

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA25FA143

METEOROLOGY

Specialist's Factual Report

18 April 2025

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A. ACCIDENT

Location: Greenville, North Carolina

Date: 14 March 2025

Time: 0749 eastern daylight time (1149 UTC¹)

Aircraft: Type - Raytheon Aircraft Company A36; Registration - N566C

B. METEOROLOGY INVESTIGATOR

Mike Richards

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Office of Aviation Safety

Operational Factors Division (AS-30)

National Transportation Safety Board

C. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board's meteorological specialist did not travel in support of this accident investigation and gathered all weather data remotely. Unless otherwise noted, all times are in eastern daylight time for 14 March 2025 (based upon the 24-hour clock), directions are referenced to true north, distances are in nautical miles and heights are above mean sea level (msl). The accident site was located at about: 35.636917 ° north latitude; 77.370767 ° west longitude; at an elevation of about 25 feet.

This report provides information on the weather conditions and forecasts applicable to the accident region at the accident time.

D. WEATHER INFORMATION

1.0 Surface Observations

An Automated Weather Observing System (AWOS) was located at Pitt-Greenville Airport (PGV²) in Greenville, North Carolina, which was located within 1 mile of the

¹ UTC - abbreviation for Coordinated Universal Time

² This report uses the 3-digit International Air Transport Association format for airport identification, which does not use the geographic designating digit (e.g., "K" for stations in the continental U.S. and "P" for U.S. stations in Alaska and the Pacific region) as found in the 4-digit International Civil Aviation Organization (ICAO) identifier format. Weather observations from airports in this report are referenced by their reporting station's identifier (using ICAO format that includes the geographic designating digit), not by the airport at which the reporting station is located.

accident site at an elevation of about 25 feet. Automated longline³ reports from the PGV AWOS during the times surrounding the accident time are presented here.

[0650] *KPGV 141050Z AUTO 03005KT 10SM OVC005 08/08 A3007 RMK AO2
LTG DSNT SE*

[0710] *KPGV 141110Z AUTO 04005KT 10SM OVC005 08/08 A3008 RMK AO2
LTG DSNT S*

**[0730] *KPGV 141130Z AUTO 04005KT 10SM OVC005 08/08 A3008 RMK
AO2 LTG DSNT S***

[0750] *KPGV 141150Z AUTO 07006KT 10SM 08/08 A3008 RMK AO2*

[0810] *KPGV 141210Z AUTO 07005KT 7SM 08/08 A3008 RMK AO2*

At 0730, the PGV AWOS reported a wind from 040° at 5 knots, visibility of 10 statute miles or greater, ceiling overcast at 500 feet above ground level (agl), temperature of 8°C and dew point temperature of 8°C, altimeter setting of 30.08 inches of mercury; Remarks: automated station with a precipitation discriminator, lightning distant⁴ to the south.

At 0750, the PGV AWOS reported a wind from 070° at 6 knots, visibility of 10 statute miles or greater, temperature of 8°C and dew point temperature of 8°C, altimeter setting of 30.08 inches of mercury; Remarks: automated station with a precipitation discriminator.

2.0 Model Data

A High-Resolution Rapid Refresh (HRRR) model⁵ 01-hour forecast sounding (Figure 1) valid for near the accident site⁶ at 0800 was retrieved from the National Oceanic and Atmospheric Administration's (NOAA) Air Resources Laboratory and analyzed by the RAwinsonde OBservation (RAOB) program. Clouds were identified by RAOB from about 200 feet through 1,600 feet. The freezing level was at about 9,400 feet. The wind

³ "Longline" refers to the dissemination of weather observations with the intent that they are available in near-real time to national databases (effectively, the whole world) and accessible to the general global public from a large number of vendors. This does not include public accessibility to observations from a reporting station's Very High Frequency (VHF; line-of-site) or telephone broadcast, where applicable. Longline-dissemination of weather observations is the primary vehicle through which the general global public has access to surface weather observations, particularly outside of the aviation community.

⁴ "Distant" means more than 10 statute miles from the point of observation (e.g., in a METAR) or from the center of the airport's runway complex (e.g., in a TAF).

⁵ The HRRR is a NOAA real-time three-kilometer resolution, hourly-updated, cloud-resolving, convection-allowing atmospheric model, initialized by three-kilometer grids with three-kilometer radar assimilation. Radar data is assimilated in the HRRR every 15 minutes over a one-hour period.

⁶ Coordinates used for the model were latitude: 35.64; longitude: -77.37.

below 2,000 feet was generally from the northeast at magnitudes of about 10 knots or less. Above this level the wind was from the north through 9,000 feet at magnitudes of less than 10 knots. No significant wind shear was identified below 10,000 feet. A temperature inversion was noted between about 900 and 2,000 feet.

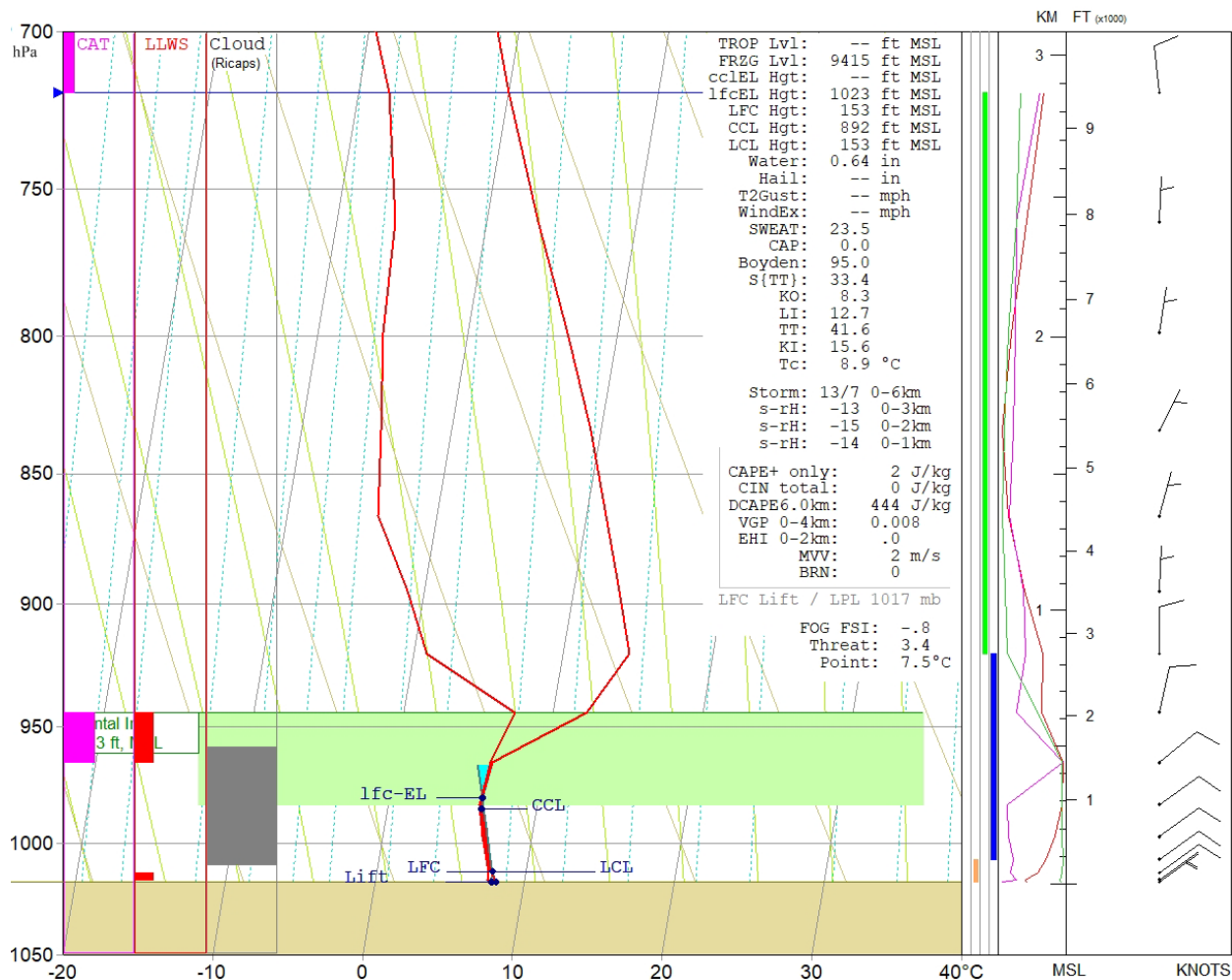


Figure 1 - HRRR model sounding data in SkewT/LogP format for 0800 near the accident site, surface to 700 hectopascals.

3.0 Un-Restricted Mesoscale Analysis

The Un-Restricted Mesoscale Analysis (URMA) ceiling product (in feet agl) valid for 0800 is presented in Figure 2. It depicted a large area of ceilings below 500 feet across eastern North Carolina that included the accident location. Over the accident location ceilings of between 200-250 feet agl were identified.

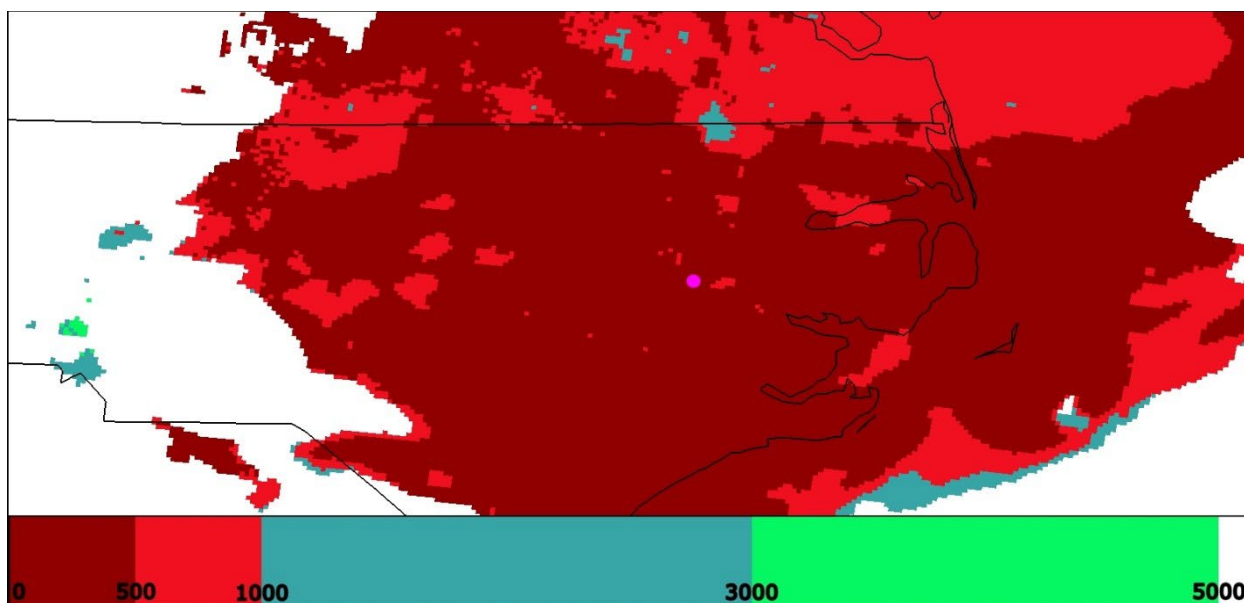


Figure 2 - URMA ceiling product (feet agl) valid for 0800. The accident location is denoted by the purple circle.

4.0 Pilot Reports

Longline-disseminated pilot reports⁷ (PIREPs) reported between 0600 and 1000 and within about 50 miles of the accident location are presented here.⁸

OAJ UA /OV OAJ/TM 1133/FLDURC/TP BE35/SK TOP012

JNX UA /OV JNX/TM 1151/FL016/TP BE36/SK OVC005-TOP016/RM DURC

5.0 Satellite Imagery

Geostationary Operational Environmental Satellite (GOES)-16 infrared (10.3 μ m) data were obtained from an archive at the Space Science Engineering Center at the University of Wisconsin-Madison. Imagery from these data at 0746 are presented in Figure 3. Brightness temperatures around the accident location were 5°C, which, when considering the 0800 HRRR sounding, corresponded to cloud heights of about either 1,000 feet or 7,000 feet.

⁷ These do not include pilot reports only broadcast via radio.

⁸ PIREPs were retrieved from: <https://mesonet.agron.iastate.edu/request/gis/pireps.php>

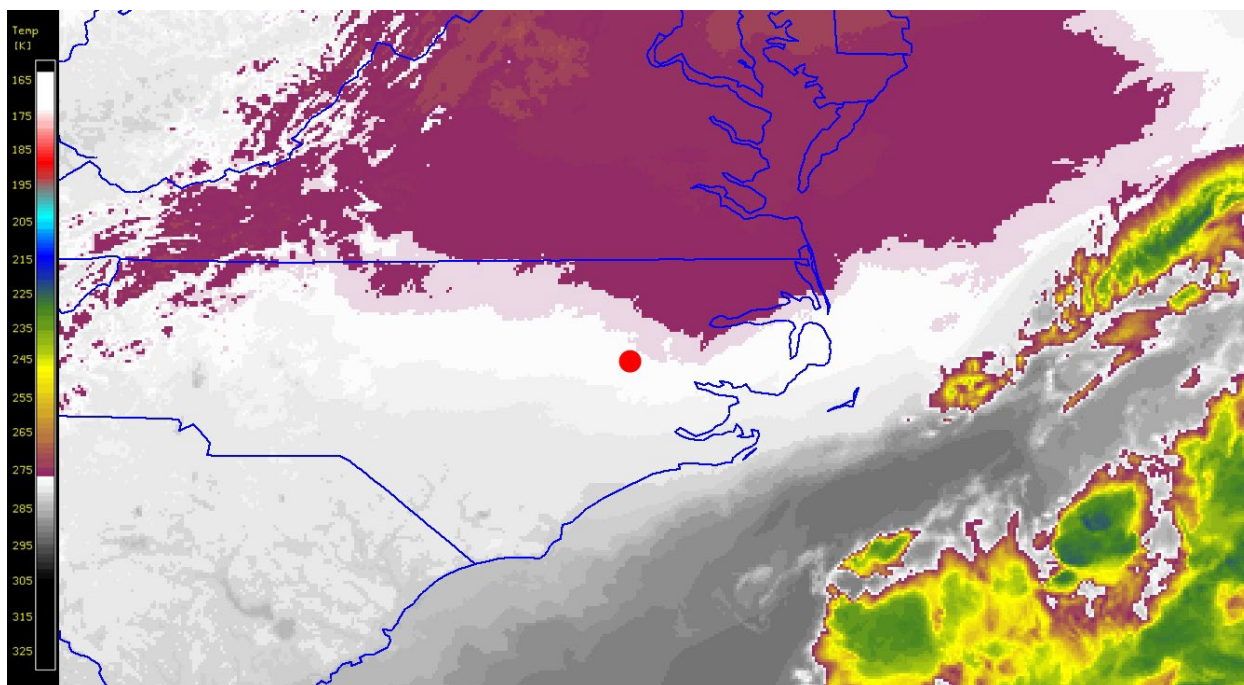


Figure 3 - GOES-16 brightness temperatures from 0746. Image is not corrected for parallax error. The accident location is denoted by the red dot.

6.0 Weather Radar

Weather radar data from the accident period were reviewed and no meteorological targets were depicted in the accident region during the period.

7.0 Terminal Aerodrome Forecasts

The closest National Weather Service (NWS) Terminal Aerodrome Forecast (TAF) site to the accident location was PGV. According to NWS Instruction 10-813: "A NWS TAF consists of the expected meteorological conditions significant to aviation at an airport for a specified time period. For the U.S., this is the area within five (5) statute miles (SM) of the center of an airport's runway complex."⁹

At 0140, a TAF was issued for PGV that forecasted for the accident time: a wind from 040° at 4 knots, visibility of 3 statute miles, mist, ceiling overcast at 200 feet agl.

TAF

KPGV 140540Z 1406/1506 05004KT P6SM OVC007

⁹ www.nws.noaa.gov/directives/sym/pd01008013curr.pdf

FM140700 04005KT 6SM BR OVC003
FM141000 04004KT 3SM BR OVC002
FM141500 05006KT P6SM SCT009
FM141700 07006KT P6SM SKC
FM150500 09003KT P6SM SCT020
AMD LTD TO CLD VIS AND WIND=

At 0735, a TAF was issued for PGV that forecasted for the accident time: a wind from 040° at 5 knots, visibility of 6 statute miles, mist, ceiling overcast at 300 feet agl.

TAF AMD
KPGV 141135Z 1412/1512 **04005KT 6SM BR OVC003**
FM141400 04007KT P6SM OVC007
FM141500 04007KT P6SM BKN009
FM141600 04005KT P6SM SCT010
FM141800 07006KT P6SM SKC
FM150700 VRB03KT 2SM -DZ BR OVC007
AMD LTD TO CLD VIS AND WIND=

8.0 Area Forecast Discussion

The NWS Newport/Morehead City, North Carolina, Weather Forecast Office issued the following portion of the Aviation section of an Area Forecast Discussion at 0722, applicable for a region that included the accident location.

FXUS62 KMHX 141122
AFDMHX
Area Forecast Discussion
National Weather Service Newport/Morehead City NC
722 AM EDT Fri Mar 14 2025

.AVIATION /11Z FRIDAY THROUGH TUESDAY/...

SHORT TERM /through 06Z Saturday/...

As of 705 AM Friday...IFR/LIFR conditions for all of ENC this morning with widespread low stratus and patchy fog. Drops to LIFR around sunrise are occurring as expected, and conditions should slowly improve after 10am for most. There is a slight chance (20%) of low stratus lingering through the day even inland as suggested by the NAM. Closer to the coast (OBX, inner banks) low stratus is more likely to linger through the day, resulting in IFR to low end MVFR conditions persisting. Tonight, another round of patchy fog, drizzle, and low stratus returns with light winds. Coastal trough approaches OBX overnight,

bringing slight chances for isolated to scattered showers for OBX. This does decrease fog chances along OBX and nearby waters tonight.

9.0 SIGMETs

There were no non-convective or Convective Significant Meteorological Information (SIGMET) advisories active for the accident location at the accident time.

10.0 CWSU Products

There were no Center Weather Advisories or Meteorological Impact Statements issued by the Center Weather Service Unit (CWSU) at the Washington Air Route Traffic Control Center that were active for the accident location at the accident time.

11.0 G-AIRMETs

A Graphical-Airmen's Meteorological Information (G-AIRMET) is a graphical advisory of weather that may be hazardous to aircraft but are less severe than what would be advised by a SIGMET. G-AIRMETs are only valid at discrete time "snapshots" that are three hours apart for a period of up to 12 hours into the future (i.e., 00-, 03-, 06-, 09- and 12-hour forecasts). They are issued at 0300 UTC, 0900 UTC, 1500 UTC and 2100 UTC (with updates issued as necessary).

G-AIRMETs for instrument flight rule (IFR) conditions¹⁰ in mist and fog were issued about 0445 and valid at 0500 and 0800 for regions that included the accident location.

A G-AIRMET for IFR conditions in mist and fog was issued at 0736 and valid at 0800 for a region that included the accident location.

¹⁰ IFR conditions - Ceilings less than 1,000 feet agl and/or surface visibility less than three statute miles.

12.0 Astronomical

According to the US Navy¹¹ civil twilight began at 0656 and according to the NOAA¹² apparent sunrise occurred at 0721. According to suncalc.org¹³, at the time of the accident the center of the sun's disk was about 5° above the horizon at an azimuth of 096°.

Submitted by:

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¹¹ https://aa.usno.navy.mil/calculated/rstt/year?ID=AA&year=2025&task=2&lat=35.6369&lon=-77.3708&label=&tz=4.00&tz_sign=-1&submit=Get+Data

¹² <https://gml.noaa.gov/grad/solcalc/>

¹³ <https://www.suncalc.org/#/35.6369,-77.3708,3/2025.03.14/07:49/1/3>