



7th Seminar
Barcelona, Spain, July 2007

Call for Papers

7th USA/Europe Air Traffic Management Research and Development Seminar, 11–14 June 2007, Spain

Information on paper themes and structure

Both, in Europe and the USA considerable efforts are ongoing to define and develop the next generation of air traffic management systems for a 15 to 25 year timeframe.

ACARE, the Advisory Council for Aeronautics Research in Europe, developed the Strategic Research Agendas 1 & 2 (SRA1, SRA2) for the system after 2020.

SESAR, the Single European Sky ATM Research programme has just started its definition phase aiming for a development & implementation from 2008 until 2020.

NGATS, the Next Generation Air Transport System is an initiative of the Joint Program Development Office (JPDO) to transform today's Air Transport System to meet the needs of 2025.

A significant contribution to these developments is expected from ATM Research and Development activities aligned with the strategic directions that are set. In a continuous effort to foster the realization of a harmonised global Air Traffic Management system, the United States Federal Aviation Administration and the EUROCONTROL Organization are jointly organizing the Seventh USA/Europe Seminar on Air Traffic Management Research and Development. This event will take place in June 2007, in Barcelona, in Spain. It is a continuation of seminars held since 1997 in both Europe and the USA.

The focus of these seminars is Air Traffic Management (ATM). In the ICAO ATM Global Concept document, ATM is defined as "the dynamic, integrated management of air traffic and airspace - safely, economically, and efficiently - through the provision of facilities and seamless services in collaboration with all parties". ATM encompasses airspace organisation and management, flow and capacity management and en-route, terminal and airport air traffic control. Papers submitted for consideration need to be focused on these ATM aspects of aviation.

With these seminars we hope to create and reinforce working and personal relationships between leading experts and researchers in the ATM R&D community, share available results and build and maintain consensus on major issues.

In support to ACARE, SESAR and NGATS, the seventh conference will be organised with a particular focus on the definition of the next generation ATM systems. The Program Committee welcomes papers that present new concepts and methodologies, which might be described as fundamental research leading to innovative solutions, as well as results of investigative research and development in support of a next generation ATM system addressing the following themes in air traffic operations:

- Network and Traffic Flow Optimisation
- Air Ground Integration
- 4D Trajectory Management and Separation
- Enhanced Surveillance and Navigation
- Dynamic Airspace Management
- Integrated Airport Management
- Finance, Deployment and Implementation Issues
- Active ATM Performance Management
- Safety and Security in ATM
- Environmental Considerations in ATM System Design
- Innovative ATM Concepts

Please refer to Themes below for a more detailed description.

The Program Committee is encouraging graduate students to respond to this call for papers by waiving the seminar registration fee for students whose papers are accepted.

Besides this open call, papers following-on from previous seminars are also solicited. This may include suggestions for collaboration between organisations to produce joint papers. In any event all papers will be subject to the same Evaluation (see

below) and selected on that basis. Preferential consideration will be given to joint US/European papers.

Papers must be submitted no later than January 26, 2007!!

Please refer to Structure and Format below for further explanations concerning submission of the papers and format details. Please note also that **no deadline extension** will be granted!

Authors will be notified of acceptance or rejection of their paper by April 11th, 2007.

Authors presenting accepted 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 discussions it is especially important that a representative for each paper is present.

The Program Committee will recommend Best Papers for publication in a special issue of ATC Quarterly.

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

<http://www.atmseminar.org>

Program Co-Chairs:

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More information

Themes

The 7th US/Europe ATM seminar in Barcelona concentrates on longer term ATM operational aspects. Papers presenting results from innovative research as well as investigative R&D should thus focus on operational improvements for the next generation ATM system rather than on shorter term system adaptations. Papers dealing with the following ATM operational themes (also a combination of them) will be taken into consideration:

- **Network and Traffic Flow Optimisation** – layered planning across the spectrum of time horizons from block to block; network operations planning; collaborative flight planning, scheduling and real-time airline operating centre applications, strategic and tactical capacity and flow management focussing on multi-user relationships within ATM.
- **Air Ground Integration** – modes of operations corresponding to different “qualities of service” related to airspace user needs, level of equipage and traffic density; air ground interactions including delegation of controller tasks to the cockpit; segregated versus mixed modes of operations; highly structured airspace operations (high density corridors, expressways); autonomous operations; management of disruptive conditions and contingencies.
- **4D Trajectory Management and Separation** - 4D trajectory planning and optimisation; 4D contract negotiation and updates; tactical separation management functions; traffic synchronisation to organise traffic sequences and reduce traffic density; (automated) aircraft 4D execution; airborne separation assurance systems; reduced separation minima; ground auto-control function.
- **Enhanced Surveillance and Navigation** – requirements, concepts and ATM applications for high precision, all area, cost effective and secure cooperative and non cooperative surveillance and broad area precision navigation; includes compatibility and dependencies on high precision satellite navigation, and 4D conformance monitoring requirements.
- **Dynamic Airspace Management** – procedures and support tools for dynamic management of airspace according to the needs of varying traffic densities, weather and military activities; dynamic optimization of highly organized structures (highways, corridors); co-operative airspace-planning services, encompassing civil and military authorities.
- **Integrated Airport Operations** - Surface movement, guidance and control systems; integrated arrival, departure and surface management; apron management; turn around management; integrated airport capacity management; wake vortex issues; super density operations, equivalent visual self separation landings; land-side operations; virtual control tower.
- **Finance, Deployment and Implementation Issues** - Ideas and experiences concerning the movement of ATM concepts and technologies from the development stage to the deployment and implementation stage. Methodologies for business case and investment analysis. Studies of the cost and cost incidence of the present ATM system and proposed improvements to that system. Alternative strategies for capitalizing and recovering the cost of ATM investments. Methods of incentivizing aircraft equipage and assessing the impacts of alternative equipage scenarios on system performance. Comparative analyses of the roles of government and industry in SESAR and NGATS. Case studies of successful and unsuccessful efforts at ATM innovation.
- **Active ATM Performance Management** – all elements of performance driven process management in the future ATM system respectively ATM business areas by means of forecasting, monitoring, controlling and optimising safety, efficiency, punctuality, cost effectiveness and environmental impacts of air transportation; assessment and mitigation of

uncertainties; requirements and benefits of predictive versus reactive management of uncertainties; probabilistic and deterministic forecasting models and learning functions; uncertainty and performance assimilated decision making.

- **Safety and Security in ATM** - Safety design, modelling and assessment techniques for future ATM systems; Enhanced security measures and impact on airport/airspace capacity and efficiency; concepts for providing new (handling) procedures (of passengers or cargo) with regard to security, capacity, and service level.
- **Environmental Considerations in ATM System Design** – Requirements and decision support for the next generation ATM system to improve fuel efficiency and mitigate environmental impacts.
- **Innovative ATM Concepts** – very advanced and/or out-of-the-box ideas for system concepts and genuine new ATM paradigms; system architectural aspects, modelling and analysis requirements for future concept development and validation.

Cross-cutting issues such as **human factors** (including human-system integration, assessments spanning the system life cycle, and change management, psychosocial and organisational issues within ATM) and **decision support** (concepts, applications, and human-centered tools) should be presented in the context of its research application according to one of the themes as described above.

Accordingly, **technological innovations** shall be presented with focus on their implication on future concepts and operational proceedings.

Authors are invited to consider further details on the definition for the next generation ATM systems available on the following websites:

<http://www.acare4europe.org/>

http://europa.eu.int/comm/transport/air/single_sky/sesame/index_en.htm

http://www.eurocontrol.int/sesar/public/subsite_homepage/homepage.html

<http://www.jpdo.aero/>

http://jpdo.digiplaces.com/tech_hangar/

Structure and Format

Classification

Along with their submission authors are requested to suggest the theme to which the paper should be attributed.

Structure of Paper

Each paper should begin with an **Abstract** of between 100 to 300 words, allowing the reader to understand the main ideas of the work and its relevance for the air traffic management areas given above.

The body of the text should start with an **Introduction** to the overall paper and explaining the paper's main contributions. A **Background** should assess the international state-of-the-art relevant to the work described. Note that suitable references to other relevant work in the subject area are essential. The paper should end with **Conclusion, References, a list of Key Words** and the **Biographies** of the authors (not more than 100 words per author). The key words will enable search functions in the ATM seminar website.

NOTE: Please visit the seminar website to review a sample template and the best papers from the ATM2005 Seminar as examples.

Format

Papers should be written in A4 or Letter format, with two-columns in 10 point Times New Roman characters; example papers are given on the seminar web site.

Submission

The paper should be submitted - **in PDF** - using the paper submission template on the seminar web site. It should not exceed 10 pages (including the authors' bios) and it **must** be the

Final Paper!!

This is a complete paper for which, after the selection process, editorial changes or last findings will only be accepted with the agreement of the reviewers.

Evaluation Criteria

The selection of papers will be based on a weighted evaluation of the following criteria:

1. Relevance to ATM, in particular to the themes indicated above
2. Overall significance
3. Originality of approach or content
4. Methodology (rigorous, repeatable and demonstrable)
5. Scientific reasoning (as appropriate: logical arguing, technical soundness, adequate results)
6. Organisation / writing / clarity
7. Adequacy of references

Please note again that joint US/European papers are particularly welcome!

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