



Turbulence Workshop

Course Description and Objectives

In late June 2006 the Australian Civil Aviation Safety Authority (CASA) issued a media release warning of the dangers of aircraft turbulence. CASA report that in the United States hundreds of injuries and three deaths have been reported as resulting from turbulence incidents in recent years.

In June 2006 CASA reported some recent Australian incidents included:

- two cabin crew injured when they were thrown to the floor on a Boeing 767 flight from Adelaide to Perth which encountered moderate to severe clear air turbulence.
- a crew member injured during cruise on a Boeing 767 flight when light turbulence caused her to fall backwards on to a bench.
- two crew thrown to the floor when a Dash 8 hit moderate turbulence while landing.

NASA's Aviation Safety program estimates the cost to the airlines from encounters with turbulence runs more than \$100 million (USD) a year, with one airline estimating that each encounter of severe turbulence costs an average of \$750,000 (USD). An encounter with severe turbulence may result in aircraft damages, flight deviations, passenger inconvenience, flight crew and passenger injuries and hospitalisation, and possible passenger accommodations and expenses. NASA's Aviation Safety programme estimates that airlines encounter severe turbulence nine times a month, resulting in an average of 24 injuries per month. Besides financial considerations, an improved knowledge of turbulence can also improve safety.

- In late November 2006, four flight attendants were injured when their Boeing 767 hit a patch of severe turbulence about an hour after departing Shanghai, China, for Vancouver. The flight was diverted to Tokyo.
- Only hours after, a Boeing 777 on Japanese domestic flight heading for Tokyo also ran into severe turbulence, injuring a cabin attendant and a passenger before landing safely at Haneda Airport as scheduled.

These examples illustrate that airlines need to have effective training programmes targeting turbulence, and other weather related issues. Further indicating the need for the risk of turbulence to be managed, the FAA issued AC No. 120-88 *"Preventing injuries caused by turbulence"* in December 2005.

Calls for improved meteorology training and weather interpretation skills, at all levels and areas of the aviation industry, are not new and have become more frequent as the result of the numerous studies and investigations of weather occurrences.

With the rapid development of technologies, improved scientific understanding, advancements in weather forecasting processes, dissemination and presentation of weather related data in the last 20 years, there is an increasing need to improve training programmes beyond that of the 1960s to take into account these recent changes.

This workshop will improve knowledge of turbulence and develop practical interpretation skills of traditional and modern technologies, including numerical weather prediction models, with an international focus. The workshop is aimed to encourage participants to develop a systematic method of assessment of weather trends and forecasting; a method that has a scientific basis but one which can also be applied to real-time situations where there are heavy workloads and severe time constraints.



Course Outline

This is an operational course and will embed interpretation of satellite, ground radar, analysis charts (i.e., surface, 500 hPa), METARs, TAFs, TTFs, Numerical Weather Prediction models, and Aerological diagrams (i.e., Skew-T) for greater understanding and application in flight operations. Real examples from accidents and incident, and significant weather events will also be used.

Day One:

Turbulence (Low-Level, Turbulence In and Near Thunderstorms, Mountain Waves)
Group Weather Flight Planning Exercise

Day Two:

High Altitude Meteorology

- Jet streams - Northern Hemisphere
- Jet streams - Southern Hemisphere
- Clear Air Turbulence

Group Weather Flight Planning Exercise



Who should attend?

Pilots and dispatchers, supervisors, and training personnel of airlines, air charter, freight and cargo services, military, corporate, and government flight operations.

Participant Prerequisites

It is assumed that all participants have a satisfactory knowledge of material set out in their country's ATPL meteorology syllabus (i.e., FAA, Transport Canada, JAA, Australian CASA, South African CAA), or its equivalent for military personnel.

Take home

- Comprehensive course notebook
- Industry examples and solutions
- Flight Planning checklists and algorithms
- Certification of completion

Course Particulars

- **Fee:** See website for details.
- **Location:** Halifax, Nova Scotia, Canada. - In-house also available.

Queries

For more information please contact:

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