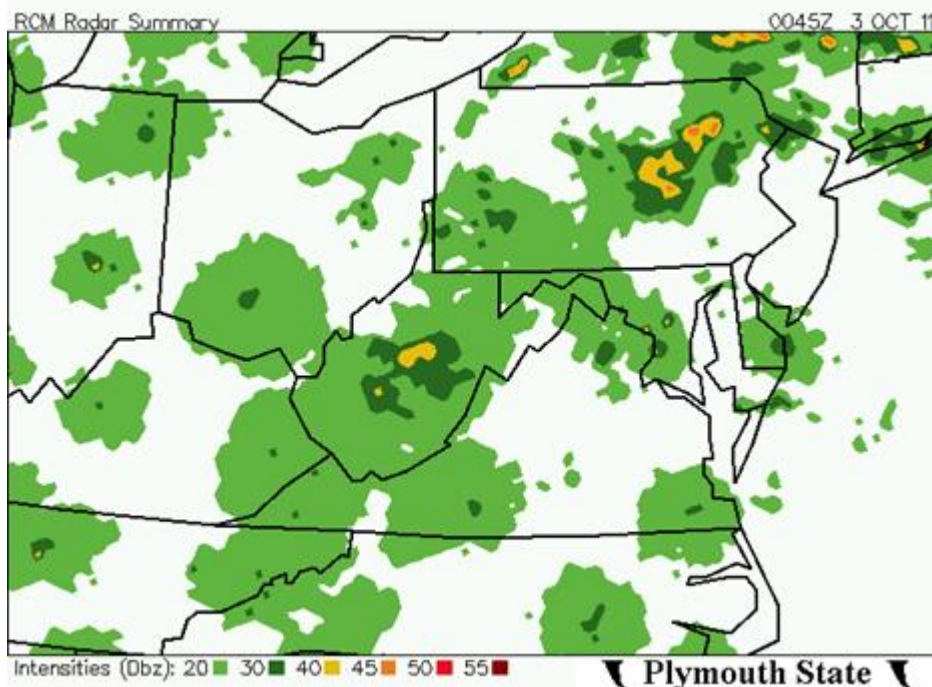


Etcher Shawn

From: Eick Donald
Sent: Tuesday, October 11, 2011 1:40 PM
To: Etcher Shawn
Subject: ERA12FA012
Attachments: ERA12FA012-IR0045Z.GIF

Synoptic conditions – The National Weather Service (NWS) Surface Analysis Chart for 2000 EDT (0000Z) on October 2, 2011, depicted a low pressure system over southern New York at 1009-hectopascals (hPa) with several troughs of low pressure extending westward and southward from the low. The station models over West Virginia indicated general winds from the west with overcast clouds, and with scattered rain showers.

The NWS radar composite chart for 2045 EDT (0045Z) depicted a large area of echoes extending from New York, Pennsylvania, into West Virginia, eastern Kentucky, and Virginia.



Observations – Grant County Airport (KW99) located approximately xx miles from the accident site reported the following conditions at the time of the accident:

Grant County Airport (KW99) weather at 2055 EDT (0055Z), automated, wind calm, visibility 10 miles in light drizzle, ceiling broken at 3,600 feet above ground level (agl), broken at 4,300 feet, overcast at 5,000 feet, temperature 8° Celsius (C), dew point 6° C, altimeter 29.97 inches of mercury. Remarks: automated observation system.

The raw observations surrounding the period were as follows:

KW99 022255Z AUTO 0000KT 10SM -RA BKN036 OVC043 08/03 A2996 RMK AO2

KW99 022355Z AUTO 0000KT 10SM OVC035 08/05 A2996 RMK AO2

Accident 0055Z

KW99 030055Z AUTO 0000KT 10SM -DZ BKN036 BKN043 OVC050 08/06 A2997 RMK

AO2

KW99 030115Z AUTO 0000KT 10SM -DZ BKN034 OVC041 08/06 A2997 RMK AO2

KW99 030155Z AUTO 0000KT 10SM SCT034 SCT055 OVC070 07/06 A2997 RMK AO2

The observations from the departure airport of Danville Regional Airport (KDAN) were as follows:

KDAN 022353Z AUTO 03003KT 10SM CLR 08/04 A3001

KDAN 030053Z AUTO 36004KT 10SM CLR 08/04 A3002

Accident 0055Z

KDAN 030153Z AUTO 22003KT 10SM FEW095 08/05 A3004

KDAN 030253Z AUTO 20003KT 10SM BKN080 08/05 A3004

KDAN 030353Z AUTO 21003KT 10SM FEW070 OVC085 08/06 A3004

KDAN 030453Z AUTO 27005KT 10SM -RA OVC045 09/05 A3005

Sounding – the closest upper air sounding from Sterling, Virginia 74 miles east of the accident site indicated a moist low-level environment with a relative humidity of 75 percent and greater from the surface to 12,800 feet. The freezing level was identified at 4,132 feet msl and supported icing in clouds and in precipitation to above 20,000 feet.

Satellite imagery – The GOES-13 infrared image for 2045 EDT (0045Z) is attached. The image depicts an area extensive area of clouds over the region with the radiative cloud top temperature over the accident site of 248° Kelvin or -25.16° C, which corresponded to cloud tops near 19,500 feet.

Pilot Reports (UA) – the following pilot reports were recorded over West Virginia surrounding the period:

LWB UA /OV LWB071005/TM 2055/FL070/TP C185/TA 02/IC LGT RIME=

PKB UA /OV JPU260040/TM 2345/FL230/TP MU2/TA M20/IC LGT-MOD RIME 230=

MGW UA /OV PIT180030/TM 2352/FL100/TP MD88/TA M04/IC LIGHT RIME ICE/RM DURGC 100-140=

HTS UA /OV I43/TM 0014/FL140/TP BE58/TA M7/IC LGT-MOD RIME/RM 140-110+ STILL GETTING ICE=

LWB UA /OV LWB360015/TM 0036/FL090/TP C310/TA 00/IC LGT-MOD MX=

Accident 0055Z

CRW UA /OV DLZ-CRW /TM 0408 /FL110 /TP C210 /TA UNKN /IC MOD RIME 110-040 /RM DURD CRW=

BLF UA /OV BLF090007 /TM 0442 /FL130 /TP SR22 /SK TOP120/ SKC /TA M10 /WV 34062KT /RM SMOOTH=

The reports were mainly from aircraft operating on IFR flight plans based on their reported altitude, and reported light to moderate rime to mixed type icing conditions.

NWS Area Forecast (FA) – the Boston regional forecast issued at 1341 EDT and was current through 0200 EDT on October 3, 2011, was as follows:

FAUS41 KKCI 021745

2011275 1741

FAIW

-BOSC FA 021745

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 031200

CLDS/WX VALID UNTIL 030600...OTLK VALID 030600-031200

ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA AND CSTL WTRS

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...CUTOFF UPR LOW IS CNTRD OVR MD WITH THE LRG CRCLN

EXTDG FM WRN NEW ENG TO THE CAROLINAS. LTL CHG EXP THRU THE PD AS

SVRL IMPLS ROTATE ARND THE CRLCN. LOW LVL LOW CNTR IS OVR ERN PA

AND COVERS MUCH OF THE NERN US AND MID ATLC RGN. LTL CHG EXP.

WV

NRN SXNS...BKN030-040 OVC080. TOPS 150. OCNL VIS 3-5SM -SHRA BR.

OTLK...IFR CIG SHRA BR.

SRN SXNS...BKN050. TOPS 090. BECMG 0003 OVC040 BKN100. TOPS 150.

SCT -SHRA. OTLK...MVFR CIG SHRA.

The forecast expected broken clouds at 5,000feet msl with tops to 9,000 feet, with overcast clouds at 4,000 feet after 2000 EDT. Occasional visibilities of 3 to 5 miles in light rain and mist was expected over the northern portion of the state.

NWS Advisories – The NWS had a full series of AIRMETs extending over the region.

WAUS41 KKCI 022045 2011275 2038
WAIS
-BOSS WA 022045
AIRMET SIERRA UPDT 4 FOR IFR AND MTN OBSCN VALID UNTIL 030300

**AIRMET IFR...ME NH VT MA RI CT NY LO NJ PA OH LE WV MD VA AND CSTL WTRS
FROM 60NE PQI TO 160ENE ACK TO ACK TO ALB TO HNK TO HAR TO 30SE
EKN TO 50SW AIR TO 40WSW ERI TO YYZ TO YOW TO YSC TO 60NE PQI
CIG BLW 010/VIS BLW 3SM PCPN/BR. CONDS CONTG BYD 03Z THRU 09Z.**

**AIRMET MTN OBSCN...ME NH VT MA NY PA WV MD VA
FROM 70NW PQI TO PQI TO MLT TO CON TO HNK TO HAR TO CSN TO LYH
TO HNN TO EWC TO JHW TO MSS TO YSC TO 70NW PQI
MTNS OBSC BY CLDS/PCPN/BR. CONDS CONTG BYD 03Z THRU 09Z.**

....
WAUS41 KKCI 022045 2011275 2034
WAIT
-BOST WA 022045
AIRMET TANGO UPDT 3 FOR TURB VALID UNTIL 030300

**AIRMET TURB...CT NY LO NJ PA OH LE WV MD DC DE VA NC AND CSTL
WTRS
FROM YOW TO ALB TO JFK TO 110SE SBY TO 20NE ECG TO 40SSW VXV TO
HMV TO HNN TO CVG TO FWA TO 30SE ECK TO YOW
MOD TURB BTN FL180 AND FL350. CONDS CONTG BYD 03Z THRU 09Z.**

....
WAUS41 KKCI 022045 2011275 2032
WAIZ
-BOSZ WA 022045
AIRMET ZULU UPDT 3 FOR ICE AND FRZLVL VALID UNTIL 030300

**AIRMET ICE...NY NJ PA WV MD DC DE VA AND CSTL WTRS
FROM 40WSW HNK TO SAX TO SIE TO 20NE ECG TO 40SSW RIC TO 20WSW
DCA TO SLT TO 40WSW HNK
MOD ICE BTN 050 AND 100. CONDS CONTG BYD 03Z ENDG 03-06Z.**

**AIRMET ICE...NY PA OH LE WV MD VA
FROM BUF TO SLT TO 20ESE CSN TO 40SSW RIC TO 40WSW BKW TO 40SW
CLE TO 30SE ECK TO BUF
MOD ICE BTN FRZLVL AND 160. FRZLVL 040-070. CONDS CONTG BYD 03Z
THRU 09Z.**

**OTLK VALID 0300-0900Z...ICE PA OH WV MD DC VA
BOUNDED BY SLT-30WSW ETX-ORF-LYH-40N HMV-HNN-30ENE APE-20N
EWC-SLT
MOD ICE BTN FRZLVL AND 160. FRZLVL 040-070. CONDS CONTG THRU 09Z.**

**FRZLVL...RANGING FROM 040-135 ACRS AREA
080 ALG 70ESE ECG-130SE SIE-40SSW BDL-40E SYR-80ENE YYZ
120 ALG 230S ACK-150S ACK-20ESE ACK-20WSW ENE-30S YSC-50NW
YSC-90W YQB**

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The NWS warned of IFR conditions, mountain obscuration, and icing conditions from the freezing level to 16,000 feet. The forecast for turbulence extended above the aircrafts cruising level.

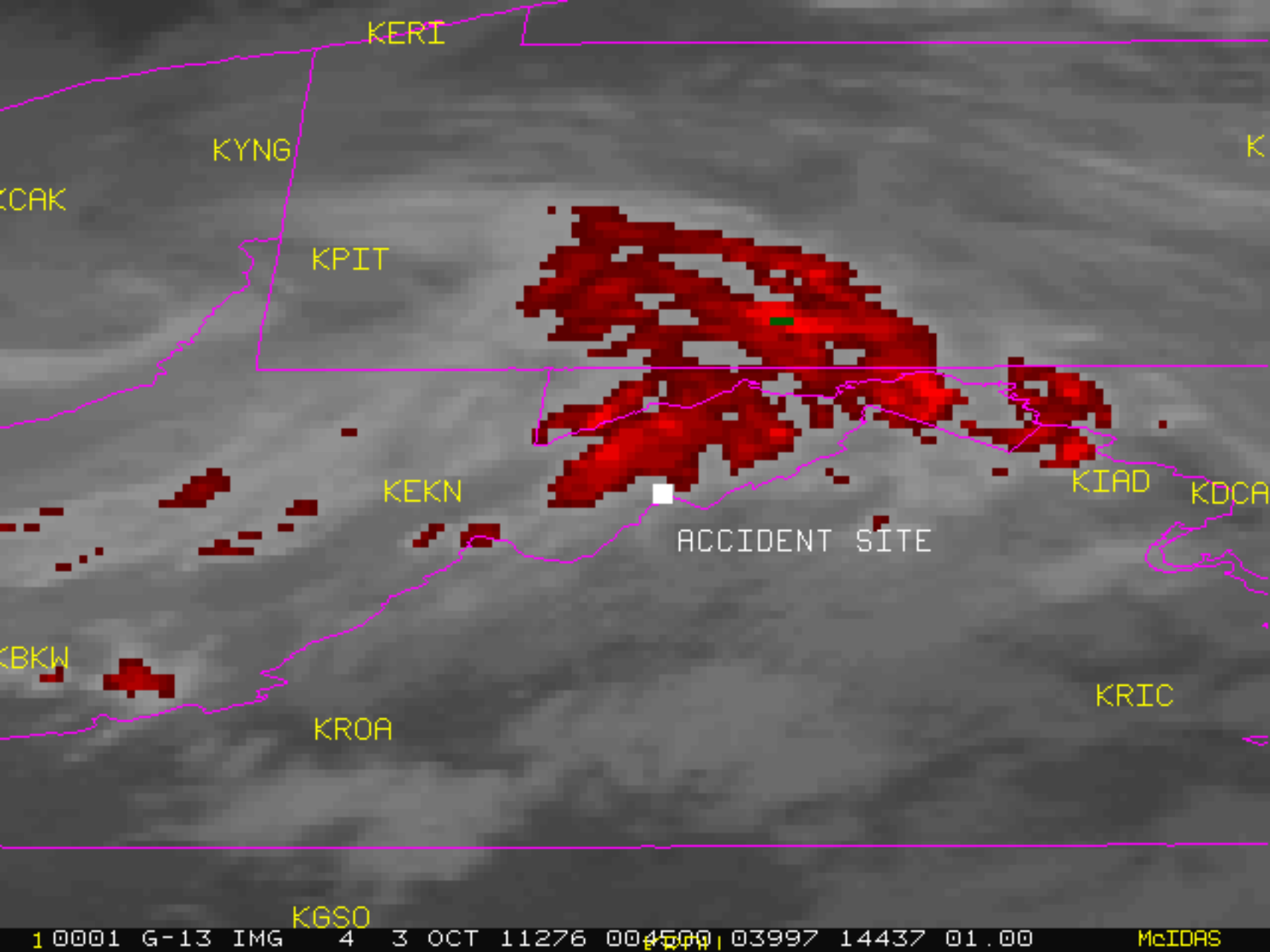
Weather radar data – the Sterling and Pittsburg WSR-88D weather radars were documented, but depicted no significant echoes over the accident site. The lowest elevation scan was at approximately at 8,000 feet above the accident site.

Astronomical conditions – the U. S. Naval Observatory for Petersburg, WV, indicated the following conditions:

Moonrise	1315 EDT
Sunset	1858 EDT
End of civil twilight	1925 EDT
Accident	2055 EDT
Moonset	2258 EDT

At the time of the accident the Sun was more than 15° below the horizon and the Moon was approximately 17° above the horizon at an azimuth of 218°. The phase of the Moon was a waxing crescent with 34% of the Moon's visible disk illuminated. However, given the cloud cover no illumination was likely over the accident site at the time of the accident.

Donald Eick
NTSB Senior Meteorologist



KERI

KYNG

KCAK

KPIT

KEKN

ACCIDENT SITE

KIAD

KDCA

KBKW

KROA

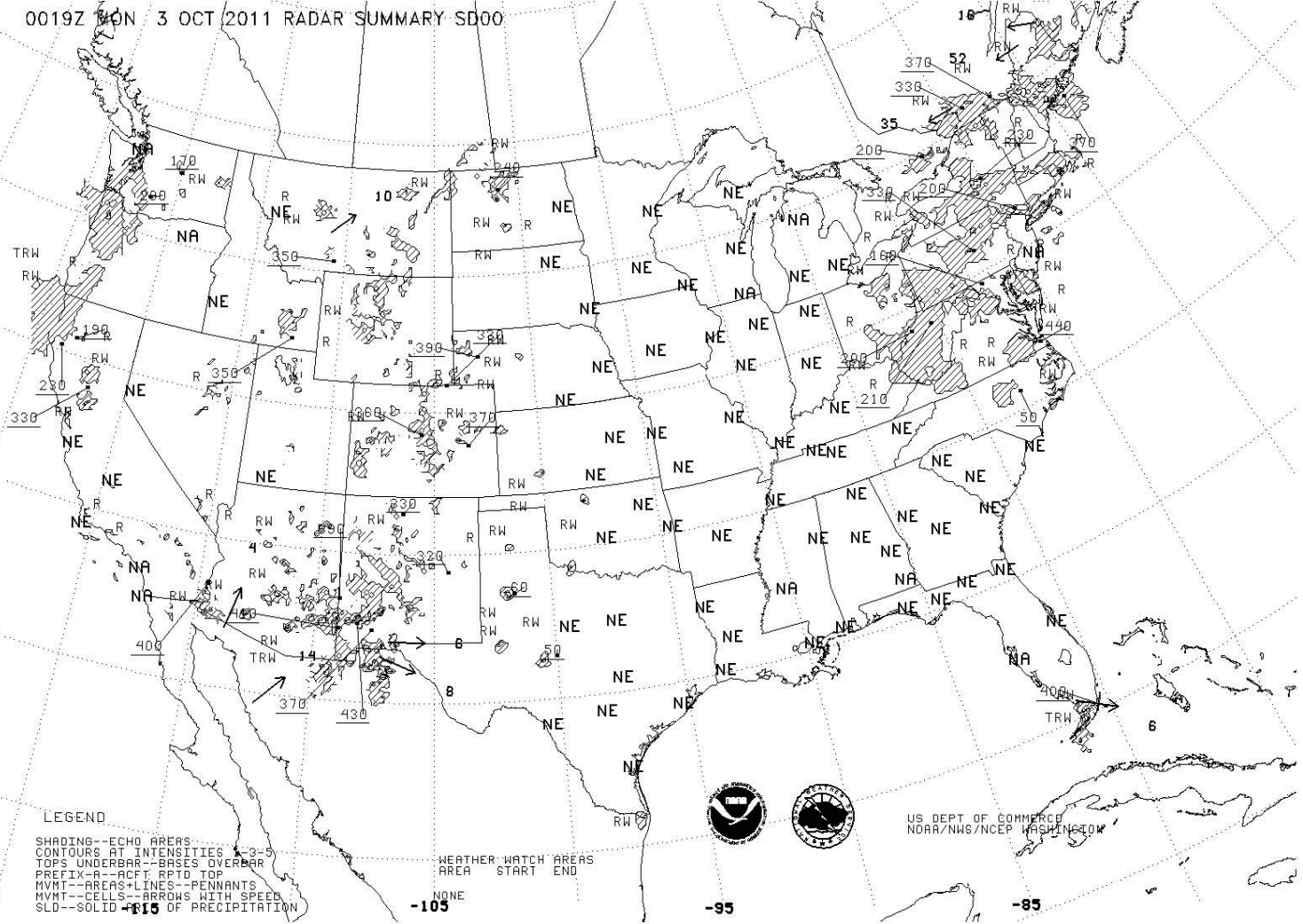
KRIC

KGSO

50

40

30



LEGEND

SHADING--ECHO AREAS
 CONTOURS AT INTENSITIES 1-3-5
 TOPS UNDERBAR--BASES OVERBAR
 PREFIX-A--ACFT RPTD TOP
 MVMT--ARCS+LINES--PENNANTS
 MVMT--CELLS--ARROWS WITH SPEED
 SLDD--SOLID--R15 OF PRECIPITATION

WEATHER WATCH AREAS
 AREA START END

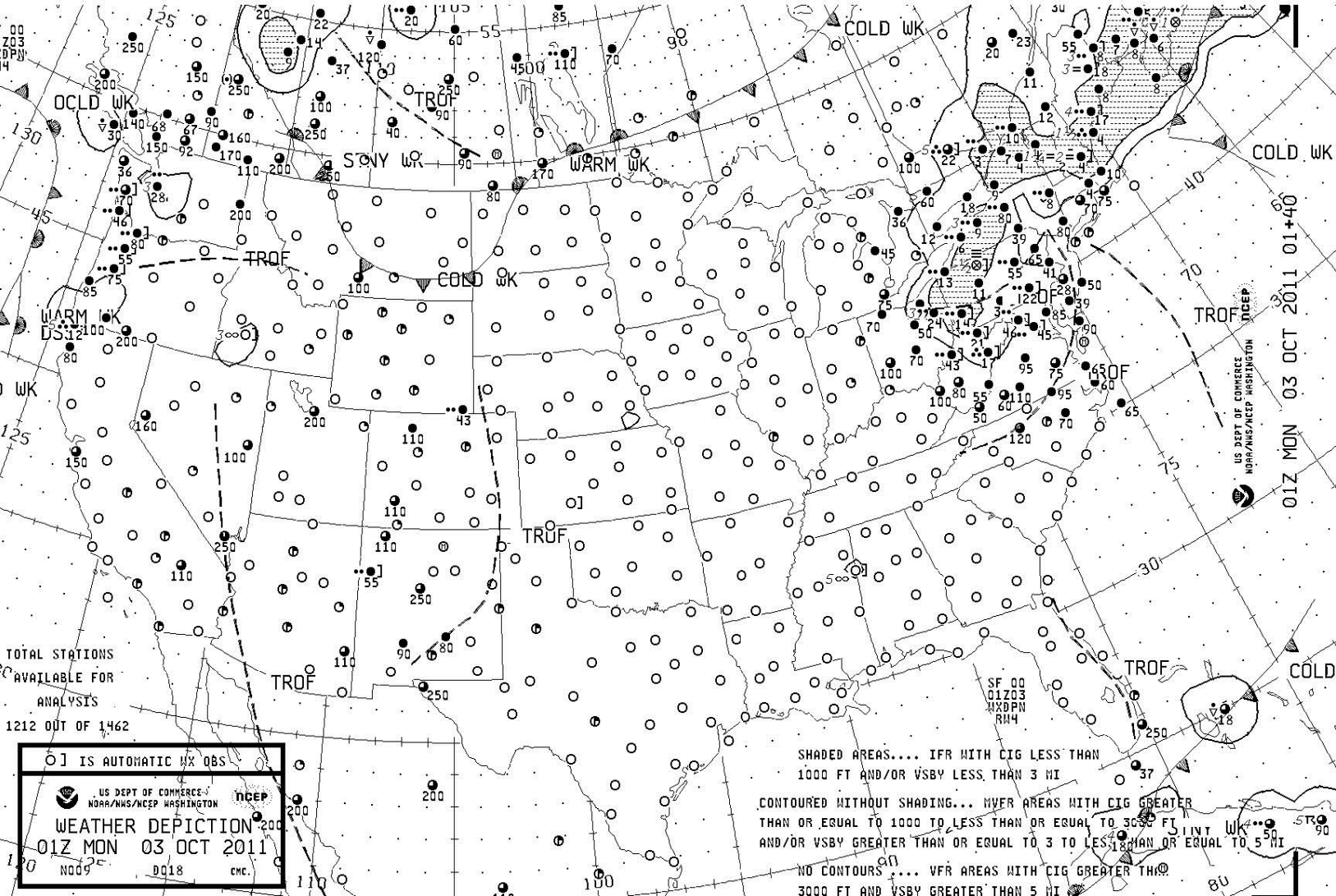
None
 -105





US DEPT OF COMMERCE
 NOAA/NWS/NCEP WASHINGTON

-95

-95



TOTAL STATIONS
AVAILABLE FOR
ANALYSIS
1212 OUT OF 1462

IS AUTOMATIC WX OBS
 US DEPT OF COMMERCE
 NOAA/NWS/NCEP WASHINGTON 
WEATHER DEPICTION
 01Z MON 03 OCT 2011
 NO09 0018 CMC

SHADED AREAS.... IFR WITH CIG LESS THAN
 1000 FT AND/OR VSBY LESS THAN 3 MI
 CONTOURED WITHOUT SHADING... MVFR AREAS WITH CIG GREATER
 THAN OR EQUAL TO 1000 TO LESS THAN OR EQUAL TO 3000 FT
 AND/OR VSBY GREATER THAN OR EQUAL TO 3 TO LESS THAN OR EQUAL TO 5 MI
 NO CONTOURS.... VFR AREAS WITH CIG GREATER THAN
 3000 FT AND VSBY GREATER THAN 5 MI

US DEPT OF COMMERCE
 NOAA/NWS/NCEP WASHINGTON

01Z MON 03 OCT 2011 01+40