



# Aviation Investigation Final Report

---

<b>Location:</b>	Reno, Nevada	<b>Accident Number:</b>	DCA19CA081
<b>Date &amp; Time:</b>	February 13, 2019, 14:55 Local	<b>Registration:</b>	N613CZ
<b>Aircraft:</b>	Embraer ERJ170	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>	Turbulence encounter	<b>Injuries:</b>	1 Serious, 4 Minor, 59 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

---

## Analysis

On February 13, 2019 about 1232 PST, Compass Airlines flight 5763, an Embraer ERJ 175, N613CZ, encountered turbulence while in cruise flight at flight level (FL) 340 and subsequently diverted to Reno-Tahoe International Airport (KRNO), Reno, Nevada. Of the 75 passengers and crew onboard, one flight attendant sustained serious injuries while two flight attendants and two passengers received minor injuries. The airplane sustained minor damage. The flight was operating under the provisions of 14 Code of Federal Regulations Part 121 as a regularly scheduled passenger flight from the John Wayne-Orange County Airport (KSNA), Santa Ana, California to Seattle-Tacoma International Airport (KSEA), Seattle, Washington.

According to the flight crew, about 40 minutes into the flight when the airplane was in smooth air and “between cloud layers”, the captain informed the flight attendants that they could begin cabin service but left the seatbelt sign illuminated for passengers because there was a report of “occasional light chop”. About 20 minutes later, the flight encountered an area of severe turbulence that lasted about 8 seconds and caused the airplane to rapidly gain altitude and the traffic collision avoidance system (TCAS) to issue a resolution advisory (RA) for opposite-direction traffic 1,000 ft above them. The first officer (FO), who was the flying pilot, disengaged the autopilot and applied forward control pressure to comply with the RA. The FO could not obtain the target flight path vector directed by the TCAS, so the captain assisted on the controls to obtain the desired pitch attitude. After the airplane descended back to its assigned altitude, the TCAS RA cleared, and the captain informed air traffic control of the turbulence and TCAS RA.

According to the flight attendants (FA), the turbulence was encountered as they were beginning the beverage service. Two of the FAs impacted the ceiling before falling to the floor and one passenger, who had been in the lavatory at the time of the encounter had a small head laceration. As a result of the injuries, the captain declared an emergency and the flight diverted

to KRNO. The FA in the aft galley was assisted by a medically qualified passenger and remained on the floor until landing due to her injuries. She was transported to the hospital and diagnosed with a broken arm.

Post accident examination of the weather satellite data depicted cloud patterns aloft consistent with the presence of a convective updraft coincident with the flight's location at the time of the turbulence encounter. The convection appeared to be "embedded" with stratiform clouds and may not have been visually identifiable by the flight crew.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

an inadvertent encounter with convective turbulence that resulted in a TCAS RA, which required an abrupt control input by the flight crew to resolve the conflict.

### Findings

<b>Environmental issues</b>	Convective turbulence - Effect on personnel
<b>Personnel issues</b>	Aircraft control - Flight crew

## Factual Information

### History of Flight

<b>Enroute-cruise</b>	Turbulence encounter (Defining event)
-----------------------	---------------------------------------

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	32, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 24, 2019
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	January 27, 2019
<b>Flight Time:</b>	4270 hours (Total, all aircraft), 2727 hours (Total, this make and model), 1962 hours (Pilot In Command, all aircraft), 116 hours (Last 90 days, all aircraft), 39 hours (Last 30 days, all aircraft)		

### Co-pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	30, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	November 26, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 28, 2018
<b>Flight Time:</b>	2233 hours (Total, all aircraft), 674 hours (Total, this make and model), 566 hours (Pilot In Command, all aircraft), 195 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Embraer	<b>Registration:</b>	N613CZ
<b>Model/Series:</b>	ERJ170 200LR	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2008	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	17000203
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	83
<b>Date/Type of Last Inspection:</b>	Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	89353 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	Turbo fan
<b>Airframe Total Time:</b>	30469.12 Hrs	<b>Engine Manufacturer:</b>	General Electric
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	CF34-8E5
<b>Registered Owner:</b>	Delta Air Lines Inc	<b>Rated Power:</b>	14510 Lbs thrust
<b>Operator:</b>	Compass Airlines	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>	Delta Connection	<b>Operator Designator Code:</b>	C77A

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	Convective / Convective
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	Severe / Severe
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Santa Ana, CA (SNA )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Reno, NV (RNO)	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class A

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious, 2 Minor, 2 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	2 Minor, 57 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious, 4 Minor, 59 None	<b>Latitude, Longitude:</b>	39.473502,-119.81758

## Administrative Information

**Investigator In Charge (IIC):** Bower, Daniel

**Additional Participating Persons:**

**Original Publish Date:** January 26, 2021

**Last Revision Date:**

**Investigation Class:** [Class 4](#)

**Note:** This accident report documents the factual circumstances of this accident as described to the NTSB.

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=98982>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).