National Transportation Safety Board
Aviation Accident Final Report

Location:	MANOKOTAK, AK	**Accident Number:**	ANC99LA016
Date & Time:	12/17/1998, 1740 AST	**Registration:**	N1764U
Aircraft:	Cessna 207A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Scheduled		

Analysis

The certificated commercial pilot and the pilot-rated, nonrevenue passenger, departed at night from a remote village airport on the last leg of a VFR scheduled air taxi flight. The destination airport was 17 nautical miles northeast of the departure point. After departure, the pilot said he encountered severe turbulence and entered a snow squall where the visibility dropped below 1 mile. The pilot said he was in instrument meteorological conditions, and a strong surface wind was blowing the airplane toward the southwest. He began correcting his course toward the southeast, and then collided with a snow-covered hill. The passenger said that light snow showers were falling in the area, along with turbulence and strong winds from the northeast. After departing on the accident flight, snow showers intensified, and the pilot turned toward the south, away from the intended destination. About 10 minutes after takeoff, the passenger inquired about the direction of flight, and the pilot said he was going to head to the coast and follow it to the destination. The visibility was about 1 mile. No ground features were visible until the passenger saw snow-covered terrain about 3 feet below the airplane. The airplane then collided with terrain. The pilot indicated he obtained a weather briefing from an FAA Flight Service Station.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's continued VFR flight into instrument meteorological conditions. Factors in the accident were dark night conditions, snow covered terrain, and low ceilings.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: CRUISE

Findings
1. TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. (F) TERRAIN CONDITION - SNOW COVERED
3. (F) LIGHT CONDITION - DARK NIGHT
4. (F) WEATHER CONDITION - LOW CEILING
5. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND

Factual Information

On December 17, 1998, about 1740 Alaska standard time, a wheel equipped Cessna 207A airplane, N1764U, sustained substantial damage after colliding with terrain, about 6 miles southwest of Manokotak, Alaska. The airplane was being operated as a visual flight rules (VFR) scheduled domestic flight under Title 14 CFR Part 135 when the accident occurred. The airplane was operated by Yute Air Alaska Inc., Anchorage, Alaska, as Flight 611 from Dillingham, Alaska, to Manokotak, to Togiak, Alaska, and then return to Dillingham, via Manokotak. The certificated commercial pilot received minor injuries. The pilot-rated, nonrevenue passenger, occupying the right-front seat, received serious injuries. Visual meteorological conditions prevailed at the destination. Instrument meteorological conditions prevailed in the area of the accident. VFR company flight following procedures were in effect. The flight originated at the Manokotak Airport, about 1730.

The Director of Operations for the company reported the flight departed Manokotak on the last leg of the scheduled flight to Dillingham, which is 17 nautical miles northeast of Manokotak. Only U.S. mail was being carried on the accident flight segment. Thirty minutes after the airplane did not arrive, company personnel reported the flight overdue. An emergency locator transmitter (ELT) signal was received from the Manokotak area. Search personnel located the accident site about 0200, December 18.

In the Pilot/Operator report (NTSB form 6120.1/2) submitted by the operator, the pilot indicated he obtained a weather briefing from the Federal Aviation Administration (FAA) Flight Service Station (FSS) in Dillingham. He also included a written statement. The pilot said the initial segments of the flight were uneventful, other than moderate turbulence. After departing Manokotak, he climbed the airplane to 300 feet above the ground, and began a left turn toward the south. Thirty seconds after departure, the airplane encountered severe turbulence, and entered a snow squall. The visibility dropped to less than one mile. The pilot said he was in instrument meteorological conditions at 600 feet, and began concentrating on the flight instruments. He said he was maintaining a magnetic heading of 190 degrees. He glanced at the Global Positioning System (GPS) receiver and noticed the airplane was tracking a magnetic course of 230 degrees. The pilot said he realized an extreme wind drift was occurring, and started making heading corrections toward the southeast. The airplane collided with a hill between 5 to 10 miles southwest of Manokotak. The pilot said he was unable to remember if he saw any terrain before the collision.

The passenger was enrolled in a training course conducted by Alaska Differences Training. The training course provides certificated pilots with information about the unique nature of rural flying in Alaska. As part of the training, the passenger was observing rural flight operations by riding with the operator. At the conclusion of the training, a pilot may, or may not, be hired by the operator.

During an interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on December 18, 1998, at 1300, the passenger related the following: The flight arrived in Manokotak with light snow showers falling in the area. The flight to Manokotak included turbulence and strong winds from the northeast. The accident flight departed after dark from Manokotak. Snow showers intensified, and the pilot turned toward the south, away from the intended destination of Dillingham. About 10 minutes after takeoff, the passenger inquired about the direction of flight, and the pilot said he was going to head to the coast and

follow it to Dillingham. The visibility was about 1 mile. No ground features were visible until the passenger saw snow-covered terrain about 3 feet below the airplane. The airplane then collided with the terrain.

The closest official weather observation station is Dillingham, Alaska, which is located 23 nautical miles northeast of the accident site. On December 17, 1998, at 1750, an Aviation Routine Weather Report (METAR) was reporting in part: "Wind, 001 degrees (magnetic) at 9 knots, gust to 14 knots; visibility, 10 statute miles; clouds and sky condition, 10,000 broken, 18,000 feet overcast; temperature, 16 degrees F; dew point, 3 degrees F; altimeter, 30.67 inHg."

An area forecast for the southern half of Alaska, except southeast Alaska, was issued on December 17, 1998, at 1745. The forecast for Bristol Bay, Alaska, was valid until December 18, 1998, at 0600, and stated, in part: "AIRMET, valid until 0000, for strong surface wind. Egegik, Alaska, south and offshore, sustained surface winds of 30 knots or greater, no change. Clouds and weather; Egegik, south and offshore, 2,000 feet scattered, 4,000 feet overcast, layered above, tops at 25,000 feet. Occasionally 2,000 feet overcast; visibility, 4 statute miles in light snow, rain, and mist. Surface wind from the southeast at 30 knots, gusts to 50 knots. Elsewhere, 4,000 feet scattered, 12,000 feet broken, layered above, tops at 25,000 feet. Surface wind from the east/northeast with gusts to 25 knots. After 0000, surface wind from the east at 20 knots, with gusts to 35 knots... Turbulence; SIGMET, Alpha 1, valid from 1745 to 2145, occasional severe turbulence forecast below 6,000 feet within an area bounded by 30 miles east of King Salmon, Alaska, to Port Heiden, Alaska, to Dillingham, to 30 miles east of King Salmon, no change. AIRMET for turbulence; moderate turbulence below 8,000 feet; low level wind shear; no change. Icing and freezing level; light isolated moderate rime icing in clouds between 2,500 feet, and 10,000 feet. Freezing level at the surface to the north, 1,500 feet to the south."

A terminal forecast for Dillingham, issued on December 17, 1998, at 1945, and valid from 2000 to December 18, 1998, at 1500, was reporting, in part: "Wind, 030 degrees at 10 knots, gusts to 20 knots; visibility greater than 6 statute miles. Clouds, 2,000 feet scattered, 8,000 feet broken. Temporary changes between 2000 and 1200 (December 18, 1998), visibility 5 statute miles in light snow and mist; clouds, 1,000 feet scattered, 2,000 feet broken. From 1200 to 1500, wind 060 degrees at 15 knots, gusts to 25 knots; visibility greater than 6 statute miles. Clouds, 2,500 feet scattered, 5,000 feet broken."

Pilot Information

Certificate:	Flight Instructor; Commercial	**Age:**	24, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	06/18/1998
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	1600 hours (Total, all aircraft), 700 hours (Total, this make and model), 1550 hours (Pilot In Command, all aircraft), 320 hours (Last 90 days, all aircraft), 110 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N1764U
Model/Series:	207A 207A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	20700364
Landing Gear Type:	Tricycle	**Seats:**	7
Date/Type of Last Inspection:	11/26/1998, 100 Hour	**Certified Max Gross Wt.:**	3800 lbs
Time Since Last Inspection:	60 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	7283 Hours	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO-520-F
Registered Owner:	WILLIAM L. JOHNSON	**Rated Power:**	300 hp
Operator:	YUTE AIR ALASKA INC.	**Operating Certificate(s) Held:**	Commuter Air Carrier (135); On-demand Air Taxi (135)
Operator Does Business As:		**Operator Designator Code:**	YAAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Night/Dark
Observation Facility, Elevation:	, 0 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	0000	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	**Visibility**	0.5 Miles
Lowest Ceiling:	Overcast / 10000 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	40 knots / 60 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	-7°C / -12°C
Precipitation and Obscuration:			
Departure Point:	(17Z)	**Type of Flight Plan Filed:**	Company VFR
Destination:	DILLINGHAM, AK (DLG)	**Type of Clearance:**	None
Departure Time:	1730 AST	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	SCOTT R ERICKSON	**Report Date:**	03/31/2000
Additional Participating Persons:	TOM ELDRIDGE (FAA); ANCHORAGE, AK		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		