



National Transportation Safety Board

Office of Aviation Safety Central Region

Device Download and Data Summary

NTSB Accident No:	CEN19FA247
Accident Date/Time:	Saturday, August 3, 2019, at 1143 EDT
Accident Location:	Ontonagon, Michigan 46°41'56.64"N 89°28'21.60"W 1,478 ft mean sea level
Aircraft Make/Model:	Piper PA-28-180
Aircraft Registration:	N5167L
GPS Device:	Appareo Stratus 2i p/n: 153510-000037 SSID: Stratus2i002687

SUMMARY

An Appareo Stratus 2i device was recovered at the accident site. The device data was downloaded using an Apple iPad and the ForeFlight application. The downloaded data included 17 flights flown between February 13, 2019, and August 3, 2019. The device was configured to record position data at a fixed time interval of 0.2 seconds. The recorded data parameters included time, latitude, longitude, altitude, ground speed, and true course. The downloaded data was reviewed using the NTSB's Data Analysis Numerical Toolbox and Editor (DANTE) software.

DATA SUMMARY

According to the downloaded data, at 1116, the device powered on and began recording shortly after the pilot departed runway 27 at Gogebic-Iron County Airport (IWD), Ironwood, Michigan. The pilot made a climbing right turn toward the east-northeast and toward Ontonagon County Airport (OGM), Ontonagon, Michigan. At 1121:30, the pilot began a left turn from an east course toward north and, about 1124:30, he began descending from 4,900 ft mean sea level (msl).

The airplane's ground track during the flight was plotted on Nexrad weather imagery that was collected by a NTSB Meteorologist during the investigation.

Between 1127:30 and 1132:00, the pilot flew north toward Lake Superior and between two areas of moderate precipitation, as shown in figure 1, and descended from 4,500 ft msl to 2,500 ft msl.

Between 1132 and 1136, the pilot flew southeast through a thunderstorm with moderate to heavy precipitation, as shown in figure 2 and figure 3, and climbed from 2,100 to 2,800 ft msl.

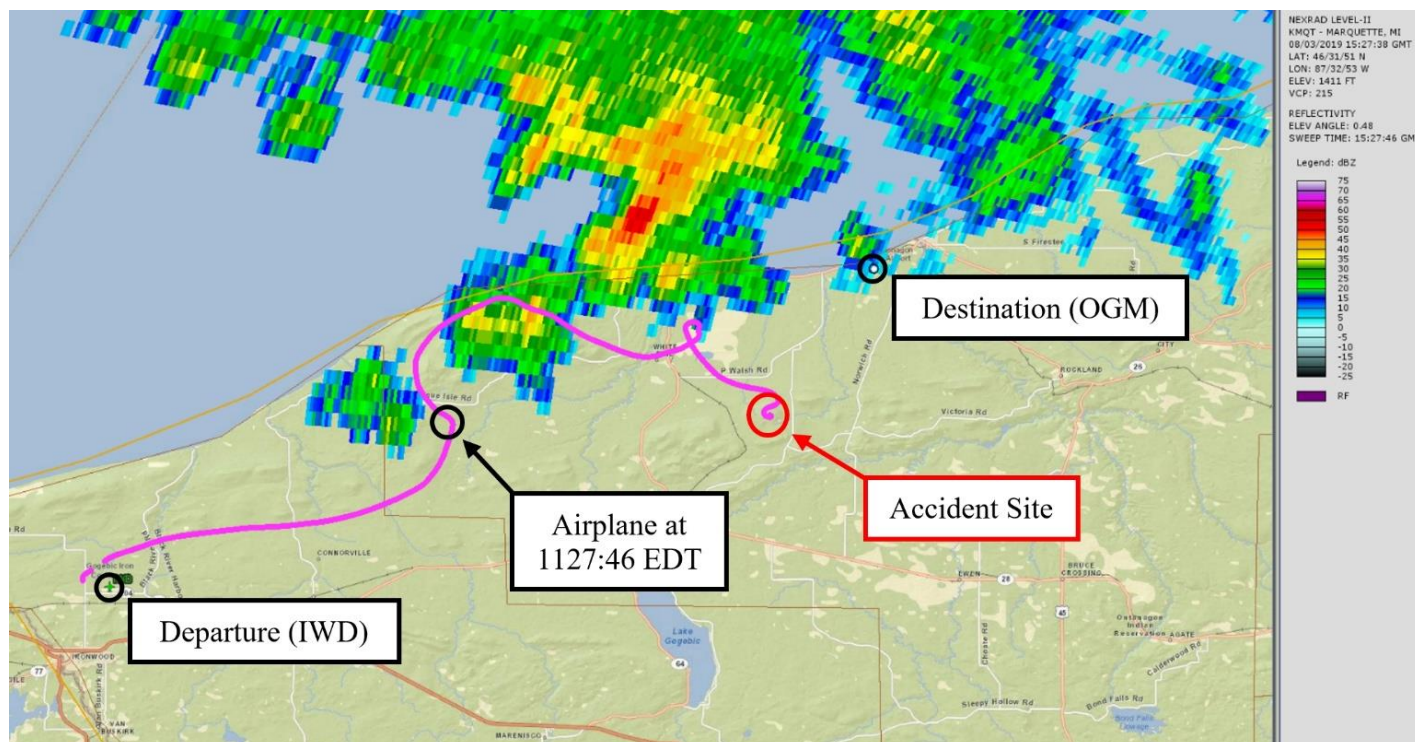


Figure 1. Airplane Ground Track with 1127:46 Nexrad Weather Depicted

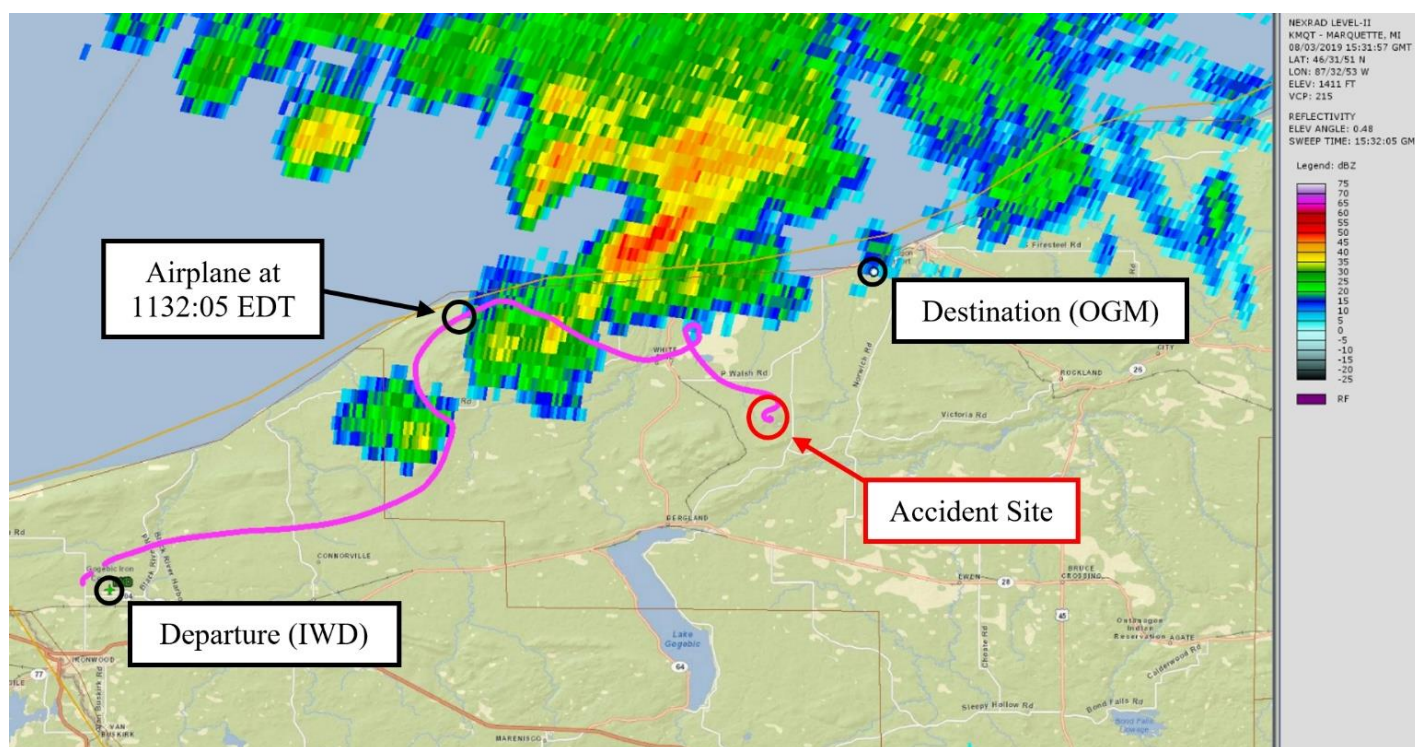


Figure 2. Airplane Ground Track with 1132:05 Nexrad Weather Depicted

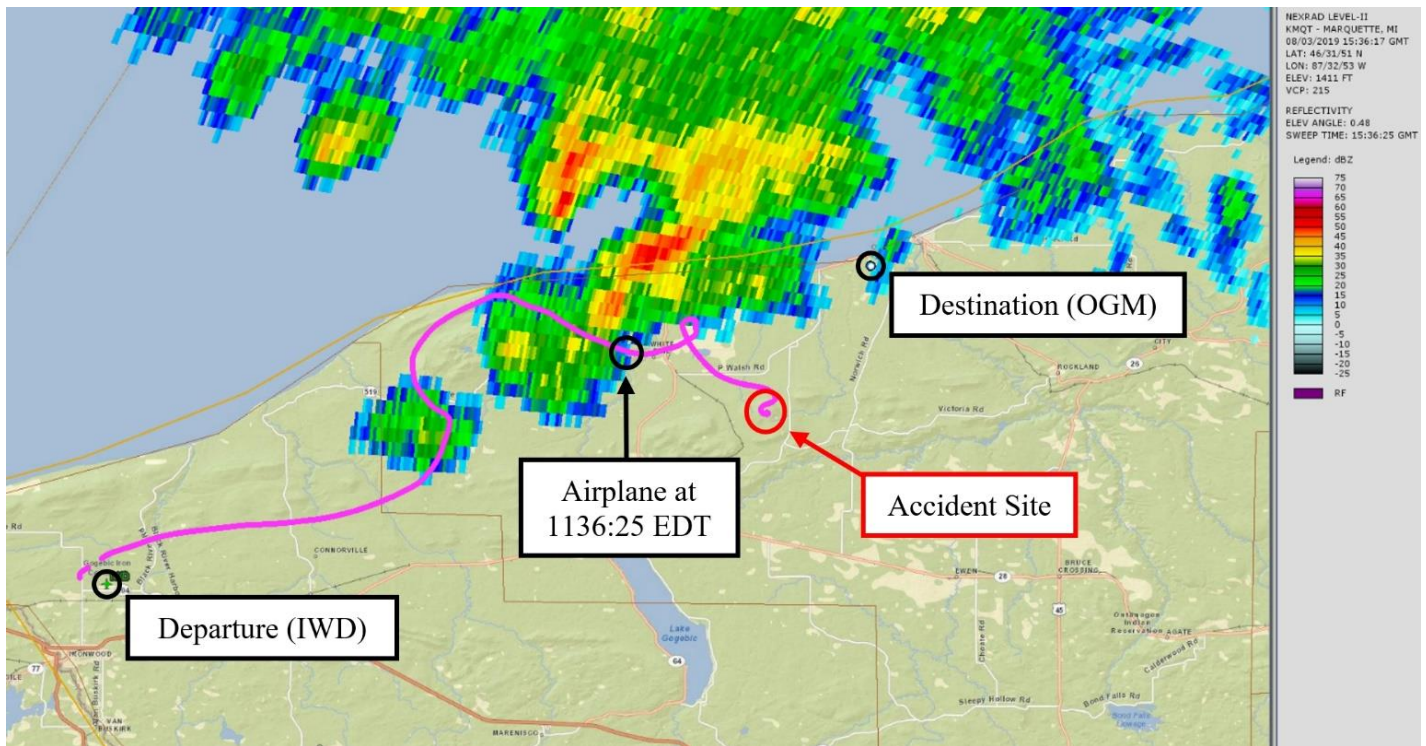


Figure 3. Airplane Ground Track with 1136:25 Nexrad Weather Depicted

After 1136, the airplane emerged from the thunderstorm on a southeast course at 2,800 ft msl. At 1136:45, the pilot briefly turned northeast before he made a descending 270° left turn to the southeast. The airplane descended from 2,600 ft msl to 2,000 ft msl during the 270° left turn. The pilot then continued southeast ahead of the depicted precipitation and thunderstorm, as shown in figure 4. However, near the accident site, the weather-based radar can only detect precipitation at or above 6,500 ft msl and, as such, the actual level of precipitation the airplane was flying in may have differed from what was depicted on weather radar.

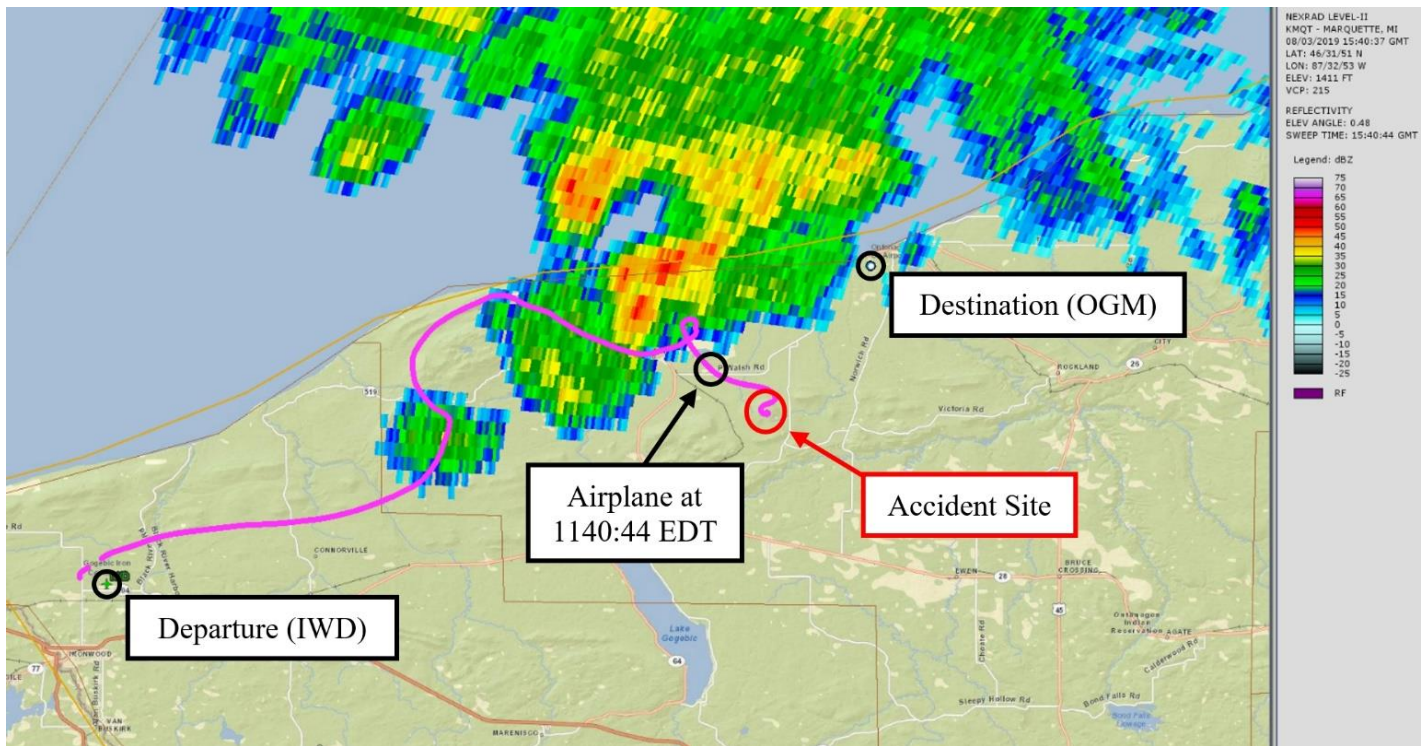


Figure 4. Airplane Ground Track with 1140:44 Nexrad Weather Depicted

At 1139:15, the pilot began to climb from 2,000 ft msl and, at 1141:30, he made a right turn to the southwest. Between 1142:13 and 1142:23, the airplane descended from 2,723 ft msl to 2,516 ft msl. Then, over the next 13 seconds, the airplane climbed from 2,516 ft msl to 2,860 ft msl.

About 1142:30, the airplane entered an increasingly tighter left turn, as shown in figure 5. Between 1142:36 and 1142:49, the airplane descended from 2,860 to 2,682 ft msl. Then, over the next 6 seconds, the airplane climbed from 2,682 ft msl to 2,940 ft msl. At 1142:48, the airplane's ground speed was about 140 knots and, at 1142:52, the airplane's climb rate was about 5,100 feet per minute (fpm).

At 1142:55, the airplane entered a rapid descent until the end of recorded data, as shown in figure 6. At 1143:00, the airplane's ground speed had decreased to 68 knots and the descent rate was about 13,200 fpm. At 1143:04, the final track point indicated the airplane was about 240 ft east of the accident site at 1,562 ft msl (about 80 ft above the ground), 136 knots ground speed, and descending about 7,400 fpm.

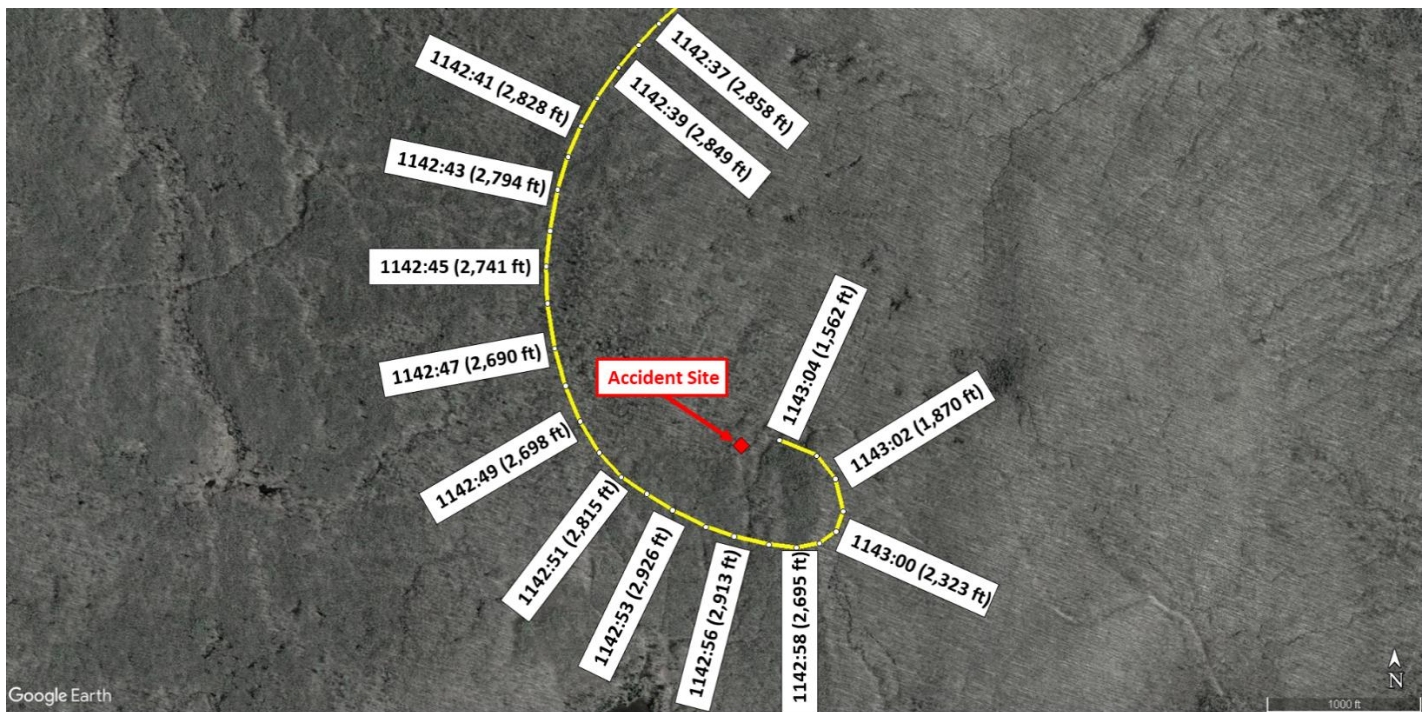


Figure 5. Airplane Ground Track Shortly Before Impact

CEN19FA247-- Appareo Stratus 2i Data End of Flight

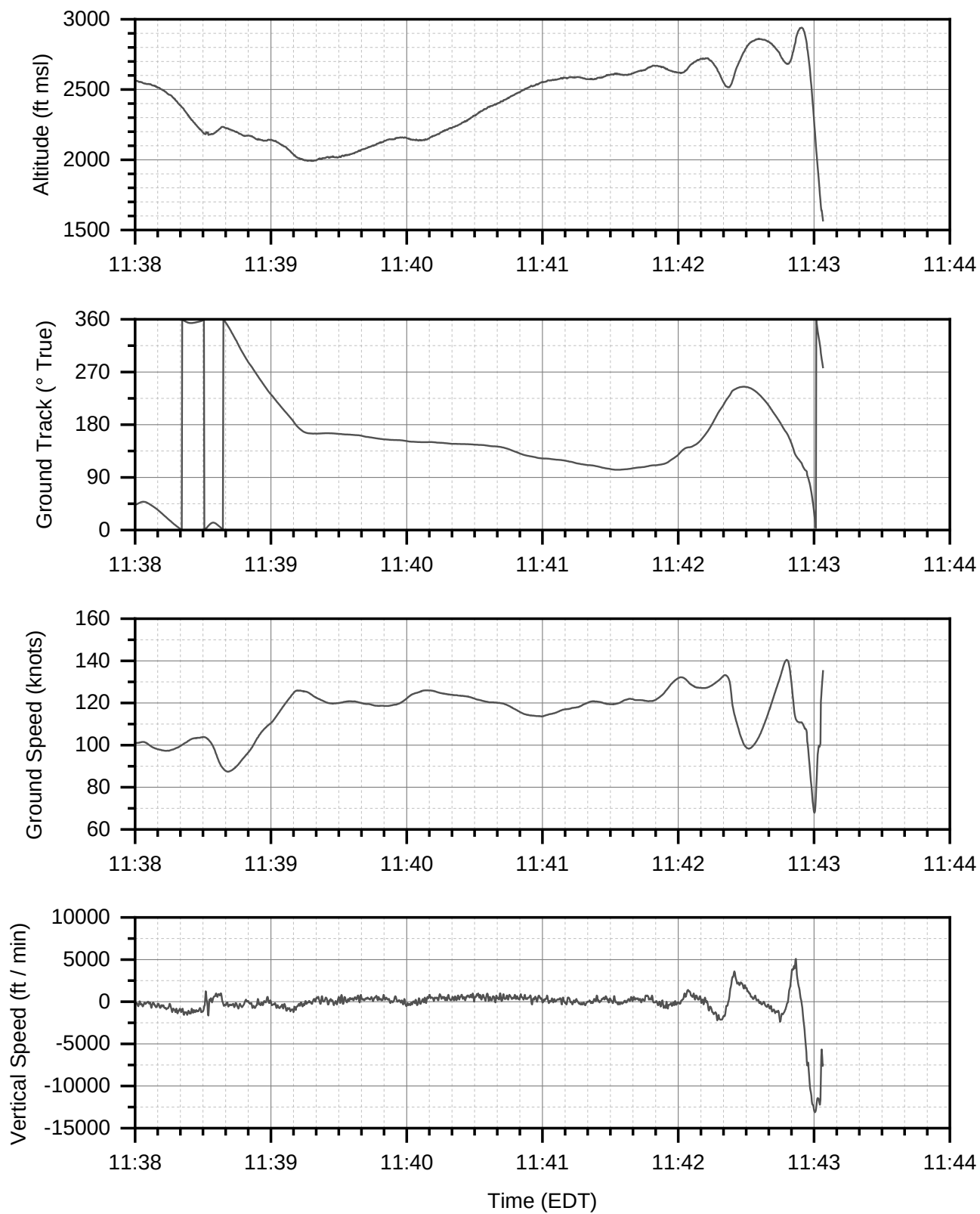


Figure 6

CEN19FA247-- Appareo Stratus 2i Data Entire Flight

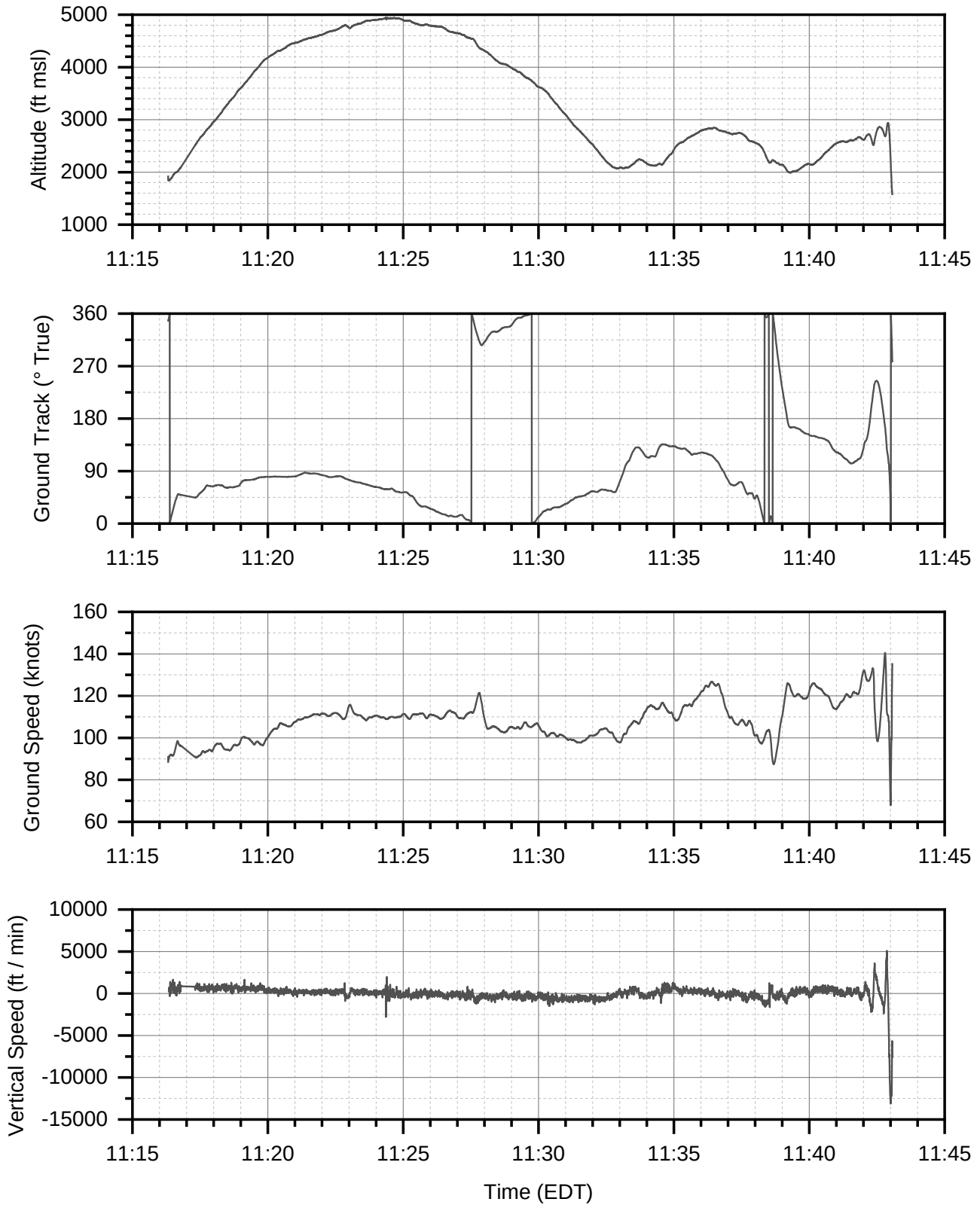


Figure 7