

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA25MA171

METEOROLOGY

Specialist's Factual Report

May 13, 2025

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A. ACCIDENT

Location: Jersey City, New Jersey
Date: April 10, 2025
Time: 1515 eastern daylight time (EDT)
1915 coordinated universal time (UTC)
Helicopter: Bell 206L-4; Registration: N216MH

B. METEOROLOGY INVESTIGATOR

Donald Eick
Senior Meteorology
National Transportation Safety Board
Operational Factors Division (AS-30)
Washington, DC

C. SUMMARY

On April 10, 2025, about 1515 eastern daylight time, a Bell 206L-4 helicopter, N216MH, was substantially damaged when it was involved in an accident near Jersey City, New Jersey. The pilot and five passengers were fatally injured. The helicopter was operated as a *Title 14 Code of Federal Regulations* Part 91 air tour flight.

D. DETAILS OF THE INVESTIGATION

The meteorology phase of the investigation was conducted remotely, collecting data from official National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) sources including the Weather Prediction Center (WPC), and the National Center for Environmental Information (NCEI). All times are reported as eastern daylight time (EDT) based upon the 24-hour clock, local time is -4 hours from UTC, and UTC=Z. Airport and NWS station identifiers use the standard International Civil Aviation Organization 4-letter station identifiers versus the International Air Transport Association 3-letter identifiers, which deletes the initial country code designator "K" for U.S. continental airports. Directions are referenced to true north and distances in nautical miles. Heights are in feet (ft) above mean sea level (msl) unless otherwise noted. Visibility is in statute miles and fractions of statute miles.

The accident site was estimated at latitude 40.728895°N and longitude 74.027206°W.

E. FACTUAL INFORMATION

1.0 Synoptic Conditions

The synoptic or large-scale migratory weather systems influencing the area were documented using standard NWS charts issued by the National Center for Environmental Prediction (NCEP) and the WPC located in College Park, Maryland. These are the base products used in describing weather features and in the creation of forecasts and warnings. Reference to these charts and other products can be found in the Federal Aviation Administration (FAA) "Aviation Weather Handbook", FAA-H-8083-28¹.

1.1 Surface Analysis Chart

The northeast section of the NWS Surface Analysis Chart for 1400 EDT is included as figure 1 with the approximate accident site marked by the red star. The chart depicted a high pressure system at 1031-hectopascals (hPa) off the Nova Scotia coast with a ridge extending southwestward into central New Jersey. To the west over Ohio a low-pressure system at 1016-hPa was depicted associated with a developing frontal wave, with a cold front extending southwestward and a developing warm front to the south. The station models depicted general south to southeast wind at 10 to 15 knots with overcast cloud cover over the region with numerous stations in western New York, Pennsylvania, and West Virginia reporting rain and snow. In the New York City area temperatures were in the near 45° Fahrenheit (F), with dew point temperatures in the mid 20's °F, with visibility unrestricted.

¹ <https://www.faa.gov/regulationspolicies/handbooksmanuals/aviation/faq-h-8083-28-aviation-weather-handbook>

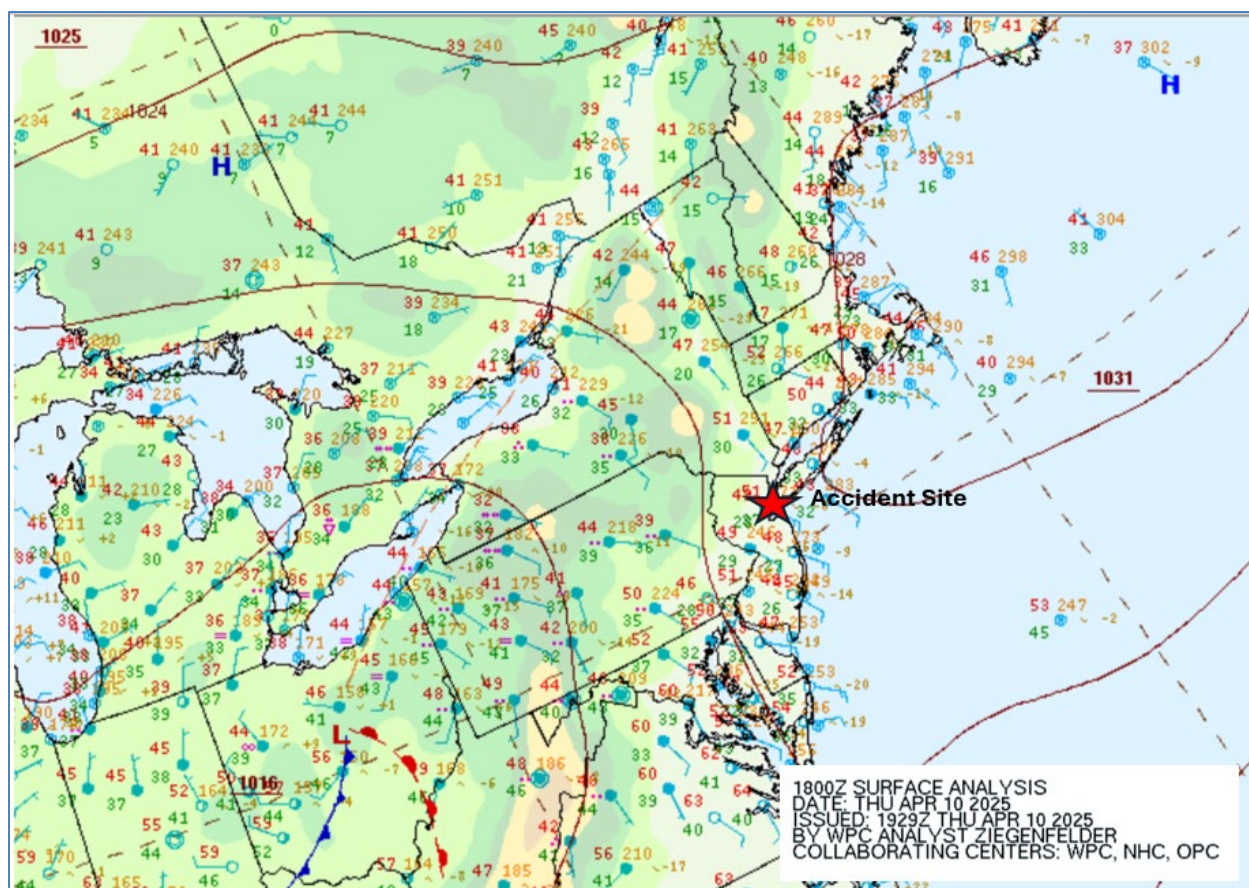


Figure 1 - NWS northeast section of the Surface Analysis Chart for 1400 EDT with the approximate accident site marked by the red star.

1.2 Regional Composite Radar Mosaic

The NWS NCEI Regional Composite Radar Mosaic for 1515 EDT is included as figure 2 with the approximate accident site marked by the red star. The image depicted very light intensity echoes of less than 20 dBZ over an area bordering the accident site. A larger area of light precipitation was noted over New Jersey to the southwest.

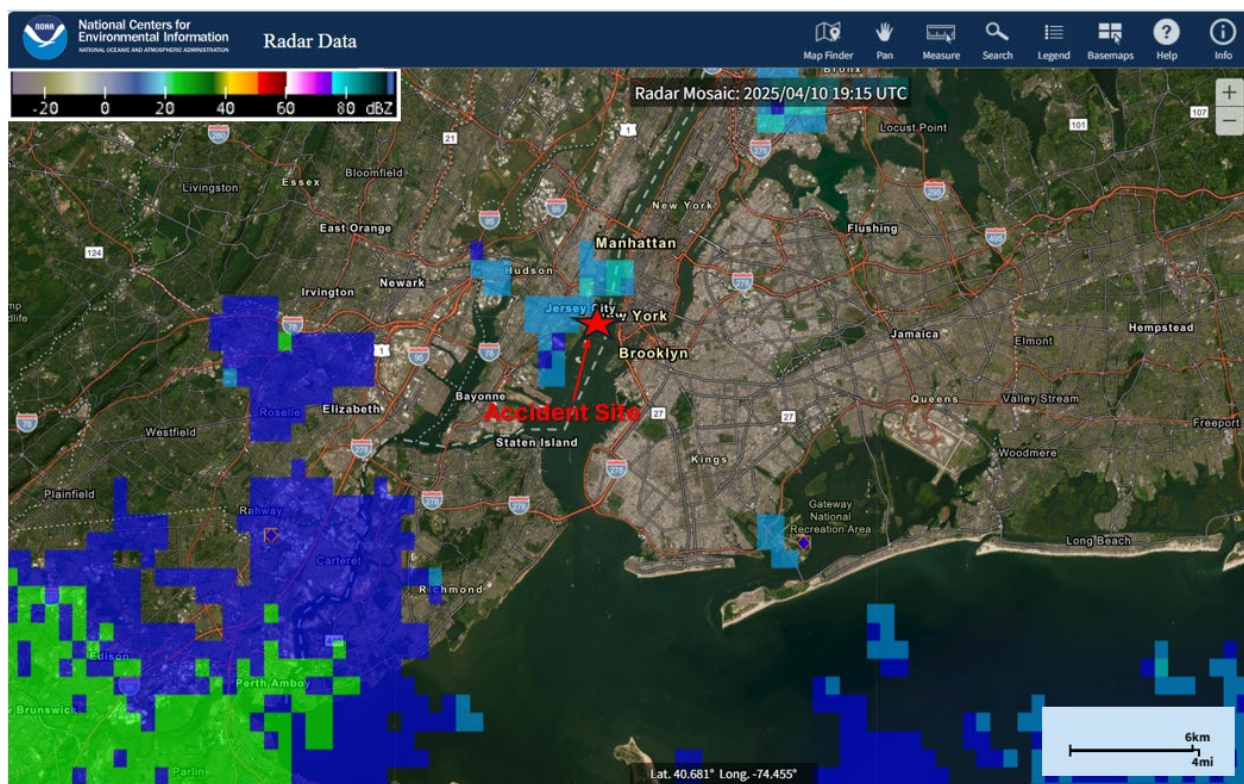


Figure 2 - NWS Regional Composite Radar Mosaic for 1515 EDT with the approximate accident site marked by the red star.

2.0 Surface Observations

The area surrounding the accident site was documented using official Aviation Routine Weather Reports (METAR) and Aviation Selected Special Weather Reports (SPECI). Cloud heights are reported above ground level (agl) in the following section. The magnetic variation over the area was estimated at 13° West based on the latest sectional chart for the area.

2.1 Downtown Manhattan/Wall Street Heliport, NY

The closest official weather reporting location was the departure heliport at the Downtown Manhattan/Wall Street Heliport (KJRB), New York, NY, located about 2 miles south of the accident site at an elevation of 7 ft. The heliport had an Automated Weather Observation System (AWOS-3PT) which transmitted locally on 128.175 VHF and disseminated observations hourly with specials as required. The following conditions were reported from the time of departure through the accident.

KJRB weather at 1456 EDT, automated, wind from 150° at 10 knots gusting to 18 knots, wind 120° variable 190°, visibility 10 miles or more, ceiling broken at 7,500 ft agl, temperature 8°C (46°F), dew point temperature -2°C (29°F),

altimeter setting 30.34 inches of mercury (inHg). Remarks: automated station with a precipitation discriminator, peak wind from 260° at 36 knots reported at 1423 EST, sea-level pressure 1027.4-hPa, temperature 7.8°C, dew point -1.7°C, precipitation sensor inoperative, maintenance indicator on (\$)².

A review of the 5-minute AWOS observations for KJBR for 1515 EDT indicated the wind was from 150° at 8 knots, visibility 10 miles or more, ceiling overcast at 7,000 ft agl, temperature 46.4°F, dew point 26.6°F, relative humidity 46%, altimeter setting 30.34 inHg. Remarks; wind from 110° variable 170°.

The general flight categories³ and raw observations in standard code and abbreviation with time referenced to UTC were as follows between about 1300 through 1700 EDT were as follows.

VFR METAR KJRB 101656Z AUTO 16012G18KT 10SM FEW033 09/00 A3036 RMK AO2 SLP281
T00940000 PNO \$

VFR METAR KJRB 101756Z AUTO 17012G20KT 10SM OVC100 08/M01 A3035 RMK AO2 SLP277
6//// T00831006 10100 20067 56008 PNO \$

**VFR METAR KJRB 101856Z AUTO 15010G18KT 120V190 10SM BKN075 08/M02 A3034 RMK
AO2 PK WND 26036/1823 SLP274 T00781017 PNO \$**

Accident 1915Z

VFR METAR KJRB 101956Z AUTO 18008KT 10SM BKN060 OVC070 07/M03 A3034 RMK AO2 SLP272
T00721028 PNO \$=

MVFR METAR KJRB 102056Z AUTO 16008G16KT 10SM -RA BKN026 OVC033 06/01 A3034 RMK AO2
RAB19 SLP273 6//// T00560006 55004 PNO \$=

The KJRB 5-minute AWOS observations immediately surrounding the time of the accident between 1445 and 1530 were also captured during the period and were as follows.

² Maintenance indicator indicates a notification to the FAA technical services to service the system due to one or more of the sensors not operative or out of tolerance.

³ As defined by the NWS and the FAA Aeronautical Information Manual (AIM) section 7-1-7 defines the following general flight categories:

- Low Instrument Flight Rules (LIFR*) - ceiling below 500 ft agl and/or visibility less than 1 statute mile.
- Instrument Flight Rules (IFR) - ceiling between 500 to below 1,000 feet agl and/or visibility 1 to less than 3 miles.
- Marginal Visual Flight Rules (MVFR**) - ceiling from 1,000 to 3,000 ft agl and/or visibility 3 to 5 miles.
- Visual Flight Rules (VFR) - ceiling greater 3,000 ft agl and visibility greater than 5 miles.

* By definition, IFR is a ceiling less than 1,000 ft agl and/or visibility less than 3 miles while LIFR is a sub-category of IFR. ** MVFR is a subset of VFR.

5-min METAR KRJB 101845Z AUTO 17011KT 10SM BKN070 BKN090 08/M02 A3034 RMK T00801020
 5-MIN METAR KRJB 101850Z AUTO 17009G14 10SM BKN070 BKN085 08/M02 A3034 RMK T00801020
 5-MIN METAR RJRB 101855Z AUTO 17008 10SM BKN075 08/M02 A3034 RMK A02 T0080120 WND 13V19
 5-MIN METAR KRJB 101900Z AUTO 16009KT 10SM BKN075 08/M02 A3034 RMK T00801020 WND 10V28
 5-MIN METAR KRJB 101905Z AUTO 14010KT 10SM BKN070 08/M02 A3034 RMK T00801020
 5-MIN METAR KRJB 101910Z AUTO 14009KT 10SM OVC070 08/M03 A3034 RMK T00801030 WND 11V17
5-MIN METAR KRJB 101915Z AUTO 15008KT 10SM OVC070 08/M03 A3034 RMK T00801030 WND 11V17
 5-MIN METAR KRJB 101920Z AUTO 17008KT 10SM OVC070 08/M03 A3033 RMK T00801030
 5-MIN METAR KRJB 101925Z AUTO 13009KT 10SM OVC070 08/M02 A3033 RMK T00801030 WND 09V17
 5-MIN METAR KRJB 101930Z AUTO 14005KT 10SM OVC070 08/M02 A3033 RMK T00801030 WND 11V17

2.2 New York Central Park, NY

The next closest weather reporting site was from New York City Central Park (KNYC) Automated Surface observation System (ASOS) located about 3 miles north of the accident.

VFR KNYC 101751Z AUTO VRB05G18KT 10SM FEW037 OVC095 08/M02 A3035 RMK AO2 SLP269
T00831022 10106 20067 56007

VFR KNYC 101851Z AUTO VRB03KT 10SM OVC090 08/M04 A3034 RMK AO2 SLP266
T00781039171

Accident 1915Z

VFR KNYC 101951Z AUTO VRB03G16KT 10SM OVC070 08/M04 A3033 RMK AO2 SLP263
T00781044

VFR KNYC 102051Z AUTO 14008KT 10SM -RA BKN035 OVC046 06/M02 A3034 RMK AO2 RAB31
SLP266 P0000 60000 T00561017 55003

VFR METAR KNYC 102151Z AUTO VRB06KT 10SM BKN044 OVC065 05/00 A3031 RMK AO2 RAE47
SLP254 P0001 T00500000=

Light rain began at 1631 and ended at 1747 EDT with 0.01 inches of precipitation recorded.

2.3 Newark, NJ

Newark Liberty International Airport (KEWR), Newark, NJ, was located about 7 miles west of the accident site at an elevation of 17 ft. The airport had an ASOS which was augmented by certified weather observers. The following conditions were reported surrounding the time of the accident.

VFR METAR KEWR 101651Z 13017G26KT 10SM FEW031 SCT090 BKN140 BKN240 10/M02 A3033

RMK AO2 PK WND 11026/1637 SLP269 T01001017=

VFR METAR KEWR 101751Z 13011G23KT 10SM FEW032 BKN085 BKN140 OVC250 10/M02 A3032
RMK AO2 PK WND 13026/1707 SLP267 T01001017 10106 20067 56010=

VFR METAR KEWR 101851Z 13009G22KT 10SM FEW032 BKN090 BKN140 OVC250 09/M02 A3032
RMK AO2 SLP265 T00891017=

Accident 1915Z

VFR METAR KEWR 101951Z 16010G19KT 10SM FEW035 BKN070 OVC120 08/M02 A3032 RMK AO2
SLP265 T00831022=

MVFR SPECI KEWR 102038Z 18007KT 7SM -RA SCT012 BKN028 OVC070 06/01 A3032 RMK AO2
RAB02 P0000 T00560006=

MVFR METAR KEWR 102051Z 14007KT 9SM -RA SCT012 BKN025 OVC065 06/01 A3032 RMK AO2
RAB02 SLP266 P0000 60000 T00560006 55001=

VFR METAR KEWR 102151Z 10006KT 10SM FEW014 SCT028 OVC070 07/00 A3029 RMK AO2 RAE44
SLP255 P0001 T00670000=

Light rain was reported between 1602 and 1744 EDT with only 0.01 inches of precipitation ending at 1751 EDT.

2.4 NWS Aviation Weather Center METAR Depiction

The NWS Aviation Weather Center's (AWC) Observation display for 1515 EDT with the general flight categories indicated and the regional weather radar overlaid is included as figure 3 with the approximate accident site marked by the red star. The station model depicted general VFR conditions prevailing at the time surrounding the area with winds from the southeast at 10 knots gusting to 18 knots, with visibility at 10 miles, and a temperature of 46°F. The radar depicted echoes 5 to 15 dBZ or very light intensity echoes over the area.

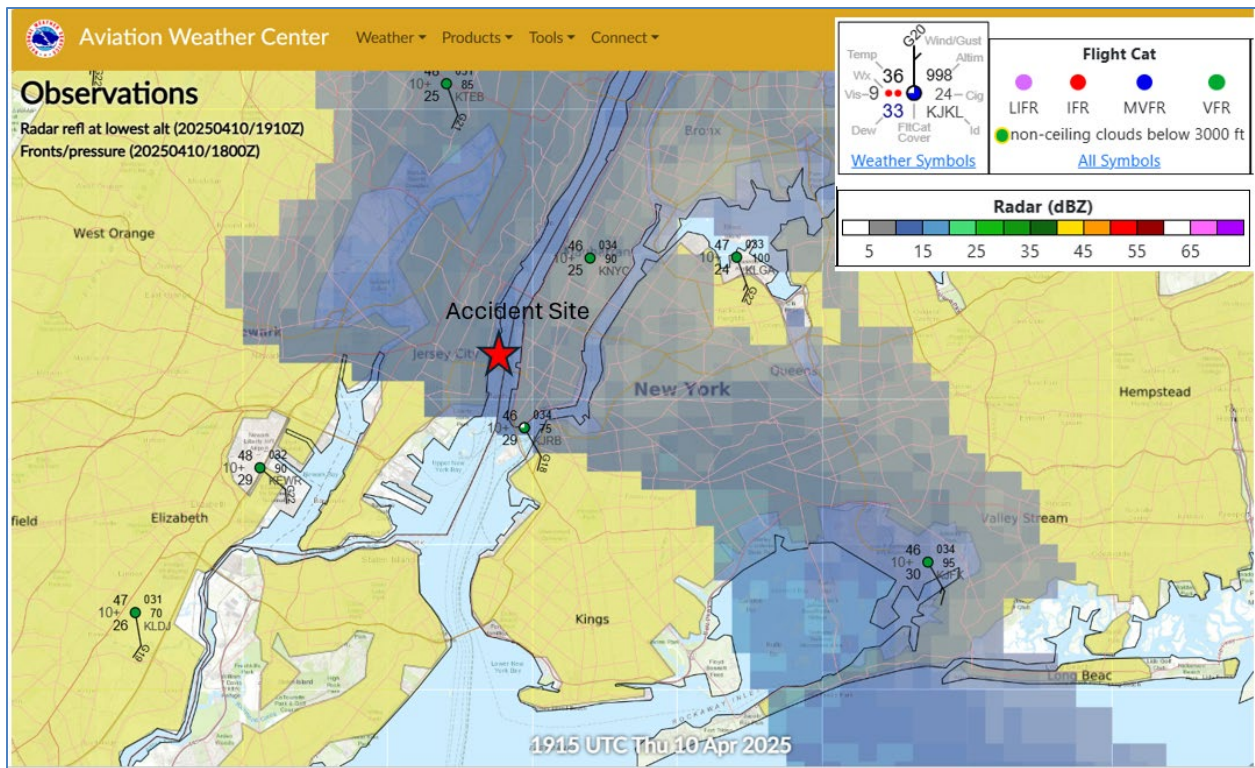


Figure 3 - NWS Aviation Weather Center's Observation display with the weather radar overlaid for 1515 EDT with the approximate accident site marked by the red star.

3.0 Sounding

High-Resolution Rapid Refresh (HRRR)⁴ numerical model data were obtained from the NOAA Air Resources Laboratory archive for 1500 EDT for the nearest grid point to the accident site. The data were then plotted on a standard Skew T/log P diagram⁵ using the RAOB Analysis software⁶ from the surface to 700-hPa (about 10,000 ft) and is included as figure 4.

⁴ The HRRR is a NOAA real-time 3 kilometer (km) resolution, hourly-updated, cloud-resolving, convection-allowing atmospheric model, initialized by 3 km grids with 3 km radar assimilation. Radar data is assimilated in the HRRR every 15 minutes over a 1-hour period.

⁵ Skew T log P diagram - is a standard meteorological plot or thermodynamic diagram using temperature and the logarithmic of pressure as coordinates, used to display winds, temperature, dew point, and various indices used to define the vertical structure of the atmosphere.

⁶ The Universal RAWinsonde OBservation (RAOB) program software - is an interactive sounding analysis program developed by Eosonde Research Services (ERS) previously known as Environmental Research Services, The Villages, Florida.

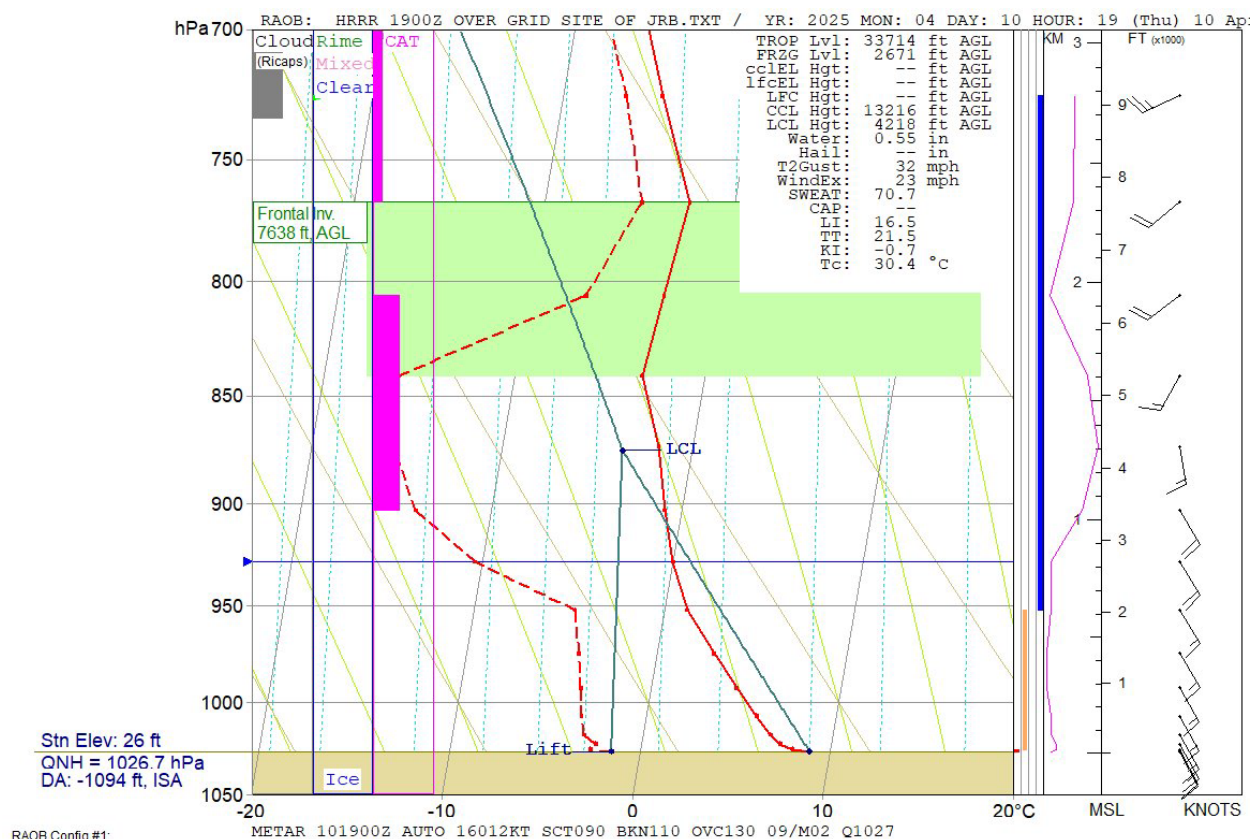


Figure 4 - HRRR numerical model sounding for 1500 EDT over the approximate accident site grid from the surface to 700-hPa or about 10,000 ft.

The HRRR sounding depicted an elevation of 26 ft with a near surface wind from 155° at 12 knots, a temperature of 8.9°C (48°F), a dew point temperature of -1.5°C (29°F), a relative humidity of 48%, a sea-level pressure of 1026-hPa, and a density altitude of -1094 ft. The precipitable water content was 0.55 inches. The freezing level was identified at 2,671 ft agl. The sounding indicated that the atmosphere was stable with a Lifted Index of 16.5, with no positive Convective Available Potential Energy (CAPE) indicated. The lifted condensation level (LCL)⁷ was identified at 4,218 ft agl and the convective condensation level (CCL)⁸ was at 13,216 ft. A defined frontal inversion was noted between 5,000 and 7,640 ft. The RAOB Analysis program supported clouds between 9,000 and 34,000 ft, with the potential for icing in clouds.

The HRRR wind profile indicated southerly winds through 4,000 ft with winds veering⁹ to the west-southwest with height through 10,000 ft. A low-level wind

⁷ Lifted Condensation Level (LCL) - the level at which a lifted parcel becomes saturated. The LCL height corresponds to cloud base height for forced ascent.

⁸ Convective Condensation Level (CCL) - the level in the atmosphere to which an air parcel, if heated from below, will rise dry adiabatically, without becoming colder than its environment just before the parcel becomes saturated.

⁹ A veering wind is a change in wind direction with height in a clockwise sense representing warm air advection.

maximum was noted near 3,000 ft with winds from 150° at 19 knots and supported a chance of turbulence between 3,000 and 5,000 ft based on a vertical wind shear of 9.5 knots/1000 ft. The mean 0 to 6 kilometer (or about 18,000 ft) wind was from 240° at 35 knots. The wind at around 650 ft was from around 150° at 17 knots with a temperature of 5°C.

A table of the sounding parameters from the surface through 10,000 ft are included below. The table provides height, pressure (Pre), temperature (T), dew point temperature (Td), relative humidity (RH), wind direction and speed, Clear Air Turbulence (CAT), Low-Level Wind Shear (LLWS), and Icing potential.

Height (ft msl)	Pre (hPa)	T (°C)	Td (°C)	RH (%)	Wind (dir/kts)	CAT (FAA)	LLWS (FAA)	Icing (USAF)
26	1026	8.9	-1.5	48	155/ 12			
52	1025	8.0	-2.6	47	155/ 11		LIGHT	
131	1022	7.3	-2.4	50	154/ 13		LIGHT	
263	1017	6.7	-3.1	50	154/ 15			
529	1007	5.8	-3.4	52	153/ 16			
931	992	4.5	-3.7	55	153/ 17			
1419	974	3.0	-4.1	60	152/ 17			
2024	952	1.2	-4.7	65	151/ 17			
2697	928	0.0	-10.4	45	151/ 18			
3413	903	-0.9	-14.0	36	152/ 19	MDT		
4296	873	-1.8	-15.7	34	171/ 16	MDT		
5268	841	-3.3	-16.1	36	207/ 14	MDT		
6372	806	-2.9	-7.0	73	230/ 19			
7664	767	-2.4	-4.9	83	228/ 20	LGT		
9126	725	-4.8	-6.7	87	244/ 24	LGT		Trace Rime
10737	681	-7.1	-9.2	85	250/ 32	LGT		LGT Rime

4.0 Satellite Imagery

The NOAA Geostationary Operational Environmental Satellite number 19 (GOES-16) imagery were obtained from an archive at the Space Science Engineering Center (SSEC) at the University of Wisconsin-Madison in Madison, Wisconsin, and processed using the Man-computer Interactive Data Access System (McIDAS) software. The infrared band 13 imagery at a wavelength of 10.3 microns (μm) provided a resolution of 2 kilometers (about 1 nautical mile [nm]), while the visible band 2 imagery at 0.64 μm provided a resolution of 0.5 km (about 0.25 nm).

Figures 5 and 6 are the GOES-19 infrared and visible images for 1516 EDT and depicted an overcast layer of low and high cirriform clouds over the regions.

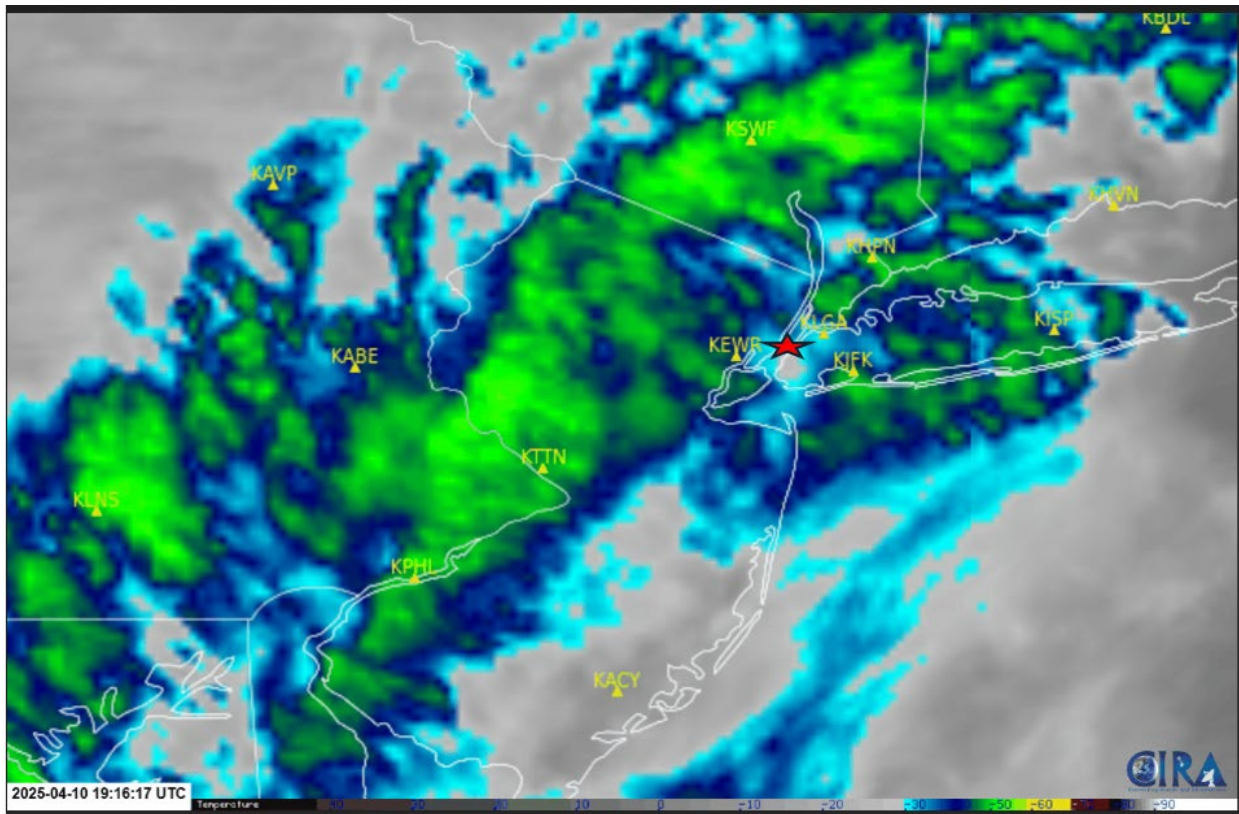


Figure 5 - GOES-19 infrared satellite image for 1516 EDT with accident site marked by red star.

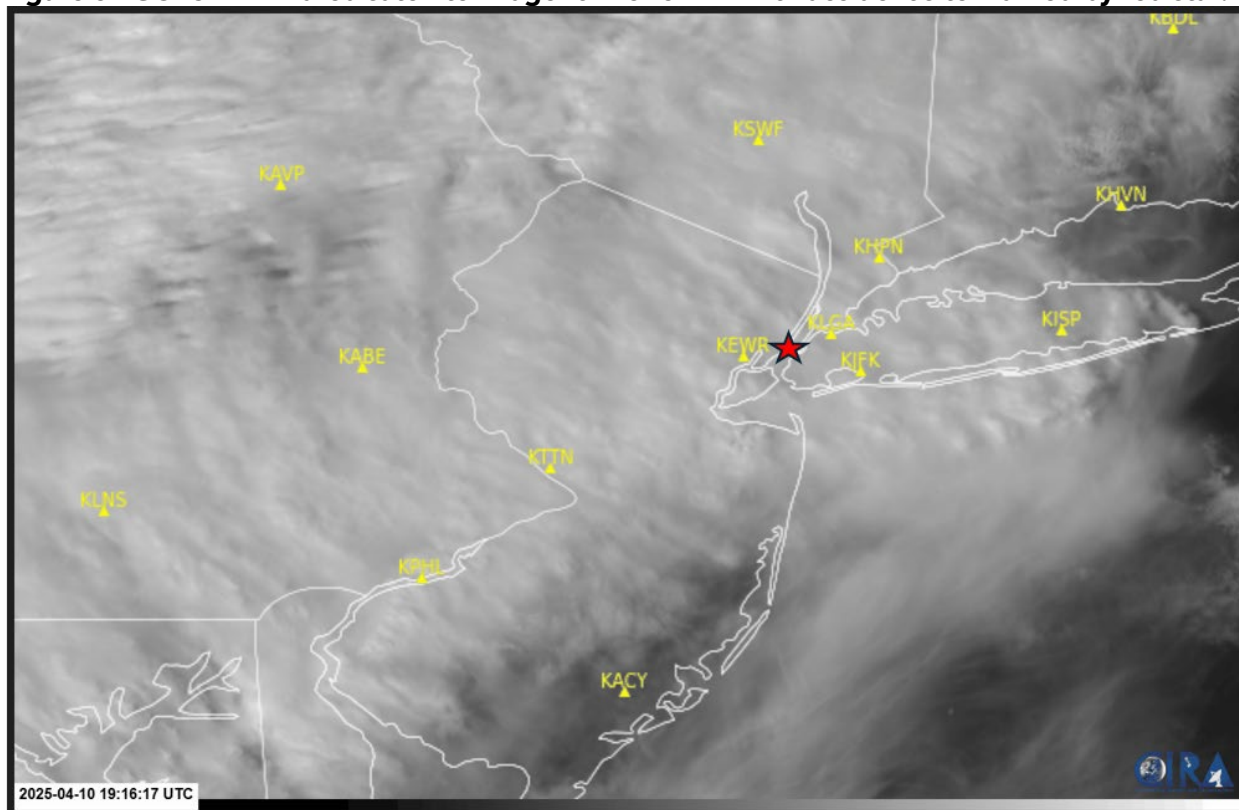


Figure 6 - GOES-19 visible satellite image for 1516 EDT with accident site marked by red star.

5.0 Weather Radar Imagery

The closest NWS Weather Surveillance Radar - 1988 Doppler's (WSR-88D) to the accident site were from Philadelphia (KDIX) and New York City-Upton (KOKX) located about 58 miles south-southwest and 62 miles east respectively from the accident site. Research Ornithologists have used the WSR-88D products to track migratory flocks of birds and the WSR-88D's dual polarization correlation coefficient (CC) product is useful in identifying biological targets. The level II and III archive data from both of these radar systems were therefore obtained from the NCEI using the Hierarchical Data Storage System and displayed using the NWS NEXRAD Interactive Viewer and Data Exporter software.

In order to scan as much of the atmosphere as possible, the WSR-88D employs a volumetric scanning strategy in which the antenna not only scans just above the surface but raises through multiple elevation angles to obtain data in the vertical. This provides forecasters with a better picture of the depth and intensity of storms and is particularly useful when there are storms near the radar. During the period both radars were operating in the clear air mode using the volume coverage patterns (VCP) 35 where the radar makes 9 different elevation scans in about 7 miles. This is the common scanning strategy when very light precipitation and no thunderstorms are expected.

Assuming standard refraction of the radar beam over the accident site. The KDIX WSR-88D antenna height of 230 ft at a distance of 57.7 miles from the accident site, the lowest 0.44° elevation scan was centered near 5,190 ft, with the base of the beam at about 2,280 ft and the top at 8,100 ft. While the KOKX WSR-88D antenna at 198 ft at a distance of 61.7 miles, the lowest 0.48° beam was centered at 5,860 ft, with the base at 2,750 ft and the top at 8,970 ft. Both of the radar sites could not identify any low level echoes or biological targets in this case and depicted very light intensity echoes in the vicinity of the accident as depicted in figure 2.

6.0 Pilot Weather Reports

The following pilot weather reports (PIREPs) were transmitted longline¹⁰ within 50 miles and within 1 1/2 hours prior to and after the turbulence encounter. The reports below are in standard code and abbreviations, with time referenced to UTC. A decoded report follows with time reference to EDT, with altitude in msl heights. PIREP use 3-letter IATA codes. The time of the accident is included in bold blue type for reference.

LGA UA /OV COL 01804/TM 1840/FL6500/TP BCS1/SK BASES 6500

¹⁰ Longline refers to transmitting the data to the FAA Weather Message Switching Center Replacement (WMSCR) which makes the observations available to users through various links and the internet.

LaGuardia Airport (LGA) routine pilot report (UA); Over - 180° azimuth and 4 miles from Colts Neck, NJ VORTAC¹¹; Time - 1404 EDT; Altitude - 6,500 ft; Type aircraft - air carrier Airbus A220 jet; Sky cover - bases at 6,500 ft.

CDW UA /OV CDW180005/TM 1827/FL100/TP E75S/TA M05/IC TRACE MX/RM TRACED MIXED ICING 100-125 IN THE VICINITY OF CDW AIRPORT

Essex County Airport (CDW), Caldwell, NJ routine report (UA); Over - 180° azimuth and 5 miles from CDW; Time - 1427 EDT; Altitude - 10,000 ft; Type aircraft - Embraer E170 regional air carrier jet; Temperature - minus 5°C; Icing - trace mixed ice; Remarks - icing between 10,000 and 12,500 ft in the vicinity of CDW airport.

TTN UA /OV RBV/TM 1848/FL200/TP B738/TA M17/IC LGT RIME

Trenton Mercer Airport (CDW), Trenton, NJ route report; Over - Robbinsville, NJ VORTAC; Time - 1448 EDT; Altitude - 20,000 ft; Type aircraft - Boeing 737 air carrier jet; Temperature - minus 17°C; Icing - light rime type ice.

ISP UA /OV DPK180010/TM 1855/FL020/TP C172/WX VMC/TB NEG

Long Island Mac Arthur Airport (ISP), Islip, NY routine report; Over - 180° azimuth and 10 miles from Deer Park, NY VORTAC; Time - 1455 EDT; Altitude - 2,000 ft; Type aircraft - Cessna 172 single engine airplane; Weather - visual meteorological conditions (VMC); Turbulence - negative.

LGA UA /OV COL 029 014/TM 1906/FL055/TP A20N/SK BASES 055

LGA routine report (UA); Over - 290° azimuth and 14 miles from Colts Neck VORTAC; Time-1504 EDT; Altitude - 5,500 ft; Type aircraft - Airbus A320neo air carrier jet; Sky cover - bases at 5,500 ft.

HPN UA /OV HPN330010/TM 1914/FL090/TP PC12/TA M07/IC LGT CLR/RM DURC

Westchester County Airport (HPH), White Plains, NY routine report (UA); Over - 330° azimuth and 10 miles from HPN; Time -1540 EDT; Altitude - 9,000 ft; Type aircraft - Pilatus PC-12 single-engine turboprop; Temperature - minus 7°C; Icing - light clear ice; Remarks - during climb.

JFK UA /OV JFK060010/TM 1915/FL100/TP A321/SK BKN095

John F Kennedy International Airport (JFK), Jamaica, NY routine report (UA); Over - 060° azimuth and 10 miles from Kennedy VORTAC; Time-1515 EDT; Altitude - 10,000 ft; Aircraft - Airbus A321 air carrier jet; Sky cover - broken clouds with bases at 9,500 ft.

JFK UA /OV JFK/TM 2005/FL4000/TP A340/SK BASE 045

JFK routine report (UA); Over - JFK; Time-1605 EDT; Altitude - 4,000 ft; Type aircraft - Airbus A340 heavy air carrier jet; Sky cover - cloud bases at 4,500 ft.

¹¹ A VORTAC is a Very high-frequency Omnidirectional Range (VOR) and Tactical Air Navigation (TACAN) combined station, which provides azimuth and distance from the navigation system. VORTAC is often named after the city and/or airport it serves.

EWB UA /OV EWR045003/TM 2032/FL012/TP E75L/SK 012 OVC

EWB routine report (UA); Over - 045° azimuth and 3 miles from EWR; Time - 1632 EDT; Altitude - 1,200 ft; Type aircraft - Embraer 175 regional air carrier jet; Sky cover - 1,200 ft overcast.

CDW UA /OV DURD RWY 10/TM 2039/FL005/TP C172/RM +/- 10 GAIN/LOSS ON FINAL RWY 10 BELOW THE TREE LINE

CDW route report (UA); Over - during departure from runway 10; Time -1639 EDT; Altitude - 500 ft; Type aircraft - Cessna 172 light single engine airplane; Remarks - plus/minus 10 knots gain/loss of airspeed on final for runway 10 below the tree line.

LGA UA /OV LGA/TM 2042/FL015/TP B737/SK BKN070 OVC140/RM BASE FINAL RWY 22 AT 1500 FT

LGA routine report (UA); Over - LGA; Time - 1642 EDT; Altitude - 1,500 ft; Type aircraft - Boeing 737 air carrier jet; Sky cover - broken clouds at 7,000 ft overcast at 14,000 ft; Remarks - base final to runway 22 at 1,500 ft.

CDW UA /OV 4NM NW CDW/TM 2058/FL017/TP M20P/RM CEILINGS 1700FT. VISIBILITY DETERIORATING

CDW routine report (UA); Over - 4 miles northwest of CDW; Time - 1658 EDT; Altitude - 1,700 ft; Type aircraft - Mooney MO2 single engine complex aircraft; Remarks - ceilings at 1,700 ft, visibility deteriorating.

JFK UA /OV JFK130005/TM 2115/FL050/TP A319/SK BKN030-TOPUNKN

JFK routine report (UA); Over - 130° azimuth and 5 miles from Kennedy VORTAC; Time - 1715 EDT; Altitude - 5,000 ft; Type aircraft - Airbus A319 air carrier jet; Sky cover - broken 3,000 ft tops unknown.

EWB UA /OV EWR045008/TM 2132/FL025/TP B772/SK 025 BKN

EWB routine report (UA); Over - 045° azimuth and 8 miles from Maryann Fan Marker; Time - 1712 EDT; Altitude - 2,500 ft; Aircraft - Boeing 777 heavy air carrier jet; Sky cover - 2,500 ft broken.

JFK UA /OV JFK180005/TM 2206/FLDURGC/TP CRJ2/SK OVC050

JFK routine report (UA); Over - 180° azimuth and 5 miles from JFK VORTAC; Time - 1806 EDT; Altitude - during climb; Type aircraft - Bombardier CRJ regional air carrier jet; Sky cover - overcast clouds at 5,000 ft.

There were no urgent pilot reported surrounding the period within 50 miles of the accident site.

7.0 NWS Forecasts

7.1 Terminal Aerodrome Forecast

The NWS New York (KOKX) Weather Forecast Office (WFO) issued the following TAF for KEWR which was issued at 1340 EDT and current at the time of the accident. While a TAF is valid for a 5 statute mile radius of the airport's center point. Pilots and other weather briefing systems will often use the closest TAF for a more detailed breakdown of forecast conditions. The TAF current during the period was as follows.

*TAF KEWR 101740Z 1018/1124 13013G24KT P6SM FEW030 BKN120
FM110300 14005KT P6SM OVC050
PROB30 1103/1106 5SM -SHRA BR
FM110600 09010KT 5SM -SHRA OVC025
PROB30 1108/1112 4SM -SHRA BR OVC009
FM111200 07010G18KT 3SM -RA BR OVC008=*

The forecast issued at 1340 EDT expected general VFR conditions to prevail during the period with wind from 130° at 13 knots gusting to 24 knots, visibility better than 6 miles, a few clouds at 3,000 ft agl, and a ceiling broken at 12,000 ft agl. Light rain and MVFR conditions were expected after 2300 EDT.

7.2 Area Forecast Discussion

The NWS Aviation Forecast Discussions (AFD) are issued by each WFO to describe the short-term weather conditions within their region with an aviation section that includes the general conditions as they relate to the creation of the TAF. These are useful for additional aviation-related issues that cannot be encoded into the TAF and provide some reasoning behind the forecast. The NWS KOKX WFO issued the following AFD at 1354 EDT, which included an aviation forecast discussion section, and is included below.

*FXUS61 KOKX 101754
AFDOKX*

*Area Forecast Discussion
National Weather Service New York NY
154 PM EDT Thu Apr 10 2025*

.SYNOPSIS...

High pressure today will give way to an approaching storm system tonight. The center of this system will slowly move through the Mid Atlantic on Friday. pass to the south and east on Saturday, then shift away from the area on Sunday as high pressure builds in for Monday. Another frontal system will move through Monday night into Tuesday, followed by high pressure from Wednesday into Thursday.

.NEAR TERM /THROUGH TONIGHT/...

High pressure just off the coast will drift east today. Skies will be cloudy, but probably dry through the daytime hours as the sub-cloud layer will fairly dry. CAM's have a handle on precip over ern PA and do bring a 20-30 PoP to far western areas by late this afternoon.

Low levels continue to moisten with a continuing onshore flow tonight. Weak isentropic lift ahead of a weakening warm front and lift from a mid level shortwave combined with the moisture bring the likelihood of light rainfall especially to southern CT and parts of the lower Hudson Valley tonight. Thermal profiles look cold enough across the northern fringe for a mix of rain and snow. Since precip will be light and wet bulb temps above freezing, accumulations would likely be nothing more than a light coating.

.AVIATION /18Z THURSDAY THROUGH TUESDAY/...

High pressure shifts offshore this afternoon before a frontal system impacts the area tonight and into Friday.

VFR expected through today. MVFR and eventually IFR moves in this evening after 00Z, but especially toward 06Z Friday. SHRA expected to develop, but coverage at this time remains uncertain. SHRA expected to become more widespread after 06Z Friday with conditions lowering to IFR by 12Z. A mix with -SN is also possible tonight at KSWF changing over to plain rain around 12Z. SHRA continues into the day on Friday with IFR conditions expected.

S/SE winds around 10kt through this afternoon and evening with occasional gusts up to 20kt. Winds slowly back to the E after 00Z Friday and increase overnight. Gusts pick back up on Friday to around 20 kt.

7.3 Graphic Forecast for Aviation

The Graphic Forecast for Aviation (GFA) is a set of web-based displays intended to provide the necessary aviation weather information to give users a complete picture of the weather that may impact their flight operations. It is a one-stop shop for multiple data fields. The AWC website includes observational data, forecasts, and advisories including thunderstorms, clouds, flight category, precipitation, icing, turbulence, and wind. Hourly model data and forecasts, including information on clouds, flight category, precipitation, icing, turbulence, wind, and graphical output from the NWS National Digital Forecast Database, are available. Built with modern geospatial information tools, users can pan and zoom to focus on areas of greatest interest.

The NWS AWC GFA ceiling and visibility image for 1515 EDT is included as figure 7, which depicted VFR conditions prevailing over the accident site with surface winds from the south at 10 knots, visibility better than 5 miles with a slight chance of rain showers, with overcast clouds at 8,000 ft msl with tops to 33,000 ft. An extensive area of IFR and MVFR conditions were depicted over central New York, most of Pennsylvania, and West Virginia.

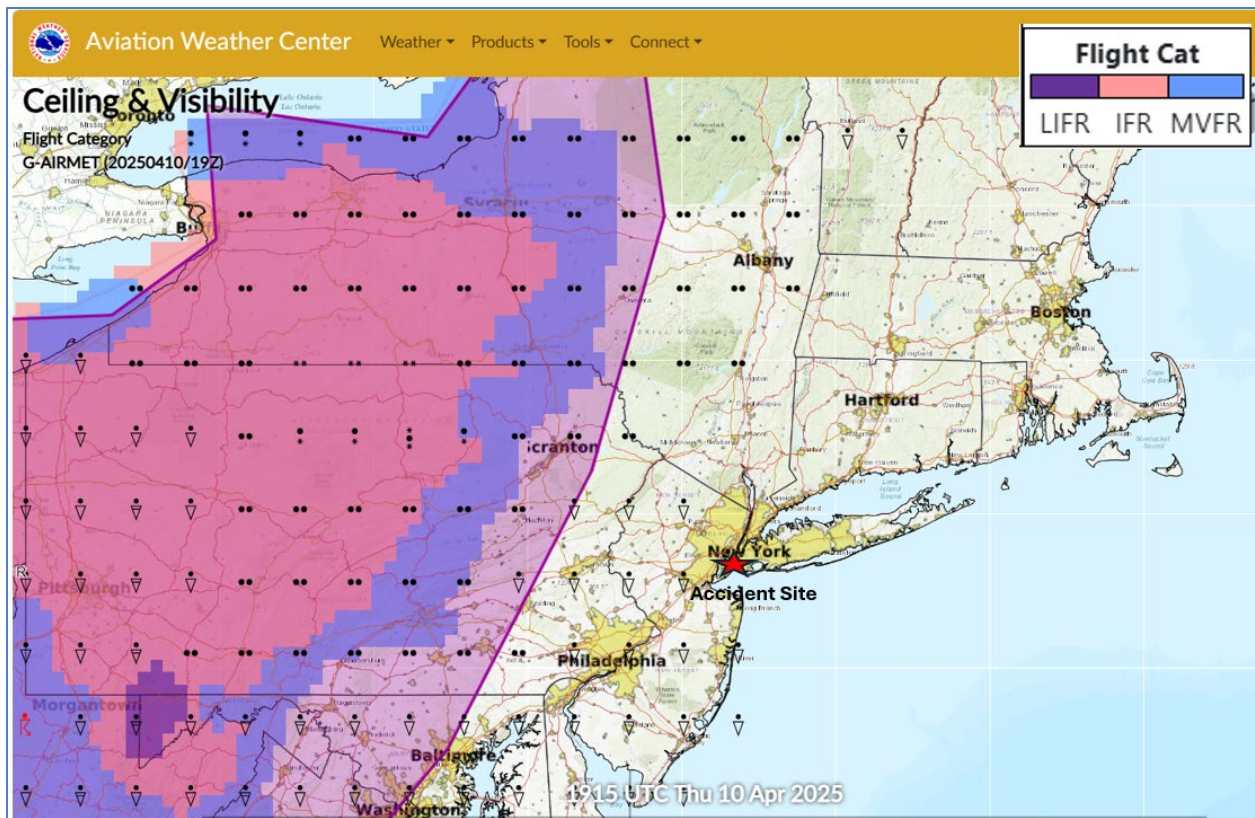


Figure 7 - NWS Aviation Weather Center's Graphic Forecast for Aviation (GFA) Ceiling and Visibility display for 1515 EDT with the accident site marked by the red star. Chart displays the general flight categories over the area, forecast weather and Graphic-AIRMET for IFR conditions.

The NWS northeast GFA 3-hour Surface and Cloud Forecast and static images issued at about 1200 EDT and valid for 1400 EDT and current for the period of the accident are included as figures 8 and 9 respectively, with the approximate accident site marked as a red star. The next images or 6-hour forecasts were valid for 1700 EDT with continued VFR conditions prevailing are included as figures 10 and 11.

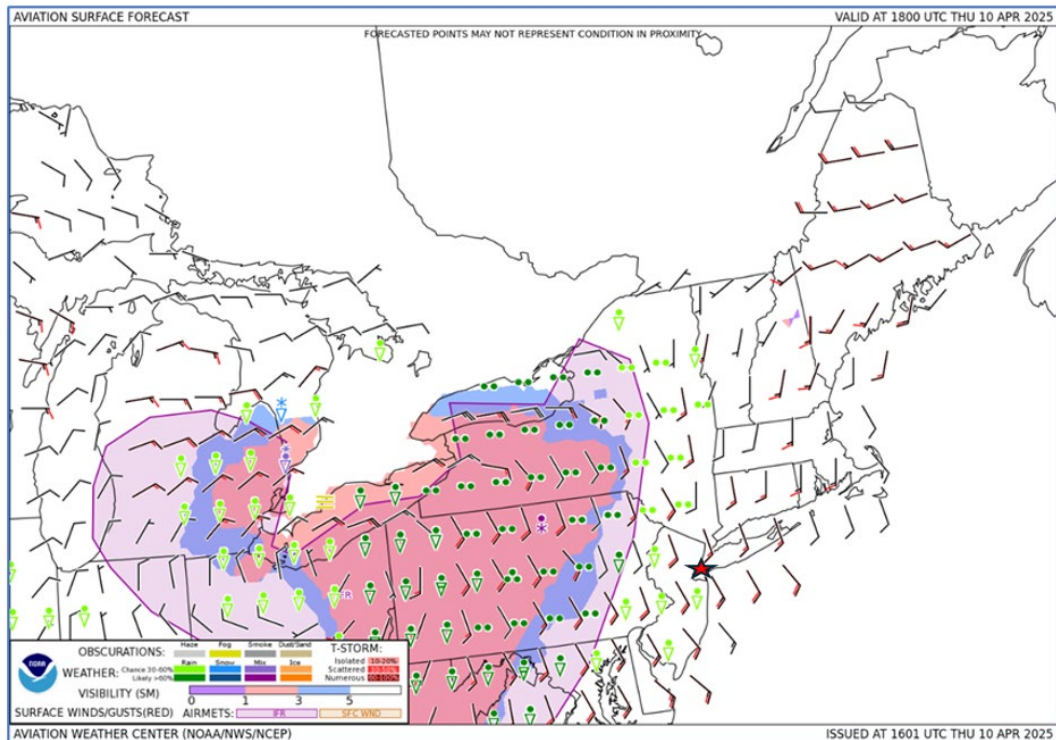


Figure 8 - NWS 3-hour Graphic Forecast for Aviation (GFA) Surface Forecast valid for 1400 EDT with accident site marked by the red star.

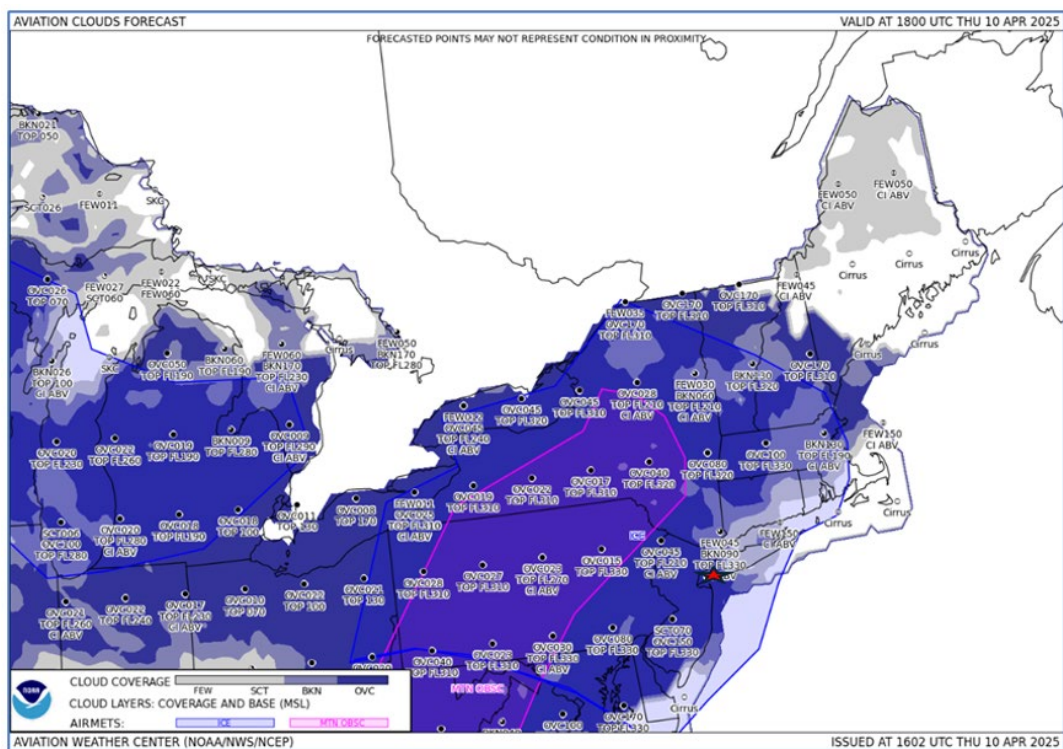


Figure 9 - NWS 3-hour Graphic Forecast for Aviation Cloud Forecast valid for 1400 EDT with the accident site marked by the red star.

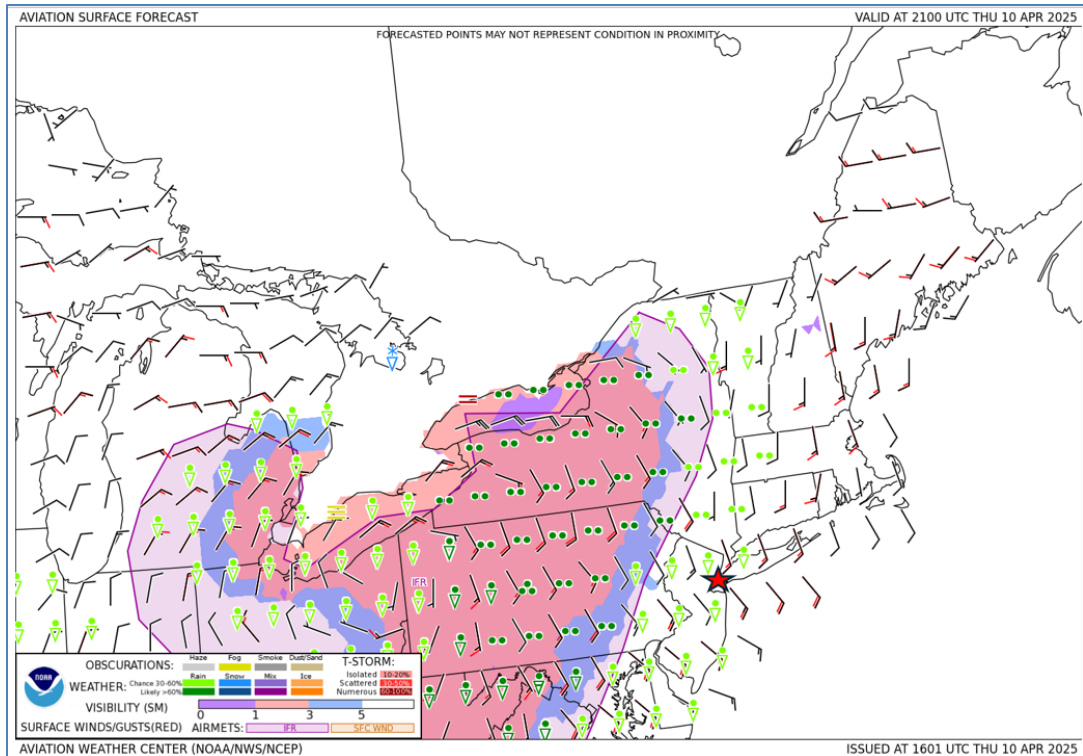


Figure 10 - NWS 6-hour Graphic Forecast for Aviation (GFA) Surface Forecast valid for 1700 EDT with accident site marked by the red star.

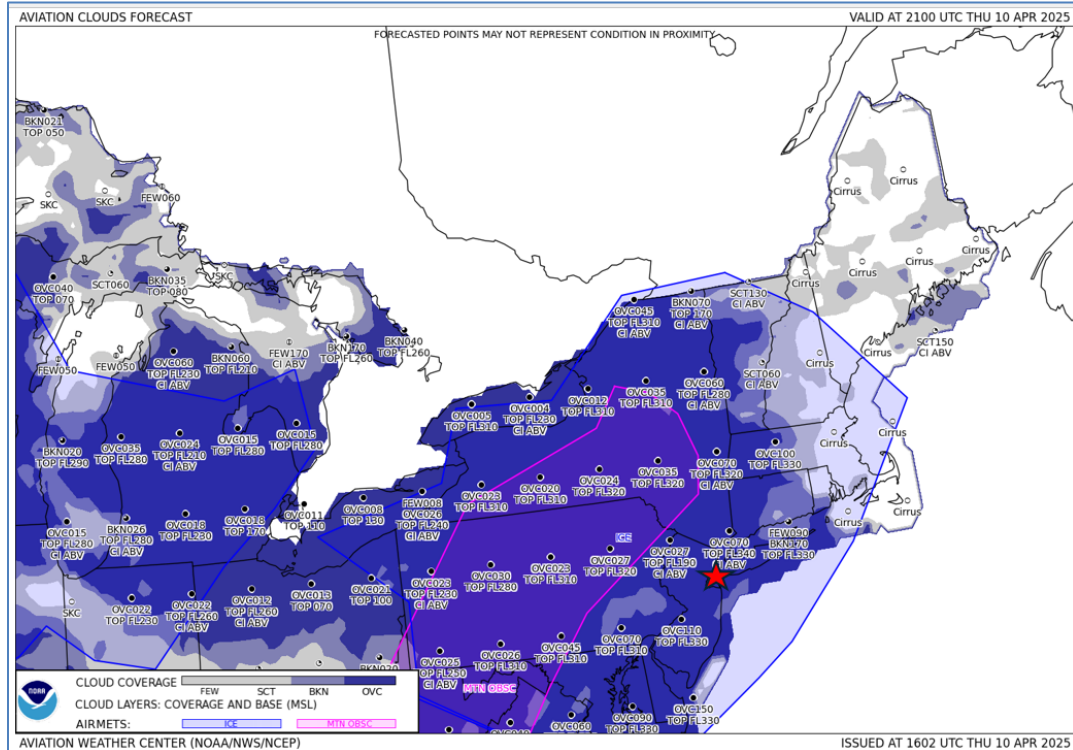


Figure 11 - NWS 6-hour Graphic Forecast for Aviation (GFA) Cloud Forecast valid for 1700 EDT with accident site marked by the red star.

7.4 Winds and Temperatures Aloft Forecast

The NWS Winds and Temperatures Aloft Forecast (FD) valid for the period surrounding the area are included below. The forecast valid for 2000 EDT, and for use between 1600 and 2100 EDT were as follows.

FD1US1

DATA BASED ON 101800Z

VALID 110000Z FOR USE 2000-0300Z. TEMPS NEG ABV 24000

FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
BDL	1819	2219-01	2424-05	2426-10	2341-22	2350-33	226151	226658	235853
ACY	1416	2019+02	2133-04	2342-10	2345-20	2143-33	215651	225756	236552
JFK	1519	2123-03	2033-04	2339-09	2343-21	2142-33	215751	226157	236253
AVP	1525	2236-01	2430-05	2329-10	2233-23	2255-34	206751	215156	245351

The forecast for JFK for 3,000 ft expected winds from 150° at 19 knots, and the winds for 6,000 ft from 210° at 23 knots with a temperature of -3°C.

8.0 Inflight Weather Advisories

Inflight Aviation Weather Advisories are forecasts that advise en route aircraft of the development of potentially hazardous weather. They are issued by the NWS AWC, as well as from the CWSU at the various Air Route Traffic Control Centers (ARTCCs). There are four basic types of inflight aviation weather advisories: the Significant Meteorological Information (SIGMET), the Convective SIGMET, the Airmen's Meteorological Information (AIRMET), and the Center Weather Advisory (CWA). Inflight advisories serve to notify en-route pilots of the possibility of encountering hazardous flying conditions that may not have been forecast at the time of the preflight briefing. Whether or not the condition described is potentially hazardous to a particular flight is for the pilot to evaluate based on experience and the operational limits of the aircraft.

Under FAA Order 7110.65AA effective September 2024, Hazardous Inflight Weather Advisories, under section 2-6-6, air traffic controllers must advise pilots of hazardous weather that may impact operations within 150 nm of their sector or area of jurisdiction. One exception is that AIRMETs are not required to be provided by controllers over the CONUS.

At the time of the accident the NWS had no SIGMETs, Convective SIGMETs or CWA's current for the area. The NWS did have a series of Graphic-AIRMET current for potential occasional moderate icing conditions over the area from the freezing level with tops near 19,000 ft. A depiction of the G-AIRMET is included as figure 12.

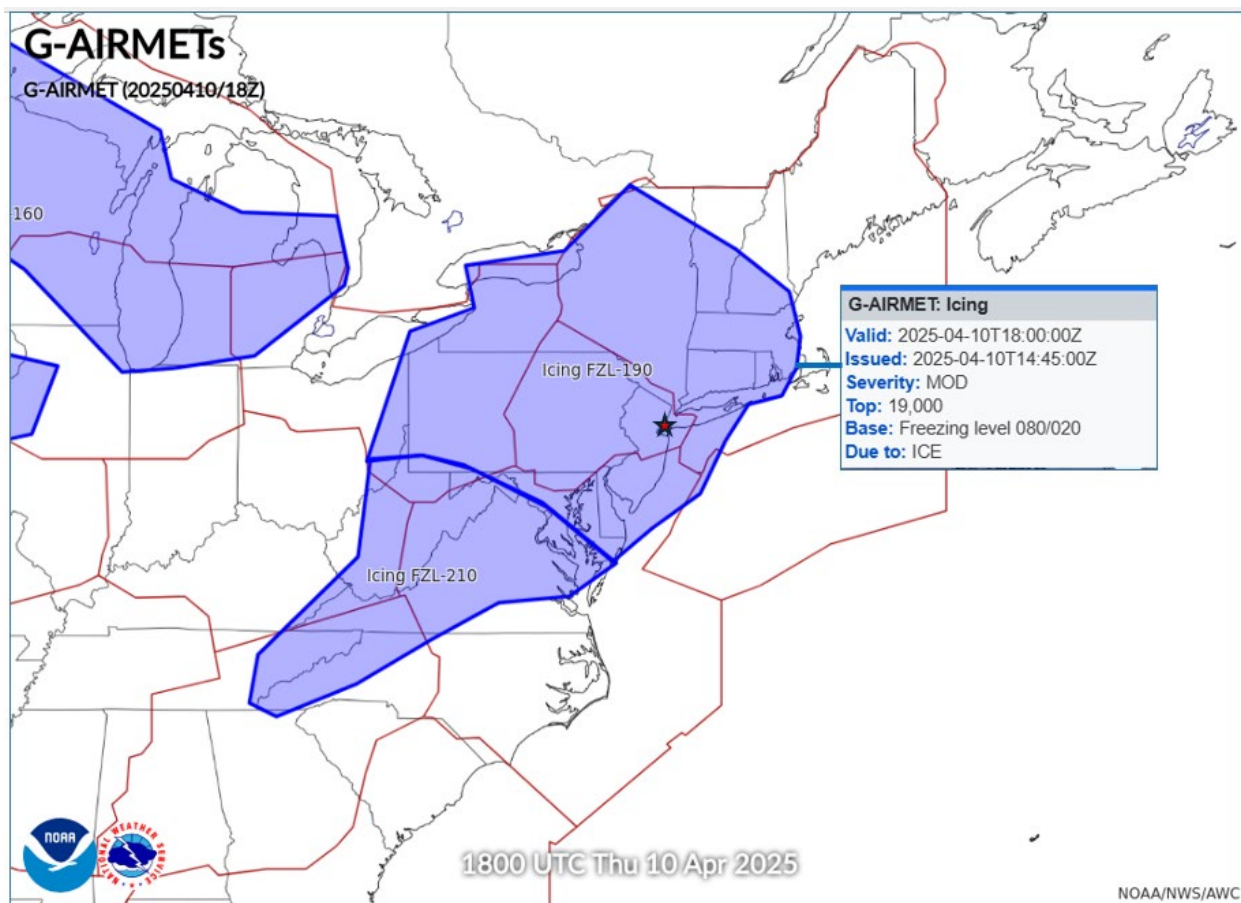


Figure 12 - NWS AWC Graphic-AIRMET for icing conditions valid for the period for occasional moderate icing from the freezing level from 2,600 ft to 19,000 ft.

9.0 Astronomical Conditions

The United States Naval Observatory's website provided the following astronomical conditions for the accident site on April 10, 2025. The accident time has been included in blue text for reference.

Sun	Time
Begin civil twilight	0556
Sunrise	0624
Culmination	1257
<i>Accident</i>	<i>1415</i>
Sunset	1930
End civil twilight	1958

At the time of the accident the Sun was about 53° above the horizon at an azimuth of 213°.

Submitted by:

Donald Eick
NTSB Senior Meteorologist