



Vers la durabilité des activités spatiales **Towards Space Sustainability**
26 au 30 mai 2025 **May 26-30, 2025**
 MONTRÉAL, QUÉBEC, CANADA – Palais des congrès




Agence spatiale canadienne Canadian Space Agency




CALL FOR PAPERS

Abstract submission deadline: ~~July 31st, 2024~~

***** EXTENDED August 31st, 2024 *****

<https://www.spaceops2025.org>

Welcome to SpaceOps 2025

May 26-30, 2025

The Canadian Space Agency (CSA) and the Canadian Aeronautics and Space Institute (CASI) are delighted to welcome you to Montréal, Canada for SpaceOps 2025 conference with the theme of “*Toward Space Sustainability*”. This event presents a perfect opportunity for the space operations community to share emerging development or best practices to enable more resilient space systems and improve future space sustainability. It also provides the perfect opportunity for interested young adults to learn, and meet with international experts across the space industry.

The International Committee on Technical Interchange for Space Mission Operations and Ground Data Systems (also known as the SpaceOps Organization) is an international association focussing on the operations of space systems. SpaceOps participants consist of member space agencies, academia and industry.

This Call for Papers invites submissions for presentations, panels and workshops at the SpaceOps Conference taking place from May 26 to 30, 2025. Major topics are outlined in pages 3 to 7, with procedures for submissions on pages 8 to 10. For additional information, please send us an email via spaceops2025@asc-csa.gc.ca

The following schedule will govern the submission, consideration and presentation of submissions:

Important dates

Abstract submission opens	May 2024
Abstract submission closes	July 31 st , 2024
Notification to authors	November 29 th , 2024
Registration opens	December 2024
Final paper submission deadline	April 2 nd , 2025
Presentation material submission	May 2025
Students & Young Professionals workshop	May 25, 2025
SpaceOps conference	May 26-30 th , 2025

SPACEOPS 2025 conference in Montréal

For more than 25 years, the SpaceOps conference has been a technical forum for the space operations community that addresses state-of-the-art operations principles, methods, and tools. The scope is intended to cover all types of spaceflight missions, including human and robotic, near Earth and deep space exploration.

SpaceOps provides a technical and managerial forum for experts of Space Operations (Mission and Ground Segment Designers, Mission Operators, Engineers in charge of mission logistic support, etc.) to present, discuss and promote technical concepts, emerging methodologies and measures for advanced Space Operations. The overall aim is to maximize mission return whilst still maintaining the required mission safety within the framework of today's increasingly demanding and complex Space Missions. If your organization is new to the Space Operations domain, we encourage you to come to SpaceOps conference to share your ideas, plans, techniques and technologies with others.

If your organization is already familiar with the Space Operations domain, you will find again a great opportunity to exchange on the latest trends and techniques in our industry, gather necessary feedback for your projects and missions, as well as a chance to develop new ties with colleagues devoted to the space sector.

About Montréal

Second largest city in Canada, located on the majestic St-Lawrence Seaway Montréal is an international hub for business travelers and the gateway to the province of Québec. Accessible by air, land and sea, the vibrant metropolis is surrounded by boreal forests and picturesque communities. Its May weather has an average daily temperature of 17° C (63° F), perfect for business or leisure. Montréal is renowned for international cuisine and diversity of cultures. Montréal is a city of knowledge with numerous learning institutions, a center of excellence for several sectors including life sciences, AI, hydro electricity and aeronautics.

Host of the Expo 67 and the 1976 summer Olympics, it has numerous landmarks such as the Olympic Stadium, Notre-Dame Basilica, Old Montréal, and the Mount-Royal Park. Montréal is a bike-friendly destination with its bike-share BIXI services and has over 900 km (560 miles) of interconnected paths for cycling, walking or running.





The Palais des congrès de Montréal will host the prestigious SpaceOps 2025 conference. The bright, colorful, and state-of-the-art convention center has hosted numerous large international conferences with a high level of excellence, cementing Montréal as the #1 Host cities in the Americas for International Meetings. (source : [For the sixth year in a row, Montréal has topped the Union of International Associations \(UIA\) annual list of top cities in the Americas for hosting international association meetings](#))

Located in the heart of the city, at the crossroad of many vibrant districts, the Palais is surrounded by more than 4000 hotel rooms of all categories, numerous restaurants, and attractions, all within walking distance and directly connected to the metro and underground city.



Topic and sub-Topics

The SpaceOps 2025 Technical Program Committee (TPC), composed of experts from the major space organizations in the world, will prepare an ambitious program focused on today's achievements in space operations, outlining trends and new technology in the operations of future missions. The conference program will bring together experienced and young professionals, as well as students from all over the world to discuss the current status and future ideas of space operations. Please note that for the 2025 conference we have added a topic specifically targeted to young professionals called "The Next Generation" highlighting their CubeSat projects and other students endeavours related to space operations and there will be an emphasis placed "Toward Space Sustainability" as it is the theme of the conference (See topic Safety and Sustainability of Space Operations (SSU)). **The program consists of presentations in the following areas:**

1. (NEW)*The Next Generation (TNG)* topic is to provide opportunities to showcase young professional accomplishments such as CubeSat, rocket competitions or youth space ventures. It will include networking sessions with industry.
 - Coaching sessions to help learn how to write a technical paper and present in an organized and dynamic manner.
 - Presentations from Space Agencies and industry for recruiting and providing overview of careers opportunities.
 - CubeSat Projects
 - Rocket competitions

2. The *Operations Concepts (OC)* topic is concerned with a description of how the system is intended to be used, and the external conditions expected during use of the system.
 - Operations security
 - Control Rooms and Operations Rooms, Tools & Techniques
 - Operations Automation and Optimization
 - Operations Engineering
 - Operational Validation
 - Payload Operations Concepts

3. The *Mission Design and Management (MDM)* topic includes everything needed to formulate, design, develop and manage a mission, from start to finish. It includes simulation, planning, designing and day-to-day management of the mission.
 - Mission Design and Architectures
 - Mission Simulation and Modelling
 - Mission Development and Management
 - Multi-mission Approaches and Strategies
 - Revectoring Old Missions to New Tasks
 - International, Public, and Private Cooperation

4. The *Flight Execution (FE)* topic encompasses a range of activities and processes that ensure the successful execution of space missions, from launch to end of life operations.
 - Real-time Flight Control
 - Operations Management
 - End of Life Operations
 - Fault Management and Recovery
 - Spacecraft Emergency and Contingency Operations
 - Mission Optimization
 - Operational Organization

5. The *Ground Systems Engineering (GSE)* topic focuses on the design, development, and operation of ground systems for space missions. It encompasses a wide range of disciplines and technologies aimed at supporting the planning, execution, and monitoring of space missions. One of the key aspects of GSE is Ground Segment Architecture and Design, which involves designing the infrastructure needed to support mission operations.
 - Payload Monitor and Control systems
 - Software Development and Maintenance
 - Systems Engineering and System Design for Operability
 - Ground segment validation
 - System security
 - Sustainable GSE practices
 - Ground Segment as a Service
 - Ground Validation Systems & Tools

6. The *Data Management (DM)* topic discusses a critical aspect of space missions, ensuring that data collected by spacecraft is managed, processed, and distributed efficiently and effectively. This topic covers a wide range of areas related to data management in space operations.
 - Ground Data Systems
 - Archive Data Systems
 - Data access, Distribution and Security
 - Information Architectures and Information Models
 - Data mining and analysis
 - Data format and accessibility

7. The *Planning and Scheduling (PS)* topic is regarding the automated and interactive planning processes and tools for the successful organization and execution of a mission from the operations' perspective. This includes addressing the solutions for (e.g.) the following subjects:
 - Mission Planning and Scheduling Systems
 - Asset Scheduling
 - Challenges and solutions for distributed planning
 - Automated and interactive planning
 - Multi-mission planning systems
 - Modern technologies for planning and scheduling
 - Resource Management
 - Real-time Re-Planning Techniques
 - Communication and Observation Planning
 - Detailed Planning versus "Job Jars"

8. The ***Guidance, Navigation, and Control (GNC)*** topic discusses a critical aspect of space missions, ensuring that spacecraft can navigate accurately and maintain their desired trajectories. This topic covers a wide range of subtopics, each essential for successful space operations.
- Challenges in Trajectory Design and Analysis
 - Interplanetary Missions
 - Formation/Constellation Management
 - Global Navigation Systems and Applications
 - GPS used for spacecraft navigation
 - GNC and Astrodynamics Software
 - Using GPS at Lunar Distances
9. The ***Communications Architecture and Networks (CAN)*** topic covers a wide range of areas related to communications, networking, and network operations management in the space domain. It includes communications architectures for complex constellations and operational impact of spectrum allocations.
- Communications, Ground and Space Networking Network Operations and Management
 - Integrating Communications Networks
 - Ground Network and Antenna Concepts
 - Communications Architectures for Complex Constellations
 - Operational Impact of Spectrum Allocations
 - Layered versus Integrated Architectures
 - Backup Communications Approaches
 - Interplanetary Networking
 - Optical communication
10. The ***Human Spaceflight and Operations (HSO)*** topic is about ISS, but now also including Artemis, Gateway and others. It focuses on activities occurring in-space, commercialization of ISS and tackling communication challenges. It also encompasses everything related to lunar exploration.
- Human exploration missions
 - Mission Architectures for Human Spaceflight Operations
 - Commercial human spaceflight
 - Flight Crew Operations Techniques and Training
 - Long distance and long duration missions
 - Medical Operations in Human Missions (not an emphasis on medical techniques)
 - Unique requirements for Human Spaceflight
 - Human/Robotic Integration and Cooperation Habitat Operations, Orbital and Planetary Surface Space Environment Factors for Human Lunar/Mars Mission Design
11. The ***Artificial Intelligence (AI) for Space Operations*** topic is interested in AI technologies aimed at enhancing the efficiency, reliability, and autonomy of space missions.
- Approaches to introduce AI in operations
 - AI Techniques and algorithms
 - Challenges of AI with operations
 - Implementation of AI on-board and on ground
 - Model training and maintenance
12. The ***Space Transportation Operations (STO)*** topic focuses on the operation of space transportation systems. It covers a range of subtopics related to space transportation operations, infrastructure, and logistics.
- Space Transportation Operations include Balloons, Airplanes, Sounding Rockets, Launchers, Space-tugs and re-entry related operations.
 - Space Transportation Systems, Ground, Landing Sites and Test Facilities
 - Space Transportation Systems Availability, Reliability, Integrated Health Monitoring and Risk Management
 - Space Transportation Systems Ground Processing Operations
 - Spaceports, Launch Bases, Launch Ranges and Launch Pads Infrastructure Operations & Logistics
13. The ***Safety and Sustainability of Space Operations (SSU)*** incorporates activities enabling safe space traffic coordination and aiming to ensure our ability to safely maintain space operations into the long-term future. It covers current and future solutions for both collision avoidance and debris minimisation along with tools and techniques to mitigate the impact of space weather on spacecraft operation.
- Sustainability of space operations in the New Space era.
 - Approaches for reducing existing debris and for preventing new debris creation: towards a zero debris future
 - Concepts for monitoring conjunctions and collision avoidance
 - Space Traffic Coordination for active satellites.
 - The role of in-orbit servicing in sustainability of space operations
 - Re-entry risk management, approaches and tools
 - International regulations and applicable space law
 - Space weather information needs for the space operations community

- Robustness of satellite operations to space weather events
- Impacts of space weather on the end-to-end system
- Operational concepts for optimised response to space weather warnings
- Post-anomaly analysis for space weather events.

14. The *Human Factors Training and Knowledge Transfer (HFT)* topic focuses on the human element in space operations to ensure safety, efficiency, and effectiveness. This topic encompasses various subtopics that address human behavior, training, knowledge management, and outreach efforts in space operations.

- Operations Procedures Management
- Human Factor & Behavior in Operations
- Knowledge Management

- Knowledge Transfer
- Lessons Learned Assessment & Management
- Training Methodologies
- Simulation Methods & Tools
- Simulation and Training Operations, Techniques
- Educational and Inspirational applications of Space Operations
- Government, Agencies and corporate outreach programs

15. The *Cross Support, Interoperability, and Standards (CSIS)* topic encompasses a range of standards and practices aimed at promoting interoperability and cross-support among different space entities.

- Communications Standards
- Software Standards
- Modeling Standards
- Interoperability and Cross Support Standards

Procedures for Abstract Submission

Abstract Requirements

The SpaceOps 2025 conference organizing committee’s highest priority is to accept abstracts and papers that emphasize unique and innovative practices, technologies, and experiences from which others in the space operations community will benefit.

When all abstracts are received, the Technical Program Committee (TPC) – staffed by volunteers from the agencies and industry partners of the SpaceOps Organization – will evaluate the submitted abstracts based upon (but not limited to) these four evaluation criteria:

- Relevance to topic
- Substantive merit (content and realism)
- Innovation
- Applicability and benefit to future missions

Presentation Approach

When you submit your abstract, you will be able to choose your preferred presentation approach: Oral Session or Electronic Presentation Session. The characteristics of these sessions are:

- **Oral sessions** are 20-minute lectures followed by 5 minutes of Q&A. The recommended file types for Oral are MS Power Point and Adobe PDF. Software demonstrations are eligible to Oral Sessions, with the understanding that the presentation must comply with the 20 + 5 minutes’ duration constraint.
- **Electronic presentations sessions** are intended for presentation of demonstrations (SW/HW). Electronic demo sessions will be supported by a conference-provided active electronic display. They include software demonstrations and will give the opportunity to interact with delegates. This format will be scheduled in the program for you to interact with the delegates and show your demo. The demonstration can be augmented with a slide presentation.

Abstract Submission

SpaceOps 2025 Technical Program Committee (TPC) requests that you submit your abstract electronically through the conference website at www.spaceops2025.org where you will be re-directed to the abstract submission tool. This website will be open for the submission of abstracts until **July 31st, 2024**.

Simply click on “Abstract Submission” and you will be forwarded to our web-based abstract and paper submission tool, where you will find detailed guidelines.

We request that you limit your abstract to text only, no graphics. It is suggested to not exceed a maximum length of 500 words. You will have the opportunity to indicate your preference of presentation style (oral/ e-presentation) and the most appropriate topic area. The TPC will then make the best effort at placing your submission in the program in a way that best connects you with your audience. Please consider that due to the overall scheduling constraints, the allocation of the topic area could be changed by the decision of the TPC. Authors having issues submitting abstracts electronically should contact us at support@spaceops.org

The TPC has a plan to award “Best Papers” for the conference. The TPC will review final papers just prior to the conference and will select approximately 10% of final papers.

The TPC has a plan to award a “Best Student Paper” for the conference. Thus, we are asking that student primary authors identify themselves when submitting an abstract.

To qualify, the abstract and manuscript must be the primary work of a student, as indicated by being the lead author, and the student must make the presentation.

Special Reminder

Participation in this conference

- To be allowed to present at any session, you have to submit, in advance, an abstract that complies with the requirements for abstracts, as documented in the Abstract Submission Section.
- All conference presenters in all types of sessions are required to submit manuscripts that comply with the standard requirements for professional conferences, as documented in the “Instructions to Authors” that will be supplied to accepted authors.
- If the author’s organization/agency/nation requires export approval of the material for this international conference, the author must follow that process, and must do it on a schedule that allows to meet the conference deadlines.
- All authors are required to register for the conference in the same fashion as all other attendees as this will allow the authors access to the conference content (i.e. paper repository).
- For all manuscripts submitted, and for all presentations, we will not accept overt marketing material or “sales pitches.” These forums and products are for the exchange of technical information, not for marketing. The information must impart some benefit to the space operations community independent of any product or service that may be incidentally mentioned in the presentation materials. Nevertheless, oral presentations and electronic presentations are allowed to include software demonstrations as a way to better present such benefits.

Students and Young Professionals Program (SYP)

The SpaceOps committee, the Canadian Space Agency (CSA), and the Canadian Aeronautics and Space Institute (CASI) organize and offer “Students and Young Professionals (SYP)” program as a part of the SpaceOps 2025 conference program.

A dedicated Workshop will be offered to students and young professionals Sunday, May 25th. A Speed Mentoring and Networking event will be held on Tuesday, May 27th during the conference. It will enable students and young professionals to discuss with people from industry with different experience levels and at space agencies from around the world. Round tables format will be used to promote discussions among SYP and SpaceOps mentors. A technical tour of the CSA will be offered to the SYP. Date to be determined closer to conference date.

Exhibition Opportunities

Marketing and commercial promotion is welcome and encouraged in the exhibition venue. The conference a venue at the Palais des congrès de Montréal provides ample space for exhibitors. We encourage industry members to bring their best and most innovative products, systems and services to SpaceOps 2025.

Exhibition for broad exposure to the space operations professionals in attendance. The Exhibition forum excels at a connecting industry providers with space operations customers, bringing maximum benefit to both. Exhibition space is currently available for SpaceOps 2025. Please contact Geoffrey Languedoc from CASI at Geoffrey@casi.ca or at +1.613.882.4434.

Sponsorship Opportunities

Various sponsorship Opportunities are available for SpaceOps 2025. Sign on as a sponsor to increase your visibility in the space operations sector and demonstrate your support for space operations community. Please contact Geoffrey Languedoc from CASI at Geoffrey@casi.ca or at +1.613.882.4434.