



مركز محمد بن راشد
للفضاء
MOHAMMED BIN RASHID SPACE CENTRE

72nd INTERNATIONAL ASTRONAUTICAL CONGRESS

IAC
D U B A I
2 0 2 1

25–29 October 2021 | Dubai, United Arab Emirates

Public,
Plenary &
IAF GNF
Programme

Inspire, Innovate & Discover
for the Benefit of Humankind



IAC2021.ORG



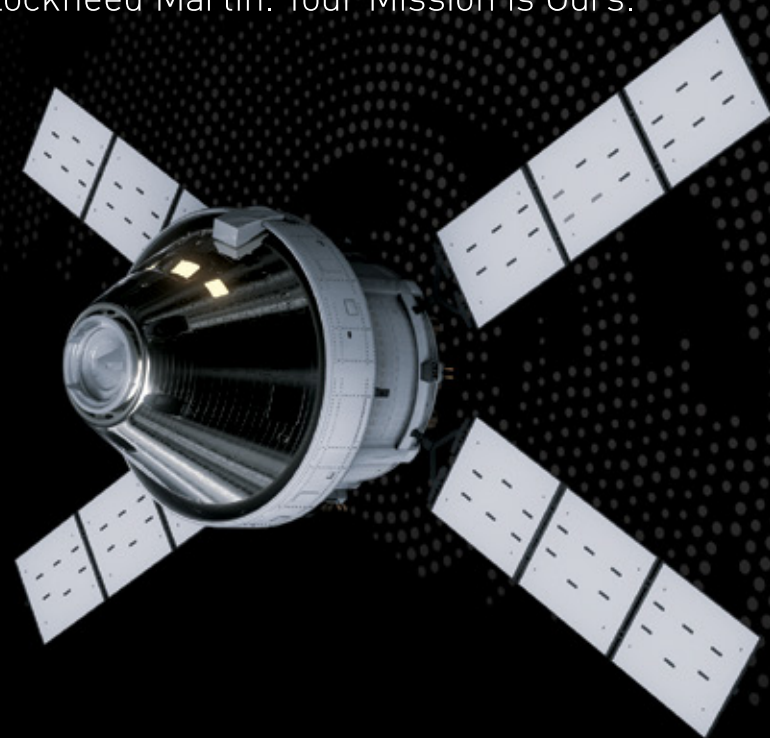
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A large-scale photograph of a Blue Origin rocket segment being assembled in a factory. The segment is a long, curved, metallic structure supported by a yellow crane system. Two workers in safety gear are visible in the foreground, one standing near a blue mobile service unit and another further back. The background shows the interior of a large industrial facility with high ceilings and structural beams.

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The UAE Space Agency
is leading a new direction

the Strategy

Space Economic Zone Program

space analytics and solutions program

and discover our leading partners
in the UAE Space Sector

Hall 6 Booth 13

تقود وكالة الإمارات للفضاء
توجهاً جديداً لدعم قطاع الفضاء

تعرفوا على الاستراتيجية الجديدة

برنامج مناطق الفضاء الاقتصادية

وبرنامج حلول الفضاء

انضموا اليّنا واكتشفوا شركائنا الرائدة في
قطاع الفضاء الإماراتي

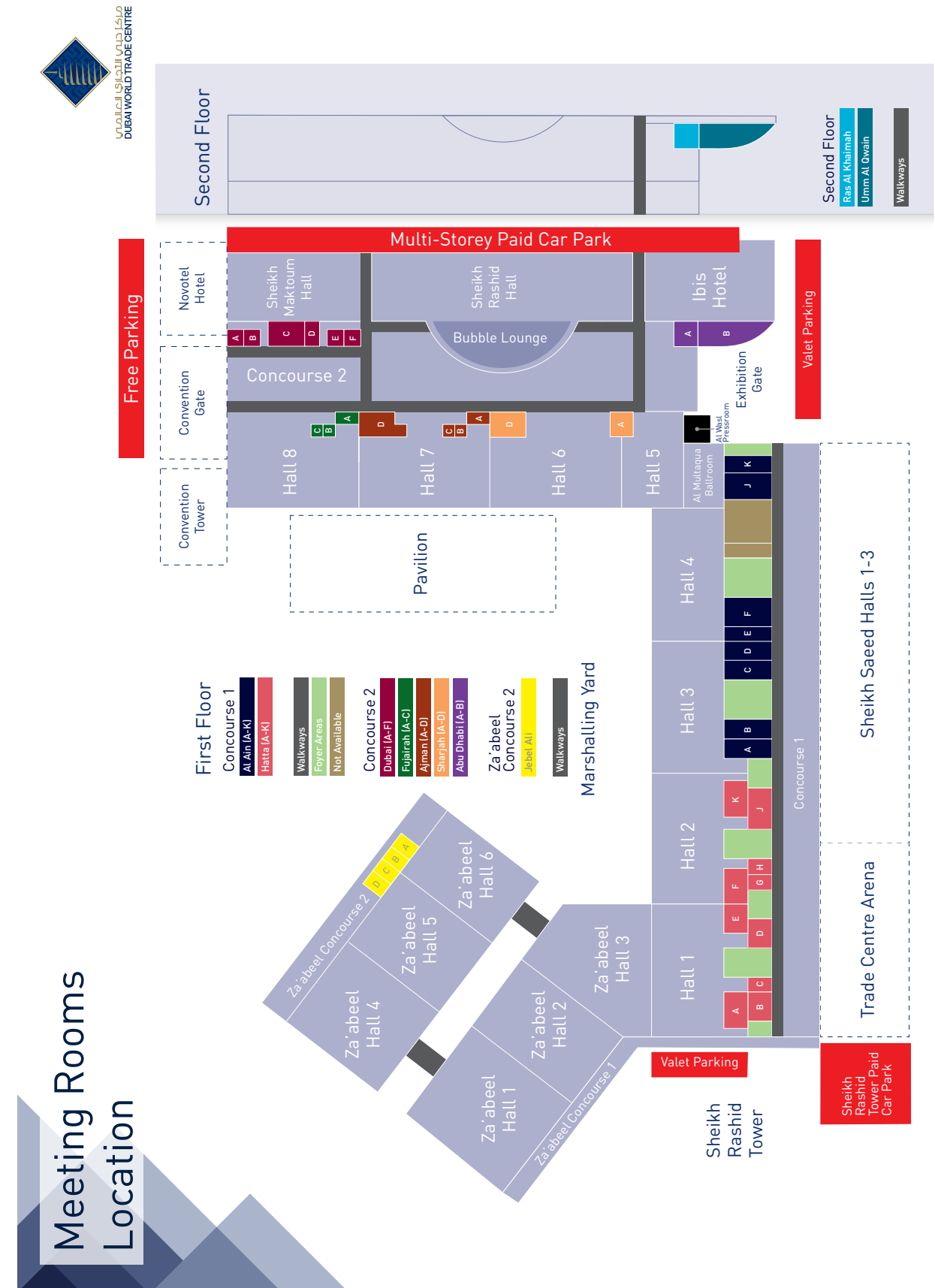
قاعة 6 منصة 13



IAC
2023
BAKU

Bringing the global space
community back to Baku
half a century later





1 Plenary & IAF GNF Programme at a Glance

	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00
Monday 25 Oct				Opening Ceremony	Opening Exhibition and VIP Tour	* VIP Luncheon Sponsored by ESA		PE 1- Heads of Space Agencies	Space Law for New Space Actors: Fostering Responsible National Space Activities (UNOOSA)	Challenges Ahead for a Responsible Space Sector (ESA)	Earth System Science: Open Data and Open Science in Support of our Planet (NASA)		PE 2 - Host Plenary: Expeditions 60/61 Reunion	
Tuesday 26 Oct	*Industry Breakfast sponsored by OHB	Industry Award Ceremony - Lockheed Martin	PE 3 - Small Satellites Solving Climate Challenges	Powering the Next Giant Leap (Lockheed Martin)	Building the Commercial Future of Low Earth Orbit (Blue Origin)	'Access to Space for All': UNOOSA and Airbus to Announce Winner of Free Payload Flight on ISS/Bartolom	*Industry Lunch Sponsored by Planet	PE 4 - Mars 2020: First Step towards Mars Sample Return	The Mega-Constellation Eco-System: What Industrial and Regulatory Elements are Necessary for a Thriving Market? (IRC)	On-Orbit Servicing: Enabling a Sustainable Infrastructure to Grow the Space Economy (Astroscale, ClearSpace, D-Orbit)	Defining Possible in Human Space Exploration (Northrop Grumman)	The need for laser communication as the backbone of future LEO, MEO and GEO satellite constellations (Mynaric)	HLL 1 - The Osiris-Rex Sample Return Mission - The Value of Planning Ahead and Adaptability	
Wednesday 27 Oct	IDEA "3G" Breakfast sponsored by JPL		PE 5 - Heads of Emerging Agencies	French Fireside Chat: Surveillance Habitat, Optronics (Business France)	2020's - The decade of the start-up companies (ESA)	*IDEA "3G" Diversity Luncheon - sponsored by Jacobs	PE 6 - Innovative space solutions for search and rescue and life saving applications	UAE Startups: Space Applications Pitch Session (UAESA)	Is Europe ready for Human Spaceflight? (Arianespace)	Going Far Together (NASA)	The Cloud: Bridging the gap between Earth and Space (AWS)		HLL 2 - Twenty Years of Saving Lives from Space	
Thursday 28 Oct			PE 7 - Next Generation Impact on Social Responsibility in Space	Building the Lunar Ecosystem Today - Actions from Industrial and Agencies (Airbus, Air Liquide, ispace, CNES, LSA)	Evolution of Space Industry and New Business Opportunities in Emerging Space Countries (Azercosmos)	How to Develop a Sustainable Lunar Surface Infrastructure (Thales Alenia Space)	* VIP Luncheon	Investing in Space Start-Ups: Their Evolution During 2020 (Fondazione Amaldi)	Moonlight - connecting Earth with the Moon (ESA)	Horizon 2061: Planetary Exploration Foresight: Science, Missions, Technology, Infrastructures & International Stakeholders	Towards Sustainable Lunar Activities (Moon Village Association)		IAF WORLD SPACE AWARD HLL - Accomplishments of The Hayabusa2 Mission: Sample Return from C-Type Asteroid Ryugu	
Friday 29 Oct		Late Breaking News	The Deep Space Food Movement	IAF - ASE Astronauts Session	* VIP Luncheon	the Role of Media in Promoting Space Activities					Closing Ceremony			

*Upon Invitation Only

2 Daily Congress Programme

Monday 25 October

09:00 - 10:30 Opening Ceremony

Location: Sheikh Rashid Hall, Dubai World Trade Centre

Sponsored by:



Master of Ceremony



Atheer ALI BIN SHAKAR
Senior Bulletin Editor & TV,
Presenter News Center –
Dubai TV,
United Arab Emirates

Speakers:



H.E. Hamad Obaid ALMANSOORI
Chairman,
Mohammed Bin Rashid Space
Centre (MBRSC),
United Arab Emirates



H.E. Yousuf Hamad ALSHAIBANI
Director General,
Mohammed Bin Rashid Space
Centre (MBRSC),
United Arab Emirates



MODERATOR
Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France

12:00 - 13:00 ESA VIP Luncheon (Upon Invitation Only)

Location: Pavilion A, Dubai World Trade Centre

Sponsored by:



Speakers:



INTRODUCTION
Anna RATHSMAN
Director General,
Swedish National Space
Agency (SNSA),
Sweden



Josef ASCHBACHER
Director General,
European Space Agency
(ESA),
France

10:45 - 11:45 Opening Exhibition/ Ribbon cutting/VIP Tour

Location: Exhibition Halls 5/6/7/8, Dubai World Trade Centre

13:15 - 14:45 Plenary 1 – Heads of Agencies



Location: Sheikh Rashid Hall E, Dubai World Trade Centre

Speakers:



Josef ASCHBACHER
Director General,
European Space Agency (ESA),
France



Lisa CAMPBELL
President,
Canadian Space Agency
(CSA),
Canada



Pam MELROY
Deputy Administrator,
National Aeronautics and
Space Administration (NASA),
United States



Dmitry ROGOZIN
Director General,
State Space Corporation
ROSCOSMOS,
Russian Federation



K. SIVAN
Chairman,
Indian Space Research
Organisation (ISRO),
India



Hiroshi YAMAKAWA
President,
Japan Aerospace
Exploration Agency (JAXA),
Japan



Kejian ZHANG (video message)
Administrator,
Chinese National Space
Administration (CNSA),
China



MODERATOR
Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France



MODERATOR
Jean-Yves LE GALL
IAF, Past President &
Honorary Ambassador,
Former President,
Centre National d'Etudes
Spatiales (CNES),
France



WELCOME KEYNOTE
Sarah AL AMIRI
Her Excellency Sarah bint
Yousef Al Amiri, UAE Minister
of State for Advanced
Technology, Chairwoman,
UAE Space Agency,
United Arab Emirates

14:55 - 15:45 IAF GNF – Space Law For New Space Actors - Fostering Responsible National Space Activities



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The United Nations has served as an intergovernmental platform to discuss issues related to the peaceful uses of outer space, including governance of these activities, since the early stages of the space age. The Outer Space Treaty, adopted by the world's governments under the auspices of the United Nations in 1967, remains the foundation of international space law. Since it entered into force, a growing list of treaties, principles and guidelines have been envisioned and agreed upon that, collectively, constitute the normative

framework governing activities in outer space. This framework has been instrumental in sustaining over half a century of exponential growth in space activities and the global space economy.

In recent years, stakeholders around the world are accessing the space environment and investing their political and economic capital in space activities. With this explosion of new actors, there is a pressing need to enhance efforts to raise awareness of, and adherence to, the existing normative framework governing outer space activities.

UNOOSA assigns utmost importance to responsible behaviour in space. Working with stakeholders across the legal, policy and capacity building aspects of international cooperation in the peaceful uses of outer space, UNOOSA hence offers space law capacity-building and legal advisory services, targeted and tailored, for regulatory authorities of new and emerging space-faring nations.

This GNF will explore the support emerging space-faring nations can receive from the UN, with the help of donors, to draft national space law and/or policy in line with the international normative framework on space. Furthermore, it will offer an opportunity to listen to beneficiaries who already received these services and delve into the future of the project.

Organized by: UNITED NATIONS
Office for Outer Space Affairs

Speakers:



Simonetta DI PIPPO
Director,
United Nations Office
for Outer Space Affairs
(UNOOSA),
Austria



Franz FAYOT
Minister for Development
Cooperation and
Humanitarian Affairs,
Minister of Economy,
Government of Luxembourg,
Luxembourg



Humbulani MUDAU
Chief Director,
Space Science and
Technology,
Department Science and
Innovation,
South Africa



Col. Luis Felipe SAEZ
Assistant Director of Space
Affaire,
Chilean Air Force,
Chile



Kai-Uwe SCHROGL
President,
International Institute of
Space Law (IISL),
Germany

15:00 - 16:00 Press Conference – Heads of Agencies

Location: Pavillion A, Dubai World Trade Centre

15:55 - 16:55 IAF GNF – Challenges Ahead for a Responsible Space Sector

Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The objective of this session is to draw the attention of the audience on the need to act collectively to effectively respond to global challenges linked to climate change, environmental protection, and social responsibility. ESA and key European space actors mobilise on joint initiatives.

Top-level Executives will stress the need for joint effort to best meet the current global challenges and then identify priority-actions set for their organisations



- Address their responsibility of action towards global challenges
- Demonstrate their engagement inside and outside their own organisation
- Highlight the importance of acting together
- Stress the need to define common objectives and actions towards a more sustainable and socially responsible space sector
- Address expectations from the public

Federated by ESA along the objectives of Agenda 2025, public and private actors have collectively identified common principles and values which will guide them in their undertakings to meet global challenges. Executives from key public and private European space actors will debate about possible joint initiatives to address sustainability and social responsibility topics.

The round table will be moderated by ESA Chief Climate and Sustainability Officer asking questions to panellists on

- Current undertakings in their organisation to meet global challenges
- Priorities for further common action at European and global level

Panellists will have the opportunity to talk about the need of a collective action and the identified joint initiatives.

Organized by:

Speakers First Part:



Josef ASCHBACHER
Director General,
European Space Agency (ESA),
France



Philippe BAPTISTE
President,
Centre National d'Etudes
Spatiales (CNES),
France



Hervé DERREY
President and CEO,
Thales Alenia Space France,
France



Marco FUCHS
CEO and Chairman of the
Management Board,
OHB SE, Bremen,
Germany



Philippe PHAM
SVP Head of Earth
Observation and Science,
Airbus Defence and Space
SAS,
France

Speakers Second Part:



Morena BERNARDINI
Strategy Vice President,
Arianespace SAS,
France



Massimo COMPARINI
CEO,
Thales Alenia Space Italia,
Italy



Francesca LILLO
Vice President Health,
Safety and Environment,
AVIO SpA,
Italy



Andrea VENA
Chief Climate and
Sustainability Officer,
European Space Agency (ESA),
France

17:05 - 18:05 IAF GNF – Earth System Science: Open Data and Open Science in Support of Our Planet



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Twenty-four hours a day, and every day of the year, NASA missions are monitoring, observing and exploring our planet with a fleet of legacy and novel observatories that help us understand climate change over time while discovering new insights about our complex and dynamic Earth system. These insights, combined with the rapid pace of innovation and private sector investment in areas such as digital technology, lead to more reliable models and better data analysis than ever before possible. These models are making critical contributions that enable society and individuals to understand and prepare for the most consequential risks of climate change. These risks extend to every part of the world, to every economic sector, and to nearly every aspect of human well-being.

At NASA, our work to explore and understand our dynamic planet is not done in isolation. Instead, we actively search for ways to leverage our strategic partnerships, working closely with international, commercial, academic, and non-profit partners. As the impacts of global climate change become more numerous and pronounced in given locations and contexts, the demand for more accurate, timely, and actionable knowledge about the Earth system is increasing in capitals, board rooms, and academic institutions around the globe. In this plenary keynote, NASA will present a summary of its future programs – the planned expansion of NASA's Earth observation portfolio and the enabling partnerships that NASA plans over the next decade. The keynote will also address the key building blocks of this exciting endeavor, such as principles of open data and open science that foster more rapid progress to create and provide foundational and decisional knowledge – knowledge that will help us adapt and thrive on our changing planet.

Organized by:



Speaker:



Thomas ZURBUCHEN
Associate Administrator
for the Science Mission
Directorate,
National Aeronautics and
Space Administration (NASA),
United States



Karen ST. GERMAIN
Director for Earth Science,
National Aeronautics and
Space Administration (NASA),
United States

MODERATOR

18:15 - 19:30 Plenary 2 – Expeditions 60/61 Reunion



Location: Sheikh Rashid Hall E, Dubai World Trade Centre

This panel will introduce, for the first time, the full nine (9) crew-members that were part of Expedition 60/61 to the International Space Station (ISS). The crew-members will come together again at IAC 2021 in Dubai to share their experience, knowledge, scientific mission and achievement.

What distinguishes this Expedition and team is that it witnessed:

1) the participation of the first UAE Astronaut to the International Space Station, "Hazzaa Al Mansoori". The launch of Hazzaa Al Mansoori to the ISS was a turning point in the UAE's space program, and key milestone in the development of the Human Spaceflight Programme. His participation in this mission inspired a generation and will be a source of aspiration to the youth in our region. The mission was a successful example of international cooperation and collaboration between all space agencies to ensure the success of the UAE's first mission to ISS. It showed how space can unite nations to work together to achieve a common goal.

2) the successful execution of the first "All-Women Spacewalk", which was conducted by NASA astronauts Jessica Meir and Christina Koch. This achievement provides inspiration to all women around the world, and proving that they could achieve their dreams and reach great heights with hard work and dedication.

3) breaking the record of the longest continuous time by a woman in space by Astronaut Christina Koch. Another achievement for women in space missions

4) having 9 members for the first time since the departure of Soyuz TMA-16M in September 2015.

5) conducting nine spacewalks, more than in any other increment in the history of the ISS.

As can be noticed, this panel will consist of very high calibre individuals that will be talking about very important aspects related to human spaceflights in terms of:

- International cooperation in the Human Spaceflights
- Engagement of emerging nations in space in future human spaceflights
- Building Human spaceflights in emerging nations in space
- Role of women in space and their significant contributions
- Inspiring youth and new generations in Space and STEM fields
- Science investigations and findings as part of the expeditions
- Outcomes of the first UAE Human Spaceflight and its impact on the UAE and region

Speakers:



Hazzaa ALMANSOORI
Astronaut,
United Arab Emirates



Salem AL MARRI
Assistant Director
General for Science and
Technology/Astronaut
Mohammed Bin Rashid
Space Centre (MBRSC),
United Arab Emirates



Sultan Saif ALNEYADI
Astronaut,
United Arab Emirates



Tyler N. HAGUE
Astronaut,
National Aeronautics and
Space Administration (NASA),
United States



Christina H. KOCH
Astronaut,
National Aeronautics and
Space Administration
(NASA),
United States



Sergey KRIKALEV
Executive Director for
Human Space Flights,
State Space Corporation
ROSCOSMOS,
Russian Federation



Jessica U. MEIR
Astronaut,
National Aeronautics and
Space Administration
(NASA),
United States



Andrew R. MORGAN
Astronaut,
National Aeronautics and
Space Administration
(NASA),
United States



Alexey OVCHININ
Pilot-Cosmonaut,
State Space Corporation
ROSCOSMOS,
Russian Federation



Oleg SKRIPCHKA
Pilot-Cosmonaut,
State Space Corporation
ROSCOSMOS,
Russian Federation

19:30 - 22:00 Welcome Reception

Location: Sheikh Saeed Hall 2 & 3 @ DWTC

Tuesday 26 October

07:00 - 08:00 Industry Breakfast Sponsored by OHB - “From Special to Normal Industrial Standards” (Upon Invitation Only)

Location: Pavilion A, Dubai World Trade Centre

Sponsored by:

Speakers:



Jean-Jacques DORDAIN
Chair of the Board,
Satlantis,
Chair of the Supervisory
Board,
Rocket Factory,
France



INTRODUCTION
Marco FUCHS
CEO and Chairman of the
Management Board,
OHB System AG-Munich,
Germany

08:00 - 08:30 IAF Excellence in Industry Award Ceremony

Location: Sheikh Rashid Hall E, Dubai World Trade Centre

The **Excellence in Industry Award** is intended to distinguish an industry organization, member or non-member of the IAF, for introducing innovative space technologies to the global marketplace and being recognized throughout space industry for successfully executing a landmark space mission.

This year, this prestigious award has been awarded to **Lockheed Martin**, for the continued outstanding contributions to the growth of the world’s space exploration industry, exemplified by success in milestone achievements in space telescopes, robotic missions, human missions, and international partnerships. The Lockheed Martin team has successfully tested and delivered the Orion spacecraft for the first crew-capable test flight to the moon in 2021 and has executed development and operations activities for missions to Jupiter, Mars, and several asteroid destinations. Lockheed Martin has continued its commitment to working with internal partners across its portfolio, including the European Space Agency and Airbus Defense & Space on the Orion program, and multiple other companies who provide instruments through NASA for the deep space robotics missions such as the lunar thermal mapper from the University of Oxford in the United Kingdom. The wide range of targets and mission capabilities deployed to learn about the worlds around us is exceptional and sets Lockheed Martin apart in the exploration community.

INTRODUCTION, AWARD PRESENTATION & MODERATION:



Bruce CHESLEY
Vice President for Industry
Relations and Financial
Matters,
International Astronautical
Federation (IAF),
France



Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France

Speaker:



Lisa CALLAHAN
Vice President and General
Manager,
Commercial Civil Space,
Lockheed Martin,
United States

08:30 - 09:30 Plenary 3 – Small Satellites Solving Climate Challenges



Location: Sheikh Rashid Hall E, Dubai World Trade Centre

While climate change presents the greatest threat to humanity, there is an arsenal of tools to be leveraged allowing us to fight it. The green transition must be complemented by the continued use and improvement of modern technologies. Small satellites, for example, can be used to monitor climate change, help with governments’ response to climate change, and track the progress of that response. Satellite instruments can precisely measure global sea levels, and track the presence of carbon dioxide, methane and other greenhouse gases. Optical satellites can monitor extreme weather events by observing sea surface temperatures, wind speed and sea levels. Radar imagery and altimetry monitoring sea ice, polar ice caps, ice sheets and glaciers have told us that polar ice caps in Greenland and Antarctica are melting six times faster now than in 1990s.

Since satellites were first used for meteorology in the 1960s, the space sector has continued to innovate, surpassing its capabilities from one year to the next. The improvement of both optical and temporal resolutions of satellites has led to real time monitoring and better climate forecasting and modelling abilities. Beyond the space sector, satellite data can be used for research, such as training data for machine learning applications, and development, enabling the discoveries of new tools to fight climate change. For example, geospatial data will be a fundamental resource for Destination Earth (DestinE), the European Commission project to develop a very high precision digital model of the Earth to monitor and simulate natural and human activity. Among space technologies, Earth observation, also known as earth imaging, allows us to see every feature of the biosphere. Over the last decade, we’ve entered the era of the “Space Renaissance,” a rebirth of space activities that are accelerating innovation. Agile aerospace—a philosophy of spacecraft development that encourages rapid iteration—was largely just a thought-kernel in the minds of aerospace experts 10 years ago, and now dramatically changing the capabilities from space, including increasing the number of EO satellites by 10x and data rates commensurately, enabling the powering of new smarter and more efficient systems.

Climate change is real and it is already happening. It has already been proven to increase the risk of floods and extreme rainfall, heatwaves and wildfires with implications for humans, animals and the environment. And things aren’t looking good for the future either. With the concentration of carbon dioxide (CO2) in the atmosphere projected to maintain an average 411 parts per million (ppm) throughout 2019, there is a long way to go before the ambitious goals of the Paris Agreement or the European Green Deal are met. To put this into context: atmospheric CO2 hovered around 280 ppm before the start of the Industrial Revolution in 1750 – the 46 per cent increase since then is the main cause of global warming. Reliable temperature records began in 1850 and our world is now about one degree Celsius hotter than in the “pre-industrial” period. The Paris Agreement focuses on keeping the global temperature rise in this century to well below two degrees Celsius above pre-industrial levels – ideally to 1.5 degrees Celsius – to avoid “severe, widespread and irreversible” climate change effects. But, if current trends continue, the world is likely to pass the 1.5 degrees Celsius mark between 2030 and 2052 unless it finds a way to reach net zero emissions.

Given that there is an urgency to act, this plenary addresses the fact small satellite systems should be considered as an important tools in meeting the global climate objectives. Earth observation must be continued to be recognised as a strategic area in combating sustainability and climate change. All day every day, constellations of satellites rotate around the Earth taking pictures of the same areas to allow for monitoring over-time. In addition to public endeavors such as the Landsat and Copernicus programs, slam satellite industry plays a vital role adding cadence and resolution to the “picture”. Earth observation is a key tool for the implementation of the global climate goals as it sees everything from crop health to reef degradation. Indeed, satellite imagery can be leveraged across sectors and produce valuable and unique information that remains unseen from one’s feet on the ground.

Given the timeliness and importance of the topic, the panelists will address the full spectrum of legal, policy, economic, and technical aspects of the role small satellites can plan in the domain of climate change - giving a truly global perspective. International panelists representing both private and public space sector will discuss a spectrum of views on effective cooperation in addressing the long term sustainability/climate objectives.

This plenary is organized by the IAF Industry Relations Committee and has been formulated to address the congress industry theme “INSPIRE, INNOVATE & DISCOVER FOR THE BENEFIT OF HUMANKIND”, as it will demonstrate that in order for the humanity to take care of the planet Earth, space technology and space applications coming from small satellites are an important and innovative tool to benefit all humankind.

Speakers:



Jamil KAWAR
Director Global Sales,
ICEYE,
United Kingdom



Anke KAYSER PYZALLA
Chair of the Executive
Board,
Deutsches Zentrum für Luft-
und Raumfahrt e.V. (DLR),
Germany



Robbie SCHINGLER
Co-Founder and Chief Strategy
Officer,
Planet,
United States



Karen ST. GERMAIN
Director for Earth Science,
National Aeronautics and
Space Administration (NASA),
United States



MODERATOR
Clay MOWRY
VP, Global Sales, Marketing &
Customer Experience,
Blue Origin,
United States

09:40 - 10:40 IAF GNF – Powering the Next Giant Leap



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

With the continued improvements in launch costs and performance, the advent of the Commercial Lunar Payload Services (CLPS) access to the Moon's surface, and landing system development by agencies and industry partners across the world, the barrier of entry is beginning to drop for scientific and commercial endeavors in cislunar space. But while there has been much attention focused on transportation and individual experiments and payloads, there has been less discussion about what the enabled surface "ecosystem" will look like. This program will explore interoperable and interdependent international surface exploration that leverages robotic and human, US and international, and industry and government capabilities to transform our knowledge of the Moon, improve life on Earth, and prepare for Mars.

Organized by:



Speakers:



Timothy CICHAN
Space Exploration Architect,
Lockheed Martin Corporation,
United States



Kat CODERRE
Deputy Manager for Deep
Space Exploration Advanced
Programs,
Lockheed Martin Corporation,
United States



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



INTRODUCTION
Rob CHAMBERS
Director,
Human Spaceflight Strategy
and Business Development
Space Systems Company,
Lockheed Martin Corporation,
United States

10:50 - 11:50 IAF GNF – Building The Commercial Future of Low Earth Orbit



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Space is changing rapidly. Human space flight is the next frontier for commercial businesses. Low Earth orbit (LEO) is the place where dynamic market sectors like manufacturing, media and advertising, and adventure travel will take off in this decade. This expert senior panel will address what's been learned from building, operating, and using the International Space Station, announce what's being developed today to make LEO profitable, and describe the exciting future that new LEO market opportunities will open.

Organized by:



Speakers:



Mike GOLD
Executive VP of Civil Space
Business Development and
External Affairs,
Redwire,
United States



Janet KAVANDI
President,
Sierra Space,
United States



John MULHOLLAND
Vice President and Program
Manager International Space
Station Space and Launch,
The Boeing Company,
United States



Brent SHERWOOD
Senior Vice President
Advanced Development
Programs,
Blue Origin,
United States



MODERATOR
Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France

12:00 - 12:30 IAF GNF – 'Access to Space for All': UNOOSA And Airbus to Announce Winner of Free Payload Flight on ISS/ Bartolomeo



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Through the Access to Space for All initiative, the United Nations Office for Outer Space Affairs (UNOOSA) helps Member States, in particular emerging and developing nations, to break new ground in space science and technology. The Airbus Bartolomeo external platform on the International Space Station (ISS) is one of several research and orbital opportunities offered through the initiative.

During this session, UNOOSA Director Simonetta di Pippo and Airbus SVP Stéphane Vesval will talk about the dawn of new opportunities in Low Earth Orbit (LEO), and announce the selection of a team of institutions from different developing countries, whose exciting Space project will fly to the ISS for installation aboard the Bartolomeo platform free of charge.

The Bartolomeo platform is a new and unique hosting facility which eases the way of bringing a payload into space. With this solution, countries and institutions previously unable to afford space research can now gain access to the benefits of space.

The UNOOSA-Airbus partnership goes beyond the utilization of the Bartolomeo platform for 'Access to Space for All' and it is also providing exciting results in the field of Earth observation. This partnership is contributing to the UN Sustainable Development Goals (SDGs) and exploring how space can help achieve the SDGs in practice. Particular focus is on Goal 4 "Quality Education" and Goal 9 "Industry, Innovation, and Infrastructure" and promotes international cooperation across nations in the peaceful uses of outer space.

Organized by: **AIRBUS**

Speakers:



Simonetta DI PIPPO
Director,
United Nations Office
for Outer Space Affairs
(UNOOSA),
Austria



Stephane VESVAL
SVP Sales & Marketing Space
Systems,
Airbus Defence and Space,
France

12:30 – 13:30 Industry Luncheon Sponsored by Planet (Upon Invitation Only)

Location: Pavilion A, Dubai World Trade Centre

Sponsored by:



Speakers:



Robbie SCHINGLER
Co-Founder and Chief Strategy
Officer,
Planet,
United States



Toni TOLKER-NIELSEN
Acting Director of Earth
Observations Programs,
European Space Agency (ESA),
Italy

13:30 - 14:30 Plenary 4 – Mars 2020: First Step Towards Mars Sample Return



Location: Sheikh Rashid Hall E, Dubai World Trade Centre

During this plenary event we will present early results from Mars 2020, which delivered Perseverance and Ingenuity to the Red Planet, and preview the upcoming Mars Sample Return mission.

The Mars 2020 Perseverance Rover landed on February 18, 2021 in the Jezero Crater. The largest and most capable robotic explorer in human history will search for signs of ancient microbial life, test new technologies – including a method for producing oxygen from the Martian atmosphere -- and collect core samples of Martian rock and soil for eventual return to Earth.

Other mission goals include identifying crucial resources for human explorers, improving landing techniques, and characterizing weather, dust, and other potential environmental challenges that could affect future astronauts living and working on Mars. Strapped to the rover's belly for the journey to Mars was a technology demonstration — the Mars Helicopter Ingenuity. During its several historic flights, Ingenuity proved the feasibility of powered flight even in the thin atmosphere of an alien planet. To advance NASA's quest to explore the past habitability of Mars, a future mission, Mars Sample Return, will retrieve sealed tubes left by Perseverance and ferry them to Earth for detailed analysis. The first delivery of Martian matter to Earth will require a robotic pick up system, a Mars ascent vehicle, and a transfer vehicle that includes an Earth re-entry system. NASA and the European Space Agency have made a joint commitment to accomplish this bold mission by the early 2030s.

Speakers:



Jennifer TROSPER
Mars 2020 Project Manager,
National Aeronautics and
Space Administration (NASA),
United States



Thomas ZURBUCHEN
Associate Administrator
for the Science Mission
Directorate,
National Aeronautics and
Space Administration
(NASA),
United States



David PARKER
Director of Human and
Robotic Exploration,
European Space Agency
(ESA),
Netherlands



MODERATOR
Larry D. JAMES
Interim Director,
National Aeronautics and
Space Administration (NASA),
Jet Propulsion Laboratory,
United States

14:35 - 15:35 IAF GNF – The Mega-Constellation Ecosystem: What Industrial and Regulatory Elements are Necessary for a Thriving Market?



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

There is now a new optimism surrounding the viability of the mega-constellation. In fact, some are starting to feel confident that more than one of the constellations in development has a chance. What's different now?

This session will bring together the mega-constellation ecosystem, makers of ground systems, dispenser manufacturers, launch providers, and regulatory experts from around the world to answer this question. Together they will address what technical solutions and sustainable business models are best adapted to a global marketplace that desperately needs ubiquitous, uninterrupted and affordable connectivity.

Organized by:



Speakers:



Stéphane ISRAEL
CEO,
Arianespace,
France



Anders LINDER
Senior Vice President Global
Satellites Business,
RUAG Space,
Switzerland



Peter MARQUEZ
Head of Space Policy,
Amazon Web Services,
United States



Eric STALLMER
Executive Vice President for
Government Affairs and Public
Policy,
Voyager Space Holdings Inc,
United States



Brian WEIMER
Corporate Partner,
Sheppard Mullin,
United States



MODERATOR
Karl BAKER
President, Founder,
Summit Space Corporation,
United States

15:40 - 16:40 IAF GNF – On-Orbit Servicing: Enabling A Sustainable Infrastructure to Grow The Space Economy



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

For most of the history of spaceflight, satellites and upper stage rocket bodies have been treated as disposable articles and the orbits around Earth as an infinite resource. As a result, 4,600 functioning satellites share their orbits with millions of debris objects and within the next 10 years, the number of satellites in low Earth orbit is expected to increase by anywhere from 10,000 to 40,000, putting these valuable services and the future \$1 trillion space economy at risk. Satellites truly are critical infrastructure for life on Earth and a major economic driver; however, the way we have operated our satellite infrastructure is not sustainable. On-orbit servicing, including active debris removal, presents a path to affordable and adaptable space infrastructure and a sustainable foundation for the growth of the space economy in the process. Learn about the different approaches taken by three founders / CEOs of on-orbit servicing companies and the key developments in technologies that will expedite the path to space sustainability amid an increasingly crowded and dangerous orbital environment.

Organized by:



Speakers:



Nobu OKADA
Founder & CEO,
Astroscale,
Japan



Luc PIGUET
CEO & Co-Founder,
ClearSpace SA,
Switzerland



Luca ROSSETTINI
Founder & CEO,
D-Orbit SpA,
Italy



MODERATOR
Bhavya LAL
Senior Advisor for Budget and
Finance,
National Aeronautics and
Space Administration (NASA),
United States

16:45 - 17:15 IAF GNF – Defining Possible in Human Space Exploration



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The GNF session will focus on the history of human space exploration and the significant role Northrop Grumman has played in that history. The current state of human exploration and the important factors Northrop Grumman is playing. A highlight of collaboration happening in the space industry overall, and some of the most innovative and interesting events and news from key players. The future of human spaceflight and the role Northrop Grumman will continue to play. A highlight of the importance of global cooperation to make that future a reality.

Organized by:



Speaker:



Frank DEMAURO
Vice President and General
Manager Tactical Space
Systems,
Northrop Grumman
Corporation,
United States

17:25 - 17:55 IAF GNF – The Need For Laser Communication as The Backbone Of Future Leo, Meo and Geo Satellite Constellations



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Numerous companies and governmental organizations planning constellations of thousands of satellites are driving an aerospace network connectivity market experiencing a profound upward inflection point.

These constellations – globe-spanning networks of interconnected satellites – promise to enhance Earth observation, support the Internet of Things, and deliver high-speed, ultra-secure connectivity to the estimated half of the world's population still without internet in areas where connectivity is either non-existent or highly unreliable.

The demand for bandwidth that these networks require can only be properly delivered using optical inter-satellite links: routing user information on-demand and with minimum delay.

We would like to update IAC 2021 delegates and attendees on the laser communication technology, the best approach and usage of laser communications for mega-constellations, the qualification status of the inter-satellite link terminal program and introduce Mynaric's roadmap for carrying forward commercialization and for large scale serial production.

Organized by:



Speakers:



Tina GATHAORE
Chief Commercial Officer,
Mynaric,
President,
Mynaric USA,
United States



Sotiria STATHOPOULOU
Solution Sales Engineer,
Mynaric,
United States

18:00 - 19:00 Highlight Lecture – The Osiris-Rex Sample Return Mission – The Value of Planning Ahead and Adaptability

HLL

Location: Sheik Rashid Hall E, Dubai World Trade Centre

The scientific and programmatic goals of the Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-REx) are captured in the name: the mission results provide new and fundamental information about the origins of the Earth, the relationship between the terrestrial planets and the small-body populations, and protecting the Earth from future impacts. On October 20, 2020, the OSIRIS-REx spacecraft collected at least 60 grams of material from the asteroid Bennu. The remote-sensing data collected during asteroid operations and the pristine returned sample will provide companion data sets that helps illuminate the pathway of water and organics from the early solar system to Earth.

OSIRIS-REx is a partnership between NASA Goddard, the University of Arizona, and Lockheed Martin. Starting with an audacious concept, the successful Touch-and-Go (TAG) event was preceded by years of concept refinement, ground testing, and mission planning.

Extensive ground- and space-based observations of the asteroid provided invaluable physical characteristics of asteroid Bennu that supported mission development, such as size, rotation rate, and spin pole orientation. While many of these were correct, detailed observations from the OSIRIS-REx spacecraft provided several surprises, including the frequent ejection of particles from Bennu's surface, and perhaps most importantly, the absence of sample sites as large as originally expected. These discoveries were both scientifically profound and operationally challenging, and required adjustments to the original operational plans. The adjustments included using known back-up capabilities, such as switching to an optical-based guidance vs. the originally-planned lidar-based guidance, as well as re-thinking the sample-site selection process.

Fortunately, each challenge became an opportunity. Join us to hear the full story of our development, discovery, and ultimately successful collection of more sample than any other non-lunar sample return mission.

Speakers:



David MURROW
Senior Manager, Strategy and Business Development
Deep Space Exploration,
Commercial and Civil
Space,
Lockheed Martin
Corporation,
United States



Anjani POLIT
Mission Implementation
Senior System Engineer
OSIRIS-REx Asteroid
Sample Return Mission,
University of Arizona,
United States



INTRODUCTION
Kat CODERRE
Deputy Manager for Deep
Space Exploration Advanced
Programs,
Lockheed Martin Corporation,
United States

19:30 - 21:30 **Young Professionals Networking Event (restricted to Young Professionals)**

Location: Al Multaqua Ballroom, Dubai World Trade Centre

Wednesday 27 October

07:00 – 08:30 **IAF IDEA “3G” Diversity Breakfast sponsored by JPL**

Location: Pavilion A, Dubai World Trade Centre

Sponsored by:



WELCOME
Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France



MODERATION
Deganit PAIKOWSKY
IAF VP for Diversity Initiatives
and Science & Academic
Relations,
International Astronautical
Federation (IAF),
Israel

Speaker:



Larry D. JAMES
Interim Director,
National Aeronautics and
Space Administration (NASA),
Jet Propulsion Laboratory,
United States

08:30 - 09:30 **Plenary 5 – Heads of Emerging Agencies**



Location: Sheikh Rashid Hall E, Dubai World Trade Centre

Emerging countries have awakened to the realisation and appreciation of the impact that space science and technology can make in addressing its socio-economic challenges. However, the benefits of these services have accrued to these countries indirectly, as a consumer of services and products provided by multi-national companies and inter-governmental agencies. While some of these products and services have traditionally helped to serve the social and economic needs of the emerging countries, the level of self-reliance and self-sufficiency has been gradually increasing. Thus, the technology maturity levels and ambitions of emerging countries have been growing to the point of finding global relevance, which is demonstrated by the increasing number of international collaboration initiatives between developed nations and emerging countries.

In this respect, emerging countries present a significant growth potential, especially given their nascent technology readiness levels compared to other developed and space enabled regions of the world. It is important that the specific challenges and aspirations, together with the quick wins and successes, of these countries are brought to the fore at international fora, such as the IAC. Therefore, this discourse is best had at the level of Heads of Emerging Agencies to (i) attach equal importance and significance to the plight of emerging countries similar to that of the developed nations, (ii) provide an effective platform where emerging countries can voice their challenges and aspirations, and (iii) provide a beneficial bridge for active collaboration between emerging countries and developed space nations.

This Plenary will also ensure that the theme of IAC2021 “Inspire, Innovate & Discover for the Benefit of Humankind” is adequately addressed, as the future of the global space sector will be all encompassing with many more actors entering the sector.

Speakers:



Samaddin ASADOV
Chairman of the Board,
Space Agency of Republic of
Azerbaijan (Azercosmos),
Azerbaijan



Driss EL HADANI
Director General,
Royal Centre for Remote
Sensing (CRTS),
Morocco



Valanathan MUNSAMI
CEO,
South African National Space
Agency (SANSA),
South Africa



**Carlos Augusto TEIXEIRA
DE MOURA**
President,
Brazilian Space Agency (AEB),
Brazil



Serdar Hüseyin YILDIRIM
President,
Turkish Space Agency (TUA),
Turkey



MODERATOR
**Ntoshane
MOHLAMONYANE**
Strategic Manager to the CEO,
South African National Space
Agency (SANSA),
South Africa

09:40 - 10:40 IAF GNF – French Fireside Chat: Surveillance, Habitat, Optronics



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The session will be organised with 3 fireside chats:

- 1 SURVEILLANCE with the contribution of the company UNSEENLABS, specialist of accurate data on vessel positions and SHARE MY SPACE that has developed safe navigation solutions for satellite fleets.
- 2 HABITAT with INTERSTELLAR LAB aiming to develop modules for sustainable living on earth and in space along with SPARTAN SPACE and its smart habitats for space and underwater exploration.
- 3 SECURITY including CAILABS developing free space optical communication, SODERN expert in optronics and neutron technology, and MAGELLUM.

The French GNF is part of the French Space Days organised by Business France, the national agency supporting the international development of the French economy, in partnership with CNES, the UAE Space Agency, the Mohammed Bin Rachid Space Center (MBRSC) and the International Astronautical Federation (IAF). The objective is to strengthen commercial and strategic ties between the United Arab Emirates, a new challenger in the conquest of space, and France, a historical player, through technical contributions, business meetings and site visits.

The ambitious Emirati strategy supports an objective of economic diversification, international influence and the writing of a new national narrative in the longer term. It heralds an increase in demand for space services and products, stimulating the development of a public and private industrial offer rich in partnerships for France.

Organized by:



OFFICIAL OPENING



Xavier CHATEL
Ambassador of France
to the UAE,
France

OFFICIAL INTERVENTION



Abdulla AL MARAR
Space Projects Section
Manager,
UAE Space Agency,
United Arab Emirates

MODERATOR



Elodie ROBIN-GUILLERM
Partner,
Gothams,
Founder,
Alidade Ventures,
France

FIRESIDE CHAT 1: SURVEILLANCE

UNSEENLABS: Accurate data on vessel positions



Clément GALIC
CEO and Co-Founder,
Unseenlabs,
France

SHARE MY SPACE: Safe navigation solutions for satellite fleets



François MAZIERES
Commercial Director,
Share My Space,
France

FIRESIDE CHAT 2: HABITAT

INTERSTELLAR LAB: Modules for sustainable living on earth and in space



Barbara PELVISI
CEO,
Interstellar Lab,
France

SPARTAN SPACE: Smart habitats for space and underwater exploration



Peter WEISS
CEO,
Spartan Space,
France

FIRESIDE CHAT 3: SECURITY

SODERN: Optronics and neutron technology



Salem BELMANA
Key Account Manager,
Sodern,
France

CAILABS: Optical Beam Shaping



Jean-François MORIZUR
CEO,
Cailabs,
France

MEGELLUM: Earth Observation and Geoinformation Solutions



Alain LAPEYRE
Senior Business Manager,
Magellum,
France

OFFICIAL CLOSING



**Major General Michel
FRIEDLING**
Commander of the French
Space Command,
France

10:50 - 12:20 IAF GNF – 2020'S - The Decade of The Start-Up Companies



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The European Space Agency, being already a “SME friendly” organization will take further initiatives to become also a “Start-up friendly” organization.

In order to underline the importance of the start-up companies., ESA has organized during 2020 a competition inside all 22 ESA Member States, coordinating this initiative with other space agencies making similar competitions. In addition, a further competition focusing on internationalization of products and/or services has been initiated during 2021.

Similarly, UAESA has also organized a competition amongst start-up companies.

The best start-up companies have been offered the possibility to present their company / product / ideas during this GNF session. Panel Members from ESA/ UAESA and other space agencies will have an interesting interaction with these winning start up companies whereby the roles and responsibilities of the public sector and the needs of the start -up companies will be discussed.

The commercial opportunities of space applications are booming. This expansion has been made possible by a combination of different factors i.e. new impulses by the public sector on the one hand, more responsibility being entrusted to industry, and rapidly growing awareness of the space related business opportunities by entrepreneurs / investors, being in particular relevant for start-up companies.

During recent years a major increase in the number of start-up companies has been observed looking for commercial options in their niche markets. These companies are characterized by their strong drive for innovation, quick response times, lean structures, and dedicated personal commitments of the founders / owners.

A truly healthy eco space sector being made up of large system integrators, equipment and system providers, SMEs, and start-ups is a prerequisite for success. The successful start-up companies of today will therefore become the SME companies of tomorrow.

ESA will strive to see this next decade becoming the “decade of the start-ups” and it will take the proper policy measures and initiatives to support start-up companies.

This session is organized by

Organized by:

OPENING ADDRESS



Ibrahim AL QASIM
Executive Director,
UAE Space Agency,
United Arab Emirates

Speakers:



Abdulla AL MARAR
Space Projects Section
Manager,
UAE Space Agency,
United Arab Emirates



Geraldine NAJA
Acting Director for
Commercialisation,
Industry and Procurement,
European Space Agency (ESA),
France



MODERATOR
Pieter VAN BEEKHUIZEN
Senior Consultant,
Bexperience.nl,
Netherlands



RAPPORTEUR
Karina MIRANDA SANCHEZ
Head of the Industrial Audit
Section,
European Space Agency (ESA),
Luxembourg

CLOSING ADDRESS



Luca DEL MONTE
Head of the Industrial Policy
and SME Division,
European Space Agency (ESA),
France

12:30 - 13:30 IAF IDEA “Excellence in 3G Diversity Award Ceremony” Luncheon sponsored by Jacobs (Upon Invitation Only)

Location: Pavilion A, Dubai World Trade Centre

Sponsored by:

Jacobs



WELCOME
Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France



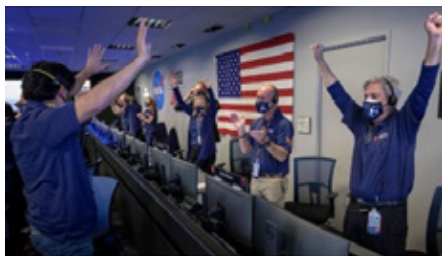
MODERATION
Anthony TSOUGRANIS
IAF VP for Honours and
Awards,
International Astronautical
Federation (IAF),
Israel

Speaker:



Jayne DALE
Space Campaign Lead for the
EMEA Region,
Jacobs,
United Kingdom

Awardees:



Jet Propulsion Laboratory (JPL)
represented by:



Larry D. JAMES
Interim Director,
National Aeronautics and
Space Administration (NASA),
Jet Propulsion Laboratory,
United States



Earth and Planetary Image Facility (EPF) Team
represented by:



Shimrit MAMAN - TIROSH
Research Associate and
Laboratory Director,
Earth and Planetary
Image Facility (EPF),
Israel

13:30 - 14:30 Plenary 6 – Innovative Space Solutions for Search and Rescue and Life Saving Applications



Location: Sheikh Rashid Hall E, Dubai World Trade Centre

When addressing space systems in general, the first applications which come into everyone's mind are most often linked to well-known topics such as space exploration, launch systems, satellite communications, earth observation or navigation systems. These are indeed essential fields of the space business and provide significant added-value to citizen's worldwide. However, there are also other very important systems, often less visible to every people but which play a significant role when human life is at stake: this is particularly the case of space systems for search and rescue applications or emergency warning.

In this plenary event we propose to explore the world of innovative space solutions for search and rescue and other life saving applications such as emergency warning, understand the different type of systems put in place, their specific features and the added-value they bring to the purpose: save lifes!

Some systems in place are managed by public organizations (such as the international Cospas-Sarsat System to which the EU Galileo system and US DASS S-band system contribute for example) while other are managed privately (such as Inmarsat, Globalstar).

The Cospas-Sarsat Programme, with its MEOSAR system (Medium Earth Orbit Search and Rescue) is one illustrative example of an international public organization offering an international satellite system in the benefits of search and rescue with contributions of different countries/organizations. Such contributors to the MEOSAR space component include, among others the DASS (Distress Alerting Satellite System) system provided by the USA, SAR/GLONASS system provided by Russia and the SAR/Galileo Service provided by the European Union. Together these systems have a constellation of more than 40 satellites to relay signals of 406MHz distress beacons carried by people in personal leisure (sailing, hiking...) or by vessels or by aircrafts.

On the private sector, important space systems in operations and offering a worldwide rescue services are, among others, Globastar with its "Spot" service, capable of tracking and reporting the position of users equipped with a "spot" terminal and allowing alert notification to rescue centers or the Inmarsat Rescue Net service offering invaluable services for safety at sea. Furthermore the deployment of large LEO constellations (Starlink of Space X, Kuiper from Amazon,...) will provide worldwide communication access even in most remote areas in short future and may impact the business model of SAR services provided by public systems.

The plenary session will provide an understanding of these systems and stress the importance of the choice of orbit and satellite constellations (LEO, MEO, GEO) to support these services (e.g. SAR/Galileo counts about 24 satellites in MEO, DASS about 20 satellites in MEO, Globalstar with more than 40 satellites in LEO, Inmarsat with several satellites in GEO). It will also help understand whether and how the development of future large LEO constellations may affect the current landscape of satellites Search and Rescue systems.

The plenary session will also try to apprehend what are the main challenges encountered by these providers; whether they differ between the public and private providers; and the potential role that public-private partnerships could play to put in place and operate those systems.

The critical role of international cooperation, and its challenges, in its broadest extent to develop and/or operate these systems, will also be address at the Plenary. This is true for interoperability of systems where components are provided by different entities/states, such as international systems like Cospas-Sarsat, but also for interoperability/compatibility matters when it comes to the allocation of frequencies or agreement on standards. On this last aspect, one particular currently burning topic is the deployment of emergency warning services through satellites systems where the development of standards for interoperability will play a crucial role to guarantee the global and "borderless" dimension of these systems.

The plenary session will be moderated by the organizers Mr. Jörg Hahn (Head of Galileo G1 System Engineering Service in ESA) and Mr. Xavier Maufroid (Head of Sector - SAR/Galileo Manager in European Commission) and will include 4-6 presenters. Each presenters will present the main features and services offered by their system in support of search and rescue and life savings. A debate will follow on the main challenges described above: international cooperation, frequencies, standardization, issues linked to the private/public nature of the provided space solutions.

Speakers:



Arnaud CARLIER
Head of Department "Telecom, Ground Stations and Alert Systems" in the Digital solutions, ground segments and operations Directorate,
Centre National d'Etudes Spatiales (CNES),
France



Steven LETT
Head of International Cospas-Sarsat Programme Secretariat,
United States



Francesco LONGO
Head of the Earth Observation Division,
Italian Space Agency (ASI),
Italy



Paul VERHOEFF
Director of Navigation,
European Space Agency (ESA),
Netherlands



Moderator
Jörg HAHN
Head of Galileo G1 System Engineering Service,
European Space Agency (ESA),
Netherlands



Moderator
Xavier MAUFROID
Head of Sector Galileo Implementation,
European Commission,
Belgium

14:40 - 15:25 IAF GNF – Space Startups Pitch Competition by UAE Space Agency



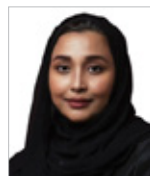
Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The UAE Space Agency is happy to present during IAC an opportunity of pitch session for UAE based entrepreneurs and international startups with the title Space Startups Pitch Competition. We are looking for best ideas with a great potential in the space field. an Online campaign is launched and selected startups will have a chance to present in front of a panel of esteemed judges.

Organized by:



MASTER OF CEREMONY



Raihana AL HASHMI
Treaties and Agreements
Senior Executive,
UAE Space Agency,
United Arab Emirates

JUDGES



Abdulla AL MARAR
Space Projects Section
Manager,
UAE Space Agency,
United Arab Emirates



Prashanth MARPU
Tech Lead of Space Program,
Group 42,
United Arab Emirates



Elodie ROBIN-GUILLERM
Partner,
Gothams,
Founder,
Alidade Ventures,
France

15:45 - 16:15 IAF GNF – Is Europe Ready for Human Spaceflight?



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

As Europe is preparing the future for access to space and Human Spaceflight, a key question is how to leverage on the strong European heritage for high reliability and required developments for Human Spaceflight.

Organized by:



Speakers:



Josef ASCHBACHER
Director General,
European Space Agency (ESA),
France



Jean-François CLERVOY
Astronaut and Founder,
AirZeroG,
France



André-Hubert ROUSSEL
CEO,
Arianespace SAS,
France



MODERATOR
Morena BERNARDINI
Strategy Vice President,
Arianespace SAS,
France

16:30 - 17:00 IAF GNF – Going Far Together



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Space has never been more crowded than it is today. The 21st century, particularly the past decade, has seen a transformative expansion in space activities throughout the world. Commercial companies are rapidly growing the space economy and helping to reignite the public's curiosity about our solar system. More nations are establishing new space agencies. Humans are preparing to return to the Moon for the first time in a half-century and laying the groundwork to continue onward to Mars. Humanity's drive to explore links our organizations and missions. The spirit to live and work in low-Earth orbit and explore well beyond where we have ventured before will be decided by global partnerships over the coming decades.

Organized by:



Speaker:



Pam MELROY
Deputy Administrator,
National Aeronautics and
Space Administration (NASA),
United States

17:15 - 17:45 IAF GNF – The Cloud: Bridging The Gap Between Earth and Space



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

One of the biggest challenges currently facing the space industry is how to handle, process, and analyze massive amounts of satellite data quickly, securely and at scale. Whether it is content distribution, storage and computing, observational data, or enabling IOT, how are companies accessing and analyzing data to help end customers take research, discovery and decision making to the next level. In this session, you will learn how the cloud and AWS are enabling every aspect of the space industry to bridge the gap between Earth and Space more rapidly than ever before.

Organized by:



Speaker:



Bill CARLIN
Satellite Solutions Lead,
AWS,
United States

18:00 - 19:00 Highlight Lecture – Twenty Years of Saving Lives From Space; How Space Agencies Are Contributing To Relief Efforts Through The “International Charter Space and Major Disasters”

HLL

Location: Sheikh Rashid Hall, Dubai World Trade Centre

Saving lives and reducing human suffering in disasters is a key objective of many space agencies. Limiting or assessing the extent of damage is critical to relief organizations and first responders and space agencies attempt to provide critical and timely information that enables all of these objectives. The agencies contribute their data and information via the Charter, known as International Charter ‘Space and Major Disasters’. This plenary event will discuss the Charter objectives, the breadth of the applications and its relationship to societal development goals, and the benefits in both saving of lives and assessment of property loss. This event celebrates of the signing of the Charter more than 20 years ago. The speakers will be the senior representatives of the three original signers of the Charter – ESA, CNES, and CSA.

Speakers:



Josef ASCHBACHER
Director General,
European Space Agency (ESA),
France



Philippe BAPTISTE
President,
Centre National d’Etudes
Spatiales (CNES),
France



Lisa CAMPBELL
President,
Canadian Space Agency
(CSA),
Canada



MODERATOR
Harry CIKANEK
Chair,
IAF Earth Observations
Committee,
United States

19:30 - 21:30 Young Professionals Networking Event (restricted to Young Professionals)

Location: Al Multaqua Ballroom, Dubai World Trade Centre

Thursday 28 October

08:30 - 09:30 Plenary 7 – Next Generation Impact on Social Responsibility In Space

PE

Location: Sheikh Rashid Hall E, Dubai World Trade Centre

Social responsibility in space ensures that the inspirations and innovations of today’s space sector are implemented in equitable and sustainable ways. The unique environment of space creates challenges and benefits for working toward a more sustainable and equitable future for humankind and requires social responsibility among space sector actors to maximize the benefits of space. This plenary panel explores both social responsibility in conduct of space activities and space activity impact on social responsibility on Earth through a diverse panel of competitively selected young professionals and students whose work is advancing social responsibility in space and terrestrial activities across the globe.

Speakers:



Ahmed BARAKA
Clinical Pharmacist,
Regional Coordinator for the
Middle East,
Space Generation Advisory
Council (SGAC),
Egypt



Molly MACEACHEN
Research Associate,
Space & Sustainability
Initiative, CU Boulder,
United States



Giuliana ROTOLA
Implementation Support
Officer,
Global Expert Group on
Sustainable Lunar Activities
(GEGSLA),
Italy



Ruvimbo SAMANGA
Space Law & Policy Analyst,
Zimbabwe



Andrew SWACKHAMER
Research Assistant,
Space & Sustainability
Initiative, CU Boulder,
United States



MODERATOR
Tanja MASSON-ZWAAN
Assistant Professor and Deputy
Director of the International
Institute of Air and Space Law
(IIASL),
Leiden University,
Netherlands

09:40 -10:35 IAF GNF – Building The Lunar Ecosystem Today - Actions From Industrial And Agencies



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

It is a fact: humanity is moving towards a sustainable presence in space, starting with a settlement on the Moon. Many initiatives are taken all over the world to prepare the return of humans on our natural satellite before the end of the decade: the USA with Artemis, China & Russia with ILRS, Europe with ORION and EL3, and many other nations (UAE, Japan, South Korea, India...). In addition to space agencies, we already see commercial companies developing on that topic. While some focus on transportation to the Moon surface, others start looking at supporting a sustainable human presence, with the utilization of local resource, the production of energy, the refueling in space, or the improvement of life support technologies...

Indeed, only the development of a cis-lunar economy based on Moon resources utilization would allow a successful return and a sustainable presence on the Moon. In that prospect, the best of Space and Terrestrial technologies will be necessary, and international & cross sectoral collaborations will be key success factors.

With this panel, we propose to highlight the vision of key space agencies in the Moon exploration (CNES, LSA & MBRSC) and some initiatives taken by the industries from Space (ADS), Earth (Air Liquide), and New Space (ISPACE) to contribute to the development of a lunar ecosystem, with one common objective: the development of a sustainable and peaceful Moon economy, for the benefit of Humanity.

Organized by:



Speakers:



Bertrand BARATTE
Director of Space Market –
Global Market & Technologies,
Air Liquide,
France



Jean BLOUVAC
Spaceflight & Exploration
Programs - PB-HME Delegate,
Centre National d'Etudes
Spatiales (CNES),
France



Julien-Alexandre LAMAMY
Managing Director,
ispace Europe,
Luxembourg



Bob LAMBORAY
Policy Officer & Strategic
Advisor European Space
Resources Innovation Centre,
Luxembourg Space Agency,
Luxembourg



Alain WAGNER
Vice-President, Marketing and
Sales, Head of Institutional
Space Business,
Airbus Defence and Space SAS,
France



MODERATOR
Sara ALMAEENI
Emirates Lunar Mission Project
Scientist,
Mohammed Bin Rashid Space
Centre (MBRSC),
United Arab Emirates

10:45 - 11:15 IAF GNF – Evolution of Space Industry and New Business Opportunities in Emerging Space Countries



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Azercosmos, the national satellite operator of Azerbaijan, provides satellite-delivered telecommunications and Earth observation services to its customers in the public and private sectors. Azercosmos, strives to establish Azerbaijan as one of the driving forces of the global space industry, and is committed to providing customized solutions based on advanced technologies for peace and prosperity.

The satellite industry is an integral part of the communication chain. Today when video and data services are in high demand, the Azercosmos team endeavours to keep communities connected and deliver uninterrupted telecommunications and Earth observation solutions to our customers all around the world, thus reducing any digital divides that can exist.

Established in 2010, Azercosmos is the only satellite operator in the South Caucasus, aspiring to turn Azerbaijan into a major participant in the global space industry.

Azercosmos operates 3 satellites. The first telecommunication satellite, Azerspace-1 (46° E), was launched in 2013, followed by Azersky Earth observation satellite in 2014 and, our second telecommunication satellite Azerspace-2 (45.1° E) in 2018. In the past 10 years, Azercosmos has managed to develop in so many different ways starting from the deployment of the satellite fleet and the services and ending with international cooperation and research and development activities.

Azercosmos has been transformed into the Space Agency of the Republic of Azerbaijan in 2021. Azercosmos' new status will give a further impetus to our country's participation in international space projects, and to the cooperation with international organizations, as well as public and private institutions worldwide.

In 2023, Baku will proudly welcome back the International Astronautical Congress, the world's premier global space event, and will offer an exceptional congress experience, immersing participants into the elegant fusion of the past and the future. Now, Baku is preparing for the biggest space event it has hosted so far.

The 74th IAC in Baku, will be a chance for the International Astronautical Federation, to engage with new audiences and to write a new chapter in the history of the space industry.

Organized by:



Speakers:



Fuad ASLANOV
Director of Business
Development Department,
Space Agency of Republic of
Azerbaijan (Azercosmos),
Azerbaijan



Dunay BADIRKHANOV
Vice-Chairman,
Space Agency of Republic of
Azerbaijan (Azercosmos),
Azerbaijan



Natavan HASANOVA
Strategic Development and
Planning Manager,
Space Agency of Republic of
Azerbaijan (Azercosmos),
Azerbaijan

11:25 - 12:25 IAF GNF – How To Develop A Sustainable Lunar Surface Infrastructure



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The major spacefaring nations are embarked in a coordinated international effort to sustain space exploration beginning at the International Space Station and moving to lunar orbit and lunar surface and then Mars. The international Lunar Gateway, a human-tended facility in orbit around the Moon, is the next step beyond LEO in the global journey to Mars.

A Moon surface infrastructure will complement the opportunities that the Lunar Gateway offers to develop a sustainable human space exploration. It will allow to validate capabilities and enabling technologies for Mars (landers, rovers, protections from the cosmic radiations...) and will offer in-situ resources.

The panelist will discuss the main elements required to initiate the Moon surface infrastructure and will present the current plans at international level to contribute to its open architecture.

Organized by:



Speakers:



Timothy CICHAN
Space Exploration Architect,
Lockheed Martin Corporation,
United States



Greg CHAVERS
Acting Deputy Associate
Administrator (DAA) for Systems
Engineering and Integration
across Human Spaceflight,
National Aeronautics and
Space Administration (NASA),
United States



Matt DUGGAN
Mission Management &
Operations Manager,
The Boeing Company,
United States



Ludovic DUVET
European Large Logistic Lander
(EL3) Study Manager,
European Space Agency (ESA),
United Kingdom



Barbara IMHOF
Co-Founder & Co-Managing
Director,
LIQUIFER Systems Group (LSG),
Austria



Roberto PROVERA
Director of New Initiatives
and Customer Solutions
Development in the Domain
Exploration and Science,
Thales Alenia Space Italia,
Italy



Brent SHERWOOD
Senior Vice President Advanced Development Programs, Blue Origin, United States



Moderator
Maria Antonietta PERINO
Director for Space Economy Exploration and International Network, Thales Alenia Space Italia, Italy

12:30 - 13:30 VIP/ Speakers Luncheon (Upon Invitation Only)

Location: Pavilion A, Dubai World Trade Centre

13:40 - 14:25 IAF GNF – Investing In Space Start-Ups: Their Evolution During 2020



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The workshop, organized by E. Amaldi Foundation (FEA), aims to present the ecosystem of start-ups in the space sector by examining the investment scenario and its evolution during the year 2020. In recent years the space industry has grown rapidly thanks to the advent of the New Space Economy that had the power to pave the way to stimulate, on all scales, a strong growth and a more sustainable development for our planet.

In the first part of the event will be analyzed the critical economic and financial landscape caused by the recent pandemic and the repercussions that the space industry has suffered in this period. The pandemic has in fact generated growing concerns in this scenario of strong growth causing a general decrease in investments. With specific regard to investments in space start-ups - key players in the space sector that promote a strong source of economic growth in the country - its decrease has turned out to be rather limited bringing the year 2020 within a few steps of the previous year in terms of number of investments.

This last theme, and in particular the assessment and analysis of the landscape of investments in space start-ups for the year 2020, both national and European, will be the focus of the second part of the event that will involve the actors of the space ecosystem through the presentation of international reports and data platforms on the trends of space investments.

Organized by:



Speakers:



Augusto CRAMAROSSA
Head of Strategy Perspectives and European Affairs Unit, Italian Space Agency (ASI), Italy



Maria CRISTINA FALVELLA
General Inspector, Italian Space Agency (ASI), President, Fondazione E. Amaldi, Italy



Eleonora LOMBARDI
Senior Industrial Policy and Technology Transfer Manager, Fondazione E. Amaldi, Italy



Simon POTTER
Head of Investment and Financial Consulting, Bryce Tech, United Kingdom



Moderator
Lorenzo SCATENA
Secretary General, Fondazione E. Amaldi, Italy

14:35 - 15:35 IAF GNF – Moonlight: Connecting Earth With The Moon



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

ESA would like to take the opportunity provided by the Global Networking Forum (GNF) to present the Multi Domain Moonlight Initiative with which the Agency is working to enable the efficient exploration of the lunar environment by creating telecommunications and navigation services for the Moon. The GNF Session's main objectives are to gain exposure and create greater public awareness of the Moonlight Initiative.

Using a shared telecommunications and navigation service will reduce the design complexity of individual missions and make them lighter, freeing space for more scientific instruments or other cargo, making each individual mission more cost-efficient. Lowering the ticket price to lunar exploration will also empower a wider group of ESA member states and other nations worldwide to launch their own national lunar missions and inspire the next generation of scientists and engineers.

The private sector will be able to use innovative technologies developed for the Moon to create new services and products on Earth and new Moon-enabled services and products (e.g. virtual reality applications, teleoperations, etc.), which would create new jobs and boost prosperity.

ESA would like to table a panel discussion to present the way in which ESA is collaborating with European industry to develop the future lunar telecommunications and navigation services and to engage with future lunar users of such services to better understand their specific needs and to inspire new missions and use cases.

Finally, ESA would leverage the GNF stage to present two major opportunities to shape the development of Moonlight: the launch of the Lunar Forum – with which interested users will be invited to join an international stakeholder community that will advise on the definition and delivery of Moonlight services – and the launch of a Call for ideas on the ESA The Open Space Innovation Platform (OSIP) – with which ESA is looking for new up and downstream lunar use cases.

Organized by:



Speakers:



Koen GEURTS
Moonlight LCNS Program Manager, Telespazio S.p.A., Germany



Dan HENDRICKSON
Vice President Business Development, Astrobotic, United States



Fabrice JOLY
Head of Future Telecom Prog Consolidation Section, European Space Agency (ESA), Netherlands



Julien-Alexandre LAMAMY
Managing Director, ispace Europe, Luxembourg



Nelly OFFORD
Business Line Manager – Exploration, Surrey Satellite Technology Ltd, United Kingdom



Timo STUFFLER
Director Business Development, OHB System AG-Munich, Germany



Elodie VIAU
Director of Telecommunications and Integrated Applications, European Space Agency (ESA), France



CLOSING REMARKS
Paul VERHOEFF
Director of Navigation, European Space Agency (ESA), Netherlands



Moderator
Luca DEL MONTE
Head of the Industrial Policy and SME Division, European Space Agency (ESA), France

15:45 - 16:45

IAF GNF – Horizon 2061 Planetary Exploration Foresight: Science, Missions, Technology, Infrastructures & International Stakeholders



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

The main objective of the “Horizon 2061 planetary exploration” long-term community foresight exercise is to progressively build the contours of the four “pillars” :

- the important science questions that planetary exploration addresses;
- the broad spectrum of space missions that need to be flown to address these science questions;
- the enabling technologies that we will need to master in the coming decades to fly these missions;
- the technical infrastructures and services, space-based and ground-based, that will be needed to support the planetary exploration missions and maximize their science return.

We also also seeked the contribution of international actors, industry, stakeholders, academia and SGAC young professionals.

The Horizon 2061 exercise has been implemented in three successive steps. Its third step, the “Horizon 2061 synthesis workshop”, was organized by IRAP and OMP and will be hosted on the Toulouse Aerospace Campus from September 11th to 13th, 2019. A joint EPSC-DPS meeting in Geneva (Horizon 2061 oral session) was in preparation for the writing of a multi-author book gathering its conclusions. This Horizon 2061 exercise was presented at the COSPAR General Assembly in Sydney, Australia (January 2021) .

Speakers:



Pierre W. BOUSQUET
Senior Expert Planétologie, Exploration and MicroPesanteur, Centre National d'Etudes Spatiales (CNES), France



Bernard FOING
Executive Director, International Lunar Exploration Working Group (ILEWG), EuroMoonMars, Chair IAF ITACCUS Committee, Netherlands



Maria Antonietta PERINO
Director for Space Economy Exploration and International Network, Thales Alenia Space Italia, Italy



Heike RAUER
Head of the Institute of Planetary Research, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany



MODERATOR
Michel BLANC
Organizer of Planetary Exploration, Horizon 2061, Full Member IAA, Institut de Recherche en Astrophysique et Planétologie (IRAP), Italy

16:55 - 17:45

IAF GNF – Towards Sustainable Lunar Activities



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

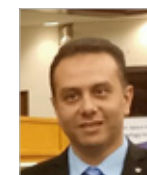
The Panel will discuss current issues related to achieving sustainable lunar activities. In particular the Global Expert Group on Sustainable Lunar Activities (GEGSLA) initiated by the Moon Village Association will be presented. GEGSLA has been created to derisk future missions and increase international cooperation by defining common level palying field for future lunar missions.

GEGSLA is composed of multi stakeholders' experts from government/space agency, industry, academia, civil society, international organizations and the public. Perspectives from several stakeholders will be presented during the panel together with a discussion and a Q&A session with the public.

Organized by:



Speakers:



Ayman AHMED
Head of Space Imaging Division, Member of Board of Directors, Egyptian Space Agency, Egypt



Mike GOLD
Executive VP of Civil Space Business Development and External Affairs, Redwire, United States



Dumitru-Dorin PRUNARIU
Astronaut and Expert, Romanian Association for Space Technology and Industry, Member, Board of the Romanian Space Agency, ROMSPACE, Romania



Antonino SALMERI
Doctoral Researcher in Space Law, University of Luxembourg, Luxembourg



MODERATOR
John C. MANKINS
Vice President, Moon Village Association (MVA), Vice President, ARTEMIS Innovation Management Solutions United States

18:00 - 19:00

Highlight Lecture – IAF World Space Award - Accomplishments Of The Hayabusa2 Mission: Sample Return From C-Type Asteroid Ryugu

HLL

Location: Sheikh Rashid Hall, Dubai World Trade Centre

The IAF World Space Award Highlight Lecture will feature Dr. Yuichi Tsuda, the Project Manager of JAXA's Hayabusa2 Mission. Dr. Tsuda will talk about the successful Hayabusa2 mission and their achievements to collect samples from a C-type asteroid for the first time in history of humankind. This lecture will review the mission history and explore how it is expected to contribute to the future planetary science.

Speaker:



Yuichi TSUDA
Professor, Institute of Space and Astronautical Science (ISAS), Project Manager, Hayabusa2 Project, Japan Aerospace Exploration Agency (JAXA), Japan



INTRODUCTION
Pascale EHRENFREUND
President, International Astronautical Federation (IAF), France

Friday 29 October

08:30 - 09:30 Late Breaking News



Location: Sheikh Rashid E, Dubai World Trade Centre

To be announced separately.

09:40 - 10:40 IAF GNF – The Deep Space Food Movement



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

More than 2.37 billion people are without food or unable to eat a healthy balanced diet on a regular basis. World hunger on Earth, exacerbated by COVID-19, is at an all time high even as we look to a bright future for deep space exploration.

Join us for an illuminating fireside chat with leaders across government, space, food technology, and longevity spheres on the critical need for innovative food technologies to sustain people on Earth and in space. This forum topic will discuss the historical impact of human exploration for advancing food tech and the movement of our times for food innovation to solve world hunger now as we rise to meet the needs of future space explorers.

Speakers:



Martha STEWART
Celebrity Chef and Television Personality,
United States



Anilkumar DAVE
Space Strategy Lead,
Astreas,
Partner,
Open Innovation and Space Economy,
Infinite Area - Senior Advisor,
United States



Stefaan DE MEY
Senior Strategy Officer
for Human and Robotic Exploration,
IEuropean Space Agency (ESA),
Netherlands



Bernard FOING
Executive Director,
International Lunar Exploration Working Group (ILEWG), EuroMoonMars,
Chair IAF ITACCUS Committee,
Netherlands



Benjamin GREAVES
Plant Growth Engineer,
Starlab Oasis,
United States



Hannah MILMAN
Founder,
Vegetable Mineral Inc.,
United States



Hélène PAPPER
Global Communications and Advocacy Director,
UN International Fund for Agricultural Development (IFAD),
Italy



MODERATOR
Florina LINCO
Director of Communications,
Deep Space Food Challenge,
Methuselah Foundation,
United States



MODERATOR
Dane GOBEL
Program Director, Deep Space Food Challenge,
Methuselah Foundation,
United States

11:00 - 12:00 IAF GNF – IAF / ASE Astronauts Session



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

To be announced separately.

12:30 - 13:30 VIP/ Speakers Luncheon (Upon Invitation Only)

Location: Pavilion A, Dubai World Trade Centre

13:40 - 14:40 IAC 2021 GNF Media Panel – A Roundtable on The Role Of Media In Promoting Space Activities



Location: Sheikh Rashid Hall F, Dubai World Trade Centre

Space is a topic of public interest and broad public support to space activities is the foundation for creating political commitment. However, in the past, space institutions and advocacy bodies have not always been able to effectively convey the benefits that space activities bring to society. Media plays a key role in communicating highly complex and technical subjects to a broad public in an understandable way and – as such – is the link between the scientific community and society.

In 2021 we are seeing important new developments in space, including new tourist and non-professional flights into space, new, large satellite constellations, questions raised about sustainability of space, including space debris, challenges around ownership and exploitation of space resources and the role of space in monitoring and finding solutions against climate change. We also see new actors in human space flight, including commercial organisations and a fast-growing presence of China and hopefully soon India.

In this original and cutting-edge session, international journalists and media representatives will discuss some of the following topics:

- How has the way space activities have been communicated and promoted to the non-space community and general public changed and evolved over the past 60+ years of the space era?
- With an increasing number of storylines related to space, how can the media ensure a balanced report of the expanding number of activities and actors in space?
- What is the responsibility of media in explaining and promoting space activities?
- How can space organisations (government, industry, academia) better communicate and promote space activities?

Speakers:



Jeff FOUST
Senior Staff Writer,
SpaceNews,
United States



Anastasia MEDVEDEVA
News Producer,
RT International,
Russian Federation



Sarwat NASIR
Space Journalist,
The National,
United Arab Emirates



Temidayo ONIOSUN
Managing Director,
Space in Africa,
Nigeria



MODERATOR
Remco TIMMERMANS
Founder and Social Media Specialist,
SpaceSide OÜ
Netherlands

72nd INTERNATIONAL ASTRONAUTICAL CONGRESS

25–29 October 2021 | Dubai, United Arab Emirates

16:30 - 17:30 Closing Ceremony

Location: Sheikh Rashid Hall, Dubai World Trade Centre

The Closing Ceremony provides a formal end to the activities of the IAC. There will be a video summary of the week's highlights, presentation of awards, and at the end of the ceremony, the Congress flag will be handed over to the next host country – France.

Master of Ceremony:



Christian FEICHTINGER
Executive Director,
International
Astronautical Federation
(IAF),
France

Speakers:



Salem AL MARRI
Assistant Director General
for Science and Technology/
Astronaut Mohammed
Bin Rashid Space Centre
(MBRSC),
United Arab Emirates



Pascale EHRENFREUND
President,
International Astronautical
Federation (IAF),
France



Lionel SUCHET
Special Advisor to the IAF
President (IAC Resilience),
International Astronautical
Federation (IAF),
Chief Operating Officer,
National d'Etudes Spatiales
(CNES),
France



Anthony TSOUGRANIS
Vice President Honours and
Awards,
International Astronautical
Federation (IAF),
National Aeronautics and
Space Administration (NASA),
United States

19:30 - 22:00 Gala Dinner

Location: Armani Hotel, Burj Khalifa

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GLEC 2022 will focus on:

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

73RD
INTERNATIONAL ASTRONAUTICAL CONGRESS
18 - 22 SEPTEMBER 2022, PARIS, FRANCE



What is the IAC 2022 about?

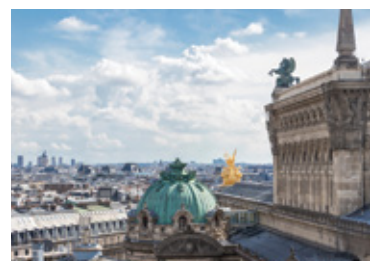
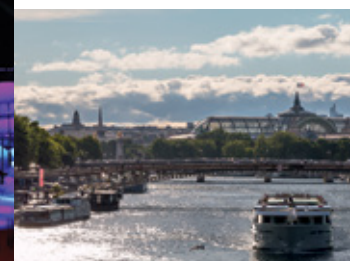
The International Astronautical Congress 2022 will be hosted in the beautiful city of Paris, France. Exceptionally, the IAC 2022 will be from Sunday till Thursday, 18 – 22 September. The Hosting Organization is the Centre National d'Études Spatiales (CNES), a member of IAF since 1981. Paris hosted the first IAC ever in 1950, then in 1963 and lastly in 1982 and now will be holding the record of the city with most IACs hosted.

The IAC 2022 theme will be *Space for @ll* to reach beyond the space community and bringing together all communities. The IAC 2022 will offer great opportunities for networking and forging new contacts and potential partnerships.

For the latest information, visit www.iac2022.org or www.iafastro.org

www.iac2022.org

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ORGANIZED BY:



International Astronautical Federation

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