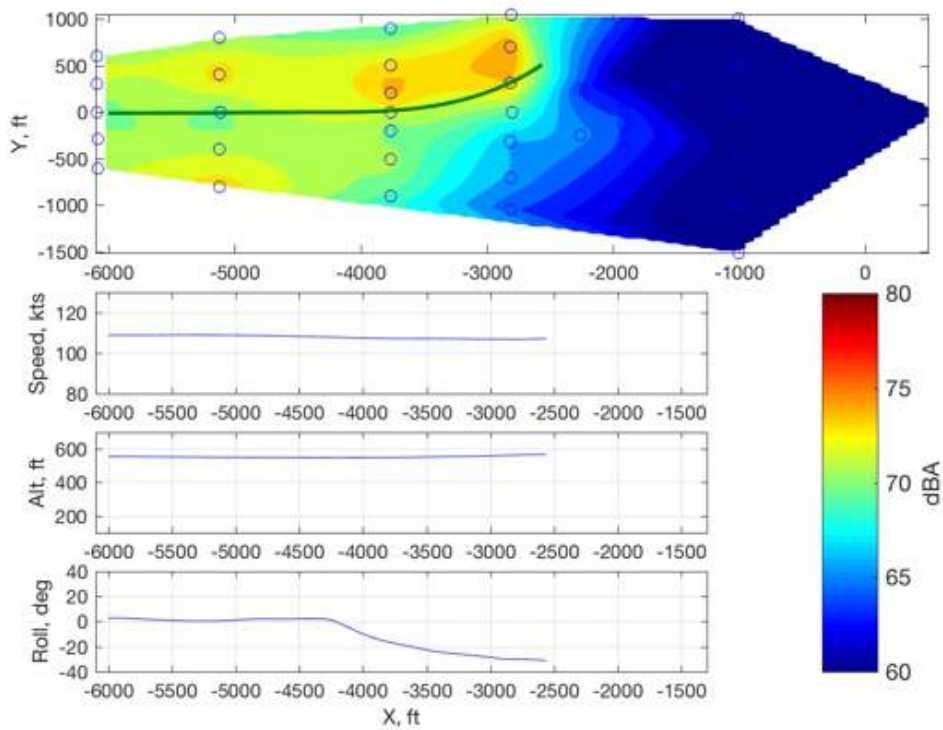


Figure 1130: EC130B4, 299336, N21, maximum dBA contour.

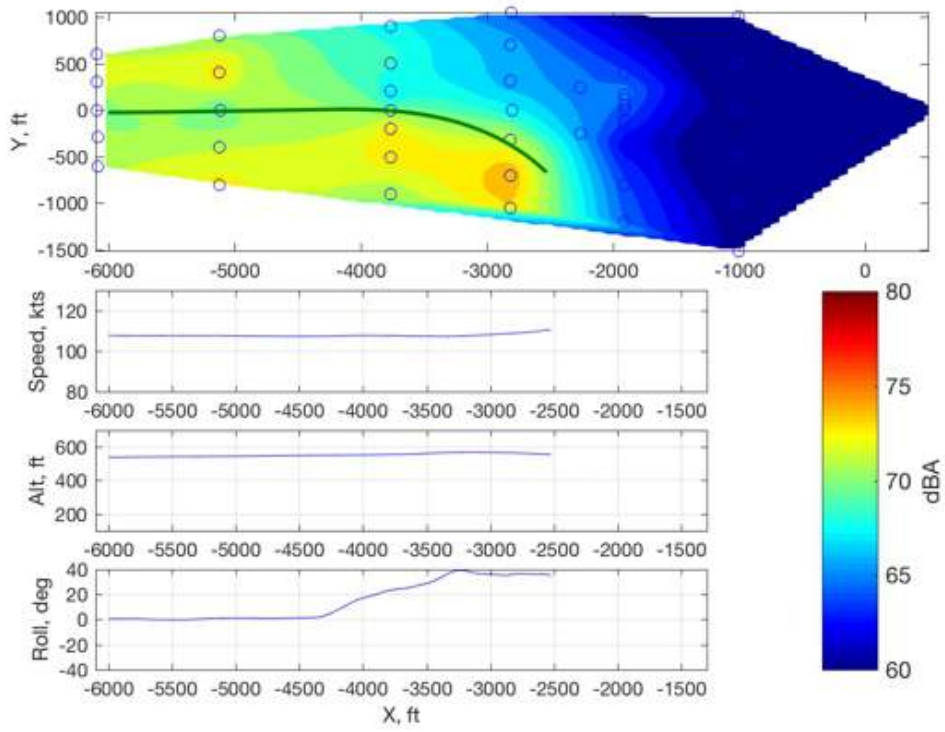


Figure 1131: EC130B4, 299337, N22, maximum dBA contour.

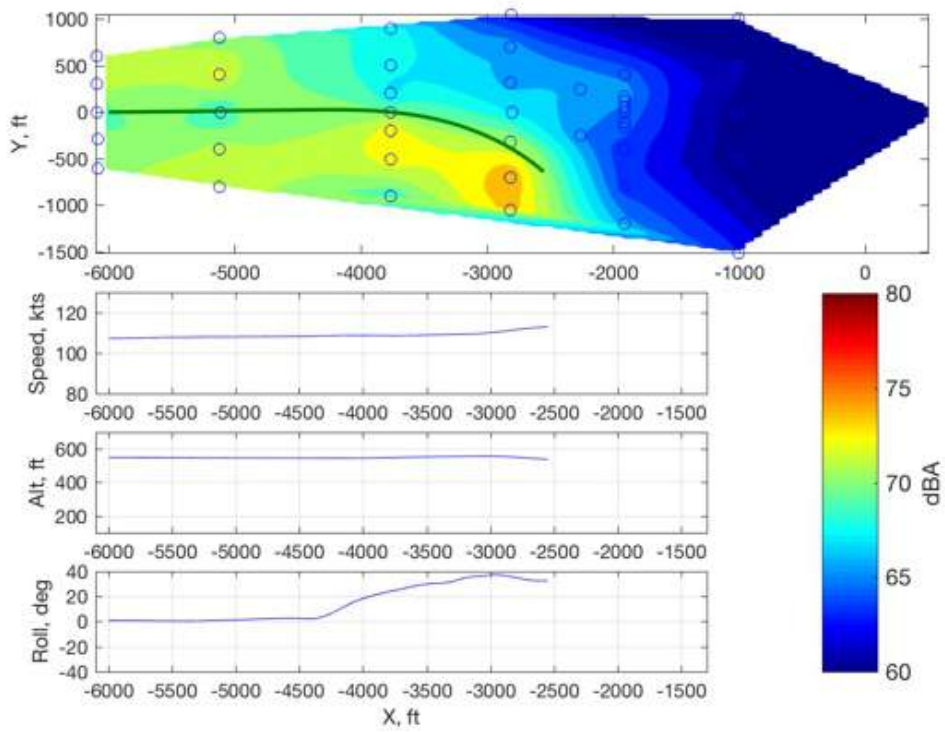


Figure 1132: EC130B4, 299338, N22, maximum dBA contour.

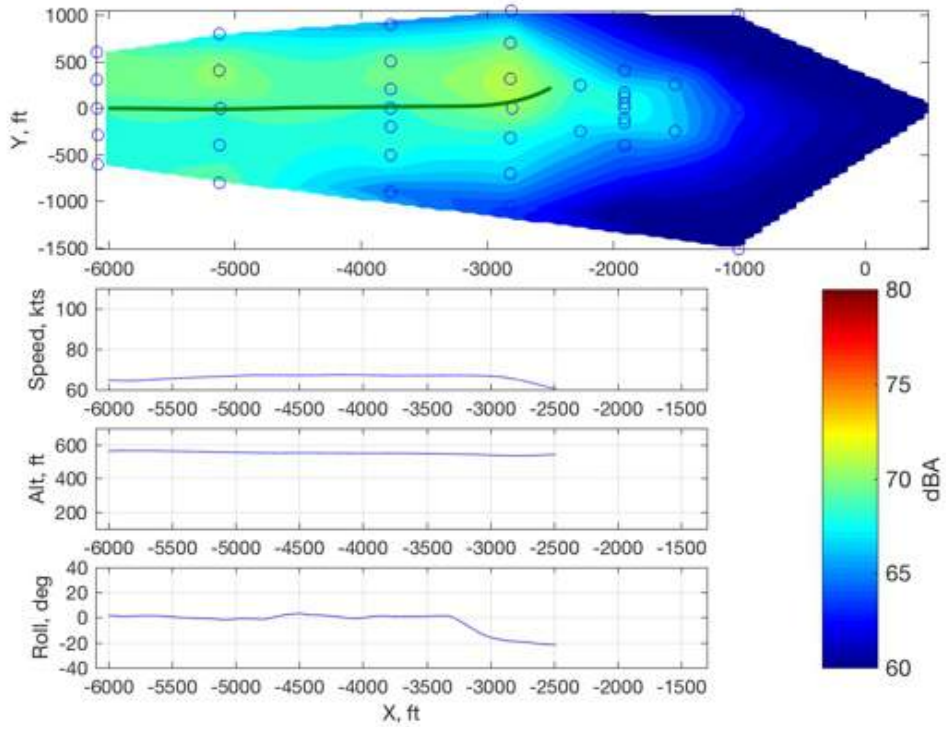


Figure 1133: EC130B4, 299339, O3, maximum dBA contour.

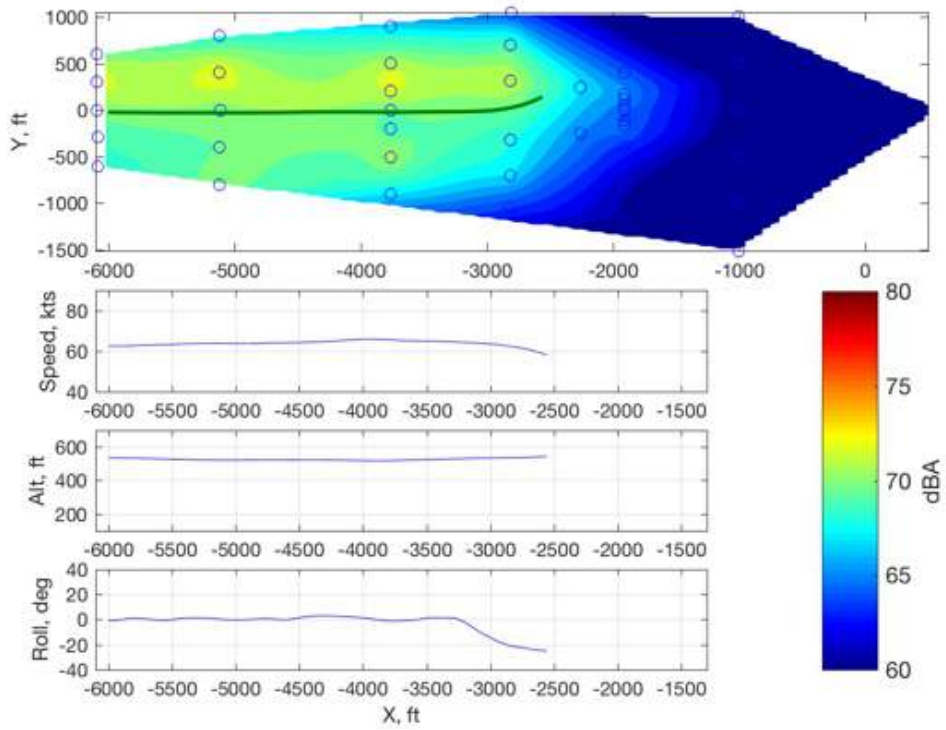


Figure 1134: EC130B4, 299340, O3, maximum dBA contour.

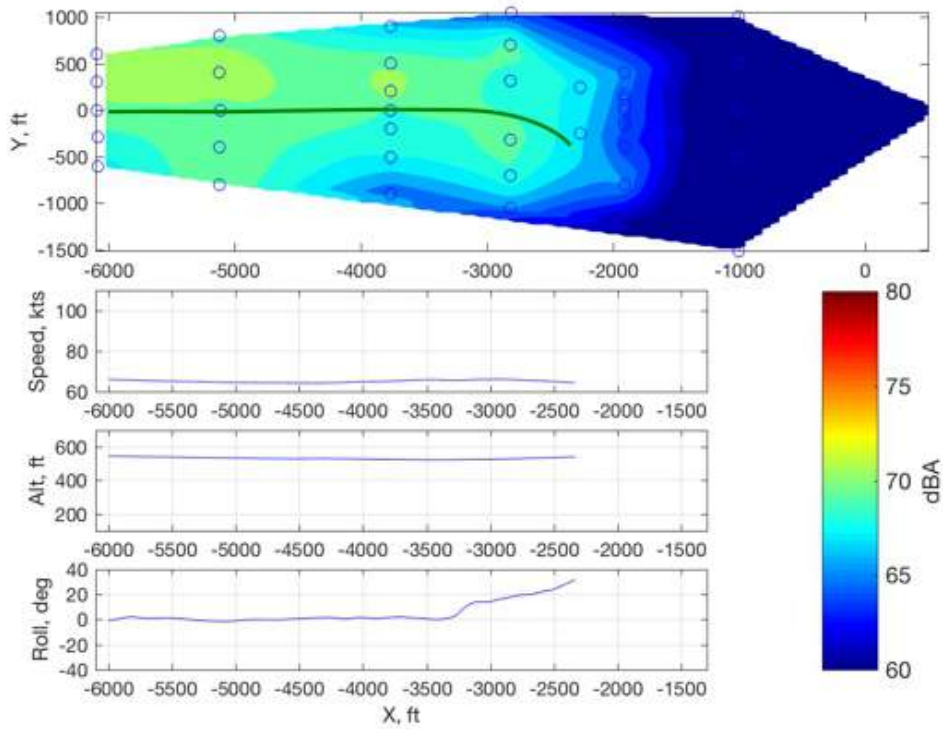


Figure 1135: EC130B4, 299341, O4, maximum dBA contour.

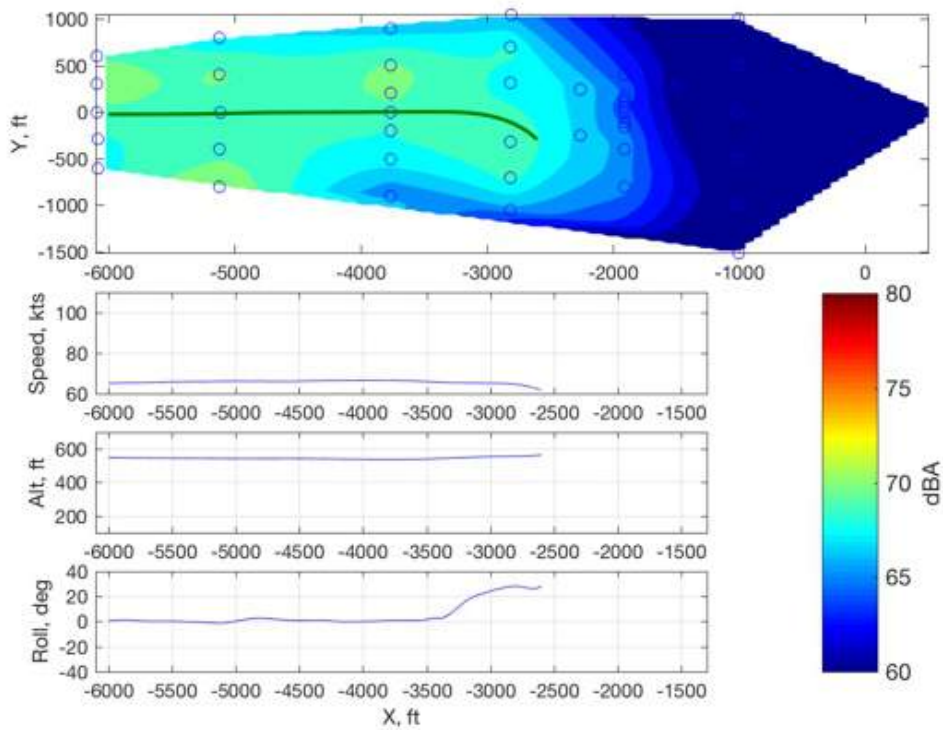


Figure 1136: EC130B4, 299342, O4, maximum dBA contour.

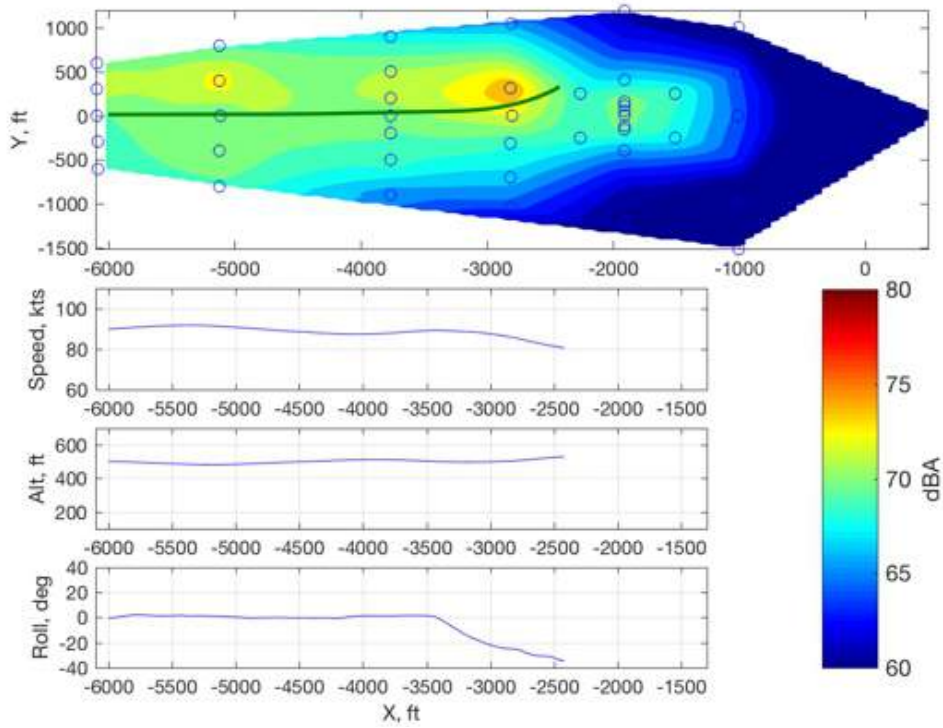


Figure 1137: EC130B4, 297185, O7, maximum dBA contour.

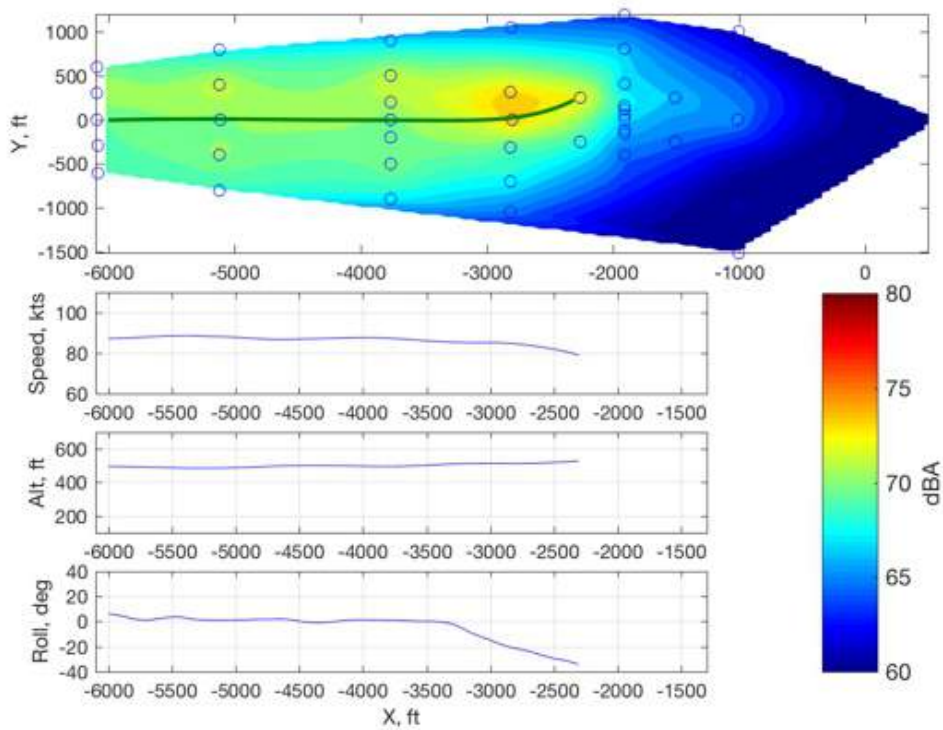


Figure 1138: EC130B4, 297186, O7, maximum dBA contour.

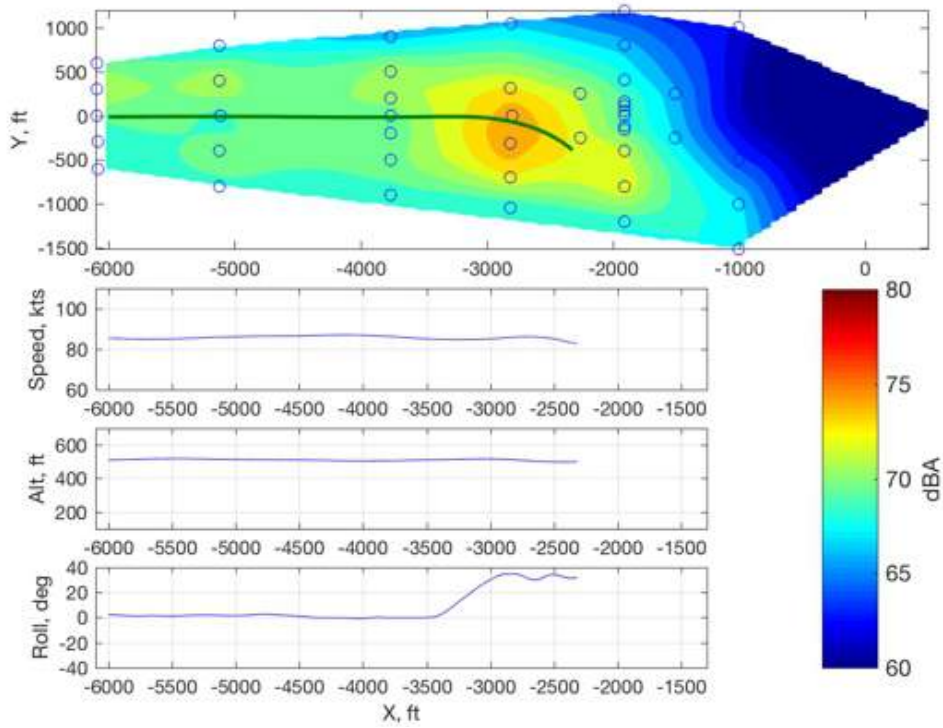


Figure 1139: EC130B4, 297187, O8, maximum dBA contour.

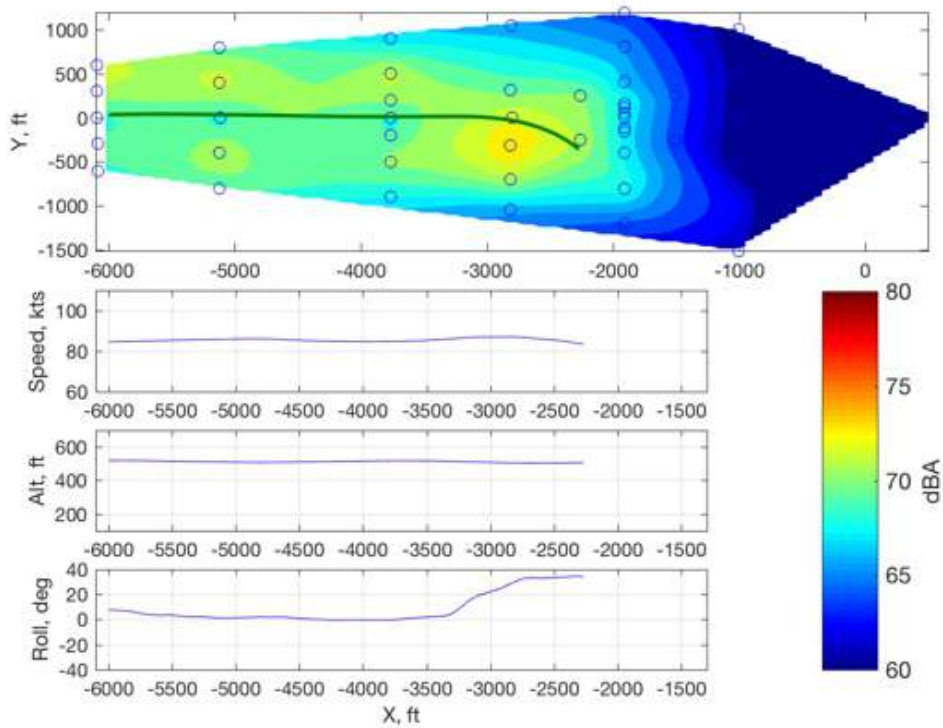


Figure 1140: EC130B4, 297188, O8, maximum dBA contour.

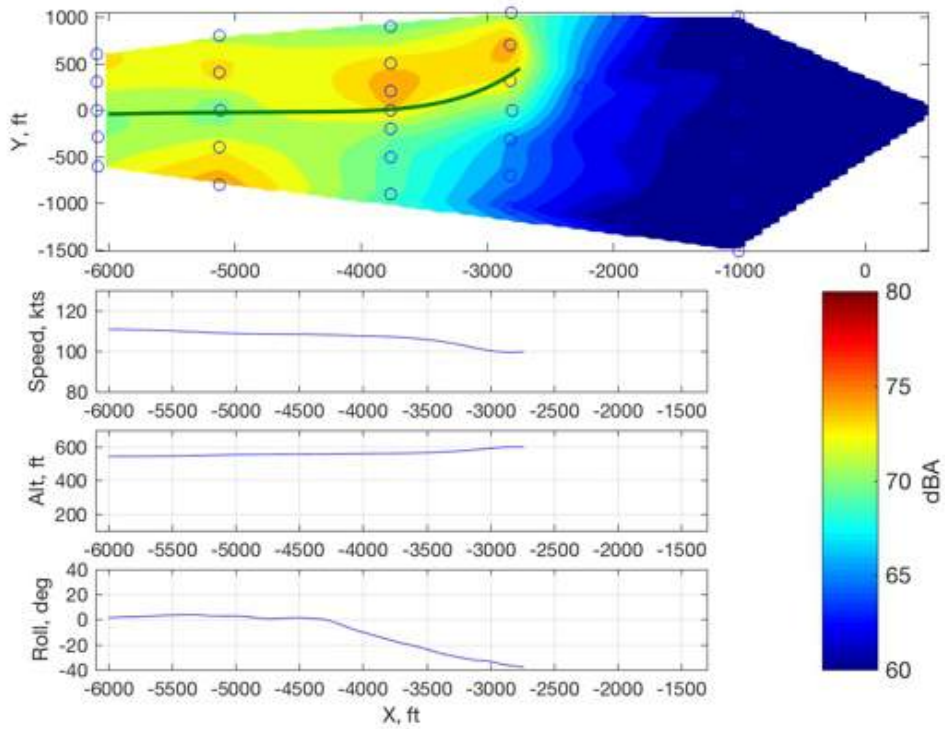


Figure 1141: EC130B4, 299343, O11, maximum dBA contour.

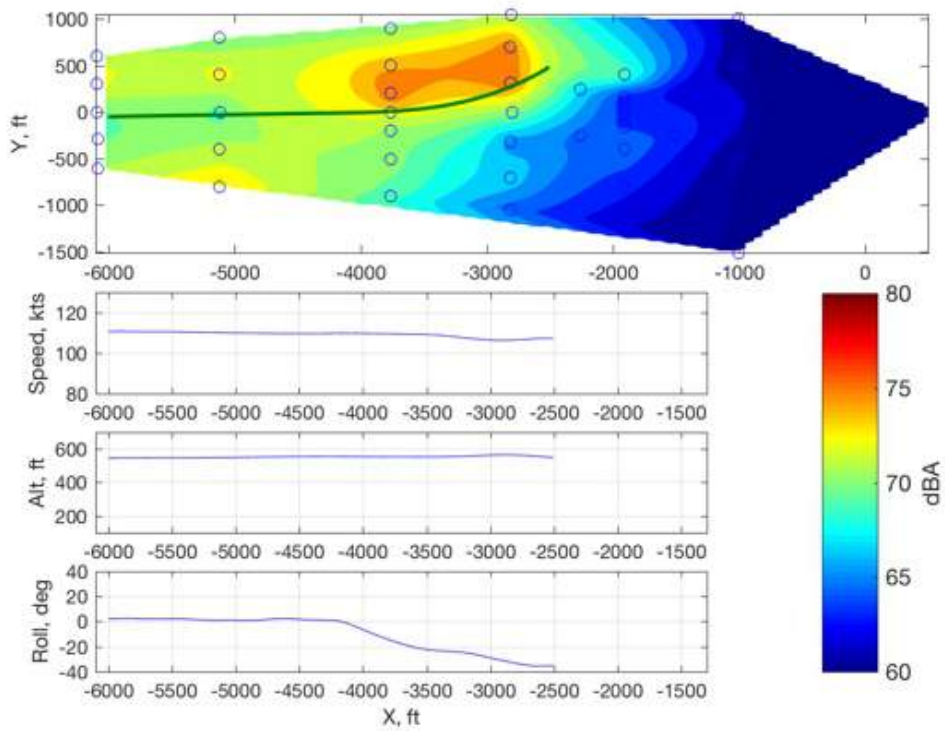


Figure 1142: EC130B4, 299344, O11, maximum dBA contour.

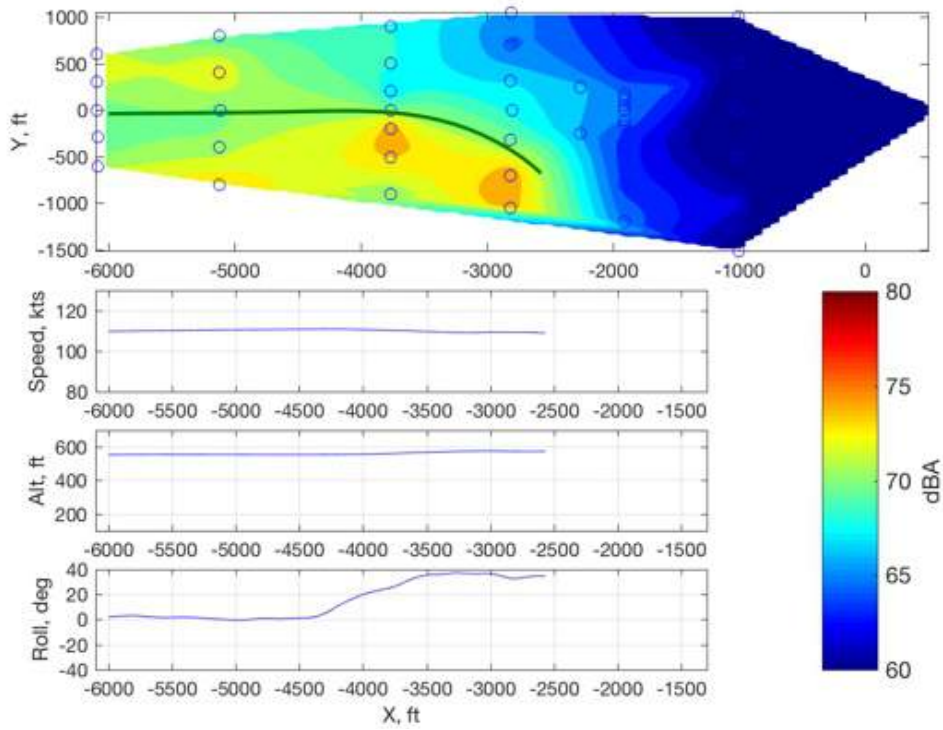


Figure 1143: EC130B4, 299345, O12, maximum dBA contour.

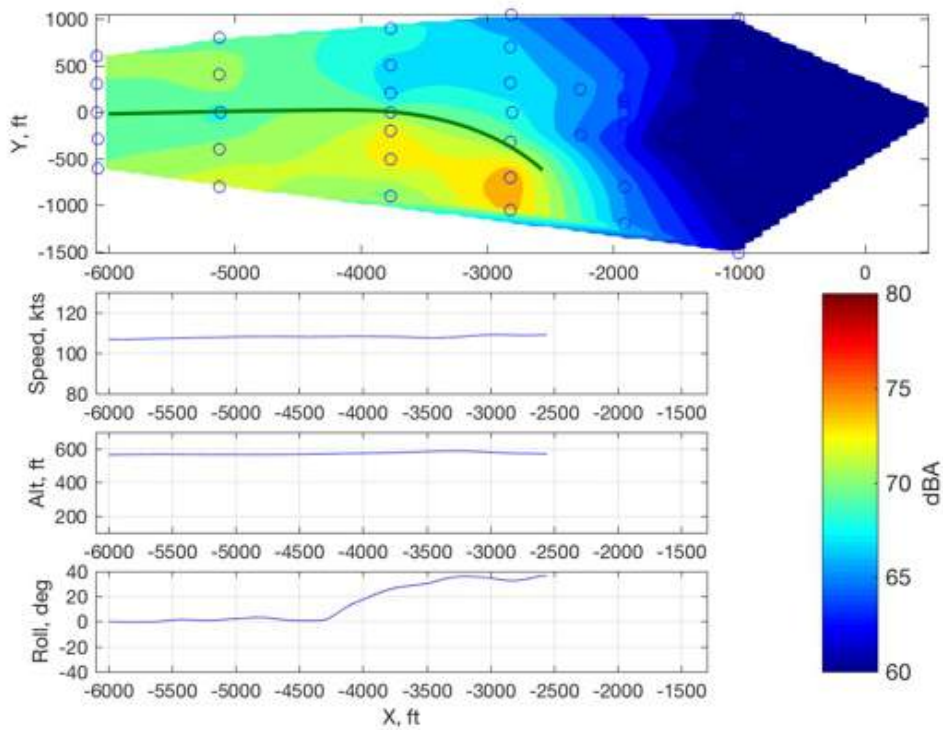


Figure 1144: EC130B4, 299346, O12, maximum dBA contour.

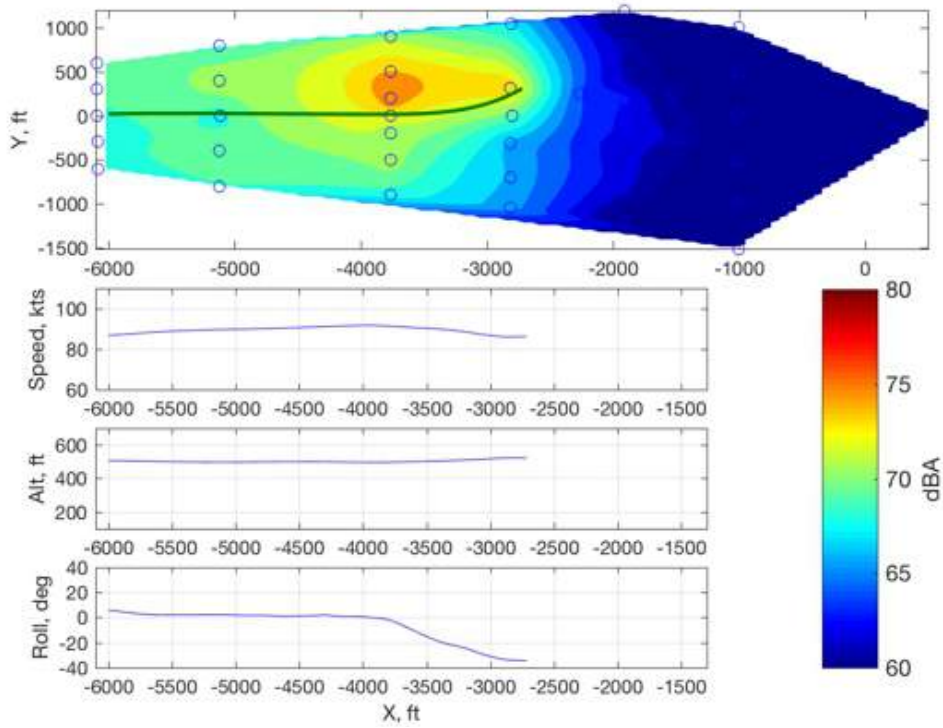


Figure 1145: EC130B4, 297189, X27, maximum dBA contour.

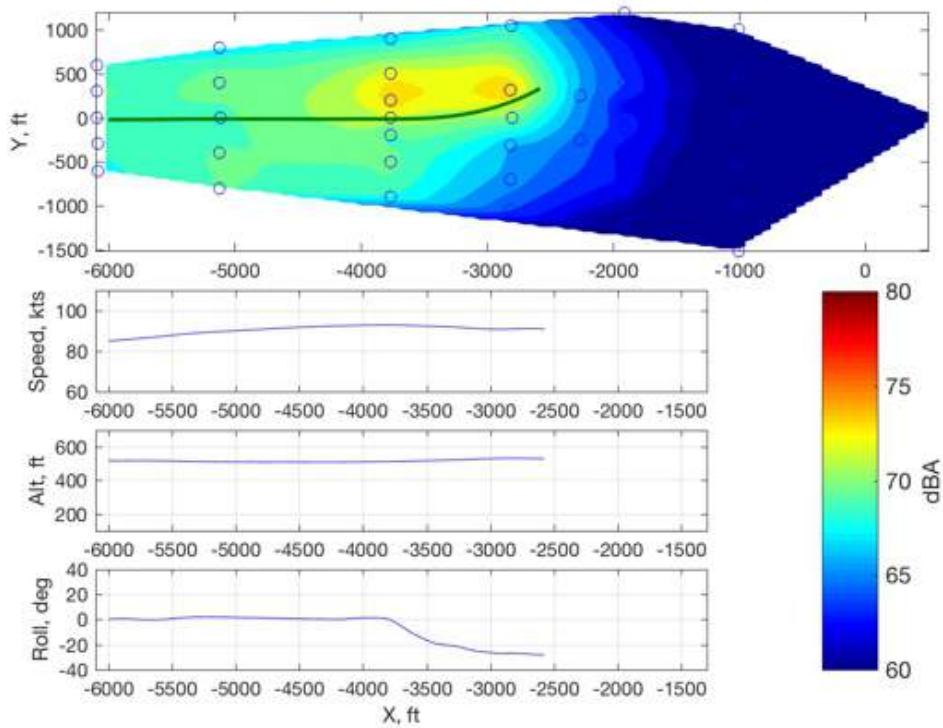


Figure 1146: EC130B4, 297190, X27, maximum dBA contour.

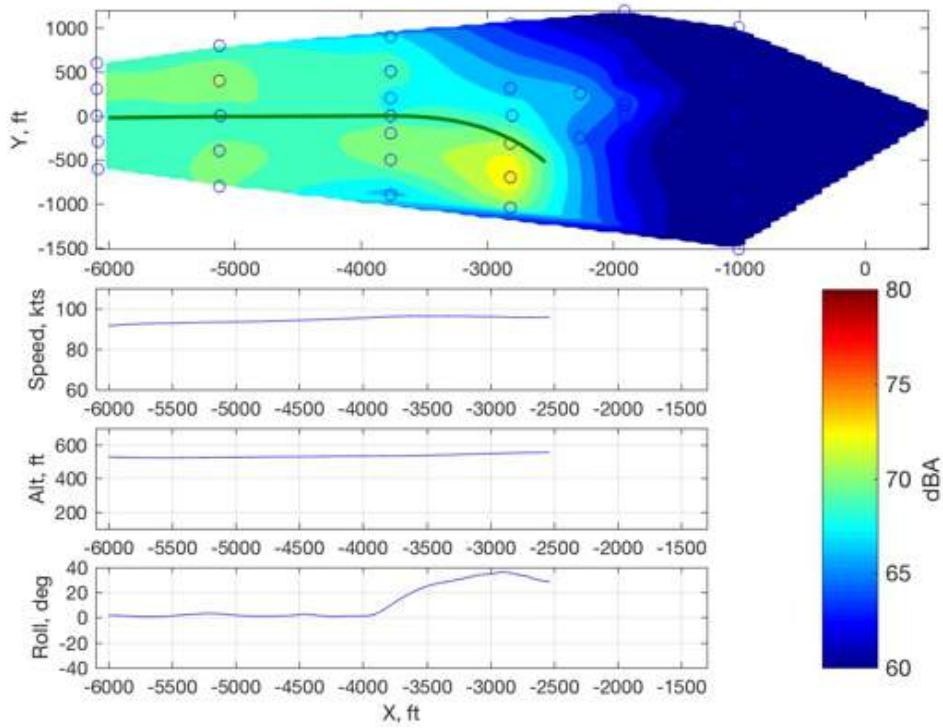


Figure 1147: EC130B4, 297191, X28, maximum dBA contour.

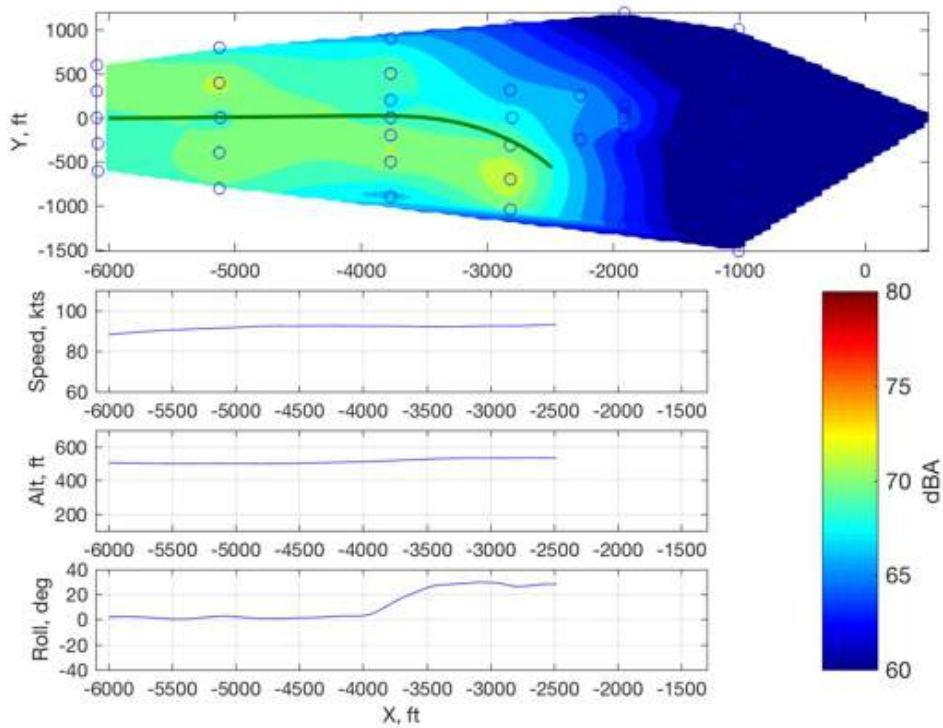


Figure 1148: EC130B4, 297192, X28, maximum dBA contour.

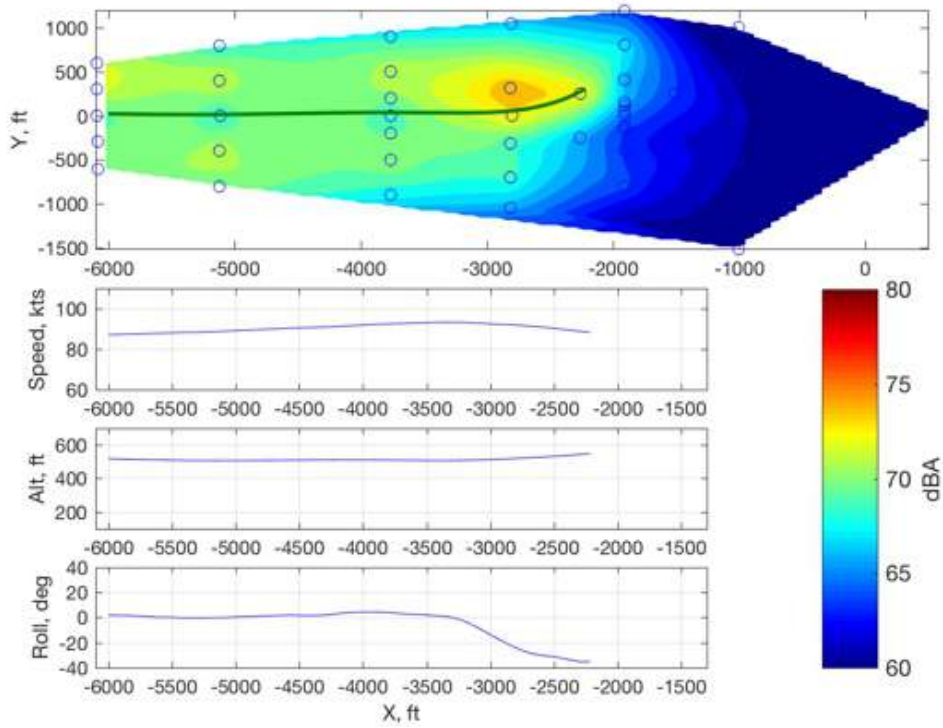


Figure 1149: EC130B4, 297193, X31, maximum dBA contour.

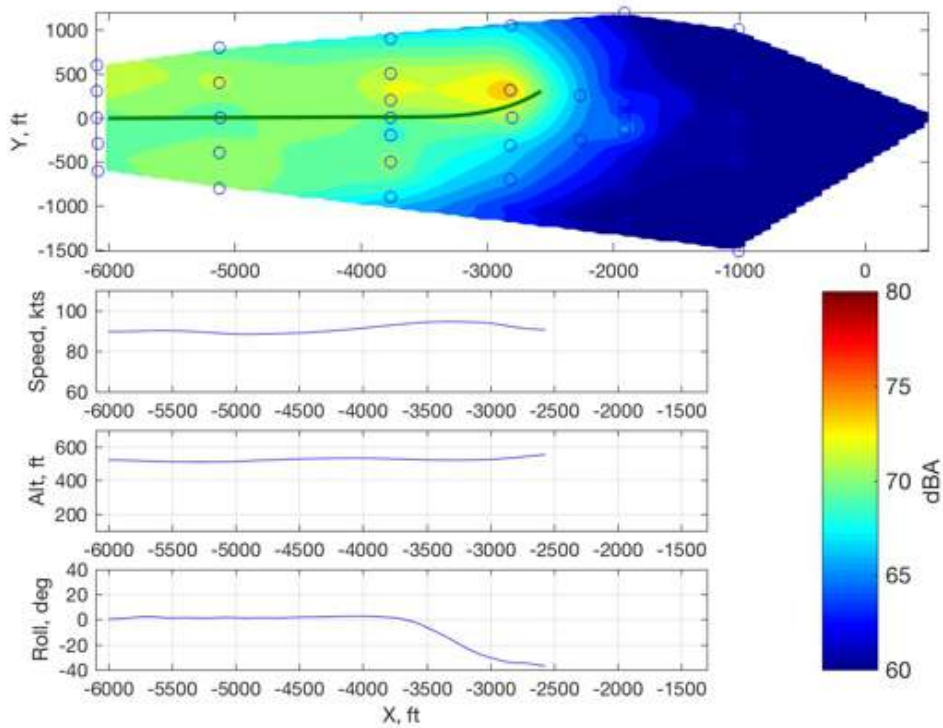


Figure 1150: EC130B4, 297194, X31, maximum dBA contour.

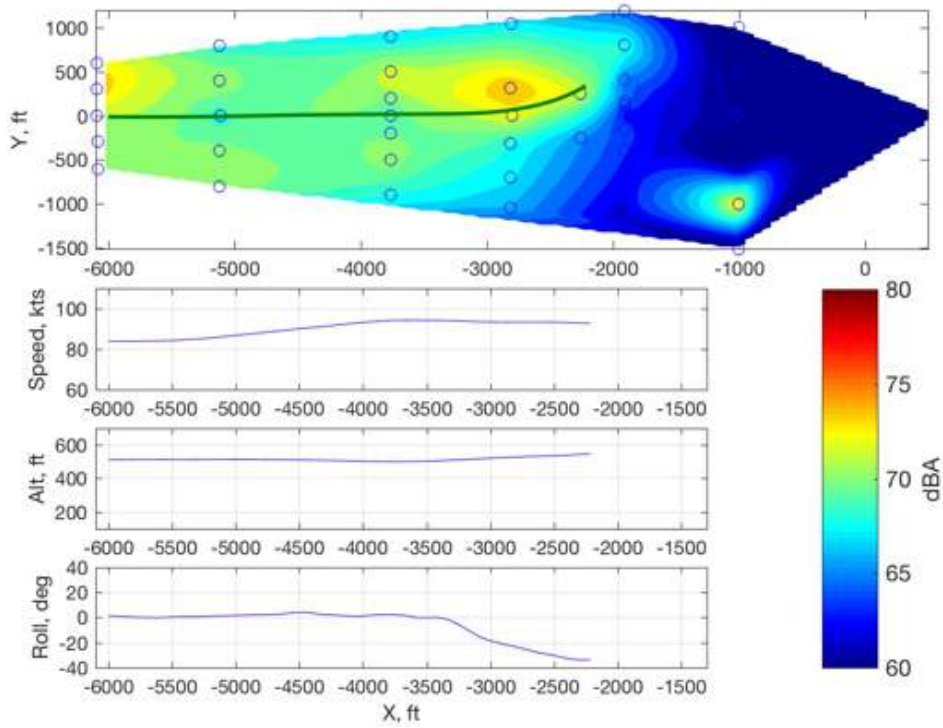


Figure 1151: EC130B4, 297195, X31, maximum dBA contour.

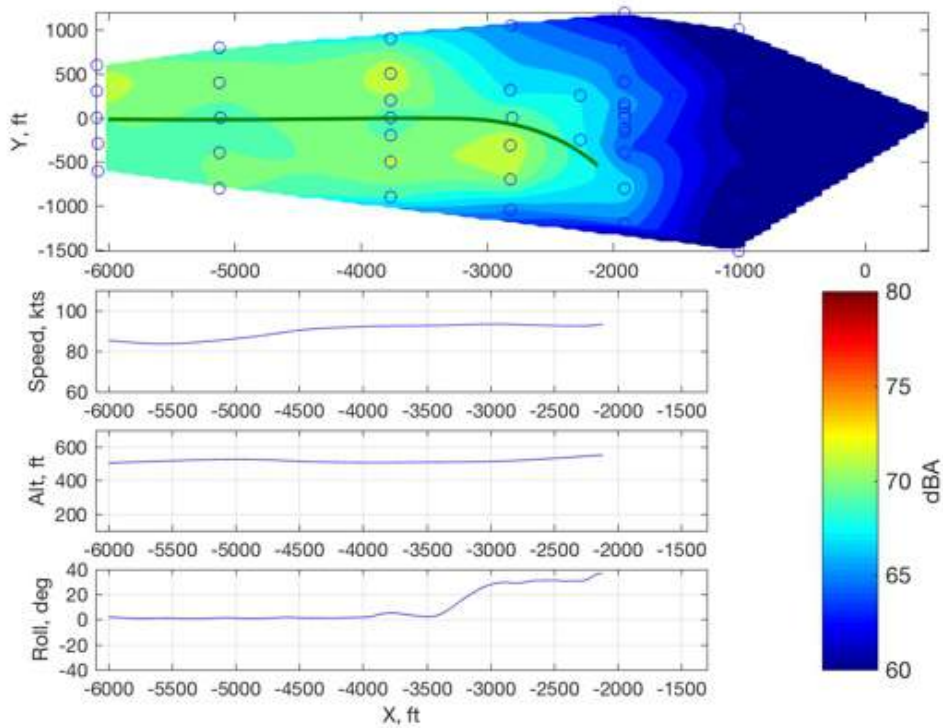


Figure 1152: EC130B4, 297196, X32, maximum dBA contour.

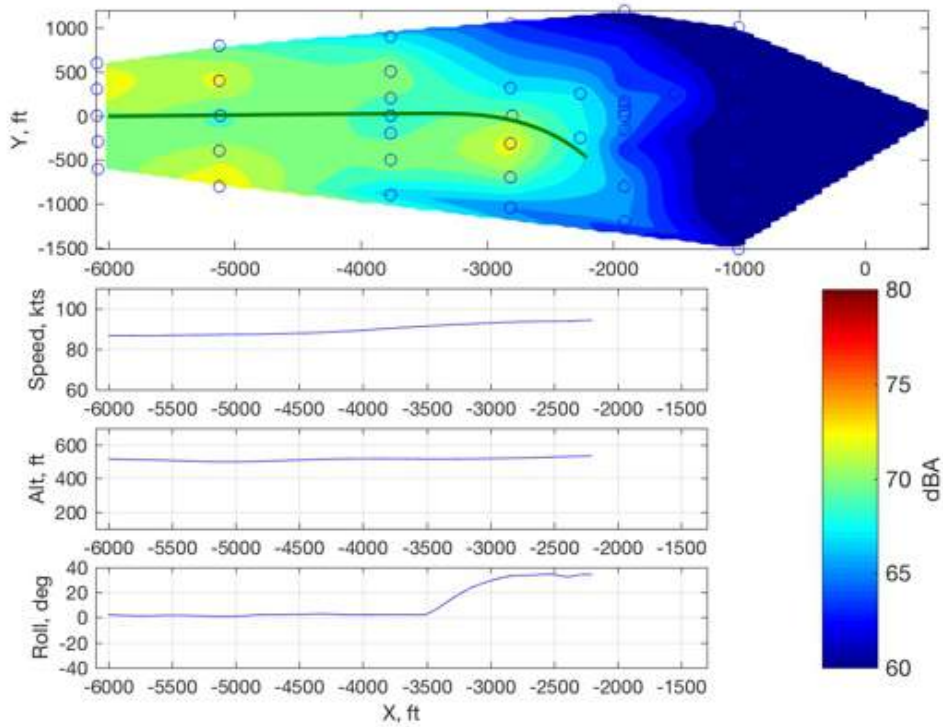


Figure 1153: EC130B4, 297197, X32, maximum dBA contour.

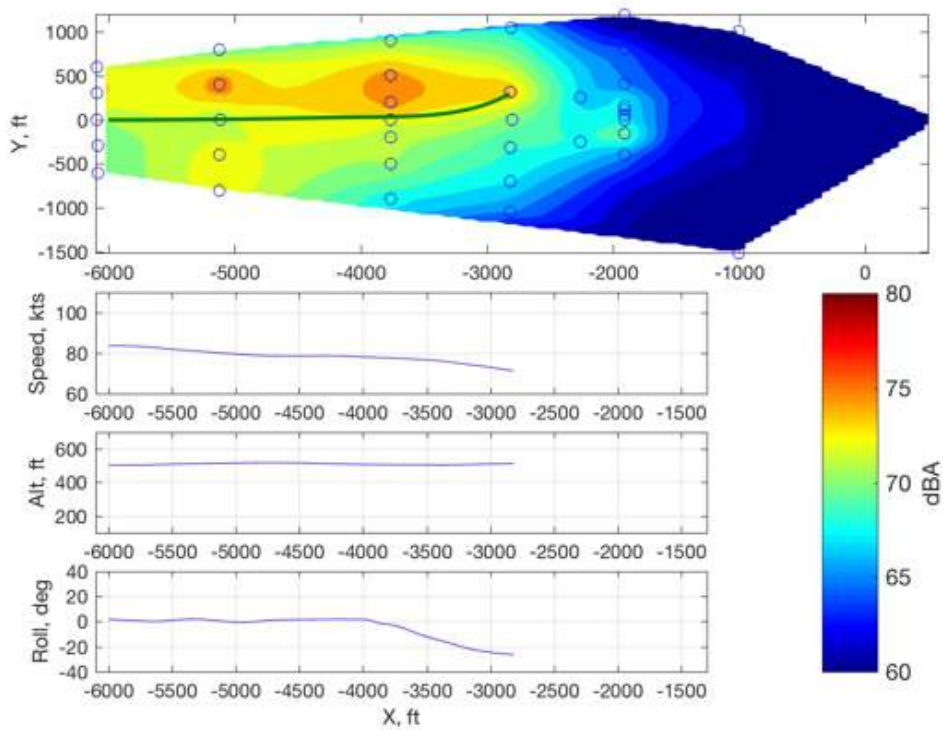


Figure 1154: EC130B4, 297198, X39, maximum dBA contour.

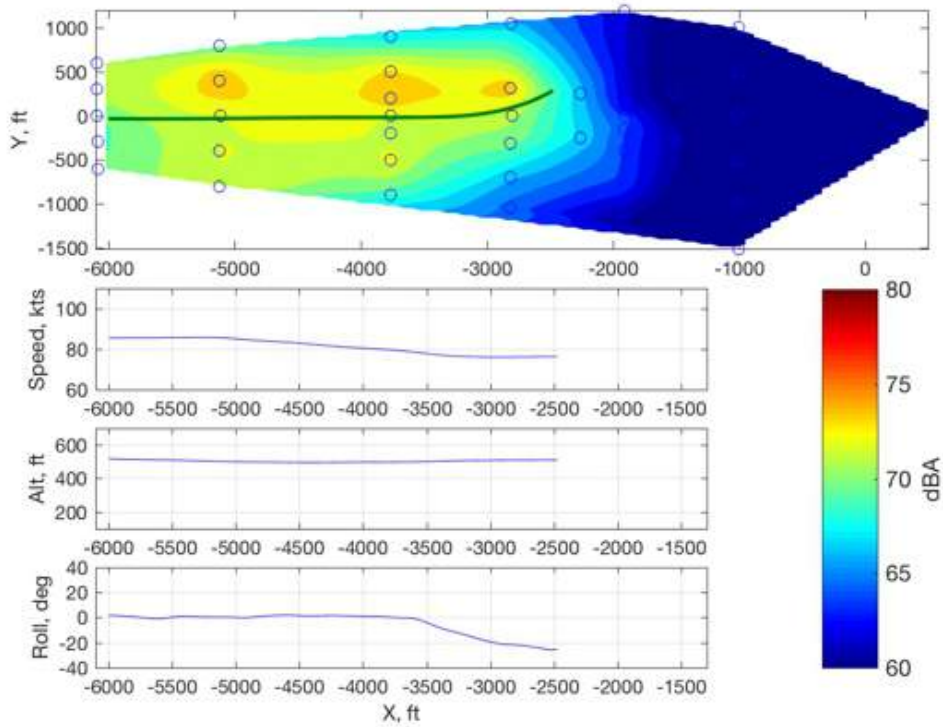


Figure 1155: EC130B4, 297199, X39, maximum dBA contour.

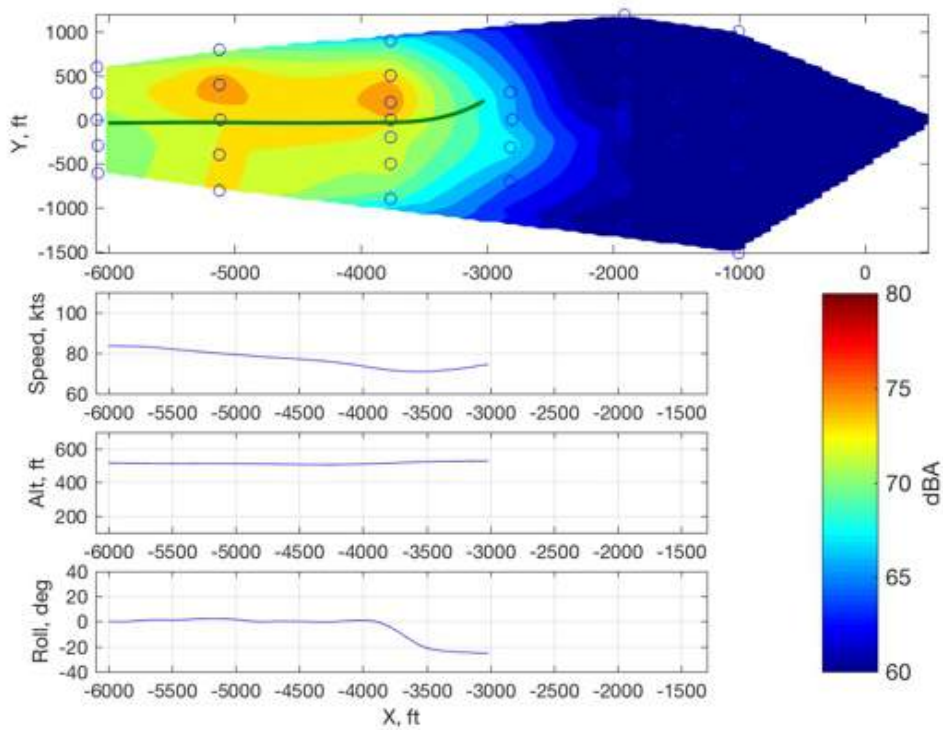


Figure 1156: EC130B4, 297200, X39, maximum dBA contour.

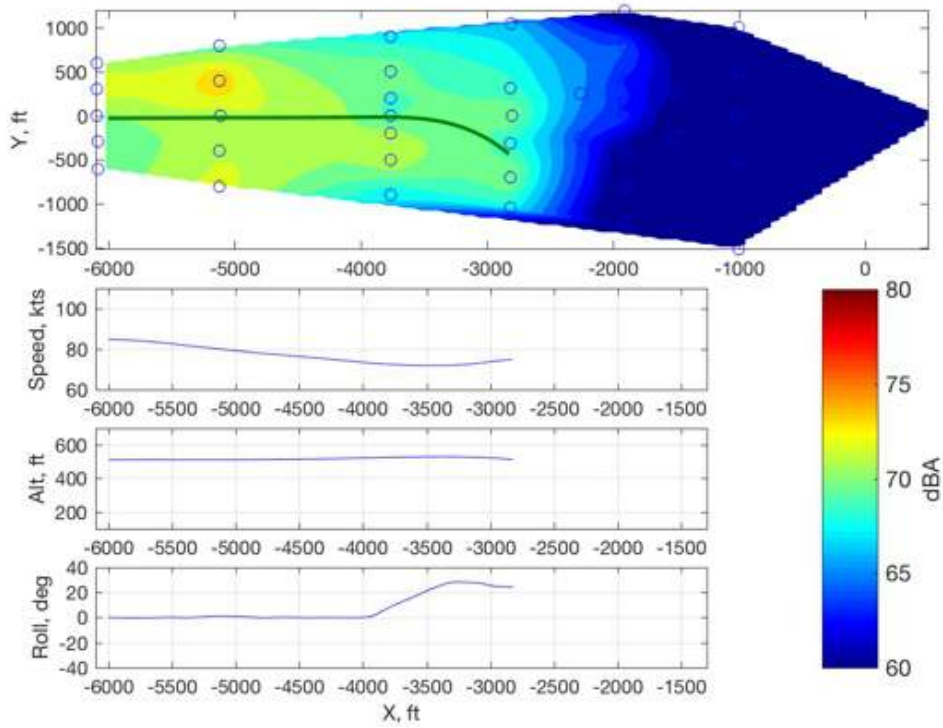


Figure 1157: EC130B4, 297201, X40, maximum dBA contour.

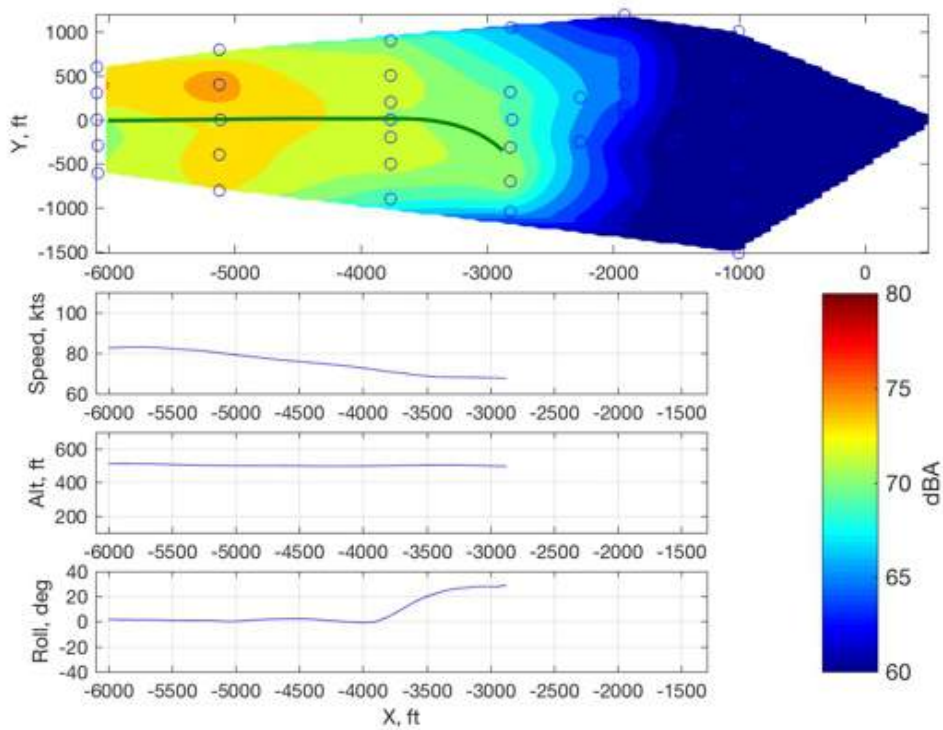


Figure 1158: EC130B4, 297202, X40, maximum dBA contour.

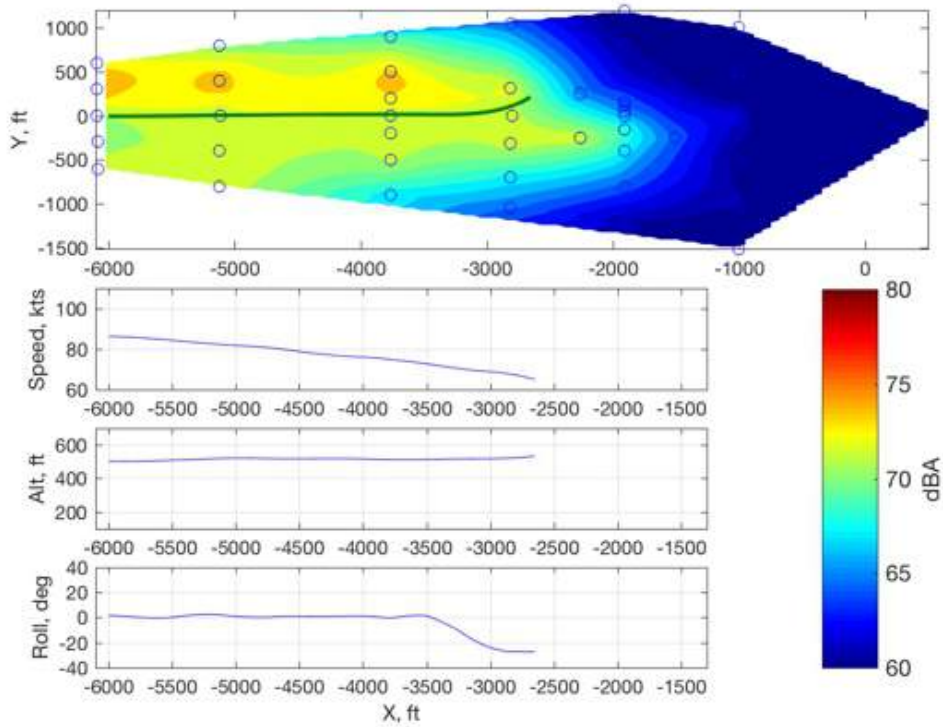


Figure 1159: EC130B4, 297203, X43, maximum dBA contour.

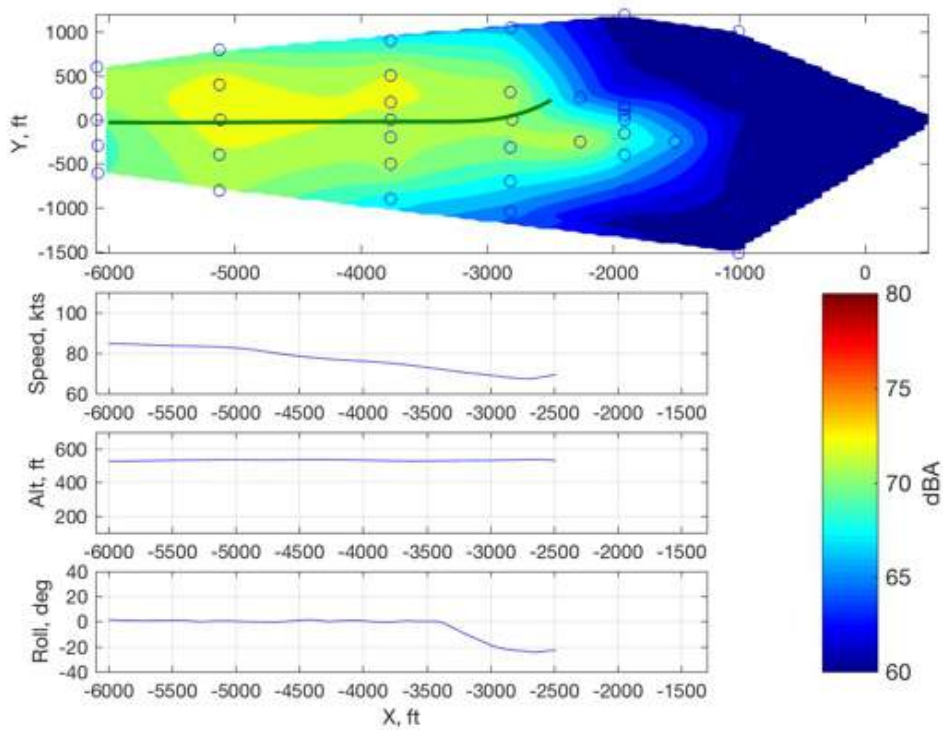


Figure 1160: EC130B4, 297204, X43, maximum dBA contour.

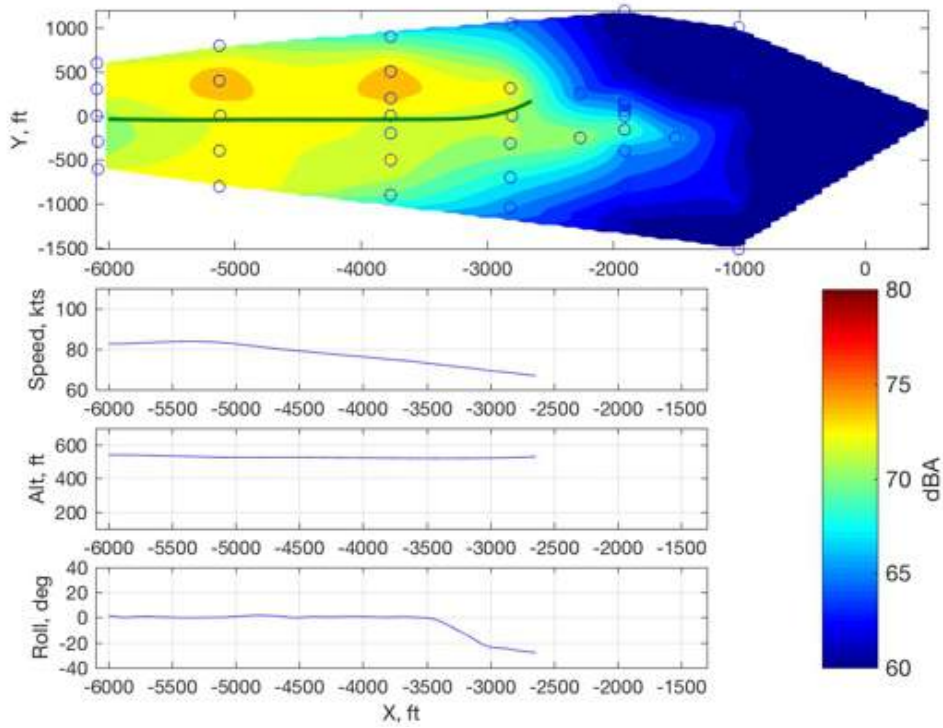


Figure 1161: EC130B4, 297205, X43, maximum dBA contour.

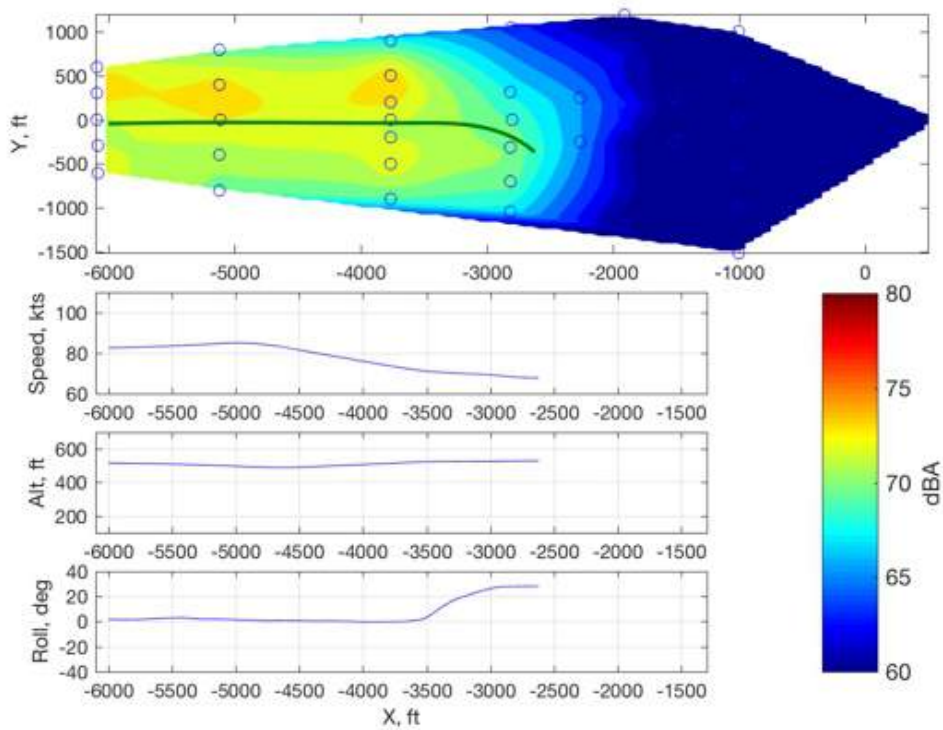


Figure 1162: EC130B4, 297206, X44, maximum dBA contour.

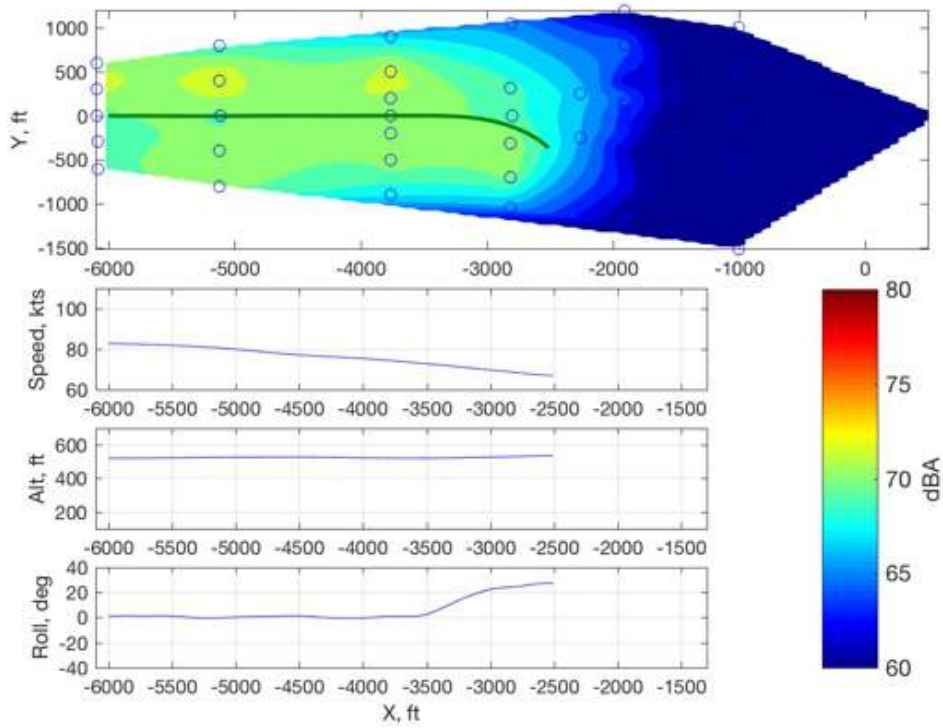


Figure 1163: EC130B4, 297207, X44, maximum dBA contour.

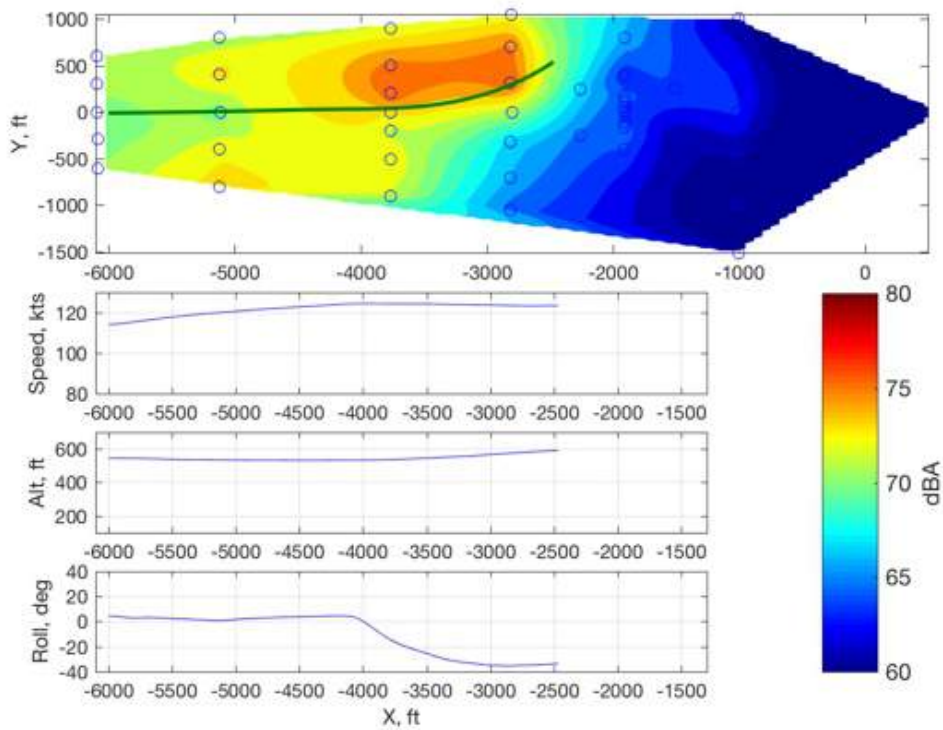


Figure 1164: EC130B4, 299347, X55, maximum dBA contour.

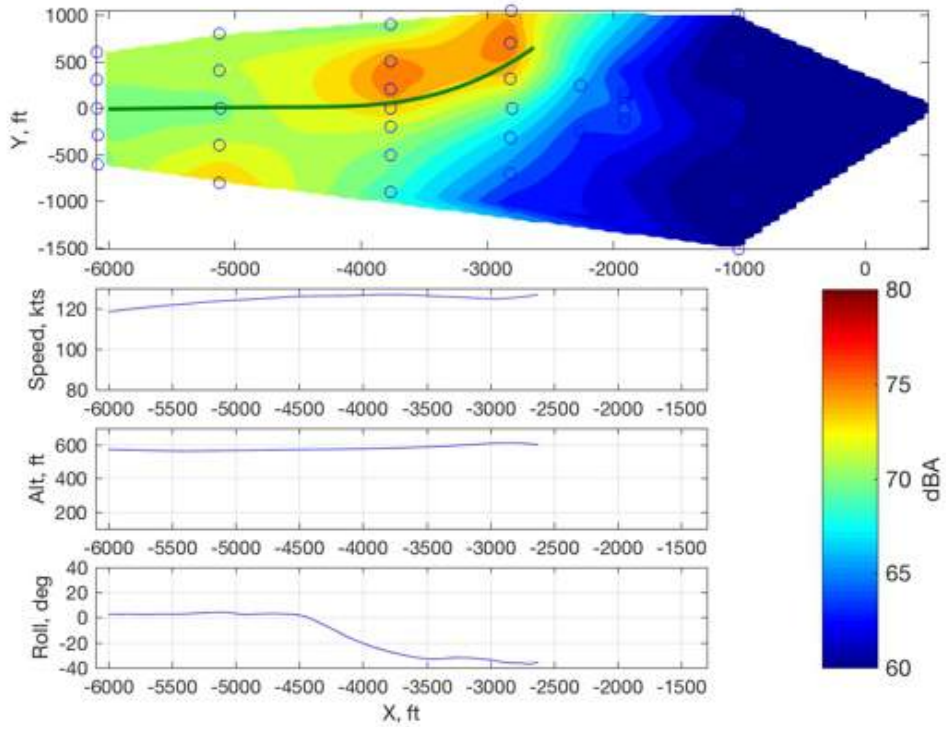


Figure 1165: EC130B4, 299348, X55, maximum dBA contour.

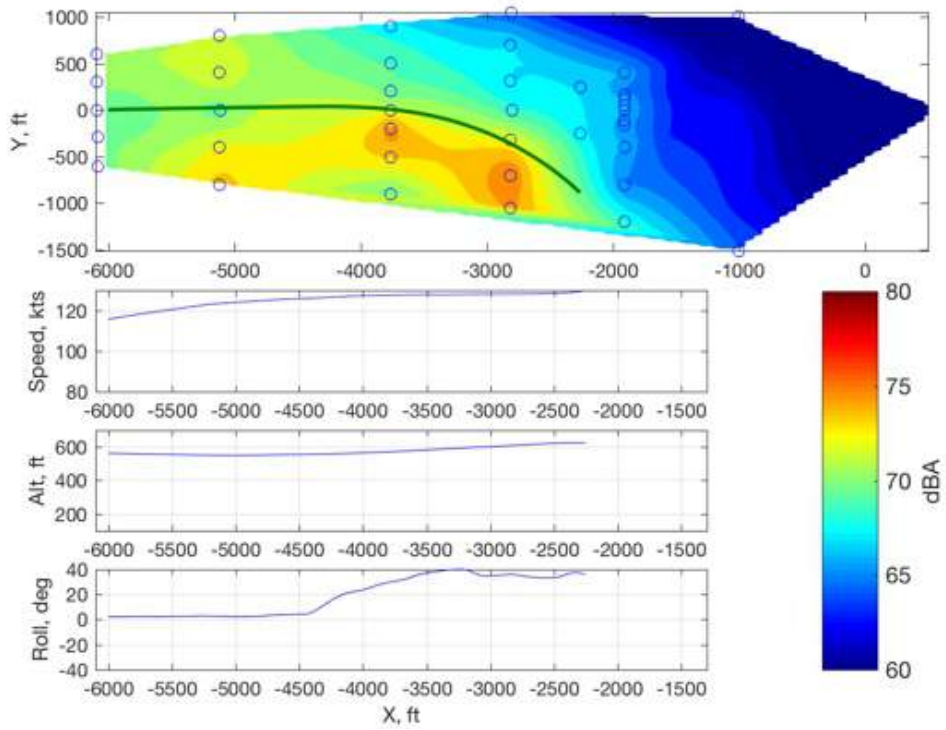


Figure 1166: EC130B4, 299349, X56, maximum dBA contour.

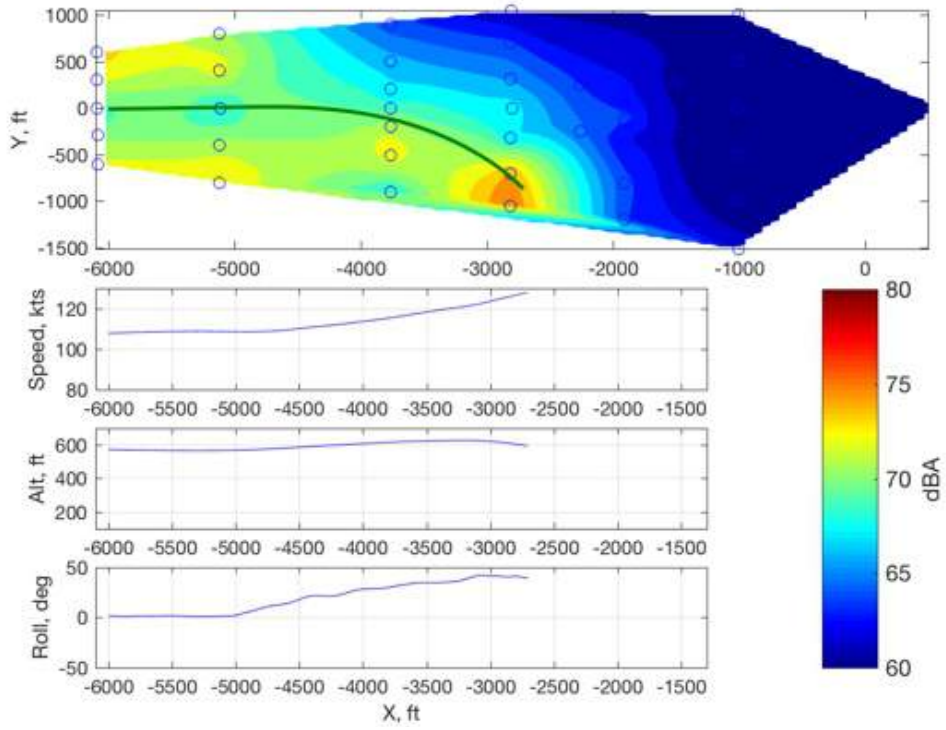


Figure 1167: EC130B4, 299350, X56, maximum dBA contour.

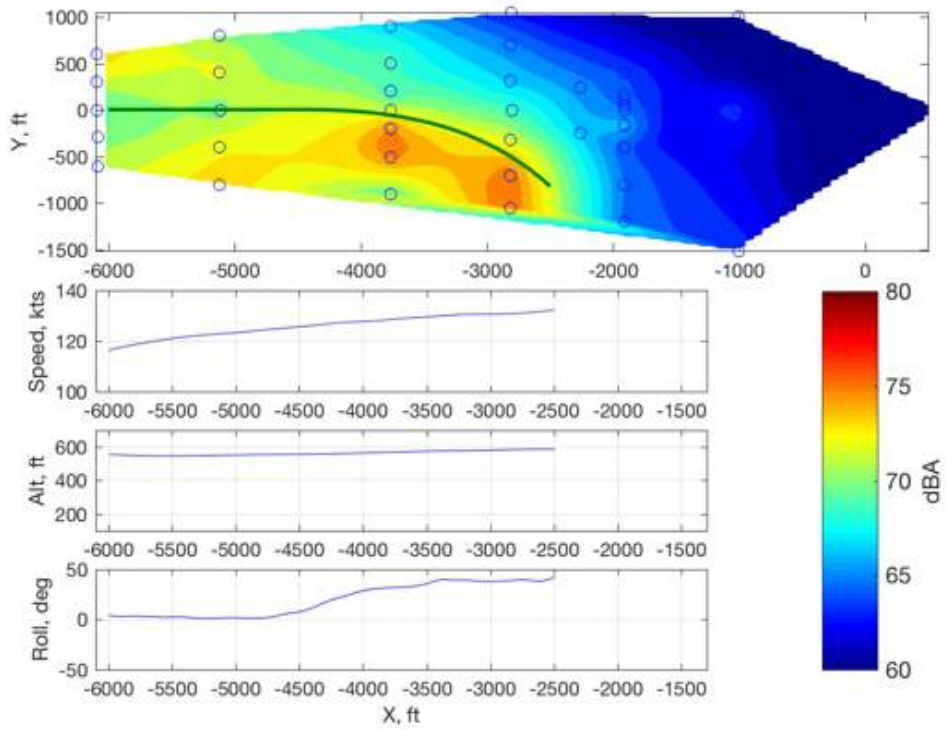


Figure 1168: EC130B4, 299351, X56, maximum dBA contour.

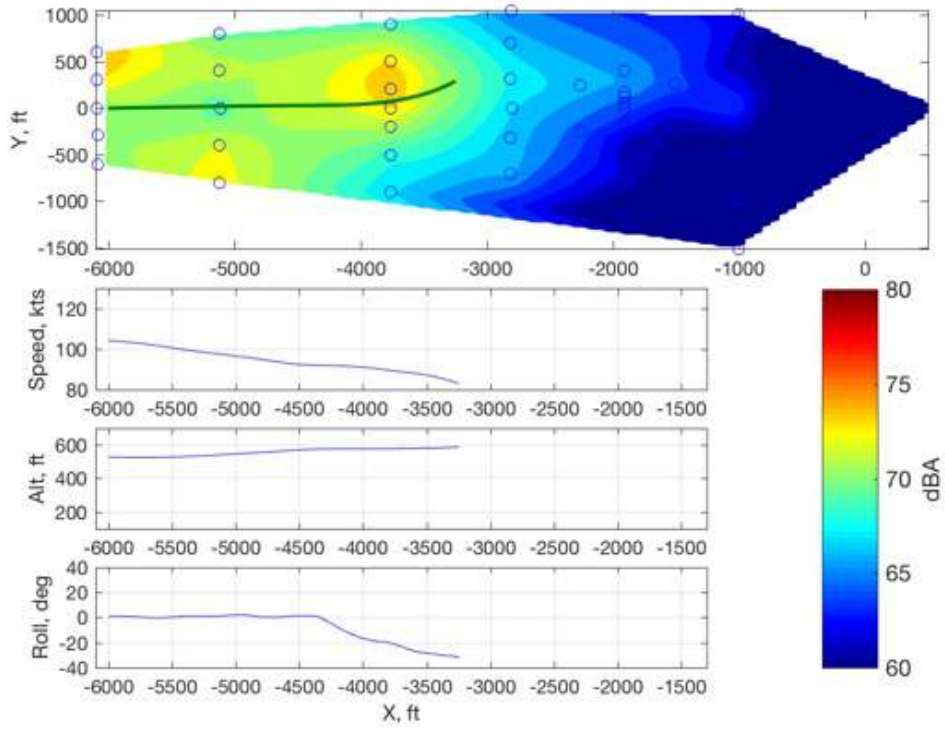


Figure 1169: EC130B4, 299352, X63, maximum dBA contour.

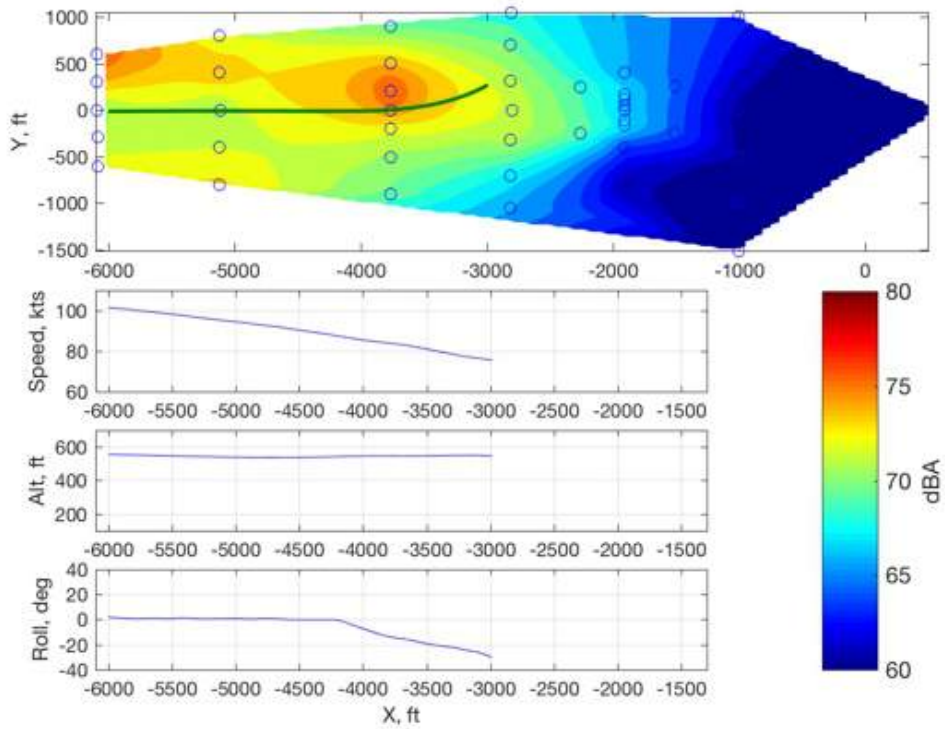


Figure 1170: EC130B4, 299353, X63, maximum dBA contour.

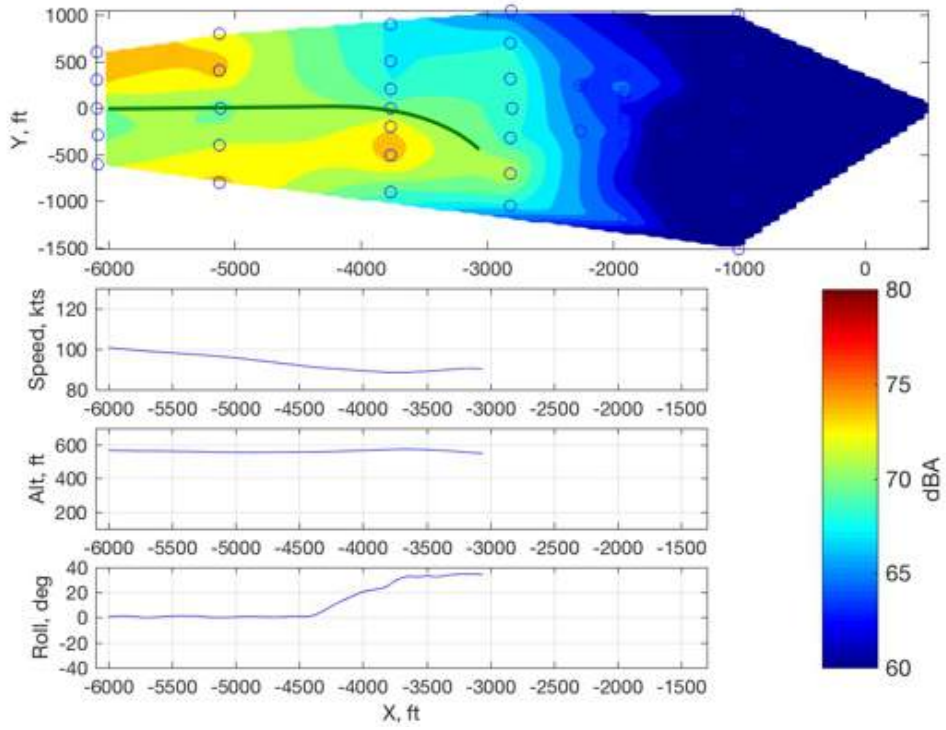


Figure 1171: EC130B4, 299354, X64, maximum dBA contour.

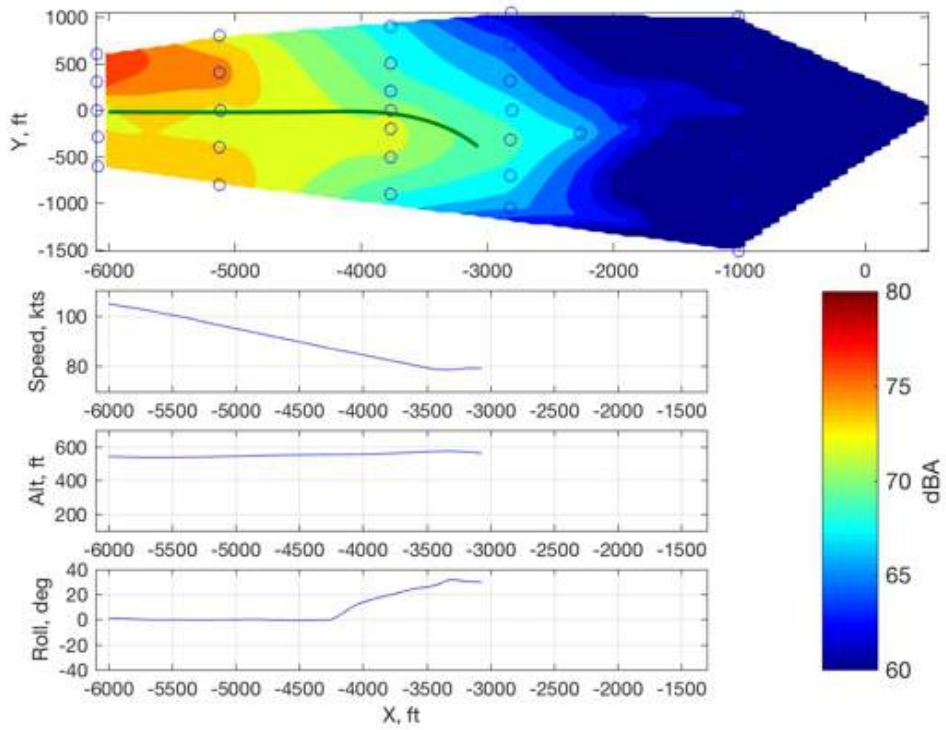


Figure 1172: EC130B4, 299355, X64, maximum dBA contour.

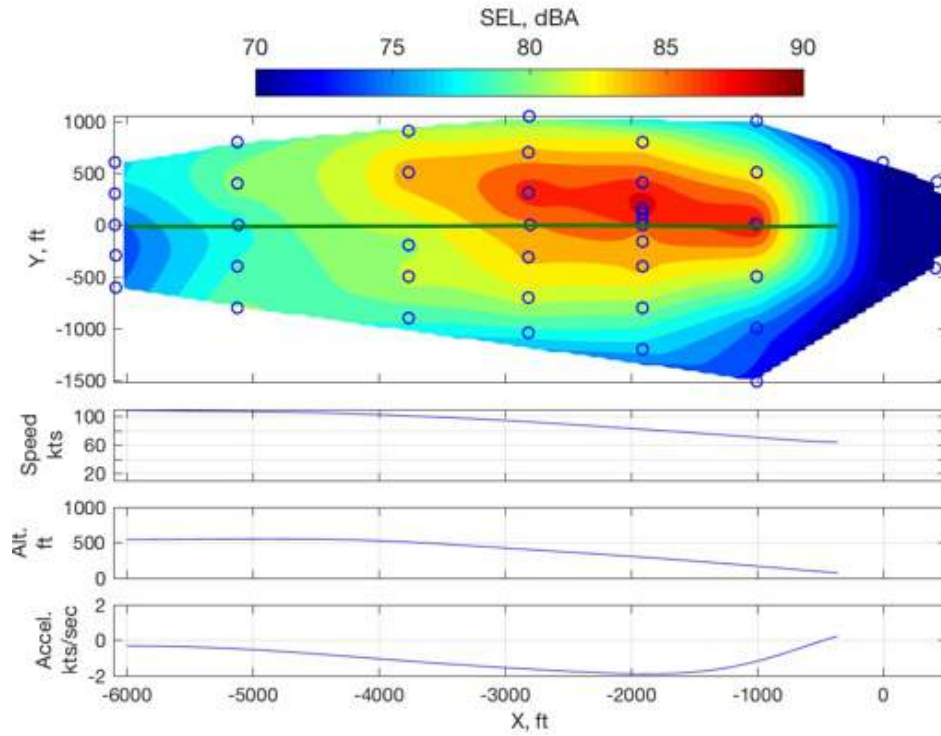


Figure 1173: EC130B4, A22, run 298293 A-Weighted SEL contour.

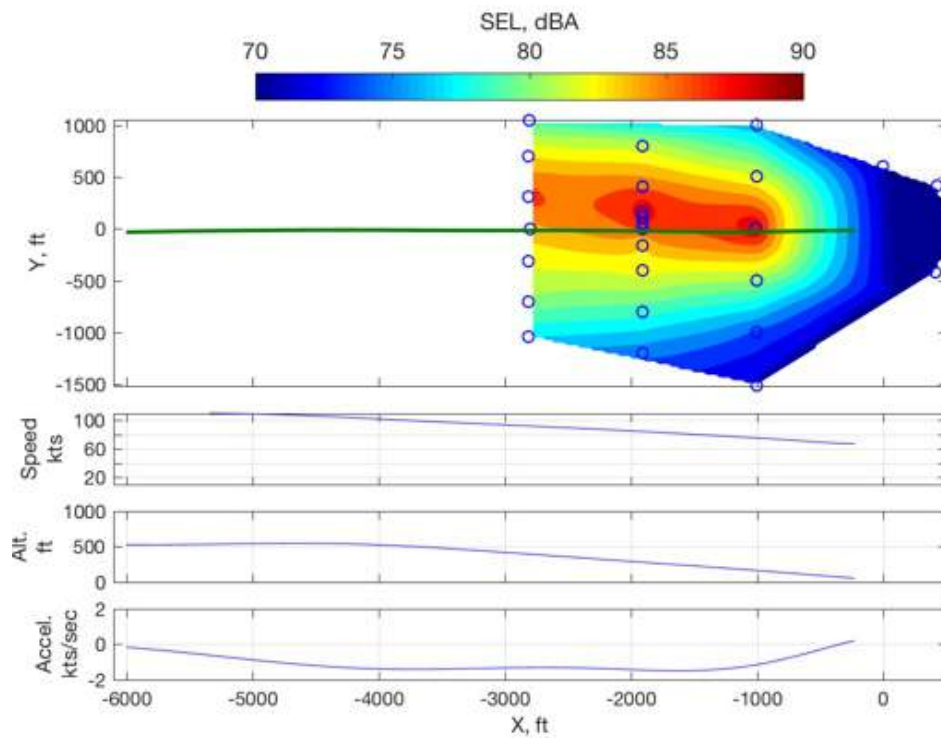


Figure 1174: EC130B4, A22, run 298294 A-Weighted SEL contour.

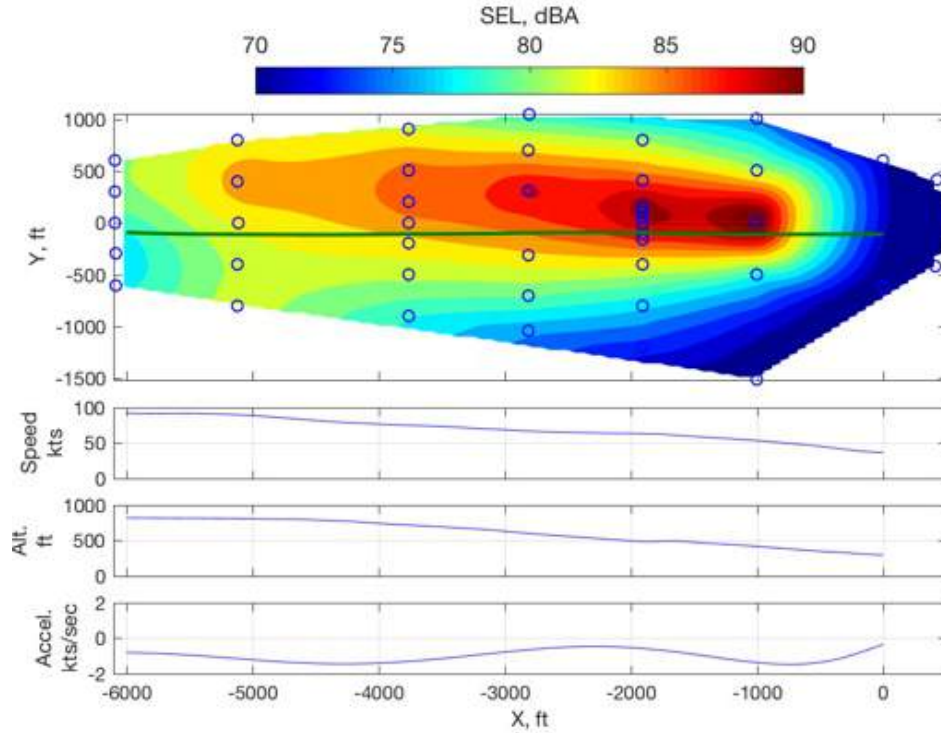


Figure 1175: EC130B4, A25, run 298270 A-Weighted SEL contour.

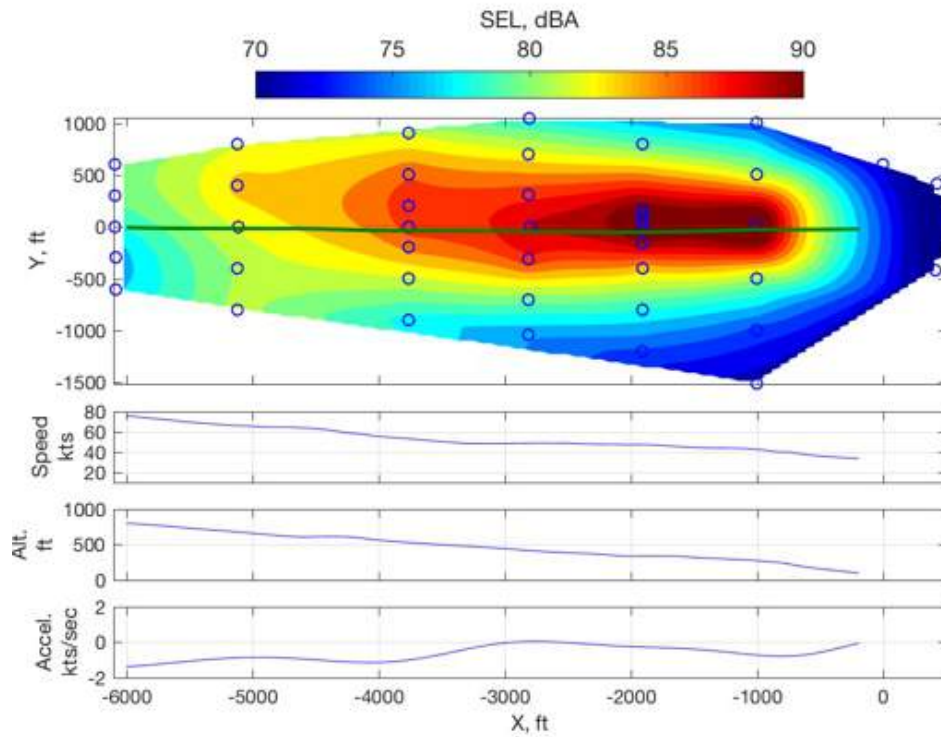


Figure 1176: EC130B4, A25, run 298271 A-Weighted SEL contour.

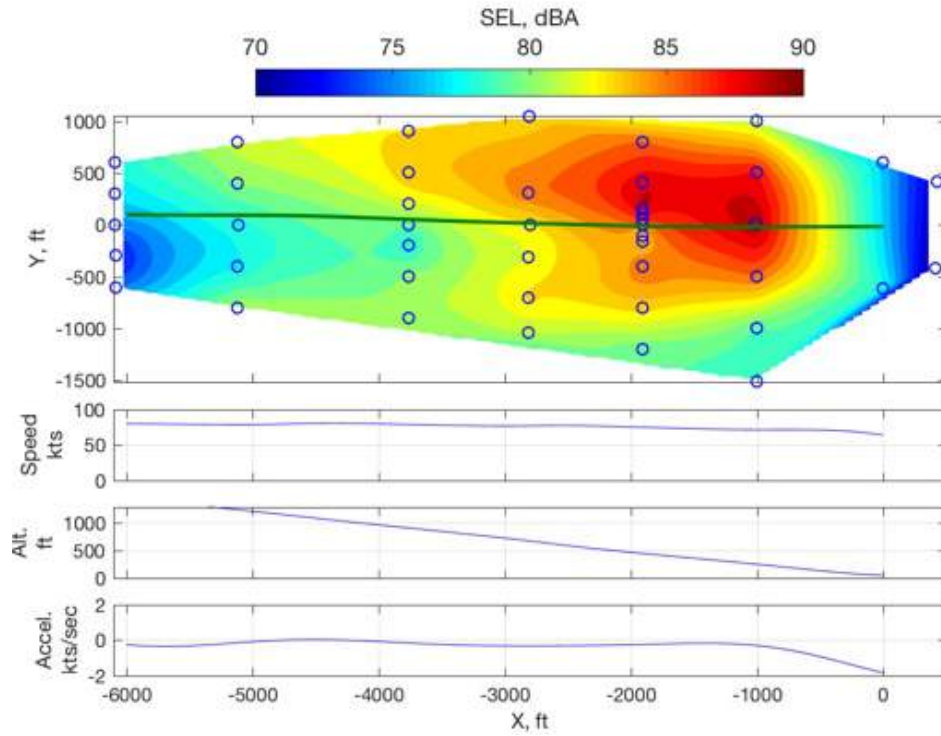


Figure 1177: EC130B4, A43, run 298272 A-Weighted SEL contour.

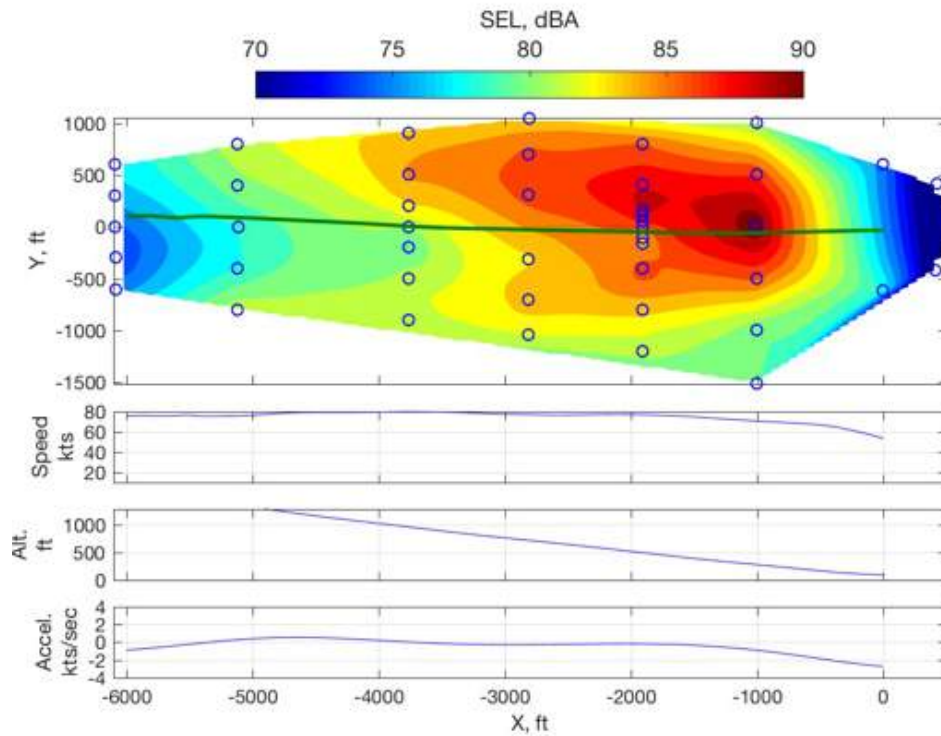


Figure 1178: EC130B4, A43, run 298273 A-Weighted SEL contour.

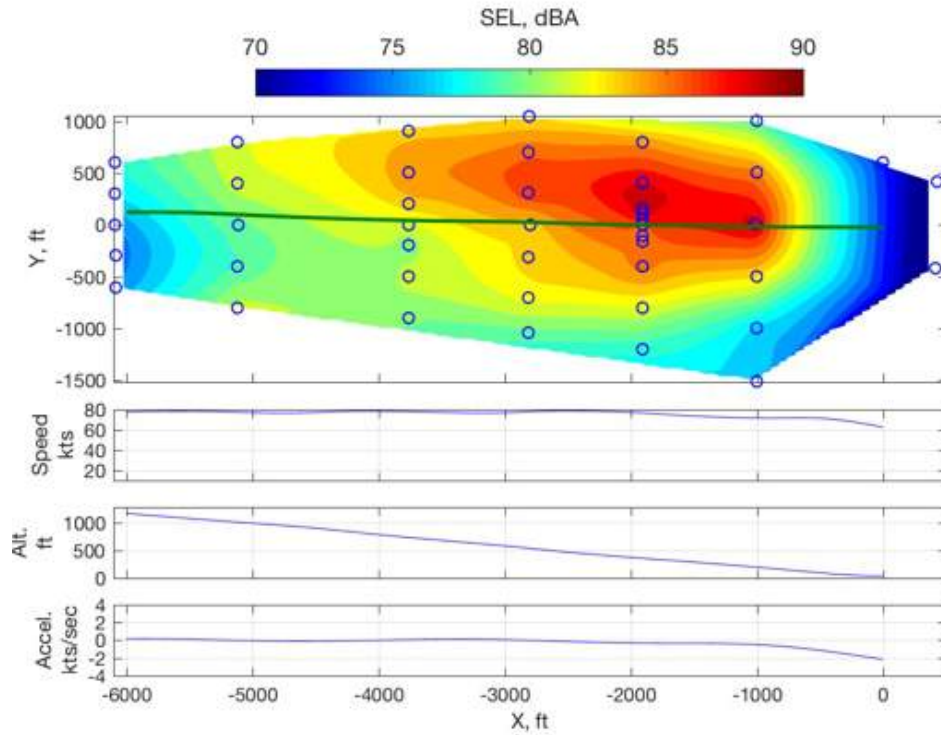


Figure 1179: EC130B4, A44, run 298276 A-Weighted SEL contour.

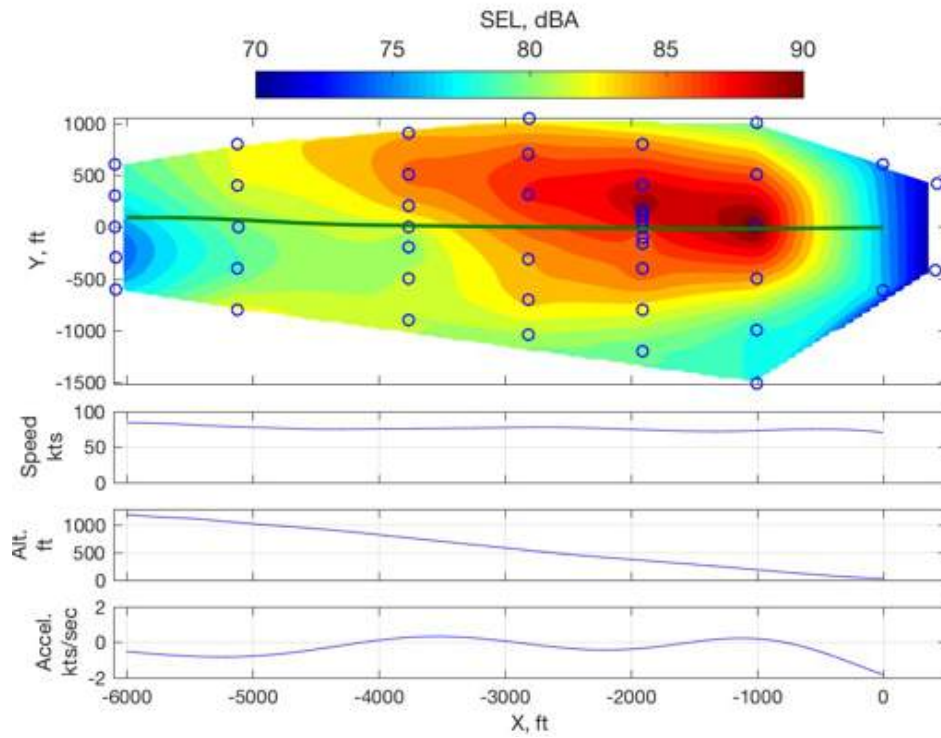


Figure 1180: EC130B4, A44, run 298277 A-Weighted SEL contour.

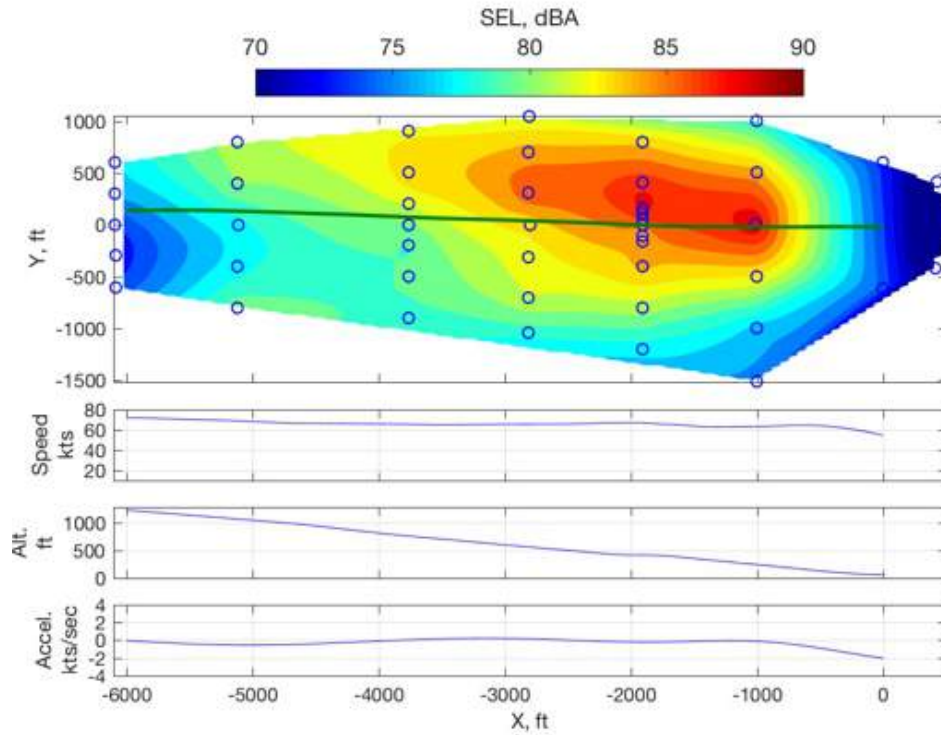


Figure 1181: EC130B4, A45, run 298280 A-Weighted SEL contour.

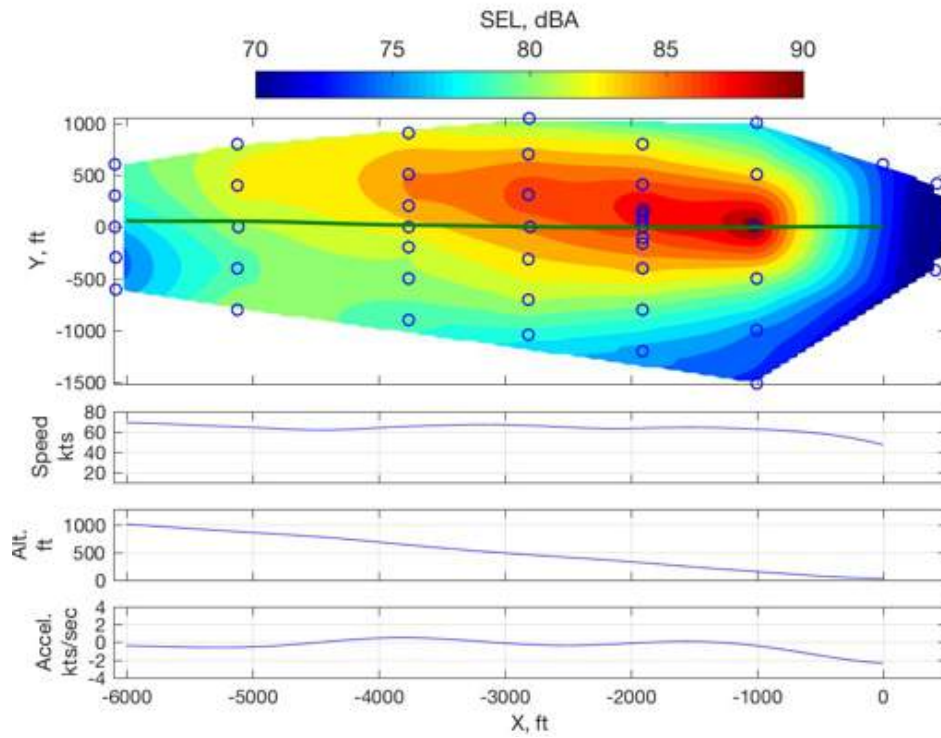


Figure 1182: EC130B4, A45, run 298281 A-Weighted SEL contour.

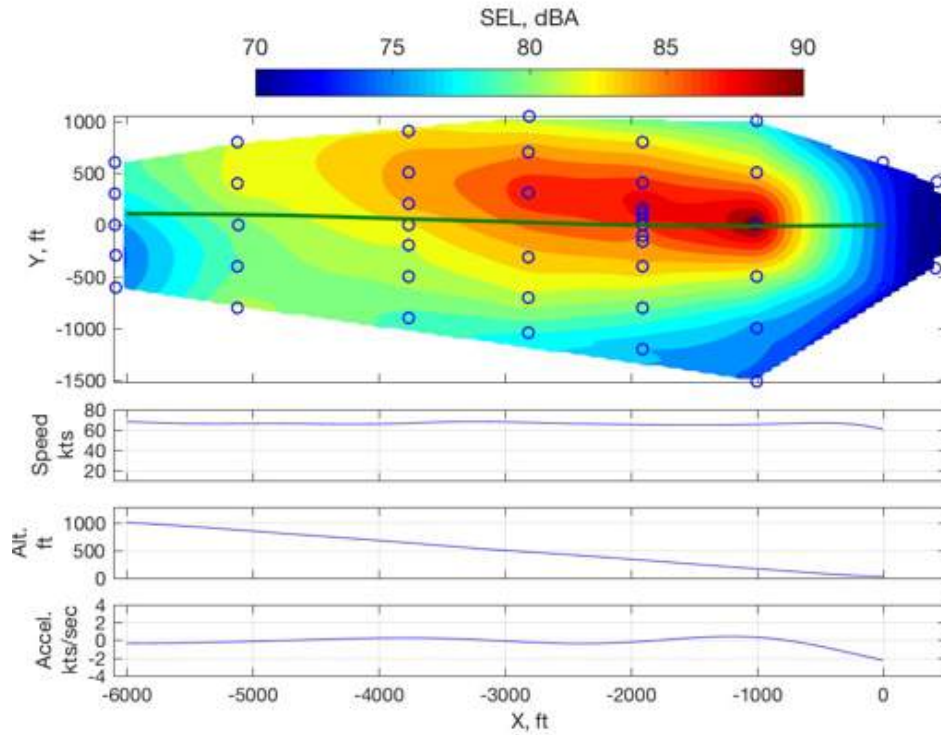


Figure 1183: EC130B4, A45, run 298282 A-Weighted SEL contour.

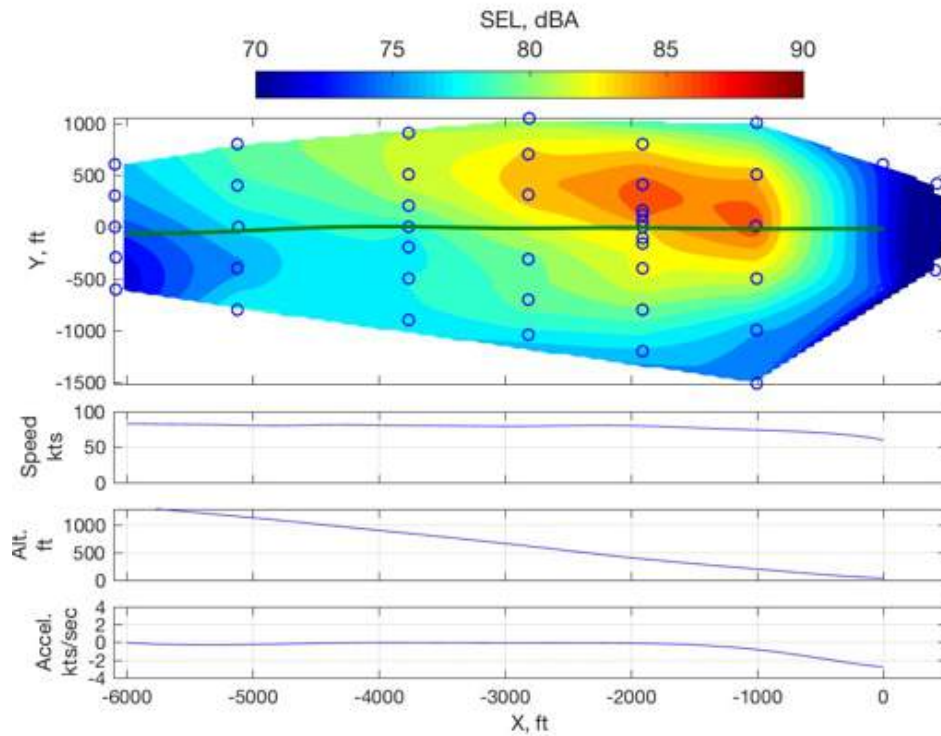


Figure 1184: EC130B4, A51, run 298274 A-Weighted SEL contour.

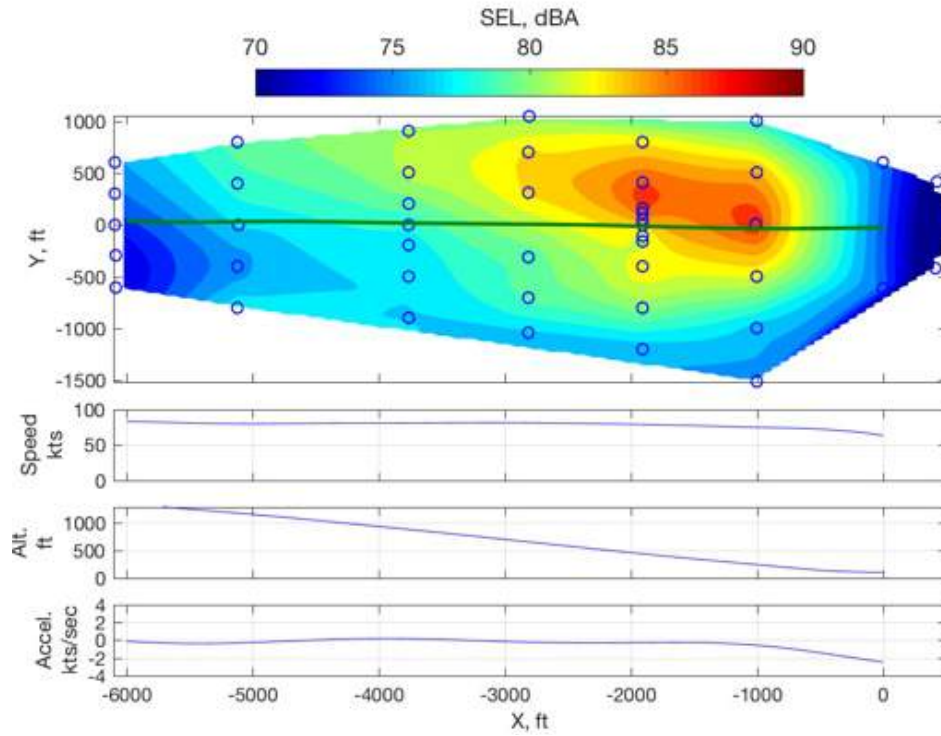


Figure 1185: EC130B4, A51, run 298275 A-Weighted SEL contour.

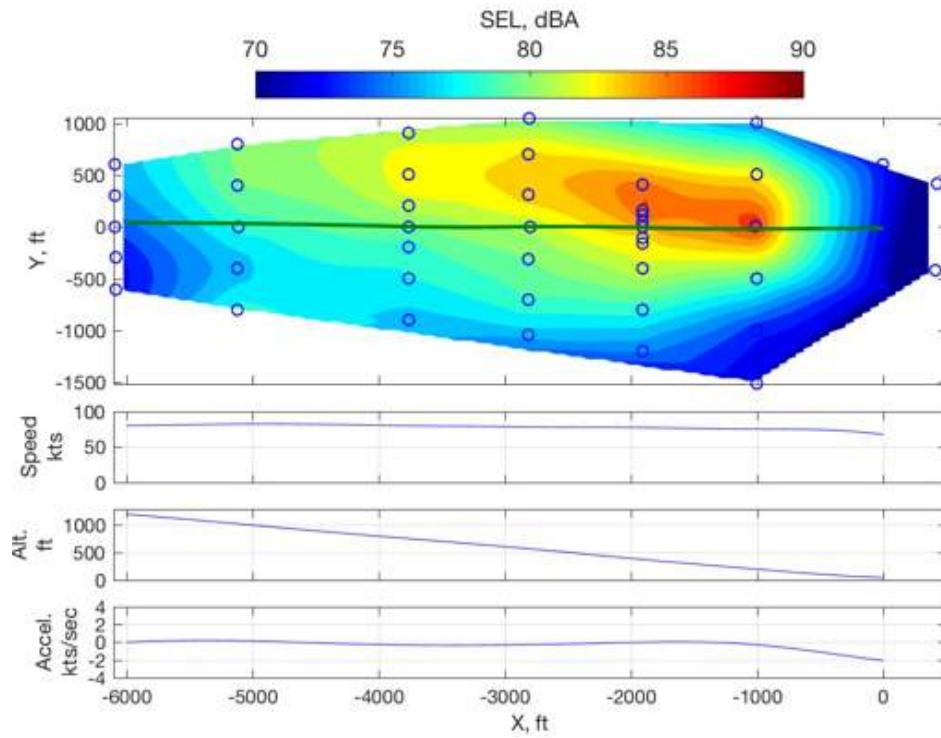


Figure 1186: EC130B4, A52, run 298278 A-Weighted SEL contour.

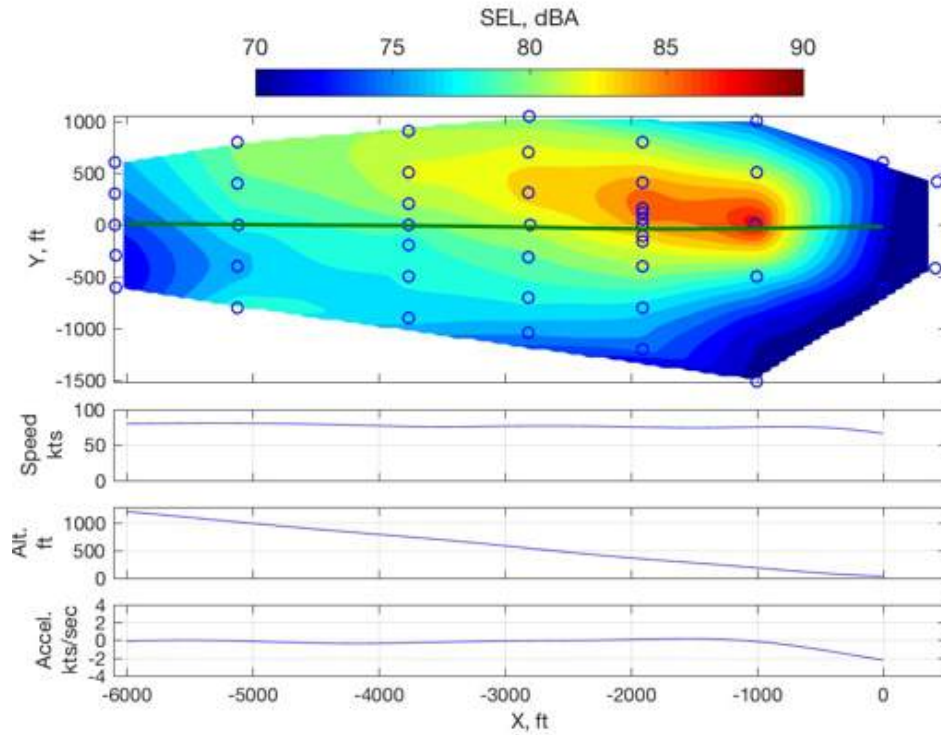


Figure 1187: EC130B4, A52, run 298279 A-Weighted SEL contour.

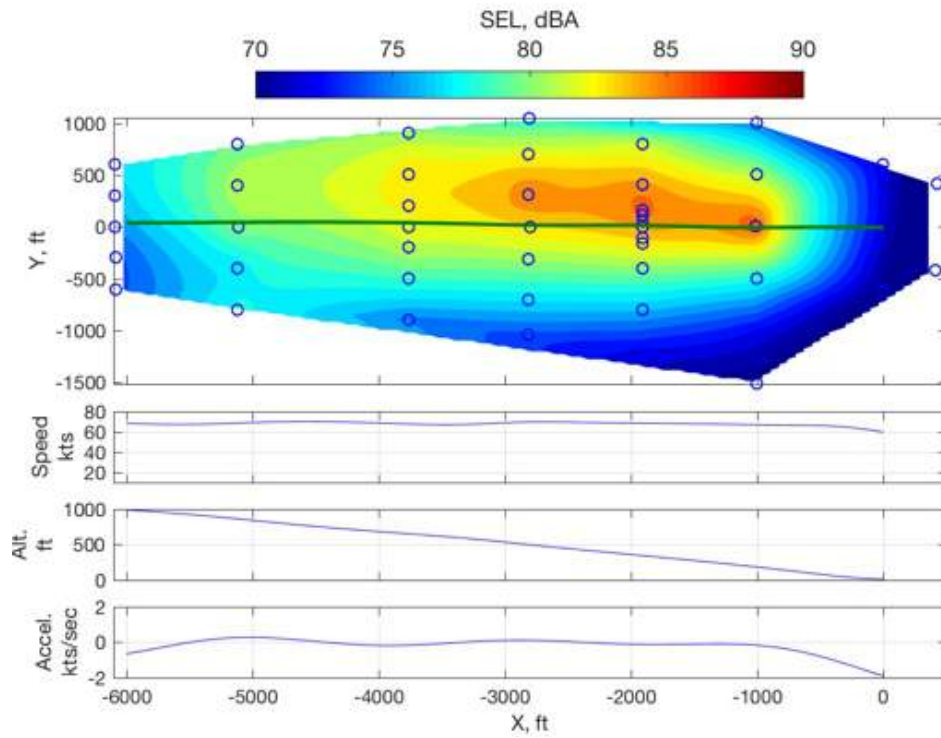


Figure 1188: EC130B4, A53, run 298283 A-Weighted SEL contour.

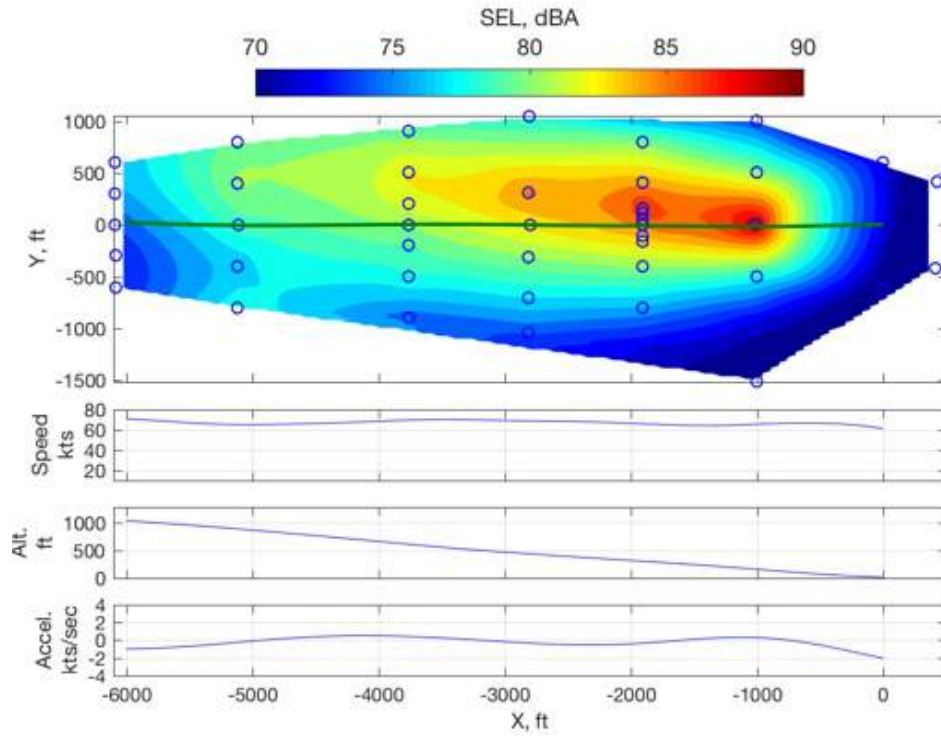


Figure 1189: EC130B4, A53, run 298284 A-Weighted SEL contour.

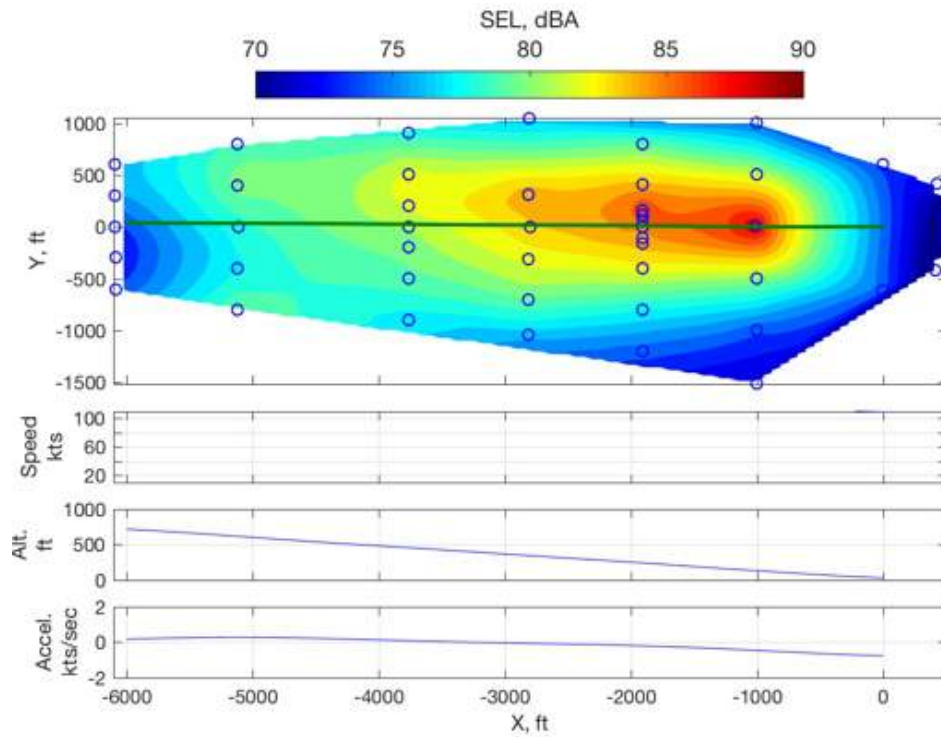


Figure 1190: EC130B4, A54, run 298287 A-Weighted SEL contour.

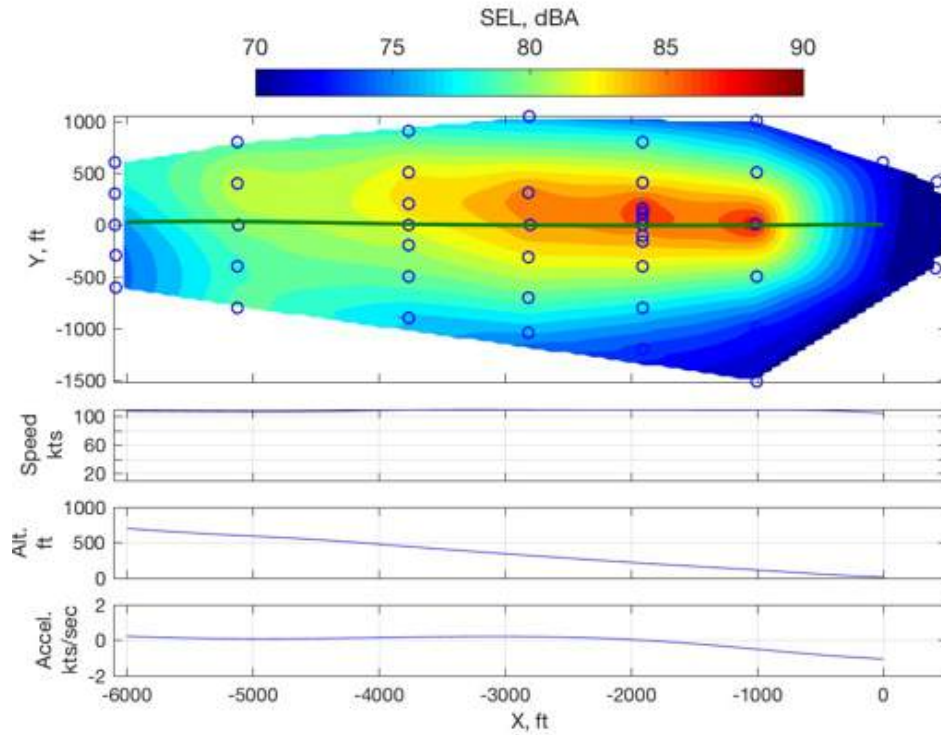


Figure 1191: EC130B4, A54, run 298288 A-Weighted SEL contour.

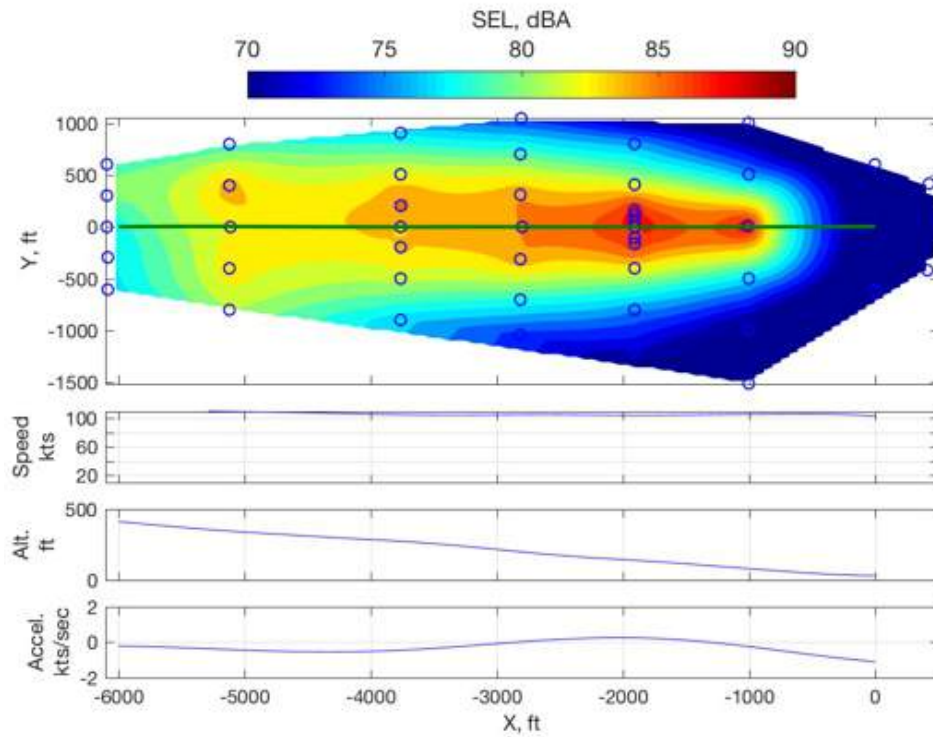


Figure 1192: EC130B4, A55, run 298289 A-Weighted SEL contour.

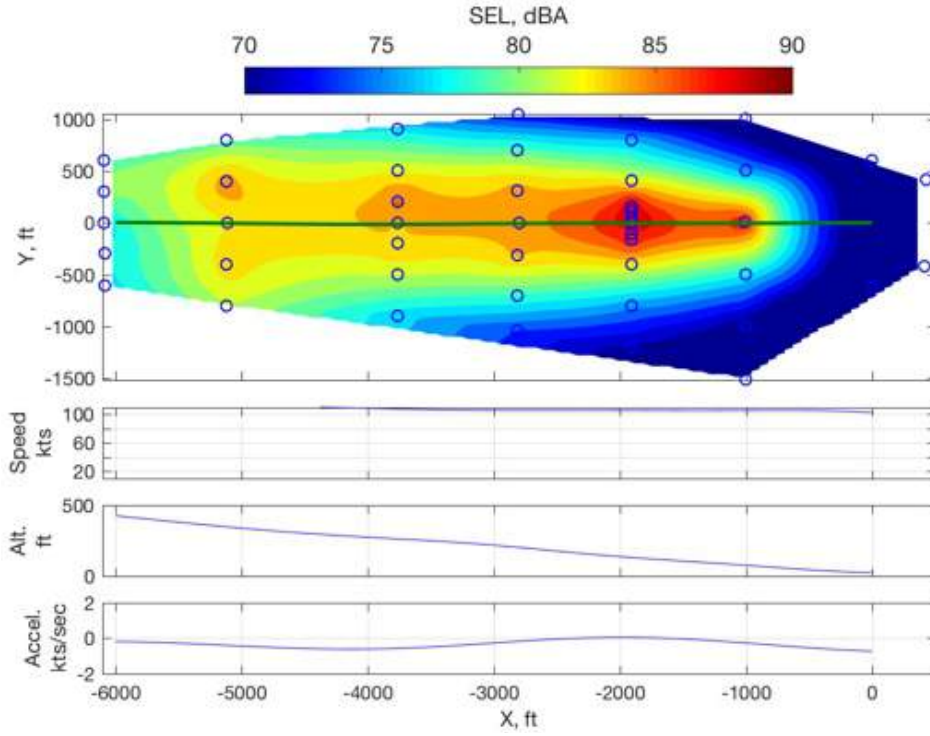


Figure 1193: EC130B4, A55, run 298290 A-Weighted SEL contour.

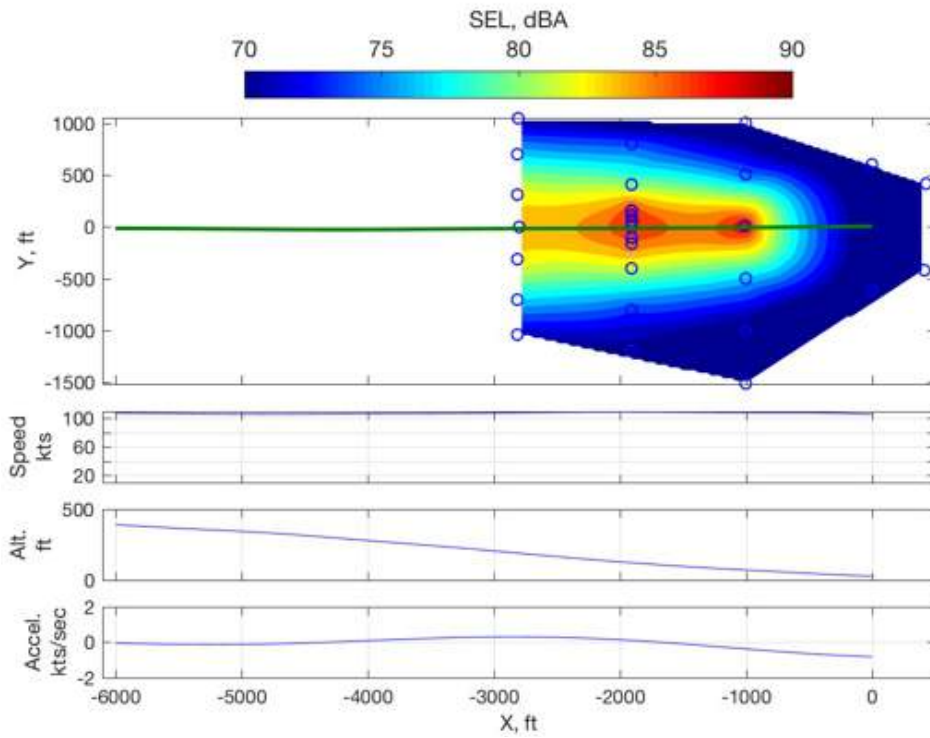


Figure 1194: EC130B4, A56, run 298291 A-Weighted SEL contour.

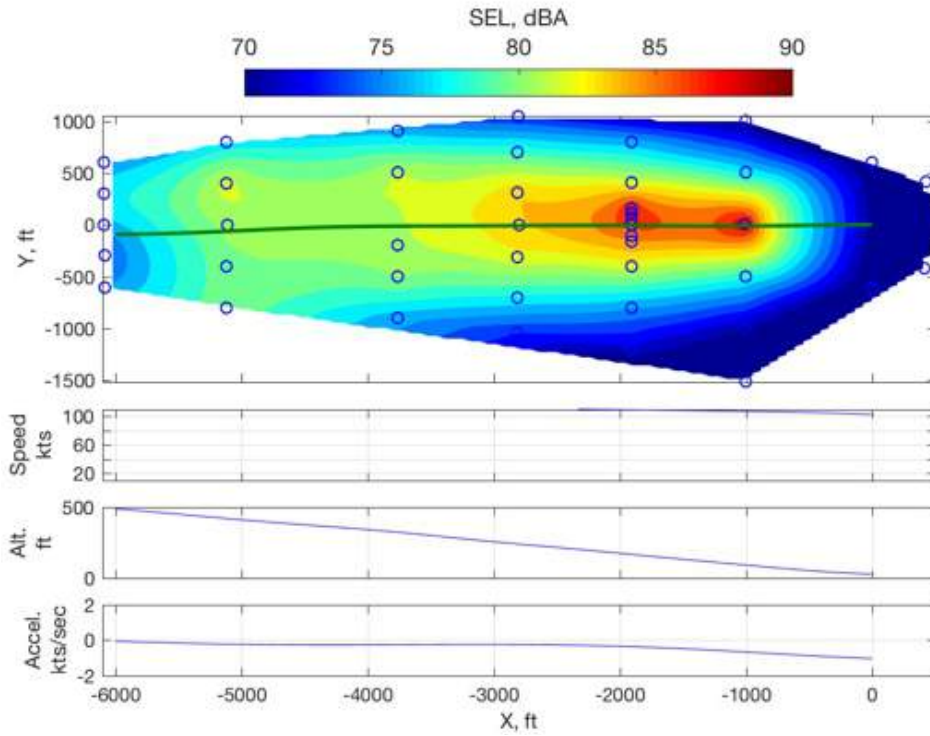


Figure 1195: EC130B4, A56, run 298292 A-Weighted SEL contour.

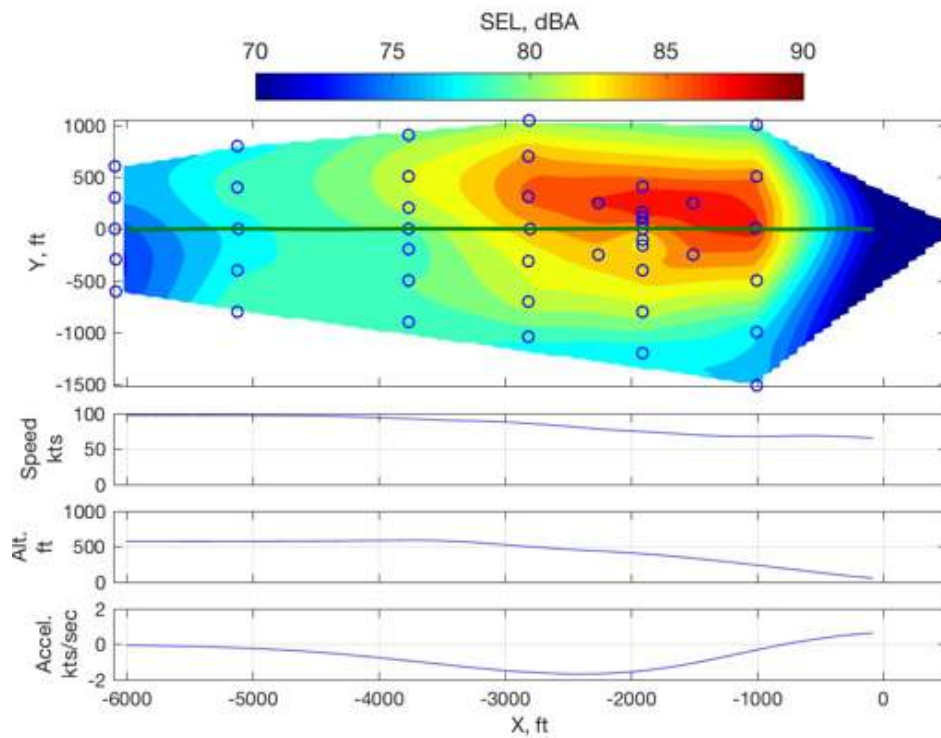


Figure 1196: EC130B4, A57, run 299358 A-Weighted SEL contour.

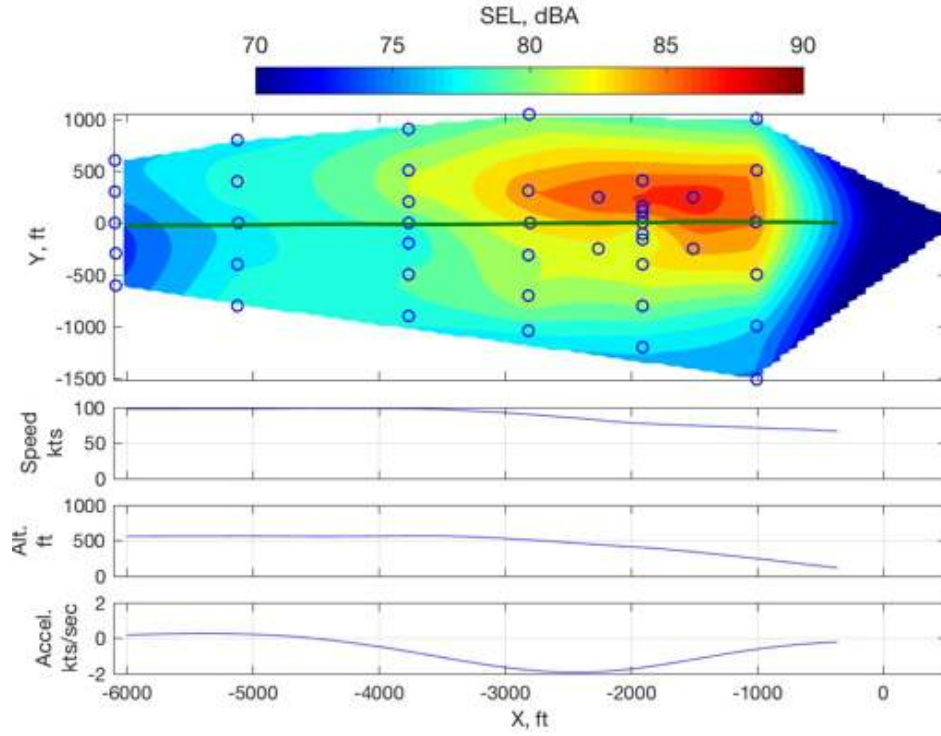


Figure 1197: EC130B4, A57, run 299359 A-Weighted SEL contour.

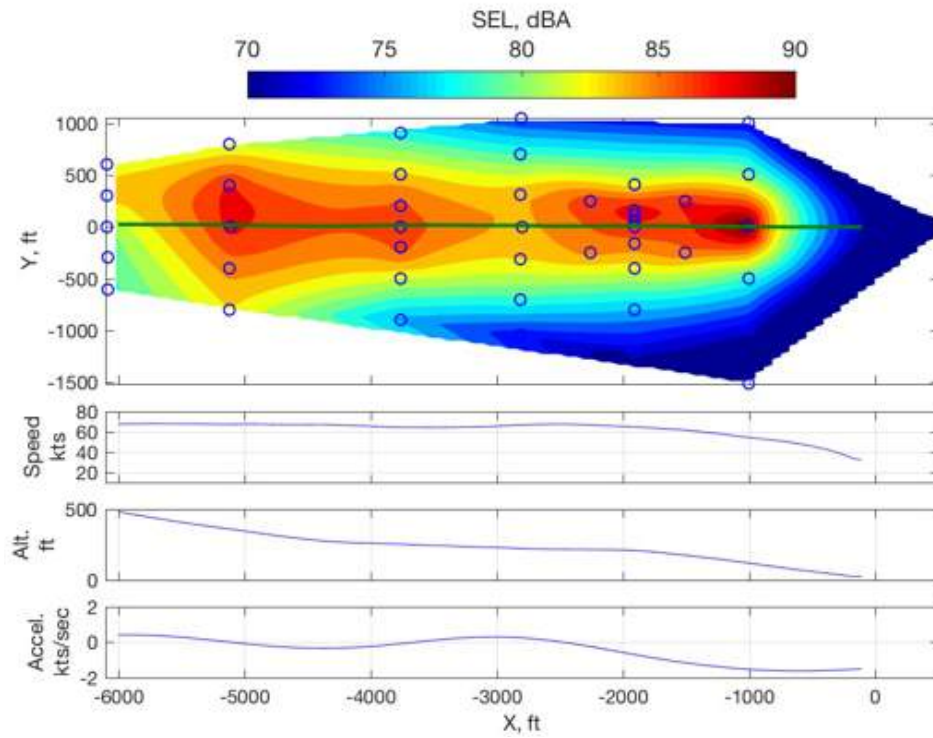


Figure 1198: EC130B4, A58, run 299360 A-Weighted SEL contour.

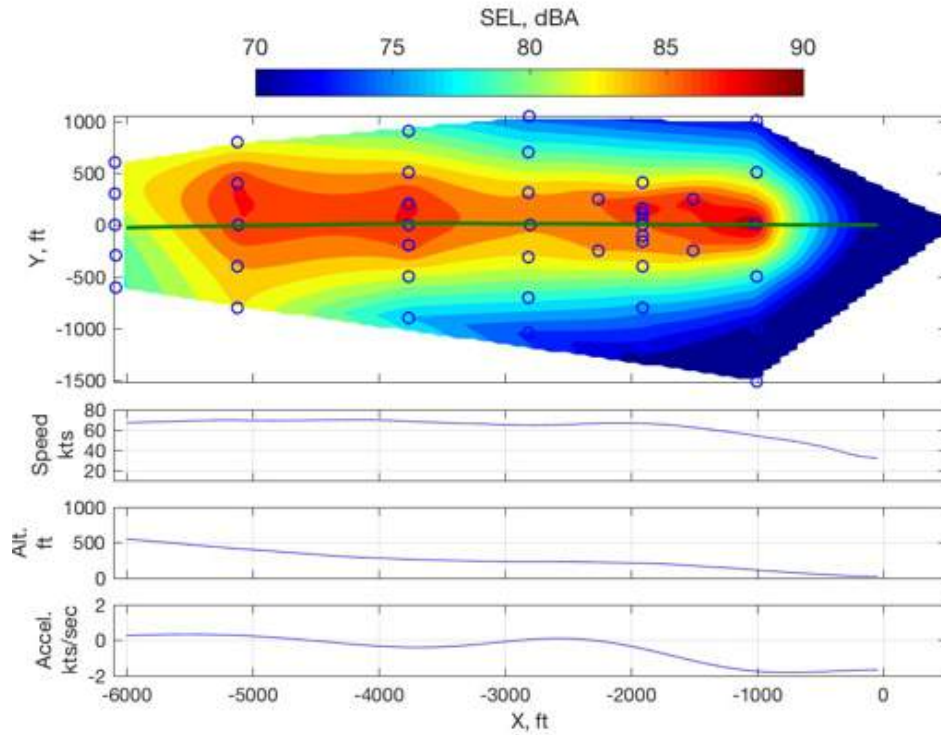


Figure 1199: EC130B4, A58, run 299361 A-Weighted SEL contour.

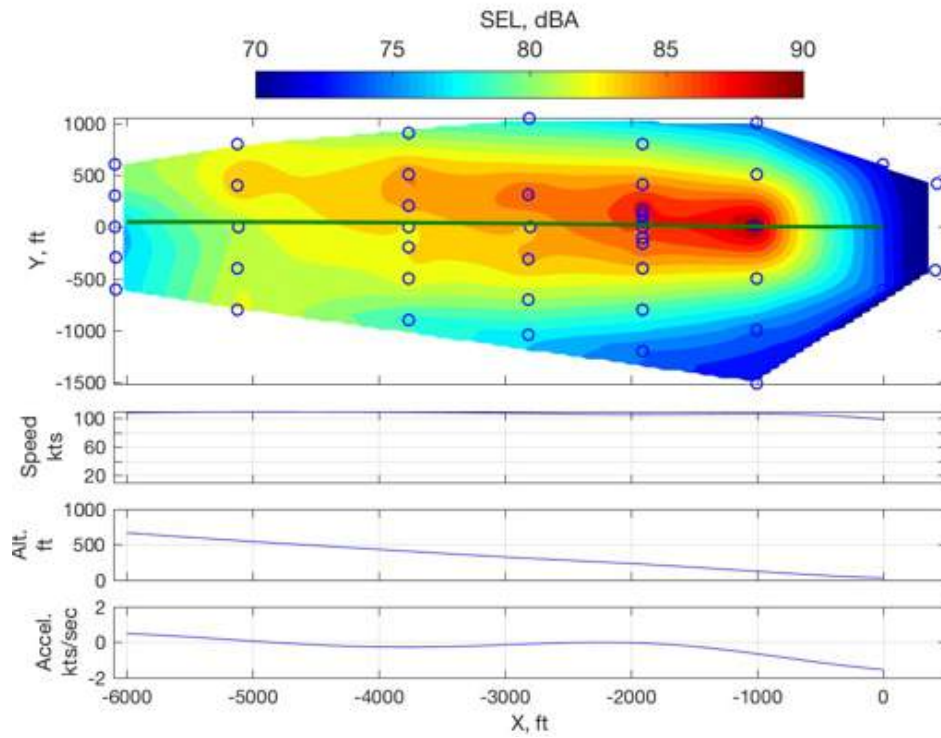


Figure 1200: EC130B4, A59, run 298285 A-Weighted SEL contour.

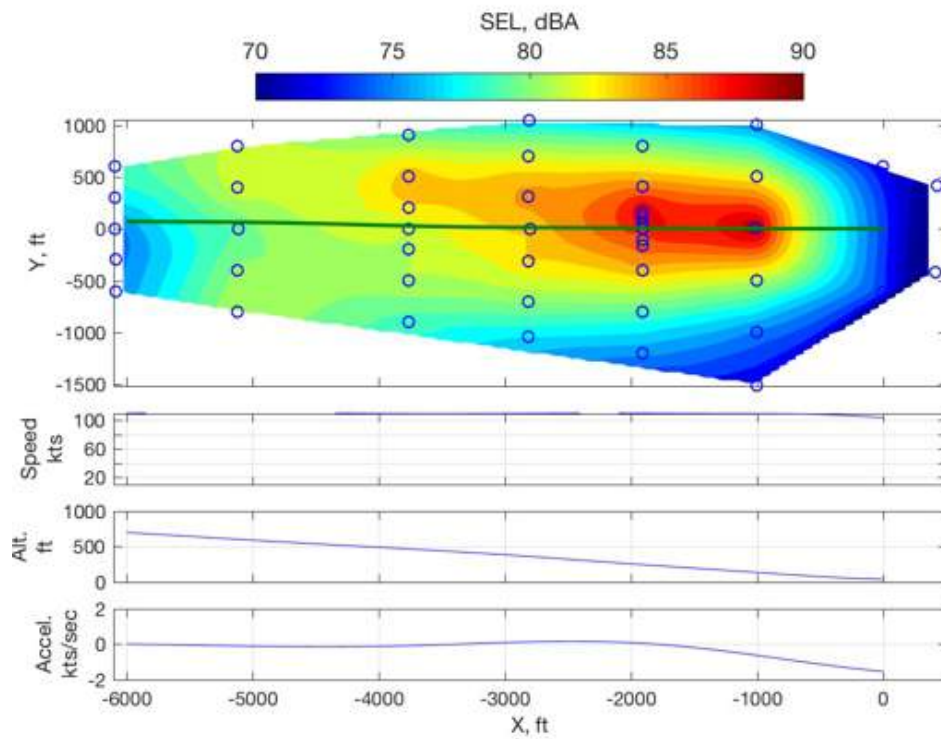


Figure 1201: EC130B4, A59, run 298286 A-Weighted SEL contour.

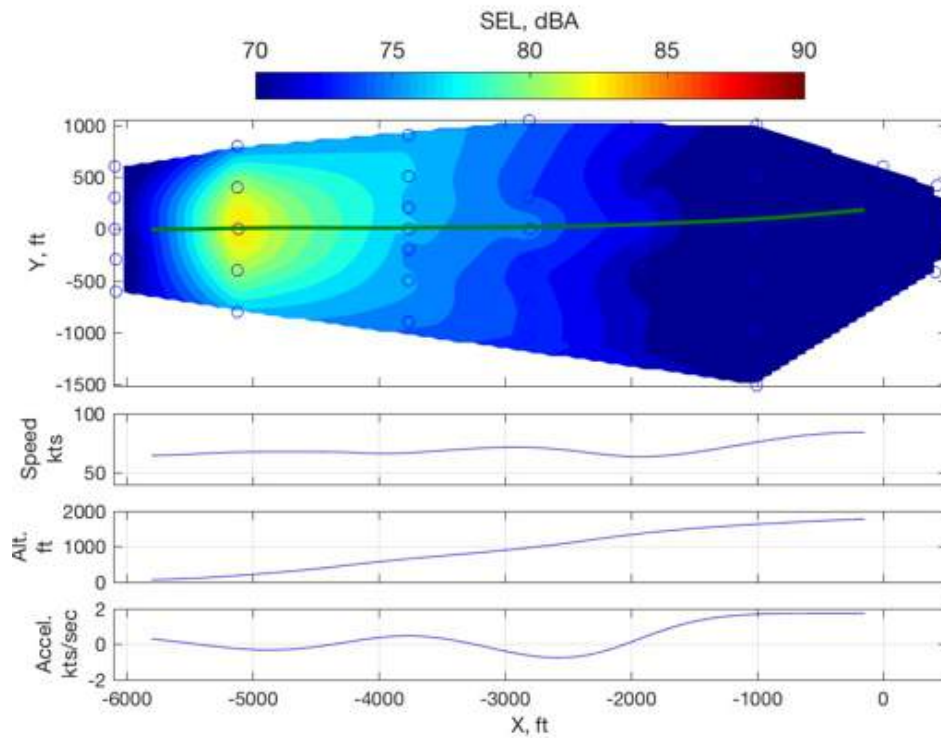


Figure 1202: EC130B4, C1, run 298297 A-Weighted SEL contour.

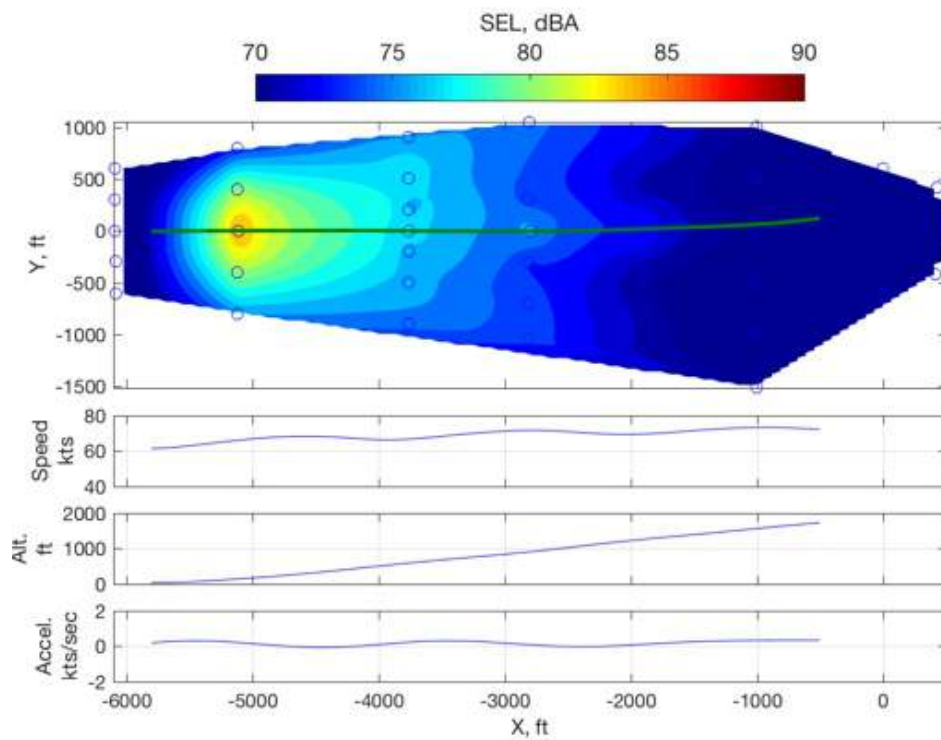


Figure 1203: EC130B4, C1, run 298298 A-Weighted SEL contour.

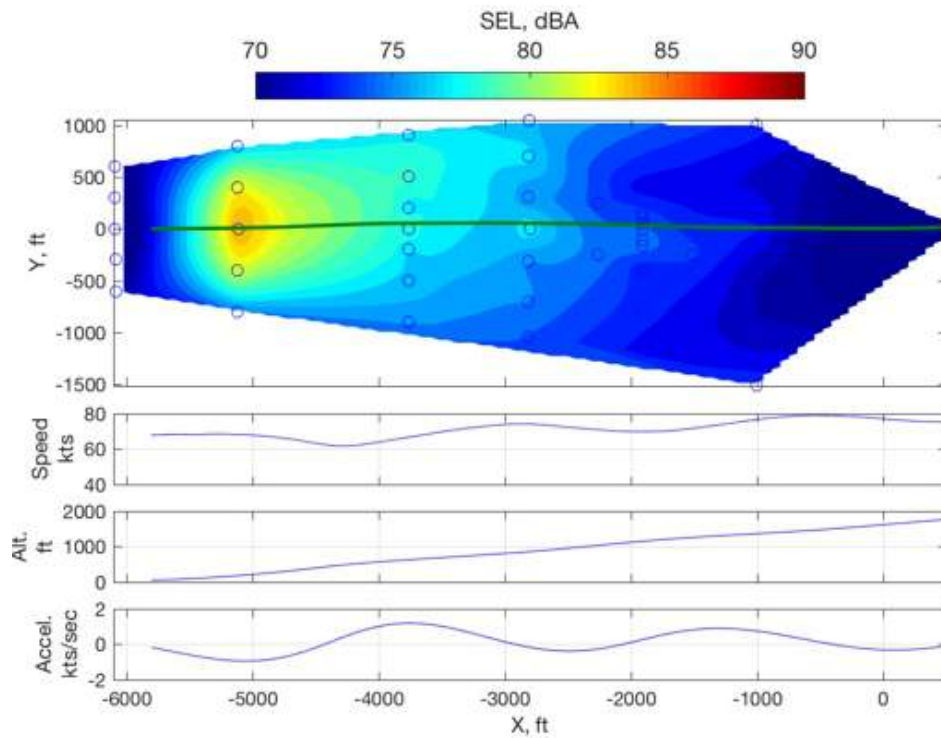


Figure 1204: EC130B4, C1, run 299306 A-Weighted SEL contour.

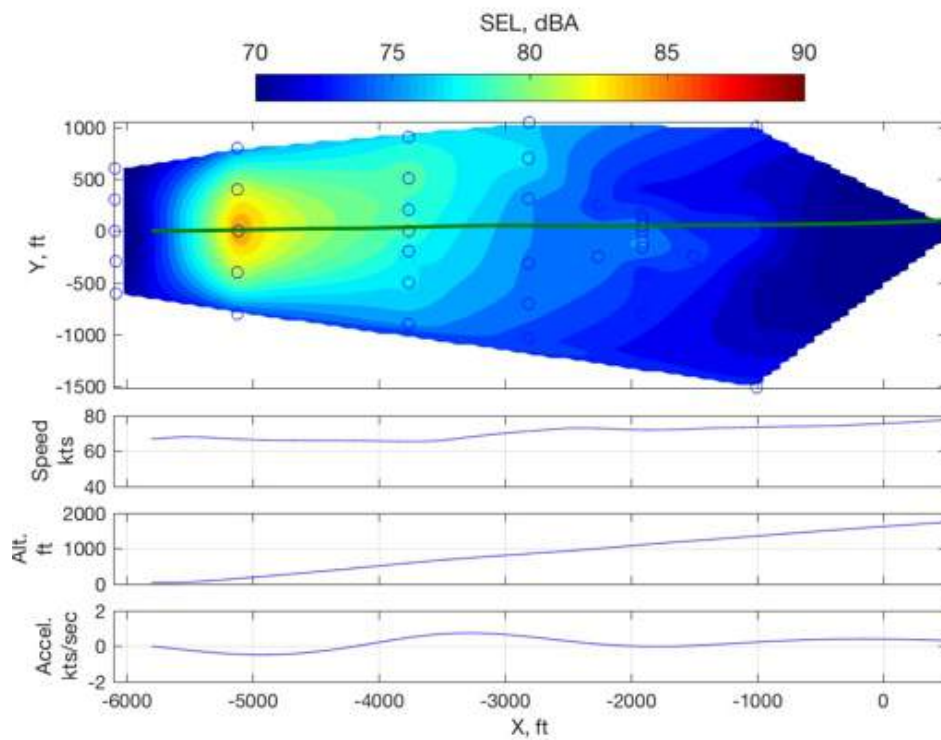


Figure 1205: EC130B4, C1, run 299307 A-Weighted SEL contour.

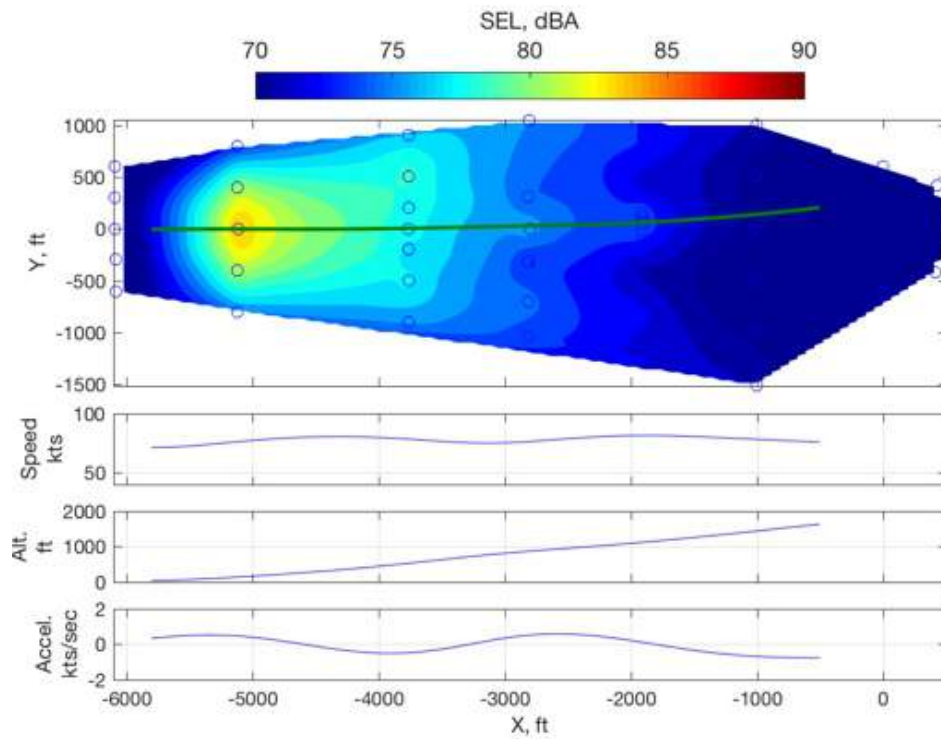


Figure 1206: EC130B4, C2, run 298299 A-Weighted SEL contour.

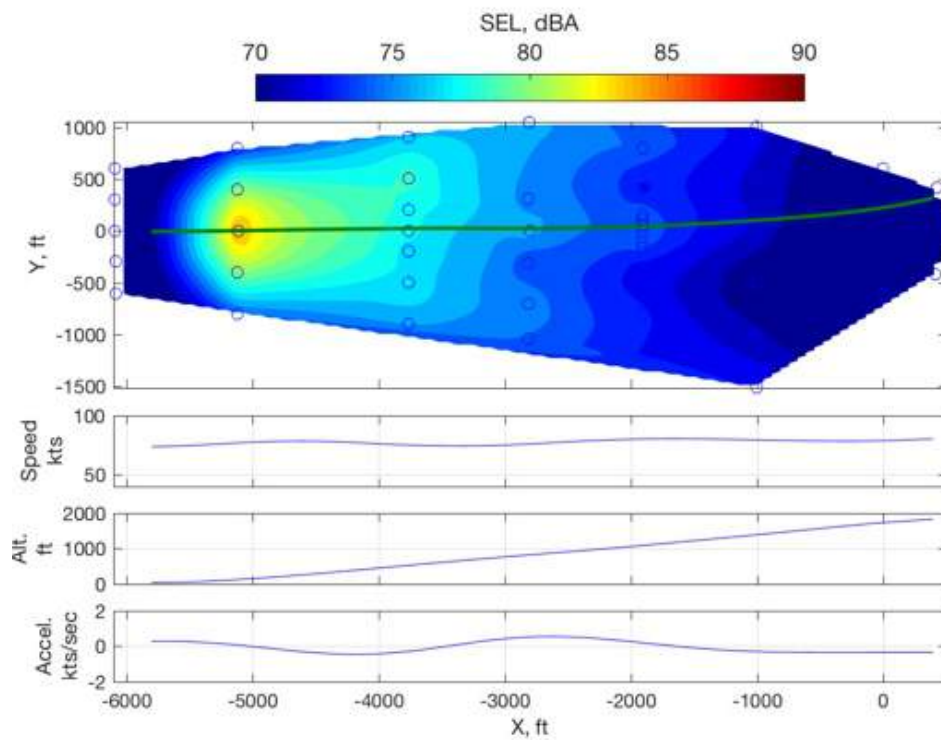


Figure 1207: EC130B4, C2, run 298300 A-Weighted SEL contour.

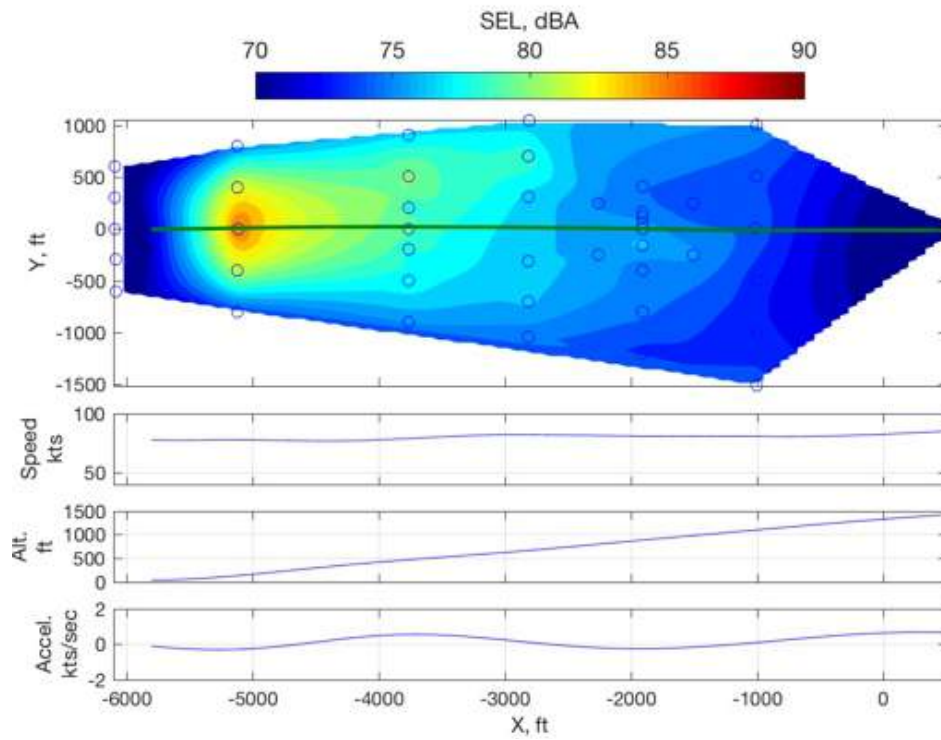


Figure 1208: EC130B4, C2, run 299309 A-Weighted SEL contour.

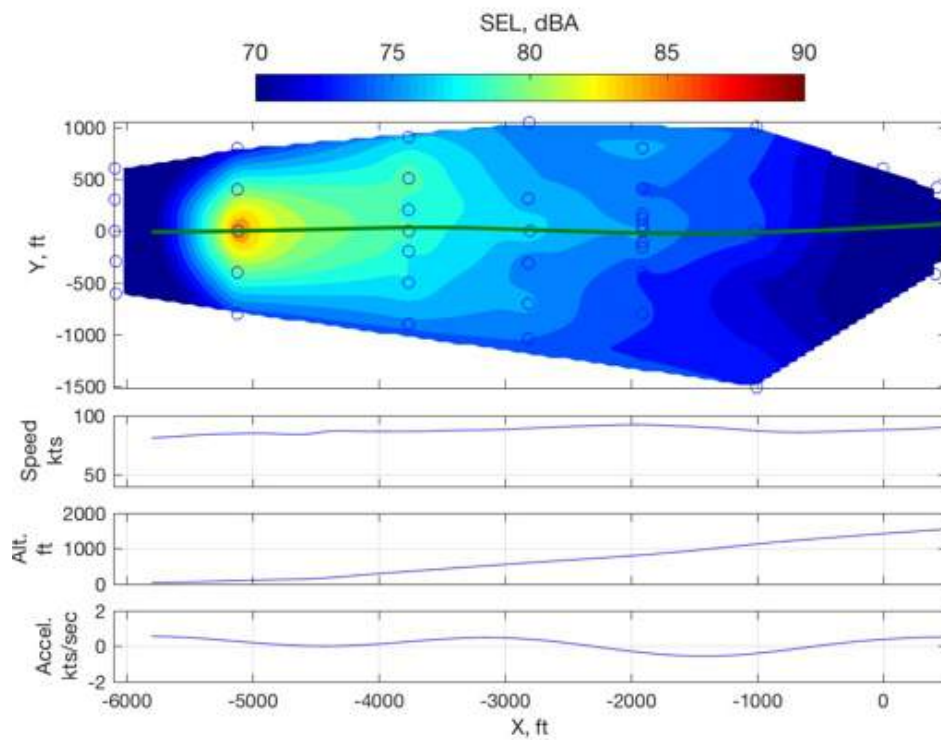


Figure 1209: EC130B4, C3, run 298301 A-Weighted SEL contour.

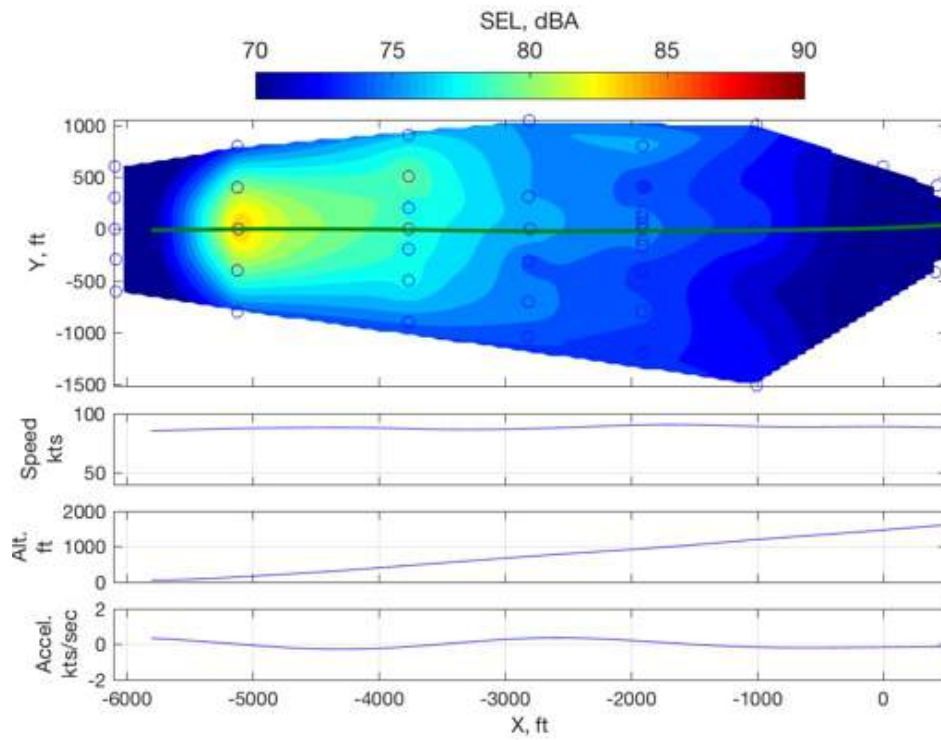


Figure 1210: EC130B4, C3, run 298302 A-Weighted SEL contour.

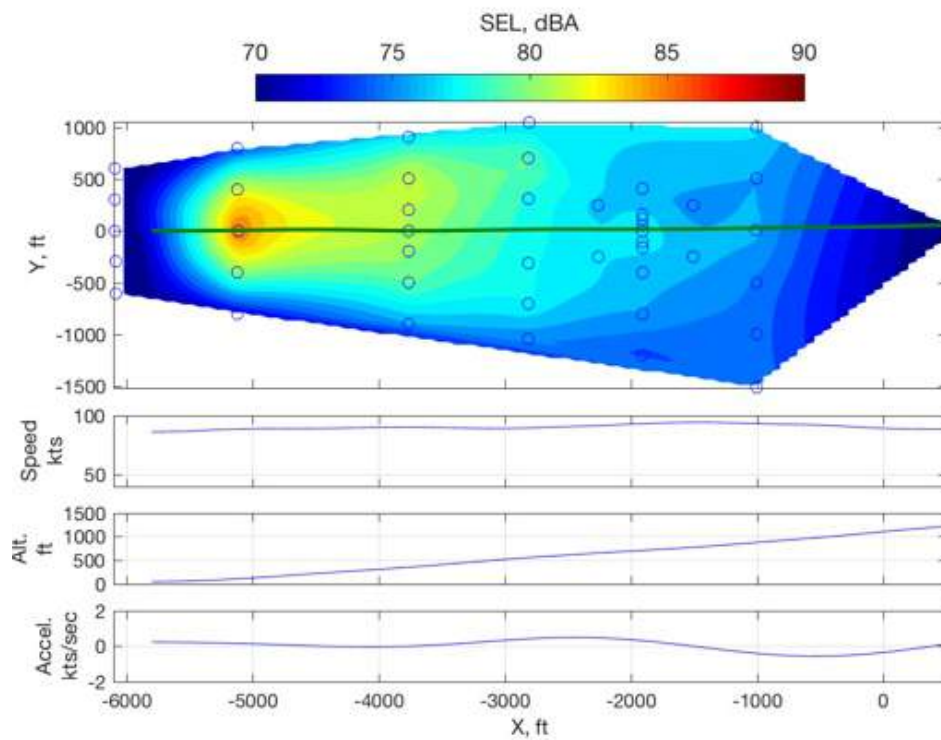


Figure 1211: EC130B4, C3, run 299310 A-Weighted SEL contour.

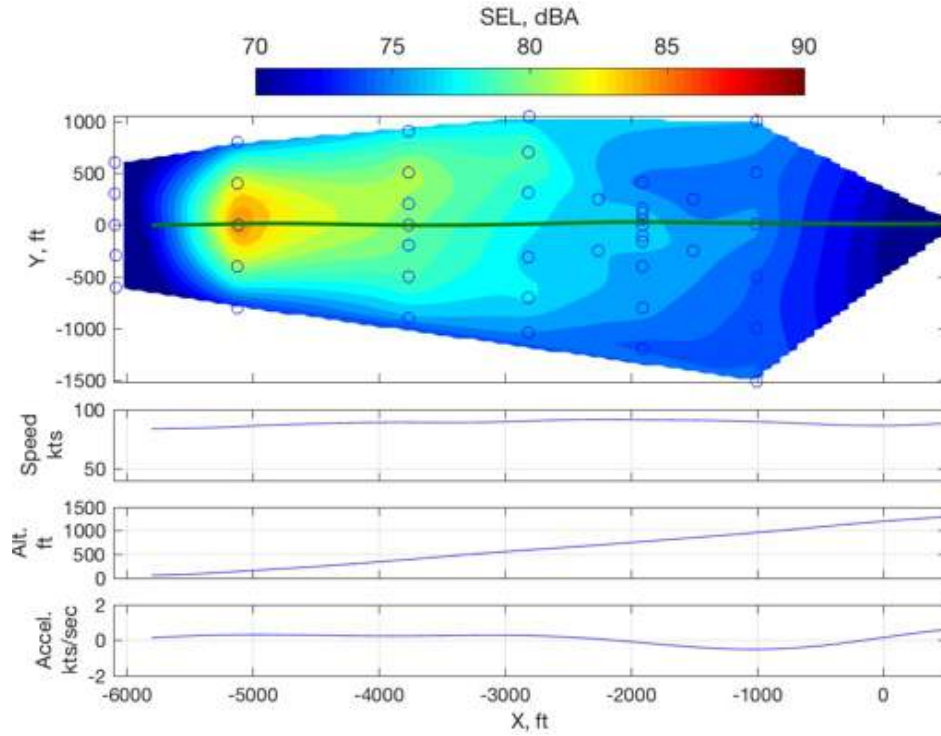


Figure 1212: EC130B4, C3, run 299311 A-Weighted SEL contour.

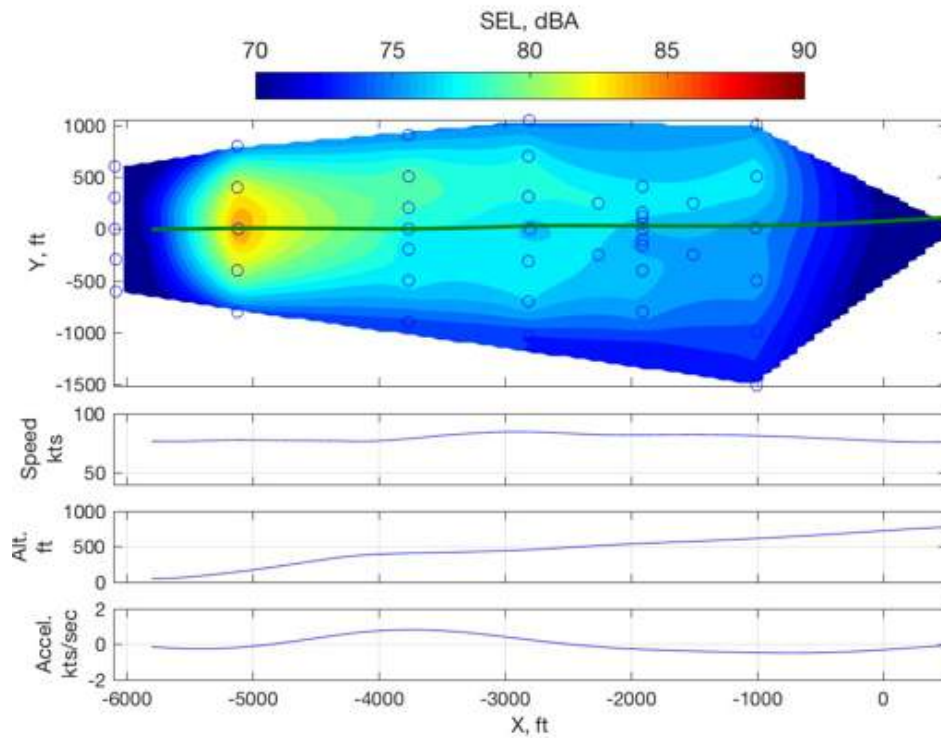


Figure 1213: EC130B4, C4, run 299312 A-Weighted SEL contour.

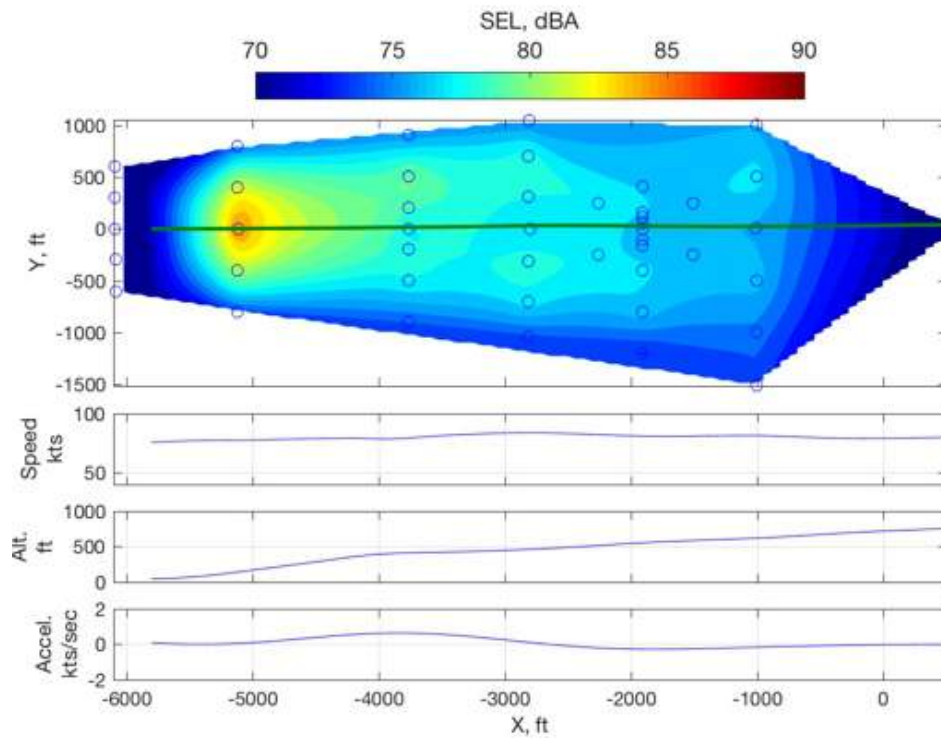


Figure 1214: EC130B4, C4, run 299313 A-Weighted SEL contour.

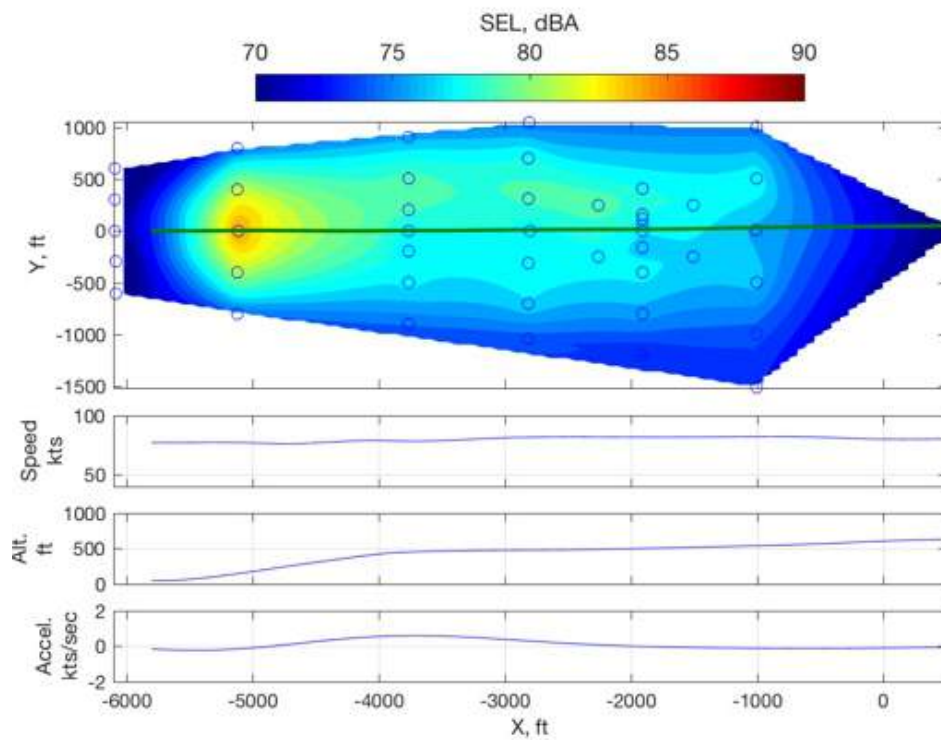


Figure 1215: EC130B4, C5, run 299317 A-Weighted SEL contour.

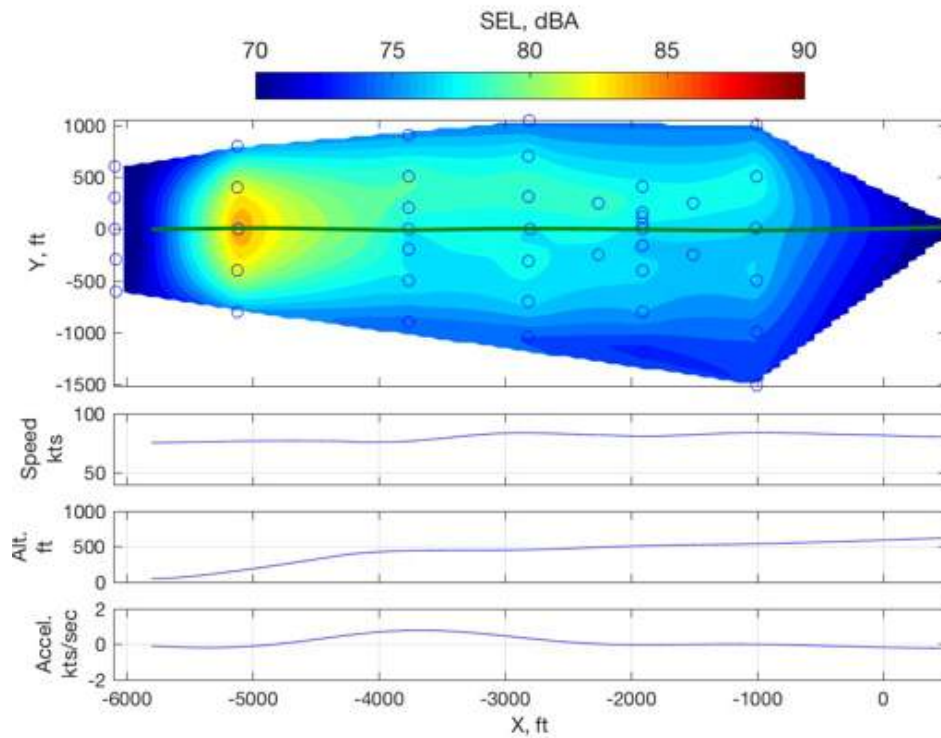


Figure 1216: EC130B4, C5, run 299318 A-Weighted SEL contour.

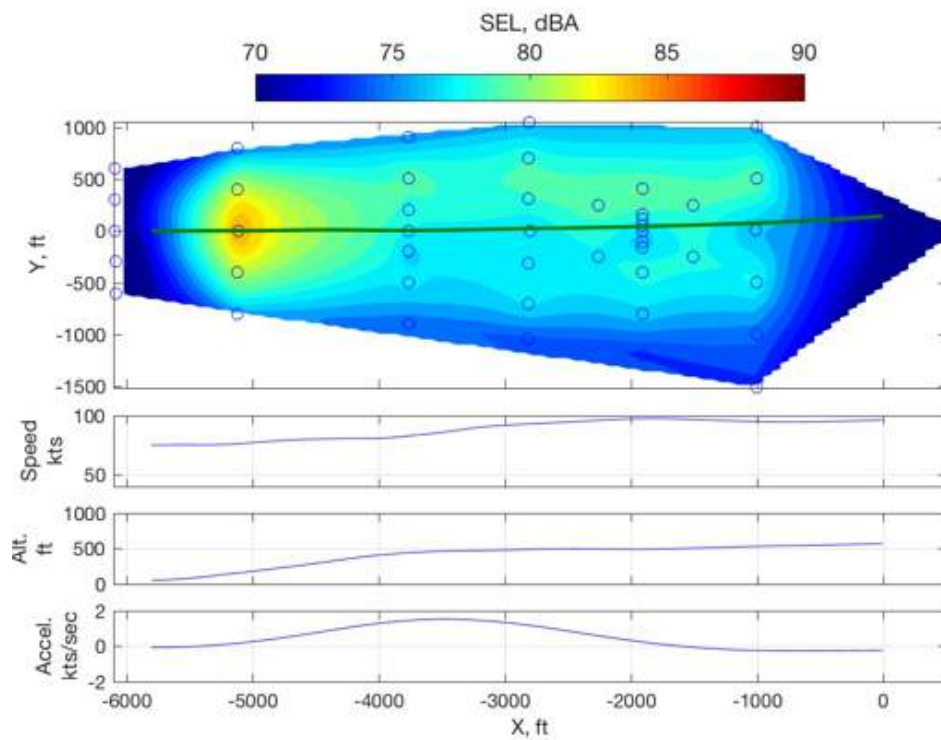


Figure 1217: EC130B4, C6, run 299319 A-Weighted SEL contour.

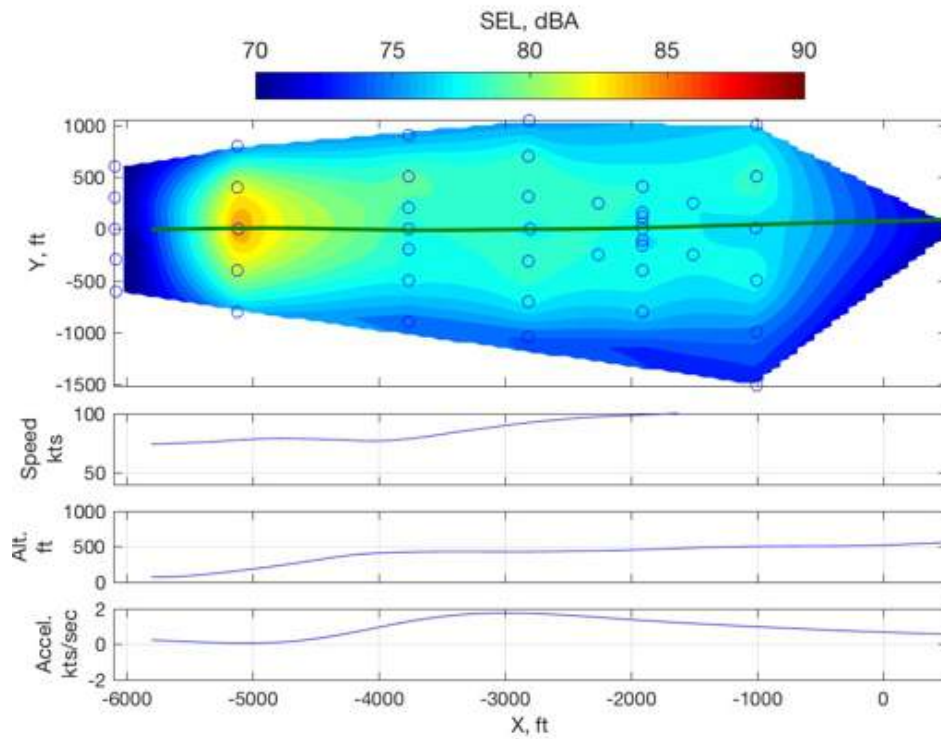


Figure 1218: EC130B4, C6, run 299320 A-Weighted SEL contour.

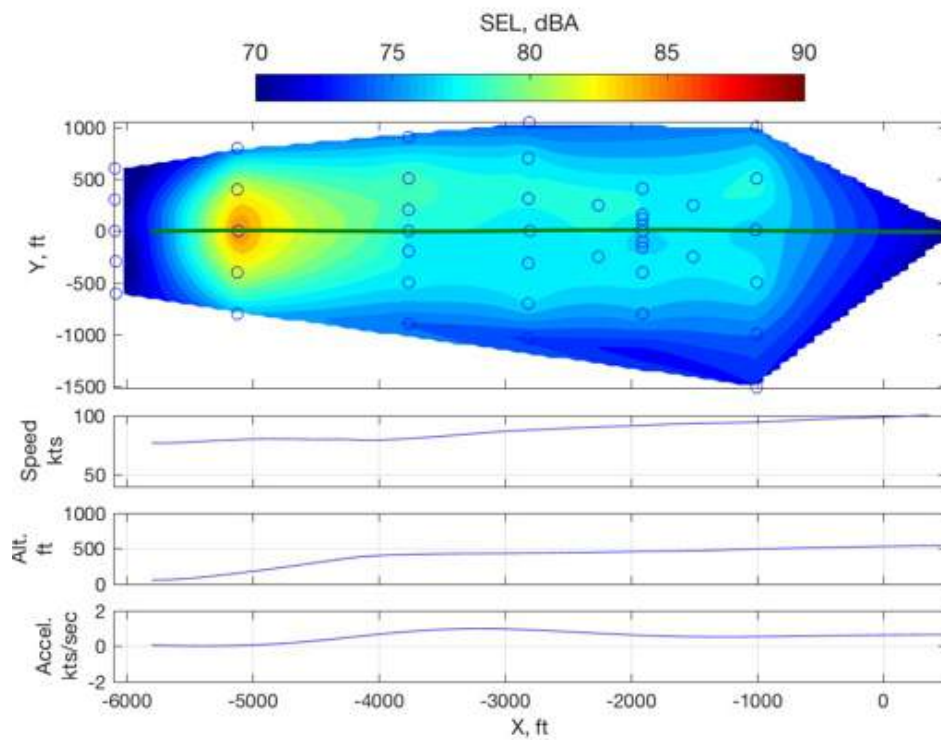


Figure 1219: EC130B4, C7, run 299321 A-Weighted SEL contour.

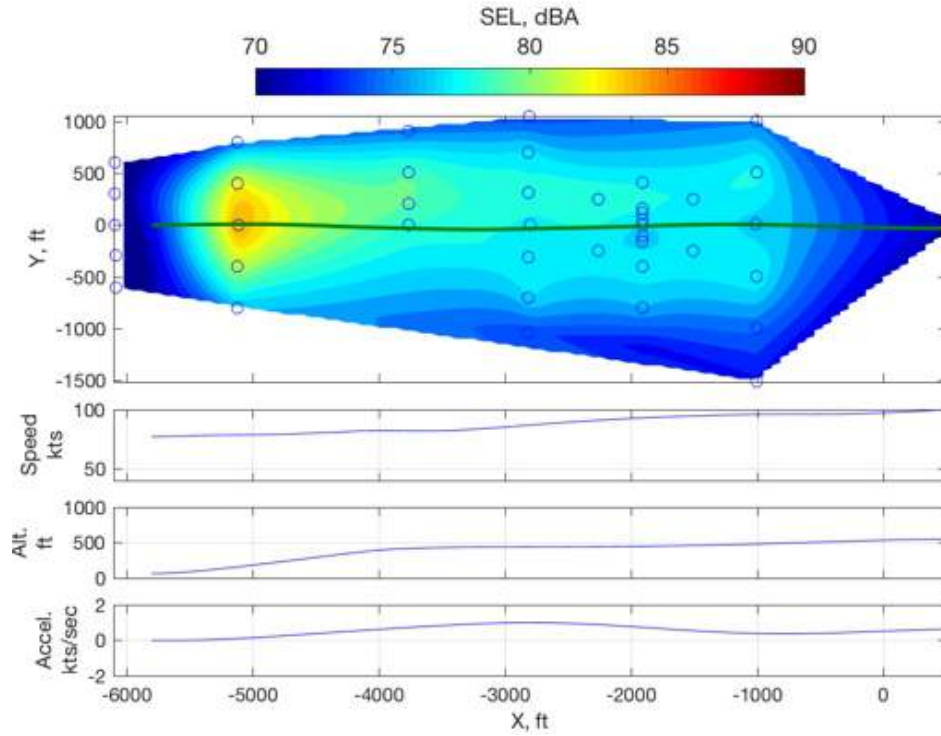


Figure 1220: EC130B4, C7, run 299322 A-Weighted SEL contour.

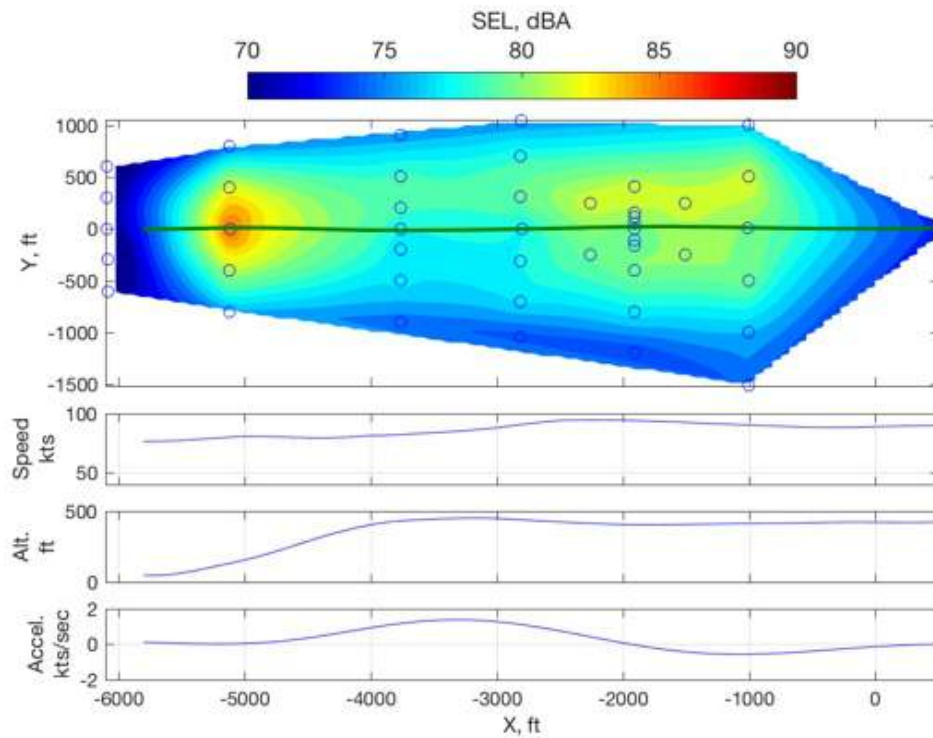


Figure 1221: EC130B4, C8, run 299323 A-Weighted SEL contour.

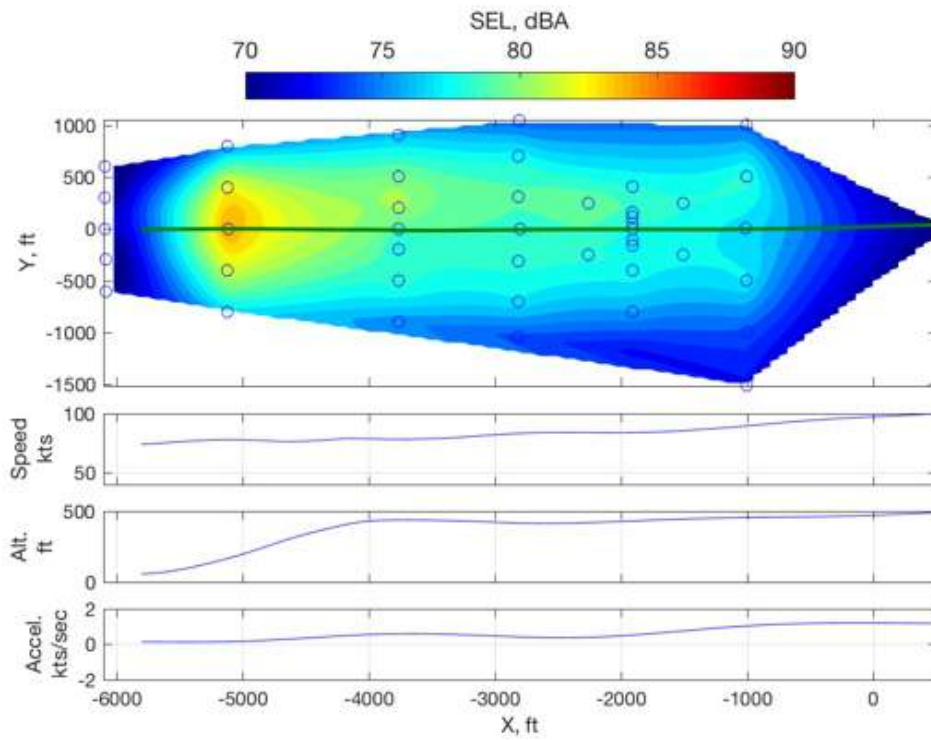


Figure 1222: EC130B4, C8, run 299324 A-Weighted SEL contour.

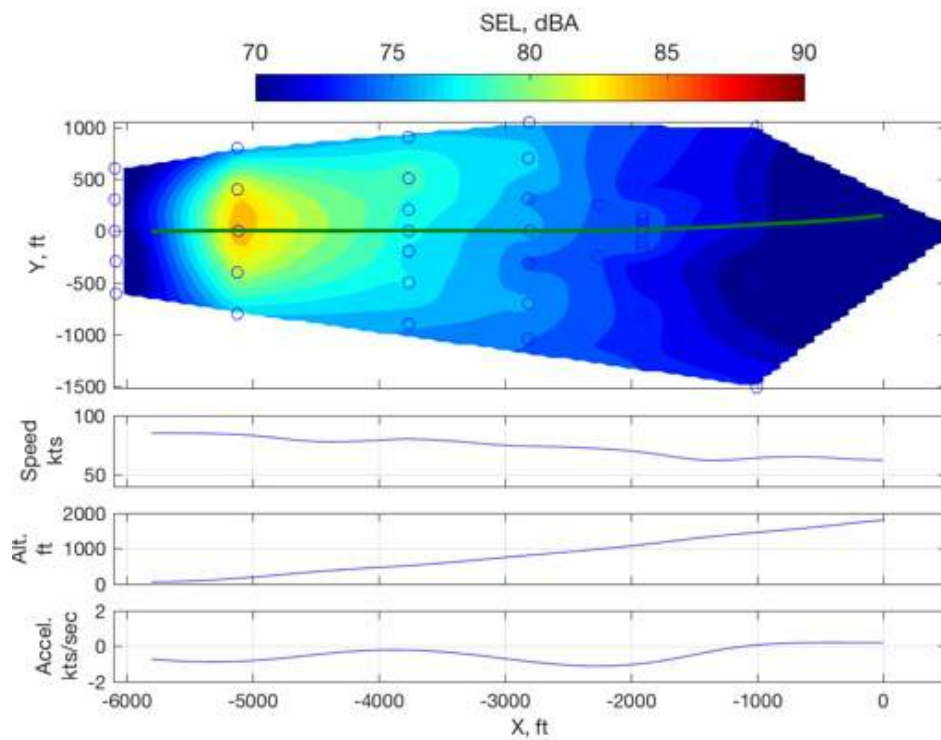


Figure 1223: EC130B4, C9, run 299325 A-Weighted SEL contour.

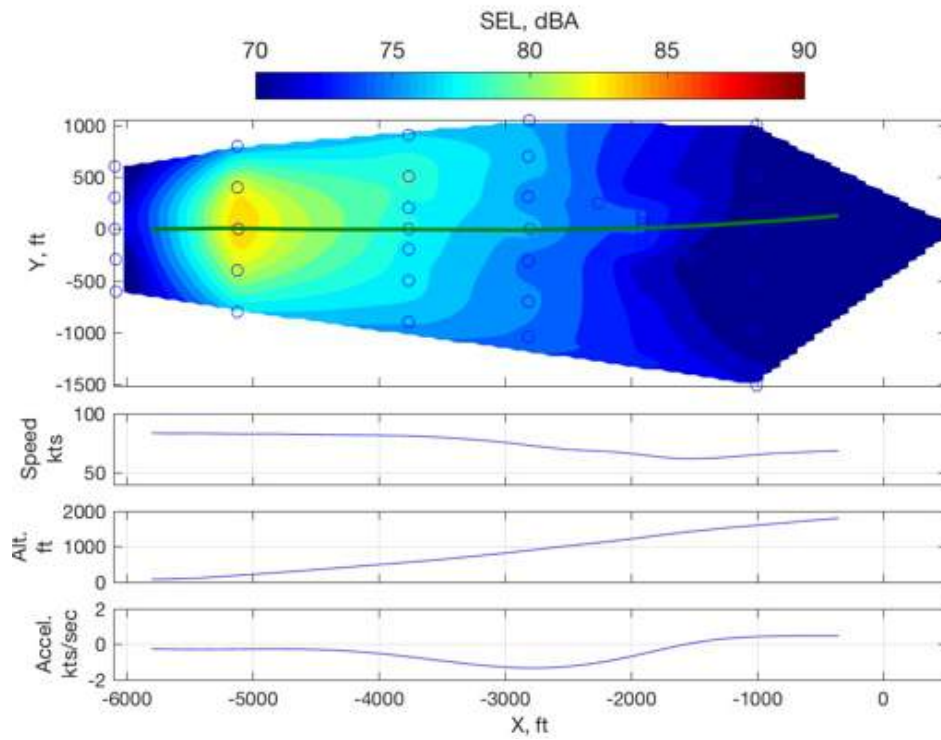


Figure 1224: EC130B4, C9, run 299326 A-Weighted SEL contour.

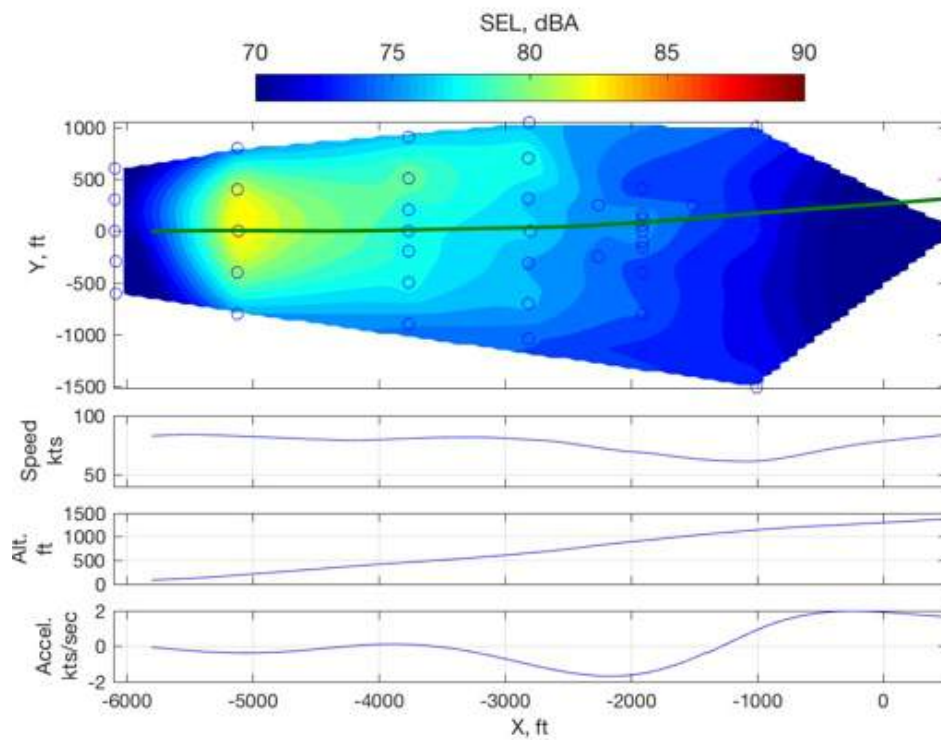


Figure 1225: EC130B4, C10, run 299327 A-Weighted SEL contour.

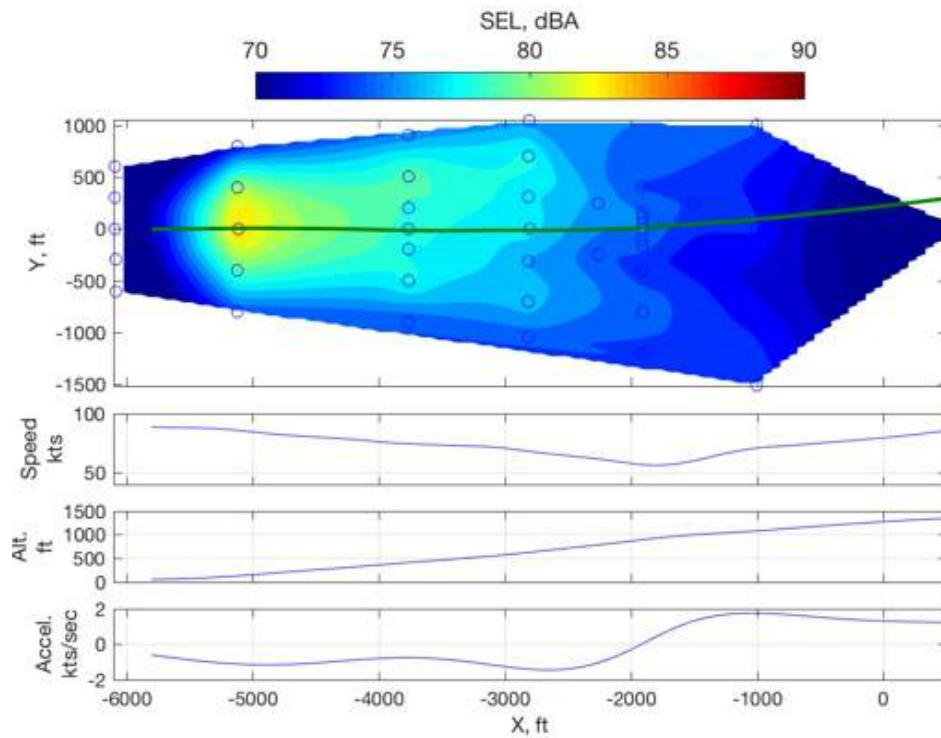


Figure 1226: EC130B4, C10, run 299328 A-Weighted SEL contour.

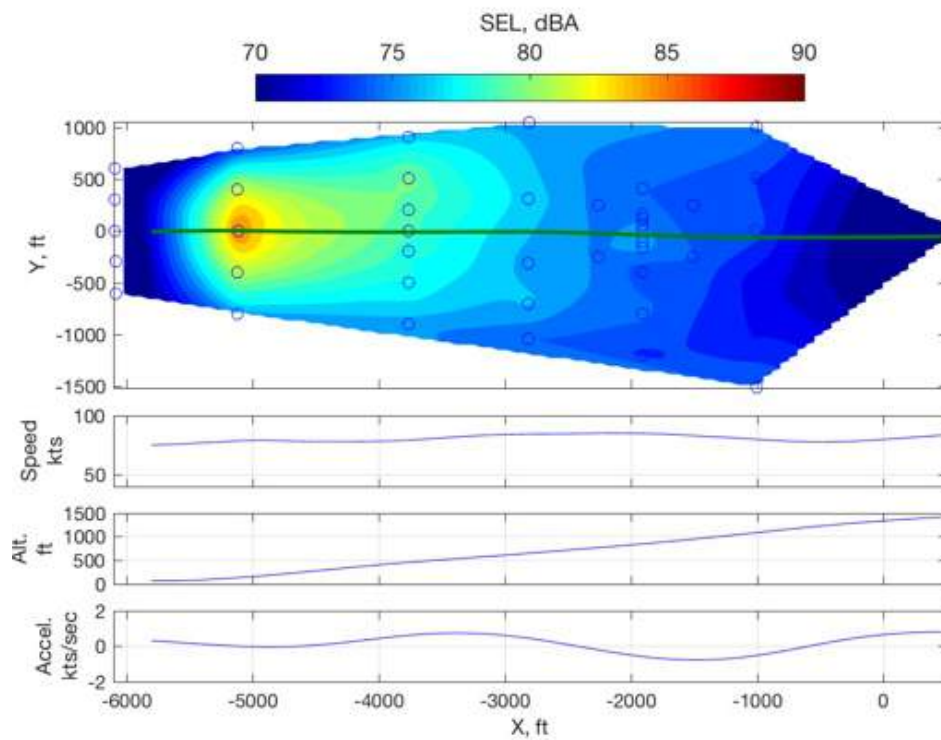


Figure 1227: EC130B4, C11, run 299329 A-Weighted SEL contour.

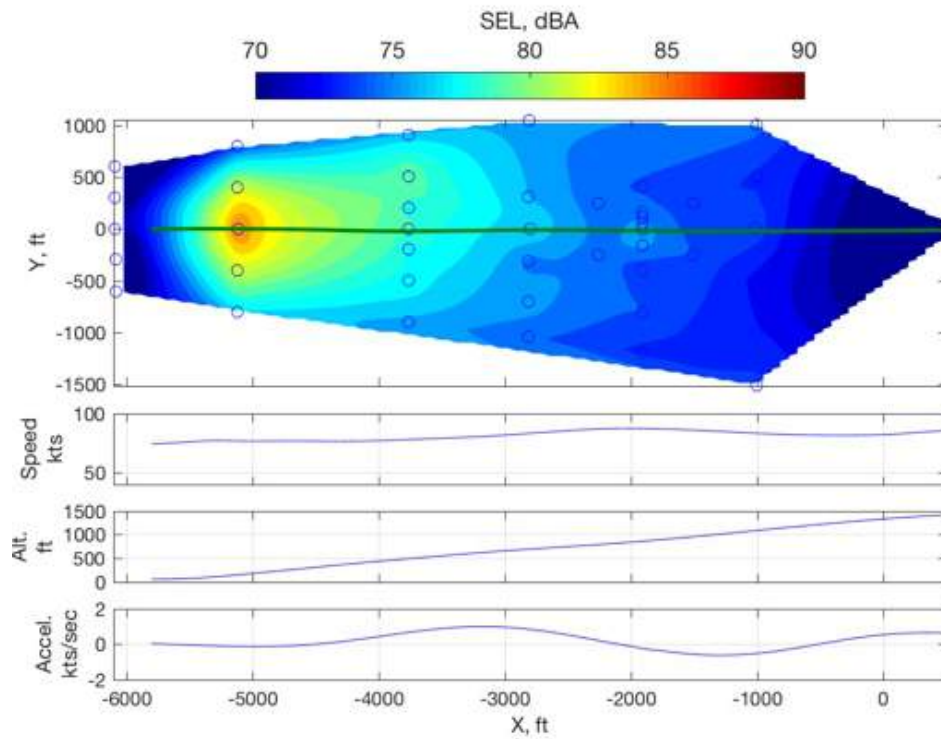


Figure 1228: EC130B4, C11, run 299330 A-Weighted SEL contour.

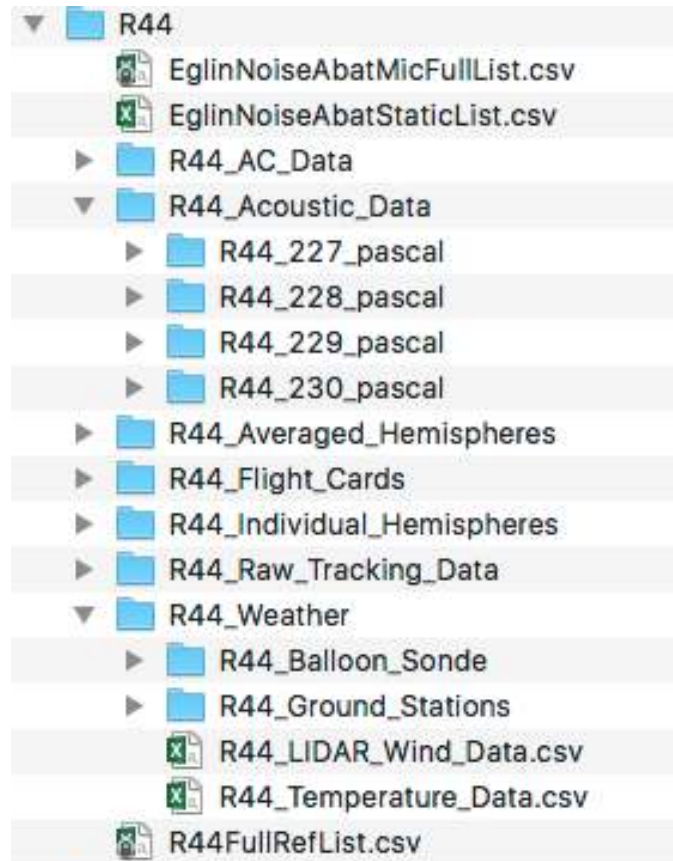


Figure 1229: Electronic data file structure.

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14. ABSTRACT An acoustic flight test of six helicopters conducted by NASA, FAA, and the US Army is described. Microphone arrays were used to collect acoustic data for source noise characterization, to investigate the acoustic impacts of maneuvering flight, and to develop and evaluate noise abatement operations for helicopters on approach. Atmospheric data and vehicle state data were also collected. Noise metrics are calculated and plotted for all conditions tested. All data described are publicly available upon request.					
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