

Sun Valley, Idaho 2019

Commercial Passenger Aircraft Nearly Lost to Impact on Mountain



GPS WORLD

GNSS
POSITION
NAVIGATION
TIMING

NASA report: Passenger aircraft nearly crashes due GPS disruption



From NASA's Aviation Safety Reporting System

Issue 473 June 2019

CONTROLLED FLIGHT TOWARD TERRAIN (CFTT)

Controlled Flight into Terrain (CFTT) "occurs when an airworthy aircraft is flown, under the control of a qualified pilot, into terrain (water or obstacles) with inadequate awareness on the part of the pilot of the impending collision." Controlled Flight Toward Terrain (CFTT) is the one precursor to every CFTI event, although not all CFTI events become CFTT. To be identified as a CFTT event, ASRS stipulates that the aircraft is mechanically normal and the pilot unaware of dangerous or unsafe in-flight proximity to terrain or obstacles.

CFTT is a complex issue with many components. It can happen anytime during flight, but occurs most often during approach and landing, and if CFTT progresses to CFTI, the collision usually results in fatalities. Causes are not always clear, but could include factors such as weather, approach design and depiction, fatigue, poor situational awareness, or failure to adhere to aviation standards or personal discipline. CFTI and CFTT have been subjects of much study and thorough analysis. Aviation safety organizations have documented research, best cases, lessons learned, and strategies for prevention. The NTSB, NASA ASRS, Flight Safety Foundation (FSF), and SkyView Aviation Safety are good sources of information regarding CFTI and CFTT. This month ASRS shares reported incidents that provide some insight into the complexities of CFTT phenomena.

Hacking Heard Round the Globe
An alert Salt Lake Center Controller observed a flight navigation error, purportedly the result of GPS jamming. Quick action was taken that may have averted a disaster.

After transferring communication to SUN Tower, [the Radar Controller] noticed the aircraft had taken a more easterly turn than we normally use on the approach. With the abundance of smoke in the area and the TFR very near the RNAV track, we wondered if the Tower had broken off the approach or if something different was happening. I called the Tower and told them Aircraft X was off course and asked if they knew what was going on. They said he had just reported over PRESN at 11,000 feet. The radar showed that Aircraft X was about 12 nautical miles northwest of the PRESN intersection, nearing (about 3 miles from) a 10,000-foot Terrain Alert Volume (TAI), which specifies an enroute Minimum IFR Altitude (MIA) providing terrain clearance, with the Altimeter Calloutting 10,700 feet. [The Radar Controller] told me to issue a turn to the south. I issued to the Tower a 155 [degrees] heading and 10,000 feet altitude. He had traffic south of Aircraft X at 11,000. The lowest altitude we saw Aircraft X was 9,000 feet in either a 9,000 or an 8,000 foot TAI. The turn seemed to be timely enough to keep him out of the 10,900 TAI. Had [the Radar Controller] not noticed, that flight crew and the passengers would be dead. I have no doubt.

A Diamond in the Sky
With a 300 foot ceiling and 6,000 RVR, a Super King Air 200 pilot intercepted the "glideslope" without crosschecking and concluding position and altitude. Several important lessons were subsequently learned.

The approach to Ramsey ITI was a bit rushed as traffic was heavy. I misperceived what I thought was the glideslope, but the

the
S
source
see
few
July
on
ing
ring a
eye. I
line
Rely

"Had [the Radar Controller] not noticed, that flight crew and the passengers would be dead, I have no doubt."