National Transportation Safety Board
Aviation Accident Final Report

Location:	Perris, California	**Accident Number:**	WPR11FA078
Date & Time:	December 20, 2010, 10:00 Local	**Registration:**	N316KW
Aircraft:	Aero Commander 680FL	**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 departed the airport mid-morning to fly to his home airport, 63 miles to the northwest. Weather conditions at the departure airport were visual flight rules (VFR), the weather at the destination airport was not reported, and the weather conditions en-route were marginal VFR. The global positioning system (GPS) track for the flight indicated that the airplane departed from the airport and headed west along a highway corridor flying approximately 1,000 feet above ground level (agl) through a mountain pass. For the majority of the flight, the airplane maintained altitudes between 900 feet and 1,200 feet agl. Twenty-nine minutes after takeoff, the airplane's GPS track turned southwest away from an area of concentrated precipitation and directly towards an isolated mountain peak that rose approximately 1,000 feet above the surrounding terrain. The pilot contacted the local air traffic control facility, reported his position and requested traffic advisories through the local airspace to his destination airport. About 6 minutes later, the pilot stated that he was having difficulty maintaining VFR and asked for an instrument flight rules (IFR)clearance. At the same time, the GPS track showed that the airplane came within 50 feet of the mountainous terrain. No further transmissions from the pilot were received. The final GPS position was recorded 1 minute later, at 500 feet agl and approximately half a mile from the crash site. The terrain rapidly ascended in this area and intersected the airplane's flight path over the remaining 1/2 mile. An airport located about 4 miles from the accident site and in an area of flat terrain 1,000 feet below the isolated mountain top, recorded weather at the time of the accident as few clouds at 900 feet agl, overcast clouds at 1,500 feet agl, and a variable ceiling between 1,200 and 1,800 feet agl, in drizzle. Weather radar images at the time of the accident depicted precipitation at the elevation and location of the accident site, indicating probable mountain obscuration.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's decision to continue visual flight into instrument meteorological conditions, which resulted in an in-flight collision with mountainous terrain.

Findings

Environmental issues	(general) - Response/compensation
Personnel issues	Decision making/judgment - Pilot

Factual Information

HISTORY OF FLIGHT

On December 20, 2010, about 1000 Pacific standard time, an Aero Commander 680FL, N316KW, collided with mountainous terrain, 6.5 miles north of Perris, California. The airplane was operated by the owner under the provisions of Title 14 Code of Federal Regulations, Part 91. The airline transport pilot was killed, and the airplane was substantially damaged. Instrument meteorological conditions prevailed, and no flight plan had been filed. The flight originated at Palm Springs International Airport, Palm Springs, California, about 0940. The airplane is based out of the Chino Airport, Chino, California.

On Saturday, December 19, 2010, the pilot and some family members flew the airplane from Texas with the intention of arriving at the Chino Airport that evening. The pilot resided in Riverside, California, and the airplane was based at the Chino Airport. Saturday night the pilot landed at 1919, and parked the airplane in Palm Springs, because the weather was not good enough to continue on to the Chino Airport. The pilot then rented a car and drove to his home in Riverside. The following morning the pilot rose early and drove back to Palm Springs with the intention of flying the airplane to the Chino Airport. Once at the Palm Springs Airport, he had the airplane fueled with 45 gallons of avgas, and left instructions to hold the rental car because he may return to Palm Springs if the weather had not improved. Federal Aviation Administration (FAA) records indicate that the pilot did not receive a weather briefing from a Flight Service Station, nor did he file a flight plan.

A Garmin GPSMAP 496 portable global positioning system (GPS) receiver was recovered from the airplane wreckage and the data was downloaded by the Safety Board's Vehicle Recorders Laboratory. The GPS data log for December 20, 2010, shows that at 0928 the airplane departed from Palm Springs and headed west along the I-10 corridor towards the Banning Pass (elevation 2,600 feet msl) and into the Moreno Valley (elevation 1,500 feet). The airplane climbed to 2,500 feet mean sea level (msl) and for the majority of the flight the airplane maintained altitudes between 2,500 feet and 3,400 feet msl. At 0957, 6.5 miles west of Beaumont, California, at 2,700 feet, the airplane's GPS track turned southwest away from a concentrated area of precipitation and directly towards Mount Russell (2,697 feet msl). Mount Russell rises about 1,000 feet above the floor of the Moreno Valley. At 0953, the pilot contacted March Air Reserve Base (ARB) arrival controller, reported his position as 4 miles west of the Banning Airport, and requested advisories through the Class C airspace to Chino. At 0956, the pilot reported that he was 7 miles east of March ARB. At 0958, the GPS track shows that the airplane comes within 50 feet of rising terrain. At 0959, the pilot stated that he was having difficulty maintaining VFR (visual flight rules) and asked for an IFR (instrument flight rules) clearance. No further communications with the pilot was recorded. The final GPS position was recorded at 1000, 2,600 feet msl, 0.4 miles east of the crash site. The terrain elevation in the vicinity of the crash site is 2,500 feet.

The GPS Specialist Factual Report is available in the official docket of this investigation.

PERSONNEL INFORMATION

The pilot, age 65, held an Airline Transport Pilot certificate for airplane multiengine land, a commercial pilot certificate for airplane single engine land and sea, with type ratings in the Boeing 737, 757, 767, 777, DC-9, DC-10, and L-188 airplanes. Additionally, he held a flight instructor certificate with ratings for airplane single engine, multiengine, and instrument, and an Airframe and Powerplant Mechanic certificate. A second-class airman medical certificate was issued to him on August 31, 2010, with the limitation that he wears corrective lenses. On the pilot's most recent medical application he reported having 33,000 hours of flight time. Examination of a copy of the pilot's logbook showed that he had flown 11 hours in the last 30 days, 3 hours of that in the accident airplane. He completed a flight review and instrument proficiency check on November 28, 2010.

AIRCRAFT INFORMATION

The high wing, retractable landing gear, twin engine airplane, serial number 1753146, was manufactured in 1968. It was powered by two Lycoming IGSO-540-B1C, 380-hp engines, and equipped with two Hartzell HC-3BZ30-2A constant speed propellers. A review of copies of the airplanes maintenance logbooks showed an annual inspection was performed on April 2, 2010, at an aircraft total time of 2,240 hours. Operating hours since major overhaul (SMOH) on the left engine was 275.5, and 275.5 hours on the right engine. The most recent maintenance performed on the airplane were the oil changes performed on both engines on December 16, 2010, at total aircraft time of 2,260.8 hours. The Hobbs meter read 247.2 at the accident scene, which corresponds to a total aircraft time of 2,278.2 hours.

METEOROLOGICAL INFORMATION

The meteorological observation for Palm Springs at 0953, was calm winds; 10 miles visibility; scattered clouds at 2,500 feet above ground level (agl); a broken layer at 5,000 feet agl; and an overcast layer at 6,000 feet agl.

There were no meteorological observations for Chino Airport on the day of the accident.

Corona Municipal Airport, located 5 miles south of Chino, recorded weather observation at 0856, was 10 mile visibility; broken clouds at 6,000 feet agl; and overcast at 7,000 feet agl. At 0956; the conditions had deteriorated to 5 miles visibility; rain and mist; few clouds at 100 feet agl; and overcast at 3,700 feet agl.

March Reserve Air Base, elevation 1,536 feet msl, located 4 miles west of the accident site, 22 miles southwest of the destination airport, and is along the pilot's route of flight reported at 0916, 10 miles visibility; few clouds at 800 feet agl; broken cloud layer at 2,200 feet agl; and overcast at 7,000 feet agl. Additionally, it noted a variable ceiling between 1,900 feet and 2,500 feet agl. At 0955, about the time of the accident, March ARB reported winds from 140 degrees at 11 knots; 10 miles visibility; light drizzle; few clouds at 900 feet agl; overcast at 1,500 feet agl; ceiling variable between 1,200 and 1,800 feet agl.

NEXRAD weather radar images from 0951 to 0959 on December 20, 2010, shows concentrated precipitation at the 3,027-foot msl level in the area surrounding the accident site.

The Aeronautical Information Manual (AIM) defines Marginal VFR (MVFR) as "Ceiling between 1,000 feet and 3,000 feet and/or visibility between 3 and 5 miles inclusive."

WRECKAGE AND IMPACT INFORMATION

The wreckage was located by Rangers from the California Department of Parks and Recreation on December 20, 2010, in the late afternoon. The wreckage was distributed on the crest of a 2,500-foot peak. The terrain consisted of a moderate slope to the west featuring large rock outcroppings and boulders, populated by sparse brush vegetation. The initial point of impact was located on the northeast side of the peak, and the wreckage was distributed along a bearing of 250 degrees (magnetic) for 500 feet. The initial point of impact was identified by the debris of the left wing tip and red glass position light lens fragments. The empennage and tail section had been separated from the main cabin, and the entire wing span, minus the outboard section of left wing, had also separated from the fuselage. The left wing outboard section was located 140 feet to the north of the initial point of impact. The cockpit area was located about 20 yards downhill from the wing, and was observed in an inverted orientation, and exposed to the environment.

On January 28, 2011, a wreckage examination was conducted by the Safety Board investigator-in-charge (IIC), assisted by representatives from Textron Lycoming, Twin Commander Aircraft LLC, and the FAA. Examination of the airframe, engines, and propellers did not reveal any anomalies that would have prevented the normal operation of the airplane controls, engines, propellers, or cockpit instrumentation.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on December 21, 2010, by the Riverside County Sheriff-Coroner, Riverside. The autopsy lists the cause of death as "multiple blunt force traumatic injuries."

Forensic toxicology was performed on specimens from the pilot by the FAA Forensic Toxicology Research Team CAMI, Oklahoma City, Oklahoma. The toxicology report stated no carbon monoxide was detected in blood, no cyanide was detected in blood, no ethanol was detected in urine, and ibuprofen was detected in urine.

ADDITIONAL INFORMATION

Advisory Circular AC61-134 addresses controlled flight into terrain awareness. The following section from AC61-134 applies to circumstances surrounding this accident.

"VFR-ONLY PILOTS OPERATING IN MARGINAL VFR/IMC CONDITIONS.
Operating in marginal VFR/IMC conditions is more commonly known as scud running. According to National Transportation Safety Board (NTSB) and FAA data, one of the leading causes of GA accidents is continued VFR flight into IMC. As defined in 14 CFR Part 91, ceiling, cloud, or visibility conditions less than that specified for VFR or Special VFR is IMC and IFR applies. However, some pilots, including some with instrument ratings, continue to fly VFR in

conditions less than that specified for VFR. The result is often a CFIT accident when the pilot tries to continue flying or maneuvering beneath a lowering ceiling and hits an obstacle or terrain or impacts water. The accident may or may not be a result of a loss of control before the aircraft impacts the obstacle or surface. The importance of complete weather information, understanding the significance of the weather information, and being able to correlate the pilot's skills and training, aircraft capabilities, and operating environment with an accurate forecast cannot be emphasized enough."

History of Flight

Maneuvering	Controlled flight into terr/obj (CFIT) (Defining event)

Pilot Information

Certificate:	Airline transport	**Age:**	65,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2	**Last FAA Medical Exam:**	August 31, 2010
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 28, 2010
Flight Time:	33000 hours (Total, all aircraft), 11 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Commander	**Registration:**	N316KW
Model/Series:	680FL	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	1753146
Landing Gear Type:	Retractable - Tricycle	**Seats:**	11
Date/Type of Last Inspection:	April 2, 2010 Annual	**Certified Max Gross Wt.:**	6750 lbs
Time Since Last Inspection:	38 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	2278 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	C91A installed, not activated	**Engine Model/Series:**	IGSO-540-B1A
Registered Owner:		**Rated Power:**	380 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KRIV,1536 ft msl	**Distance from Accident Site:**	4 Nautical Miles
Observation Time:	09:47 Local	**Direction from Accident Site:**	275°
Lowest Cloud Condition:	Few / 900 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 1200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.85 inches Hg	**Temperature/Dew Point:**	11°C / 11°C
Precipitation and Obscuration:	Light - None - Drizzle		
Departure Point:	Palm Springs, CA (KPSP)	**Type of Flight Plan Filed:**	None
Destination:	Chino Airport, CA (KCNO)	**Type of Clearance:**	None
Departure Time:	09:40 Local	**Type of Airspace:**	

Airport Information

Airport:	Chino Airport KCNO	**Runway Surface Type:**	
Airport Elevation:	650 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.875556,-117.192222

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	Ron Allen; Federal Aviation Administration; Riverside, CA Mark Platt; Lycoming Engines; Van Nuys, CA Brandon Nevels; Twin Commander Aircraft LLC; Creedmore, NC
Original Publish Date:	November 22, 2011
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=78037

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available here.