



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

DST / CDM



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)**

DST / CDM

Airport Traffic Management

- **a DST to improve surface traffic flow and to assist in runway assignment**
- **an algorithm for optimization of taxi route planning**



DST / CDM

Airport Traffic Management

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



DST / CDM

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**

DST / CDM

Controller Tools for En-Route



- **well accepted support tools to R-side and D-side controllers for en-route and transitional airspace**
- **Proven benefits of Traffic Management Advisor with respect to capacity and efficiency**

DST / CDM



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**

DST / CDM



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?**

DST / CDM



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**

DST / CDM



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**

DST / CDM



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**

DST / CDM



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**