



IAF President's Welcome

Dear colleagues,

Welcome to the March 2022 IAF newsletter.

This edition will give you a complete calendar of the Federation's activities over the coming months.

After two years we will convene back in Paris, at the NEW CAP Event Centre for the IAF Spring Meetings, to define the programme of the IAC 2022 and hold IAF Committees and Bureau Meetings. This year the selection will be quite a challenging task for the International Programme Committee since the 73rd International Astronautical Congress, IAC 2022, has received more than 4800 abstracts from 97 countries, setting new records highs for IAC in terms of submissions and diversity.

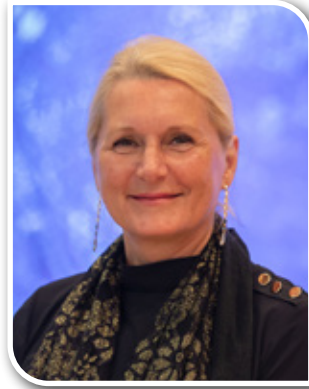
The IAF Spring Meetings will be most of all an important opportunity to meet again in person and to discuss and reflect on recent events.

This year we will also resume the IAF Spring Meetings press conference in collaboration with CNES to highlight Paris as the perfect reunion destination for the global space community and with the Sideralis Foundation which will share an overview of the Global Conference on Space for Emerging Countries – GLEC 2022 in Quito, Ecuador.

We are looking forward to meeting you all in Paris,

Warmest Regards,

Pascale EHRENFREUND
IAF President



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IAF MEMBERS' CORNER

IAF COMMITTEE BROADCAST

INTERVIEW WITH GLEC 2022 IPC CO-CHAIRS:

- Valanathan MUNSAMI
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OUR LATEST PUBLICATIONS

- [GLEC 2022 Brochure](#)
- [IAC 2022 Brochure](#)
- [IAF 70th Anniversary Booklet](#)
- [IAF Highlights 2021](#)

IMPORTANT DATES:

- IAF Spring Meetings 2022: 28 – 30 March 2022
- GLEC 2022: 16 – 20 May 2022
- IAC 2022: 18 – 22 September 2022
- GLOC 2023: 23 – 25 May 2023
- IAC 2023: 2 – 6 October 2023

Connecting @ll Space People





Spring Meetings 2022

28 – 30 March 2022

As each year, the IAF is having its Spring Meetings taking place in Paris, France where the IAF community will get together for three days, from 28 – 30 March 2022 in New CAP Conference Centre.

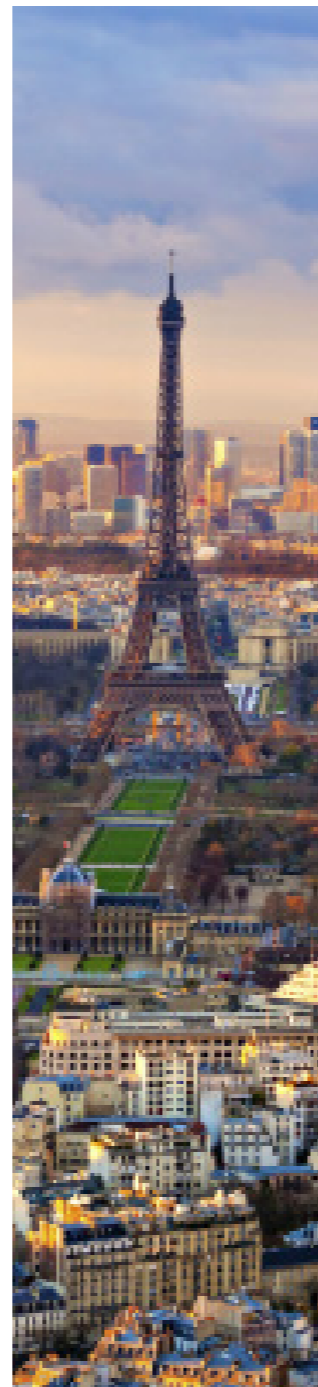
All photos and videos of the event will be uploaded on IAF website www.iafastro.org after the event.

MONDAY 28 MARCH

- 08:00 - 09:30 | IDEA Breakfast - "Whats'Your IDEA?"
- 09:30 - 11:00 | IAA Space Debris Committee
- 10:00 - 11:30 | IAF Space Education and Outreach Committee (SEOC) - Session 1
- 10:00 - 12:30 | IAF Finance Committee
- 11:00 - 13:00 | IAF Human Spaceflight Committee
- 11:00 - 13:00 | IAF Space Traffic Management Committee (STM)
- 11:30 - 13:00 | IAF Entrepreneurship and Investment Committee (EIC)
- 13:00 - 14:00 | IDEA Lunch
- 14:00 - 15:30 | IAF Enterprise Risk Management Committee (ERMC)
- 14:30 - 15:30 | IAF Space Astronomy Technical Committee
- 14:00 - 16:00 | IPC Steering Group
- 14:00 - 16:00 | IAF Workforce Development-Young Professionals Programme Committee (WD-YPP)
- 14:00 - 16:00 | IAF 3G Diversity meeting
- 15:00 - 16:00 | IAF Committee on Near Earth Objects (NEO)
- 15:30 - 18:00 | IAF Earth Observations Committee and GEOSS Subcommittee
- 16:00 - 17:00 | IAF Workforce Development Subcommittee
- 16:00 - 17:30 | IAF/IAA/IISL Advisory Committee on History Activities (ACHA)
- 16:00 - 17:30 | IAF Congress and Symposia Advisory Committee (CSAC)
- 16:00 - 17:30 | IAF Space Communications and Navigation Committee (SCAN)
- 16:00 - 18:00 | IAF Industrial Relations Committee Meeting (IRC)
- 16:00 - 18:00 | IAF Space Operations Committee
- 16:30 - 18:00 | IAF Committee for the Cultural Utilisation of Space (ITACCUS)

TUESDAY 29 MARCH

- 09:00 - 10:30 | IAF Space Education and Outreach Committee (SEOC) - Session 2
- 09:00 - 10:30 | IAF Space Power Committee
- 09:00 - 12:00 | IAF Astrodynamics Committee
- 09:00 - 13:00 | IAF Bureau Meeting - Session 1
- 09:30 - 11:00 | IAF Knowledge Management for Space Organisations (KMTC)
- 10:00 - 11:30 | IAF Space Universities Administrative Committee (SUAC)
- 11:00 - 12:00 | IAF Space Life Sciences
- 11:00 - 12:30 | IAF Committee on Integrated Applications
- 11:00 - 12:30 | IAF Committee for Liaison with International Organisations and Developing Nations (CLIODN)
- 11:30 - 13:00 | IAF Commercial Spaceflight Safety Committee
- 12:00 - 13:30 | IAF Space Habitats Committee
- 12:00 - 13:30 | IAF Space Systems Committee
- 12:00 - 13:30 | IAF Space Transportation Committee
- 12:30 - 14:00 | IAF Space Economy Committee
- 13:00 - 14:30 | IAF Space Propulsion Committee



- 13:00 - 15:00 | IAF Microgravity Sciences and Processes Committee
- 13:30 - 15:00 | GLEC 2022 - IPC Meeting
- 13:30 - 15:30 | IAF Committee on Space Security
- 13:45 - 15:15 | IAF Space Exploration Committee
- 14:00 - 15:30 | IAF Materials and Structures Committee
- 14:30 - 16:00 | IAF Space Societies Committee (SSC)
- 15:00 - 16:30 | IAF Committee on Developing Countries and Emerging Communities (ACDCEC)
- 15:00 - 17:00 | IAF Honours and Awards Committee (HAC)
- 15:30 - 17:00 | IAF Technical Activities Committee (TAC)
- 16:00 - 17:00 | IAF Next Generation Coordination Committee (NGCC)
- 16:00 - 17:30 | IAF Space Museums and Science Centres Committee
- 17:30 - 18:30 | IAF GNF Session: The James Webb Space Telescope
- 18:35 - 19:05 | IAF GNF Session: The First International Moon Day 2022
- 19:10 - 19:25 | IAF GNF Session: IAC 2023 Baku 50 Years Later
- 19:30 - 19:45 | IAF GNF Session: Space Ecosystems that bring Government, Industry and Society Together - GLEC2022
- 19:45 - 20:00 | IAF GNF Session: European Astronauts Manifesto TBD
- 20:00 - 23:00 | IAF Cocktail Reception

WEDNESDAY 30 MARCH

- 08:00 - 10:00 | IPC General Meeting & Award Ceremony
- 10:00 - 13:00 | IAC 2022 Abstract Selection
- 10:00 - 13:00 | IAF Bureau Meeting - Session 2
- 13:00 - 14:00 | IAF President's Press Conference



IAF GLOBAL CONFERENCE ON SPACE FOR EMERGING COUNTRIES – GLEC 2022

The IAF Global Conference on Space for Emerging Countries #GLEC2022 is designed to unite the international community, including representatives of the major space agencies, industries, governments, entrepreneurs, policymakers, academia and non-governmental organizations.

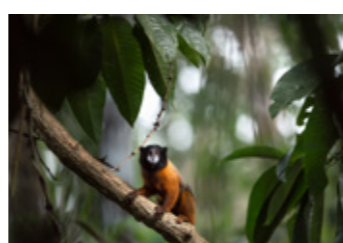
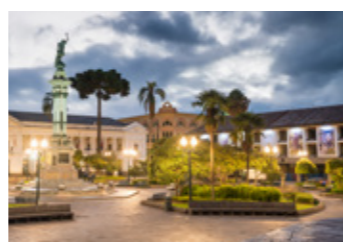
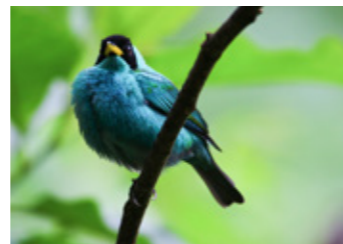
All will converge in **Quito, Ecuador from 16 to 20 May 2022** to present results, exchange ideas, debate roadmaps and discuss the future opportunities provided by space activities to emerging nations. The GLEC 2022 aims to act as a powerful global catalyst to ignite positive change in emerging space nations and for society.

A fundamental role in the conference preparation is being played by the distinguished [Members of the International Programme Committee](#) and their respective organizations, each of which are giving outstanding contributions through their advice, experience and expertise and crafting an outstanding conference programme.

- **Robert AILLON**, CEO - Leviathan Space Industries LLC, Ecuador
- **Salem AL MARRI**, Director General, Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates
- **Tensae Alemayehu ALI**, Regional Coordinator Africa, Space Generation Advisory Council (SGAC), Ethiopia
- **Angel ARCIA**, Universidad Católica Santa María La Antigua, Panama
- **Krystal AZELTON (WILSON)**, Director of Space Applications Programs - Secure World Foundation (SWF), United States



- **Dunay BADIRKHANOV**, Chief Technology Officer, Azercosmos, Azerbaijan
- **Jim BINGEN**, D-Orbit, Italy
- **Michal BRICHTA**, Head of Slovak Space Office - Industry Branch, Slovakia
- **Kammy BRUN**, Head of Global Business Development, HEAD Aerospace, France
- **Matias Franciso CAMPOS ABAD**, Sideralis Foundation, Ecuador
- **Erasmio CARRERA**, Professor, Italian Association of Aeronautics and Astronautics (A.I.D.A.A.), Italy
- **Julio Cesar CASTILLO URDAPILLETA**, Space Security Director, Mexican Space Agency, Mexico
- **Rafael CHAVEZ**, Universidad Nacional Autónoma de México (UNAM), Mexico
- **Liz COX**, International Relations – International Partnership Programme - UK Space Agency, United Kingdom
- **Michael DAVIS**, Chair, The Andy Thomas Space Foundation, Australia
- **Steve EISENHART**, Senior Vice President, Space Foundation; IAF VP Global Networking Forum, United States
- **Driss EL HADANI**, Director General - Centre Royal de Télédétection Spatiale (CRTS), Morocco
- **Mohammed ELKOOSY**, Director General, Egyptian Space Agency (EgSA), Egypt
- **Ahmed FARID**, Training Manager - DLR GfR mbH; Chair of African Regional Group, Germany
- **Martha GAGGERO**, Chief Counsel - Centro de Investigación y Difusión Aeronáutico Espacial (CIDA-E), Uruguay
- **Christina GIANNOPAPA**, European Union Agency for the Space Programme (EUSPA), Czech Republic
- **Serdar H. YILDIRIM**, President, Turkish Space Agency (TUA), Turkey
- **Christian HAUGLIE-HANSEN**, Director General, Norwegian Space Centre, Norway
- **Katherine HERRERA**, Guatemalan Astronomy Association, Guatemala
- **Chris HEWETT**, General Manager, Strategy and Growth, Australian Space Agency, Australia
- **Oniosun Temidayo ISIAIAH**, Managing Director - Space in Africa; Space Generation Advisory Council Regional Coordinator for Africa, Nigeria
- **Juan JARAMILLO ROJAS**, President & CEO, Sideralis Foundation, Ecuador
- **Hillary KIPKOSGEY**, Ag. Director General, Kenya Space Agency (KSA), Kenya
- **Jan KOLAR**, Director, Czech Space Office, Czech Republic
- **Raúl KULICHEVSKY**, Deputy Executive and Technical Director, Argentina National Space Activities Commission (CONAE), Argentina
- **Salvador LANDEROS AYALA**, Administrator, Mexican Space Agency (AEM), Mexico
- **Christian LANGE**, Director, Space Exploration Planning, Coordination and Advanced Concepts, Canadian Space Agency (CSA), Canada
- **Rodrigo LEONARDI**, Coordinator of Satellites and Applications, Brazilian Space Agency, Brazil
- **Andreas LINDENTHAL**, Head of Spacecraft Equipment, Head of Space Systems Germany, Airbus Defence and Space GmbH; IAF VP Financial Matters and Industry Relations, Germany
- **Chuen Chern LOO**, Head, Space Publication and Registration Division, Radiocommunication Bureau, International Telecommunication Union (ITU), Switzerland
- **Valentina LUCHETTI**, Space Generation Advisory Council (SGAC), Italy
- **Sergio MARCHISIO**, Full Professor of International Law, Sapienza University of Rome; IAF General Counsel, Italy
- **Peter MARTINEZ**, Executive Director, Secure World Foundation (SWF), United States
- **Alan MATTOS**, Bolivia Space Agency, Bolivia
- **Daniela MERA**, Marketing Director, Sideralis Foundation, Ecuador
- **Ntoshane MOHLAMONYANE**, Strategic Manager to the CEO, South African National Space Agency (SANSA), South Africa
- **Xavier MOLINA**, General Academic Vice Chancellor - ESPE University, Ecuador
- **Cesar MONTAÑO**, Vice-Ministry Foreign Affairs, Ecuador
- **Hifa MUBKI**, Head of International Organizations, Saudi Space Commission, Saudi Arabia
- **Valanathan MUNSAMI**, Former CEO - South African National Space Agency (SANSA) and Former IAF VP for Developing Countries and Emerging Nations; Space Strategy/Business Consultant, South Africa
- **Nobu OKADA**, Founder & CEO, Astroscale Holdings Inc.; IAF VP Space Economy and Sponsorship, Japan



- **Masami ONODA**, Director, Japan Aerospace Exploration Agency (JAXA) Washington D.C. Office, Japan
- **Deganit PAIKOWSKY**, Lecturer, Department of International Relations, Hebrew University of Jerusalem; IAF VP Diversity Initiatives and Science & Academic Relations, Israel
- **Davide PETRILLO**, Executive Director, Space Generation Advisory Council (SGAC); IAF VP Education and Workforce Development, Italy
- **Henrik PETERSSON**, Head of Business Development, Swedish Space Corporation (SSC), Sweden
- **Anh Tuan PHAM**, Director General - Vietnam National Space Center (VNSC), Vietnam
- **Julio Jose PRADO**, Industry and Commerce Minister, Ecuador
- **Minoo RATHNASABAPATHY**, Research Engineer, Massachusetts Institute of Technology (MIT), United States
- **Carlos RODRIGUEZ**, Orbital Space, Costa Rica
- **Alejandro J. ROMAN M.**, General Director of Aerospace Development - Paraguayan Space Agency, Paraguay
- **Heve ROMERO**, Legal Director - Paraguayan Space Agency, Paraguay
- **Giorgio SACCOCCIA**, Special Advisor to the IAF President (Emerging Countries), Italy
- **Daniel ŠAGATH**, International Cooperation Manager, Slovak Space Office - Industry Branch, Slovakia
- **Asanda SANGONI**, Space & Stakeholder Liaison Officer - South African National Space Agency (SANSA), South Africa
- **Sergey SAVELIEV**, Deputy Director General for International Cooperation, ROSCOSMOS; IAF VP Relations with International Organizations, Russian Federation
- **Gunter SCHREIER**, Head Business Development - Deputy Director, German Space Agency (DLR), Germany
- **Mary SNITCH**, Senior Manager, Lockheed Martin Corporation (LMC); IAF VP Communications, Publications and Global Conferences, United States
- **Igor V. SOROKIN**, Deputy Head of Center, S.P. Korolev Rocket and Space Corporation Energia, Russian Federation
- **Lionel SUCHET**, Chief Operating Officer, Centre National d'Etudes Spatiales (CNES); IAF VP Technical Activities, France
- **Carlos Augusto TEIXEIRA DE MOURA**, President, Brazilian Space Agency, Brazil
- **Dominique TILMANS**, President, EURISY; IAF VP for Parliamentarian and Ministerial Relations and User Communities, Belgium
- **Tatiana TISCHENKO**, Director, International Cooperation Department, ROSCOSMOS, Russian Federation
- **Anthony TSOUGRANIS**, International Program Specialist, National Aeronautics and Space Administration (NASA); IAF VP Honours and Awards, United States
- **Carlo VIBERTI**, CEO, SpaceLand Africa, Mauritius
- **Stéphanie WAN**, Space Generation Advisory Council (SGAC), United States
- **Danielle WOODS**, Assistant Professor of Media Arts and Sciences, Assistant Professor (Joint) of Aeronautics and Astronautics, Massachusetts Institute of Technology (MIT), United States
- **Anthony YUEN**, Space Generation Advisory Council (SGAC), Australia

A Pre-Event Briefing Meeting for The Global Conference on Space for Emerging Countries 2022 has been held in Quito, Ecuador on **15 MARCH 2022** where the Vice Minister of Foreign affairs has reiterated the support of the Ecuadorian Government for the GLEC 2022. You can watch the whole event on <https://www.youtube.com/watch?v=TKygyVMqnnw>

Good News!

We have decided to extend the Early Bird Registration up to and including **30th March**. This means you will be able to take advantage of the low rate for a little bit longer. This Early Bird rate offers exceptional value as the 4 day pass includes:

- access to conference sessions:
 - » Space Industry Entrepreneurship Workshop,
 - » Space Policy and Law Masterclass,
 - » Plenaries and Global Networking Forum,
 - » Opening and Closing Ceremonies,
 - » Ministers and Members of Parliaments Forum,
 - » Press Conference;
- conference material, coffee breaks, and access to the exhibition hall.

For more information and to register for the Global Conference on Space for Emerging Countries - GLEC 2022 please visit our registration page on the website: <https://www.iafastro.org/events/global-series-conferences/the-global-conference-on-space-for-emerging-countries-2022/glec-2022-registration-fees.html>

From 31th March the standard registration rate will apply so don't delay, book today!

We would also like to remind you that all IAF members organizations can benefit of a special discounted IAF members rate to participate in IAF events and to reserve a booth at the exhibition.

This is only one of the many benefits granted to IAF Members. If you are not a member yet, please do check our IAF Brochure and our **IAF Membership Guide** to find out all the various ways your organization can gain visibility, recognition, and financial benefits by applying for membership.

We would also like to invite companies, universities, associations and Space Agencies from the emerging countries to consider becoming part of the Federation. By joining, you will have the opportunity to shape the conversation and the programme of our events. The IAF's mission is to also encourage the participation from countries that have just begun developing their space sector.

Consider joining and, please, do not hesitate to get in touch with us should you have any question!

JOIN US and discover how to:

- Creating awareness on the essential legislative and policy elements that must be considered in establishing a firm foundation for national or regional space programs;
- Promoting the creation and development of a local space industry that is innovative, responsive, robust, commercially viable, and connected and integrated to the global space industry;
- Highlighting the socio-economic benefits of space applications so that high-level citizen support can be secured for advancing national or regional space programs.

DON'T MISS GLEC 2022!
GET YOUR PLACE AND REGISTER TODAY - www.glec2022.org

GLEC 2022 REGISTRATION FEES

Showcase your products to GLEC 2022 attendees and promote your services to new customers. GLEC 2022 offers plenty of sponsorship opportunities!

Contact us at sponsorship@iafastro.org and be part of an unforgettable experience, put your voice at the centre of the discussion.



IAC 2022

We are delighted to announce that registration is now open!

Join us this year for the annual **International Astronautical Congress in Paris, France from 18 to 22 September 2022**. We are bringing together the world's most experienced people and organizations for the ultimate five-days conversation on space.

The IAC 2022 has received more than

4800 abstracts from 97 countries, setting new records highs for IAC in terms of submissions and diversity.

The overwhelming interest in this year's IAC gives a strong sense of value to the unifying congress theme *Space for @ll* and a cause of celebration for the global space community as a collective expression of engagement and optimism.

The IAC also creates new opportunities and inspires future generations. As a result, the Call for Abstracts has sparked unprecedented interest among students who set a new record for IAC as they represent 39% of the total number of authors who submitted an abstract for this year.

The International Programme Committee (IPC) would like to thank everyone for the massive response to the IAC 2022 Calls. As the overall submission count is higher than any past instance of the IAC, the dramatic increase in popularity this year will result in a vigorous review of all the submissions and a very strong competitive selection process.

Paris is the perfect reunion destination for the global space community, and the IPC is dedicated to assembling the best stimulating and multidisciplinary programme for what promises to be an unforgettable and vibrant IAC!

Stay tuned in the following weeks, we will start announcing the IAC 2022 full programme.

Everything is on the table - and you can't afford to miss it.

Don't wait: you can benefit from the Early Registration Rates until 2 JUNE 2022 only!

Register at www.IAC2022.org

Questions about registration: contact@iac2022.org





IAC 2023

SAVE THE DATE: THE IAC 2023 DATES HAVE BEEN CHANGED TO 2-6 OCTOBER 2023!

SAVE THE DATE:

The IAC 2023 dates have been changed to 2-6 October 2023!

See you in Baku

The graphic features a blue and green background with three circular images: a white space station model, a cityscape of Baku, and a street scene in Baku.

The initial dates for the **International Astronautical Congress - IAC 2023** have been shifted to the 2-6th of October 2023 and **Ilham Aliyev, President of the Republic of Azerbaijan**, has ordered on the establishment of an **Organizing Committee in connection with the 74th International Astronautical Congress to be held in Baku in 2023.**

The Organizing Committee will be composed of the following members from the Republic of Azerbaijan: **Prime Minister, Minister of Digital Development and Transport, Minister of Foreign Affairs, Minister of Internal Affairs, Minister of Finance, Minister of Emergency Situations, Minister of Health, Minister of Culture, Minister of Education, Minister of Youth and Sports, Chairman of the State Customs Committee, Head of the State Security Service, Head of the State Border Service, Head of the State Migration Service, Chairman of the State Tourism Agency, Chairman of the State Agency for Public Services and Social Innovations under the President of the Republic of Azerbaijan, President of the National Academy of Sciences of Azerbaijan, Head of the Baku City Executive Power, Chairman of the Board of the Space Agency of the Republic of Azerbaijan (Azercosmos), President of Azerbaijan Airlines Closed Joint Stock Company, Chairman of Azerishig Open Joint Stock Company, Director of the Heydar Aliyev Center, Director of the Baku Convention Center.**

The Organizing Committee will prepare and implement an Action Plan for organizing the 74th International Astronautical Congress to be held on October 2-6, 2023 in Baku.

Holding of this International Congress in Azerbaijan for the second time will create invaluable opportunities for development of the space industry in Azerbaijan, expansion of cooperation with the international space community and the International Astronautical Federation representing it, as well as closer integration into global space industry.

Looking forward to seeing you in Baku for the IAC 2023.



THE IAF IS PLEASED TO ANNOUNCE YOU A NEW SERVICE: THE IAF FLIPBOARD.

The IAF Flipboard is a new space on the IAF website updated on a weekly basis highlighting the latest developments, discoveries and trends in space. The IAF Flipboard gathers in one place links to the world's most credible and reputable space news sources ranging from relevant articles, videos and interviews.

IAF Flipboard

The banner is red with white text and decorative diamond shapes.

[Click here, stay informed and be aware of what is happening in this universe!](#)

Happy to help.

Would you like us to share a news? Send us your comments?
Contact us at flipboard@iafastro.org

The banner is light grey with blue diamond shapes.

WE ARE PLEASED TO ANNOUNCE THE 2021/2022 IAF LAUNCHPAD MENTORSHIP PROGRAMME WINNERS



Abdulla HIL KAFI

Abdulla Hil Kafi, one of the developers of First Bangladeshi Satellite named BRAC Onnesha, is a young Bangladeshi researcher who has an enthusiasm for innovation and enjoys experimenting with new electronic equipment and technology. He has an extremely creative background with developed skills in Space hardware, Robotics, android-hardware interfacing & Embedded systems. He completed his M.Sc. in Applied Science for Integrating System Engineering from Kyushu Institute of Technology. During his M.Sc. he was the core member of the BIRDS-1 Project which is the champion of the AIRBUS GEDC Diversity award 2017. He also received the youth excellence award 2018 from ACI Limited Bangladesh, in the field of Science and Technology for his contribution to BRAC Onnesha. His major research is on Single Event Phenomena in commercial off the shelf-components for space.

His research interest includes space Radiation, earth observation application using machine learning, the satellite of things. Currently, he is working at BRAC University as a Research Associate. His major role is to establish a Center of Excellence dedicated to the Development, Verification, and Validation of Lean Satellites. He is the founder of the Laboratory of Space System Engineering and Technology. He plays the role of advisor of IEEE Aerospace and Electronics System Society student branch, BRAC University. He is also working as Satellite Mission Idea Contest Co-Ordinator of UNICSEC-Global for Bangladesh region.



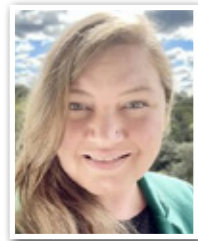
Edgar PAOLO VIOLAN

Edgar Paolo Violan is a Chief Science Research Specialist, Space Industry and Strategic Business Development Bureau of the Philippine Space Agency (PhilSA). His bureau leads the strategic development and dissemination of space science, technology, and applications that translate to innovative products, capabilities, and services for the country.

He also serves as the Mechanical Analysis Engineer of the team building the next-generation satellite of the Philippines: the MULA Satellite. Under the Advanced Satellite Development and Know-How Transfer for the Philippines Project of the STAMINA4Space Program, his team was deployed to the United Kingdom to acquire hands-on industry experience of small satellite development in cooperation with Surrey Satellite Technology Ltd, the project's industry partner.

Prior to PhilSA, he was part of the development team of the Philippines' 2nd microsatellite - Diwata-2 under the PHL-Microsat program. He was the team's mechanical engineer working under the Space Robotics Laboratory in Tohoku University in Japan, the program's partner university. His team assembled, integrated, and tested Diwata-2 ensuring its successful launch and operation in 2018. His research then focused on the attitude determination and target pointing system for the earth observation missions of Diwata-2.

Engr. Violan obtained his BS degree in Mechanical Engineering from the University of the Philippines - Diliman in 2015, and acquired his Master of Science in Aerospace Engineering degree from Tohoku University in 2020.



Kathryn ROBISON HASANI

Kathryn Robison Hasani, PhD is a political scientist specialising in the role of political communication in the formation and dissemination of space policy at both the domestic and international level. Dr. Robison is also a science communication professional at Communicate Space Consulting where she works with STEM students and professionals to develop effective scicomm skills. She received her doctorate and masters in Political Science from the University of Alabama and also holds degrees in Anthropology, Near Eastern Studies, and American Studies from the University of Arizona and Youngstown State University.

Dr. Robison's current research interests include public opinion on government spending on space, legislative processes which affect national and international space policies, and equitable and just access to space and space resources. In addition to her research, she has taught Political Science and Humanities courses at the University of Alabama and Wake Technical Community College.

Dr. Robison is passionate about mentoring and has served as a mentor in various programs at her universities and through other organisations and was selected to participate in the UNOOSA's Space4Women mentoring program this year. She was formerly the Project Groups Coordinator and the Recruitment Manager at the Space Generation Advisory Council (SGAC). Dr. Robison is currently a member of the International Astronautical Federations's Space Education and Outreach (SEOC) and Workforce Development-Young Professionals Programme Committees (WD-YPP) and served as the coordinator for the Next Generation Plenary Steering Committee until 2021. She is the Vice Chair of Career Development for the WD-YPP Committee. Dr. Robison has traveled the world for research and language studies, is a poet, and a contributor to the Talking Space podcast. She is currently working on a collection of poetry inspired by her love of space.



Leonard DE GUZMAN

Leonard works in strategic planning at a Fortune 50 company in the technology and telecommunications sector. Prior to joining the private sector, Leonard enjoyed a public service career in Australia. His experiences include working with the Australian Department of Foreign Affairs and Trade at the Embassy of Australia in Washington, D.C., and with the Australian Department of Defence as both a civilian and a military officer.

As part of his commitment to the Space Generation Advisory Council, Leonard serves on the Programs Team for SGx2022 and is part of the SGAC Executive Team as a Human Resources team member.

Leonard holds a Bachelor of Engineering with a dual major in aerospace and mechanical engineering from the University of Queensland, where he completed his undergraduate thesis in scramjets and hypersonics. He also holds a Master of Systems Engineering with an electronics major from the University of New South Wales Canberra at the Australian Defence Force Academy. He is currently studying a Master in Law at the University of Pennsylvania.



Markus GEISS

Markus Geiss is an explorer, engineer, entrepreneur and space advocate with multiple years of international experience in the space sector ranging across academia, large system integrators and start-ups. Currently, Markus is a systems engineer and project manager at OHB as well as the 4D Printing lead and Business Development Manager at DcubeD. In addition, he is co-founder of several ventures promoting awareness, outreach and excitement for space.



Matej POLJACEK

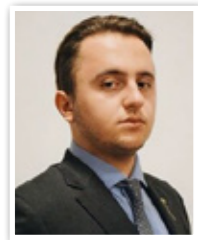
I am a Flight Operations Engineer for the Columbus module of the International Space Station at DLR. As a member of the flight control team, I support the astronaut crew on-board by monitoring and operating the systems and payloads in the module, to ensure crew safety, smooth running of the station, and to support the scientific activities. Aside from working on the existing station, I have also worked on habitation concept studies for the Moon, Mars and Venus, collaborating with teams to design bases and necessary systems for these destinations. The most recent of these - a lunar base named Domi Inter Astra, developed with a team from the Space Generation Advisory Council (SGAC) - has won the 1st place prize in a competition organised by The Moon Society. Under the umbrella of SGAC, I am currently also working on an initiative enable Slovak public to send their custom postcards to space on Blue Origin's New Shepard rocket, thanks to "Postcards to Space" program run by the Club for the Future. Apart from volunteering for SGAC, I am also a member of IAF's Human Spaceflight Committee.

Prior to my full-time involvement in human spaceflight, I worked with robotics, AI, cubesats, took part in a 2-week Lunar analog mission, and spent a year at the European Space Agency as a young Graduate Trainee working on software technologies. My work in the space sector has been recognised by Forbes Slovakia in their 2021 edition of "30 under 30" in the Science & Education category.



Shabnam YAZDANI

Shabnam Yazdani is a passionate space leader and aerospace engineer who advocated the space industry in Iran between 2016 and 2020. She is a highly accomplished space program and project manager with 8+ years of experience, a multi-award winning space researcher, TED speaker, TV personality, and STEM promoter. Shabnam was the leader of Space Applications Business Development program where she developed the dialogue on space applications from its inception to delivery and operations. She established the Space Collaboration Network with a membership of 270+ companies and the number of space startups grew by 20 percent under her leadership. She has joined SGAC since 2020 as regional partnership manager for Middle East and her endeavors are to include everyone in space. She is launching a consultancy startup named KERA-sat to advise whoever wishes to engage in space business in the right path according to their capacity. Shabnam is deeply passionate about space and she believes that the future of humanity is in space so everyone should get onboard before the ship has sailed.



Tahir GADIMOV

After returning from the University of California, Riverside with a BS in Electrical and Electronic Engineering and minor in Computer Science, I joined the Azerbaijani Space Agency, Azercosmos. As group leader of software development in the R&D department, I've set out to accomplish two goals: creating new technologies to increase Azerbaijan's space sector presence and encouraging the next generation of Azerbaijani engineers to pursue careers in Aerospace. Grateful for the opportunity to study abroad due to a full tuition governmental scholarship I believe it is my obligation to help foster interest in STEM fields in Azerbaijan. My approach to research and development is to look local, finding problems and gaps in Azerbaijan and the surrounding regions and then create solutions that can be implemented across the globe.

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.

2021/2022 IAF LAUNCHPAD MENTORSHIP PROGRAMME MENTORS



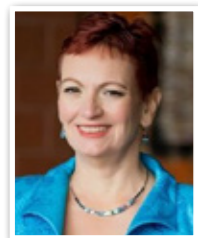
Anthony MURFETT

Former Deputy Head, Australian Space Agency, Australia



Jonathan HUNG

Founder & President, Singapore Space and Technology Limited (SSTL), Singapore



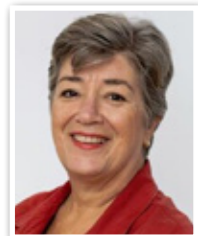
Lisa MAY

Chief Technologist for Commercial and Civil Space Advanced Programs, Lockheed Martin Corporation, United States



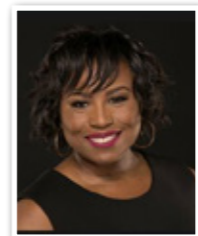
Valanathan MUNSAMI

Former CEO, South African National Space Agency (SANSA), South Africa



Tanja MASSON-ZWAAN

Assistant Professor and Deputy Director of the International Institute of Air and Space Law (IIASL), Leiden University, Netherlands



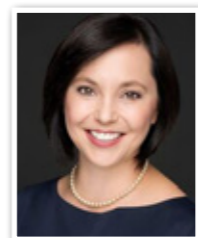
Camille ALLEYNE

Deputy Manager, Commercial Lunar Payload Services (CLPS), National Aeronautics and Space Administration (NASA), United States



Danielle WOOD

Assistant professor, Massachusetts Institute of Technology, United States



Charity WEEDEN

Vice President, Global Space Policy and Government Relations, Astroscale, United States



NEWS!



Azercosmos' educational programs are providing vital opportunities to aid youth development

As a space agency Azercosmos performs capacity building and space awareness activities. We continuously hold various programs and competitions aimed at the development of human capital and space, like Cansat Azerbaijan and Code & More projects in Azerbaijan.

The awarding ceremony for the winners of the "CanSat Azerbaijan" model satellite competition organized by Azercosmos and the Ministry of Education was held. 23 teams from 8 local universities of the country took part in the competition. The teams consisted mainly of students in mechanics, electronics, computer engineering, aerodynamics, mathematics, physics and other technical specialties. The finalists developed model satellites weighing 350 grams based on the working principles of real satellites. The jury evaluated the satellite models on the basis of signals-telemetry reception, imaging of a certain area, determination of altitude, temperature and pressure.



Within the framework of the Technest scholarship program announced by the Ministry of Digital Development and Transport, students involved in the Code and More education project are being trained in the field of electronics.

At the trainings organized by Azercosmos, students work on the CubeSat project. The project aims to develop CubeSats, as well as to develop students' engineering skills in the field of electronics and mechanics. In the first four months of the six-month training program, students learn the basics of the electronics. At the next

stage, they master on the features of modeling and operation of small satellites based on the principles of developing real satellites.



Institute of Space Studies of Catalonia (IEEC)

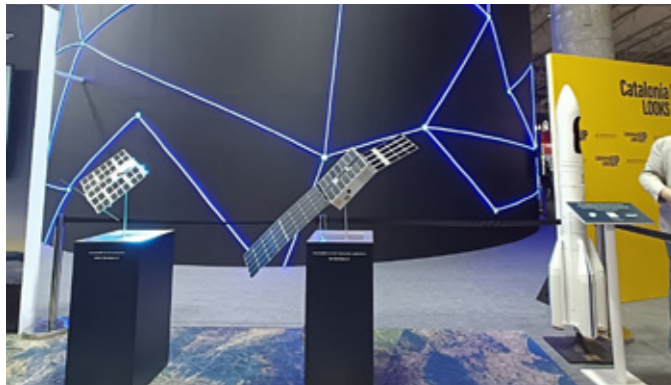
Once more, the Mobile World Congress (MWC 2022, 28 February - 3 March), the most important international trade fair in the technology, digital and business sectors, was held in Barcelona. In its 17th edition, the MWC was physically attended by over 61,000 participants from 150 countries.

This year, the Institute for Space Studies of Catalonia (IEEC — Institut d'Estudis Espacials de Catalunya) had a prominent role in the congress as one of the three leading centres of the NewSpace Strategy for Catalonia, approved on 27 October 2020 by the Ministry of the Vice-Presidency, Digital Policies and Territory of the Catalan Government.

The booth of the Catalan NewSpace Strategy showcased innovation and R&D activities and projects demonstrating the use of space technology for the benefit of the NewSpace ecosystem, linked to technologies such as Earth Observation, IoT/5G and Global Navigation Satellite Systems (GNSS).

Besides, the first use case in a real environment of the nanosatellite *Enxaneta* (named through a children's contest after the crowner of Catalan human towers) was presented to the broad audience of the congress. Launched into orbit in March 2021, this 3-unit (3U) CubeSat aims at providing IoT coverage throughout Catalonia and serves as a platform to test and experiment on 5G Non-Terrestrial Networks.

Enxaneta is the first of several nanosatellites that the Catalan Government will put into orbit in the framework of the NewSpace Strategy. A second nanosatellite, a 6U CubeSat, is already on an advanced development stage and is expected to launch later this year to provide multi-spectral high-resolution imagery for Earth Observation.



Slovak Space Office (SSO) become one of the newest IAF members in October 2021. SSO is a joint project of the Slovak Investment and Trade Development Agency (SARIO) and the Ministry of Education, Science, Research, and Sport of the Slovak Republic (MESRS). While the ministry-led Political Branch is responsible for inter-ministerial political coordination and multilateral issues, the Industrial Branch at SARIO is in charge of developing the Slovak space ecosystem and bilateral international cooperation. It focuses on supporting Slovak entrepreneurs and researchers in integrating into European and global industrial structures and supporting participation in international projects and organisations.

Slovak Space Incubator

- Premises and mentoring from host partners in 3 locations across Slovakia
- Additional mentoring from successful actors in Slovak space and start-up ecosystem
- Feedback on the project from renowned foreign experts
- Support in fundraising and matchmaking with VC players

MAIN PARTNERS: innovlab, MPM SOLUTIONS, 3IPK, COSPACE, SARIO

PARTNERS: ofoVentures, SORELMAOODI, sparring, eb, CIVITTA, C&C

Some of the highlights of the SSO activities in 2021 were participation in the World Expo 2020 space week in Dubai, organising the 3rd edition of the Slovak space industry flagship conference Emerging Space with more than 400 participants and a stellar line-up of speakers, establishing the first-ever space business incubator, and participating in the EU-led Cassini Hackathon initiative as one of ten local organisers.

Emerging Space 2021 ONLINE

3rd SLOVAK SPACE TECH DAY
November 30 | 2021

Slovak R&D involvement in international space programmes dates back to the 1970s including two crewed missions. Today, Slovak researchers actively participate in a variety of international space missions including Rosetta, BepiColombo, or JUICE. Since 2017 Slovakia launched its first two satellites developed under the collaboration of national and international commercial and R&D partners.

Currently in Slovakia, more than 40 companies and 7 R&D institutions have ongoing space activities including space engineering education. The most popular areas include satellite components and cubesats, Earth observation applications, deep space exploration instruments, and space safety.



ThrustMe's founders wins prestigious European Physics Award for groundbreaking innovation in space propulsion

With growing space industry demand, and the rise of satellite mega-constellations, a viable alternative to conventional xenon propellant is necessary to ensure a sustainable space industry. On 15 March 2022, Ane Aanesland, Dmytro Rafalskyi and Javier Martínez Martínez won the European Physical Society Plasma Physics Innovation Prize for the technological, industrial and societal applications of research in plasma physics through their pioneering development of iodine-fueled plasma-based electric propulsion systems for satellites.

After several years of development, the world's first iodine electric propulsion system was launched into space on 6 November 2020 and subsequently successfully demonstrated onboard a small satellite. The results of this demonstration were recently published in the leading scientific journal, Nature, and have created intense media interest and significant commercial traction demonstrating the importance of this new technology.

"It is impressive to see how Ane and Dmytro have taken their fundamental plasma research and, with the help of Javier, and the rest of the ThrustMe team, turned this into a product that is now available on the market and which has already gained significant commercial traction since its first demonstration in space" said the EPS Plasma Physics Division.



The German Space industry and community will once again participate in the IAC, this year's edition taking place in Paris. Kindly mark your calendar for a visit to the German Pavilion and its exhibitors!

Another important space event takes place before the IAC: the ILA Berlin. In 2022, this largest aerospace trade show in the European Union will again attract and inspire tens of thousands of visitors and hundreds of media representatives from around the world. Under the slogan "Pioneering Aerospace," ILA will enable visitors to experience the future of aerospace at first hand from June 22 to 26, 2022.

The ILA is where you can meet the global space community. Be part of the largest exhibition of space industry in Europe! And unique: Agencies, science and space companies – from system houses to small and medium-sized enterprises to start-ups – jointly present innovations and developments from space. This makes ILA the ideal platform for international space stakeholders to exchange ideas, define future joint projects and discuss topics ranging from environmental and climate protection to intelligent mobility and space security at high-profile conferences.

Space is focused on its indispensable contributions to a modern, sustainable, secure and digital future – it is key to climate protection and prevention. A special highlight is the Space Pavilion from the European Space Agency (ESA), the German Aerospace Center (DLR) and the companies of the German aerospace industry represented by the BDLI (German Aerospace Industries Association).

Take part in a unique program of events featuring lectures and panels on up-to-the-minute topics including climate protection, digitalisation, mobility and security!



HE Space wins contract for Climate Office

Climate change and importance of space data to inform climate strategies are driving HE Space's sustainability commitment for Clients

HE Space is a European and UK company focused on delivering space-related services for over 40 years.

HE Space has been awarded a multi-million Euro contract by ESA to deliver a new flagship climate coordination office. The office is hosted by ESA at its ECSAT site, Harwell, UK.

"We are delighted to have this opportunity to support climate modelling activities," says Dr Jason Maroothynaden, UK Director of HE Space. "The CMIP International Project Office also aligns with HE Space's focus on climate change and sustainability."

The contract, awarded after an open competitive process run by ESA and the World Climate Research Organization (WCRP), is for 5 years under the title "Implementation of the World Climate Research Programme's (WCRP) Coupled-Model Intercomparison Project (CMIP) International Project Office (IPO)".

Launched on 1st March 2022, the HE Space-run office headed by incoming director, Dr Eleanor O'Rourke, will ensure continuity of WCRP's technical response to monitoring climate change. ESA as host, demonstrates European strategic support to strengthen scientific consensus by drawing Earth Observation and modelling communities closer together.



Dr Eleanor O'Rourke

According to Dr Susanne Mecklenburg, Head of ESA's Climate Office, "We are pleased to award HE Space the service to provide the team. ESA hosting the new CMIP office aligns with ESA's long-term strategic commitment to provide high-quality observation-based climate data records to support the modelling community."



An unprecedented series of Mars-gravity, Moon-gravity and Zero-gravity Research, Educational and Tourism Flights on the world's longest parabolic flight aircraft is being called by SpaceLand, thanks to the group's exclusive program agreements with international partners.

In the wake of SpaceLand breakthrough achievements as the only non-U.S. company flying on board NASA Microgravity Pathfinder Flights in the past, with a mixed-team of scientists and laypersons trained underwater at SpaceLand Camps and brought on board by a former ESA astronaut systems lead-engineer and flight veteran (www.iafastro.org/biographie/carlo-viberti.html), a Call for scientists, techno-innovators and laypersons is being issued.



Breaking one more world record, the selected users will fly on the world's largest single-aisle flight vehicle for parabolic flights, as exclusively secured by SpaceLand for flight operations in the South of Europe and in Africa respectively.

In terms of European and Afrasian territories, the mission SpaceLand 2023 will be history's first Parabolic Flight campaign taking off from airports at a latitude South of the Alps; the novel flight platform will enable low-budget users to conduct low-cost R&D and tests in actual microgravity or low-G conditions in an almost-40-meter-long cabin space: within it, innovative STEAMM (Science, Technology, Engineering, Arts, Math and Medicine) payloads, including satellite in-flight capture technologies, astronauts and planetary exploration systems, will be operated in the best-ever experimental zero-G conditions at the lowest-ever cost per passenger for parabolic flights.

In synergy with several international universities, the flight mission is open to anybody and includes a preparatory period of ground and underwater training, hinging on SpaceLand's legacy set during several research flights at NASA on smaller aircrafts (as documented inter alia by CNN, Swiss and Italian State TVs): de facto, SpaceLand has already flown the world's youngest (11-yr-old Kim Marco Viberti), the world's oldest (93-yr-old Cesare Massano) and the world's first 100% disabled (Elma Schippa) as test subjects for zero-G techno-innovation tests and life-sciences research experiments, also conducted for European neuro-science teams led by a Nobel-Prize-winning-scientist. Following on the outstanding results of the past missions, the upcoming flights will also enable educational projects and valuable R&D catering for the needs of both astronauts and people with disabilities for disruptive new tools to enhance respective quality of work.

Up to 500 participants, of any age and background, with no gender, generation, geography constraints, will be prepared at SpaceLand Centers, being readied in Europe and in Africa, to qualify to fly like astronauts and conduct STEAMM experiments on such unique flight missions: from low-gravity A.I.-robotics for Moon and Mars surface exploration to habitat construction technology development projects, from biomed to bio-engineering and 3D weightless bio-manufacturing experiments, from materials and fluid sciences basic and applied R&D to astronaut systems tests, benefiting from actual low-gravity and zero-G conditions; out-of-this-world artwork performances are also welcome for such unique flight campaigns.

Candidate teams and STEAMM payloads pre-selection will occur this year, followed by facilities development and implementation of hand-on training and flights from early 2023 onward, in Italian and African airports to respectively serve European and Afro-Asian users communities at the minimum cost, including local academia, mass media and tourists.

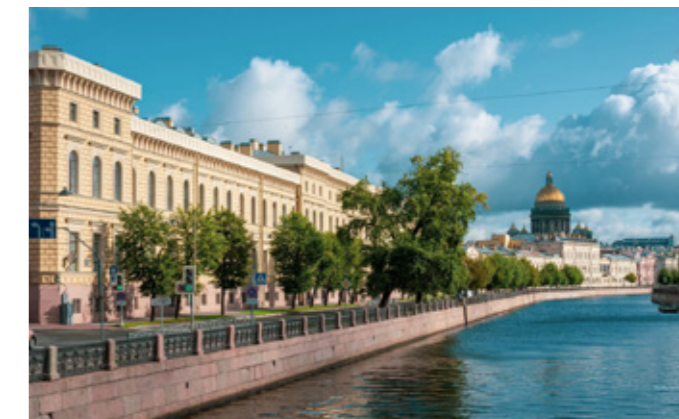
All such opportunities will be further presented during the 4th SpaceLand workshop, organized together with IAF ITACCUS, EuroMoonMars, ArtMoonMars and ILEWG, on 1-5 September 2022 in Mauritius. For info: https://en.spaceland.it/media-amp-events/events/c_36/4th-spaceland-workshop_i_93.htm

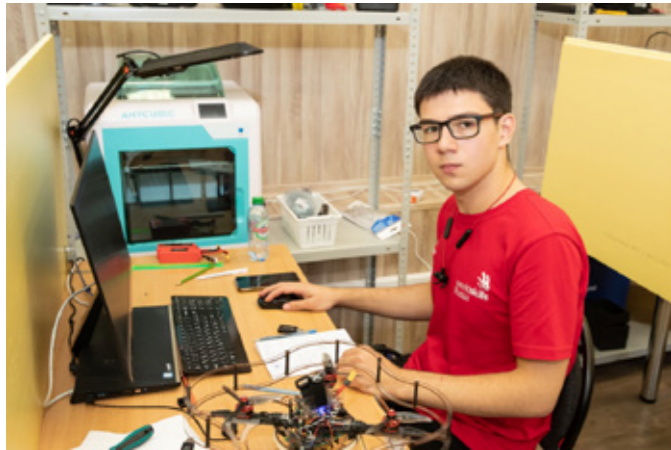


Innovative educational program for aerospace engineers

St. Petersburg State University of Aerospace Instrumentation (Russia) is a multidisciplinary technological University that ensures high standards of educational process. In 2022 we are launching the Aerospace R&D Centre, which will train the new generation high-quality engineers. One of the educational components of the Centre is the Embedded Systems for Information Processing and Control Master Degree Program. It is designed and launched by the Department of Aerospace Computer and Software Systems in close collaboration with the aerospace industry. The program is bilingual; students are taught in Russian or in English. It consists of the six main tracks producing different learning outcomes and students' competences. "Project track" is related to the project management and business. "Communication track" gives international language communication skills. "Intellectual systems track" provides students with knowledge on modern information processing methods and neural networks. "Formal methods track" prepares students for the research and gives mathematical background. "Embedded systems track" is the main track for embedded systems design, development and implementation. "R&D track" stands for

the work in multidisciplinary projects during the studying, including masters' thesis work and scientific seminars. International CDIO standards are used as the educational framework for "Embedded Systems" program. In 2019 this program became a Russian Federal Innovation Platform (FIP), and in 2021 the program successfully passed the ASIIN international accreditation and proved its engineering and educational quality. In 2022 "Embedded systems" program became a base for the Double Diplomas program with Institut Polytechnique des Sciences Avancées (IPSA, France). We are open for new students, any type of collaboration, exchanges and internships!





This year's edition will take place on 9–11 Sept. 2022 in Poland.

Find out more at <https://roverchallenge.eu/>



The European Space Foundation's flagship project is the European Rover Challenge – an international space & robotics competition held every year since 2014. University teams from around the world design, construct and program their own robots based on artificial intelligence algorithms. Thanks to the ERC they build unique competences of future engineers, scientists or software developers.

The competition takes place on the world's largest artificial Martian track, reproducing the conditions prevailing on Mars (craters, rock fragments, hills, volcanoes...), which robots must cope with in tasks based on actual NASA and ESA missions.

Since 2020 the competition has been conducted in two formulas: ON-SITE in which the teams come to Poland with their own robots, and REMOTE in which the competitors stay at their location and remotely control Leo Rover on the Mars Yard in Poland.

Over the seven editions, the ERC has been visited by many industry authorities including NASA Associate Administrators Robert Cabana and Steve Jurczyk, Harrison Schmitt – NASA astronaut and member of the legendary Apollo 17 mission, and Tim Peake – European Space Agency astronaut.

2021 edition milestones:

- Nearly **half a million people** followed the event on-site and online;
- The **three-day program** was full of lectures, debates and presentations, live-streamed in Polish and English;
- There were over **60 international speakers** involved;
- **38 teams** took part in the competition finals;
- The **world's largest active Martian volcano** awaited the audience at the Mars Yard.

MUDD LAW

Over the last few years, Mudd Law and its principal, Charles Lee Mudd Jr., actively participated in policy deliberations related to the adverse effects of satellite constellations on astronomy. This included SATCON 1 and 2 as well as the Dark & Quiet Skies 1 & 2 workshops held in 2020 and 2021, respectively. Charles continues to participate on the American Astronomical Society's "Light Pollution Radio Interference and Space Debris Working Group" as well as the International Institute of Space Law's "Working Group on Light Pollution of the Night Sky." Mudd Law believes that effective policies and strategic implementation of technology can ensure a sustainable space future for all stakeholders, including its commercial space clients, dark sky partners, and colleagues within the astronomy and other scientific communities. By facilitating interdisciplinary dialogue and encouraging adoption of "mitigation by design" practices, Mudd Law and Charles will continue to engage in efforts to preserve a viable space future for all parties. To this end, Mudd Law donated funds to the International Astronomical Union's recently announced Centre for Protection of the Dark and Quiet Sky from Satellite Constellation Interference. Additionally, it welcomes the opportunity to discuss proposed and future regulatory changes that could affect the commercial space sector. Finally, last year, the University of Chicago accepted Charles into its Master of Science in Data Analytics program. Through this, Charles intends to eventually incorporate artificial intelligence and machine learning into the Firm's representation of its clients as well as contributions to the broader space community.



On December 7th 2021, A.I.D.A.A., the Italian Association of Aeronautics and Astronautics, founded in 1920, celebrated his first centenary at the Italian Air Force Officers' Club in Rome. The event was scheduled for the previous year but, due to the Covid-19 pandemic, it was eventually postponed to 2021. Prestigious guests from European and Italian aerospace sectors, as well as civil and military authorities, took part in the celebration.



AIDAA is pleased to announce the opening of the 2022 call to become a new member (<https://www.aidaa.it/become-a-member/>) or to renew memberships (<https://www.aidaa.it/renew-your-subscription/>). AIDAA members can actively participate in the association initiatives, and are granted access to exclusive contents, such as Aerotecnica Missili e Spazio Journal issues and special rates for webinars. Among them, AIDAA's Educational Series and Academy committee is currently offering the possibility to attend twenty-three online courses on aerospace-related topics (more info can be found at www.aidaa.it), and special packages at <https://drive.google.com/file/d/11yHNA9ixtAoA6OirQykMnonK1pnEiRMD/view>).

Finally, AIDAA is glad to share that his member Dr. Manish Hassan Nagaraj ranked first in the 2022 Edition of the Award of the International Council of Aeronautical Sciences and the International Forum for Aviation Research. The Award honors an individual who made significant contributions to Aeronautical Science within his/her doctoral thesis. Dr. Nagaraj conducted his doctoral project within the MUL2 Lab (www.mul2.com) of Politecnico di Torino as a Marie Skłodowska Curie Action Early-Stage Researcher of the ICONIC project. His research focused on developing higher-order layer-wise models for the progressive damage and impact analysis of composite structures (<http://hdl.handle.net/11583/2872328>).





IAASS and BIT announce the 1st Conference on INTERNATIONAL LUNAR SEARCH AND RESCUE

Hainan (PRC), 13-15 October 2022

<https://www.iaassconference2022.space-safety.org>



The first international lunar search and rescue conference is co-organized by IAASS (International Association for the Advancement of Space Safety) and BIT (Beijing Institute of Technology). The conference is a unique opportunity to discuss technical, legal and organizational matters to allow search and rescue operations during Moon missions. One of the primary aims of the conference is to explore the viability of establishing a Lunar international SAR organization on the model of the submarines ISMERLO*.

Space treaties signed by all Moon-faring countries codify important obligations of search and rescue (SAR), however rendering assistance to crews in distress on Moon mission requires the development of dedicated aid capabilities, systems interoperability standards, procedures, preplanning, and training. Emergency assistance requires first of all the interoperability of the communication infrastructure, including wireless ground infrastructure and orbiting relay satellites to solve line of sight limitations. Furthermore, emergency assistance requires compatible hardware/software and procedures between EVA suits and habitats for ingress/egress, including the case of an incapacitated astronaut, cosmonaut or taikonaut. Allowance needs to be made for sheltering crew in distress by overdesigning life support systems, prepositioning of extra consumables and resources, and preplanning of additional accommodation. Finally, effective interoperability goes beyond technical aspects to include legal interoperability (for example, agreements on the exchange of medical data) and Semantic Interoperability, to ensure correct communication during emergencies.

* NOTE: [The International Submarine Escape and Rescue Liaison Office (ISMERLO) is an organisation that aims to facilitate an international response for a distressed submarine and to improve the ability to respond to a call for assistance through its coordination role. ISMERLO supports all nations and pursues the involvement of global submarine-operating nations. ISMERLO is a military organisation operating in an international environment focused on the humanitarian objective of saving lives at sea].



Neutron Star Systems (NSS) is a space mobility company based in Germany, the UK, and the United States of America, with the mission is to enable the next generation of high-power space missions. We aspire to grow and expand the market for space logistics by commercializing the use of High-Temperature Superconductors in spacecraft systems. Offering increased efficiency and power density, they can be utilized in Electric Propulsion, Re-Entry Shielding, Power Management and Distribution, and Cosmic Radiation Shielding Systems.

Recently, a High-Temperature Superconducting harness for scientific space instrumentation, developed by Neutron Star Systems for the European Space Agency, has passed the Critical Design Review, and made one step further towards establishing superconductors in space.

NSS main product is called SUPREME: Superconductor-based Readiness Enhanced Magnetoplasmadynamic Electric propulsion. This a novel approach integrates High-Temperature Superconductors with Applied-Field Magnetoplasmadynamic Thrusters, an electric propulsion technology with over 60 years of research heritage.

NSS is also working on the development of MEESST: Magnetohydrodynamic Enhanced Entry System for Space Transportation, under the framework of the FET-Open funding scheme of the European Union. NSS is part of a 10-partner consortium which has received a total funding of €3.5 Million to develop a new atmospheric re-entry system based on superconductors, aiming to replace heavy, physical thermal protection systems.

Neutron Star System's products will drastically reduce the mass and volume of spacecraft systems for high power and maximize their efficiency and power. Ultimately, their goal is to allow existing and new missions for sustainable and more economically space operations.



Egyptian Space Agency has Delivered the First 3 Educational Satellites to Egyptian Universities

Space keys is the Space Science and Technology Platform for Space Educational purposes and it's fully designed, manufactured and assembled by the Egyptian Engineers of the Egyptian Space Agency. The Space Keys platform design gives the students a hands-on space education and outreach with understanding and exploring concepts in Electrical design, Mechanical design, software design, and system engineering by using the subsystems and functionality of the satellite. Hardware and exercises design to give the students the hands-on engineering experience in satellite testing and operation.

The main aim of Space Keys is to localize the technology of the space industry in public and private universities, and its goal to raise the level of awareness of the students towards the space technology.

The development of the Educational Satellite comes within the framework between the Egyptian Space Agency, the Academic Science and Technology and the Egyptian Universities on the localization of Space Technology in the Egyptian universities as well as the goals and strategy of the state's plan for sustainable development 2030.

Egyptian Space Agency working towards capacity building and International relations, as a part of the various axes of the National Space Program, in order to make Egypt the regional center for Space Science and Technology for Africa and as a result of that Egypt won to host the headquarters of the African Space Agency in the Space City of Egypt.



AAKA Space Studio: The frontier for Next-Gen Space Habitation

Space exploration and habitation in other planets and deep space is one of the main aspirations for most of us. These aspirations got built up in us from the fairy tales, last few decades of Hollywood movies, and the aspirations looked more realistic when humanity first stepped on the moon. Space architecture is the study and practice of building habitable spaces in deep

space and other planets with consideration of various aspects related to the field of architecture.

AAKA is an evolving international design practice with a core focus to design, build and test prototypes based on interactive human-centered environments for extreme climatic territories, space missions, lunar and Mars missions. We solve challenging problems in Space and Terrestrial Architecture with a perceptive approach by creating collaborative work environments, concentrated research, and integrating emerging technologies. AAKA'S mission is to support the sustainable Infrastructural development on extraterrestrial and terrestrial land by reducing the project costs and implementing environmentally friendly design.

Space architecture's technological developments can be implemented on earth to achieve Sustainable Development Goals. Research says the space architectural developments can help us to achieve seven out of seventeen Sustainable Development Goals proposed by UNDP. As human beings, we have the immense capability to think, dream, and execute at our will which provides us an advantage to break all the barriers. We must learn to grow, help people who want to grow, and improve the human race a step ahead.



2012-2022: Poland – 10 years in the European Space Agency

Among the benefits stemming from 10 years of Poland in ESA, we can enlist contracts worth €140M, 300 cooperating entities, with over 150 directly involved in projects, access to ground and space-based infrastructure, collaborations with national agencies and the most prominent companies of the space sector, opportunities for developing Polish technologies, significant involvement in the space projects' supply chain, personnel training and various educational programmes, and many, many more.

The very first connections between Poland and ESA date back to 1994 when Poland signed the Cooperation Agreement in the field of the peaceful use of outer space, which was expanded in 2002. The collaboration between Poland and ESA became closer after Poland joined the EU in 2004, which led to the signing of the European Cooperating State Agreement in 2007. The final, vital step has been made in 2012, with joining ESA.

Two years later, the Polish Parliament passed a law establishing the Polish Space Agency (POLSA). The agency's activities focus on the maximization of satellite system usage and advancing the development of space technologies for the use of the Polish public administration system, science sector, education, economy, and defence. The Agency also engages in activities aiming at increasing the use of satellite data in public administration, as well as promoting wide-use of satellite data.

For Polish companies and research institutes, joining ESA has opened a path of intense development of space technologies and satellite techniques thanks to full participation in ESA's programmes. Over the past few years, Polish scientists have contributed to many European space missions, including CASSINI-HUYGENS, ROSSETTA, BEPICOLOMBO, or SOLAR ORBITER.

Currently, Polish entrepreneurs and scientists cooperate with new partners, develop various technologies, and receive both funding and opportunities provided by access to ESA's infrastructure. The Polish sector learns from the experience and knowledge of other member states, shares its achievements and experiences, and participates in ground-breaking projects – all of this resulting in Poland becoming a significant and recognisable partner. Polish companies are exceptionally active in robotics, mechatronics, on-board units power supply system, optical and communication satellite systems, sensors and drills for space probes, as well as software for testing objects before launching.

Presently, Poland's contribution to ESA amounts to around €40M annually. These necessary expenditures allow to participate in programmes covering Earth observation, satellite communication, telecommunication and applications, space exploration, Space Situational Awareness, or developing scientific instruments.

In 2022, we celebrate the 10th anniversary of Poland in ESA. It makes this year's ESA's Council at ministerial level especially important, crucial decisions regarding the funding of the European space sector will be announced. The decisions will cover both launching new space programmes and the continuation of the currently carried out ones, as well as the overall financial liability for the upcoming years. During negotiations, the Polish delegation will pay particular attention to the implementation of the National Space Programme in 2022, which will determine the path of development for the Polish space sector for the following years.



For more information visit: <https://polsa.gov.pl/en/news/2012-2022-poland-10-years-in-the-european-space-agency/>

More locations for ESA Business Incubation Centre (BIC) Bavaria

New Contract Secures Funds for Bavarian Space Startups

The European Space Agency (ESA) is extending its successful collaboration with AZO Anwendungszentrum GmbH Oberpfaffenhofen for the ESA Business Incubation Centre Bavaria and expanding its scope. The contract secures funding for the incubation programme, which is implemented together with ESA, the Bavarian Ministry of Economic Affairs, Regional Development and Energy, and the German Space Agency at DLR. Starting 2022, ESA BIC Bavaria will expand to two new locations and offer an advanced range of technical expertise for a further 80 incubatees.

Oberpfaffenhofen, 21 March 2022 – [The European Space Agency \(ESA\)](#) and [AZO](#) have signed a new contract extending their successful cooperation for the ESA Business Incubation Centre Bavaria. The four-year-contract ensures funding for continuous incubation support for 80 startups using space technology and enables an expansion to a total of five locations in Bavaria. Next to three existing locations, [ESA BIC Bavaria](#) will now also foster innovation in Wuerzburg in collaboration with the Technology Start-up Centre (Technologie und Gründerzentrum), the related Centre for Telematics (Zentrum f. Telematik) and Breunig Aerospace, as well as Neubiberg, cooperating with the Universität der Bundeswehr München. A corresponding agreement was signed by ESA Director General, Dr Josef Aschbacher, and AZO CEO, Thorsten Rudolph.

ESA BIC Bavaria already offers full-service incubation support at three locations with its technical partners in Oberpfaffenhofen (DLR), Nuremberg (Fraunhofer Institute for Integrated Circuits, IIS) and Ottobrunn (Airbus Defence and Space). The new locations in Neubiberg and Wuerzburg add advanced expertise to the already broad scope of technical service offered. The incubation programme now includes five major aerospace industry locations in Bavaria and incubated start-ups will benefit

from hands-on technical expertise as well as financial and business support.



Map of current and new locations of ESA BIC Bavaria; copyright: AZO

This first European space incubator was founded by the German Aerospace Center (DLR) with the support of the Free State of Bavaria in 2001. The incubator has been operated by AZO since 2004 and transitioned into ESA BIC Bavaria in 2009. For nearly 18 years, ESA BIC Bavaria and its predecessor programme have been promoting up- and downstream market development for space technologies and applications. Now, ESA BIC Bavaria is the most successful ESA BIC in Europe. AZO is also implementing two other ESA BICs in Germany and aims to continue and extend this collaboration.

Minister-President of the Free State of Bavaria, Dr Markus Söder: "It is now 20 years since the first European space incubator was founded, with significant financial support of the Bavarian Ministry of Economic Affairs. By now, the ESA BIC Bavaria incubation programme has created more than 3,300 high-tech jobs in the region. It is our aim to make the Bavarian economy fit for the future, which is why we foster future-oriented companies with innovative ideas in the space sector."

ESA Director General, Dr Josef Aschbacher: "Our ESA BICs are turning space-connected business ideas into commercial companies all across Europe. We are thrilled by their success and happy to advance up- and downstream space applications in Europe and the world with our new Directorate for Commercialisation, Industry and Procurement (CIP). Together with the ESA Space Solutions network we will continue to provide technical expertise and business-development support to clever minds with great ideas."

Member of the Executive Board of the German Space Agency at DLR, Dr Walther Pelzer: "The German Space Agency at DLR has the proclaimed goal of promoting innovation and fostering development in the space sector throughout Germany and

connecting science with business. Incubators like ESA BIC Bavaria are proof that continuous commitment and engagement achieve great economic success as well as adding value to local communities. We look forward to continue our collaboration with AZO in Oberpfaffenhofen."

CEO of AZO, Thorsten Rudolph: "Since 2004, we have supported over 200 incubatees, raising a total of EUR 1.4 bn in investments – a huge achievement. I am delighted that we will continue on this successful path by evolving our scope of services thanks to our incredible partner network and close collaboration with ESA, DLR and the Free State of Bavaria. We are looking forward to great collaborations and accomplishments in the future with our new locations!"

ESA BIC Bavaria is based in Oberpfaffenhofen and was the fourth of now 23 ESA BICs in Europe, founded in 2009 in its current form.

More information about ESA BIC Bavaria: www.esa-bic.de

About ESA BIC Bavaria

ESA BIC Bavaria promotes companies with disruptive products and digital businesses in areas including but not limited to robotics, mobility, automotive, aviation, and satellites. Since 2004, AZO Anwendungszentrum GmbH Oberpfaffenhofen through its ESA BIC Bavaria has supported more than 200 startups with an annual turnover of approximately EUR 160 M in 2020, creating more than 3,300 high-tech jobs in Bavaria and involving upwards of EUR 760 M in investments in 2020. The first ever ESA BIC unicorn was indexed in 2020, coming out of ESA BIC Bavaria. Additionally, two of its alumni had IPOs between 2017 and 2021 – the first of the whole ESA BIC network – now being listed on the German (Frankfurt) and American (NASDAQ) stock exchange. ESA BIC Bavaria is one of the most successful incubation programmes in Europe. For more information, please refer to our website: www.esa-bic.de

About AZO – Your Partner in Competition & Innovation

AZO Anwendungszentrum GmbH Oberpfaffenhofen is an international networking and branding company for the European space programme, supporting entrepreneurship with more than 1100 companies founded in Europe. Over the last 17 years, AZO has established the leading European space cluster innovation network for the satellite downstream market. The Masters Series, presented by AZO, consists of the [Galileo Masters](#), [Copernicus Masters](#), and [INNOspace Masters](#). AZO also manages its ESA Business Incubation Centres (ESA BIC) Bavaria and ESA BIC Northern Germany. This incubation programme has supported more than 200 company foundations to date. Since 2014, ESA BIC Bavaria companies were able to collect EUR 1.4 B in investments (Venture Capital and IPOs). AZO supported companies additionally profit from its very successful business angel network. For more information, please visit www.azo-space.com



Another giant leap... powered by the Airbus-built Orion-ESM

Where were you in 1969? Perhaps you watched the first steps on the Moon in grainy black and white television footage. Perhaps you were not even born yet.

The Orion spacecraft will provide people around the world with a new chance to witness one of humankind's greatest achievements – flying to the Moon.

The Orion spacecraft comprises the astronaut capsule and European Service Module (ESM). The service module was designed and built by Airbus in Germany, supported by key partners and suppliers from across ten different European countries, for the European Space Agency. The module provides propulsion, power, water, oxygen and nitrogen to the attached astronaut capsule. The ESM is the European contribution to the NASA Artemis programme which will land the first woman and the first person of colour onto the surface of the Moon in the middle of this decade. The first flight will see the ESM propel the spacecraft all the way to lunar orbit and back to Earth, thereby proving its readiness to transport astronauts on the subsequent crewed flights. It paves the way for future missions to build a space station in lunar orbit which in turn can be used as a base for missions to Mars and beyond.

The Orion spacecraft is currently at the launchpad in Florida sitting atop the SLS rocket which is the most powerful rocket ever built. Orion is ready to demonstrate its capabilities and create a new legacy in human space travel.



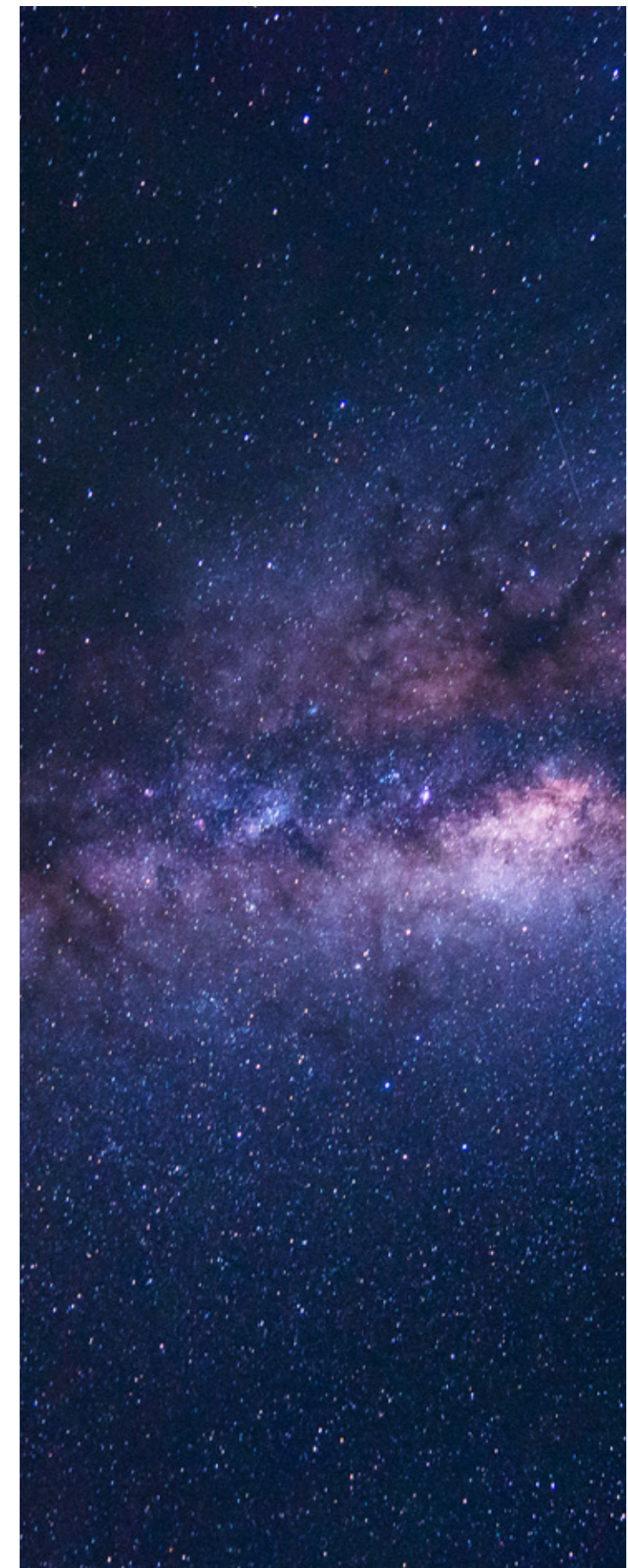
Space Agencies' Cooperation for Planetary Defense with AIAA-LA Special Session and Poll Report



Will asteroids or comets hit the Earth in the future? Of course. They have hit our planet many times in the past. They will continue to do so. But no need to start worrying too much: there is a network of organizations and projects currently studying near-Earth objects and working on prevention efforts.

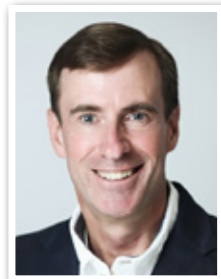
Planetary defense experts understand the importance of collaboration. In October 2021, members of the space agencies, the IAF and the AIAA came together for a Special Session for the American Institute of Aeronautics and Astronautics-Los Angeles Division (AIAA-LA). The Session included presentations about recent developments in PD, such as the two asteroid sample return missions. Among the presenters were: Mazanek explained that NASA's Asteroid Redirect Mission took a sample from asteroid Bennu on October 20, 2020. The mission is programmed to return to Earth on September 24, 2023. NASA's DART (Double Asteroid Redirect Test) mission was launched from SLC-4E at Vandenberg Space Force Base on November 23, 2001, and will journey to the non-hazardous, binary asteroid system Didymos to demonstrate the viability of kinetic impacts to divert NEOs. Dr. Yoshikawa, Mission Manager, described JAXA's Hayabusa2 mission, which fired a small projectile into the surface of the asteroid Ryugu. Creating a crater bigger than expected, the mission returned on December 5, 2020, with 5.4 grams of sample materials.

Dr. Koschny discussed the European Space Agency's Hera mission, due to launch in 2024 after DART to the target asteroid, Dimorphos. Nancy C. Wolfson's work focuses on communication and research for Space Sustainability and Planetary Defense. Wolfson invited the AIAA-LA audience to participate in the poll – based on a hypothetical Asteroid Threat Exercise (PDC2021). She also reported on the April 2021 biennial IAA Planetary Defense Conference hosted by the United Nations Office of Outer Space Affairs, noting that the attendees unanimously supported an International Year of Planetary Defense. Nancy is also the creator-founder of the first IAF Planetary Defense and Near-Earth object Symposium with the support of the IAF Bureau, 30 members from the NEO and Space Debris Committees, and the larger PD-NEO Community. She was responsible for developing the Symposium's Organizational Design, Communication Strategy, and Implementation Plan. Wolfson worked closely during the decision-making process and sessions descriptions with Dan Mazanek (NASA), Mariella Graziano (GMV), Alan Fitzsimmons (ESA), Alejandro Roman (AEP), Joseph Mousel (LSA), Smiriti Srivastava (SGAC), and others. She is actively involved within the planetary defense community, creating platforms for other professionals, students, young professionals, and the general public to participate in planetary defense activities. The space agency's representatives plan to bring their Special Session Polls' results to the Planetary Defense community in 2022. Stay tuned!

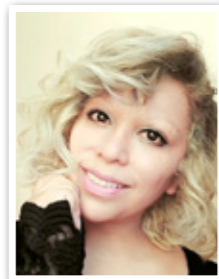




SPACE COMMERCIALIZATION BRINGING TOGETHER NEW ACTORS & OPPORTUNITIES & IAF-EIC MEMBERS ARE SUPPORTING THIS TREND



Clayton Mowry
Blue Origin &
Voyager Space



Nancy C. Wolfson
American Institute
Aeronautics and
Astronautics (AIAA)



Ken Davidian
Federal Aviation
Administration (FAA)



Joerg Kreisel
American Institute
Aeronautics and
Astronautics (AIAA)



Gary Martin
International Space
University (ISU)

The space industry and the IAF Entrepreneurship and Investment Committee (EIC) have entered a new era where space commercialization brings together actors from academia, space agencies, and the private sector. Together are identifying innovative approaches for public and private cooperation for manned and unmanned missions and other space-related activities such as exploration, satellites, habitats, resources utilization, and creating new markets for businesses and job opportunities for people.

We see entrepreneurs seeking to collect orbital debris and make space travel more sustainable. "2021 is the biggest year for private equity and venture capital investment in space startups and early-stage space venture companies with more than \$10 billion invested in the industry through the third quarter, according to Space Capital." Companies such as Boeing's Starliner commercial crew capsule, SpaceX's Starship, Sierra Nevada's Dream Chaser spacecraft, Rocket Lab, among others, opened the path for many more companies to join the commercial race to space. The number of firms capable of satellite and orbital spacecraft launch is expected to double in 2022.

There is growing interest in participating in the technical EIC program at the IAC 2022. Over 100 abstracts were submitted from 34 countries to the 5 different EIC-E6 "Space Business and Innovation" Symposium sessions. The IAC next fall will be an exciting forum to review the progress of significant developments. We want to congratulate our distinguished EIC member Mr. Clayton Mowry (Blue Origin/Voyager Space), who is the new incoming IAF President. He will officially take over from Pascale Ehrenfreund in October 2022. We also want to welcome our new EIC leadership. Warm thanks to Dr. Ken Davidian (FAA),

our former Chair, welcome the new Chair Nancy C. Wolfson (AIAA) and our new Vice-Chairs, Joerg Kreisel (AIAA), Gary Martin (ISU), and Ken Davidian (FAA).

Ken Davidian continued the FAA and industry-led research alliance development with the assistance of four distinguished consultants. At the same time, he began the development of a university-led research consortium to conduct innovation foresight research. He continues his work as Editor-in-Chief of the peer-reviewed journal "New Space" and as an adjunct instructor at the Virginia Tech Pamplin College of Business.

Gary Martin is part of the global faculty at the International Space University (ISU) "The ISU has a new President, Pascale Ehrenfreund: she has hit the ground running and she updating ISU's programs and administration. In addition, NASA has provided a new seconded Director for SSP and SHSSP, Kenol Jules, from JSC". Joerg Kreisel, since 1991 "JKIC" – (JOERG KREISEL International Consultant) – provides recognized and unique support to the space community worldwide based on his proprietary global network of financial and space expertise. Nancy C. Wolfson's work focuses on communication and research for Space Sustainability and Planetary Defense. She is the creator-founder of the first IAF (E10) Planetary Defense & Near-Earth Object Symposium (2019 to 2021). Responsible for the Symposium's Project Design, Development, Communication Strategy, and Implementation Plan. The Entrepreneurship and investment committee members are committed to creating opportunities for the next generations, discussing policies, and proposing steps to safeguard lives and the economy on Earth.

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Interview with Valanathan MUNSAMI - GLEC 2022 IPC Co-Chair



Why is GLEC 2022 so attractive for actors in space in emerging space countries?

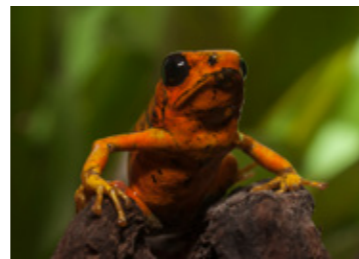
There is currently a proliferation of new space agencies and enterprises being established in emerging countries and it is vitally important for these organisations to be framed correctly from the outset. Such a framing requires careful consideration of the various stakeholders and an appreciation of the space ecosystem, which is why the theme of GLEC 2022 is "Space Ecosystems that bring Government, Industry and Society Together". GLEC 2022 promises to be an illuminating learning and networking experience.

What do you think are the future challenges of the space sector in emerging space countries?

There are a set of universal challenges facing emerging space countries and these relate to (i) lack of high-level political support, (ii) suboptimal financial resourcing of space programmes, (iii) shortage of experts with the appropriate experience and skills, (iv) low levels of technology readiness, and (v) a modest infrastructure base. These challenges could be viewed as barriers to entry to sustainable and viable space initiatives and organisations, and which collectively require a wider ecosystem approach.

How the International Programme Committee of GLEC 2022 is creating a programme that will be interesting and engaging also for so-called space nations?

The GLEC 2022 Programme provides an exciting mix of pre-conference activities, plenaries, and global networking forums (GNFs). There will be two pre-conference activities – a *Space Industry Entrepreneurship Workshop* for the budding entrepreneur and a *Space Policy and Law Masterclass* for new and existing entrants aiming to develop policy and law frameworks. There are seven Plenaries that focuses on the core theme of the Conference and seven GNFs that serve to complement the pre-conference activities and the plenaries.



Interview with Juan JARAMILLO ROJAS - GLEC 2022 IPC Co-Chair



What are the plans of Ecuador to develop its space program?

Today, Ecuador is working in the policies, laws, and government structure to manage, promote, and develop the space sector. Our country is looking for the building of an ecosystem where the public and private cooperate and associate to generate an effective system that permits the satisfaction of the demand of space products and services in the country and other potential clients around the world. Certainly, a future space program will come as an important core of this ecosystem.

What are the touristic and cultural attractions of Ecuador that GLEC2022 is proposing to its delegates?

Ecuador is plenty of cultural and touristic attractions, it is a flora and fauna mega-diverse country. The GLEC 2022 attendees could be adventurous or only enjoy the wonderful landscape traveling to the Ecuadorian Highlands, the Amazon jungle, the beautiful beaches on the coast, historical cities, or the marvelous Galapagos Islands. Ecuador is a well-connected country where you can move from Quito to any place in a few hours by land or air. On the GLEC 2022 web page, you could find multiple options of touristic and cultural attractions: <https://pure-travelgroup.com/glec-tours-2022>

What legacy do you wish to see GLEC2022 leave in the space sector and in Ecuador?

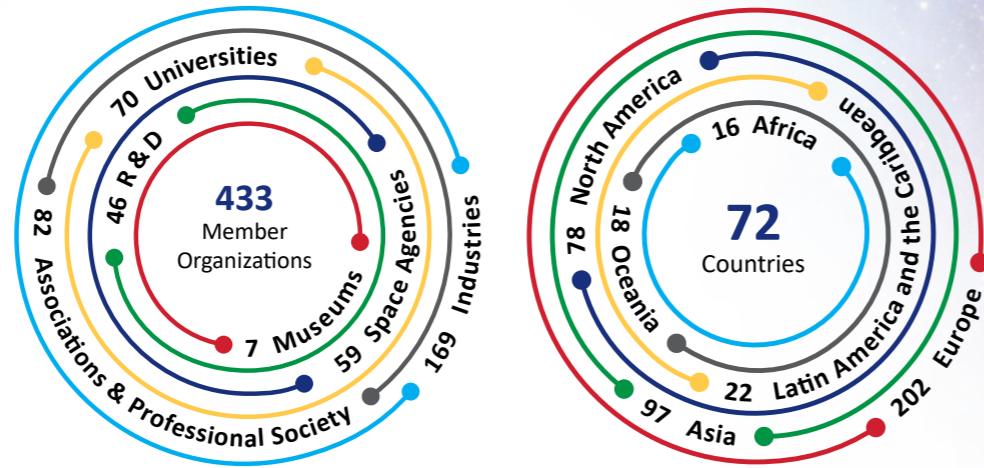
Astonishing, we expect to connect Ecuadorian academy, industry, and Government with the space global community. Moreover, we will change the way they see space development and its opportunities, the GLEC 2022 will prepare the path for more decisive and effective participation of the public and private sectors with investment, resources, and support for the establishment of a healthy space industry ecosystem in Ecuador. No doubt, it will be the same for the rest of the Region.





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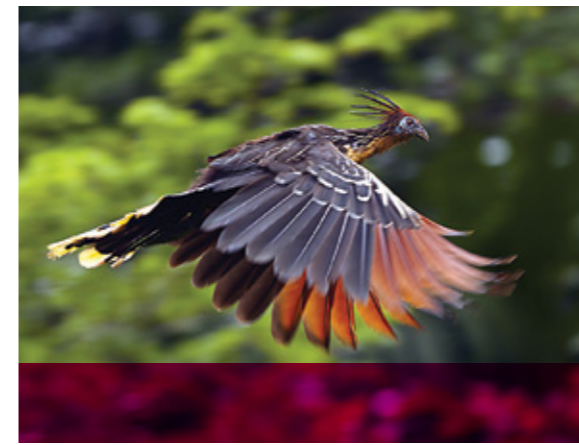
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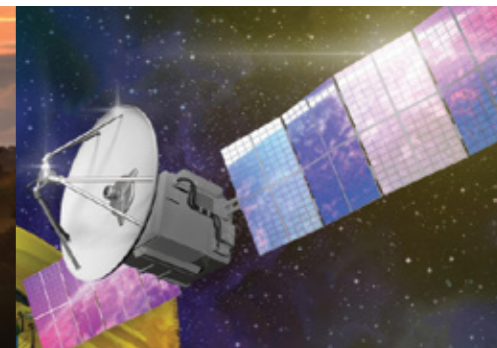


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The next IAF newsletter will be issued in June 2022