

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA25FA119

METEOROLOGY

Specialist's Factual Report

27 February 2025

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A. ACCIDENT

Location: Pierson, Florida

Date: 14 February 2025

Time: 1840 eastern standard time (2340 UTC¹)

Aircraft: Type - Cessna 208; Registration - N40EA

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 standard time for 14 February 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: 29.268161° north latitude; 81.350456° west longitude; at an elevation of about 60 feet.

This report provides surface observations and weather radar data 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 DeLand Municipal Airport (DED²) in DeLand, Florida, which was located about 13 miles south 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 80 feet. Automated longline³ reports from the DED AWOS during the times surrounding the accident time are presented here.

[1755] KDED 142255Z AUTO 01010KT 10SM OVC041 21/16 A3035 RMK AO2
TSNO T02060159

[1815] KDED 142315Z AUTO 01009KT 10SM SCT029 OVC039 20/16 A3035
RMK AO2 TSNO T02020160

**[1835] KDED 142335Z AUTO 01008KT 10SM OVC043 20/16 A3035 RMK
AO2 TSNO T01970161**

[1855] KDED 142355Z AUTO 01006KT 10SM SCT033 OVC045 20/16 A3034
RMK AO2 TSNO T01960163 10227 20196 402310154

[1915] KDED 150015Z AUTO 35004KT 10SM SCT026 BKN032 OVC039 20/16
A3034 RMK AO2 TSNO T01960165

At 1835, the DED AWOS reported a wind from 010° at 8 knots, visibility of 10 statute miles or greater, ceiling overcast at 4,300 feet above ground level (agl), temperature of 20°C and dew point temperature of 16°C, altimeter setting of 30.35 inches of mercury; Remarks: automated station with a precipitation discriminator, thunderstorm information not available, temperature of 19.7°C and dew point temperature of 16.1°C.

An AWOS was located at Ormond Beach Municipal Airport (OMN) in Ormand Beach, Florida, which was located about 12 miles east of the accident site at an elevation of about 30 feet. Augmented longline reports from the OMN AWOS during the times surrounding the accident time are presented here.

[1750] KOMN 142250Z 01008G15KT 7SM OVC031 19/19 A3034

[1850] KOMN 142350Z 03004KT 7SM OVC027 20/20 A3034 RMK LAST

At 1850, the OMN AWOS reported a wind from 030° at 4 knots, visibility of 7 statute miles, ceiling overcast at 2,700 feet agl, temperature of 20°C and dew point temperature of 20°C, altimeter setting of 30.34 inches of mercury; Remark: last observation.

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.

An AWOS was located at Arthur Dunn Air Park (X21) in Titusville, Florida, which was located about 47 miles south-southeast of the accident site at an elevation of 30 feet. Automated longline reports from the X21 AWOS during the times surrounding the accident time are presented here.

[1735] KX21 142235Z AUTO VRB06KT 330V030 10SM SCT026 OVC032 23/22
A3031 RMK AO2

[1755] KX21 142255Z AUTO 05006KT 9SM BKN025 OVC031 22/22 A3031 RMK
AO2

**[1815] KX21 142315Z AUTO 04006KT 10SM BKN026 OVC032 23/22
A3031 RMK AO2**

[1835] KX21 142335Z AUTO VRB04KT 10SM SCT027 OVC034 22/22 A3031
RMK AO2

At 1815, the X21 AWOS reported a wind from 040° at 6 knots, visibility of 10 statute miles or greater, ceiling broken at 2,600 feet agl, overcast clouds at 3,200 feet agl, temperature of 23°C and dew point temperature of 22°C, altimeter setting of 30.31 inches of mercury; Remarks: automated station with a precipitation discriminator.

2.0 Weather Radar

WSR-88D⁴ Level-II base reflectivity weather radar imagery from Jacksonville, Florida, (site KJAX) is presented in Figure 1. KJAX was located approximately 75 miles north of the accident location with an antenna elevation of about 160 feet. Assuming standard refraction and considering the 0.95° beam width⁵ for the WSR-88D radar beam, the KJAX 0.526° tilt would have “seen” altitudes above the accident location of between about 4,300 and 11,800 feet. No reflectivity was identified in the immediate area of the accident location. Light values of reflectivity⁶ were identified to the north of the accident location.

⁴ Weather Surveillance Radar 88 Doppler (WSR-88D)

⁵ Here we define the angular width of the radar beam as the region of transmitted energy that is bounded by one-half the maximum power. The maximum power lies along the beam centerline and decreases outward from the radar antenna.

⁶

https://www.faa.gov/sites/faa.gov/files/other_visit/aviation_industry/airline_operators/airline_safety/in_FO07008.pdf

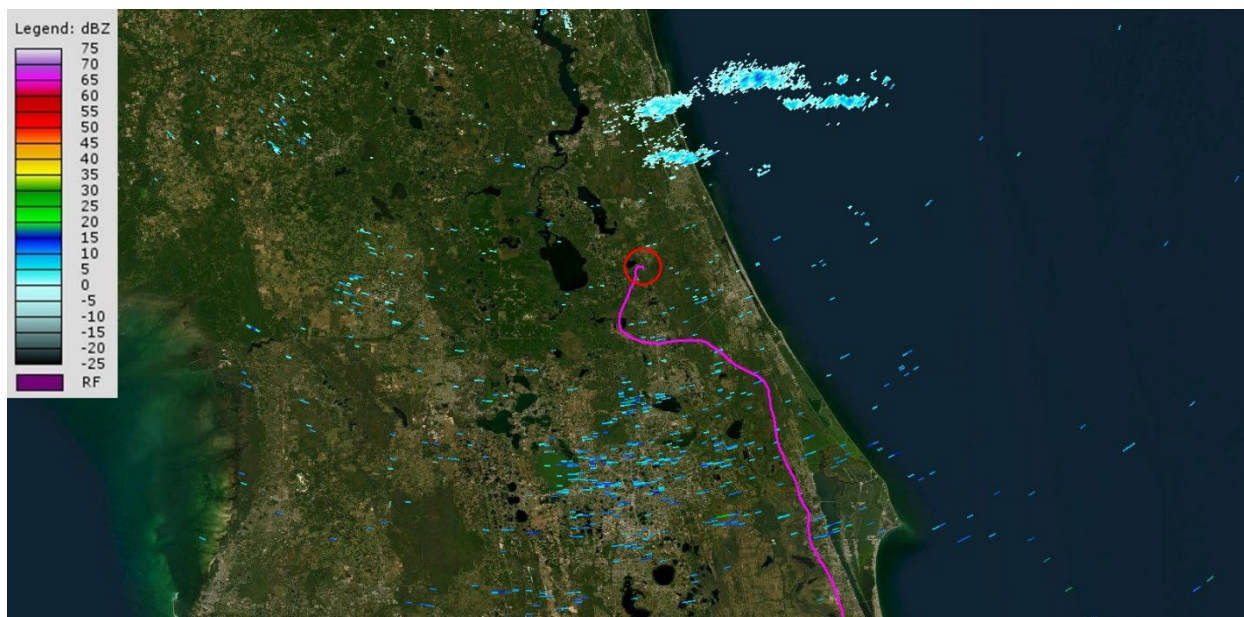


Figure 1 – KJAX WSR-88D 0.526° Level-II base reflectivity product from a sweep initiated at 1837:26. The accident aircraft's flight track is marked by the purple line and the accident location is within the red circle.

3.0 Un-Restricted Mesoscale Analysis

A graphical presentation of the Un-Restricted Mesoscale Analysis (URMA)⁷ ceiling product valid for 1900 is found in Figure 2. Ceilings of about 550 feet were analyzed at the accident location.

⁷ A description of the URMA can be found here: <https://sites.google.com/ucar.edu/operational-models-encyclo/deterministic-models/analyses/rtma-urma>

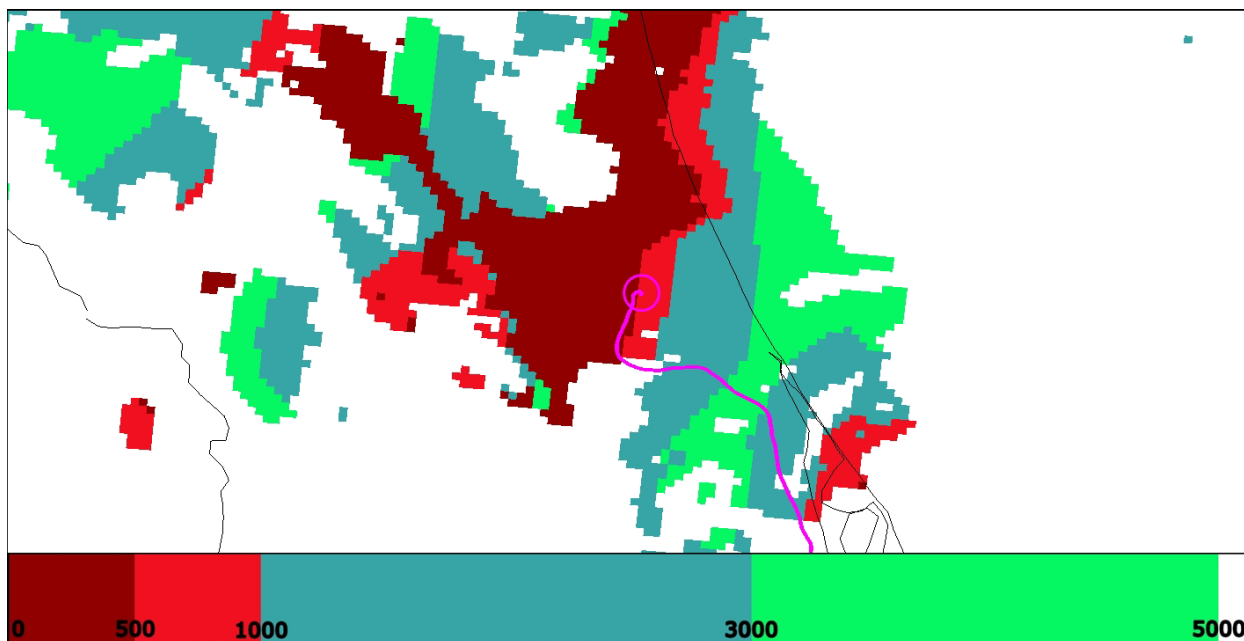


Figure 2 - URMA ceiling analysis (in feet) valid for 1900. The accident aircraft's flight track is marked by the purple line and the accident location is within the purple circle.

4.0 Graphical Forecasts for Aviation

The Graphical Forecasts for Aviation (GFA) are intended to provide the necessary aviation weather information to give users a complete picture of the weather that might impact flight in the continental United States. The GFAs are available through the Aviation Weather Center's (AWC) website and provide hourly analyses and forecasts, including information on clouds, flight category, precipitation, icing, turbulence, wind, and other output from the National Weather Service. The following information was retrieved from the AWC's GFA archive. Figure 4 presents the GFA cloud top height 00-hour forecast valid at 1900.

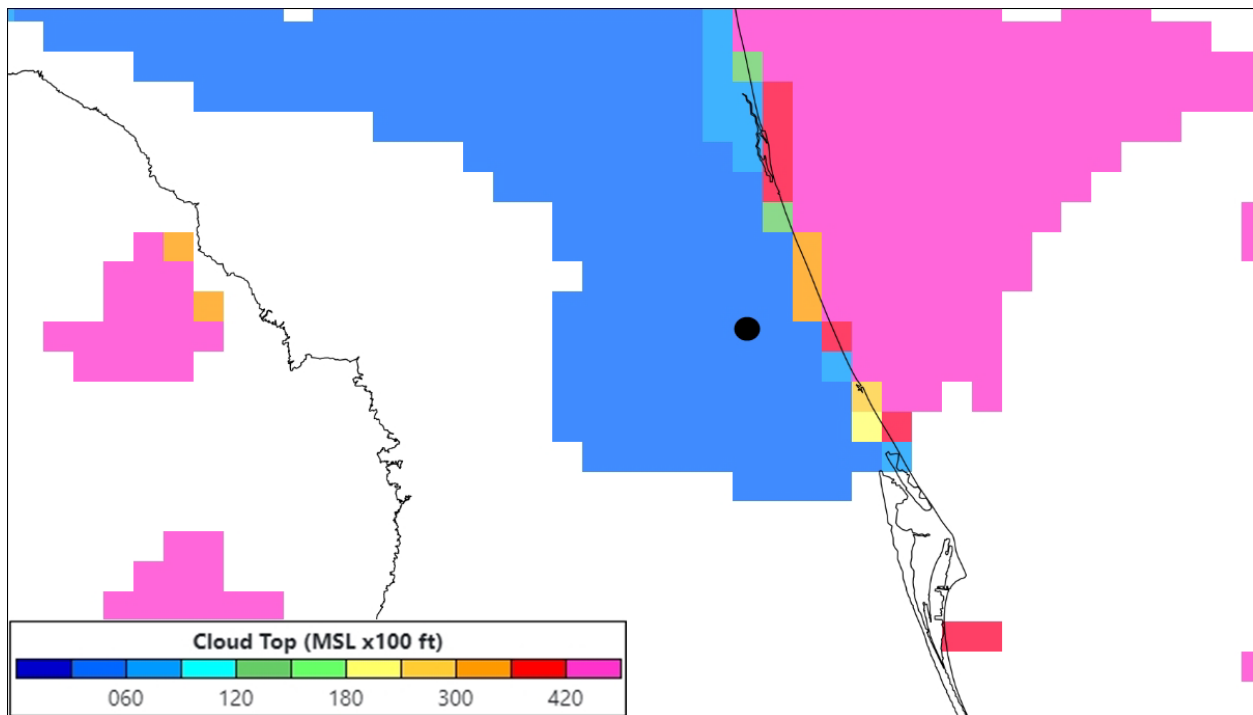


Figure 4 - GFA cloud top height 00-hour forecast valid for 1900. The accident location is denoted by the black dot.

Submitted by:

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