

DELTA'S APPROACH TO REDUCING TURBULENCE INJURIES

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4 KEY ROLES OR TURBULENCE MITIGATION



PREFLIGHT DECISIONS

- Go Around
- Go Under
- Go Over
- Go Through



THREAT PLOT – COLOR AIDS



COMMON OPERATING PICTURE – PILOTS CAN VIEW FLIGHT PATH AND COMPLETE PREFLIGHT BRIEFINGS



CLIMB DECISIONS

- When can Flight Attendants begin service?
- Different service for different flight lengths and fleets.



CRUISE DECISIONS

What has changed? Are the forecast accurate?

- Auto TP Uplink
- GTG-N/GTG
- EDR and PIREPS
- ATC Chat

AUTO TP UPLINK



Received TP:

TP NA40 091838Z

GTG AND EDR

- About 70% of Delta's fleet has EDR installed.
- Data very helpful for specific flights, but too much data for manual analysis.
- Delta wanted to get value from these automated reports and pilots have GTG-N available in WidgetWx.
- No global GTG-N, but utilize GFS GTG. Updates during flight if there is in-flight connectivity.



STANDARD TERMINOLOGY

The single biggest problem in communication is the illusion that it has taken place.

- George Bernard Shaw

Combined Flight Operations and In-Flight Service Turbulence Action Chart:

- Use standard turbulence intensity
- Knows what actions are taken based on different intensity
- Communicate with customers when service is not possible

DESCENT DECISIONS

When to sit down under normal conditions?

When are conditions abnormal?

WHAT DOES DESCENT START?



BUILDING SMARTER TOOLSETS FOR ABNORMAL DAYS





Average Peak EDR by Time

Average Peak EDR by Altitude

Average Wind Speed by Altitude

THE MOST IMPORTANT PART...

- What are we doing well?
- Where can we improve?



USING DATA TO TRACK RATES

Daily DL LGT-MOD Turbulence Rates

Last 3 Months



DATA

- Fleet Type (long aircraft, short aircraft)
- Geographical Location
- Flight Schedules changes
- Years as Flight Attendant
- Severity (EDR, FOQA)
- Forecast Effectiveness
- Radar Effectiveness

SURVEY

- Communication
- Location of injury in aircraft (front/back gally, aisle)
- Severity (pilot, flight attendant)
- Injury severity
- Cart Related
- Action taken and how did you weigh customer service expectations vs personal safety

Turbulence Working Group

- Led by Flight Safety.
- Includes representatives from Meteorology, Flight Control, Flight Operations and In Flight Service.
- Goal is to set up a system that monitor trends, effectiveness of training and policies

Questions?