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**Corinthia Hotel**  
**Prague, Czech Republic**  
**September 13-17, 2015**

**Conference Chair**  
**Denise S. Ponchak**  
NASA Glenn Research Center  
1 (216) 433-3465  
general.chair@dasconline.org

**International Co-Chair**  
**Dr. Bernd Korn**  
DLR - German Aerospace Center  
49 531 295-2540  
international.cochair@dasconline.org

**Technical Program Chair**  
**Erik Blasch, PhD, MBA**  
Air Force Research Lab  
1 (315) 330-2395  
technical.chair@dasconline.org

**Technical Program Intl Co-Chair**  
**prof. dr. ir. Erik Theunissen**  
Netherlands Defence Academy  
31 22365 7672  
technical.intl.chair@dasconline.org

**Technical Program Co-Chair**  
**Dr. Kathleen Kramer**  
University of San Diego  
1 (619) 260-6832  
technical.cochair@dasconline.org

**Technical Program Co-Chair**  
**Aloke Roy**  
Honeywell  
1 (410) 964-7336  
technical.intl.cochair@dasconline.org

**Local Arrangements Chair**  
**Dr. Pavel Paces**  
Czech Technical University  
420-22435-2847  
local.arrangements.chair@dasconline.org

**Financial Chair**  
**George Andrew**  
GNA Aerospace Consulting Group  
1 (410) 215-1543  
finance.chair@dasconline.org

#### ABSTRACT DETAILS

Authors are invited to submit abstracts of no more than 750 words before 1 March 2015 to [www.dasconline.org](http://www.dasconline.org). Student papers and ideas for invited sessions are welcome. Full papers are due for review 1 June 2015. Final papers are due for publishing 13 August 2015.



34th DIGITAL AVIONICS SYSTEMS CONFERENCE

# CALL FOR PARTICIPATION

## Technical Papers, Tutorials & Exhibits

### Impact of Global Mandates on Avionics Research and Development

We welcome everyone to join us for the 34th DASC in Prague, Czech Republic

**CONFERENCE THEME:** Future Air Traffic Management Systems (ATM) will require avionics with advanced Communication, Navigation and Surveillance (CNS) capabilities. The 34th DASC theme addresses the question of how past, current, near, and future global mandates for safe air transportation, global situational awareness, and efficient air operations drive avionics research, design, and implementation. Continuous developments in systems engineering, telecommunications, cyber security, information fusion, and human factors as well as other technologies would enable avionics improvements to permeate across the aerospace infrastructure. Avionics advances present opportunities for new and evolving mandates to ensure safe and efficient air transportation.

**AVIONICS AND ATM SYSTEMS:** The conference will continue to maintain a focus on aircraft avionics and air traffic management systems. Emerging research, development, and analysis related to avionics equipment, aircraft interoperability, and ground and space-based infrastructures are significant drivers for both the North American NextGen and Single European Sky (SESAR) Initiatives.

#### TECHNICAL CHALLENGES REMAIN:

- Past mandates – impacts and improvement potential in relation to compatibility and retrofit possibilities, systems engineering, and displays
- Current mandates – expectations and new requirements such as authentication and encryption, information assurance, and communications
- Future mandates – policy and technology drivers for significant improvements in safety and efficiency, user operations, and security
- Decision-support tools, Information Management Systems, and Knowledge-based systems to improve situation awareness, decision-making, predict change, and provide safe solutions in space, air, and ground systems
- Reliable Communications, Navigation, and Surveillance technologies to enable the implementation of future ATM systems to include Sense and Avoid systems that provide autonomous safe self-separation
- UAS and other technology Introduction into the Global Airspace.

**PAPERS, PANELS, EDUCATION, AND WORKSHOPS:** The Technical and Professional Education Programs will incorporate hundreds of papers and dozens of tutorials from international researchers, innovators, engineers, users, and designers. There will be panel discussions and keynote presentations by engineering, management, and operational leaders that are shaping the industry. Attendees can participate in active conversations with colleagues who are the experts and leaders in the field. We welcome you to join us and participate in the 34th DASC as we engage in the important issues of the avionics industry!



## Topics of Interest Include, But Are Not Limited To:

### **Integrated Modular Avionics (IMA) & Flight Critical Systems:**

Performance assessment and resource allocation processes and tools; design and integration methods, verification and certification, configuration strategies, scalability, mitigation of common mode failures, system maintenance, and optimization techniques.

**Air Traffic Management (ATM):** Systems that provide controllers with predictive information about local and national traffic flow, weather and routing for safe, efficient, and effective air transportation.

### **Communications/Navigation/Surveillance(CNS)Systems:**

Communications systems, data links, Self-healing networks, wireless networks, quality of service (QoS), data buses, spectrum satellite-based navigation and landing systems, inertial navigation, and surveillance systems for traffic and collision avoidance.

**Systems Engineering (SE) Design Methods:** Hardware and software optimization systems development including processes, lessons-learned, and quantified methods for uncovering and proactively determining latent design flaws or undesired performance characteristics.

**Open Architectures:** Open interface standards, viability of open and closed architectures, operating systems, ARINC-653, alternate API solutions, communication standards, use of Commercial-Off-The-Shelf (COTS) technologies; modularity vs. scalability.

**Human Factors:** Automation methods such as mode awareness, flight deck displays, and decision support tools enabling data fusion from multiple sources to reduce pilot errors, avoid misleading information, and increase workload management and crew coordination.

**Software Engineering:** Development of large-scale systems with multiple design assurance levels, including novel approaches, processes and formal methods for design, testing, and certification.

**Cyber Security and Information Assurance:** Multiple Independent Levels of Security/Safety (MILS), physical and virtual system firewalls, data security for shared data buses, operating system security, information monitoring and quality assurance, information management.

**Unmanned Air Systems (AIS):** Avionics systems for large and small UAS, issues with integrating UAS into the Airspace, concepts on UAS Traffic Management (UTM), and regulatory issues.

**Space Systems:** Instrument/Sensor (current & new technologies), Spacecraft and Launch Vehicles; missions, systems engineering, requirements management, integration & test; space/ground communications, ground operations, cyber information assurance.

If you are interested in leading a session or track or would like more information on the Technical Program, please contact:

### **Erik Blasch, PhD, MBA**

1 (315) 330-2395  
technical.chair@dasconline.org

### **prof.dr.ir. Erik Theunissen**

31 22365 7672  
technical.intl.chair@dasconline.org

### **Dr. Kathleen Kramer**

1 (619)-260-6832  
technical.cochair@dasconline.org

### **Aloke Roy**

1 (410) 964-7336  
technical.intl.cochair@dasconline.org

## Professional Education

The DASC will offer two full days of Professional Education sessions spanning many engineering disciplines. These tutorials will be presented by educators and practicing professionals who are recognized experts in their field. All professional education sessions will offer Continuing Education Units (CEUs) through the IEEE. For more information, please contact our Tutorial Chair.

Topics may include:

- Basic and Advanced Avionics Systems
- Systems Engineering
- Integrated Modular Avionics
- Space Systems
- Surveillance and Collision Avoidance
- Communications and Networks
- Navigation Systems
- Software Development, Test, and Certification (DO-178)
- Environmental Qualification (DO-160)
- System Safety
- Fault Tolerant Avionics Systems Design and Validation

### **Professional Education Chair**

Dr. Maarten Uijt de Haag  
Ohio University  
1 (740) 707-1290  
professional.ed.chair@dasconline.org

## Sponsors and Exhibits

This year's conference will feature exhibits and product demonstrations by representatives of key avionics-related industries and institutions. To have your organization represented in our exhibit hall, please contact:

### **Sponsors & Exhibits Chair**

Lt Col Glen T. Logan  
LRDC Systems LLC  
1 (866) 648-0640  
exhibits.chair@dasconline.org