



NTSB

SAFETY ALERT

National Transportation Safety Board

★ **Controlled Flight Into Terrain in Visual Conditions** ★

Nighttime Visual Flight Operations Are Resulting in Avoidable Accidents

The problem

- NTSB investigations have identified several accidents that involved controlled flight into terrain (CFIT) by both instrument flight rules (IFR)-rated and visual flight rules (VFR) pilots operating under visual flight conditions at night in remote areas.
- In many of these cases, the pilots were in contact with air traffic control (ATC) at the time of the accident and receiving radar service.
- The pilots and controllers involved all appear to have been unaware that the aircraft were in danger.
- Increased altitude awareness and better preflight planning would likely have prevented all of these accidents.
 - A Learjet departed Brown Field, south of San Diego, California, and struck terrain while being radar vectored in a mountainous area east of the airport, resulting in three fatalities.
 - A Piper Saratoga departed Bakersfield, California, en route to Santa Barbara, California, descended from 8,500 feet to 6,500 feet, and collided with a 6,700-foot peak, resulting in two fatalities.
 - A Beech-Raytheon King Air struck a 5,700-foot ridge while descending on a visual approach to Bozeman, Montana, resulting in three fatalities.
 - A Piper Cherokee collided with trees and terrain at 2,800 feet while descending for landing at Winchester, Virginia, killing all three occupants.
 - A Beech-Raytheon King Air struck terrain at the 11,700-foot level of the Rocky Mountains while descending southwest of Alamosa, Colorado, resulting in three fatalities.
 - A Cessna 182 departed Las Vegas, Nevada, and struck an 8,400-foot mountain at the 7,000-foot level about 12 miles southwest of the city, resulting in two fatalities.

How can pilots avoid becoming involved in a similar accident?

- CFIT accidents are best avoided through proper preflight planning.
- Terrain familiarization is critical to safe visual operations at night. Use sectional charts or other topographic references to ensure that your altitude will safely clear terrain and obstructions all along your route.
- In remote areas, especially in overcast or moonless conditions, be aware that darkness may render visual avoidance of high terrain nearly impossible and that the absence of ground lights may result in loss of horizon reference.
- When planning a nighttime VFR flight, follow IFR practices such as climbing on a known safe course until well above surrounding terrain. Choose a cruising altitude that provides terrain separation similar to IFR flights (2,000 feet above ground level in mountainous areas and 1,000 feet above the ground in other areas.)
- When receiving radar services, do not depend on air traffic controllers to warn you of terrain hazards. Although controllers will try to warn pilots if they notice a hazardous situation, they may not always be able to recognize that a particular VFR aircraft is dangerously close to terrain.
- When issued a heading along with an instruction to “maintain VFR,” be aware that the heading may not provide adequate terrain clearance. If you have any doubt about your ability to visually avoid terrain and obstacles, advise ATC immediately and take action to reach a safe altitude if necessary.
- ATC radar software can provide limited prediction and warning of terrain hazards, but the warning system is configured to protect IFR flights and is normally suppressed for VFR aircraft. Controllers can activate the warning system for VFR flights upon pilot request, but it may produce numerous false alarms for aircraft operating below the minimum instrument altitude—especially in en route center airspace.
- For improved night vision, the FAA recommends the use of supplemental oxygen for flights above 5,000 feet.
- If you fly at night, especially in remote or unlit areas, consider whether a global positioning system-based terrain awareness unit would improve your safety of flight.

Need more information?

- NTSB safety recommendation letter issued as a result of minimum safe altitude warning and ATC awareness issues: http://www.nts.gov/safety/safety-recs/reclatters/A06_44_47.pdf
- NTSB Aircraft Accident Brief, LAX05FA015, N30DK, Controlled Flight Into Terrain, October 4, 2004: <http://www.nts.gov/investigations/AccidentReports/Reports/AAB0605.pdf>
- NTSB Aircraft Accident Brief, LAX05FA032, N803ZG, November 10, 2004: http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20041119X01844&key=1&queryId=b51be794-3e50-4357-90fa-c659a0bef765&pgno=1&pgsize=200
- NTSB Aircraft Accident Brief, SEA07FA051, N45MF, February 6, 2007: http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20070214X00187&key=1&queryId=b51be794-3e50-4357-90fa-c659a0bef765&pgno=1&pgsize=200
- NTSB Aircraft Accident Brief, NYC07FA217, N6493W, September 6, 2007: http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20070917X01406&key=1&queryId=b51be794-3e50-4357-90fa-c659a0bef765&pgno=1&pgsize=200

- NTSB Aircraft Accident Brief, DEN08FA003, N590GM, October 4, 2007:
http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20071029X01672&key=1&queryId=b51be794-3e50-4357-90fa-c659a0bef765&pgno=1&pgsize=200
- NTSB Aircraft Accident Brief, SEA08FA023, N881CP, November 8, 2007:
http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20071121X01832&key=1&queryId=b51be794-3e50-4357-90fa-c659a0bef765&pgno=1&pgsize=200