NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

August 28, 2018

Weather Study

METEOROLOGY

RRD18FR010

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A. ACCIDENT

Location: Dallas, Texas
Date: August 13, 2018
Time: 0037 central daylight time (0537 UTC)[1]
Event: Employee fatality

B. METEOROLOGIST

Mike Richards
Senior Meteorologist
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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 central daylight time (CDT) for August 13, 2018 (based upon the 24-hour clock), directions are referenced to true north, distances are in statute miles and heights are above mean sea level (msl).

Coordinates used for the accident location (approximate): 32.7618° north latitude, 96.7894° west longitude, at an elevation of about 420 feet.

D. WEATHER INFORMATION

1.0 Synoptic Conditions

A southern portion of the continental United States National Weather Service (NWS) Surface Analysis Chart for 0100 CDT is presented in figure 1. The surface analysis chart showed a low-pressure center in southwestern Oklahoma with associated warm and stationary fronts. The surface wind across north Texas was generally from the southeast at about 5 knots. No precipitation or restrictions to visibility were noted near the accident site. A WSR-88D regional radar composite reflectivity mosaic obtained from the National Centers for Environmental Information (NCEI) for 0040 CDT (figure 2) identified light precipitation in the accident region, with none of the precipitation impacting the accident site.

[1] UTC – abbreviation for Coordinated Universal Time

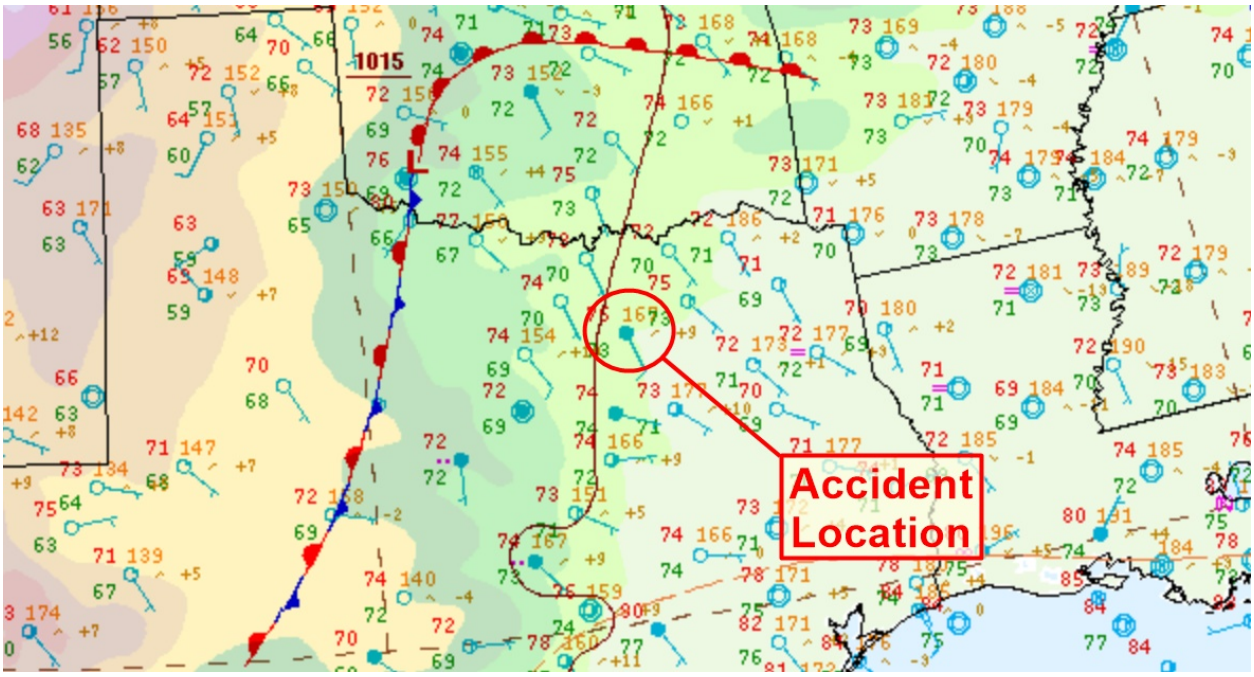

Figure 1 – A southern portion of the continental United States NWS Surface Analysis Chart for 0100 CDT.

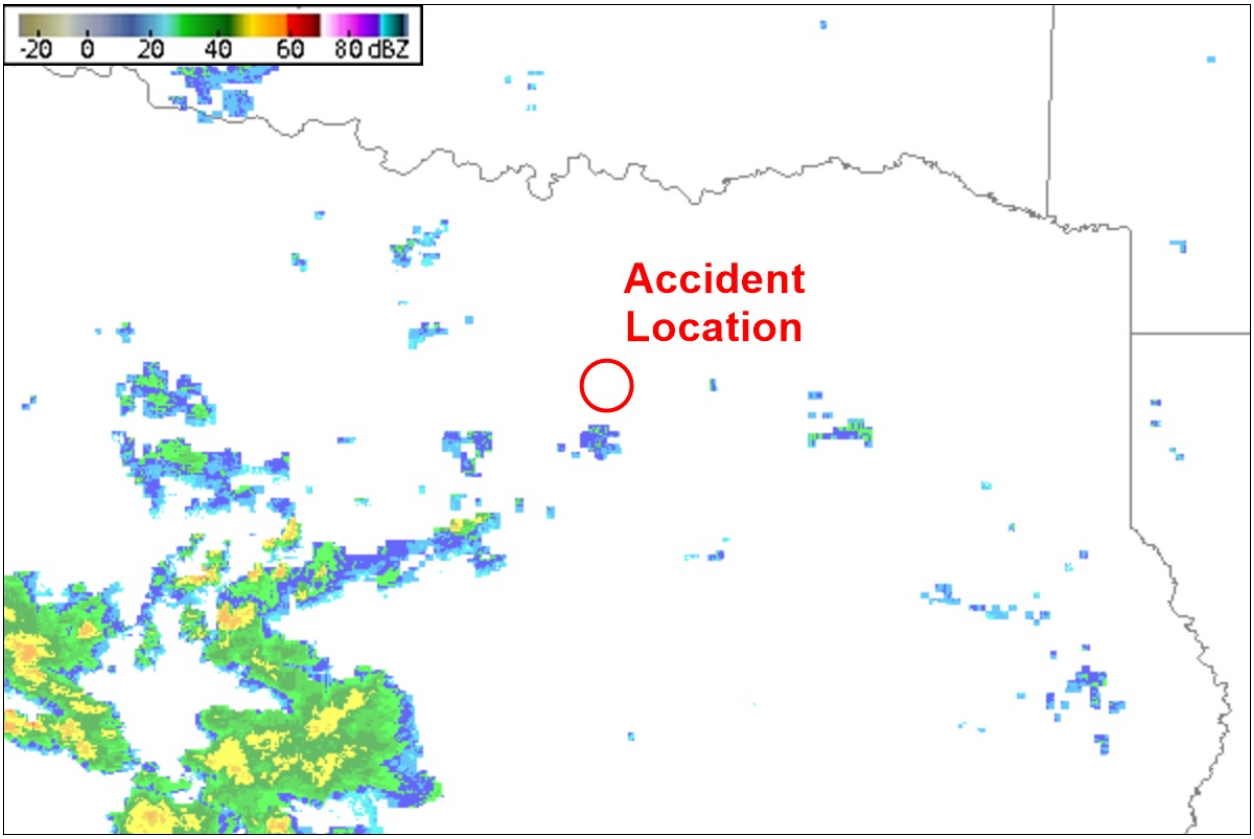

Figure 2 – NCEI WSR-88D mosaic from 0040 CDT.

2.0 Surface Observations

An Automated Surface Observing System (ASOS) was located at Dallas Love Field Airport (DAL)[2] in Dallas, Texas, and was located about 6 miles north-northwest of the accident location at an elevation of about 485 feet. Human-augmented reports from DAL during the times surrounding the accident time are presented here. Observations throughout the period identified southeast surface winds of 9 to 10 knots (~10 to 12 miles per hour), unlimited visibility, air temperature of 24° Celsius (~75° Fahrenheit), and a dew point depression of 1° Celsius.

[2353 CDT][3] KDAL 130453Z 14009KT 10SM FEW012 FEW065 OVC190 24/23 A3004 RMK AO2 SLP166 T02440228 $

[0024 CDT] KDAL 130524Z 14009KT 10SM SCT009 SCT075 OVC190 24/23 A3005

[0053 CDT] KDAL 130553Z 16009KT 10SM FEW009 BKN065 OVC190 24/23 A3004 RMK AO2 SLP167 T02440228 10294 20244 403110233 51009 $

[0153 CDT] KDAL 130653Z 16010KT 10SM FEW009 FEW034 SCT070 BKN150 OVC250 24/23 A3004 RMK AO2 SLP164 T02440228 $

An ASOS was located at Dallas Executive Airport (RBD) in Dallas, Texas, which was located about 6 miles southwest of the accident location at an elevation of about 660 feet. Automated reports from RBD during the times surrounding the accident time are presented here. Observations throughout the period identified southeast surface winds between 6 and 9 knots (~7 to 10 miles per hour), unlimited visibility, air temperatures of 23° to 24° Celsius (~73° to 75° Fahrenheit), and dew point depressions of 1° to 2° Celsius.

[2353 CDT][3] KRBD 130453Z AUTO 13009KT 10SM BKN007 24/22 A3004 RMK AO2 SLP166 T02390222 $

[0049 CDT] KRBD 130549Z AUTO 15006KT 10SM SCT006 BKN070 23/22 A3004 RMK AO2 $

[0053 CDT] KRBD 130553Z AUTO 14009KT 10SM SCT006 BKN070 23/22 A3004 RMK AO2 SLP165 60000 T02330222 10272 20233 403060222 50000 $

[0106 CDT] KRBD 130606Z AUTO 16008KT 10SM BKN006 OVC070 23/22 A3004 RMK AO2 T02330222 $

[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.
[3] On August 12, 2018

3.0 Area Forecast Discussion

An Area Forecast Discussion (AFD) was issued at 2322 CDT on August 12, 2018, by the NWS Weather Forecast Office for the Dallas/Fort Worth region (which included the accident location). The "Update" section of the AFD, which was originally issued at 2126 CDT on August 12, 2018, is presented here. No significant weather applicable to the accident time and location was forecast.

FXUS64 KFWD 130422
AFDFWD

Area Forecast Discussion
National Weather Service Fort Worth TX
1122 PM CDT Sun Aug 12 2018

.UPDATE... /Issued 926 PM CDT Sun Aug 12 2018/

The loss of daytime heating combined with much of the area having the thermodynamic environment worked over by earlier convection and outflow boundaries has left the area with just a few spotty areas of light showers or rain this evening. This will leave the CWA in a convective lull through just past midnight, as one upper disturbance exits our area to the northeast.

The convective lull will only last 4-6 hours, however, as another mid level shortwave disturbance pivots around the southern periphery of the Northwest Texas/Southern High Plains broad upper low across the Concho Valley and South Plains and toward our western CWA before daybreak Monday. Ascent from this upper disturbance, as in previous nights, will get an assist from increasing warm advection from a developing 20-30 knots southerly low level jet by midnight/after. The combination of these features working upon a continued, very tropical-like environment defined by PWAT values around 2.00-2.25 inches will mean more heavy rainfall is on the horizon. The 2.15 inches measured on the 00z Fort Worth sounding this evening and which is near the climatological maximum for PWATs values for early-mid August of 2.2 inches.

The combination of lift, tropical moisture, and skinny CAPE will be a recipe for more localized heavy rainfall and localized flooding. Showers and thunderstorms will likely increase across our far west and southwest counties in the midnight-3 am CDT period, then spread northeast with an expansive coverage of showers, some heavy along with embedded tstorms. It appears areas along and west of a Sherman-DFW-Lampasas line will see the best chances for heavier rainfall, while areas further to the east will see progressively less coverage and weaker convection due to the effects of warmer mid levels and subsidence from the sub-tropical mid level high centered over the northern Gulf of Mexico.

Outside of parts of Comanche, Coryell, Bosque, and western McLennan counties, the remainder of the counties from DFW north through west have only seen isolated amounts of heavier rains the past several days. Locations along and west of the U.S. 281 haven't seen much rain at all compared to other parts of the CWA. These areas should be able to take on some additional rainfall, though torrential downpours will result in minor flooding of low lying areas and some street flooding, including the DFW Metro toward rush hour Monday morning. Those isolated areas that have seen higher totals

will need to be watched closely for flash flooding overnight and into Monday. That said, the threat, even with current antecedent conditions is too marginal and localized for any Flash Flood or Flood Watches to be issued with this update.

Finally, the cloud cover, moist soils, and off/on chances for rainfall will keep our temperatures pleasant for mid August around these parts. These rains are also helping what were intensifying drought and grass fire conditions, as well as lowering lakes levels from all the heat earlier this Summer. Enjoy it now, as more traditional mid-August heat will return later this coming week.

4.0 Astronomical Data

The astronomical data obtained from the United States Naval Observatory for 32° 46' north latitude and 96° 47' west longitude indicated the following:

SUN

Sunset	2015 CDT[3]
End Civil Twilight	2041 CDT[3]

MOON

Moonset	2131 CDT[3]
Moonrise	0915 CDT

Submitted by:

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Mike Richards
Senior Meteorologist

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