ATM2013
CALL FOR PAPERS
Tenth USA/EUROPE Air Traffic Management Research & Development Seminar
June 10-13, 2013, Chicago, IL

As part of an ongoing effort to further the science needed to produce the next generation of globally harmonized Air Traffic Management (ATM) systems, the United States Federal Aviation Administration and EUROCONTROL are jointly organizing the Tenth USA/Europe ATM R&D Seminar that continues the series held since 1997 alternately in Europe and the USA. These seminars allow the ATM community to share and discuss R&D results and build and maintain consensus on major issues. They have a strong record of creating and reinforcing working and personal relationships between leading experts and researchers.

Europe and the USA are investing considerable effort under the Single European Sky ATM Research (SESAR) and Next Generation Air Transportation System (NextGen) initiatives to define and develop the next generation of ATM systems. The Tenth USA/Europe ATM R&D Seminar encourages submissions covering the target timeframes of these two initiatives and beyond. The emphasis is on research results, which means that papers should clearly explain their objectives, approach, methodology and results and draw conclusions that demonstrate the value of the work.

The Program Committee welcomes papers that present new concepts, analyses and methodologies addressing the themes below. Papers may address any part of the life cycle ranging from concept development to implementation, including deployment experience. We also welcome papers that describe innovative concepts and emerging technologies, typically ones for which mature evaluation/analysis results are not yet available.

Papers presenting significant new results that build upon prior efforts presented at previous USA/Europe ATM R&D seminars are encouraged. Authors should review papers and proceedings from previous seminars published on the ATM seminar Web site (www.atmseminar.org). Papers previously presented at other conferences or like forums will not be accepted.

Joint papers resulting from collaboration between organizations are encouraged. Positive consideration will be given to joint USA/European papers.

Seminar themes

- Network and strategic traffic flow optimization
- Air-ground integrated concepts
- Trajectory and queue management
- Separation
- Enhanced surveillance and navigation
- Dynamic airspace and capacity management
- Integrated airport/airside operations
- Finance and policy
- ATM performance measurement and management
- Safety and resilience
- Environment and energy efficiency
- Weather in ATM
- Human factors
- Unmanned aircraft systems (UAS) integration
- ATM as a complex system

Theme descriptions

The following descriptions provide sample sub-topics that authors should take into consideration; they are provided for guidance but should not be seen as exhaustive:

- **Network and strategic traffic flow optimization**

  NextGen and SESAR promote efficient use of airport and airspace resources through strategic flow management and optimization from both a carrier and a service provider perspective. This theme includes concepts of collaborative decision making (CDM) for collaboratively solving congestion problems.

- **Air-ground integrated concepts**

  Both SESAR and NextGen foresee enhanced ground and airborne automation to enhance capacity and maintain safety. This topic includes air and ground decision support tools and their interconnections, airborne separation assistance, new roles and responsibilities for pilots and controllers and the trade-offs between air and ground capabilities.

- **Trajectory and queue management**

  A key paradigm change in NextGen and SESAR is the shift of control by tactical clearance to management by reference to a trajectory. Topics in this theme include all aspects of trajectory planning, optimization, and coordination including real time updates and traffic synchronization. Also included are tools and procedures for queue management such as arrival manager, departure manager and surface manager.

- **Separation**

  This theme encompasses concepts, algorithms, analysis and systems that address tactical separation in the air and on the airport surface. Topics include methods and models for assessing separation requirements, ground-based, airborne, and integrated approaches for safety alerting and conflict resolution, and wake turbulence management.

- **Enhanced surveillance and navigation**

  This theme includes concepts for utilization of advanced surveillance, navigation and associated procedures to increase throughput in en route and terminal airspace. Topics may include use of ADS-B surveillance information, cockpit display of traffic information, performance-based navigation procedures, 4D information and the impact of trajectory based operations.

- **Dynamic airspace and capacity management**

  This theme involves concepts for dynamically managing airspace capacity and related assets to meet demand and the expected flows. Topics include concepts for dynamic optimization, support tools, procedures and human factors aspects for managing airspace according to varying traffic densities, weather, and military activities.

- **Integrated airport/airside operations**

  This theme includes the coordination of arrival manager decisions with the airport to mitigate the impact of arrival delays on scheduled airport resource operations. Topics include airport impact assessment models, dynamic scheduling of infrastructure resources, and all types of CDM as perturbation mitigation mechanisms to improve the predictability of estimated time of departure.

- **Finance and policy**

  This theme includes finance of air traffic services and modernization initiatives, investment analysis of ATM improvements, airport access control policy, equipage issues, adaptation to climate change, appropriate roles of government, air navigation service providers (ANSPs), and industry, and trade-offs between competing policy goals.

- **ATM performance measurement and management**

  Topics of interest include prediction, measurement, control and optimization of one or more dimensions of air transportation system performance including safety, efficiency, capacity, productivity, punctuality, unit costs, and environmental impacts. Empirical and analytical (e.g. model-based) studies for individual programs and the system as a whole both within and across ANSPs are welcome.

- **Safety and resilience**

  Topics of interest include applying models and methods to assess system and human contributions to the safety and/or resilience to unexpected operating conditions of the socio-technical ATM system, to compare current and future approaches for risk mitigation and to validate contributions from future technology and automation to safety management.

- **Environment and energy efficiency**

  Of particular interest are: assessment and measurement of aviation's environmental impacts and energy efficiency as well as interdependencies among these and other parameters; approaches to improve ATM and operational procedures from an environmental and energy efficiency perspective; analyses of impacts of new aircraft and other new technologies on the environmental performance of ATM and operational procedures; and results from ATM and operational procedure demonstrations.

- **Weather in ATM**

  This theme includes the integration of weather information into ATM decision making to mitigate its impact on operations. Topics include quantifying the impact of weather on air traffic operations, decision-making in the presence of weather forecast uncertainty, and generally all consideration of the role of weather and weather forecasting in the practice of ATM.

- **Human factors**

  NextGen and SESAR concepts will change the roles and responsibilities of human operators in the air traffic control system. Human factors issues include: human-system integration, decision making, training, selection, and performance monitoring, organizational dynamics, change management, individual and team performance, and adaptive automation. Topics include tools, techniques, and metrics to enhance the performance of humans in ATM.

- **Unmanned aircraft systems (UAS) integration**

  This theme focuses on the safe and efficient integration of UAS into ATM operation, specifically on operations in managed airspace. Topics of interest include: separation requirements given UAS' unique operational performance, trajectory operations, dynamic network analysis of the decision loop changes from separation through traffic synchronization and demand capacity balancing.

- **ATM as a complex system**

  Papers should address the application of complexity science and related disciplines to air transportation when seen as a complex socio-technical system. Topics may include understanding of air transport system complexity and behavior, emergent behavior, modeling, simulation, forensic investigation/data mining and analysis and complexity metrics.

Paper submission

Papers must be submitted no later than 23:59 GMT January 27, 2013!
(No deadline extension will be granted!)

Authors will be notified of acceptance or rejection of their paper by **March 28, 2013.**

Please visit the seminar Web site (below) for further information concerning submission of papers, format details and evaluation criteria.

http://www.atmseminar.org

Authors presenting papers are expected to attend the entire seminar. This is critical to achieving the seminar's goal of creating and reinforcing working and personal relationships between leading experts and researchers in the ATM R&D community. During the final plenary session it is especially important that a representative for each paper be present.

A selection of the seminar papers will be published in a special issue of ATC Quarterly.

All information on this seminar will be continuously updated and can be accessed along with proceedings from previous seminars on the seminar website, where all (selected) papers will be published:

Program Co-Chairs:
Sabrina Saunders-Hodge, Federal Aviation Administration (sabrina.saunders-hodge@faa.gov)
Colin Meckiff, EUROCONTROL (colin.meckiff@eurocontrol.int)