



Doug Brazy
Air Safety Investigator
Eastern Region

Date: November 19, 2023

Subject: ERA22FA010 - Graphical Tracking Data - N637HP, Cornwall, NY
10/10/21

Automatic Dependent Surveillance - Broadcast (ADS-B) tracking data were provided for the flight by the Federal Aviation Administration. The "raw" ADS-B data received by the Boston ground station from the helicopter's transponder is shown in green. Processed tracking data derived from multiple sources (including ADS-B) is shown in red. Some segments of the tracking data were only available from one or the other of these two sources. All times were converted to local time.

Figure 1 depicts the last 15 minutes (about 26 nautical miles) of the flight path along with cloud ceiling heights reported at nearby weather observation stations. Heights in parenthesis are in mean sea level (msl) altitude based on the weather observation station elevation.

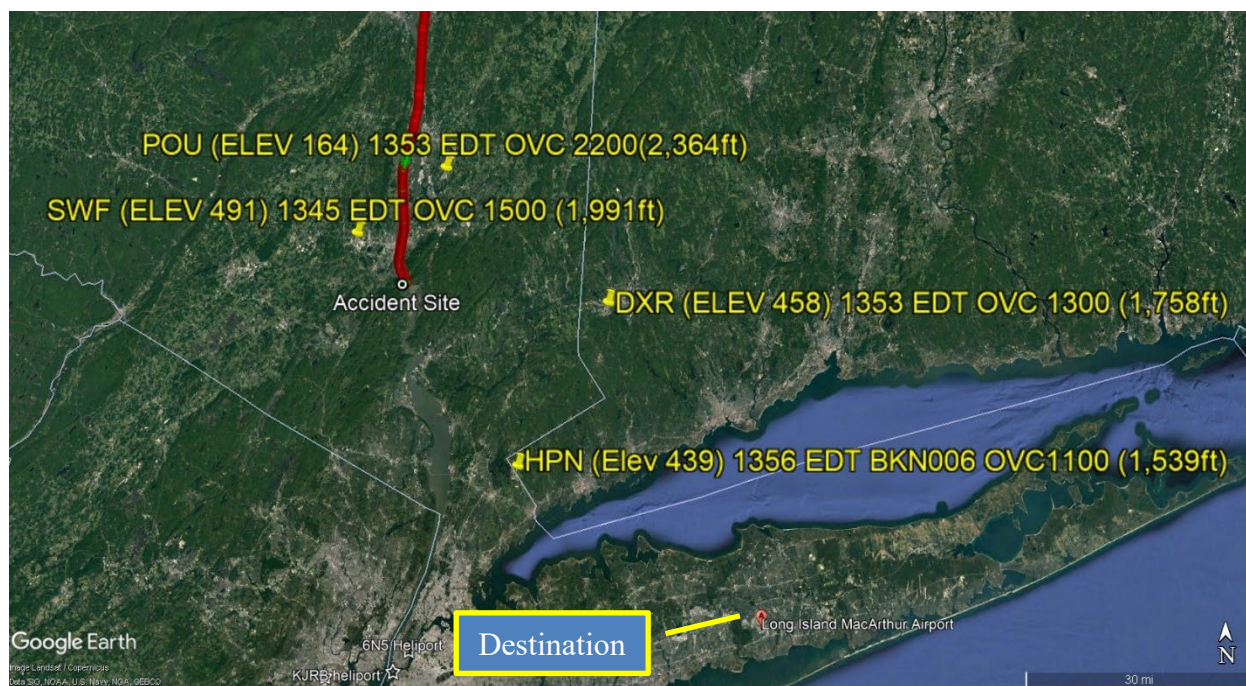


Figure 1 - Helicopter Track and Reported Cloud Ceiling Heights

Figure 2 shows the last 45 seconds of track data in an overhead view.

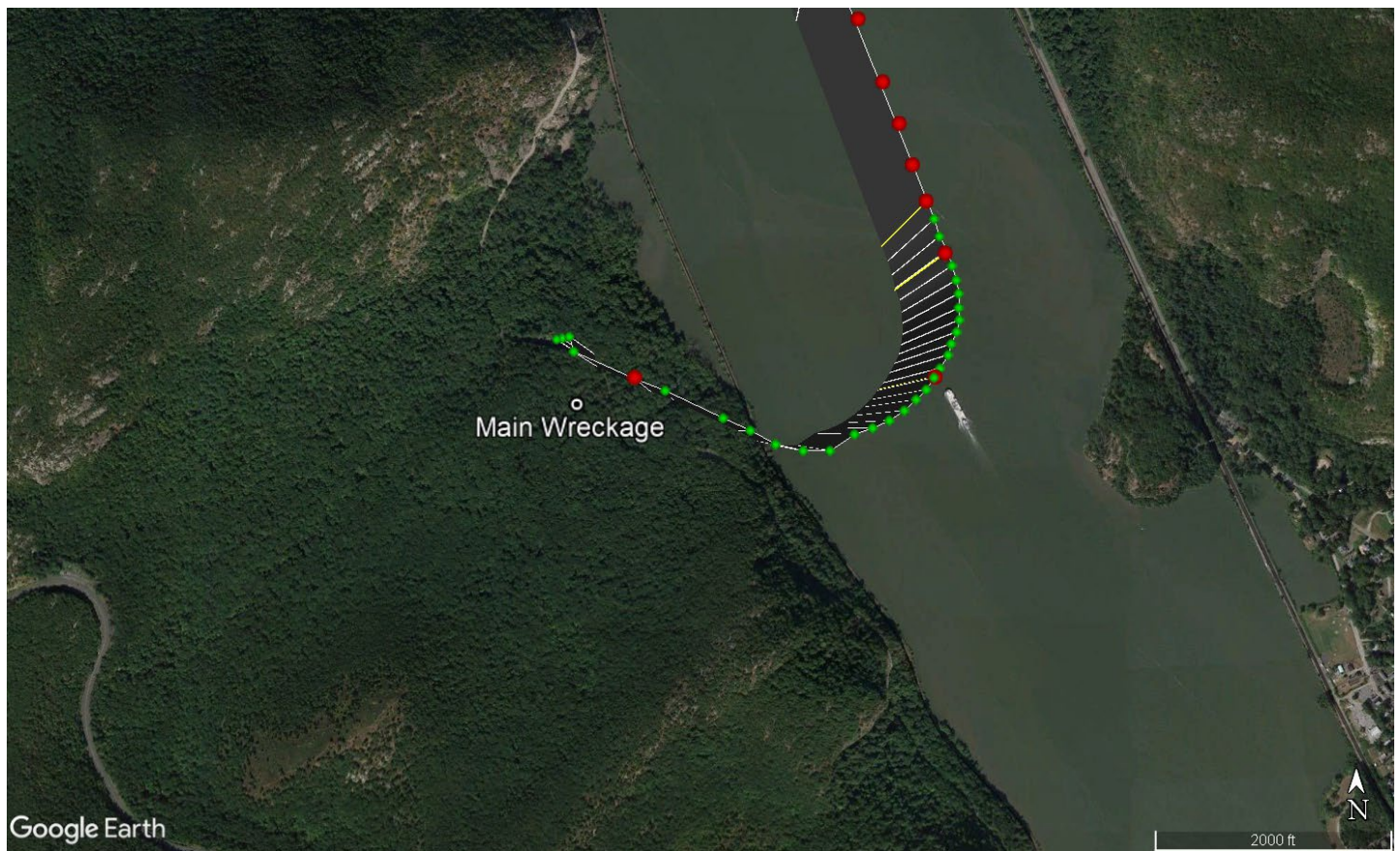


Figure 2 – Last 45 Seconds of Tracking Data - Overhead View

Figure 3 shows the last 1 minute of tracking data in a perspective view.

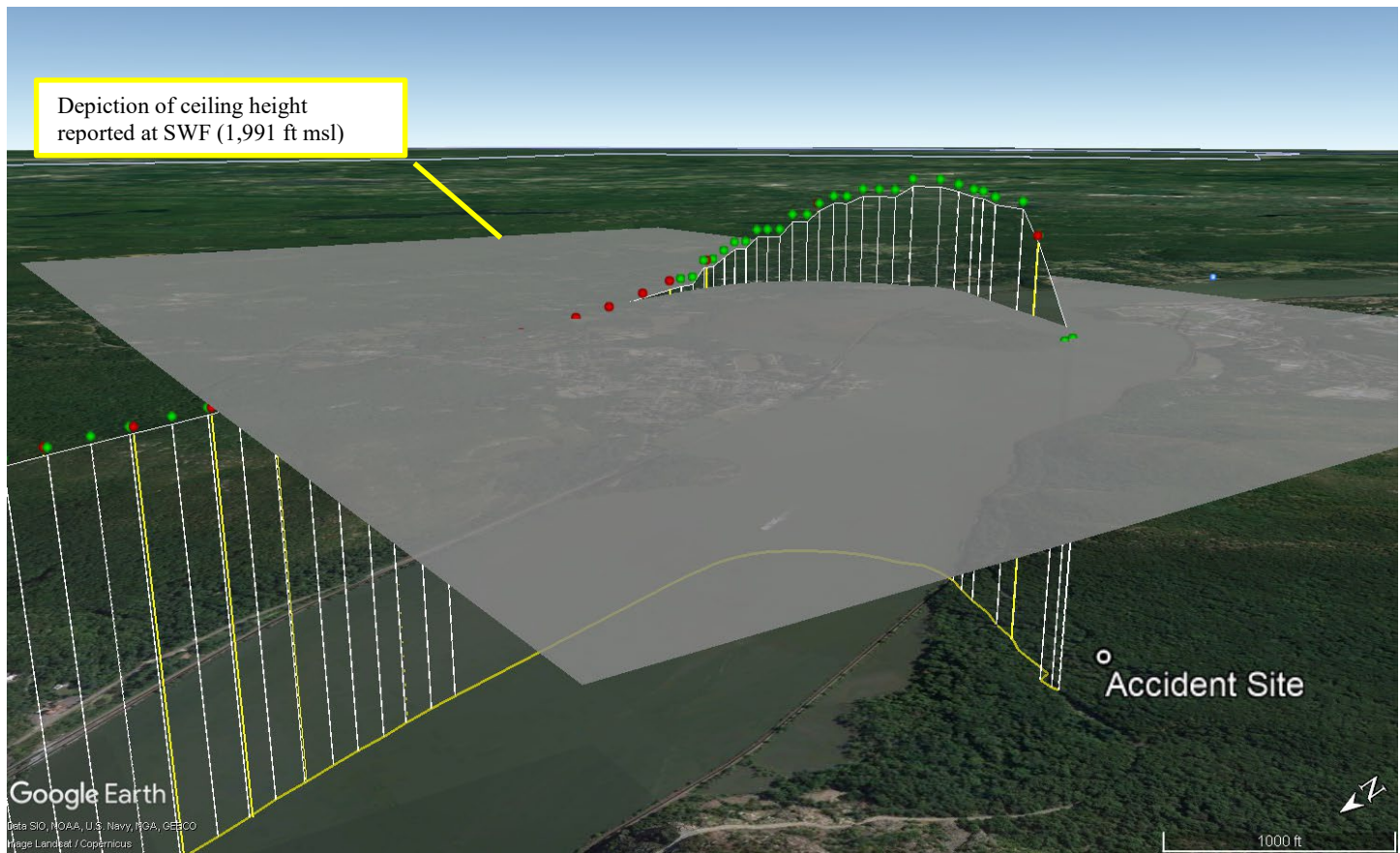


Figure 3 - Last 1 Minute of Tracking Data - Perspective View

Track, Groundspeed, Rate of Climb (or Descent) and Turn Rate

Data from the processed system is shown in red and denoted in the legends as "OV".

Altitude data is in feet (msl) as provided in the "ALT" column.

Groundspeed data is in knots as provided in the "SPEED" column.

Rate of climb or decent was derived from the "UTIME" and ALT columns.

"Raw" ADS-B data as received by the Boston ground station is shown in green and denoted in the legends as "ADS-B Boston".

Altitude Data is from the GEOM column (geometric altitude), which is system calculated to represent msl.

Groundspeed was derived from the Vx and Vy columns, which are provided as east/west speed and north/south speed, in knots. Groundspeed was derived as the square root of $(Vx^2 + Vy^2)$.

Rate of climb (or descent) is from the Vz column, in ft per minute.

Turn Rate calculations:

Track angle was measured in degrees relative to true north from plotted position of ADS-B Boston data. Times are from ASD-B Boston data.

Track was about 163° when initial right turn began between:

13:56:16.8

13:56:18.3

Turn stopped, on track of about 219° between:

13:56:23.5

13:56:24.9

56° over 5.2 to 8.1 seconds => 11° to 7 ° per second

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Next right turn from track of about 219° began between:

13:56:27.0

13:56:27.7

Turn stopped on track of about 296° between:

13:56:34.0

13:56:35.1

77 degrees over 6.3 to 8.1 seconds => 12° to 9.5 ° per second

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Tabular data from both the sources (processed and "raw" ADS-B) are attached to this report separately in the docket for this investigation.

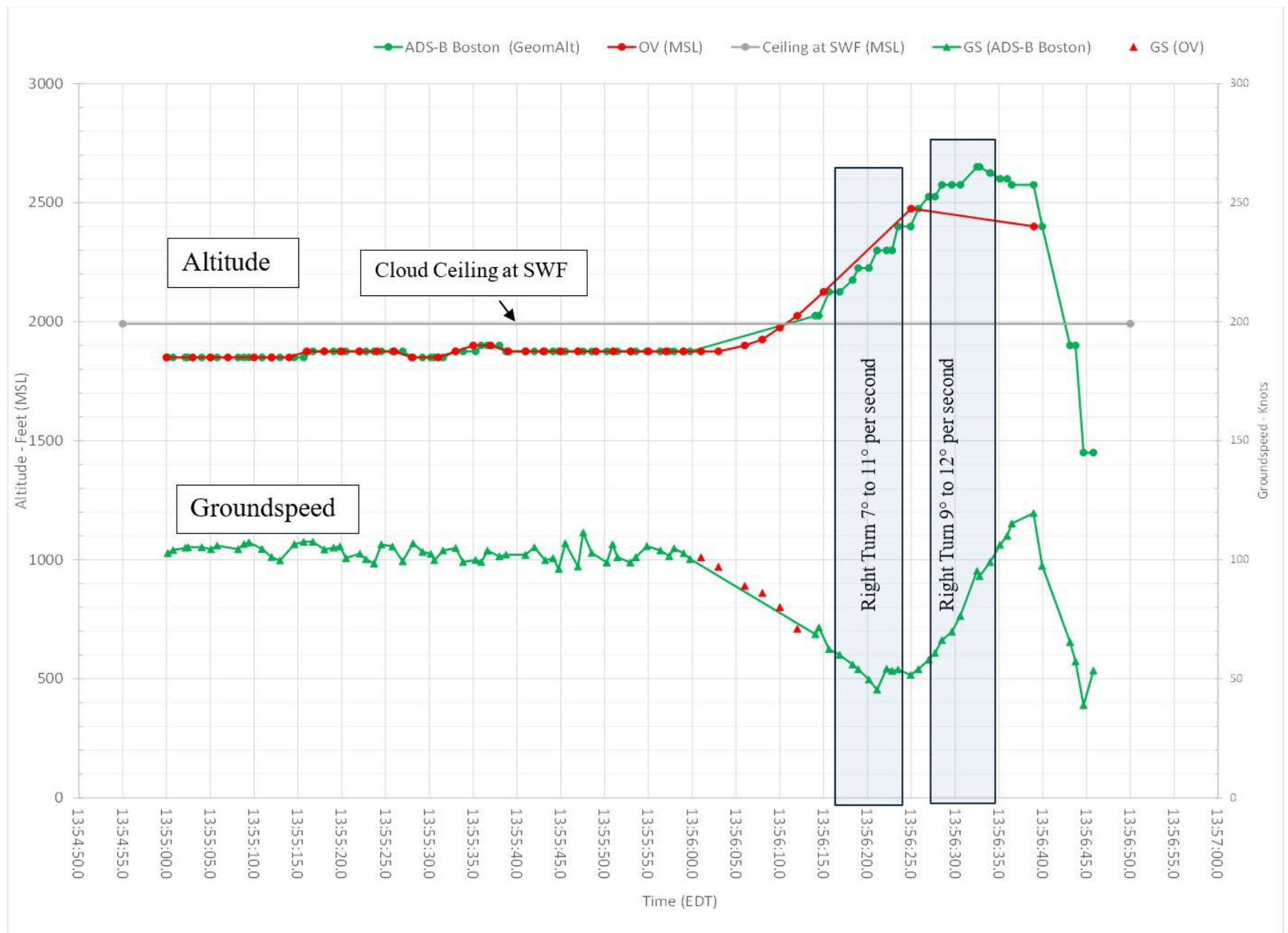


Figure 4- Altitude and Groundspeed

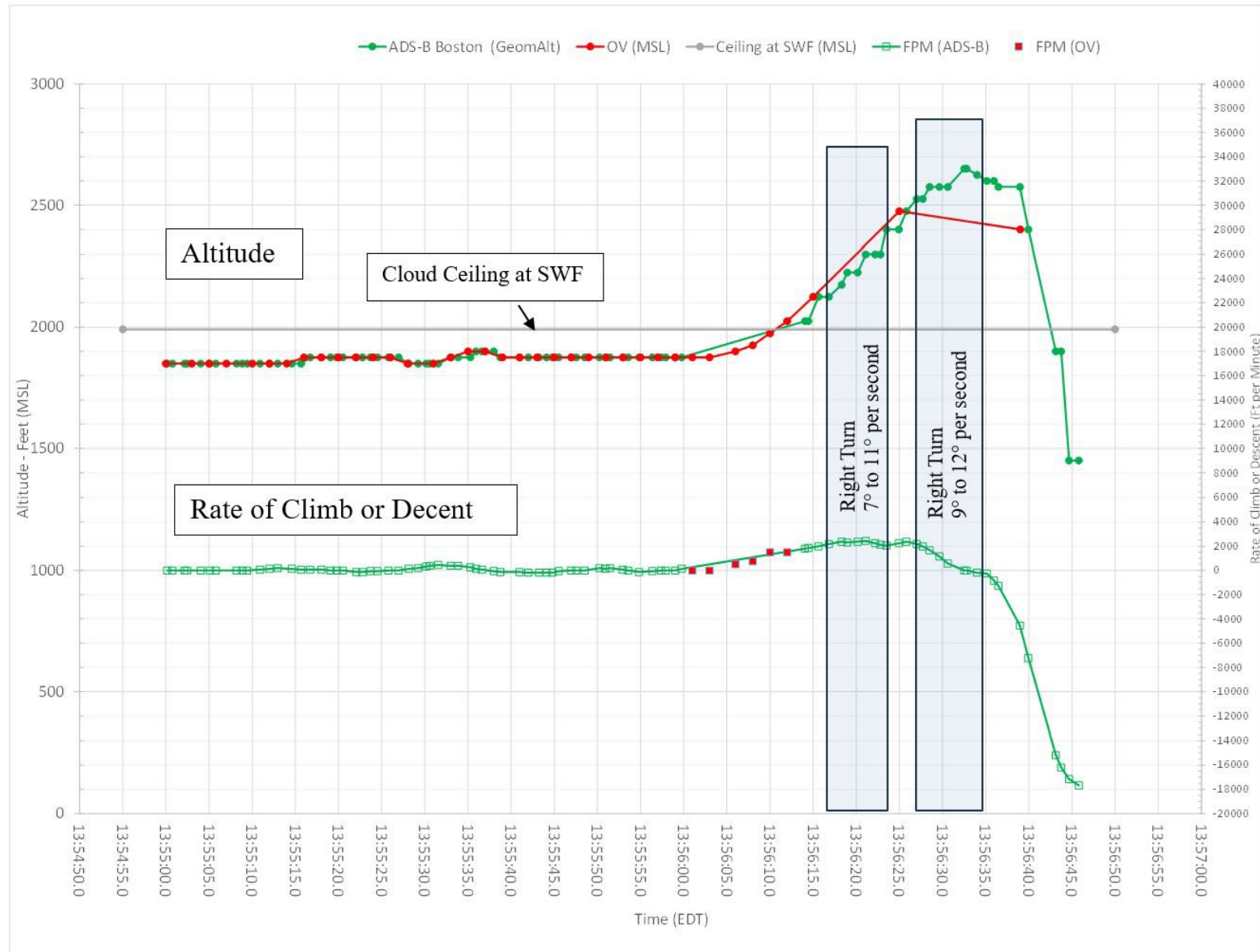


Figure 5 - Altitude and Rate of Climb or Decent

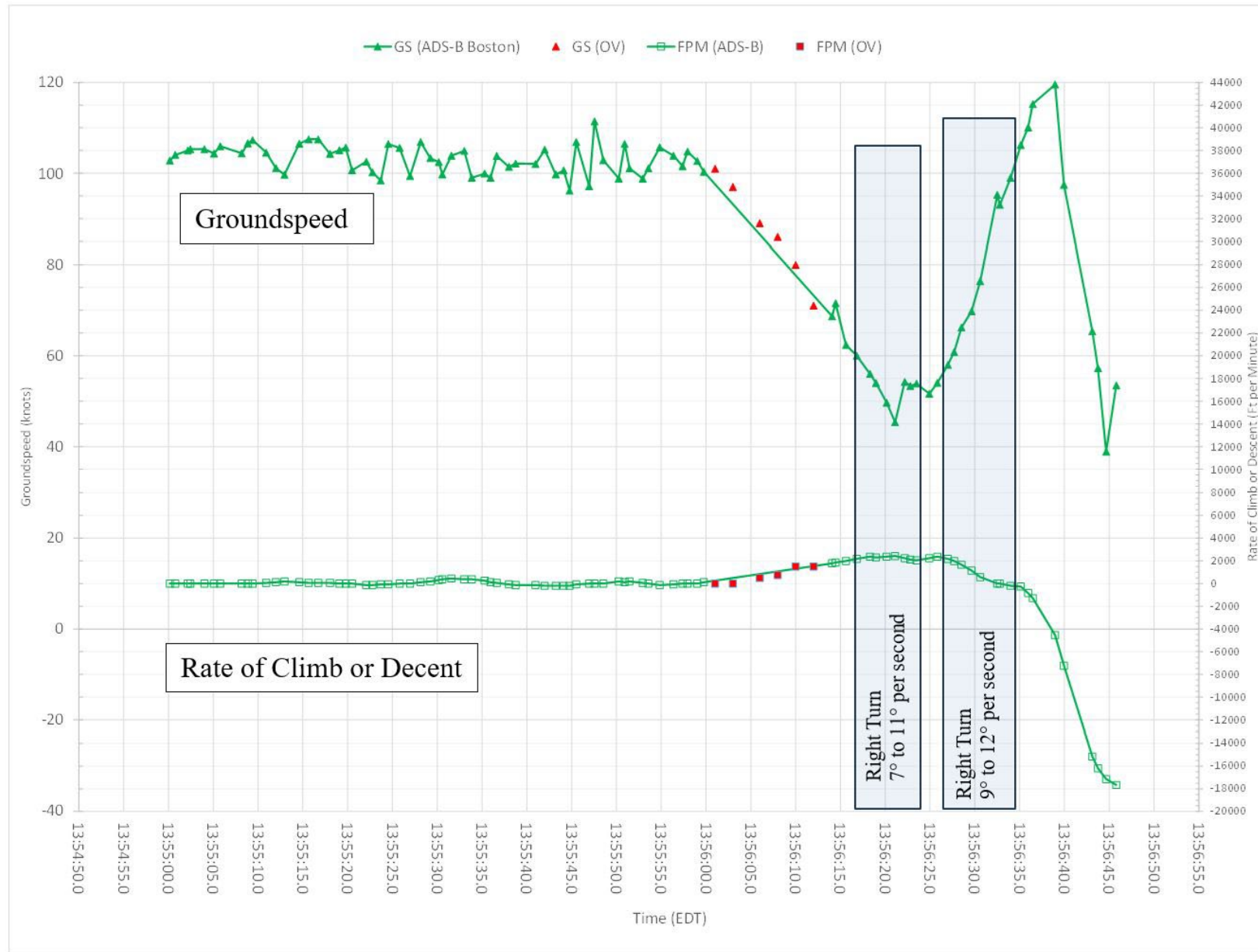


Figure 6 - Groundspeed and Rate of Climb or Descent