Safety

Rapporteur's Report
Steve Bradford

Dres: " My sense is that the safety area, although perhaps the youngest discipline in CNS/ATM research, has the best [practice] and is really the way research should be done".

Paper 5 – A review if Civil Aviation Accidents Air Traffic Management Related Accidents: 1980-1999

- ATM accident risk versus overall accidents looks somewhat uniform over all regions.

- Difference is in type – 3rd world mid-air and US/Europe taxing.

- The share of ATM accidents in total shows no trend over the last ten years.

Paper 149 – Development of an FAA Eurocontrol Approach to the Analysis of Human Error in ATM

- HERA and HFACS -> JANUS an interesting harmonized system with validation plans including shadow mode operation in the US and is being adopted as the official tool in some countries.

- JANUS appears to combine best of both.

Paper 13 – Safety Assessment of ADS-B and ASAS

- Good examples of using analyzing risk associated with advanced concepts and conducting the evaluation early in the lifecycle.

- Good to see international agreement on process for safety assessment.

Paper 38 – Required Total System Performance and Results of a Short Term Conflict Alert Simulation Study

- Discussion of RTSP as a performance framework and how it may fit into the separation assurance the function.

- The framework was used to evaluate the effect on surveillance improvement on the short-term prediction of conflicts.

- Step on the way to working the full concept of RTSP.

Paper 153 - A Safety and Human-Centered Approach to Developing New Air Traffic Management Tools

- Description of a process which is safety-driven and human centered.

  - Brings safety in at the beginning rather than proving its safe later.

  - Leads to a spec which is safety focused by design and not "safe" due to validation and verification.

- Clear from the discussion that it needs to be used in conjunction with other methods.

Paper 60 - Accident Risk Assessment of Simultaneous Converging Instrument Approaches

- Safety of missed approaches for converging runways. Two phases
  - Evaluation against a prescriptive requirement here FAA TERPS criteria - no problem
  - Safety management approach, in this case, using a criteria of 10-9 absolute risk level there were some areas of concern which need to be evaluated. Particularly relevant in an age where the move is to Safety Management Systems.

Paper 22 – The Effect of Aircraft Wake Vortex Separation on Air Transportation Capacity

- **Wake vortex and the effects on capacity.**
  - The evaluation showed that the benefit could be between 0-16 percent.
  - 0% because based on the analysis there is not room for a uniform change in the static restriction.

- **Is is the benefit for daily use or for recovery?**

Paper 139 – Evaluating safety and usability of ATM systems

- Evaluating safety and usability of ATM system. A careful look at the interaction between software – procedures, rules, practices; hardware – interfaces, equipment and tools, and liveware –operators, team, and management.

- Methodology can be used to evaluate existing operations, can be used in concept validation, and provides the information upon which design and redesign need to be improved.

Paper 16 - Controller and Pilot Error in surface Operations

- Used prior studies and surveys of pilots and controllers.

- Used official data but the <u>ASRS</u> reports were key to identifying causal factors. A good "practical" analysis and solution set. There are high and low tech solutions. "Lot's of paint for the cost of 1 AMASS"

Paper 181- An Assessment of Flight Crew Experiences with FANS-1 Controller-Pilot Data Link Communications in the South Pacific

- **Highlights:**
  - Transient versus persistent problems
  - Problems with modeling new procedures based on previous
- **Need for:**
  - Good mechanism for data collection and usability analysis
  - Analysis of cost for fixing the problem which means they need to be fixed early

What's missing

- This came up as a question what is the absolute risk criteria. Who chooses?

- Good information on incidents and errors is not easy to come by, but is essential to the modernization effort.