

ICNS 2024



2024



April 23-25, 2024

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ICNS 2024 Conference

Overviews

Conference Chair Welcome & Biography	4,5
Plenary Program Chairs	5
Technical Program Chairs	6
Workshop Chairs	7
ICNS 2024 Agenda Overview	8, 9
April 23: Opening Keynote, "Future Connectivity for Aviation"	11
Apr 23: Evening Keynote, "NASA Vision for Future Aviation Operations and Safety Transformation"	21
Apr 24: Morning Keynote, "Securing the Foundations for AAM Development"	23
ICNS Workshop & Chairs:	
AI in CNS: Beyond the Hype	30
Technical Session Track Overview	31

Daily Plenaries

Apr 23: Plenary 1 - Challenges and Opportunities of Harmonized & Interoperable Integrated CNS	11, 13, 15
Apr 23: Plenary II - Improving Today's Data Link Performance with Tomorrow's Technology	17, 19
Apr 24: Plenary III - Info-Centric AAM/ATM	23, 24, 25
Apr 24: Plenary IV - Global Trajectory-Based Operations	26, 27
Apr 25: Plenary V - Spectrum Solutions for Tomorrow's Technology	28, 29

Technical Sessions

DAY 1, April 23	32, 33
DAY 2, April 24	34, 35
DAY 3, April 25	36
Track 1: Traffic Management (ATM, UTM, STM) ..	32, 33, 34, 35
Track 2: Operational Efficiency	32, 33, 34, 35
Track 3: Digital Engineering and Artificial Intelligence	32, 33, 34, 36
Track 4: Communications and Cybersecurity	32, 34, 35, 36
Track 5: CNS, APNT and UAS	32, 33, 35, 36
Track 6: Special Topics	33, 34, 35, 36

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NASA	12

Gold

Airbus	14
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Silver

Frequentis	14
L3Harris	16
Mitre	16
Mosaic ATM	18

Exhibitors

Dayton-Granger	18
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Co-sponsors

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IEEE AESS	20
Eurocontrol	22

Welcome to ICNS Conference 2024!

“Navigating the Info-Centric AAM/ATM Landscape” is the theme of this 24th Integrated Communications, Navigation and Surveillance (ICNS) Conference. We thank you for joining aviation stakeholders in this premier conference dedicated to the development and evolution of CNS technologies that ensure the safety, regularity, and operational efficiency of air travel around the world.

The ICNS Conference started as a NASA workshop in Cleveland, Ohio in 2001. Recognizing the need for global harmonization, the ICNS Conference quickly expanded into an international aviation conference focusing on CNS/ATM with leadership from air navigation service providers (ANSPs) and NASA. This includes EUROCONTROL, FAA, and many ground system suppliers that discuss policy and technical plans that support traditional airspace users and advanced air mobility (AAM). Aircraft manufacturers, avionics suppliers, and many others contribute to the ICNS Conference.



Paul Prisaznuk
ICNS 2024
Conference General Chair

We welcome our esteemed keynote speakers, starting with Dr. Todd Citron, Chief Technology Officer, Boeing. Tuesday’s keynote will be followed by two plenary sessions, the first dedicated to CNS harmonization, and the second dedicated to Data Comm and CPDLC.

On Wednesday Mr. Pascal Luciani, Deputy Director, ICAO Air Navigation Bureau will deliver the keynote. Two plenary sessions will follow, one dedicated to Info-Centric AAM/ATM and the next dedicated to trajectory-based operations (TBO). Speakers will represent academia, industry, and the government.

An Aviation Spectrum Panel will provide an update on Thursday morning followed by the Interactive Workshop discussing the use of artificial intelligence (AI) in CNS.

Afternoon sessions are organized as six technical tracks and the presentation of 71 technical papers pertinent to Info-Centric AAM/ATM initiatives. These papers will be published in IEEE Xplore. Awards will be presented on Thursday morning for the best technical papers: Best of Conference, Best of Track, and Best Student Paper.

Mr. Akbar Sultan, Director, NASA’s Airspace Operations and Safety Program (AOSP) is our guest speaker on Tuesday evening. Be sure to attend.

Networking with colleagues is a big part of the conference. Breakfast and lunch will be served each day. Reconnect with friends and associates during meeting breaks and during the evening social events. Please be sure to join us for hors d’oeuvres and drinks each night. I am also pleased to announce that ICNS has brought back Casino Night on Wednesday evening.

ICNS 2024 promises to be an informative forum for aviation thought leaders, policymakers, researchers, and other technical experts from government, industry, and academia around the world. Together we address today’s challenges, this includes new entrants, global harmonization, the role of AI, and sustainability – all while ensuring the safety, regularity, operational efficiency of air transportation.

There are many people to thank. This starts with our generous sponsors, the technical contributors, and meeting participants that make this conference possible. I’d like to personally thank our outstanding speakers for inspiring the aviation community to always excel. You can read more about our speakers on the ICNS website and in the ICNS program booklet.

Finally, many thanks to the ICNS leadership team, all of whom are volunteers, work long hours to make this year’s event possible. It would be impossible to thank them enough for making this conference a great success. Thanks to our fabulous plenary chairs, technical chairs, session chairs, workshop chairs, and all those working behind the scenes to ensure a successful ICNS Conference.

Have a great meeting!

Paul Prisaznuk
ICNS 2024
Conference General Chair

Conference General Chair



Paul Prisaznuk, ARINC (Retired), Airlines Electronic Engineering Committee (AEEC)

Paul Prisaznuk is an aviation professional that has served ARINC, EUROCAE, RTCA, and ICAO in various technical capacities for over 35 years. Most recently Paul served as the head of standards development at ARINC. In that role Paul led the development of over 250 technical standards used in the design and construction of commercial air transport, large military aircraft, and other aircraft. These include many air/ground standards applied to communications, navigation, and surveillance (CNS) systems.

Paul is a contributing author to the CRC Press publication, Digital Avionics Handbook. His contributions describe the ARINC 429, Digital Information Transfer System, and the ARINC 653, Avionics Application Software Standard Interface. Paul has taught an introductory course on the “Fundamentals of Avionics” offered by the University of Kansas. Paul has briefed ICNS and DASC

conferences on the application of ARINC Standards. He is a member of ICAO’s ICNS and Spectrum Task Force.

Paul holds a bachelor’s degree in electronic engineering from the University of Dayton. He is active in the collector car community and has owned several unique vehicles over his lifetime.

Plenary Program Chairs



Brent Phillips, FAA

Brent Phillips is a senior systems engineer with the Federal Aviation Administration’s NextGen Organization and the U.S. panel member to the International Civil Aviation Organization (ICAO) Communications Panel. Mr. Phillips is also the program co-lead for the joint FAA/SESAR Future Communications Infrastructure Study and the Next Generation SATCOM Systems. He is currently leading the internet protocol suite (IPS) standards development for aviation use in the FAA. He is also serving as the communications lead on the NAS Enterprise Architecture Roadmap Team.



Dr. Nikos Fistas, EUROCONTROL

Dr. Nikos Fistas has been with EUROCONTROL for almost 30 years leading development activities for new aviation communication systems starting from investigations and research to the definition and standardization of datalinks for communication (terrestrial and SATCOM based) as well as for surveillance.

He is currently supporting the SESAR Deployment Manager datalink activities. He has served until 2024 as the EUROCONTROL NM datalink manager, overseeing EUROCONTROL’s activities in support of the deployment and operations of CPDLC over VDL2 in Europe. Before this, Nikos oversaw the activities relating to the future aeronautical communication infrastructure (FCI) and coordinated the SESAR Joint

Undertaking research activities leading the development and standardization of AeroMACS, LDACS, and SATCOM systems and solutions. On behalf of EUROCONTROL and SESAR, he has been leading the datalink international coordination with ICAO and the FAA in the context of the EU-US coordination agreements (DCOM, CCOM and Action Plans CCOM).

Nikos has represented EUROCONTROL in various international standardization groups, such as ICAO, EUROCAE, RTCA, AEEC and ETSI. He currently leads the ICAO Communication Panel Project Team SATCOM, which is tasked to update the ICAO SATCOM provisions (SARPs and Manual).

Nikos holds a doctorate in signal processing, a Master of Science in computer networks from Imperial College of London (UK), and an engineering diploma degree from the University of Thessaloniki (Greece).

Technical Program Chairs



Dr. Dongsong Zeng, The MITRE Corporation

Dr. Dongsong Zeng is a principal communications engineer at The MITRE Corporation. His area of expertise encompasses communications, navigation, surveillance, and air traffic management. Currently he is responsible for systems engineering and technology standardization in support of the FAA NextGen and Data Communications programs.

Dr. Zeng boasts a wealth of expertise in systems engineering, leadership and project management, accrued over the past two decades, with a multitude of projects for national airspace operation, air traffic management, government and commercial data networks, satellites systems, Alternative Positioning, Navigation and Timing (APNT), digital engineering/digital twin, and unmanned aircraft systems (UAS). Prior to his appointment at MITRE, Dr. Zeng worked for Honeywell, where his responsibilities included heading up VHF aeronautical communications, sensor networks, satellite communications, and air traffic control (ATC) systems.

Dongsong Zeng received his doctorate in electrical engineering from Virginia Tech. Dr. Zeng stands proudly as the secretary of RTCA Special Committee 223 "AeroMACS and IPS Standards" and RTCA Special Committee 214 VDL SubGroup "VDL Mode 2 Standards," and has been awarded for his significant contribution and outstanding leadership to the development of aeronautical standards by the RTCA, Inc. for multiple years. His dedication to the progress and advancement of this field makes him a distinguished professional.



Dr. Rainer Kölle, EUROCONTROL

Rainer Kölle heads the Operational Performance Review Service with EUROCONTROL, Directorate European Green Sky, Aviation Intelligence Unit, Brussels. Prior to joining EUROCONTROL in 2005, he served as a career officer in the German Air Force with 18 years of service experience. His professional career saw him working as aviator, air traffic controller, and in the wider field of air traffic management.

Rainer represents EUROCONTROL in standardization activities and performance related R&D projects and policy working groups (e.g., ICAO's performance expert group, multi-national performance benchmarking group). His research interests apply data science to operational air transport and air navigation performance and promoting higher levels of transparency using open data for operational performance measurement.

Rainer holds a Master of Science in electrical engineering (communication systems) from the University of the German Federal Armed Forces, Hamburg, 1994, and a doctorate from Lancaster University, United Kingdom, 2013.

Workshop Chairs



Dr. Lance Sherry, Center for Air Transportation Systems Research at GMU

Lance Sherry is a professor of systems engineering and operations research at George Mason University. Dr. Sherry also serves as the director of the Center for Air Transportation Systems Research at George Mason University. Dr. Sherry has over 30 years of experience in the aviation industry serving as a flight-test engineer, flight control engineer, system engineer, lead system architect, program manager, strategic planning and business development. Dr. Sherry served as a fellow at RAND Corporation 1999-2001. He has published over 100 papers and journal articles, holds several patents, and has received awards for his work.



Adrian Solomon, Thales

Adrian Solomon is a senior systems engineer with Thales, and over his career, he has worked with teams developing tower automation systems as well as air traffic management & UAS traffic management systems supporting the FAA and ANSPs around the globe. Adrian has also worked closely with the International Civil Aviation Organization (ICAO) to further define global ATM concepts, aviation trust frameworks and concepts of operations. Adrian holds a bachelor's and master's degree in systems engineering and engineering management from George Mason University in Fairfax, Virginia, and The George Washington University in Washington, D.C., respectively. Adrian is passionate about aviation, learning from his peers, and also mentoring the new generation of aviation enthusiasts.

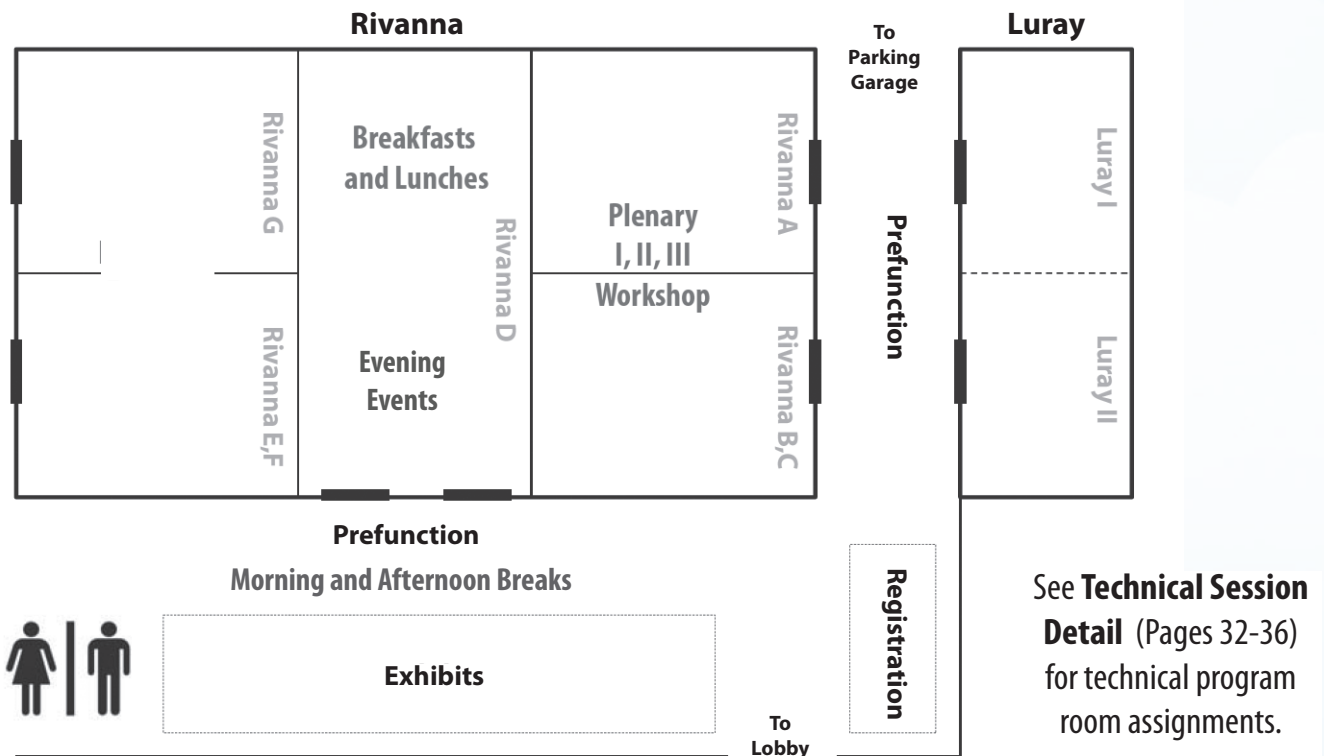
ICNS 2024 Agenda Overview

Time (EDT)	Tues., 23 April	Weds., 24 April	Thurs., 25 April
7:00 – 8:30	Networking & Breakfast Registration Check-in: Pre-function Area Breakfast: Rivanna D Pre-program Messages		
8:30 – 9:15	Morning Program Rivanna ABC Conference Welcome and Introductions Paul Prisaznuk, Conference General Chair 8:30 – 8:40		
	Opening Keynote 8:40 – 9:15 “Future Connectivity for Aviation” Dr. Todd Citron, Chief Technology Officer, The Boeing Company	Keynote 8:40 – 9:15 “Securing the Foundations for AAM Development” Pascal Luciani, Deputy Director, Air Navigation Bureau, ICAO	Award Ceremony 8:40 – 9:15 Presentation of the Best Paper Awards Presentation of the ICNS Champion Award
9:15 – 12:00	Plenary I: Challenges and Opportunities of Harmonized & Interoperable Integrated CNS 9:15 – 10:30 Co-chairs Véronique Travers Sutter, Head of iCNS Unit, EUROCONTROL Malcolm Andrews, Acting Director, Air Traffic Control Facilities & Engineering Services, FAA Panelists Pascal Luciani, Deputy Director, ANB, ICAO Chip Meserole, Director, Airspace and Operational Efficiency, Boeing Philippe Masson, Program Manager, ATM Sustainability, Airbus Ludovic Aron, U.S. Representative, European Aviation Safety Agency (EASA)	Plenary III: Info-Centric AAM/ATM 9:15 – 10:30 Co-chairs Robin Garrity, Senior External Affairs Officer, SESAR 3 Joint Undertaking Diana Liang, Enterprise Portfolio Manager, FAA Panelists Monica Alcabin, Technical Fellow, Global Regulatory Strategy Product & Services Safety, Boeing Jim Murphy, System Architect, AAM Mission Integration Office (AMIO), NASA Amit Ganjoo, CEO, ANRA Technologies Jürgen Teutsch, Senior R&D Engineer, Netherlands Aerospace Centre (NLR) Thomas Lutz, Principal System Architect, New Business Development Team, Frequentis	Plenary V: Spectrum Solutions for Tomorrow’s Technology 9:15- 10:10 Co-chairs Sandra Wright, Manager, Spectrum Planning & International, FAA Loftur Jónasson, Chief CNS & Spectrum, ICAO Panelists Andrew Roy, Director of Engineering Services, ASRI Chris Tourigny, Electronics Engineer, Spectrum Planning and International, FAA Alexander Kuehn, Head of International and National Spectrum Management, BNetZA
	Networking & Coffee Break 10:30 – 10:50 Pre-function Area	Networking & Coffee Break 10:30 – 10:50 Pre-function Area	Networking & Coffee Break 10:10 – 10:30 Pre-function Area
	Plenary II: Improving Today’s Data Link Performance with Tomorrow’s Technology 10:50- 12:00 Co-chairs Kathy Torrence, Data Comm Program Manager, FAA Cristian Pradera, ATM Modernization Planning Coordinator, SESAR Deployment Manager (SDM) Panelists Steve Bradford, Chief Architect, FAA Kevin Grimm, Data Comm Chief System Engineer, FAA Thomas Koerber, Senior Datalink Expert, SDM/Lufthansa Bernhard Haindl, Principal Scientist, Frequentis AG	Plenary IV: Global Trajectory-Based Operations 10:50 – 12:00 Co-chairs Sherry Yang, Senior Manager, Airspace Operational Efficiency, Boeing Research & Technology Dr. Amornrat Jirattigalachote (Amo), Strategic Planning Manager, Aeronautical Radio of Thailand Ltd. (AEROTHAI) Panelists Dr. Amornrat Jirattigalachote (Amo), Strategic Planning Manager (Engineering), Aeronautical Radio of Thailand Ltd. (AEROTHAI) Nabil Sandhu, Deputy Division Manager, FAA David Batchelor, Chief, External Affairs and Communications, SESAR Joint Undertaking (SJU) Sherry Yang, Senior Manager of Airspace Operational Efficiency, Boeing Research & Technology	Workshop: AI in CNS: Beyond the Hype 10:30 – 12:00 Co-chairs Dr. Lance Sherry, Center for Air Transportation Systems Research at GMU Adrian Solomon, Thales Panelists Dr. Missy Cummings, Professor, George Mason University Antonio Correias, Co-founder and Principal Consultant, Skymantics Amit Ganjoo, CEO, ANRA Technologies Dr. Fredrick Wieland, Chief Research Scientist, Mosaic ATM View full details at the Workshop Overview

(All times and programming are subject to change.
Please visit <http://i-cns.org> for the latest updates.)

ICNS 2024 Agenda Overview

Time (EDT)	Tues., 23 April	Weds., 24 April	Thurs., 25 April
12:00-13:10	Networking & Lunch 12:00 – 13:10 Rivanna D Sponsor Commercials – Tuesday and Wednesday		
13:10-17:00	Technical Program 13:10-17:00 Co-chairs: Dr. Dongsong Zeng & Dr. Rainer Kölle More detail: Technical Program Overview Technical Program Detail Networking & Coffee Break Tuesday and Wednesday 15:10-15:30 Pre-function Area		
17:30-19:30	Evening Programs		
	Sponsors & Exhibitors Reception 17:30 – 18:30 Rivanna D Evening Keynote to follow: “NASA Vision for Future Aviation Operations and Safety Transformation” Akbar Sultan, Director, Airspace Operations and Safety Program (AOSP), NASA	Evening Networking Event Happy hour and buffet starts at 17:30 17:30- 21:00 Rivanna D	



(All times and programming are subject to change. Please visit <http://i-cns.org> for the latest updates.)

Inspired by discovery

With an innovative spirit fueling our passion, we are always making progress toward the next horizon.



Opening Keynote, “Future Connectivity for Aviation”



Dr. Todd Citron, Chief Technology Officer, The Boeing Company

Dr. Todd Citron is the chief technology officer of The Boeing Company, responsible for developing and executing Boeing’s technology strategy. This includes Boeing research & technology (BR&T), subsidiary Aurora Flight Sciences, and AvionX that are helping create the future by developing and transitioning critical technologies, delivering ground-breaking products, and providing daily program execution support across Boeing. It also includes the engineering oversight and support to the joint ventures at Wisk and SkyGrid. These global teams work in five U.S. and seven international research centers.

Prior to his current role, Citron was vice president of engineering for Boeing defense, space & security, where he was responsible for ensuring world-class technical integrity for all defense, space & security products and services. he led a 20,000-person international engineering organization that included teams across each division of the business.

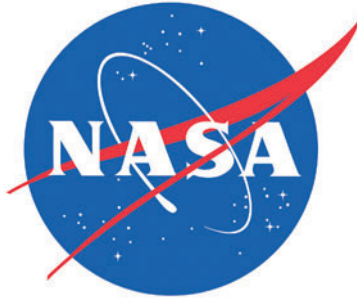
Citron was previously vice president and chief engineer for defense, space & security development. there he managed engineering support for key focus programs in the business’s portfolio, improving execution through early deployment of critical resources and proven processes from across the company. His responsibilities also included creating and implementing a strategy to enhance engineering quality and affordability.

Previously, Citron was vice president of mission assurance and the senior chief engineer of systems engineering for defense, space & security engineering. In this role, he was responsible for the broad application of systems engineering and risk-reduction principles focused on issue prevention, risk reduction and mission success. He was also responsible for development and deployment of mission success strategy, policy and practices and served as independent approval authority for mission readiness of defense, space & security businesses, and programs. As senior chief engineer for systems engineering, he focused on technical risks, issues, and opportunities, strengthening technical decisions that achieve the “right engineering” the first time.

Plenary I: Challenges and Opportunities of Harmonized & Interoperable Integrated CNS

The aviation community continues to map out a path forward towards a common set of future CNS capabilities for achieving required performance, interoperability, and harmonization. However, if the past is any indicator of the future, we will find this task will be confronted with many challenges. Whether it is the difference in timing of needs or variations in regional requirements, agreeing on a common set of technologies supporting those capabilities has proven almost insurmountable. With the rapid evolution of commercial offerings, we now find that achieving interoperability while using different technologies may be made much easier than before. These new technologies also allow us to possibly evolve these CNS functionalities like never before, leading to the need for fewer radios and more efficient use of our limited aviation spectrum while achieving a more performance-based set of requirements. This plenary will look at where the aviation community is heading with respect to communication, navigation, surveillance, and spectrum and how these new offerings are going to get us there.

- Session will set the scene for the other ICNS 2024 plenary sessions providing an overview of significant CNS developments while focusing on the challenges and opportunities.
- Panelists will address/discuss importance (impact) of harmonization and interoperability in current and future CNS developments and deployments.
- Panelists will discuss the ongoing CNS industry planning/evolution/developments as well as address certification needs and approaches.
- Session will consider the move to use performance-based criteria versus a focus on particular technologies, thus introducing the opportunity for greater use of commercial links with smart routing.



NASA's Glenn Research Center in Cleveland, Ohio, started the ICNS Conference in 2001 to enable a forum for national and international discussion and collaboration towards the goal of a future integrated, highly efficient, capable, and secure CNS infrastructure for the nation and the world and provide input to NASA's aeronautical CNS R&D program.

Glenn has performed research and development in aeronautical communications, navigation, surveillance and information technologies for the national airspace system (NAS) for more than 20 years, building on more than 40 years of experience in advanced communications systems research and development: The Emmy award-winning Communications Technology Satellite, CTS (1976), the Advanced Communications Technology Satellite, ACTS (1993- 2003), technologies for space missions and infrastructure such as the Cassini mission, TDRSS, and International Space Station, and many others.

Glenn's accomplishments in aeronautical CNS includes: the demonstration of the first networked broadband airborne satellite communications; development, testing, and demonstration of the Aeronautical Mobile Airport Communications System (AeroMACS) airport surface wireless communications network; next generation network protocol standards for secure mobile networks; satellite-based distribution of aviation weather information; spectrum allocations for future ground and air-mobile aviation communications; and future global aviation communications.

Under the EUROCONTROL/FAA Future Communications Study, NASA Glenn collaborated in the development of the next-generation mobile communications network architecture for aviation; developed advanced CNS simulation capabilities for NASA's Shadow Mode Assessment using Realistic Technologies for the National Airspace System (SMART NAS) project; and led the development and testing of the first prototype L-Band/C-Band UAS control and non-payload communications radio.

NASA's Glenn Research Center continues to look towards the future and is currently investigating modern air-ground communication solutions for advanced air mobility. It is also engaged in the research and development of future air-to-air communications to enable future airspace operations. The center continues to expand its capabilities and commitment through the acquisition of new aircraft assets and expanding laboratory facilities to meet existing and future CNS challenges.

Glenn has unique research facilities enabling development and testing of next-generation secure wireless aeronautical mobile communications and network standards and extensive modeling and simulation, and system analysis capabilities covering all aspects of communications, navigation, surveillance, and information. A staff of over 30 experienced CNS research engineers is engaged in the development of the nation's next-generation CNS infrastructure, in collaboration with government, academic and industrial partners.

www.nasa.gov

Plenary I: Challenges and Opportunities of Harmonized & Interoperable Integrated CNS—continued

Co-chairs:



Véronique Travers Sutter, Head of iCNS Unit, EUROCONTROL

Véronique Travers Sutter is an aeronautical engineer with over 25 years of experience in CNS avionics, trajectory management and certification expertise. She was previously working for Airbus where she was leading the SESAR program contribution and more recently serving as head of Airbus' transformation and system integration. Now part of EUROCONTROL NM team, she is the head of iCNS team, focusing on maintaining, evolving, and implementing the iCNS strategy and objectives. Together with her new team, she will be working on European CNS infrastructure projects and products supporting the technical performance of the European CNS infrastructure. This also includes coordinating the allocation of pan-European scarce resources, such as spectrum and radio frequency bands, etc. and working closely with the SESAR deployment manager (SDM) and the SESAR 3 Joint Undertaking on research and innovation and on supporting the ATM Master Plan.



Malcolm Andrews, Acting Director, Air Traffic Control Facilities & Engineering Services, FAA

Malcolm G. Andrews currently serves as the acting director, Air Traffic Control Facilities & Engineering Services for the Federal Aviation Administration (FAA). In this role, he leads an organization of over 1700 employees who are responsible for the safe and effective implementation and lifecycle management of the facilities and engineering infrastructure of the National Airspace System (NAS). Specifically, he is responsible for engineering services, facilities and security services, environmental services (EOSH) & designated DASHO and power services.

Previously, he served as the director of enterprise services, AJM-3, in the Program Management Organization of Air Traffic Organization. As director, Mr. Andrews was responsible for overall management of more than 60 programs, including those that are part of the FAA NextGen initiative, working to improve air traffic in the National Airspace System. In this role, he oversaw the acquisition, implementation, and execution of the systems and services that tie ground systems and aircraft together through communications, navigation, weather, data communications and aeronautical information, and unmanned aircraft systems. He also serves on key FAA decision-making bodies including the FAA Acquisition Executive Board, ATO Cyber Security Board, and the Executive Steering Group of Space-Based Positioning Navigation and Timing National Executive Committee. Mr. Andrews brings more than 30 years of engineering and acquisition management experience with the FAA and the Department of the Navy.

Panelists:



Pascal Luciani, Deputy Director, Air Navigation Bureau, ICAO

Pascal Luciani is an engineer with 25 years of experience in transport in the civil administration of France and international organizations, 15 years of which in civil aviation.

Prior to joining the International Civil Aviation Organization (ICAO) as deputy director for air navigation and aviation safety, he served as deputy director for the French Safety Oversight Authority from 2018 to 2022. From 2014 to 2018 Pascal was the aviation counselor at the Permanent Representation for France with the European Union, covering all fields of aviation and was also responsible for shipping. In 2008 he was tasked with creating the Sustainable Aviation Department, DGAC, France, which he headed from 2008 to 2013.

Pascal's experience in public service before joining the aviation sector includes road infrastructure and road safety (1997 – 2001) and port infrastructure and development (2001- 2005). He also served for two years as technical advisor for the Ministers of Environment and Transport (2005 – 2007). Pascal also headed the modernization mission in charge of supervising the merging of the Ministries of Transport and Environment in France (2007-2008).

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We develop and deliver communication, information, and surveillance solutions for critical control center solutions to the US government.

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Plenary I: Challenges and Opportunities of Harmonized & Interoperable Integrated CNS—continued

Panelists:



Dr. Chip Meserole, Director, Airspace and Operational Efficiency, Boeing

Dr. Chip Meserole manages the Airspace Operational Efficiency team in Boeing Research and Technology. The team's responsibility is to advance new capabilities in air traffic management and flight optimization that enhance system capacity, efficiency, and sustainability globally. Its emphasis is on emissions reduction for aviation sustainability and on integrating autonomous aircraft into the airspace.

This group executes the company's contracts with the FAA, NASA, and SESAR in this domain; creates flight optimization business concepts for Boeing Global Services Digital Aviation Solutions; and conducts R&D in air-ground integration and network-enabled operations. It has activities in Seattle, Washington, D.C., Spain, Brazil, India, Australia and China. He joined Boeing in 1984 and worked on space system and launch vehicle development before moving into its

air traffic management initiative in 2001. He is an associate fellow of the American Institute of Aeronautics and Astronautics. He has a bachelor's degree from Princeton University, a master's from Cornell University, and a doctorate from MIT, in aerospace and mechanical engineering.



Philippe Masson, Program Manager, ATM Sustainability, Airbus

Philippe Masson is a program manager at Airbus developing innovative concepts of operations for sustainable aviation. He is building programs with the operational ecosystems and defining how these concepts can become viable and standardized. He is today more specifically leading large SESAR3 consortiums alignment on wake energy retrieval and non-CO2 effects mitigations.

He has a 20 years of air traffic management background, in military and civil air traffic development programs with program manager and technical director roles. He has been working for different programs for a better integration of aircraft capabilities into operations (data link 4D trajectories, enhanced surveillance, ATM conflict detection and resolution), and drones (U-Space).



Ludovic Aron, U.S. Representative, European Aviation Safety Agency (EASA)

Ludovic Aron is the European Union Aviation Safety Agency (EASA) representative in the United States of America, based in Washington D.C. He has over 20 years of experience in aircraft design engineering and certification. After his military service in the French Navy, he joined Dassault-Aviation, working as an aircraft systems engineer, first in the Military Customer Support division and then in the Business Jets division. After 10 years, Ludovic joined new French airplane maker Sky Aircraft (GECI Aviation Group) as head of Aircraft Systems. In 2013, Ludovic came to the European Union Aviation Safety Agency (EASA) and soon after he was appointed head of the Business Aeroplanes Certification. Thereafter he became head of the Large Aeroplanes Certification, in charge of the European certification of the most modern airliners. He held this position for about 5 years and was namely responsible for the return to service of the B737 Max in Europe after its worldwide grounding in March 2019.

Ludovic holds a Master of Science in aeronautical and aerospace engineering with a focus on space-based telecommunications that he obtained after studying both at the Institut Supérieur de l'Aéronautique et de l'Espace – ISAE-SUPAERO (Toulouse, France) and at the Technische Universität München – TUM (Munich, Germany).



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L3Harris plays a critical role in air traffic management through enterprise managed services and surveillance technologies for aircraft monitoring, providing solutions to make flight more safe, secure and efficient.

We provide safety critical, highly available and highly secure managed infrastructure services and solutions to deliver mission-critical communications, surveillance, and enterprise information management capabilities for aviation, defense, and security customers.

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MITRE

MITRE's mission-driven teams are dedicated to solving problems for a safer world. Through public-private partnerships, as well as the operation of federally funded R&D centers, we work across government to tackle challenges to the safety, stability, and well-being of our nation.

MITRE operates the Center for Advanced Aviation System Development, which has supported the FAA for more than 60 years. In addition, MITRE provides technical expertise to various international civil aviation authorities, airport operators, airlines, and other aviation organizations in air traffic management systems engineering, aviation operations, airspace design, and systems automation and integration.

www.mitre.org

Plenary II: Improving Today's Data Link Performance with Tomorrow's Technology

- Overview of inherent issues with today's Data Link technology and the issues' impact on operational performance. Today's issues are related to VDLM2 technology and impact successful and timely message delivery to operational users. Issues include efficient ground station handoff logic, RF interference and network congestion.
- Near-term efforts to improve existing VDLM2 performance by enhancing ground station handoff logic, implement Super VGS (VHF Ground Stations) and various other solutions to address outstanding network congestion and RF interference issues.
- Long-term efforts to move from VDLM2 network technology to other communication solutions including LDACS, SatCom Class B, and Connected Aircraft (CA).
- Multilink implementation to enable other technologies and transition towards full ATS-B2.

Co-chairs:



Kathy Torrence, Data Comm Program Manager, FAA

Kathy Torrence currently serves as the program manager for the Federal Aviation Administration's (FAA) Data Communications (Data Comm) program at the FAA Technical Center in Atlantic City. She was also the lead system and test engineer on the Data Comm program during the implementation and deployment of tower and en route services across the National Airspace System (NAS).

Kathy has over 30 years of experience working with the FAA, holding positions as both a federal employee and a contractor. This experience has included managing a team of FAA engineers that support a wide portfolio of air traffic and decision support automation systems including En Route Automation Modernization (ERAM), Advanced Technologies and Oceanic Procedures (ATOP), Traffic Flow Management System (TFMS) and Time-Based Flow Management (TBFM). Kathy has also served as a member of the FAA's Test Standards Board, providing testing oversight for the FAA's NextGen programs.

Kathy earned a Master of Science in software engineering from Monmouth University. She also holds both a Bachelor of Science in computer science and a Bachelor of Arts in mathematics from Rowan University where she later served as an adjunct professor, teaching various computer science and software engineering courses. She currently resides in Marmora, New Jersey with her



Cristian Pradera, ATM Modernization Planning Coordinator, SESAR Deployment Manager (SDM)

Cristian Pradera is an aeronautical engineer specialized in rocket engines, graduated in the Polytechnic University of Madrid in 2008. He started his professional career as a consultant in ENAIRE, working for 5 years in the Planning and Strategy division, where he contributed to the development of ENAIRE's business plan and to the elaboration of the European ATM Master Plan under the SJU. He then joined EUROCONTROL for 3 years, working in the ATM Master Plan Unit and then he moved to the SESAR Deployment Manager in 2017, where he became the planning manager, in charge of the planning activities related to the implementation of the Common Projects, DataLink Services and ADS-B Out.

Founded in 2004 during the centennial of powered flight, Mosaic ATM is a pioneering company dedicated to advancing air transportation systems. Specializing in artificial intelligence, systems engineering, and software development, Mosaic addresses the most intricate challenges within the aviation sector. The company's focus is on enhancing the capacity, efficiency, safety, and sustainability of air transportation through groundbreaking solutions that integrate advanced research, user-centered design, and robust software prototyping.



With a profound understanding of the National Airspace System (NAS), Mosaic devises and implements comprehensive solutions that combine data from diverse sources, employing custom-built machine-learning models for predictions and optimizations. The company's expertise covers all stages of the research-to-sustainment spectrum, with a track record of impartially supporting the FAA procurement process.

Mosaic ATM is also deeply involved in research and development dedicated to air traffic management (ATM). Its capabilities extend from assessing current inefficiencies to the full-scale development and deployment of innovative concepts. The Mosaic team, composed of scientists, engineers, and industry experts, brings together operational knowledge with state-of-the-art computer science, operations research, systems engineering, human factors, and program management.

Mosaic is committed to fostering progress in aviation as it moves into its second century. By continuously improving, exploring new technological opportunities, and focusing on customer needs, Mosaic not only supports daily operations in the NAS but also contributes to the broader fields of aviation and defense. The company's core values—scientific rigor, creativity, and collaboration—are evident in its approach to solving complex technical challenges and delivering high-quality, reliable solutions.

Exhibitor

Dayton-Granger is a leading manufacturer and supplier of high-quality aerospace and defense components. With over 80 years of experience in the industry, Dayton-Granger is known for its commitment to innovation, quality, and customer service.

The company offers a wide range of products, including antennas, static dischargers, lightning protection, and other electronic components used in aircraft, spacecraft, and military applications. Dayton-Granger's products are designed to meet requirements of the aerospace and defense industries, ensuring reliability and performance in even the most demanding environments.

In addition to its extensive product line, Dayton-Granger also provides custom design and manufacturing services to meet the specific needs of its customers. The company's team of experienced engineers and technicians work closely with customers to develop tailored solutions that meet their unique requirements.

Overall, Dayton-Granger is a trusted partner for aerospace and defense companies seeking high-quality components and exceptional customer service. With a strong reputation for innovation and reliability, Dayton-Granger continues to be a leader in the industry.



Excellence in Aerospace since 1943

Plenary II: Improving Today's Data Link Performance with Tomorrow's Technology—continued

Panelists:



Steve Bradford, Chief Architect, FAA

Steve Bradford is chief scientist for architecture and NextGen development, Office of NextGen, at the Federal Aviation Administration. He is the chair of the technical review board that monitors technical decisions related to investments and enterprise architecture. He is the FAA lead for the FAA/NASA Research Transition Team (RTT) process that supports collaboration between the FAA and NAS on ATM related activities. A current focus of the RTT process is collaboration on UAS-in-the-NAS supporting vehicles operating in ATM, and UAS traffic management supporting operation in uncontrolled airspace, and AAM. The RTT process depends on direct partnership with the UAS industry and provides many opportunities to look at new technology options for both new entrants and traditional manned aircraft operations.

He also has a leading role in NextGen's international engagement activities with SESAR Joint Undertaking and has led several cooperative international efforts with EUROCONTROL. He was a member of the International Civil Aviation Organization's (ICAO) technical team that authored the Global Air Navigation Plan, the past U.S. panel member to the ICAO Air Traffic Management Requirements and Performance Panel, and the chair for the ICAO GANP Study Group.



Kevin Grimm, Data Comm Chief System Engineer, FAA

Since 2012, Kevin Grimm has served as chief engineer for the FAA Data Communications (Data Comm) program which has introduced Controller Pilot Data Link Communications (CPDLC) service to FAA towers and en route centers. He previously served as the chief engineer for several FAA Oceanic automation programs including Multi-Sector Oceanic Data Link (MS-ODL) which introduced CPDLC to FAA oceanic airspace and advanced technologies and oceanic procedures which entirely replaced oceanic automation with an integrated system combining CPDLC, ADS-C, electronic flight strips and an advance conflict probe with flight data processing.



Thomas Koerber, Senior Datalink Expert, SDM/Lufthansa

Thomas Koerber is an engineer with almost 20 years of experience in aviation. He started his career in Lufthansa as system engineer for flight deck communication and datalink. In 2018 he changed to the Lufthansa ATM development team and worked in SESAR related fleet equipage projects. Since 2018 he is seconded to the SESAR Deployment Manager where he worked in various projects like ADS-B deployment and datalink deployment. In 2023 he co-led the "Multilink Implementation and Air/Ground Application (ADS-C/EPP)" working group.



Bernhard Haindl, Principal Scientist, Frequentis AG

Bernhard HAINDL is a principal scientist at Frequentis and has almost 30 years of experience in the design and development of aeronautical communication systems. His area of expertise encompasses aeronautical air/ground communications, IP networks, and voice over IP. Currently he is responsible for the architecture and the specifications of the future terrestrial data link LDACS.

Bernhard contributes to international research and development projects in the field of data communications and participate actively on several aviation standards committees at Eurocae and ICAO. (e.g., ICAO WG-I, dealing with ATN IPS or ICAO Project Team-Terrestrial addressing LDACS).

He received his Master of Science in digital communications systems and a doctorate in electrical engineering from University of Technology Vienna. He has several patents in the field of aeronautical communications.



The purpose of the American Institute of Aeronautics and Astronautics Digital Avionics Technical Committee (DATC) is to provide a forum for the exchange of new knowledge in digital avionics among professionals and students in the fields of commercial, military and general aviation and space applications.

The DATC serves the needs and professional interests of AIAA members and promotes through progressive projects and meetings their contributions and achievements in the arts, sciences and technology of aeronautics and astronautics.



The AIAA Digital Avionics Technical Committee cosponsors two technical conferences, the Digital Avionics Systems Conference (DASC) and the Integrated Communication, Navigation and Surveillance (ICNS) Conference.

If you are interested in joining the AIAA DATC, we are always looking for new, motivated members. Please visit our website for contact information:

aiaadatc.org



The Institute of Electrical and Electronics Engineers (IEEE)

The IEEE is the world's largest technical society, bringing members access to the industry's most essential technical information, networking opportunities, career development tools, and many other exclusive benefits. Through its global membership, the IEEE is a leading authority on areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics among others.

To foster an interest in the engineering profession, the IEEE also serves student members in colleges and universities around the world. Other important constituencies include prospective members and organizations that purchase IEEE products and participate in conferences or other IEEE programs.

Aerospace & Electronics Systems Society (AESS)

AESS is one of 45 technical societies and councils within IEEE. Members of AESS are interested in the design, integration, test, and analysis of large, complex systems consisting of major subsystems that contain dissimilar electronic devices. Most of our members work on sensor systems (radar, sonar, optics, and navigation), communications systems, command and control centers, avionics, space systems, military systems, digital signal processing simulators, and software development. Some members work on robotics, energy, and transportation systems.

AESS is the only professional society addressing total integrated electronic systems and the enabling technologies. AESS pioneered large-scale integrated interoperable systems. AESS is the sponsor/cosponsor of 15 conferences a year including ICNS.

The AESS is proud to be a sponsor of the ICNS Conference with our partner the DATC. Besides the ICNS Conference, we also partner on the Digital Avionics Systems Conference (DASC) and look forward to the long-term growth of the ICNS Conference.

Sponsors and Exhibitors Reception

**17:30 – 18:30
Rivanna D**

Evening Keynote to follow:

**“NASA Vision for Future
Aviation Operations and Safety Transformation”**

Akbar Sultan will provide a short career introduction into leadership journey at NASA for the future aviation leaders. This will be followed by the NASA mid-century vision on transformation of aviation operations and safety, from NextGen towards the ambitious mid-century Sky for All vision, a potentially revolutionary approach for safe and efficient air traffic management of future vehicles. NASA Sky for All vision will further the transition to a digital service-oriented architecture that is prognostic, collaborative, scalable, and dynamically adaptive for all future users.



**Akbar Sultan, Director
Airspace Operations and Safety Program (AOSP), NASA**

Akbar Sultan is director of NASA's Airspace Operations and Safety Program (AOSP), responsible for NASA's aviation operations and safety research portfolio of more than \$120 million across four research centers. The Airspace Operations and Safety Program (AOSP) works with the Federal Aviation Administration (FAA) and industry and academic partners to conceive and develop Next Generation (NextGen) air transportation system technologies to further improve the safety of current and future aircraft moving through the National Airspace System.

NextGen activity includes research to enable service-oriented architecture and integrated demand management operational efficiencies in the surface, terminal, en route, and oceanic operational domains for traditional aircraft, unmanned aircraft systems (UAS), and future autonomous systems. The program is also responsible for aviation safety research in the areas of aircraft state awareness, prevention of aircraft loss of control, verification and validation of complex systems, prognostic safety through data mining, and real-time system-wide safety assurance. A key focus is on developing and demonstrating enhanced systems that will enable routine access to the airspace by emergent users of UAS, especially in support of evolving urban air mobility concepts.

Sultan is the NASA co-lead on the NASA/FAA Research Transition Teams, which are organized to enable efficient and effective transition of NASA research into FAA implementation roadmaps. He is also the NASA liaison to the multiagency NextGen Interagency Planning Office and leads the program's international collaboration activities. Sultan has 20 years of professional experience in aerospace and air traffic management research and development.

Previously, Sultan was a NASA liaison to the Joint Planning and Development Office in the ongoing development of NextGen, where he led the development of NextGen operational improvements. He also served as the Software Configuration, Release, and Verification and Validation Manager for the Terminal Radar Approach Control automation system at NASA's Ames Research Center in California. There he was responsible for gaining FAA certification for NASA prototype systems in operational field trials.

Sultan received two Bachelor of Science degrees – in mechanical engineering and in aeronautical science and engineering – from the University of California Davis, and a Master of Science in aerospace engineering from San José State University.

EUROCONTROL is a **civil-military, intergovernmental organisation**, with 41 European Member States and two Comprehensive Agreement States.

Together with our partners, we are committed to supporting European aviation and building a single, high-performance, pan-European sky, supporting ICAO both regionally and globally.

We are at the core of European air traffic management (ATM) operations.

- Our **Network Manager**, operating under a mandate from the European Commission, works with stakeholders to operate and improve the European ATM network's performance.
- Our **Maastricht Upper Area Control Centre (MUAC)** – Europe's only truly cross-border air navigation service provider – handles flights in the busy and complex upper airspace of Belgium, Luxembourg, the Netherlands, and northern Germany.
- We collect **route charges and other air navigation charges** on behalf of our Member States. This highly efficient and cost-effective service is greatly appreciated by airspace users.



We work closely with the European Commission, the SESAR Joint Undertaking, the SESAR Deployment Manager, EASA and industry partners to ensure that European ATM is able to meet the Single European Sky's performance targets as well as future challenges. Our areas of activities include:

- designing and implementing innovative methodologies to cope with high traffic growth
- optimising the European aviation CNS (communications, navigation, surveillance) infrastructure
- integrating new entrants into the ATM network (e.g., drones operating at low level as well as space operations)
- helping with commercial space operation
- digitalising aviation and supporting the uptake of new technologies (artificial intelligence, for example)
- assessing and monitoring ATM performance
- monitoring and mitigating aviation's environmental impact
- enhancing safety and security, with a focus on cybersecurity.

At the start of 2024, at the request of the European Commission, EUROCONTROL took on an additional new role as Europe's CNS Programme Manager (CNS PM). The key role of the CNS PM is to establish and implement a holistic CNS programme management ensuring successful development and implementation of the CNS Evolution Plan, addressing both optimisation and future evolution of the CNS infrastructure.

To ensure the safe, secure, and efficient deployment of new ATM solutions, we also provide technical specifications and guidelines for the ATM network. We are deeply involved in the design and implementation of global and European ATM standardisation strategies.

www.eurocontrol.int

Morning Keynote, “Securing the Foundations for AAM Development”



Pascal Luciani, Deputy Director, Air Navigation Bureau, ICAO

Pascal Luciani is an engineer with 25 years of experience in transport in the civil administration of France and international organizations, 15 years of which in civil aviation.

Prior to joining the International Civil Aviation Organization (ICAO) as deputy director for air navigation and aviation safety, he served as deputy director for the French Safety Oversight Authority from 2018 to 2022. From 2014 to 2018 Pascal was the aviation counselor at the Permanent Representation for France with the European Union, covering all fields of aviation and was also responsible for shipping. In 2008 he was tasked with creating the Sustainable Aviation Department, DGAC, France, which he headed from 2008 to 2013.

Pascal’s experience in public service before joining the aviation sector includes road infrastructure and road safety (1997 – 2001) and port infrastructure and development (2001- 2005). He also served for two years as technical advisor for the Ministers of Environment and Transport (2005 – 2007). Pascal also headed the modernization mission in charge of supervising the merging of the Ministries of Transport and Environment in France (2007-2008).

Plenary III: Info-Centric AAM/ATM

- In the future, the air traffic management (ATM) and advanced air mobility (AAM) operations will be integrated in the airspace. The need for standardization and integration of information from all sources including non-aeronautical are paramount to support safe operations.
- Information is the foundation upon which successful operations are built.
- Panelists will discuss the crucial role of information in ATM and AAM
- Panelists will discuss how these diverse communities plan for the integration of the different information ecosystems.

Co-chair:



Robin Garrity, Senior External Affairs Officer, SESAR 3 Joint Undertaking

Robin Garrity is the senior external affairs officer at the SESAR 3 Joint Undertaking, based in Brussels, Belgium, where he has worked for 11 years. Robin is a former air traffic controller from the United Kingdom and has been involved with the integration of unmanned aircraft with manned aviation for more than 20 years. As an ATM expert in the SESAR JU, he was instrumental in designing the European Union’s ground-breaking U-space program and has been intimately involved with that program ever since. He is co-rapporteur of the Guidance Development Working Group in ICAO’s Advanced Air Mobility Study Group and is very active in the European aviation standardization community.

Plenary III: Info-Centric AAM/ATM–continued

Co-chair:



Diana Liang, Enterprise Portfolio Manager, FAA

Diana Liang works for the Federal Aviation Administration (FAA) in the Office of NextGen as an enterprise portfolio manager. Ms. Liang has successfully provided direction and oversight on the development and fielding of many of the FAA’s NextGen programs and enabling technologies. As the NextGen enterprise portfolio manager, she helps to prioritize all nextgen research and development activities within the FAA to help the National Airspace System recognize many of the planned performance improvements. Ms. Liang is also the U.S. nominated panel member to the ICAO Information Management Panel working on SWIM and information management provisions. She is a technical advisor to the ICAO ATM Requirements and Performance Panel working on FF-ICE, connected aircraft and trajectory-based operations (TBO).

Panelists:



Monica Alcabin, Technical Fellow, Global Regulatory Strategy Product & Services Safety, Boeing

Monica Alcabin is a technical fellow in global regulatory strategy, specializing in regulatory activities related to air traffic management, avionics, and autonomous systems. In this role, she evaluates, communicates, coordinates, and integrates technical inputs to proposed regulatory rulemaking across the Boeing enterprise. Prior to joining product & services safety in March 2020, Monica was in Boeing commercial airplanes avionics/systems integration where she was responsible for evaluating operational benefits of avionics and flight deck features on Boeing airplanes, integrating worldwide avionics and airspace mandates used by Boeing commercial airplanes, Boeing defense and Space and Boeing global services to plan for future requirements and ensure customers comply with the

latest requirements. She has worked on air traffic management related contracts with FAA, NASA and the Joint Planning and Development Office.

Monica is the Boeing representative on the FAA Research, Engineering and Development Advisory Committee, National Airspace System Operations Subcommittee and the International Coordinating Council for Aerospace Industries Association member on the International Civil Aviation Organization Committee on Aviation Environmental Protection Working Group 2, Airports and Operations. Prior to joining Boeing in 1997, Monica did research in air traffic management at NASA Ames Research Center, airport planning specializing in airport capacity, delay, and noise analysis at KPMG Peat Marwick and TRA Airport Consulting, and airport capacity and delay research at the MITRE Corporation.

Monica has a Bachelor of Science in aeronautical and astronautical engineering from the Massachusetts Institute of Technology, a Master of Science in engineering-economic systems from Stanford University and a certificate in data visualization from the University of Washington.



Jim Murphy, System Architect, AAM Mission Integration Office (AMIO), NASA

Jim Murphy is the system architect for NASA’s Advanced Air Mobility (AAM) Mission, leading the development of a model-based systems engineering approach to capture candidate system-level requirements and architectures for medium density AAM operations. Prior to AAM, Jim led the design and development of a live, virtual, constructive test environment used to test, detect and avoid performance standards. He has been researching and developing air traffic management related software systems for over 25 years.

Plenary III: Info-Centric AAM/ATM–continued

Panelists:



Amit Ganjoo, CEO, ANRA Technologies

Amit Ganjoo is the founder and CEO of ANRA Technologies with offices in London, Washington D.C., Tallinn, and New Delhi. ANRA is a global provider of end-to-end uncrewed aircraft operations and traffic management solutions for enterprises, operators, and airspace managers. He has over 20 years of aviation, telecom, robotic, and wireless experience in both the federal and the commercial space. He is an engineer and licensed pilot, a board member of GUTMA, co-chairs ASTM Standards Working Group for UTM and co-chairs ASTM UAM Interoperability Working Group. He was appointed by the U.S. Secretary of Transportation to the FAA Advanced Aviation Advisory Committee (AAAC).



Jürgen Teutsch, Senior R&D Engineer, Netherlands Aerospace Centre (NLR)

Jürgen Teutsch has been involved in airport and safety net related research within SESAR for many years. Recently, he's been involved with activities focused on the validation of innovative technology, such as remote towers and augmented reality devices in conventional tower environments.

After working in the IT sector and as aerospace engineer at TU Delft and Airbus Germany, he joined the Royal Netherlands Aerospace Centre (NLR) in 2000 as manager for ATM simulation projects. As validation specialist for real-time and fast-time simulations, he participated in international initiatives for harmonization of ATM R&D and was contributing author of the European Operational Concept Validation Methodology (EOCVM). He has also taken leadership roles in validation projects for

integration of unmanned air traffic movements into ATC controlled airspace in Europe.

Jürgen studied mechanical engineering with a major in aerospace engineering at the Technical University of Aachen and obtained a degree in space engineering with a final examination on GPS-data post-processing carried out at Delft University of Technology in 1995.



**Thomas Lutz, Principal System Architect,
New Business Development Team, Frequentis**

Tom Lutz is responsible for drone topics in the Frequentis new business development team. His focus is on maturing "things" from research to real operations. Driving technology and domain, supporting international standardization and regulation especially in the area of information management, he was active in many research projects, and successfully delivered several commercial projects.

Tom is currently working on enablers for advanced air mobility as well as the integrated use of UAS in public transport and public safety, building on previous work, teaming up with active partners in the ecosystem to enable safe, efficient, and sustainable operations.

Plenary IV: Global Trajectory-Based Operations

Global harmonization of the air traffic management (ATM) system has been envisioned and described in the ICAO Global ATM Operational Concept (GATMOC, ICAO Doc 9854). Trajectory-based operations (TBO) is fundamental to realizing the benefits anticipated from the GATMOC concept. Join us for an insightful discussion where representatives from FAA, AEROTHAI, SESAR Joint Undertaking and industry (Boeing) will share their perspectives, progresses, and lessons learned on TBO, enhancing operational efficiency, safety, and predictability in aviation for the sustainable aviation worldwide.

Co-chairs:



Sherry Yang, Senior Manager of Airspace Operational Efficiency, Boeing Research & Technology

Sherry Yang is senior manager of Airspace Operational Efficiency at Boeing Research & Technologies. Working across technologies and businesses, Yang facilitates public and private partnerships to develop and evaluate new technologies and operation concepts for the aviation ecosystem. She is actively engaged with government, industry, and academia technical committees. Yang is an associate fellow of American Institute of Aeronautics and Astronautics (AIAA), technical advisor to the ICCAIA Members of the ICAO Information Management Panel (IMP) and ATM Required Performance Panel (ATMRPP), and Boeing representative for the CANSO Complete Air Traffic System (CATS) Technical Committee. Yang is a Boeing subject matter expert on trajectory-based operations (TBO).



Dr. Amornrat Jirattigalachote (Amo), Strategic Planning Manager, Aeronautical Radio of Thailand Ltd. (AEROTHAI)

Dr. Amornrat Jirattigalachote is currently working for AEROTHAI in the position of strategic planning manager (engineering). Since 2013, she has been responsible for strategic planning as well as conducting study and analysis on new operational concepts, technologies, and engineering systems for AEROTHAI. Her focus is on modernization planning related to future air navigation concepts such as SWIM (system-wide information management), FF-ICE (flight and flow information for a collaborative environment), and TBO (trajectory-based operations).

Dr. Jirattigalachote is also a Thailand-nominated member of ICAO Air Traffic Management Requirements and Performance Panel, Information Management Panel, and Trust Framework Panel, responsible for developing concepts, policies, and provisions related to FF-ICE, TBO, SWIM, and information security. At the regional level, she is presently A co-chair of ICAO Asia/Pacific SWIM Task Force and a member of Asia/Pacific FF-ICE Ad-Hoc Group.

Panelists:

Dr. Amornrat Jirattigalachote (Amo), Strategic Planning Manager, Aeronautical Radio of Thailand Ltd. (AEROTHAI)

See biography above.



Nabil Sandhu, Deputy Division Manager, FAA

Nabil Sandhu is a deputy division manager (A) in the Federal Aviation Administration's NextGen and Technology Development and Prototyping Division (ANG-C2). He is currently managing the Multi Regional Trajectory-Based Operations Demonstration (MR TBO) in addition to other research projects in the areas of unmanned aerial systems (UAS) evaluation and artificial intelligence and machine learning (AI/ML) applications to legacy separation systems. Mr. Sandhu has extensive experience in project management, development and reengineering of business processes including development and coordination of program tactical and strategic initiatives, development and tracking of financial artifacts, and management of programmatic functions. Mr. Sandhu holds a Master of Science in systems engineering from George Mason University and a Master of Business Administration from The George Washington University.

Plenary IV: Global Trajectory-Based Operations–continued

Panelists:



David Batchelor, Chief, External Affairs and Communications, SESAR Joint Undertaking (SJU)

David Batchelor is chief, External Affairs & Communication at the SESAR 3 Joint Undertaking (SJU), the European Union's public-private partnership delivering air traffic management research and innovation. He is responsible for the SJU's communications activities, stakeholder relations and international affairs. He first joined the SJU in 2012 as liaison to the FAA's NextGen program based in Washington D.C.

David previously worked in the European Commission's Directorate General for Mobility and Transport (DG MOVE) on policy towards aviation and environment and served as the EU's observer to the ICAO Committee on Aviation Environmental Protection (CAEP) from 2008 to 2012. Prior to that he worked on air services liberalization, notably the negotiations to conclude the EU-US "open skies" agreement signed in 2007.

David began his career as an economist at the UK Civil Aviation Authority, after graduating from Oxford University with a Bachelor of Arts (Hons) in politics, philosophy, and economics.

Sherry Yang, Senior Manager of Airspace Operational Efficiency, Boeing Research & Technology

See biography on page 26

Evening Network Event

Happy hour and buffet start at 17:30

17:30- 21:00

Rivanna D

Award Ceremony

Presentation of the Best Paper Awards

Presentation of the ICNS Champion Award

8:40 – 9:15

Plenary V: Spectrum Solutions for Tomorrow's Technology

Airspace users depend on safe, reliable, and efficient communications using protected spectrum allocated by the International Telecommunication Union (ITU). This spectrum is often sought by non-aviation entities. Efforts to maintain spectrum allocation for safety services will be presented along with opportunities to use commercial spectrum for non-safety services. Speakers in this plenary include Airbus, ASRI, BNetzA Germany, FAA, and ICAO.

Co-chairs:



Sandra Wright, Manager, Spectrum Planning & International, FAA

Sandra Wright is an electrical engineer and manager of the Federal Aviation's Spectrum Planning and International Team in the Spectrum Engineering Services group. She has 20+ years of technical experience along with program management and a command of public speaking in multiple languages to successfully engage multinational workforces that require the reconciliation of different national approaches to operations, development of policy, equipment standards, testing, and safety. Known for her savvy negotiating skills, strong diplomacy experience, and years of working within the U.S. interagency coordination process towards developing U.S. positions with NTIA and FCC, as well as liaising with international organizations on U.S. spectrum and telecommunication policy, such as the United Nations International Telecommunications Union Radio Sector (ITU-R), Inter-American Telecommunication Commission (CITEL), and International Civil Aviation Organization (ICAO). as a senior technical advisor,

Sandra is relied on for counsel on requirements definition, developing national objectives, and formulating short and long-term U.S. government strategies for international communications and information policy on a bilateral and multilateral basis.

Passionate about supporting emerging technology for transportation and advancing society and global connectivity to reduce the digital divide, mainly focusing on efforts in the Americas and the Caribbean. A recognized international leader with technical, operational, industrial, and regulatory experience in the United Nations and CITEL, served as the working group chair for aviation and maritime safety agenda items for four weeks at the World Radio Conference in 2023 (WRC-23) in Dubai and the vice president of the Terrestrial Group in CITEL. Sandra enjoys analyzing trends in spectrum-based technologies and telecommunication standards internationally and advising the U.S. Ambassador, Department of State, Department of Transportation, and FAA senior leaders on the implications to policies and interests of the U.S.



Loftur Jónasson, Chief CNS & Spectrum, ICAO

Loftur Jónasson joined the International Civil Aviation Organization (ICAO) in 2007 and currently serves as the chief of its CNS and Spectrum (CNSS) Section. Main responsibilities include international Standards and Recommended Practices (SARPs) for communications, navigation, and surveillance systems, as published by ICAO.

He also serves as the secretary of the Frequency Spectrum Management Panel of ICAO's Air Navigation Commission and as such represents the coordinated civil aviation interests during the ITU World Radiocommunication Conferences and other international radio regulatory fora.

Prior to joining ICAO, Loftur had over 15 years of experience with various aeronautical radio- and telecommunications engineering tasks and projects, mainly in support of air/ground and ground/ground communications, as well as aeronautical surveillance applications in the North Atlantic region.

Plenary V: Spectrum Solutions for Tomorrow's Technology—continued

Panelists:



Andrew Roy, Director of Engineering Services, ASRI

Andrew Roy is the director of engineering services at Aviation Spectrum Resources, Inc. (ASRI), acting as a focal point for U.S. airlines and other commercial aviation operators on spectrum engineering and regulatory considerations. He is chair of the ICAO Frequency Spectrum Management Panel, is a member of the U.S. Department of Commerce's Spectrum Management Advisory Committee, and sits on the RTCA Program Management Committee. Roy is a veteran of the UK Royal Air Force with a background in RF battlespace management. He earned his master's degree in systems engineering from Loughborough University and is a chartered engineer at the UK Institute of Engineering and Technology.



Chris Tourigny, Electronics Engineer, Spectrum Planning and International, FAA

Chris Tourigny is an electronics engineer with the Federal Aviation Administration's Spectrum Planning and International Team, Spectrum Engineering Services Group, where he endeavors to maintain the safe and efficient operation of the airspace for all users. He applies expert technical knowledge of radio communications systems and science and engineering principles, techniques, and practices to review, plan, develop, and present radio frequency management policies, regulations, technical procedures, and criteria concerning the use, sharing, management, and allocation of the radio frequency spectrum. Chris Tourigny holds a B.S. in physics and an M.S. in applied and engineering physics from George Mason University. He is an instrument-rated private pilot.



Alexander Kuehn, Head of International and National Spectrum Management, BNetzA

Alexander Kuehn is currently the chairman of the ITU-R Conference Preparatory Meeting towards WRC-27. He has over 20 years' experience in spectrum management and is governmental director for international and national spectrum management at the German regulator BNetzA.

Workshop: AI in CNS: Beyond the Hype

Artificial intelligence (AI) has the potential to be a game-changer in aviation. The use of AI technologies enables improved safety, and increased autonomy, adaptability, optimization, efficiency, and capacity in all phases of the life cycle, including development and operations/maintenance.

This workshop will explore the real opportunities, limitations, and cautionary tales for the application of generative AI, deep learning neural networks, neural networks, and reinforcement learning in aviation and specifically in communications, navigation, and surveillance. These new applications must acknowledge the inherent complexity in operations, and the importance of regulatory rules for safety to fulfill the contract between citizens and their government.

Panel Members:

- **Dr. Missy Cummings, Professor, George Mason University**
- **Antonio Correias, Co-founder and Principal Consultant, Skymantics**
- **Amit Ganjoo, CEO, ANRA Technologies**
- **Dr. Fredrick Wieland, Chief Research Scientist, Mosaic ATM**

Workshop Chairs:



Dr. Lance Sherry, Center for Air Transportation Systems Research at GMU

Lance Sherry is a professor of systems engineering and operations research at George Mason University. Dr. Sherry also serves as the director of the Center for Air Transportation Systems Research at George Mason University. Dr. Sherry has over 30 years of experience in the aviation industry serving as a flight-test engineer, flight control engineer, system engineer, lead system architect, program manager, strategic planning and business development. Dr. Sherry served as a fellow at RAND Corporation 1999-2001. He has published over 100 papers and journal articles, holds several patents, and has received awards for his work.



Adrian Solomon, Thales

Adrian Solomon is a senior systems engineer with Thales, and over his career, he has worked with teams developing tower automation systems as well as air traffic management & UAS traffic management systems supporting the FAA and ANSPs around the globe. Adrian has also worked closely with the International Civil Aviation Organization (ICAO) to further define global ATM concepts, aviation trust frameworks and concepts of operations. Adrian holds a bachelor's and master's degree in systems engineering and engineering management from George Mason University in Fairfax, Virginia, and The George Washington University in Washington, D.C., respectively. Adrian is passionate about aviation, learning from his peers, and also mentoring the new generation of aviation enthusiasts.

Technical Session Track Overview

Track 1. Traffic Management (ATM, UTM, STM)	
<p>Co-chairs: Bernd Korn, German Aerospace Center (DLR) Carmo Kluenker, German Aerospace Center (DLR)</p>	<p>In this track, sessions will address developments in the areas of UAS Traffic Integration, Separation Management and Collision Avoidance, ATM Concepts, Terminal Operations and Advanced Air Mobility / Urban Air Mobility.</p>
Track 2. Operational Efficiency	
<p>Co-chairs: Billy Josefsson, Air Navigation Services of Sweden Max Li, University of Michigan</p>	<p>In this track, sessions will address methods for Efficiency, Data Driven Concepts, OPS Plan and Separation. Topics include Autonomous Forecast Trend Monitoring, GIS-enabled Applications, Conflict resolution using Multi-objective Collaborative Trajectory Deconfliction.</p>
Track 3. Digital Engineering and Artificial Intelligence	
<p>Co-chairs: Rafael Apaza, NASA Fred Wieland, Mosaic ATM</p>	<p>This track will cover advancements in Digital Engineering, Model Based System Engineering (MBSE), Artificial Intelligence, Neural Networks, Large Language Models, and Machine Learning to improve the safety, security, and efficiency of ATM/CNS operations.</p>
Track 4. Communications and Cybersecurity	
<p>Co-chairs: Greg Saconne, Boeing Jonathan Graefe, Collins Aerospace</p>	<p>In this track, sessions will address developments in the areas of Cybersecurity Modelling and Architecture, Communications Performance, Future Communications, and Communication System Implementation Considerations.</p>
Track 5. CNS, APNT, and UAS	
<p>Co-chairs: William Symionow, MITRE Erik Theunissen, Netherlands Defence Academy (NLDA)</p>	<p>In this track, sessions will focus on progressions in Communications Navigation and Surveillance (CNS), GNSS disruption, Alternative Position-Navigation-Timing (APNT), and the integration of Unmanned Aerial Systems (UAS) in the National Airspace System (NAS).</p>
Track 6. Special Topics	
<p>Co-chairs: Kelly Curran, U.S. Department of Transportation Paul Diffenderfer, MITRE</p>	<p>The sessions in this track will focus on the developments of the NAS through the use of cutting-edge solutions in Advanced Air Mobility, Safety Management System, Collision Risk Modelling, Synthetic Flight Tracks, and Digital Towers.</p>

Technical Session Detail • Tuesday, April 23, 13:10 to 15:10

Time	Description	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
1310 to 1510	Track Name	Traffic Management (ATM, UTM, STM)	Operational Efficiency	Digital Engineering and Artificial Intelligence	Communications and Cybersecurity	CNS, APNT and UAS	Special Topics
	Session Name	Arrival & Departure Operations	Operational Efficiency I	Digital Engineering	ADS-B and Cyber Security	Spectrum / Interference	(no presentations)
	Chair(s)	Gunnar Schwoch, DLR Teemu Joonas Lieb, DLR	Max Li, UMich and Billy Josefsson, LFV Sweden	Zachary Tretler, MITRE	Mike Vanguardia, Boeing	Leila Ribeiro, MITRE	
	Room	Rivanna BC	Rivanna EF	Rivanna A	Rivanna G	Luray II	
1310	Paper Title	Operational measures to reduce environmental impact of arrivals using fixed routes and higher initial approaches	Multi-Agent Cooperative Path Planning via Model Predictive Control	Onto-by-wire: Bridging the knowledge gap between avionics and cybersecurity through ontology	Quantum in Aviation Security: ADS-B Protection with QKD	Analyzing the Impact of Electromagnetic Fields on Inertial Measurement Unit Sensors in Unmanned Aerial Systems	(no presentation)
	Speaker(s)	Nico de Gelder, NLR - Netherlands Aerospace Centre, The Netherlands	Christian Kallies and Rostislav Karasek, German Aerospace Center (DLR), Germany	Nuno-Gonçalo Silva-Pinto, Michel Gagnon, Jean-Yves Sami Ouattara, Hans Obas and Gabriella Nicolescu, Ecole Polytechnique de Montreal, Canada	Brady Phelps, Zion Klinger, Chad Mourning and Michael Braasch, Ohio University, USA	Dulana Rupanetti, Issam Boukabou and Naima A Kaabouch, University of North Dakota, USA	
1340	Paper Title	An Adaptive Iterative Learning Control Method for Continuous Climb Operation and Continuous Descent Operation	High-Level Mission Planning for Multi-Agent Indoor System	Intro to MBSE in Aviation Concept Development	Crew Role in CNS-ATM Cyber Security: Cyber Readiness of Air Traffic Controllers	Interference Effects on Bandwidth Availability for UAV Communications	(no presentation)
	Speakers(s)	Wei Li, Beihang University, China	Rostislav Karasek and Christian Kallies, German Aerospace Center (DLR), Germany	Alicia Fernandes, Kristi Epps and Karym Zabara, Mosaic ATM, USA	Krishna Sampigethaya and Kyle Wilkerson, Embry-Riddle Aeronautical University-Prescott, USA	Lalan Mishra, Selma Benouadah, Jaafar Alghazo and Naima A Kaabouch, University of North Dakota, USA	
1410	Paper Title	ADS-C Climb and Descend Procedure (CDP) - Collision Risk Model (CRM) Review and Comparison	Multi-Agent Team Access Monitoring: Environments that Benefit from Target Information Sharing	(no presentation)	Effectiveness of Cybersecurity Training on Identifying Cyber Threats in Air Traffic Control	(no presentation)	(no presentation)
	Speaker(s)	Bruce A Normann, CSSI, LLC, USA	Andrew P Dudash and Scott H James, Noblis, USA		Hui Wang, Embry Riddle Aeronautical University, USA		
1440	Paper Title	Integrated Arrival and Departure Management for Urban Air Mobility Vertiport Operations in the New York City Airspace	Opportunities to Address Arrival Capacity Underutilization During Ground Delay Programs via Trajectory Based Operations	(no presentation)	Increased capacity in ADS-B messages implementing Phase Shift Keying encoding	(no presentation)	(no presentation)
	Speakers(s)	Shulu Chen and Peng Wei, George Washington University, USA	Aditya Saraf, ATAC Corporation, USA		Daniel Polo Álvarez, Indra Sistemas S.A., Spain		

Networking Break 15:10 to 15:30

Technical Session Detail • Tuesday, April 23, 15:30 to 17:00

Time	Description	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
1530 to 1700	Track Name	Traffic Management (ATM, UTM, STM)	Operational Efficiency	Digital Engineering and Artificial Intelligence	Communications and Cybersecurity	CNS, APNT and UAS	Special Topics
	Session Name	Advanced ATM Operations	Operational Efficiency II	Learning and Decision Making	(no presentations)	Positioning / Navigation	UAS /AAM/ UTM
	Chair(s)	Juergen Teutsch, NLR	Mitch Narins, Strategic Synergies and Chieme Wehrung, VOLPE	Dieter Eier, Frequentis		Ann Tedford, AMA	Alicia Fernandes, MOSAIC Zach Tretler, MITRE
	Room	Rivanna BC	Rivanna EF	Rivanna A		Rivanna G	Luray II
1530	Paper Title	Assessing a Radar Display Concept for Large Flight Centric ATC Airspaces	Airspace Operational Efficiency: Transformation Through GIS-Enabled Applications	Predicting Airport Capacities Using Neural Networks	(no presentation)	A Proposed Framework for UAS Positioning in GPS-Denied and GPS-Spoofed Environments	Impact of Aircraft Wake Vortex on Unmanned Aerial Systems near Powerlines
	Speaker(s)	Carmo Sonja Kluncker, German Aerospace Center, Germany	Dennis W. Rowe, Concept Solutions, LLC, USA	Benjamin JK Tolley and James Jones, MIT Lincoln Laboratory, USA		Jack L. Burbank, University of North Dakota, School of Electrical Engineering and Computer Science (SEECs)	Selma Benouadah and Naima A Kaabouch, University of North Dakota, USA
1600	Paper Title	Uncertain of Your Uncertainties: Distributionally Robust Air Traffic Management in an Info-Centric NAS	A Novel Approach to Measuring Arrival Efficiency in Multi-Regional Operational Benchmarking	A Comparative Assessment of Unsupervised Deep Learning Models for Detecting GPS Spoofing Attacks on Unmanned Aerial Systems	(no presentation)	A Comparative Analysis of Hybrid Fusion Schemes for Visual-Inertial Navigation	Evaluating the Drone as First Responder Concept from an Airspace Perspective
	Speaker(s)	Max Z Li, University of Michigan, USA	Rainer Koelle, Eurocontrol, Performance Review Unit, Belgium	Tala Talaee Khoei, Northeastern University, USA		Tarafder Elmi Tabassum, Ivan Petrunin and Zeeshan Ahmed Rana, Cranfield University, United Kingdom, Great Britain	Michael Hieb and Sherry Crissman, George Mason University, USA
1630	Paper Title	Assessing Diverse Operational Factors for Agile Decision Making in an Info-Centric National Airspace System (NAS)	Evaluation of the Multi-Regional Trajectory Based Operations (MRTBO) Live Flight Project	Deep Reinforcement Learning based Dynamical Resource Allocation Method for NOMA in AeroMACS	(no presentation)	(no presentation)	Enabling Supervised Flight – Procedures, Communications, Navigation, Surveillance and Supporting Infrastructure - An Advanced Air Mobility Roadmap
	Speaker(s)	Lakshmi Vempati and Maria Geffard, The MITRE Corporation, USA	Nabil Sandhu, FAA and Sherry Yang, The Boeing Company, USA	Lanchenhui Yu, Jingjing Zhao, Yanbo Zhu, Runze Chen and Kaiquan Cai, Beihang University, China			Monica Alcabin, The Boeing Company, USA; Virginia Stouffer and Bruce Holmes, Aura Networks, USA

Technical Session Detail • Wednesday, April 24, 13:10 to 15:10

Time	Description	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
1310 to 1510	Track Name	Traffic Management (ATM, UTM, STM)	Operational Efficiency	Digital Engineering and Artificial Intelligence	Communications and Cybersecurity	CNS, APNT and UAS	Special Topics
	Session Name	UTM/U-Space Management & Operations	Operational Efficiency III	AI/ML Applications and Assurance	RF and Bandwidth Issues	(no presentations)	Safety
	Chair(s)	Rainer Koelle, EUROCONTROL	Billy Josefsson, LFV Sweden and Max Li, Umich	Kevin Niewoehner, L3Harris	Thomas Graeupl, Frequentis		Lakshmi Vempati, MITRE Greg Joyner, Astrion
	Room	Rivanna BC	Rivanna EF	Rivanna A	Rivanna G		Luray II
1310	Paper Title	Dynamic Airspace Re-configuration for Manned and Unmanned Operations in Shared Airspace	Analysis of Paired Approach Concepts and Potential Airports for the Implementation of Super Close Runway Operations (SupeRO)	Leverage Large Language Models For Enhanced Aviation Safety	Doppler Shift Effect on Bandwidth Availability for UAV Communications	(no presentations)	Identifying Critical Nodes in Fault Tree Safety Models with Limited Data
	Speaker(s)	Juergen Teutsch and Co Christiaan Petersen, Royal Netherlands Aerospace Centre (NLR), The Netherlands	Tim Dreyzehner, German Aerospace Center, Germany	Kevin L. Fox, L3Harris Technologies, Inc., USA	Selma Benouadah, Lalan Mishra and Naima A Kaabouch, University of North Dakota, USA		Sara Nikdel and John Shortle, George Mason University, USA
1340	Paper Title	Validation of EASA's Airspace Risk Assessment guidelines for implementing a U-space area in Germany	Determining the Saturation Point for UAV Operations in Airport Environments: A Probabilistic Approach	Prompt Engineering to Classify Components of Standard Operating Procedure Steps Using Large Language Model (LLM)-Based Chatbots	Effects of Multipath Signal Propagation on UAV Communications	(no presentations)	Effects of Aviation Maintenance-Related Flight Incidents on Air Traffic in the National Air Space System
	Speakers(s)	Teemu Joonas Lieb, German Aerospace Center (DLR), Germany	Prasad Pothana, Jack Thornby, Michael Ullrich and Sreejith Vidhyadharan, University of North Dakota, USA	Jomana Bashatah, George Mason University, USA	Lalan Mishra, Jaafar Alghazo and Naima A Kaabouch, University of North Dakota, USA		Sang-A Lee and Dothang Truong, Embry-Riddle Aeronautical University, USA
1410	Paper Title	Interaction between ATM and UAS Operators in U-space Operations and Potential Automation Benefits	(no presentation)	Detecting Injection Attacks in ADS-B Devices Using RNN-Based Models	Modeling and Analysis of Pathloss Effect on UAS Communication Signals	(no presentations)	Ensuring System Safety and Resiliency for Mission-Critical Systems during the Operations and Maintenance Phase
	Speaker(s)	Gunnar Schwach and Teemu Joonas Lieb, German Aerospace Center (DLR), Germany		Tala Talaee Khoei, Northeastern University, USA	Lalan Mishra, Selma Benouadah, and Naima Kaabouch, University of North Dakota, USA		Holmes Liao, MITRE Corp, USA
1440	Paper Title	Navigating the Uncertain: Integrating Uncrewed Aircraft Systems at Airports in Uncontrolled Airspace	(no presentation)	(no presentations)	VDL Mode 2 Equalizer	(no presentations)	Avoiding Confirmation Bias in a Safety Management System (SMS)
	Speakers(s)	Tim Felix Sievers and Niklas Peinecke, German Aerospace Center (DLR), Germany			Dongsong Zeng, The MITRE Organization, USA		Ehsan Ghahremani, Jeffrey Joyce and Sid Lechner, Critical Systems Labs Inc., Canada

Networking Break 15:10 to 15:30

Technical Session Detail • Wednesday, April 24, 15:30 to 17:00

Time	Description	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
1530 to 1700	Track Name	Traffic Management (ATM, UTM, STM)	Operational Efficiency	Digital Engineering and Artificial Intelligence	Communications and Cybersecurity	CNS, APNT and UAS	Special Topics
	Session Name	UAM Operations	Operational Efficiency IV	(no presentations)	Network Management and Cybersecurity	Surveillance	Efficiency and Sustainability
	Chair(s)	Stephane Mondoloni, MITRE	Greg Joyner, Astrion and Chiemi Wehrung, VOLPE		Mike Olive, Verticle Squared	Rostislav Karasek, DLR	Homes Laio, MITRE
	Room	Rivanna BC	Rivanna EF		Rivanna A	Rivanna G	Luray II
1530	Paper Title	Energy Demand Analysis for eVTOLs in Cluttered and Dynamic Environments based on Adaptive Trajectory Prediction	Effects of User Interface Design on Cognitive Load In Air Traffic Management	(no presentations)	TADAD: Trust AI-based Decentralized Anomaly Detection for Urban Air Mobility Networks at Tactical Edges	Enhancing Automotive Safety with Low-Cost, High-Resolution MIMO Tomographic SAR: A Multi-Frequency Approach	How Much Money Could Airlines Make Selling Carbon Offsets from Contrail Avoidance
	Speaker(s)	Nabil Hagag and Florian Jäger, German Aerospace Center, Germany	Alexander Neuhaus, Frequentis, USA and Christian Kusmitsch, Mindset Technologies AG, Switzerland		Sixiao Wei, Intelligent Fusion Technology, Inc & Towson University, USA	Muhannad Almutiry, Northern Border University, Saudi Arabia	Lance Sherry, Center for Air Transport Systems Research at George Mason University, USA
1600	Paper Title	Risk Assessment of Loss of Control In-Flight Trajectories for Urban Air Mobility Safety	A Novel Integrated Flight Simulation Framework: From Actuators to High-Fidelity Dynamics to Flight Visualization	(no presentations)	Network System of Systems Manager	Enhanced Weather detection and tracking Algorithms in Primary Surveillance Radar	(no presentation)
	Speaker(s)	Negasa C Yahi, North Carolina Agricultural and Technical State University, USA	Azmol A Fuad, Jose Matute and Milad Khaleghi, North Carolina A&T State University, USA		James Uhing, L3harris Technologies, USA	Jose-Antonio Ruiz, Indra, Spain	
1630	Paper Title	Wind turbine radar interference mitigation: Factors to evaluate future radar-based solutions	(no presentation)	(no presentations)	(no presentation)	A Review of Multidimensional Assignment in Multi-Sensor Multi-Target Tracking	(no presentation)
	Speaker(s)	David S Mazel and Michael Egan, Regulus-Group, USA				Said Kemal Cengiz and Ramazan Yeniceri, Istanbul Technical University, Turkey	

Technical Session Detail • Thursday, April 25, 13:10 to 15:10

Time	Description	Track 1	Track 2	Track 3	Track 4	Track 5	Track 6
1310 to 1510	Track Name	Traffic Management (ATM, UTM, STM)	Operational Efficiency	Digital Engineering and Artificial Intelligence	Communications and Cybersecurity	CNS, APNT, and UAS	Special Topics
	Session Name	(no presentations)	(no presentations)	AI/ML for ATM Industry	LDACS & Bandwidth Issues & Cloud	UAS Mission Management	AI / ML and Data Analytics
	Chair(s)			Rafael Apaza, NASA Fred Wieland, MOSAIC ATM	Jonathan Graefe, Collins, Jonathan Lee, MIT	Christian Kallies, DLR Izabela Gheorghisor, MITRE	Alicia Fernandes, MOSAIC ATM
	Room			Rivanna BC	Rivanna EF	Rivanna A	Rivanna G
1310	Paper Title	(no presentations)	(no presentations)	Digital Horizons: The Transformative Impact of Digital Engineering through Test & Evaluation, Modeling & Simulation, and Industry Modernization	LDACS End-to-End ATN/IPS Performance Evaluation	Information-based Infrastructure in Support of Autonomous UAV Reconnaissance Missions	Leveraging the resiliency of the cloud to efficiently operate existing multicast-dependent workloads
	Speaker(s)			Zachary J Tretler and Matthew J Eblin, The MITRE Corporation, USA	Thomas Gräupl, Frequentis AG, Austria	Meshari Aljohani, Ravi Mukkamala and Stephen Olariu, Old Dominion University, USA	Jessica Sager, L3Harris Technologies, USA
1340	Paper Title	(no presentations)	(no presentations)	Predicting AAM Path Loss through Neural Networks and Statistical Modeling	Impacts of Multipath and Shadowing on GPS Uncertainty	Agent Based Model of message volume of Drone Delivery Systems and UAM on Aircraft Communications Addressing and Reporting Systems	Generating Synthetic Flight Tracks for Collision Risk Safety Analysis: Variational Autoencoders with a Single Seed Track
	Speakers(s)			Frederick Wieland, Shaymaa Khater and Juan Rebollo, Mosaic ATM, USA	Landon D Foust, USA	Jonathan M West, George Mason University & Center for Air Transportation Systems Research, USA	Shahab Aref and John Shortle, George Mason University, USA
1410	Paper Title	(no presentations)	(no presentations)	A Survey of Artificial Intelligence Approaches to Safety and Mission-Critical Systems	Cloud Resiliency – Delivering a Competitive Edge Overcoming the Challenge of Moving Critical Workloads to the Cloud	(no presentation)	Avionics Analytics Ontology Preliminary Flight Test Results for Decision Support
	Speaker(s)			Chris Thames, William & Mary & NASA Langley Research Center, USA	Dennis Wenk, ASTRION, USA		Erik Blasch, MOVEJ Analytics, USA
1440	Paper Title	(no presentations)	(no presentations)	AI-driven Optimization of Operational NOTAM Management	(no presentation)	(no presentation)	Aircraft to Aircraft Collision Risk Modeling
	Speakers(s)			Miruna M. Morarasu and Catalin Roman, Frequentis, Romania			Laura Bickmeier and Ronald Ankner, MIT Lincoln Laboratory, USA

There will be no afternoon break on Thursday.

The 25th ICNS Conference Goes to Europe!

SAVE THE DATE: 8-10 April 2025 at EUROCONTROL HQ in Brussels, Belgium

The ICNS Conference, which kicked off in 2001 in Cleveland, Ohio, as a NASA's Glenn Research Center event that included the FAA and industry, and focused on domestic U.S. CNS activities, has become the leading international aviation event for CNS matters, addressing technology and policy advances in CNS research, development, and implementation programs, as well as policies related to CNS/ATM capabilities and applications.



To mark the growing international dimension of the conference, the ICNS Executive Committee (IEC) has decided, with the invitation of EUROCONTROL and the support of the AIAA Digital Avionics Technical Committee (DATC), to host for the first time since its inception the 25th edition of the ICNS Conference outside the U.S.



To this end, the IEC has agreed to host the conference in Europe's Aviation House at EUROCONTROL's headquarters in Brussels, initiating a new era for the conference and underscoring its ever-growing international and global significance.

Hosting the conference in Europe will facilitate the participation and active involvement of new participants and bring the conference closer to other major centers of aviation.

The logistic aspects for the 25th ICNS Conference are being finalized and further information will be provided as it is finalized.

Forthcoming details and ICNS agenda history: i-cns.org

Nikos Fistas and Brent Phillips

ICNS 2025 Conference General Chairs

ICNS Executive Committee 2024

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