

The Steve Fossett Accident

The NTSB's findings on the famed aviator's fatal crash

By Peter Katz

The NTSB says the probable cause of the 2007 crash of adventurer Steve Fossett was an inadvertent encounter with downdrafts above mountainous terrain that exceeded the climb capability of the Bellanca Super Decathlon he was flying. Downdrafts, high-density altitude and mountainous terrain were all contributing factors. None of those factors should be taken for granted by pilots who fly, or have a desire to fly, in mountainous areas. In simple terms, while wind flows smoothly up the windward side of a mountain, and the updrafts can be used to help an aircraft make it over the crest of the terrain, downdrafts on the leeward side can become terrifyingly strong and turbulent. Areas of turbulence and downdrafts can be surrounded by deceptively smooth air. Just because there are no lenticular clouds, rotor clouds or dust storms doesn't necessarily mean that conditions are benign. Before conducting a flight in or near mountainous terrain, an experienced pilot should carefully evaluate the weather, especially winds aloft, approaching frontal activity and stability information such as the lifted index. A smart, inexperienced pilot will confer with someone who knows how to evaluate conditions, and also get a checkout with an instructor qualified to teach mountain flying before venturing into unknown territory.



HOW IT HAPPENED. Nearly two years later, the NTSB finds that Steve Fossett (pictured with Richard Branson) may have crashed due to an encounter with downdrafts.

In a meteorological study prepared for its report on the September 3, 2007, accident in which Fossett was killed, the NTSB estimates that downdrafts where he was flying registered at least 400 fpm and were accompanied by moderate turbulence. The mountainous terrain in the area, eight miles west/northwest of Mammoth Lakes, Calif., reached 13,000 feet MSL; the density altitude was 13,000 feet. Investigators calculated that the climb capability of the airplane was only about 300 fpm.

On the morning of the accident, Fossett had breakfast with the chief pilot for the Flying M Hunting Club, which operated the Super Decathlon out of the Flying M Ranch (owned by Barron Hilton), near Yerington, Nev. The chief pilot asked Fossett what he wanted to do that day, and Fossett said he wanted to fly the Super Decathlon 8KCAB-180. The chief pilot got the airplane out of its hangar and checked that it had full fuel. Fossett conducted the preflight. The chief pilot discussed starting procedures for the fuel-injected, 180 hp Lycoming AEIO-360-H1A and asked Fossett what route he'd be taking. Fossett planned to follow Highway 395, which runs north/south along the eastern side of the Sierra Nevada mountains.

The estimated time of departure from the private airstrip was between 8:20 and 8:30 a.m. Visual meteorological conditions prevailed. The elevation of the airstrip is 4,953 feet MSL. The accident site was about 65 miles south of the airport.

Fossett occupied the front seat of the two-seat tailwheel airplane. He gave no indication that he planned to perform aerobatic maneuvers and he wasn't wearing a parachute, which he would have for aerobatics. His wife told investigators it was a pleasure flight, which she characterized as "a Sunday drive." The chief pilot said that he expected Fossett to be back around 10:30 or 11:00 a.m. When the airplane hadn't returned by 11:30, the chief pilot became concerned. An extensive search was conducted. The Civil Air Patrol suspended its search on October 2, 2007.

On October 1, 2008, a hiker in the Sierra Nevada mountains found personal effects that included Fossett's pilot certificate and a second ID card. A new search began, and the airplane's wreckage was found a half mile from the spot where the personal items were found. Located about 300 feet below the crest of a ridge, the accident site was in a place with steep terrain, a few tall pine trees and numerous boulders and rock outcroppings surrounded by grassy areas.

The airplane was broken into numerous fragments. All of the fabric covering was burned off the fuselage, and fire damage had even spread to some of the pine trees. The propeller displayed evidence of operating under power at impact. Fossett's body wasn't recovered, but small bone fragments, which couldn't immediately be identified as human, were found at the accident site. Pieces of a human skeleton were found at the location where the hiker had found Fossett's identification. Searchers also found a pair of tennis shoes, clothing and credit cards. DNA testing determined that the skeletal fragments were Fossett's. A report at the time indicated that animal and human hair were found on an article of clothing. The NTSB's narrative doesn't speculate as to how the skeletal fragments ended up a half mile from the wreckage. Postmortem examination of the fragments determined that the cause of death was multiple traumatic injuries.

Not mentioned in the NTSB's narrative of the accident is a report voluntarily sent to NTSB Acting Chairman Mark V. Rosenker in October 2008 by a local meteorologist from Bishop, Calif., who did his own study of weather conditions in the Sierra Nevada mountains area on the day of the accident. Harold Klieforth had worked on mountain wave studies in the 1950s, which were funded by the U.S. Air Force and conducted by the University of California, Los Angeles. He later became chief of the Air Force Experimental Meteorology branch, and has written extensively on weather phenomena in the Sierra Nevada mountain range. Klieforth suggested that Fossett may have encountered downdrafts of up to 2,000 fpm, resulting in a violent crash into terrain. Klieforth says he observed lenticular clouds and a "cap cloud" obscuring the summit of Mammoth Mountain on the day of the accident. He says winds recorded at three mountaintop weather stations that day reached 70 mph.

An NTSB investigator talked with a pilot who has a home in Bishop and often flies across the Sierras. On the morning of the accident, this pilot flew a Cessna 206 from Rio Vista Airport to Mammoth Yosemite Airport. His flight departed at about 11:30 a.m., two hours after the estimated time of Fossett's accident. The flight track took him about two miles north of the accident site, at an altitude of 13,500 feet MSL. This pilot reported that the winds aloft were from the south at 10 knots, there were no clouds and visibility was about 60 miles. He told the investigator that he didn't encounter any "big turbulence," he didn't have to slow down

because of turbulence, and that it was a “wonderful day to go flying.”

A pilot who flew a King Air from Santa Barbara, Calif., to Reno, Nev., and back was interviewed. Forty-five minutes after the estimated accident time, the pilot came within 20 miles of the accident site. The pilot reported that the ride was “unusually smooth when it was not turbulent.” He described it as “a weird day,” and reported that he flies into Mammoth Lakes about 50 times a year.

Also interviewed was a glider pilot who flew out of the airport at Bishop. The pilot said that it was unusually windy during the takeoff, and once he got above 10,000 feet MSL, the wind dropped off and the air was smooth.

A witness who had been camping with friends 30 miles north of the accident site, at an elevation of 9,400 feet MSL, reported seeing what he believes was Fossett’s airplane. It was a half mile north of the campsite at 11,500 feet MSL. He said the airplane was headed into the wind and appeared to be standing still. He reported that it had been a windy night at the campsite and it remained windy in the morning. When he and his friends returned to civilization and saw pictures of the accident airplane on television, he notified local authorities about their sighting.

After the accident site was located, investigators took another look at radar data that had been used to aid in the original search. Once they knew where to look, they were able to identify a radar track, which began at 9:07 a.m. and was visible until 9:27 a.m. It showed a target following the crest of the Sierra Nevada mountains, traveling in a southwesterly direction. The target first appeared on radar about 35 miles south/southwest of the Flying M Ranch, and ran about 10 miles west of Highway 395. The target was lost from radar at a location one mile from the accident site. The target had a transponder code of 1200. The Mode C altitude indications were between 14,500 and 14,900 feet. The transponder dropped out, and the target became a primary return with no transponder or altitude enhancement. Investigators noted that the wreckage at the accident site was headed north. They concluded that this meant Fossett likely had made a 180-degree turn after the time that radar contact was lost.

Fossett, age 63, was no flying novice. He held an ATP certificate with a multi-engine rating and a commercial certificate for single-engine land airplanes, single-engine sea airplanes and helicopters. He also had type ratings in a number of business jets, was a glider and balloon pilot, and held a number of aviation records. On his last application for an FAA second-class medical certificate, he reported 6,731 total hours with 350 hours in the previous six months. It was estimated that he had 40 hours in the Super Decathlon.

Peter Katz is editor and publisher of NTSB Reporter, an independent monthly update on aircraft accident investigations and other NTSB news. To subscribe, write to: NTSB Reporter, Subscription Dept., P.O. Box 831, White Plains, NY 10602-0831.

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Sunday 1 November, 2009

I think that what is been overlooked is "Suicide by Aircraft".

- 1; Fossett was a very knowledge Pilot of the Winds in that area.
- 2.What was his power setting at the time of the Accident? {Not Answered in the Report}
- 3.He hit at full speed and went a good distance on top of the Ground Surface.
- 4.Has anyone explained about the fiddrence in his reported destination and ending up .at mamouth??

Former Avation Accident Investigator
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