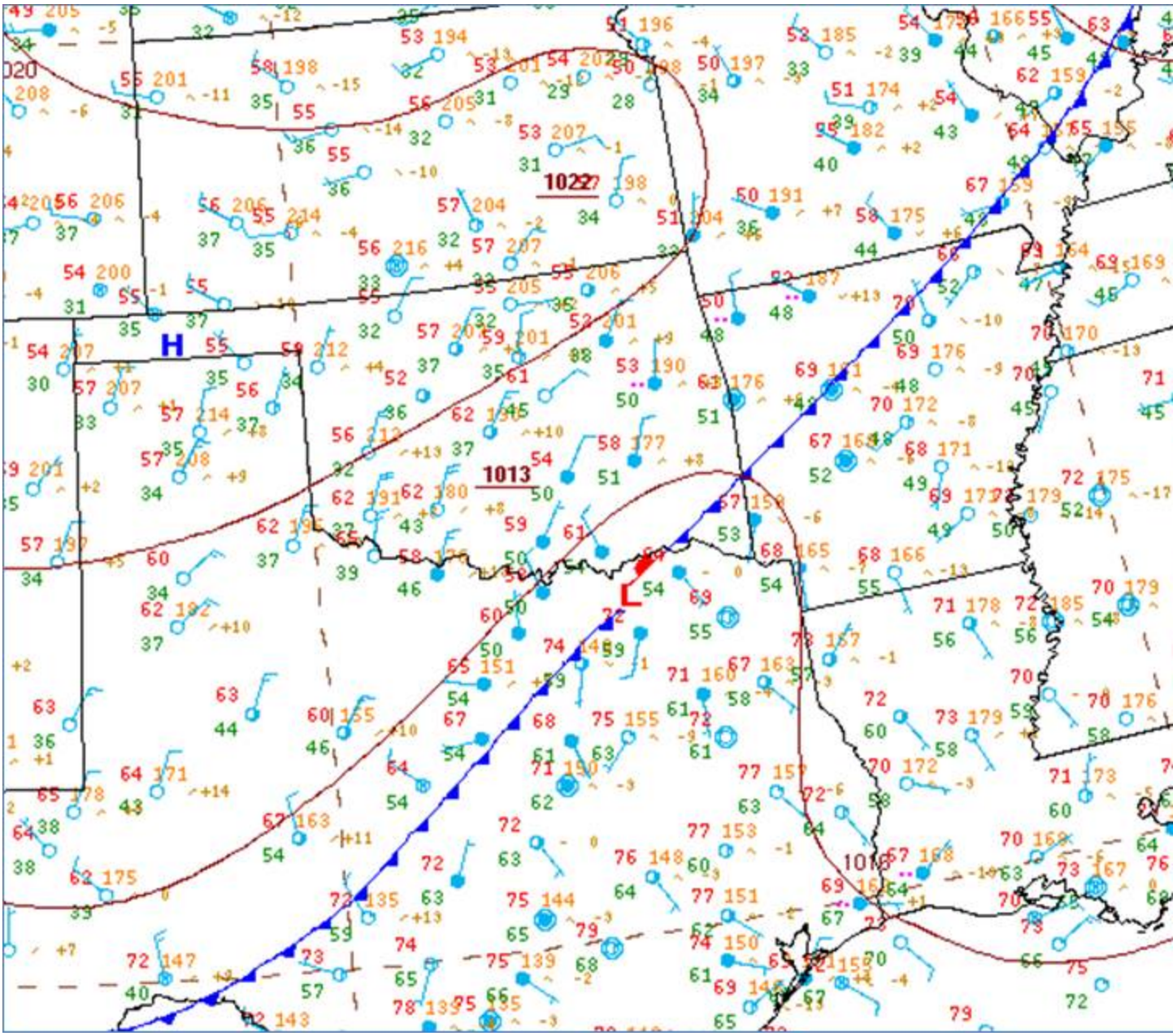
NTSB WEATHER INFORMATION – CEN14FA019

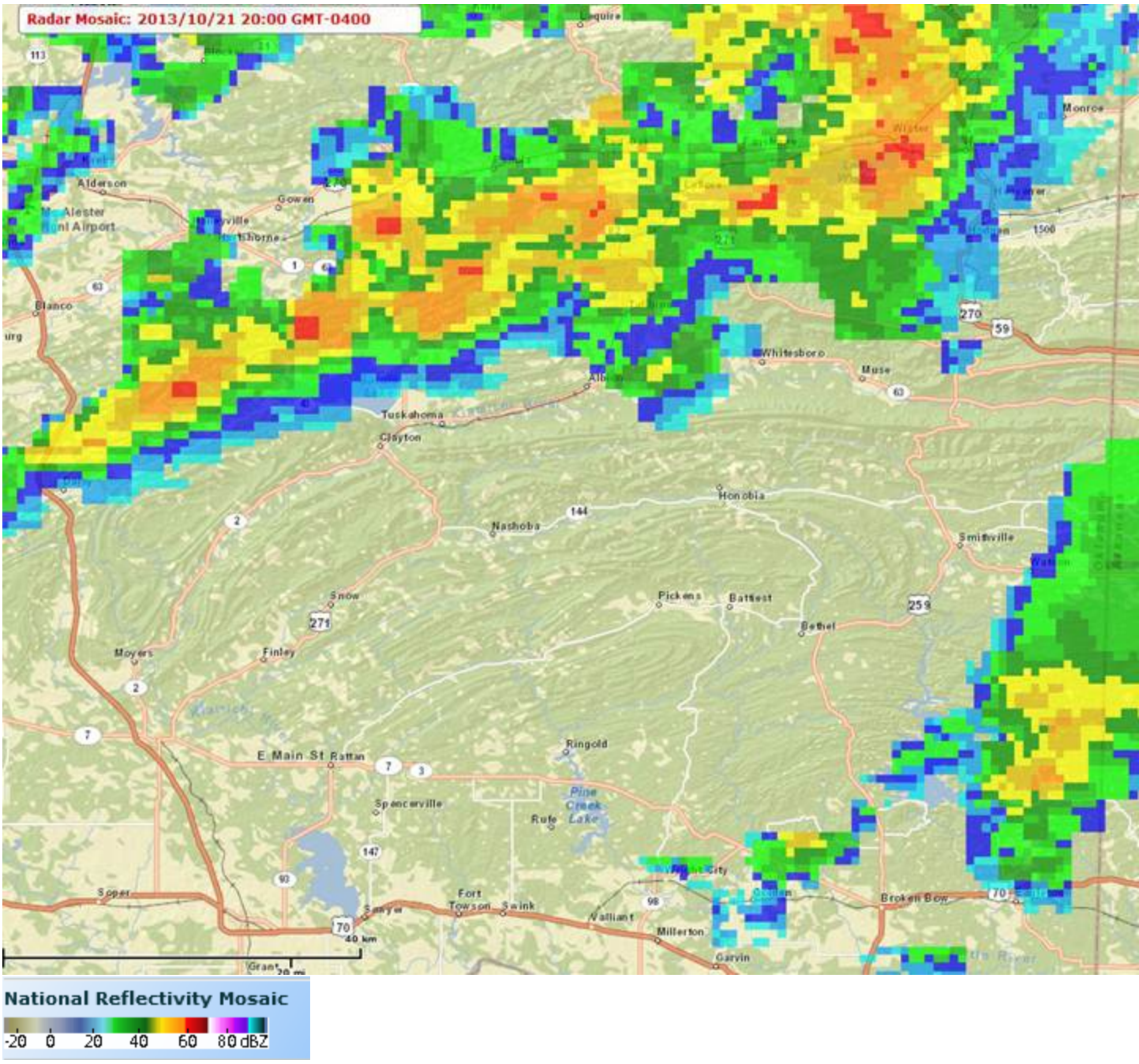
The KSRX WSR-88D 0.5 degree base reflectivity image for 2021Z (1521 CDT) indicated very light reflectivity values of 5 to 15 dBZ over the last 15-20 minutes of the flight suggesting low stratiform clouds, a defined rain shower is likely why the aircraft descended to the low altitude and a rain shower is observed in the vicinity consistent with the 3rd witnesses statement. While no rain was likely reaching the surface at the time of the accident. The Radar animation shows the echoes moving northeastward and along the flight track, which is included.

The 2015Z (1515 CDT) GOES-13 visible satellite image is also included. Did not show the track, since it wanted to go back to origin in a loop. No significant changes, but confirms low stratiform clouds with more vertically developed clouds or cumulus congestus immediately north. No lightning, and therefore no thunderstorms in the immediate vicinity just rain.

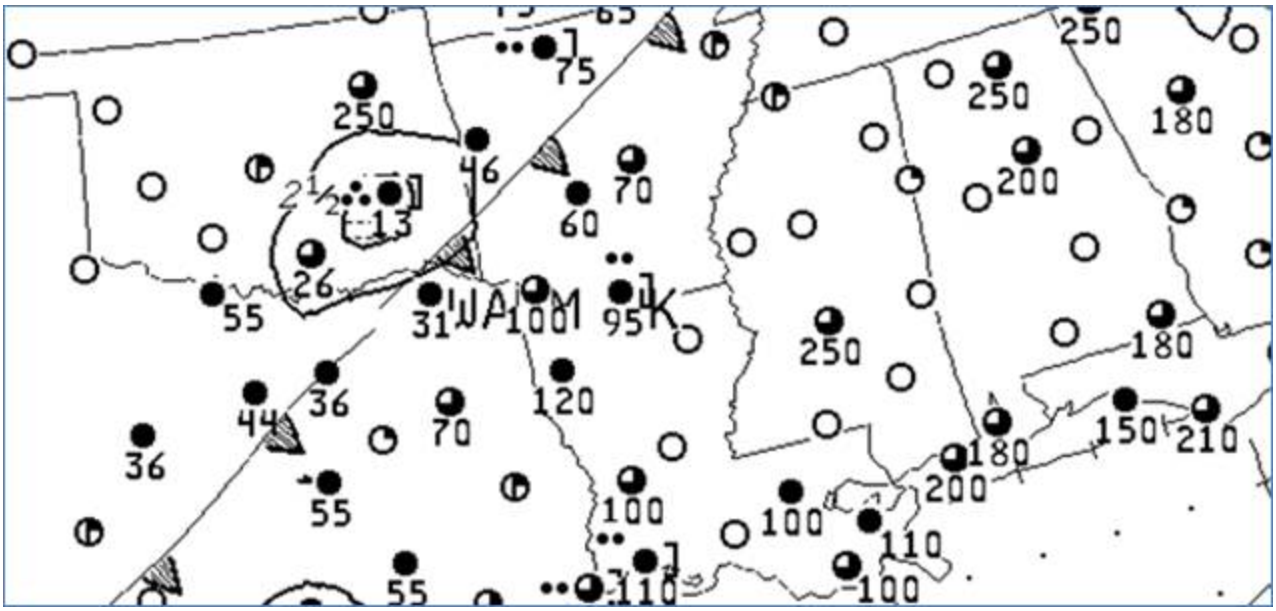
Synoptic conditions – The NWS Surface Analysis Chart for 1300 CDT (1800Z) depicted a frontal wave and low pressure system at 1013-hectopascals (hPa) over northern Texas with a cold front stretching into southeast Oklahoma into northern Arkansas, Missouri, and into Illinois and Indiana. Two high pressure systems were located over Oklahoma panhandle and over Alabama at 1022- and 1019-hPa respectively. The cold front extended in the immediate vicinity of the accident site along the route of flight. The station models depicted a cyclonic wind flow pattern with winds from the north at approximately 10 knots over Oklahoma and calm winds over Arkansas, with overcast skies. Several stations behind the front depicted light continuous rain with temperature-dew point spreads of 4 degrees Fahrenheit (F) or less.



The NWS Regional Radar Mosaic for 1500 CDT (2000Z) is included below. The image depicted a line of echoes extending from Atoka Municipal Airport (KAQR), OK, to Talihina, to near Cape Girardeau (KCGI), Missouri. The leading edge of this line was in the vicinity of the accident site, with another area of echoes over the Mena Intermountain Municipal Airport (KMEZ).



The NWS Weather Depiction Chart for 1400 CDT (1900Z) depicted an area of IFR conditions surrounding by a larger area of MVFR extending over southeast Oklahoma along and behind the cold front. The station model depicted 2 ½ miles in moderate rain with ceiling overcast at 1,300 feet agl. VFR conditions were depicted over Arkansas along the previous portion of the flight route.



Observations – The closest weather reporting location to the accident site was from Robert S. Kerr Airport (KRKR), located in Poteau, Oklahoma, approximately 23 miles northeast of the accident site at an elevation of 451 feet, and a magnetic variation of 3 E. The airport had an Automated Weather Observation System (AWOS), which was not reporting sky condition surrounding the period. The observation at the approximate time of the accident was as follows:

Robert S. Kerr Airport (KRKR) weather at 1455 CDT (1955Z), automated, wind from 320° at 8 knots, visibility 10 miles in light rain, sky conditions missing, temperature and dew point 13° Celsius (C), altimeter 30.03 inches of mercury (Hg). Remarks: automated weather system, lightning distant southwest through northwest.

Robert S. Kerr Airport (KRKR) weather at 1515 CDT (2015Z), automated, wind from 350° at 8 knots, visibility 2 miles in heavy rain with thunderstorm in the vicinity, sky conditions missing, temperature and dew point 13° C, altimeter 30.06 inches of Hg. Remarks: automated weather system, lightning distant northwest through northeast.

The raw observations were as follows:

KRKR 211855Z AUTO 00000KT 10SM 15/12 A3003 RMK AO2
KRKR 211915Z AUTO 00000KT 10SM VCTS 15/13 A3002 RMK AO2 LTG DSNT W
KRKR 211935Z AUTO 00000KT 10SM 15/13 A3002 RMK AO2 LTG DSNT S AND W
KRKR 211955Z AUTO 32004KT 10SM -RA 15/13 A3003 RMK AO2 LTG DSNT SW THRU NW
Accident
KRKR 212015Z AUTO 35008KT 2SM +VCTSRA 13/13 A3006 RMK AO2 P0018 LTG DSNT NW THRU NE
KRKR 212035Z AUTO 01003KT 5SM VCTSRA 13/13 A3004 RMK AO2 P0022 LTG DSNT NE THRU SW
KRKR 212055Z AUTO 04003KT 3SM RA 13/13 A3004 RMK AO2 P0024 LTG DSNT E THRU SW

The next closest reporting location was form McAlester Regional Airport (KMLC), located in McAlester, OK, approximately 24 miles west-northwest of the accident site at an elevation of 771 feet. The airport had a Automated Surface Observation System (ASOS) and reported the following conditions:

McAlester Regional Airport (KMLC) weather at 1505 CDT (2005Z), automated, wind from 010° at 8 knots, visibility 10 miles in light rain, ceiling broken at 800 feet, overcast at 4,900 feet, temperature 11° C, dew point 9° C, altimeter 30.06 inches of Hg. Remarks: automated weather observation system, lightning distant east and southeast, rain began at 1505 CDT, hourly precipitation 0.01 inches.

The raw observations were as follows:
METAR KMLC 211753Z AUTO 02011KT 10SM FEW018 OVC047 14/11 A3006 RMK AO2 SLP177 T01440106 10150 20106 50008=
SPECI KMLC 211818Z AUTO 36012KT 10SM BKN013 BKN018 OVC045 13/11 A3006 RMK AO2=
METAR KMLC 211853Z AUTO 36011KT 2 1/2SM RA BR BKN013 BKN025 OVC040 11/09 A3007 RMK AO2 LTG DSNT NE RAB32 SLP179 P0002 T01110094=
SPECI KMLC 211859Z AUTO 36010KT 4SM -RA BR SCT013 BKN023 OVC049 11/10 A3007 RMK AO2 LTG DSNT NE P0000=
SPECI KMLC 211918Z AUTO 01013KT 8SM -RA BKN008 BKN023 OVC048 11/09 A3005 RMK AO2 LTG DSNT N-SE P0000=
SPECI KMLC 211932Z AUTO 02011G16KT 10SM SCT008 OVC048 11/09 A3005 RMK AO2 LTG DSNT NE-SE RAE29 P0000=
METAR KMLC 211953Z AUTO 02008KT 10SM SCT008 BKN045 OVC049 11/09 A3005 RMK AO2 LTG DSNT E-S RAE29 SLP173 P0000 T01060094=
Accident
SPECI KMLC 212005Z AUTO 01008KT 10SM -RA BKN008 OVC049 11/09 A3006 RMK AO2 LTG DSNT E AND SE RAB05 P0001=
SPECI KMLC 212014Z AUTO 02009KT 4SM +RA BR SCT008 BKN031 OVC055 11/09 A3006 RMK AO2 LTG DSNT E-S RAB05 P0007=
METAR KMLC 212053Z AUTO 03007KT 10SM FEW037 OVC065 11/09 A3006 RMK AO2 LTG DSNT SE AND S RAB05E33 SLP176 P0007 60009 T01110094 57001=
SPECI KMLC 212149Z AUTO 01008KT 10SM BKN009 BKN013 OVC070 12/10 A3007 RMK AO2=
METAR KMLC 212153Z AUTO 36008KT 10SM BKN009 OVC070 12/10 A3007 RMK AO2 CIG 008V013 SLP180 T01170100=
SPECI KMLC 212204Z AUTO 02008KT 10SM OVC011 12/10 A3007 RMK AO2=

Mena Intermountain Municipal Airport (KMEZ), Mena, Arkansas, located approximately 32miles east of the accident site at an elevation of 1,080 feet. The airport listed a magnetic variation of 3° E and had an Automated Weather Observation System (AWOS). The following conditions were reported at the approximate time of the accident:

Mena weather at 1455 CDT (1955Z), automated weather, wind calm, visibility 10 statute miles, scattered clouds at 2,800 feet agl, ceiling overcast at 3,900 feet, temperature 18° Celsius (C), dew point 14° C, altimeter 29.99 inches of mercury. Remarks: automated observation system, lightning distant south and southwest.

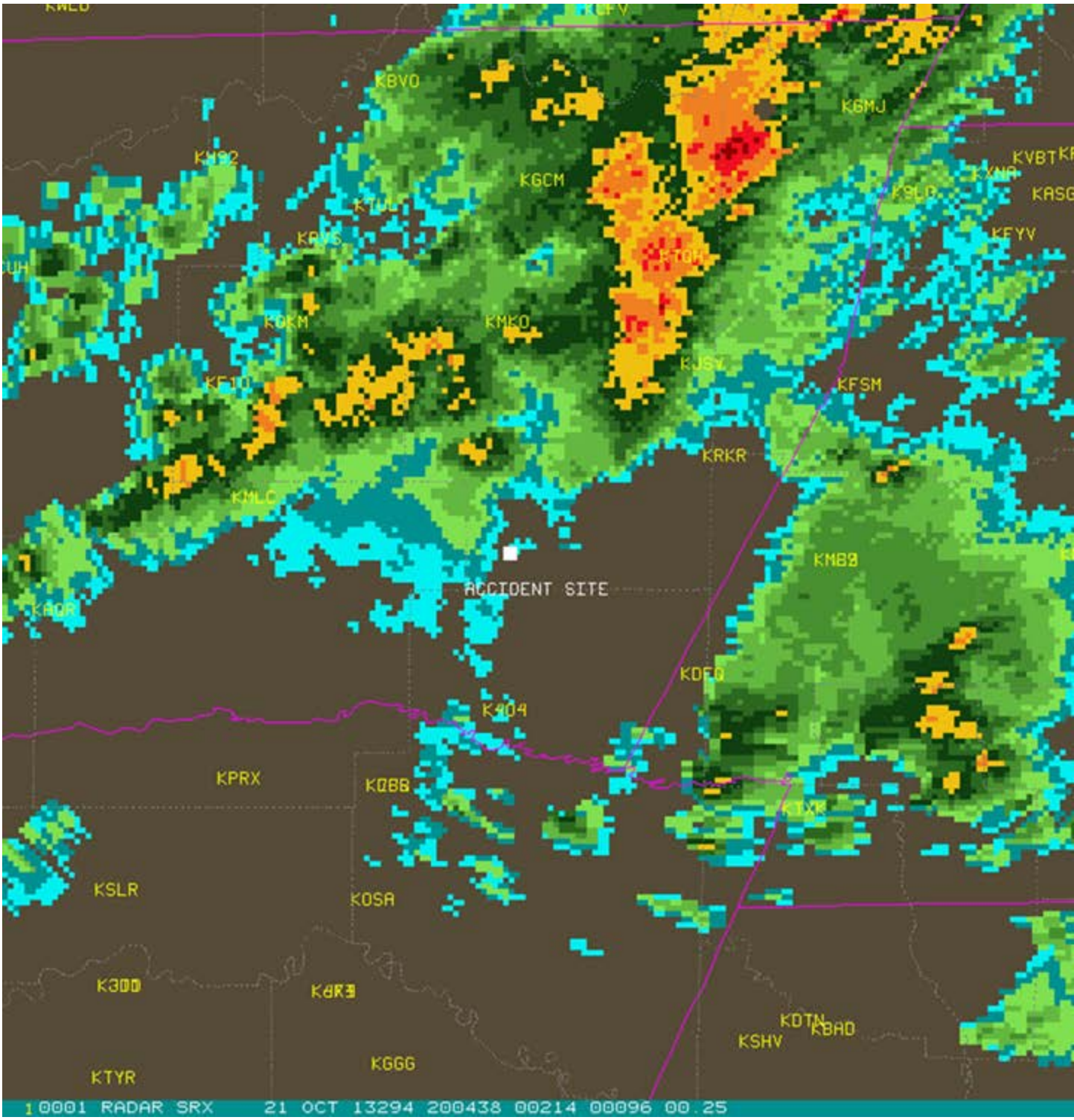
The raw observation and general flight category surrounding the time of the accident were as follows:

METAR KMEZ 211615Z AUTO 00000KT 10SM SCT024 BKN028 OVC041 17/12 A3005 RMK AO2 TSNO=
METAR KMEZ 211635Z AUTO 27003KT 10SM BKN026 OVC036 18/12 A3005 RMK AO2=
METAR KMEZ 211655Z AUTO 24003KT 10SM SCT028 SCT038 OVC050 19/12 A3005 RMK AO2=
METAR KMEZ 211715Z AUTO 00000KT 10SM OVC050 19/12 A3004 RMK AO2=
METAR KMEZ 211755Z AUTO 00000KT 10SM SCT029 OVC050 19/12 A3003 RMK AO2=

METAR KMEZ 211815Z AUTO 00000KT 10SM SCT029 OVC050 19/12 A3003 RMK AO2=
METAR KMEZ 211835Z AUTO 00000KT 10SM SCT040 OVC050 19/12 A3002 RMK AO2=
METAR KMEZ 211855Z AUTO 00000KT 10SM -DZ BKN040 OVC050 18/13 A3002 RMK AO2=
METAR KMEZ 211915Z AUTO 00000KT 10SM -RA BKN028 OVC040 18/13 A3001 RMK AO2 LTG DSNT SW AND NW=
METAR KMEZ 211935Z AUTO 00000KT 10SM -DZ OVC026 18/14 A3000 RMK AO2 LTG DSNT SW=
METAR KMEZ 211955Z AUTO 00000KT 10SM SCT028 OVC039 18/14 A2999 RMK AO2 LTG DSNT S AND SW=
Accident
METAR KMEZ 212015Z AUTO 00000KT 10SM DZ SCT024 OVC041 17/15 A2998 RMK AO2 LTG DSNT SE THRU W=
METAR KMEZ 212035Z AUTO 00000KT 10SM -RA SCT026 BKN037 OVC043 17/17 A2999 RMK AO2 LTG DSNT S AND W=
METAR KMEZ 212055Z AUTO 33003KT 10SM BKN024 BKN035 OVC046 18/15 A3001 RMK AO2 LTG DSNT NW=
METAR KMEZ 212115Z AUTO 36007KT 334V034 10SM RA SCT014 BKN024 OVC035 16/13 A3002 RMK AO2 P0001 LTG DSNT E=
METAR KMEZ 212135Z AUTO 34007KT 5SM VCTSRA OVC022 14/14 A3003 RMK AO2 P0006 LTG DSNT W AND NW=
METAR KMEZ 212155Z AUTO 00000KT 7SM -VCTSRA OVC022 14/14 A3004 RMK AO2 P0009 LTG DSNT SW THRU NW=

Satellite - The GOES-13 infrared and visible satellite imagery at 1502 CDT are attached and depicted the accident site under an overcast layer of clouds with a radiative temperature of 272° Kelvin or -1.16° C, which corresponded to cloud tops near 12,000 feet. The visible image sows the band of higher cumulus clouds immediately north of the accident.

Radar Imagery – The NWS WSR-88D from composite reflectivity image from Western Arkansas/Ft. Smith (SRX) at 1504 CDT (2004Z) is attached and shows the accident site located near the leading edge of an area of echoes, with the main line immediately north of the accident site. A review of the lightning data detected no significant lightning activity within 20 miles of the accident site between 1400 and 1530 CDT. A large band of lightning was dedected further south with the echoes across southern Arkansas.



NWS TAF – the closest TAF to the accident site was issued for KMLC located approximately 24 miles WNW of the accident site. The forecast expected rain showers in the vicinity of the airport with temporary rain, with ceilings broken to overcast at 5,000 feet agl. IFR conditions were not expected during the period. The forecast was as follows:

TAF KMLC 211720Z 2118/2218 01010KT P6SM VCSH OVC050
TEMPO 2119/2123 6SM -RA BKN050
FM212300 01008KT P6SM SCT050
FM220100 00000KT P6SM SCT100
FM221400 24006KT P6SM FEW250=

Pilot Reports –
HRO UA /OV HRO 135020/TM 1830/FL115/TP BE90/TA M04/IC MIXED LIGHT 170-115/RM ZME=
FSM UA /OV MEZ/TM 2052/FL120/TP C182/TA M15/IC RIME/RM ZME=

Area Forecast (FA) – The NWS Area Forecast provided the en route forecast and expected broken sky conditions at 5,000 feet msl with tops to 20,000 feet, with isolated thunderstorms and rain showers. The forecast was updated while the flight was en route to widely scattered thunderstorm and rain showers with tops to 32,000 feet. The forecast were as follows:

FAUS44 KKCI 211147 AAA 2013294 1148
FA4W
-DFWC FA 211147 AMD
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 220400
CLDS/WX VALID UNTIL 212200...OTLK VALID 212200-220400
OK TX AR TN LA MS AL
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...SFC LOW SW OF SPS WITH WRM FNT XTNDG EWD TO NERN TX AND CDFNT TO NR INK AND WWD ALG NM/TX BRDR. JTST S CNTRL TX-NERN
AL. 04Z SFC LOW E CNTRL TX. CDFNT WRN TN-NRN LA-E CNTRL TX-NR LRD. UPR TROF NWRN AR-S PLAINS TX. JTST S CNTRL TX-SERN MS-NERN AL.
.
OK
PNHDL-NWRN...BKN120 TOPS FL220. 17Z SCT CI. OTLK...VFR.
SWRN...SCT060. 12Z SCT120 BKN CI. TIL 21Z WND NE G25KT. OTLK...VFR.
NERN...SCT-BKN070 TOPS FL250. ISOL -SHRA. 16Z BKN050. ISOL -SHRA. 21Z SCT050 BKN100. OTLK...VFR.
SERN...SCT070. ISOL -TSRA. CB TOP FL280. ***13Z BKN050 TOPS FL200. ISOL -TSRA.*** *OTLK...VFR TIL 01Z TSRA.*
.
AR
NWRN...SCT070. 13Z BKN060 TOPS FL200. ISOL -SHRA. TOPS FL300. OTLK...VFR TIL 02Z SHRA.
SWRN...BKN070 TOPS 100. 20Z BKN050 TOPS FL200. ISOL -SHRA. TOPS FL300. OTLK...VFR SHRA.
ERN...SCT-BKN080 TOPS 120. OTLK...VFR 23Z SHRA.

Updated at 1345 CDT:

FAUS44 KKCI 211845 2013294 1836
FA4W
-DFWC FA 211845
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 221300

CLDS/WX VALID UNTIL 220700...OTLK VALID 220700-221300
OK TX AR TN LA MS AL
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...SHRTWV TROF EXTDS FM N CNTRL KS-TX PNHDL AND WL MOV ESEWD TO WRN KY-CNTRL TX BY 12Z.
CDFNT EXTDS FM CNTRL IN-CNTRL
AR-CNTRL TX AND WL MOV TO SW VA-ERN TN-CNTRL LA-TX CSTL WTRS BY 12Z.
.
AR
NWRN...BKN050 OVC100 TOPS FL180. WDLY SCT -SHRA/ISOL -TSRA. CB TOPS FL300. 03Z FEW050 SCT150.
OTLK...VFR.
NERN...BKN080-100 TOPS 150. 23Z BKN050 OVC100 TOPS FL180. WDLY SCT -SHRA. OTLK...VFR.
SRN...SCT-BKN080-100 TOPS 140. BECMG 0104 BKN050 OVC100 TOPS FL180. WDLY SCT -SHRA. OTLK...VFR.
.
OK
PNHDL...SKC. OTLK...VFR.
RMNDR WRN...BKN-SCT CI. 22Z SKC. OTLK...VFR.
ERN...BKN050-060 BKN100 TOPS FL180. WDLY SCT -SHRA/ISOL -TSRA. CB TOPS FL320. *BECMG 0003 FEW080.*
OTLK...VFR.

NWS Advisories: The NWS issued the following advisories surrounding the period:

AIRMETS
WAUS44 KKCI 211445 2013294 1454
WA4S
-DFWS WA 211445
AIRMET SIERRA UPDT 2 FOR IFR VALID UNTIL 212100
.
NO SGFNT IFR EXP OUTSIDE OF CNVTV ACT.
....
WAUS44 KKCI 211445 2013294 1441
WA4T
-DFWT WA 211445
AIRMET TANGO UPDT 2 FOR TURB VALID UNTIL 212100
.
AIRMET TURB...OK TX AR TN LA MS AL MO IL IN KY AND CSTL WTRS
FROM 20SE CVG TO HNN TO HMV TO GQO TO LGC TO 40W CEW TO 30ESE LEV TO 120SSW LCH TO 60SSE PSX TO 40WNW PSX TO 60E RZC TO 20SE CVG
MOD TURB BTN FL220 AND FL360. CONDS CONTG BYD 21Z THRU 03Z.
....
WAUS44 KKCI 211445 2013294 1440
WA4Z
-DFWZ WA 211445
AIRMET ZULU UPDT 2 FOR ICE AND FRZLVL VALID UNTIL 212100
.
AIRMET ICE...OK AR KS MO LM MI LH IL IN

FROM MBS TO 30SE ECK TO FWA TO 40SW ROD TO 30W ARG TO 50SE FSM TO 40W MLC TO 50NE CDS TO 60E LBL TO 40NNE UIN TO MBS
MOD ICE BTN FRZLVL AND FL180. FRZLVL 070-100. CONDS DVLPG 15-18Z.
CONDS CONTG BYD 21Z THRU 03Z.
.
AIRMET ICE...TX LA MS AL AND CSTL WTRS
FROM 40SSE LGC TO 50SW PZD TO 40W CEW TO 130ESE LEV TO 120SSW LCH TO 80E BRO TO 30NNE BRO TO 20NNE PSX TO 30NW LCH TO 40SSE LGC
MOD ICE BTN 140 AND FL240. CONDS CONTG BYD 21Z THRU 03Z.
.
OTLK VALID 2100-0300Z...ICE OK AR TN KS MO IL IN KY
BOUNDED BY 30SSE JOT-FWA-CVG-40S DYR-LIT-40SE OKC-40SSW ICT-30SSE JOT
MOD ICE BTN FRZLVL AND FL180. FRZLVL 070-100. CONDS CONTG THRU
03Z.
.
FRZLVL...RANGING FROM 070-145 ACRS AREA
  080 ALG 60W LBL-60W END-30NW RZC
  120 ALG ELP-20SSE INK-60SSE MAF-50WSW JCT-70SSW BTR-20NNW BTR-40WNW ATL
....
Convective SIGMET:
WSUS32 KKCI 211855 2013294 1849
SIGC
-MKCC WST 211855
CONVECTIVE SIGMET...NONE
OUTLOOK VALID 212055-220055
FROM RZC-70SW LEV-100SE PSX-80E BRO-BRO-70SSE LRD-DLF-CWK-TUL-RZC WST ISSUANCES EXPD.
REFER TO MOST RECENT ACUS01 KWNS FROM STORM
PREDICTION CENTER FOR SYNOPSIS AND METEOROLOGICAL DETAILS.

WSUS32 KKCI 211955 *2013294 1945*
SIGC
-MKCC WST 211955
CONVECTIVE SIGMET 14C
VALID UNTIL 2155Z
AR OK
FROM 30WNW FSM-40N TXK-10S MLC-30WNW FSM
AREA TS MOV FROM 25015KT. TOPS TO FL270.
OUTLOOK VALID 212155-220155
FROM RZC-70SW LEV-100SE PSX-80E BRO-BRO-70SSE LRD-DLF-CWK-TUL-RZC WST ISSUANCES EXPD.

FAUS20 KZME 211522 2013294 1523
ZME MIS 01 VALID 211600-212200
...FOR ATC PLANNING PURPOSES ONLY...ez
ZME WEST OF A LINE FROM PXV-MLU
SCT -SHRA DVLPG MOVG FM 27020KT. MAX TOPS FL200. XPCT GRADU EWD
SHIFT THRU THE PD. SEE SIGMETS AND AIRMETS FOR ADDNL INFO TURB/ICG.
=

Center Weather Advisory (CWA) -
FAUS21 KZME 212030 2013294 2030
ZME1 CWA 212030
ZME CWA 101 VALID UNTIL 212100
FROM 30WNW FSM-RZC-70SE RZC-45NE TXK-40N TXK-30WNW FSM
AREA OF SHWRS/EMBD TS WITH TOPS TO FL300 AND MOVMT FM 25030KT.
EXP ACT TO CONT BYD END OF PD.
=

Donald E. Eick
Senior Meteorologist
National Transportation Safety Board
Office of Aviation Safety
Operational Factors Division (AS-30)