



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

December 3, 2020

Specialist's Factual Report

METEOROLOGY

CEN21LA055

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A. ACCIDENT

Location: Rockwall, Texas
Date: November 12, 2020
Time: 1306 central standard time (1906 UTC)¹
Aircraft: Type – Cessna 182; Registration – N7306H

B. METEOROLOGIST

Mike Richards
Senior Meteorologist
Operational Factors Division (AS-30)
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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 central standard time (CST) for November 12, 2020 (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 at located at about: 32.936653° north latitude; 96.436255° west longitude at an elevation of about 515 feet.

This report provides information on surface wind conditions in the accident region around the accident time.

D. WEATHER INFORMATION

1.0 Synoptic Conditions

A southern section of the National Weather Service (NWS) Surface Analysis Chart for 1200 CST is presented in figure 1. The station model for Ralph M Hall/Rockwall Municipal Airport (F46²) in Rockwall, Texas, which was within half of a mile of the accident site, is circled in purple. The station models across the accident region depicted southerly winds. F46 had the only station model that reported a wind from the west at about 1200 CST.

¹ UTC – abbreviation for Coordinated Universal Time

² The National Weather Service uses the 4-digit International Civil Aviation Organization (ICAO) format for station identifiers (as seen in the body of some formatted weather observations). This report uses the 3-digit International Air Transport Association format for station identification, which does not use the geographic designating digit (“K” for stations in the continental U.S. and “P” for U.S. stations in Alaska and the Pacific region) as found in the ICAO format.

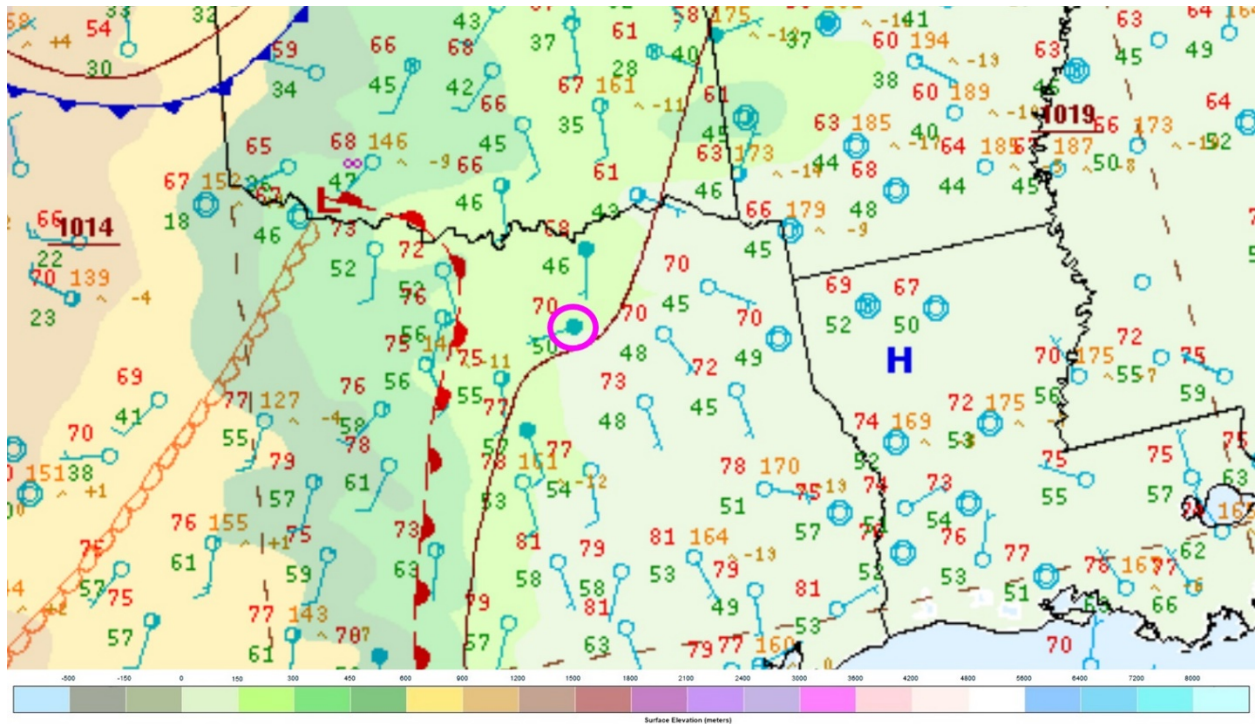


Figure 1 – Southern section of the NWS Surface Analysis Chart for 1200 CST. The F46 station model is circled in purple.

2.0 Surface Observations

An Automated Weather Observing System (AWOS) was located at F46 which was at an elevation of about 575 feet and had a magnetic variation of about 3° east. Automated longline³ reports from the F46 AWOS during the times surrounding the departure time are presented here.

[1215 CST] METAR KF46 121815Z AUTO 28008KT 10SM SCT060 BKN070 22/11 A3003 RMK AO2 T02220114=

[1235 CST] METAR KF46 121835Z AUTO 26010G14KT 10SM BKN070 22/12 A3001 RMK AO2 T02230123=

[1255 CST] METAR KF46 121855Z AUTO 29006KT 10SM BKN070 23/12 A3000 RMK AO2 T02260124=

[1315 CST] METAR KF46 121915Z AUTO 28004KT 10SM OVC070 23/13 A3000 RMK AO2 T02250129=

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.

[1335 CST] METAR KF46 121935Z AUTO 27009KT 10SM BKN070 24/13 A2999
RMK AO2 T02390133=

At 1255 CST, the F46 AWOS reported a wind from 290° at 6 knots, visibility of 10 statute miles or greater, ceiling broken at 7,000 feet above ground level (agl), temperature of 23° Celsius (C) and a dew point temperature of 12°C, altimeter setting of 30.00 inches of mercury; remarks: automated station with a precipitation discriminator, temperature of 22.6°C and a dew point temperature of 12.9°C.

At 1315 CST, the F46 AWOS reported a wind from 280° at 4 knots, visibility of 10 statute miles or greater, ceiling overcast at 7,000 feet agl, temperature of 23°C and a dew point temperature of 13°C, altimeter setting of 30.00 inches of mercury; remarks: automated station with a precipitation discriminator, temperature of 22.5°C and a dew point temperature of 12.9°C.

Images of maintenance log book entries for the F46 AWOS applicable to October 2020 and November 2020 are found in Attachments 1 and 2. A summary of an interview with the F46 AWOS technician is found in Attachment 3 and reveals that the technician inspected the F46 AWOS on the day following the accident at the request of the F46 airport manager and found the wind direction to be misrepresentative by 30-40 degrees. This is reflected in the log found in Attachment 2.

An AWOS was located at Mesquite Metro Airport (HQZ) in Mesquite, Texas, which was located about 13 miles south-southwest of the accident location at an elevation of about 450 feet and had a magnetic variation of about 3° east. Augmented longline reports from the HQZ AWOS during the times surrounding the accident time are presented here.

[1150 CST] METAR KHQZ 121750Z 19007KT 10SM BKN070 22/10 A3004=

[1250 CST] METAR KHQZ 121850Z 19007KT 10SM BKN070 24/12 A3000=

[1350 CST] METAR KHQZ 121950Z 20007KT 10SM SCT060 24/12 A2998=

At 1250 CST, the HQZ AWOS reported a wind from 190° at 7 knots, visibility of 10 statute miles or greater, ceiling broken at 7,000 feet agl, temperature of 24°C and a dew point temperature of 12°C, altimeter setting of 30.00 inches of mercury.

An Automated Surface Observing System (ASOS) was located at McKinney National Airport (TKI) in Dallas, Texas, which was located about 16 miles north-northwest of the accident location at an elevation of about 590 feet and had a magnetic variation of about 3° east. Augmented longline reports from the TKI ASOS during the times surrounding the accident time are presented here.

[1153 CST] METAR KTKI 121753Z 19008KT 10SM SCT070 2110 A3002 RMK AO2
SLP169 T02110100 10211 20100 58012=

[1253 CST] METAR KTKI 121853Z 17010KT 10SM SCT070 2312 A2999 RMK AO2 SLP157 T02330122=

[1353 CST] METAR KTKI 121953Z 18011KT 10SM CLR 2413 A2996 RMK AO2 SLP147 T02390128=

At 1253 CST, the TKI ASOS reported a wind from 170° at 10 knots, visibility of 10 statute miles or greater, scattered clouds at 7,000 feet agl, temperature of 23°C and a dew point temperature of 12°C, altimeter setting of 29.99 inches of mercury; remarks: automated station with a precipitation discriminator, sea-level pressure of 1015.7 hectopascals, temperature of 23.3°C and a dew point temperature of 12.2°C.

An AWOS was located at Majors Airport (GVT) in Greenville, Texas, which was located about 20 miles east-northeast of the accident location at an elevation of about 535 feet and had a magnetic variation of about 2.5° east. Automated longline reports from the GVT AWOS during the times surrounding the accident time are presented here.

[1215 CST] METAR KGVV 121815Z AUTO 13003KT 10SM SCT022 SCT065 22/10 A3003 RMK AO2=

[1235 CST] METAR KGVV 121835Z AUTO 00000KT 10SM SCT075 23/10 A3002 RMK AO2=

[1255 CST] METAR KGVV 121855Z AUTO 12004KT 10SM SCT075 24/09 A3000 RMK AO2=

[1315 CST] METAR KGVV 121915Z AUTO 20004KT 10SM CLR 25/09 A2999 RMK AO2=

[1335 CST] METAR KGVV 121935Z AUTO 00000KT 10SM SCT060 BKN075 25/10 A2999 RMK AO2=

At 1255 CST, the GVT AWOS reported a wind from 120° at 4 knots, visibility of 10 statute miles or greater, scattered clouds at 7,500 feet agl, temperature of 24°C and a dew point temperature of 9°C, altimeter setting of 30.00 inches of mercury; remarks: automated station with a precipitation discriminator.

At 1315 CST, the GVT AWOS reported a wind from 200° at 4 knots, visibility of 10 statute miles or greater, sky clear below 12,000 feet agl, temperature of 25°C and a dew point temperature of 9°C, altimeter setting of 29.99 inches of mercury; remarks: automated station with a precipitation discriminator.

An AWOS was located at Addison Airport (ADS) in Dallas, Texas, which was located about 20 miles west of the accident location at an elevation of about 650 feet and had a magnetic variation of about 3° east. Augmented longline reports from the ADS AWOS during the times surrounding the accident time are presented here.

[1147 CST] METAR KADS 121747Z 18009KT 13SM SCT070 21/10 A3003=

[1247 CST] **METAR KADS 121847Z 19009KT 13SM SCT070 22/11 A3000=**

[1347 CST] METAR KADS 121947Z 17009G15KT 13SM FEW070 SCT240 25/13
A2996=

At 1247 CST, the ADS AWOS reported a wind from 190° at 9 knots, visibility of 13 statute miles or greater, scattered clouds at 7,000 feet agl, temperature of 22°C and a dew point temperature of 11°C, altimeter setting of 30.00 inches of mercury.

3.0 Weather Radar

A Terminal Doppler Weather Radar (TDWR) from near Dallas, Texas (site: TDAL) 0.483° tilt velocity image is presented in figure 2. TDAL was located approximately 27 miles west of the accident location at an elevation of about 540 feet. Assuming standard refraction and considering the approximate beam width of 0.55°, the 0.483° tilt would have “seen” altitudes above the accident location of between about 1,600 and 3,200 feet. In figure 2, red colors have a component of motion away from the radar and green colors have a component of motion toward the radar.

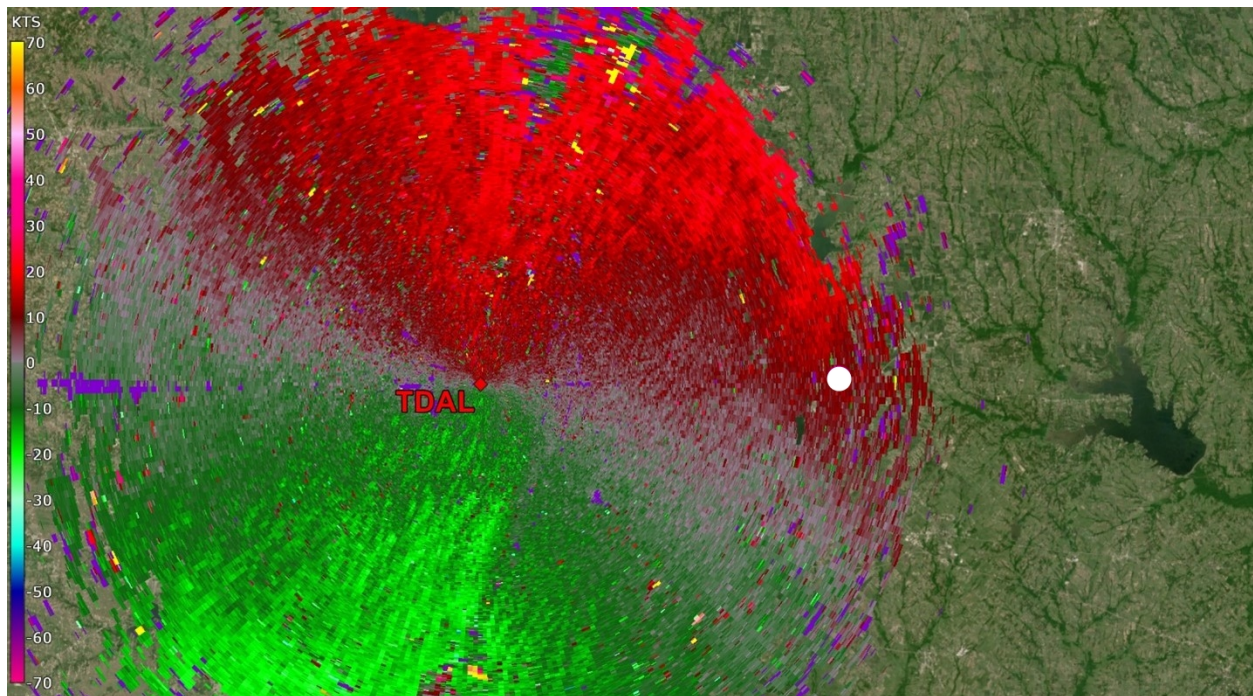


Figure 2 – TDAL 0.483° Level II velocity product from 1303 CST. The accident location is denoted by the white circle.

4.0 Pilot Reports

There were no publicly longline-disseminated pilot reports⁴ (PIREPs) made within about two hours of the accident time and 100 miles of the accident location.

E. LIST OF ATTACHMENTS

Attachment 1 - Images of the F46 AWOS log book for October 22, 2020.

Attachment 2 - Image of the FAA form 6030-1 maintenance log for the F46 AWOS applicable to November 2020.

Attachment 3 - Summary of an interview with the F46 AWOS technician.

Submitted by:

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Senior Meteorologist

⁴ These do not include pilot reports only broadcast via radio.