

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23FA113

METEOROLOGY

Specialist's Factual Report

May 5, 2023

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A. ACCIDENT

Location: Little Rock, Arkansas

Date: 22 February 2023

Time: 1156 central standard time (1756 UTC¹)

Aircraft: Type - Beech B200; Registration - N55PC

B. METEOROLOGY INVESTIGATOR

Mike Richards

Senior Meteorologist

Office of Aviation Safety

Operational Factors Division (AS-30)

National Transportation Safety Board

C. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board's (NTSB) 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 for 22 February 2023 (based upon the 24-hour clock), directions are referenced to true north, distances are in nautical miles and, except where noted, heights are above mean sea level (msl). The accident site was located at about: 34.708054° north latitude; 92.237662° west longitude at an elevation of about 305 feet.

This report provides information on the weather conditions and forecasts applicable to the accident flight.

D. WEATHER INFORMATION

1.0 Weather Radar

WSR-88D² Level-II base reflectivity weather radar imagery from the Little Rock, Arkansas, site (KLZK) is presented in Figures 1-5. KLZK was located about 8 miles north of the accident location with an antenna elevation of 649 feet. Assuming standard refraction and considering the 0.95° beam width³ for the WSR-88D radar beam, the

¹ UTC - abbreviation for Coordinated Universal Time

² Weather Surveillance Radar 88 Doppler (WSR-88D)

³ 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.

KLZK 0.549° tilt would have “seen” altitudes above the accident location of between about 750 and 1,150 feet. The reflectivity images depict a north-to-south-oriented line of light to extreme precipitation moving from the west and impacting the accident location near the accident time.

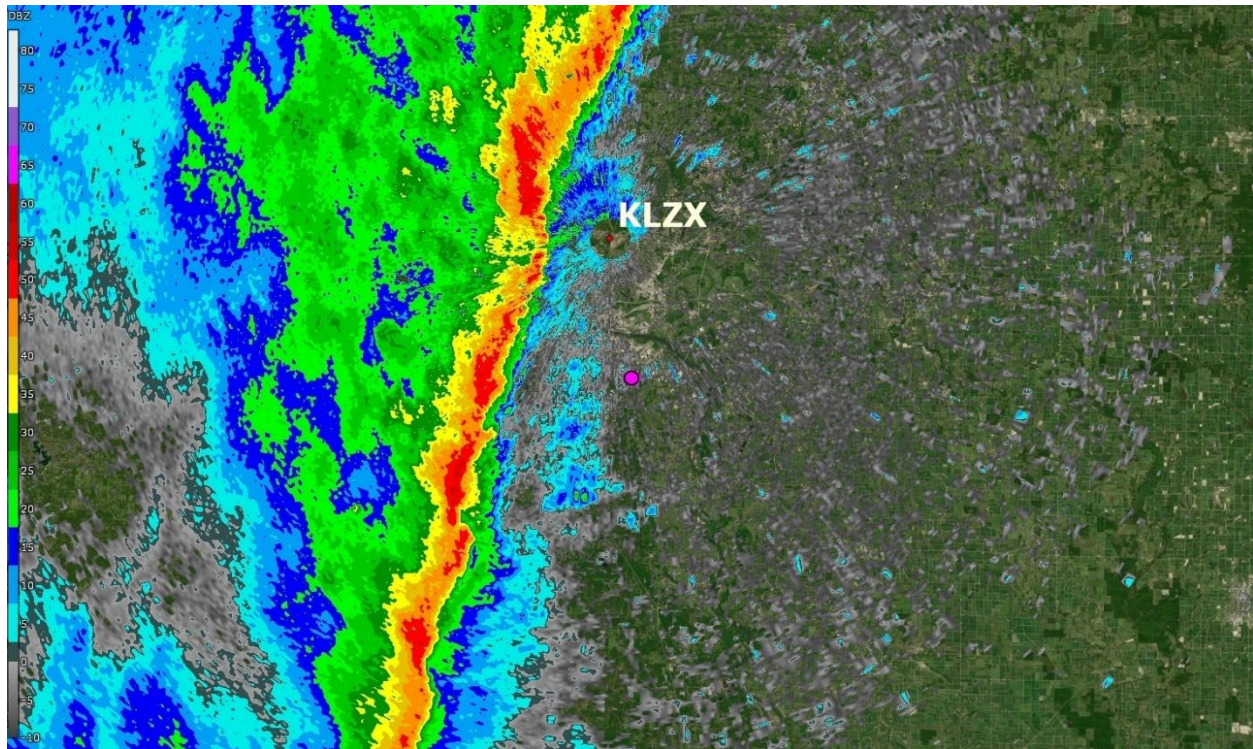


Figure 1 – KLZK 0.549° Level-II base reflectivity product from a sweep initiated at 1146:23. The accident location is identified by the purple circle.

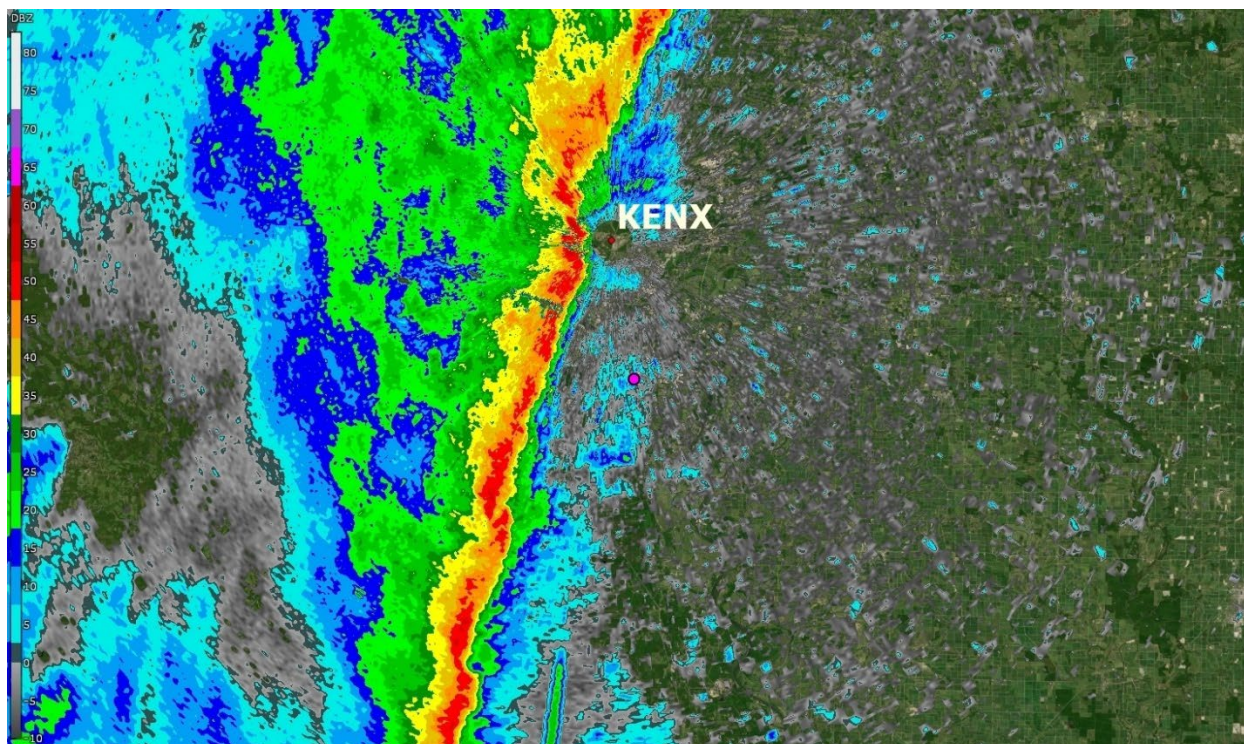


Figure 2 - KLZK 0.549° Level-II base reflectivity product from a sweep initiated at 1149:48. The accident location is identified by the purple circle.

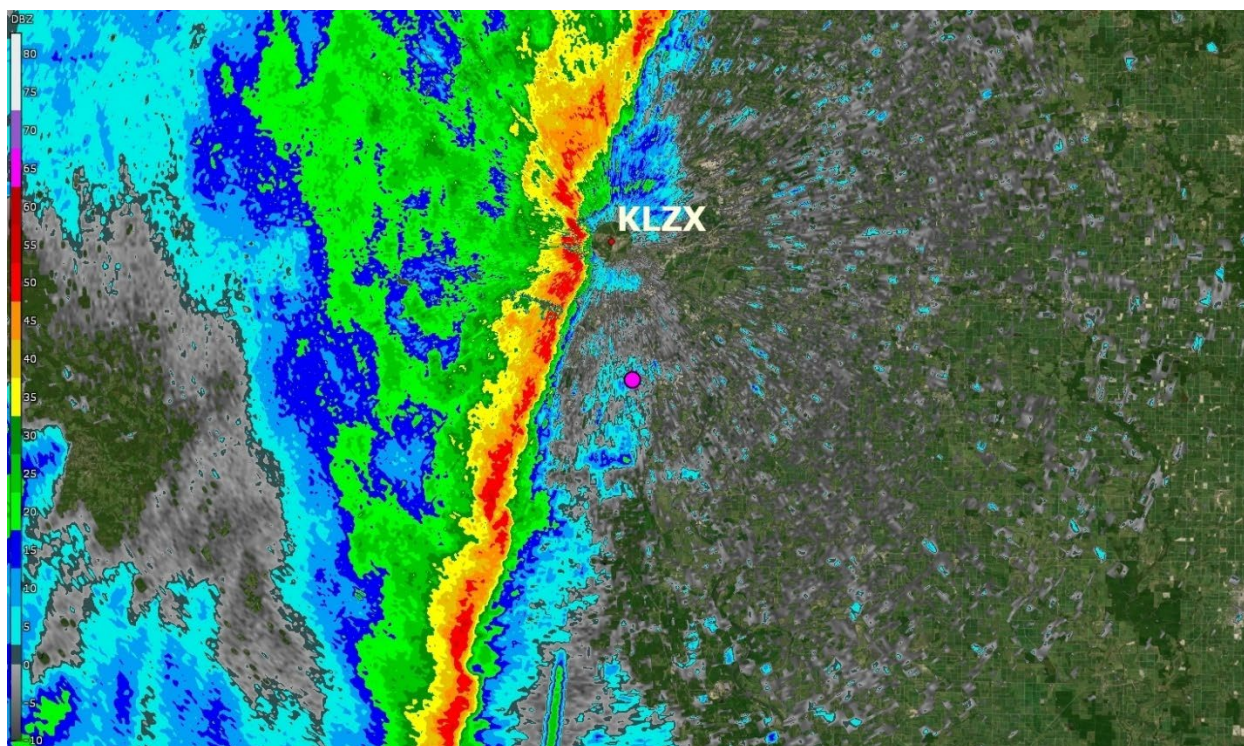


Figure 3 - KLZK 0.549° Level-II base reflectivity product from a sweep initiated at 1153:14. The accident location is identified by the purple circle.

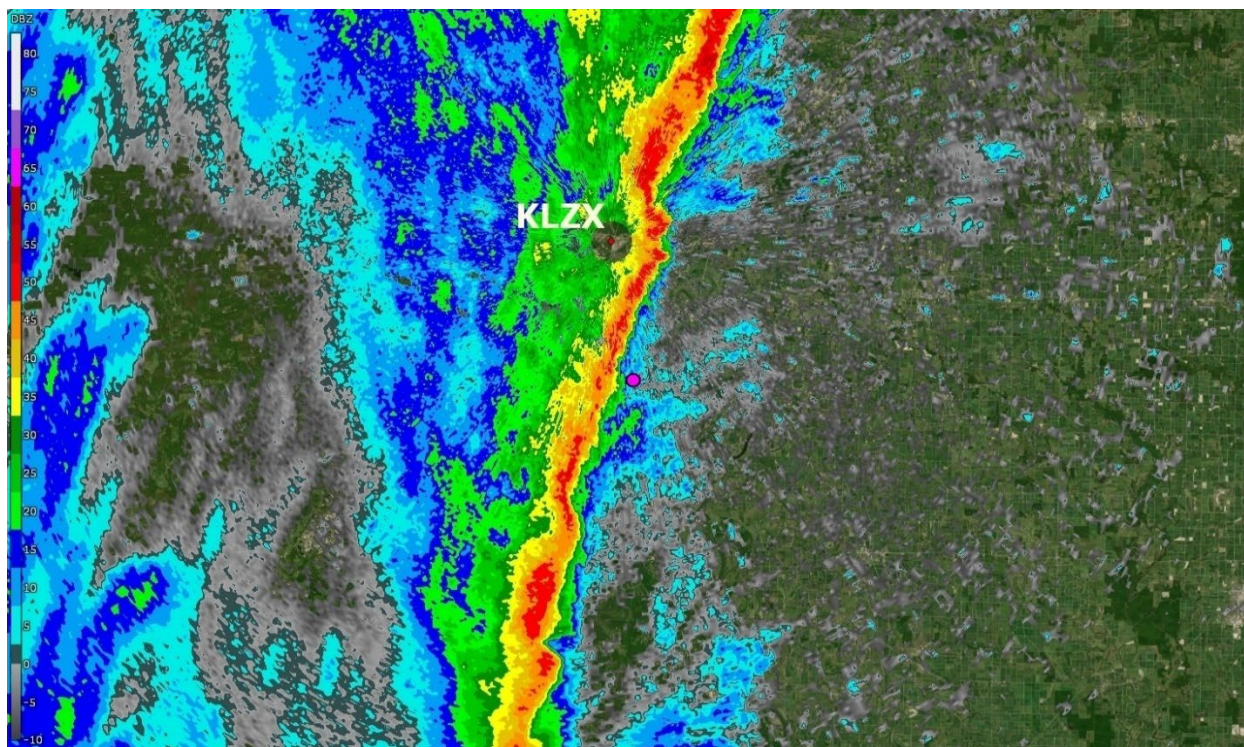


Figure 4 - KLZK 0.549° Level-II base reflectivity product from a sweep initiated at 1156:39. The accident location is identified by the purple circle.

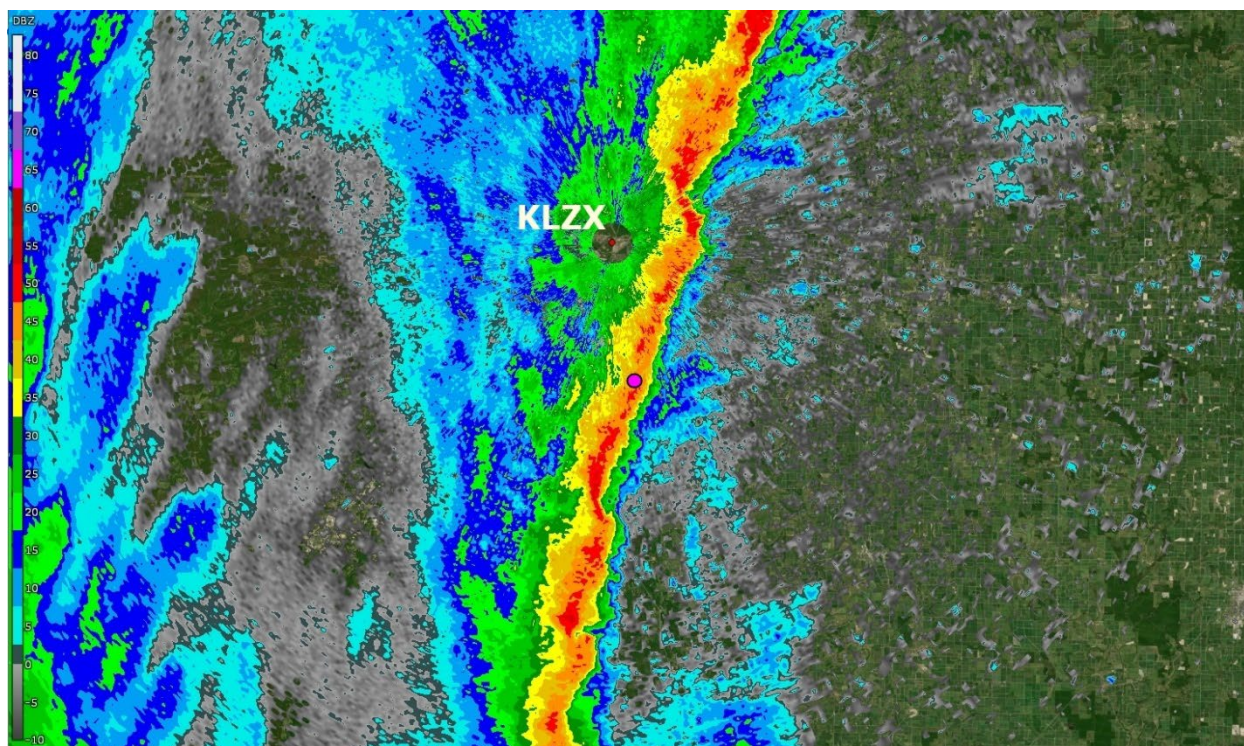


Figure 5 - KLZK 0.549° Level-II base reflectivity product from a sweep initiated at 1200:05. The accident location is identified by the purple circle.

KLZK reflectivity imagery from about the accident time can also be seen in Figure 9.

WSR-88D⁴ Level-II base velocity weather radar imagery from KLZK is presented in Figure 6. The velocity image depicted the accident location along a line of radial wind shift about the accident time.

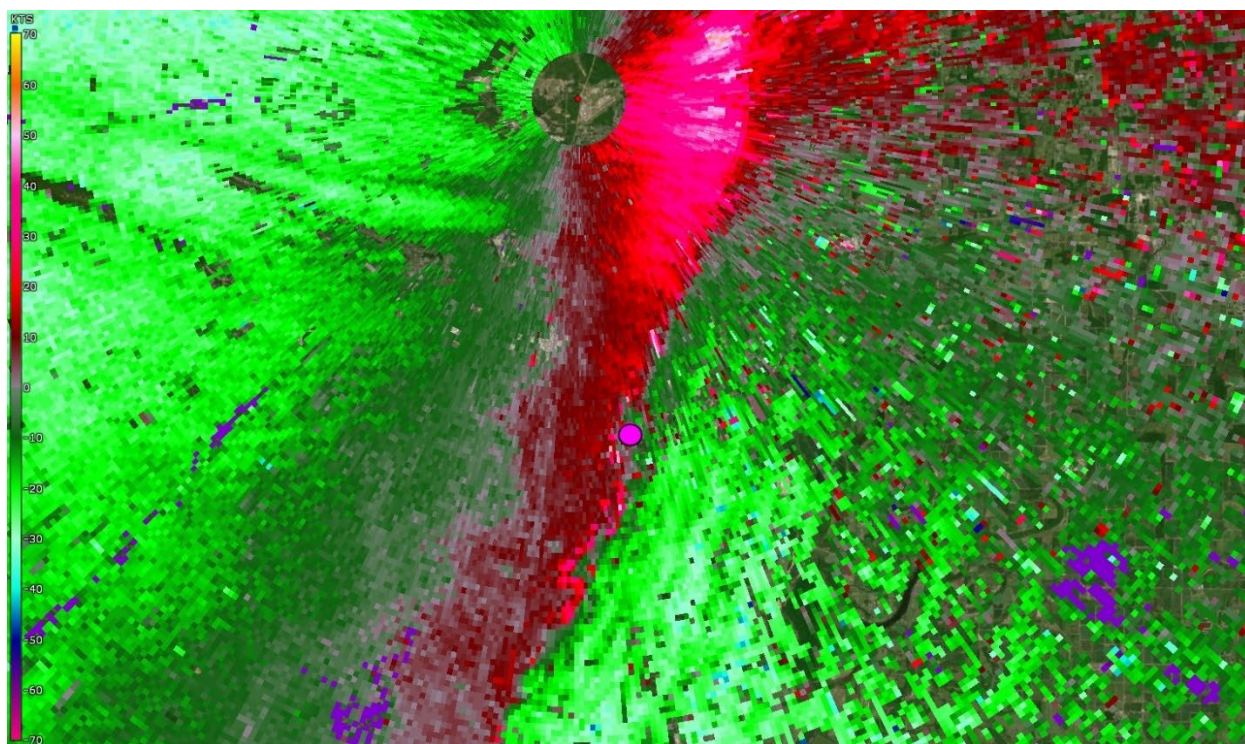


Figure 6 - KLZK 0.549° Level-II base reflectivity product from a sweep initiated at 1157:11. The accident location is identified by the purple circle.

The following figures (Figures 7 and 8) were provided by the National Weather Service (NWS) in support of the NTSB's investigation. Additional information may be found in Attachment 1.

Figure 7 provides a table of wind velocities at several heights above the accident location at various times surrounding the accident time. It should be noted that elevations are height above the KLZK antenna height and must be converted to yield height above msl. After conversion: 434 feet above KLZK antenna height becomes 1,083 feet above msl; 651 feet above KLZK antenna height becomes 1,300 feet above msl; 931 feet above KLZK antenna height becomes 1,580 feet above msl; 1,303 above KLZK antenna height becomes 1,952 feet above msl.

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

Wind Velocity Data~ using KLIT Observation and Base Velocity Data from KLZK					
Time*	KLIT Obs#	0.6 (434ft^)	0.9 (651ft^)	1.3 (931ft^)	1.8 (1303ft^)
1746z	220 18kt	26.2kt SSW	28.2kt SW	27.2kt SW	31.1kt SW
1749z	210 18G25kt	15.5kt SW	24.3kt SW	26.2kt WSW	
1753z	210 19G27kt	23.3kt W			28.2kt WSW
1756z	230 17kt	12.6kt W	17.5kt W	15.5kt W	
1800z	300 28G33kt	19.4kt WNW			10.7kt W
1804z	290 19G25kt	14.6kt WNW	17.5kt WNW	20.4kt WNW	19.4kt WNW
1807z		11.7kt WNW			
1810z	290 16G21kt	15.5kt WNW	17.5kt WNW	18.5kt WNW	19.4kt WNW
1814z	290 14kt	11.7kt WNW	14.6kt WNW		
*Time based on radar scans from KLZK #Only used observations within a minute of the radar scan (included gusts) ^Elevations given by GRAnalyst2 for Beam Height at given Lat/Lon ~Utilizing the single velocity radar bin over the Lat/Lon provided at the time closest to the 0.6 degree scan. A Guide For Interpreting Doppler Velocity Patterns					

Figure 7 - NWS-provided table of wind velocities at several heights above the accident location at various times surrounding the accident time. Heights are feet above KLZK antenna height.

Figure 8 provides base reflectivity, base velocity and spectrum width data from KLZK. According to the NWS, "it appears that close to the surface the wind shift (orange line) and the precipitation (white line) were fairly close to one another throughout the period. At the airport, the wind shift is slightly out ahead of the rain, but not by much. The wind shift does outrun the precipitation gradient north of the airport, but this makes sense as the portion of that line is bowing leading to increasing winds...close to 1000 feet the wind shift (orange line) and the precipitation (white line) were also very close to one another. Similar to the surface, aloft the wind does begin to outrun the precipitation gradient north of the [airport] near the radar and is just ahead of the precipitation at the airport. Again though these are fairly close to one another."⁵ The NWS clarified their estimation of the distance between the wind shift and the leading edge of the precipitation and stated, "...the wind shift was roughly anywhere between

⁵ The NWS usage of "close to 1,000 feet" appears to be intended to approximate a height of 931 feet (see Attachment 1), which is likely a height above the KLZK antenna height. This height converts to 1,580 feet above msl.

1 nm and 1.10 nm out ahead of the 25dBz and greater precipitation in the vicinity of the [accident location] based on data from the KLZK radar.”

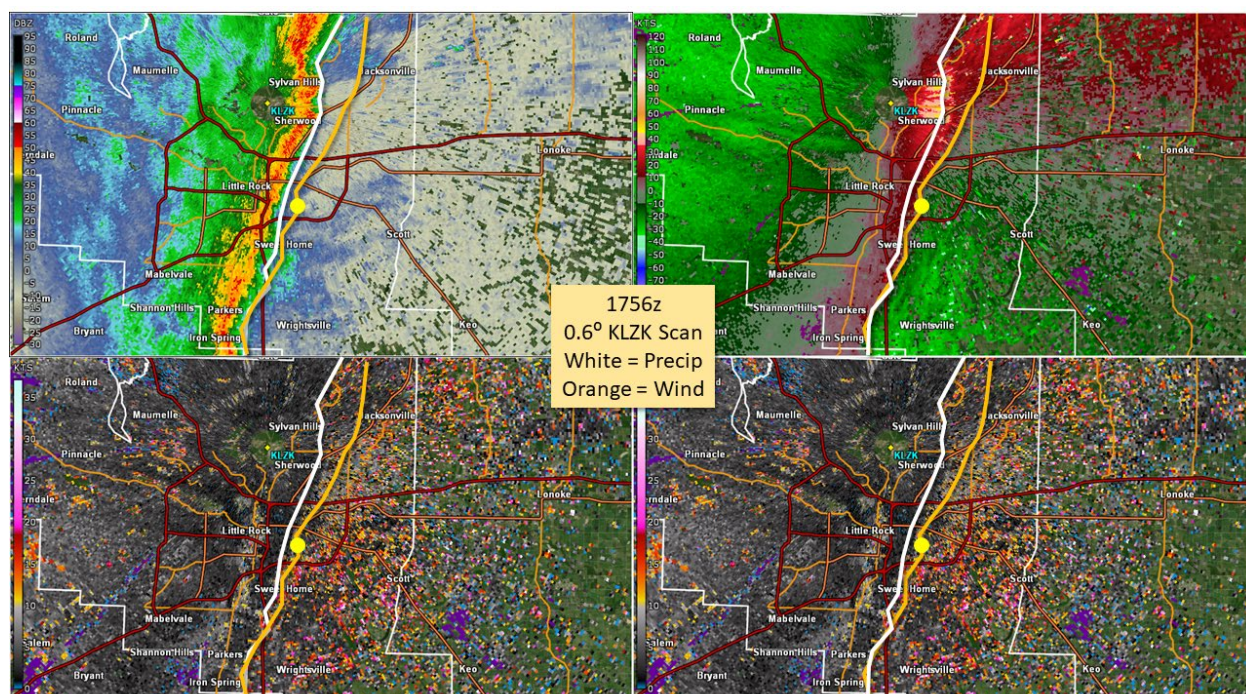


Figure 8 - NWS-provided base reflectivity (top left panel), base velocity (top right panel) and spectrum width (both bottom panels) data from the KLZK 0.549° tilt from about the accident time. A wind shift is identified by the orange line and the leading edge of the precipitation is identified by the white line.

2.0 Surface Observations

An Automated Surface Observing Station (ASOS) was located at Bill and Hillary Clinton National Airport (Adams Field; LIT⁶), which was located about 1 mile north of the accident site at an elevation of about 265 feet. It had a magnetic variation of about 0°. Augmented longline⁷ reports from the LIT ASOS during the times surrounding the

⁶ 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.

⁷ “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.

accident time are presented here, and the observations closest in time to the accident time are highlighted with bold text.

[0953] METAR KLIT 221553Z 22015G28KT 10SM BKN034 BKN250 23/16 A2965
RMK AO2 PK WND 21029/1501 SLP040 T02330156=

[1053] METAR KLIT 221653Z 21023G30KT 10SM BKN038 BKN050 24/15 A2962
RMK AO2 PK WND 22033/1627 SLP029 T02440150=

**[1153] METAR KLIT 221753Z 21019G27KT 10SM BKN048 OVC060 24/14
A2962 RMK AO2 PK WND 22036/1721 SLP028 T02390144 10250
20206 56017=**

**[1202] SPECI KLIT 221802Z 30022G40KT 2SM -RA SCT036 OVC047 19/13
A2968 RMK AO2 PK WND 30040/1759 WSHFT 1748 RAB00
PRESRR P0000 T01890128=**

[1229] SPECI KLIT 221829Z 29009G18KT 10SM -RA BKN048 BKN060 OVC075
17/13 A2968 RMK AO2 PK WND 30040/1759 WSHFT 1748 RAB00 P0005
T01720133=

[1253] METAR KLIT 221853Z 30008KT 10SM SCT048 BKN060 OVC070 17/13
A2967 RMK AO2 PK WND 30040/1759 WSHFT 1748 RAB00E30 SLP045
P0005 T01720128=

At 1153, the LIT ASOS reported a wind from 210° at 19 knots with gusts to 27 knots, visibility 10 statute miles or greater, ceiling broken at 4,800 feet above ground level (agl), overcast clouds at 6,000 feet agl, temperature of 24° Celsius (C) and dew point temperature of 14°C, altimeter setting of 29.62 inches of mercury; Remarks: automated station with a precipitation discriminator, peak wind of 36 knots from 220° at 1121, sea level pressure of 1002.8 hectopascals (hPa), temperature of 23.9°C and dew point temperature of 14.4°C, 6-hour maximum temperature of 25.0°C, 6-hour minimum temperature of 20.6°C, pressure decreased 1.7 hPa over previous 3 hours.

At 1202, the LIT ASOS reported a wind from 300° at 22 knots with gusts to 40 knots, visibility of 2 statute miles, light rain, scattered clouds at 3,600 feet agl, ceiling overcast at 4,700 feet agl, temperature of 19°C and dew point temperature of 13°C, altimeter setting of 29.68 inches of mercury; Remarks: automated station with a precipitation discriminator, peak wind of 40 knots from 300° at 1159, wind shift at 1148, rain began at 1200, pressure rising rapidly, trace amount of liquid equivalent precipitation since 1153, temperature of 18.9°C and dew point temperature of 12.8°C.

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.

One-minute "Page 1" and "Page 2" LIT ASOS data were retrieved from the National Atmospheric and Oceanic Administration⁸ and selected parameters⁹ observed surrounding the accident time are presented here.

<u>Time</u>	<u>AWD</u>	<u>AWM</u>	<u>GWD</u>	<u>GWM</u>	<u>Precip</u>	<u>I</u>	<u>DT</u>
1150	213°	18	212°	26	NP	75	58
1151	208°	19	195°	25	NP	75	58
1152	205°	20	203°	25	NP	75	58
1153	212°	19	220°	24	NP	75	58
1154	219°	19	212°	29	NP	75	58
1155	227°	17	245°	18	NP	75	58
1156	241°	17	253°	26	NP	75	58
1157	255°	21	258°	28	NP	75	58
1158	279°	26	298°	39	NP	74	58
1159	298°	31	297°	40	P	68	54
1200	301°	28	298°	33	R-	64	54
1201	300°	24	300°	30	R+	62	55
1202	296°	22	284°	27	M	62	54
1203	291°	21	294°	28	R+	62	54
1204	290°	19	296°	26	R+	62	55
1205	290°	19	285°	26	R-	62	55
1206	295°	20	307°	22	R	62	55
1207	299°	18	283°	21	R	62	55
1208	296°	16	296°	19	R	62	55
1209	295°	15	290°	19	R	62	55
1210	295°	16	291°	22	R	62	55

One-minute observations (OMO) from the LIT ASOS between 1130 and 1215 in FAAWX 3.0 xml format were provided by the Federal Aviation Administration and can be found in Attachment 2. These data were retrieved from the Weather Message Switching Center Replacement, which received the OMO from the ASOS via the Automated Weather Observing System (AWOS) Data Acquisition System.

10-second wind data from the Low-Level Windshear Alert System-Relocation/Sustainment (LLWAS-RS) at LIT for times surrounding the accident time were obtained from the FAA and are included in Attachment 3. LIT LLWAS-RS remote

⁸ <https://www.ncei.noaa.gov/products/land-based-station/automated-surface-weather-observing-systems>

⁹ average wind direction (AWD; true), average wind magnitude (AWM; knots), gust wind direction (GWD; true), gust wind magnitude (GWM; knots); type of precipitation observed (Precip; NP=no precipitation, P=unknown precipitation, R=light rain, R=moderate rain, R+=heavy rain), temperature (T; degrees Fahrenheit); dew point temperature (DT; degrees Fahrenheit).

station (anemometer) locations on and about LIT are depicted in Figure 9 and data from LIT LLWAS-RT remote stations #7 and #8 are presented below¹⁰.

<u>Time</u>	<u>RS7-DIR</u>	<u>RS7-MAG</u>	<u>RS8-DIR</u>	<u>RS8-MAG</u>
1154:13	200°	21	211°	15
1154:23	209°	22	214°	15
1154:33	214°	22	217°	17
1154:43	201°	16	220°	16
1154:53	208°	16	218°	18
1155:03	213°	16	221°	16
1155:13	197°	11	233°	14
1155:23	208°	14	236°	16
1155:33	206°	14	239°	17
1155:43	220°	12	241°	18
1155:53	209°	16	237°	18
1156:03	206°	17	242°	21
1156:13	224°	14	261°	18
1156:23	224°	20	267°	23
1156:33	208°	17	273°	22
1156:43	221°	13	277°	34
1156:53	234°	12	282°	37
1157:03	247°	12	283°	32
1157:13	269°	11	282°	34
1157:23	261°	13	272°	34
1157:33	263°	17	272°	37
1157:43	276°	17	270°	32
1157:53	281°	31	270°	35
1158:03	278°	29	271°	30
1158:13	281°	31	272°	35
1158:23	280°	30	271°	36
1158:33	277°	24	271°	37

¹⁰ RS7-DIR - remote station #7 wind direction (magnetic); RS7-MAG - remote station #7 wind magnitude (knots); RS8-DIR - remote station #8 wind direction (magnetic); RS8-MAG - remote station #8 wind magnitude (knots)

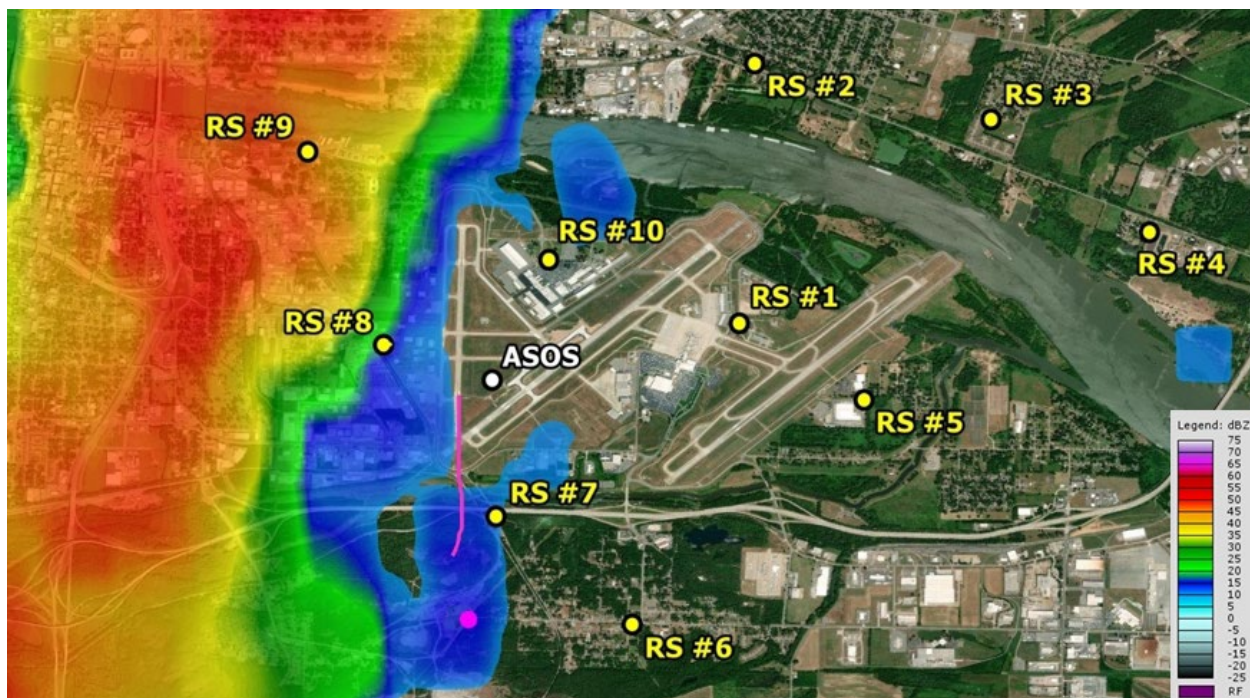


Figure 9 - Locations of LIT LLWAS-RS remote stations (RS) and ASOS. Accident aircraft flight path depicted as purple line, with accident location denoted by the purple dot. Overlaid radar data is the KLZK 0.549° tilt base reflectivity data from a sweep that began at 1156:39 and has been smoothed.

LIT air traffic control tower ribbon display information between 1130 and 1215 is provided in Attachment 3. The only windshear and microburst alerts that occurred during this period and prior to the accident time were active about 1136 and 1153, and those data are presented below.

```

02-22-2023 17:36:33
AW 200 21G29
04LA WSA 20K- 1MF 180 10
22RD WSA 20K- RWY 180 10
22RA WSA 20K- RWY 200 23
04LD WSA 20K- RWY 200 23
04RA 180 17
22LD 180 17
22LA 200 23
04RD 200 23
18-A WSA 20K- RWY 200 32
36-D WSA 20K- RWY 200 32
36-A WSA 20K- 1MF 180 10
18-D WSA 20K- RWY 180 10

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02-22-2023 17:36:43
AW 200 22G29

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04LA WSA 20K- 1MF 180 13
 22RD WSA 20K- RWY 180 13
 22RA WSA 20K- RWY 200 23
 04LD WSA 20K- RWY 200 23
 04RA 190 17
 22LD 190 17
 22LA 200 25
 04RD 200 25
 18-A WSA 15K- RWY 210 32
 36-D WSA 15K- RWY 210 32
 36-A WSA 15K- 1MF 180 13
 18-D WSA 15K- RWY 180 13

02-22-2023 17:36:53

AW 200 22G29

04LA WSA 20K- 1MF 180 15
 22RD WSA 20K- RWY 180 15
 22RA WSA 20K- RWY 200 22
 04LD WSA 20K- RWY 200 22
 04RA 190 17
 22LD 190 17
 22LA 210 28
 04RD 210 28
 18-A 210 30
 36-D 210 30
 36-A 180 15
 18-D 180 15

02-22-2023 17:53:03

AW 190 23G27

04LA WSA 15K- 1MF 190 09
 22RD WSA 15K- RWY 190 09
 22RA WSA 15K- RWY 200 24
 04LD WSA 15K- RWY 200 24
 04RA 190 13
 22LD 190 13
 22LA 200 27
 04RD 200 27
 18-A WSA 20K- RWY 190 27
 36-D WSA 20K- RWY 190 27
 36-A WSA 20K- 1MF 190 09
 18-D WSA 20K- RWY 190 09

02-22-2023 17:53:13

AW 200 23G27

04LA WSA 15K- 1MF 190 09
 22RD WSA 15K- RWY 190 09
 22RA WSA 15K- RWY 200 23
 04LD WSA 15K- RWY 200 23
 04RA 190 12

22LD 190 12
22LA 200 27
04RD 200 27
18-A WSA 15K- RWY 200 25
36-D WSA 15K- RWY 200 25
36-A WSA 15K- 1MF 190 09
18-D WSA 15K- RWY 190 09

02-22-2023 17:53:23
AW 200 23G27
04LA 190 08
22RD 190 08
22RA 200 22
04LD 200 22
04RA 190 11
22LD 190 11
22LA 190 27
04RD 190 27
18-A WSA 15K- RWY 200 23
36-D WSA 15K- RWY 200 23
36-A WSA 15K- 1MF 190 08
18-D WSA 15K- RWY 190 08

02-22-2023 17:53:33
AW 200 23G27
04LA 210 08
22RD 210 08
22RA 200 22
04LD 200 22
04RA 180 11
22LD 180 11
22LA 190 26
04RD 190 26
18-A WSA 15K- RWY 200 23
36-D WSA 15K- RWY 200 23
36-A WSA 15K- 1MF 210 08
18-D WSA 15K- RWY 210 08

About the accident time, the following windshear alerts occurred advising of 15 and 20 knot gains at the 1-mile final (arrival)for runway 36 and the departure end of runway 18.

02-22-2023 17:56:53
AW 210 20G27
04LA 220 14
22RD 220 14
22RA 210 16
04LD 210 16
04RA 210 15
22LD 210 15

22LA 210 19
04RD 210 19
18-A 240 28
36-D 240 28
36-A WSA 15K+ 1MF 220 14
18-D WSA 15K+ RWY 220 14

02-22-2023 17:57:03

AW 210 20G27

04LA 230 12

22RD 230 12

22RA 210 15

04LD 210 15

50

04RA 200 15

22LD 200 15

22LA 210 19

04RD 210 19

18-A 250 26

36-D 250 26

36-A WSA 15K+ 1MF 230 12

18-D WSA 15K+ RWY 230 12

02-22-2023 17:57:13

AW 210 19G27

04LA 250 12

22RD 250 12

22RA 220 15

04LD 220 15

04RA 210 15

22LD 210 15

22LA 200 19

04RD 200 19

18-A 260 24

36-D 260 24

36-A WSA 20K+ 1MF 250 12

18-D WSA 20K+ RWY 250 12

02-22-2023 17:57:23

AW 210 19G27

04LA 260 12

22RD 260 12

22RA 220 16

04LD 220 16

04RA 210 15

22LD 210 15

22LA 200 19

04RD 200 19

18-A 270 23

36-D 270 23

36-A WSA 15K+ 1MF 260 12

18-D WSA 15K+ RWY 260 12

02-22-2023 17:57:33
AW 210 19G27
04LA 270 14
22RD 270 14
22RA 220 18
04LD 220 18
04RA 220 16
22LD 220 16
22LA 200 20
04RD 200 20
51
18-A 270 27
36-D 270 27
36-A WSA 15K+ 1MF 270 14
18-D WSA 15K+ RWY 270 14

02-22-2023 17:57:43
AW 210 19G27
04LA 270 16
22RD 270 16
22RA 230 19
04LD 230 19
04RA 220 17
22LD 220 17
22LA 190 21
04RD 190 21
18-A 280 29
36-D 280 29
36-A WSA 15K+ 1MF 270 16
18-D WSA 15K+ RWY 270 16

3.0 Lightning

A review of the Earth Networks Total Lightning Network (ENTLN) lightning database revealed no flash total lightning activity between 1145 and 1200 in the accident region.¹¹

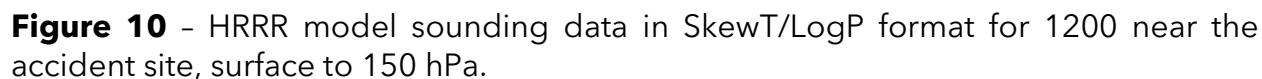
¹¹ The ENTLN was queried for a geographic area bounded by latitudes 34.7608°N and 34.6609°N, and longitudes 92.2889°W and 92.1530°W.

4.0 HRRR Model Sounding

A High-Resolution Rapid Refresh (HRRR) model¹² sounding (Figure 10) for near the accident site¹³ at 1200 using an elevation of 275 feet was retrieved from the National Oceanic and Atmospheric Administration's (NOAA) Air Resources Laboratory and analyzed by the RAwinsonde OBservation (RAOB) program. Lower-level clouds were identified between about 4,500 and 11,500 feet. The freezing level was at about 13,300 feet. The wind at 500 feet was from the south-southwest at a magnitude of about 30 knots and increased in magnitude to a south-southwest wind of about 40 knots at 2,000 feet. The most-unstable Convective Available Potential Energy (CAPE) parameter was 65 Joules/kilogram (from 994 hPa). The Lifting Condensation Level (LCL) was at 4,062 feet and the Level of Free Convection (LFC) was at 4,462 feet. Downdraft CAPE (DCAPE; 6 kilometers above ground level; coldest wetbulb temperature method) was measured at 507 Joules/kilogram. The T2Gust ("Severe Weather Gust Potential") and WindEx ("Microburst Gust Potential") parameters were 31 knots and 33 knots, respectively.

¹² 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.

¹³ Coordinates used for the model were latitude: 34.71; longitude: -92.24.



Geostationary Operational Environmental Satellite (GOES)-16 visible (0.64 μ m) and infrared (10.3 μ m) data were obtained from an archive at the Space Science Engineering Center at the University of Wisconsin-Madison. Images from 1156 are presented in Figures 11 and 12. The GOES-16 visible imagery depicted cloudy conditions over the accident region. Infrared cloud-top temperatures near the accident location were about -6°C, which, when considering the 1200 HRRR sounding, corresponded to cloud top heights of about 16,000 feet.

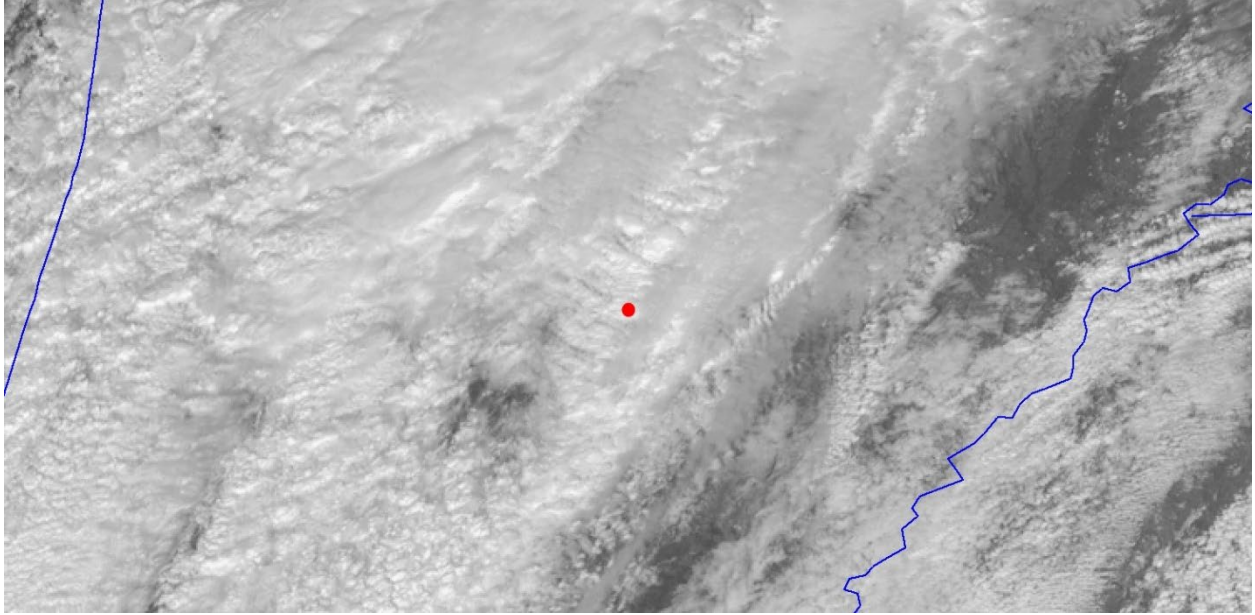


Figure 11 - GOES-16 visible imagery from 1156. Accident location denoted by the red dot. Image is not corrected for parallax error.

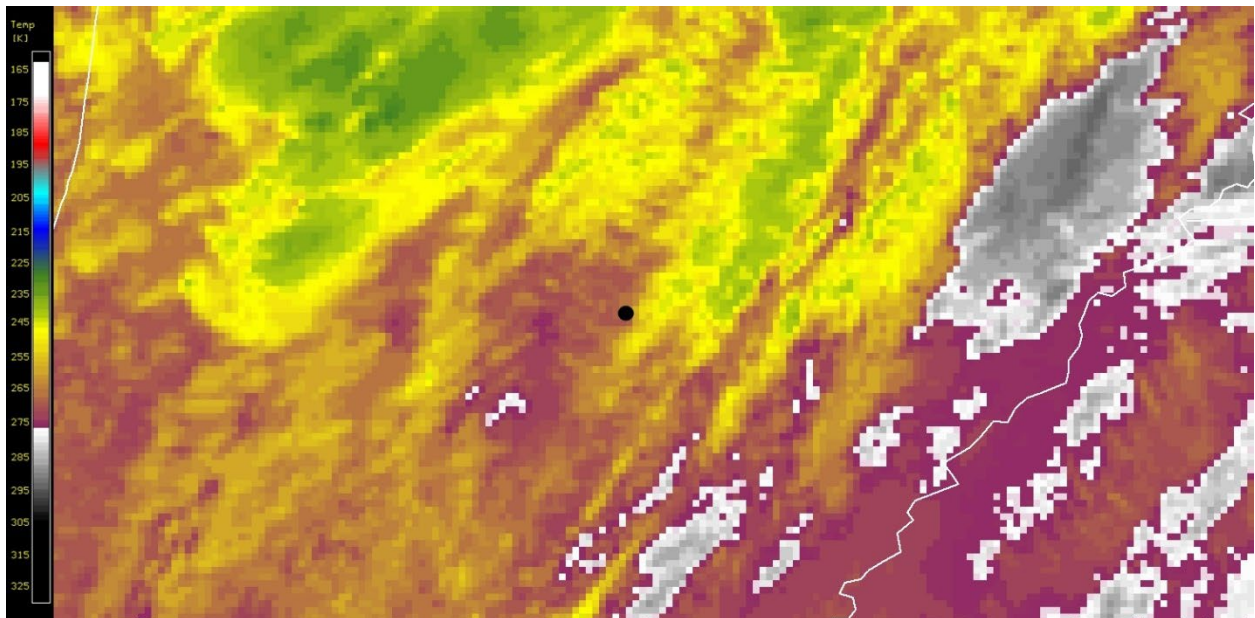


Figure 12 - GOES-16 infrared brightness temperature imagery from 1156. Accident location is denoted by the black dot. This image has not been corrected for any parallax error.

6.0 Pilot Reports

The following pilot report (PIREP) was the only longline-disseminated¹⁴ PIREP reported between 1000 and 1400 within 20 miles of the accident location.

LIT UA /OV LIT360003/TM 1729/FL003/TP B737/WV WS +/- 10KT

At 1129, a Boeing 737 located 3 miles north of LIT at 300 feet reported wind shear with a 10 knot loss/gain.

7.0 Terminal Aerodrome Forecasts

At 1121 an amended Terminal Aerodrome Forecast (TAF)¹⁵ was issued for LIT that forecasted for the accident time: a wind from 220° at 15 knots with gusts to 28 knots, visibility greater than 6 statute miles, light rain showers, ceiling broken at 3,000 feet agl and overcast clouds at 5,000 feet agl. There were temporary conditions¹⁶ forecasted to begin at 1200 of a variable wind of 25 knots with gusts to 35 knots, visibility of 6 statute miles, thunderstorm with moderate rain and ceiling broken at 2,500 agl with clouds of cumulonimbus type.

*KLIT 221604Z 2216/2312 **22015G28KT P6SM -SHRA BKN030 OVC050**
TEMPO 2218/2220 **VRB25G35KT 6SM TSRA BKN025CB**
FM222200 20010G18KT P6SM SCT200
FM230200 22006KT P6SM SCT250=*

8.0 Area Forecast Discussion

The NWS Little Rock, Arkansas, Weather Forecast Office issued the following Aviation section of an Area Forecast Discussion at 1124, applicable for a region that included the accident location.

*FXUS64 KLZK 221724
AFDLZK*

¹⁴ These do not include pilot reports only broadcast via radio.

¹⁵ 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." See: www.nws.noaa.gov/directives/sym/pd01008013curr.pdf

¹⁶ Temporary conditions - fluctuations to forecast conditions which are expected to last less than one hour in each instance and, in the aggregate, to cover less than half of the indicated period.

*Area Forecast Discussion
National Weather Service Little Rock AR
1124 AM CST Wed Feb 22 2023*

*.AVIATION...
(18Z TAFS)
Issued at 1122 AM CST Wed Feb 22 2023*

A line of heavy showers continue to push through the state. Hi-res models suggests the heaviest showers to clear all terminals by the afternoon hours with rainfall ending shortly after. Clearing skies are expected behind this system. Winds are expected to remain gusty out of the south and southwest through this evening. MVFR/IFR conditions are expected with unsettled weather before VFR conditions return tonight.

9.0 SIGMETs

There were no non-convective Significant Meteorological Information (SIGMET) advisories active for the accident flight.

At 1055, convective SIGMET 25C was issued by the NWS Aviation Weather Center (AWC) for an area to the west of the accident location (see Figure 13) that was valid until 1255 and advised of an area of thunderstorms with tops to FL330¹⁷. The SIGMET's polygon was identified to be moving from 240° at 40 knots.

WSUS32 KKCI 221655
SIGC
-MKCC WST 221655
CONVECTIVE SIGMET 25C
VALID UNTIL 1855Z
LA MO AR TX OK KS
FROM 50NE BUM-40S COU-30NNW ELD-30NW LFK-40E OKC-50NE BUM
AREA TS MOV FROM 24040KT. TOPS TO FL330

¹⁷ Flight Level (FL) - a standard nominal altitude of an aircraft, in hundreds of feet. This altitude is calculated from the international standard pressure datum of 1013.25 hPa (29.92 inches of mercury), the average sea-level pressure, and therefore is not necessarily the same as the aircraft's true altitude either above msl or agl.

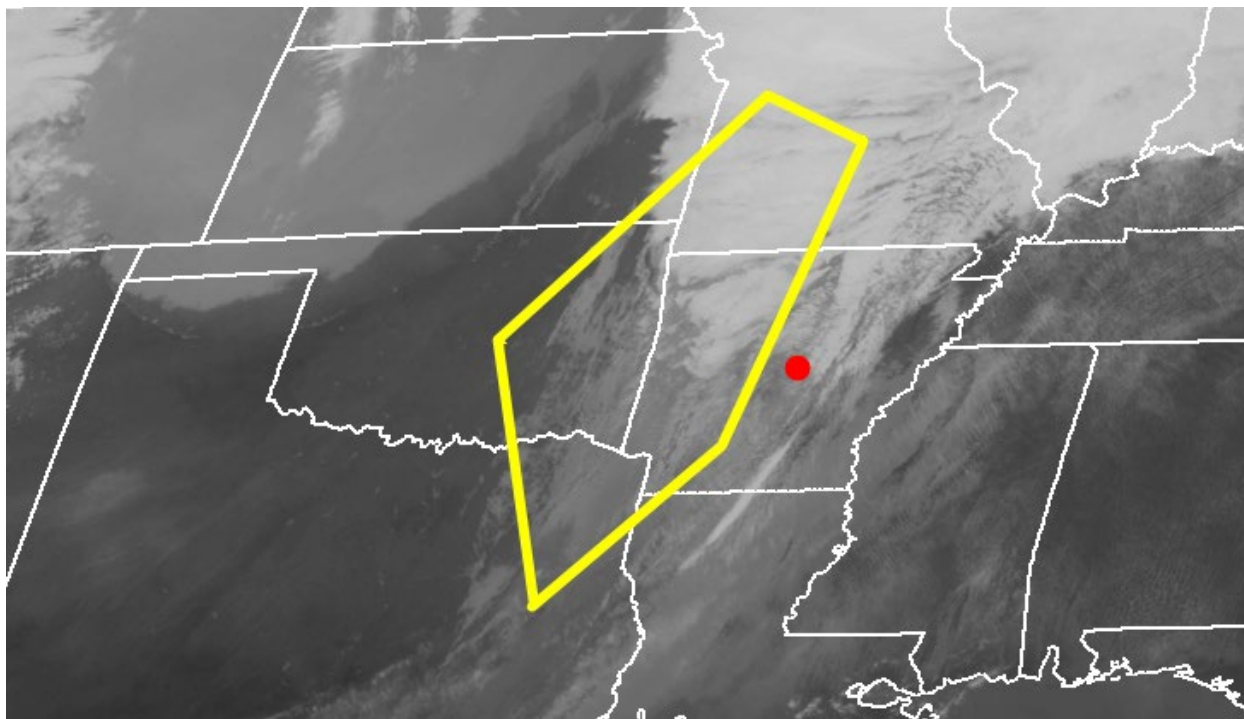


Figure 13 - Convective SIGMET 25C boundaries. Accident location is denoted by the red dot. GOES-16 infrared satellite image is from 1156.

At 1155, convective SIGMET 28C was issued by the NWS AWC for an area that included the accident location (see Figure 14) that superseded convective SIGMET 25C, was valid until 1355 and advised of an area of thunderstorms with tops to FL330. The SIGMET's polygon was identified to be moving from 240° at 40 knots.

WSUS32 KKCI 221755

SIGC

-MKCC WST 221755

CONVECTIVE SIGMET 28C

VALID UNTIL 1955Z

LA MO AR TX OK KS

FROM 50NE BUM-50SE COU-50S LIT-40ESE GGG-20NNE OSW-50NE BUM

AREA TS MOV FROM 24040KT. TOPS TO FL330.

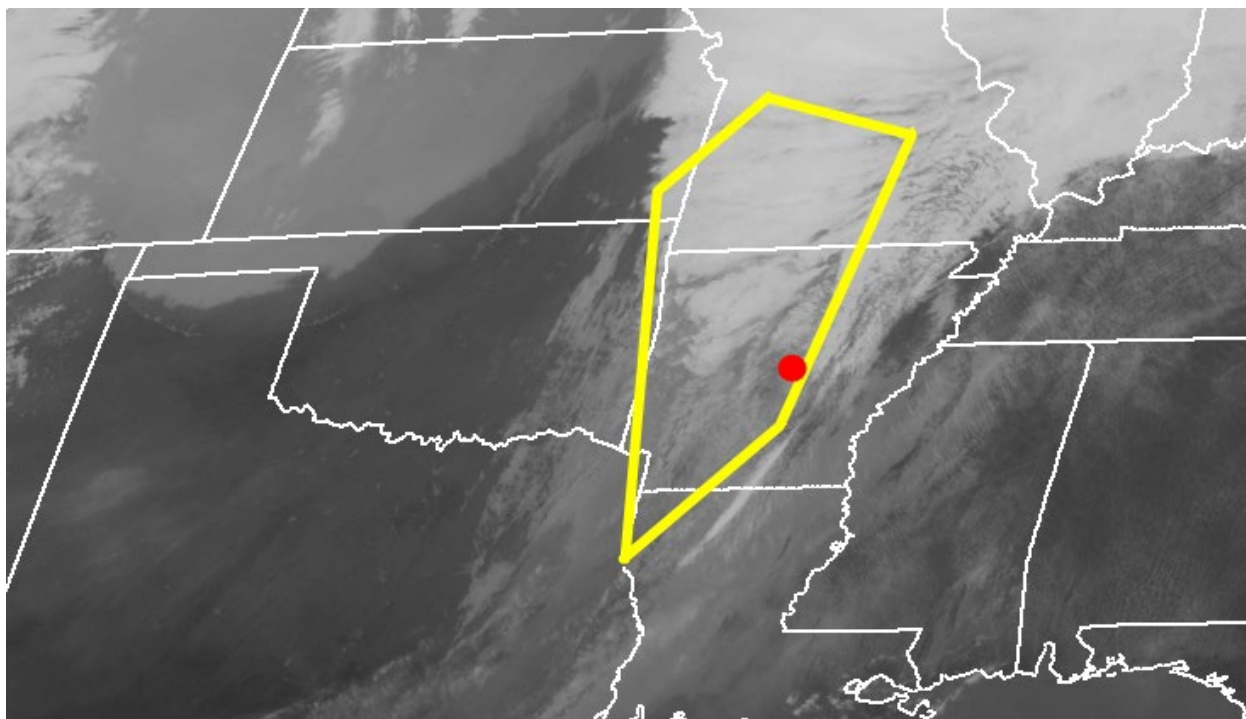


Figure 14 - Convective SIGMET 28C boundaries. Accident location is denoted by the red dot. GOES-16 infrared satellite image is from 1156.

10.0 CWSU Products

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

E. LIST OF ATTACHMENTS

Attachment 1 - Information provided by the NWS

Attachment 2 - One-minute observations from the LIT ASOS between 1130 and 1215 in FAAWX 3.0 xml format

Attachment 3 - LIT LLWAS-RS and ribbon display data

Submitted by:

Mike Richards
Senior Meteorologist