



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

October 29, 2020

Specialist's Factual Report

METEOROLOGY

ERA20LA314

Table Of Contents

A.	ACCIDENT	3
B.	SENIOR METEOROLOGIST	3
C.	DETAILS OF THE INVESTIGATION	3
D.	FACTUAL INFORMATION	3
1.0	Synoptic Situation	3
1.1	Surface Analysis Chart	4
1.2	Upper Air Charts	5
2.0	SPC Products	8
3.0	Surface Observations	9
4.0	Upper Air Data	12
5.0	Satellite Data	14
6.0	Regional Radar Imagery Information	15
7.0	Pilot Reports	16
8.0	SIGMETs	16
9.0	CWSU Advisories	17
10.0	AIRMETs	17
11.0	Graphical Forecasts for Aviation	17
12.0	Terminal Aerodrome Forecast	17
13.0	NWS Area Forecast Discussion	17
14.0	Winds and Temperature Aloft Forecast	21
15.0	Pilot Weather Briefing	22
16.0	Astronomical Data	22
E.	LIST OF ATTACHMENTS	22

A. ACCIDENT

Location: Boaz, Alabama
Date: September 10, 2020
Time: 1243 central daylight time
1743 Coordinated Universal Time (UTC)
Airplane: Zenair CH750 CRUZER, Registration: N656BN

B. SENIOR METEOROLOGIST

Paul Suffern
Operational Factors Division (AS-30)
National Transportation Safety Board

C. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board's (NTSB) Meteorologist did not travel for this investigation and gathered the weather data for this investigation from official National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) sources including the National Centers for Environmental Information (NCEI). All times are central daylight time (CDT) on September 10, 2020, and are based upon the 24-hour clock, where local time is -5 hours from UTC, and UTC=Z (unless otherwise noted). Directions are referenced to true north and distances in nautical miles. Heights are above mean sea level (msl) unless otherwise noted. Visibility is in statute miles and fractions of statute miles. NWS airport and station identifiers use the standard International Civil Aviation Organization 4-letter station identifiers versus the International Air Transport Association 3-letter identifiers, which deletes the initial country code designator "K" for U.S. airports.

The accident site location used was at latitude 34.1669° N, longitude 86.1344° W, with an approximate elevation of 1,100 feet (ft).

D. FACTUAL INFORMATION

1.0 Synoptic Situation

The synoptic or large scale migratory weather systems influencing the area were documented using standard NWS charts issued by the National Center for Environmental Prediction and the Weather Prediction Center, located in College Park, Maryland. These are the base products used in describing synoptic weather features and in the creation of forecasts and warnings for the NWS. Reference to these charts can be found in the joint NWS and Federal Aviation Administration (FAA) Advisory Circular "Aviation Weather Services", AC 00-45H.¹

¹

1.1 Surface Analysis Chart

A southeastern section of the NWS Surface Analysis Chart for 1300 CDT is provided as figure 1 with the approximate location of the accident site marked by the red circle. The chart identified a trough² located across northern Alabama and the trough stretched northeastward through Tennessee into southern West Virginia. A frontal system stretched from eastern Texas northward into Missouri then eastward through the Ohio River Valley region. A surface low pressure system was located over southwestern Missouri with a pressure of 1022-hectopascals (hPa).

The station models around the accident site depicted air temperatures in the low to mid 80's degrees Fahrenheit (°F), dew point temperatures in the low 70's °F with temperature-dew point spreads of 9°F or more, variable winds at or under 5 knots, and generally cloudy sky cover.

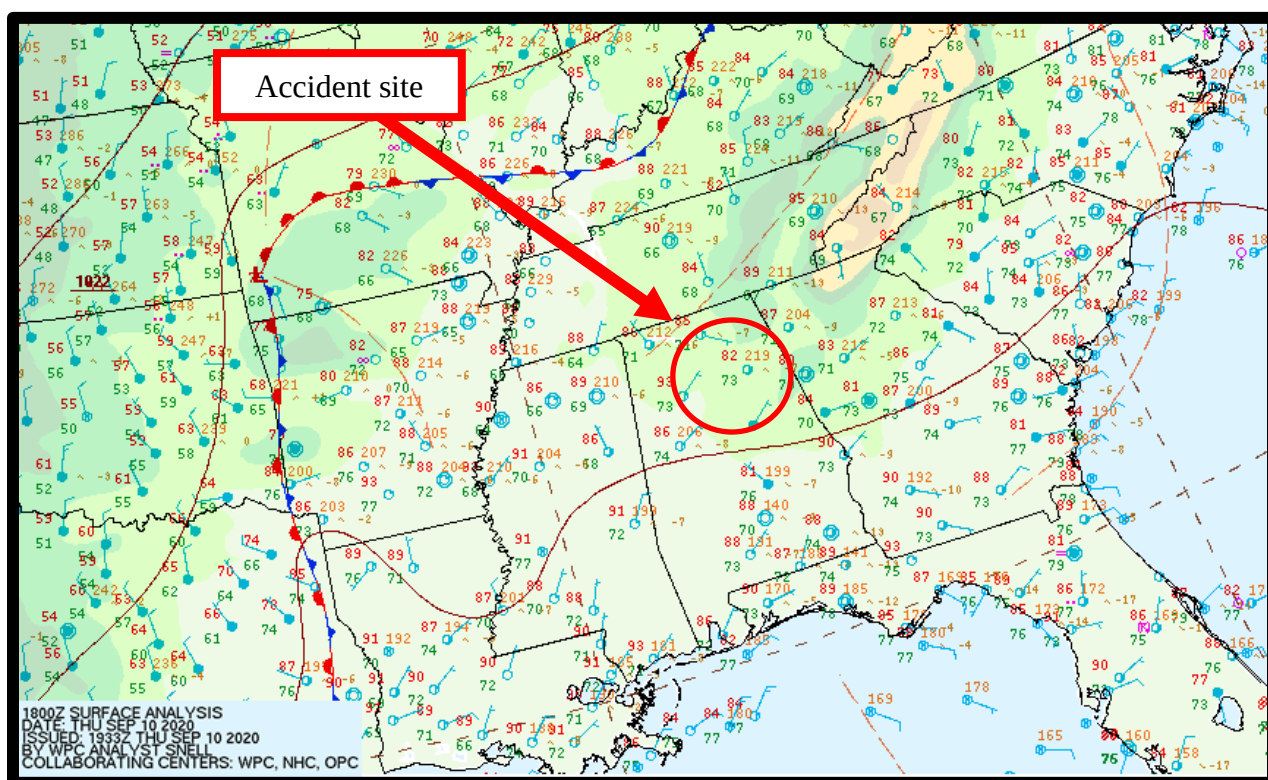


Figure 1 – NWS Surface Analysis Chart for 1300 CDT

https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1030235

² Trough – An elongated area of relatively low atmospheric pressure or heights. Orange dashed line on figure 1.

1.2 Upper Air Charts

The NWS Storm Prediction Center (SPC) Constant Pressure Charts for 0700 CDT at 925-, 850-, 700-, and 500-hPa are presented in figures 2 through 5. There was a trough located at low- and mid-levels above the accident site from 925- through 700-hPa. Troughs can act as lifting mechanisms to help produce clouds and precipitation if sufficient moisture is present. There was an east wind of 15 knots at 925-hPa above the accident site with the wind remaining easterly through 500-hPa (figure 5). The wind speed remained at or below 15 knots through 500-hPa.

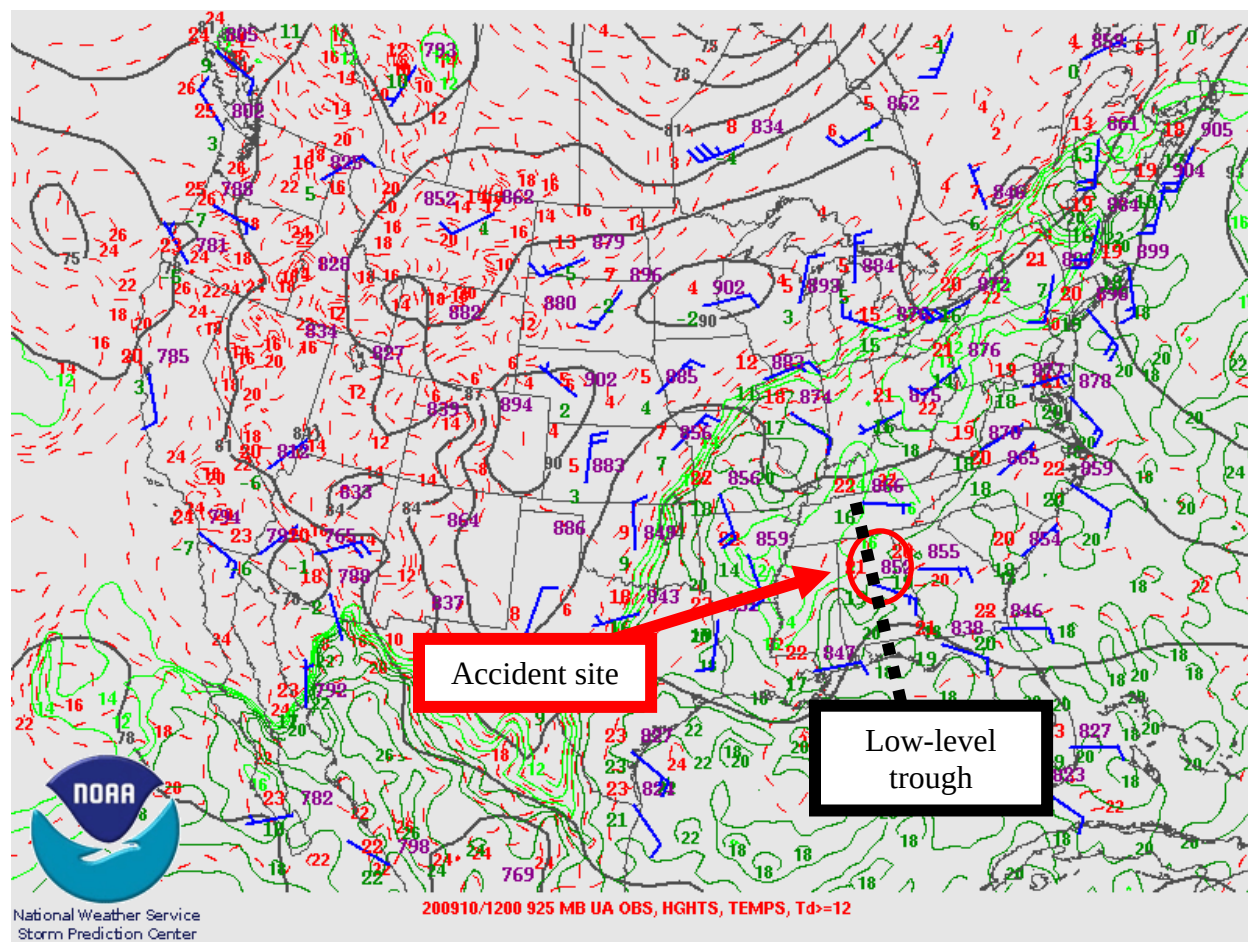


Figure 2 – 925-hPa Constant Pressure Chart for 0700 CDT

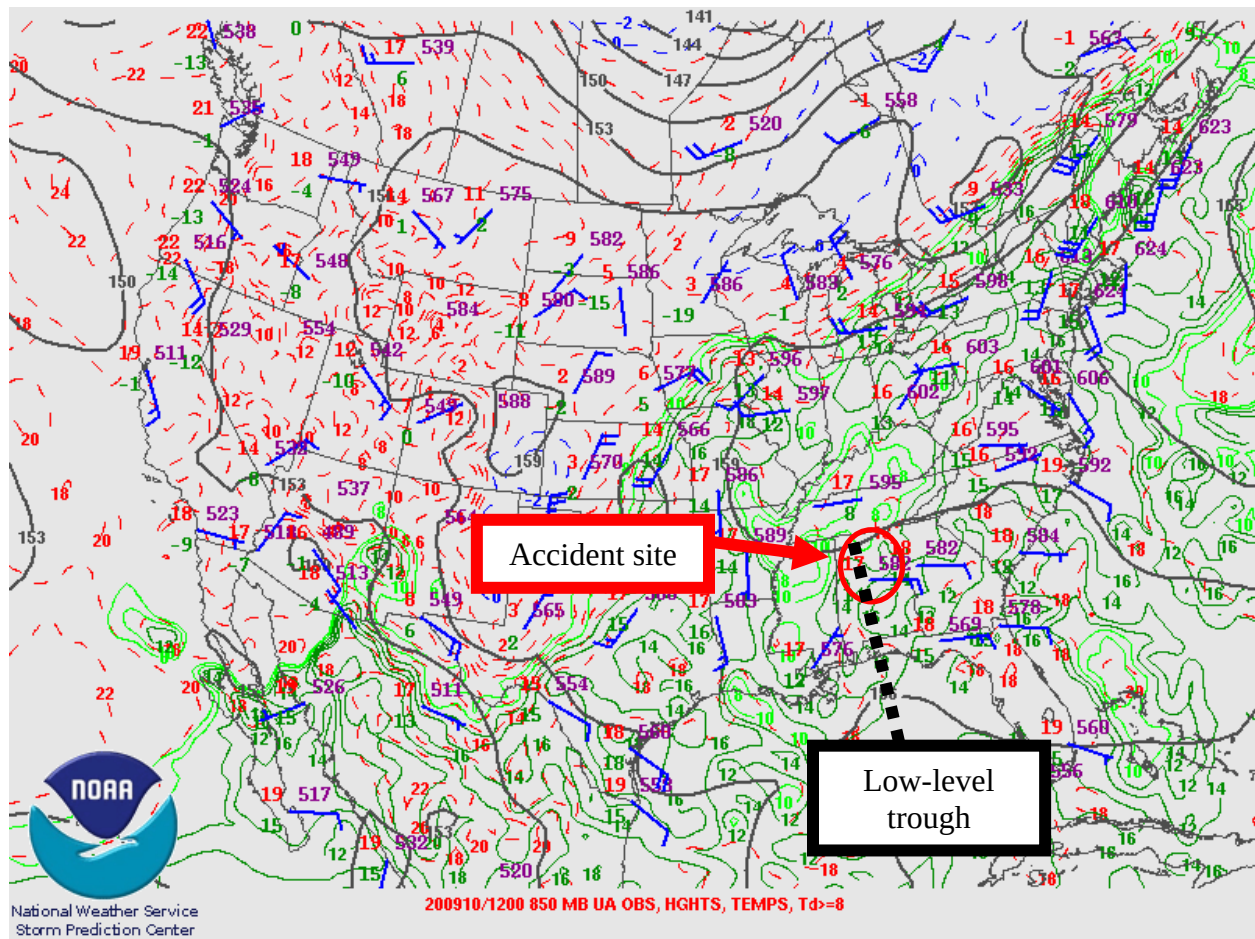


Figure 3 – 850-hPa Constant Pressure Chart for 0700 CDT

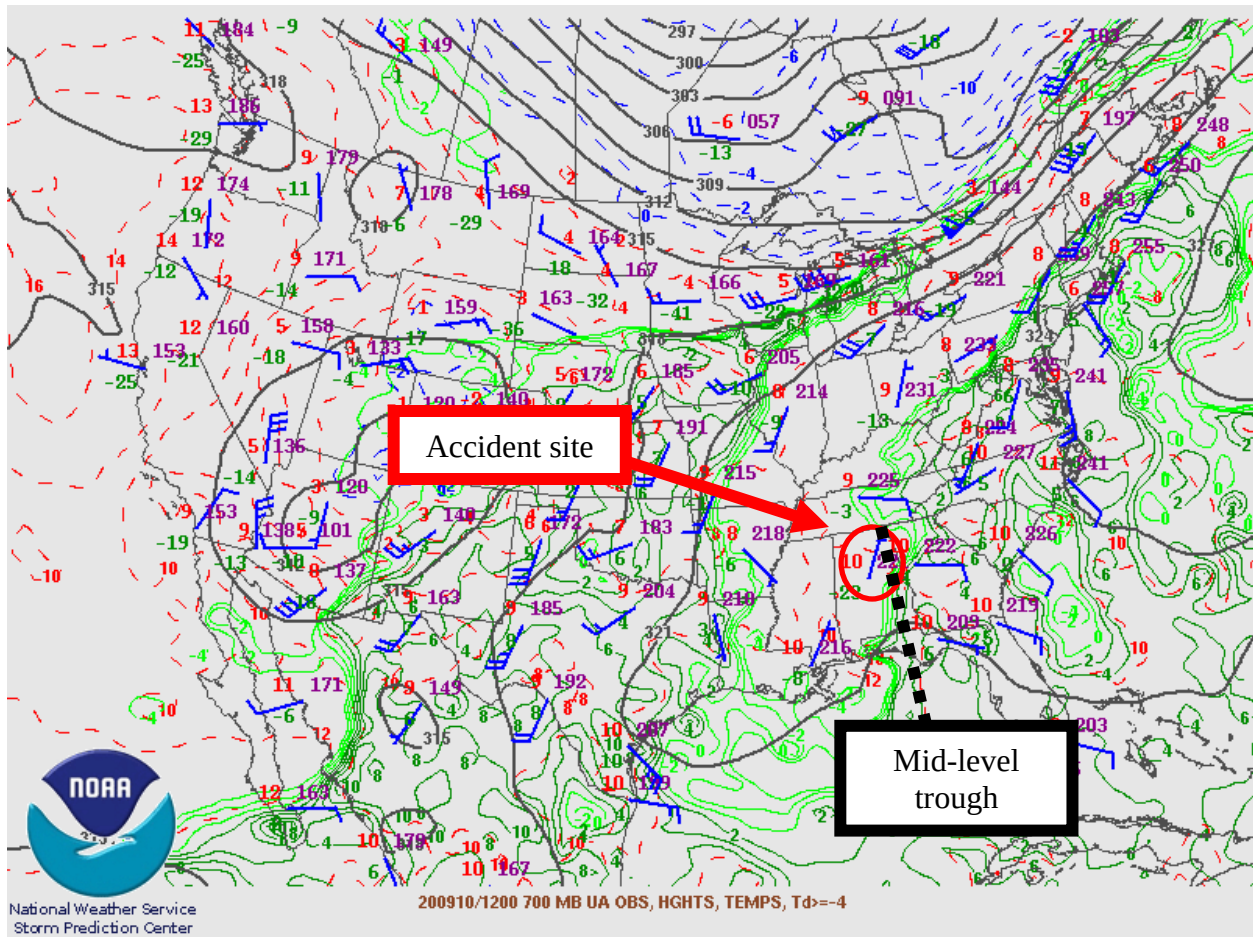


Figure 4 – 700-hPa Constant Pressure Chart for 0700 CDT

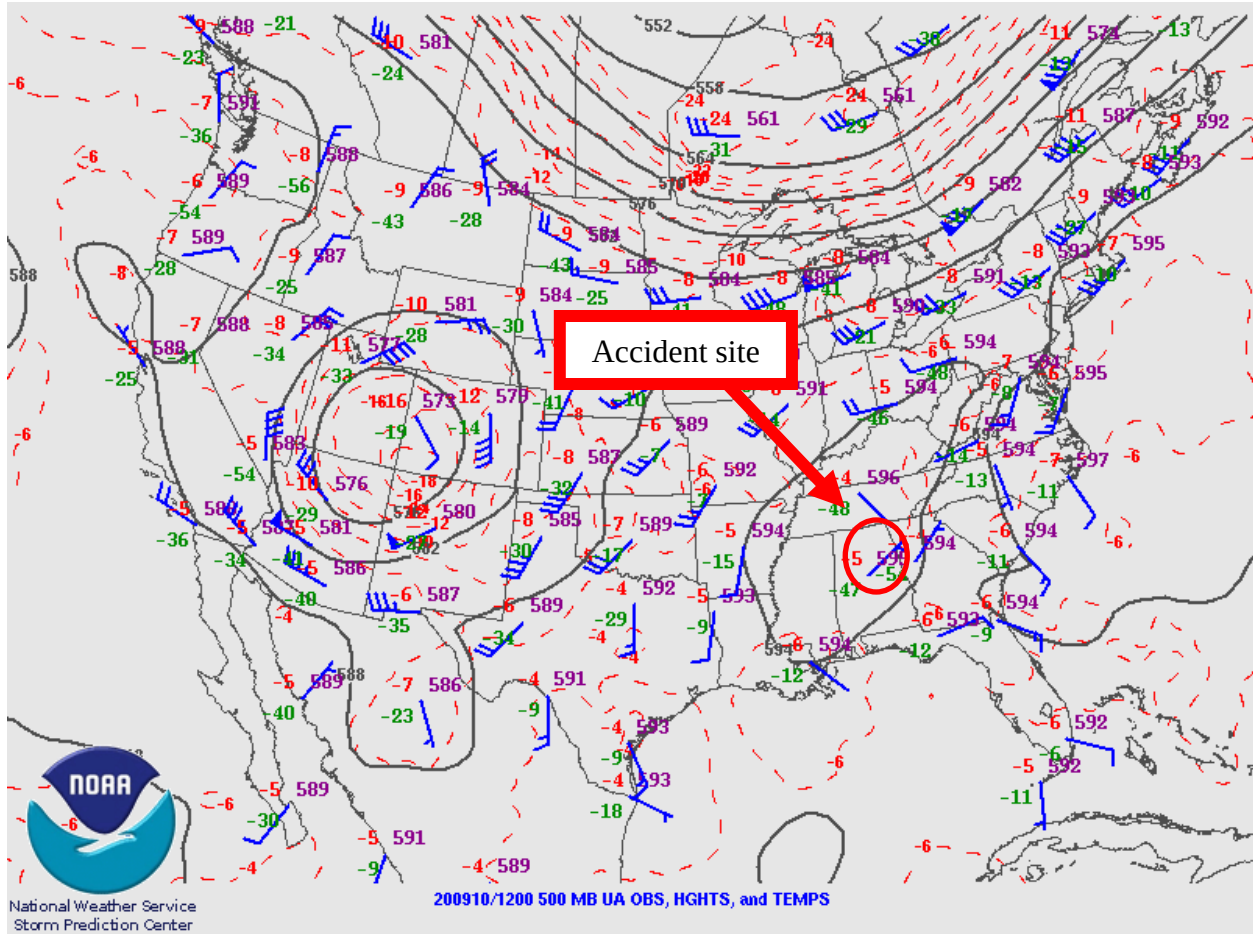


Figure 5 – 500-hPa Constant Pressure Chart for 0700 CDT

2.0 SPC Products

SPC issued the following Day 1 Convective Outlook at 1104 CDT (figure 6) with areas of general thunderstorms forecast for the accident site. SPC defines the “TSTM” area as an area that encloses where a 10% or higher probability of thunderstorms is forecast during the valid period.

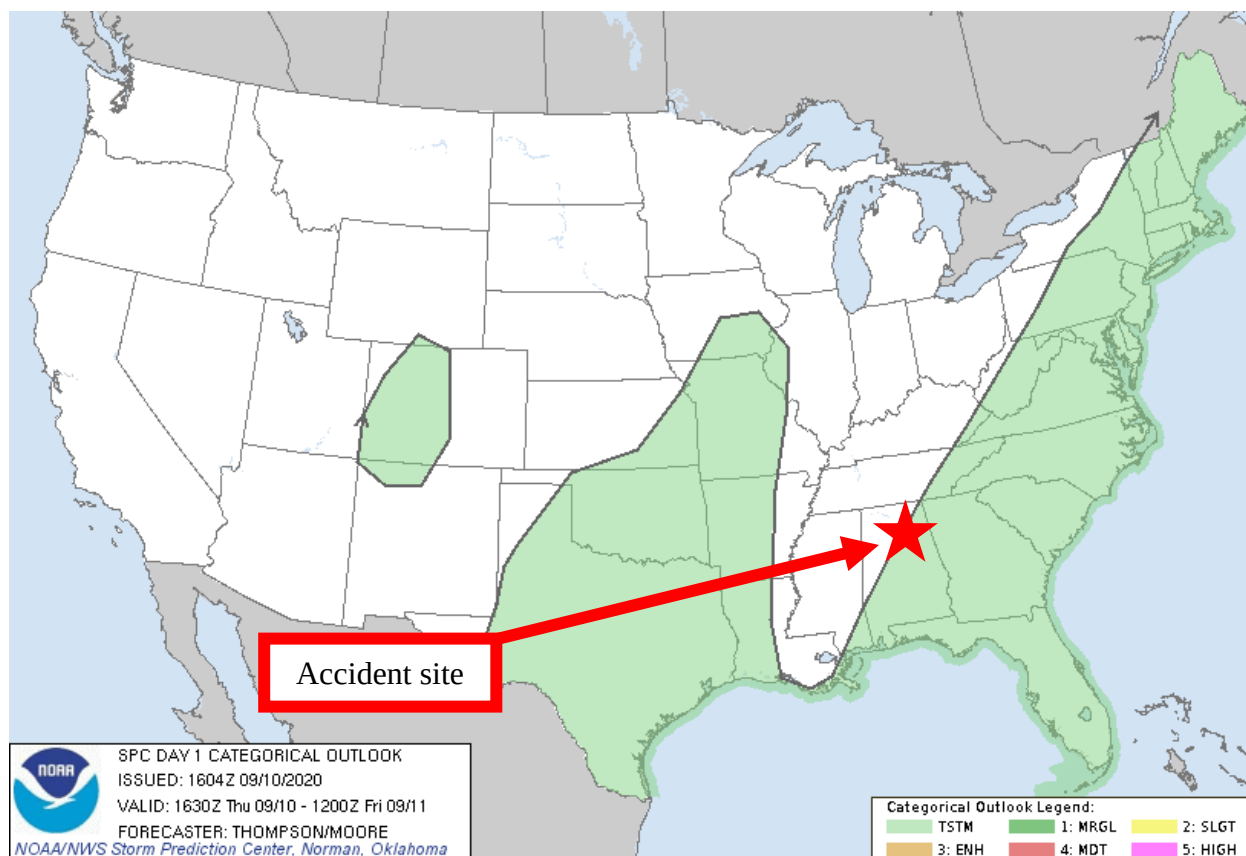


Figure 6 – SPC day 1 Convective Outlook valid at the time of the accident

3.0 Surface Observations

The area surrounding the accident site was documented using official Meteorological Aerodrome Reports (METARs) and Specials (SPECIs). The following observations were taken from standard code and are provided in plain language. Figure 7 is a local sectional chart with the accident site and the closest weather reporting location marked.

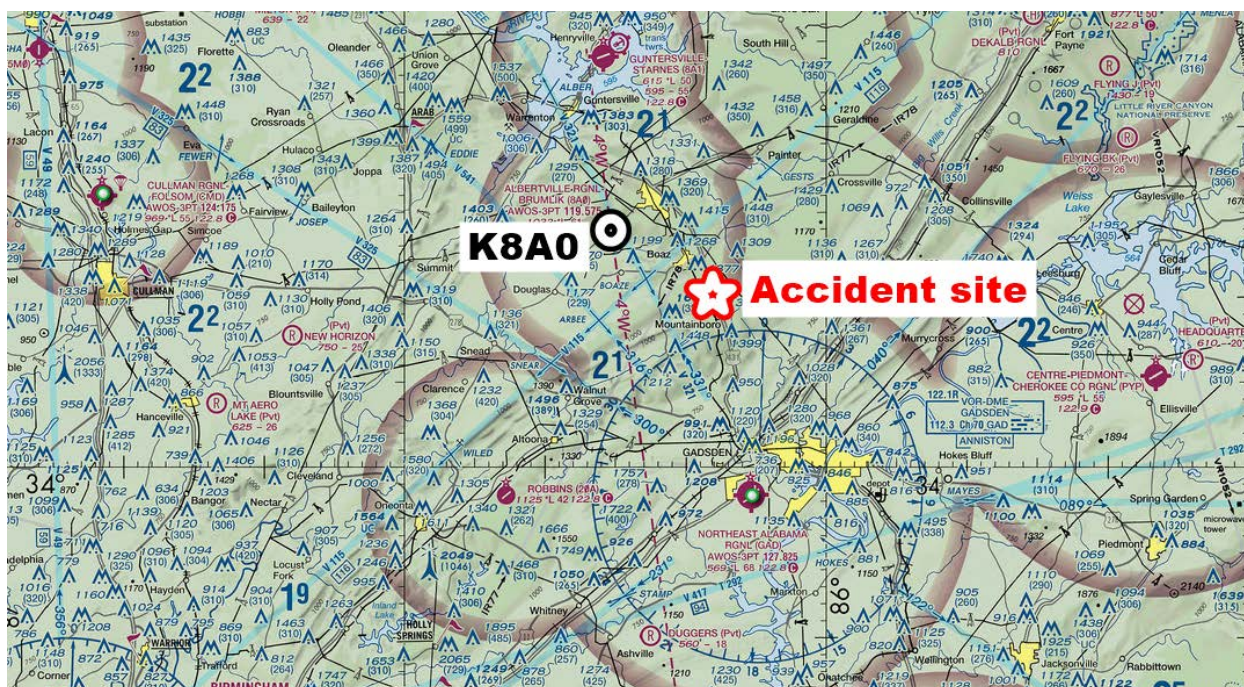


Figure 7 – Sectional map of the accident area with the location of the accident site and surface observation site

Albertville Regional Airport (K8A0) had the closest official weather station to the accident site. K8A0 had an Automated Weather Observing System (AWOS³) whose reports were not supplemented. The K8A0 AWOS site was located 7 miles west-northwest of the accident site, at an elevation of 1,032 ft, and had a 4° westerly magnetic variation⁴. The following observations were taken and disseminated during the times surrounding the accident:⁵

[1115 CDT] METAR K8A0 101615Z AUTO 10003KT 10SM SCT016 OVC023 25/21
A3023 RMK AO2=

[1135 CDT] METAR K8A0 101635Z AUTO 10003KT 10SM OVC022 25/21 A3023 RMK
AO2=

[1155 CDT] METAR K8A0 101655Z AUTO 00000KT 10SM OVC026 25/21 A3022 RMK
AO2=

³ AWOS – Automated Weather Observing System is equipped with meteorological instruments to observe and report temperature, dewpoint, wind speed and direction, visibility, cloud coverage and ceiling up to 12,000 feet, and altimeter setting.

⁴ Magnetic variation – The angle (at a particular location) between magnetic north and true north. Latest measurement taken from <https://skyvector.com/>

⁵ The bold sections in this NWS product and the rest of the products in this report are intended to highlight the sections that directly reference the weather conditions that affected the accident location around the accident time. The local times in this section next to the METARs are provided for quick reference between UTC and local times around the accident time.

[1215 CDT] METAR K8A0 101715Z AUTO 00000KT 10SM OVC030 26/21 A3022 RMK AO2=

[1235 CDT] METAR K8A0 101735Z AUTO 00000KT 10SM SCT022 BKN034 26/21 A3021 RMK AO2=

ACCIDENT TIME 1243 CDT

[1255 CDT] METAR K8A0 101755Z AUTO 00000KT 10SM SCT020 SCT025 SCT036 27/21 A3020 RMK AO2=

[1315 CDT] METAR K8A0 101815Z AUTO 00000KT 10SM SCT027 SCT033 SCT040 27/21 A3020 RMK AO2=

K8A0 weather at 1235 CDT, automated, wind calm, 10 miles visibility or greater, scattered clouds at 2,200 ft above ground level (agl), broken ceiling at 3,400 ft agl, temperature of 26°Celsius (C), dew point temperature of 21°C, and an altimeter setting of 30.21 inches of mercury. Remarks: automated station with a precipitation discriminator.

K8A0 weather at 1255 CDT, wind calm, 10 miles visibility or greater, scattered clouds at 2,000 ft agl, scattered clouds at 2,500 ft agl, scattered clouds at 3,600 ft agl, temperature of 27°C, dew point temperature of 21°C, and an altimeter setting of 30.20 inches of mercury. Remarks: automated station with a precipitation discriminator.

The observations from K8A0 surrounding the accident time indicated VFR⁶ conditions with several scattered and broken cloud layers between 2,000 and 4,000 ft agl (~3,000 and 5,000 ft above msl).

⁶ As defined by the NWS and the FAA Aeronautical Information Manual (AIM) section 7-1-7 defines the following general flight categories:

- Low Instrument Flight Rules (LIFR*) – ceiling below 500 ft above ground level (agl) and/or visibility less than 1 statute mile.
- Instrument Flight Rules (IFR) – ceiling between 500 to below 1,000 feet agl and/or visibility 1 to less than 3 miles.
- Marginal Visual Flight Rules (MVFR**) – ceiling from 1,000 to 3,000 ft agl and/or visibility 3 to 5 miles.
- Visual Flight Rules (VFR) – ceiling greater 3,000 ft agl and visibility greater than 5 miles.

* By definition, IFR is a ceiling less than 1,000 ft agl and/or visibility less than 3 miles while LIFR is a sub-category of IFR.

**By definition, VFR is a ceiling greater than or equal to 3,000 ft agl and visibility greater than 5 miles while MVFR is a sub-category of VFR.

4.0 Upper Air Data

A High-Resolution Rapid Refresh (HRRR)⁷ model sounding was created for the accident site for 1300 CDT with a station elevation of 1,102 ft.⁸ The 1300 CDT HRRR sounding was plotted on a standard Skew-T Log P diagram⁹ with the derived stability parameters included in figure 8 with data from the surface to 600-hPa (or approximately 14,000 ft above msl). These data were analyzed using the RAOB¹⁰ software package. The sounding depicted the lifted condensation level (LCL)¹¹ at 1,521 ft agl, the level of free convection (LFC)¹² at 1,521 ft agl, and the convective condensation level (CCL)¹³ at 2,594 ft agl. The freezing level was located at 17,785 ft above msl. The precipitable water value was 1.32 inches.

⁷ 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.

⁸ HRRR sounding was created using NOAA Air Resource Laboratory: <https://ready.arl.noaa.gov/READYamet.php>

⁹ Skew T log P diagram – is a standard meteorological plot using temperature and the logarithmic of pressure as coordinates, used to display winds, temperature, dew point, and various indices used to define the vertical structure of the atmosphere.

¹⁰ RAOB – (The complete Rawinsonde Observation program) is an interactive sounding analysis program developed by Environmental Research Services, Matamoras, Pennsylvania.

¹¹ LCL - The height at which a parcel of moist air becomes saturated when it is lifted dry adiabatically.

¹² LFC – The level at which a parcel of saturated air becomes warmer than the surrounding air and begins to rise freely. This occurs most readily in a conditionally unstable atmosphere.

¹³ CCL – The level in the atmosphere to which an air parcel, if heated from below, will rise dry adiabatically, without becoming colder than its environment just before the parcel becomes saturated.

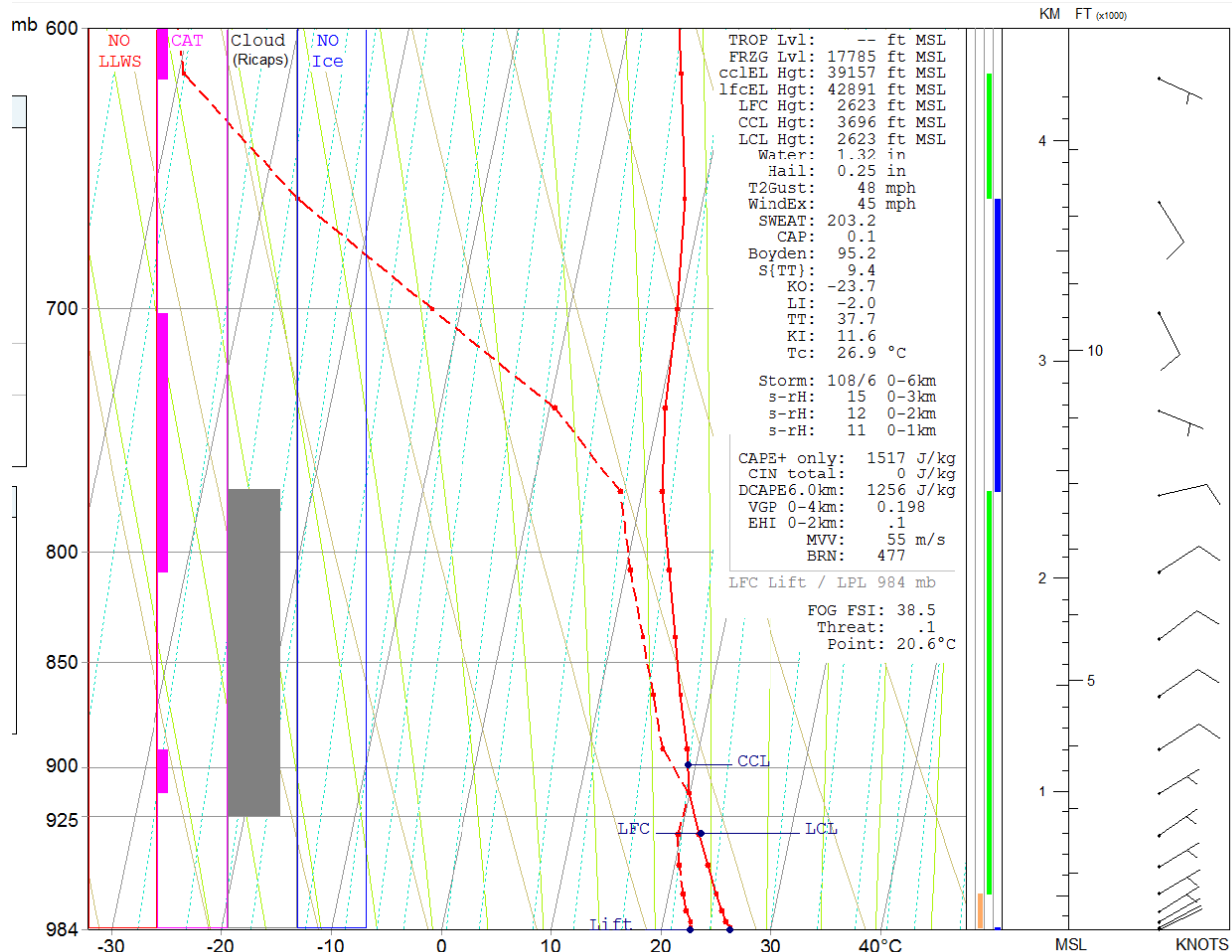


Figure 8 – 1300 CDT HRRR sounding

The 1300 CDT HRRR sounding for the accident site identified an unstable to conditionally unstable environment from the surface through 8,000 ft above msl. RAOB identified likely clouds from 3,000 ft above msl (~1,900 ft agl) through 8,000 ft above msl.

The 1300 CDT HRRR sounding wind profile indicated a near surface wind from 063° at 2 knots with the wind remaining from the east to northeast through 10,000 ft above msl. The wind remained at or below 10 knots through 10,000 ft above msl. RAOB did not indicate the possibility of low-level wind shear (LLWS). RAOB indicated that a slight chance of very light clear-air turbulence existed in several layers between 3,500 ft and 14,000 ft.

5.0 Satellite Data

The Geostationary Operational Environmental Satellite number 16 (GOES-16) visible and infrared data were obtained from an archive at the Space Science Engineering Center at the University of Wisconsin-Madison in Madison, Wisconsin, and processed using the Man-computer Interactive Data Access System software. Visible and infrared imagery (GOES-16 bands 2 and 13) at wavelengths of 0.64 microns (μm) and 10.3 μm , respectively, were retrieved for the period from 1000 CDT through 1500 CDT and reviewed, and the closest images to the time of the accident were documented.

Figures 9 and 10 present the GOES-16 visible imagery at 1240 and 1250 CDT, respectively, at 2X magnification with the accident site highlighted with a red square. The visible imagery indicated an extensive layer of cloud cover above the accident site at the accident time. The cloud cover was moving from east to west (attachment 1).

Figure 11 presents the GOES-16 infrared imagery from 1240 CDT at 6X magnification with the accident site highlighted with a red square. The lower brightness temperatures (yellow and red colors; higher cloud tops) were located to the southeast of the accident site over central Alabama and Georgia. Based on the brightness temperatures above the accident site and the vertical temperature profile provided by the 1300 CDT HRRR sounding, the approximate cloud-top heights over the accident site were 6,000 ft above msl at 1240 CDT (289 Kelvin). It should be noted these figures have not been corrected for any parallax error.

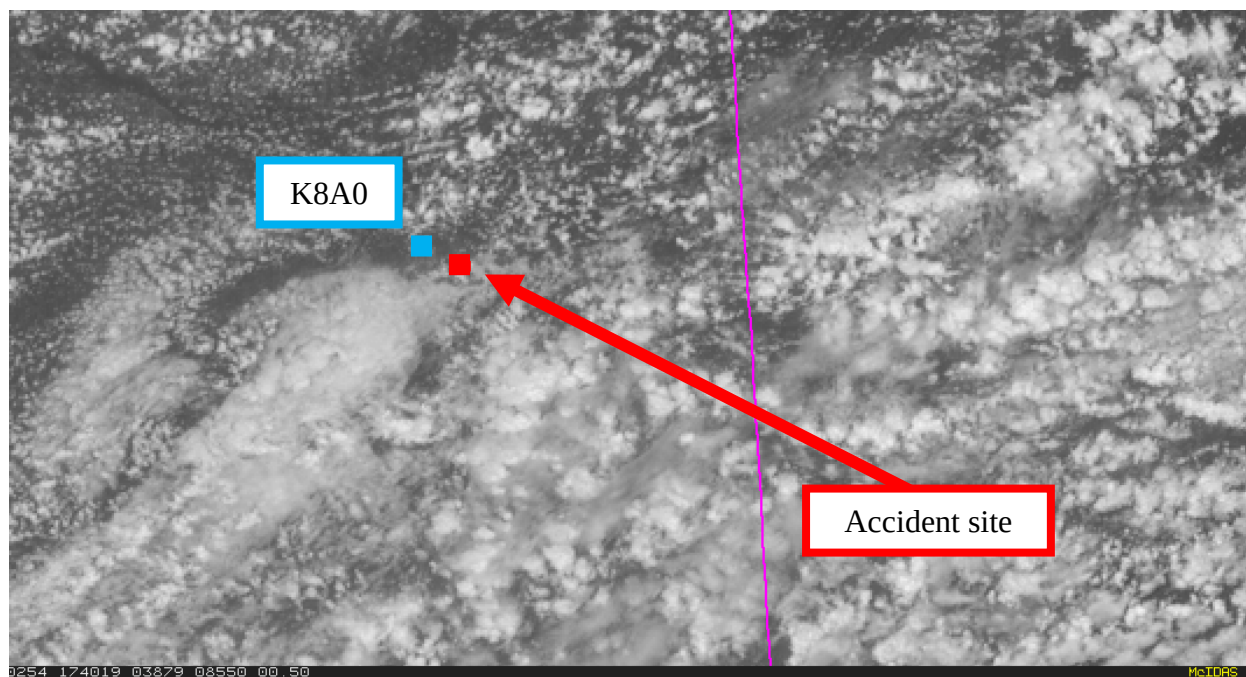


Figure 9 – GOES-16 visible image at 1240 CDT

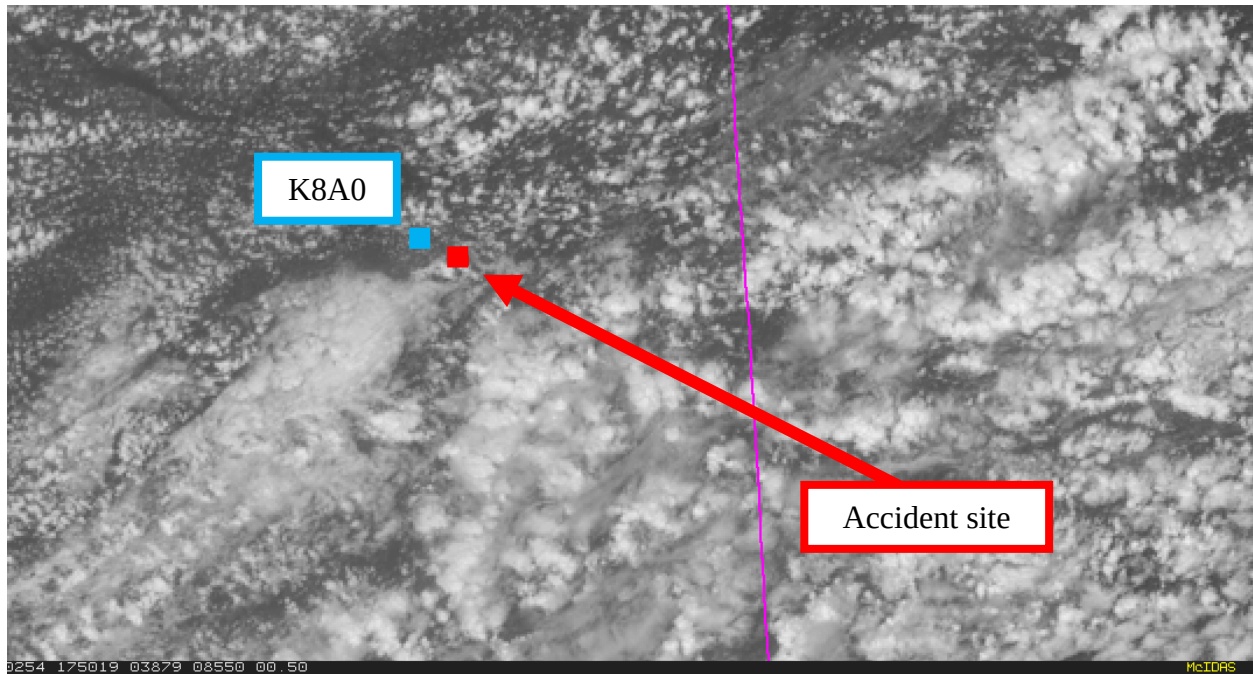


Figure 10 – GOES-16 visible image at 1250 CDT

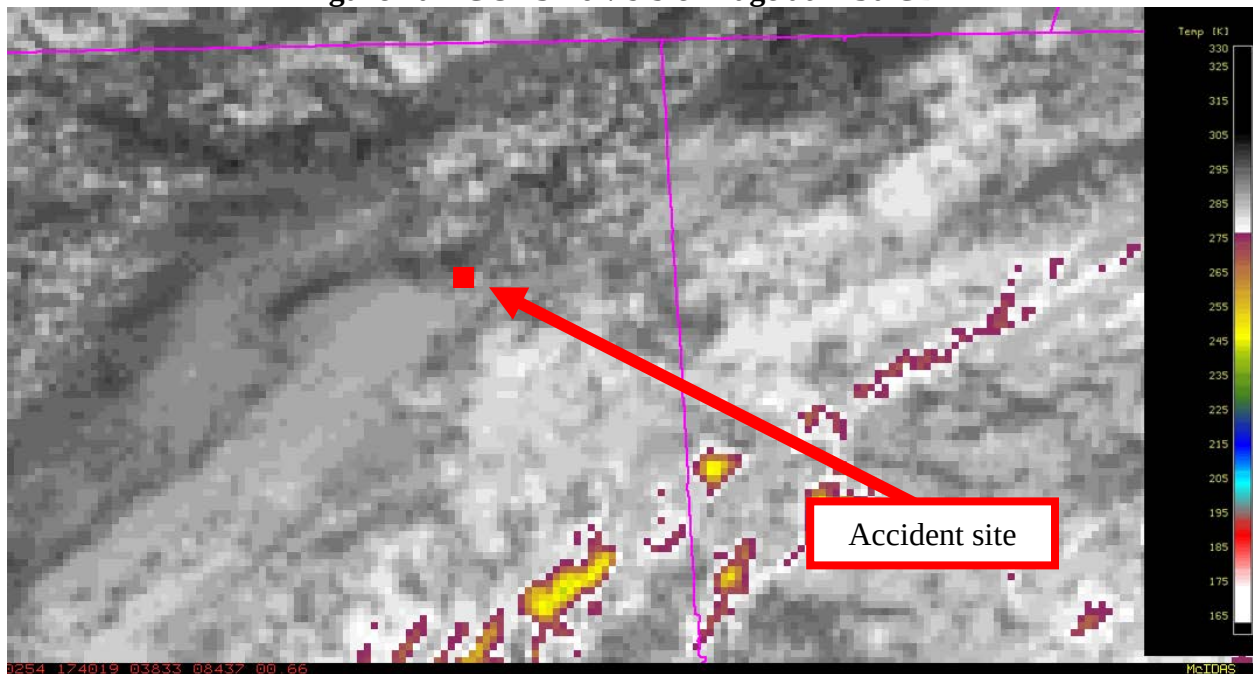


Figure 11 – GOES-16 infrared image at 1240 CDT

6.0 Regional Radar Imagery Information

A regional view of the NWS national composite radar mosaic is included as figure 12 for 1245 CDT with the approximate location of the accident site marked by the red circle. The image depicted no precipitation echoes above the accident site at the accident time.

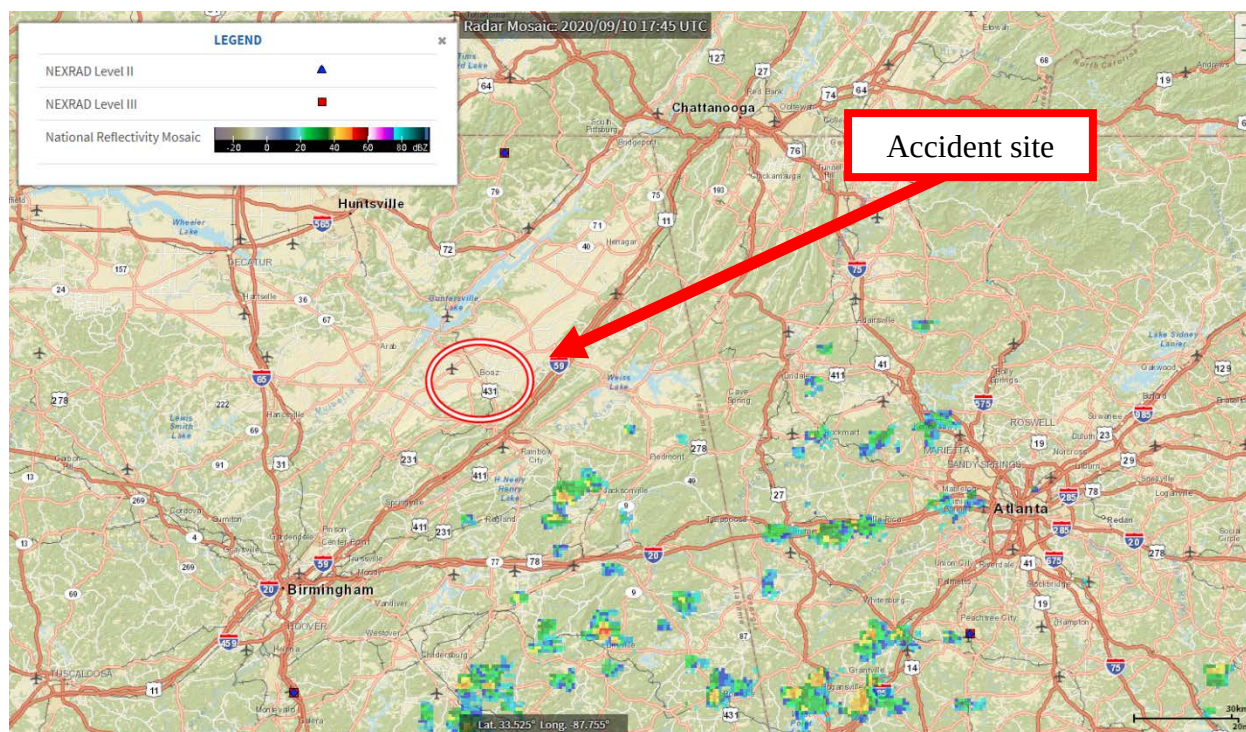


Figure 12 – Regional Composite Reflectivity image for 1245 CDT

7.0 Pilot Reports¹⁴

The following are the publicly longline-disseminated pilot reports¹⁵ (PIREPs) made below 15,000 ft msl within 75 miles of the accident site from about two hours prior to the accident time to two hours after the accident time:

BHM UA /OV KBHM/TM 1641/FL030/TP E145/SK T045 B027=

BHM UA /OV BHM240005/TM 1641/FL027/TP E145/SK B-027 T-045 =

BHM UA /OV BHM/TM 1805/FL028/TP CRJ9/SK BKN029/RM BASES 029 DURD RY06 =

BHM UA /OV BHM240005/TM 1806/FL028/TP H25B/SK B-028=

BHM UA /OV BHM/TM 1825/FL030/TP C525/SK BKN030/RM BASES 030 DURD RY06=

BHM UA /OV KBHM/TM 1847/FL030/TP B712/SK B030=

BHM UA /OV BHM/TM 1908/FL030/TP C525/SK BASES 030 =

8.0 SIGMETs

There were no convective or non-convective Significant Meteorological Information (SIGMET) advisories valid for the accident site at the accident time.

¹⁴ Only pilot reports with the World Meteorological Organization headers UBAL**, UBTN**, and UBGA** were considered.

¹⁵ These do not include pilot reports only broadcast via radio.

9.0 CWSU Advisories

There were no Center Weather Service Unit (CWSU) Meteorological Impact Statements (MIS) or Center Weather Advisories (CWA) valid for the accident site at the accident time.

10.0 AIRMETs

There were no Airmen's Meteorological Information (AIRMET) advisories valid for the accident site for below 10,000 ft.

11.0 Graphical Forecasts for Aviation

The Graphical Forecasts for Aviation (GFA) products made available before the accident flight and valid at 1300 CDT are shown in attachment 2. These GFA surface forecast products indicated surface visibilities of 3 statute miles or greater with no precipitation and a surface wind from the northeast at 5 knots. The GFA cloud forecast valid before departure for around the accident time indicated few to scattered clouds at 3,500 to 4,500 ft above msl. For more information please see attachment 2.

12.0 Terminal Aerodrome Forecast

There were no Terminal Aerodrome Forecasts (TAF) located within 35 miles of the accident site.

13.0 NWS Area Forecast Discussion

The NWS office in Huntsville, Alabama, issued the following Area Forecast Discussions (AFD) at 0847 and 1224 CDT (closest AFDs to the accident time). The aviation section of the AFD discussed VFR conditions with few clouds forming over northeast and central Alabama with no precipitation expected:

FXUS64 KHUN 101347
AFDHUN

Area Forecast Discussion
National Weather Service Huntsville AL
847 AM CDT Thu Sep 10 2020

.NEAR TERM...(Rest of Today)
Issued at 847 AM CDT Thu Sep 10 2020

A fairly benign weather setup across the Tennessee Valley region early this morning. However, current satellite imagery is showing a plume of low stratus continuing to drift into our eastern counties from Georgia. Models show this cloud cover gradually dissipating by the late morning into the early afternoon, but still think we'll have generally partly cloudy conditions through the day and have adjusted sky grids accordingly. We'll start to see an uptick in dewpoints

this afternoon as Gulf moisture starts to move back in as a weak area of low pressure over the Gulf starts to drift north into south central Alabama. Thus, we may see a few isolated showers and storms develop this afternoon -- mainly across northeast Alabama. Otherwise, expect dry weather and a warm and slightly more humid day.

.SHORT TERM...(Tonight through Saturday)
Issued at 306 AM CDT Thu Sep 10 2020

We will continue to see easterly flow bring additional moisture into the Tennessee Valley on Friday, which will spread the chance for showers and thunderstorms westward across all of Northern Alabama and southern Middle Tennessee. Meanwhile, a large upper-level trough moving across the Midwest starts its approach. With the approaching trough and a building broad region of high pressure centered off the coast of the Carolinas, flow will turn more southerly on Saturday. This will bring in greater amounts of moisture and a more unstable air mass for Saturday afternoon and evening showers and thunderstorms. Expect greater coverage and heavier rain with showers and thunderstorms on Saturday. Also, with more rain and higher humidity, temperatures may actually be a couple degrees cooler on Saturday, though it may not feel that way.

.LONG TERM...(Saturday night through Wednesday)
Issued at 306 AM CDT Thu Sep 10 2020

At the start of the extended period, a somewhat amplified pattern over the lower-48 will become more zonal along the United States and Canadian border. An upper low current over the 4-Corners region, will by Sunday morning be a flattening trough transitioning to the east across the Great Lakes region. Another item of interest is a tropical system nearing Bermuda from the SE. All model output was in agreement with the flattening trough picking up that system, keeping away from the East Coast. An upper low over far northern Canada, part of a general vortex of other lows rotating around Greenland, will move SSE towards the Hudson Bay by the middle of next week. During this time, inter-model disagreement becomes very noticeable in the development of this low, and another system moving across the western states during this time. This leads to a rather low confident forecast far as details for the first half of next week.

Stayed with blends for the most part to smooth out any peaks and/or minimal values the deterministic models were coming out with. Regarding features, the models were in generally agreement bringing a weak cold front across the area late Sunday into Monday. The passage of this boundary, along with high precipitable water amounts (averaging over 2 inches from Sun-Mon) will bring numerous showers and thunderstorms. High moisture levels could yield locally heavy rainfall in some of the showers. This rain along with possible heavy amounts on Sat may produce minor flooding and/or hydrological issues early next work week. Our eastern areas would be more prone for flooding as they should get the higher rain totals into early next week.

With the passage of the front, temperatures will cool off more as we

go into the new week. Daily highs in the upper 80s on Sun, should cool down into the lower 80s on Wed. Despite the front moving across the region; it will hang up and become stationary south of the area. More upper level disturbances moving to the NE from the northern Gulf, will bring more showers and thunderstorms, creating a rather unsettled work week. Model differences really show after the midweek. The ECMWF had deepened the Canadian low more than the GFS, with it hinting at another stronger front and a northerly flow late in the week, while the GFS stayed with a southerly flow. Better solutions will come from later runs closer to this timeframe.

&&

**.AVIATION...(For the 12Z TAFS through 12Z Friday morning)
Issued at 600 AM CDT Thu Sep 10 2020**

VFR conditions expected through the TAF period. Clear skies this morning, but expect a few clouds to develop mainly over northeast and north-central Alabama this afternoon. May see a couple showers in these areas as well, but probability is very low that a shower or thunderstorm will impact either HSV or MSL this afternoon, so not in TAF. Winds light and variable this morning will become more northeasterly this afternoon before weakening and becoming variable again this evening.

&&

.HUN WATCHES/WARNINGS/ADVISORIES...
AL...NONE.
TN...NONE.
&&

\$\$

FXUS64 KHUN 101724
AFDHUN

Area Forecast Discussion
National Weather Service Huntsville AL
1224 PM CDT Thu Sep 10 2020

.UPDATE...
For 18Z TAFS.

&&

**.NEAR TERM...(Rest of Today)
Issued at 847 AM CDT Thu Sep 10 2020**

A fairly benign weather setup across the Tennessee Valley region early this morning. However, current satellite imagery is showing a plume of low stratus continuing to drift into our eastern counties from Georgia. Models show this cloud cover gradually dissipating by the late morning into the early afternoon, but still think we'll have generally partly cloudy conditions through the day and have adjusted

sky grids accordingly. We'll start to see an uptick in dewpoints this afternoon as Gulf moisture starts to move back in as a weak area of low pressure over the Gulf starts to drift north into south central Alabama. Thus, we may see a few isolated showers and storms develop this afternoon -- mainly across northeast Alabama. Otherwise, expect dry weather and a warm and slightly more humid day.

.SHORT TERM...(Tonight through Saturday)
Issued at 306 AM CDT Thu Sep 10 2020

We will continue to see easterly flow bring additional moisture into the Tennessee Valley on Friday, which will spread the chance for showers and thunderstorms westward across all of Northern Alabama and southern Middle Tennessee. Meanwhile, a large upper-level trough moving across the Midwest starts its approach. With the approaching trough and a building broad region of high pressure centered off the coast of the Carolinas, flow will turn more southerly on Saturday. This will bring in greater amounts of moisture and a more unstable air mass for Saturday afternoon and evening showers and thunderstorms. Expect greater coverage and heavier rain with showers and thunderstorms on Saturday. Also, with more rain and higher humidity, temperatures may actually be a couple degrees cooler on Saturday, though it may not feel that way.

.LONG TERM...(Saturday night through Wednesday)
Issued at 306 AM CDT Thu Sep 10 2020

At the start of the extended period, a somewhat amplified pattern over the lower-48 will become more zonal along the United States and Canadian border. An upper low current over the 4-Corners region, will by Sunday morning be a flattening trough transitioning to the east across the Great Lakes region. Another item of interest is a tropical system nearing Bermuda from the SE. All model output was in agreement with the flattening trough picking up that system, keeping away from the East Coast. An upper low over far northern Canada, part of a general vortex of other lows rotating around Greenland, will move SSE towards the Hudson Bay by the middle of next week. During this time, inter-model disagreement becomes very noticeable in the development of this low, and another system moving across the western states during this time. This leads to a rather low confident forecast far as details for the first half of next week.

Stayed with blends for the most part to smooth out any peaks and/or minimal values the deterministic models were coming out with. Regarding features, the models were in generally agreement bringing a weak cold front across the area late Sunday into Monday. The passage of this boundary, along with high precipitable water amounts (averaging over 2 inches from Sun-Mon) will bring numerous showers and thunderstorms. High moisture levels could yield locally heavy rainfall in some of the showers. This rain along with possible heavy amounts on Sat may produce minor flooding and/or hydrological issues early next work week. Our eastern areas would be more prone for flooding as they should get the higher rain totals into early next week.

With the passage of the front, temperatures will cool off more as we

go into the new week. Daily highs in the upper 80s on Sun, should cool down into the lower 80s on Wed. Despite the front moving across the region; it will hang up and become stationary south of the area. More upper level disturbances moving to the NE from the northern Gulf, will bring more showers and thunderstorms, creating a rather unsettled work week. Model differences really show after the midweek. The ECMWF had deepened the Canadian low more than the GFS, with it hinting at another stronger front and a northerly flow late in the week, while the GFS stayed with a southerly flow. Better solutions will come from later runs closer to this timeframe.

&&

**.AVIATION...(For the 18Z TAFS through 18Z Friday afternoon)
Issued at 1223 PM CDT Thu Sep 10 2020**

VFR conditions will continue throughout the TAF cycle. There could be an isolated shower/storm near HSV this afternoon and evening but not enough confidence to include precipitation in the TAF.

&&

.HUN WATCHES/WARNINGS/ADVISORIES...

AL...NONE.

TN...NONE.

&&

\$\$

14.0 Winds and Temperature Aloft Forecast

The NWS 0855 CDT Winds and Temperature Aloft forecast valid for the closest point to the accident site is included below:

FBUS31 KWN0 101355

FD1US1

DATA BASED ON 101200Z

VALID 101800Z FOR USE 1400-2100Z. TEMPS NEG ABV 24000

FT 3000 6000 9000 12000 18000 24000 30000 34000 39000

HSV 9900 0609+15 0809+09 9900+09 0711-04 0310-17 062431 053641 042753

The accident site was located closest to the Huntsville, Alabama, (HSV) forecast point. The 0855 CDT HSV forecast for use between 0900 CDT and 1600 CDT indicated a calm wind at 3,000 ft, a wind at 6,000 ft from 060° at 9 knots with a temperature of 15°C, and a wind at 9,000 ft from 080° at 9 knots with a temperature of 9°C.

15.0 Pilot Weather Briefing

The accident pilot received a certified weather briefing package from Leidos between 1850 and 1855 CDT on September 9. The certified weather briefing package contained all of the standard weather information valid from 1850 to 1855 CDT on September 9. No further weather briefing information was requested or received by the accident pilot from Leidos. For more information on this weather information and imagery please see attachments 3, 4, and 5.

A search of archived ForeFlight information indicated that the accident pilot did not request weather information through ForeFlight. There is no record of the accident pilot receiving or retrieving any other weather information before or during the accident flight.

16.0 Astronomical Data

The astronomical data obtained for the accident site on September 10, 2020, indicated the following:

SUN	
Begin civil twilight	0559 CDT
Sunrise	0624 CDT
Sun transit	1241 CDT
Accident time	1243 CDT¹⁶
Sunset	1858 CDT
End civil twilight	1923 CDT

E. LIST OF ATTACHMENTS

Attachment 1 – GOES-16 visible satellite animation from 1001 to 1301 CDT

Attachment 2 – GFA products valid for the accident flight

Attachment 3 – Leidos certified weather briefing package from 1850 CDT on September 9

Attachment 4 – Leidos certified weather briefing package from 1852 CDT on September 9

Attachment 5 – Leidos certified weather briefing package from 1855 CDT on September 9

¹⁶ Inserted accident time for reference and context.

Submitted by:

Paul Suffern
Senior Meteorologist