



Aviation Investigation Final Report

Location:	ATLANTIC OCEAN, Atlantic Ocean	Accident Number:	MIA94LA214
Date & Time:	September 19, 1994, 18:39 Local	Registration:	N433US
Aircraft:	BOEING 737-400	Aircraft Damage:	None
Defining Event:		Injuries:	1 Serious, 131 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

WHILE DESCENDING IN CLOUDS THE AIRLINER ENCOUNTERED TURBULENCE. NO ECHOES WERE OBSERVED ON THE AIRBORNE WEATHER AVOIDANCE RADAR. ONE FLIGHT ATTENDANT RECEIVED SERIOUS BACK INJURIES. A REVIEW OF THE WEATHER AFTER THE ACCIDENT REVEALED THE AIRPLANE WAS OPERATING IN AN AREA OF DEVELOPING CONVECTIVE CELLS THAT MAY NOT HAVE APPEARED ON RADAR.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE INFLIGHT ENCOUNTER WITH TURBULENCE IN CLOUDS.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: DESCENT

Findings

1. (C) WEATHER CONDITION - TURBULENCE IN CLOUDS

Factual Information

On September 19, 1994, about 1839 eastern daylight time, N433US, a Boeing 737-400 experienced turbulence during descent over the Atlantic Ocean. The airplane was owned and operated by U.S. Air, Inc. and was operating as flight No. 811, scheduled, domestic, passenger service from Charlotte, North Carolina, to West Palm Beach, Florida. Instrument meteorological conditions prevailed at the time and an IFR flight plan was filed. The airplane was not damaged and the captain, first officer, 3 flight attendants, and 126 passengers were not injured. One flight attendant received serious injuries. The flight originated from Charlotte, North Carolina, about 1654 the same day.

One flight attendant was standing in the rear galley when the airplane experienced one jolt of turbulence. She was evacuated from the airplane upon arrival in West Palm Beach, Florida, and examination revealed she had a fractured lower back vertebrae.

The crew stated they were established in descent with the weather avoidance radar on and the airplane encountered one jolt of turbulence. They stated that no echoes were observed on the radar. A factual weather report of the environmental conditions was conducted by the NTSB meteorology division and the airplane was placed in an area of developing convection cells that would not necessarily show up on airborne weather radar. Details of the weather and the report are attached to this report.

Pilot Information

Certificate:	Airline transport	Age:	49, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	May 17, 1994
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	2225 hours (Total, all aircraft), 2158 hours (Total, this make and model), 152 hours (Last 90 days, all aircraft), 65 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BOEING	Registration:	N433US
Model/Series:	737-400 737-400	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	24842
Landing Gear Type:	Retractable - Tricycle	Seats:	146
Date/Type of Last Inspection:	Continuous airworthiness	Certified Max Gross Wt.:	142500 lbs
Time Since Last Inspection:		Engines:	2 Turbo jet
Airframe Total Time:		Engine Manufacturer:	Cfm
ELT:	Installed, not activated	Engine Model/Series:	CFM 56-3B2
Registered Owner:	USAIR	Rated Power:	22000 Lbs thrust
Operator:		Operating Certificate(s) Held:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	USAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Day
Observation Facility, Elevation:	PBI ,14 ft msl	Distance from Accident Site:	25 Nautical Miles
Observation Time:	18:24 Local	Direction from Accident Site:	245°
Lowest Cloud Condition:	Unknown	Visibility	7 miles
Lowest Ceiling:	Broken / 1900 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	13 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	24°C / 23°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	CHARLOTTE , NC (CLT)	Type of Flight Plan Filed:	IFR
Destination:	WEST PALM BEACH, FL (PBI)	Type of Clearance:	IFR
Departure Time:	16:54 Local	Type of Airspace:	Class E

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious, 5 None	Aircraft Damage:	None
Passenger Injuries:	126 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 131 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	Alston, Andrew
Additional Participating Persons:	FRANZ JURAN; FT. LAUDERDALE , FL JAMES T SKEEN; WASHINGTON , DC
Original Publish Date:	January 26, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=37605

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](#).