



MEMORANDUM OF RECORD

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National Transportation Safety Board Office
of Aviation Safety - Eastern Region

NTSB Case Number: ERA16LA008

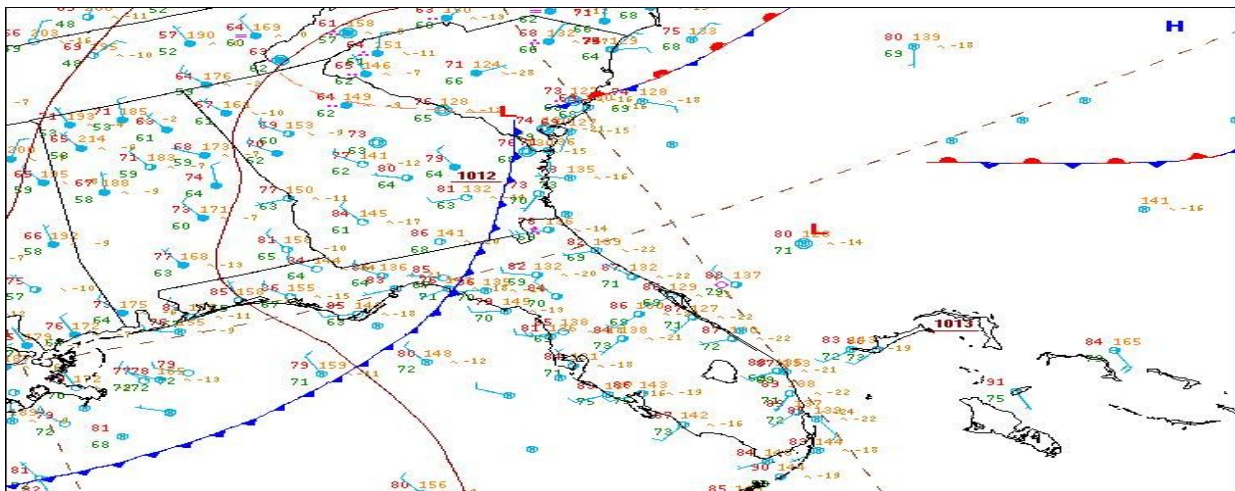
Subject: Weather Data Summary

Weather conditions across northern Florida on October 10, 2015 for Cessna 172S, N5295Y accident

Synoptic conditions – The National Weather Service (NWS) Surface Analysis Chart for 1800Z or 1400 EDT on October 10, 2015 depicted a low pressure system at 1012-hectopascals (hPa) over South Carolina

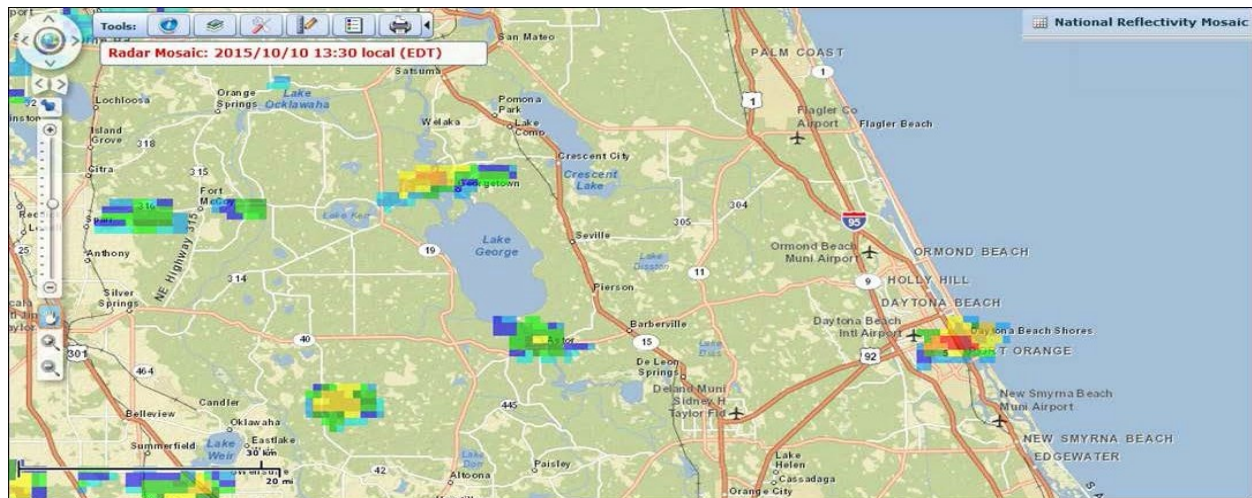
with a cold front extending southwestward through eastern Georgia. Off the east coast of Florida another low pressure system was identified at 1013-hPa. A relatively weak pressure gradient was depicted

over central Florida with winds varying from the west-southwest to the northwest at 10 knots or less, with scattered clouds and with temperatures in the mid to upper 80's degrees Fahrenheit (F), with dew point temperatures in the 60's to low 70's over the region.



The NWS National radar mosaic for the period is depicted below and indicated isolated echoes associated with rain showers were depicted approximately 5 miles west and 10 miles southwest of the

accident site near Georgetown and Aster, FL or on the ends of Lake George, with a small isolated intense area of echoes immediately east of Daytona Beach International Airport at the time. No weather echoes were identified over the accident site which is marked by a red star.



Observations – The following observations sites were documented surrounding the accident site. Flagler County Airport (KFIN), Palm Coast, FL – was located approximately 15 ½ miles northeast of the accident site at an elevation of 33 feet. The airport had an Automated Weather Observation System (AWOS) and reported the following conditions.

Flagler County Airport weather at 1250 EDT (2650Z), wind from 250° at 4 knots, visibility 7 miles, sky clear below 12,000 feet, temperature 26° Celsius (C), dew point temperature 21° C, altimeter 29.94 inches of mercury.

The raw observations were as follows:

METAR KFIN 101550Z 27005KT 7SM SCT085 26/22 A2997
 METAR KFIN 101650Z 25004KT 7SM CLR 27/21 A2994
 Accident 1730Z
 METAR KFIN 101750Z 00000KT 7SM CLR 28/22 A2994
 METAR KFIN 101850Z 27003KT 7SM SCT034 28/22 A2988

Deland Municipal Airport/Sidney H. Taylor Field (KDED), Deland, FL was located approximately 16 ½ miles southeast of the accident site at an elevation of 79 feet. The airport had an AWOS and reported the following conditions.

METAR KDED 101615Z AUTO 00000KT 10SM 28/22 A2998 RMK AO1
 METAR KDED 101635Z AUTO 00000KT 10SM 28/21 A2997 RMK AO1
 METAR KDED 101655Z AUTO 24006KT 10SM 29/20 A2996 RMK AO1
 METAR KDED 101715Z AUTO 29005KT 10SM 29/20 A2995 RMK AO1
 Accident 1730Z
 METAR KDED 101735Z AUTO 00000KT 10SM 29/20 A2994 RMK AO1
 METAR KDED 101755Z AUTO 24003KT 10SM 29/21 A2993 RMK AO1
 METAR KDED 101815Z AUTO 00000KT 10SM 29/21 A2992 RMK AO1

Kay Larkin Airport (K28J), Palatka, FL was located approximately 22 miles northwest of the accident site and reported the following surrounding the period:

METAR K28J 101555Z AUTO 23003KT 10SM SCT040 26/26 A2997 RMK AO2 TSNO
METAR K28J 101615Z AUTO 24003KT 10SM FEW020 FEW040 27/27 A2997 RMK AO2 TSNO
METAR K28J 101635Z AUTO 20003KT 10SM FEW020 28/28 A2996 RMK AO2 TSNO
METAR K28J 101655Z AUTO 25003KT 10SM CLR 28/28 A2995 RMK AO2 TSNO
METAR K28J 101715Z AUTO 24005KT 10SM SCT033 28/28 A2995 RMK AO2 TSNO
Accident 1730Z
METAR K28J 101735Z AUTO 24005KT 10SM BKN033 BKN041 29/29 A2994 RMK AO2 TSNO
METAR K28J 101755Z AUTO 33006KT 10SM SCT034 BKN041 BKN080 29/29 A2992 RMK AO2 TSNO
METAR K28J 101815Z AUTO 33005KT 10SM SCT037 BKN065 29/29 A2991 RMK AO2
METAR K28J 101835Z AUTO 30008KT 10SM FEW037 SCT045 SCT090 29/29 A2990 RMK AO2 TSNO

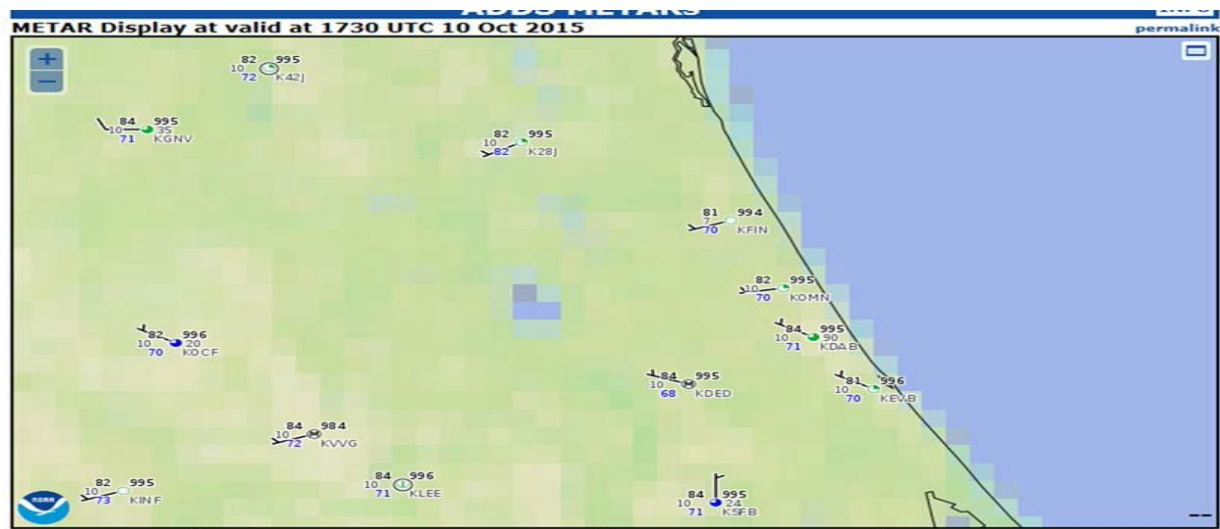
Daytona Beach International Airport (KDAB), Daytona Beach, FL was located approximately 24 miles southeast of the accident site and reported the following conditions surrounding the period:

METAR KDAB 101453Z 29008KT 10SM BKN013 BKN055 BKN085 BKN250 27/23 A2999 RMK AO2
SLP154 CB DSNT NE-E T02670233 50006
SPECI KDAB 101544Z 26005KT 10SM BKN015TCU BKN055 BKN085 BKN250 28/22 A2998 RMK AO2
TCU OHD-ALQDS CB DSNT NE-E VCSH NE W T02780222
METAR KDAB 101553Z 31010KT 8SM -RA BKN020CB BKN055 BKN075 BKN250 27/22 A2997 RMK
AO2 RAB52 SLP149 CB NE MOV E TCU OHD-SW CB DSNT NE-E
P0000 T02670222
SPECI KDAB 101608Z 28003KT 10SM SCT022CB BKN050 BKN090 BKN250 27/23 A2997 RMK AO2
RAE04 CB NE-E MOV E TCU SE-S CB DSNT NE TCU DSNT NW
VCSH NE-E P0000 T02670228
METAR KDAB 101653Z 30006KT 10SM SCT029 SCT050 BKN090 BKN250 29/22 A2995 RMK AO2
RAE04 SLP140 CB DSNT NE-E NW-N P0000 T02890217
Accident 1730Z
METAR KDAB 101753Z 33006KT 10SM BKN031CB BKN047 BKN065 BKN250 31/22 A2992 RMK AO2
SLP132 CB E MOV E TCU OHD-SE-S CB DSNT NE-E NW-N VCSH E
60000 T03060217 10306 20217 58022
METAR KDAB 101853Z 06006KT 10SM SCT035TCU SCT050 SCT075 BKN250 29/23 A2989 RMK AO2
SLP120 TCU S CB DSNT E SW NW T02890228

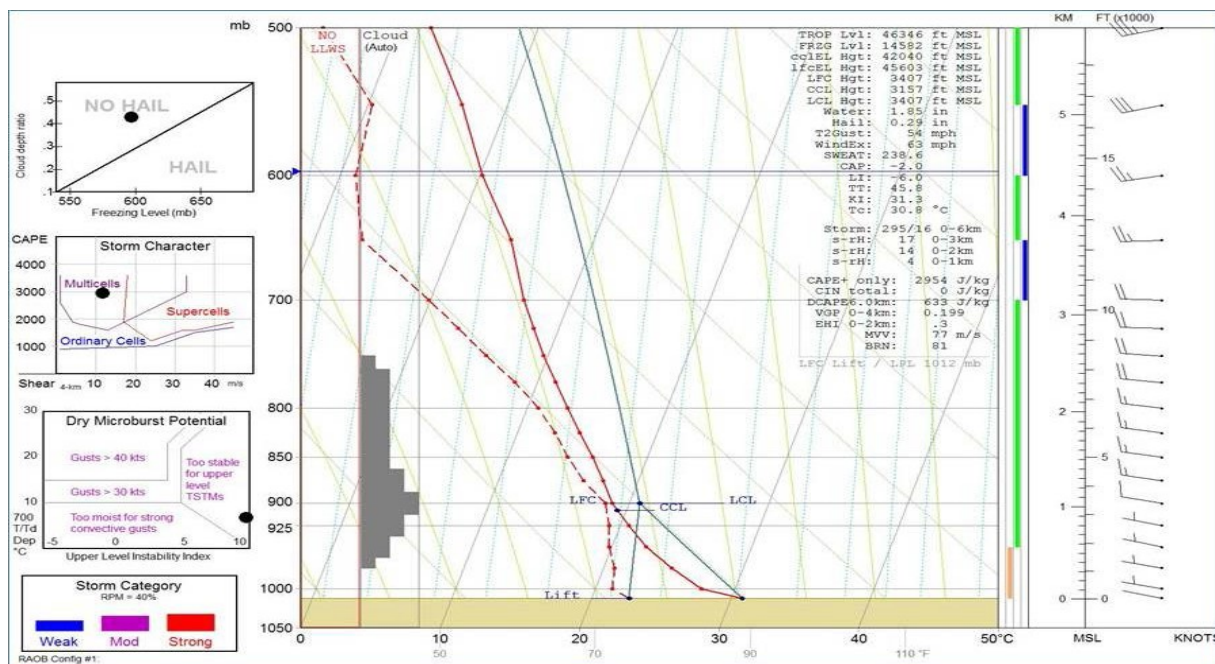
Closest Terminal Forecast (TAF) was issued for Daytona Beach:

TAF KDAB 101722Z 1018/1118 29005KT P6SM VCSH SCT030 BKN080
FM101900 35006KT P6SM VCTS SCT030CB BKN100
FM110000 00000KT P6SM FEW020 SCT250

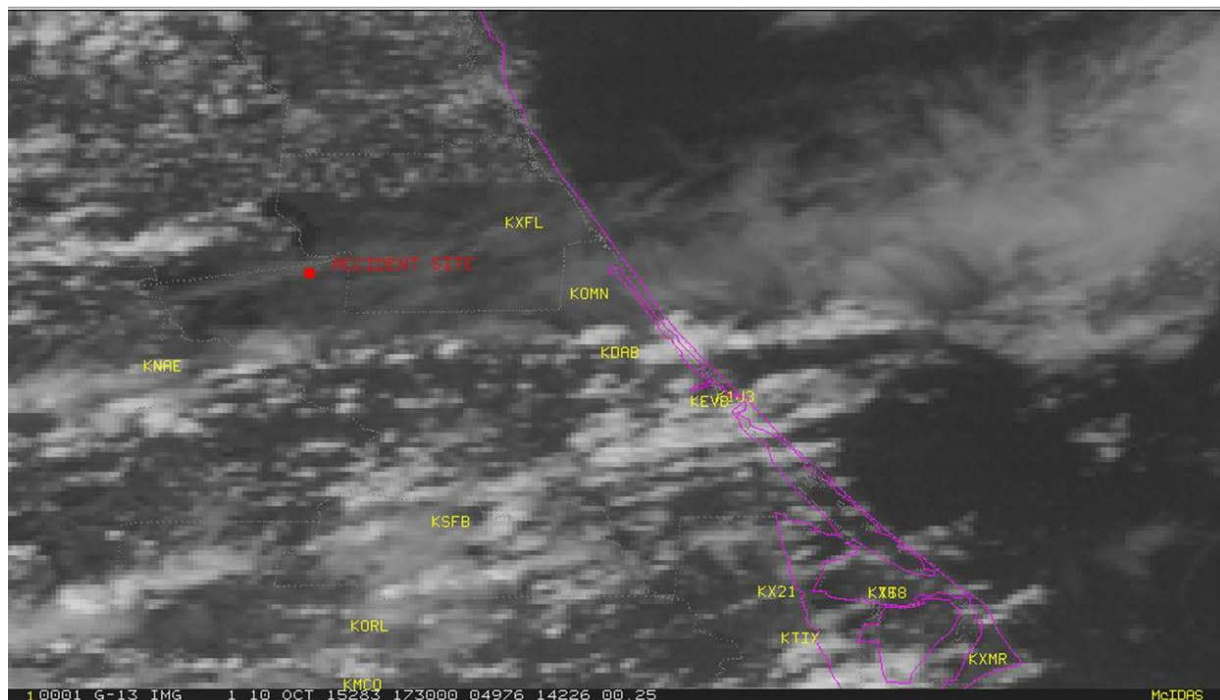
A close-up view of the weather observations surrounding the accident site from the NWS Aviation Weather Center (AWC) for 1730Z or 1330 EDT is included below and also indicated winds from the west at approximately 5 knots over the accident site, with temperatures of 80° F, and a dew point temperature near 70° F. No significant weather was depicted at the surrounding stations with scattered to broken clouds being reported in the area.



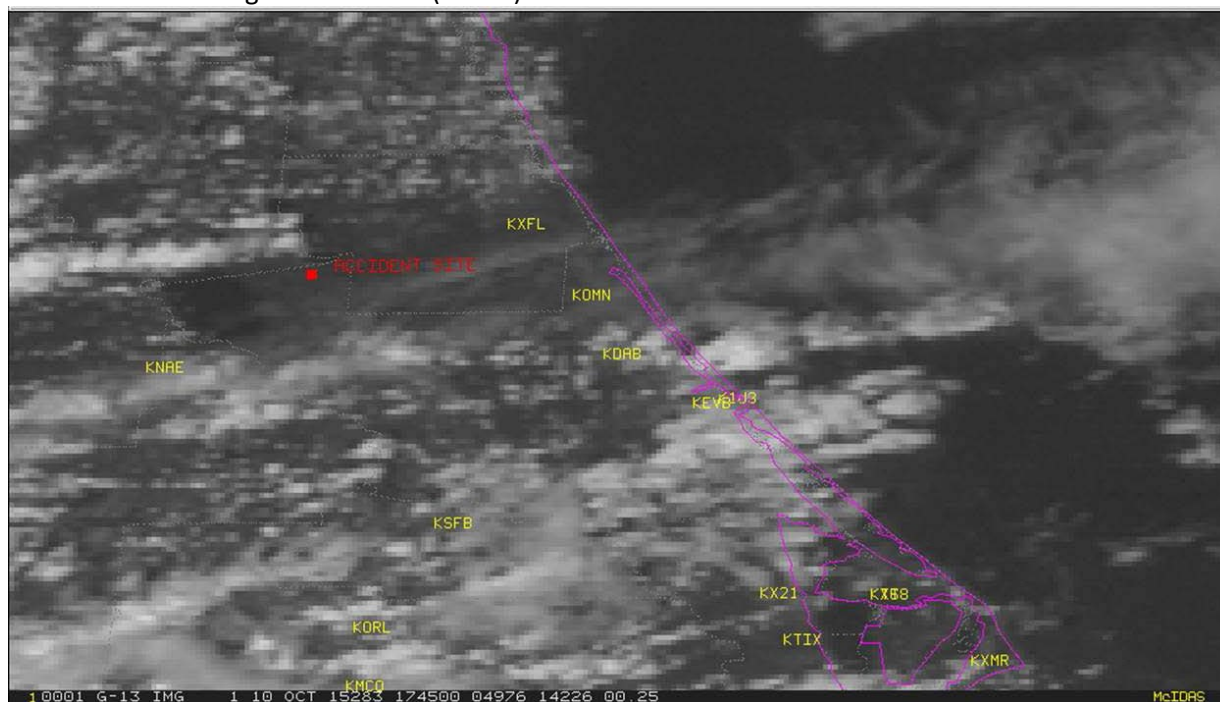
Sounding – the NOAA Air Resource Laboratory (ARL) North American Mesoscale Numerical Model (NAM) was run over the area and the 1400 EDT (1800Z) sounding from the surface to 18,000 feet was plotted on a standard Skew T Log-P chart. The sounding indicated a forecast cloud bas at 3,131 feet agl, with the expected tops of cumulonimbus clouds to 42,000 feet. The sounding also indicated a conditional unstable atmosphere with a Lifted Index (LI) of -6 and a K-index of 31.2, which indicated an approximately 60% probability of occurrence. The convective temperature was 30.8° C, and favored multicellular type thunderstorm formation. No low-level turbulence or windshear was depicted. Strong thermals were predicted from the surface to 5,000 feet, with an unstable lapse rate from the surface to 2,000 feet.



The model indicated a surface temperature of 30.8° C over the accident site at 1400 EDT, with a surface wind from 285° at 2 knots. The winds immediately above the surface were as follows with the mean 0 to 6 kilometer or 18,000 foot wind from 295° at 16 knots. The wind speeds below 4,000 feet were from the west at 10 knots or less.

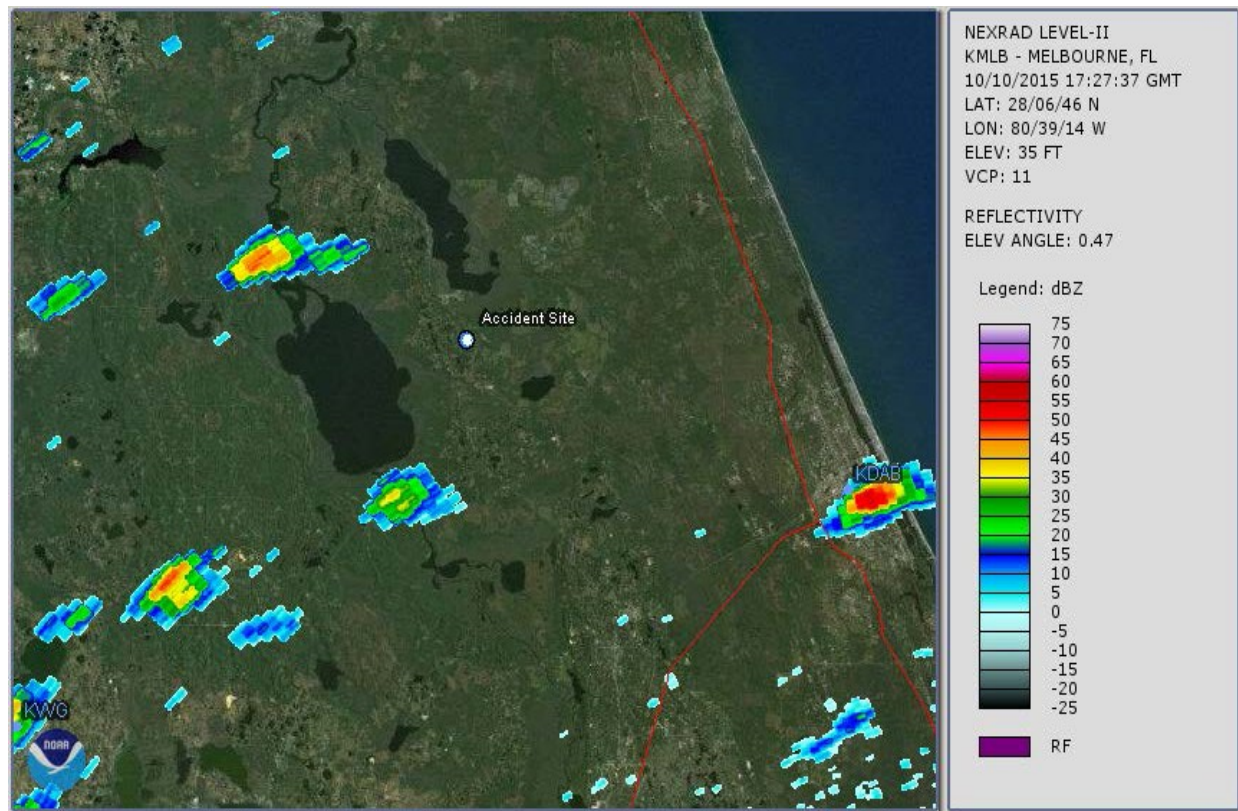


GOES-13 visible image at 1330 EDT (1730Z)



GOES-13 visible image at 1345 EDT (1745Z)

Weather Radar Imagery – the closest NWS WSR-88D was located approximately 85 miles southeast of the accident site at Melbourne, FL. The 1327 EDT (1727Z) 0.5 base reflectivity image is attached and depicted no echoes over the accident site, and the closest echoes 10 miles northwest and southwest of the site, and over the Daytona Beach area to the southeast. Due to the height of the radar beam over the area, no low-level outflow boundaries were identifiable.



NWS Area Forecast current at the time was issued at 0445 EDT and was as follows for the region:

FAUS42 KPCI 100845

FA2W

-MIAC FA 100845

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 110300

CLDS/WX VALID UNTIL 102100...OTLK VALID 102100-110300

NC SC GA FL AND CSTL WTRS E OF 85W

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...09Z CDFNT SRN BOS FA-CNTRL GA WITH LOW PRES CNTRL SC.
BY 00Z CDFNT NC WTRS-NRN FL WITH LOW PRES SC CSTL PLN. SFC TROF
PERSISTS CEN FL-ATLC WTRS THROUGH PERIOD.

FL

PNHDL...SCT010 BKN CI. VIS 3-4SM BR. 14Z BKN040 TOP 080. OTLK...VFR.

NRN PEN...SCT010 BKN040 TOP 150. VIS 4-5SM BR. WDLY SCT -SHRA/ISOL -TSRA. CB TOP FL350. 14Z
TOP 080.

18Z WDLY SCT -SHRA/-TSRA. CB TOP FL400. OTLK...VFR TIL 00Z SHRA TSRA.

CNTRL PEN...SCT015 BKN050 TOP 100. **16Z BKN035. WDLY SCT -SHRA/ISOL -TSRA. CB TOP FL400.**

OTLK...VFR TIL 00Z SHRA TSRA.

SRN PEN...SCT030 SCT-BKN CI. 16Z BKN040 TOP 080. WDLY SCT -SHRA/-TSRA. CB TOP FL400.

OTLK...VFR SHRA TIL 02Z TSRA.

In-Flight Weather Advisories -

No AIRMETs for IFR, turbulence, or icing current over Florida during the period.

Convective SIGMETs for thunderstorm activity during the period. None current over the accident site.

-MKCE WST 101655

CONVECTIVE SIGMET 40E

VALID UNTIL 1855Z

SC FL GA AND SC GA CSTL WTRS

FROM 20WNW FLO-20NE CHS-50N CRG-60NNE CTY

LINE TS 35 NM WIDE MOV FROM 27025KT. TOPS TO FL420.

CONVECTIVE SIGMET 41E

VALID UNTIL 1855Z

FL CSTL WTRS

FROM 220ENE TRV-210ENE PBI-160ENE PBI-160ENE TRV-220ENE TRV

AREA TS MOV FROM 23015KT. TOPS TO FL450.

REF INTL SIGMET BRAVO SERIES.

CONVECTIVE SIGMET 42E

VALID UNTIL 1855Z

NC CSTL WTRS

FROM 180ESE ECG-140SE ILM-100SSE ILM-90E ILM-180ESE ECG

AREA EMBD TS MOV FROM 24015KT. TOPS TO FL410.

OUTLOOK VALID 101855-102255

FROM 190ESE ECG-150SSE ILM-210ENE PBI-50ENE EYW-MCN-SPA-190ESE ECG

WST ISSUANCES POSS. REFER TO MOST RECENT ACUS01 KWNS FROM STORM

PREDICTION CENTER FOR SYNOPSIS AND METEOROLOGICAL DETAILS.

-MKCE WST 101755

CONVECTIVE SIGMET 43E

VALID UNTIL 1955Z

NC CSTL WTRS

FROM 180ESE ECG-170ESE ILM-70SSE ILM-90E ILM-180ESE ECG

AREA EMBD TS MOV FROM 24015KT. TOPS TO FL400.

CONVECTIVE SIGMET 44E

VALID UNTIL 1955Z

NC SC AND SC GA CSTL WTRS

FROM 20NNW FLO-40WSW ILM-60SE CHS-40ESE SAV-20NNW FLO

AREA TS MOV FROM 24025KT. TOPS TO FL450.

CONVECTIVE SIGMET 45E

VALID UNTIL 1955Z

FL

FROM 30S ORL-10SW PBI-40ESE RSW-20ENE SRQ-30S ORL

AREA TS MOV FROM 27015KT. TOPS TO FL450.

OUTLOOK VALID 101955-102355

FROM 190ESE ECG-150SSE ILM-210ENE PBI-50ENE EYW-MCN-SPA-190ESE ECG

WST ISSUANCES POSS. REFER TO MOST RECENT ACUS01 KWNS FROM STORM

PREDICTION CENTER FOR SYNOPSIS AND METEOROLOGICAL DETAILS.

All active SIGMETs – AIRMET images replaced by G-AIRMET

chart created at 1714 UTC Sat 10 Oct 2015
SIGMETs expire at or before 1855z/10th



Turbulence
AIRMET

Icing
AIRMET

IFR
Instrument
Flight Rules
AIRMET

MTOS
Mountain
Obscuration
AIRMET

Convective
Outlook

Convective
SIGMET

Winds and Temperature Forecast (FD) – current at the time expected winds from the west at 10 knots or less at 3,000 feet.

WINDS ALOFT FORECASTS

DATA BASED ON 101200Z

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

FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
MLB	2610	2618+15	2620+08	2523+04	2629-07	2830-17	264633	275544	286556
JAX	2906	2714+13	2621+07	2725+02	2641-09	2748-18	275335	275545	285556

Model Wind Field – the NOAA Air Resource Laboratory (ARL) Mesoscale Numerical Model for 1400 EDT indicated a weak wind field over the area with winds from the west at approximately 5 knots.

NAM12 MAP

DATA INITIAL TIME: 10 OCT 2015 00Z NOAA AIR RESOURCES LABORATORY
MAP VALID ON: 10 OCT 2015 18Z (+ 18 HR) READY Web Server

