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## Turbulence injuries, Boeing 777-222, June 11, 1999

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**Micro-summary:** This Boeing 777-222 encountered turbulence while in descent. Several people received injuries.

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**Event Date:** 1999-06-11 at 2118 CDT


**Investigative Body:** National Transportation Safety Board (NTSB), USA


**Investigative Body's Web Site:** <http://www.nts.gov/>


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1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
  2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
  3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
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		NTSB ID: CHI99LA184		Aircraft Registration Number: N781UA	
		Occurrence Date: 06/11/1999		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place MADISON	State WI	Zip Code 63701	Local Time 2118	Time Zone CDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 777-222		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On June 11, 1999, at 2118 central daylight time (cdt), a Boeing 777-222, N781UA, operated by United Airlines as flight 256 encountered turbulence during a descent near Madison, Wisconsin. Four passengers received minor injuries and one passenger was seriously injured. Four flight attendants received minor injuries. Both cockpit crewmembers, 6 flight attendants, and 279 passengers were not injured. The airplane was not damaged. The 14 CFR Part 121 passenger flight was operating in visual meteorological conditions on an IFR flight plan.</p> <p>The flight was originally scheduled from Denver, Colorado, to Chicago, Illinois; however, it diverted to Minneapolis, Minnesota due to thunderstorms in the Chicago area. The flight departed from Minneapolis, Minnesota, at 2048 cdt. The flight continued on to Chicago after the turbulence encounter where it landed uneventfully, at the Chicago O'Hare International Airport, at 2149 cdt.</p> <p>The captain reported the flight was smooth up until the unexpected turbulence was encountered while they were descending through 18,000 feet msl. He reported the moderate turbulence lasted 20 to 30 seconds after which the remainder of the flight was smooth. The seat belt sign was not on at the time of the turbulence encounter. The captain reported the radar was on and it was showing no indication of cells or turbulence along the route. He reported there was a rain shower at their 2 o'clock position, 30 miles away.</p> <p>The first officer reported that moderate turbulence was encountered during the descent at an altitude of about 17,000 feet msl. He reported, "It consisted of a 2-3 second period of negative "g" followed by a 2-3 second positive "g" deviation, then a two to five minute period of light to moderate slight deviations from our flight path." He reported there was nothing on the radar in their area, but convective activity was displayed beyond the Chicago area.</p> <p>The flight attendants reported that all the passengers that were injured were out of their seats and in the back of the airplane when the turbulence was encountered. The most serious injury was a passenger who suffered a broken ankle.</p> <p>According to United Airlines, the flight crew received a Weather Briefing Message (WBM) prior to departing Minneapolis, which contained convective sigmets for Wisconsin, Illinois, and Indiana. The accident took place ahead of a stationary front which extended northeast-southwest through central Wisconsin and Iowa which had been creating shower and thunderstorm activity throughout afternoon and evening on the day of the accident.</p> <p>A review of recorded aircraft data revealed the flight experienced a change in G-loading from .0843 g's to 1.9375 g's over a 2-second time period while at an altitude of 19,680 feet msl.</p>					
FACTUAL REPORT - AVIATION					

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: CHI99LA184			
		Occurrence Date: 06/11/1999			
		Occurrence Type: Accident			
<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
<b>Aircraft Information</b>					
Aircraft Manufacturer Boeing		Model/Series 777-222		Serial Number 26945	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 305	Certified Max Gross Wt.	545000 LBS	Number of Engines: 2	
Engine Type: Turbo Fan	Engine Manufacturer: P&W	Model/Series: PW4077	Rated Power: 77000 LBS		
<b>- Aircraft Inspection Information</b>					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 05/1999	Time Since Last Inspection 390 Hours	Airframe Total Time 11389 Hours		
<b>- Emergency Locator Transmitter (ELT) Information</b>					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner  UNITED AIR LINES, INC.		Street Address P.O.BOX 66100			
		City CHICAGO	State IL	Zip Code 60666	
Operator of Aircraft  Same as Reg'd Aircraft Owner		Street Address Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As: UNITED AIRLINES			Operator Designator Code: UALA		
<b>- Type of U.S. Certificate(s) Held:</b>					
Air Carrier Operating Certificate(s): Flag Carrier/Domestic					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 121: Air Carrier					
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only					
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<b>First Pilot Information</b>																																																																																					
Name		City		State	Date of Birth	Age																																																																															
On File		On File		On File	On File	56																																																																															
Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot		Certificate Number: On File																																																																																	
Certificate(s): Airline Transport; Flight Instructor; Flight Engineer																																																																																					
Airplane Rating(s): Multi-engine Land; Single-engine Land																																																																																					
Rotorcraft/Glider/LTA: None																																																																																					
Instrument Rating(s): Airplane																																																																																					
Instructor Rating(s):																																																																																					
Type Rating/Endorsement for Accident/Incident Aircraft? Yes				Current Biennial Flight Review?																																																																																	
Medical Cert.: Class 1		Medical Cert. Status: Valid Medical--no waivers/lim.			Date of Last Medical Exam:																																																																																
<table border="1"> <thead> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> </thead> <tbody> <tr> <td>Total Time</td> <td>23000</td> <td>75</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>104</td> <td>104</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>64</td> <td>64</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>13</td> <td>13</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	23000	75									Pilot In Command(PIC)											Instructor											Last 90 Days	104	104									Last 30 Days	64	64									Last 24 Hours	13	13								
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? No		Second Pilot? Yes																																																																															
<b>Flight Plan/Itinerary</b>																																																																																					
Type of Flight Plan Filed: IFR																																																																																					
Departure Point		State	Airport Identifier	Departure Time	Time Zone																																																																																
MINNEAPOLIS		MN	MSP	2048	CDT																																																																																
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Type of Clearance: IFR																																																																																					
Type of Airspace: Class A																																																																																					
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Source of Briefing: Company																																																																																					
Method of Briefing:																																																																																					

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>			NTSB ID: CHI99LA184		
			Occurrence Date: 06/11/1999		
			Occurrence Type: Accident		
<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
MSN	2053	CDT	862 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			3300 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: Broken			4600 Ft. AGL	Visibility: 10 SM	Altimeter: 30.00 "Hg
Temperature: 25 °C		Dew Point: 18 °C	Wind Direction: 180		Density Altitude: Ft.
Wind Speed: 15		Gusts:	Weather Conditions at Accident Site: Visual Conditions		
Visibility (RVR): 0 Ft.		Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown		
Restrictions to Visibility: None					
Type of Precipitation: Rain					
<b>Accident Information</b>					
Aircraft Damage: None		Aircraft Fire: None		Aircraft Explosion: None	
Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants			4	6	10
Other Crew					
Passengers		1	4	279	284
- TOTAL ABOARD -		1	8	287	296
Other Ground	0	0	0		0
- GRAND TOTAL -	0	1	8	287	296

 National Transportation Safety Board <b>FACTUAL REPORT</b> AVIATION	NTSB ID: CHI99LA184	
	Occurrence Date: 06/11/1999	
	Occurrence Type: Accident	
Administrative Information		
Investigator-In-Charge (IIC) PAMELA S. SULLIVAN		
Additional Persons Participating in This Accident/Incident Investigation:  ROBERT WOOD 9950 W. LAWRENCE, SUITE 400 SCHILLER PARK, IL 60176		
FACTUAL REPORT - AVIATION		