

Nixon Albert

Subject: FW: WPR19LA006 - Cape Girardeau, MO Weather

From: Eick Donald

Sent: Thursday, October 24, 2019 2:44 PM

To: Nixon Albert >

Cc: Helson David >

Subject: WPR19LA006 - Cape Girardeau, MO Weather

Weather conditions for WPR19LA009 – Cape Girardeau, MO on October 9, 2018

Synoptic conditions – the central section of the NWS Surface Analysis Chart for 100 CDT (1500Z) is included below with the accident site locate within the red circle with the station model of Cape Girardeau, MO. The chart depicted a low pressure system at 1014-hectopascals (hPa) over Wisconsin, with a stationary front extending southwest from the low across Wisconsin, Iowa, extreme northwest Missouri, Kansas, into Oklahoma, where another low pressure system at 1005-hPa was located. A large area of area of moderate to heavy rain was depicted along and behind the frontal areas, with thunderstorm activity over northern Texas into Oklahoma. A high pressure system at 1029-hPa was located off the New Jersey coast with a ridge of high pressure extending west-southwest into Ohio and Tennessee Valley's. The accident site was located in the warm air sector ahead of the frontal system in a region of increasing pressure gradient with south-southeast winds of 10 to 15 knots, and partly cloudy sky conditions. The station model for Cape Girardeau indicated wind from the south-southeast at 10 knots, clear skies, temperature of 78° Fahrenheit (F), dew point 68° F, with pressure tendency falling over the period.



A review of the NWS National Composite Radar Mosaic for 1050 CDT (1550Z) is included with the approximate accident site marked by a red star. No weather echoes were identified in the immediate vicinity of the accident site, thus no

convective wind gusts, outflow boundaries, or microbursts contributed to the accident. Significant echoes were identified over Kansas and Oklahoma far to the west of the accident site.



Observations - Cape Girardeau Regional Airport (KCGI), Cape Girardeau, Missouri, lists an elevation of 342 ft, and a magnetic variation of approximately 2° W. The airport had an operating control tower and an Automated Surface Observation System (ASOS) which was augmented during the hours of tower operation. The following conditions were disseminated for KCGI surrounding the time of the accident:

METAR KCGI 091153Z AUTO 13007KT 10SM BKN090 22/19 A3000 RMK AO2 SLP155 T02220194 10233 20222 53001=
METAR KCGI 091253Z 13009KT 10SM BKN095 23/19 A3000 RMK AO2 SLP155 T02280194=
METAR KCGI 091353Z 14010KT 10SM SCT090 23/19 A3000 RMK AO2 SLP157 T02330194=
METAR KCGI 091453Z 15010KT 10SM CLR 26/20 A3000 RMK AO2 SLP156 T02560200 52001=
Accident 1550Z
METAR KCGI 091553Z 15012KT 10SM SCT031 28/19 A2998 RMK AO2 SLP149 T02830194=
SPECI KCGI 091614Z 14015G22KT 10SM FEW034 28/19 A2997 RMK AO2 T02830194=
METAR KCGI 091653Z 14013G24KT 10SM SCT036 29/19 A2995 RMK AO2 PK WND 15026/1643 SLP140 T02890189=
METAR KCGI 091753Z 14013G21KT 10SM BKN040 BKN048 30/19 A2994 RMK AO2 PK WND 14028/1737 SLP132 T03000189 10300 20222
56023=

A review of the NWS high resolution data or 5-minute ASOS observations were obtained from NWS archives surrounding the period and represent what the system was reporting and likely transmitted to the flight. Differences in the issuance METARs were noted with respect to the gusts, and cloud cover during the period.

5-MIN KCGI 091510Z 15015G20KT 10SM FEW026 27/20 A3000 270 66 1700 150/15G20 RMK AO2 T02670200
5-MIN KCGI 091515Z 15013G21KT 10SM FEW026 27/20 A2999 280 64 1800 150/13G21 RMK AO2 T02720200
5-MIN KCGI 091520Z 15011G21KT 10SM FEW026 27/20 A2999 280 64 1800 150/11G21 RMK AO2 T02720200
5-MIN KCGI 091525Z 16010G20KT 10SM FEW026 27/20 A2999 280 64 1800 160/10G20 RMK AO2 T02720200
5-MIN KCGI 091530Z 15012G21KT 10SM FEW026 27/19 A2999 280 62 1800 150/12G21 RMK AO2 T02720194
5-MIN KCGI 091535Z 15013G21KT 10SM FEW027 28/19 A2999 280 60 1900 150/13G21 RMK AO2 T02780194
5-MIN KCGI 091540Z 16014G24KT 10SM SCT029 28/19 A2999 280 60 1900 160/14G24 RMK AO2 T02780194
5-MIN KCGI 091545Z 15011G24KT 10SM SCT031 28/19 A2998 290 60 1900 150/11G24 RMK AO2 T02780194
5-MIN KCGI 091550Z 15012G20KT 10SM SCT031 28/19 A2998 290 60 1900 150/12G20 RMK AO2 SLP149 T02780194
5-MIN KCGI 091555Z 16013G20KT 10SM SCT031 28/19 A2998 290 58 1900 160/13G20 RMK AO2 T02830194
5-MIN KCGI 091600Z 14014G22KT 10SM SCT031 28/19 A2998 290 58 1900 140/14G22 RMK AO2 T02830194
5-MIN KCGI 091605Z 15012G22KT 10SM SCT032 28/19 A2997 290 58 1900 150/12G22 RMK AO2 T02780189
5-MIN KCGI 091610Z 16015G22KT 10SM FEW032 28/19 A2997 300 56 1900 160/15G22 RMK AO2 T02830189
5-MIN KCGI 091615Z 14016G22KT 10SM FEW034 28/19 A2997 300 58 1900 140/16G22 RMK AO2 T02830194
5-MIN KCGI 091620Z 14014G22KT 10SM SCT034 28/19 A2997 300 56 1900 140/14G22 RMK AO2 T02830189
5-MIN KCGI 091625Z 15016G23KT 10SM SCT034 28/19 A2997 300 56 1900 150/16G23 RMK AO2 T02830189
5-MIN KCGI 091630Z 15014G23KT 10SM SCT034 28/19 A2996 300 58 1900 150/14G23 RMK AO2 T02830194

5-MIN KCGI 091635Z 15014G23KT 10SM SCT036 28/19 A2996 300 56 1900 150/14G23 RMK AO2 T02830189
5-MIN KCGI 091640Z 16014G23KT 10SM SCT036 29/19 A2996 310 56 2000 160/14G23 RMK AO2 T02890194
5-MIN KCGI 091645Z 14016G26KT 10SM SCT036 29/19 A2996 310 54 2000 140/16G26 RMK AO2 PK WND 15026/1643 T02890189
5-MIN KCGI 091650Z 14014G26KT 10SM SCT036 29/19 A2995 310 54 2000 150/14G26 RMK AO2 PK WND 15026/1643 SLP140 T02890189

At the time of the accident the KCGI ASOS reported the following conditions:

KCGI weather at 0950 CDT, wind from 150° at 12 knots gusting to 20 knots, visibility 10 statute miles or more, scattered clouds at 3,100 ft agl, temperature 28° Celsius (C), dew point 19° C, and altimeter setting 29.98 inches of mercury (Hg), pressure altitude 290 ft, relative humidity 60%, density altitude 1,900 ft, magnetic wind 150° at 12 knots gusting to 20 knots. Remarks; automated station with a precipitation discriminator, sea-level pressure 1014.0-hPa, temperature 27.8° C, dew point 19.4° C.

Based on the observations at 0950 CDT observation, a heading of 203° on runway 20, the headwind component was calculated using the E6B website (<https://e6bx.com/wind-components/>) and determined to be 8 to 12 knots based on the sustained 2-minute average wind and gust factors, with the crosswind component was 9 to 15.3 knots.

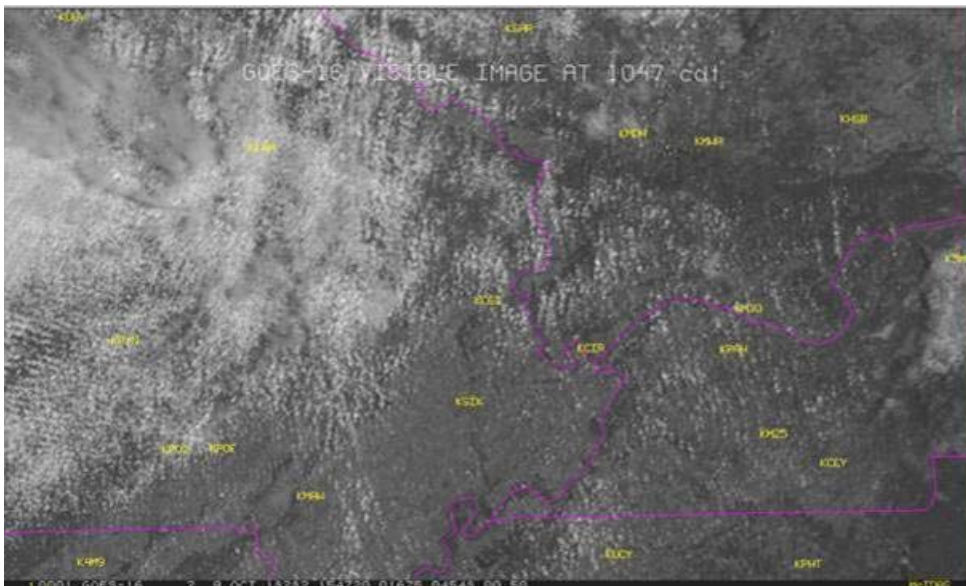
Terminal Aerodrome Forecast (TAF) issued for KCGI during the period, the forecast issued at 0620 CDT was available for any planning purposes and indicated a wind from 150° at 7 knots through the period. The forecast was amended at 1029 CDT, which amended the winds to 150° at 10 knots gusting to 16 knots during the period. The forecasts were as follows:

TAF KCGI 091120Z 0912/1012 15007KT P6SM SCT100
FM100700 15008KT P6SM BKN070
FM100900 17008KT P6SM BKN030
FM101100 16006KT P6SM OVC030=

AMD TAF KCGI 091529Z 0915/1012 15010G16KT P6SM SCT100
FM100000 15008KT P6SM BKN070
FM100900 17008KT P6SM BKN030
FM101100 16006KT P6SM OVC030=

Pilot Reports – a search of relevant PIREPs over the area indicated no significant reports within a 100 miles or with 3 hours either side of the time of the accident.

Satellite Imagery – the GOES-16 visible image at 2X magnification is included below and depicted scattered fair weather cumulus over the area.



Inflight Weather Advisories – the NWS Aviation Weather Center had an AIRMET Tango series current for the region for moderate turbulence below 15,000 ft. There were no SIGMETs, Convective SIGMETs, AIRMETS for IFR, mountain obscuration, turbulence, low-level wind shear, or icing current over the region outside of convective activity.

Summary – the 5-minute data for KCGI indicated stronger than the disseminated METAR observations. The crosswind factor for runway 20 based on the ASOS 5-minute wind from 150° at 12 knots gusting to 20 knots ranged from 9 to 15.3 knots. It is unknown what the tower advised the flight of the wind speed and any gusts. A difference was noted in the disseminated METARs and the raw 5-minute ASOS data, which were augmented by tower personnel. Failure to report the gust factor in the METAR reports minimized the crosswind factor.

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