

TURBULENCE MITIGATION WORKSHOP IV

November 8-10, 2021

Hosted by the National Center for Atmospheric Research (NCAR) and the MITRE Corporation

Supported by the Federal Aviation Administration (FAA)

Virtual

Workshop Agenda

Day 1 Nov 8, 2021, 0900 – 1300 EST: Emerging Science of Aviation-scale Turbulence Detection, Forecasting, and Characterization

[Times in EST]

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| 0900-0915 | Welcome, Logistics |
| 0915-0945 | Keynote: Steve Bradford, FAA Chief Scientist-Architecture and NextGen Development, “Charting Aviation’s Future” |
| 0945-1005 | Matt Strahan, National Weather Service (NWS): “International Civil Aviation Organization (ICAO) Turbulence Requirements” |
| 1005-1025 | Dean Lockett, World Meteorological Organization: “World Meteorological Organization and Data Sharing Policies” |
| 1025-1045 | Piers Buchanan et al., Met Office (United Kingdom(UK)): “A Global Turbulence Climatology Supporting Turbulence Forecasting at the Met Office” |
| 1045-1055 | Break |
| 1055-1115 | Olivier Jaron and Pierre Crispel, Meteo France: “Use of the Action de Recherche Petite Echelle Grande Echelle (ARPEGE) Ensemble Forecast for the Prediction of Aeronautical Turbulence” |
| 1115-1135 | Paul Williams, University of Reading, UK: “Impacts of Climate Variability and Climate Change on Clear Air Turbulence” |
| 1135-1155 | Ulrich Schumann, Andreas Dörnbrack, Peter Bechtold, DLR (/German Aerospace Center), Germany: “Measurements of High-Altitude Turbulence from Research Aircraft” |
| 1155-1215 | Julia Pearson, National Center for Atmospheric Research (NCAR): “Graphical Turbulence Guidance-Nowcast (GTGN) Update” |
| 1215-1225 | Break |
| 1225-1245 | Open Discussion |
| 1245-1300 | Session Wrap Up |

Day 2 Nov. 9, 2021, 1700 - 2100 EST: Emerging Science of Aviation Turbulence and Future Challenges

[Times in EST]

- 1700-1710 Opening/Logistics
- 1710-1730 Matthias Steiner, NCAR: "Emerging Needs of Turbulence Guidance for Increasing Non-traditional Flight Operations"
- 1730-1750 Jim Doyle, Naval Research Laboratory Monterey: "Mountain Wave Turbulence and Predictability"
- 1750-1810 Paola Rodriguez Imazio, Servicio Meteorológico Nacional, Argentina: "Clear Air Turbulence observed across a tropopause fold over the Drake Passage -- A Case Study "
- 1810-1830 Walt Rogers, NWS Retired: "On the Need for Mountain Wave Forecasts"
- 1830-1840 Break
- 1840-1900 Domingo Muñoz-Esparza, NCAR: "Weather-driven Wind and Turbulence Predictions within the Urban Environment in Support of Low-level Aerial Operations"
- 1900-1920 John Williams, The Weather Company, an IBM Business: "Use and Misuse of Probabilistic Forecasting for Aviation Turbulence"
- 1920-1940 Hye-Yeong Chun, Yonsei University, South Korea: "Turbulence in the Free Atmosphere Estimated by High-Resolution Operational Radiosonde Data"
- 1940-2000 Jung-Hoon Kim et al., Seoul National University, South Korea: "Climatology of Clear-Air Turbulence using the ERA5 data"
- 2000-2010 Break
- 2010-2030 Open Discussion
- 2030-2035 Session Wrap Up

Day 3 Nov. 10, 2021: 1000 - 1500 EST Turbulence Impacts on Aviation Operations and their Mitigation

[Times in EST]

- 1000-1010 Opening/Logistics
- 1010-1030 Nathan Doble, National Transportation Safety Board: "NTSB Report: *Preventing Turbulence-Related Injuries in Air Carrier Operations*"

- 1030-1050 Greg Meymaris, NCAR: "EDR Implementation Update"
- 1050 -1110 Tim Rahmes, The Boeing Company, "Status & Analysis of Global Turbulence Reporting"
- 1110-1130 Larry Cornman, NCAR: "Automatic Dependent Surveillance-Broadcast (ADS-B) Derived Turbulence"
- 1130-1140 Break
- 1140-1200 Nathan Polderman, United Airlines: "Airline Perspective: Industry Turbulence Safety Action Team"
- 1200-1220 Martin Gerber, Swiss Airlines: "The Use EDR Data in Flight Planning for Turbulence Avoidance"
- 1220-1240 Jason Craig, NCAR: "Global Weather Notification: A real-time, ground-based, weather notification system for pilots"
- 1240-1300 Stephanie Klipfel, Delta Air Lines: "Delta's Approach to Reducing Turbulence Injuries"
- 1300-1320 Bob Sharman, NCAR: "Open Frontiers in Turbulence Forecasting and Detection"
- 1320-1330 Break
- 1330-1445 Panel Discussion: Future Challenges –
Moderators: Wiebke Deierling, Tammy Flowe, Bob Sharman.
Panelists: Randy Bass (FAA), Brent King (International Air Transport Association (IATA)), Matt Strahan (NWS), Matthias Steiner (NCAR), Matt Fronzak (The MITRE Corporation), Timothy Miner (AA)
- 1445-1500 Workshop Wrap Up