



## IAF President's Welcome

Dear IAF Friends,

It is my pleasure to welcome you to the December issue of the IAF Newsletter.

I am happy to report that the Federation has reached new heights in 2022 as we total 468 member organizations from 75 countries. We are proud to be the world's largest and most diverse international space organization.

As per tradition, I have prepared an agenda for my three-year mandate as IAF President, focusing on **"Sustainability, Investment, and Security."** We have established task force teams for these three interrelated topic areas. Working with my Vice Presidents on the IAF Bureau, we will endeavor to incorporate SIS into the fabric of our Congresses and conferences as we build on the IAF's unmatched technical programme through plenary sessions, Global Networking Forums, highlight lectures, and thematic events. You will find more details in the following pages. I count on you all to join the Sustainability, Investment, and Security "SIS" imperatives for the next three years.

I would like also to welcome to the Bureau my esteemed colleagues: **Mishaal ASHEMIMRY**, Aerospace Consultant & Special Advisor to CEO at the Saudi Space Commission (SSC), as IAF Vice President for Diversity Initiatives; **Anil KUMAR**, Associate Director, ISTRAC and Chief General Manager, Safe & Sustainable Space Operations Management at the Indian Space Research Organisation (ISRO), as IAF Vice President for Relations with International Organizations; **Tanja MASSON-ZWAAN**, Assistant Professor and Deputy Director of the International Institute of Air and Space Law (IIASL) at the Leiden University, as IAF Vice President for Science and Academic Relations; **Pilar ZAMORA ACEVEDO**, Executive Director at the Colombian Space Agency (AEC), as IAF Vice President for Developing Countries and Emerging Communities

It is also my pleasure to confirm **Joe LANDON**, Vice President & General Manager, Lunar Infrastructure Services, at Lockheed Martin Corporation, as IAF Special Advisor to President on the Sustainability, Investment and Security (SIS) Agenda; **Giorgio SACCOCCIA**, President of the Italian Space Agency (ASI), as IAF Special Advisor to President on the International Space Forum (ISF); **S. SOMANATH**, Chairman of the Indian Space Research Organisation (ISRO), as IAF Special Advisor to President on Space Agencies Relations; and **Dominique TILMANS**, President at EURISY, as IAF Special Advisor to President on Parliamentarian and Ministerial Relations,

As our activities will progress throughout 2023 and I would like to invite you already to our main events for the year to come: **the IAF Spring Meetings 2023** at the New CAP Conference Centre, 28-30 March 2023, in Paris, **the IAF Global Space Conference on Climate Change - GLOC 2023** to be held in Oslo, Norway, from 23 to 25 May 2023 and **the 74<sup>th</sup> International Astronautical Congress - IAC 2023** hosted by Azercosmos in Baku, Azerbaijan, from 2-6 October 2023.

I wish you all the best for 2023 and I look forward to meeting you in person in Paris, in Oslo and in Baku.

With my very best personal regards,

Clay MOWRY  
IAF President

**Connecting @ll Space People**



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### OUR LATEST PUBLICATIONS

- [IAC 2022 Highlights](#)
- [IAC 2023 Call for Papers](#)
- [GLOC 2023 Brochure](#)

### IMPORTANT DATES:

- IAF Awards: **19 December 2022**
- IAF Young Space Leaders Nominations: **19 December 2022**
- GLOC 2023 abstract submission: **23 December 2022**
- IAF Launchpad Mentorship Programme Mentee Applications: **6 January 2023**
- IAF Abstract Mentor Programme (AMP): **20 January 2023**
- IAF Emerging Space Leaders Grant Programme Applications: **31 January 2023**
- GLOC 2023 Students Grant Programme: **31 January 2023**
- IAC 2023 Submit proposal for Plenary or Highlight Lecture: **10 February 2023**
- IAC 2023 Special Session proposal submission: **10 February 2023**
- Call for Hosting IAC 2026 - Deadline for notices of intent to submit proposals: **17 February 2023**
- IAC 2023 Submission of Abstract for an oral or interactive presentation: **28 February 2023**
- IAF Spring Meetings: **28 – 30 March 2023**
- GLOC 2023: **23 – 25 May 2023**
- IAC 2023: **2 – 6 October 2023**





*Thank you so much for your continuous support of our Federation and looking forward to welcoming you at GLOC 2023 in Oslo, Norway and IAC 2023 in Baku, Azerbaijan.*

*With kind regards,  
IAF Secretariat*



## SUSTAINABILITY, INVESTMENT, & SECURITY: IAF PRESIDENT, CLAY MOWRY'S AGENDA 2022 - 2025

For over 70 years the International Astronautical Federation (IAF) has provided a valued forum for space agency, industry, non-profit, academic, and student leaders to confront and debate the challenges facing our collective future in the reaches far above planet Earth. The "Premier Congrès International D'Astronautique" at the Sorbonne's Grand Amphitheater in Paris on 30 September 1950 gave birth to the IAF a year later with the signing of our Constitution by 10 space societies. Since then, we have faithfully gathered each year to promote cooperation,

share scientific knowledge, and meet the urgent concerns facing spacefaring nations.

Let me take a moment to applaud the diligent work of my predecessors in advancing the mission of our organization: Dr. Jean-Yves Le Gall and Dr. Pascale Ehrenfreund, whom I have had the pleasure of working with on the IAF's governing Bureau. These two great leaders shepherded our Federation through times of both rapid growth and in dire straits resulting from the



During the 72<sup>nd</sup> International Astronautical Congress in Dubai, it was impossible to miss the ubiquitous themes of sustainability, investment, and security that permeated plenary and forum discussions on almost every stage. The recent Global Conference on Space for Emerging Countries (GLEC) in Quito, Ecuador in May echoed the themes showcasing the benefits of space applications to life on Earth, the creation of local industries through investment, and needed policy initiatives to allow both today's spacefaring and tomorrow's space developing nations to thrive.

Once the purview of superpowers, space is now a domain where multiple actors seek to field new technologies that will investigate, navigate, communicate, and innovate. These actors are enabled by the declining cost of access to space with reusable launch systems and ever more capable, affordable satellites. Affordable access is opening new frontiers to researchers, both from government and industry, to explore the very real possibilities of work aboard a future defined by multiple orbital destinations.

The Sustainability, Investment, and Security "SIS" imperatives will live at the core of the Federation's agenda for the next three years. Working with my Vice Presidents on the IAF Bureau, Special Advisors and IAF Committees, we will endeavor to incorporate SIS into the fabric of our Congresses and conferences as we build on the IAF's unmatched technical programme through plenary sessions, Global Networking Forums, highlight lectures, and thematic events.

Sustainability from the perspective of space works in two ways. First, we want to foster a future where space-based applications and services help improve life for all on planet Earth. Capabilities in space allow us to better understand our climate, adapt to changing environmental realities, and discover new pathways to living in balance with our home. As we consider sustainability on Earth, the IAF should seek to influence conversations around the sustainability of the space environment. Securing orbits, spacecraft, frequencies, and physical resources is critical to the future viability of space exploration. Norms and improved understanding of safe practices in space will allow actors to promulgate new applications to help study, track, understand, and protect planet Earth for future generations.

global pandemic. Following in their footsteps and building on their exceptional efforts, I am excited to serve the Federation's member organizations for the next three years.

Dr. Le Gall's work to create the "3G" diversity agenda addressing geography, generation, and gender equities has helped establish the International Astronautical Congress demographically as the youngest and most diverse space conference in the world.

And I am humbled to grasp the Federation's reins following the first woman to lead the organization through a challenging global health crisis that forced our flagship event to shift quickly to virtual mode. Her "Global Innovation Agenda" has brought emerging countries to our space family through conferences, expanded work with partner organizations, and created innovative systems for sharing information among members. These two extraordinary IAF Presidents' devotion, persistence, and steady leadership has seen the IAF double in size and cemented the organization's place as host of the world's premiere space event.





As we seek a more sustainable space environment, we must secure continued **investment** to foster its expansion. According to a recent report by BryceTech, the startup space sector saw \$9 billion in venture capital investment in 2021, an 82% increase year-over-year and part of the record \$15.4 billion in financing that is fueling our sector's rapid growth. Despite potential market headwinds, we expect private and government financing in space to ultimately grow and play an important role in the dynamic evolution of our sector. The coming three years will see a shift towards the commercial development of low Earth orbit and major push to field systems in lunar orbits and on the surface of the Moon. We must be prepared to tackle the challenges of growing investment in the space sector head-on.

**Security** refers to the freedom to operate safely in the space domain. Without it, investors and nation states can hardly be expected to pour the continued resources and attention required to secure humanity's future beyond Earth. Collectively, we seek a secure space environment where scientists, innovators, and nations actively engage in commerce and exploration to create new applications here on Earth. Norms and common practices for safe operations that promote sustainability and encourage investment are critical as space-based assets serve 8 billion people and 15 billion mobile devices. From small-hold farmers to emergency responders, space-enabled applications are central

to the continuity of the modern world. We must involve all space actors, from all global communities, in the security dialogue as we encourage ascendant nations to join in the use of assets and services in orbit.

**In support of this three-pronged agenda of Sustainability, Investment, and Security, our Federation affirms its desire to build toward a future where we empower a more diverse community of space leaders.** In pursuit of these ambitions, and in service to this community, I am honoured to serve as your IAF President for the next three years. With my able team of Vice Presidents, the IAF Secretariat, Committee Chairs, and tireless global volunteers who pledge their time and energy to give back to the space community, we will build a brighter future and ensure humanities' upward march to the stars.



Thank you,

## IAF Awards 2023

### DEADLINE MONDAY 19 DECEMBER 2022

The International Astronautical Federation (IAF) is pleased to announce the opening of the **Calls for Nominations** of its **2023 IAF Awards**.

Take an active part in **recognizing the achievements of your friends and colleagues of the space community** and nominate individuals, teams, and organizations for one of our awards.

Please, check the details for each award by clicking on the corresponding icon.

**Submit by Monday 19 December 2022!**

We look forward to receiving your **nominations packages** and good luck to everyone!



We would like to take the opportunity of the IAF Call for Awards 2023 to celebrate once more last year's winners, who were awarded during the International Astronautical Congress in Paris.

We cannot be prouder of the achievements of our community, which has been so well represented by this year's awardees.

We look forward to receiving your nominations for next year's recognitions and we wish good luck to all nominees!



The **IAF World Space Award**, presented for an outstanding contribution and exceptional impact to the world's progress in astronautics, was bestowed to the **Tianwen-1 Spacecraft Development Team**.



The most recent amongst the IAF Awards, the **IAF Excellence in International Cooperation Award**, is presented annually to an individual who has demonstrated excellence in their efforts to promote and facilitate global engagement and cooperation in the space sector. This year's awardee was **Frederic Nordlund**, Head of the European and External Relations Department, from the European Space Agency (ESA).



The **IAF Excellence in "3G" Diversity Award** is intended to recognize IAF member organizations (industry, government, academia) worldwide for outstanding contributions to the fostering of "3G" (Geography, Generation, Gender) Diversity within the space sector. To give recognition to both the organizations endeavors' towards inclusiveness and the efforts brought forward by specific



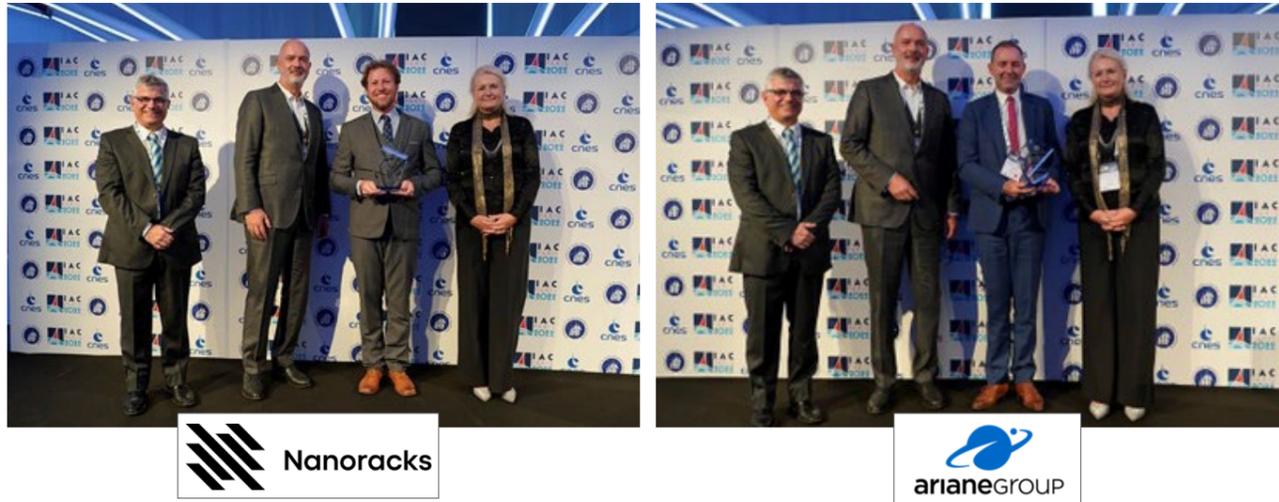
teams or projects, two awards are bestowed every year to reflect this and in Paris we were very excited to recognize the incredible results of the **National Space Science Agency (NSSA)** of Bahrain (Category A) and the **UK Space Agency Education and Skills Team** (Category B).

Once again, we would like to congratulate them once more for contributing to making the space community a more equal place.



The **Excellence in Industry Award** is intended to celebrate the achievements of an industry organization for introducing innovative space technologies to the global marketplace and being recognized throughout space industry for successfully executing a landmark space mission.

For the first time in Paris, two companies were awarded, **ArianeGroup** while **Nanoracks** received the award for the SMEs Category, a category introduced to give space to smaller organizations.



During the Closing Ceremony the recipients of the **IAF Hall of Fame**, a standing forum of personalities that have contributed substantially to the progress of space science, technology, and space benefits to mankind.

Five awardees were included in 2022:

**Ryojiro Akiba**, of Managementitus from the University of Tokyo and Former Director General, Institute of Space and Astronautical Science; **Jaques Arnould**, Ethic Adviser of the Centre National d'Études Spatiales (CNES); **Simonetta Di Pippo**, Director of the SEE Lab (Space Economy Evolution Laboratory) of the SDA Bocconi School of Management, and Former Director of the United Nations Office for Outer Space Affairs (UNOOSA); **JR Edwards**, Vice President-International of the American Astronautical Society (AAS); and **LIU Zhusheng**, Chief Designer from the China Academy of Launch Vehicle Technology (CALT)



Finally, since 1986, the **Frank J. Malina Astronautics Medal** is presented annually to an educator who has demonstrated excellence in taking the fullest advantage of the resources available to them to promote the study of astronautics and related space sciences. We are proud to remember once more this year's winner: **Shinichi NAKASUKA**, Professor of the University of Tokyo.



As each year, the IAF is pleased to invite you to its Spring Meetings taking place in Paris, France where the IAF community will get together for three days, from 28 – 30 March 2023 in New CAP Conference Centre.



### Spring Meetings 2023 at a Glance

	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
<b>Tuesday 28 March</b>		IDEA "3G" Diversity Breakfast	Committee Meetings				IDEA "3G" Diversity Lunch	Committee Meetings									
<b>Wednesday 29 March</b>		GNF Morning Lecture	Bureau Meeting Part 1						Administrative Committee Meetings		TAC Meeting						IAF Cocktail
<b>Thursday 30 March</b>	IPC General Meeting	DSA Ceremony	IAC Abstract Selection														IAF President Press Conference

Organized by:  Hosted by: 

**GLOC 2023**  
IAF GLOBAL SPACE CONFERENCE ON CLIMATE CHANGE

23 - 25 MAY 2023 | OSLO, NORWAY



## “FIRE AND ICE – SPACE FOR CLIMATE ACTION”: SUBMIT YOUR ABSTRACT FOR GLOC 2023!

**The time for action is now!** These are the last days to submit your abstract for GLOC 2023 and get a chance to present in front of a global audience on the timeliest topics about **space and climate protection**.

The conference will cover transversal topics related to:

- **Topic #1: Understanding and Predicting the Climate Change for our Planet** - This would address the state of understanding of climate change, and the role of space-based observations and research in how we know what we know, how good is our current understanding, what does the future portend? This includes modeling and its predictions.
- **Topic #2: Climate Change Impacts and Challenges** - The role of space-based observations in understanding and addressing the climate change challenges to biodiversity, ecosystems, human health, habitability, economics, disasters, infrastructure, fresh water, sea level rise, and other domains.
- **Topic #3: Earth Observing Missions and Systems to Address Climate Change and Its Impacts** - What are the planned capabilities

and what will they do for policy makers, governments, businesses, and the public? How do we address continuity, and long term data sets which are critical to describing what is happening on our planet.

- **Topic #4: Weather, Climate and Environmental Intelligence** - How are agencies, the commercial, and non-Governmental Organization sectors provide services that are turning data into information for decision makers from Government or the public to achieve climate security and resilience?
- **Topic #5: An Outer Space Perspective on Climate Change (Space Law and Policy)** - What laws and policies are necessary and helpful to best support the space community in addressing and monitoring climate change, and what role can the space community play in supporting effective laws and policies to address climate change
- **Topic #6: Space Technology for Climate Adaptation and Mitigation** - What role can space technology play in adapting to and mitigating climate change? Discuss the key emerging technologies that can make a major difference in understanding the changing planet and provide major in directions for space-based missions.
- **Topic #7: Next Generation of Climate Services** - It covers commercial, public, international, and hybrid services to address everything from emissions regulation, energy efficiency, infrastructure planning, disaster mitigation and response, and climate change adaptation.
- **Topic #8: Business Models and Cooperation for Missions, Data and Services** - It covers how to fund and support missions and services including cooperation across international, public / private, and NGO sectors to address the needs for climate change environmental intelligence
- **Topic #9: The Social, Communications, Economic and Cultural Dimensions of Environmental Change** - How can the space community best communicate and provide its capabilities for societal action... to policy makers, media, public; how can the space community better understand and adapt to the needs of policy makers, media and the public? What role does the media play now and what should it be contributing in the future?

All abstracts will be reviewed by members of the [International Programme Committee](#).

The International Programme Committee (IPC) is selected by the Co-Chairs and assisted by the organizer, the IAF and the Host, NOSA. The IPC members are volunteers from the IAF member organizations. The IAF and NOSA are very grateful for their support.

## IPC – INTERNATIONAL PROGRAMME COMMITTEE

### GLOC 2023 IPC CO-CHAIRS



**James GRAF**  
Director, Earth Science and Technology,  
NASA Jet Propulsion Laboratory,  
United States



**Ole Morten OLSEN**  
Director,  
Business development and Innovation  
Norwegian Space Agency (NOSA),  
Norway



**Barbara J. RYAN**  
Executive Director,  
World Geospatial Industry Council (WGIC),  
United States

### GLOC 2023 IPC Members

- **Ofira Ayalon**, Head of Energy program, Dept. of Natural Resources and Environmental management, and Head of Environment and Energy cluster Former director of Israel Climate Change Information Center (ICCC), University of Haifa and Samuel Neaman Institute, Israel
- **Krystal Azelton**, Director, Space Applications Programs, Secure World Foundation (SWF), United States
- **Tasso Azevedo**, Technical Coordinator / General Coordinator, Brazilian Climate Observatory / Mapbiomas, Brazil
- **Anthony Baker**, Founder & CEO, SatelliteVu, United Kingdom
- **Jonathan Bamber**, Professor, School of Geographical Sciences, University of Bristol, United Kingdom
- **Amir Banifatemi**, Chief Innovation & Growth Officer, Chair of the AI for Good Programme Committee, Xprize Foundation, United States
- **Christian Bank**, Director, Programme Preparation and Development, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), Germany

- **Andrea Bersan**, Vice President Global Industry Business Development, Maxar Technologies, United States
- **Lars-Anders Breivik**, Director of Research, Norwegian Meteorological Institute (MET Norway), Norway
- **Alexandre Caldas**, Chief of Big Data Branch, UNEP's Science Division, UN Environment Programme (UNEP), Switzerland
- **Katherine Calvin**, Chief Scientist and Senior Climate Advisor, National Aeronautics and Space Administration (NASA), United States
- **Thomas Cernev**, Research Affiliate, Centre for the Study of Existential Risk (CSER), United Kingdom
- **Rajae Chafil**, Director, Climate Change Competence Center of Morocco (4C Maroc), Morocco
- **Bruce Chesley**, Former Senior Director of Strategy for Space and Missile Systems, Boeing, United States
- **Harry Cikaneck**, Former Director, NOAA's Center for Satellite Applications and Research (STAR), United States
- **Massimo Claudio Comparini**, Deputy CEO, Senior Executive Vice President Observation, Exploration and Navigation, Thales Alenia Space, Italy
- **Paula do Vale Pereira**, Assistant Professor of Aerospace Engineering, Florida Institute of Technology, United States
- **Ole Dokka**, Executive Director, Spaceport Norway, Norway
- **Albertus J. (Han) Dolman**, Chair of the Steering Committee / Full Professor, Faculty of Science, Earth Sciences, Global Climate Observing System (GCOS) / Vrije Universiteit Amsterdam ('VU Amsterdam'), The Netherlands
- **Shimon Elkabetz**, Co-Founder & CEO, Tomorrow.io, United States/ Israel
- **Nikki Feltham**, Climate & Nature Portfolio Lead, Wasafari Consulting, United Kingdom
- **Lujia Feng**, Principal Research Fellow, Earth Observatory of Singapore, Nanyang Technological University, Singapore
- **Rune Floberghagen**, Head of the Science, Applications and Climate Department, European Space Agency (ESA), Germany
- **Bernard Foing**, Director, ILEWG "EuroMoonMars", The Netherlands
- **Burcu Genç**, International Affairs and Climate Coordinator, Turkish Foundation for Combating Soil Erosion for Reforestation and the Protection of Natural Habitats (TEMA), Turkey
- **Stéphane Germain**, President and CEO, GHGSAT Inc., Canada
- **Joe Gibbs**, Programme Engineering Manager / PhD Candidate in Aerospace Sciences, OirthirSAT, United Kingdom
- **Rei Goffer**, Co-Founder & CSO, Tomorrow.io, United States / Israel
- **Mitch Goldberg**, Chief Scientist, National Environmental Satellite, Data, and Information Service (NOAA/NESDIS), United States
- **Beth Greenaway**, Head of Earth Observation and Climate, UK Space Agency / Space4Climate, United Kingdom
- **Sonia Guajarara**, Indigenous Leader and Executive Coordinator, Articulation of Indigenous Peoples of Brazil (APIB), Brazil
- **Steven Hamburg**, Chief Scientist, Environmental Defense Fund (EDF), United States
- **Christian Hauglie-Hanssen**, Director General, Norwegian Space Agency (NOSA), Norway
- **Marcia Hirota**, Executive Director, Fundação SOS Mata Atlântica (SOSMA), Brazil
- **Uche Igwe**, Senior Political Economy Analyst and Visiting Fellow, LSE Firoz Lalji Centre for Africa / International Centre for Policing and Security, University of South Wales, Nigeria
- **Tørris Jæger**, Secretary General, The Rainforest Foundation, Norway
- **Johnny Johannessen**, Deputy Director Ocean and Sea Ice Remote Sensing, The Nansen Environmental and Remote Sensing Center, Norway
- **Claire Jolly**, Head, Ocean Economy Group, OECD Space Forum, Organisation for Economic Cooperation and Development (OECD), France
- **Frida Karani**, Founder, Sustainable Climate Action in Africa Conference, Kenya
- **Ruth Kattumuri**, Senior Director for Economic Youth and Sustainable Development, Commonwealth of Nations, India / United Kingdom
- **Luke Kemp**, Research Associate, The Centre for the Study of Existential Risk (CSER), University of Cambridge, United Kingdom
- **Adessou Kossivi Nevaeme**, Board Co-Chair, Climate Action Network International / Global Network of CSO for Disaster Reduction (GNDR), Senegal
- **Damien Kuhn**, Chief Operating Officer, Kinomé, France
- **Leo S. Mackay, Jr**, Senior Vice President, Ethics and Enterprise Assurance, Lockheed Martin (LMC), United States
- **Pooja Mahapatra**, Chair of the Disaster Resilience Working Group, Fugro/World Geospatial Industry Council, The Netherlands
- **Ryan McKinney**, Vice President and General Manager, Satellogic, United States
- **Christopher Merchant**, Professor in Ocean and Earth Observation, University of Reading, United Kingdom
- **Andiswa Mlisa**, Interim CEO, South African National Space Agency (SANSA), South Africa
- **Fiona Moejes**, CEO, Mawazo Institute, Kenya
- **Marianne Moen**, Communication Director, Norwegian Space Agency (NOSA), Norway
- **John E. Moores**, York Research Chair in Space Exploration, Department of Earth and Space Science and Engineering, York University /Science Advisor to the President, Canadian Space Agency (CSA), Canada
- **Sarah Mukherjee**, CEO, Institute of Environmental Management & Assessment (IEMA), United Kingdom
- **Kumar Navulur**, Senior Director of Strategic Growth, Maxar Technologies, United States
- **Hannes Ottósson**, Senior Adviser, Research and Innovation Division, Icelandic Centre for Research (Rannís), Iceland
- **Kim Peart**, Director, Space Pioneers Foundation, Australia
- **Clare Perry**, Climate Campaign Leader & Senior Ocean Adviser, Environmental Investigation Agency, United Kingdom
- **Steven Ramage**, Chief Engagement Officer, Group on Earth Observations (GEO), United Kingdom
- **Giovanni Rum**, ASI's PoC for the Space Climate Observatory (SCO), Senior Consultant on Earth Observation issues, Italian

- Space Agency (ASI), Italy
- **Paolo Ruti**, Chief Scientist, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), Germany / Italy
- **Robbie Schingler**, CEO and Founder, Planet Labs, United States
- **Gunter Schreier**, Deputy Director, German Remote Sensing Data Center (DFD) of DLR, Germany
- **Brent Smith**, Former Director, International and Interagency Affairs, National Oceanic and Atmospheric Administration (NOAA), United States
- **Sabrina Speich**, Full Professor, Physical Oceanography and Climate Sciences, Laboratoire de Météorologie Dynamique, Ecole Normale Supérieure, France
- **Kerstin Stebel**, Senior Scientist, Norwegian Institute for Air Research, Norway
- **Linda Anne Stevenson**, Head of Knowledge Management and Scientific Affairs, Deputy Head of Development and Institutional Affairs, Asia-Pacific Network for Global Change Research (APN), United Kingdom
- **Jean-Noël Thépaut**, Director of Copernicus Services, European Center for Medium Range Weather Forecasts (ECMWF), France

- **Anna Maria Trofaier**, Cryosphere Scientist, European Space Agency (ESA), Austria
- **John van Aardenne**, EEA Expert, European Environment Agency (EEA), Denmark
- **Andrea Vena**, Chief Climate and Sustainability Officer, European Space Agency (ESA), France
- **Sara Venturini**, Climate Coordinator, Group on Earth Observations (GEO), Switzerland
- **Kevin Ward**, Co-Founder & Team Leader, NASA Earth Observatory Group, United States
- **Charles Wooldrige**, Director, International and Interagency Affairs Office, National Environmental Satellite, Data, and Information Service (NOAA/NESDIS), United States
- **Nigel Yoccoz**, Professor, Department of Arctic and Marine Biology, UiT The Arctic University of Norway, Norway
- **Colin Young**, Executive Director, Caribbean Community Climate Change Centre (CCCCC), Belize
- **Andreas Ytterstad**, Journalist, Associate Professor of Journalism and Media Studies, Oslo Metropolitan University (OsloMet), Norway



Participants wishing to present a paper are invited to submit an abstract by **23 December 2022** in English and not exceeding 400 words through <https://iafastro.directory/iac/account/login/>.

Accepted papers will be included in the conference proceedings, the [IAF Digital Library](#) and will be indexed with SCOPUS and EI Compendex.

### Questions?

Please contact [gloc2023@iafastro.org](mailto:gloc2023@iafastro.org).

[YOU CAN SUBMIT YOUR ABSTRACT HERE](#)

## Become part of GLOC 2023 as one of the official sponsor and exhibitor!

Become a sponsor to show and demonstrate what space solutions can bring to battle climate change and why Earth observation is critical to implementing global environmental goals.

Our wide range of sponsorship opportunities can be selected according to each organization's interest and needs. You will find exciting benefits and packages that will allow you to display your brand before and have great networking opportunities and exposure!

In addition, GLOC 2023 will host a small exhibition, giving organizations the opportunity to present products and services and interact with key decision-makers and potential new partners.

[Download the GLOC 2023 Sponsorship and Exhibition Prospectus here](#)

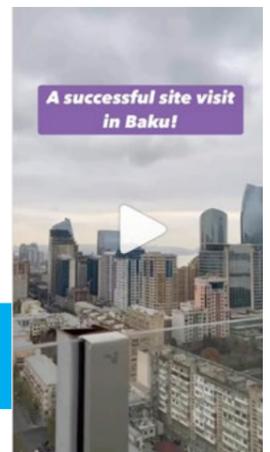


Christian Hauglie-Hanssen interviewed by IAF Congress TV at the IAC 2022.



The entire IAF Secretariat team flew to Baku, Azerbaijan for the classic site visit. It has been a delight! The rich and flavorful food, the excellent hospitality, the deep-rooted cultural traditions, the amazing architectural buildings, and the friendliness of the locals.

It is true what they say: Azerbaijan has the world's best hospitality because Azerbaijani people have very interesting and instructive traditions of hospitality!



[Check here the video of the site visit:](#)

## Do Not Delay And Submit Your Abstract for The IAC 2023 Today!

IAC 2023 will offer unparalleled exposure for your research across the space field. Submit your Special Session proposal by 10 February 2023 or your abstract by 28 February 2023 for the opportunity to feature your work among 3000 presentations covering all space disciplines.

### Don't know where to start?

Read the SpS Guidelines and get answer to Frequently Asked Questions on abstract submission:

Special Session Guidelines

<https://www.iafastro.org/assets/files/events/iac/2023/special-sessions-flyer-iac-2023.pdf>

Abstract Submission FAQ

<https://www.iafastro.org/assets/files/events/iac/2023/iac-2023-abstract-submission-faq.pdf>

Please note that the first time you enter the site, you will be required to create a user profile.

Submit an abstract or SpS

<https://iafastro.directory/iac/account/login/>

If you have difficulties submitting your SpS proposal or abstract or have additional questions, please let us know at [support@iafastro.org](mailto:support@iafastro.org)

## Apply Now for the 2023

## IAF Emerging Space Leaders (ESL) Grant Programme

Apply now and get the exclusive opportunity to be fully funded by the IAF for the IAC 2023 in Baku, Azerbaijan next October!

The International Astronautical Federation (IAF) is pleased to announce its **2023 IAF Emerging Space Leaders (ESL) Grant Programme** that provides opportunities for students and young professionals to participate in the annual International Astronautical Congress.

The young people selected to take part in the 2023 IAF Emerging Space Leaders Grant Programme will participate in the **74<sup>th</sup> International Astronautical Congress (IAC)** scheduled to take place in **Baku, Azerbaijan** from **2 - 6 October 2023**. The individuals selected will also participate in other activities held the week prior to and during the Congress such as the UN/IAF Workshop or the Space Generation Congress (SGC) and the Cross-Cultural Communications and Presentation Workshop. **Please note that only a few selected Emerging Space Leaders will be able to participate in the 2023 Space Generation Congress. To be considered as a possible Space Generation Congress participant, please fill out the SGC Delegates Application Form available on the SGAC website. The selection will be made following the SGC delegates selection criteria available on the SGAC website.**

Students and Young Professionals between the ages of 21 and 35 on 1 January 2023 with space-related career interests are encouraged to apply for the programme. Up to thirty students and young professionals will be selected by the IAF to participate in the 2023 programme.

### Who should consider applying?

- Individuals interested in pursuing careers involving the

development, application and use of space systems, space science research, the policy, legal, social and cultural aspects of space activities, international cooperation on space programmes and other similar subjects.

- Persons who - for financial, sponsorship or other reasons - **would not otherwise be able to attend an International Astronautical Congress.**

**Note:** Candidates may apply regardless of their home country or current residence. While all applications will be considered, through this programme the IAF seeks to encourage the participation of young people in nations with emerging space capabilities and interests who would otherwise not be able to attend an International Astronautical Congress.

- Young people who wish to meet and interact with other colleagues from around the world with similar interests.
- Individuals who hope to utilise the knowledge and experiences they gain during the IAC in their own careers and in enhancing space and related activities in their home countries.

### What does the grant include?

- Round trip air fare between the candidate's home/residence country and Baku, Azerbaijan
- Support (in kind-services or funding) for local transportation, lodging and meals during the candidate's stay in Baku, Azerbaijan
- Assistance with visa arrangements provided by the IAC Local

- Organizing Committee and the Government of Azerbaijan
- Registration to the 74<sup>th</sup> International Astronautical Congress as well as the 2023 Space Generation Congress or the 2023 UN/IAF Workshop. Please note that only a few selected Emerging Space Leaders will be able to participate in the 2023 Space Generation Congress. To be considered as a possible Space Generation Congress participant, please fill out the SGC Delegates Application Form available on the SGAC website. The selection will be made following the SGC delegates selection criteria available on the SGAC website.
- Participation in the Cross-Cultural Communications and Presentation Workshop
- Mentors will provide advice on presentations at the IAC and on activities before and during the IAC to help grant recipients benefit fully from the Congress and related meetings and meet with the grant recipients during the IAC.

**Application Deadline: 31 January 2023 15:00 Paris Time / UTC + 1:00**

For detailed information, application process and requirements please download our "[2023 IAF Emerging Space Leaders Grant Programme Handbook](#)".

We look forward to receiving your applications!



2022 IAF Emerging Space Leaders at IAC 2022 in Paris, France

## Nominate a Candidate for the 2023 IAF Young Space Leaders (YSL) Recognition Programme

The International Astronautical Federation (IAF) is pleased to announce its:

### 2023 IAF Young Space Leaders (YSL) Recognition Programme

that will provide opportunities to recognize students and young professionals who are demonstrating exceptional leadership in their academics or early careers. The IAF is soliciting nominations for the 2023 IAF Young Space Leaders Recognition Programme from IAF Members, Regional groups and Technical and Administrative Committees on students and young professionals between the ages of 21 to 35 years on 1 January 2023 who are:

- Contributing to astronautics through their academic and/or professional activities,
- Reaching out to other young people and to their community to share knowledge and experience,
- Engaging colleagues in the international space community,
- Contributing to the work of IAF committees and/or volunteering in support of other Federation activities such as physical or virtual participation in selection activities related to IAF grants, Next Generation Plenary and awards; participation in organization of IAC technical sessions and other activities; and participation on local organizing committees for IAF Global Conferences such as GLEC, GLAC, GLEX and other IAF meetings. (Note: Attendance at International Astronautical Congress does not in itself qualify).

Nominations should contain:

- A nomination letter from an IAF member organization, an IAF Technical Committee or an IAF Administrative Committee summarizing the nominee's qualifications and specifying how the nominee meets the criteria (please download the template on [Nomination Letter Template](#))
- Two letters of recommendation addressing the contributions and engagement of the nominee.

The 2023 IAF Young Space Leaders (YSL) will be selected by the Federation's Young Space Leaders Selection Subcommittee in consultation with the IAF President during March 2023. The Federation will notify the nominating organizations of those selected and subsequently the selectees themselves no later than 1 May 2023.

**The IAF Young Space Leaders will be inducted at the Closing Ceremony of the 74<sup>th</sup> International Astronautical Congress (IAC), from 2 – 6 October 2023 in Baku, Azerbaijan. They will attend the IAC Gala Dinner as guests of the IAF President. Although travel expenses to attend the IAC will not be provided by the IAF, the IAC registration fee will be waived. Nominators are encouraged to help identify sources of funding for their nominee if he/she is selected.**

IAF Young Space Leaders will help increase knowledge among and broaden the involvement of students and young professionals worldwide in astronautics activities and the IAF.



IAF Young Space Leaders 2022 in Paris, France at IAC 2022

In the year following their induction, IAF Young Space Leaders will:

- Be featured in an IAF newsletter and on the IAF website, contributing a short summary of their experience and achievements and their perspectives on space and international cooperation, including the role of the IAF.
- Mentor the Emerging Space Leaders (ESL) who receive IAF grants to attend the IAC in Baku.

Please send the nomination materials before **19 December 2022 15:00 CET** (Paris time) to the IAF Secretariat, preferably by email at [award@iafastro.org](mailto:award@iafastro.org) (Subject line: NOMINEE'S LAST NAME Nominee's First Name-2023 YSL).

## IAF Launchpad Mentorship Programme



The **IAF Launchpad Mentorship Programme** is focused on professional mentorship and career development of early- to mid-career professionals and recent graduates entering the space industry. In this programme, you will be paired with experience, senior professionals in the space industry. The IAF Launchpad Mentorship Programme aims to facilitate career development and leadership capabilities of the Mentee and provide a platform for enhanced communication between the generations represented within the IAF.

The Mentees selected for the IAF Launchpad Mentorship Programme will have access to some of the most notable leaders within the industry, gaining key insights and advice to help their careers move forward. They will also have the ability to take part in professional development designed specifically for this programme.

### Application Process for Mentees

Mentees for the 2023 IAF Launchpad Mentorship Programme are selected through a competitive and open application process. Candidates from any country are welcome to apply. Eligible candidates are within 10 years of completing their terminal degree (NOT in school) or a job/career change. Although there are no age restrictions to the IAF Launchpad Mentorship Programme, Mentee applications between 25-40 years of age will be prioritized. In the application, you will need to prepare to provide your resume and at least one letter of recommendation from an IAF member organisation.

Successfully selected Mentees will be paired for one-on-one mentorship based on multiple factors within the application process.

The Selection Committee will be reviewing your:

- Career goals;
- Reasons for wanting to be part of this programme;
- Goals you hope to achieve in this programme;
- Educational and career background; AND
- Expectations from your Mentor.

### Eligibility to participate as a Mentee

To be a Mentee in the 2023 IAF Launchpad Mentorship Programme, you must fulfill the following criteria:

- Mentees must be within 10 years of their terminal degree or a major job/career change. You MAY NOT still be in school. If you are a student and looking for mentorship, IAF Partner Organisations, including The Space Generation Advisory Council, have targeted programmes for this audience.
- Demonstrate active involvement with an IAF committee or programme, SGAC, AIAA, IAA, IISL, ISU or other professional committees and organisations
- Mentees must agree to meet with their Mentor for a minimum of 6 hours, at a mutually agreed upon time, throughout the 6 month duration of the programme
- Mentees must participate in professional development activities throughout the course of the programme

### Application Requirements

To apply for this programme, you will need to complete an application form (below) which will help in identifying the best possible Mentor to suit your goals and objectives. Mentee application requirements include the following:

- Mentee Application Form
- Applicant's Resume (MAX 2 pages)
- A minimum of one reference letter from an IAF Member Organisation

### Engagement with Mentors

The 2023 IAF Launchpad Mentorship Programme will run for a period of approximately 6 months. The programme will begin in February 2023 and end in August 2023. A minimum commitment of 6 hours of contact with your mentor during this 6-month period is encouraged. These can be at a time and duration that suits both parties.

Most communication and participation in this programme will be virtual, using web-based conferencing platforms. If permitted, we will have in-person meetings, workshops, panels, etc. set-up during the IAF Spring Meetings 2023 and IAC 2023 in Baku.

The IAF Launchpad Mentorship Programme intends to meet the Diversity and Inclusion policies of the IAF.

### Key Dates

- Mentee Applications Open: **December 12, 2022**
- Mentee Applications Close: **January 6, 2023**

- Mentee Selections Announced: **early February 2023**
- 2023 Programme Period: **February – August 2023**

### What should I expect if I am selected as a Mentee?

If you are selected as a Mentee, you will be matched with a mentor and notified of your match by email. We consider the Mentee to be the "driver" of the relationship. Therefore, you are required to make initial contact with your Mentor. An introductory meeting will be held to allow all new Mentees and Mentors to meet virtually. Mentees and Mentors will continue to manage their relationships for the remainder of the 6-month period. Throughout the programme, we will organise professional development seminars. We expect you to do your best to attend these as it will enhance your experience in the programme. After this programme ends, the Mentee and Mentor may elect to finalise their mentoring relationship or extend it beyond this formal period. Once the programme has finished, Mentees and Mentors will be asked to provide feedback on the programme by completing an evaluation form.

At this time, we hope to include some in person events at the IAF 2023 Spring Meetings and IAC 2023. More info to come.

For any further information or questions, please email [launchpad@iafastro.org](mailto:launchpad@iafastro.org).

## IAF Abstract Mentor Programme (AMP) – Get involved and get the chance to have your abstract selected for IAC 2023!



With the desire to cultivate the best in the **next generation** of researchers in the space field, the IAF has initiated a mentor programme in which **early career researchers** (e.g., undergraduate or master students, PhD candidates) can share experiences with more experienced researchers. The programme is open to anyone and is completely independent of the abstract review and selection process.

The **programme** especially targets researchers and new authors from **resource-limited** settings, who lack access to opportunities for rigorous **mentoring** in research and writing. The aim is to build capacity for a new generation of researchers and **increase the diversity** of speakers at the IAC.

**Mentors will be paired with early career mentees** based on their common field of interests (Science & Exploration, Applications & Operations, Technology, Infrastructure, Space & Society).

### Submit Your Draft Abstract for Mentoring

If you do not have a lot of experience in writing abstracts, a mentor can help you. We have a pool of expert mentors who can provide **advice and feedback** on how to write successful abstracts for each of the Technical Programme categories.

Experienced abstract submitters can offer you feedback on your draft IAC 2023 abstract and answer your questions on practical issues, such as formal requirements on abstract writing and the quality of the data collected. The deadline for submitting your abstract for the IAF AMP is **20 January 2023**.

### Become a Mentor

Mentors can apply for the programme until 15 December 2022.

Mentors must have had at least two abstracts accepted at an IAC and/or should be a member of the International Programme Committee. Becoming a mentor presents an excellent opportunity for **enhancement of leadership and coaching skills**.

Learn more about the IAF AMP at: <https://www.iafastro.org/events/iac/iac-2023/technical-programme/iaf-abstract-mentor-programme.html>



**IAC 2024**

You are all invited to the **75<sup>th</sup> International Astronautical Congress (IAC)**, scheduled for **14-18 October 2024**, in **Milan, Italy** under the motto **“Responsible Space for Sustainability”**.



**IAC 2025**

**Sydney (Australia) was selected as a Host city for IAC 2025!**

**Congratulations to the SPACE INDUSTRY ASSOCIATION OF AUSTRALIA (SIAA) an IAF Member since 2012**



**CALL FOR HOSTING THE IAC IN 2026 FOR IAF MEMBERS ONLY**

Each year the International Astronautical Federation (IAF) – with the support of its partners the International Academy of Astronautics (IAA), the International Institute of Space Law (IISL) and the Space Generation Advisory Council (SGAC) – organizes the International Astronautical Congress (IAC). The IAC is held in different countries of the world with an IAF member organization serving as its Host. In recent years, the event attracted between 4,500 and 9,500 participants including more than 40% students and young professionals. The IAF is seeking proposals from IAF member organizations interested in serving as the host of the 77<sup>th</sup> IAC which will be held in 2026.

- Deadline for submission of proposals **28 April 2023**
- Selection of finalist candidates (if applicable) **June 2023**
- Site Inspections **July - August 2023**
- Deadline for submission of updated proposals from the candidates **8 September 2023**
- Finalist presentations: during the 74<sup>th</sup> IAC in Baku, Azerbaijan **2 – 6 October 2023**
- Selection of the Host by the IAF General Assembly **6 October 2023**

*Note: The IAF may – at its discretion – modify the above schedule and notify the concerned organizations of the schedule changes.*

Before applying please do consult the **Call for Hosting the IAC 2026**

[Call for Hosting IAC 2026](#)

[Room Planner](#)

[IAC 2026 Rooms Table](#)

All required documents should be sent to:

**Dr. Christian Feichtinger**  
**International Astronautical Federation**  
**100 Avenue de Suffren**  
**75015 Paris - France**  
 or by Email: [christian.feichtinger@iafastro.org](mailto:christian.feichtinger@iafastro.org)

It is expected that after the official endorsement of the hosting proposal by the IAF General Assembly, a contract will be signed between the IAF and the Host Organisation which clearly outlines the roles and responsibilities of each party.

The schedule for the selection of the site of the 77<sup>th</sup> IAC is as follows:

- Announcement of Call for Proposals **28 October 2022**
- Deadline for notices of intent to submit proposals **17 February 2023**

The IAF has received letters of Intent to bid for the IAC 2026 from the following IAF Members:

Budapest, Hungary: by [Hungarian Astronautical Society \(MANT\)](#)



# IAF Committee Briefs

## THE IAF COMMITTEE BRIEFS 2022 WINTER EDITION ARE AVAILABLE ONLINE!

Read about the latest developments and trends in space right now, and learn more about the IAF Committees and their upcoming projects.

The Committees are the backbone of the Federation and powerful sources of knowledge. They are composed of members from all over the world in different space fields, who discuss and anticipate the evolution of space activities.

Please find the list of the IAF Committee Briefs below:

- [Astrodynamics Committee](#)
- [Commercial Spaceflight Safety Committee](#)
- [Committee on Planetary Defense and Near Earth Objects \(NEOs\)](#)
- [Committee on Space Security](#)
- [Earth Observations Committee \(EOC\)](#)
- [Enterprise Risk Management Committee \(ERMC\)](#)

- [Human Spaceflight Committee](#)
- [Microgravity Sciences and Processes Committee](#)
- [Space Astronomy Technical Committee](#)
- [Space Communications and Navigation Committee \(SCAN\)](#)
- [Space Education and Outreach Committee \(SEOC\)](#)
- [Space Entrepreneurship and Investment Committee \(SEIC\)](#)
- [Space Exploration Committee](#)
- [Space Habitats Committee](#)
- [Space Operations Committee](#)
- [Space Propulsion Committee](#)
- [Space Systems Committee](#)
- [Space Traffic Management Committee](#)
- [Space Transportation Committee](#)

Enjoy this reading and do not hesitate to reach out to us in case you are interested in knowing more about an [IAF Technical Committee](#) at [support@iafastro.org](mailto:support@iafastro.org).

## WELCOME TO NEW IAF MEMBERS

The International Astronautical Federation is pleased to welcome all the organizations that decided to join the International Astronautical Federation in 2022!

Congratulations on joining the world's largest international space organization. Being an IAF Member means to have access to the Federation's outstanding network of **468 member organizations from 75 countries**, including the leading space agencies, corporations, space societies, research institutes, universities, associations, and museums worldwide.

As an IAF Member, you are part of a global community that advances new technologies and space-based applications, discusses policy matters, and promotes awareness about how space benefits life here on Earth. **Together, we engage all space actors, to grow our sector and foster cooperation while pursuing our goal of "Connecting @II Space People."**



Please read through this short pamphlet titled **WELCOME KIT FOR NEW MEMBERS** presenting the numerous ways in which IAF Members can get involved in Federation activities.



IAF Members have the opportunity to engage directly in the Federation's activities and contributing to shaping the space conversation:

[Join one of the IAF Committees](#)

[Host an IAF Event and nominate IAF Officers](#)

[Shape the Programme of IAF events by submitting a Plenary or a GNE](#)

[Provide content for the IAF Newsletter](#)

[Access the IAF Digital Library for free](#)

[Participate in the IAF Member of the Month Initiative](#)

## JOIN THE IAF!

Since its founding in 1951, the International Astronautical Federation - IAF has seen its Members growing constantly over the years. This phenomenon has resulted in the Federation becoming the pillar of the space community making its network wider and stronger.

At the beginning, space societies understood the importance of cooperating for advancing knowledge. As a consequence, over time, the IAF also opened up to all kind of organizations contributing to the progresses in the space sector; from space agencies to universities, from small and innovative start ups to the leading companies in the field, from museums to foundations and associations.

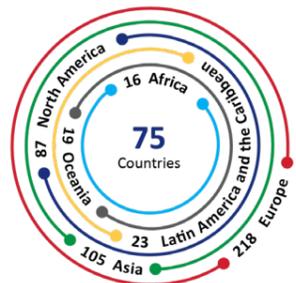
The IAF then grew into representing the whole space community and this proved to be the right path. Over the past few year the annual increase of members has broke many records.

One of our main goal is to truly represent the space sector, with all its changes and actors. Indeed, everyone is welcome! Space agencies including from the newest space emerging countries, organizations sharing the mission of cooperating, universities from various parts of the world, companies active in the most innovative fields, and institutes contributing daily to the advancement of knowledge, you are all invited to join us!

To effectively help the community to meet and share, we first need to include as many people as possible in our network. That is why, we are extremely glad to let you know that progressively more organizations are deciding to **join us, the world's leading space advocacy body with 468 members in 75 countries** and we invite you all to get in touch with us should you wish to become part of this wonderful network.

[Contact Martina Fabbiani to receive more info on how your organization can become an IAF Member!](#)

### BECOME AN IAF MEMBER



## BECOME AN IAF ALLIANCE PARTNER!



Are you an IAF Member?

Would you like to further even more your ties with the IAF?

Get more involved in all the Federation's activities throughout the year and be able to showcase your organization, with a prominent visibility on all of our communications and publications?

Then, it is time for you to discover the **IAF Alliance Programme!**

### What is it?

The IAF Alliance Programme was launched in 2015 with the aim of providing IAF Members with additional opportunities to become more involved in the Federation's activities. The Alliance Programme is designed to increase the ties between the Federation and its Members, through the provision of mutually beneficial strategic partnerships, that would positively contribute to the strength of the Federation and its ability to provide enhanced services to all its members. The programme aims at serving the interest of all the Members of the Federation and is open to all IAF Members.

### How does it work?

The IAF Alliance Programme targets IAF member organizations who wish to contribute to the Federation over and above their membership dues obligations. IAF members that are part of the IAF Alliance Programme will become "IAF Alliance Partners". The programme will provide your organization a year-round partnership and unique prominence at all IAF events.

Multiple benefits are available, which will involve your organization even more in all IAF activities and give your company great visibility in all IAF publications and communication channels.

Several levels of Alliance Partnerships are available, the Federation will provide flexibility to fully meet the needs of the partner.

**Don't wait any longer, become an IAF Alliance Partner!**

### IAF Alliance Programme Partners



## NEWS!

### 5<sup>th</sup> Symposium of the Committee on Space Research (COSPAR): Space Science with Small Satellites "COSPAR 2023"

**Date:**  
16 – 21 April 2023

**Place:**  
Singapore

**Contact:**  
COSPAR Secretariat  
[cospar@cosparhq.cnes.fr](mailto:cospar@cosparhq.cnes.fr)  
<https://www.cospar-assembly.org> (scientific program, abstract submission)  
<https://www.cospar2023.org/> (registration, accommodation, etc.)

**Host Organizations:**  
Nanyang Technical University and the Office for Space Technology and Industry, Singapore

**Abstract Deadline:**  
31 December 2022

### Topics:

- Space Science with Small Satellites
- Space Debris Monitoring and Mitigation Using Small Satellites
- Earth Observation and Environment Monitoring from Small Satellites
- Deep-Space Science and Exploration with Miniaturized Systems
- Capacity Building with Small Satellites – a COSPAR-INSPIRE Long Term Plan
- Enabling Technologies from Small Satellites
- Microsatellites for Space Weather and Radio Astronomy
- Establishing a Constellation of Small Satellites

Selected papers published in *Advances in Space Research and Life Sciences in Space Research*, fully refereed journals with no deadlines open to all submissions in relevant fields.

### 45<sup>th</sup> Scientific Assembly of the Committee on Space Research (COSPAR) and Associated Events "COSPAR 2024"

**Date:**  
13 – 21 July 2024

**Place:**  
Busan, South Korea

**Contact:**  
COSPAR Secretariat  
[cospar@cosparhq.cnes.fr](mailto:cospar@cosparhq.cnes.fr)  
<https://www.cospar-assembly.org> (scientific program, abstract submission)  
<https://www.cospar2024.org/> (registration, accommodation, etc.)

**Host Organizations:**  
Ministry of Science and ICT, Korean National Committee for COSPAR

**Organizers:**  
Korea Astronomy and Space Science Institute (KASI), The Korean Space Science Society

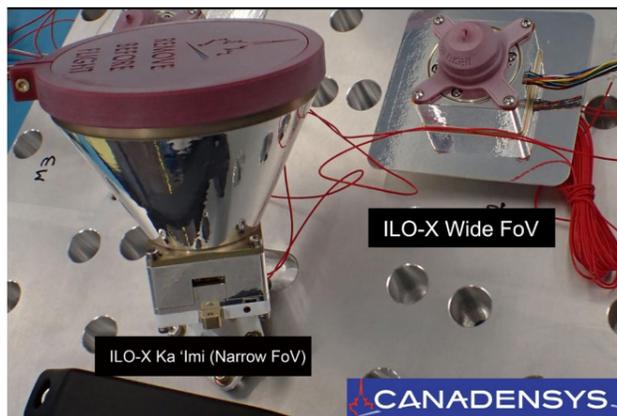
**Abstract Deadline:**  
mid-February 2024

**Topics:**  
Approximately 140 meetings covering the fields of COSPAR Scientific Commissions (SC), Panels, and Task Groups:

- SC A: The Earth's Surface, Meteorology and Climate
- SC B: The Earth-Moon System, Planets, and Small Bodies of the Solar System
- SC C: The Upper Atmospheres of the Earth and Planets Including Reference Atmospheres
- SC D: Space Plasmas in the Solar System, Including Planetary Magnetospheres
- SC E: Research in Astrophysics from Space
- SC F: Life Sciences as Related to Space
- SC G: Materials Sciences in Space
- SC H: Fundamental Physics in Space
- Panel on Satellite Dynamics (PSD)
- Panel on Scientific Ballooning (PSB)
- Panel on Potentially Environmentally Detrimental Activities in Space (PEDAS)
- Panel on Radiation Belt Environment Modelling (PRBEM)
- Panel on Space Weather (PSW)
- Panel on Planetary Protection (PPP)
- Panel on Capacity Building (PCB)

- Panel on Education (PE)
- Panel on Exploration (PEX)
- Panel on Interstellar Research (PIR)
- Panel on Innovative Solutions (PoIS)
- Panel on Social Sciences and the Humanities (PSSH)
- Task Group on Establishing a Constellation of Small Satellites (TGCSS)
- Task Group on Establishing an International Geospace Systems Program (TGIGSP)
- IDEA (Inclusion, Diversity, Equity, and Accessibility) Initiative Task Group (IITG)

Selected papers published in *Advances in Space Research* and *Life Sciences in Space Research*, fully refereed journals with no deadlines open to all submissions in relevant fields.



International Lunar Observatory Association is preparing ILO-X dual astronomical imagers for March 2023 launch on SpaceX Falcon 9 rocket aboard Intuitive Machines Nova-C lunar lander. A Narrow Field of View imager together with its Wide Field of View twin compose the ILO-X instrument suite. The NFoV has received the name Ka 'Imi (The Search) after a Hawaii-wide student naming competition conducted in consultation with Hawaii cultural practitioners and traditional astronomers. ILO-X Ka 'Imi will conduct observations from the surface of the Moon, including first light targeting the Milky Way Galactic Center. Invited observation objectives from professional astronomers and observatories from Thailand, Canada, China, Chile, Austria, The Netherlands, Hawaii and the USA mainland will utilize the ILO-X WFOV camera, which is yet to be named. These observations will provide proof-of-concept for conducting Astronomy from the Moon utilizing low-cost commercial launch, landing and engineering options, including prime instrument

contractor Canadensys Aerospace Corp of Bolton, Ontario. ILOA and Canadensys, at the 2022 annual ILOA Board of Directors meeting in Kamuela, signed a contract to develop and support the next iterations of our Lunar Observatory, ILO-1 and ILO-2 backup. This flagship mission to the Moon South Pole region will feature 2-axis pointing capability, allowing lunar astronomers freedom to direct observations within the southern sky. ILOA is currently considering Moon South Pole destinations, launch and landing providers, and welcomes collaboration with other interested parties.



During the IAC2022, SpaceLand™, namely the 1<sup>st</sup> non-governmental weightless R&D agency offering space-related educational and training programs, confirmed that its open-door engineering & operational "Centers of Excellence for Microgravity" will soon be enriched thanks to a unique flight segment, capable to really democratize access to microgravity, Moon-gravity and Mars-gravity for All !

A history-making agreement has been signed with US partners to initiate exclusive zero-gravity *parabolic flights* from *Switzerland, Italy and Mauritius* serving *STEM user communities and tourists* in respective territories and bordering Countries, at unprecedented quality vs. cost ratios.

The news was detailed during the one and only invited speech at the NASA-JPL IAF Idea Breakfast event in Paris by Dr. Carlo Viberti, ESA Zero-G Flight Veteran, renowned to have been proposed by MIR Corp as history-first private cosmonaut nominee Corp (back in 2000), now President of SpaceLand.

As first part of this exclusive agreement, a fleet of specially-modified Boeing 757 Space Jet™ aircrafts will be stationed in SpaceLand Centers in each continent, to provide such flight experiences to consumers and researchers on a monthly recurring basis.

Also thanks to its own underwater camps, SpaceLand has already showcased such a "space-democratization" program, preparing and flying the world's oldest zero-G test subject (93-year-old), world's first 100% disabled woman in weightlessness and the youngest ever 0-G test subject (11-yr-old Kim Marco Viberti), also to qualify biomed hardware for the Space Station ISS and including testing for teams led by Levi-Montalcini, Nobel Prize winner for Medicine to study Alzheimer's syndrome and human longevity extension.

"Our game-changing Centers in holistic-lifestyle sites will satisfy strong market demand for low-cost access to microgravity.

Based on our world records for 0-G STEM R&D with people from 11 to 93 years of age, even with physical disabilities, we follow on our earlier pathfinder missions from the NASA KSC Space-Shuttle Landing Facility with cutting-edge techno-testing and lifespan-extension R&D for top-level scientists. At the SpaceLand Center, anybody will experience immersive 'space environments' with low-gravity ground & underwater facilities and edu-research labs in future-looking habitats designed for Mars, prior to boarding Lunar-G and Mars-G flights at a fraction of current market costs," said Dr. Carlo Viberti.

50 times less expensive than much more risky sub-orbital flights, SpaceLand really opens *Space for All*.

First flight opportunity in April 2023: write to [SpaceLand@SpaceLand.it](mailto:SpaceLand@SpaceLand.it) to become a Spacelander !



## Space Launch System (SLS)

The massive Space Launch System (SLS) core stage and solid-fueled boosters erupted to life Wednesday morning to launch the first human-rated spacecraft to the moon in almost 50 years. Liftoff came at 1:47 a.m. Eastern time on November 16, 2022. After a series of perfectly timed burns, the uncrewed Orion separated from its SLS booster after less than two hours on a path to lunar orbit.

Burning tons of fuel every second, the largest rocket since the Saturn V sprang off the launch pad at NASA's Kennedy Space Center in Florida and rode a column of smoke and fire into Earth orbit before the Boeing-built core stage depleted its 733,000 gallons (2.8 million liters) of cryogenic propellant and dropped away to fall into the Pacific Ocean.

The Interim Cryogenic Propulsion Stage (ICPS), built by United Launch Alliance for Boeing, took over to first raise Orion's orbit around Earth and then acceleration to more than 22,600 mph (40,234 kilometers per hour) so Orion could escape Earth's gravity.

Standing more than 212 feet (65 meters) tall, the core stage alone was the largest single stage to ever fly. Combined with the ICPS, Orion spacecraft and the two solid-fueled booster rockets, the entire launch vehicle stood 322 feet (98 meters) and weighed more than 5 million pounds (2.3 million kilograms) fully fueled. At liftoff, the SLS generated 8.8 million pounds (4 million kilograms) of thrust, which is more than 1 million pounds (454,000 kilograms) more than the Saturn V.



## EOSDA strategic alliance with AgriProve to revolutionize regenerative agriculture for partnering farmers and planet

A strategic alliance between [EOS Data Analytics \(EOSDA\)](#), a global provider of AI-powered satellite imagery analytics, and [AgriProve](#), an Australian soil carbon leader, will transform regenerative agriculture practices for farmers.

EOS Data Analytics will combine its high-detail satellite imagery, analytical expertise, and machine learning capabilities with AgriProve's extensive on-ground and proximal data assets to generate new high-resolution, high-accuracy on-farm models and measurement approaches to boost prediction capabilities and evolve new land management practices.



AgriProve will harness the satellite data enhanced by EOS Data Analytics through digital farm twinning to provide partnering farmers with a visual representation of their land and highlight the best pathways to productivity for each property. Extensive datasets from various satellite sensors will provide advanced and highly detailed readings on vegetation, ground health, and [soil moisture](#).

"The soil organic carbon project we're implementing with AgriProve is a great example of how EOSDA stays dedicated to its mission of harnessing the power of satellite technologies to provide businesses with fast and accurate data-driven decisions. By bringing farmers new ways of combating climate change and land degradation challenges, we hope to help them open new expansion, earning, and [sustainability](#) opportunities in their farming ventures," believes **Artiom Anisimov, CEO at EOS Data Analytics**.

The alliance unlocks a significant advance in data capture, analysis, and measurement on farm and in soil.



The American Astronautical Society (AAS) is the premier network of current and future space professionals dedicated to advancing all space activities. With symposia, competitions, and technical meetings hosted throughout the year, AAS is a source for the space industry to network, exchange information, discuss career aspirations, and expand space knowledge.

Take a look at the recent events AAS hosted, and what else is on the horizon:

The 15<sup>th</sup> Annual Wernher von Braun Memorial Symposium took place at the University of Alabama in Huntsville, Alabama. This event held meaningful discussions related to the theme, "Space at the Table: Collaboration, Cooperation and Inclusion", including topics on Artemis, policy, leadership, nuclear thermal propulsion, and more. Notable speakers at the event included NASA Deputy Administrator Pam Melroy, and NASA's Science Mission Directorate Associate Administrator Thomas Zurbuchen. Read more about this past event at [astronautical.org/vonbraun](#).

On March 8-10<sup>th</sup> 2023, AAS is hosting its 60<sup>th</sup> Annual Robert H. Goddard Memorial Symposium at the Johns Hopkins University Applied Physics Laboratory in Landover, Maryland. The theme for this event is "Our Environment in Space: Challenges and Opportunities". Sessions are still being finalized but will include

topics on space weather, human exploration, workforce and education, and more. Stay up to date on this event by visiting [astronautical.org/goddard](#).

The **Student CanSat** Competition is returning in 2023! This contest, open to teams internationally, empowers students to exhibit their knowledge in space engineering. The competition week is set for June 8th-11th at the Virginia Polytechnic Institute and State University in Blacksburg, Virginia. Learn more at [cansatcompetition.com](#).



NASA Deputy Administrator, Pam Melroy, delivering the Keynote during a Von Braun Symposium Luncheon.



In 2022, the Aerospace R&D Centre was inaugurated at SUAI. The creation of the Centre is aimed at joint research and experimental development of innovative communication technologies, modeling, expert analysis, creation and construction of computing and communication networks for real projects in the field of aviation and space. The Aerospace R&D Centre consists of three key components: the Research and Development Unit, the Aerospace Knowledge Factory and the Small Innovative Production.



- It is a multi-functional center, where we will train highly qualified engineers and carry out developments in the field of new onboard networks and new communication technologies. We are also creating a small innovative production that will allow us to interact more closely with the industry. The goals that we set for ourselves are long-lasting. These are technologies aimed at creating a new infrastructure, not only solving primary tasks, but also conducting completely new scientific research. – says Valentin Olenev, Director of the Aerospace R&D Centre of SUAI.

Here researchers have the opportunity to design an on-board network from the very beginning. The interconnection of the educational part and the research part is ensured by visual assembly of the network, automated completion, routing through the network and modeling the operation of this network even before the equipment has arrived at the enterprise. The Center combines all the university's competencies in the field of aviation and space, so that university scientists can create truly breakthrough inventions.



## KARMAN

From India to Oxford to Low Earth Orbit, it's fair to say that the 2022 activities of [The Karman Project](#) and our community of space leaders have extended far and wide. Fostering trust, independent dialogue and cooperation between those who shape the future of space, the Karman Project works with global decision-makers who have been recognised for their outstanding leadership and are motivated to amplify their impact.

In pursuance of this mission, 2022 marked the conclusion of our third Fellowship with 15 leaders coming from Rwanda, China, Costa Rica, United Arab Emirates, France, United States and beyond. We shared an intensive [Karman Week](#) together in Normandy, France characterized by rigorous discussion, debate and a good dose of fun. The Fellows formulated a series of commitments towards cooperation and impact in space, taking inspiration from Karman Alumni who have launched [new projects](#) (including Pierre Bertrand's ['Space Elevator'](#), Nahum Romero's ['Stories from Home'](#), and Prateep Basu's ['SatSure Sparta'](#)). These were declared at our Annual Gala Dinner in Paris, where IAF President **Clay Mowry** delivered the keynote address on cooperation in space. We're passionately preparing for our 2023 Fellowship, and will launch applications in late January.

Other 2022 highlights included our second contribution as [co-hosts](#) of the Smart Space MBA Elective with the University of Oxford, together with a special event at UNESCO House Paris where our Co-Founder H el ene Huby joined Yo-Yo Ma, Josef Aschbacher and Matthias Maurer to host "An Invitation to Create the Future" - celebrating music, space and humanity.





The Space Generation Advisory Council is the biggest global non-governmental, non-profit organisation and network which aims to represent university students and young space professionals ages 18-35 to the United Nations, space agencies, industry, and academia. The SGAC network of members, volunteers and alumni has grown to more than 22,000 members representing more than 165 countries.

In 2022, SGAC continued facilitating events such as start-up competitions, hackathons, and workshops where the brightest minds of the space industry came together as well as offering scholarships for these. This year, a total of 13 events worldwide were held, and almost 150 scholarships were awarded to SGAC members.

Additionally, after the formalization of the Space Generation Advocacy and Policy Platform (SGAPP) in 2021, designed to consolidate the young generation's policy perspectives on pertinent issues in the space sector, this year the first two topics have been developed related to space and climate change, as well as space sustainability.

To conclude, in 2022 SGAC boosted the collaboration with the IAF, organising activities both for the GLEC in Quito, having a one-day event for youth in the South American region right before it, and for the IAC, organising the yearly Space Generation Congress the 4 days before the IAC, and co-hosting a Reception during the same. While gearing up for 2023, SGAC is already in contact with the IAF to organise a one-day event for students and young professionals during GLOC 2023.

Contacts: [info@spacegeneration.org](mailto:info@spacegeneration.org)  
Website: [spacegeneration.org](http://spacegeneration.org)



### Space Day, Hungarian CanSat competition, and the IAC 2026 bid

The Space Day organized every year by the Hungarian Astronautical Society (MANT) in conjunction with the World Space Week took place on 12 October. The event was hosted and supported by the National Media and Infocommunications Authority (NMHH) in Budapest. While the focus of some presentations were satellite communication and its regulatory background – these fields are among the responsibilities of the Authority –, the program offered a breadth of other exciting

space topics as well. These included the Hungarian contribution to the Artemis Moon program, the importance of space law and policy, and the selection of the participants for the Hungarian national research astronaut program. The latter will also be the topic of our Society's student contest which was publicly announced on the Space Day, with a submission deadline in early February 2023.

Another major activity for high-school students, the national selection round for the ESA 2023 CanSat competition is being organized by our Society for the first time. By the deadline in early November, as many as 44 teams (nearly 250 students) applied. This level of interest surpassed our most optimistic expectations! Since then, training courses and consultations are being offered for the participants – prospective space engineers of the near future.

Budapest was among the candidate cities for hosting the IAC in 2024. Even though we did not win, our bid was very well received. This motivated us to apply for hosting the 77<sup>th</sup> International Astronautical Congress to be held in 2026. Our intentions have the widest possible support in the Hungarian space community and are backed at the highest governmental levels. We have already submitted our Letter of Intent to IAF in November, and are working hard on preparing a convincing full proposal.



### A Message from GÜHEM to Space: The future is in the skies

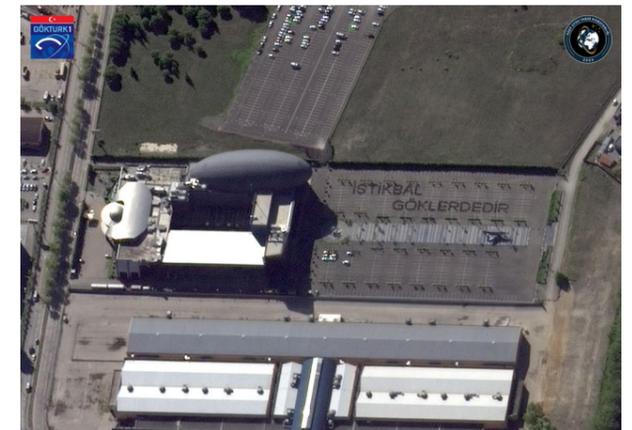
Gökmen Space and Aviation Training Center, Türkiye's first in this area, wrote "The future is in the skies", a well-known phrase of Mustafa Kemal Atatürk, the founder of the Republic of Türkiye, with the participation of more than a thousand students in an event organized on the margins of the World Space Week.

The image was taken by Göktürk-1 satellite from an altitude of approximately 700 km.

GÜHEM General Director Halit Mirahmetoğlu stated that GÜHEM has a mission of raising interest on space and aviation among young people, and this meaningful event has been a good occasion to mark the World Space Week. Mr. Mirahmetoğlu said that "During the Week, we organized many events about space, and our final event was to write "The future is in the skies" with the participation of more than a thousand students. Thanks to the special work of the Reconnaissance and Satellite Command of the National Defense Ministry, Göktürk-1 satellite took the image of this unforgettable moment. We are happy that we concluded this joyful week with such a meaningful activity."

Participating students expressed their happiness to become part of such an exciting event. Miray and Muhammed Fath described it as a moment to remember.

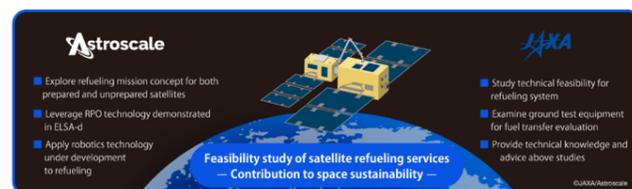
Göktürk-1 concludes a tour around the world every 90 minutes. The satellite sent up into space on December 5th, 2016, and can capture images from any area of the world without geographical limitation.





## Astroscale Japan and JAXA Launch Co-Creation Project for Satellite Refueling Service Concept

**Tokyo, Japan, Dec. 7, 2022** – Astroscale Japan Inc. (“Astroscale Japan”), a subsidiary of Astroscale Holdings Inc. (“Astroscale”), the market leader in satellite servicing and long-term orbital sustainability across all orbits, and the Japan Aerospace Exploration Agency (JAXA) have started concept co-creation activities for a satellite refueling\*1 service, under the JAXA Space Innovation through Partnership and Co-creation (J-SPARC).



The aim is to explore concepts for a fuel delivery service for one year, toward the realization of space sustainability. The mission concept will be for providing refueling service on orbit to satellites that are both prepared and unprepared to be refueled.

"On-orbit services are the sustainable infrastructure of the space economy," said Miki Ito, Managing Director of Astroscale Japan. "Over the past few years, awareness of the orbital environment and space sustainability has increased rapidly, and the demand for such services has grown significantly. We are pleased to be working with JAXA on refueling as a function of life extension, and by 2030, we plan to be able to make on-orbit services, including life extension, a routine basic infrastructure service."

Astroscale Japan will study the feasibility of satellite refueling services and consider international collaboration with other Astroscale subsidiaries and partners, applying the rendezvous and proximity operations technology demonstrated in the End-of-Life Services by Astroscale - demonstration (ELSA-d) mission, and robot arm and hand technology currently under development to the refueling work. JAXA will study the technical feasibility of an on-orbit refueling system, examine ground test equipment for fuel transfer evaluation, and provide technical knowledge and advice based on the studies.

Earth's orbits, particularly low-Earth orbit, are becoming crowded due to an increase in space activity, which has led to the accrual of orbital debris. If this trend continues without a solution, it will become difficult to safely use those orbits. To solve this problem and achieve a sustainable space environment, it is important to realize a circular economy through on-orbit services, which include removing and reducing space debris, and reusing, repairing and refueling spacecraft.

Refueling has cost-reducing effects for satellite operators. Extending the life of satellites will help reduce the number of satellites and launches required to carry out current space activities. Life extension also enables additional missions by removing fuel constraints. According to Northern Sky Research, a U.S. space market research firm, it is estimated that by 2031, life extension services such as refueling will generate \$4.7 billion in revenue.

"On-orbit satellite refueling is a new service that overcomes the longevity factor of fuel depletion and enables satellite operations to continue for a longer period of time," said Hiroyuki Sugita, Director of Research Unit II at JAXA's Research and Development Directorate. "We expect that providing JAXA's knowledge of refueling technology will advance the private sector's space projects and contribute to the realization of sustainable space activities."



The National Space Science Agency (NSSA) has recently hosted the 8th Arab Space Cooperation Group (ASCG) meeting. In this meeting, an MoU was signed between the NSSA and the Egyptian Space Agency. Additionally, last October NSSA signed another MoU with Oman to further strengthen cooperation in the space sector.



The second week of November witnessed two important occasions, first was the launch of the first edition of the Space Forum hosted by the NSSA to explore and discuss a number of important themes related to the development of the space sector at the public and private levels. The second was the announcement of the AI Worden Endeavour Scholarship for 4 Bahraini students and 1 educator to attend the Space Camp 2023 in the US.





The NSSA has also won the IAF Excellence in "3G" (Geography, Generation, & Gender) Diversity Award recognizing the agency's continuous pursuit of inclusivity, diversity, and fairness. The agency has also won the Payload Hosting Initiative (PHI), a cooperative program initiated by the UNOOSA and MBRSC through its innovative payload idea that utilizes cybersecurity for space systems. These were all announced during the IAC 2022 Conference that the agency participated in with 5 research papers.



One of the NSSA's team members participated in the 13<sup>th</sup> edition of the Space Challenges Camp 2022 that was held in Bulgaria and organized by EnduroSat where he achieved one of the top ten places in the camp, in which more than 30 elite participants from different countries participated.



The 73<sup>rd</sup> IAC is behind us and we are very proud that we were able to realise the largest [German Pavilion](#) at an IAC to date with 24 exhibitors. The IAC has shown: The German space industry is globally competitive and a sought-after partner in international space projects. With a diversity from established system houses to small and medium-sized companies and start-ups, we succeeded in covering the entire value chain of Germany's space industry. The importance of the German space industry was reflected in the visits of numerous political delegations. Among them were the German Ambassador to France Hans-Dieter Lucas, Minister of State Sarah Ryglewski, MP, Bremen Senator for Economic Affairs Kristina Vogt, Niklas Nienaß, MEP, Klaus-Peter Willsch, MP, Holger Schlienkamp, Federal Ministry for Economic Affairs and Climate Action, Josef Aschbacher, European Space Agency ESA, Anke Kaysser-Pyzalla and Walther Pelzer, German Aerospace Center DLR and the German ESA astronaut Matthias Maurer. Our "hangover breakfast" stand reception was very popular and was attended by numerous national and international guests. We are looking forward to continuing at the IAC 2023 in Baku, Azerbaijan, 2024 in Milan, Italy and 2025 in Sydney, Australia.

Let's raise your attention to another important event for space leaders, stakeholders, experts, enthusiasts and influencers: the [ILA Berlin](#), taking place next time in June 5-9, 2024. Be part of this leading space exhibition and conference highlighting the importance of space activities for climate protection, digitalisation, mobility and security. Space is about investing in our future. Be part of it!

## AIRBUS

### Artemis I kicks off the lunar odyssey of the decade

Artemis I has reached the end of its first journey, with the Airbus-built European Service Module successfully bringing NASA's Orion spacecraft safely around the Moon and back home.

The crew module splashed down in the Pacific Ocean earlier this week, and the ESM has burned up in the atmosphere as planned. More than 2 million kilometers and 25 days later, it is safe to say that Artemis I has been an incredible learning experience technically, for a mission that will undoubtedly bring a lot to Earth.

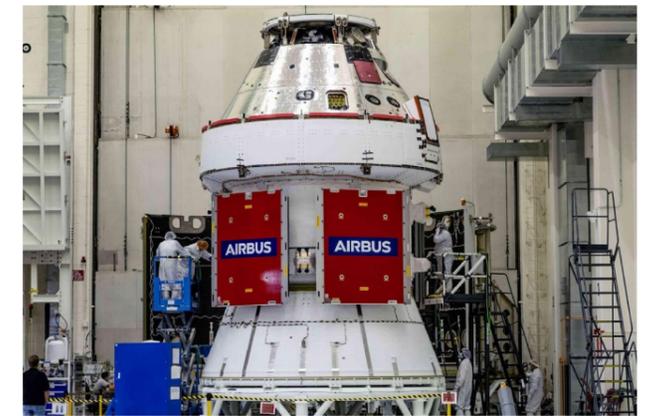
More than 50 years after the first crewed Moon landing, Europe is playing a pivotal role in the return to the Moon. The first uncrewed Artemis mission that we all followed over the past few weeks will ultimately allow humanity to explore more and conduct more science than ever before.

Airbus has been entrusted by the European Space Agency to build a total of six European Service Modules to power the Orion spacecraft. This unique Airbus technology is in charge of successfully bringing the Orion spacecraft safely around the Moon and back to Earth providing the propulsion, power and all the essential life support elements such as water, oxygen and thermal control that the future astronauts will need to stay alive.

Of course, Artemis I is just the beginning of the lunar odyssey of the decade that will enable a sustained presence on the Moon with the first crewed flight in 2024 and boots on the Moon in 2025. This is just the beginning!



View of Earth from Orion, on day 1 of the Artemis I mission. ©NASA



Airbus ESM, connected to the crew module via an adapter to form the Orion composite ©NASA



### Astralintu Space Technologies Wins Two International Pitch Competitions

Astralintu's team has had the pleasure of participating and winning two Pitch competitions this year. The New Space Europe 2022 Startup Pitch Competition organized by the Luxembourg Space Agency (LSA) and the New Business Space Competition by the Center for Space Commerce and Finance at this year's IAC2022.



The pitch presented in these competitions highlighted the services' roadmap in Astralintu's business plan, with the

mission to secure Ecuador's participation in the global space sector by connecting it to the benefits of new space through space logistics and the development of two ground segments operations strategically located in mainland Ecuador and the Galapagos islands.

"We are committed to establishing accessible and quality ground station services in Ecuador, taking advantage of the closeness to latitude zero." - CEO of Astralintu Space Technologies, Matias Campos.

These stations seek to enable fast, effortless, and reliable satellite communications applied to space operations and the reception or transmission of critical data in commercial, scientific, and government space missions. The equatorial ground station could reach coverage in the latitude range 30°N to 30°S and longitude range 50°E to 105°E (depending on antenna systems used and the mission assigned).

Astralintu's equatorial ground stations will be 100% operational, ready to provide leased usage of antennas and infrastructure in 2023.



## Eta Space Leads Efforts to Make Lunar Exploration Sustainable

The recent launch of Artemis 1 has rejuvenated interest and confidence in our path back to the moon. It isn't enough to just get back to the moon though. We need to have plans that make our efforts purposeful and sustainable. Eta Space is engaged in this work.

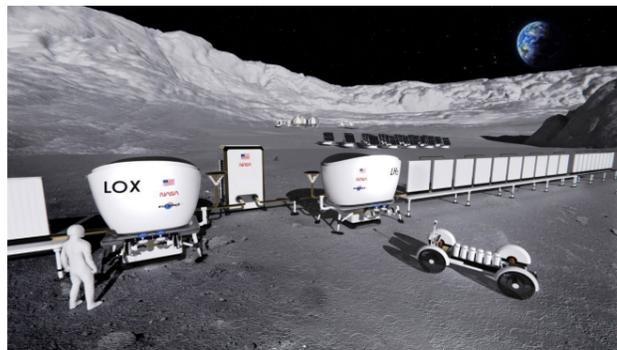
Eta Space is developing technologies to liquefy, store, and transfer cryogenic propellants on the Moon. Our partnership with Skyre is focused on a Lunar Propellant Production Plant that will produce LOX and LH2 from water ice near the Lunar poles. This will be a vital step in providing high energy propellants from the Moon that will enable efficient cis-Lunar transportation and future deeper space missions to Mars.

Eta Space is also working with Helios to develop a Lunar Oxygen Station to convert regolith into LOX for propulsion and life support applications. Helios will convert the regolith to GOX and solid metals and Eta Space will liquefy the oxygen for storage and transfer purposes. The LOS will be capable of operating anywhere on the Lunar surface.

Eta Space is also working on refueling capabilities in orbit. Currently funded by NASA to demonstrate cryogenic fluid management technologies in Earth orbit, LOXSAT is scheduled

to launch in March 2024. This project will pave the way for Cryo-Dock™, a commercial cryogenic propellant depot, designed to service spacecraft and orbital transfer vehicles to enable sustainable cis-Lunar transportation and landing capabilities.

Humanity will return to the moon. And Eta Space is going to be part of that journey.



## NSE 2022: THE FUTURE IS TODAY

The 4th New Space Economy ExpoForum, NSE, was held in Rome, Italy, from 1 to 3 December 2022 at Fiera Roma. After two years online due to COVID-19 restrictions, NSE returned to an in-person event with the theme "Sustainability as the Game Changer." The New Space Economy represents a radical change of paradigm that transforms Space into the entire sector in service of society while also acting as a driver for innovation, training, and new qualified areas of work.

NSE is organised annually by the E. Amaldi Foundation and Fiera Roma under the patronage of the Italian Space Agency. It includes an international scientific conference, an exhibition area, a pitch competition, and, for the first time, an arena in the exhibition area and the student challenge. Thanks to its interdisciplinary approach, NSE brings together space agencies, industry, decision-makers, business developers, academic researchers, young innovators, and students worldwide.

Organised around the following main themes: The Changing Earth, Human Health, Space Pollution, and Innovative Space Ventures, NSE 2022 offered an opportunity to showcase excellence, renew and strengthen connections in the space, and no-space, community. Roundtable discussions, speeches, and inspirational talks highlighted the fundamental role of space technology and applications in building a sustainable world, facing global challenges, improving knowledge, fostering innovation, boosting the economy, and bringing benefits to citizens.

The core of the NSE exhibition area hosted an arena, a forum of discussion and exchange thanks to an original mix of

events around a number of topics including sustainability, commercialisation, scientific knowledge, outreach and education, technological innovation, diversity and inclusion.

Among its events, NSE was also the place for media activities. On Saturday, 3 December, an important step was marked for the IRIDE Constellation: contract signature with the CEO of OHB Italy and Argotec : Roberto Acet and David Avino, CEO. Speakers on the stage included: Elena Grifoni Winters, Director, Office for Space and Aerospace Policies, Presidency of the Council of Ministers, Simonetta Cheli, Director of Earth Observation Programmes and Head of ESRIN, European Space Agency, ESA, and Giorgio Saccoccia, President, Italian Space Agency, ASI

NSE 2022 was a real success: almost 4000 visitors, international guests from 24 countries, 140 international speakers, over 100 exhibitors including space agencies, industries, start-up, research centres and universities, and almost 250 B2B meetings with international operators.

## Awards@NSE 2022

### Student Challenge

Inspiration, innovation, and creativity are fundamental to training the workforce of tomorrow and building the New Space evolution. In this frame, NSE 2022 hosted, for the first time, the Student Challenge The lucky winner of the first prize, the parabolic flight, is Giulia Cambone, from Università La Sapienza, Roma. She will fly with Novespace Company in 2023, carrying out scientific activities in weightlessness conditions.

### Pitch Competition

Since the first edition of NSE in 2019, E. Amaldi Foundation has supported start-ups and small-scale industries as the key players in opening disruptive lines of business for the benefit of non-spaces sectors. NSE welcomes and acknowledges the role of space and non-space tech start-ups, ready to invest in the short term and to be the booster of a new entrepreneurial ecosystem based on innovation and creativity. The first prize of 15K, cash and services, goes to AdapTronics start-up.

E. Amaldi Foundation the **Tech-Transfer and Space Economy Award** was given to Luca Rossettini, CEO of D\_Orbit.



NSE also provided a platform for the **Space Awards Ceremony** with the announcement of the Green City Makers as the winner of Copernicus Masters 2022, which awards innovators fostering new solutions and concepts that showcase the benefits of the European Copernicus services to our everyday life.

Looking into the future, NSE and SGAC decided to join forces to offer up to 5 young professionals the opportunity to attend the event and to network with entrepreneurs and other international space and no-space community actors.

NSE 2022 has been organised under the patronage of the Italian Space Agency, Italian Ministry of Defense, ENAC, CNEL, ICE/ITA, INGV, and the International Astronautical Federation; and with the support of the European Space Agency and with the partnership of Regione Lazio, Camera di Commercio di Roma and the Enterprise Europe Network.



## Interview with Mishaal ASHEMIMRY, IAF Vice President for Diversity Initiatives



### *Fostering Diversity within the IAF*

As the VP for Diversity Initiatives, I recognize while we have made great strides in the transformation of the space sector, we still have much more work to do. Geographical and gender diversity representation in many fora is still skewed and access to space education and opportunities is limited. My plan is to (i) look internally within the IAF bureau and examine the membership statistics, (ii) share my findings, and (iii) host a brainstorming session to address ways to improve on any shortcomings. Given that entry into the space sector requires large investments or commitments that must involve governments, we can infer that geographical representation might be constrained by a lack of support or funding and competing social and economic priorities. This can be overcome by fostering alliances with well-established players. By identifying expertise across different emerging space countries, we can establish collaboration and alignment with the stronger space players, whilst ensuring the policy directives of these emerging countries are maintained.

This will benefit the growth of geographical representation, enhance space innovation and ensure that space benefits all of society. In addition, to enhance the geographical representation I will be working closely with the VP for Developing Countries and Emerging Communities and the rest of the Bureau, where this is appropriate. On the gender front, while global surveys or IAF member surveys may not get as much traction as we would like, I plan to create a digital survey open to the public in combination with select interviews to better understand the underlying challenges. Moreover, I intend to solicit the cooperation of IAF member institutions to provide their gender statistics to create a baseline that can be used during the aforementioned brainstorming session. This baseline will showcase where we are now and where we need to be in the next five years. In so doing, we can have all members commit to a five-year plan with Key Performance Indicators (KPI) to ensure progress in addressing gender equality. I believe these interventions will move the IAF closer towards achieving the 3G Diversity that we all have subscribed to.

## Interview with Anil KUMAR, IAF Vice President for Relations with International Organizations



### *Plans and Expectations as member of the IAF Bureau wrt portfolio IAF Vice President: Relations with International Organizations*

The space domain evolves constantly as new technical advancements provide emerging space nations and private actors, a host of new opportunities in terms of cost benefits, ease of access to outer space and doing business in space. However, the resultant continual increase in the population of space objects poses several challenges to the safety and long-term sustainability of outer space activities, although this itself leads to new business opportunities like active debris removal, on-orbit servicing and space insurance. While it is essential to support emerging space actors, including private players in developing their space capabilities, it is as crucial to impress upon all space-faring entities the necessity of carrying out space activities in a safe, sustainable and responsible manner.

The opportunities and challenges associated with the ever evolving space environment need to be addressed by space professionals, emerging space actors, organizations and countries across the globe. In my capacity as Vice President for Relations with International Organizations, I am glad to assist the Federation achieve its objective of creating one of the largest global networks of space experts and decision-makers that will help address these concerns. For the next years, I plan to expand and strengthen IAF's cooperation activities with its partner organizations and would like to augment IAF's role in addressing the emerging challenges in the space sector. I particularly look forward to collaborating with IAF's partner organizations to help ensure the sustainability and safety of outer space activities, which will help a long way to progress in the three pronged agenda Sustainability, Investment and Security (SIS) put forward by Dr. Clay Mowry, President, IAF.

## Interview with Joe LANDON, Special Advisor to President on the Sustainability, Investment and Security (SIS) Agenda



### *Plans and Expectations as member of the IAF Bureau*

Sustainability, Investment and Security ("SIS") are core imperatives for the future of the space community. As Special Advisor to the President of the IAF, my focus will be on developing and implementing the SIS agenda and organizing and aligning IAF activities to address these challenges. As space activity increases, having a secure and sustainable space environment for all becomes critical. Freedom to operate safely in space enables continued financial investment in the space sector, and investment creates more opportunities for space to make life on Earth better and more sustainable. These ideas and themes will influence all aspects of the IAF and our members. I look forward to working with the IAF secretariat and committees to integrate the SIS themes by shaping programming, content and events throughout all of our activities.

## Interview with Tanja MASSON-ZWAAN, IAF Vice President for Science and Academic Relations



### *Plans and Expectations as member of the IAF Bureau*

I am honoured to join the IAF Bureau for the term 2022-2025, upon nomination by the [Netherlands Space Society](#) (NVR), which was founded in 1951, like IAF, and has been a member since the early days. I have been involved with the IAF, its sister organisations IISL and IAA, and the IACs since 1986, having served as IISL executive secretary from 1991-2007 and IISL president from 2007-2016.

I am deeply involved in academic activity relating to space through my teaching at Leiden University, International Space University and many other universities worldwide, as well as through my research, publications and consulting activities in the field of space law and policy. I have a broad experience in capacity building and enjoy mentoring students and young professionals across the globe. I am a strong advocate for an interdisciplinary approach to teaching and research because any space activity or project encompasses multiple disciplines and requires versatile scientists and academics.

The portfolio for science and academic relations is thus a perfect fit, which I take up with great enthusiasm. I also look forward to working with the Space Universities Administrative Committee (SUAC) in that context. Science and academics are the backbone of humankind's progress in the space field and must be acknowledged as essential foundation for the work of the Federation. I will do my best to continue the work of my predecessor, Deganit Paikovsky, who introduced several new initiatives during her term.

In addition, I hope to contribute to lasting and fruitful relations between IAF, IAA, IISL and SGAC, and am happy to assist my colleagues in fields related to my portfolio, such as diversity, education and workforce development, and the role of space societies. Lastly, I look forward to supporting our president in the realisation of his ambitious SIS agenda.





# Interview

## Interview with Dominique TILMANS, Special Advisor to President on Parliamentarian and Ministerial Relations



### Plans and Expectations as member of the IAF Bureau

The alignment of the political world on the importance of the space sector and its challenges requires a better understanding of its usefulness on Earth!

This is the goal of the MMoP Meeting, the unique place where ministers and parliamentarians from across the world have the opportunity:

- To present the benefits of national space solutions developed for civil society in relation to their priorities and expectations
- To learn and inspire each other and to create synergies through the experience of colleagues.

Ministers present their country's space strategy whilst Parliamentarians illustrate space-based solutions in use by local authorities including municipalities, regions and also national agencies.

The presentations are meant to be policy-to-policy, peer-to-peer. Speakers are called to explain in a concise, understandable, non-technical manner, where the topics covered are in direct relation to their concerns.

Through the testimony of their peers, we aim at convincing other countries, that are not yet connected to space, that the space sector is an enabler allowing a large variety of organisations and national entities to meet specific needs and to help them in day-to-day management in a cost-effective way.

Our motto is «What is possible in your country, can be possible in mine too

Our short-term goal is to progressively increase political participation through active networking. Our medium-term objective is to make the MMoP Meeting "The place to be" for Ministers and Politicians. Our long-term goal is to make the MMoP Meeting what the IAC is to the professionals of the sector, it means an unmissable event!

## Interview with Pilar ZAMORA ACEVEDO, IAF Vice President for Developing Countries and Emerging Communities



### Plans and Expectations as member of the IAF Bureau

The Developing Countries and Emerging Communities representing in the Committee (ACDCEC) are a great opportunity for the space sector, it is important to highlight that in these geographic areas there is the greatest biodiversity on the planet. As well as children, young professionals, men and women seeking knowledge and the creation of a regional space ecosystem that will help them create an industry with social and environmental impact, and above all, one that proves that nothing is impossible.

That is why effective international cooperation to the ACDCEC regions, knowledge transfer and technological upgrading are fundamental tools that I will advocate for their implementation throughout my vice presidency. It is important to attract international multilateral organizations, the private sector, the financial sector, unite industry with governments, so that the proposals of the academy have dynamics, so that this union should be represented in the committees, plans, exhibitions and especially in the solutions to problems facing the planet such as the preservation of the Earth and care for the environment, equality and gender equity.

All this within a framework of integrating proposals from different communities and cultures, so together with the VP of Diversity Initiatives, we will present projects that show that the space is for everyone. And that under the current presidency, the IAF will count on the modernization of the organization and the implementation of the Sustainability, Investment and Security (SIS) policies in order to lead the IAF into the future as the world's premier space advocacy organization.

It is an honor for me in this new era of space to be part of this honorable organization and I put my work and leadership at the service of the communities to support the evolution of the ACDCEC.



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