



## **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety  
Washington, D.C. 20594

June 7, 2022

### **Specialist's Factual Report**

# **METEOROLOGY**

ERA22FA149

## **A. ACCIDENT**

Location: Panama City, Florida  
Date: March 8, 2022  
Time: 1846 central standard time  
0046 Coordinated Universal Time (UTC) on March 9, 2022  
Aircraft: Cessna 182Q; Registration: N182XT

## **B. METEOROLOGY SPECIALIST**

Specialist Paul Suffern  
National Transportation Safety Board  
Washington, DC

## **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 and also from the National Centers for Environmental Information (NCEI). This Specialist's Factual Report contains the meteorological factors pertinent surrounding the accident time. All times are central standard time (CST) and are based upon the 24-hour clock, where local time is -6 hours from UTC. Directions are referenced to true north and distances are in nautical miles. Heights are above mean sea level (msl) unless otherwise noted. Visibility is in statute miles and fractions of statute miles. NWS 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 was located at latitude 30.3956° N, Longitude 85.8102° W, at an approximate elevation of 85 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 (NCEP) and the Weather Prediction Center (WPC), 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.<sup>1</sup>

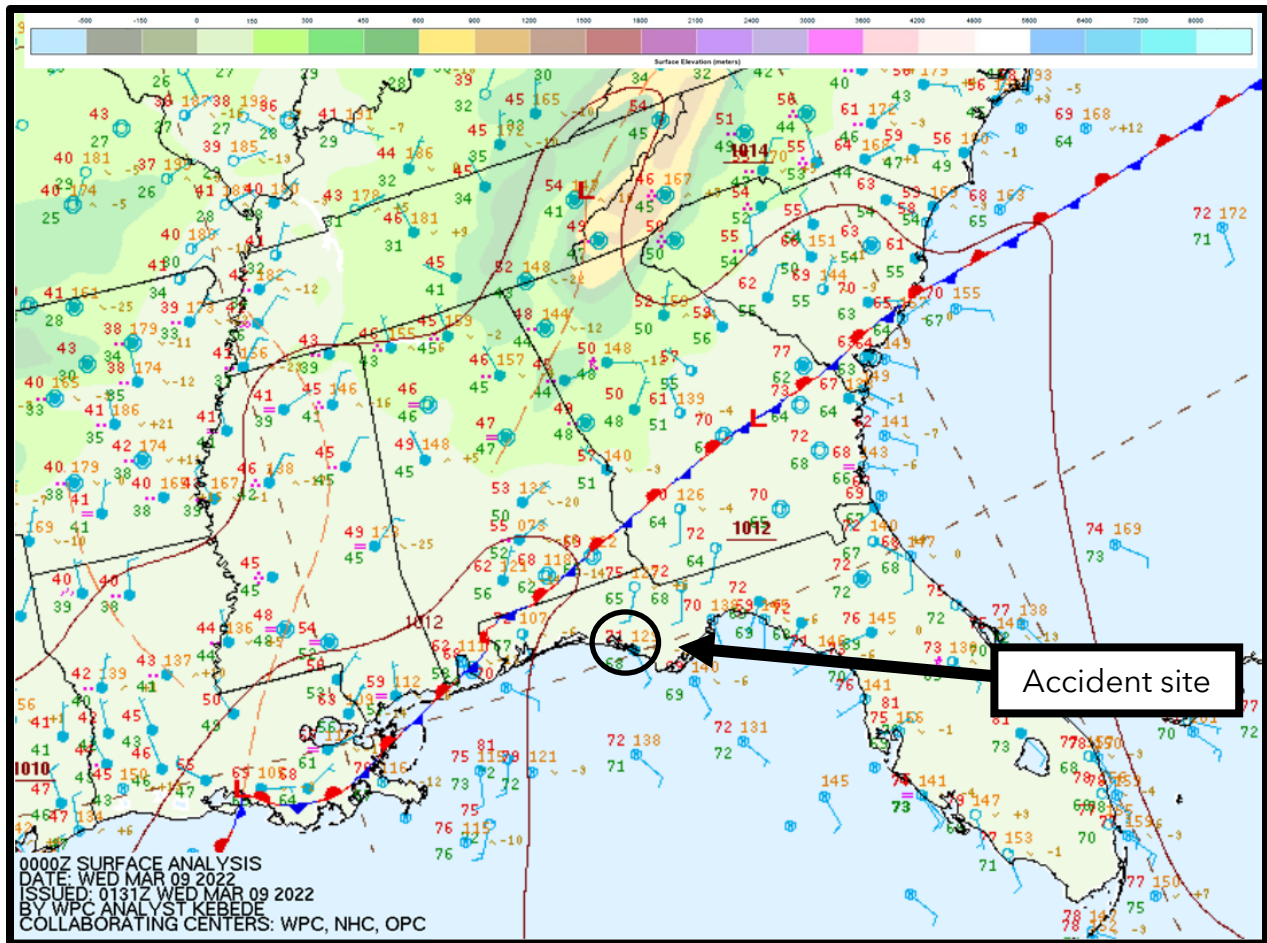
### **1.1 Surface Analysis Chart**

The NWS Surface Analysis Chart centered over the southeastern United States for 1800 CST is provided as figure 1 with the location of the accident site within the black circle. The chart depicted a low-pressure system over southern Georgia at 1012-hectopascals (hPa) along a stationary front that extended east-to-west across southern South Carolina, Georgia, Alabama, into extreme western Florida panhandle, coastal Mississippi, and into Louisiana, where another low-pressure system was located at 1010-hPa. The accident site was located just to the south of the stationary frontal boundary on the warm side of the front.

The station models around the accident site depicted air temperatures in the low 70's degrees Fahrenheit (°F), dew point temperature in the upper 60s °F with temperature-dew point spreads of 3°F or less, overcast skies, and a southeast wind around 10 knots.

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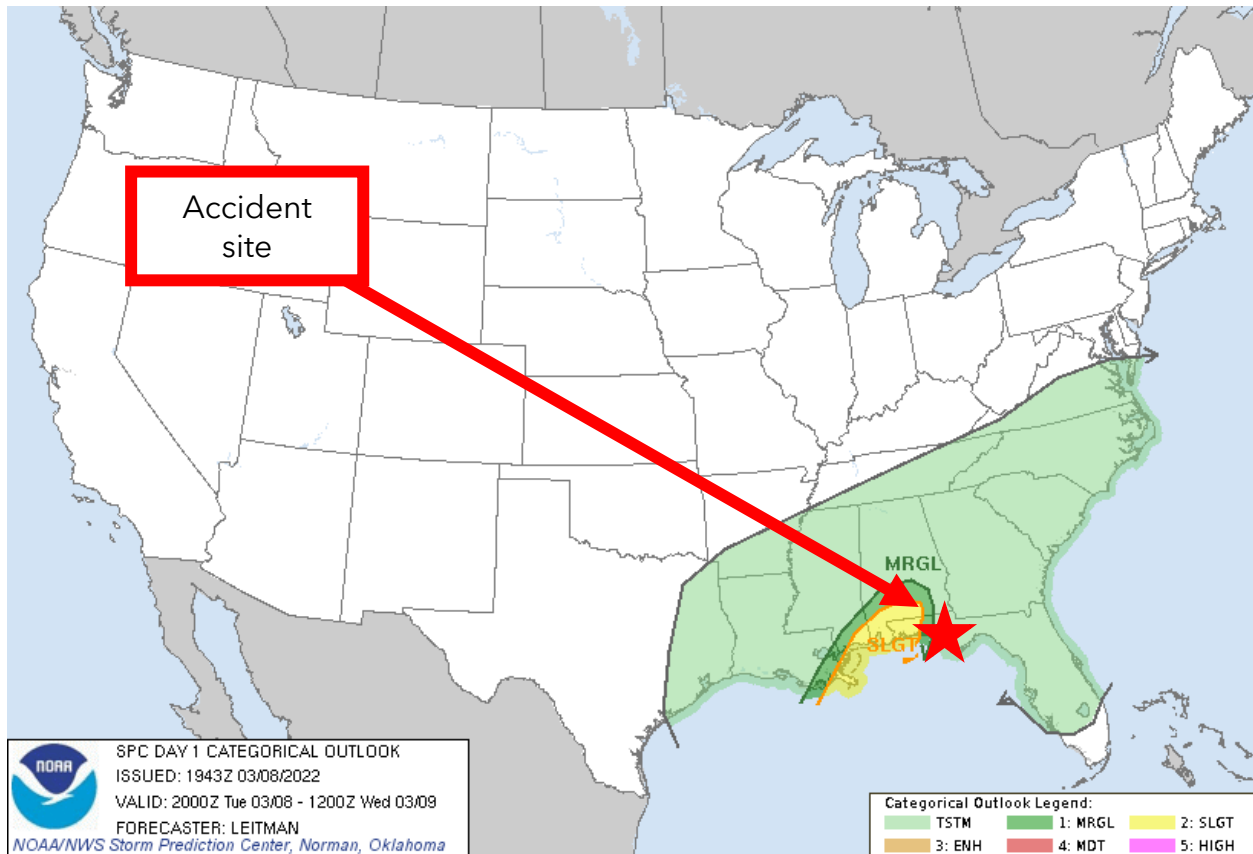
<sup>1</sup> [https://www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/1030235](https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1030235)



**Figure 1.** NWS Surface Analysis Chart for 1800 CST.

## 2.0 Storm Prediction Center Convective Outlook

The NWS Storm Prediction Center (SPC) issued the following Day 1 Convective Outlook at 1343 CST (figure 2) with areas of general thunderstorms forecast for the accident site, with a slight risk of severe thunderstorms over Louisiana, Mississippi, Alabama, and the extreme western Florida panhandle. SPC defines the general area of thunderstorms as an area where a 10% or higher probability of thunderstorms is forecast during the valid period. The SPC text bulletin that was associated with the Convective Outlook text follows figure 2.



**Figure 2.** SPC day 1 Convective Outlook valid at the time of the accident.

Day 1 Convective Outlook  
 NWS Storm Prediction Center Norman OK  
 0143 PM CST Tue Mar 08 2022

Valid 082000Z - 091200Z

...THERE IS A SLIGHT RISK OF SEVERE THUNDERSTORMS LATE TONIGHT  
 ACROSS THE CENTRAL GULF COAST...

...SUMMARY...

Isolated severe thunderstorms may affect parts of southeast  
 Louisiana, coastal Mississippi/Alabama, and the western Florida  
 Panhandle after midnight.

...20z Update -- Central Gulf Coast...

The overall forecast philosophy remains unchanged from the previous  
 outlook. Surface-based convection is not expected until around/after  
 06z as the surface cold front begins to advance eastward into an  
 increasingly unstable boundary layer. The Marginal and Slight risk

areas have been nudged a small amount north/northeast based on latest trends in RAP/HRRR operational guidance, as well as HRRR NN probabilistic guidance indicating the corridor of severe potential extending into far southern AL toward the end of the forecast period. This guidance aligns well with the forecast track of the surface low and coincides with favorable low-level forecast hodographs from the RAP/NAM.

..Leitman.. 03/08/2022

.PREV DISCUSSION... /ISSUED 1022 AM CST Tue Mar 08 2022/

...Central Gulf Coast...

Morning water vapor imagery shows a strong trough rotating across NM into TX. Increasing low-level warm advection and lift has spread into east TX/LA, where numerous showers and thunderstorms have developed. This activity is elevated above a cool/stable near-surface layer, and is not expected to pose a severe threat today.

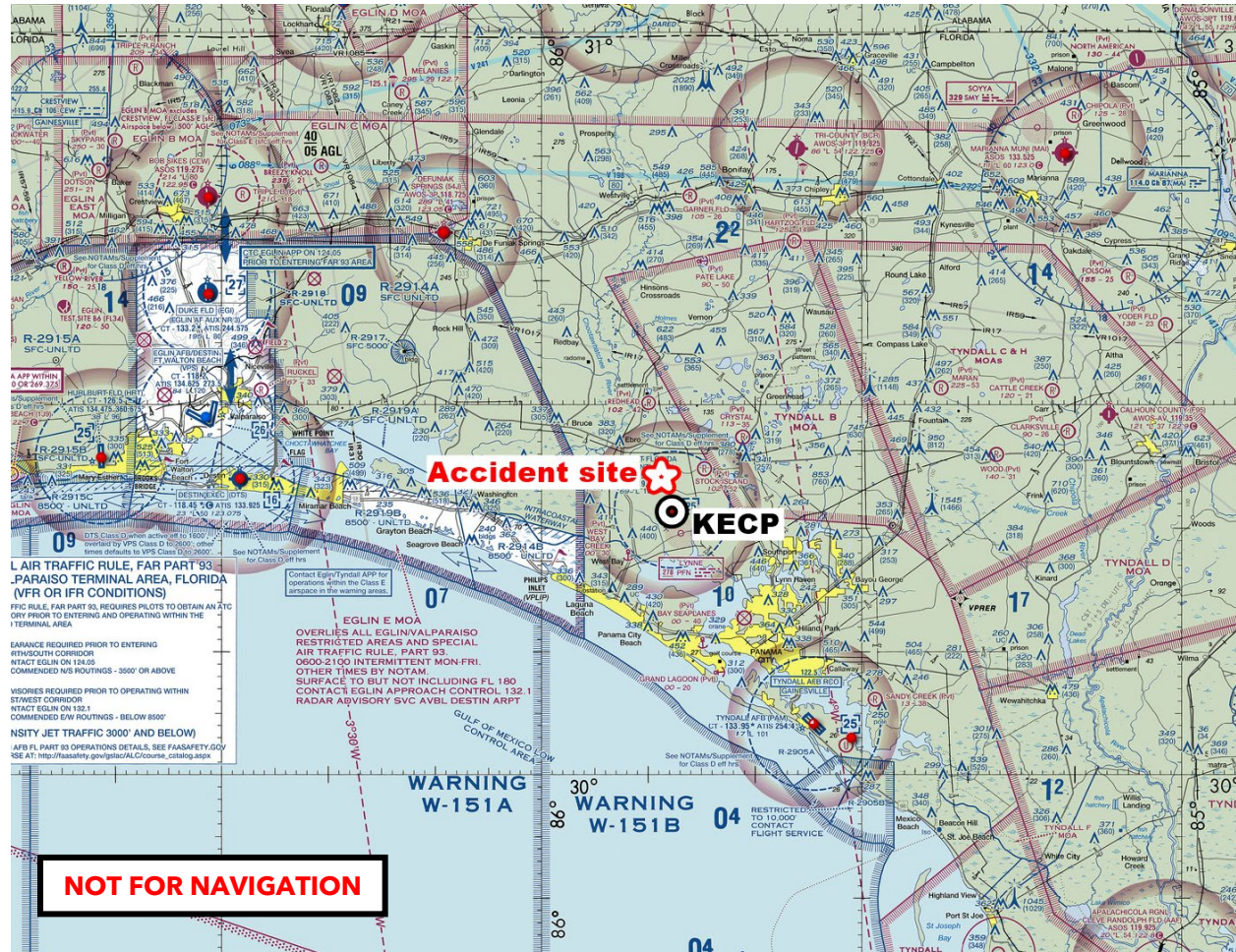
By tonight, a warm front currently analyzed off the coast of MS/AL will drift northward and onshore. This will allow very moist and at least marginally unstable air to spread inland. As the primary cold front approaches after midnight, scattered thunderstorms are expected to form. 12z model guidance differs on placement and intensity of activity. Nevertheless, there appears to be a window of opportunity after midnight for a severe storm or two over the MS Delta region of southeast LA into the coastal counties of MS/AL and the western FL Panhandle. Strong low-level shear profiles and cool temperatures aloft would support all hazards if a supercell or two can form. Therefore have opted to upgrade a small area to SLGT risk.

[CLICK TO GET WUUS01 PTSDY1 PRODUCT](#)

NOTE: THE NEXT DAY 1 OUTLOOK IS SCHEDULED BY 0100Z

### 3.0 Surface Observations

The area surrounding the accident site was documented using official Aviation Routine Weather Reports (METARs) and Specials Reports (SPECIs). The following observations were taken from standard code and are provided in plain language. Figure 3 is a local sectional chart with the accident site and the closest weather reporting location marked. The chart depicted the magnetic variation<sup>2</sup> of 4° west over the area.



**Figure 3.** Sectional map of the accident area with the location of the accident site and surface observation site.

<sup>2</sup> Magnetic variation - The angle (at a particular location) between magnetic north and true north. Latest measurement taken from <https://skyvector.com/>

The planned destination of Northwest Florida Beaches International Airport (KECP), Panama City, had the closest official weather station to the accident site. KECP had an Automated Surface Observing System (ASOS<sup>3</sup>) whose longline reports were augmented by air traffic control (ATC) when the tower was in operation<sup>4</sup>. The KECP ASOS was located 2 miles south-southeast of the accident site, at an elevation of 69 ft, and issued the following observations surrounding the period of the accident:<sup>5</sup>

[1653 CST] METAR KECP 082253Z 17010KT 10SM OVC011 22/20  
A2992 RMK AO2 SLP143 T02170200=

[1710 CST] SPECI KECP 082310Z 16008KT 10SM OVC008 21/20 A2992  
RMK AO2 CIG 006V012 T02110200=

[1753 CST] METAR KECP 082353Z 17010KT 9SM OVC006 21/20 A2992  
RMK AO2 CIG 003V010 SLP143 T02060200 10261 20206 57002=

[1756 CST] SPECI KECP 082356Z 17008KT 4SM BR BKN004 OVC008  
21/20 A2992 RMK AO2 CIG 003V007 T02060200=

***[1827 CST] SPECI KECP 090027Z 15007KT 2SM BR OVC003 20/20  
A2992 RMK AO2 CIG 002V007 T02000200=***

#### **ACCIDENT TIME 1846 CST**

***[1851 CST] SPECI KECP 090051Z 15008KT 2SM BR OVC002 20/20  
A2992 RMK AO2=***

[1853 CST] METAR KECP 090053Z 14007KT 2SM BR OVC002 20/20  
A2992 RMK AO2 SLP143 T02000200=

The bold type observations decoded in plain language were as follows:

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<sup>3</sup> ASOS - Automated Surface Observing System is equipped with meteorological instruments to observe and report wind, visibility, weather phenomena, ceiling, temperature, dewpoint, altimeter, and barometric pressure. ASOS are maintained by the NWS.

<sup>4</sup> ATC operational hours 0600 to 2200 local time.

<sup>5</sup> The bold sections in this NWS product and the rest of the products in this report are intended to highlight the text 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.



KECP weather at 1827 CST, wind from 150° at 7 knots, visibility 2 miles, mist, overcast ceiling<sup>6</sup> at 300 ft above ground level (agl), temperature of 20°Celsius (C), dew point temperature 20°C, and an altimeter setting of 29.92 inches of mercury (inHg). Remarks, automated station with a precipitation discriminator, ceiling varying between 200 and 700 ft agl, temperature 20.0°C, dew point temperature 20.0°C.

KECP weather at 1851 CST, wind from 150° at 8 knots, visibility 2 miles, mist, overcast ceiling at 200 ft agl, temperature of 20°C, dew point temperature 20°C, and an altimeter setting of 29.92 inHg. Remarks, automated station with a precipitation discriminator.

The observations from KECP surrounding the accident time indicated LIFR<sup>7</sup> conditions due to low ceilings with mist.

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<sup>6</sup> Ceiling is defined as the lowest layer of clouds reported as broken or overcast, or the vertical visibility into a surface-based observation.

<sup>7</sup> 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 Sounding

A High-Resolution Rapid Refresh (HRRR)<sup>8</sup> model sounding was created for the approximate accident site coordinates for 1900 CST with a surface elevation of 105 ft.<sup>9</sup> The 1900 CST HRRR sounding was plotted on a standard Skew-T Log P diagram<sup>10</sup> with the derived stability parameters included in figure 4 with data from the surface to 700-hPa (or approximately 10,000 ft). These data were analyzed using the RAOB<sup>11</sup> software package. The sounding depicted the lifted condensation level (LCL)<sup>12</sup> at 467 ft agl, the level of free convection (LFC)<sup>13</sup> at 1,068 ft agl, and the convective condensation level (CCL)<sup>14</sup> at 1,531 ft agl. The freezing level was located at 13,198 ft. The precipitable water value was 1.30 inches.

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<sup>8</sup> 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.

<sup>9</sup> HRRR sounding was created using NOAA Air Resource Laboratory:  
<https://ready.arl.noaa.gov/READYamet.php>

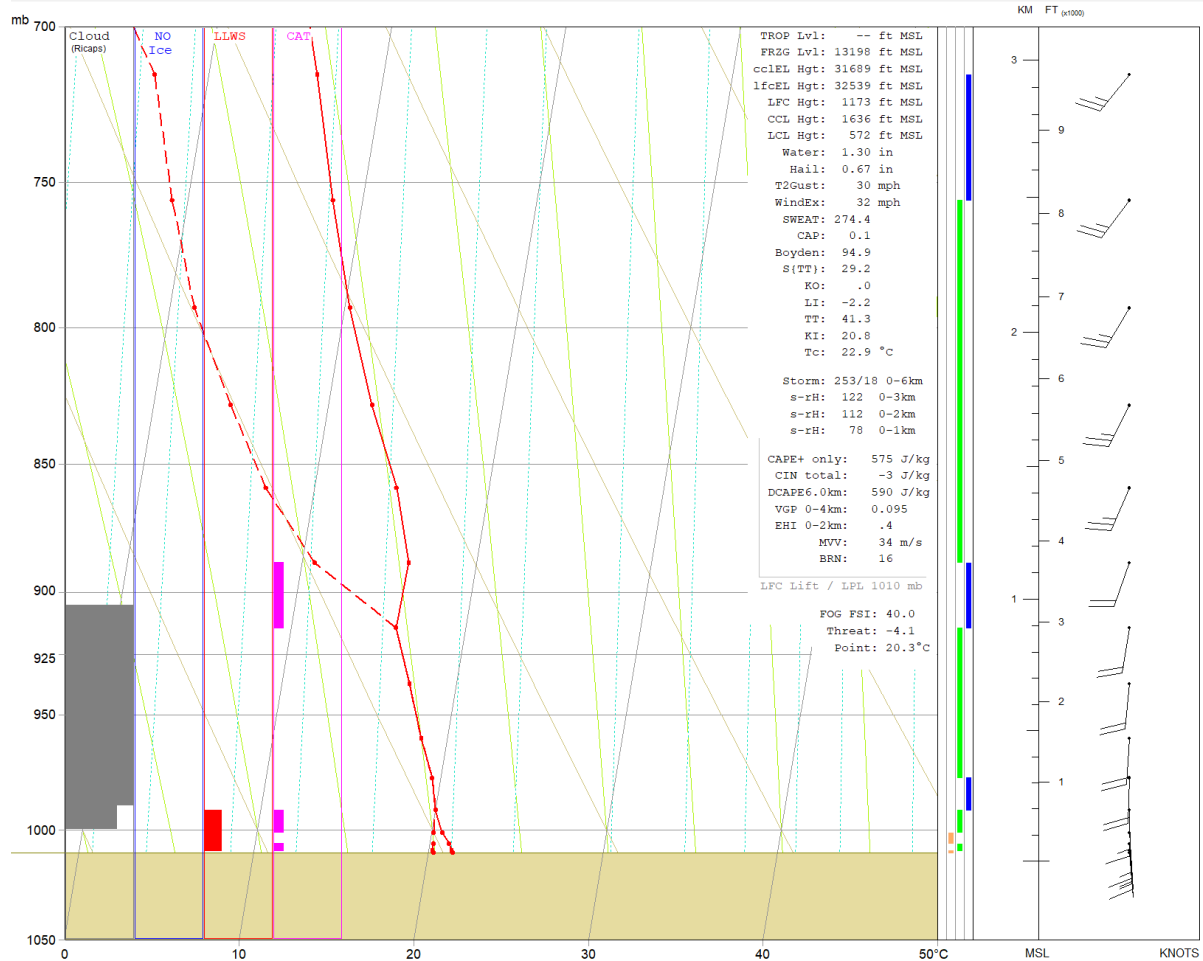
<sup>10</sup> Skew T log P diagram - is a standard meteorological plot using temperature and the logarithmic of pressure as coordinates, used to display winds, temperature, dew point, and various indices used to define the vertical structure of the atmosphere.

<sup>11</sup> RAOB - (The complete Rawinsonde Observation program) is an interactive sounding analysis program developed by Eosonde Research Services, The Villages, Florida.

<sup>12</sup> LCL - The height at which a parcel of moist air becomes saturated when it is lifted dry adiabatically.

<sup>13</sup> 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.

<sup>14</sup> 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 4.** 1900 CST HRRR sounding.

The 1900 CST HRRR sounding for the accident site indicated a conditionally unstable environment from the surface through 8,000 ft with 2 stable layers between 700 and 1,000 ft and 3,000 and 3,750 ft, respectively. Clouds were indicated by RAOB to be present from 300 ft agl through 3,250 ft msl. No icing potential was indicated by RAOB below 10,000 ft.

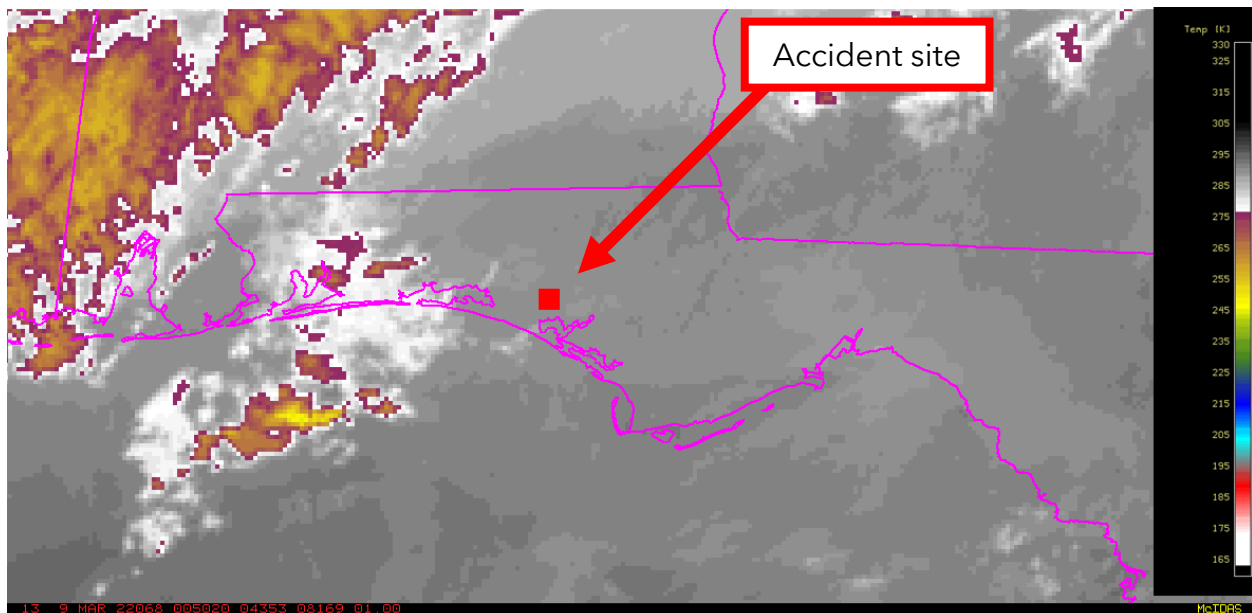
The 1900 CST HRRR sounding wind profile indicated a near surface wind from 175° at 7 knots with the wind veering<sup>15</sup> to the southwest by 10,000 ft. The wind speed increasing to 20 knots by 1,000 ft and to 25 knots above 6,000 ft. RAOB indicated the possibility of light low-level wind shear (LLWS) below 1,000 ft agl, and light clear air turbulence in 2 layers below 4,000 ft.

<sup>15</sup> A clockwise turning of the wind with height in the northern hemisphere.

## 5.0 Satellite Data

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 ( $\mu\text{m}$ ) and 10.3  $\mu\text{m}$ , respectively, were retrieved for the period from 1500 CST through 2200 CST and reviewed, and the closest images to the time of the accident were documented. Given the sun angle, the visible imagery (band 2) did not provide useful information.

Figure 5 presents the GOES-16 infrared imagery from 1850 CST at 4X magnification with the accident site highlighted with a red square and cloud cover indicated above the accident site. The lower brightness temperatures (yellow and red colors; higher cloud tops) were located to the west of the accident site. The brightness temperature of 289 Kelvin above the accident site would have been near 3,000 ft based on the vertical temperature profile provided by the 1900 CST HRRR sounding. It should be noted these figures have not been corrected for any parallax error. The Nighttime Microphysics Red, Green, Blue (RGB) imagery<sup>16</sup> indicated cloud cover above the accident site moving northward with time, with the aqua colored lower clouds in place along the coastal region of the Florida panhandle (attachment 1).

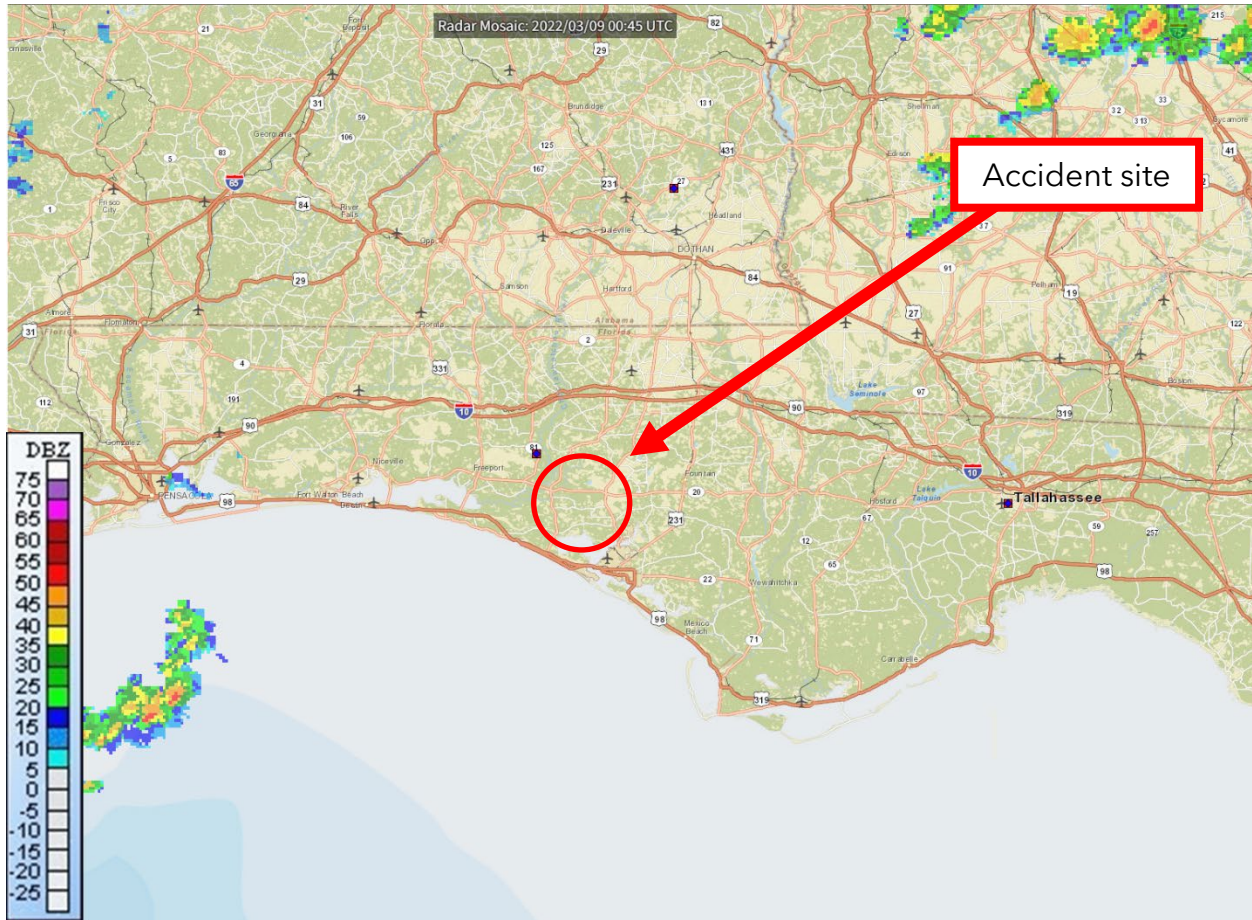


**Figure 5.** GOES-16 infrared image at 1850 CST.

<sup>16</sup> [RGB Nighttime Microphysics Reference Guide.pdf \(nasa.gov\)](#)

## 6.0 National Radar Imagery

A regional view of the NWS National Reflectivity Mosaic is included as figure 6 for 1845 CST with the approximate location of the accident site marked by a red circle. The image depicted no echoes above the accident site.



**Figure 6.** National Reflectivity Mosaic for 1845 CST.

## 7.0 Pilot Reports

The longline-disseminated pilot reports<sup>17</sup> (PIREPs) distributed into the national airspace system (NAS) were reviewed for about two hours either side of the accident time and the PIREPs within 100 miles of the accident site below 18,000 ft are shown below:

TLH UA /OV TLH/TM 2257/FL030/TP TEX2/SK B/018 T/030

PNS UA /OV PNS170001/TM 2308/FL007/TP C208/SK BKN007-TOPUNKN/RM DURC

<sup>17</sup> Only pilot reports with the World Meteorological Organization headers UBFL\*\*, UBAL\*\*, and UBGA\*\* were considered. These do not include pilot reports only broadcast via radio.

TLH UA /OV TLH/TM 2343/FL060/TP UH60/SK TOPS 020 BASES 014  
PNS UA /OV 350002/TM 0035/FL008/TP B739/SK BKN008/RM DURD  
TLH UA /OV TLH/TM 0037/FL006/TP E170/SK BASES006  
PNS UA /OV PNS350003/TM 0102/FL005/TP C560/SK BKN007  
PNS UA /OV PNS350001/TM 0103/FL007/TP C560/SK BKN007-TOPUNKN/RM DURD  
TLH UA /OV TLH/TM 0131/FL030/TP E170/SK BASES 012 TOPS 025  
TLH UA /OV TLH/TM 0140/FL030/TP PA44/SK BASES 013 TOPS 030

## 8.0 Significant Meteorological Information

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

## 9.0 Center Weather Service Advisories

The Jacksonville (ZJX) Air Route Traffic Control Center (ARTCC) Center Weather Service Unit (CWSU) was responsible for the accident region. There were no Center Weather Advisories (CWA)s valid from ZJX CWSU at the accident time.

## 10.0 Airmen's Meteorological Information

There was a text Airmen's Meteorological Information (AIRMET) advisory Sierra valid for the accident site at the accident time. The Graphical AIRMET<sup>18</sup> (G-AIRMET) valid at the accident time is contained in attachment 2. Text AIRMET Sierra issued at 1445 CST forecast IFR conditions due to ceilings below 1,000 ft agl and visibility below 3 miles in precipitation and mist:

WAUS42 KPCI 082045  
WA2S  
-MIAS WA 082045  
AIRMET SIERRA UPDT 5 FOR IFR AND MTN OBSCN VALID UNTIL 090300  
.  
AIRMET IFR...NC SC GA FL AND CSTL WTRS  
FROM 60E RDU TO 50NE ILM TO 50S ILM TO 40SE CHS TO 70ENE CRG TO  
30SSE CRG TO 40WNW CRG TO 40N AMG TO 20N CAE TO 30NNE FLO TO  
20ESE RDU TO 60E RDU  
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS DVLPG 00-03Z. CONDS CONTG  
BYD 03Z THRU 09Z.  
.  
**AIRMET IFR...GA FL AND CSTL WTRS  
FROM 50SW PZD TO 50SSW AMG TO 50SW CRG TO 20NE PIE TO 70WSW PIE**

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<sup>18</sup> <https://aviationweather.gov/gairmet>

**TO 120W PIE TO 90SSE CEW TO 80SSE SJI TO 40W CEW TO 50SW PZD  
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG BYD 03Z THRU 09Z.**

.  
AIRMET IFR...NC SC GA FL AND CSTL WTRS  
FROM 40N HMV TO 20SE PSK TO 20NE GSO TO 40SE CLT TO 20SW IRQ TO  
30WNW MCN TO 50SW PZD TO GQO TO HMV TO 40N HMV  
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS DVLPG AFT 00Z. CONDS  
CONTG BYD 03Z THRU 09Z.

.  
AIRMET MTN OBSCN...NC SC GA WV VA  
FROM 20SSE BKW TO 30SSE LYH TO 20S CLT TO 30NNW IRQ TO 20S ATL  
TO GQO TO HMV TO 60NNW HMV TO 20SSE BKW  
MTNS OBSC BY CLDS/PCPN/BR. CONDS CONTG BYD 03Z THRU 09Z.

.  
OTLK VALID 0300-0900Z  
AREA 1...IFR NC SC GA PA OH WV MD VA  
BOUNDED BY 20S JST-20NE LYH-30E GSO-20WSW IRQ-20NNE LGC-GQO-HMV-  
HNN-CVG-50S ROD-30NNE HNN-20S JST  
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG THRU 09Z.

.  
AREA 2...IFR NC SC GA FL PA WV MD DC VA AND CSTL WTRS  
BOUNDED BY 20S JST-20SSE EMI-20SSW SBY-50E ORF-100SSE ECG-50S  
ILM-50ESE CHS-90SE SAV-30SSE CRG-60E TLH-20WSW IRQ-30E GSO-20NE  
LYH-20S JST  
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG THRU 09Z.

.  
AREA 3...IFR SC GA FL AND CSTL WTRS  
BOUNDED BY 20WSW IRQ-60E TLH-30SSE CRG-50SSW SRQ-80WSW SRQ-120W  
PIE-90SSE CEW-90SSE SJI-40W CEW-40SW PZD-20NNE LGC-20WSW IRQ  
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG THRU 09Z.

.  
AREA 4...MTN OBSCN NC SC GA PA WV MD VA  
BOUNDED BY 20N EWC-20E PSB-30WSW EMI-60SW CSN-40S LYH-20E CLT-  
20SSW ATL-50S GQO-GQO-HMV-HNN-20N EWC  
MTNS OBSC BY CLDS/PCPN/BR. CONDS CONTG THRU 09Z.

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## **11.0 Graphical Forecasts for Aviation**

The Graphical Forecasts for Aviation (GFA) products issued before the accident flight and valid at 1800 CST are shown in attachment 2. The GFA surface forecast applicable to the accident region that was valid before the accident flight's departure for times surrounding the accident time indicated VFR surface visibilities inland along the Florida Panhandle and the accident site with LIFR surface visibilities and fog along the Florida Panhandle coast and into the northeastern Gulf of Mexico. A south surface wind at 5 knots with gusts to 15 knots was also noted on the GFA surface forecast chart. The GFA cloud forecast applicable to the accident region that was valid before departure for times surrounding the accident time indicated the accident site was on the border of clear skies and a region with overcast cloud

coverage with bases at 600 to 900 ft and cloud tops between 5,000 and 8,000 ft. The G-AIRMET Sierra for IFR conditions was overlaid on the GFA surface forecast imagery. The only human-generated information reflected in the two GFA products were the G-AIRMETs. For more information, please see attachment 2.

## 12.0 Terminal Aerodrome Forecast

KECP was the closest airport to the accident site with an NWS Terminal Aerodrome Forecast<sup>19</sup> (TAF). The KECP TAF valid at the time of the accident was issued at 1721 CST and was valid for a 24-hour period beginning at 1800 CST. The 1721 CST TAF for KECP was as follows:

```
TAF KECP 082321Z 0900/0924 16008KT P6SM OVC008  
FM090200 17006KT 1SM BR OVC005  
FM090700 18007KT 1SM SHRA BR OVC005  
FM091200 19009KT 1SM TSRA OVC003CB  
FM091800 29008KT 4SM TSRA OVC005CB=
```

Between 1800 and 2000 CST the forecast expected a wind from 160° at 8 knots, greater than 6 miles visibility, and an overcast ceiling at 800 ft agl.

The KECP TAF valid before departure was issued at 1140 CST and was valid for a 24-hour period beginning at 1200 CST. The 1140 CST TAF for KECP was as follows:

```
TAF KECP 081740Z 0818/0918 15007KT P6SM VCSH OVC015  
FM082100 17010KT P6SM SCT025 BKN250  
FM090200 14004KT 6SM BR OVC004  
FM090400 15004KT 1/2SM FG OVC002  
FM091300 18008KT 3SM BR OVC005  
FM091600 24010KT 5SM TSRA OVC015CB=
```

Between 1500 and 2000 CST the forecast expected a wind from 170° at 10 knots, greater than 6 miles visibility, scattered clouds at 2,500 ft agl, and a broken ceiling at 25,000 ft agl.

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<sup>19</sup> According to NWS Instruction 10-813: "An 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."  
[www.nws.noaa.gov/directives/sym/pd01008013curr.pdf](http://www.nws.noaa.gov/directives/sym/pd01008013curr.pdf)



### 13.0 National Weather Service Area Forecast Discussion

The NWS office in Tallahassee, Florida, (WFO TAE) was responsible for the public forecast in the region of the accident site. WFO TAE issued the following Area Forecast Discussion (AFD) at 1724 CST, the closest AFD to the accident time with an aviation section, that identified IFR to LIFR conditions developing at ECP and other TAF sites overnight:

FXUS62 KTAE 082324  
AFDTAE

Area Forecast Discussion  
National Weather Service Tallahassee FL  
624 PM EST Tue Mar 8 2022

.AVIATION...  
[Through 00Z Thursday]

**Patchy smoke from Chipola Complex Fire may briefly affect vsbys and/or ceilings at the ECP & DHN terminals this evening.**

**A mixed bag of ceiling heights at the start of the TAF period but all terminals are expected to quickly fall to IFR/LIFR tonight and even VLIFR near daybreak for our more coastal sites.**

**Fog is expected to develop this evening along the coast and move inland, affecting the ECP, TLH, and VLD terminals overnight.**

Showers and thunderstorms will begin to enter the region from the west overnight into daybreak. All terminals can expect thunderstorms (some severe) through the day. The general timing of this line of severe storms will be across southeast Alabama and the FL panhandle before 11am ET, southwest GA and the Florida Big Bend from the late morning to 3pm, and then the I-75 corridor and eastern Florida Big Bend after 12 noon. Main concerns for these storms include lightning, heavy rain, damaging winds, and 1" hail.

&&

.PREV DISCUSSION [426 PM EST]...

.NEAR TERM [Through Wednesday]...

Main concern through the rest of the afternoon period and into tonight will be related to strong winds decreasing across the Panhandle and then the redevelopment of fog overnight. With nearby smoke from area fires, further reduced visibilities are possible.

Main concern across the area on Wednesday will be a line of strong to severe storms that will progress across the area. The general timing of this line of severe storms will be across southeast Alabama and the FL panhandle before 11am ET, southwest GA and the Florida Big Bend from the late morning to 3pm, and then the I-75

corridor and eastern Florida Big Bend after 12 noon. The main concerns with these line of storms will be strong damaging winds and the potential for a tornado or two. Given the relatively steep lapse rates as well, hail can't be ruled out and severe storms do have the potential for quarter-sized hail. An additional concern will be heavy rain with this feature, more information is available in the hydrology section below.

.SHORT TERM [Wednesday Night Through Thursday Night]...

The cold front will stall near the coast Wednesday night before lifting back northward again on Thursday. A shortwave trough will pass over our area Wednesday night into Thursday, keeping nearly guaranteed rain and isolated thunderstorms in the forecast. There is some question during the day Thursday as to thunderstorm development. There appears to be enough CAPE and shear to support an isolated severe threat Thursday afternoon, primarily in the Big Bend and south Georgia. Additionally, lapse rates look fairly steep Thursday afternoon, exceeding 7 C/km at times. However, the upper-level forcing will likely be departing during the afternoon, and thus, rain chances also decrease in the afternoon. If the timing lines up better between afternoon heating and the passage of the shortwave, wouldn't rule out an isolated strong to severe storm Thursday afternoon. But confidence in the scenario is low.

While we may have a lull in the rain Thursday afternoon and evening, another disturbance will ride along the front late Thursday night, bringing another wave of showers and isolated thunderstorms. However, severe weather is not anticipated with this batch late Thursday night.

Highs will remain in the 70s with lows in the 50s. We will also continue to see a high rip current risk along area beaches due to persistent onshore winds and surf around 2 feet.

.LONG TERM [Friday Through Tuesday]...

A dynamic system takes shape late this week, leading to multiple hazards, including severe weather, heavy rainfall, strong non-thunderstorm winds, and a late-season freeze.

A rather deep longwave trough will swing across the eastern US Friday into Saturday, bringing a powerful cold front through our area Friday night and Saturday. The stationary front in place from Thursday will lift northward as a warm front, bringing scattered to numerous showers and a few thunderstorms. Right now, it appears the severe threat Friday afternoon is limited due to a lack of upper-level ascent, which doesn't come in until Friday night. By Friday night, the LLJ increases to 40 to 50 kt across the area (perhaps a little higher over the eastern third of the area). In addition, CAPE and shear are present over the area, though the models have grown a

bit farther apart on how this scenario plays out. Thus, still believe the threat of severe weather is present, but confidence is a bit lower on coverage. Regardless, it appears the greatest threat of severe weather may be over the eastern half of the area overnight Friday night. SPC currently has our entire CWA outlined in a 15% risk for Day 4. With this being an overnight threat, residents are urged to have multiple ways to receive warnings that will wake them up.

Storms Friday and Saturday will also have the possibility of producing heavy rainfall, which could cause some localized flooding concerns. Models have shifted the axis of heaviest rainfall to be over the Florida Big Bend and far south central Georgia.

Just ahead of and especially behind the front, it will be quite windy Friday night and through the day Saturday. Sustained winds will be around 15-25 mph with gusts of 30-40 mph possible. This would be near Wind Advisory criteria for our area.

Saturday night will likely be the coldest night of the period. Lows will plummet into the middle 20s to lower 30s across the entire area. With winds not going completely calm, wind chills could fall to near 20, which is the threshold for Wind Chill Advisories. Temperatures this cold could kill young and/or blossoming plants.

Early next week, models differ on the development of an area of low pressure along or near the Gulf Coast heading into Tuesday. Given this is still 7 days out, decided to keep blended guidance in the grids for now with scattered showers returning on Tuesday.

#### .MARINE...

Winds will be out of the south to southwest around 15 to 20 knots across our waters through Friday. However, winds may briefly back out of the northwest near shore Wednesday night behind a cold front. Widespread showers and a few thunderstorms are expected through the next several days. Friday into Saturday, gale conditions are likely across all of our waters with seas building up to 13 feet. High-end gale-force gusts cannot be ruled out late Friday night into Saturday well offshore.

#### .FIRE WEATHER...

Strong southerly winds around 15 mph, with frequent gust up to 25 mph, will begin to let up after 7pm across the area and dispersions are expected to decrease as well through the night. No rain is expected this evening. Good relative humidity recovery is expected across the area tonight with patchy/areas of fog overnight. Increasing rain chances will begin to help improve the bad fire conditions we've seen across the area from Wednesday through Friday.

.HYDROLOGY...

Several rounds of rain are expected over the next few days as a several disturbances ride along a stationary front before a strong cold front sweeps through. On Wednesday, the primary hydrologic hazard will be any training thunderstorms that develop. A widespread 1-2 inches of rain is expected, but where storms train, a localized 2-4 inches of rain cannot be ruled out.

Then, looking to Thursday through Saturday, it looks to be a more widespread rain event with heavier rainfall totals possible. Widespread totals will be 3-6 inches along and south of an Apalachicola to Madison line in these areas, but 1-3 inches elsewhere. This is an overall decrease from yesterday, but still could be capable of producing flooding concerns in the southeast Big Bend. Additionally, it still appears that it will take about 4-6 inches of rain to cause minor flooding concerns along area rivers, but that threat does appear to be decreasing based on the afternoon guidance.

.SPOTTER INFORMATION STATEMENT...

Spotter activation is not requested. However, spotters are always encouraged to safely report significant weather conditions when they occur (while following all local, state, and CDC guidelines) by calling the office or tweeting us @NWSTallahassee.

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.PRELIMINARY POINT TEMPS/POPS...

Tallahassee	65	77	63	77	61	/	10	90	90	80	50
Panama City	66	73	61	73	60	/	40	80	90	70	50
Dothan	64	68	56	71	56	/	50	90	90	50	30
Albany	65	73	59	72	58	/	30	90	90	70	30
Valdosta	65	78	63	76	62	/	10	90	90	90	40
Cross City	67	78	65	76	62	/	20	60	80	90	50
Apalachicola	66	74	63	74	62	/	20	80	90	80	60

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.TAE WATCHES/WARNINGS/ADVISORIES...

FL...High Rip Current Risk until 1 AM EST /midnight CST/ Wednesday for Coastal Bay-Coastal Franklin-Coastal Gulf-South Walton.

GA...None.

AL...None.

GM...None.

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## 14.0 Winds and Temperature Aloft Forecast

The NWS 1358 CST Winds and Temperature Aloft forecast valid for the closest point to the accident site is included below:

FBUS31 KWNO 081958  
FD1US1  
DATA BASED ON 081800Z  
VALID 090000Z FOR USE 2000-0300Z. TEMPS NEG ABV 24000

FT 3000 6000 9000 12000 18000 24000 30000 34000 39000  
**PFN 2017 2123+12 2224+07** 2120+03 2537-10 2548-21 255537 256845 256854

The closest forecast point to the accident site was Panama City, Florida (PFN). The 1358 CST PFN forecast for use between 1500 CST and 2000 CST indicated a wind at 3,000 ft from 200° at 17 knots, a wind at 6,000 ft from 210° at 23 knots with a temperature of 12°C, and a wind at 9,000 ft from 220° at 24 knots with a temperature of 7°C.

## 15.0 Pilot Weather Briefing

The accident pilot did not request weather information<sup>20</sup> from Leidos Flight Service. Leidos Flight Service did capture the weather information the pilot requested from ForeFlight at 0928 CST (attachment 3).

A search of archived ForeFlight information indicated that the accident pilot did have a ForeFlight account and requested and received ForeFlight weather information at 0928 CST (attachment 4). The weather briefing contained all the standard official weather information valid at 0928 CST for a proposed flight from Warren County Memorial Airport (KRNC) in McMinnville, Tennessee, to KECP with a departure time of 1540 CST. With no cell phone internet access while in flight, ForeFlight is still able to access weather information directly from the FAA, but leaving no remote record of such access. For more information please see attachment 4.

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<sup>20</sup> [https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/AC\\_91-92.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_91-92.pdf)

## 16.0 Astronomical Data

The astronomical data obtained for the accident site on March 8, 2022, indicated the following:

### **SUN**

Begin civil twilight	0537 CST
Sunrise	0601 CST
Sun transit	1154 CST
Sunset	1747 CST
End civil twilight	1811 CST
<b>Accident time</b>	<b>1846 CST<sup>21</sup></b>

### **MOON**

Moonrise	0933 CST
Moon transit	1636 CST
<b>Accident time</b>	<b>1846 CST</b>
Moonset	2345 CST

At the time of the accident the Moon was located at an altitude of 59.95° and azimuth of 260.04° with 36.9% of the Moon's disk illuminated.

## **E. LIST OF ATTACHMENTS**

Attachment 1 - GOES-16 Nighttime Microphysics RGB imagery from 1731 to 1931 CST

Attachment 2 - GFA valid for the accident site at accident time

Attachment 3 - Leidos text weather information

Attachment 4 - ForeFlight correspondence

Submitted by:

Paul Suffern  
Senior Meteorologist

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<sup>21</sup> Inserted accident time for reference and context.