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Key Takeaways – Turbulence Impact Mitigation Workshop IV

Day 1

- (Matt Strahan) Use of ABOs for turbulence and other key atmospheric parameters
- (Matt Strahan) Use of probabilistic forecasts for turbulence and other atmospheric parameters of interest to the aviation community
- (Dean Lockett) New WMO data policy stresses the importance of global observations, and especially from aircraft
- (Steve Bradford) Connected aircraft
- (Steve Bradford) Relationship between turbulence and PIREPs

Day 2

- (Matthias Steiner) Impacts are vehicle-specific, not generic
- (Matthias Steiner) We need to be able to talk freely about needs, requirements and limitations
- (John Williams) Probabilistic turbulence forecast characteristics, strengths and weaknesses

Day 3

- (Nathan Doble) Turbulence associated with more Part 121 accidents than any other cause, and almost all were based on injury (vs. aircraft damage)
- (Q from Matt Strahan) Cost of turbulence encounters
- (Larry Cornman) ADS-B-derived turbulence, potentially 2 orders of magnitude more reports
- (Larry Cornman) Aircraft scaling
- (Nathan Polderman) If all the good, new information doesn't result in improved aircraft safety in turbulence, then we've failed
- (Bob Sharman) Can't mitigate turbulence (MF – but can reduce impact of turbulence)
- (Bob Sharman) First saw the Lane et al. 2003 JAS animation in 2003, while working on an airline meteorology group

From this, I've extracted what I consider to be higher-level areas of future need and some cautions:

1. We need more *in situ* observations, and we need them now. Via capabilities such as ADS-B-derived turbulence and EHS Winds, there is a future in which we'll have significantly more atmospheric information than we do today.

But, **if we don't build the infrastructure to effectively use the information, it will be all for naught.**

2. Probabilistic turbulence forecasts seem to an area ripe for further exploration and leveraging.

But, it is as obvious as the nose on my face that giving probabilistic forecast information directly to human decision makers is ineffective. **We need decision support tools, and complementary decision-making processes, that can most effectively use probabilistic forecasts, be they of**

turbulence or surface winds.

3. There is a lot of information that commercial organizations can and should consider proprietary.

But, turbulence information should not fall into that category. **We need to create and use a global, publicly available, no-cost turbulence information database sooner rather than later.**

And in a self-admitted shameless plug, I would propose that the FAA's ASIAS system can serve as an excellent model of how such a database should be both constructed and managed.