

Bowling David

From: Suffern Paul
Sent: Friday, May 13, 2016 12:38 PM
To: Bowling David
Cc: Helson David; Dunham Scott
Subject: RE: You have been assigned a Meteorology Request (CEN16FA095)

PIREPs near accident site from 2 hours beforehand to 1 hour afterwards for below FL200:

CAK UA /OV CAK180005/TM 2100/FL030/TP B737/IC LT RIME/RM ICEING AOB 035=
VTA UA /OV CMH090015 /TM 2111 /FL050 /TP B737 /TA M04 /IC TRACE-LGT MX 030-050 /RM DURD /SK BASE030-TOP050 /TA M03 030=
CLE UA /OV CLE135005 /TM 2115 /FLUNKN /TP A321 /SK OVC035-TOP060/ SKC /TA M01 /IC LGT RIME /RM DURC=
CAK UUA /OV CAK320007/TM 2126/FL050/TP E145/SK OVC 055/TA NEG 5/IC MOD CLR/RM ICEING FROM 055 TO 030 IN CLOUDS=
MFD UA /OV 8 N MFD/TM 2145/FL70/TP BE9L/SK TOPS 5500 BASES 2700/TA -5/IC LGT TO MOD RIME BETW 5500-4500, LGT RIME BELOW 4500=
MFD UA /OV 25 N MFD/TM 2155/FL40/TP C340/SK IMC/TA -5/IC TRACE RIME=
CMH UA /OV CMH /TM 2200 /FL040 /TP E170 /SK OVC-TOP052/ SKC /TA M05 /IC LGT RIME 040=
CAK UA /OV BSV/TM 2205/FL60/TP J328/SK TOPS 55 BASES 028/TA -6/IC LGT MIXED=
DAY UA /OV DAY /TM 2215 /FL030 /TP E170 /SK OVC029-TOP057 /TA M01 /IC MOD RIME 057-029 /RM DURD=
LUK UA /OV 6 MILE FINAL RWY 25/TM 2229/FL028/TP BE30/SK BASES 030 OVC/TB LGT CHOP=
DAY UA /OV DAY045010 /TM 2355 /FL040 /TP C550 /SK OVC030-TOP052 /TA M02 /IC LGT-MOD MX /RM IC INC DURD=
KMFD UA /OV MFD270010/TM 0000/FL060/TP BE58/SK BASES 035 TOPS 059/TA -5/IC LIGHT RIME ICING ON CLIMB TO 059=
CMH UA /OV CMH /TM 0005 /FL040 /TP CRJ7 /SK OVC031-TOP052/ SKC /TA M07 /IC LGT RIME /RM IC INC DURC=

13 icing PIREPs... all at flight levels at or near accident flight level.... Most during descent or climb out... so if staying at altitude longer then would in theory pick up more ice.

Let me know if you have any questions!

Paul2

From: Suffern Paul
Sent: Friday, May 13, 2016 11:54 AM
To: Bowling David
Cc: Helson David; Dunham Scott [REDACTED]
Subject: RE: You have been assigned a Meteorology Request (CEN16FA095)

Hi David,

Here is some weather for CEN16FA095... and long and short of it is...anytime this flight was in the cloud layer they would have been in moderate or greater icing conditions. Closest surface weather was from KI19 (Greene County-Lewis A Jackson Regional Airport, 10 miles east of Dayton, Ohio) and they had an AWOS on field:

23:11-> METAR KI19 262311Z AUTO 26007KT 10SM OVC019 00/M02 A3014 RMK AO2=

Weather at 1811 EST, wind from 260 degrees at 7 knots, 10 miles visibility, overcast ceiling at 1,900 feet agl, temperature 0 degrees Celsius, dew point temperature -2 degrees Celsius, altimeter 30.14 inHg.

22:51-> METAR KI19 262251Z AUTO 28004KT 10SM OVC020 00/M02 A3013 RMK AO2=

Weather at 1751 EST, wind from 280 degrees at 4 knots, 10 miles visibility, overcast ceiling at 2,000 feet agl, temperature 0 degrees Celsius, dew point temperature -2 degrees Celsius, altimeter 30.13 inHg.

22:32-> METAR KI19 262232Z AUTO 30006KT 248V328 10SM OVC018 00/M02 A3013 RMK AO2=

Weather at 1732 EST, wind from 300 degrees at 6 knots, wind varying between 248 and 328 degrees, 10 miles visibility, overcast ceiling at 1,800 feet agl, temperature 0 degrees Celsius, dew point temperature -2 degrees Celsius, altimeter 30.13 inHg.

The other surface observation station around the area had similar ceiling heights. I've attached the upper air balloon sounding from Wilmington, Ohio, from 1900 EST, showing the high icing potential within the cloud layer above the surface. The upper air balloon was released into air that was drier above 5,000 feet msl. However, the infrared satellite imagery from 1730 to 1815 EST (attachments 2 to 5) showed the cloud top temperatures of -12 Celsius which corresponds to cloud tops around 12,000 feet msl. Indicating the positive likelihood of moderate or greater icing along the route of flight until 1752 EST or so... when the plane goes below the cloud ceiling (given ATC data). However, with the surface temperature at freezing and no warm layer above that any icing that was on the plane would not have melted before the ground.

The weather radar imagery showed no precipitation falling from aloft down to the surface so the cloud droplets were being efficient at staying in the air and in the clouds.

The Area Forecast issued at 1345 EST and valid at the accident time called for broken ceilings at 3,000 feet msl with clouds tops at 12,000 feet msl and visibilities 3 to 5 miles in mist (would have been freezing mist):

OH LE
NW OH/LE...BKN020 TOP 120. VIS 3-5SM BR. WND W 30KT. OTLK...MVFR
CIG BR.
RMNDR OH...BKN030 TOP 120. VIS 3-5SM BR. 00Z BKN020. OTLK...IFR
CIG BR...09Z MVFR CIG BR.
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There were AIRMETs out for IFR conditions (ceiling below 1,000 feet and/or visibilities below 3 miles in precipitation and/or mist) and moderate icing conditions below 12,000 feet all issued at 1545 EST:

AIRMET IFR...NY LO PA OH LE WV MD VA NC SC GA
FROM 70ENE YYZ TO 20N SLT TO 50NW ETX TO 20WSW LYH TO 20WNW CLT
TO 30WSW ATL TO GQO TO HMV TO HNN TO CVG TO 20SE FWA TO 40SW CLE
TO 20SSE ECK TO 70ENE YYZ
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG BYD 03Z THRU 09Z.
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AIRMET ICE...ME NH VT NY LO PA OH LE WV AND CSTL WTRS
FROM YOW TO 70SSW PLB TO 30NE ALB TO PSB TO HNN TO CVG TO FWA TO
30SE ECK TO YOW
MOD ICE BLW 120. CONDS CONTG BYD 03Z THRU 09Z.
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In this case there was also a meteorological impact statement (MIS) issued by the CWSU in Indianapolis Center (ZID) and it warned of occasional moderate rime and mixed icing between 2,000 and 5,000 feet msl:

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FAUS20 KZID 261806
ZID MIS 01 VALID 261810-270230
...FOR ATC PLANNING PURPOSES ONLY...
OCNL MOD TURB FL280-390 SE OF A LINE AIR-HNN-VXV TIL 21Z
OTRW ISOL MOD TURB FL280-390 ACRS ZID. IN ZID SE OF A LINE
EKN-BWG OCNL MOD MXD ICG 050-FL180. ELSW IN ZID OCNL MOD
RIME/MXD ICG 020-050. =
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Is all this helpful? I've requested the PIREPs from around the accident time and hopefully they'll come in by today but may not come in till Monday. Let me know what else I can get you here! If you want to dig deeper I can request the NCAR icing graphics, but they won't come in until June to July timeframe more than likely. Thanks,

Paul2

From: Projects Status Board
Sent: Thursday, May 12, 2016 10:55 AM
To: Suffern Paul
Cc: Dunham Scott; Helson David; Bowling David; Projects Status Board
Subject: You have been assigned a Meteorology Request (CEN16FA095)

A Meteorology request has been assigned to you.

Please review the request: [Review Request](#)