

Weather Conditions over cascade, ID area on May 13, 2018

Synoptic Conditions – the NWS Surface Analysis Chart for 1200 MDT (1800Z) with topography is included below. The chart depicted a low pressure system at 1012-hectopascals over southcentral Washington with a north-to-south oriented trough of low pressure. Another low-pressure area at 1011-hPa was located over Nevada to the south with another trough extending east-northeastward from the low. The station models over southwest Idaho indicated light winds, broken to overcast cloud cover, with temperatures in the 50's degrees Fahrenheit (F), with dew point temperatures in the 40's F. No significant weather was depicted

A review of the NWS National Composite Radar image for 1230 MDT depicted several small echoes associated with light rain in the Boise area and in the vicinity of the accident site.

Observations – The accident airplane departed **Boise Air Terminal/Gowen Field (KBOI), Boise, ID**, at approximately 1215 MDT. The airport has a federally installed and maintained Automated Surface Observation System (ASOS) at an elevation of 2,871 feet, and had a magnetic variation of 15 W. The airport was located approximately 41 miles south of the accident site and reported the following conditions at the time:

KBOI weather observation at 1153 MDT, wind from 320° at 4 knots, visibility 10 miles or more, ceiling broken at 7,000 feet agl, broken at 10,000 feet, temperature 14° Celsius (C), dew point temperature 7° C, altimeter 30.02 inches of mercury. Remarks; automated observation system with a precipitation discriminator, sea level pressure 1015.6-hPa, hourly precipitation less than 0.01 inch, temperature 13.9° C, dew point 7.2° C.

The raw observation and general flight categories surrounding the period were as follows:

VFR METAR KBOI 131553Z 24004KT 10SM FEW085 BKN110 12/08 A3000 RMK AO2 SLP151 T01170078=
VFR METAR KBOI 131653Z 00000KT 10SM OVC095 13/08 A3001 RMK AO2 SLP154 T01330078=
VFR METAR KBOI 131753Z 32004KT 10SM BKN070 BKN100 14/07 A3002 RMK AO2 SLP156 60000 T01390072 10144 20094 52006=
Accident 1830Z
VFR METAR KBOI 131853Z 05005KT 10SM SCT036 BKN043 OVC110 15/07 A3001 RMK AO2 SLP155 T01500072=
VFR METAR KBOI 131953Z 05004KT 10SM BKN043 17/07 A3000 RMK AO2 SLP149 T01720072=
VFR METAR KBOI 132053Z 35005KT 10SM BKN042 BKN065 OVC075 17/07 A3000 RMK AO2 SLP148 T01720072 56005=

The planned destination was **McCall Airport (KMYL), McCall, ID**, located about 39 miles north of the accident site at an elevation of 5,029 feet.

IFR METAR KMYL 131451Z AUTO 27008KT 10SM OVC009 08/06 A2998 RMK AO2 SLP131 T00830056 53013 \$=
MVFR SPECI KMYL 131512Z AUTO 31006KT 10SM OVC010 09/06 A2998 RMK AO2 CIG 009V014 T00890056 \$=

MVFR METAR KMYL 131551Z AUTO 29007KT 10SM BKN012 OVC120 09/05 A2999 RMK AO2 SLP135 T00890050 \$=
MVFR SPECI KMYL 131605Z AUTO VRB04KT 10SM BKN015 OVC110 10/06 A2999 RMK AO2 T01000056 \$=
VFR METAR KMYL 131651Z AUTO 31006KT 10SM SCT017 OVC050 10/05 A3000 RMK AO2 SLP136 T01000050 \$=
VFR METAR KMYL 131751Z AUTO 30005KT 10SM FEW021 BKN060 OVC090 11/05 A3001 RMK AO2 SLP140 T01060050 10111 20078 52008 \$=
Accident 1830Z
VFR METAR KMYL 131851Z AUTO 25007KT 10SM SCT090 OVC110 12/05 A3001 RMK AO2 RAB06E17 SLP140 P0000 T01220050 \$=
VFR SPECI KMYL 131851Z AUTO 25007KT 10SM SCT090 OVC110 12/05 A3001 RMK AO2 RAB06E17 SLP140 P0000 T01220050 \$=
VFR METAR KMYL 131951Z AUTO 28005KT 10SM FEW050 FEW065 OVC100 13/05 A3002 RMK AO2 SLP141 T01280050 \$=
VFR METAR KMYL 132051Z AUTO 28006KT 10SM -RA SCT040 BKN049 BKN065 13/07 A3002 RMK AO2 RAB21 SLP144 P0000 60000 T01280067 53004 \$=

Forecasts – the Terminal Aerodrome Forecasts (TAFs) issued for the departure and destination current at the time were as follows:

Departure

AMD TAF KBOI 131541Z 1316/1412 VRB06KT P6SM SCT050 BKN100

FM131800 30008KT P6SM -SHRA OVC050

FM132300 30006KT P6SM VCSH BKN050

FM140200 14006KT P6SM SCT050=

TAF KBOI 131721Z 1318/1418 30008KT P6SM -SHRA OVC050

FM132300 30006KT P6SM VCSH BKN050

FM140200 14006KT P6SM SCT100=

Destination:

AMD TAF KMYL 131543Z 1316/1412 28008KT P6SM OVC015

FM131800 28008KT P6SM SCT015 OVC050

FM132100 36007KT P6SM VCSH BKN035 OVC050

FM140200 VRB06KT P6SM SCT050=

TAF KMYL 131721Z 1318/1418 28008KT P6SM SCT015 OVC080

FM132100 36007KT P6SM VCSH BKN035 OVC050

TEMPO 1322/1402 6SM -SHRA SCT015 OVC025

FM140200 VRB06KT P6SM SCT050=

Pilot Reports – the following PIREP was noted over the region surrounding the period:

BOI UA /OV KBOI 100035/TM 1208/FL130/TP PC12/IC LGT RIME

Satellite Imagery – the GOES-15 visible imagery was reviewed surrounding the period and depicted an extensive area of low to mid-level broken to overcast clouds over the route and the accident site.

The infrared image at 1230 MDT indicated a radiative cloud top temperature of 255° Kelvin or -18.16° C, which corresponded to cloud tops near 18,500 feet. The GOES-15 visible image for 1230 MDT at 4X magnification is included below with the accident site marked.

Sounding - a High Resolution Rapid Refresh (HRRR) numerical model sounding was derived from archive data over the accident site for 1200 MDT (1800Z) and plotted on a Skew T log P diagram and analyzed with RAOB software package. The sounding indicated the conditions over the accident site were favorable for surface wind from the west or 280 at 6 knots, visibility likely restricted in light rain, with overcast clouds at 1,100 feet agl, temperature 9 C, dew point 6 C. The clouds extended from 1,100 ft with tops above 18,500 ft. The freezing level was identified at 9,000 ft and supported rime type icing in the clouds and precipitation. The atmosphere was characterized as conditionally unstable, and had a precipitable water content of 0.57 inches. The sounding wind profile indicated the low level winds from the west which veered to the north at 8,000 ft, and then to the northeast with wind speeds gradually increasing in speed with height. No significant turbulence or low-level wind shear was identified.

While not an observation, the numerical model sounding supporting moderate icing conditions above the freezing level (8,000 ft) and clouds with bases near 1,000 ft agl with tops above 18,500 feet, and supported the issuance of AIRMET type advisories for the route.

Weather Radar Imagery – the closest NWS Boise (KCBX) WSR-88D was reviewed from archive Level II data. The KCBX WSR-88D base reflectivity image at 1230 MDT is included below and indicated several small areas of very light intensity rain showers which were moving SSW in the mean winds. The accident site was located less than 5 miles east of one of these echoes.

Inflight Weather Advisories – during the period there were no SIGMETs, Convective SIGMETs, or Center Weather Advisories issued during the period. The NWS had AIRMET Sierra current for mountain obscuration conditions over Idaho and was as follows:

WAUS45 KPCI 131754 AAA

WA55

-SLCS WA 131754 AMD

AIRMET SIERRA UPDT 3 FOR IFR AND MTN OBSCN VALID UNTIL 132100

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AIRMET IFR...WY CO NM...UPDT

FROM 40NNW BFF TO GLD TO 20SSW DEN TO 60S LAR TO 40NNW BFF

CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS ENDG 18-21Z.

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AIRMET MTN OBSCN...ID MT WY NV UT CO

FROM LWT TO 20NE SHR TO 20E CZI TO 20ESE CYS TO 20SE TBE TO 40E ALS TO 40WSW DEN TO 30WSW LAR

TO 60E MTU TO MLD TO 70NNE OAL TO 70W BAM TO DNJ TO HLN TO LWT

MTNS OBSC BY CLDS/PCPN/BR. CONDS CONTG BYD 21Z THRU 03Z.

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Previous forecast issued at 0845 MDT was as follows:

WAUS45 KPCI 131445

WA5S

-SLCS WA 131445

AIRMET SIERRA UPDT 2 FOR IFR AND MTN OBSCN VALID UNTIL 132100

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AIRMET IFR...MT WY CO NM

FROM 100SE MLS TO 70SW RAP TO BFF TO GLD TO 40SW LBL TO 30ESE TBE TO 20WSW PUB TO 20NW LAR

TO 20NNE DDY TO 20NW SHR TO 100SE MLS

CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS ENDG 15-18Z.

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AIRMET MTN OBSCN...ID MT WY NV UT CO

FROM LWT TO 20NE SHR TO 20E CZI TO 20ESE CYS TO 20SE TBE TO 40E ALS TO 40WSW DEN TO 30WSW LAR TO

60E MTU TO MLD TO 70NNE OAL TO 70W BAM TO DNJ TO HLN TO LWT

MTNS OBSC BY CLDS/PCPN/BR. CONDS CONTG BYD 21Z THRU 03Z.

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WAUS45 KPCI 131445

WA5Z

-SLCZ WA 131445

AIRMET ZULU UPDT 2 FOR ICE AND FRZLVL VALID UNTIL 132100

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AIRMET ICE...ID MT WY NV UT OR CA

FROM 20S GTF TO 70ESE DLN TO 30E JAC TO 20W OCS TO 20NNE BCE TO 40NE CZQ TO 40E MOD TO 40ENE SAC TO

60S LKV TO 30ESE LKV TO 60SSE BKE TO 30ESE BKE TO 40NW HLN TO 20S GTF

MOD ICE BTN FRZLVL AND FL200. FRZLVL 090-110. CONDS CONTG BYD 21Z THRU 03Z.

Winds and Temperature Aloft Forecast – current for the route was as follows:

WINDS ALOFT FORECASTS

DATA BASED ON 131200Z

VALID 131800Z FOR USE 1400-2100Z. TEMPS NEG ABV 24000

<i>FT</i>	<i>3000</i>	<i>6000</i>	<i>9000</i>	<i>12000</i>	<i>18000</i>	<i>24000</i>	<i>30000</i>	<i>34000</i>	<i>39000</i>
<i>BOI</i>		<i>0907+05</i>	<i>1210-01</i>	<i>1010-06</i>	<i>0433-18</i>	<i>0458-29</i>	<i>038242</i>	<i>037749</i>	<i>034050</i>
<i>LWS</i>		<i>9900</i>	<i>0617+10</i>	<i>0621+03</i>	<i>0622-02</i>	<i>0442-15</i>	<i>0352-26</i>	<i>034740</i>	<i>034549</i>
								<i>033857</i>	

Weather Camera Imagery– The Idaho Transportation Department weather camera's from Little Donner, Smiths Ferry, and Horseshoe Bend from 1200 through 1230 MDT have been requested and will be forwarded when available..

Don Eick

NTSB Senior Meteorologist