



SAFETY GRAM

May 2017

When the air is calm and the skies are blue, a sense of peacefulness comes over us. In fact, at that moment we believe we can do whatever it is we want to do. Like any good aviator we want to fly. However, that calm may not tell the entire story. Underneath that calm may lurk something far more dangerous, TURBULENCE!

Recently, Flight SU270, an Aeroflot Boeing 777, was traveling from Moscow to Bangkok and encountered severe turbulence injuring 27 people. It was determined that Flight SU270 hit a pocket of "clear air" turbulence. In this situation there were zero telltale signs or patterns that suggested danger was lurking. The moral of the story, there may be no indications, but if possible, avoid turbulence at all cost.

Turbulence is caused by the relative movement of disturbed air through which an aircraft is flying. Its origin may be thermal or mechanical and it may occur either within or clear of clouds. Additionally, turbulence is separated into four levels of intensity:

- ✚ *Light turbulence is the least severe, with slight, erratic changes in attitude and/or altitude.*
- ✚ *Moderate turbulence is similar to light turbulence, but of greater intensity - variations in speed as well as altitude and attitude may occur but the aircraft remains in control all the time.*
- ✚ *Severe turbulence is characterized by large, abrupt changes in attitude and altitude with large variations in airspeed. There may be periods where effective control of the aircraft is impossible. Loose objects may move around the cabin and damage to aircraft structures may occur.*
- ✚ *Extreme turbulence is capable of causing structural damage and resulting directly in prolonged, possibly terminal, loss of control of the aircraft.*

In previous Safety Grams, I wrote about mission planning and good radio communication. When dealing with turbulent conditions, PIREPS and weather charts will aid in good mission planning helping you avoid hazards. Additionally, good communication will provide other pilots a "heads up" on what's out there. Essentially, in-flight turbulence assessments are subjective. The perception of turbulence severity experienced by an aircraft depends not only on the strength of the air disturbance but also on the size of the aircraft. Moderate turbulence in a large aircraft may appear severe in a small aircraft. Therefore PIREPS involving turbulence should mention the aircraft type to aid in the assessment of the relevance to other pilots in, or approaching, the same area. In closing, be careful out there and continue to take care of each other.

FLY SAFE!



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