Rapporteur:

Cesare Bernabei

Decision Support Tools / Collaborative Decision Making

14 Papers presented

30-45 attendance

Sessions chairs:

Dres Zellweger

Volkmar Adam

Uwe Voelckers

Juan Revuelta

Frank Petroski



Summary

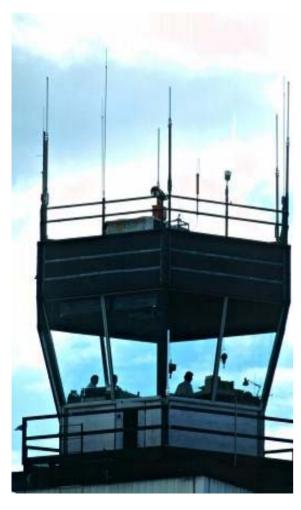
- •Field facilities involvement is key to DST implementation success
- •Rigorous performance measurements of fielded DSTs build consensus for further investment
- Are we collectively building a body of knowledge or are we reinvestigating the same problems?

DST/CDM

Areas covered:



- Airport Traffic Management (2)
- Controller Tools for En-Route (4)
- Conflict Detection & Resolution (4)
- Trajectory Prediction (2)
- •CDM (2)



Airport Traffic Management

• a DST to improve surface traffic flow and to assist in runway assignment

• an algorithm for optimization of taxi route planning



Airport Traffic Management

- •increases in push-back time predictability have potential benefits throughout all phases of flight
- •use of genetic algorithm proved most promising

Controller Tools for En-Route



- •Several papers reported on relatively mature DST
- •emphasis was on field assessment to measure improvements in terms of workload, capacity and efficiency

Controller Tools for En-Route



- •well accepted support tools to Rside and D-side controllers for enroute and transitional airspace
- •Proven benefits of Traffic Management Advisor with respect to capacity and efficiency



Conflict Detection & Resolution

- Conflict probability estimation
 - •collision risk formulation
 - •geometrical straightforward metrics
- Conflict probe sensitivity to vertical and ground speed
- •En-route conflict solver using genetic algorithms



Conflict Detection & Resolution

- •New methods (theoretical, simulation) for conflict estimation
- •conflict clustering technique for global en-route resolution
- •Basic research
- •Synergy to be improved?
- •Promising in Europe means valuable in USA?



Trajectory Prediction

- •a generic sampling technique for measuring aircraft trajectory prediction accuracy
- •field trials using the ACARS data-link to explore how to use airborne data (flight intent-, aircraft state-and atmospheric data) to improve ground based trajectory prediction accuracy

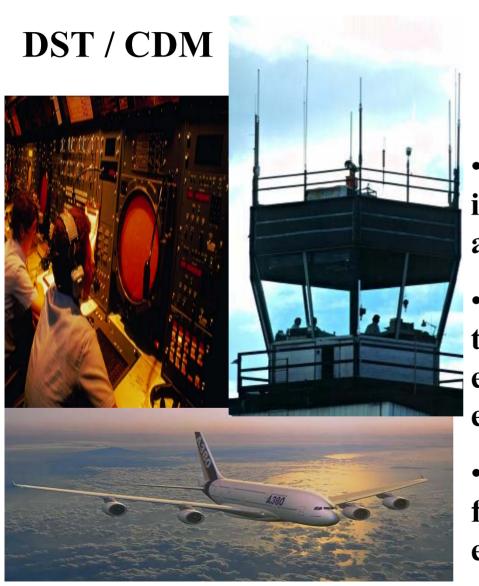


Trajectory Prediction

- •a new generic methodology that can be used to validate the TP accuracy in any DST
- •substantial benefits have been demonstrated through field trials
- •mass data can be transmitted with minimal avionics modification and minimal transit delay

CDM

- •Field study to evaluate the potential benefits of exchanging operational data between airlines, airport and ATC
- •prototype for a fast access database for ATC static and dynamic data



CDM

- •Poor information causes increase in short term planning and poor utilization of resources
- •Using a milestones methodology to determine what data to exchange and when it should be exchanged
- •data organization is important for better understanding and easy implementation of DSTs