

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

July 23, 2020

Personal Electronic Device

Specialist's Factual Report By Gerald Kawamoto

1. EVENT SUMMARY

Location: Burlington, Wisconsin
Date: May 15, 2020
Aircraft: Cessna P210N
Registration: N1JA
Operator: Private
NTSB Number: CEN20LA179

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following device:

Device Manufacturer/Model:	Apple iPad Air 2
Serial Number:	DLXNL33WG5YP

3.1. Device Description

PEDs are a category of devices comprised primarily of portable computing devices and mobile phones. Portable computing devices are typically capable of internet access, email, messaging services, and can run user-installed applications to perform specific tasks. PED user and system data is typically stored on non-volatile memory¹ and can be accessed through manufacturer-provided interfaces

3.2. Data Recovery

The device was undamaged upon arrival at the Vehicle Recorder Laboratory and data were extracted normally.

¹ Non-volatile memory is semiconductor memory that does not require external power for data retention.

3.3. Data Description

The iPad powered on normally and ForeFlight was in the list of recently used applications.² A total of three track logs were recorded on the date of the accident. The first track log started at 17:41:53 UTC and ended at 18:26:16 UTC and showed the aircraft departed West Bend Municipal Airport (KETB) and landed at Burlington Municipal Airport (KBUU).³ The second track log started at 21:29:07 UTC and ended at 21:54:07 UTC and showed the aircraft departed and subsequently returned to KBUU. The third track log pertained to the accident flight and started at 23:04:53 UTC and ended at 23:29:44 UTC.

The data were sampled at 1 Hz and were generated using the device's internal GPS. Table 1 describes data parameters recorded and derived by the device in ForeFlight. Date, time, latitude, longitude, and GPS altitude are recorded by the device. Ground speed and course are derived from the recorded parameters.

According to the ForeFlight website:

Due to the way the iOS operates, an iPad or iPhone internal GPS will never display better than 5-10m accuracy. **An external GPS receiver** may perform better when a limited view of the sky is available to the iPad, and may provide more consistent fixes with better accuracy.

Table 1. ForeFlight Parameters

Parameter Name	Parameter Description and Units
Date	Date for recorded data point (MM/DD/YYYY)
Time	Time (UTC) for recorded data point (HH:MM:SS)
Latitude	Latitude (degrees)
Longitude	Longitude (degrees)
Altitude	GPS Altitude (feet)
Ground Speed	Ground Speed (knots)
Course	True Course (degrees)

3.4. Plots and Corresponding Tabular Data

Figure 1 is a Google Earth overlay of the accident flight. The weather and lighting conditions in Google Earth are not necessarily the weather and lighting conditions present at the time of the recording. The aircraft departed KBUU about 23:09 UTC and the accident event occurred about 23:14 UTC. The device remained powered on after the accident event and continued to record for about 16 minutes.

² ForeFlight is an iOS device application capable of displaying the aircraft's altitude, navigation, weather, and traffic information. The application can be used for flight planning, charts, airport information, document management, and flight logging.

³ Coordinated Universal Time.

Figure 2 is a plot of ForeFlight parameters for the accident flight. The time interval plotted is 23:00:00 to 23:30:00 UTC.

Figure 3 is a Google Earth overlay of the track log recorded prior to the accident flight. The aircraft departed KBUU about 21:31 UTC and returned about 21:39 UTC.

Figure 4 is a plot of ForeFlight parameters for the track log recorded prior to the accident flight. The time interval plotted is 21:25:00 to 21:55:00 UTC.

Figure 5 is a Google Earth overlay of the first track log recorded on the date of the accident. The aircraft departed KETB about 17:49 UTC and arrived at KBUU about 18:11 UTC.

Figure 6 is a plot of ForeFlight parameters of the first track log recorded on the date of the accident. The time interval plotted is 17:40:00 to 18:30:00 UTC.

Tabular Data used to generate Figures 1 through 6 are included in electronic comma-separated variable (.csv) format as Attachment 1 to this report.

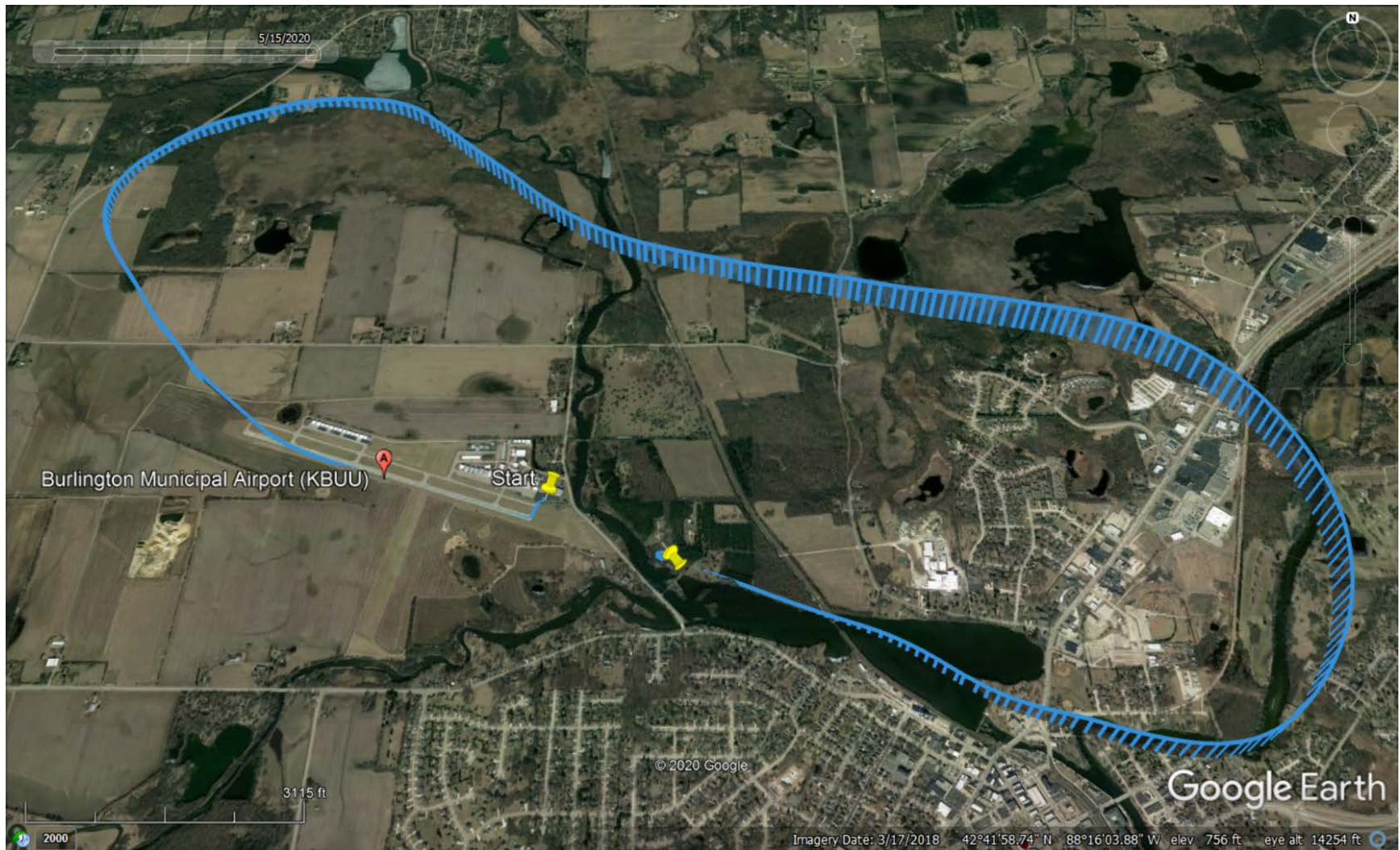


Figure 1. Google Earth overlay of the accident flight.

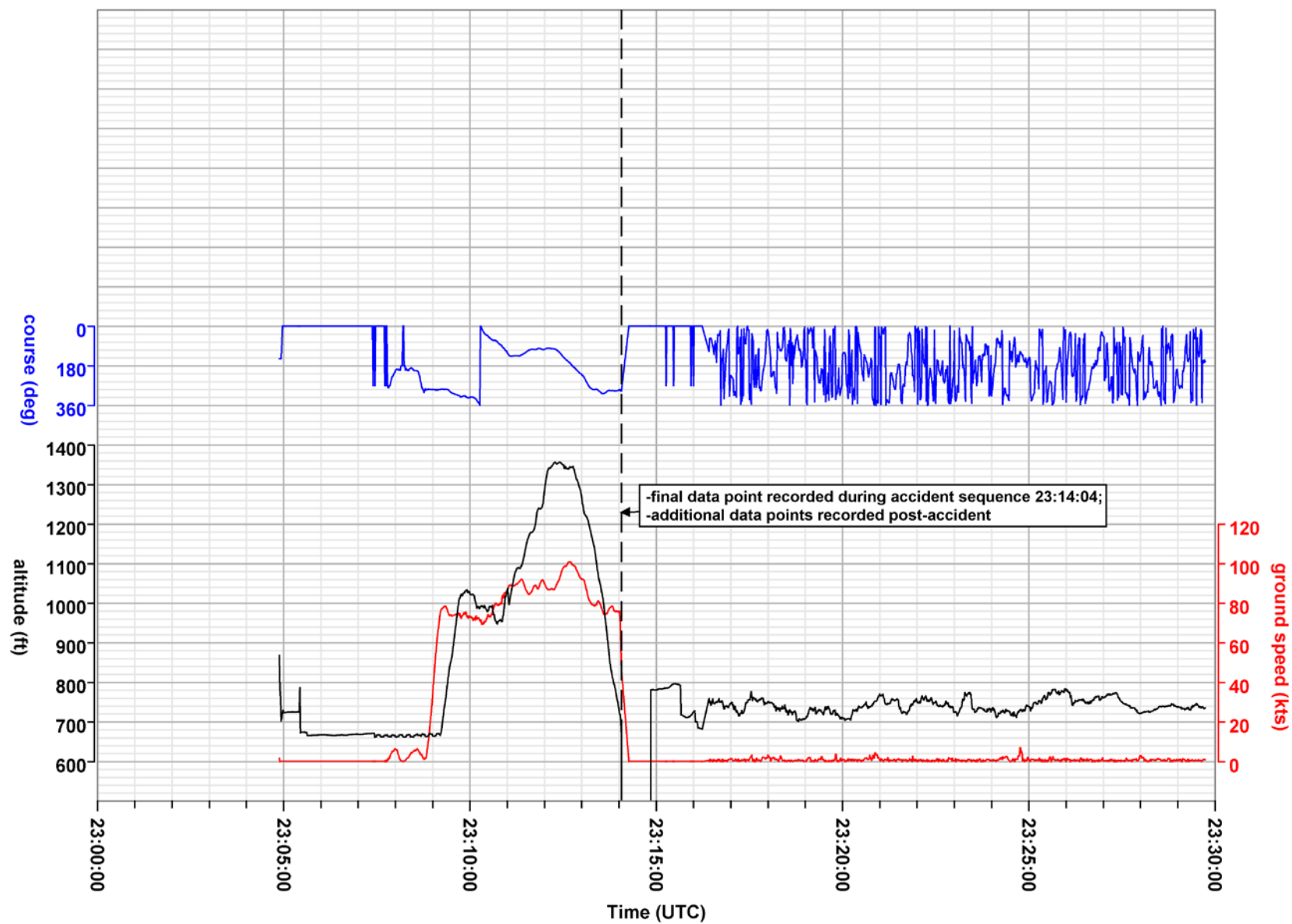


Figure 2. Plot of ForeFlight parameters from the accident flight.

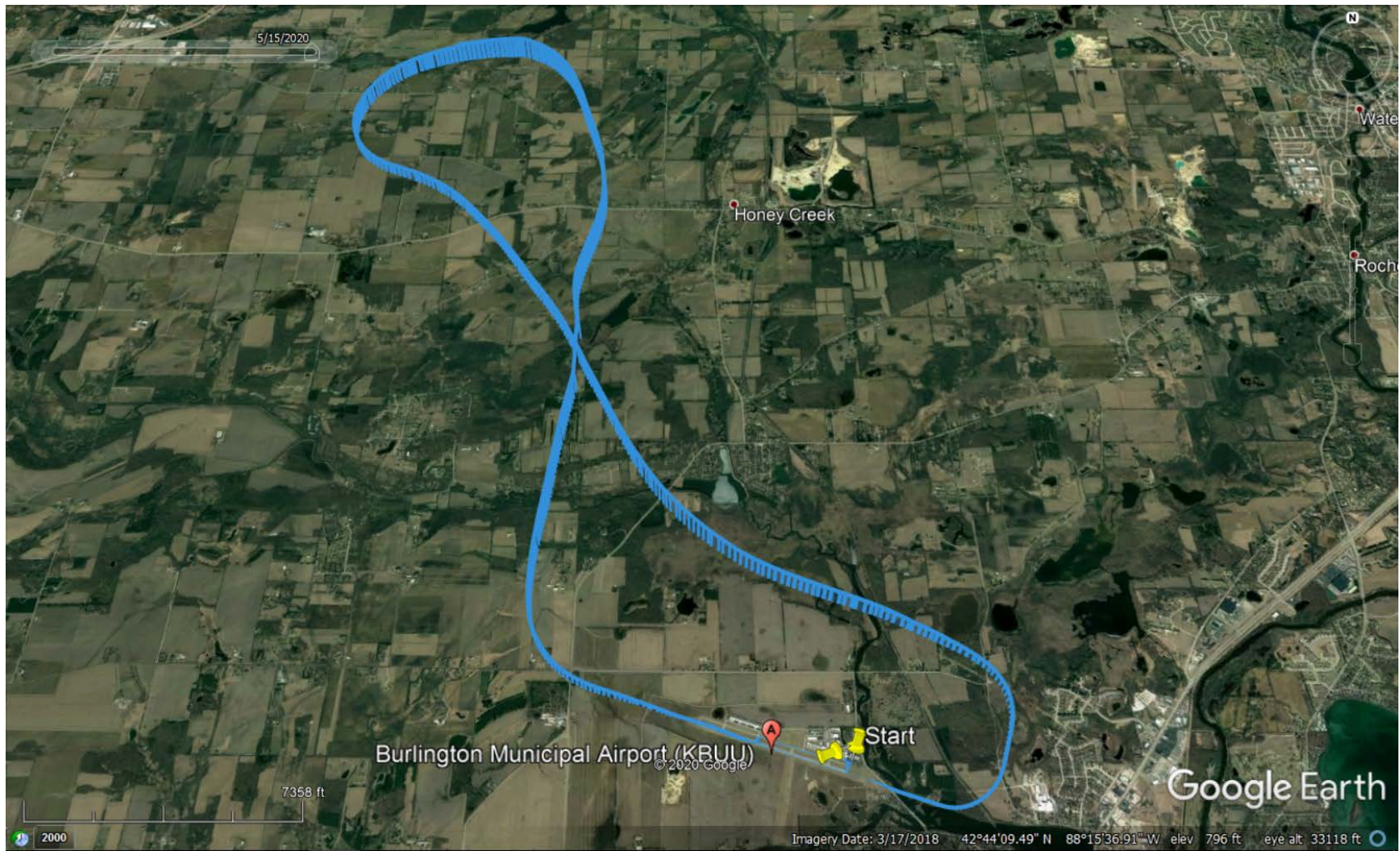


Figure 3. Google Earth overlay of the track log recorded on May 15, 2020, prior to the accident flight.

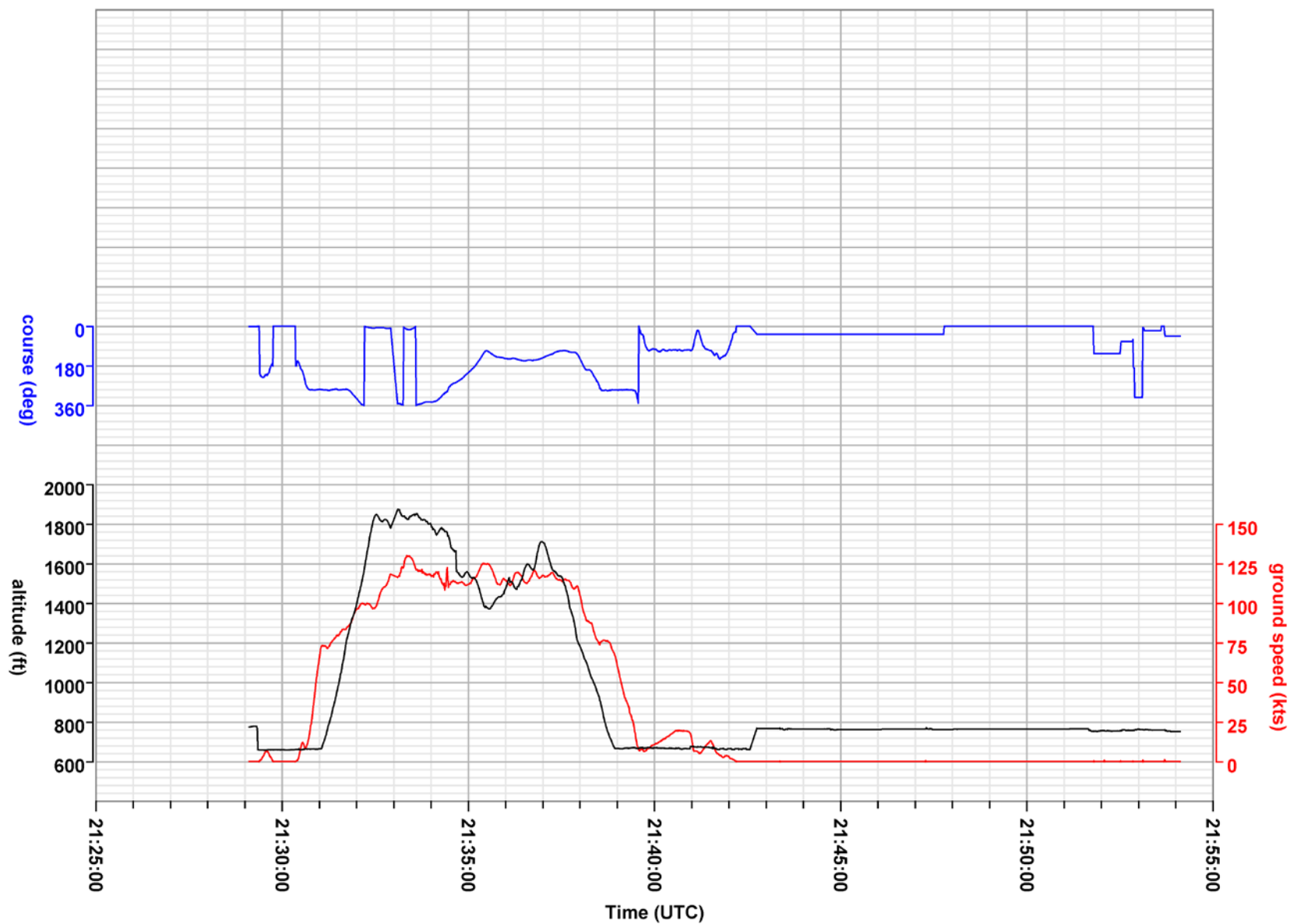


Figure 4. Plot of ForeFlight parameters from the track log recorded on May 15, 2020, prior to the accident flight.

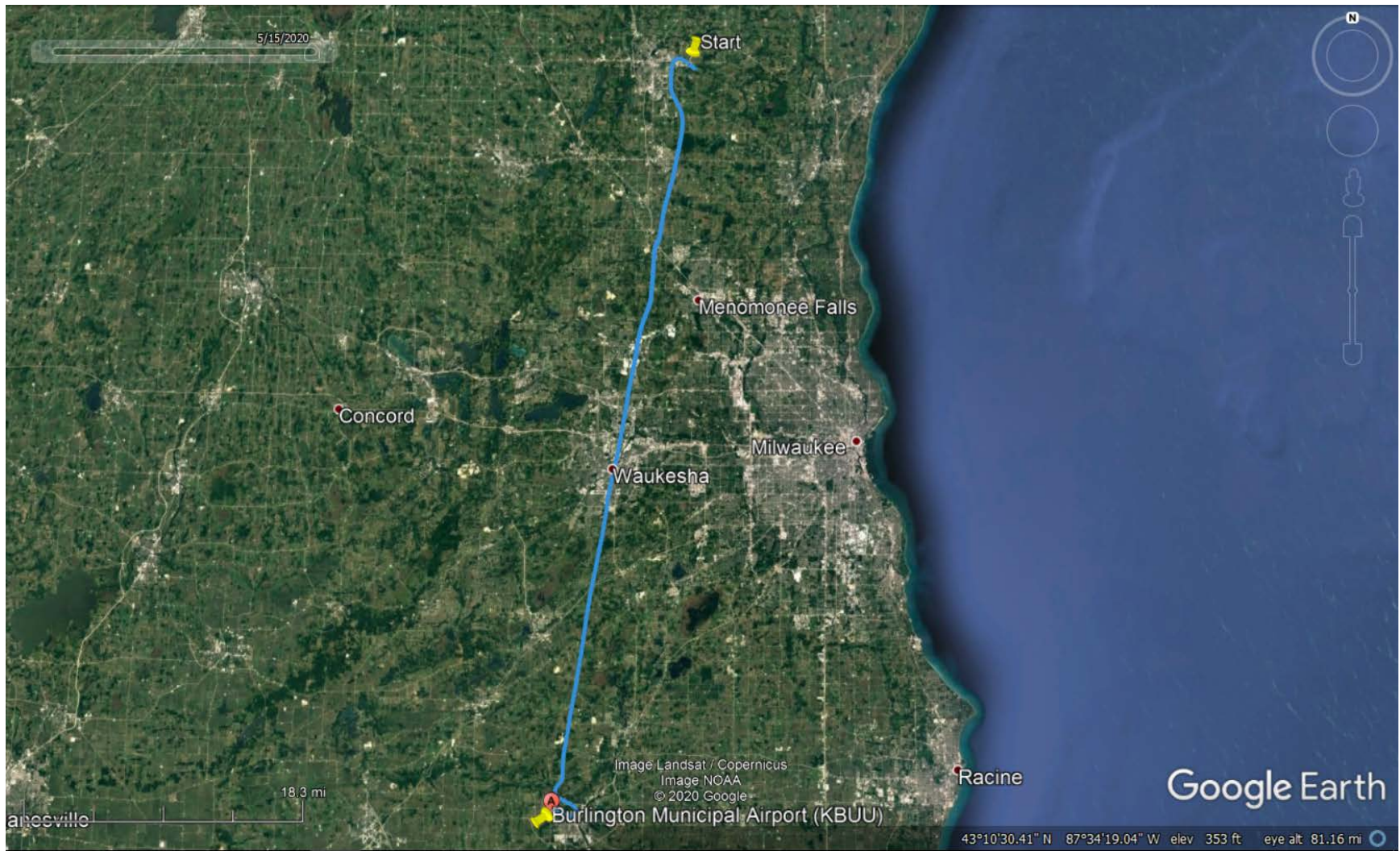


Figure 5. Google Earth overlay of the first track log recorded on May 15, 2020.

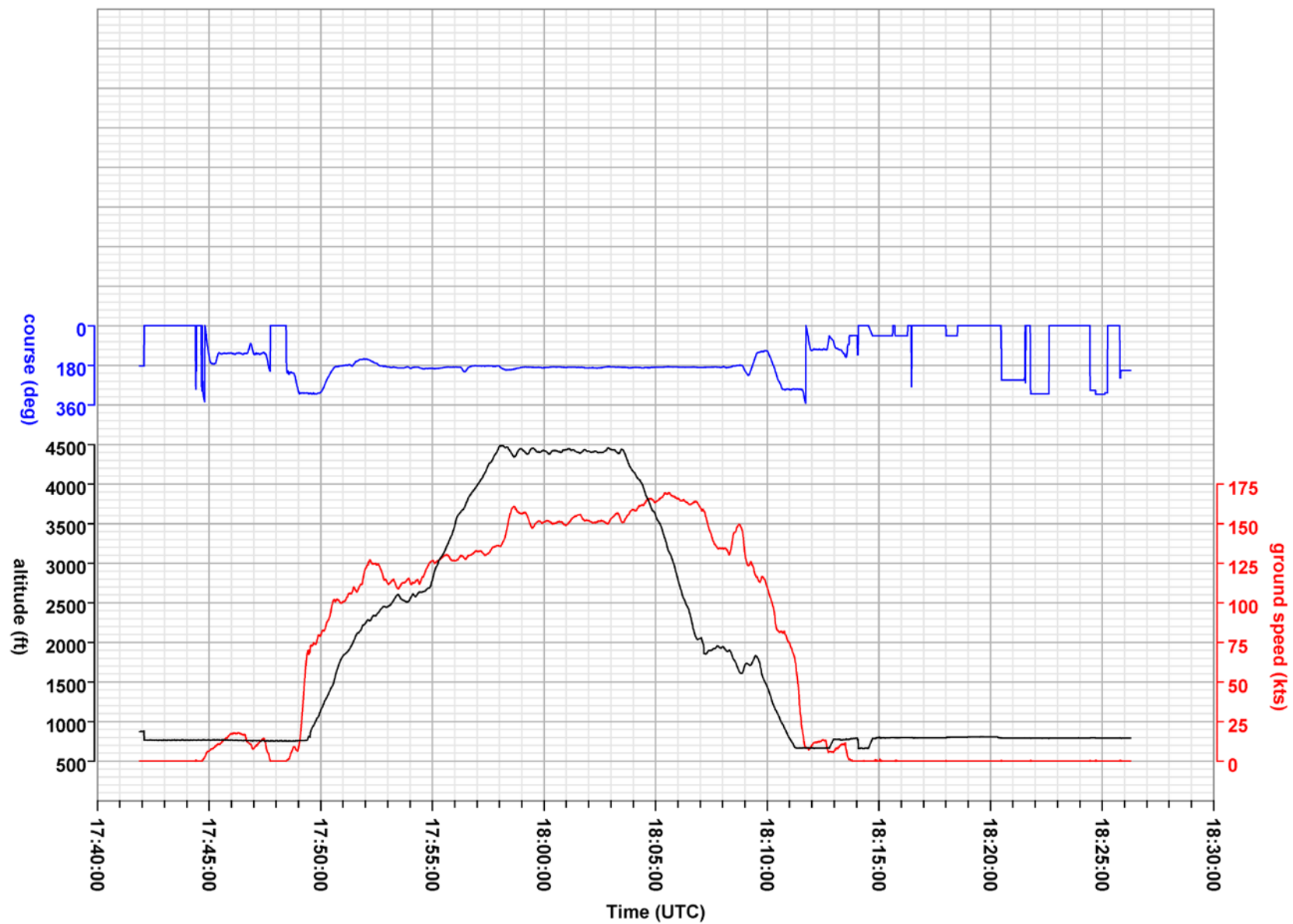


Figure 6. Plot of ForeFlight parameters from the first track log recorded on May 15, 2020.