



MEMORANDUM FOR RECORD

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Office of Aviation Safety-Eastern Region

Date: November 14, 2024

Subject: ERA24LA041, Weather Factual Information

Contact: NTSB Staff Meteorologist

An NTSB staff meteorologist provided the following weather product in support of the investigation:

Synoptic Conditions - The southeast section of the NWS Surface Analysis Chart for 1300 EST (1800Z) depicted an east-to-west quasi-stationary front extending over northern Florida and in the vicinity of the accident site. A high-pressure system was located over the Carolinas at 1028-hectopascals (hPa) with a ridge extending southwestward. The chart depicted generally easterly winds over northern Florida in the vicinity of the accident site at 10 knots or less. The station models depicted general scattered clouds south of the front and broken to overcast sky conditions north of the front.

A regional review of the National Composite Radar Mosaic for 1355 EST depicted several areas of developing echoes about 15 to 20 miles west and northwest of the airport. The closest echoes of light intensity echoes were about 8 miles northwest of the airport, with no significant echoes within 5 miles of the accident site at the time.

Surface Weather Observations - The Lake City Gateway Airport (KLCQ) had an Automated Weather Observation System (AWOS) and broadcasted observations every minute on 120.675 VHF and disseminated the reports longline every 20-minutes.

The following conditions were reported surrounding the period:

METAR KLCQ 111755Z AUTO 11006KT 10SM SCT023 SCT031 27/21 A3009 RMK AO2=

METAR KLCQ 111815Z AUTO 08005KT 10SM SCT023 SCT050 27/21 A3007 RMK AO2=

METAR KLCQ 111835Z AUTO 09004KT 10SM SCT024 28/21 A3007 RMK AO2=

METAR KLCQ 111855Z AUTO 10006KT 10SM SCT026 28/21 A3007 RMK AO2=

Accident 1857Z

METAR KLCQ 111915Z AUTO 07005KT 10SM SCT030 SCT085 28/20 A3007 RMK AO2=

METAR KLCQ 111935Z AUTO 12006KT 10SM SCT032 SCT039 BKN085 28/20 3007 RMK AO2=

METAR KLCQ 111955Z AUTO 12006KT 10SM SCT050 SCT090 28/20 A3007 RMK AO2=

METAR KLCQ 112015Z AUTO 08005KT 10SM CLR 27/21 A3007 RMK AO2=

METAR KLCQ 112035Z AUTO 07008KT 10SM SCT038 26/21 A3007 RMK AO2=

METAR KLCQ 112055Z AUTO 10009G14KT 10SM SCT020 SCT047 BKN080 25/21 A3007 RMK AO2=

METAR KLCQ 112115Z AUTO 04008G18KT 10SM BKN018 BKN047 OVC080 23/20 A3008 RMK AO2=

METAR KLCQ 112135Z AUTO 01007G16KT 330V030 1/2SM +RA SCT006 OVC016 21/20 A3011 RMK AO2 P0047=

METAR KLCQ 112155Z AUTO 03007KT 2 1/2SM +RA BKN014 BKN023 OVC030 20/19 A3012 RMK AO2 P0064=

METAR KLCQ 112215Z AUTO 04010KT 2 1/2SM RA BKN012 BKN027 OVC050 19/19 A3012 RMK AO2 P0009=

METAR KLCQ 112235Z AUTO 06005KT 5SM RA BKN006 BKN009 OVC046 19/18 A3014 RMK AO2 P0010=

METAR KLCQ 112255Z AUTO 07006KT 7SM OVC006 18/18 A3014 RMK AO2 P0011=

METAR KLCQ 112315Z AUTO 06005KT 10SM BKN006 BKN012 OVC040 18/18 A3015 RMK AO2=

Sounding - A High-Resolution Rapid Refresh (HRRR) numerical model data was obtained from the NOAA Air Resource Laboratory for the period and plotted on a standard skew T log P diagram using the RAOB Analyst software program.

The sounding depicted an elevation of 184 ft over the grid point with a near surface temperature of 28.3°C (82.9°F), a dew point temperature of 19.5°C (67°F), with a relative humidity of 59%, and a density altitude of 1,829 ft. The lifted condensation level (LCL) and level of free convection (LFC) were identified at 3,674 ft agl, the convective condensation level (CCL) at 4,800 ft agl, with the equilibrium level (LFC-EL) near 33,600 ft. The precipitable water content was 1.63 inches. The atmosphere was characterized as conditionally unstable with a Lifted Index (LI) of -1.1, a K-index of 28, a Convective Available Potential Energy (CAPE) of 417 Joules/kilogram, and a maximum vertical velocity (MVV) of the potential updrafts of 29 meters/second (5,700 fpm). The WindEx indicated potential outflow winds up to 39 knots. The freezing level was identified at 15,770 ft.

The sounding wind profile indicated a near surface wind from 060° at 4 knots with little variation with wind direction and speed through 3,000 ft. The wind shifted to the south above 3,000 ft and veered to the west through 10,000 ft with wind speeds less than 10 knots. The mean 0 to 6 kilometer or 18,000 ft wind was from 245° at 12 knots. The sounding wind profile did not indicate the support for any significant low-level wind shear or turbulence below 10,000 ft outside of any potential convection.

Satellite Imagery - The GOES-16 infrared and visible imagery for 1356 EST at 4X and 2X magnification respectively showed an area of fair weather cumulus over central Florida into the KLCQ area, with cumulus congestus or towering cumulus type clouds west and northwest of KLCQ. No defined cumulonimbus type clouds were identified in the immediate vicinity at the time of the images.

Weather Radar Imagery - The closest NWS Weather Surveillance Radar 1988 Doppler (WSR-88D) was located about 48 miles east in Jacksonville, FL. The KJAX WSR-88D 0.5° base reflectivity image for 1356 EST with KLCQ noted depicted a developing area of echoes near 55 dBZ about 18 miles west of KLCQ. A review of the imagery from 1339 through 1414 EST showed that the area of echoes had formed rapidly during the previous 20-minutes and was slowly moving eastward. No

significant echoes were identified in the vicinity of the accident site until well after the accident.

A review of the WSR-88D KJAX base velocity data showed no significant outflow boundaries or divergent couplets typically associated with gust fronts or microbursts over KLCQ at the time. A separate review of lightning data indicated no flashes in the 20 mile radius of the accident site surrounding the period.

Pilot Reports - the following pilot reports (PIREPs) within 50 miles of KLCQ from 1300 through 1700 EST were reported into the National Airspace System (NAS).

*GNV UA /OV TAY/TM 1856/FL330/TP A320/TB NEG JAX UA /OV
GNV180006/TM 1915/FL040/TP BKN035*

*CTY UA /OV CTY /TM 2012 /FL070 /TP SR22 /SK SCT-BKN060-TOP100 /TA 12
/VV 35008KT /TB NEG /IC NEG*

NWS Inflight Weather Advisories - the NWS had no Convective SIGMETs, SIGMETs, Center Weather Advisories, or Graphic-AIRMETs over the airport surrounding the period between 1400 through 1600 EST.