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Subject: CEN13FA456 - St. Louis, MO
Date: Tuesday, August 06, 2013 11:59:02 AM
Attachments: [Radar1000Z.bmp](#)
[CEN13FA456-IR1015Z.GIF](#)

Weather conditions surrounding Spirit of St. Louis, MO on August 3, 2013

Synoptic conditions – The National Weather Service (NWS) Surface Analysis Chart for 0400 CDT (0900Z) on August 3, 2013 is included below. The chart depicted a low pressure system at 1014-hectopascals (hPa) over Lake Michigan with a cold front extending southwestward across Illinois and Missouri, which was depicted in the immediate vicinity of St. Louis. Another low pressure system at 1010-hPa was located over southwest Missouri associated with a frontal wave with a warm front over southern Missouri. The chart depicted a weak pressure gradient over eastern Missouri with calm winds. The station models depicted an extensive area of overcast clouds and fog, with temperatures in the 70's degrees Fahrenheit (F) and dew point temperatures in the 60's to low 70's in the area. Thunderstorms were also depicted over south central Missouri immediately west of the accident site.



The regional radar mosaic for 0458 CDT (0958Z) depicted a large area of weather echoes associated with a Mesoscale Convective System (MCS) over southwest into south central Missouri associated with an area of thunderstorms. No meteorological echoes were depicted within 20 miles of the accident site.

Observations – The Spirit of St. Louis Airport (KSUS) at an elevation of 463 feet and a magnetic variation of 2° east, had an Automated Surface Observation System (ASOS) and reported the

following conditions surrounding the period:

Spirit of St. Louis weather at 0454 CDT, automated observation, wind from 010° at 4 knots, visibility 3 miles in mist, ceiling overcast at 400 feet agl, temperature 22° Celsius (C), dew point 21° C, altimeter 29.95 inches of mercury. Remarks: automated observation system, ceiling 300 variable 800 feet, sea level pressure 1013.4-hPa, temperature 21.7° C, dew point 21.1° C.

A special observation was issued at 0512 CDT, with wind 020 at 7 knots, visibility 1 ¾ miles in mist, ceiling overcast at 400 feet. The ceiling was reported from 200 variable to 600 feet.

The raw observations were as follows:

METAR KSUS 030754Z AUTO 0000KT 1/4SM R08R/1400V2600FT FG BKN002 OVC049 21/21 A2994 RMK AO2 SLP130 T02060206=

SPECI KSUS 030806Z AUTO 0000KT 1SM R08R/3500VP6000FT BR BKN002 OVC031 21/21 A2993 RMK AO2=

SPECI KSUS 030815Z AUTO 0000KT 2 1/2SM BR SCT002 OVC029 21/21 A2993 RMK AO2=

METAR KSUS 030854Z AUTO 0000KT 3SM BR FEW024 OVC029 22/21 A2994 RMK AO2 SLP131 T02170211 55000=

SPECI KSUS 030927Z AUTO 01004KT 3SM BR SCT002 BKN022 OVC035 22/21 A2994 RMK AO2=

SPECI KSUS 030936Z AUTO 0000KT 3SM BR BKN004 OVC022 22/21 A2994 RMK AO2 CIG 002V006=

METAR KSUS 030954Z AUTO 01004KT 3SM BR OVC004 22/21 A2995 RMK AO2 CIG 003V008 SLP134 T02170211=

Accident 1010Z

SPECI KSUS 031012Z AUTO 02007KT 1 3/4SM BR OVC004 22/21 A2995 RMK AO2 CIG 002V006=

SPECI KSUS 031027Z AUTO VRB06KT 2 1/2SM BR OVC002 22/21 A2996 RMK AO2=

SPECI KSUS 031034Z AUTO 36004KT 4SM BR OVC002 22/21 A2997 RMK AO2 CIG 002V007=

METAR KSUS 031054Z 01005KT 5SM BR OVC006 22/21 A2997 RMK AO2 CIG 003V010 SLP141 T02220211=

METAR KSUS 031154Z 01004KT 5SM BR OVC007 22/21 A2998 RMK AO2 SLP145 70022 T02220206 10222 20206 53013=

METAR KSUS 031254Z 36003KT 6SM BR OVC011 22/21 A3001 RMK AO2 SLP155 T02220206=

IFR conditions were reported 2322 CDT on August 2 through 0554 CDT on August 3, 2013.

The **Terminal Aerodrome Forecast (TAF)** current at the time of the accident was the 2nd amendment and was as follows:

TAF AMD KSUS 030904Z 0309/0406 0000KT 3SM BR SCT002 BKN025

TEMPO 0309/0310 1SM BR BKN002

FM031000 0000KT 1/2SM FG BKN003

FM031300 VRB04KT 2SM BR SCT010

FM031400 36007KT P6SM SCT030 BKN250

FM040100 VRB04KT P6SM SCT250=

Aircraft Sounding (AMDAR) – a plot of an aircraft descending into St. Louis International Airport (KSTL) at 0509 CDT (1009Z) from the south is attached below. The sounding depicted a surface based temperature inversion to 1,600 feet with winds from the north at 10 knots below. No strong vertical wind shears were noted. Another sounding at 0636 CDT (1136Z) had an moisture sensor

S QTR...OVC100 TOP 150. WDLY SCT -TSRA. CB TOP FL400. BECMG 0407
BKN040 OVC100 TOP FL200. WDLY SCT TSRA POSS SEV. CB TOP FL450.
OTLK...MVFR CIG TSRA...16Z VFR.
RMNDR...BKN040 TOP 080. ISOL -TSRA. CB TOP FL400. 09Z BKN020. VIS
3-5SM BR. ISOL -TSRA. OTLK...MVFR CIG...16Z VFR.

In-Flight Weather Advisories – The NWS Aviation Weather Center (AWC) had the following advisories in effect at the time:

Convective SIGMET

-MKCC WST 030955
CONVECTIVE SIGMET 27C
VALID UNTIL 1155Z
MO AR OK KS
FROM 50ESE MCI-30SE FAM-ARG-50W TUL-60E ICT-50ESE MCI
AREA SEV TS MOV FROM 29025KT. TOPS ABV FL450.
HAIL TO 1.5 IN...WIND GUSTS TO 60KT POSS.

AIRMETS

WAUS43 KKCI 030245 2013215 0248
WA3S
-CHIS WA 030245
AIRMET SIERRA FOR IFR VALID UNTIL 030900

AIRMET IFR...SD NE KS
FROM 60NW RAP TO 40NNE ONL TO 50E SLN TO 50ESE GCK TO 50SE LAA
TO 50ESE SNY TO 30W BFF TO 60NW RAP
CIG BLW 010/VIS BLW 3SM BR. CONDS CONTG BYD 09Z THRU 15Z.

AIRMET IFR...MO IL

**FROM 30NNW AXC TO 40SSE AXC TO 60S COU TO 30ENE BUM TO 40WSW IRK TO 30NNW AXC
CIG BLW 010/VIS BLW 3SM BR. CONDS DVLPG 03-06Z. CONDS CONTG BYD 09Z THRU 15Z.**

OTLK VALID 0900-1500Z...IFR KS MO IL IN
BOUNDED BY FWA-CVG-50SSW TTH-40WSW FAM-40SE SGF-OSW-50ENE ICT-40SSW PWE-MCI-60WSW IRK-
30NNW AXC-FWA
CIG BLW 010/VIS BLW 3SM BR. CONDS CONTG THRU 15Z.

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WAUS43 KKCI 030245 2013215 0241
WA3T
-CHIT WA 030245
AIRMET TANGO FOR TURB VALID UNTIL 030900

AIRMET TURB...ND SD MN WI LM LS MI
FROM 80ESE YWG TO 50ESE INL TO 50NE GRB TO 40SE BAE TO 60SSW ISN TO 50NNW ISN TO 80ESE YWG
MOD TURB BTN FL280 AND FL410. CONDS CONTG BYD 09Z THRU 15Z.

OTLK VALID 0900-1500Z...TURB ND SD MN WI LM LS MI
BOUNDED BY 50NW INL-20ENE INL-TVC-PMM-30SSW ISN-50NNW ISN-50NW INL
MOD TURB BTN FL280 AND FL410. CONDS CONTG THRU 15Z.

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WAUS43 KKCI 030245

2013215 0244

WA3Z

-CHIZ WA 030245

AIRMET ZULU FOR ICE AND FRZLVL VALID UNTIL 030900

AIRMET ICE...IL IN KY

FROM CVG TO HNN TO 50WSW BKW TO 20S LOZ TO 30NNE DYP TO 60S AXC TO CVG
MOD ICE BTN 140 AND FL240. CONDS CONTG BYD 09Z ENDG 09-12Z.

FRZLVL...RANGING FROM 085-170 ACRS AREA

120 ALG 40SSW ISN-30E BIS-40W MKG-20SW DXO

160 ALG 20NNW GLD-20ENE HLC-50W OSW

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Pilot Reports – the following pilot report was issued:

STL UA /OV STL /TM 1140 /FLUNKN /TP B732 /SK OVC011-TOP025 /RM HI LYR ABV=

Weather Briefing – Still waiting on any weather briefing from AFSS (Lockheed Martin) or DUAT vendors.

Astronomical Data – The United States Naval observatory's website provided the following astronomical conditions for August 3, 2013 for St. Louis, Missouri. Beginning of civil twilight was at 0535 CDT, and Sunrise at 0605 CDT. At the time of the accident the Sun was located 10° below the horizon at an azimuth of 58°. The Moonrise occurred at 0315 CDT and was a waning crescent with 9% of the Moon's visible disk illuminated.

Summary – satellite and sounding data indicated the fog and low stratus clouds extended to approximately 6,000 feet with large area of convective echoes was not a factor in the accident and no other significant weather was depicted enroute. Night IMC conditions in fog prevailed at the time of the accident and no significant icing, turbulence, or precipitation was detected over the area.

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