National Transportation Safety Board
Office of Research and Engineering
Washington, D.C. 20594

Performance Study

Specialist Report
Marie Moler

A. ACCIDENT

Location:	Hazelhurst, Wisconsin
Date:	April 26, 2018
Time:	2250 CDT
Airplane:	Airbus AS 350 B2, N127LN
NTSB Number:	CEN18FA149

B. GROUP

No vehicle performance group was formed.

C. SUMMARY

On April 26, 2018, about 2250 central daylight time, an Airbus AS 350 B2 helicopter, N127LN, impacted trees and terrain during cruise flight near Hazelhurst, Wisconsin. The pilot and two crewmembers were fatally injured. The helicopter was destroyed during the impact. The helicopter was registered to and operated by Air Methods Corporation as a Title 14 Code of Federal Regulations Part 91 repositioning flight. Night visual meteorological conditions were reported in the area about the time of the accident, and the flight was operating on a company visual flight rules flight plan. The flight originated from the Dane County Regional Airport-Truax Field (MSN), near Madison, Wisconsin, about 2104 and was destined for the Howard Young Medical Center Heliport (60WI), near Woodruff, Wisconsin.

D. PERFORMANCE STUDY

The aircraft was equipped with an Appareo Vision 1000 which captured the accident flight and several prior flights. The device recorded latitude, longitude, altitude, groundspeed, vertical speed, course, heading, pitch, and roll. Additionally, it recorded roll, pitch, and yaw rates and normal, longitudinal, and lateral accelerations.

Weather Observations

The nearest weather station, 12 miles north at the Lakeland Airport near Woodruff, Wisconsin, recorded winds calm, clear skies, a temperature of 32°F (0°C), and an altimeter of 29.88 inHg.

According to U.S. Naval Observatory Sun and Moon Data, the end of local civil twilight in the Rhinelander, Wisconsin, area was 2031 CDT and local moonset was at 0507 on April 27, 2018. The observatory characterized the phase of the moon as "waxing gibbous with 88% of the Moon's visible disk illuminated."

Flight Path

Figure 1 shows the accident flight path. The helicopter left MSN north of Madison, Wisconsin at 21:02 CDT and flew for one hour and 40 minutes. The flight ended less than 10 miles short of its destination of the Howard Young Medical Center helipad.

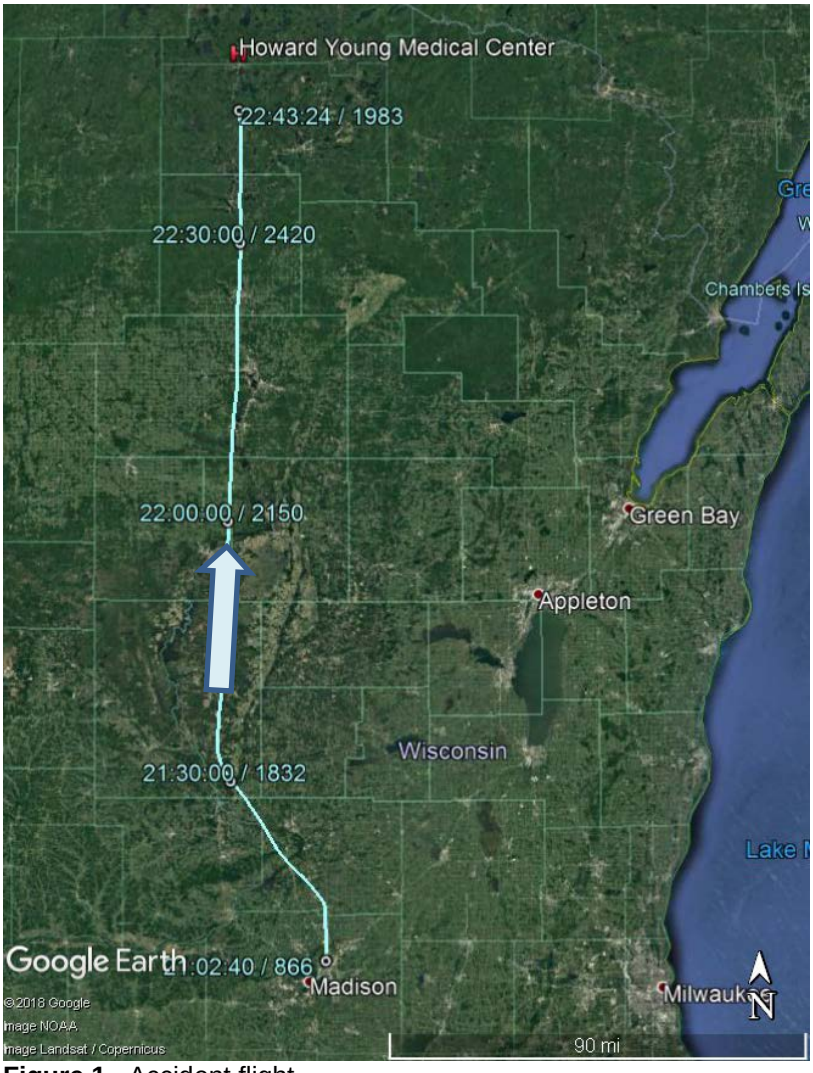

Figure 1. Accident flight.

The helicopter's altitude and groundspeed are shown in Figure 2. The groundspeed was between 90 and 120 kts for the flight and the altitude was generally increasing from 1,600 ft MSL to 2,800 ft MSL. Near the end of the flight, the aircraft climbed from 2,220 ft at 22:35 to 2,800 ft at 22:40, while airspeed remained about 110 kts. After 22:40 the aircraft began descending while groundspeed increased to about 115 kts.

The increase in altitude coincided with an increase in the terrain elevation as the helicopter flew north as shown in Figure 3. For most of the flight, the aircraft was between 800 and 1100 feet above the terrain. At about 22:35, the helicopter began to climb, reaching an altitude over 2,800 ft by 22:40, which was over 1,300 feet above the terrain.

Figure 4 shows the recorded pitch, roll, course, and heading of the aircraft throughout the flight. Pitch and roll stayed relatively constant throughout most of the flight and heading tracked course.

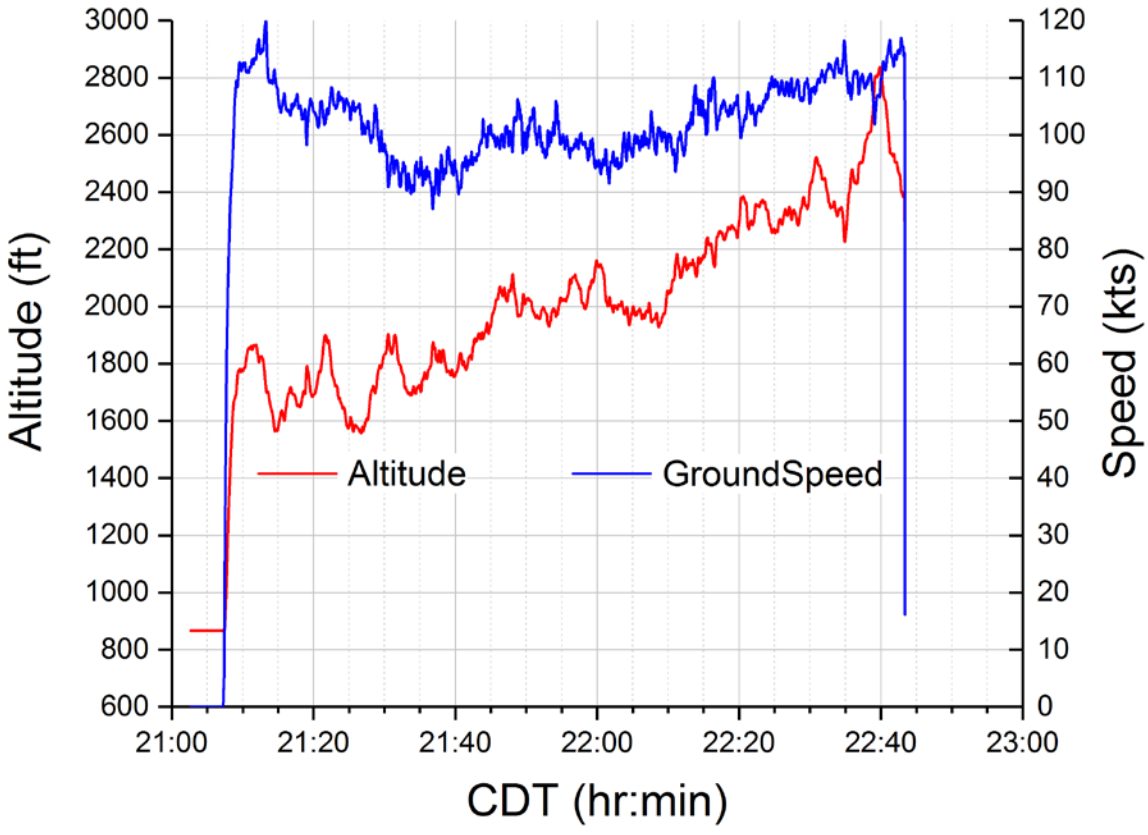

Figure 2. Accident flight altitude and groundspeed.

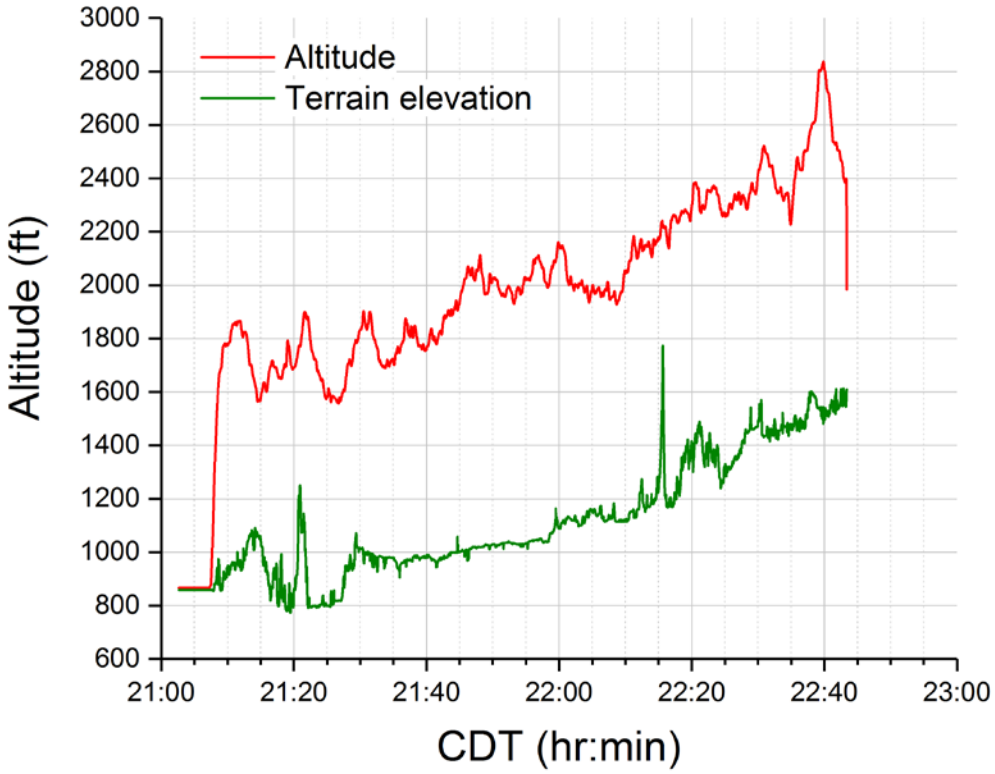

Figure 3. Accident flight altitude and terrain elevation.

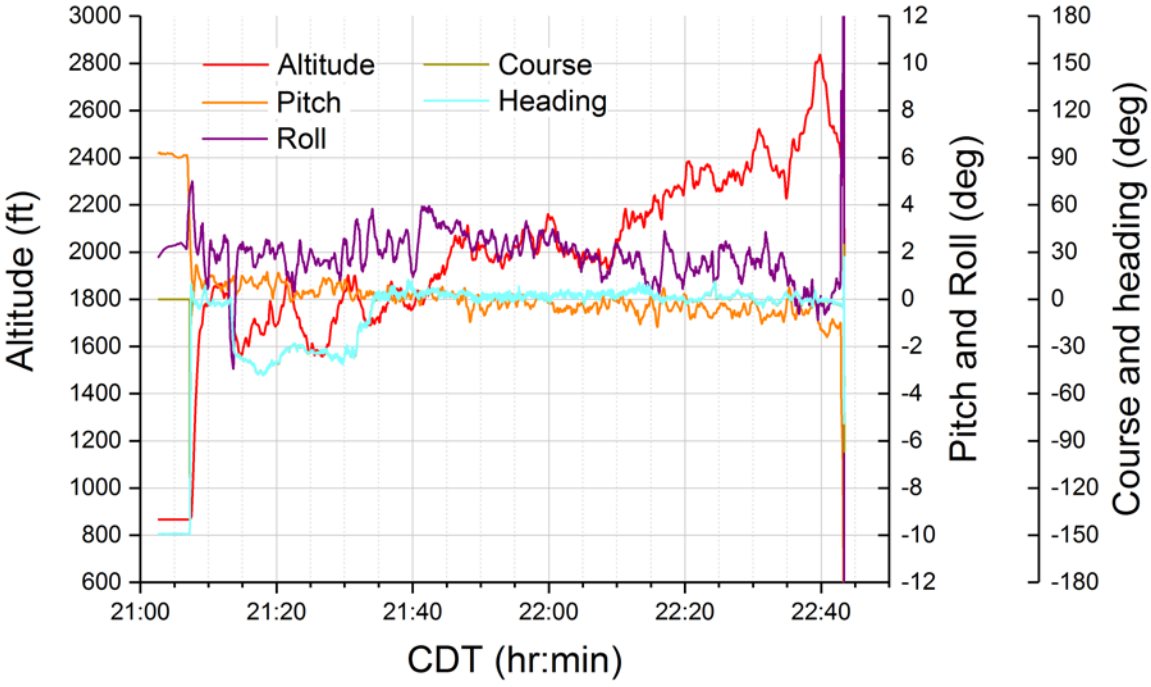

Figure 4. Accident flight altitude, pitch, roll, course and heading. Course and heading overlap for most of the flight. Positive roll is right side down.

As stated earlier, from 22:40 until 22:43, the helicopter descended to 2,400 ft at a rate near 100 ft/min and the groundspeed was steady at about 115 kts. At 22:43:12, pitch and roll began to increase with the helicopter's heading deviating from its course around 22:43:16 (Figure 5). The helicopter rolled right 30° in five seconds and by 22:43:21 was recorded fully inverted. The aircraft pitched down and at 22:43:18 began to rapidly lose altitude at a rate of near 5,000 ft/min before the recording ended at 22:43:23.7 at an altitude below 2,000 ft.

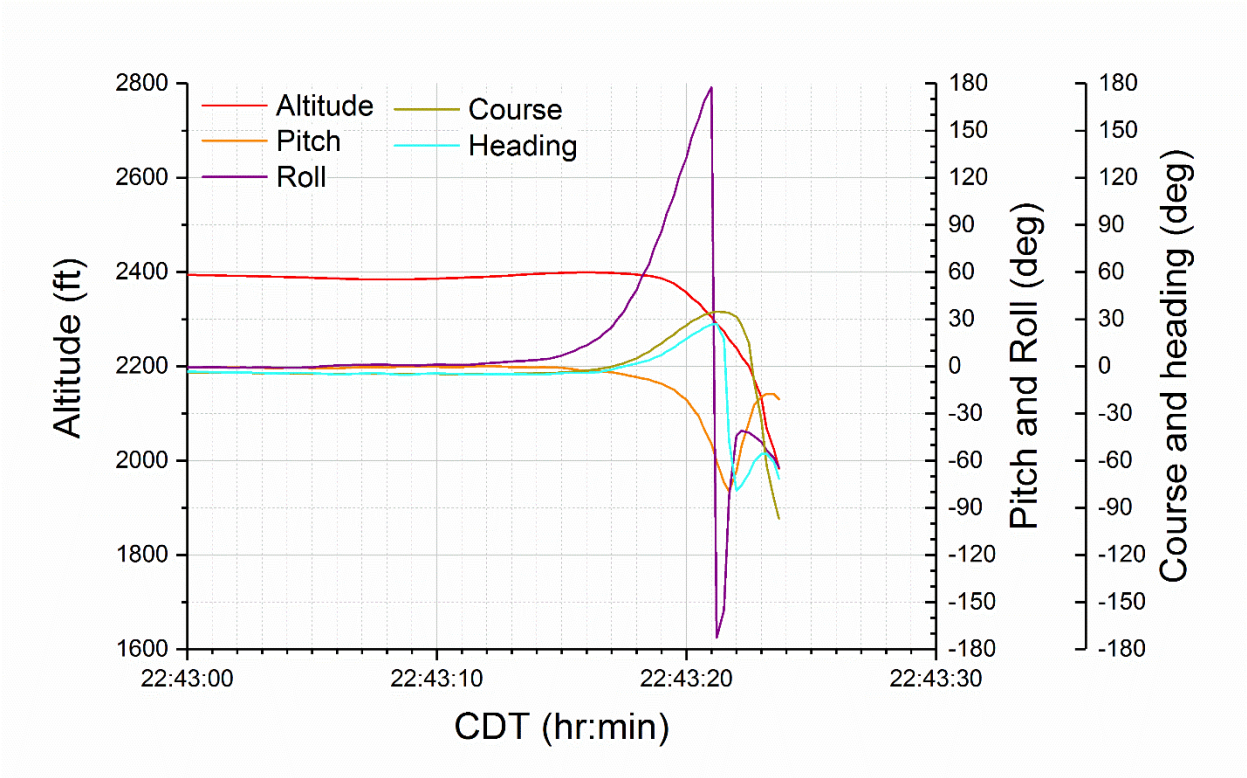

Figure 5. End of accident flight altitude, pitch, and roll. Positive roll is right side down.

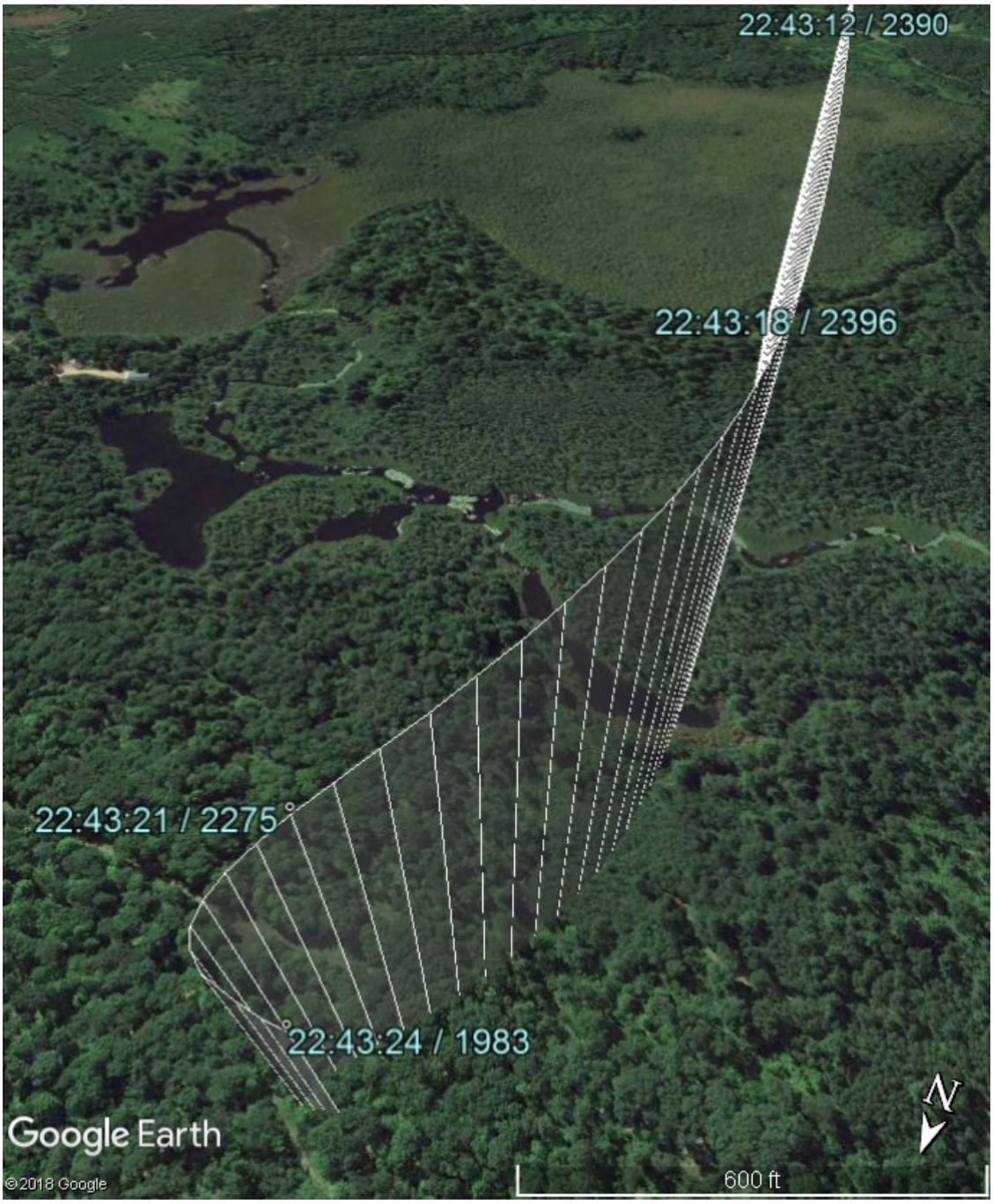

Figure 6. End of accident flight.

Previous Flight Paths

Of interest was the aircraft's prior flights. Appareo data from the helicopter for five prior flights is shown in Figure 7 and Figure 8. The accident flight's height above ground was 200 to 600 feet lower than the many of the five prior flights and the groundspeed was 20 to 40 kts slower.

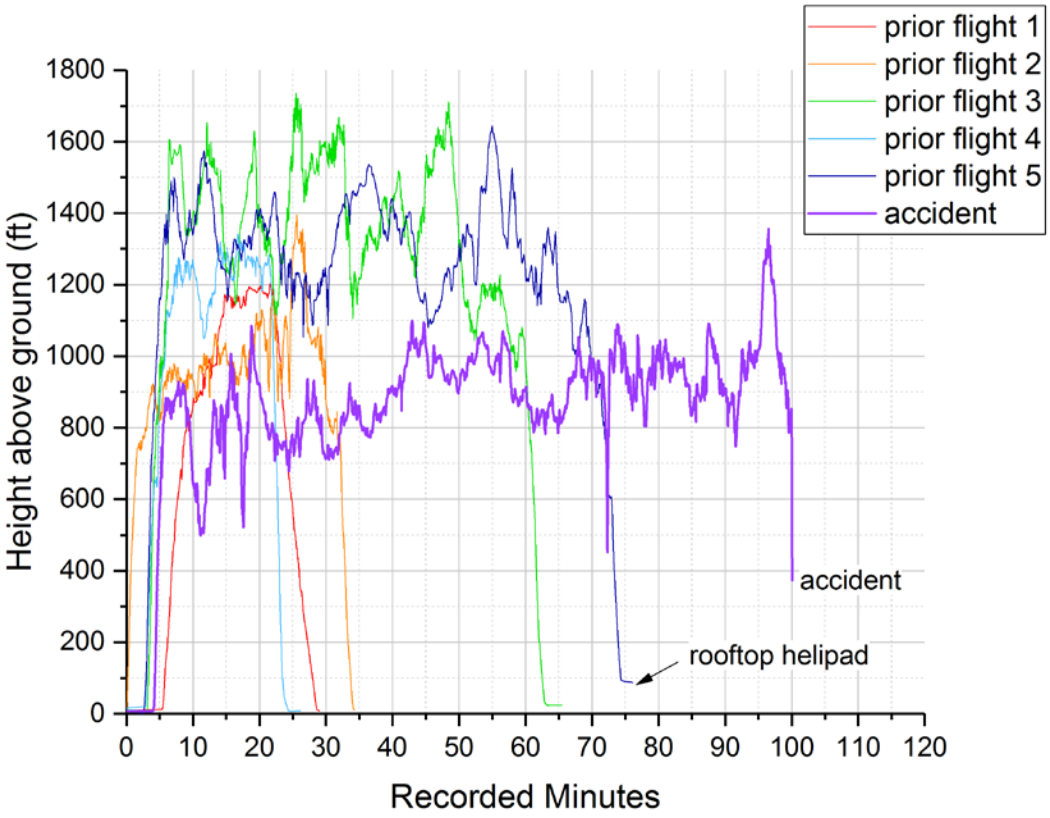

Figure 7. Height above ground for accident flight and five prior flights.

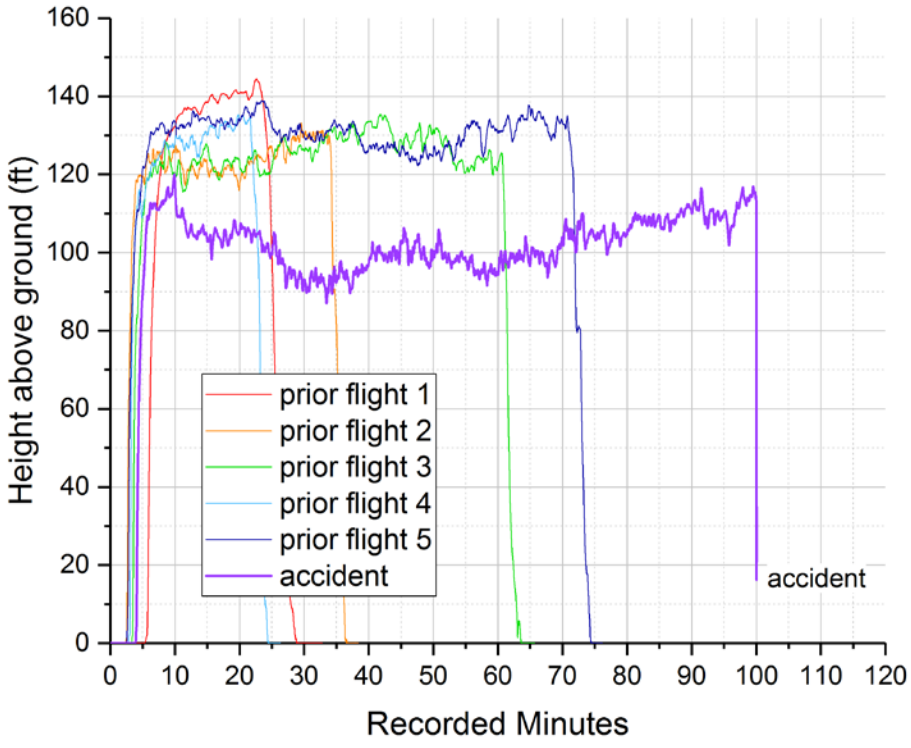

Figure 8. Groundspeeds for accident flight and five prior flights.

E. CONCLUSIONS

The accident flight averaged groundspeeds between 90 and 115 kts for the flight and flew at an altitude between 800 and 1100 feet above the terrain. At 22:43:12, 11 seconds before the end of the recording, the attitudes change and roll records the helicopter inverting and losing altitude. The recording ends at 22:43:23.

The accident flight was 200 to 600 ft lower and 20 to 40 kts slower than five prior recorded flights.

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