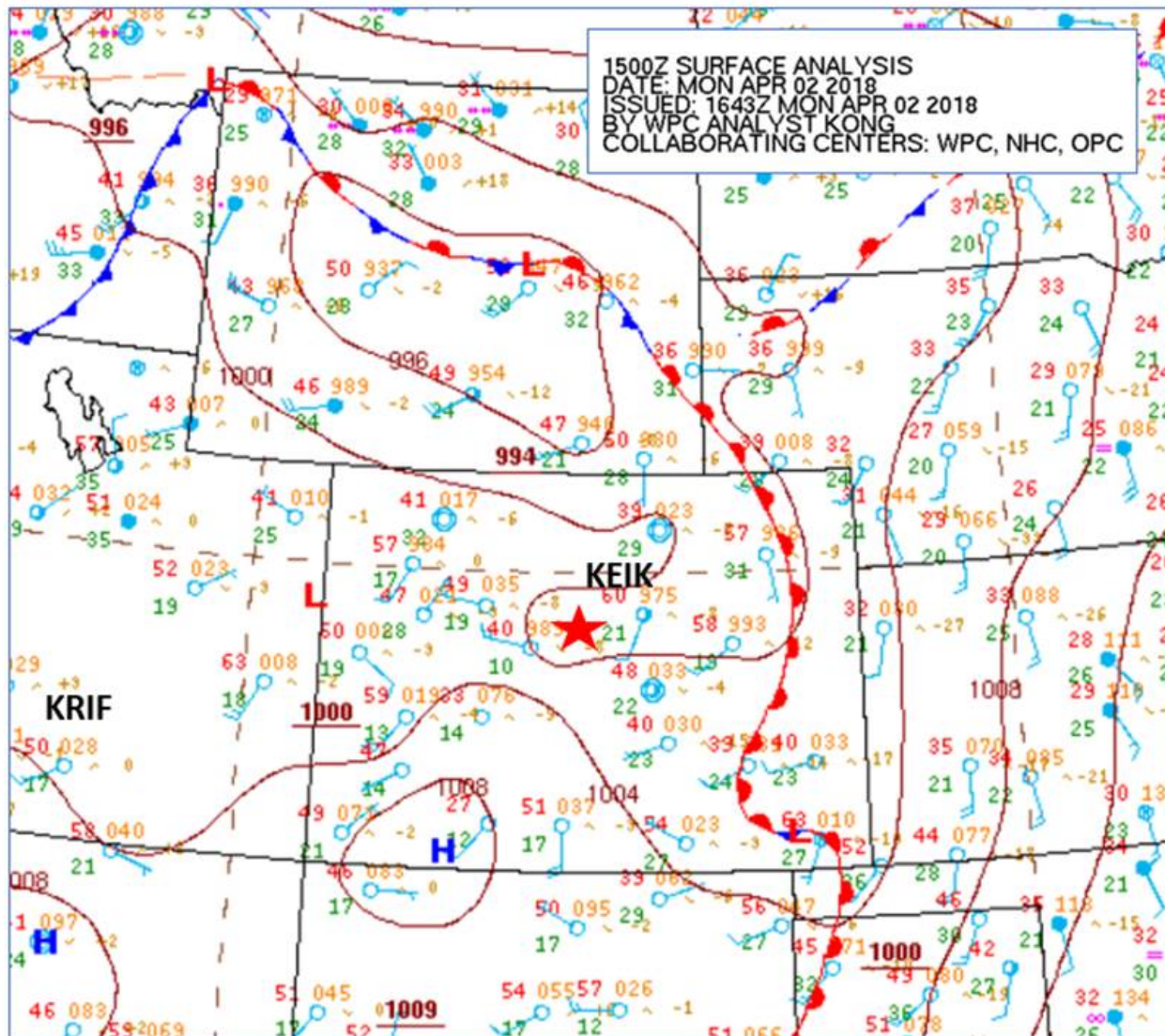


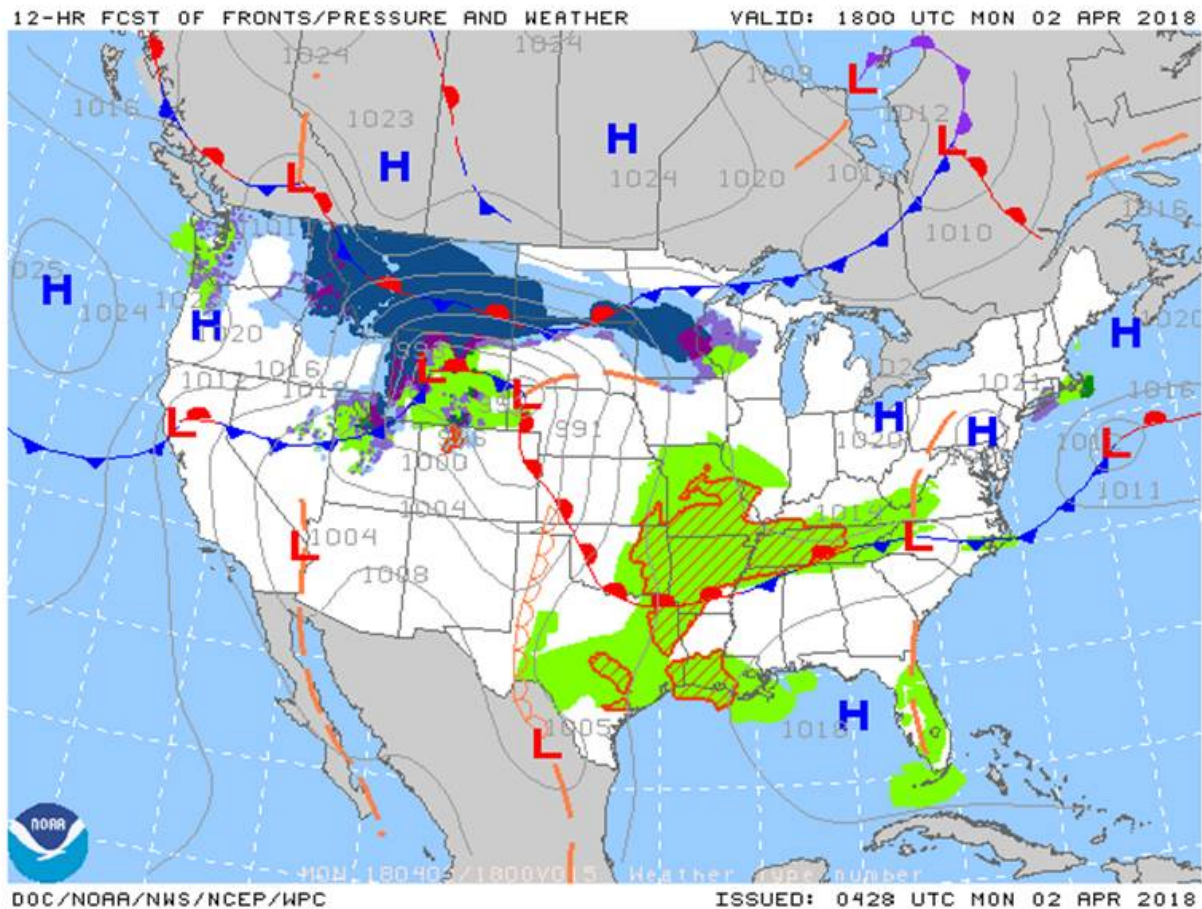
Weather conditions on April 2, 2018 over the Alma, Colorado area

Synoptic conditions – The NWS Surface Analysis Chart for 0900 MDT (1500Z) depicted a warm front extending north to south over eastern Colorado, with a high pressure center located over southwest Colorado at 1009-hectopascals (hPa). A separate low pressure center at 1000-hPa was located over the Colorado and Utah border. The station models depicted generally clear to scattered cloud cover over the region with temperatures in the 40's degrees Fahrenheit (F) over the higher terrain and in the 60's over Utah and east of the Rockies in Colorado. No significant weather or precipitation was reported over the route.

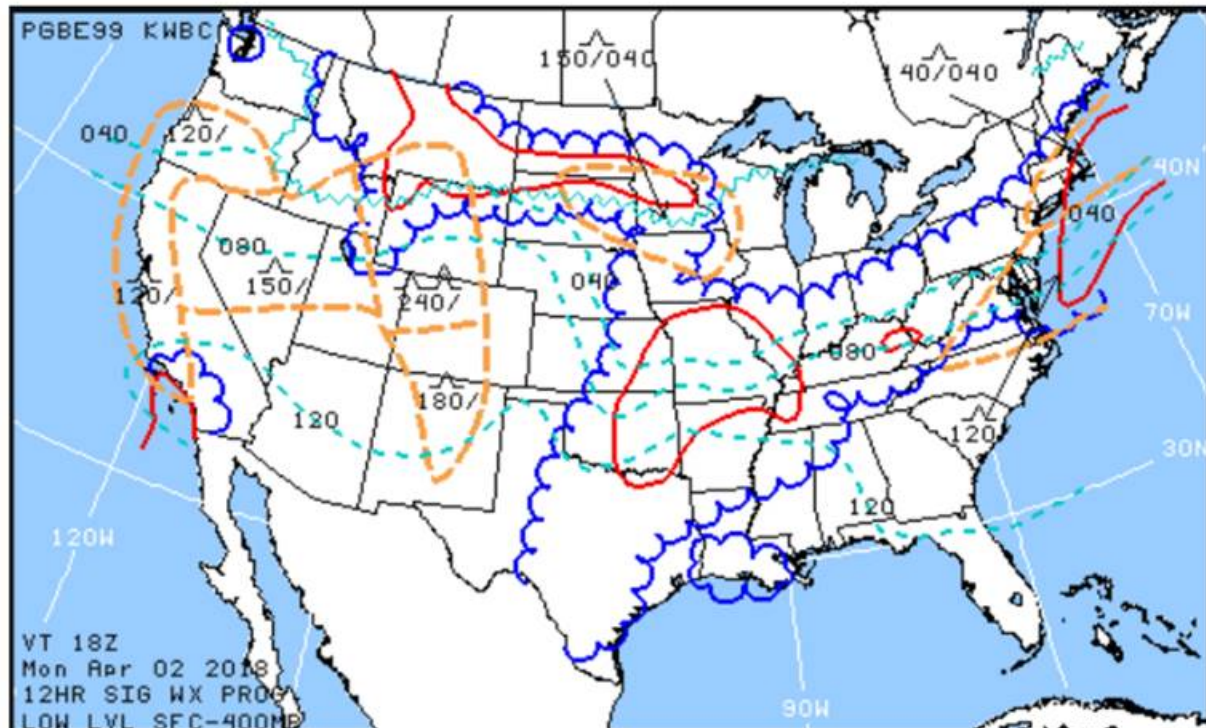


A review of the 12-hour Surface Prognostic Chart current at the time continued to depict the warm front over eastern Colorado with no expected precipitation expected over the planned route of flight. Mixed freezing precipitation and snow was expected over northern Utah, but did extend over the Richmond, Utah region.

12 Hours Surface Prognostic

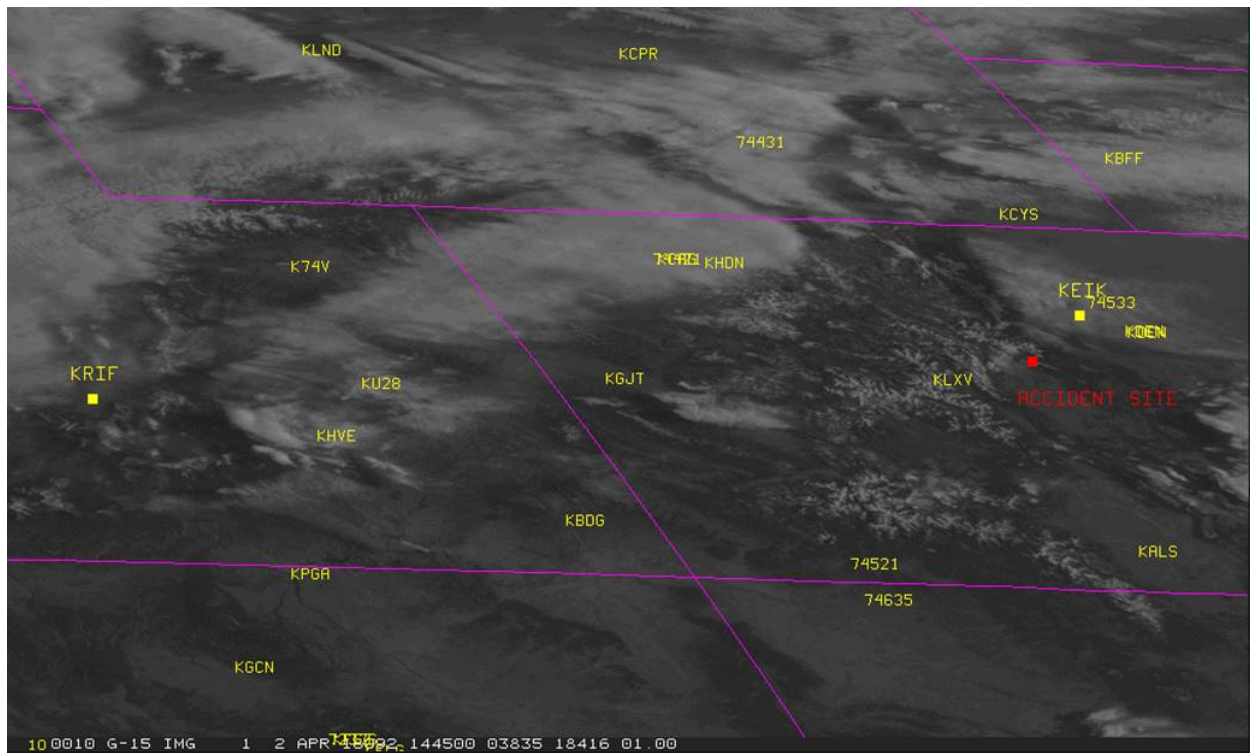


The 12-hour Low-Level Significant Weather Prognostic Chart valid at the time depicted VFR conditions prevailing over the planned route of flight. The chart also depicted an area of turbulence expected over Colorado with moderate to severe turbulence from the surface through 24,000 ft. The freezing level was depicted above 8,000 ft.

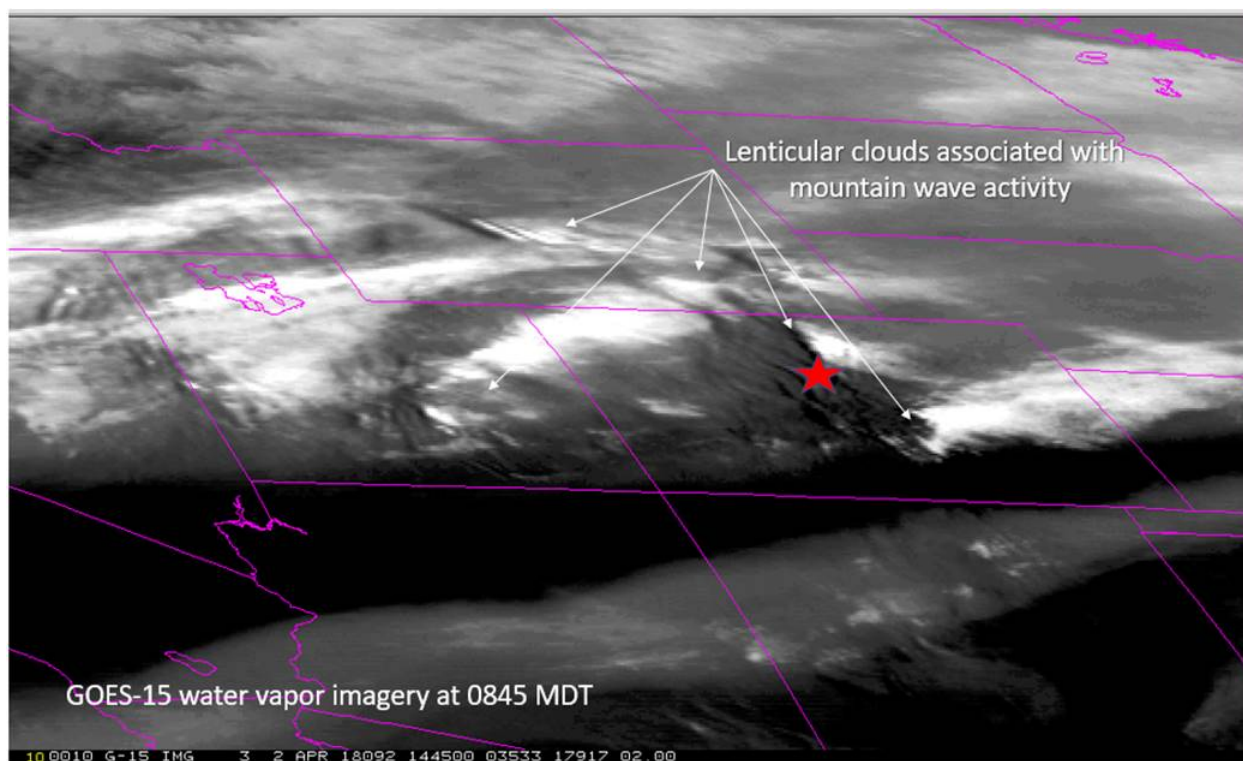


Sounding – the Denver 0600 MDT (1200Z) upper air observation was plotted on a skew T log P diagram. The sounding indicated a stable atmosphere with a well-defined surface based temperature inversion to 1,312 ft agl. The surface wind was from the southwest at 5 knots with winds veering to the west with height with increasing wind speeds. The mean 0 to 6 kilometer or 18,000 ft wind was from 270° at 40 knots, with the maximum wind at 260° at 89 knots at 46,000 ft immediately above the tropopause at 35,700 ft.

of the accident site. The CCSL clouds indicated orographic or mountain wave activity was occurring over the region at that time.



The GOES-15 water vapor imagery at 0845 MDT was also reviewed, which continued to further define the mountain wave conditions with potential turbulence over the region with moisture channel darkening, which indicated descending air flow and evaporation, the rising air and clouds. Several well defined bands were identified.



Pilot Reports (UA/UUA) – A review of the PIREPs noted numerous reports above 18,000 ft of moderate turbulence over the region. The following reports below 18,000 ft and urgent reports were recorded over Colorado during the period:

DEN UA /OV DEN/TM 1139/FL160/TP B737/WV 318052KT /TB MOD TURB/RMK DURC CLIMB 9000-16000

DEN UA /OV DEN200020/TM 1224/FL170/TP A320/TB MOD TURB 170-140

DEN UA /OV DEN300035/TM 1235/FL145/TP B757/TB MOD TURBC 145

DEN UUA /OV DEN270050/TM 1330/FL300/TP B737/TB SEVERE/RM ZDV

DEN UA /OV DEN270050/TM1335/FL060/TP C680/TB MOD CHOP/RM DURD FL280-260 ZDV

BJC UA /OV BJC360001/TM 1418/FL067/TP C172/TB CONTS LGT-MOD 067-064/RM DURD RWY 30R

ASE UUA /OV DBL070045/TM 1410/FL170/TP COL/TB MTN/RM UNABLE TO HOLD ALTITUDE. PILOT RPTD AS MOD MTW. ZDV

DEN UA /OV 20 N DEN/TM1432/FL100/TP ALL TYPES/TB MOD TB 100-160

DEN UA /OV 39.50N 104.47W /TM 1435 /FL160/TP B737/TB CONT MOD CAT/RM MOD FROM 160 AND BELOW

ACCIDENT

DEN UA /OV 20 W DEN/TM 1445/FL100/TP B737/TB MOD/RM DURC MOD MTN WAVE

BJC UA /OV BJC010003/TM 1448/FL065/TP PA44/TB LGT CHOP/RM DURC

ASE UUA /OV ASE /TM 1450/FLUNKN/TP C560/RM LLWS -18KT 500FT AGL RWY15

APA UA /OV 25 SW APA/TM 1452/FL150/TP J328/TB MOD

BJC UA /OV BJC360005/TM 1537/FL070/TP PA44/TB MOD BLO 070/RM DURD RWY 12L ALSO RPTD BY DA20

BJC UA /OV BJC/TM 1545/FL060/TP PA44/RM LLWS -/+5KT FNL 12R

EGE UA /OVRLG/TM 1612/FL150/TP C550/TB MOD/RM DURD

DEN UA /OV FQF255035/TM 1613/FL140/TP E17/TB MOD /RM DURC ZDV
DEN UA /OV FQF255035/TM 1618/FLDURC/TP C680/TB OCNL MOD/RM AOB220 ZDV
EGE UA /OV RLG184014/TM 1650/FL140/TP C56X/TB MOD TURB/RM MOD MTN WAVE +/-15KT
+/-50FT
ASE UA /OV ASE330005/TM 1650/FL080/TP CRJ7/TB MOD/RM LLWS +/- 15KT SHORT FINAL
APA UUA /OV DEN225035/TM 1710 /FL140/TP PA46/TB SEV
APA UA /OV DEN180020/TM1717/FL200/TP A320/TB MOD 000-180/RM DURC
ASE UUA /OV DBL074040/TM 1723/FL175/TP C510/TB MOD -SEV/RM +/-30KTS MTW -500FT
ZDV

Inflight Weather Advisories – the following AIRMETs were in effect for the route of flight:

WAUS45 KPCI 020845
WA5T
-SLCT WA 020845
AIRMET TANGO UPDT 1 FOR TURB STG WINDS AND LLWS VALID UNTIL 021500
.
AIRMET TURB...ID MT WY NV UT CO WA OR CA AND CSTL WTRS
FROM 50N GGW TO 50NNW ISN TO 70SW RAP TO 40W AKO TO JNC TO 40SSE
OAL TO 130SW PYE TO 140WSW FOT TO 120W TOU TO 40WSW SEA TO 20WSW
GEG TO 50N GGW
MOD TURB BTN FL180 AND FL380. CONDS CONTG BYD 15Z THRU 21Z.
.
AIRMET TURB...CO AZ NM
FROM 30SW GLD TO 50W LBL TO 30ESE TBE TO INK TO 20WNW ELP TO 50S
TUS TO BZA TO 40ESE TBC TO 30SW GLD
MOD TURB BTN FL240 AND FL420. CONDS CONTG BYD 15Z THRU 21Z.
.
AIRMET TURB...ID MT WY UT CO NM
FROM 40NNW GTF TO 50SW MLS TO 50ENE DDY TO 20SSW CYS TO TBE TO
50ESE CIM TO 40SE FTI TO 30E ABQ TO 40NNE HVE TO 40WSW MTU TO
70NNW LKT TO 40NNW GTF
MOD TURB BLW FL180. CONDS CONTG BYD 15Z THRU 21Z.
.
LLWS POTENTIAL...CO NM
BOUNDED BY 20E SNY-GLD-50W LBL-30ESE TBE-INK-50WSW INK-60SW TCC-
20SSW LAA-20E SNY
LLWS EXP. CONDS ENDG BY 12Z.
.
LLWS POTENTIAL...ID MT WY UT CO NM
BOUNDED BY 20N SHR-50E DDY-50SSE DEN-30SW TBE-50S FTI-40NE RSK-
50SW HVE-50E MLD-20WSW TWF-40WSW LKT-20N SHR
LLWS EXP. CONDS CONTG BYD 15Z THRU 21Z.
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Updated at the approximate time of the accident to the following:

WAUS45 KPCI 021445
WA5T

-SLCT WA 021445

AIRMET TANGO UPDT 2 FOR TURB STG WNDZ AND LLWS VALID UNTIL 022100

.

AIRMET TURB...ID MT WY NV UT CO AZ NM WA OR CA AND CSTL WTRS
FROM 50ESE YDC TO 50S MLP TO 50NNW ISN TO 100SE MLS TO 70SW RAP
TO GLD TO 40ESE LAA TO 50W LBL TO 30ESE TBE TO 70E PHX TO 130WSW
SNS TO 140WSW FOT TO 100W ONP TO 140W TOU TO 50ESE YDC
MOD TURB BTN FL180 AND FL410. CONDS CONTG BYD 21Z THRU 03Z.

.

AIRMET TURB...ID NV UT CO OR CA
FROM 20ENE DNJ TO 50SSW DTA TO 70SSE HVE TO 20SSE ILC TO BTY TO
60WSW BTY TO 30NW EHF TO 60SE RBL TO 50WSW LKV TO 60ENE LKV TO
30SW DNJ TO 20ENE DNJ
MOD TURB BLW 150. CONDS CONTG BYD 21Z THRU 03Z.

.

AIRMET TURB...ID MT WY UT CO AZ NM
FROM 40E GTF TO 50SSW MLS TO 60NNW BFF TO 40ESE CYS TO 30ESE TBE
TO 60W INK TO ELP TO 50SE SSO TO 60S RSK TO 70SSE HVE TO 50SSW
DTA TO 20E DNJ TO 40E GTF
MOD TURB BLW FL180. CONDS CONTG BYD 21Z THRU 03Z.

.

AIRMET STG SFC WNDZ...WY CO
FROM 20SW BOY TO 50ESE DDY TO 50W BFF TO 20SSW CYS TO 20WNW DEN
TO 60WNW PUB TO 40WSW PUB TO 20E ALS TO 20ENE HBU TO 40WSW LAR
TO 40S OCS TO 50NE OCS TO 20SW BOY
SUSTAINED SURFACE WINDS GTR THAN 30KT EXP. CONDS CONTG BYD 21Z THRU 03Z.
LLWS EXP. CONDS ENDG 18-21Z.

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LLWS POTENTIAL...ID WY UT CO NM
BOUNDED BY 20NW SHR-40NNW BFF-30SW TBE-30SSE CIM-60ESE RSK-20WNW
DBL-60SSE SLC-50SSW MLD-30WSW JAC-70ESE DLN-20NW SHR
LLWS EXP. CONDS CONTG BYD 21Z THRU 03Z.

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WSUS05 KPCI 021528

WS5Y

-SLCY WS 021528

SIGMET YANKEE 1 VALID UNTIL 021928

WY CO

FROM 40NW LAR TO 30NNE CYS TO 40NW TBE TO 40N RSK TO 40NW LAR
OCNL SEV TURB BTN FL270 AND FL410. DUE TO MTN WV ACT. RPTD BY
B737 AND C550. CONDS CONTG BYD 1928Z.

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WSUS05 KPCI 021736

WS5N

-SLCN WS 021736

SIGMET NOVEMBER 1 VALID UNTIL 022136

WY CO

FROM 60SW DDY TO 40NW BFF TO 30NW TBE TO 40S HBU TO 60SW DDY
OCNL SEV TURB BLW FL180. DUE TO STG LOW LVL WND. RPTD BY ACFT.
CONDS CONTG BYD 2136Z.

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Winds and Temperatures Aloft Forecast (FD) – the following enroute wind forecast was current at the time:

WINDS ALOFT FORECASTS

DATA BASED ON 021200Z

VALID 021800Z 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>DEN</i>			<i>2520+07</i>	<i>2736-02</i>	<i>2750-15</i>	<i>2640-26</i>	<i>264243</i>	<i>254053</i>	<i>265265</i>
<i>GJT</i>			<i>2523+05</i>	<i>2534-02</i>	<i>2646-17</i>	<i>2652-28</i>	<i>265142</i>	<i>265252</i>	<i>264963</i>
<i>BCE</i>				<i>2827-02</i>	<i>2840-17</i>	<i>2742-27</i>	<i>274242</i>	<i>274052</i>	<i>273663</i>

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Donald Eick
NTSB Senior Meteorologist