International Astronautical Federation News

3/2022 (September 2022)

IAF President's Welcome

Dear IAC Enthusiasts,

This is the month we have all been waiting for, we are days away from the most important space event of the year: the International Astronautical Congress 2022 to be held in the beautiful city of Paris, France from 18 to 22 September.

This Congress is going to feature a rich programme of plenaries, highlight lectures, special sessions, IAF Global Networking Forum (GNF), keynotes, press conferences, and much more. I would like to express my sincere thanks in advance to all IAF volunteers, committees, our sponsors, our partners, our host, the French Space Agency (CNES), and the IAF Secretariat for what promises to be a successful congress, rich in diversity and international cooperation.

This issue of the Newsletter will also present more in details the Global Space Conference on Climate Change - GLOC 2023 hosted by IAF member the Norwegian Space Agency (NOSA) to take place in Oslo, Norway on 23 – 25 May 2023. GLOC 2023 will contribute to the global efforts to better understand climate change. As the First conference of its kind, GLOC 2023 will be a fantastic occasion to find possible solutions to mitigate climate change through the use of space-based services and applications including Space Remote Sensing / Satellite Monitoring / Earth Observation and Maritime Surveillance.

I would like to express my special appreciation to our IAF Members for their presence and contribution to this newsletter. Many thanks to all for your contributions and I hope you enjoy reading it.

With my best personal regards,

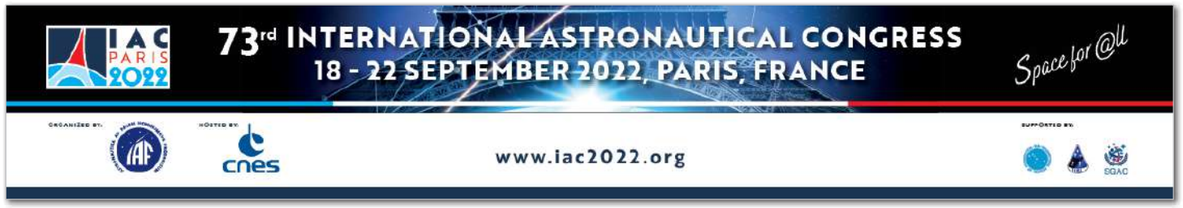
Pascale EHRENFREUND
IAF President

IN THIS ISSUE

IMPORTANT DATES:

- OPENING CALL FOR PAPERS GLOC 2023: **19 Sept. 2022**
- OPENING CALL FOR PAPERS IAC 2023: **24 Sept. 2022**
- IAF SPRING MEETINGS 2023: **28 – 30 March 2023**
- GLOC 2023: **23 – 25 May 2023**
- IAC 2023: **2 – 6 October 2023**
- IAC 2024: **14 – 18 Oct. 2023**

Connecting @ll Space People



SUSTAINABILITY - IAC 2022 GOES GREEN!

IAC 2022 has put in place initiatives to make its congress sustainable aiming to:

- Reduce as much as possible the greenhouse gases produced before and during the congress and work to mitigate them
- Lessen the resources required, favoring their use at the local level according to availability. Encourage reuse and recycling practices whenever possible.
- Promote good sustainable practices, eco-gestures to stakeholders involved in the preparation of the congress
- Work with suppliers, partners, and businesses supporting the sustainability efforts of the congress for environmental, social, and economic benefits
- Leave a sustainable legacy for the city of Paris

The **IAC 2022 is aiming to receive the certificate according to the ISO 20121: 2012 "responsible event"** standard. ISO 20121 offers guidance and best practice to help manage the event and control its social, economic, and environmental impact. In addition to ISO 20121, **IAC 2022 has decided to go even further and calculate its Carbon Footprint:** the total amount of greenhouse gases (including carbon dioxide and methane) generated by our actions of all departments of the event: from registration, accommodation, transport, materials, to food, energy, and waste.

Here is an overview of the initiatives implemented for the congress (non-exhaustive list). A report on the sustainable development of the IAC 2022 will be published at the end of the congress.

- Presence of criteria related to Corporate Social Responsibility (approach to applying the principles and good practices of sustainable development in business) in the calls for tenders.
- Selection of a professional congress organizer certified ISO 20121: 2012 "Responsible Event Management", and commitment to the same certification process at the event level itself.
- Support from a consulting firm specialized in sustainable event strategy, and by a firm in charge of the Carbon Footprint.
- Implementation of a voluntary policy of compensation of participants' registrations, to support projects selected by CNES.

IAC PARIS 2022
73rd INTERNATIONAL ASTRONAUTICAL CONGRESS

Learn more about the ISO 20121 approach:
"Events take indeed a heavy toll on resources, society and the environment, often generating significant waste. In addition to promoting more responsible consumption, this International Standard has been developed to relieve the strain on local infrastructure and utilities, reducing the potential for conflict in communities where events are hosted." (www.iso.org)

The IAC 2022 aims at reaching the following goals:
Within the framework of the sustainable development strategy of the congress, and in connection with the Sustainable Development Goals of the UN, five objectives were defined as essential for the good organization of the congress.

Objective 1: Eco-designing its communication with the various stakeholders
It means that we :

- Raise awareness of the CSR approach among our stakeholders
- Reduce the ecological footprint of the congress communication through responsible communication practices (for example, the congress programs will not be printed but will be available in digital format)

Objective 2: Positive social impact: making the congress accessible and welcoming to all

- Make the event accessible to all (within the venue with adapted care)
- Commitment to parity and diversity with, for example, the wearing of gender-neutral clothing by reception staff
- Develop the experience of others by having solidarity partners intervene during the Public Day

Objective 3: Environment: control consumption and promote responsible actors

- Limiting waste production, rationalizing consumption (eliminating single-use plastic, energy management)
- Use eco-responsible suppliers via a responsible purchasing policy
- Carry out the carbon footprint of the event

Objective 4: Health, safety, and collaboration: Putting the health, safety, and satisfaction of conference participants at the center of our concerns

- Ensure a safe environment for all participants (implementation of a safety policy specific to the event)
- To ensure the good health of the participants by including a medical service during the event
- Fully satisfying the stakeholders through an optimized quality of service and the evaluation of their satisfaction.

Objective 5: Heritage: Favour local products, take advantage of certification, and transmit innovation outside of the space sector

- Use local suppliers to generate positive local economic spin-offs
- Certify the congress ISO 20121, an international standard, to make it a reference for sustainable development in the space industry
- Be a platform for innovation exchange between space and non-space actors

Learn more about the IAC 2022 Responsible Management Policy here
Learn more about the IAC 2022 Mission and Values here
Learn more about good eco-responsible practices for all participants here

The venue : Paris Convention Centre

As IAC 2022 goes green, its venue, Paris Convention Centre, is committed to sustainable development. VIParis is making concrete actions to host events as sustainably as possible. For example, by choosing a green electricity supplier, PCC has been able to reduce GHG emissions linked to electricity consumption by a factor of 7 (compared to the average French electricity mix)

IAC 2022 FINAL PROGRAMMES

The **73rd International Astronautical Congress** is starting very soon and we are pleased to share with you the IAC 2022 Final Programmes! Please note that as part of the CSR approach of IAC 2022, there will be no printed copies of the Final Programmes this year.

The programmes are available online on the IAF Website at:
www.iafastro.org/events/iac/iac-2022/publications.html

The Final Programmes are divided into five different parts and cover the whole spectrum of the event. Anything you need to know about the IAC can be found in the Final Programmes!

- Part 1 - General Info & Congress Overview HERE
- Part 2 - Public, Plenary & IAF GNF Programme HERE
- Part 3 - Technical Programme HERE
- Part 4 - Other Events HERE
- Part 5 - Exhibition HERE

LATE BREAKING NEWS

The Late Breaking News have been selected and we are delighted to announce the following two events on Thursday morning:

09:00 - 09:25	**Late Breaking News – T-4 Days To Humanity's First Attempt To Deflect An Asteroid In Space**

Location: Room Paris South, Level 3, Hall 7, Paris Convention Centre

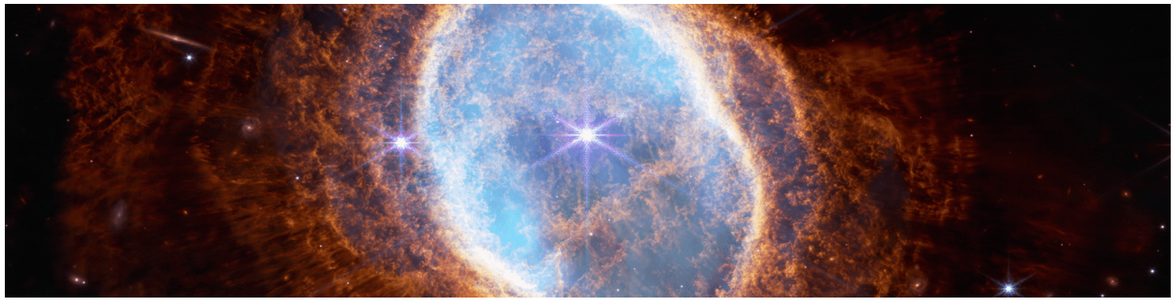
Humanity's first planetary defense mission, NASA's Double Asteroid Redirection Test (DART), is now just over 100 hours from impacting a 160-meter asteroid in space and deflecting its orbit. The spacecraft is hurtling towards its target binary asteroid system at 22,000 km/hr, on a one-way trip collision course trajectory. The target, Dimorphos, is a small 160-meter moon of the larger asteroid Didymos. DART is now just 2.4 million kilometers from the target, about 10x the distance of our Moon from Earth. Although the primary Didymos asteroid came into view of the DRACO imager on DART about a month ago, the small binary moon is about to be resolved for the first time as the spacecraft enters its terminal phase. Major ground-based telescopes have now locked on to the target for continuous coverage, and space-based observatories, including the James Webb Space Telescope, are preparing their observational sequences to witness DART's pending impact. And, the Italian Space Agency's LICIACube cubesat has just been deployed from DART and is preparing to image the encounter.

NASA's DART mission is designed to test a technology that could one day save our planet. Asteroids are swarming around the inner solar system and frequently impact Earth. If a large asteroid were to impact a populated area of the planet, the result could be devastating. The kinetic impact technique that DART will perform is the world's first planetary defense demonstration. Later in the decade, the European Space Agency's Hera mission will visit the Didymos system and characterize the DART impact.

The timing of the Late Breaking News session at the 73rd International Astronautical Congress is ideally situated to share with the community the latest information on NASA's DART mission. One of the lead mission engineers, Dr. Betsy Congdon, will present the current health and status of the DART mission and the preparation plans for the upcoming encounter in just 4 days. Dr. Congdon will share the activities happening in the DART Mission Operations Center at the Johns Hopkins Applied Physics Lab, including the team's latest efforts to ensure mission success. With this session, the IAC community will have a head start in joining the rest of the world for this international endeavor.

Speaker:

Betsy CONGDON
DART Mechanical Lead Engineer,
The Johns Hopkins University
Applied Physics Laboratory,
United States



Southern Ring Nebula NIRCam Image

Images crédits : NASA, ESA, CSA, and STScI

LATE BREAKING NEWS

09:35 - 10:00	**Late Breaking News – First Results With The James Webb Space Telescope (Jwst) Miri InstrumenT**

Location: Room Paris South, Level 3, Hall 7, Paris Convention Centre

The James Webb space telescope has been successfully launched on the 25th of December 2021 by an Ariane rocket. With a primary mirror of 6.5m in size, it is the largest telescope in space. The telescope is equipped with four scientific instruments: 3 instruments providing observation in the 0.6 – 5 microns wavelength range: NIRCAM, NIRSPEC and NIRISS and one instrument dedicated to the 5 – 28 microns wavelength range : MIRI. Webb is a NASA flagship mission with participation of Europe through the European Space Agency (ESA) and Canada through the Canadian Space Agency (CSA).

France has been strongly involved in the MIRI instrument. MIRI is an instrument provided by a consortium of laboratories under the leadership of Gillian Wright from the Royal Observatory of Eddinburg. The French contribution has been focused on the imager part of MIRI: MIRIm. Three modes of observations are possible with MIRIm: - imaging with a pixel field of view of 0.11 arcsecond, a field of view of 74x113 arcsecond2 and a choice between 9 filters, - slit or slitless spectroscopy at low spectral resolution (R =100 at 7 microns) over the 5-11 microns wavelength range, and - coronagraphy with a set of 4 quadrant phase masks (first time in space) and a classical Lyot mask.

At the time of the writing of this abstract, the commissioning of the instrument is still going on, but we can already say that an exquisite image quality has been achieved. The first scientific observations have been made to public in July. During our talk at the IAC we will present the French contribution, describe MIRIm, present the performance of the various modes of MIRIm, as well as first scientific observations.

Speakers:

Anthony BOCCALETTI
Director of Research,
Laboratoire d'Etudes Spatiales et d'Instrumentation en Astrophysique,
Paris Observatory,
France

Pierre-Olivier LAGAGE
Senior Astrophysicist,
Commissariat à l'Energie Atomique et aux Energies Alternatives (CEA),
France

Desi RAULIN
Project Manager for French contributions to MIRI (JWST),
Centre National d'Etudes Spatiales (CNES),
France

Cosmic Cliffs in the Carina Nebula NIRCam Image

Images crédits : NASA, ESA, CSA, and STScI

THE IAC 2022 APP

The IAF works intensively to make sure knowledge is both advanced and shared on how space-related technology can improve our lives. Through the IAF App you will be able to connect and collaborate with the entire IAF Community and check on the full IAC 2022 programme.

As a small organisation, we rely on your help. Please download the IAF App now and let us know what you think about it, what could be improved and of course what you love the most.

FOR APPLE USERS:

Download the App on:

- Apple Store: https://apps.apple.com/kh/app/iafastro/id1642421216?l=en

Or directly with this QR code:

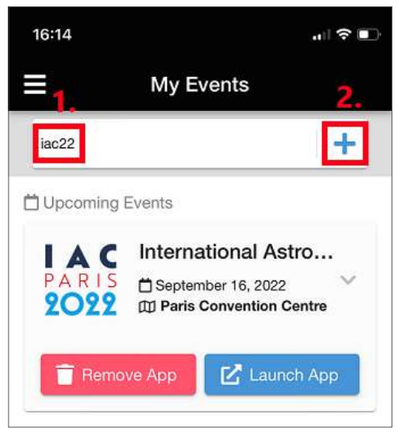
FOR ANDROID USERS:

Download the App on:

- Download the App "Eventmobi" on your phone: https://play.google.com/store/apps/details?id=com.eventmobi.multieventapp.meaidfa33d52eb4374fdb891ab905fa3a72e7&hl=fr&gl=US

Or directly with this QR code:

- Open the App and enter "iac22" and press on the + button



INTERNATIONAL PLATFORM FOR DIVERSITY AND EQUALITY IN ASTRONAUTICS
3G GEOGRAPHY • GENERATION • GENDER

IAF IDEA 3G DIVERSITY DAY

DEVOTED TO

"Opportunity for and from people with alternative abilities"

TUESDAY 20 SEPTEMBER 2022

08:00 – 08:45 IAF IDEA "3G" Diversity Breakfast

Location: Terminal 7, Level 4, Hall 7, Paris Convention Centre

As an important element of the IAF "3G" Diversity Day the IAF welcomes all delegates to the IAF IDEA "3G" Diversity Breakfast sponsored by Jet Propulsion Laboratory (JPL).

To honour the motto of the IAC 2022 "Space for @ll" we are pleased to dedicate the Day to the inclusion of people with different abilities in the space workforce and the opportunities that their contribute can give to the advancement of the whole sector.

The event will be opened with a welcome by the IAF President, Pascale Ehrenfreund, followed by an introduction from Deganit Paikowsky, IAF VP for Diversity Initiatives and Science & Academic Relations, lecturer from the distinguished IAF Member Hebrew University of Jerusalem.

The event will close by the long-standing sponsor of the IDEA Platform, the NASA Jet Propulsion Laboratory, represented here by Larry D. James, NASA Jet Propulsion Laboratory Deputy Director.

To further deepen the topic discussed questions from the public are welcomed.

Sponsored by:

JPL
Jet Propulsion Laboratory
California Institute of Technology

Programme:

08:00 – 08:05	**Welcome Remarks**
	Pascale Ehrenfreund, President, International Astronautical Federation (IAF), France
	Deganit Paikowsky, IAF VP for Diversity Initiatives and Science & Academic Relations, International Astronautical Federation (IAF), Israel
08:05 – 08:20	**Presentation by Sponsor**
	Larry D. James, Deputy Director, NASA Jet Propulsion Laboratory (JPL), United States
08:20– 08:45	**Networking**

12:30 – 13:30 IAF Excellence in "3G" Diversity Award Luncheon *(Upon Invitation Only)*

Location: Terminal 7, Level 4, Hall 7, Paris Convention Centre

The IAF Excellence in "3G" Diversity Awards recognize IAF member organizations (industry, government, academia) worldwide for outstanding contributions to the fostering of "3G" (Geography, Generation, Gender) Diversity within the space sector.

The highest standards in "3G" Diversity can be achieved both by organizations and within teams' activities. To correctly represent this the IAF Honours and Awards Committee (HAC) decided to divide the IAF Excellence in "3G" Diversity Awards in two corresponding categories.

This Luncheon is dedicated to the award ceremony for the 2022 IAF Excellence in "3G" Diversity Awards, bestowed to the **National Space Science Agency (NSSA)** of Bahrain and the **UK Space Agency Education and Skills Team**

National Space Science Agency (NSSA)

"NSSA is nominated for their outstanding contribution and commitment to the 3G diversity in their workforce, leadership, promotion of their programs and for their exceptional drive and achievements in this short period of time due to their determination and diversity in the space community."

UK Space Agency Education and Skills Team

"The UK Space Agency Education and Skills Team uses space to inspire an interest among young people in STEM, encouraging them to aspire to rewarding careers in the space sector and ensuring they have the skills and experience needed to become valuable members of the space workforce. During 2021, the combination of programmes they run engaged over a million young people with space activities for at least half an hour each and has supported 68 students with 2-month work placements or space studies at the International Space University"

Sponsored by: eutelsat

Programme:

12:30 – 12:31	**Welcome**
	Pascale Ehrenfreund, President, International Astronautical Federation (IAF), France
12:31 – 12:41	**Presentation by Sponsor**
	Anne Carron, Chief Human Resources Officer, Eutelsat
12:41 – 12:51	**The ESA Parastronaut Feasibility Project**
	David Paker, Director of Human and Robotic Exploration, European Space Agency (ESA), France
12:51 – 13:10	**IAF Excellence in "3G" Diversity Award Ceremony**
	Anthony Tsougranis, IAF VP for Honours and Awards, International Astronautical Federation (IAF), United States
	Award Ceremony and Photo
	National Space Science Agency (NSSA) represented by:
	Mohamed Al-Aseeri, Chief Executive Officer, National Space Science Agency (NSSA), Bahrain
	UK Space Agency Education and Skills Team represented by:
	Ingmar Tirosh Kamalagharan, UK Space Agency Education and Skills Team, United Kingdom

INTERNATIONAL ASTRONAUTICAL FEDERATION

IAF Code of Ethics and Professional Conduct

The International Astronautical Federation (IAF) supports and promotes diversity and inclusiveness within the space community.

The IAF strives to offer an inclusive, respectful, and safe environment at IAF events welcoming everyone.

IAF events are guided by the highest ethical and professional standards, and all participants are expected to behave with integrity and respect towards all other participants attending or involved with any IAF event or activity.

Let's all behave to ensure a safe, healthy, discrimination-free atmosphere accepting all individuals.

IAF CODE OF ETHICS AND PROFESSIONAL CONDUCT

INTERNATIONAL ASTRONAUTICAL FEDERATION

IAF Code of Ethics and Professional Conduct

WHAT NOT TO DO

The IAF does not tolerate HARASSMENT!

Any improper or unwelcome conduct that might reasonably be expected or is reasonably perceived to cause offence or humiliation to another person is prohibited:

ABUSE: any action directed at an individual that interferes substantially with that person's participation; or causes that person to fear for one own's safety. This includes threats, intimidation, bullying, stalking, or other types of abuse;

DISCRIMINATORY HARASSMENT: includes offensive verbal or written comments and negative behaviour, related to or based upon gender, age, nationality, sexual orientation, gender identity, gender expression, disability, physical appearance, body size, race, ethnicity, religion, relation or other group identity;

SEXUAL HARASSMENT: any unwelcome conduct of a sexual nature that might reasonably be expected or is reasonably perceived to cause offense or humiliation.

REPORT ANONYMOUSLY INCIDENTS YOU ENDURED OR YOU WITNESSED at anti-harassment@iafastro.org

THE IAF IS PLEASED TO INVITE YOU TO THE NEW SPACE ECONOMY EUROPEAN EXPOFORUM NSE 2022

Join us in Rome, Italy, from 1-3 December and grab the opportunity to be part of the New Space, the biggest cultural change of our century!

NSE NEWSPACE ECONOMY EUROPEAN EXPOFORUM

NSE, the New Space Economy Expoforum, is the yearly date on the economic impacts of the space sector, on what drives the quick running evolution of the institutional and private involvement in the New Space.

NSE offers a quick view on the increasing potential of the space sector to the widest community of users and on new potential stakeholders and business opportunities at national and international level.

NSE networks big industrial players, small and medium innovative companies, investors, venturers, startups, research centers, academia, space agencies, institutions and international organizations.

NSE 2022 benefits of a multidisciplinary approach to provide space solutions for non-space users in building a sustainable society and inspire next generations.

Organized by FIERA ROMA | With the patronage of ASI IAF | With the support of esa REGIONE LAZIO

JOIN THE CHALLENGE! APPLY HERE

The Student Challenge Programme

To engage the next generation and build a sustainable future, NSE 2022 invites university, master, and PhD students, from 18 to 30 years old, all over the world to participate in the NSE Student Challenge 2022!

THE FIRST IAF GLOBAL SPACE CONFERENCE ON CLIMATE CHANGE GLOC 2023

23 - 25 MAY 2023 in Oslo, Norway

Following its mission to promote international development and share knowledge, the International Astronautical Federation (IAF) and its member the Norwegian Space Agency (NOSA) are pleased to announce that the 2023 Global Space Conference on Climate Change (GLOC 2023) will be taking place in Oslo, Norway on 23 - 25 May 2023.

GLOC 2023 will contribute to the global efforts to better understand and battle climate change through the use of space-based services and applications. First conference of its kind, GLOC 2023 is designed to encouraging the sharing of programmatic, technical and policy information, as well as collaborative solutions, challenges, lessons learnt, and paths forward among all nations.

GLOC 2023 will focus on the theme "Fire and Ice – Planetary Extremes in a Changing Climate" and will address various topics of interest in relation to space and climate change with a specific focus on:

Climate change impacts on the environment

- Applications and services driven by climate change
- Impacts of a changing climate on policy and law
- Commercial opportunities created by a changing climate
- Present and future international collaboration on space missions related to climate change
- Social, communications, economic and cultural dimensions of environmental change

The conference programme is designed to bring together the international community, including senior representatives of the major space agencies, industries, governments, policy makers, academia and NGOs, as well as representatives of non-space sectors involved in the climate change debate. These leaders in the field will converge in Oslo, Norway to present results, exchange ideas, debate roadmaps, and discuss the future opportunities provided by space activities to contribute to the global climate change mitigation efforts.

CALL FOR PAPERS

The event will provide a premier and interdisciplinary forum for the discussion of the impact of climate change in the global context and how space technology and applications can help monitor, address and mitigate climate impacts. The event aims at putting a strong emphasis on the role of the space community as a key player in climate change resilience.

The impressive list of Members of the International Programme Committee is composed of nearly 200 global leaders and experts of different disciplines who are seeking submissions for the Technical Programme.

IPC – 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.

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

- **Marcia Hirota,** Executive Director, Fundação SOS Mata Atlântica (SOSMA)
- **Adessou Kossivi Nevaeme**, Board Co-Chair, Climate Action Network International / Global Network of CSO for Disaster Reduction (GNDR)
- **Ruth Kattumuri**, Senior Director for Economic Youth and Sustainable Development, Commonwealth of Nations
- **Gunter Schreier**, Deputy Director, German Remote Sensing Data Center (DFD)
- **Pooja Mahapatra**, Chair of the Disaster Resilience Working Group, Fugro
- **Shimon Elkabetz**, Co-Founder & CEO, Tomorrow.io
- **Rei Goffer**, Co-Founder & CSO, Tomorrow.io
- **Damien Kuhn**, International Development Manager, Kinomé

- **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
- **Kevin Ward**, Co-Founder & Team Leader, NASA Earth Observatory Group
- **Thomas Cernev,** Research Affiliate, Centre for the Study of Existential Risk (CSER)
- **Stéphane Germain**, President and CEO, GHGSAT Inc.
- **Steven Ramage**, Chief Engagement Officer, Group on Earth Observations (GEO)
- **Johnny Johannessen**, Deputy Director Ocean and Sea Ice Remote Sensing, The Nansen Environmental and Remote Sensing Center
- **Brent Smith**, Former Director, International and Interagency Affairs, National Oceanic and Atmospheric Administration (NOAA)
- **Harry Cikanek**, Director, National Oceanic & Atmospheric Administration (NOAA)
- **Ole Dokka**, Executive Director, Spaceport Norway
- **Marianne Moen**, Communication Director, Norwegian Space Agency (NOSA)
- **Christian Hauglie-Hanssen**, Director General, Norwegian Space Agency (NOSA)

The Call for Papers will open in late September and is designed to offer comprehensive sessions on current topics of interest which include, but are not limited to:

- **Topic #1: Environmental Challenges for Our Planet**
- **Topic #2: Climate Change Impacts on the Environment (Biodiversity, Forests and Land, Ocean/Marine Ecosystems, the Artic and beyond)**
- **Topic #3: Earth Observation in Climate Change**
- **Topic #4: Weather Intelligence: Climate Security is the next New Cyber Security**
- **Topic #5: An Outer Space Perspective on Climate Change (Space Law and Policy)**
- **Topic #6: Space Technology for Climate Adaptation**
- **Topic #7: The Next Generation of Climate Services**
- **Topic #8: International Cooperation for the Management of Climate Data and Services**
- **Topic #9: The Social, Economic and Cultural Dimensions of Environmental Change**

IAC 2023

Dear Colleagues,

The 74th International Astronautical Congress will take place in Baku, Azerbaijan between 2nd and 6th October 2023.

It is an honour for the International Astronautical Federation to invite world experts specialists in the field of space and to offer all space enthusiasts an opportunity to support and promote the general theme of the Congress "Global Challenges and Opportunities: Give a Chance to Space". There is a rich history behind holding the IAC in Azerbaijan. The 24th International Astronautical Congress was held in Baku in 1973 for the first time in the Soviet Union upon the initiative of Azerbaijan's National Leader Heydar Aliyev.

This IAC 2023 aims to gather researchers and professionals to discuss new developments in space science and exploration, space applications and operations, space technology, space infrastructure, space and society, and much more. We have the great pleasure to invite you to propose one or more papers (oral or interactive) in any of the categories scheduled for the different symposia of the Congress. Please visit the instructions in this document. I would like to thank you in advance for your scientific contribution to the IAC 2023 and I and the incoming IAF President Clay Mowry look forward to seeing you in Baku, Azerbaijan. Sincerely, The space gives us extensive opportunities to dare, to create, to innovate, and to work in synergy towards a thriving, advanced future of the mankind. And the International Astronautical Congress is an excellent platform that brings us all together, united in the face of global challenges and ready to explore the untapped potential of the space for the benefit of the humanity. In 2023, the global space community will convene in Baku at the International Astronautical Congress once again, exactly 50 years after Baku hosted the 24th edition of the IAC and became the first and the only city in the region to do so. This, certainly, is a major occasion in the history of the space industry development in Azerbaijan, as it is one of the core priorities of our vision as a country aspiring to foster the formation of regional space ecosystem and strengthen its position as an emerging space nation. What's more, the 74th edition of IAC will give you a chance to get a first-hand experience of the unmatched Azerbaijani hospitality, expose yourself to genuine cultural immersion, and enjoy the diverse charms of our beautiful country. On behalf of the Space Agency of the Republic of Azerbaijan, it is a great pleasure and an honour to invite you to become a part of this remarkable event and submit your abstracts. Serving as an exemplary medium for knowledge-sharing, the IAC offers the opportunity to share your research findings and innovative solutions with a broad audience of space industry members and state officials, scientists and researchers, space experts and practitioners. We are confident that the IAC 2023 will facilitate the forging of strong partnerships that will unite us all even more closely in our joint efforts to achieve global peace and prosperity. Once again, we would like to extend a welcoming invitation to the IAC 2023 to our friends, colleagues, partners, and, in general, the international space community, and we are much looking forward to seeing you join us in the celebration of space next year in Baku, Azerbaijan.

Pascale EHRENFREUND
IAF President

CHECK THE IAC 2023 CALL FOR PAPERS HERE AND START PREPARING YOUR ABSTRACT FOR 24 OCTOBER 2022

The IAF is also pleased to inform you that Azercosmos, Space Agency of the Republic of Azerbaijan, joins the IAC 2022 exhibition in the status of the host of the next edition of the Congress.

Make sure to visit the stand H5 to learn more about what awaits you at the IAC 2023 in Baku, get a glimpse (and a taste!) of charming Azerbaijan, discover the centuries-long space legacy of the country, and find out about the significant role of Azerbaijan in the development of the regional space ecosystem.

IAC 2024

The International Astronautical Federation (IAF) is pleased to invite you to the beautiful city of Milan, Italy, for **the 75th International Astronautical Congress IAC 2024.**

The 75th International Astronautical Congress (IAC), scheduled for **11-18 October 2024**, will see the arrival in Milan of over 8,000 experts from industry, research and the institutions and place Italy at the heart of the international debate on the use of Space to support sustainability.

On Friday 15 July, at 11 a.m., a contract signing ceremony took place at Palazzo Lombardia between the International Astronautical Federation (IAF) and the Associazione Italiana di Aeronautica e Astronautica (AIDAA), which has been appointed to host the 75th edition of the International Astronautical Congress (IAC) - the most important global event in the Space sector - in Milan, Italy. A letter of intent will also be formalised during the ceremony in which the Agenzia Spaziale Italiana (ASI) and Leonardo have committed to supporting AIDAA in organizing the IAC 2024 in Milan.

The candidacy of Milan, which was declared the winner in October 2021, was promoted by AIDAA, ASI and Leonardo, respectively representing the Italian academic world, institutions and space industry, and enjoyed the pivotal support of the Italian Government and local institutions, in particular the President of the Lombardy Region and the Mayor of Milan.

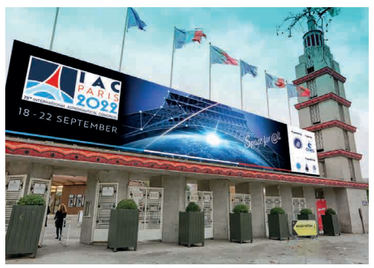
Under the motto **"Responsible Space for Sustainability"**, the intention of the IAC 2024 is to highlight the importance of Space as an environment that must be kept secure and open to exploration, peaceful use and international co-operation by present and future generations in the interests of the planet and all nations, regardless of their level of development and without discrimination of any kind. With this aim more than 8,000 experts from space agencies, companies, research centres and associations from across the world will meet at IAC 2024 - organized with the contribution of AIM Group International - in the Milano Congress Center (Allianz MiCo), Europe's largest conference venue.

There are currently just under 8,000 satellites in orbit, around 5,000 of which are operational, and this number is set to grow significantly in the next few years. Ever more countries and public and private players are becoming actively involved in the space economy. The Earth's orbit is nonetheless a limited resource, and any overcrowding involves risks in terms of security, light pollution and the availability of data and services provided by space technologies. In the economy, industry, agriculture, transport, energy, finance, urban development, communications, environmental monitoring, and security, space systems are a fundamental tool in the creation of a more digital, green and sustainable future. They are likewise vital for the functioning of society, the economy and global trade. Italy is at the forefront in the challenge of using Space responsibly in the name of sustainability. It is one of the few countries in the world with a complete Space economy supply chain: from manufacturing, through new applications development and satellite services management, to propulsion and launch systems. The country's expertise can be found in the research sector and in companies of all sizes, from start-ups and SMEs to large-scale industry, supported by the institutions. All will come together on 15 July to confirm their commitment to supporting IAC 2024.

THE IAF SECRETARIAT

The IAF Secretariat is a small dynamic team based in Paris, France. We work hard every day with unwavering enthusiasm to ensure a smooth coordination and management of all IAF activities and events.

Do reach to us, you can find us at the IAF Secretariat in hall 7.3 room E01A at the IAC 2022.



NEWS!

The Andy Thomas Space Foundation

The Australian Space Forum (ASF), is considered Australia's premier space conference & exhibition, connecting private and public sectors, enabling new opportunities, and advancing the space industry technologies and projects. On 25th of October 2022, the Andy Thomas Space Foundation will celebrate the 14th edition of this biannual event at the Adelaide Convention Centre, South Australia.

In the last seven years, the Australian Space Forum has welcomed more than 1,000 individuals per forum, uniting space leaders from around the world to discuss, address and plan for the future of the industry, supporting the events goals of:

1. Encouraging the exchange of information and promoting the latest industry developments;
2. Showcasing Australian capabilities to national and international investors;
3. Assisting research organisations to identify industry needs and future areas of demand, particularly within STEM pathways;
4. Promoting commercial application of new research and technologies.

The calibre of participants, lively exhibition hall and symposium program, including three topical panels per Forum, creates the perfect environment for establishing new collaborations and taking plans beyond paper.

Year after year, the Australian Space Forum keeps up its reputation as the largest and most connected space industry event of the Southern Hemisphere, highlighting many of the space and space-related facets of both the national and international space sectors.

To learn more and register your attendance for the 14th Australian Space Forum (October 25th in Adelaide, South Australia), click here > https://forum.andythomas.foundation/14th-australian-space-forum/

The Georgia Tech Center

The Georgia Tech Center for Space Technology and Research brings faculty and students together from around the Institute to advance interdisciplinary space activities. In Fall 2022, Georgia Tech debuted a new Graduate Certificate program in Space Entrepreneurship through a partnership that includes the Schools of Aerospace, Earth and Atmospheric Sciences, International Affairs, and Business. Georgia Tech is also advancing an interdisciplinary approach to cislunar activities, tackling both technical and international policy challenges related to cislunar space domain awareness; cislunar position, navigation, and timing; and Lunar in-situ resource utilization. Dr. Glenn Lightsey and Dr. Brian Gunter are launching CubeSats with science and technology demonstrations. Georgia Tech continues to be a leader on issues of space sustainability and space security. Dr. Thom Orlando leads the NASA Virtual Institute of Radiation Effects on Volatiles and Exploration of Asteroids and Lunar Surfaces. In May 2022, Dr. Mariel Borowitz, Professor in the Sam Nunn School of International Affairs, testified to Congress in a hearing on "Space Situational Awareness: Guiding a Transition to a Civil Capability." Georgia Tech will be represented by a number of faculty and students presenting on a wide variety topics at the International Astronautical Congress in Paris.

NSSA
الهيئة الوطنية لعلوم الفضاء
National Space Science Agency

The National Space Science Agency (NSSA) has recently signed a contract with a leading space company to design, build and develop the second Bahraini satellite as well as building a ground segment. The satellite includes an innovative Bahraini payload that utilizes AI on-board. Moreover, the data generated by the satellite will be utilized in meeting some of the national requirements in many sectors.


CEO


Advisor and project director

In the first half of 2022, NSSA conducted about 35 local public awareness sessions in cooperation with different entities in Bahrain to showcase the space sector's importance and encourage all segments of society for a diverse, inclusive space sector. Furthermore, NSSA has published more than 23 articles and 10 scientific papers in the space field.

NSSA, in coordination with NASA, has announced the opening of registration for the 5th edition of NASA's Space Apps Challenge in the Kingdom of Bahrain. This event attracts programmers, scientists, designers, storytellers, and technologists to solve NASA's proposed challenges in the space sector.

To celebrate space week, NSSA prepared a video showcasing the contribution of the agency's initiatives, space images and data analysis studies corresponding to the UN Sustainable Development Goals (SDGs) in the Kingdom of Bahrain.

Alongside the 6th edition of Bahrain International Airshow (BIAS) to be held in November 2022, NSSA will host the 7th Arab Space Cooperation Group (ASCG) annual meeting and organize the first of its kind space forum with two themes: "how to encourage new generations in space?" and "Entrepreneurship opportunities in space within the MENA region".

BAHRAIN
INTERNATIONAL
AIRSHOW
9 > 11 NOV 2022

Magellanic
Secure your information anywhere

Solution for securing critical infrastructure and data

European Space Foundation proudly announces its spin-off, Magellanic Space. It was founded with a mission to secure data and communication by bringing autonomous trust built on machines without risks of human errors. Two significant challenges are to be solved: rapidly rising costs for the global economy of digital threats measured in trillions of dollars per year and cybersecurity skills shortage.

The vision of Magellanic Space is the connected world in which all critical infrastructure and applications are trusted by using cryptographic solutions which are end-to-end, verified, and efficient, not to bring the risk of rising costs or incompatibility with different services.

The first product, Magellanic Core, is the zero-trust blockchain software platform securing data processing and communication within infrastructure for aerospace, automotive and maritime industries, including Earth Observation data. Technology-agnostic, end-to-end solution reduces operational costs and mitigates risks of data corruption or spoofing attacks while automating tasks to fill the cybersecurity skills shortage.

Magellanic Space brings several years of experience in the highly-regulated sectors, which require our knowledge about the latest challenges. It enables the creation of an end-to-end product as it must be secured from the beginning to the end.

Magellanic is built on the open standards principles to provide interoperability, no vendor lock, and is up-to-date with all cybersecurity recommendations. It is the key to fast technology adoption to follow these practices.

Magellanic Space is now established as the company. Learn more at: www.magellanic.space

RFA
Rocket Factory

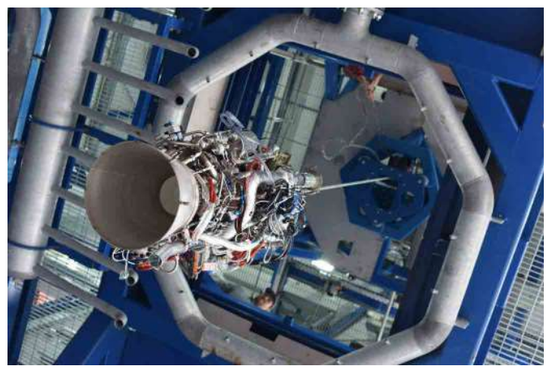
Europe´s first staged-combustion launcher reaches new milestones

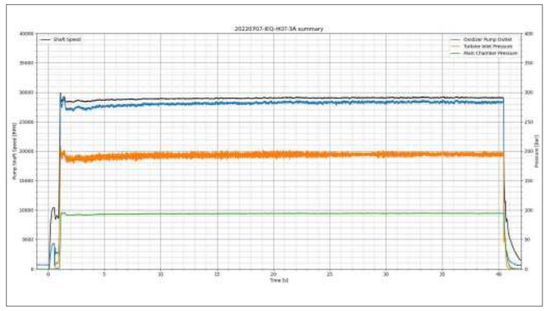
Rocket Factory Augsburg (RFA), a German NewSpace start-up, recently tested its Helix staged-combustion engine in flight configuration for a total of 74 seconds. The test campaign consisted of a short four-second burn, followed by two long-duration hot firings of 30 and 40 seconds each. All tests were conducted with the same engine. This long-duration hotfire campaign is RFA´s most important milestone yet: It demonstrated their engine's endurance and multiple ignition capability, and enabled the collection of valuable data for further optimization of the Helix engine. Helix is the first staged-combustion engine the EU.

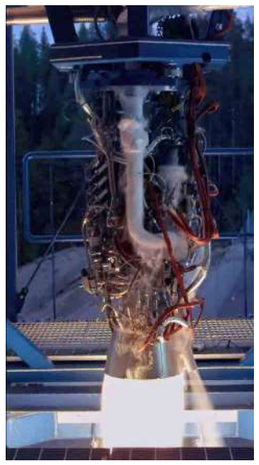
After reaching a thermal-steady-state and conducting a first-stage burst test in 2021, this is the latest in a series of tests from RFA. The plan now is to shift focus to the integrated system test (IST), starting with maintenance and expansion work on the test stand. For the IST one Helix engine will be connected to the second stage. The pair will then complete a full duration second stage burn. This test will validate a whole range of systems needed for an orbital flight and is scheduled for the end of the year. With these tests, RFA is working toward the launch of the first European rocket with staged-combustion technology.

The launch vehicle "RFA ONE" can deliver up to 1,300 kg into LEO. Its orbital stage offers precise and flexible deployment of satellites or entire constellations with a single launch, as well as a range of in-orbit services. A first launch is currently planned for 2023.

Website: www.rfa.space
Email: info@rfa.space







YUZHNOYE

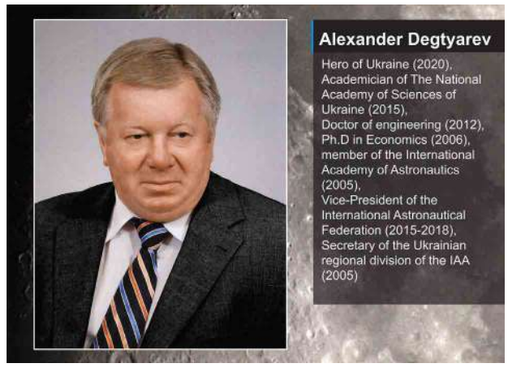
MOON VILLAGE ASSOCIATION

PromoMoon Initiative for Moon Village Generation in honor of Dr. Alexander Degtyarev

At the end of 2021, the 1st PromoMoon Initiative for Moon Village Generation in honor of Dr. Alexander Degtyarev was organized and successfully held by Yuzhnoye State Design Office and Moon Village Association.

The purpose of the Initiative is to:

- inspire the current Moon Village generation, including startups, young engineers and scientists, students and enthusiasts to develop ideas for ensuring a permanent and efficient exploration of the Moon
- build the potential of new space market players – help improve and increase the level of readiness of innovative lunar technologies
- expand the international cooperation to ensure permanent and efficient exploration of the Moon



The major prize of the competition is mentorship online sessions for winner-teams with expert evaluations of projects and advices on improvement and further steps of their implementation.

15 teams from 10 countries took part in this year's competition - 4 startups, 5 teams of young engineers and scientists, and 6 student teams.

As a result of a careful selection by a team of international experts, three finalists were chosen as the winners of the competition: startup Orbit Recycling (Germany) with the project "Lunar building materials produced based on recycled space debris", startup Spira Inc. (USA) with the project "Technology to efficiently generate food and O2 and remove CO2 during space missions", student team VEPS (Germany) with the project "Volatile extraction technology on planetary surfaces".

Yuzhnoye SDO together with Moon Village Association once again congratulates the winners and wishes them further success.

On July 15, the Initiative's award and closing ceremony was held, which was being broadcast live with participation of the MVA board of directors members, Yuzhnoye SDO representatives, invited international experts, and the winner-teams themselves.

Upon such a successful this year's competition, we invite everyone, from enthusiasts to professionals, to take part in the upcoming 2nd PromoMoon Initiative for Moon Village Generation in honor of Dr. Alexander Degtyarev.

MOON VILLAGE ASSOCIATION

Moon Village Workshop & Symposium

The workshop & symposium is the major annual forum organized by MVA. It is devoted to discussions of different aspects of the exploration and utilization of the Moon, and is focused on the most recent progress achieved by the MVA along the lines of its ongoing activities and on the future planning.

6th Global Moon Village Workshop & Symposium

The Moon Village Association (MVA) is proud to announce the **6th Global Moon Village Workshop & Symposium**, in cooperation with the **National Space Society (NSS)**, that this year will take place in Los Angeles, USA.

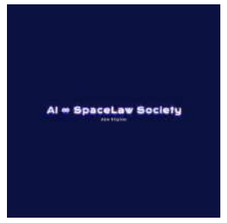
This Workshop & Symposium, will present various matters for the growth of the Moon Village community and lunar activities, discussing on-going and planned Moon programs, and bringing together stakeholders and lunar community. A big audience is expected from all over the world representing space and non-space companies, space agencies, international organizations, researchers and the wider public.

For more information, visit
https://moonvillageassociation.org/6th-global-moon-village-workshop-symposium/

Call for Proposals to host the 2023 (7th) International Moon Village Workshop & Symposium in Asia

In accordance with the MVA policy regarding the Association's annual event, its location is to be alternated between Europe, the Americas and Asia. As a consequence, the 2023 event will be held in Asia.

Details of the event structure and eligibility criteria can be found here. Proposals by potential bidders should be submitted by **15 October 2022**, **midnight CEST**. Their receipt will be acknowledged by the MVA, and some recommendations might be given if deemed necessary. The selection result will be announced on **November 10, 2022** during the closing ceremony of the 2022 (6th) International Moon Village Workshop & Symposium in Los Angeles.



The AI ∞ Space Law Society:

an international society in the space sector advocating for the recognition of SDG 18 and aiming to propose solutions for the global challenges of the future

In February 2022, the AI ∞ Space Law Society was launched in Amsterdam, the Netherlands. The Society aims to become a transcontinental and multidisciplinary central knowledge centre, bringing together international academics, industry and governmental representatives, multidisciplinary scientists

and experts, who will be joining forces for solving the global challenges of future.

Members are invited or selected based on their profile, motivation and adherence to the Society's core values. Their activities will be focused on 4 main Impact Networks: inter-planetary defence and security, future civilizations, artificial intelligence and human centricity as well as diverse, equal and inclusive leadership. The Society will propose multidisciplinary and holistic solutions for the fulfilment of the 17 Sustainable Development Goals (SDGs) formulated by United Nations, with the help of space infrastructures. The sustainable development of space, in the form of a new SDG 18, will be treated as a main priority part of the Society's core activities.

The Society is currently based at Amsterdam Law & Technology Institute, Law Faculty of Vrije Universiteit Amsterdam. Its founder, Ioana Bratu is an attorney-at-law, researcher and lecturer holding positions in supervisory and advisory boards with multidisciplinary expertise in space law and policy, liability, governance of artificial intelligence, business management, fundraising and capacity-building.

SECURE WORLD FOUNDATION

UK SPACE AGENCY

4th Summit for Space Sustainability

The **4th Summit for Space Sustainability** was held on June 22-23, 2022, at the Science Museum in London, co-hosted by the **Secure World Foundation** and the **United Kingdom Space Agency.** The Summit was a huge success as SWF's first hybrid, international, and most attended Summit thus far. All the sessions were live-streamed, and the recordings are available on the event website.

The topics of wide-ranging panel discussions included orbital capacity, space traffic management, rules-based order, space activities and public relations, ASATs, the state of living in LEO, active debris removal, and moon governance. We were also honored to have a special message from His Royal Highness, The Prince of Wales, now His Majesty, King Charles III, who shared his views on the importance of space sustainability as a part of the broader initiative of global sustainability. The Summit also featured various distinguished keynote speakers. The first was Richard DalBello, who gave his first public address since he was named the Director of US NOAA's Office of Space Commerce. The keynote address from the UK government was delivered by Minister George Freeman, who made an important announcement on a package of new measures to drive space sustainability. The last keynote session was a unique opportunity to hear from executives from Amazon, Project Kuiper and OneWeb on the same stage.

We are also thankful to our numerous **sponsors and partners** for making the Summit such an amazing event. The 5th Summit for Space Sustainability will take place in the United States in the summer of 2023. Watch the IAF newsletter for more information.

MANT Hungarian Astronautical Society

Hungarian Youth Space Camp – in person, again!

The Hungarian Astronautical Society (MANT) organized its first annual Summer Space Camp back in 1994. Unfortunately, the COVID-19 pandemic prevented us from organizing in-person events in the last two years, so the 2022 Space Camp held between 3–9 July was highly anticipated among the students as well as the mentors and lecturers. This year, our host was the Alba Regia Technical Faculty of Óbuda University in the town of Székesfehérvár. The participants were welcomed by faculty leaders and the mayor of the town. The students at the age of 13–18 years, some of them waiting two years for the opportunity to come to a "real" Space Camp, listened to a series of space-related lectures delivered by experts from the Hungarian space research and industry sector. Among others, the students learned about the first spy satellites, the Artemis Moon program, and the Hungarian astronaut program. There were lectures on a broad range of topics, from extremophiles through satellite remote sensing to exciting space projects planned for the next decade. The students visited a university robotics laboratory and actively participated in an UAV flight. As usual in the MANT Space Camps, the space scientists and engineers of the future took part in a space-related team work and various social activities as well.

The Drop Test of Hyperbola-2Y (SQX-2Y) Reusable Liquid Launch Vehicle Achieved a Complete Success

Recently, Beijing Interstellar Glory Space Technology Co., Ltd. (hereinafter referred to as "Interstellar Glory") carried out the whole body drop test of Hyperbola-2Y (SQX-2Y) Reusable Liquid Launch Vehicle. The test was a complete success: the landing attitude of the rocket was stable, and all systems functioned well. It verified the correctness and reliability of the product design and came back with valid test data.

The whole body drop test is another large-scale ground test of the whole system following the dual practice of liquid nitrogen and oxygen conducted by SQX-2Y. The rocket's takeoff, landing, recovery, and re-usage were simulated with the engines off, providing valuable data and experience for subsequent flight tests of reusable rockets.

As one of the core technologies of reusable rockets, the design and development of the landing gear are the key to determine the rocket's smooth landing: a landing gear with excellent performance has more reliable tolerance for different landing attitudes. Interstellar Glory innovated varied technologies, combined with static tests and the drop test, to assess the carrying capacity of the landing gear and to ensure the reliability of landing process for repeated utilization of the rocket.

The main process of the whole body drop test of Hyperbola-2Y (SQX-2Y) reusable liquid launch vehicle includes transition and flip erection of the rocket, installation of landing gear, lifting of the body to the drop test area, electrification test, lifting & release of the body, and recovery and transportation of the rocket back to the factory after the drop test. This whole body drop test used real flight products to simulate the take-off and landing process under electrification and thus collected relevant data. The drop test at two different landing speeds were performed to test the capacity of the impact loading of the structural system, power system, and electrical system; the results demonstrated that the resultant elasticity and damping properties showed consistent features as predicted in the landing and cushioning process, confirming the indications of takeoff, descent and landing by the rocket and the judgments of these indications.

The complete success of the whole body drop test of Hyperbola-2Y (SQX-2Y) reusable liquid launch vehicle marks one more major breakthrough in the field of reusable rocket achieved by Interstellar Glory, providing solid foundation for subsequent flight tests of the reusable launch vehicles.

INTERNATIONAL LUNAR OBSERVATORY ASSOCIATION
ILOA Hawai'i

ILO-1 Last Call for Malapert Mountain

ILOA of Hawaii is advancing towards its goal of conducting Astronomy from the Moon with precursor ILO-X instruments – dual imagers with Wide and Narrow Field of View optics, developed by ILOA prime contractor Canadensys – to land on the lunar surface aboard the Intuitive Machines Nova-C lander within months.

Ultimately, ILOA endeavors to establish a sustainable, long-duration presence on Malapert Mountain (0°, 86° S) – a key zone of the Moon South Pole region offering Observation (of Earth and the universe in full spectrum), Communication (with direct line of sight to Earth and local surrounds), and Illumination advantages which will only grow in importance as lunar base buildout and human landings occur in the area. Malapert itself has recently been identified by NASA as 1 of 13 Candidate Regions for landing next Americans on the Moon during Artemis 3, launching NET 2025.

ILOA seeks an industry, space agency or independent partner ready to join in declaring for Malapert Mountain, landing NLT 2024 on perhaps the most valuable piece of real estate in the solar system and strategic key to utilization of the Moon as stable platform from which to access Mars, Asteroids, Jupiter and beyond.

American Astronautical Society

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 4th Annual **John Glenn Memorial Symposium** returned in-person July 16-18th, 2022 at Case Western Reserve University in Cleveland, Ohio. The theme, "An Electrifying Future: Earth and Space Sustainability", sparked robust discussions on topics like air taxis, the future of ISAM, power and propulsion, and more. Read more about it at astronautical.org/glenn.

The ISS R&D Conference hosted in conjunction by the Center for the Advancement of Science in Space, NASA, and AAS was held on July 25-28th, 2022. AAS had the pleasure of organizing the technical sessions presented at this conference.

Coming up on October 26-28th, 2022 is the **15th Annual Wernher von Braun Memorial Symposium**, taking place at the University of Alabama in Huntsville. This event is gearing up to discuss "Space at the Table: Collaboration, Cooperation and Inclusion" with relevant topics ranging from policy, leadership, nuclear thermal propulsion, and more. We're excited to have NASA Deputy Administrator, Pam Melroy, as a confirmed guest speaker. More details at astronautical.org/vonbraun.

The **Student CanSat Competition** is returning in 2023! This contest, open to teams internationally, empowers students to exhibit their knowledge in space engineering. Team registration is now open. Learn more at cansatcompetition.com.

ASGARDIA

Asgardia aims to unite people in a transnational, equal and progressive society to build a new home for humanity in space and protect our cradle — planet Earth.

Transcending artificial borders of earthly nations, Asgardia seeks to unite investors and scientists, progressive people of different professions from all over the planet to create a new home for humanity in space.

Asgardia's goal is to provide all the necessary conditions to ensure a full-fledged human life in space.

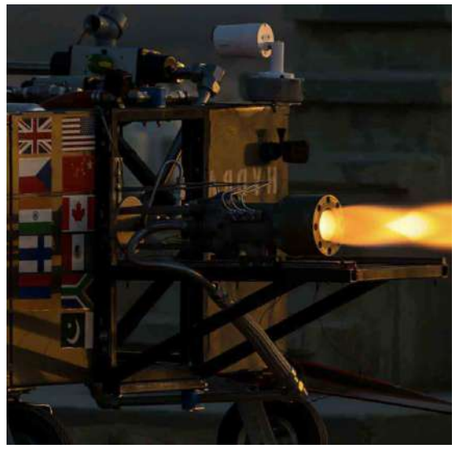
Our immediate scientific and ideological mission is facilitating the first childbirth in space — a symbol of human immortality. To achieve this goal in the next 25 years, Asgardia is finding the tools to protect humans from the negative factors associated with long-term space missions, including zero gravity, cosmic rays, and long-term isolation.

Asgardia aims to ensure peaceful space exploration, protect our home planet from cosmic threats and lead the development of new Space Law to eliminate militarization of space.

Currently, there are over a million Asgardians around the world. Asgardians make up a society with new fundamental values, free from any interethnic or interreligious discord and earthly borders, but with a responsible attitude to the present and the future of humankind and a strong interest in self-improvement and knowledge.

Asgardia is our path to the stars!

Viterbi School of Engineering, USC Liquid Propulsion Laboratory

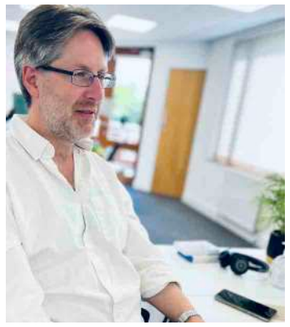


The Viterbi School of Engineering's Liquid Propulsion Laboratory (LPL) at the University of Southern California designs, builds, and tests industry-grade liquid rocket engines and feed systems.

After gaining experience with several 3D-printed kerosene/gaseous oxygen engines, LPL is advancing to cryogenic systems. In 2022, this student group is in the qualification testing phase of its first-ever cryogenic propellant test stand. This test stand will have its inaugural hot fire in Fall 2022 with their new kerosene/liquid oxygen flight engine, Mike's Fury. Upon the completion of the first testing campaign, both the feed system and engine will be placed inside a rocket and launched in May 2023.

In-Space Missions Announces Appointment of Matthew Angling as Chief Technology Officer

In-Space Missions is pleased to announce the appointment of Matthew Angling as Chief Technology Officer (CTO) to lead the use of new technologies and processes, and to develop innovative space products for customers.



Matthew Angling, Chief Technology Officer, In-Space Missions Ltd
Credit: In-Space Missions Limited

Matthew joins In-Space Missions from Spire Global where he was Director of Space Weather. He has a wealth of experience in space enabled C4ISR, space technologies and the space environment, having worked previously at QinetiQ where he led the ionospheric modelling team, and the University of Birmingham where he was Head of the Space Environment Group. Matthew has an MA in Physics from the University of Oxford and a PhD in Electronic Engineering from the University of Leicester.

Matthew Angling said:
"I am looking forward to driving the use of new space technologies and applications for the In-Space range of spacecraft, and to helping scale up our production processes for cluster launches. I will be working closely with the team here to further develop our flexible approach to delivering complex, innovative and diverse missions that enable our customers to get their technology on orbit more quickly."

Doug Liddle, co-founder and CEO of In-Space said:
"Matthew joins In-Space at an exciting time of growth for our company, as we expand the business and launch new digital "plug and play" services for our worldwide customers. Matthew's previous experience in the sector will be invaluable in developing and implementing innovative solutions for our missions and services."

Matthew Angling takes over the CTO role from Tony Holt, co-founder of In-Space Missions, who has been appointed into a new role of Chief Sales and Innovation Officer.

The new appointment comes as In-Space Missions expands its business, adding 40 new staff in the last year and opening new office and cleanroom space at their HQ site in Alton, Hampshire.

About In-Space Missions Limited:

Founded in 2015, In-Space Missions is based in dedicated offices in Alton, Hampshire in the UK with purpose built, satellite cleanrooms. We design manufacture, integrate and test a range of satellites from 1U cubesats up to 150kg small satellites, providing full end-to-end capabilities to customers including payload development support; integration of payloads into the spacecraft; system testing; licensing; launch; commissioning; on-orbit operations; secure data delivery; and everything in-between. We also offer 'Space as a Service' through our InSpace Digital service and the world's first commercial service offering long-life, low-cost, hosted-payload and uploadable payload flight opportunities.

Our Faraday Phoenix satellite, which is flying 8 hosted payloads, was launched into Low Earth Orbit in 2021 and our next hosted payloads mission, Faraday-2, is in development for launch Q4 2023. We are currently assembling the 2 Prometheus nanosats for DSTL due to launch later this year, and we are designing and building the UK MoD Titania mission due for launch in 2023.

In September 2021, In-Space Missions Ltd was wholly acquired by BAE Systems Ltd resulting in a leading-edge partnership in the space domain.

www.in-space.co.uk

CELEBRATING OUR 25th ANNIVERSARY!

On the 25th of June this year, more than 15 000 visitors joined Cité de l'espace to celebrate the 25th anniversary of the main Science Centre in Europe dedicated to space and astronomy.

This open-doors day was a unique occasion for our visitors to celebrate space in general and to look at its future. To that purpose, a dense program was offered: from children workshops to demonstrations all over the site, shows and festive activities. The entire staff of la Cité de l'espace was working that day with the public in order to offer to our visitors the most memorable experience.

Opportunity was given to visitors to meet women and men that make space possible. Representatives of our long time partners and friends from the space sector came on stage to debate with us important topics for the years ahead: Ariane 6, Earth observation and climate change, Moon and Mars exploration, etc.

We also had the chance that many of our international friends from the space museum community participated from distance thanks to greeting videos displayed during the day: thanks to them!

Our anniversary was not so much about the 25 years behind us than about the next 25 years!

ONERA, the French Aerospace lab, shows again its leadership in developing high resolution accelerometer for space applications

On September 14th, 2022 the MICROSCOPE scientific team led by ONERA made public the final result of the space mission MICROSCOPE aiming to test, with the best precision ever achieved, the Equivalence Principle (EP), pillar of General Relativity. Finding a violation of the EP would have been a major indication for physicists looking for the unification of the Standard Model and Gravitation. Thanks to ONERA's accelerometer, which delivered valuable data from April 2016 to October 2018, and thanks to CNES's drag-free satellite with exceptional performance, the EP was validated at the 2.7 x 10-15 level. This unprecedented performance makes this result a global benchmark that should be difficult to achieve again in the short term.

Besides this know-how in science and technology of accelerometers for fundamental physics, ONERA is also involved in the accelerometer development for the ESA Next Generation Gravity Mission (NGGM). Relying on the long ONERA's legacy (CHAMP, GRACE, GOCE, GRACE FO), the laboratory is developing a 3-axis accelerometer with tenth of pico-g resolution capable also of delivering 3-axis angular acceleration measurements with high accuracy. This is a challenging objective as in addition, the accelerometers should be delivered to NASA in the frame of the Mass Change Mission (launched around 2028) and then to ESA for NGGM (launched around 2030).

ERC 2022: Introducing the winners of the space competition!

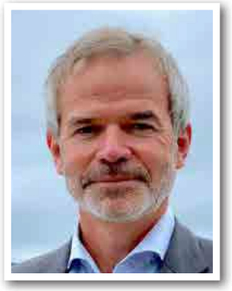
The 8th edition of the European Rover Challenge, the largest space robotics competition, concluded on Sept. 11th. The incredibly exciting rivalry of teams from all over the world was combined with numerous attractions and surprises. The organizers managed to bring a replica of Neil Armstrong's spacesuit, the audience could travel to the seabed of the Pacific Ocean, control rovers and walking robots, or meet space agencies' experts. The yearly attraction was the world's largest artificial Marsyard, where rover competition took place. The event was attended by the number of visitors gathered on-site and around the world, through broadcasts and live coverage.

The competition included 30 of the world's best academic teams from almost all continents. This year's edition was held in two formulas: ON-SITE and REMOTE. The ERC took place on a track, which surface was inspired by a section of the Martian plains Utopia Planitia and Elysium Planitia. The tasks prepared by the judges mirrored the challenges of real Martian missions.

The full list of winners of the ERC 2022 is as follows:

- 1st place ERC (ON-SITE formula)
  AGH Space Systems (Poland)
- 2nd place ERC (ON-SITE formula)
  EPFL Xplore (Switzerland)
- 3rd place ERC (ON-SITE formula)
  ITU Rover Team (Turkey)
- 1st place ERC (REMOTE formula)
  DJS Antariksh (India)
- 2nd place ERC (REMOTE formula)
  Mars Rover Manipal (India)
- 3rd place ERC (REMOTE formula)
  Project RED (Italy)

Interview with Christian HAUGLIE-HANSSEN
Director General, Norwegian Space Agency, Norway



1. This is the first IAF Global Conference on Climate Change, why do you think it is important to involve the space environment into the climate change issue?

Climate change is the major challenge of our time and space is part of the solution by contributing to monitoring and insight. We consider the conference as an opportunity to create greater awareness about space as an necessary toolbox for managing the challenges. In my opinion, making use of space technology in fighting climate change is about more than building satellites and sensors, although this will still be important. We need to speed up the utilization of space data and contribute to the green transition. In finding new ways of making society more energy sufficient we can be bold and ambitious and look to space for providing enough green energy for the future.

2. What does it mean for Norway to host the Global Space Conference on Climate Change?

Ever since Gro Harlem Brundtland, former prime minister, launched the report "Our Common Future" in 1987, climate and sustainability have been high on the political agenda in Norway. As a country far to the north, we see how alarmingly fast the climate is changing in the Arctic, completely in line with the scientific forecasts from the UN IPCC climate panel. Norway was an early adopter of satellites for environmental monitoring of our ocean areas and is investing heavily in developing new space-based services contributing to societal development. Internationally, we take responsibility for slowing down the destruction of tropical forests by offering free satellite data through Norway's International Climate and Forest Initiative NICFI. Illegal fishing is a challenge where data from the Norwegian small satellite program can be a tool in the fight against fishing crime in global waters.

3. Do you see the GLOC 2023 having a positive impact on climate change?

Fighting climate change is a long term activity. I believe that the GLOC2023, as the first IAF-conference on this specific topic, will be an incremental contribution to a long term struggle. Global challenges can only be solved through international cooperation, and space is an important arena. The conference can contribute to greater awareness among the players about the potential for the development of new solutions based on space technology. By bringing together technologists, decision-makers and NGOs, it is our hope that the contribution from our field of expertise can be even greater.

4. What more can space actors do to manage climate change?

I believe that management – or handling – of climate change, is a very political topic. Our politicians need to be coordinated on their ambitions. The space actors must provide the toolbox for setting things into action. As space actors we can take greater responsibility for our own value chain and contribute to a green transition. We can add more digital meeting places and thus reduce the CO2 footprint in our own industry. Cleaning up space junk may not be something that immediately falls under combating climate change, but the risk of losing access to space data is a major vulnerability in a climate context.

5. What can delegates expect to enjoy about this particular IAF Global Conference, given its location?

We are very much looking forward to welcoming you to Oslo. It is a diverse and multicultural city offering attractions like the brand new Munch museum showcasing the works of the world famous painter Edvard Munch, the Opera house acclaimed for groundbreaking architecture, and the idyllic islands just a short ferry trip from Oslo city center. Taking a stroll along the harbor promenade, booking a sauna and jumping into the fresh sea for a swim are options if you want to challenge yourself. For those slightly more interested in dining and wining, there are lots of restaurants, bars, clubs and food stalls. If shopping is a favorite, you will find plenty of ways of spending your money. And all of this in walking distance from the hotel and venue. Seeing more of Norway like the fiords, the mountains or the coastal part is within reach if you add a few days to your stay.

International Astronautical Federation

100 Avenue de Suffren
75015 Paris, France
Tel: +33 1 45 67 42 60
E-mail: info@iafastro.org
www.iafastro.org

Be part of the conversation @iafastro

Alliance Programme

Connecting @ll Space People

The next IAF newsletter will be issued in December 2022