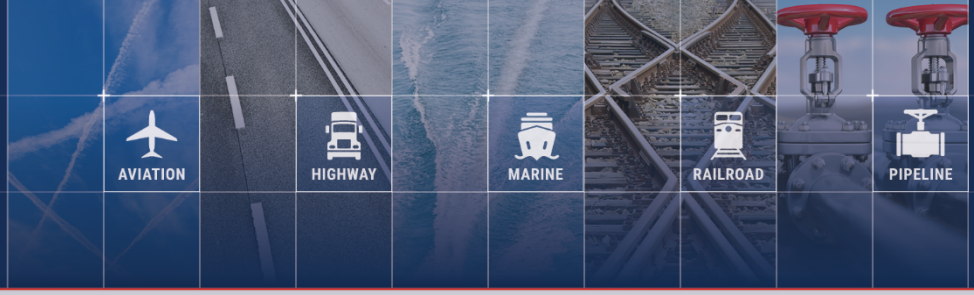

Aviation Investigation Final Report

Location:	Taos, New Mexico	**Accident Number:**	CEN11FA347
Date & Time:	May 20, 2011, 11:02 Local	**Registration:**	N1533Y
Aircraft:	Beech F33A	**Aircraft Damage:**	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot obtained two abbreviated weather briefings prior to departure and initially planned to fly a familiar route over mountainous terrain. The pilot later changed his proposed route of flight to one that would take him further north over the mountains on an unfamiliar path. The pilot did not obtain any additional weather briefings. Had he obtained a weather briefing for his revised flight path, he could have received an AIRMET for mountain obscuration along his route of flight. A review of ground positioning system (GPS) track data revealed that the flight was uneventful until the pilot began to cross over the mountains on a northwesterly heading at 12,500 feet and into instrument meteorological conditions, which witnesses described as a fast, west-to-east moving front that involved mountain obscuration, turbulence, snow, and icing conditions. During the last 4 1/2 minutes of the flight, the pilot began a series of climbing and descending turns that involved increasing and decreasing airspeeds, which was consistent with a loss of situational awareness or disorientation. The last recorded data by an onboard GPS indicated the airplane was at an altitude of 11,279 feet on a heading of 84 degrees at a groundspeed of 81 knots. The airplane impacted heavily wooded, mountainous terrain at an elevation of about 10,700 feet. A postaccident examination of the airplane revealed no mechanical deficiencies with the airplane or the engine. Results of postmortem toxicology testing were consistent with the relatively recent use of an impairing antihistamine, which is often used to treat allergies. It is possible that the pilot was impaired by his recent use of the antihistamine, although the role of any such impairment in the accident sequence could not be established.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's continued visual flight into instrument meteorological conditions, which resulted in

loss of situational awareness, and a possible encounter with icing conditions.

Findings

Personnel issues	Incorrect action performance - Pilot
Environmental issues	Obscuration - Contributed to outcome
Personnel issues	Situational awareness - Pilot
Environmental issues	Conducive to structural icing - Effect on operation

Factual Information

History of Flight

Enroute	Controlled flight into terr/obj (CFIT) (Defining event)
Enroute-cruise	VFR encounter with IMC

HISTORY OF FLIGHT

On May 20, 2011, at 1102 mountain daylight time, N1533Y, a Beechcraft BE-F33A airplane, sustained substantial damage when it collided with heavily wooded, mountainous terrain approximately 13 miles east of Taos Regional Airport (SKX), Taos, New Mexico. The private pilot was fatally injured. The airplane was registered to a private corporation and operated by the pilot. Instrument meteorological conditions prevailed for the flight that originated at Rick Husband Amarillo International Airport (AMA), Amarillo, Texas, about 0936, and was destined for Taos. A visual flight rules (VFR) flight plan was filed for the personal cross country flight conducted under 14 Code of Federal Regulations Part 91.

Prior to departure, the pilot contacted the Fort Worth Automated Flight Service Station (AFSS), Fort Worth, Texas, and received two abbreviated weather briefings. The pilot called for his first briefing at 0641 and then called for a second briefing at 0737 while driving to the airport. The pilot told the weather briefer that his normal route of flight was to depart San Angelo, Texas, fly over Tucumcari and Angel Fire, New Mexico, and "then pop over the mountains there between Angel Fire and Taos." According to the pilot's business partner and co-owner of the airplane, the pilot's original route of flight was from San Angelo to Taos. However, due to thunderstorms in the area, the co-owner's commercial flight was canceled and he asked the pilot to fly him to Amarillo first. The pilot agreed and planned to go direct to Taos from Amarillo.

The co-owner stated the flight to Amarillo was normal and the pilot was in a good mood. After they landed in Amarillo, the pilot planned to depart immediately, but the co-owner talked him into parking the airplane. They then reviewed the flight from Amarillo to Taos, since the route would take the pilot further north over the mountain range than he was accustomed. The co-owner and the pilot reviewed the sectional chart "in length" and concluded that if the pilot maintained VFR at an altitude of 12,500 feet over the mountains he would be "fine." They also reviewed the weather at Angel Fire and it was marginal instrument flight rules (IFR). They were both concerned about those conditions, but the pilot was instrument rated and could fly IFR if needed.

A review of recorded air traffic control communications revealed the pilot was communicating with Albuquerque Center after he departed Amarillo. While en route, the controllers asked the pilot if he was aware of the rising terrain, and the pilot acknowledged. He told the controllers that he would climb to 12,500 feet as he got closer to Taos. A controller also advised the pilot

that once he reached the mountains, radar contact would be lost. The pilot acknowledged, and at 1058, radar service was terminated. The pilot was advised to "squawk VFR" and a frequency change was approved. The pilot acknowledged and this was the last recorded communication between him and ATC.

The manager at Angel Fire Airport reported that the pilot made a traffic advisory over the airport's UNICOM frequency around 1050. The pilot announced that he was 6 miles east of Angel Fire Airport at 11,500 feet and headed west to Taos. The manager described the call as “normal”, and that the pilot sounded “calm” and there was no indication of any “stress” in his voice.

The manager also reported that at the time the pilot made the call, it was snowing “medium sized flakes” that melted as soon as they hit the ground. But, the snowfall was heavy enough to obscure his view of the mountains. The manager described the weather as a fast moving front that moved west to east. He said the sky was clear by 1230-1300.

A handheld global positioning system (GPS) unit was found in the wreckage and was later downloaded by the NTSB recorders laboratory in Washington DC. The entire flight was recorded on the unit and the information was then plotted into graphs and overlayed on a map. A review of the plotted data; revealed that after the pilot departed Amarillo, he flew on a northwesterly course (approximately 300 degrees)direct to Angel Fire. When the airplane crossed over Angel Fire airport about 10:58:52, it was at an altitude of approximately 12,500 feet at a ground speed of approximately 160 knots. It then continued on this heading for just over a minute before it began to descend and gain airspeed. At 11:00:53, the airplane was on a 290 degree heading, but had descended to approximately 11,735 feet and had a ground speed of approximately 195 knots. At 11:01:53, the airplane was on an approximate heading of 342 degrees at an altitude of approximately 11,200 feet and had slowed to a ground speed of approximately 135 knots. Over the next 47 seconds, the airplane fluctuated +/- a few hundred feet in altitude, but maintained an approximate altitude of 11,000 feet. The airplane also began a turn to the left and then a rapid turn to the right while the ground speed initially increased to 158 knots before slowing down to 73 knots. The last full set of recorded data ended at 11:02:37. At that time, the airplane was at an altitude of 11,279 feet, on a heading of 84 degrees and a ground speed of 81 knots. The last recorded position of the airplane was at 11:02:41 at 36 degrees, 29 minutes north latitude, and 105 degrees, 24 minutes west longitude.

PERSONNEL INFORMATION

The 79-year old pilot held a private pilot certificate with airplane single-engine land, and instrument airplane ratings. His last Federal Aviation Administration (FAA) Third Class medical was issued on April 4, 2011, with no limitations or restrictions. A review of the pilot’s logbook revealed that the last entry was made on April 14, 2011. At that time, he accrued a total of 1,643 flight hours, of which 1,357 hours were in the accident airplane. He flew a total of 54 hours in the last year and 16 hours in the last 90 days. He also accrued a total of 546.7 hours

in actual instrument conditions and was current for instrument flight.

METEOROLOGICAL INFORMATION

Angle Fire Airport (AXX), Angel Fire, New Mexico, was located approximately 7 miles east of the accident site at an elevation of 8,380 feet. The airport was located in a mountain valley with rising terrain to the east and west. The airport had an automated weather observation system (AWOS-3) installed and reported weather conditions approximately every 20 minutes. The following conditions were reported surrounding the time of the accident:

At 1055, weather was reported as wind calm, visibility 10 miles, scattered clouds at 3,700 feet; ceiling broken at 4,400 feet, overcast at 5,000 feet, temperature 2° Celsius (C), dew point temperature -1° C,and an altimeter setting of 29.99 inches of mercury (Hg).

At 1115,weather was reported as wind from 250 degrees at 6 knots, visibility 10 miles, clouds scattered at 3,200 feet; broken 4,800 feet, overcast at 6,000 feet, temperature at 03 degrees C, dewpoint -1 degrees C, and an altimeter setting of 30.00 inches of Hg.

The planned destination of Taos Regional Airport was located approximately 13 miles west of the accident site at an elevation of 7,095 feet. The airport also had an AWOS-3 system and reported the following conditions surrounding the time of the accident:

At 1055, weather was reported as wind from 210 degrees at 13 knots gusting to 16 knots, visibility 10 miles, ceiling overcast at 4,000 feet; temperature 8° C, dewpoint -2° C, and an altimeter setting of 29.96 inches of Hg.

At 1115, weather was reported as wind from 220 degrees at 11 knots, visibility 10 miles, clouds scattered 4,000 feet; broken 6,500 feet, overcast 7,000 feet, temperature 8 degrees C, dewpoint -1 degrees C, and an altimeter setting of 29.96 inches of HG.

The area forecast for northern New Mexico was for scattered to broken clouds at 8,000 feet, with a second broken layer between 12,000 and 14,000 feet with tops to 18,000 feet with isolated light rain showers. Between 1100 to 1300, scattered clouds were forecasted at 10,000 feet, scattered to broken clouds at 15,000 feet with tops to 20,000 feet with isolated thunderstorms and light rain to rain showers, with cumulonimbus cloud tops to 31,000 feet, and gusting winds from the west at 25 knots. The forecast was amended by AIRMET Sierra for mountain obscuration over New Mexico; however, it was issued after the pilot received his initial weather briefings earlier that morning.

Prior to the accident, there were only two pilot reports filed. One indicated light mixed icing conditions at 12,000 feet northwest of Albuquerque with a temperature of -6° C. The other report reported occasional light turbulence at 9,500 feet over Albuquerque.

After the accident there were numerous reports of structural icing conditions between 12,000

and 15,000 feet with the majority of the reports indicating light to moderate rime icing, with two reports of light clear ice and one of light mixed icing. There were also three reports of light to moderate turbulence, and one report of moderate mountain wave conditions at 38,000 feet.

WRECKAGE AND IMPACT INFORMATION

An on-scene investigation of the airplane wreckage was conducted on June 7, 2011. All major components of the airframe were located at the site. The airplane came to rest upright in heavily wooded, mountainous terrain on an approximate 133 degree magnetic heading at an approximate elevation of 10,700 feet. The approximate angle of the slope was 55 degrees. The accident occurred during the hours of daylight at 36 degrees, 29 minutes north latitude and 105 degrees, 24 west longitude.

The airplane collided with several tall trees that were located just uphill from where the airplane came to rest. Damage to these trees was consistent with the airplane having a steep descent angle prior to impact. The fuselage of the airplane came to rest parallel to the mountain slope and the left wing was pointing downhill. Both of the wings, the entire tail section, and the engine remained attached to the airframe but exhibited impact damage.

Several pieces of angular cut wood were found around the main wreckage and the fracture surfaces exhibited black paint transfer marks.

The right wing remained attached to the airplane at the wing root, but had partially separated at mid-span and remained attached via control cables. The aileron and flap remained attached to the wing. The flap actuator was found in the fully extended position. Control cable continuity was established for the aileron and flap to the cockpit.

The tail section was twisted and displaced about 90 degrees to the right of the fuselage. The right horizontal stabilizer, elevator, vertical stabilizer and the rudder exhibited minor impact damage, but the left horizontal stabilizer and elevator sustained heavy impact damage. Control cable continuity was established for the elevator and rudder to the cockpit.

The left wing remained attached to the fuselage at the wing root, but sustained extensive leading edge impact near the root. The flap was also damaged from impact. The aileron remained attached to the wing and exhibited some impact damage. The left flap actuator was also fully extended. Control cable continuity was established for the aileron and flap to the cockpit.

The cockpit area was relatively intact except for the front and left sections of the windshield being broken inwards. The airplane was equipped with a single control column with a dual control arm assembly. The dual control arm assembly with attached control sheel/horns was separated from the control column. The pitot heat toggle switch was found in the "on" position.

The fuel selector was set to the right tank. The fuel selector valve was removed and

disassembled. The valve and strainer bowl were filled with fuel. The filter was properly installed and exhibited a light trace of silver metal shavings.

The landing gear actuator was found in the down and locked position.

All three propeller blades remained attached to the engine. One blade was loose in the hub and twisted; the second blade was tight in the hub, exhibited chordwise scratching, was bent aft, and wrinkled at the tip; and, the third blade was tight in the hub, bent aft, curled at the tip and exhibited chordwise scratching. The spinner was crushed inwards.

Visual inspection of the engine oil dipstick revealed 9 quarts of oil were still in the engine and there was no evidence of an oil leak.

The engine was manually rotated via the propeller and compression was established to each cylinder. Valve train continuity was also established and spark was produced to all ignition leads.
The vacuum and standby-vacuum pumps remained on the engine and were removed and disassembled. The vanes were undamaged. The stand-by gyro toggle switch was found in the off position.

The top spark plugs were removed and appeared light gray in color. The oil filter was removed and opened. The filament was absent of debris.

The fuel metering unit was removed and the fuel screen was absent of debris. The throttle and mixture controls were intact, but a position was not possible due to impact damage. No fuel was found in the unit.
The fuel pump was removed and the coupling was intact. Fluid was pumped through the unit and no anomalies were noted.

The attitude indicator was removed and disassembled. The unit sustained minor impact damage and the internal workings of the unit were intact. The unit was disassembled and the gyro removed. The gimble was intact and there was no scoring on the inside of the gyro housing.

The JPI 700 engine analyzer was removed and sent to the NTSB Research and Engineering laboratory for download. The parameters recorded in this unit were exhaust gas temperature (EGT), cylinder head temperature (CHT), battery voltage and engine shock cooling rate. A review of the parameters revealed consistent readings throughout the recording and no anomalies were noted.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was conducted by the Office of the Medical Investigator, in Albuquerque, New Mexico, on May 29, 2011. The cause of death was determined to be "multiple blunt force

injuries."

The Office of the Medical Investigator also sent out specimens for toxicological examination to NMS Labs in Willows Grove, Pennsylvania. According to the NMS Labs report, blood from the pilot's heart tested positive for caffeine and Theobromine. In addition, Diphenhydramine (94 ng/mL) was also found in the heart blood.

According to the NMS Labs report, "Diphenhydramine is an antihistamine with sedative and anti-emetic effects. It is rapidly absorbed following oral administration; however, it is frequently given IV. Patients taking this medication are usually warned against the operation of complicated machinery, because of its strong sedative effects. Following a single 50 mg oral dose of Diphenhydramine, peak plasma concentrations at 3 hr averaged 80 ng/ml. A reported steady-state Diphenhydramine concentration is 300 ng/ml."

A toxicology examination was also conducted by the FAA Toxicology Laboratory in Oklahoma City, Oklahoma. The pilot tested positive for the following items:

-0.044 (ug/ml, ug/g) Diphenhydramine detected in blood (heart)
-Dipenhydramine detected in urine
-Naproxen detected in urine

According to the co-owner of the airplane, who was also a medical doctor and former aviation medical examiner, he said that he did not observe any signs of the pilot being drowsy or affected by Diphenhydramine during the flight to Amarillo. The pilot made no mention that he was having any problems with allergies and he did not see the pilot take any medications.

The pilot's wife did not see her husband the night before or on the day of the accident. She was in Taos waiting for him to arrive. She stated that she had talked to her husband the night before and he did not mention anything about his allergies bothering him. Although her husband had always suffered from allergies, and on occasion had taken Benadryl to help alleviate them, he was very meticulous to not take any medications prior to a flight.

Pilot Information

Certificate:	Private	**Age:**	79,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	April 11, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 9, 2011
Flight Time:	1643 hours (Total, all aircraft), 1357 hours (Total, this make and model), 16 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N1533Y
Model/Series:	F33A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	CE-1249
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	February 10, 2011 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	64 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3767 Hrs at time of accident	**Engine Manufacturer:**	CONT MOTOR
ELT:	C91 installed, activated, aided in locating accident	**Engine Model/Series:**	IO 520 SERIES
Registered Owner:	33 YANKEE INC	**Rated Power:**	285 Horsepower
Operator:	33 YANKEE INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	AXX,8380 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	10:55 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Scattered	**Visibility**	10 miles
Lowest Ceiling:	Broken / 4400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.98 inches Hg	**Temperature/Dew Point:**	2°C / -1°C
Precipitation and Obscuration:			
Departure Point:	Amarillo, TX (AMA)	**Type of Flight Plan Filed:**	VFR
Destination:	Taos, NM (KSKX)	**Type of Clearance:**	VFR
Departure Time:	09:36 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	
Total Injuries:	1 Fatal	**Latitude, Longitude:**	36.419723,-105.287223(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	Donald Halbert; FAA/FSDO; Albuquerque, NM Ernest Hall; hawker Beechcraft; Wichita, KS John Kent; TCI; Mobile, AL
Original Publish Date:	February 6, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=79166