

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



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AIR TRAFFIC CONTROL

Group Chairman's Factual Report

October 1, 2025

TABLE OF CONTENTS

A. ACCIDENT	3
B. AIR TRAFFIC CONTROL GROUP	3
C. SUMMARY	3
D. DETAILS OF THE INVESTIGATION	4
E. FACTUAL INFORMATION	5
1.0 HISTORY OF FLIGHT	5
2.0 FLIGHT TRACK SURVEILLANCE	8
2.1 Automatic Dependent Surveillance – Broadcast	8
3.0 METEOROLOGICAL INFORMATION	9
3.1 Surface Observations	9
3.2 In Flight Weather Advisories	10
4.0 AIR TRAFFIC CONTROL FACILITY	11
5.0 AIR TRAFFIC CONTROL EQUIPMENT	11
5.1 Remote Center Air to Ground Communications Facility (RCAG)	11
6.0 FACILITY STAFFING	11
7.0 INTERVIEWED AIR TRAFFIC CONTROL PERSONNEL	12
7.1 Supervisory Traffic Management Coordinator (STMC)	13
7.2 West Area Radar Sector 30 (R30) Controller	13
7.3 Operations Manager (OM)	14
7.4 NATCA Representative Local Safety Council (LSC)	14
7.5 West Area Controller in Charge (CIC) at Time Accident Occurred	14
7.6 West Area Radar Associate (D30) Controller	15
7.7 West Area Controller in Charge (CIC) at Time Accident was Reported	15
7.8 Quality Control Manager (QCM)	16
7.9 Acting Air Traffic Manager (AATM)	16
8.0 AIR TRAFFIC CONTROL PROCEDURES	16
8.1 PIREP Solicitation and Dissemination	16
8.2 Issuing Weather and Chaff Areas	18
F. FIGURES	19
G. LIST OF ATTACHMENTS	23

A. ACCIDENT

Location: Gulf of America, United States
Date: April 3, 2024
Time: 0823 eastern daylight time (EDT)¹
1223 coordinated universal time (UTC)²
Airplane: Boeing 737-7CT, N567WN, Southwest Airlines Flight 4273 (SWA4273)

B. AIR TRAFFIC CONTROL GROUP

Group Chair	Ruth Rupnik National Transportation Safety Board Washington, DC
Specialist - ATC	Betty Koschig National Transportation Safety Board Washington, DC
Group Member	Mark Winter Federal Aviation Administration Leesburg, VA
Group Member	Christopher Rosati National Air Traffic Controllers Association Fremont, CA
Group Member	Cory Davids National Air Traffic Controllers Association Ronkonkoma, NY
Group Member	Mark Rios Southwest Airlines Dallas, TX

C. SUMMARY

On April 3, 2024, about 0823 eastern daylight time, Southwest Airlines flight 4273 (SWA4273), a Boeing 737-700, experienced turbulence while enroute between Louis Armstrong New Orleans International Airport (MSY), New Orleans, Louisiana

¹ All times are in eastern daylight time (EDT) unless otherwise noted.

² UTC is an international time standard using four digits of a 24-hour clock in hours and minutes based on the time in Greenwich, England.

and Orlando International Airport (MCO), Orlando, Florida. Of the 5 crew and 140 passengers onboard, one flight attendant and one passenger sustained serious injuries, and one flight attendant sustained minor injuries. The aircraft was not damaged. The flight was operating under the provisions of Title 14 *Code of Federal Regulations* Part 121 as a scheduled passenger flight.

D. DETAILS OF THE INVESTIGATION

On April 4, 2024, the decision was made to form an air traffic control (ATC) work group to conduct an on-site investigation. Notification was made to the Federal Aviation Administration (FAA) in accordance with current protocol, advising our intent to conduct on-site investigative work at Jacksonville Air Route Traffic Control Center (ZJX ARTCC), the facility that was providing services to SWA4273 at the time of the accident. The FAA was provided a list of the group requested to interview and advised them that all interviews would be audio recorded and transcribed in accordance with NTSB procedures. The ATC work group consisted of the group chairman, an ATC investigator from AS-30, a subject matter expert (SME) from the FAA, an air safety investigator (ASI) and ASI in training from the National Air Traffic Controller Association (NATCA), and a SME from Southwest Airlines. Embedded with the group was an NTSB senior meteorologist who provided meteorology SME support. On-site investigative work was scheduled for the week of April 29, 2024.

On April 29, 2024, the group arrived in Jacksonville, FL.

On April 30, 2024, the group held a brief organizational meeting at the hotel then traveled to ZJX ARTCC. The ATC group attended an in-brief conducted by the acting air traffic manager (AATM) and other members of their staff. Also present were the Jacksonville district general manager (GM) and assistant general manager (AGM), representatives from the FAA's Safety Intelligence and Response Group (SIRG), Eastern Service Area Quality Control Group (ESA QCG), and NATCA. The group observed an event playback of the sequence of events leading up to and following the accident. The group then toured the facility with the AATM and local safety council (LSC) representative. The group then conducted interviews with the supervisory traffic management coordinator (STMC) and the west area radar sector 30 (R30) controller (also referred to as the NEPTA sector).

On May 1, 2024, the group held a brief organizational meeting at the hotel and then returned to ZJX ARTCC and conducted interviews with the operations manager (OM) and the LSC representative. The group then observed the enroute automation modernization (ERAM)³ replay on a maintenance display in the radar lab. Following

³ ERAM - En Route Automation Modernization - The Next Gen system designed to replace the En Route Host and backup system previously utilized at Air Route Traffic Control Centers and allows for faster processing of route requests and in-flight route changes.

the replay, the group reviewed provided data and conducted interviews with the west area controller-in-charge (CIC) signed on the position when the accident occurred and the west area sector 30 radar associate (D30) controller.

On May 2, 2024, the group held a brief organizational meeting at the hotel and returned to ZJX ARTCC and conducted interviews with the quality control manager (QCM), the CIC signed on position when the accident was reported by Miami (ZMA) ARTCC, and the AATM. Following the interviews, the group completed and concurred on the field notes and after approved by the IIC, were released from the on-site portion of the investigation.

E. FACTUAL INFORMATION

1.0 History of Flight

The below history of flight was constructed utilizing certified audio re-recordings, automatic dependent surveillance-broadcast (ADS-B)⁴ data, and the aircraft accident package provided by the FAA.⁵

SWA4273 departed MSY at approximately 0750.

ATC Services provided by MSY airport traffic control tower (ATCT) and terminal radar approach control (TRACON), and Houston (ZHU) ARTCC prior to the aircraft entering ZJX ARTCC airspace were routine and unremarkable. The following timeline summarizes pilot and controller communications, and other pertinent information while SWA4273 was in communication with ZJX ARTCC airspace:

0809:32 A position relief briefing took place on the D30 position which included a statement by the controller being relieved that the "comms" [radio communications] were terrible.

0812:48 The R30 controller accepted a handoff⁶ from ZHU ARTCC.

⁴ Automatic Dependent Surveillance-Broadcast - A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GPS-derived position and other information such as velocity over the data link, which is received by a ground-based transmitter/receiver (transceiver) for processing and display at an air traffic control facility.

⁵ ATC audio recordings are included in Attachment 1: ATC Audio Recordings, ADS-B data are included in Attachment 2: ADS-B Data, and the aircraft accident package is in Attachment 3: Aircraft Accident Package.

⁶ Handoff - An action taken to transfer the radar identification of an aircraft from one controller to another if the aircraft will enter the receiving controller's airspace and radio communications with the aircraft will be transferred.

- 0813:39 The R30 controller cleared SWA4273 direct REMIS⁷ fix with no response from the crew.
- 0813:49 The R30 controller re-cleared SWA4273 direct REMIS fix again with no response from the crew.
- 0813:54 The crew of SWA4273 advised that they were at flight level (FL)⁸ 370 and on a heading of 090° for [weather] deviations. The R30 controller asked the crew to verify that they had been approved for left deviations by the ZHU ARTCC controller. The crew advised that ZHU ARTCC had given them the option to deviate left or to descend and deviate right and that if had been able to climb to FL390, they would not have needed to deviate. The R30 controller then re-cleared again direct REMIS fix when able.
- 0821:58 The crew of SWA4273 advised the R30 controller that they were navigating direct to REMIS and asked if there was "any chance for higher." The controller responded with "not right now."
- 0823:34 *[According to the flight data recorder (FDR), this is the time the accident occurred. For detailed FDR information, see the Flight Data Recorder Specialist's Report in the docket.]*
- 0824:05 The crew of SWA4273 requested a heading of 130° which the R30 controller approved.
- 0825:55 The crew of SWA4273 advised that they were navigating direct to REMIS. The R30 controller acknowledged.
- 0828:25 The ZMA ARTCC radar sector eight (R8) controller accepted an automated handoff from the ZJX ARTCC R30 controller.
- 0829:34 The R30 controller asked the crew of SWA4273 to state their heading with no response from the crew.
- 0829:39 The R30 controller again asked the crew of SWA4273 to state their heading with no response from the crew.

⁷ REMIS – A navigational waypoint approximately 172 miles west of TPA.

⁸ Flight Level – A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level (FL) 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

[According to post-accident interviews, it was about this time that the R30 controller issued a frequency change to the crew of SWA4273 via DataComm⁹.]

There were no further recorded transmissions between ZJX ARTCC and the crew of SWA4273.

The following timeline summarizes pilot and controller communications, and other pertinent information while SWA4273 was in communication with ZMA ARTCC:

0830:18 SWA4273 checked in with ZMA ARTCC and the R8 controller cleared SWA4273 direct to the CHIVE¹⁰ fix.

0832:16 The R8 controller instructed the flight crew of SWA4273 to change to a new transponder beacon code.

0833:36 The crew of SWA4273 requested to divert to Tampa International Airport (TPA), Tampa, Florida, and advised they had sustained a couple of injuries do to a turbulence encounter. The R8 controller asked the crew of SWA4273 to verify that they were requesting to divert to TPA due to injuries, and the crew responded in the affirmative. The controller cleared SWA4273 to TPA via direct RAYZZ¹¹ for the RAYZZ2 RNAV¹² arrival. The crew of SWA4273 asked the controller to repeat the clearance, which the R8 controller did. The crew then read back the instructions as issued. The controller asked the crew to provide the location and type of turbulence they had encountered and the crew reported they had encountered severe turbulence approximately 50 nautical miles northwest of REMIS.

0834:40 The ZMA ARTCC sector eight radar associate (D8) controller called the ZJX ARTCC D30 controller and asked them if SWA4273 had reported any turbulence to them. The D30 controller responded in the negative. The D8 controller advised the D30 controller that SWA4273 had encountered severe turbulence fifty miles west of REMIS and that they had reported injuries.

⁹ The Data Communications (Data Comm) program delivers air-to-ground data link infrastructure and applications that enable controllers and flight crews to exchange air traffic control information more efficiently than existing voice communications.

¹⁰ CHIVE - a navigational waypoint approximately 50 miles west of TPA.

¹¹ RAYZZ - a fix approximately 39 miles west of TPA.

¹² RNAV - Area Navigation - A non-precision approach procedure that provides lateral guidance only to an appropriately equipped aircraft approaching and landing on a runway.

- 0834:41 The R8 controller instructed the flight crew of SWA4273 to descend to 10,000 feet and issued them the TPA altimeter.
- 0837:08 The R8 controller asked the flight crew of SWA4273 to provide details of the injuries when they were able. The crew advised that they had one crew member and one passenger that were injured. The R8 controller asked if they were declaring a medical emergency or if they just needed to divert. The crew verified that they were declaring a medical emergency.
- 0839:06 The R8 controller cleared SWA4273 direct to the MERRA¹³ fix then direct TPA. The crew read back the clearance as issued.
- 0841:19 The R8 controller asked the crew of SWA4273 if they had been assigned a gate number at the airport yet and the crew advised that they had not. The R8 controller asked the crew for more information on the injuries and the crew reported there were two possible fractures and someone with a back issue.
- 0843:30 The R8 controller then instructed the crew of SWA4273 to contact TPA approach control.

About 0856, SW4273 landed at TPA.

2.0 Flight Track Surveillance

2.1 Automatic Dependent Surveillance - Broadcast

Certified ADS-B data were provided by the FAA. These data were provided in comma separated value (csv) format, as well as keyhole markup language (kml). The ADS-B data provided flight track surveillance information for the entire accident flight.

Figure 1 in section F illustrates SWA4273's flight track from MSY to TPA and depicts the approximate location where the flight encountered severe turbulence. Figure 2 in section F is a timeline from when SWA4273 entered ZJX ARTCC airspace until they landed at TPA. These figures were produced using ADS-B data and overlaid onto satellite imagery in Google Earth.

¹³ MERRA – a fix located approximately 16 miles north of TPA.

3.0 Meteorological Information¹⁴

3.1 Surface Observations

The closest land-based observation site was from Apalachicola Regional Airport (KAAF), Apalachicola, Florida, located about 110 miles north-northeast of the accident location at an elevation of 20 ft. The airport had an Automated Surface Observation System (ASOS)¹⁵ which was not augmented by any observer. At the time of the turbulence event the following conditions were reported. Cloud heights are provided above ground level (agl).

Special weather observation for KAAF at 0818 EDT, Automated, wind from 280° at 12 knots, visibility 5 miles with thunderstorms in the vicinity, moderate rain and mist, ceiling broken at 1,200 ft agl, broken at 2,000 ft, and overcast at 9,000 ft, temperature 22°C (71°F), dew point temperature 21°C (69°F), and altimeter 29.62 inches of mercury. Remarks: automated station with a precipitation discriminator, lightning distant southeast through southwest, thunderstorm ended at 0801 EDT, hourly precipitation 0.03 inches, temperature 21.7°C, dew point 20.6°C.

At the time of the accident, the rainfall was 1.33 inches with thunderstorms beginning at 0615 and continuing through 0801 EDT, with the maximum wind gust of 45 knots reported at 0831 EDT when the line of storms moved across the area. The general flight categories¹⁶ and raw observations issued surrounding the period from 0653 through 0853 EDT were as follows. The observation occurring closest to the time of the accident is bolded for emphasis.

IFR METAR KAAF 031053Z AUTO 27019G37KT 1 3/4SM VCTS -RA BR FEW006 BKN011
OVC048 22/21 A2961 RMK AO2 PK WND 22045/1031 LTG DSNT ALQDS TSB15E43
SLP028 P0115 T02220211=

¹⁴ Detailed meteorological information is included in the Meteorology Specialist Report located in the docket.

¹⁵ ASOS – Automated Surface Observing System – Automated sensor suites equipped with meteorological instruments to observe and report wind, visibility, ceiling, temperature, dewpoint, altimeter, and barometric pressure. These systems generally report at hourly intervals but also report special observations if weather conditions change rapidly and cross aviation operation thresholds.

¹⁶ 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.

* 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.

MVFR SPECI KAAF 031057Z AUTO 27017G37KT 4SM VCTS -RA BR SCT011 BKN030 OVC065
22/21 A2961 RMK AO2 PK WND 28026/1054 LTG DSNT ALQDS P0000 T02170211=

MVFR SPECI KAAF 031131Z AUTO 26018G25KT 4SM +RA BR SCT008 BKN060 OVC070
21/20 A2963 RMK AO2 PK WND 28026/1054 LTG DSNT E AND S AND W PRESRR
P0007 T02110200=

MVFR SPECI KAAF 031144Z AUTO 27014KT 5SM VCTS RA BR SCT008 BKN055 OVC070
22/20 A2961 RMK AO2 PK WND 28026/1054 LTG DSNT ALQDS P0012 T02170200=

IFR SPECI KAAF 031146Z AUTO 26014G23KT 5SM TSRA BR BKN008 BKN055 OVC070
21/20 A2960 RMK AO2 PK WND 28026/1054 LTG DSNT ALQDS TSB46 P0012
T02110200=

MVFR METAR KAAF 031153Z AUTO 27008G22KT 4SM TSRA BR SCT008 BKN050 OVC070
21/21 A2961 RMK AO2 PK WND 28026/1054 LTG DSNT ALQDS TSB46 SLP026 P0014
60130 70130 T02110206 10228 20206 50005=

VFR SPECI KAAF 031207Z AUTO 26013G22KT 7SM VCTS -RA SCT010 BKN048 OVC090
22/21 A2963 RMK AO2 LTG DSNT ALQDS TSE01 P0001 T02170206=

**MVFR SPECI KAAF 031218Z AUTO 28012KT 5SM VCTS RA BR BKN012 BKN020
OVC090 22/21 A2962 RMK AO2 LTG DSNT SE-SW TSE01 P0003 T02170206=**

ACCIDENT TIME - 1223Z

MVFR SPECI KAAF 031250Z AUTO 29007KT 260V340 5SM RA BR BKN010 BKN022 OVC085
22/21 A2963 RMK AO2 LTG DSNT E-SW TSE01 P0009=

MVFR METAR KAAF 031253Z AUTO 29008KT 4SM RA BR BKN010 BKN022 OVC085 22/21
A2962 RMK AO2 LTG DSNT E-S TSE01 SLP031 P0009 T02170206=

3.2 In Flight Weather Advisories

The National Weather Service (NWS) Aviation Weather Center (AWC) issued SIGMET¹⁷ Bravo 1 for the Houston Flight Information Region (FIR) at 0750 EDT for embedded thunderstorms immediately south of the accident site over the Gulf of America. At 0755 EDT or immediately after the flight departed MSY, convective SIGMET 44E was issued which extended over the turbulence location. The advisory was issued for an area of severe embedded thunderstorms, with the area moving eastward at 60 knots, with thunderstorm tops above FL450. The advisory warned of the potential for tornadoes, hail to 1.5 inches, and wind gusts to 60 knots were possible with the storms. The advisory also implied the potential for severe and greater turbulence. Figure 3 in section F is a graphical depiction of the advisories from the NWS AWC display with the weather radar image at 0800 EDT, and the approximate turbulence location.

A review of the ATC event logs noted that the SIGMET was broadcast prior to the accident flight being on frequency with ZJX ARTCC.

¹⁷ SIGMET - Significant Meteorological Information - A weather advisory issued concerning weather significant to the safety of all aircraft. SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.

4.0 Air Traffic Control Facility

ZJX ARTCC was a level 11 enroute radar air traffic control facility located in the Jacksonville district of the eastern service area. The facility operated 24 hours per day, 7 days per week, year-round. ZJX ARTCC airspace covered approximately 210,000 square miles of the southern United States, including parts of Florida, Georgia, Alabama, South Carolina, and North Carolina. ZJX ARTCC also covered portions of the Atlantic Ocean and the Gulf of America. Figure 4 in section F is a photograph of the ZJX facility.

5.0 Air Traffic Control Equipment

5.1 Remote Center Air to Ground Communications Facility (RCAG)

All personnel interviewed stated that there was an issue with the frequency in the sector, resulting in regular missed transmissions. This was evident in the audio recording surrounding the time of the accident. These transmissions that had to be repeated increased the workload and frequency congestion of the R30 controller. In documentation provided by the FAA, it was discovered that there had been a fire at the RCAG, which was located at Tyndall Air Force Base, on October 4, 2023. This fire had caused the frequencies to fail. On October 15, 2023, a mobile RCAG was placed into operation as a temporary facility.

As part of RCAG placement, FAA Telecommunications Infrastructure (FTI) had provided a satellite relay connection to assist with providing operational frequencies for Q75 RCAG. In this instance, satellite support refers to a temporary supplement to ground based services using satellite-based services (typically used in cases of natural disasters or other emergency situations, hurricanes, etc.). This relay resulted in a delay of transmission by 600 milliseconds round trip, but it was noted that there would be no degradation of service. However, in a systemic issue review report (SYSIR) dated January 10, 2024, it was stated that the temporary frequencies were low power 10-watt transmitters with limited coverage, delays in transmissions, and multiple “dead spots”.¹⁸ Figure 6 in section F depicts the coverage area for the temporary RCAG site, the R30 sector boundaries, and the flight track of SWA4273 overlaid onto satellite imagery in Google Earth.

6.0 Facility Staffing

According to information provided by the FAA, at the time of the accident the staffing for ZJX ARTCC was as follows:

¹⁸ A copy of this SYSIR is included in Attachment 4: SYSIR Documentation.

Certified Professional Controllers (CPC)

- Allotted: 275
- Onboard: 212
- In Training: 60

Traffic Management Coordinators (TMC)

- Allotted: 18
- Onboard: 17 (15 operational)
- In Training: 0

Supervisory Traffic Management Coordinators (STMC)

- Allotted: 5
- Onboard: 4 (3 operational)
- In Training: 0

Operations Supervisors (OS)

- Allotted: 36
- Onboard: 24 (23 operational)
- In Training: 7

Operations Managers (OM)

- Allotted: 6
- Onboard: 5 (3 operational)
- In Training: 0

In April of 2023, a work group was formed to evaluate the need for and feasibility of splitting the R30 sector into two separate sectors. This was in part due to increased traffic caused by similar split positions at adjacent ARTCCs. A copy of this study is located in Attachment 5: Sector Split Study.

7.0 Interviewed Air Traffic Control Personnel

The R30 controller, D30 controller, CIC, STMC, and OM that were working at the time of the accident were interviewed, as well as a second CIC that working at the time that ZMA notified ZJX of the turbulence event. The NATCA LSC rep, QCM, and AATM were also interviewed.¹⁹

¹⁹ All interviews were recorded and transcribed by Free State Reporting, Inc. Transcripts are included in Attachment 6: Interview Transcripts.

7.1 Supervisory Traffic Management Coordinator (STMC)

The STMC entered on duty with the FAA in April 2006 and after initial training at the FAA academy, began working at ZJX ARTCC in June 2006. They transferred to Traverse City (TVC) ATCT in January 2012 and returned to ZJX ARTCC in September of 2012. They were current on the STMC position in accordance with facility standards and were working at the time of the accident, though not directly involved in the event. Neither post-accident alcohol nor drug testing were ordered.

The STMC was 47 years old, held a current medical clearance certificate at the time of the accident and had received their last ATC physical in October 2023. They had no waivers, restrictions, or limitations to their medical clearance. Their working hours for the week leading up to and including the day of the accident were as follows:

Day	Date	Shift	Hours (EDT)	Overtime
Thursday	Mar 28	Day	0630-1430	None
Friday	Mar 29	Day	0630-1430	None
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	OFF	None	None
Monday	Apr 1	Day	0630-1430	None
Tuesday	Apr 2	Day	0630-1430	None
Wednesday	Apr 3	Day	0630-1430	None

7.2 West Area Radar Sector 30 (R30) Controller

The R30 controller entered on duty with the FAA in November 2006 and after initial training at the FAA academy, began working at ZJX ARTCC in November 2006. They certified on the R30 position in December 2008 and were current in accordance with facility standards and were working at the time of the accident. Neither post-accident alcohol nor drug testing were ordered.

The R30 controller was 46 years old, held a current medical clearance certificate at the time of the accident and had received their last ATC physical in March 2024. They had no waivers, restrictions, or limitations to their medical clearance. Their working hours for the week leading up to and including the day of the accident were as follows:

Day	Date	Shift	Hours (EDT)	Overtime
Thursday	Mar 28	Day	0728-1428	None
Thursday**	Mar 29	Mid	2230-0630	None
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	Off	None	None
Monday	Apr 1	Eve	1415-2315	None

Tuesday	Apr 2	Eve	1345-2145	None
Wednesday	Apr 3	Day	0740-1540	None

** "Quick-turn" from day to mid shifts – both start in same day

7.3 Operations Manager (OM)

The OM entered on duty with the FAA in May 2010 and after initial training at the FAA academy, began working at ZJX ARTCC in August 2010. They were current in accordance with facility standards and were working at the time of the accident. Neither post-accident alcohol nor drug testing were ordered.

The OM was 41 years old and was not required to hold a medical clearance. Their working hours for the week leading up to and including the day of the accident were as follows:

Day	Date	Shift	Hours (EDT)	Overtime
Thursday	Mar 28	Off	None	None
Friday	Mar 29	Eve	1315-2215	9 hours
Saturday	Mar 30	Eve	1315-2215	1 hour
Sunday	Mar 31	Day	0715-1515	None
Monday	Apr 1	Day	0715-1515	None
Tuesday	Apr 2	Day	0630-1430	1 hour
Wednesday	Apr 3	Day	0630-1530	1 hour

7.4 NATCA Representative Local Safety Council (LSC)

The NATCA LSC representative was not working at the time of the accident and was interviewed as the LSC representative only to better understand the functioning of the ZJX ARTCC LSC. They entered on duty with the FAA in April 2003, and after initial training at the FAA academy, reported to ZJX ARTCC. They were certified in the west area and were current on all positions in accordance with facility standards.

7.5 West Area Controller in Charge (CIC) at Time Accident Occurred

The west area CIC entered on duty with the FAA in May 2008, and after initial training at the FAA academy, began working at Gulfport (GPT) ATCT. They reported to ZJX ARTCC in January 2013, had certified on the CIC position in December 2014, were current in accordance with facility standards. While they were working at the time of the accident, the accident was not reported until after they had been relieved for a scheduled break. They became aware of the accident when they returned to the operational area. Neither post-accident alcohol nor drug testing were ordered.

The CIC was 42 years old, held a current medical clearance certificate at the time of the accident and had received their last ATC physical in March 2024. They had no waivers, restrictions, or limitations to their medical clearance. Their working hours for the week leading up to and including the day of the accident were as follows:

Day	Date	Shift	Hours (EDT)	Overtime
Thursday	Mar 28	Day	0645-1445	None
Friday	Mar 29	Day	0735-1535	8 hours
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	Eve	1400-0000	2 hours
Monday	Apr 1	Eve	1330-2130	None
Tuesday	Apr 2	Day	0740-1540	None
Wednesday	Apr 3	Day	0740-1540	None

7.6 West Area Radar Associate (D30) Controller

The D30 controller entered on duty with the FAA in May 2022 and after initial training at the FAA academy, began working at ZJX ARTCC in August 2024. They certified on the D30 position in June 2023, were current in accordance with facility standards, and were working at the time of the accident. Neither post-accident alcohol nor drug testing were ordered.

The D30 controller was 27 years old, held a current medical clearance certificate at the time of the accident and had received their last ATC physical in March 2024. They had a requirement to wear corrective lenses while performing ATC duties and stated that they were wearing them at the time of the accident. Their working hours for the week leading up to and including the day of the accident were as follows:

Day	Date	Shift	Hours (EDT)	Overtime
Thursday	Mar 28	Day	0758-1558	None
Friday	Mar 29	Day	0800-1600	None
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	Off	None	None
Monday	Apr 1	Eve	1400-2200	None
Tuesday	Apr 2	Eve	1400-2200	None
Wednesday	Apr 3	Day	0758-1558	None

7.7 West Area Controller in Charge (CIC) at Time Accident was Reported

The relieving west area CIC entered on duty with the FAA in April 2007, and after initial training at the FAA academy, began working at ZJX ARTCC. They certified on the CIC position in November 2011 and were current in accordance with facility

standards. While they were not working at the time of the accident, they were working at the time ZJX ARTCC received the call reporting the turbulence event from ZMA ARTCC. Neither post-accident alcohol nor drug testing were ordered.

The relieving CIC was 39 years old, held a current medical clearance certificate at the time of the accident and had received their last ATC physical in March 2024. They had a restriction on their medical clearance regarding asthma and stated that they were compliant with their medical clearance restriction at the time of the accident. Their working hours for the week leading up to and including the day of the accident were as follows:

Day	Date	Shift	Hours (EDT)	Overtime
Thursday	Mar 28	Day	0600-1600	2 hours
Friday	Mar 29	Eve	1500-2300	None
Saturday	Mar 30	Off	None	None
Sunday	Mar 31	Eve	1500-2300	None
Monday	Apr 1	Eve	1154-2154	2 hours
Tuesday	Apr 2	Eve	1117-2117	2 hours
Wednesday	Apr 3	Day	0810-1810	2 hours

7.8 Quality Control Manager (QCM)

The QCM was in the facility but not in the operational area at the time of the accident. They had worked at ZJX ARTCC their entire career, which began in May 2002, and had been working in the QCM role for approximately two years.

7.9 Acting Air Traffic Manager (AATM)

The ZJX AATM was in the facility but not in the operational area at the time of the incident. They had worked at ZJX ARTCC their entire career, which began in February 2007. They held several positions from CPC to STMC to OM and was currently serving a six-month temporary detail as AATM.

8.0 Air Traffic Control Procedures

8.1 PIREP²⁰ Solicitation and Dissemination

FAA order 7110.65AA, *Air Traffic Control*, paragraph 2-6-2, provided procedures and guidance for controllers soliciting and disseminating PIREPS. The paragraph stated in part:

²⁰ PIREP - Pilot Weather Report - A report made by a pilot of meteorological phenomena encountered by an aircraft in flight.

Emphasis must be placed on the solicitation and dissemination of Urgent (UUA) and Routine (UA) PIREPs. Timely dissemination of PIREPs alerts pilots to weather conditions and provides information useful to forecasters in the development of aviation forecasts. PIREPs also provide information required by ATC in the provision of safe and efficient use of airspace. This includes reports of strong frontal activity, squall lines, thunderstorms, light to severe icing, wind shear and turbulence (including clear air turbulence) of moderate or greater intensity, braking action, volcanic eruptions and volcanic ash clouds, detection of sulfur gases in the cabin, and other conditions pertinent to flight safety. Controllers must provide the information in sufficient detail to assist pilots in making decisions pertinent to flight safety.

a. Solicit PIREPs when requested, deemed necessary or any of the following conditions exists or is forecast for your area of jurisdiction:

- 1. Ceilings at or below 5,000 feet. These PIREPs must include cloud bases, tops and cloud coverage when available. Additionally, when providing approach control services, ensure that at least one descent/climb-out PIREP and other related phenomena is obtained each hour.*
- 2. Visibility (surface or aloft) at or less than 5 miles.*
- 3. Thunderstorms and related phenomena.*
- 4. Turbulence of moderate degree or greater.*
- 5. Icing of light degree or greater.*
- 6. Wind shear.*
- 7. Braking action reports less than good.*
- 8. Volcanic ash clouds.*
- 9. Detection of sulfur gases (SO₂ or H₂S), associated with volcanic activity, in the cabin.*

b. Categorize PIREPs as follows:

- 1. URGENT. The following weather phenomena must be classified as an URGENT PIREP (UUA):*
 - (a) Tornadoes, funnel clouds, or waterspouts.*
 - (b) Severe or extreme turbulence (including clear air turbulence).*
 - (c) Severe icing.*
 - (d) Hail.*
 - (e) Low-level wind shear (LLWS). For the safety of light aircraft, classify low-level wind shear PIREPs as UUA if the pilot reports airspeed fluctuations of 10 knots or more. Classify reports of low-level wind shear with airspeed fluctuations less than 10 knots as routine. If airspeed fluctuation is not reported, classify PIREP as UUA.*

NOTE—Low-level wind shear is defined as wind shear within 2,000 feet of the surface.

- (f) Volcanic eruption, ash clouds, and/or detection of sulfur gases (H₂S or SO₂) in the cabin, however, if a pilot only reported the smell of H₂S or SO₂ in the cabin and confirmed no volcanic ash clouds were present, classify the report as a ROUTINE PIREP.*
- (g) Any other weather phenomena reported which in your opinion may be hazardous, or potentially hazardous, to flight operations.*

2. ROUTINE. Classify as ROUTINE (UA) all PIREPs received except those listed above.

c. Record with the PIREPs:

- 1. Time.*
- 2. Aircraft position.*
- 3. Type aircraft.*
- 4. Altitude or range of altitudes.*
- 5. When the PIREP involves turbulence, include:*
 - (a) Duration (occasional, intermittent, or continuous).*
 - (b) Intensity (light, moderate, severe, or extreme).*

NOTE—The duration and intensity of turbulence is determined by the pilot.

- 6. When the PIREP involves icing, include:*
 - (a) Icing type and intensity (trace, light, moderate, or severe).*
 - (b) Air temperature in which icing is occurring.*

d. Obtain PIREPs directly from the pilot, or if the PIREP has been requested by another facility, you may instruct the pilot to deliver it directly to that facility.

PHRASEOLOGY—

REQUEST/SAY FLIGHT CONDITIONS. Or if appropriate,

REQUEST/SAY (specific conditions; i.e., ride, cloud, visibility, etc.)

CONDITIONS.

2. EN ROUTE. Relay all operationally significant PIREPs to the facility weather coordinator.

8.2 Issuing Weather and Chaff Areas

FAA order 7110.65AA, *Air Traffic Control*, paragraph 2-6-4, provided procedures and guidance for controllers in issuing weather. The paragraph stated in part:

- a. *Controllers must issue pertinent information on observed/reported weather and chaff areas to potentially affected aircraft. Define the area of coverage in terms of:*
 - 1. *Azimuth (by referring to the 12-hour clock) and distance from the aircraft and/or*
 - 2. *The general width of the area and the area of coverage in terms of fixes or distance and direction from fixes.*
- f. *EN ROUTE. When issuing Air Route Surveillance Radar (ARSR) precipitation intensity use the following:*
 - 1. *Describe the lowest displayable precipitation intensity as MODERATE.*
 - 2. *Describe the highest displayable precipitation intensity as HEAVY to EXTREME.*

PHRASEOLOGY–

AREA OF (Intensity) PRECIPITATION BETWEEN (number) O'CLOCK and (number) O'CLOCK, (number) MILES, MOVING (direction) AT (number) KNOTS, TOPS (altitude). If applicable, AREA IS (number) MILES IN DIAMETER.

If a pilot enters your area of jurisdiction already deviating for weather, advise the pilot of any additional weather which may affect the route.

NOTE–

- 3. *When aircraft are deviating around weather and transitioning from sector to sector, unless previously coordinated, the receiving controller should not assume that the transferring controller has issued weather affecting the aircraft's route of flight.*

F. FIGURES

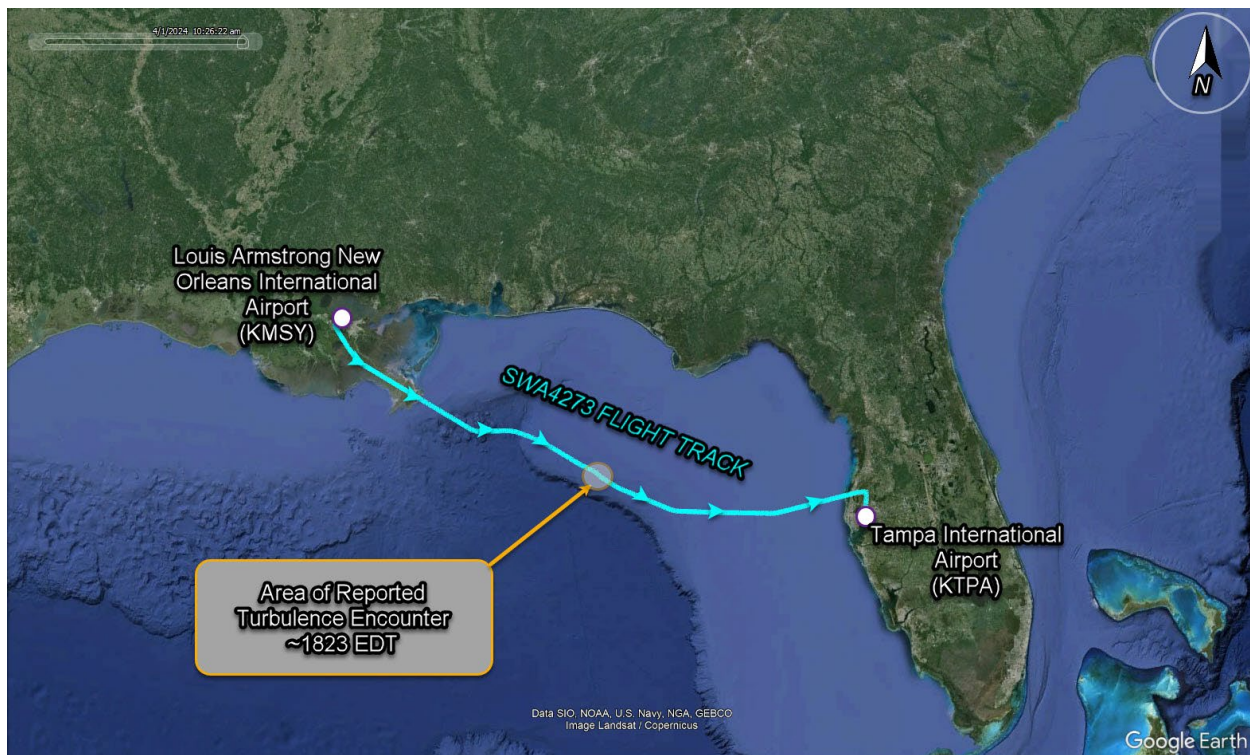


Figure 1. An overhead view of SWA4273's flight path from MSY to TPA with the area of reported turbulence depicted by the shaded circle.



Figure 2. An overhead view of SWA4273's flight track from the time the aircraft entered ZJX airspace with timeline and fixes notated.

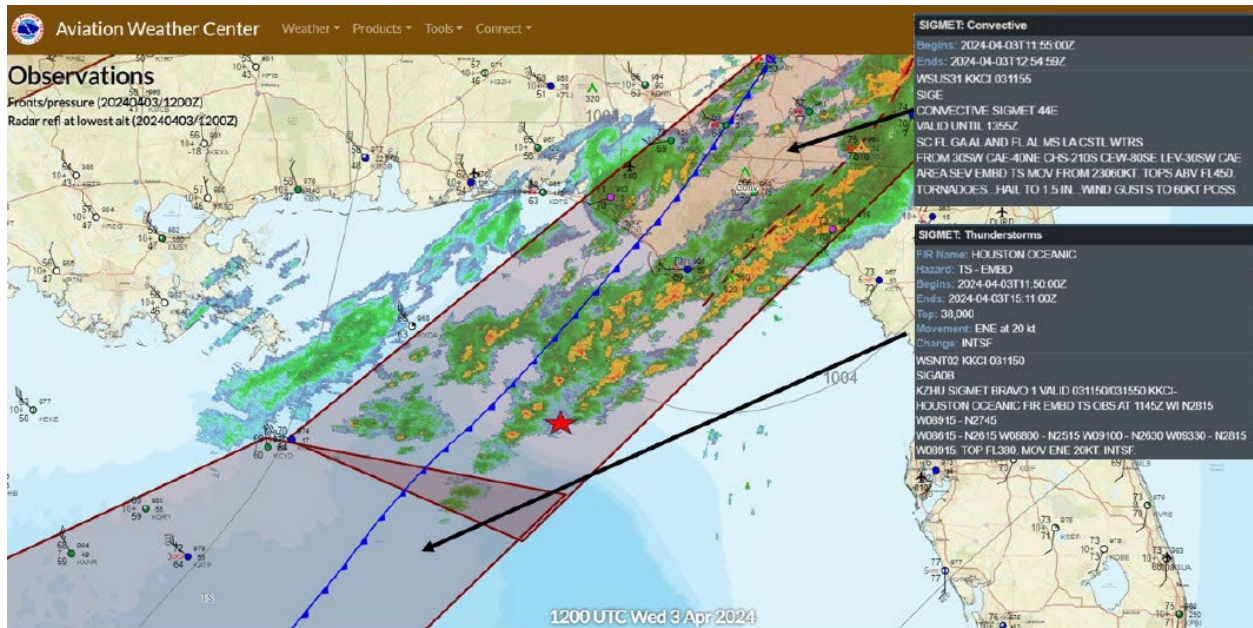


Figure 3. NWS AWC METAR display with fronts, radar, and SIGMETs overlaid at 0800 EDT immediately after the issuance of the advisories and with the approximate future accident site. This graphic was taken from the meteorology specialist's factual report.



Figure 4. A photo of ZJX ARTCC. Photo credit: accessed from https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/artcc/jacksonville/contact



Figure 5. Photograph of the R30 / NEPTA sector position with equipment identified.

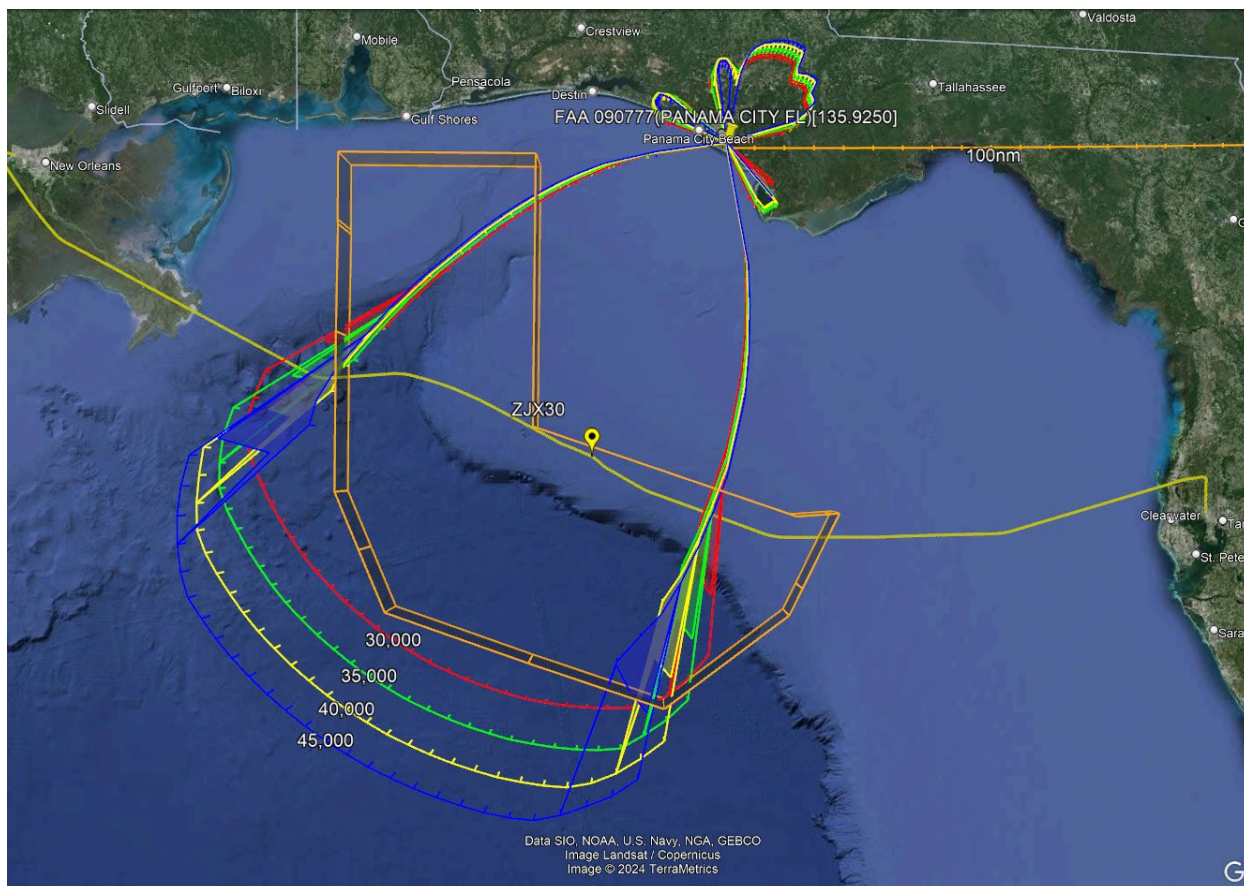


Figure 6. An overhead view of the temporary RCAG frequency range, SWA4273's flight track, and the R30 sector overlaid on satellite imagery from Google Earth.

G. LIST OF ATTACHMENTS

- Attachment 1: ATC Audio Recordings
- Attachment 2: ADS-B data
- Attachment 3: Aircraft Accident Package
- Attachment 4: SYSIR Documentation
- Attachment 5: Staff study on proposed sector split
- Attachment 6: Interview Transcripts
- Attachment 7: Facility Administration and Documentation

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