



# Interagency Aviation Lessons Learned



No. IALL 16-03

Date: July 29, 2016

Page 1 of 1

**Subject: Smokejumper Injured During Flight Through Unexpected Turbulence**

**Area of Concern: Use of Seatbelt/Restraint Devices during Smokejumper Operations**

**Distribution: All Aviation Operations**

**Discussion:** The incident occurred towards the completion of a reconnaissance flight in a Twin Otter aircraft when unexpected clear air turbulence was encountered. Although thunderstorms were in the vicinity, the flight remained in VFR conditions. No other turbulence was encountered during this mission. During the incident, moderate turbulence was experienced for approximately 2 seconds. The turbulence was severe enough to launch unrestrained smokejumpers in to the air. The sixth smokejumper (aft of the cabin door) hit the ceiling of the aircraft which resulted in injuries that were consistent with a concussion along with neck and upper back pain. The flight was diverted to the nearest airport where the smokejumper was immediately taken to the local hospital for evaluation. Fortunately, his injuries were not serious. The smokejumper was placed on light duty until further notice.

The 2016 Forest Service Smokejumper Operations Guide states: Smokejumpers shall use safety belts and other restraint devices during critical phases of the smokejumper delivery mission. All smokejumper aircraft occupants shall wear safety belts, on all takeoffs and landings.

Best Practices during smokejumper missions include:

1. **Remain in the seat with seat belt fastened** unless configuring for or conducting jump or paracargo operations, or approved by the pilot.
2. **Secure loose gear such as helmets, personal gear bags to reduce injury from flying objects** unless operational requirements dictate otherwise.
3. **During the morning briefing, emphasize extreme weather conditions that may be present during the operational period** utilizing tools such as the Green, Amber, Red (GAR) model.
4. **When conducting reconnaissance flights, it is important to continuously monitor the weather.-**
5. **Using XM weather and/or aircraft radars with pilot discretion to determine if turbulence could exist in your flight path.** If so, listen to the pilot in command for direction on securing the cabin.
6. **Maintain awareness and utilize CRM principles to communicate indicators of increased turbulence** indicated by nearby thunderstorms, white caps on water, strong dust devils, and forecast unstable air mass.

/s/ Keith Raley

Chief, Aviation Safety,  
Training & Program Evaluations  
DOI, Office of Aviation Services

/s/ Gary Sterling

Branch Chief, Aviation  
Safety Management Systems  
USDA Forest Service