Global Networking Forum

IAF Global Networking Forum

70th IAC 2019 | Programme

Washington, D.C., United States
Walter E. Washington Convention Center

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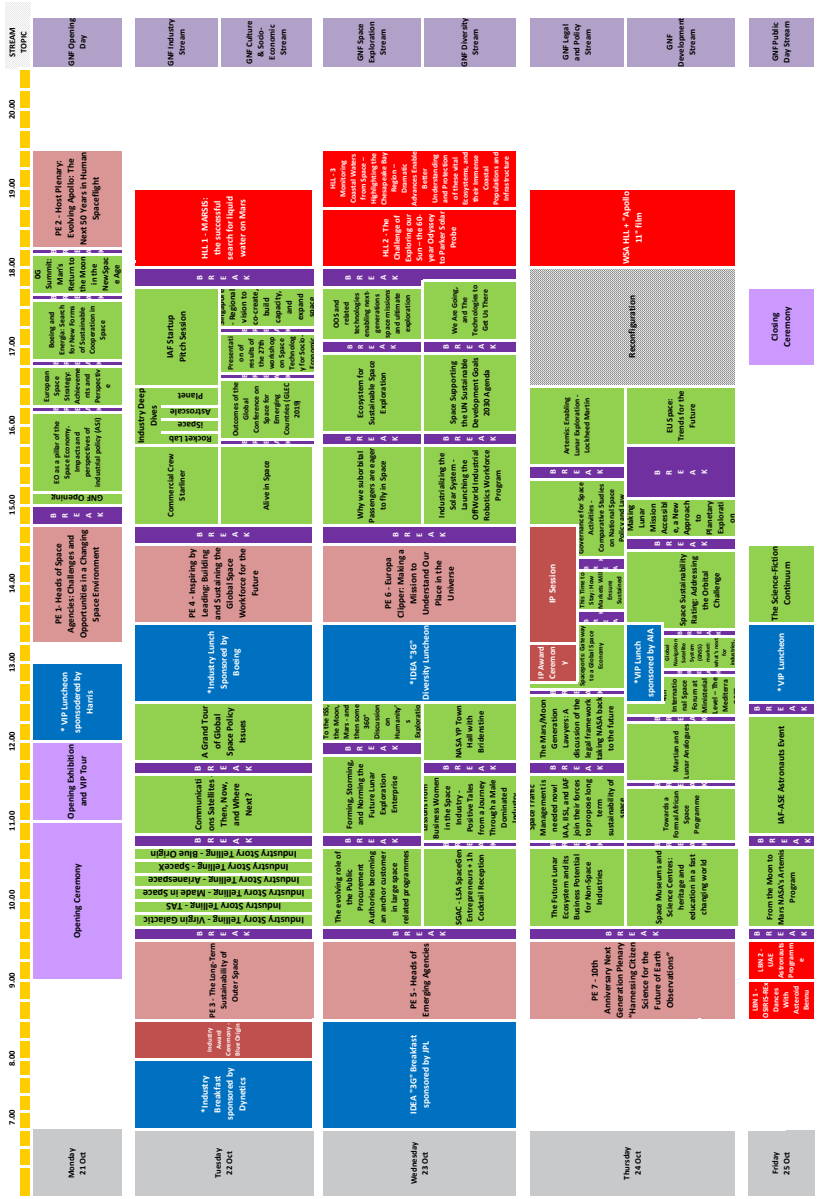

Monday 21 October

IAF GNF Opening Day
The Walter E. Washington Convention Center – Grand Ballroom ABC

15:00 – 15:10 IAF GNF Opening

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

Message from the President of the International Astronautical Federation (IAF)

As President of the International Astronautical Federation it is my honour and great pleasure to welcome you in Washington, D.C. for the 70th International Astronautical Congress and to a new edition of the IAF Global Networking Forum (GNF).

The continuous growth in participation and the large number of applications received this year are an indication of the high quality and great impact that the GNF has accomplished, thanks to the invaluable commitment of the IAF Community. For this reason, this year, again, we are able to present our participants a programme composed of more than 40 sessions.

In this year's programme, I am very pleased to see some of the most recent and stimulating topics being discussed, and to see the involvement of numerous stakeholders, experts, and leaders of the space sector.

The GNF continues to be committed to providing an efficient platform to meet, share and connect, giving speakers and participants, the opportunity to showcase their research, results and latest developments, while providing the audience with the opportunity to learn and keep abreast of the latest space-related events.

I believe that the discussions that will take place at this year's GNF will bear fruitful results and will lay the groundwork for future developments and endeavours in the space field.

I look forward to welcoming you among the participants and I hope you will find this year GNF programme inspiring, rewarding and enjoyable.

Thank you.

Jean-Yves Le Gall
President,
International Astronautical Federation (IAF),
France

Message from the IAF Vice President for Science & Academic Relations and Global Networking Forum

It is my pleasure, in my capacity as Vice-President for Science and Academic Relations and IAF Global Networking Forum (GNF), to welcome you to a new edition of the IAF Global Networking Forum at the 70th International Astronautical Congress in Washington D.C.

As you might know, the number of applications received this year has been particularly high, a testimony that the GNF is growing every year more. This growth is due to your invaluable support. Today, the GNF represents one of the most successful endeavours of the Federation, used to promote cooperation and exchange knowledge on the advancement of space activities.

This year's International Astronautical Congress includes a unique and exciting GNF Programme, covering specific topics of high relevance to the future of space, such as Human Spaceflight Missions, Lunar and Mars Exploration, Space Economy and Sustainability of Outer Space.

Indeed, the GNF initiative continues to be one of the most important tools for the Federation to foster some of the priority topics, such as connecting and sharing knowledge within the space community and promoting the principles of 3 - G Diversity (Gender, Generation, Geography).

I am confident that also this year's GNF Programme will be a successful platform where all IAC participants will have the opportunity to actively **Meet, Share** and **Connect.**

I look forward to welcoming you in Washington D.C.

Gabriella Arrigo
Vice President, Science & Academic Relations and Global Networking Forum,
International Astronautical Federation (IAF),
Italy

15:10 – 16:10 EO as a Pillar of the Space Economy and Perspectives of Industrial Policy

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

The Earth Observation (EO) downstream sector in the industrial space value chain plays a pivotal role in terms of market creation, innovation, private investments, start-up creation and societal impacts. The downstream sector creates the conditions for the full exploitation of space infrastructures, stimulating market opportunities through the creation of new products and services for terrestrial markets with clear economic and social benefits, supporting and fostering investments in the upstream sector.

The commercial EO data market could reach $2.4 billion in 2027, driven by a mixture of defence and new commercial markets and supported by the arrival of new constellation operators. The EO market for value-added services (VAS) should reach over $5.7 billion by 2027 (Euroconsult, 2018). In Europe, the estimated market value in 2016 is around 1.2 B€, with a growing rate of 12.5% p.a., and around 7.000 employees and 460 companies (EARSC, 2017).

The EO industry is represented by a wide and complex ecosystem of companies, many of which are small and medium enterprises (SMEs), more precisely in Europe 66% are micro companies, 30% small, 3% medium and 1% large (EARSC, 2017).

The advent of large and mega-constellations of small and micro satellites, innovations and progresses in IT and other non-space sectors, the entrance of giant multinational companies and other game changers are deeply modifying perspectives, markets and business models. The EO data will become more and more a commodity rather than pure scientific outcomes (Sweeting, 2018), attracting and leveraging private investments.

The development of a downstream market for EO services and products and their self-sustainability, together with a competitive industrial ecosystem, is a crucial objective for public investors. The IAF Global Networking Forum (GNF) will be the occasion to compare and discuss different policies to obtain such results, as well as the impacts of the above-mentioned processes from an industrial perspective and at different geographical scales. The case of Europe with the "Copernicus Effect" will be analysed, along with other macro-regional, national and regional contexts.

Organized by:
Italian Space Agency (ASI)

Speakers:

Josef Aschbacher
Director of Earth Observation Programmes and Head of ESRIN,
European Space Agency (ESA),
Italy

Josef Aschbacher is the ESA Director of Earth Observation Programmes and Head of ESRIN, ESA's centre for Earth Observation, located in Frascati (near Rome), Italy.

Born in Austria, he studied at the University of Innsbruck, graduating with a Master and a Doctoral Degree in Natural Sciences.

His professional career in ESA began in 1990 as a Young Graduate at ESA ESRIN. From 1991-93 he was seconded as ESA Representative to Southeast Asia to the Asian Institute of Technology in Bangkok, Thailand. From 1994 – 2001 he worked at the European Commission Joint Research Centre in Ispra, Italy, where he was the Scientific Assistant to the Director of the Space Applications Institute. He returned to ESA HQ (Paris) in 2001 as Programme Coordinator where he was primarily responsible for advancing Copernicus activities within ESA. In 2006 he was nominated Head of the Copernicus Space Office, where he led all activities for Copernicus within the Agency and with external partners, in particular the European Commission. In 2014, he was promoted to Head of Programme Planning and Coordination at ESRIN, where he was responsible for planning ESA's Earth Observation programmes and for formulating and implementing programmatic and strategic decisions across the Directorate. He took up duty as Director of Earth Observation Programmes on 1 July 2016.

Massimo Comparini

CEO,
e-GEOS,
Italy

Massimo Comparini began his career in the space industry in 1983 at Selenia Spazio (later Alenia Spazio), holding positions of increasing responsibility, up to that of Chief Technology Officer. After the establishment of the joint venture Thales Alenia Space (Thales 67%, Leonardo 33%), he took up the role of Deputy Chief Technical Officer and Vice President for R&D, Technology, Product Policy and IPR. In 2013 he was appointed Chief Technical Officer at Telespazio, a joint venture between Leonardo (67%) and Thales (33%).

In 2015 he is appointed Chairman of EarthLab Luxembourg a Joint Venture between Telespazio group and local important players (Post Luxembourg, InTech, HiTec) for Earth Observation services and applications in support to risk and insurance market.

In 2016, he has been appointed as CEO of e-GEOS, an ASI 20% / Telespazio 80% Joint Venture company, having the mission to commercialize world-wide COSMO-SkyMed radar Constellation data, applications and services and to provide multimission Geospatial integrated solutions, based on innovative satellite data and advanced information technology processing chain. He is also Chairman of the board of GAF (Germany), an e-GEOS company, still working at global level in geo information domain.

Giovanni Sylos Labini

Vice Chairman,
European Association of
Remote Sensing Companies,
Italy

Position and other responsibilities:

- CEO of Planetek Italia and Planetek Hellas
- Past President of AIPAS, Italian Aerospace SME Association
- Vice Chairman of EARSC, European Association of Remote Sensing Companies
- Vice Chairman of the Apulian Aerospace District
- Board member of SME4SPACE, European Aerospace SMEs Association

Education: Degree in Physics. He is specialized in "Sistemi di Posizionamento Preciso con Tecniche Spaziali", and realizes a traineeship at Smithsonian Astrophysical Observatory Harvard Md. USA. He has produced several publications in the field of analysis of signals and images and of space systems.

Background: in 1984 has been recruited at the Earth Observation Division of the Piano Spaziale Nazionale of the Italian National Research Council (after 1989 ASI, the Italian Space Agency) in charge of a major space geodesy project; he cooperated with NASA for the establishment of the long term NASA plan in Geodesy and Geophysics and for the launch of LAGEOS II satellite; from 1988 to 1995 has been recruited at the Italian Space Agency; from 1987 to 1995 is an Italian Delegate at the European Space Agency (ESA)Earth Observation Programme Board; was director of the Center of Space Geodesy of the Italian Space Agency (ASI) the ASI facility for Earth Observation, space geodesy and space robotics until 31/12/1995; from 1997 to 2015 he is Professor at IUAV University of Venice and cooperates with Nettuno Institute for the University Everywhere. Alessandro Coletta, received his M.Sci. in physics at University La Sapienza in Rome.

He has been the Operative Scientific Manager of the Italian High Energy Astrophysics Mission BeppoSAX (X-ray and Gamma-ray astronomy) and currently he is the Head of Earth Observation at the Italian Space Agency and the Mission Director of the Italian X-band SAR Satellites Constellation COSMO-SkyMed.

He was awarded (co-winner) by the American Astronomical Society with the Bruno Rossi Prize 1998 for the Beppo SAX discovery of the X-ray and optical afterglow of the Gamma-Ray Bursts (GRB) phenomenon, a discovery which made possible the solution of the more than 30 years long-lasting problem of GRB sources distances.

He is the author of the first popular book on Gamma-Ray Bursts "Il Secondo Big-Bang" (CUEN, 2000).

Agnieszka Lukaszczyk

Senior Director, European Affairs,
Planet,
Belgium

Agnieszka Lukaszczyk is a Senior Director for European Affairs at Planet. A Polish/American national, has worked at the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs, Space Data for Societal Challenges and Growth Unit. She also worked at the Directorate General for Enterprise and Industry, Space Policy and Research Unit. Before she joined the Commission, Agnieszka was the Brussels Office Director for the Secure World Foundation. In addition, she is the former Chairperson and the former Executive Director of the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications. Agnieszka also worked at the European Space Policy Institute as a research fellow. Agnieszka serves as the Vice President – Europe for the World Space Week And Sits on the Board Of Directors for the Women in Aerospace-Europe. She is currently pursuing a PhD in Space Security at the Polish Defence Academy. She holds a Master's degree from the Warsaw School of Economics in Management of Space in New Economies and a Master's degree from the American University School of International Service in International Politics plus a Bachelor degree in Political Science from the University of Tennessee.

She also studied at the Universite Catholique de Louvain in Brussels, Belgium; the Jagiellonian University in Krakow, Poland and the World Trade Institute in Berne, Switzerland. She gained professional experience at the Political Section of the Polish Embassy in Washington DC, American Electronics Association in Brussels, European Department of the Polish Senate in Warsaw and the Warsaw Business Journal.

Omar Valdés
Market Development Officer,
European GNSS Agency,
Czech Republic

Omar Valdés joined the European GNSS Agency (GSA) in 2013, where he is currently a Market Development Officer responsible for fostering the adoption of the European GNSS in the Space and IoT market segments. His previous experience included managing service development projects for the Directorate General for Informatics of the European Commission and the SSA and ARTES programmes of ESA. Mr. Valdés holds a master degree from the University of Applied Sciences in Offenburg, Germany and a Master in Sciences of Management from the Catholic University of Louvain, Belgium.

Danielle Wood
Director,
Space Enabled Research Group,
MIT Media Lab,
United States

Professor Danielle Wood serves as an Assistant Professor in the Programme in Media Arts and Sciences within the Media Lab at the Massachusetts Institute of Technology. Within the Media Lab, Prof. Wood leads the Space Enabled Research Group which seeks to advance justice in earth's complex systems using designs enabled by space. Prof. Wood is a scholar of societal development with a background that includes satellite design, earth science applications, systems engineering, and technology policy. In her research, Prof. Wood applies these skills to design innovative systems that harness space technology to address development challenges around the world. Prior to serving as faculty at MIT, Prof. Wood held positions at NASA Headquarters, NASA Goddard Space Flight Center, Aerospace Corporation, Johns Hopkins University, and the United Nations Office of Outer Space Affairs. Prof. Wood studied at the Massachusetts Institute of Technology, where she earned a PhD in engineering systems, SM in aeronautics and astronautics, SM in technology policy, and SB in aerospace engineering.

MODERATOR
Maria Cristina Falvella
Head of Strategy and Industrial Policy,
Italian Space Agency (ASI),
Italy

Maria Cristina Falvella is an astrophysicist and works as permanent senior director at Italian Space Agency as Head of Strategies and Industrial Policy Unit.

She has a 30-years' experience in space science both as scientist and ASI programme manager of many important scientific and industrial space programmes as Herschel-Planck ESA cornerstone mission and International Space Station Node 2 & Node 3 Development.

As former Chair of the ESA industrial Policy Committee (2014-2017) she supported the challenging transition to a new governance on launchers development and has been involved in the definition of many industrial policy actions to foster the new space economy in ESA. She is Italian Delegate at ESA Council and at EU Space Working Party.

M.C. Falvella graduated at University "Sapienza" in Rome (Italy) and completed her post-doc education at École Normale Supérieure in Paris (France). She visited many international laboratoires and is currently associate scientist and lecturer on space science at University of Rome Sapienza and visiting professor for research in cosmology at the Paris Astronomical Observatory.

16:15 – 16:45 European Space Strategy: Achievements and Perspective

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

After five years as European Commissioner in charge of Space, Mrs Bienkowska will highlight the principles of the European Space policy that she contributed to build, and will also give her personal reflexion on the future developments of the European and global space agenda.

Organized by:

European Commission, DG for Internal Market, Industry, Entrepreneurship & SMEs

Speaker:

Elżbieta Bieńkowska
Commissioner, Internal Market, Industry, Entrepreneurship & SMEs,
European Commission,
Belgium

Elżbieta Bieńkowska – since 1 November 2014 – EU Commissioner for Internal Market, Industry, Entrepreneurship and SMEs in the European Commission of Jean-Claude Juncker.

Between 2007 and 2013 she was the Minister for Regional Development of Poland and from 2013 to 2014, the Deputy Prime Minister and the Minister of Regional Development and Infrastructure of Poland.

As the Deputy Prime Minister and the Minister of Infrastructure and Development she was in charge of the strategic development system of the country, including the effective investment of the European funds.

Her work resulted in the full absorption of the EU funds from the budget for 2004-2006 and the successful distribution of almost EUR 68 billion granted to Poland for the years 2007-2013. She was managing the process of the preparation of the efficient EU funds implementation system from the EU budget for the years 2014-2020.

Apart from the European funds her tasks in the Polish Government included also the management of transport infrastructure (roads, railway, air traffic and ship transport) and issues related to construction and housing.

Before from 1999 to 2007 she was working for the local government of the Silesia Region in Southern Poland.

A graduate of the Jagiellonian University. She also graduated from the Polish National School of Public Administration and completed the business administration post graduate studies at the Warsaw School of Economics.

She is married, with three children.

16:50 – 17:35 Boeing and Energia: Search for New Forms of Sustainable Cooperation in Space

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

Since the Apollo-Soyuz programme the intergovernmental agreements have been (and still remain to be) the legal basis of the international cooperation in space and the cooperation itself contains a significant political component. The commercial aspects were either absent at all or not determinative. International Space Station Programme (ISS) has become the most significant example of strategic evolution of international collaboration in LEO: in more than twenty years of its flight one can trace a significant shift of the joint activity focus into area of the space manned complex commercial utilization. However, the retention of the dominant political component in the ISS Programme is also obvious.

Sea Launch programme can be considered as the most prominent example of large-scale commercial international cooperation in space. However, this project could not have been implemented without strong support of the participating companies' activities from the side of the governments, in jurisdiction of which these companies are.

RCS Energia and Boeing are the largest companies in Russia and the USA, that have been developing and implementing the most significant technical space projects since the beginning of the space age (most of which can be characterized as "for the first time"), including close cooperation. Apollo-Soyuz, the ISS, and Sea Launch are the outstanding examples of such cooperation. However, over the decades since the beginning of space age the world has substantially changed, the former forms of cooperation are becoming less effective. How shall we reset relations considering the realities of the present-day world?

What are the current trends in the technology evolution of international cooperation in space? What the alternatives for traditional forms of cooperation can be found? How shall we jointly provide the sustainable commercialization of activities in LEO and cooperate in space exploration? How effective the international cooperation is, based on the current trends, in the short-term period, in10 years or 20 years? Is international cooperation feasible in space, based on commercial interests of partners only?

While discussing these and other sensitive issues, the leadership of S.P.Korolev Rocket and Space Corporation Energia (Russia) and the Boeing Corporation (USA) will attempt to give answers to them, based on the experience of their fruitful interaction, gained over decades in the development and practical implementation of new space technologies. RSC Energia and Boeing have always been the frontrunners to develop new space systems and in cooperation in space. They should also be the pathfinders to restart the relations.

Organized by:

S.P. Korolev Rocket and Space Corporation Energia

Speakers:

Chris Ferguson
Boeing Starliner Astronaut,
The Boeing Company,
United States

As Boeing's first commercial test pilot astronaut, Christopher J. Ferguson will be among the first to fly to space aboard the CST-100 Starliner – a system that is on a course to open up space to more people than ever before. Ferguson is uniquely qualified to pilot the Starliner on its maiden flight to the International Space Station, having led the development of the spacecraft's mission systems and crew interfaces.

Since the beginning of Boeing's Commercial Crew Programme in 2011, Ferguson has worked with NASA's Human Exploration and Operations Directorate; Johnson Space Center's Engineering, Flight Crew and Mission Operations organizations; and NASA's Commercial Crew Programme at Kennedy Space Center to ensure Boeing's design supports NASA's human rating requirements. He also played a key leadership role in the development and testing of system concepts and key technologies for the spacecraft's launch and ground systems.

The development of a safe, reliable and cost-effective solution for crew transportation to and from the International Space Station will allow the on-orbit research facility to continue to fulfill its promise as a world-class laboratory. With NASA as the anchor customer, Boeing's Starliner is setting the foundation for commercial passenger flights to and from low-Earth orbit destinations, to include international astronauts, scientists and even tourists.

A retired U.S. Navy captain and former NASA astronaut, Ferguson piloted STS-115 (Atlantis) and commanded STS-126 (Endeavour) and the final shuttle mission, STS-135 (Atlantis). He has logged more than 40 days in space and 5,700 hours in high-performance aircraft. He also served as deputy chief of the NASA Astronaut Office and was spacecraft communicator (CAPCOM) for the STS-118, STS-120, STS-128 and STS-129 missions. His experience in crew communications, both on orbit and in the CAPCOM role, is a strong asset to Boeing and the Starliner team.

Ferguson holds a Bachelor of Science degree in mechanical engineering from Drexel University and a Master of Science degree in aeronautical engineering from the Naval Postgraduate School. He has been recognized with numerous service awards, including the Legion of Merit, Distinguished Flying Cross, Defense Meritorious Service Medal, Navy Strike/Flight Air Medal, NASA Spaceflight Medal (three), Navy Commendation Medal (three) and the Navy Achievement Medal.

Peter McGrath

Global Sales and Marketing Director for the Space Exploration Business,
The Boeing Company,
United States

Peter McGrath is Global Sales and Marketing director for the Space Exploration business in Space and Launch, part of Boeing Defense, Space & Security. He is responsible for leading a business development team in shaping, extending, and capturing business in support of human space exploration missions.

Prior to assuming his current role in July 2010, McGrath was programme manager for the U.S. Army's Brigade Combat Team Modernization (BCTM) Low Rate Initial Production (LRIP) programme and led the capture and programme startup of the fixed-price production contract for BCTM. He returned to this position in October 2009 after originally functioning as the programme manager for the initial LRIP proposal efforts in 2007/2008 and serving under the Production organization supporting the Non Line-of-Sight Cannon (NLOS-C) Special Interest Programme proposal and core development programme restructure activities.

Before working on the BCTM programme, McGrath was senior manager of Business Development for the Space Based Space Surveillance (SBSS) and Space Situational Awareness (SSA) programmes. His responsibilities encompassed supporting the programme manager and the U.S. Air Force in restructuring the programme, implementing programme best practices, supporting user community and Capitol Hill briefings, and creating solutions to expand the capabilities of the existing programme to support mission area requirements.

McGrath's background covers more than 21 years in related Department of Defense, NASA, and commercial businesses. Previous assignments included senior manager of Business Development Marketing Operations for Air Force Space Systems, senior manager of Business Development Marketing Operations for Launch and Satellite Systems, customer engineer for Boeing Launch Services (Delta and Sea Launch Programs), liaison engineer for Delta IV Upper Stage, and project engineer in the Phantom Works Composite Structures Research and Development group. McGrath started his career as a structural analyst on the International Space Station programme, working in increasing levels of responsibility from programme start-up through early production and system qualification testing.

McGrath holds a bachelor's degree in aerospace engineering from the University of Southern California and two master's degrees: one in aerospace structures/composites from California State University, Long Beach, and one in business administration with an emphasis in finance from the University of Southern California.

Nikolay Sevastianov

General Director,
RSC Energia,
Russian Federation

Education:
1984 – Moscow Institute of Physics and Technology (MIPT), department of Aerophysics and Space Research.

Biography:
1984–1993 NPO Energia specialist in development of spacecraft control systems;

1992–2005 Founder and general director of JSC Gazcom (renamed to JSC Gazprom Space Systems in 2008)

1995–2000 Deputy general designer of S.P.Korolev RSC Energia for automatic space systems;

2005–2007 President and General Designer of S.P.Korolev RSC Energia.

2008 Deputy Chairman of the Government of Amur region for organizing construction of the Vostochny launch site;

2008–2018 General designer and head of the main design office of JSC Gazprom Space Systems;

2010–2018 A department chair at Tomsk State University;

June-September 2018 acting first deputy general director of Roscosmos;

September 2018 – January 2019 – Deputy general director of FSUE TsNIIMash.

Since January 25, 2019 – Acting Director General of S.P. Korolev RSC Energia.

Since March 6, 2019 – General Director of S.P. Korolev RSC Energia.

MODERATOR

Lena De Winne

Minister of Information and Communications,
ASGARDIA,
Austria

Lena De Winne is the CEO and First Vice-President of NGO Asgardia, which is a prototype of the future space state. She holds an MSc in engineering, an MBA, and a PhD in psychology. After fifteen years of a successful career at the European Space Agency (ESTEC, The Netherlands), where she worked in business development, liaison, promotion and education, she published several popular books about space in English and Russian for children and adults, and hosted a television programme in Belgium. In 2013 she joined AIRC (airc.at) as a director, where she took on further duties as a director of ROOM, The Space Journal. Lena De Winne played a pivotal role in setting up and running Asgardia, the first in human history space nation founded by Dr. Igor Ashurbeyli and remains at the core of its operation in the position Deputy Head of Administration.

17:40 – 18:10 0G Summit: Mankind's Return to the Moon in the NewSpace Age

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

Our NewSpace Age is the platform which will propel mankind (spacefaring, new space nations and developing countries) into space via public private partnerships and international cooperation. As privatization of space opens the final frontier to all sectors, the cost of spaceflights and human access to space, reduces significantly. While Space Trust supports the work of the UN for peaceful uses of space on Earth, it greatly values its partnerships in the global space industry, it's association with NASA and is committed to its advocacy and thought leadership about making Space the New Frontier for Peace in the space policy circles of the industry. To that end, the panel discussion will not only pay tribute to the 50th Anniversary of Apollo 11, but it will also inspire a new dialogue on mankind's return to the Moon in our NewSpace Age, in the context of building partnerships for peace and international cooperation in low Earth orbit, the cis-lunar orbit and beyond.

Organized by:

Space Trust
Commercial Spaceflight Federation

HOST

Namira Salim

Founder & Executive Chairperson,
Space Trust,
United Kingdom

Speakers:

Margaret Kieffer

Director,
Export Control and Interagency Liaison Division,
National Aeronautics and Space Administration (NASA),
United States

Kevin O'Connell

Director,
Office of Space Commerce,
U.S. Department of Commerce,
United States

Bob Richards

CEO,
Moon Express,
United States

Ryan Whitley

Director,
Civil Space Policy,
National Space Council,
United States

MODERATOR

Eric Stallmer

President,
Commercial Spaceflight Federation,
United States

Tuesday 22 October 2019

GNF INDUSTRY STREAM
Room: Grand Ballroom AB (AM)
Room: Grand Ballroom A (PM)

GNF CULTURE & SOCIO-ECONOMIC STREAM
Room: Grand Ballroom C

09:40 – 09:50 Industry Story Telling Session: Virgin Galactic

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

George Whitesides

CEO,
Virgin Galactic,
United States

MODERATOR

Eric Stallmer

President,
Commercial Spaceflight Federation,
United States

George T. Whitesides is the CEO of Virgin Galactic, Sir Richard Branson's human spaceflight venture, and The Spaceship Company, a manufacturer of advanced space vehicles. With its innovative spacecraft, the company seeks to transform access to space to change the world for good. Prior to Virgin Galactic, George served as Chief of Staff for NASA. Upon departure from the American space agency, he received the Distinguished Service Medal, the highest award the agency confers.

George's volunteer service includes boards of the Commercial Spaceflight Federation (Vice Chair), Caltech's Space Innovation Council, the Antelope Valley Board of Trade, Princeton University's Advisory Council for Mechanical and Aerospace Engineering, and the World Economic Forum's Global Future Council on Space Technologies (previously as co-chair). He is a fellow of the UK Royal Aeronautical Society and an associate fellow of the American Institute of Aeronautics and Astronautics.

He previously served as chair of the Reusable Launch Vehicle Working Group for the FAA's Commercial Space Transportation Advisory Committee, and a member of the Board of Trustees of Princeton University and the board of Virgin Unite USA. George has testified on American space policy before the United States Senate, the United States House of Representatives, and the President's Commission on Implementation of United States Space Exploration Policy. An honors graduate of Princeton University's Woodrow Wilson School, George later earned a master's degree in geographic information systems and remote sensing from the University of Cambridge, and a Fulbright Scholarship to Tunisia. George is a licensed private pilot and certified parabolic flight coach.

He resides in Lancaster, California with his wife Loretta and two children.

09:50 – 10:00 Industry Story Telling Session: Thales Alenia Space

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Organized by:
IAF Industry Relations Committee (IRC)

Speaker:

Donato Amoroso
Deputy Director,
Thales Alenia Space,
Italy

MODERATOR
Eric Stallmer
President,
Commercial Spaceflight Federation,
United States

Donato Amoroso is Chief Executive Officer of Thales Alenia Space Italia S.p.a. and he also holds an international position as Deputy to the President and CEO of Thales Alenia Space, Jean-Loïc Galle, with direct responsibility for the Earth Observation, Exploration and Navigation (OEN) business line.

Before joining the joint-venture specialised in satellite systems in June 2015, he gained extensive experience in Alenia Aermacchi working within the international partnerships field.

In Alenia, the Aircraft Division of the Leonardo Group, Donato Amoroso participated in the most technologically advanced industrial programmes, holding various important positions: from 2004 to 2008, he was the Caselle site Manager (Turin), he was the Senior Vice-President of the Military Aircraft business unit, directing the C-27J programme and the Joint General Production Manager. As from 2012, he was the General Manager of Boeing Programmes, in charge of commercial relations and as from 2014 until leaving Alenia he held the position of Chief Operating Officer.

He was born in Chieti in 1959 and he is married and has two children.

10:00 – 10:10 Industry Story Telling Session: Made In Space

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Organized by:
IAF Industry Relations Committee (IRC)

Speaker:

Andrew Rush
CEO & President,
Made In Space,
United States

MODERATOR
Eric Stallmer
President,
Commercial Spaceflight Federation,
United States

Andrew Rush is the Chief Executive Officer and President of Made In Space, Inc. (MIS).

In his current role, Rush oversees strategic direction and operational management for the industry-leading space manufacturing company. Prior to this role, he served as general counsel for MIS.

Since his appointment in 2015, MIS has expanded its operational footprint within the United States with the addition of new office locations and the company's workforce has increased by more than 50%.

Under Rush's leadership, the company has advanced its technology roadmap to include capabilities for on-orbit manufacturing and robotic assembly; development of spaceenabled materials; and continued to advance exploration manufacturing. Additionally, his strategic vision has leveraged strong public-private partnerships and matured the company's portfolio to include government and commercial markets.

Previously, Rush was a partner at PCT Law Group and prior to that he worked at Masten Space Systems. Rush earned a Bachelor of Science degree in physics from the University of North Florida and a Juris Doctor degree from Stetson University.

10:10 – 10:20 Industry Story Telling Session: Arianespace

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Organized by:
IAF Industry Relations Committee (IRC)

Speaker:

Stéphane Israël
CEO,
Arianespace,
France

MODERATOR
Eric Stallmer
President,
Commercial Spaceflight Federation,
United States

Born on January 3, 1971. Stéphane Israël is the Chief Executive Officer of Arianespace SAS, the world's reference launch services company. He also is Executive Vice President of ArianeGroup, in charge of Civil Programmes – which gives him industrial responsibility for the Ariane 5 and Ariane 6 programmes. In addition, he is Chairman and Chief Executive Officer of Starsem, the Euro-Russian company in charge of the commercial operation of the Soyuz launcher at the Baikonur Cosmodrome.

Stéphane Israël has high-level professional experience in both public economics and the aerospace industry. He holds degrees from the Ecole Normale Supérieure and the Ecole Nationale d'Administration (ENA). He was named a judge in the French Court of Auditors in 2001, where he participated primarily in missions concerning French space policy and the Ariane launch system.

He joined Airbus Group in 2007, first as advisor to the CEO, then in various operational management positions in the group's space division. From May 2012 to April 2013, he was chief of staff in the cabinet of the French Minister for Productive Recovery, Ministry of Industry, Digital Economy, SMEs and Innovation.

Stéphane Israël was named Chairman and Chief Executive Officer of Arianespace in April 2013. With the evolution of Arianespace's governance in April 2017, he became Arianespace SAS CEO and a member of the Executive Committee of its ArianeGroup parent company.

Stéphane Israël is President of the Board of Directors of CNAM (Conservatoire national des arts et métiers), member of the Board of Directors of Carrefour (Chairman of the audit committee) and Ecole normale supérieure.

10:20 – 10:30 Industry Story Telling Session: SpaceX

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

Gwynne Shotwell
President,
SpaceX,
United States

MODERATOR
Eric Stallmer
President,
Commercial Spaceflight Federation,
United States

As President and COO of SpaceX, Gwynne Shotwell is responsible for day-to-day operations and managing all customer and strategic relations to support company growth. She joined SpaceX in 2002 as Vice President of Business Development and built the Falcon vehicle family manifest to more than 100 launches, representing more than $10 billion in business. Shotwell is a member of the SpaceX Board of Directors.

Prior to joining SpaceX, Shotwell spent more than 10 years at the Aerospace Corporation, holding positions in Space Systems Engineering, Technology and Project Management. She was promoted to the role of Chief Engineer of an MLV-class satellite programme, managed a landmark study for the Federal Aviation Administration on commercial space transportation, and completed an extensive analysis of space policy for NASA's future investment in space transportation.

In addition to being named the 2018 Satellite Executive of the Year, Shotwell was awarded the AIAA Goddard Astronautics Awards as well as the American Society of Mechanical Engineers Ralph Coats Roe Medal. Fortune Magazine placed Shotwell at #42 on their list of the World's 50 Greatest Leaders in 2018 and Forbes named her #70 on their list of Power Women in 2017. In 2014, Shotwell was appointed to the United States Export Import Bank's Advisory Committee and the Federal Aviation Administration's Management Advisory Council. Shotwell was elected to the honorable grade of Fellow with the American Institute of Aeronautics and Astronautics.

Through leadership in both corporate and external science, technology, engineering and math (STEM) programmes, Shotwell has helped raise over $1.8 million for STEM programs reaching thousands of students nationwide.

Shotwell received, with honors, her bachelor's and master's degrees from Northwestern University in Mechanical Engineering and Applied Mathematics, and serves on their Board. She has authored dozens of papers on a variety of space related subjects.

10:30 – 10:40 Industry Story Telling Session: Blue Origin

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

Brent Sherwood
Vice President Advanced Development Programs,
Blue Origin,
United States

MODERATOR
Eric Stallmer
President,
Commercial Spaceflight Federation,
United States

Brent Sherwood is Vice President, Advanced Development Progras for Blue Origin, a private space company building the foundation for millions of people living and working in space. He is responsible for the development of in-space systems and services for human space flightm space cargom and space infrastracture that collectively will open space to human expansion. He reports to Blue Origin CEO Bob Smith.

Brent came to Blue Origin from JPL, where he was the founding manager of the JPL Innovation Foundry and later Program Manager for Solar System Mission Fomulation. In those roles he respectively led the integration of JPL's mission formulation and competitive proposal operations, and the strategic pursuit of Discovery missions, New Frontiers missions, unsolicited planetary missions, and future planetary flagship missions.

Prior to JPL, Brent was at the Boeing Company, where he led a succession of teams that developed human lunar and Mars exploration system concepts, Space Station Freedom module manufacturing methods, Sea Launch services pursuits, entrepreneurial civil and commercial space initiatives, International Space Station business development, and pursuit of planetary science objectives ranging from the Jupiter Icy Moons Orbiter to Mars Sample Return.

A space architect, Brent is Chair of AIAA Space Architecture Technical Committee. He has published over 60 papers on the exploration and development of space.

Brent holds a summa cum laude Bachelor of Arts degree from Yale , a Master of Architecture degree also from Yale, and a Master of Science in Aerospace Engineering from the University of Maryland.

10:50 – 11:35 Communications Satellites – Then, Now, and Where Next?

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

Mr. Hartenstein will present this distinguished Lecture as the 2019 Recipient of AIAA's David W. Thompson Lecture in Space Commerce Award.

As the pioneer in direct-to-customer satellite services, DirecTV developed and introduced key technological and business innovations in the 1990's and 2000's that have propelled the growth of space-to-consumer commerce around the world. These included the deployment of the first generation of high-power Ku-band geosynchronous communication satellites, development of breakthrough digital signal compression technology, creation of industrial alliances with major consumer electronics suppliers for low-cost home receiving equipment, and trailblazing marketing partnerships with entertainment programming providers, sports leagues and movie studios.

DirecTV is the world's largest space-based business. Marking its 25th year of operations in 2019, the company provides satellite-delivered television, audio and internet services to over 20 million households in the United States and millions more throughout Latin America. It currently generates in excess of $30 billion in annual revenue, which is approximately three times larger than that of the space industry's biggest manufacturing business and 50% greater than NASA's annual budget.

Conceived and initially funded as an internal business venture what was then Hughes Electronics Corporation, DirecTV began service with a single satellite in early 1994. During the following 20 years, the company became a free-standing publicly-traded enterprise with an eventual fleet of more than 20 state-of-the-art satellites built by five manufacturers and launched on six different rockets. DirecTV's customer base expanded from 300,000 subscribers at the end of its first year of operations (1994) to nearly 7 million subscribers in five years (1999) and 13 million in its 10th year (2004). From an initial capital investment of $750 million in the early 1990's (approximately $1.4 billion in today's currency), DirecTV's growth resulted in its acquisition by AT&T for $67 billion in 2015, the largest financial transaction in the 50-plus year history of commercial space activities.

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

Eddy Hartenstein
CEO,
DirectTV,
United States

As its founding executive and long-serving President and CEO, Mr. Eddie W. Hartenstein orchestrated DirecTV's conception, development and growth from 1990, when initial planning began at Hughes Electronics, until 2008, by which time DirecTV provided about five hundred channels of digital television and audio to over 20 million households in the U.S. and Latin America. With degrees in aerospace engineering from Caltech and Cal Poly/ Pomona, he joined Hughes Aircraft Company in 1972 and, by the early 1980's, was Hughes' Vice President and lead executive for its original Galaxy commercial satellite fleet. During his 18 years as the leader of DirecTV, Mr. Hartenstein oversaw all aspects of the satellite TV business, including satellite acquisition and operations, consumer hardware manufacturing and installation, programming distribution and marketing, financing and regulatory affairs. His challenge was aptly described by an industry magazine as managing "the single most complex television start-up in history." In recent years, Mr. Hartenstein served as Chairman of Tribune Publishing and President and CEO of the Los Angeles Times, one of the largest metropolitan newspapers in the U.S. Today he is lead independent Director of Sirius XM Radio, the world's largest satellite radio broadcaster and another space services innovator. He is a member of the U.S. National Academy of Engineering (2001), was inducted into both the Broadcasting and Cable Hall of Fame (2002) and the Consumer Electronics Association Hall of Fame (2008), and received an Emmy Award for Lifetime Achievement from the National Academy of Television Arts and Sciences (2007).

INTRODUCTION

David W. Thompson
Past President,
American Institute of Aeronautics and Astronautics (AIAA),
Former CEO,
Orbital ATK,
United States

Mr. Thompson was president and chief executive officer of Orbital ATK, a global aerospace and defense technologies company. He retiired June 30, 2018. He co-founded Orbital ATK's processor, Orbital Sciences Corporation, in 1982 and served as the company's chairman, president, and chief executive officer at the time of its merger with Alliant Techsystems in 2014. Orbital Sciences was engaged in the development and deployment of small- and medium-class space and rocket systems for scientific, defense, and commercial customers.

Prior to co-founding Orbital in 1982, Mr. Thompson was special assistant to the president of Hughes Aircraft Company's Missile Systems Group and was a project manager and engineer on advanced rocket engines at the NASA Marshall Space Flight Center. As a college student, he worked on the first Mars landing missions at the Jet Propulsion Laboratory and on Space Shuttle projects at the NASA Langley Research Center and Johnson Space Center.

Mr. Thompson is a trustee of the California Institute of Technology. He is a Fellow of the American Institute of Aeronautics and Astronautics and served as its president from 2009 to 2010. He is also a Fellow of the American Astronautical Society and the Royal Aeronautical Society and is a member of the U.S. National Academy of Engineering and the International Academy of Astronautics.

Mr. Thompson earned a BS in aeronautics and astronautics from the Massachusetts Institute of Technology in 1976, an MS in aeronautics from the California Institute of Technology in 1977, and an MBA from Harvard Business School in 1981. He has been honored with Caltech's Distinguished Alumni Award and Harvard's Alumni Achievement Award.

Among other accolades, Mr. Thompson was awarded the National Medal of Technology, was honored as Virginia's Industrialist of the Year, and received the Smithsonian Institution's National Air and Space Museum Trophy. He was also awarded the International Von Karman Wings Award by the Aerospace Historical Society and the Lifetime Achievement Award by the Arthur C. Clarke Foundation. In addition, he was named High-Technology Entrepreneur of the Year by Inc. Magazine, was selected as Satellite Executive of the Year by Via Satellite Magazine, and was presented with the World Technology Award for Space by The Economist.

11:45 – 12:30 A Grand Tour of Global Space Policy Issues

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

There are a lot of exciting changes going on in the space industry that could provide amazing new benefits from space, but are also creating policy challenges for the current system of space governance at both the national and international level. This panel will take a "grand tour" of the big public policy issues the space community is grappling with, including management of radiofrequency spectrum, orbital debris mitigation, space traffic management, space resource utilization, and the renewed geopolitical space competition. Panelists will discuss the core challenges on each of these topics along with the prospects for coming to resolution in the next few years.

Organized by:

IAF Industry Relations Committee (IRC)

Speakers:

Bill Beckman
Director for NASA Programs,
Washington D.C. Operations Office,
The Boeing Company,
United States

Bill Beckman is the Director for NASA Programmes in the Boeing D.C. Operations office. His responsibilities include interfacing with Potomac region customer base including NASA, Congressional/Executive Branch offices, and representing Boeing in local industry groups.

Prior to this assignment, Bill provided business development support to Space Exploration programmes as a Marketing Manager in Washington D.C. Before his relocation to the DC area, he was a Field Operations Manager supporting all Boeing efforts at the Kennedy Space Center.

As the Field Marketing Manager for Rocketdyne Power & Propulsion at Stennis Space Center, Bill supported NASA expansion efforts, and worked closely with the local elected representatives and the Hancock County Port and Harbor Commission responsible for economic develop in the area. Prior to his field service, Bill was a Business Development Manager for Rocketdyne Power & Propulsion in Canoga Park, CA supporting the RS-68 engine programme and advanced rocket engine programmes.

He began his career in 1988 as a Research and Development Engineer with the Advanced Programmes group of the Rocketdyne Division of Rockwell International, and later transitioned in to project engineering and programme management roles.

Bill holds a bachelors degree in Aeronautical and Astronautical Engineering from Purdue University and a masters of Business Administration from Loyola University in Chicago. He currently resides in Arlington, VA.

Pierre Delsaux
Deputy Director General for Internal Market, Industry, Entrepreneurship and SMEs,
European Commission,
Belgium

Pierre Delsaux is Deputy Director General at the European Commission Directorate General for the Internal Market, Industry, Entrepreneurship and SME's. After studying Law at the University of Liège, he obtained his Master of Law at the Northwestern University, Chicago, in 1983. He was Legal Secretary at the European Court of Justice from 1984 to 1987. He worked in the private sector before joining the European Commission in 1991. He started his career within the European Commission in the Directorate General for Competition. He was appointed Director responsible for regulating the financial services in 2007. Following this, in 2011, he was appointed Deputy Director General with responsibilities for the Single Market in the EU. Since December 2015, he is in charge of Space Policy and Defence.

Marco R. Fuchs
Chairman of the Management Board,
OHB SE,
Germany

Mr. Marco Fuchs was born in 1962 in Hamburg.

Mr. Fuchs went to Law school at the Freie Universität Berlin and Universität Hamburg. After completing his Law degree and the Second State Exam he practiced as an Attorney in Hamburg. After completing a postgraduate master degree (LLM) at New York University, he was admitted to the New York Bar as an attorney at-law.

From 1992 to 1995, Mr. Fuchs practiced law with the U.S. firm Jones Day in New York and later in Frankfurt.

From 1995 to 2000, Mr. Fuchs held various management positions at OHB System AG and from 1998 on as Managing Director. In 2000 he was appointed as the Chairman of the Management Board of OHB SE, the holding company of the group.

Under his leadership the company completed an IPO at the Frankfurt Stock Exchange in March 2001.

The OHB Group is Germany's first listed space and technology company with approximately 2.700 employees in i.a. Germany, Italy, France, Belgium, Sweden and Luxembourg.

In 2008, Mr. Fuchs was appointed as the Honorary Consul of Italy in the Federal State of Bremen. He is married and has two children.

Kai-Uwe Schrogl

President,
International Institute of Space Law (IISL),
France

Kai-Uwe Schrogl is the President of the IISL. He was co-editor of the 2006 and 2018 IAA studies on STM. Under his Chairship, the Legal Subcommittee of UNCOPUOS established in 2015 an agenda item on STM.

From 2007 to 2011 he was the Director of the European Space Policy Institute (ESPI) in Vienna, Austria, the leading European think tank for space policy. Prior to this, he was the Head of the Corporate Development and External Relations Department in the German Aerospace Center (DLR) in Cologne, Germany. Previously he also worked with the German Ministry for Post and Telecommunications and the German Space Agency (DARA) in Bonn, Germany.

Kai-Uwe Schrogl is the President of the International Institute of Space Law, the professional association of space law experts from 48 countries, Member of the International Academy of Astronautics (recently chairing its Commission on policy, economics and regulations) and the Russian Academy for Cosmonautics as well as Corresponding Member of the French Air and Space Academy. He holds a doctorate degree in political science and lectures international relations as an Honorary Professor at Tübingen University, Germany.

Kai-Uwe Schrogl has written or co-edited 15 books and more than 130 articles, reports and papers in the fields of space policy and law as well as telecommunications policy. He launched and edited until 2011 the "Yearbook on Space Policy" and the book series "Studies in Space Policy" both published by ESPI at SpringerWienNewYork. He sits on editorial boards of various international journals in the field of space policy and law (Space Policy, Zeitschrift für Luft- und Weltraumrecht, Studies in Space Law/Nijhoff; previously also Acta Astronautica).

Jennifer A. Warren

Vice President, Technology Policy & Regulation, Civil & Regulatory Affairs,
Lockheed Martin Government Affairs,
United States

Jennifer A. Warren is Vice President, Technology Policy & Regulation in Lockheed Martin Corporation's Government Affairs organization. In this capacity, she is responsible for leading the development and implementation of corporate domestic and international regulatory and associated policy strategies affecting Lockheed Martin business interests and opportunities; her portfolio includes spectrum, unmanned aerial systems, commercial space/launch, ocean minerals, privacy, and emerging technologies.

Ms. Warren is also an appointed member of several Federal Advisory Committees – Department of Commerce Spectrum Management Advisory Committee (CSMAC), Federal Aviation Administration Commercial Space Transportation Advisory Committee (COMSTAC), and NASA Advisory Council's Regulatory Policy Committee.

In 1996, Ms. Warren joined Lockheed Martin's Space & Strategic Missiles Sector, and in 2001 she became part of LM's Washington Operations as Senior Director, Trade & Regulatory Affairs. Prior to Lockheed Martin, Ms. Warren served in several senior roles at the U.S. Federal Communications Commission. Prior to joining the U.S. Government, Ms. Warren worked for the Commission of the European Union – both in Brussels, with a focus on EU-Japan and EU-U.S. issues, and in Washington, DC, with a focus on EU-U.S. trade.

Ms. Warren is an Adjunct Professor at Georgetown University Law Center (GULC) where she teaches an annual course on International Information and Communications Tech Policy & Regulation. She is also a graduate of Georgetown University (B.S. in Languages) and GULC (J.D.); she is a member of the Federal Communications Bar Association, American Bar Association, the Women's Bar Association, and the Illinois State and D.C. Bars.

Ms. Warren holds leadership positions in several professional and civic organizations. She serves on the Boards of the Satellite Industry Association and the U.S. ITU Association, and also on NAM's Public Affairs Executive Committee. She is a co-chair of the Signers Circle of the Foundation of the National Archives & Records Administration (NARA), and serves on the Board of the Gadsby's Tavern Museum Society in Old Town Alexandria, Virginia.

MODERATOR

Brian Weeden

Director of Program Planning,
Secure World Foundation,
United States

Dr. Brian Weeden is the Director of Program Planning for Secure World Foundation and has nearly 20 years of professional experience in space operations and policy.

Dr. Weeden directs strategic planning for future-year projects to meet the Foundation's goals and objectives, and conducts research on space debris, global space situational awareness, space traffic management, protection of space assets, and space governance. Dr. Weeden also organizes national and international workshops to increase awareness of and facilitate dialogue on space security, stability, and sustainability topics. He is a member and former Chair of the World Economic Forum's Council on the Future of Space Technologies, a member of the Advisory Committee on Commercial Remote Sensing (ACCRES) to the National Oceanic and Atmospheric Administration (NOAA), and the Executive Director of the Consortium for Execution of Rendezvous and Servicing Operations (CONFERS).

Prior to joining SWF, Dr. Weeden served nine years on active duty as an officer in the United States Air Force working in space and intercontinental ballistic missile (ICBM) operations. As part of U.S. Strategic Command's Joint Space Operations Center (JSpOC), Dr. Weeden directed the orbital analyst training programme and developed tactics, techniques and procedures for improving space situational awareness.

Dr. Weeden holds a Bachelor's Degree in Electrical Engineering from Clarkson University, a Master's Degree in Space Studies from the University of North Dakota,and a Ph.D. in Public Policy and Public Administration from George Washington University in the field of Science and Technology Policy.

14:45 – 15:45 Commercial Crew Starliner

Location: The Walter E. Washington Convention Center – Grand Ballroom AB

The Boeing CST-100 Starliner is nearing operational use as an American-made vehicle capable of safely taking astronauts to and from low Earth orbit including to the International Space Station. The spacecraft greatly enhances the scientific benefits and commercial capabilities of the ISS through increased crew size and cargo capacity to accelerate space-related efforts that further the economic development of low Earth orbit.

The Starliner spacecraft design and construction is well underway and initial test flights with astronauts aboard are scheduled this year. This session will provide the latest information and video on the Starliner programme complete with up-to-date developments on the preparation and initial flights.

On the first crewed mission to the ISS will be Boeing astronaut Chris Ferguson. He will discuss his flight preparation and training and will report on flight to the ISS as well as ongoing activities onboard the station. The session will provide opportunity for the audience to interact directly with Chris via live question and answer.

Organized by:

The Boeing Company

Speakers:

Chris Ferguson
Boeing Starliner Astronaut,
The Boeing Company,
United States

Mark Mulqueen
Program Manager International Space Station, Space and Launch Systems,
The Boeing Company,
United States

MODERATOR
Jim Chilton
Senior Vice President, Boeing Space and Launch,
The Boeing Company,
United States

14:45 – 15:45 Alive in Space

Location: The Walter E. Washington Convention Center – Grand Ballroom C

What does it mean to 'be alive' opposed to 'living' in space? The value and meaning of human life is a paradox. One which is providing further fascination in the context of space exploration as the playground for human culture extends into the stars. The syntax of this question serves as a starting point from which to discuss Space, Cultures & Society.

The panel discussion session presented by The Committee for the Cultural Utilisation of Space (ITACCUS) will provide an exciting and dynamic introduction to variety of innovative creative methodologies and platforms used in collaboration with space science in order to reveal and investigate the cultural, political, economical, historical and sociological contexts of humans in space. From critical design to the arts, this panel discussion will discuss recommendations endorsed by the IAA and IAF which outline how spaceflight organisations can include the development of human culture within their mission objectives. What are the parameters and paradigms which currently restrict this development of humanity purpose beyond that science and survival. It will challenge you to understand your role in this development and ask you "how you will contribute to the meaning of 'life' in space?"

Organized by:

IAF Committee for the Cultural Utilisation of Space (ITACCUS)

Speakers:

Nelly Ben Hayoun
Artist,
SETI Institute,
United Kingdom

Michael Garrett
Director,
Jodrell Bank Centre for Astrophysics,
United Kingdom

Sitraka Rakotoniaina
Designer,
Very Very Far Away (VVFA),
United Kingdom

Anna Sitnikova
Designer,
Moon Gallery,
The Netherlands

Miha Tursic
Philosopher,
Waag Society,
Slovenia

MODERATOR
Aoife Van Linden Tol
Director & Artist,
IAF Committee for the Cultural Utilisation of Space (ITACCUS),
United Kingdom

15:45 – 15:55 Industry Deep Dives: Small Satellites, Big Future: Frequent and Reliable Launch on Electron

Location: The Walter E. Washington Convention Center – Grand Ballroom A

Satellites are getting smaller, doing more and costing less – and thousands of them need to get on orbit. Small satellites have been promised frequent, reliable and affordable dedicated launch for decades. Today, Rocket Lab is delivering on this with a tailored, responsive launch and satellite build service that is operating right now. Rocket Lab's launch experience has redefined the way the world goes to space. With 39 satellites on orbit right now from eight successful launches to date, Rocket Lab's proven performance enables small satellites operators to get their idea to orbit. Rocket Lab is uniquely positioned to identify and address the persistent and evolving challenges faced by small satellite operators seeking to reach orbit, spanning launch availability, licensing and funding models and more.

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

Peter Beck
Founder and CEO,
Rocket Lab,
New Zealand/United States

Peter Beck is the founder and chief executive of Rocket Lab, the orbital launch company opening access to space for small satellites.

Since founding the business in 2006, Peter has grown Rocket Lab to become a globally recognised industry leader in space and a billion-dollar company employing hundreds of world-class engineers and technicians.

Peter established Rocket Lab's Electron orbital launch programme in 2013. Electron is the world's first fully carbon-composite launch vehicle, powered by 3D printed, electric turbopump-fed rocket engines. Peter also oversaw the development of the world's first and only private orbital launch range, located on New Zealand's Māhia Peninsula. He played a crucial role in establishing international treaties and legislation to enable orbital launch capability from New Zealand. That capability was realised in January 2018 with Rocket Lab's first orbital launch of the Electron rocket.

Under Peter's guidance, Rocket Lab's launch model will see thousands of small satellites reach orbit and feed critical data back to Earth, helping us better monitor our planet and manage our impact on it.

MODERATOR
Joe Landon
Vice President of Advanced Programs Development for Commercial Civil Space,
Lockheed Martin,
United States

Joe Landon serves as Vice President of Advanced Programs Development for Lockheed Martin's Commercial Civil Space Line of Business. In this role, Joe leads strategy development and new business growth for Lockheed's Human Space Exploration, Communications Satellite Solutions, Deep Space Exploration and Weather & Remote Sensing lines of business.

Previously, Joe was Chief Financial Officer of Planetary Resources, Inc., a company that seeks to expand the economy of humanity into the Solar System through the development and use of resources found in space. Joe also Co-Founded and served as Chairman of the Board of Space Angels, the leading source of capital for space startups. Joe also developed commercial communications satellites at Boeing as an engineer and project manager. Joe is a Trustee of the Museum of History and Industry in Seattle, and in 2016 he was named one of Seattle's '40 Under 40' by the Puget Sound Business Journal.

Joe holds a bachelor's degree in Engineering-Physics from Embry-Riddle Aeronautical University, a master's degree in Aerospace Engineering from the University of Southern California and an MBA from Harvard Business School.

15:55 – 16:05 Industry Deep Dives: Industry Deep Dives: Incorporating the Moon into Earth's Economy

Location: The Walter E. Washington Convention Center – Grand Ballroom A

ispace is a lunar exploration company with a vision to extend human presence to outer space. The company is developing a small commercial lunar lander and miniature lunar rovers to delivery customer payloads to the Moon and explore the lunar surface. ispace aims to be a vehicle for companies on Earth to access new business opportunities on the Moon and ultimately incorporate

the Moon into Earth's economic and living sphere. The company will deploy rovers to locate and extract water from the lunar surface, and eventually, utilize the water as a source of fuel and life support, enabling people to live and work on the Moon and allowing for a cis-lunar economy to thrive. The company will land its first lander on the Moon in 2021 as part of its "HAKUTO-R" programme—the world's first commercial lunar exploration programme.

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

Takeshi Hakamada
Founder & CEO,
ispace,
Japan

MODERATOR
Joe Landon
Vice President of Advanced Programs Development for Commercial Civil Space,
Lockheed Martin,
United States

Takeshi studied Aerospace Engineering and received his M.S. degree at the Georgia Institute of Technology. Enchanted by Star Wars movies at a young age, the dawn of the new commercial space industry and the success of non-governmental entities like the Ansari XPRIZE drew his attention and curiosity. Takeshi chose to enter the consulting industry after graduation, where he developed team management skills and led multiple successful cost reduction projects. Since 2010, he has led Team HAKUTO, competing for the Google Lunar XPRIZE. In 2014, he contributed to meetings initiated by the Minister of State of Japan to discuss the new space industry.

When he was a teenager, Okada attended Space Camp in the US where he met Japan's first astronaut, Mamoru Mohri. He received the handwritten message, "Space is waiting for your challenge" and has been inspired to work in space ever since.

16:05 – 16:15 Industry Deep Dives: Making Space Sustainable for Future Space Utilization and Exploration

Location: The Walter E. Washington Convention Center – Grand Ballroom A

The rapidly growing commercial space industry shows no signs of slowing down, and while this brings innovation and unprecedented growth to the space industry, it is not without dangers. Smaller, cheaper and more agile ventures that are more accepting of risk means more satellites in orbit and more risk of collision. It is a Catch-22: While citizens crave the increased benefits we receive from space utilization and exploration, the potential for overuse leads to congested, dangerous and unsustainable orbits.

Founded in 2013, Astroscale's mission is to provide reliable and cost-efficient spacecraft retrieval services to satellite operators in order to secure long-term spaceflight safety and achieve orbital sustainability for the benefit of future generations. Astroscale is the leading global company proposing to aid in the removal of orbital debris through the provision of two services: end-of-life (EOL), targeting constellations and satellite operators, and active debris removal (ADR), targeting existing larger space debris.

Astroscale is also actively discussing global standards and policy for orbital debris removal with a range of constituencies. We are contributing to discussions among policy makers in the US, UK, Europe and Japan. Additionally, Astroscale is closely involved in conversations on best practices and norms of behaviour in various formal and ad-hoc industry groups and international organizations, including: UNCOPUOS, Consortium for Execution of Rendezvous and Servicing Operations (CONFERS), and the World Economic Forum (WEF).

The presentation will give an overview of the latest updates of Astroscale, including the value proposition of a commercial EOL/ADR service and a description of the technologies that will lead to safe and effective solutions for maintaining orbital sustainability and accessibility in space.

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

Nobu Okada
Founder & CEO,
Astroscale,
Japan

MODERATOR
Joe Landon
Vice President of Advanced Programs Development for Commercial Civil Space,
Lockheed Martin,
United States

Okada founded Astroscale in 2013 due to a strong desire to address the growing threat of space debris. He used his personal funds as seed money and grew the "Space Sweepers" team from Singapore to Japan, the United Kingdom and the United States, whilst raising US $132M capital.

Okada is a Fellow of the Royal Aeronautical Society and is also a member of The Future ofSpace Technologies Council, World Economic Forum and International Astronautical Federation. He was awarded Forbes JAPAN "Start-up of The Year 2019", the Burton D. Morgan Entrepreneurship Award from the Krannert School of Management, Purdue University in 2018, and Technology Pioneer by the World Economic Forum in 2017.

Prior to Astroscale, Okada was an IT entrepreneur and strategy consultant, and had managed IT companies across Asia, leading one company to a successful IPO. Before joining the IT industry, he worked for McKinsey & Company and the Japanese Government in the Ministry of Finance. He earned his bachelor's degree in Agriculture from the University of Tokyo and an MBA from Purdue University.

When he was a teenager, Okada attended Space Camp in the US where he met Japan's first astronaut, Mamoru Mohri. He received the handwritten message, "Space is waiting for your challenge" and has been inspired to work in space ever since.

16:15 – 16:25 Industry Deep Dives: Space Technology to the Power of Hundreds

Location: The Walter E. Washington Convention Center – Grand Ballroom A

Organized by:

IAF Industry Relations Committee (IRC)

Speaker:

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

MODERATOR
Joe Landon
Vice President of Advanced Programs Development for Commercial Civil Space,
Lockheed Martin,
United States

Robbie Schingler is the Co-Founder and Chief Strategy Officer (CSO) of Planet. As CSO of Planet, Robbie leads the company's long-term strategic trajectory and manages Planet's Product, Impact, Corporate Development and financing activities. He spearheaded Planet's acquisition of BlackBridge in 2015 and Boundless in 2019, was Managing Director of Planet Europe from 2016-2017 and recently acting as Chairman of the board for Planet Federal. Prior to Planet, Robbie spent 9 years at NASA, where he helped build the Small Spacecraft Office at NASA Ames and Chief of Staff for the Office of the Chief Technologies at NASA Headquarters. He received a MBA from Georgetown University, a MS in Space Studies.

15:50 – 16:35 Outcomes of the Global Conference on Space for Emerging Countries – GLEC 2019

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The International Astronautical Federation (IAF) and the Centre Royal de Télédétection Spatiale (CRTS), with the support of the Centre National d'Études Spatiales (CNES), have co-hosted the first ever Global Conference on Space for Emerging Countries (GLEC 2019) between 24 and 26 April 2019 in Marrakech, Morocco.

GLEC2019 aimed at actively engaging emerging countries in the space scene by highlighting the socio-economic benefits of space applications; by understanding the various financial models for the optimal resourcing of national space programmes; by identifying opportunities for technology and skills transfer; by creating awareness about the base infrastructure requirements needed for operationalising national space programmes and by creating awareness on the essential legislative and policy elements that must be considered in establishing the foundations needed for national space programmes.

The Conference was designed to bring together the international community, including senior representatives of the major space agencies, industry, governments, policy makers, academia and NGOs. These leaders in the field converged in Marrakech to present results, exchange ideas, debate roadmaps, and discuss the future opportunities provided by space activities to emerging nations. The programme included high-level keynotes and round tables focusing on the following Plenary Sessions:

1. Benefits of Space Technology and Applications to Socio-Economic Development
2. Financial Models and Resourcing
3. Technology and Skills Development
4. Base Infrastructure Requirements
5. Space Industry Development and Support
6. Legal and Policy

This Global Networking Forum is intended to provide feedback on the outcomes of GLEC 2019 and to chart a way forward for assisting emerging countries within the suite of IAF planned events. This is further in keeping with the Global Innovation Agenda (2016-2019) of the IAF, where a concerted focus on emerging countries has been identified.

Organized by:

South African National Space Agency (SANSA)
International Astronautical Federation (IAF)
Centre Royal de Télédéction Spatiale (CRTS)
Centre National d'Études Spatiales (CNES)

Speakers:

Kirsten Armstrong
GLEC 2019 Plenary Moderator,
President,
Petra Strategy,
United States

Kirsten Armstrong is the President of Petra Strategy, a policy and analysis consultancy. Petra's mission is to help its customers be well positioned in the global space economy, by providing specialized expertise to businesses and governments on emerging trends in the space industry to support strategic decision making. Her current research activities include entrepreneurship and NewSpace, models for emerging space economies, and broad industry trends.

Previously, Kirsten was the Director of Business Development at Bryce Space and Technology, a leading space analytics company. She led the development of key space industry reports, including "Start-Up Space" for the National Aeronautics and Space Administration (NASA) and two iterations of "The State of the Satellite Industry Report" for the Satellite Industry Association. She was also a programme manager at the Tauri Group, providing strategic planning and performance management support to NASA for the development of strategic plans, budgets, and annual reports. Her team was recognized with a NASA Honor Award.

She has a B.A. in Economics (Whittier College, USA) and a Master's in Science, Technology and Public Policy with concentrations in space policy and economics (George Washington University, USA).

Kammy Brun

GLEC 2019 Plenary Moderator,
Head of Global Business Development,
China HEAD Aerospace Group,
France

Mrs. Kammy Brun comes originally from Hong Kong. Acting as the head of global business development of the China HEAD Aerospace Group (HEAD), Kammy is in charge of partnership development and international cooperation with industry as well as space agencies. She managed the foundation of the European subsidiary of the Group in Paris in 2018. She is currently the co-chair of the Women-In-Aerospace (WIA-E) Paris local group. Prior to joining HEAD Aerospace, she worked in Airbus Defence & Space (previous EADS) within the strategic business growth division and in Astrium Services in Paris. .

She has deep experiences in strategic market analysis when she was used to be consultant at Euroconsult, a private consulting firm in Paris specialized in the Space sector. She is specialized in analysing the world government space programme, commercial Earth observation and small satellite market. Kammy had been in charge of organizing Euroconsult's World Satellite Business Week – Summit on Earth Observation Business for seven years. Kammy holds a bachelor (HK) in Applies Physics Engineering, a Master (France) of international business affairs, and a master (France) in legal commercial translation. She is native in Chinese (Cantonese & Mandarin), bilingual in English and French, beginner in Spanish

David Kendall

GLEC 2019 Plenary Moderator,
Former Chair,
The United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS),
Canada

Dr. Kendall is the past Chair of the United Nations Committee on the Peaceful Uses of Outer Space (2016-2017). During his career he has held senior positions with the Canadian Space Agency including as the Director General of Space Science and Space Science and Technology. He is also a faculty member of the International Space University based in Strasbourg, France and a founding member of the Outer Space Institute. He holds an undergraduate degree in physics from the University of Swansea, UK, and masters and doctoral degrees from the University of Calgary in atmospheric physics.

In 2002, Dr. Kendall was awarded the Queen Elizabeth II Golden Jubilee Medal in recognition of his significant contributions and achievement to Canada.

Jean-Pascale Le Franc

GLEC 2019 IPC Co-Chair,
Director of Planning,International Relations and Quality,
Centre National d'Études Spatiales (CNES),
France

Born 17 November 1957, Jean-Pascal Le Franc is a graduate of the Ecole Centrale de Paris engineering school (1980). He started his career as science attaché to the French Embassy in South Korea (VSNA). He joined CNES in 1982, where he occupied various positions at Head Office in international and European affairs and relations with subsidiaries. In 1989, he was appointed technical adviser to Hubert Curien, the French Minister for Research and Technology and subsequently for Research and Space. In 1994, he became Director of Development of the "Aeronautics and Space" sector at the CECAR group, France's first insurance broker to cover industrial special risks. He returned to CNES in 1997 as Strategy Officer and then Deputy Director of International Relations. In 2004, he took charge of the European Affairs department of the Strategy and Programmes Directorate (DSP), where he subsequently occupied the post of Deputy Director in charge of coordinating CNES's international relations in 2014.

Valanathan Munsami

GLEC 2019 IPC Co-Chair,
Vice President for Developing Countries and Emerging Nations,
International Astronautical Federation (IAF),
CEO,
South African National Space Agency (SANSA),
South Africa

Dr. Valanathan Munsami was appointed as the Chief Executive Officer of the South African National Space Agency (SANSA) on 3 January 2017. Dr Munsami has held a number of positions within the Department of Science and Technology, with the latest position held being the Chief Science and Technology Representative of the Department of Science and Technology since February 2016. Dr Munsami has a clear understanding of the space industry and has engaged with SANSA on a number of occasions. Among Dr Munsami's achievements, he was involved in the Strategy and Policy development for the South African national space programme. Dr Munsami currently Chairs the African Union Space Working Group, which developed the African Space Policy and Strategy that was approved by the African Heads of State in January this year. As the Chief Specialist for Astronomy, during his employment at the Department of Science and Technology, Dr Munsami was involved in the development of a National Multi-Wavelength Astronomy Strategy and the SKA Readiness Strategy. Dr Munsami's academic background includes a BSc in Physics & Mathematics, BSc Honours in Physics, and a PhD in Physics from the University of KwaZulu Natal. Dr Munsami has completed a Programme in Business Leadership (PBL) and subsequently obtained his Master's in Business Leadership (MBL) through the University of South Africa.

Krystal Wilson
GLEC 2019 Plenary Moderator,
Director of Space Applications Programs,
Secure World Foundation,
United States

Krystal Wilson is the Director of Space Applications Programs at Secure World Foundation with over 11 years of international and domestic space, public policy, and management experience. Currently, she focuses on the Human and Environmental Security portfolio, which promotes improved governance and cooperation in the delivery and use of information derived from space systems.

MODERATOR

Driss El Hadani
GLEC 2019 IPC Co-Chair,
Director General,
Centre Royal de Teledetection Spatiale (CRTS),
Morocco

"I have been working during more than 30 years in the area of Remote Sensing and Space Technologies. As Director of the CRTS, the Moroccan agency in charge of RS applications and development, I developed sharp expertise and knowledge of this sector as well as at national level or with international cooperation agencies and mechanisms."

- June 2000 to June 2004: First Vice-president of the United Nations Committee for the Peaceful uses of Outer Space (COPUOS)
- October 2002-October 2004 Vice-president of the International Astronautic Federation (IAF).
- GEO Principal for Morocco since 2005
- Member of the Executive Committee of the Group on Earth Observation (GEO)
- Member of the Eurisy Association Council.
- Member of the UN-OOSA Working Group in charge of strategy for the integration of space technique in risk and natural disaster management (DMISCO)
- July 2005: member of the IGOL team (Integrated Global Observation for Land); a subcommittee of IGOS (Integrated Global Observing Strategy)
- Member of the Scientific committee of the African Centre for Catastrophic Risks; created by the African Insurance Organisation.

16:30 – 17:45 IAF Startup Pitch Session

Location: The Walter E. Washington Convention Center – Grand Ballroom A

The IAF Startup Pitch Session is an event where startups will be able to present their companies in front of an audience and get feedback from a panel of world-renowned judges.

Each selected startup, will benefit from pitch coaching sessions provided by Airbus, prior to the event, as well as exposure in front of world renowend experts.

The winning startup of this IAF Pitch Session will receive the following prizes:

- Complimentary registration for founder(s) of the winning startup to IAC 2020 in Dubai, UAE, provided by Lockheed Martin
- Tour of the Airbus Bremen Multi Divisional Site with exclusive access to the production stage of the Ariane launchers, to a mockup of the ISS, to the A400 M fuselage and more!
- Dedicated area within the Exhibition at IAC 2020 in Dubai, UAE, provided by the International Astronautical Federation (IAF)
- IAF Official Certificate and goodies bags, provided by the International Astronautical Federation (IAF)

The 8 Startups that have been selected to participate in the IAF Startup Pitch Session are:

- Morpheus Space
- HIVE
- Hostmi GmbH
- Klepsydra Technologies
- Space Zab Company
- Dipteron
- Intergalactic Education LLC
- Digantara Research and Technologies

Organized by:
IAF Industry Relations Committee (IRC)

Master of Ceremony:

Lynn Zoenen
Global Affairs Manager,
ispace,
Luxembourg

As ispace Europe's Global Affairs Manager, Lynn manages ispace's European payload sales pipeline and partnering activities including both space and non-space technology development and branding partnership sales. In addition, Lynn is in charge of Government Affairs, engaging with governments and Space agencies to construct mission partnership frameworks and policies that promote the development of commercial lunar exploration and space resource utilisation.

Before joining ispace Europe, Lynn contributed as an economic advisor to the strategic orientation of the Chamber of Commerce of the Grand Duchy of Luxembourg. Lynn holds a Master's in International Political Economy from King's College and a Bachelor's in International Business Administration.

Judges:

Lluc Diaz

Innovation and Ventures Officer,
European Space Agency (ESA),
The Netherlands

Lluc is Innovation and Ventures Officer at the European Space Agency where he is currently leading the investors' relations and start-up growth collaborations. Lluc is also the coordinator of the Innovation Network and manages several ESA Business Incubation Centers. Lluc holds a master in Telecommunications from the UPC (Polytechnic University of Catalonia), where he specialized in Business and Telecommunications Policy. He also studied an Intellectual Property Strategy Programme at Harvard Business School and an Aerospace Engineering master in TU Delft.
Deeply involved in collaboration and partnership activities, Lluc is the Chair of the Innovation and Technology Transfer Working Group of the EIROforum, an organization of European science and technology organizations with members such as ESA and CERN. Lluc has also been evaluator for the European Commission, and mentor in the Space2ac programme in Poland and the Copernicus Accelerator for the European Commission. Lluc has also participated as visiting lecturer in the Politecnico di Milano and TU Graz. Lluc supported other international organizations such F4E and Eurofusion in the establishment of their technology transfer support activities.

He started his career in the private sector working as Project Manager at Abertis Telecom (Spain). After this experience in the telecommunications sector, Lluc developed his career as Corporate Development Director at KIM, an innovation consultancy firm in Barcelona where he was focused in the Telecommunications and Aerospace markets.

Christian Dommel

Principal Strategist, Space and Connectivity,
Boeing HorizonX,
United States

Christian Dommell is the Principal Strategist for Space & Connectivity in Boeing HorizonX. Christian works across HorizonX, internal business units, customers, non-traditional partners and startups to identify, evaulate and test new technologies and business models connecting land, air, sea and space. HorizonX applies emerging and adjacent industry technologies to direct innovation in core Boeing markets, manages a corporate venture capital fund, and builds new solutions and ecosystems.

Christian was the SmallSat Innovation Lead within Boeing Phantom Works, where he led small satellite strategy and new business campaigns, including a key role in the acquisition and integration of Millennium Space Systems in 2018. He has experience as a lead systems engineer for advanced development programmes, with specific domain expertise in systems architecting, rapid prototyping, remote sensing, space-ground communication and networking, agile software and systems engineering, electromechanical systems, and lightweight structures. An advocate and resource for improved Science, Engineering, Technology and Math curriculum, Christian has inspired thousands of students to ask questions, solve problems and think creatively.

Christian earned a Bachelor of Science degree in aeronautical engineering and mechanical engineering from Rensselaer Polytechnic Institute (RPI) and a certificate in aerospace project management from Caltech.

Van Espahbodi

Co-Founder and Managing Partner,
Starburst,
United States

As Co-Founder and Managing Partner of Starburst, Van Espahbodi is championing today's aerospace renaissance, uniting early-stage technology innovators with private investment to modernize infrastructure in mobility, communications and intelligence. Van launched Starburst in the US in 2015, operating globally today with offices in Los Angeles, Paris, Munich, San Francisco, Singapore, Abu Dhabi, and Montreal. His team works alongside 400+ technology startups developing new aircraft, spacecraft, satellites, drones, sensors, autonomy, robotics and much more.

An entrepreneurial futurist, Van has over 15 years of experience in aerospace, identifying future trends, shaping product strategy and investment trade policies. Having worked in Government and Corporate strategy positions in both defense and commercial aviation markets, Van started his career as a congressional aide before joining Raytheon and later UK NATS, the British air navigation service provider. Following graduate studies at George Mason University, Van participated in executive programmes at Thunderbird School of Management in AZ and Cranfield School of Management in the UK. He currently serves as a member of the Economic Development Advisory Council for the City of El Segundo and the Advisory Board of the MIT Enterprise Forum.

Over 15 years experience in corporate strategy, business development and public policy.

- Specialized in the A&D industry featuring breakthrough innovative technologies
- Former UK NATS lead for USA including FAA, NASA and USAF
- Former Raytheon International, business development and strategy
- Post Grad in International Commerce and Policy at George Mason in Arlington, VA
- MBA Extensions in Thunderbird, AZ and Cranfield, UK

Lori Garver

CEO,
Earthrise,
President,
Brooke Owens Fellowship,
United States

Lori Garver is the Chief Executive Officer of Earthrise, a philanthropy that creates meaningful earth science content from satellite data to combat the climate crisis.

Garver served as the Deputy Administrator of the National Aeronautics and Space Administration (NASA) from 2009 – 2013. She led the NASA transition team for President-Elect Obama and was his lead space policy advisor on the campaign. Previous senior positions include General Manager of the Air Line Pilots Association, Associate Administrator for Policy and Plans at NASA and Executive Director of the National Space Society.

Ms. Garver is Co-Founder and President of the Brooke Owens Fellowship, an educational organization providing internships and mentorship to collegiate women pursuing degrees in aerospace fields. She served on the Board of Directors of Maxar Technologies and is a former President of Women in Aerospace and the American Astronautical Society.

Garver is the recipient of three NASA Distinguished Service Medals and an Honorary Doctorate from Colorado College. She holds a B.A. in Political Economy from Colorado College and an M.A. in Science, Technology and Public Policy from George Washington University.

Rolf Janovsky

Director of Predevelopment,
OHB,
Germany

Dr. Rolf Janovsky is currently the Director for Predevelopment, Space System Studies & Proposals of OHB System AG in Bremen, one of the three largest space system integrators in Europe. In his position, he is responsible for mission and spacecraft studies until the transition to the implementation phase, including ESA's future Lagrange Space Weather Mission. Dr. Janovsky has previously headed different future programmes departments at OHB since 2001. Rolf Janovsky has obtained a doctoral degree from RWTH in Aachen, Germany and is also a board member of the German Aerospace Society (DGLR).

Richard A. Leach

Chief Strategy Officer,
International Space Station U.S.
National Laboratory,
United States

Dr. Leach is an executive leader, scientist and entrepreneur. Through his career, he has acquired domain expertise in human genomics, big data, A.I., reproductive medicine, aerospace, manufacturing, corporate strategy and business development. Demonstrating the ability to lead from concept through delivery, Dr. Leach has chaperoned fundamental technologies with and without established applications to successful business endpoints by guiding company architecture, market development and commercialization. Some of his previous roles include Chief Commercial Officer at WuXi NextCode Genomics, Vice President at Complete Genomics, Vice President at deCODE Genetics, and Chief Science Officer and Founder at Teneo Sciences. While at those companies, Dr. Leach created the business strategies and successfully led the implementation of genetic analysis technologies for research and clinical diagnostic applications in multiple geopolitical environments.

With significant involvement in population-specific and nation-scale discovery biology programmes, he has led successful business opportunities in 28 countries around the world. In addition to this, he has gained high-level governance experience during service on several Boards of Directors. Today, Dr. Leach is the Chief Strategy Officer for the International Space Station U.S. National Laboratory, spearheading Low Earth Orbit commercialization by developing a portfolio of basic and applied research programmes in public-private partnerships.

Dr. Leach holds a B.S. degree in Biology from Hillsdale College, a Ph.D. in Molecular Biology from Ohio University, was a Fellow in the Division of Experimental Therapeutics at Walter Reed Army Institute of Research for the US Department of Defense and was a Visiting Fellow at the National Cancer Institute of the National Institutes of Health.

Thomas Snitch

Director of Federal and Government Programs,
Bowling Green State University,
United States

Dr. Thomas Snitch is Director of Federal and Government Relations as well as counsellor to the President of Bowling Green State University. During his 44 years in Washington, DC, he has served at NASA, the US Department of State, the White House and the National Academy of Science. In addition, Dr. Snitch spent 10 years as the Senior Advisor to the CEO of Geoeye.

His research work focuses on using high resolution satellite imagery, UAVs, and mathematical modeling to address transnational criminal activity including rhino and elephant poaching in Africa, illegal fishing in the Pacific Ocean, and global human trafficking. He is currently working on a USAID effort to both deliver medical supplies and retrieve medical samples using long range UAVs in the Simien Mountains of NE Ethiopia.

Dr. Snitch holds a BA in Chinese, an MA and PhD in International Economics, an MA in Japanese and did his postdoctoral work in nuclear and reactor physics. He is a member of the IAA, AIAA, the British Royal Astronautical Society and the Chinese Society of Astronautics.

Xiaoming Yin

Investment Manager,
Lockheed Martin,
United States

Dr. Xiaoming Yin is an Associate of Hillcrest Venture Partners. Xiaoming manages the firm's investment in Jeda Networks as well as sources new ventures. Before working in venture capital, Xiaoming worked at Citigroup (NYSE: C) as a quantitative analyst. Prior to Citigroup she was at Northwestern University where she received her PhD in Electrical Engineering focusing on bio-imaging techniques for improved magnetic resonance using advanced signal processing methods. Her research has been published in multiple research journals.

Xiaoming holds a PhD in Electrical Engineering from Northwestern, and a BS in Electrical Engineering from Rice University.

16:40 – 17:10 Leaving No-One Behind: Opportunities to Support Inclusiveness Through Space-Based Applications and Space Exploration. Presentation of Results of the 27th Workshop on Space Technology for Socio-Economic Benefits

Location: The Walter E. Washington Convention Center – Grand Ballroom C

A roundtable discussion including the Director of UNOOSA, a representative of IAF and providers and beneficiaries of projects that promote inclusiveness through space technologies. The participants will present the outcomes of the 27th IAF Workshop and offer highlights of projects that promote inclusiveness in space activities. Discussion with the audience and interested parties will be highly encouraged.

The 2019 IAF Workshop will discuss space science, technologies, applications and exploration in support of economic, social and environmental development with a focus on inclusiveness as an underlying factor in sustainable development. It will provide opportunities for space emerging countries to perceive space as contributor to inclusive growth of countries, especially as a catalyst in empowering people and ensuring inclusiveness and equality. Considering the direct and/or indirect relevance of space to all 17 sustainable development goals (SDGs), the workshop will address the specific elements of SDG 4 (quality education), SDG 8 (decent work and economic growth), SDG 10 (reduced inequalities), SDG 13 (climate action) and SDG 16 (peace, justice and strong institutions), in addition to SDG 17 (partnerships for the Goals).

Organized by:

United Nations Office for Outer Space Affairs (UNOOSA)
International Astronautical Federation (IAF)

Speakers:

Christian Feichtinger
Executive Director,
International Astronautical Federation (IAF),
Austria

Marius-Ioan Piso
President & CEO,
Romanian Space Agency (ROSA),
Romania

Shirish Ravan
Senior Programme Officer,
United Nations Office for Outer Space Affairs (UNOOSA),
Austria

Danielle Wood
Director,
Space Enabled Research Group,
MIT Media Lab,
United States

MODERATOR
Simonetta Di Pippo
Director,
United Nations Office for Outer Space Affairs (UNOOSA),
Austria

17:15 – 17:45 Singapore – Regional Vision to Co-Create, Build Capacity, and Expand Space Applications for New Uses

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The presentation will showcase Singapore's efforts and vision to contribute to the global space community by continuously building on key regional partnerships with emerging Asian space economies and international collaborations with other vested industry stakeholders.

As Singapore's space industry grows exponentially, we offer a thriving and advanced eco-system to nurture key growth across developments in satellite, telecommunications, rocket or block chain for space companies or space tech startups. The Global Space and Technology Convention, organized by SSTA and held annually in Singapore, is Asia's premier space tech platform for the region to convene and highlight how space technology will shape the future of space. It is also an ideal platform to connect with the rapidly developing space industry and explore Asian opportunities.

Developed in consultation with some of our key partners, other projects (e.g. HADR Challenge) revolve around technical or product developments to solve the growing space market needs or tapping onto space technologies to innovate and create new applications for business sectors outside of space, such as in finance, growing data-driven industries, agriculture, tele-medicine, human disaster relief management etc.

Singapore also actively cultivates and nurtures talent pool in STEM by providing opportunities to work in the space industry for its' population. The local institutes of higher learning offer diplomas in aerospace engineering and aerospace electronics. Dedicated efforts such as a real-world aircraft hangar in Singapore Polytechnic offers industry partnerships for students from various engineering courses to interact and work together.

SSTA also organizes the annual Singapore Space Challenge, a technical design competition to stimulate interest in space related topics and challenge global student teams to leverage on space technology, design space-related projects and deal with real world challenges, including disasters. One thousand youths have participated in this event since its inception in 2007.

Organized by:

Singapore Space and Technology Association (SSTA)

Speakers:

OPENING PRESENTATION

Jonathan Hung

Founder & President,
Singapore Space and Technology Association (SSTA),
Republic of Singapore

Mr. Hung is Founder and President of the Singapore Space and Technology Association (SSTA, estd. 2007), Singapore's lead, industry association focused on developing the space technology industry.

SSTA supports all elements of space activity in Singapore, ranging from engagements with foreign space agencies, working with space industry chiefs and top research organisations spanning the globe. It also supports a range of start-ups, innovators and venture capitalists, and provides technical training to Singapore companies entering the industry.

His international work experience includes management roles with the Contraves Group, CAE Inc, ST Engineering Electronics and Flex, where he's credited for establishing and leading their successful Advanced Incubation Centre in Asia.

Earlier in his career, Mr. Hung was Centre Director for Middle East & North Africa Operations at the Singapore Economic Development Board (EDB). There, he handled portfolios in aerospace, marine/offshore and super yacht sectors. In particular, he led the development of the space incubator unit that is presently EDB's space office.

Mr. Hung currently serves on the Board of the Air Transport Training College, Synspective Pte. Ltd., Space Generation Advisory Council, International Lunar Observatory Association, and is an ExCom Member of the Japanese Space Agency's Asia Pacific Regional Space Agency Forum.

Jonathan graduated Magna Cum Laude from Embry-Riddle Aeronautical University, double majoring in Aerospace Science and Aviation Business Administration.

Tan Kong Hwee

Executive Director, Capital Goods,
Singapore Economic Development Board,
Republic of Singapore

As the Executive Director of Capital Goods and Mobility at the Singapore Economic Development Board (EDB), Kong Hwee is directly responsible for EDB's partnerships with companies in the Capital Goods industry. He also has responsibilities over the development of the Aerospace, Space and Urban Mobility sectors. Prior to joining EDB in 2006, he was with the Ministry of Home Affairs for 3 years. Mr. Tan graduated with a Masters in Electrical Engineering from Kyoto University in 2001.

Lynette Tan

Executive Director,
Singapore Space and Technology Association (SSTA),
Republic of Singapore

Ms. Lynette Tan is the Executive Director of the Singapore Space & Technology Association (SSTA). She develops and coordinates the various programmes of SSTA, including providing business match-making, networking platforms, technical training for the industry. Lynette also oversees the mentoring of start-ups and adopting new technologies into the sector, for example AI, machine learning for space. Another key mission of SSTA, which Lynette is extremely passionate about, is to promote the interest in Science, Technology, Engineering and Mathematics, to grow talents for the space industry.

Harris Chan Weng Yip

Chief Technology Officer / Chief Digital Officer,
ST Engineering,
Republic of Singapore

Mr. Harris Chan holds concurrent appointments as the Chief Digital Officer and Chief Technology Officer at ST Engineering, a global technology, defence and engineering group specialising in the aerospace, electronics, land systems and marine sectors. He currently leads ST Engineering's digitalisation efforts, focusing on the development of deep and core digital technologies to transform the Group into a data-driven and digital organisation. In addition, he plays a lead role in shaping the organisation's R&D portfolio and is responsible for driving its IP strategy. Harris also chairs the Group's Innovation Task Force, looking at ways to drive innovation within the company.

MODERATOR

Amal Chandran

Executive Director, Capital Goods,
Singapore Economic Development Board,
Republic of Singapore

Mr. Amal Chandran is an Aerospace Engineer with a research background in atmospheric science. At NTU, Amal serves as the Associate Director for Space Technology at the Satellite Research Centre. He received a PhD from the University of Colorado in Aerospace Engineering Sciences in 2010. Amal's research interests are in the field of instrumentation for Earth remote sensing and space weather monitoring on small satellite platforms, small satellite technology development, atmospheric dynamics and whole atmosphere climate modelling. He continues to serve as Principal Investigator for the first INSPIRESat scheduled for flight in 2019.

Wednesday 23 October 2019

GNF SPACE EXPLORATION STREAM
Room: Grand Ballroom A

GNF DIVERSITY STREAM
Room: Grand Ballroom C

09:40 – 10:40 The Evolving Role of the Public Procurement Authorities Becoming an Anchor Customer in Large Space Related Programmes

Location: The Walter E. Washington Convention Center – Grand Ballroom A

During the last decade, public procurement in space has been subject of a drastic evolution due to the evolving responsibilties of agencies and industries in the development of large space infrastructures. A key feature has been the increasing role played by the public sector as anchor tenant of services delivered by the private sector.

The panel is composed of 5 senior executives from industry and the public sector coming from Europe and the USA. These panel members are playing a major role in ongoing large space programmes involving public anchor customers in different ways .

The process leading to the decision of those programmes was based on a dialogue between space agencies and industries supported by improved transparency. Furthermore condition for success of such processes are clear and unambiguous governance schemes to be agreed in advance between both parties where the mutual roles and responsibilities – both during the development and the services phases, are well defined.

Those programmes are providing to industry the main advantage that their business model is taking into account future revenues from the anchor public customers.

The panel members will share their inside experiences, lessons learned and exchange on possible improvements to be made.

The audience will actively contribute to the discussion by expressing their views and asking questions via smartphone apps.

Organized by:

European Space Agency (ESA)

Speakers:

Stéphane Israël
CEO,
Arianespace,
France

Born on January 3, 1971. Stéphane Israël is the Chief Executive Officer of Arianespace SAS, the world's reference launch services company. He also is Executive Vice President of ArianeGroup, in charge of Civil Programs – which gives him industrial responsibility for the Ariane 5 and Ariane 6 programs. In addition, he is Chairman and Chief Executive Officer of Starsem, the Euro-Russian company in charge of the commercial operation of the Soyuz launcher at the Baikonur Cosmodrome.

Stéphane Israël has high-level professional experience in both public economics and the aerospace industry. He holds degrees from the Ecole Normale Supérieure and the Ecole Nationale d'Administration (ENA). He was named a judge in the French Court of Auditors in 2001, where he participated primarily in missions concerning French space policy and the Ariane launch system.

He joined Airbus Group in 2007, first as advisor to the CEO, then in various operational management positions in the group's space division. From May 2012 to April 2013, he was chief of staff in the cabinet of the French Minister for Productive Recovery, Ministry of Industry, Digital Economy, SMEs and Innovation.

Stéphane Israël was named Chairman and Chief Executive Officer of Arianespace in April 2013. With the evolution of Arianespace's governance in April 2017, he became Arianespace SAS CEO and a member of the Executive Committee of its ArianeGroup parent company.

Stéphane Israël is President of the Board of Directors of CNAM (Conservatoire national des arts et métiers), member of the Board of Directors of Carrefour (Chairman of the audit committee) and Ecole normale supérieure.

Bill McNally
CEO,
Acquisitionpro, LLC,
United States

Bill McNally is the CEO for Acquisitionpro, LLC, which provides acquisition consulting and training services. Up until 31 March 2018, Bill McNally was the Senior Procurement Executive for NASA. He directed NASA's procurement functions throughout the Agency, providing strategic policy, leadership, and direction. He guided and managed NASA's procurement activities in every area from programmes studying the Earth to missions going into our solar system. He represented NASA procurement to the Executive and Legislative branches of the Federal Government, industry, and international organizations. Mr. McNally was appointed as the Senior Procurement Executive in September 2007.

Mr. McNally joined NASA in October 2005 as special procurement advisor in the Exploration Systems Mission Directorate. In this position, he provided strategic direction and contract management advice for all elements of the directorate's portfolio, which included the development of the nation's new space and launch vehicles, Ares and Orion.

Prior to joining NASA, Mr. McNally spent time in industry providing acquisition consulting and training. He had a 26-year career with the Air Force where he held numerous positions in the area of acquisition.

Mr. McNally holds a Level III certification in Contracting. He is both a Certified Professional Contracts Manager and a Fellow in the National Contract Management Association. His decorations include the NASA Exceptional Service medal, the Air Force Legion of Merit, the Defense Meritorious Service Medal, the Defense Superior Service Medal, and numerous Joint and Air Force Commendations Medals.

Eric Morel de Westgaver

Director of Industry,
Procurement and Legal Services,
European Space Agency (ESA),
France

Eric Morel de Westgaver took up duty as Director of Industry, Procurement and Legal Services (D/IPL) on 1 November 2013. He was appointed Head of HQ Paris on 1 October 2016. Before his current appointment, he had been Director of Procurement, Financial Operations and Legal Affairs since April 2011.

Eric Morel de Westgaver graduated in Economics from the Catholic University of Louvain, Belgium. He joined ESA in 1987 as Industrial Policy Officer in the Directorate of Administration.

In 2001 he took the responsibility of the Industrial Policy and Cost Analysis Department in the Directorate of Industrial Matters and Technology Programmes.

In 2004, he became Head of the newly created Procurement Department. In this function, he profoundly modernised the procurement policy and regulations of ESA, such in close cooperation with Member States and industrial stakeholders. In addition to this responsibility, he was nominated Associate Director for Industrial Matters by the Director General in February 2010.

Philippe Pham

SVP Head of Earth Observation,
Navigation and Science,
Airbus Defence and Space,
France

Philippe Pham leads the Earth Observation, Navigation and Science (ENS) Programme Line within Space Systems. Present in four European countries covering 1.1 billion Euros of revenues and with more than 1000 employees, this unit has a wide spectrum of skills to address all the institutional and commercial challenges of Earth Observation, Navigation, Space Science and Robotic exploration.

Before joining ENS, Philippe was Head of Data Analytics and Applications within the Digital Transformation Office for Airbus Defence and Space leading challenging analytics projects throughout Airbus Defence and Space Business Lines and Functions for a better operational efficiency and new business models and customer services revenues.

Philippe has a long experience in Airbus and held different leadership and management positions in defence and space systems and services, system engineering and large programmes, product lines, and proposals management, in both telecommunications and earth observation systems and services. He has worked in France and Germany.

Robbie Schingler

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

Robbie Schingler is the Co-Founder and Chief Strategy Officer (CSO) of Planet. As CSO of Planet, Robbie leads the company's long-term strategic trajectory and manages Planet's Product, Impact, Corporate Development and financing activities. He spearheaded Planet's acquisition of BlackBridge in 2015 and Boundless in 2019, was Managing Director of Planet Europe from 2016-2017 and recently acting as Chairman of the board for Planet Federal. Prior to Planet, Robbie spent 9 years at NASA, where he helped build the Small Spacecraft Office at NASA Ames and Chief of Staff for the Office of the Chief Technologies at NASA Headquarters. He received a MBA from Georgetown University, a MS in Space Studies.

MODERATOR

Pieter van Beekhuizen

Senior Consultant,
Bexperience,
The Netherlands

Pieter van Beekhuizen has worked his whole professional life since 1972 in the space domain, first with ESRO and as from 1975 with ESA, and has occupied during this period a large variety of different functions and responsibilities within ESA (Finance, Facility Management, Director's staff office, ATV project, ESA Industrial Cost Auditing and Industrial Return).

In 2002 he became responsible for the ESA Industrial Costs Audits which has included many industrial costs audits, programme reviews and Management and Cost panels for ESA programme procurements .

In 2015 he was nominated Head of ESA Industrial Cost Auditing and Return Division for which position he moved to the ESA Head Office in Paris . During the last years he has also been actively involved in the European initiatives for commercialisation opportunities/projects .

He retired from ESA at the end of 2017.

After 45 years in the space domain acquiring an in-depth knowledge of the functioning of ESA, and having gained during the last 15 years a thorough understanding and experience of the European Space industrial landscape and of ESA industrial return related aspects, he has started his own consultancy company (Bexperience.nl) in 2018, providing consultancy services for various clients.

RAPPORTEUR

Karina Miranda Sanchez

Head of the Industrial Audit Section,
European Space Agency (ESA),
Luxembourg

Karina Miranda is the Head of the Industrial Audit Section at the European Space Agency (ESA) performing cost analysis and auditing related activities in support of ESA procurement process.

She is also in charge of the organization of an Expert Group together with European National Audit Authorities to present and discuss industrial auditing and accounting matters as well as policies relevant to the implementation of industrial audits having an impact into the ESA regulatory framework.

Previously she worked as an Audit Manager specializing in Financial and Internal Audits, Sarbanes Oxley 404 projects and Financial Due Diligences within Commercial and Public sectors.

Ms. Miranda holds a university degree in Accounting majoring in Auditing and Finance, an MBA and an additional qualification as a Certified Chartered Accountant.

09:40 – 10:40 SGAC – LSA SpaceGen Entrepreneurs

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The SpaceGen Entrepreneurs held for the first time during IAC 2017 in Adelaide, Australia, is an event organised by the Space Generation Advisory Council designed to connect entrepreneurs and potential entrepreneurs with startup veterans and venture capitalists, investors, business angels and business incubators. This year, SGAC proposes a joint GNF with Luxembourg Space Agency focused on the concept of space commercialization. Luxembourg has a dynamic and growing space sector, with more than 50 private, public and academic players. In the context of its unique framework for the exploration and commercial utilization of resources in space and the SpaceResources.lu initiative, about 20 space companies have established a presence in Luxembourg in the last 3 years. Technological progress, cheaper access to space and interest from investors is expected to fuel the growth of the industry in the near future. The SpaceGen Entrepreneurs will feature high-calibre entrepreneurs, business investors and startup experts that will analyse how to capitalize new commercial opportunities in the space industry, discuss the most effective ways to succeed in startup ventures and share the human story behind space entrepreneurs.

Organized by:

Space Generation Advisory Council (SGAC)
Luxembourg Space Agency (LSA)

MASTER OF CEREMONY

Chris Nie

Space Generation Congress 2019 Manager,
Space Generation Advisory Council (SGAC),
Austria

Chris Nie is a Systems and Integration Engineer working on the environmental control and life support system (ECLSS) for the Orion Multi-Purpose Crew Vehicle at Lockheed Martin Space. His career has given him the opportunity to work on GPS satellites, SmallSats, in government affairs and business development, as well as NASA's Human Spaceflight Program, Orion. Chris graduated from the University of Colorado, Boulder, with a Master's Degree in Aerospace Engineering and a focus in Bioastronautics. He has been named one of Aviation Week's Twenty20s as a rising leader in Aerospace and Defense, and has received the President's Volunteer Service Award multiple times for his work in STEM outreach.

Speakers:

William Crowe

CEO,
High Earth Orbit Robotics,
Australia

William co-founded High Earth Orbit Robotics, a company with a vision to prospect and utilise asteroid resources and an immediate goal of using the same technology to inspect and resolve anomalies on satellites. His company counts the Australian Air Force as a customer. He has a PhD in Aerospace Engineering from UNSW Sydney, where his research focussed on using swarms of spacecraft to characterise asteroids. He won several international awards for his research, including the SGAC's "Move an Asteroid" scholarship for his work using small spacecraft in Earth orbit to intercept asteroids as they pass through the Earth-Moon system.

Gareth Keane

Partner,
Promus Ventures,
United States

Gareth Keane is a Partner with Promus Ventures, splitting his time between the San Francisco Bay Area and Europe. Promus Ventures invests in early-stage deep-technology software and hardware companies that are run by visionary and tenacious founding teams. Promus funds companies shaping the future in areas like robotics, AI/ML, space, and synthetic biology.

Gareth's career to date has stretched from engineering roles to venture capital investment. Prior to joining Promus Ventures he worked at Qualcomm Ventures, the venture capital investment arm of Qualcomm Inc. Before that he worked for two years in the corporate development teams at National Semiconductor and Texas Instruments, focused on strategic investment, corporate M&A and corporate strategy. Previously he worked for PMC-Sierra and a number of other technology firms across both hardware and software.

Gareth has an MBA from The Wharton School of The University of Pennsylvania, a PhD in Electronic Engineering from The Queen's University of Belfast (UK) and a BE in Electronic Engineering from the National University of Ireland, Galway. Gareth is also a Kauffman Fellow.

Peter Platzer

CEO,
Spire Global,
United States

Peter Platzer co-founded Spire in 2012 with a vision to provide satellite-powered data solutions to problems on earth. The company's audacious goal is to double global GDP growth by eliminating the negative economic impact from inaccurate weather forecasts in the era of Climate Change. Platzer is now regarded as one of the pioneers in launching small form factor satellites into space.

Prior to launching Spire, Peter trained at CERN and the Max Planck Institute before turning to business with the Boston Consulting Group in Europe and Asia, and serving as a quantitative investment manager for almost a decade on Wall Street.

Peter received an M.S. in Physics from the Technical University of Vienna, an M.B.A. from Harvard, where he was a Baker scholar, and an MSc cum laude in Space Science from ISU Strasbourg. He also serves as a Career Coach at Harvard Business School. His publications and patents span Computational Physics, Nano-satellite Technologies, and climate change adaptation.

Étienne Schneider

Deputy Prime Minister and
Minister of Economy and Space,
The Luxembourg Government,
Luxembourg

Etienne Schneider was a municipal councillor in Kayl from 1995 to 2005, and from 1997 to 2004, he was secretary general of the parliamentary group of the LSAP in Parliament. Mr. Schneider was appointed Minister of the Economy and Foreign Trade on 1 February 2012. In the government formed following the 2013 Luxembourg general election he is Deputy Prime Minister and Minister of the Economy. He continued to hold these offices following the 2018 Luxembourg general election, where he became the health minister too. From 2013 to 2018, he served as Minister for Defence. Mr. Schneider has a degree in commercial and financial sciences from the Institut catholique des hautes études commerciales (ICHEC) in Brussels and Greenwich University in London (1995).

Oniosun Temidayo Isaiah

Managing Director,
Space in Africa,
Nigeria

Temidayo is the Managing Director for Space in Africa, the authority for news, data, and business analysis for the African Space Industry. In 2018, he was listed as one of the World 24 Under 24 Leaders and Innovators in SPACE and STEAM by The Mars Generation, one of the 25 under 25 Nigerians who are influencing and disrupting the world of Entrepreneurship, Leadership, and Corporate World by BellaNaija, and a recipient of 35 Under 35 space industry recognition award by the International Institute of Space Commerce. The former SGAC Regional Coordinator has appeared on Forbes, ChannelsTV, Guardian, etc for his work in the Industry.

Joost van Oorschot

Founder and CEO,
Maana Electric,
The Netherlands

Joost van Oorschot is a serial entrepreneur with an educational background in Economics and Space Studies. He has build several startups with 6 years of entrepreneurial experience as well as working at a VC in the space sector.

Joost currently runs Maana Electric as its CEO and Founder. Maana Electric is a New Space startup located in Luxembourg and the Netherlands specifically focussed on utilising In-Situ Resource Utilisation technologies for the production of solar panels from regolith for Space applications and from Sand for Terrestrial applications. The company currently has 20 employees and is expected to have >50 by the end of 2020.

Pete S. Worden

Executive Director
Breakthrough Initiatives,
United States

Dr. Pete S. Worden is the Chairman of the Breakthrough Prize Foundation and Executive Director of the foundation's 'Breakthrough Initiatives'. He was Director of NASA's Ames Research Center in California until his retirement in 2015. He served as a scientific co-investigator for three NASA space science missions. Dr. Worden has held several positions in the United States Air Force and was research professor of astronomy at the University of Arizona, Tucson, USA. He has authored or co-authored more than 150 scientific papers in astrophysics space sciences, and strategic studies.

Lynn Zoenen

Global Affairs Manager,
ispace,
Luxembourg

As ispace Europe's Global Affairs Manager, Lynn manages ispace's European payload sales pipeline and partnering activities including both space and non-space technology development and branding partnership sales. In addition, Lynn is in charge of Government Affairs, engaging with governments and Space agencies to construct mission partnership frameworks and policies that promote the development of commercial lunar exploration and space resource utilisation.

Before joining ispace Europe, Lynn contributed as an economic advisor to the strategic orientation of the Chamber of Commerce of the Grand Duchy of Luxembourg. Lynn holds a Master's in International Political Economy from King's College and a Bachelor's in International Business Administration.

MODERATOR

Gary Martin

Senior Advisor,
Luxembourg Space Agency (LSA),
Luxembourg

Gary Martin is Senior Advisor to the Luxembourg Ministry of the Economy on space education and research. He retired from NASA in 2017.

At NASA, he worked for 32 years at multiple NASA Centers across the Agency (LaRC, NASA HQ, GSFC and ARC) supporting science missions, advanced technology development, and human spaceflight. In 2002, he became NASA's first Space Architect, leading strategic planning at the Agency, and provided the analysis used to develop the Vision for Space Exploration announced by the President Bush in 2004. For this work he was awarded NASA's Outstanding Leadership Medal.

Mr. Martin was seconded by NASA to the International Space University in Strasbourg, France as the Director of the Space Studies Programme for SSP06, SSP07, SSP12, and SSP13.

Mr. Martin holds a Master's in Mechanical Engineering/Astronautical Engineering from George Washington University, dual Bachelor's degrees in Physics and Applied Mathematics from Virginia Commonwealth University and Bachelors in Anthropology from Colorado State University.

10:45 – 11:35 Lessons from Business Women in the Space Industry – Positive Tales from a Journey Through a Male Dominated Industry

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The 21st century is full of exiting prospective innovations in space technology, space exploration and space concepts. In the same way that innovation is key for reaching the skies, innovation is also needed in some of the space industry's business etiquettes to move from the traditional to the modern, diverse and inclusive. Women are changing the game in the space industry by moving forward regardless of the challenges and utilizing a new creative positive way to innovate the workplaces, academia and environments as key actors in the field. The woman in the panel are either leading their own business or have climbed the corporate ladder and will tell their stories how they got ahead in a male dominated industry. We will address challenges these women faced, but will focus on positive experiences, solution oriented advice and perspectives that aim to teach and encourage other women to follow step. The stories are meant to be uplifting and we will explore how women can blend the current dynamics with a pinch of daringness and freshness, as they work to achieve their goals. The session aims to empower women and provide positive solutions as these new actors challenge the status quo and inspire the space industry to embrace these innovative approaches.

Organized by:

Disrupting Space LLC

Speakers:

Lisa Johnson

System Engineer,
Loft Orbital,
United States

Lisa Johnson is a spacecraft hardware and systems engineer who has worked on big and small projects over the last decade: from building Spire's Lemur-2 constellation of cubesats, to designing the EPS on the Bigelow Space Habitat. Currently Lisa works at Loft Orbital, Making Space Simple for new and experience payload customers alike.

Agnieszka Lukaszczyk

Senior Director, European Affairs,
Planet,
Belgium

Agnieszka Lukaszczyk is a Senior Director for European Affairs at Planet. A Polish/American national, has worked at the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs, Space Data for Societal Challenges and Growth Unit. She also worked at the Directorate General for Enterprise and Industry, Space Policy and Research Unit. Before she joined the Commission, Agnieszka was the Brussels Office Director for the Secure World Foundation. In addition, she is the former Chairperson and the former Executive Director of the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications. Agnieszka also worked at the European Space Policy Institute as a research fellow. Agnieszka serves as the Vice President – Europe for the World Space Week And Sits on the Board Of Directors for the Women in Aerospace-Europe. She is currently pursuing a PhD in Space Security at the Polish Defence Academy.

She holds a Master's degree from the Warsaw School of Economics in Management of Space in New Economies and a Master's degree from the American University School of International Service in International Politics plus a Bachelor degree in Political Science from the University of Tennessee. She also studied at the Universite Catholique de Louvain in Brussels, Belgium; the Jagiellonian University in Krakow, Poland and the World Trade Institute in Berne, Switzerland. She gained professional experience at the Political Section of the Polish Embassy in Washington DC, American Electronics Association in Brussels, European Department of the Polish Senate in Warsaw and the Warsaw Business Journal.

Ann-Sofie Schreurs
Senior Scientist and Possum Alumni,
United States

Dr. Ann-Sofie Schreurs earned her B.Sc in life sciences in 2006 and her M.Sc in molecular biolog in 2008 at the University Pierre et Marie Curie in Paris, France. For her Ph.D in Biochemistry, she went to the University of Sussex in England, and was funded by the Marie Curie Grant. After receiving her PhD in 2012, she obtained a NASA Post-Doctoral Program (NPP) fellowship at NASA Ames Research Center, where she worked on space-induced bone loss. As a next step in her career, she joined the Office of the Chief Scientist in September 2018 as a Senior Staff Scientist at NASA Ames Research Centre. Aside from her career, Ann-Sofie continues to work on her astronaut aspirations and skills needed such as scubadiving, skydiving and pilot training. In addition, she often volunteers to be a subject in experiments such as head down tilt bed rest, rotation chair testing and human centrifuge studies. She is also a PoSSUM alumni working towards being a scientist astronaut for their programme. She has also been expanding her Isolation, Confined, and Extreme experiences: 2 weeks on "Mars" at the Mars Desert Research Station and a month aboard a ship at sea as a deckhand. Lastly, Ann-Sofie loves to travel (lived in 8 countries and travelled to over 40 countries) and learn languages, and is passionate about space exploration.

Nancy C. Wolfson
President,
Disrupting Space LLC,
Vice Chair,
IAF Technical Committee on NEOs,
United States

Nancy C. Wolfson, is a Washington, D.C. based scholar, independent researcher, speaker, entrepreneur and artist. She is a published author and a co-founder-President of Disrupting Space LLC, a company based in the US. Nancy is currently the Vice Chair of the International Astronautical Federation's (IAF) Technical Committee on NEOs. Great part of her work is focused on education and communication about asteroids and contributing to the International Asteroid Warning Network (IAWN). She also participated in The Space Generation Advisory Council (SGAC) Find an Asteroid Search Campaign in 2018. As a researcher Ms. Wolfson focuses on Human and Social Sciences looking to foster the creation of a diverse and healthy human colonies in Outer Space. She is actively collaborating on various ongoing educational an outreach projects with engineers, scientists and tech specialists in the United States and Europe regarding NEOs and other topics. To mention some of her previous work, Ms. Wolfson acted as Program Development Manager for a High Altitude Balloon, CRISPR Biotechnology educational project and Payload Development Manager for a research project in collaboration with WIKIPEDIA, 2016 -2018. Aside from her academic and business activities Nancy C. Wolfson continues to work on her astronaut aspirations and skills needed such as scubadiving and others. Ms Wolfson aims to democratize access to higher learning, making space concepts accessible to all academia, corporations and the broad general public.

MODERATOR
Megan Kane
Co-Founder,
Disrupting Space LLC,
United States

As co-founder of Disrupting Space Megan Kane is dedicated to synergistically connecting Space and non-space professionals. Since attending the International Space University, she has been active participating NASA's HERA mission, Project PoSSUM's Astronaut training and more. Megan has put her technical and regulatory training to work at Spire as the Export Control Officer. Today she serves as advisor to several Lechner startups and provides consulting services in regulatory compliance while building Disrupting Space.

10:50 – 11:50 Forming, Storming, and Norming the Future Lunar Exploration Enterprise

Location: The Walter E. Washington Convention Center – Grand Ballroom A

The frontier of sustained exploration and operations on the Moon and Mars is on the horizon. The Lunar and Mars Exploration Initiative includes a diverse set of contributors, science, exploration, commercial, national, and international, yet to be fully organized as an "enterprise". While NASA is a key stakeholder in terms of outcomes and interests, there is a broad, diverse set of emerging interests both nationally and internationally. All stakeholders share a common interest in engineering solutions in the form of products and services to ensure the success and sustainability of the enterprise as the sphere of human operations expands beyond low earth orbit. This session brings together a diverse set of experts across the enterprise to discuss the latest on the "who, what, where, when, why, and how" associated with forming, storming, and norming plans for our future Lunar Exploration Enterprise on the path to Mars.

- Why invest in exploration?
- How do you define sustainability in Moon to Mars exploration?
- What do you need from others across the enterprise to make your mission successful?
- Who else is critical to establishing the capabilities needed for sustainable presence?
- How do we define success in sustained presence on the lunar surface and how will it contribute to Mars efforts?

Organized by:
The Aerospace Corporation

Speakers:

Bretton Alexander
Vice President, Government Sales & Strategy,
Blue Origin,
United States

Rob Chambers
Director of Human Spaceflight Strategy and Business Development,
Lockheed Martin,
United States

Libby Jackson
Human Exploration Programme Manager,
UK Space Agency (UKSA),
United Kingdom

Clive Neal
Professor,
University of Notre Dame,
United States

Bernardo Patti
ISS and Exploration Programme Manager,
European Space Agency (ESA),
The Netherlands

Marshall Smith
Director of Human Lunar Exploration Program,
National Aeronautics and Space Administration (NASA),
United States

MODERATOR
Edward Swallow
Senior Vice President,
The Aerospace Corporation,
United States

11:45 – 12:30 NASA YP Town Hall

Location: The Walter E. Washington Convention Center – Grand Ballroom C

In this Young Professionals Programme event in the frame of the Global Networking Forum, the NASA Administrator Jim Bridenstine will address NASA's plans with a focus on Young Professionals. This town hall is mainly organized as a dialog with the audience, questions and comments from the attending delegates are therefore strongly desired. While the event is open to everyone, questions will be specifically only solicited from Young Professional attendees of the congress.

Organized by:

IAF Workforce Development-Young Professionals Programme Committee (WD-YPP)

Speaker:

Jim Bridenstine
Administrator,
National Aeronautics and Space Administration (NASA),
United States

James Frederick "Jim" Bridenstine was nominated by President Donald Trump, confirmed by the U.S. Senate, and sworn in as NASA's 13th administrator on April 23, 2018.

Bridenstine was elected in 2012 to represent Oklahoma's First Congressional District in the U.S. House of Representatives, where he served on the Armed Services Committee and the Science, Space and Technology Committee.

Bridenstine's career in federal service began in the U.S. Navy, flying the E-2C Hawkeye off the USS Abraham Lincoln aircraft carrier. It was there that he flew combat missions in Iraq and Afghanistan and accrued most of his 1,900 flight hours and 333 carrier-arrested landings. He later moved to the F-18 Hornet and flew at the Naval Strike and Air Warfare Center, the parent command to TOPGUN.

After transitioning from active duty to the U.S. Navy Reserve, Bridenstine returned to Tulsa, Oklahoma, to be the Executive Director of the Tulsa Air and Space Museum & Planetarium.

Bridenstine was promoted to the rank of Lieutenant Commander in 2012 while flying missions in Central and South America in support of America's war on drugs. Most recently, he transitioned to the 137th Special Operations Wing of the Oklahoma Air National Guard.

Bridenstine completed a triple major at Rice University, and earned his MBA at Cornell University. He has three children with his wife, Michelle.

MODERATOR
Jackelynne Silva Martinez
Aerospace Engineer Mission Planning Operations,
NASA Johnson Space Center,
United States

Jackelynne works at NASA JSC in the Flight Operations Directorate serving as a flight controller for the International Space Station and systems engineer for the Artemis 3 mission. Previously, she worked at JPL on the Curiosity Rover, and at Lockheed Martin on the GPS III satellite. Jackelynne has a BS in Mechanical Engineering from Rutgers, MS in Human Factors from Embry-Riddle, MS in Aerospace Engineering from Georgia Tech, and Space Studies Programme Certificate from the International Space University.

12:00 – 12:30 To the ISS, the Moon, Mars – and then some: A 360° Discussion on Humanity's Exploration of Our Solar System and Beyond

Location: The Walter E. Washington Convention Center – Grand Ballroom A

While today's focus is very much on Humanity's return to the Moon and Mars, we must not forget that there's much more "out there" to explore, gather knowledge on and learn from.

This distinguished panel will provide a comprehensive, 360° view of the Space Exploration endeavours of today and tomorrow. Starting with a keynote speech by a renowned planetary scientist, the panelists will share views and insights coming from the "user's"/ institutional perspective, the scientific World and the Space industry – and, of course, from both sides of "the pond".

The panelists will discuss the far-reaching technologies developed not only for the return to the Moon and our next exploration steps on Mars (rovers, sample returns), but also innovative missions like the exoplanet-exploring CHEOPS and how all of these activities contribute to one common goal: To jointly expand Humanitiy's footprint throughout our Solar System and even Beyond.

Organized by:

Airbus Defence and Space

Speakers:

Juan Carlos Cortés

Head of Space, Large Research Infrastructures and Dual Programmes,
Center of Development for Industrial Technology (CDTI),
Spain

Juan Carlos Cortés is Aeronautical Engineer by the Polytechnic University of Madrid, specialized in propulsion. He also keeps a Master Degree in Management from IESE Business School and a specialist's degree in National Defense by CESEDEN.

He has developed most of his professional career in the defense, aeronautics and space domains, both in the private and public sectors.

He started his professional career in private sector in 1990 before joining the National Institute for Aerospace Technology INTA as Flight test Engineer, working for programmes as "Eurofighter" and the unmanned aircraft development (DRONES), as well as in the Logistic Center for Armament and Experimentation (CLAEX) of the Spanish Air Force.

He joined CDTI in 1996, as member of the Spanish Delegation to the European Space Agency (ESA) being Spanish representative in most of its Programmes Committees.. He has held different executive positions at CDTI: Head of the Space Department, Head of the Aeronautics Department, Director of Aerospace Programmes, Director of Global Innovative Markets and Director of International Programmes. Presently, he is Director of Space, Infrastructures and Dual Programmes and is member of the HISPASAT S.A. Board of Directors.

Athena Coustenis

Director of Research,
Centre National de la Recherche Scientifique (CNRS),
France

Athena Coustenis is an Astrophysicist, Director of Research, with the French National Centre for Scientific Research, working at Paris Observatory in Meudon. She specializes in space exploration and works in the field of Planetology. Her research is devoted to the investigation of planetary atmospheres and surfaces, with emphasis on the outer solar system bodies, in particular icy moons of the giant planets. She also works on the characterisation of exoplanetary atmospheres. She has led many observational campaigns from the ground and contributes to the definition, development and exploitation of space missions, like the recently-ended Cassini-Huygens or the future JUICE and ARIEL missions of the European Space Agency and to the exploitation of the acquired data.

Her expertise in space missions has allowed her to Chair or to participate in several advisory groups within ESA and NASA and other European Institutions.

Coustenis is currently President of the European Space Sciences Committee *(ESF/ESSC)*; Chair of the Human Exploration and Science Advisory Committee *(HESAC)* of ESA; Member of ESA's Space Sciences Advisory Committee *(SSAC)* and of the Advisory Committee for Earth Observations *(ACEO)* of ESA; Member of the Space Studies Board *(SSB)* of the US National Academies of Science; Chair of the *COSPARPanel for Planetary Protection* and member of the COSPAR Science Advisory Council; President of the Comité d'Evaluation sur la Recherche et l'Exploration Spatiales *(CERES of CNES)*; Member of the Space Advisory Committee *(SAC)* of the Swedish National Space Board (SNSB) ; Member of the Outer Solar System Task Group (OSSTG) of the Working Group for Planetary System Nomenclature *(WGPSN)* of IAU; Member of the Working Group on Global Coordination of Ground and Space Astrophysics *(WGGCGSA)* of the IAU Executive Committee; Vice-President of the *EUROPLANET Society.*

She has written more than 230 scientific papers. She has first-authored 3 books and several chapters of Encyclopedias, participated in many E/PO activities. She has delivered more than 600 science lectures. She has been recognised with several ESA and NASA Awards and others, in particular with the 2014 Masursky AAS/DPS Award for meritorious service to Planetary Science and the 2019 Al Seiff Memorial Award of the International Planetary Probe Workshop

Oliver Juckenhoefel

Senior Vice President On-Orbit Services and Exploration,
Airbus Defence and Space,
Germany

Oliver Juckenhoefel is in charge of the On-Orbit Services and Exploration activities within Airbus Defence and Space and is also Head of the company's Bremen Site (Germany). He has held these positions since 1st November 2016. His responsibilities include the European contribution to NASA's Orion program, operation and utilization of the International Space Station's Columbus Module and the development of innovative robotic servicing solutions for Space Infrastructure.

He became Head of the ATV and ORION ESM Programs within Airbus Defence and Space (formerly Astrium GmbH) in October 2013. Previously, he was COO/CTO of Atlas Elektronik (Germany/UK), a leading provider of sonar systems and autonomous underwater vehicles (AUV). From October 1996 until July 2009, he held different positions within the Airbus Group and its preceding companies, both in Germany and in Italy, where he was responsible for the Galileo pathfinder mission of the Joint Venture Company Galileo Industries.

Oliver Juckenhoefel holds German nationality and has a Doctorate Degree in Aerospace Engineering from the University of Stuttgart, Germany. Specialising in Fluid Dynamics, he was awarded a one year research scholarship at the Illinois Institute of Technology, Chicago, USA and was also a recipient of the "Werner-von-Siemens-Ring Foundation" Award to Young Researchers for his work in the field of Satellite Control by Autonomous Systems. He is the author of various papers and patents.
Oliver Juckenhoefel is married and has two children.

Steve Lindsey

Vice President of Space Exploration Systems and Former Nasa Astronaut,
Sierra Nevada Corporation,
United States

A former U.S. Air Force (USAF) pilot and NASA astronaut with more than 30 years of flight test experience, Steve Lindsey is the Vice President of Space Exploration Systems for SNC. Lindsey oversees design, development, testing and operational employment of the Dream Chaser® spacecraft, a modern, reusable, lifting-body space system for uncrewed and crewed transportation to low-Earth orbit. Additionally, he has responsibility for development and programme execution of Dream Chaser derived systems and products.

Lindsey earned a Bachelor of Science in Engineering Sciences from the U.S. Air Force Academy in 1982. Upon completion of his degree he was commissioned a second lieutenant and sent to Undergraduate Pilot Training. After receiving his pilot wings he qualified in the RF-4C Phantom II and served as a combat-ready pilot, instructor pilot, and academic instructor. In 1987, he was selected to attend graduate school at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, where he completed a Master of Science in Aeronautical Engineering. Lindsey completed the USAF Test Pilot School course at Edwards Air Force Base, California in 1989 and was then assigned to Eglin Air Force Base, Florida in 1990 as an experimental test pilot where he conducted weapons and systems tests in F-16 and F-4 aircraft. While a member of the 3247th Test Squadron, Lindsey served as the deputy director of the Advanced Tactical Air Reconnaissance System Joint Test Force and as the squadron's F-16 flight commander. Additionally, he served as an Integrated Product team leader in the USAF SEEK EAGLE Office where he was responsible for weapons certification for the F-16, F-111, A-10 and F-117 aircraft. Lindsey retired from the Air Force in September 2006 after logging more than 7,000 hours of flying time in more than 50 different types of aircraft. Lindsey was assigned to NASA as an astronaut candidate in 1995, becoming an astronaut the following year and qualifying for flight assignment as a pilot. During his 15+ year tenure at NASA, Lindsey completed five space flights and logged more than 1,510 hours in space. He served as pilot on STS-87 in 1997 and STS-95 in 1998, and was the mission commander on STS-104 in 2001, STS-121 in 2006 and STS-133 in 2011. He last served as chief of the astronaut corps, overseeing spacecraft development, crew selection and training and flight test/crew operations in support of the space shuttle, International Space Station (ISS) and Constellation Programmes.

Upon joining the SNC team, Lindsey led Dream Chaser flight operations. In August 2013, he was selected as Dream Chaser senior director and co-programme manager tasked with managing the Dream Chaser cargo and crew systems development. Lindsey led the Dream Chaser programme through the design certification phase, including atmospheric flight tests of the Dream Chaser Engineering Test Article at NASA's Armstrong Flight Research Center in California; and launch, orbit operations, entry and landing of the Dream Chaser cargo and crew systems for low-Earth orbit missions to the ISS.

In 2015, Lindsey was inducted into the U.S. Astronaut Hall of Fame at Kennedy Space Center. He has also received several industry and government recognition awards throughout his career including: Distinguished Graduate USAF Undergraduate Pilot Training and Distinguished Graduate and recipient of the Liethen-Tittle Award as the outstanding test pilot of the USAF Test Pilot School Class 89A. He has also been awarded: Legion of Merit, Distinguished Flying Cross, Defense Superior Service Medal, Defense Meritorious Service Medal, five NASA Space Flight Medals, NASA Outstanding Leadership Medal, NASA Distinguished Service Medal, NASA Exceptional Service Medal, Air Force Meritorious Service Medal, Air Force Commendation Medal, Air Force Achievement Medal and Aerial Achievement Medal.

David Parker

Director of Human and Robotic Exploration,
European Space Agency (ESA),
France

David Parker became the European Space Agency's space exploration Director in April 2016. He led the creation of the new European Exploration Envelope Programme, approved by Ministers at the Luzern Conference in December 2016. Programme highlights include regular astronaut missions to the International Space Station; the first dedicated life search of the Red Planet (ExoMars); and the first investigation of water ice on the Moon.

From 2013 to 2016, Dr. Parker was Chief Executive of the UK Space Agency. His initiatives included negotiating major investment in both commercial and exploration missions of ESA and the creation of the Harwell space cluster which now hosts over 50 organisations including the European Centre for Space Applications and Telecommunications (ECSAT).

Other successes under his leadership included the UK's International Partnership Programme which applies satellite applications to global development issues; the UK government's investment in the pioneering 'SABRE' air-breathing rocket engine; and the education projects for Tim Peake's ISS mission which engaged over one million school students. In total he worked with four space ministers and has attended five ESA Ministerial Council meetings.

David Parker previously worked for over a decade in the UK space industry, initially in spacecraft engineering and studies of new projects; department management; and latterly as a business development manager winning projects for UK industry including LISA Pathfinder, Aeolus and the ExoMars rover.

Dr. Parker has a degree in Aeronautics and Astronautics and a PhD awarded for research with NASA Langley Research Center.

John Thornton
CEO,
Astrobotic Technology, Inc.,
United States

John Thornton has grown Astrobotic's business of delivering affordable space robotics technology and planetary missions by attracting technology contracts, equity investment, and payload customers. Thornton was promoted to reboot the company 5 years ago. He established a new corporate structure, attracted key personnel and developed the company's payload business model. Thornton secured the company's first lunar delivery contract and led the company to an additional 11-deals for the first mission. Thornton joined Astrobotic at its founding in 2007 as Mechanical Engineering Lead and soon thereafter was promoted to Chief Engineer. He led development of the programme's spacecraft including Red Rover, Polaris, the Artemis lander and the Griffin lander.

Prior to Astrobotic, Thornton led the build of Scarab for Carnegie Mellon, a NASA concept robot for lunar drilling, and the first robot to carry a prototype of NASA's RESOLVE payload. He managed a research programme that identified a battery that can survive the liquid nitrogen temperatures on the Moon. Thornton also founded Carnegie Mellon's Advanced Composites Lab, a research, training, design, and manufacturing lab specializing in high performance, lightweight composites for robotics. Thornton holds a MS and BS in Mechanical Engineering from Carnegie Mellon University.

Thornton testified before the United States House of Representatives Committee on Science's Subcommittee on Space in September 2017 on "private sector lunar exploration," and has delivered multiple keynote speeches at international aerospace and robotics conferences. He has been featured and quoted in numerous national and regional media organizations, including NBC News and the Pittsburgh Business Times. Most recently, Thornton's op-ed, "The Deep Space Gateway as a cislunar port" was featured on Spacenews.com.

MODERATOR
Johannes von Thadden
Senior Vice President and Head of Business Growth Space Systems,
Airbus Defence and Space,
Germany

Dr. Johannes von Thadden is Senior Vice President and Head of 'Sales Space Systems and European Institutions', Airbus Defence and Space. Between 2004 and 2007 he served as General Manager of the Christian Democratic Union in Germany. Before his years in politics he worked for the Association of German Chambers of Industry and Commerce and was responsible for the network of German Bilateral Chambers Abroad in 80 countries. For the German government he serves as Co-Chairman of the Foundation for Polish-German Cooperation in Warsaw.

14:45 – 15:45 Why We Suborbital Passengers Are Eager to Fly to Space

Location: The Walter E. Washington Convention Center – Grand Ballroom A

We are on the cusp of seeing frequent suborbital spaceflights carrying humans and payloads to space and back. Hundreds of people have already signed up to fly, but why do they want to go? What are their motives? What are their expectations? How will they prepare?

The Association of Space Explorers (ASE) will for the first time provide you the opportunity to hear directly from people who are preparing to fly soon. The session will open with presentations on the status of the human suborbital programmes by the Commercial Spaceflight Federation, Virgin Galactic, and Blue Origin.

A panel discussion will follow, composed of future suborbital astronauts providing their perspectives. Also included are a person who wants to use the suborbital flight for research experiments, as well as an astronaut trainer from Virgin Galactic. Finally, an orbital astronaut from ASE will be on the panel to provide a perspective on what to expect from someone who has been there. The panelists will have an interactive discussion about these questions both among themselves and with the audience

Organized by:
Association of Space Explorers (ASE)
Virgin Galactic
IAF Human Spaceflight Committee

Speakers:

Greg C. Johnson
Senior Vice President of New Shepard,
Blue Origin,
United States

Clare Pelly
Head of the Astronaut Office,
Virgin Galactic,
United Kingdom

Eric Stallmer
President,
Commercial Spaceflight Federation,
United States

MODERATOR
Michael Lopez-Alegria
Former NASA Astronaut & President,
Association of Space Explorer (ASE),
United States

Panellists:

Daniel Durda
Future Astronaut, Principle Scientist,
Southwest Research Institute,
United States

Pamela A. Melroy
Former Astronaut and CEO,
Melroy & Hollett Technology Partners,
Australia

Beth Moses
Chief Astronaut Instructor,
Virgin Galactic,
United States

Ron Rosano
Future Astronaut,
Virgin Galactic,
United States

14:45 – 15:45 Industrializing the Solar System – Launching the OffWorld Industrial Robotics Workforce Programme

Location: The Walter E. Washington Convention Center – Grand Ballroom C

OffWorld is building millions of smart robots working with human supervision on earth and in space, turning the solar system into a habitable place for life and civilization. Enabling human expansion off our home planet is the most important objective of our civilization, for three reasons: 1) species level life insurance policy, 2) sustainable development on earth and 3) opening up the new frontier.

What we require in space is a robotic workforce for tough jobs. We need to be able to excavate underground habitats and extract water ice and materials. From the collective volatile's we need to make drinkable water, breathable air and rocket propellant. In order to sustain expansion we need to be able to manufacture basic structures and solar cells so that we can produce unlimited power. Ultimately, these systems will need to replicate themselves for rapid and economic expansion. In order to do this, we need to emulate the entire infrastructure value chain from mining, processing, fabrication, assembly and construction. However, we cannot just export current Earth-based practices and technology. We must reinvent how we undertake these processes here on earth, and transfer them directly to the expansion of civilization into the solar system.

This keynote event will introduce the OffWorld Robotic Industrial Workforce programme with onstage high production value demonstrations of our first species of autonomous industrial robots to complement the OffWorld exhibit.

Organized by:
OffWorld, Inc.

Speaker:

Jim Keravala
CEO,
OffWorld, Inc.,
United States

Jim co-founder and chief executive of OffWorld (www.offworld.ai) and is leading the deployment of a machine learning industrial robotic workforce to undertake mining, manufacturing and construction on planetary surfaces and in space. Our generation is facing the greatest challenges in the history of human civilization. Our economic, environmental, demographic and social burdens are becoming more significant each year. The pace of technology development and economic growth is perpetuating a resource imbalance across our species. We must cherish this one habitable zone world that we have and reach out to the resources of space to take industrialization off world and reach for the stars with purpose and urgency.

To meet this objective, OffWorld's industrial robotic workforce forms the foundation of a solar system platform that will enable the construction of fuel depots, space based solar power stations, infrastructure and entire settlements in space.

He brings 30 years of experience and visionary leadership in innovation in multidisciplinary areas such as aerospace engineering, space systems, robotics and machine intelligence, manufacturing and construction, computer science, synthetic biology and molecularly precise control systems. Jim is a prolific technologist and an accomplished entrepreneur able to constantly identify new acceleration ramps in the technological landscape.

Jim started his career in the space launch industry managing launch programmes overseeing over a dozen successful orbital launches on Russian, European and US launch vehicles. Modular satellite design, integration engineering and programme management were part of this process.

Jim also architected major space programmes including new space agencies and launches at Surrey Satellite Technology and as cofounder of Shackleton Energy, space propellant depots utilizing requiring lunar mining and a continuous supply of fuel in space. Jim studied aerospace engineering, spacecraft engineering and physics at University of London, Surrey University, Aachen Technical University and International Space University, was previously faculty at Singularity University and is on advisory boards and Board of Directors of a number of space institutes including Board Member of the National Space Society, The International Moonbase Alliance and the Moon Village Association.

15:55 – 16:55 ECOSYSTEM for Sustainable Space Exploration – Involving New Space, Non-Space Players

Location: The Walter E. Washington Convention Center – Grand Ballroom A

In Situ Resource Utilization (ISRU) will be one of the most critical key technologies for sustainable space exploration because this could significantly reduce the cost of space exploration. Therefore the ISRU is the main theme in the latest architecture study in International Space Exploration Coordination Group (ISECG). Because the ISRU is very relevant to the technologies on the ground such as excavation, roving, drilling, resource prospecting, power generation, soil processing, electrolysis, liquefaction, etc., new space entities and non-space entities will have opportunities to participate

by their own technologies. Also, the ISRU could enable commercial business opportunities by selling fuel in space.

At this forum, we will discuss how the ISRU will benefit to the overall mission and architecture, what is the challenge for the ISRU, how we can overcome the challenges, and what business opportunities can be foreseen.

Organized by:

Japan Aerospace Exploration Agency (JAXA)

Speaker:

Alexander MacDonald
Senior Economic Advisor,
National Aeronautics and Space Administration (NASA),
United States

Alexander MacDonald is the Senior Economic Advisor within the Office of the Administrator at NASA Headquarters. He is recognized as an expert on the economic history of American space exploration and contemporary private-sector space activities. He was previously the founding programme executive of NASA's Emerging Space Office which conducts economic analysis on the emerging commercial space sector and which established NASA's first grants programme for economics research. He is the author and editor of a number of NASA reports including Emerging Space: The Evolving Landscape of 21st Century American Spaceflight, Public-Private Partnerships for Space Capability Development, and Economic Development of Low-Earth Orbit. He is also an Executive Staff Specialist at NASA's Jet Propulsion Laboratory, a former research faculty member at Carnegie Mellon University, and has worked for the Universities Space Research Association while at NASA's Ames Research Center where he worked on small satellite mission designs and served as the center's first research economist on staff. He received his undergraduate degree in economics from Queen's University in Canada, his master's degree in economics from the University of British Columbia, and was a Clarendon Scholar at the University of Oxford where he obtained his doctorate on the long-run economic history of American space exploration. He was also an inaugural TED Senior Fellow and received the AIAA History Manuscript of the Year Award in 2016.

Takahiro Nakamura
Director and COO,
ispace,
Japan

After receiving his M.S. in Planetary Science from both Kyushu University and then via the University of Tokyo on a full scholarship, Takahiro joined Accenture, where he spent 5 years as a management consultant, specializing in both the retail and high-tech industry. Joining Recruit next (Japan's largest information company) Takahiro launched 4 businesses – leading two of them – including SUMO, a moving service, and a business for elderly people. Takahiro joined ispace in 2011 after an initial volunteer role, and is now the acting COO.

Naoki Sato
Chair,
International Space Exploration Coordination Group (ISECG),
Japan

Naoki Sato graduated Aeronautics Engineering Department, Kyusyu University in 1986, and gained master degree of applied engineering of Kyusyu University in 1988. At the same year, he entered in National Space Development Agency of Japan (predecessor of JAXA). Since 1990, he had been involved in the International Space Station programme for about 16 years. After that, he started to work for the international space exploration programme formulation up to now. He is the current ISECG chair since Apr. 2018. Also, he was assigned as the director of the Space Exploration System Technology Unit of JAXA Space Exploration Center (JSEC) in July 2018.

George Sowers
Professor,
Colorado School of Mines,
United States

Dr. George Sowers is a Professor of Practice at the Colorado School of Mines (CSM) supporting the world's first and only graduate programme in Space Resources. Before joining CSM he spent 30 years in the space transportation industry working for Martin Marietta, Lockheed Martin and the United Launch Alliance (ULA). He was the Chief Systems Engineer for the development of the Atlas V rocket and led the effort to human rate the Atlas V for the launch of the Boeing Starliner capsule. In 2017, he retired from his position as Vice President and Chief Scientist at ULA where his team developed an architecture for fully reusable in-space stages fueled by propellant mined, refined and distributed in space. Dr. Sowers holds a BS in Physics from Georgia Tech and a PhD in Physics from the University of Colorado. Dr. Sowers is a fellow of the American Institute of Aeronautics and Astronautics (AIAA).

MODERATOR
Koichi Wakata
Vice President,
Japan Aerospace Exploration Agency (JAXA),
Japan

Dr. Koichi Wakata received B.S., M.S., and Ph.D. from Kyushu University. Selected as an astronaut candidate in 1992, from 1992 to 2016 he worked at NASA Astronaut Office and served in duties including Chief of Space Station Operations Branch, instructor astronaut for robotics, EVA and CapCom. He served as Chief of JAXA Astronaut Group from 2010 to 2012, JAXA ISS Programme Manager from 2016 to 2018, and is currently serving as JAXA Vice President for Human Spaceflight and Exploration. He flew in space four times on Space Shuttle (STS-72, STS-92, STS-119, and STS-127), ISS (Expedition 18/19/20 and Expedition 38/39), and Soyuz (TMA-14 and TMA-11M). He became the first Japanese ISS Commander in 2014 and has accumulated a total of 347 days in space.

15:55 – 16:55 Space Supporting the UN Sustainable Development Goals 2030 Agenda

Location: The Walter E. Washington Convention Center – Grand Ballroom C

Since the adoption in September 2015 of the 17 United Nations Sustainable Development Goals (SDGs), there has been an increased understanding that space programmes, projects, applications or technologies are and can be great contributors to the measurement and the achievement of the Goals. Initiatives have been developed at local, regional or global level. Yet, much has to be done in order to take full benefit of "space" and make sure those tasked to implement the Goals are aware of what exists, or find the right ways to express the message on what they would need. The Goals have to be reached by 2030, that gives little time to act. The GNF will give the opportunity to some of the actors to exchange on what they propose and what they need.

Organized by:

Space Generation Advisory Council (SGAC)
European Space Agency (ESA)

Speakers:

Ganiyu Ishola Agbaje

Executive Director,
African Regional Centre for Space Science & Technology Education (ARCSSTE-E),
Nigeria

Dr Ganiyu Ishola Agbaje is currently the Executive Director of the African Regional Centre for Space Science & Technology Education – English (ARCSSTEE), OAU Campus, Ile-Ife, Nigeria – an affiliated Centre of the United Nations Office for Outer Space Affairs (UNOOSA), Vienna, Austria (March 2015 to date). He was the Director (Special Duties) in charge of the Space Council Secretariat, Nigeria (2013 – 2014). Prior to that he was the Director, Mission Planning, ICT, & Data Management of of the National Space Research & development Agency (NASRDA) – (2007-2013). Dr Agbaje is a Geoinformatics Scientist with PhD [Geography -Geomatics] Degree from Lancaster University, United Kingdom; MPhil. [GIS & Remote Sensing] from University of Cambridge, United Kingdom; and MSc. & BSc. (Hon.) [Surveying] from University of Lagos, Nigeria. He is a Registered Surveyor (1989) and a Fellow of the Nigerian Institution of Surveyors (2009).

Dr Agbaje was the Group on Earth Observation (GEO)-Principal for Nigeria (2010 – 2014) and served on the GEO Executive Committee [EXCOM], Institution & Development Board, and Data-Sharing Working Group of GEO, Geneva during this period. Dr Agbaje is a member of the Nigeria delegation to the United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS) from 2005 to date. Dr Agbaje has written over fifty scholarly papers for publication and presentations at local and International conferences on Geoinformatics, Environment, Space Law, GNSS, Sustainable Development, Satellites, Health, etc. In addition, he is an awardee of many international Research Grants.

Chris Lee

Chief Scientist / Head of Science Programme,
UK Space Agency (UKSA),
United Kingdom

Chris graduated from University of Leicester in 1980 with an MSc in Space Science. He then joined the UK space industry, mainly concentrating on missions supporting astronomy, planetary and earth sciences. In 2014 he joined the UK Space Agency as the first Head of International Space Policy and Head of Delegation at UNCOPUOS. Chris developed the Agency "International Partnership Programme" aimed at meeting UN SDG Agenda 2030 – the biggest example of its kind in the world. Chris became the UK Board Member for the International Charter "Space and Major Disasters" and Chaired this organisation in 2017, when it was given the "William T Pecora" Award. In 2018 Chris moved across to take over the Science portfolio at the Agency and was appointed Chief Scientist. Chris remains Head of Sustainable Development Programmes.

Shirish Ravan

Senior Programme Officer,
United Nations Office for Outer Space Affairs (UNOOSA),
Austria

Shirish Ravan works for the United Nations Office for Outer Space Affairs in Vienna, Austria. He coordinates activities of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) in Asia and the Pacific. He is also involved in other programmes of the Office that promote the use of space technologies for sustainable development. His previous assignments include leading the UN-SPIDER Beijing Office and Illicit Crop Monitoring Programme of the United Nations Office on Drugs and Crime in Afghanistan. He has extensively worked with the countries in Asia, the Pacific and Africa to offer technical advisory services, institutional strengthening and outreach programmes for promoting applications of Earth observation disaster risk reduction and sustainable development.

He holds Bachelor degree in Horticulture, Master in Environmental Sciences and Doctorate in Forest Ecology. His doctoral research explored the remote sensing technology for forest ecosystem analysis (biomass and biodiversity assessment), and he has authored over 50publications including 20 research papers in the peer-reviewed journals.

Davide Petrillo

Space Generation Congress 2019 Deputy Manager,
Space Generation Advisory Council (SGAC),
Austria

Davide Petrillo has currently been appointed as the Space Generation Congress (SGC) 2019 Deputy Manager within Space Generation Advisory Council (SGAC). His professional experience brought him to London (UK) as a Business Manager for Alten Ltd, global management consulting company that provides strategy, consulting, digital, technology and operations services focused on the Aerospace field.

Davide has a M.Sc. in Aerospace Engineering from the University of Padova, Italy. Previously, he was the Team Leader of FELDs Experiment selected by the European Space Agency (ESA) for the Drop Your Thesis! 2014 programme. FELDs tested a tethered electromagnetic soft docking technology in microgravity conditions at the Drop Tower of the Centre of Applied Space Technology and Microgravity (ZARM) in Bremen, Germany. In 2015, he won the "Hans Von Muldau Team Award" for the best team project that took place in Jerusalem at the 66th International Astronautical Congress (IAC). Davide joined SGAC in 2016 and has been appointed as part of the 3rd E-SGW organizing team and also the SGC 2018 organizing team as part of the Working Group team specifically focused on the organization and management of the Special Track "Bridging the Space Divide" Working Group. In conclusion, after the SGC 2019 experience, Davide will be promoted as the Event Manager for the next SGC 2020 that will take place in Dubai, UAE. This event will be focused on the concept of sustainability and environmental impact in order to increase public awareness about the engagement with sustainability principles and sustainable living.

Jan Woerner
Director General,
European Space Agency (ESA),
France

Johann-Dietrich "Jan" Wörner was born in Kassel, Germany, in 1954. He studied civil engineering at the Technical University (TU) Berlin and TU Darmstadt, from where he graduated in 1985. In 1990 he returned to TU Darmstadt, where he was appointed as a professor of Civil Engineering and took over as Head of the Test and Research Institute. Jan Wörner headed the university from 1995 to 2007 and succeeded in making it the first autonomous university of the Federal Republic of Germany. From March 2007 to June 2015, he served as Chairman of the Executive Board of the German Aerospace Center (DLR). He became the ESA Director General on 1 July 2015. Jan Wörner has received honorary doctorates from New York State University at Buffalo (USA), technical universities of Bucharest (Romania) and Mongolia, the Saint Petersburg University for Economics and Finance (Russia) and École Centrale de Lyon (France).

He has received the Federal Cross of Merit (Officer's Cross, 1st Class) of the Federal Republic of Germany for his continuous efforts regarding the next generation of scientists and Germany as a location for Science, Technology and Engineering. He has furthermore been awarded the honours of Knight of the French Légion d'Honneur.

MODERATOR

Isabelle Duvaux-Béchon
Head Member States Relations & Partnerships Office,
European Space Agency (ESA),
France

Isabelle Duvaux-Béchon is in charge of the Relations with ESA Member States ensuring the coordination at corporate level of the information on Agency's policies and actions towards the 22 ESA Member States, acting as their entry point to the Agency and aiming at optimisation of mutual current and future interests. She is also in charge of the coordination across ESA of transverse initiatives representing global challenges on Earth, with a thematic (Space; Energy, Sustainable Development, Health, etc.) or geographical approach (Oceans, the Arctic, Antarctic, the Alps, Africa…), making the links between ESA and potential users, and coordinating partnerships with non-space entities.

She is co-chairing the ESA Space; Arctic Task Force formed with ESA Member States interested by the Arctic. After 4 years in the space industry, she joined ESA in 1987 and worked in various areas: Microgravity, International Space Station, Budget, Education, Corporate Planning and Finance, Studies and Advanced Concepts. Isabelle Duvaux-Béchon is a diplomed engineer from Ecole Centrale Paris (specialisation in Air & Space engineering) and an auditor of the French Institute of Advanced Studies in National Defence (IHEDN). She is a full member of the International Academy of Astronautics.

17:05 – 17:45 OOS and Related Technologies Enabling Next-Gen Space Missions and Ultimate Exploration

Location: The Walter E. Washington Convention Center – Grand Ballroom A

In light of up-taking exploration missions, first commercial satellite life extension missions and numerous global efforts to implement space system modularity and plug-and-play concepts, as well as next-gen standards for space (e.g. via CONFERS or the Deep Space Interoperability Standards) the session will address thriving issues with a distinguished panel of industry and agency representatives driving top-notch on-orbit servicing (OOS), on-orbit-assembly (OOA), on-orbit manufacturing (OOM), new operational concepts and business models, and supporting concomitant activities and standard developments.

Organized by:
German Aerospace Center (DLR)

Speakers:

Jim Armor
Chair Executive Committee and Former Major General U.S. Air Force,
Consortium for Execution of Rendezvous and Servicing Operations (CONFERS),
United States

Maj. Gen. Jim Armor, USAF (Ret.) is a Director, Government Relations for Northrop Grumman Corp. in Falls Church, VA, , where he coordinates government interactions for the company's Commercial Space and Launch business areas. In addition, he is the Vice President for Government Services of SpaceLogistics LLC, a wholly owned subsidiary of NGC serving the on-orbit satellite servicing industry. He is currently the Vice Chairman of the Space Council of the Aerospace Industry Association (AIA); Chairman of the Commercialization and Innovation Committee of the FAA's Commercial Space Technical Advisory Council (COMSTAC); a member of the Policy & Regulatory Committee of the NASA Advisory Council (NAC); the Chairman of Consortium for Execution of Rendezvous and Servicing (CONFERS); and an active Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), where he is on the Public Policy Committee.

He also now serves on the Board of Directors of NAVSYS Corp, a small, woman owned navigation R&D Company in Colorado Springs, CO. Prior to his positions with NGC, he was the Staff VP for Government Relations with Orbital ATK, and before that, he was the VP for Strategy and Business Development at Alliant Techsystems (ATK), Space Systems Division where he developed and delivered small, responsive satellites, satellite components, and related engineering services. He also helped to establish an entirely new commercial space market, in- orbit satellite servicing, as well as engineering systems supporting NASA and DARPA robotics. Prior to joining ATK, he was the Founder and Chief Executive Officer of The Armor Group, LLC, which provided consulting support to government and commercial space organizations. He has been on several National Research Council Studies for NASA and the USAF, the Board of Advisors to the Secure World Foundation (SWF) advocating international sustainable space policies, and the Board of Directors, Integral Systems, Inc., Lanham, MD. He served 34 years in the U.S. Air Force in a variety of space related command and staff positions including Director of the NAVSTAR GPS Joint Program Office, Director of Acquisition and Operations for Signals Intelligence at the National Reconnaissance Office (NRO), and as a military payload specialist on the Space Shuttle. He served as the Director of the National Security Space Office at the Pentagon before retiring from the USAF in January 2008.

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in autonomous systems, cyber, C4ISR, strike, and logistics and modernization to customers worldwide.

Bhavya Lal

Research Staff Member,
IDA Science and Technology Policy Institute,
United States

Bhavya Lal leads strategy, technology assessment, and policy studies and analyses at the IDA Science and Technology Policy Institute (STPI) for the White House Office of Science and Technology Policy (OSTP), the National Space Council, and Federal space-oriented organizations including NASA, the Department of Defense and the Intelligence Community. She has applied her expertise in engineering systems and innovation theory and practice to topics in space, with particular focus on commercial activities, especially related to on-orbit servicing assembly and manufacturing, small satellites, human exploration, space nuclear power, and space science. She is an active member of the space technology and policy community, having led, co-led or served on several high-impact National Academy of Science (NAS) committees (Assessing the Relative Merits of Infrared Observations by a Space-based Telescope to Detect and Characterize Near-Earth Objects; State of U.S. Electronic Parts Radiation Testing Infrastructure for Space Applications; Achieving Science Goals with CubeSats; and 3D Printing in Space). She is serving a second term on the NOAA FACA Advisory Committee on Commercial Remote Sensing (ACCRES), and participated on the UN Committee on Space Research (COSPAR) to develop an international scientific roadmap for small satellites. She co-organizes a seminar series on space history and policy with the Smithsonian National Air and Space Museum. She co-founded and is co-chair of the policy track of the American Nuclear Society's annual conference on emerging technologies in space. She is a Corresponding Member of the International Academy of Astronautics. Before joining STPI, Dr. Lal was president of C-STPS LLC, a science and technology policy research and consulting firm. Prior to that, she was the Director of the Center for Science and Technology Policy Studies at Abt Associates. Dr. Lal holds B.S. and M.S. degrees in nuclear engineering from the Massachusetts Institute of Technology (MIT), a second M.S. from MIT's Technology and Policy Programme, and a Ph.D. in Public Policy and Public Administration from George Washington University. She is a member of both the nuclear engineering and public policy and public administration honor societies.

Daniel Nölke

PSA & DLR Delegate,
PERASPERA Programme,
European Commission H2020,
Germany

Daniel Nölke is working in the General Technologies and Robotics division of the German Aerospace Center DLR – Space Administration on space robotics and modular space systems since 2009 with a strong focus on smart and innovative approaches as well as technology transfer, innovation and commercialization. He is responsible for funding and monitoring various research projects in the national space programme in the department of general technologies and robotics. Daniel Nölke initiated and leads the key project iBOSS.

On European level, he leads the German part of the European Commission's Horizon2020 Strategic Research Cluster "Space Robotics Technologies" since November 2014 and is official representative of DLR to a European Commission's Working Group preparing the next framework programme for Space. As systems engineer he coordinated the German DEOS mission sensor system development and organized the SpaceBot Cup – a space robot competition – in 2013. Prior to DLR, he conducted research structural optimization and space debris at the Institute of Structural Mechanics and Lightweight Design of RWTH Aachen University. In this context he was delegate in the German delegation to the Inter-Agency Space Debris Coordination Committee. In parallel he was CEO of the Space Research Forum of RWTH Aachen University. Daniel holds a university diploma in mechanical and aerospace engineering from RWTH Aachen University (Germany).

Bernd Sommer

Head of Space Automation and Robotics,
German Aerospace Center (DLR),
Germany

Bernd is Head of Automation and Robotics of the German Aerospace Center DLR – Space Administration.

Bernd looks back on 30 years as a Programme & Project Manager in the area of manned and unmanned space flight missions. His long international and intercultural business experience in the areas of automation and robotics for space applications, earth observation, systems engineering support, project and programme reviews provide the profound basis for his position today.

Bernd's tasks span from the definition of the A&R programme within the German National Space Programme run by Federal Ministry of Economic Affairs and Energy, over the preparation of inter-agency cooperation in the field of space automations & robotics, the ESA/DLR robotics programme harmonization, the coordination with the EU commission, the definition of A&R projects to the provision of technical support in programme- and project-reviews.

He holds a master's degree in Physics & Mathematics from Justus-Liebig-University of Giessen and graduated as Master in Space Systems Engineering at Technical University of Delft.

MODERATOR

Joerg Kreisel

CEO,
JKIC,
Germany

Joerg specializes in technology commercialization – with a strong focus on space – and has been involved in numerous primarily international activities in both space and early-stage equity finance since 1987 (i.e. support to the creation and early years of RapidEye). After pursuing a first career in space business he became venture capitalist in the early 1990s. Joerg serves as board member of several high-tech startups and investor boards, has been involved with new business creation in the space arena around the globe. He holds a degree in aerospace engineering from RWTH Aachen University (Germany) and is an ISU alumnus, acts as lecturer at different universities since the 1990ies, and is a frequent speaker at international events. Joerg was born in 1961 and is married, with two children.

His firm JKIC (JOERG KREISEL International Consultant – Independent Space Business + Finance Advisors) was formed in 1991 in Germany and is focused on innovative and commercial activities related to the space sector as well as on special activities in the private equity and venture capital industry. Today, JKIC is a recognized label in the global space community, advising space-related government authorities, industry, SMEs and selected investors worldwide using its proprietary global network of leading expertise, and acting as intermediary. JKIC supports space ventures, facilitates business partnerships, equity finance, global links and strategy development as well as new system concepts. The portfolio also spans over financing strategies and models beyond commercial endeavors, e.g. conceptualization and development support for national or international funding schemes.

Since 2000 JKIC is involved with on-orbit servicing (OOS) both space agency and industry projects or commercial offerings, was part of the iBOSS consortium, and instrumental in creating iBOSS GmbH which commercializes the iSSI (intelligent Space System Interface enabling plug-and-play space infrastructure and fully-fledged OOS).

In summary, Joerg is around in the industry for more than 30 years and deals with space finance for more than 25 years, moreover, he currently holds stakes in 10 space-related startups in different countries.

17:05- 17:50 We Are Going, and The Technologies to Get Us There

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The renewed focus on Lunar exploration by the United States will require significant technology investments in order to ensure it will be affordable and sustainable. Specifically, utilization of resources found on the Moon will be a critical enabler in both cost savings and reduced mass lift requirements of future sustainable exploration. This panel will explore the state of In-Situ Resource Utilization (ISRU) and how its development an application will impact the future of lunar exploration as well as how these advancements will set the foundation for exploration of Mars and beyond.

In this highly-interactive session, each panelist will briefly discuss their organizations plans for ISRU technology development with the goal of enabling Lunar and eventually Mars crewed exploration. Following these opening remarks, the panelists will take questions from the audience and participate in an interactive discussion with the community on exploration technology topics.

Organized by:

American Institute of Aeronautics and Astronautics (AIAA)

Speakers:

Jennifer Edmunson

Geologist, In-Space Manufacturing Engineer,
Jacobs Corporation,
United States

Naoki Sato

Chair,
International Space Exploration Coordination Group (ISECG),
Japan

George Sowers

Professor,
Colorado School of Mines,
United States

Nikki Werkheiser

Program Executive,
Game Changing Development Program,
National Aeronautics and Space Administration (NASA),
United States

MODERATOR

Steve Jurczyk

Associate Administrator,
National Aeronautics and Space Administration (NASA),
United States

Thursday 24 October 2019

GNF LEGAL AND POLICY STREAM Room: Grand Ballroom A	GNF DEVELOPMENT STREAM Room: Grand Ballroom C

09:40 - 10:40 The Future Lunar Ecosystem and its Business Potential for Non-Space Industries

Location: The Walter E. Washington Convention Center – Grand Ballroom A

The lunar exploration and space resource utilisation industry is undergoing a major shift from public-only missions towards public-private and fully commercial ones, driving down costs of space exploration. Often described as a race to the Moon changing the landscape of space exploration, the current evolutions will go far beyond a mere race: the involved companies are creating a unique set of levers for future business growth not only for themselves but also for terrestrial industries that will have an opportunity to expand their customer base into space.

The present GNF session will bring together a one-of-a-kind combination of panelists: commercial lunar exploration companies and their non-space partners. What motivated their decision to join a commercial lunar exploration company in its undertakings? Illustrating their motivations to join a commercial lunar exploration company in its undertakings, these futureoriented industries will expose their particular short to long-term interests in the value chain of lunar exploration and space resource utilisation and emphasize the clear need of crossindustrial collaboration in the space industry.

Organized by:
ispace

Speakers:

Dan Hendrickson
Vice President Business Development,
Astrobotic,
United States

Dan Hendrickson serves as the Vice President of Business Development for Astrobotic, a lunar logistics company based in Pittsburgh, Pennsylvania. Dan leads Astrobotic's lunar payload delivery sales and corporate sponsorships for the company's robotic missions to the Moon. Prior to Astrobotic, Dan served as the Director of Civil and Commercial Space Systems at the Aerospace Industries Association (AIA). During his time at AIA, he was a consensus builder among a council of 50 U.S. space companies to provide the U.S. Government guidance on key space industry views.

Takeshi Morita
Director Business Strategy Group,
Business Creation Strategy Department, Innovation Division
Japan Airlines Co., Ltd.,
Japan

Takeshi Morita has been with Japan Airlines for 19 years. As Director of Business Strategy Group, he is responsible for exploring new business opportunities and the overall management of issue relating to venture capitals. Prior to his current role, he was a Manager of Corporate Strategy. He was responsible for creating mid and long term business plan, as well as analyzing the profit structure of airlines and non-airline business. He holds a Bachelor Degree in Law from Keio University in Japan.

Craig Tibbets
Venture Lab Chief,
NGK Sparks,
United States

Craig Tibbetts is responsible for the NGK/NTK Venture Lab, which serves as a bridge between NGK and startup companies. It's mission is to create new business opportunities through collaboration and partnership. He previously worked in the automotive division as Director of NGK's Michigan Technical Center and prior to that as Account Manager responsible for engineering and sales for automotive OEM customers. Craig holds a B.S. in Mechanical Engineering from the California Institute of Technology and M.S. from the Tokyo Institute of Technology.

09:40 – 10:40 Space Museums and Science Centres: Heritage and Education in a Fast Changing World

Location: The Walter E. Washington Convention Center – Grand Ballroom C

Space Museums and Science Centres are in charge of preserving and sharing space heritage. If curation policies of space artefacts are different from one country to another, there is an interest in preserving this scientific, industrial, emotional and often political heritage for every country involved in space.

Education also lies at the heart of the missions of Museums and for Science Centres. What education are these institutions aiming for? Is space education an engaging, exciting way to bring STEAM to the visitors or shall they keep focused only on space?

Ideally, in what type of relationship should Museums and Science Centres and space agencies and industries should be engaged in? This session will engage experts in reflecting on the role of heritage and education for Space Museums and Science Centres.

Organized by:

Chinese Society of Astronautics (CSA)
Space Museums and Science Centres Committee

INTRODUCTION

Yiran Wang

Vice President,
Chinese Society of Astronautics (CSA),
China

Mr. Wang Yiran, the vice president and secretary general of Chinese Society of Astronautics (CSA). In this capacity, he is responsible for promoting the international space exchange and cooperation. Under his leadership, CSA has co-organized with IAF the successful 2017 Global Space Exploration Conference (GLEX) and the 2019 China Space Conference. Mr. Wang Yiran is also the secretary general of IAF subcommittee Select Sub-Committee on Satellite Commercial Applications.

Before joining CSA, Mr. Wang Yiran was engaged in space strategic planning and policy research for more than two decades. He led numerous research programmes including the White Paper of China's Space Activities in 2011, and in 2016 respectively.

Mr. Wang Yiran was graduated from Beihang University with a M.A. degree in mechanics in 1989, and had studied at International Space University in U.S. in 2012.

Speakers:

Jean Baptiste Desbois

CEO,
Cité de l'Espace,
France

Mr. Jean Baptiste Desbois is the CEO of SEMECCEL, a Private Public Partnership operating Cité de l'Espace, the main Science Centre in Europe dedicated to space and astronomy and L'Envol des Pionniers, an interpretation centre dedicated to the history of early aviation. For 30 years he has been leading touristic and cultural facilities in France: Nantes convention and congress centre, Nantes' historical castle -Château des ducs de Bretagne-, the urban street show – Les Machines de l'île-, international festival of classical music -La Folle Journée.

Mr. Jean Baptiste Desbois is actively serving the community of Space Museums and Science Centre through various engagements among which: chair of the Space Museums Committee of IAF (International Astronautical Federation); Board member of the World Space Week Association; former board member of ECSITE (European network of science centers), and founding member of its Space Group.

M. Jean Baptiste Desbois has been raised Chevalier de l'Ordre du Mérite by the French Ministry of Universities, Research and Innovation for his service to the French Nation.

William Harris

President and CEO,
Space Center Houston,
Manned Space Flight Education Foundation,
United States

William T. Harris is the President and CEO of Space Center Houston and the Manned Space Flight Education Foundation, the nonprofit science and space learning center. With approximately 400 employees and contractors, Space Center Houston is the No. 1 international attraction in the greater Houston area, generating a $118.1 million annual economic impact. A dynamic science and engineering learning destination, the nonprofit is a Smithsonian Affiliate, the Official Visitor Center of NASA Johnson Space Center, a Certified Autism Center and was named "Best Museum in Texas" by USA Today.
Joining the foundation and center in April 2016, Harris has more than 35 years in nonprofit leadership and fundraising experience, including senior positions at museums and universities. Harris previously was at the California Science Center Foundation as senior vice president of development and marketing, overseeing all external affairs including board relations, campaigns, annual and membership programmes, public funding, marketing and communications. Harris was a leader on the team to bring the space shuttle Endeavour to the California Science Center, including its funding, promotion, transport, communications, marketing and exhibit opening.
He is a member of the board of directors and executive committee of the Association of Science Technology Centers (ASTC), for which he chairs the board Equity and Diversity Committee. He is also a member of the Board of Directors and Grants Committee for the QueensCare Charitable Foundation.

Ellen Stofan

John and Adrienne Mars Director,
Smithsonian National Air and Space Museum,
United States

Dr. Ellen Stofan is the John and Adrienne Mars Director of the Smithsonian's National Air and Space Museum. She comes to the Museum with more than 25 years of experience in space administration and planetary science. Dr. Stofan was previously Chief Scientist at NASA, serving as the principal advisor to the Administrator on science programmes and strategic planning.

She held senior scientist positions at NASA's Jet Propulsion Laboratory, including work on missions exploring Venus, Earth, Mars, and Saturn. She served as chief scientist for the New Millennium Programme, and principle investigator on the proposed Titan Mare Explorer.

Dr. Stofan holds master's and doctorate degrees in geological sciences from Brown University, and a bachelor's degree from the College of William & Mary. She is an Honorary Professor at University College London, and was on the board of the College of William & Mary Foundation for 10 years, serving as board chair and co-chair of the development committee as it planned a $1 billion fundraising campaign.

Mingzhu Zhang
Director,
International Relations Division,
China Academy of Space Technology (CAST),
China

Ms. Zhang Mingzhu, Director of international relations div of CAST (China Academy of Space Technology). Ms. Zhang has been working for CAST for twenty years, actively engaged in developing space cooperation between CAST with Asian and European countries. She is promoting good relations between CAST with worldwide space administrations, industry enterprises and academic organizations.
Ms. Zhang is the organizer of CAST GALA at ambassadors' level and organizing space events of enterprise brand. She has attended EU conference and Canadian space conference etc., presenting about China's space activities.

MODERATOR
Ines Prieto
International Affairs,
SMC Committee/Cité de l'Espace,
France

Ines Prieto is the Head of International and Institutional Affairs at Cité de l'Espace since 2017. She has committed her professional career to space and science engagement and is strongly involved into international networks focusing on creating frameworks of cooperation between different institutions. She has developed various international projects in countries like the US, China, Korea, Columbia, Kazakhstan, sponsored by US State Department, Chinese Space Agency, Institut Français, French Ministry of Foreign Affairs, European Commision…

In 2018 she was invited by the US State Department to be part of the International Visitors Leadership Programme on promoting women in the STEAM field. Until 2017 she worked as an exhibition designer, having started her career as an educator in Toulouse but also in Vancouver (Canada). She received a Master's Degree in Signal Processing (Enseeiht, Université Paul Sabatier) in 2000, and a BA in Physics in 1999 (Université Paul Sabatier). She studied as an Erasmus student in Aarhus, Denmark. She is a member of Women In Aerospace Europe.

10:45 – 11:35 Space Traffic Management is Needed Now! IAA, IISL, and IAF Join Their Forces to Propose Long Term Sustainability of Space Operations

Location: The Walter E. Washington Convention Center – Grand Ballroom A

As space activities increase in number, participants, and diversity, issues pertaining to space situational awareness within the space environment, space surveillance & tracking of active and inactive objects, and space traffic management in and to orbit have captured the attention of the international space community.

In October 2018, at the opening ceremony of the 69th International Astronautical Congress in Bremen, the International Academy of Astronautics, International Astronautical Federation, and International Institute of Space Law committed to joining their organizational competencies and the expertise of individual members to develop concepts for STM and to provide advice to decision-makers for the benefit of the space sector and humankind.

This joint initiative integrates the 2018 IAA Cosmic Study on *Space Traffic Management – Towards a Roadmap for Implementation*, which was presented to UNCOPUOS in the spring of that year. In addition, the IAA brings its decades of technical expertise through its individual memberships from 90 countries. The IISL brings to the joint initiative regulatory "know-how" from all legal backgrounds around the world. Through the IAF's organization memberships, a large reservoir of member agencies, industries, operators and users are engaged thus guaranteeing the broadest possible basis for a successful venture. Space Traffic Management (STM) requires the use of space situational awareness for the purpose of maximizing orbital safety, space security, and operational sustainability. However, one cannot manage that which one does not know, and one does not know that which one does not measure! Therefore, STM is critically founded upon holistically measuring (i.e. monitoring) the space domain.

The proposed GNF event will provide information regarding this new collaboration. This outreach to the space community will be both high-level, bounding the issues and the current status quo of the SSA Space Surveillance and Tracking (SST) STM community, and sufficiently detailed to convey technical capabilities and governance initiatives that currently exist and those that are proposed.

Organized by:

International Institute of Space Law (IISL)
International Academy of Astronautics (IAA)
International Astronautical Federation (IAF)

Speakers:

Christopher Bonnal
Chair,
IAA Space Debris Committee,
France

Christophe Bonnal has been involved in Space Debris activities since 1987. He chairs the IAA Space Debris Committee and coordinates the IAA Space Debris Symposium at IAC. Christophe is the French delegate to IADC, ECSS, ISO, and editor of the IAA Space Reports in the field of Space Debris. He is a full member of IAA and member of the IAF IPC Steering Committee.

Diane Howard
Executive Secretary,
International Institute of Space Law (IISL),
United States

Diane Howard has been chair of the annual Space Traffic Management conference at Embry-Riddle, on going since 2013 and hosted at UT Austin in 2019. She has been active in the STM community since 2011. Diane is Executive Secretary of the International Institute of Space Law (IISL) and teaches space law at UT Austin School of Law. She is a member of the IAF IPC Steering Committee.

Moriba Jah
Associate Professor,
The University of Texas at Austin,
United States

Moriba Jah is an Associate Professor of Aerospace Engineering and Engineering Mechanics and the Director of Computational Astronautical Sciences and Technologies at The University of Texas at Austin. He is a Corresponding Member of the IAA, and serves on numerous international committees dealing with astrodynamics, space debris and space security.

Corinne Jorgenson
IAA Member,
Advancing Space Consulting Group,
France

Corinne Jorgenson is Principal, Advancing Space Consulting Group that specializes in civil and commercial space. She has been the co-editor of the 2018 IAA Cosmic Study on Space Traffic Management – Towards a Roadmap for Implementation and the 2006 IAA Space Traffic Management Cosmic Study. Corinne is a full member of the International Academy of Astronautics (IAA).

Seishiro Kibe
Senior Advisor,
Japan Aerospace Exploration Agency (JAXA),
Japan

Seishiro KIBE is a member of the IAA Space Debris Committee, former President of Society of Eco-Engineering, and Vice President of IAF. As Senior Advisor of JAXA, he has been involved in international space debris activities for a long time. He was one of the original members of IADC and used to be Chairman of its Protection Working Group and JAXA's representative to its Steering Group.

Kai-Uwe Schrogl
President,
International Institute of Space Law (IISL),
France

Kai-Uwe Schrogl is the President of the IISL. He was co-editor of the 2006 and 2018 IAA studies on STM. Under his Chairship, the Legal Subcommittee of UNCOPUOS established in 2015 an agenda item on STM.

10:45 – 11:25 Towards a Formal African Space Programme

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The African Union (AU) Summit in January 2016 approved the African Space Policy and the African Space Strategy and further recommended that the African Union Commission (AUC) reflect on the governance Framework and Implementation Plan for an African space programme. At the January 2018 AU Summit, the Statutes for an African Space Agency was approved and a formal process was initiated to identify a suitable host for the African Space Agency. At the last AU Summit in January 2019, the African heads of State approved Egypt as the host country for an African Space Agency.

The next steps involve the articulation of an Implementation Plan and an appropriate Governance Architecture, and the subsequent approval of these important instruments will mark the beginnings of the formal African space programme. The primary drivers for the African space programme, as espoused in the African Space Policy, include (i) the creation of a well-coordinated and integrated African Space Programme that is both responsive to the social, economic, political and environmental needs of the continent and is globally competitive, and (ii) the development of a regulatory framework that supports an African space agenda and ensures that Africa is a responsible user of outer space. In this Networking Forum we aim to unpack the preliminary thinking behind the African space programme.

Organized by:

South African National Space Agency (SANSA)

Speakers:

Adigun Ade Abiodun
Retired Space Expert,
Nigeria

Jonathan Angulu
Acting Director General and CEO,
National Space Research and Development Agency (NASRDA),
Nigeria

Valanathan Munsami
CEO,
South African National Space Agency (SANSA),
South African Republic

Tidiane Ouattara
Space Science Expert,
African Union Commission (AUC),
Ethiopia

Mahama Ouedraogo
Director,
African Union Commission (AUC),
Ethiopia

Mohamed Bayoumy Abdel Kader Zahran
President,
National Authority for Remote Sensing & Space Sciences (NARSS),
Egypt

MODERATOR
Asanda Sangoni
Space & Stakeholder Liaison Specialist,
South African National Space Agency (SANSA),
South Africa

11:30 – 12:15 Martian and Lunar Analogues

Location: The Walter E. Washington Convention Center – Grand Ballroom C

Martian and Lunar analogues are becoming more and more important in testing human space exploration missions. Apart from their scientific value as a testbed to investigate the use of various technologies which can be used partially or totally in future exploration of space, they can become a tool of promoting space science among young generations and a means to create the interest for not-space entities in research related to the human exploration of space. This session will hightlight the technologies which are currently used or foreseen in the space analogues, also in view of analysing the potential of creating standards with procedures, methodologies and technological assets when simulating space missions and operations in terrestrial analogues.

Organized by:
Mars Planet

INTRODUCTION
Antonio Del Mastro
President,
Mars Planet,
Italy

Antonio Del Mastro graduated in Electronic/Telecommunication Engineering with a specialization in SAR satellites data analysis. He has acquired a long experience in the risk analysis techniques of devices and systems in Space and not-Space industry. Currently his main area of research are virtual reality, robotics, AI. Antonio is the president of the Italian Mars Society which he founded in 2004, as Italian branch of the International Mars Society.

Speakers:

George Danos
Chair of the Analogue Project,
Moon Village Association (MVA),
Cyprus

He works towards promoting space exploration to improve life on planet Earth and expanding human understanding of the cosmos. He is Recognised Eminent Alumnus, of Imperial College, London. Whilst a student he was elected for two terms President of the Imperial College Students for the Exploration and Development of Space, and Board Member of the UK Students for the Exploration and Development of Space. He was Creator and Founder of Virgin BizNet, one of most lucrative business ventures of Sir Richard Branson's Virgin Group – whilst aged 27, after pitching at the "House" of Richard Branson. He led several societies, groups, companies and organisations in the UK and Europe in general. Today, he is:

- Council Member – the highest governing body – of the international Committee on Space Research (COSPAR), and the Cyprus National Representative to COSPAR.
- Academician and elected Corresponding Member to the International Academy of Astronautics (IAA).
- Chair of the Moon Village Association (MVA) Moon Village & Exploration Analogues Working Group.
- Middle East North Africa (MENA) Regional Coordinator of the Moon Village Association.
- Chair of the National Space and Astronomy Research Committee of Cyprus.
- Board Member of the Cyprus Space Exploration Organisation (CSEO) and of the Cyprus Astronautical Society.
- Board Member of the Cyprus Space Exploration Organisation (CSEO) and of the Cyprus Astronautical Society.
- Member of several Committees of the International Astronautical Federation (IAF).

As Founder and President of the Cyprus Space Exploration Organisation, he brings together the elements of his vision, entrepreneurial background, technological and scientific knowledge into energising and guiding the numerous researchers of his organisation in space R&D projects, enhancing the space industry, formulating new planetary exploration missions and building synergies for Cyprus with CSEO's global network of partners and the international aerospace community.

Barbara Imhof

Co-Founder & Co-CEO,
LIQUIFER Systems Group,
Austria

Barbara Imhof is a Vienna-based internationally renowned space architect, design researcher and educator. Her projects deal with spaceflight parameters such as with living with limited resources, minimal and transformable spaces, resource-conserving systems; all aspects imperative to sustainability. She is the co-founder and co-managing director of LIQUIFER Systems Group (LSG), an interdisciplinary team comprising engineers, architects, designers and scientists. Her ongoing engagements include design of the international habitat module for 'Gateway', the lunar orbital platform being developed by the International Space Station (ISS) Partners. At LSG, she recently led a 3d printing project 'RegoLight' to research how to build 3d printed lunar habitats using solar sintering and lava casting of simulated lunar soil. Since early 2000s, Barbara has played a pivotal role in projects involving biomimetic designs and integration of biological systems in architecture; projects include: Living Architecture (LIAR), and Growing As Building (GrAB). She has also been teaching at renowned institutes worldwide, for over 20-years. Educated in Vienna, London, and Los Angeles, Barbara holds multiple degrees including a PhD.

Maria Antonietta Perino

Head of Advanced Exploration Unit,
Thales Alenia Space,
Italy

Maria Antonietta got a Degree in Nuclear Engineering at the Politecnico di Torino. In 1988 she attended the first Summer Session of the International Space University (M.I.T., Boston, USA) and then she became a Faculty member. She has been recently elected member of the Academic Council. Since 1986 she has been working at Thales Alenia Space – Turin, as Programme Manager of major ESA and ASI activities related to exploration like ExoMars, Mars Sample Return, and the Aurora Core Programme. In 2010 she was appointed Director for Advanced Exploration Programmes. In the last years she has been Director Marketing & Sales for the ESA Exploration & Science Programmes, and Director for System Supplies Operations. Currently she is Director for Relations with Space Associations.

Maria Antonietta is involved in different activities promoting the development of young professionals in the space industry. She is author of several publications, papers, and reports, and Acta Astronautica Co- Editor.

Maria Antonietta is a member of different scientific committees, of the EuroScience Open Forum (ESOF), and of Women in Aerospace. She is member of the Académie de l'Air et de l'Espace and of the International Academy of Astronautics, and former Vice President of the International Astronautical Federation Bureau responsible for Technical Activities and IAC Evolution. She is President of Explore Mars Europe. Awarded "Woman of Excellence 2010" by AIDDA, the Italian chapter of FCEM (Femmes Chefs d'Enterprises Mondiales) and "Stella al Merito del Lavoro" (Star of Merit for Labour) by the President of the Italian Republic.

Bernhard Rebele

Research Engineer at the Institute of Robotics and Mechatronics,
German Aerospace Center (DLR),
Germany

Mr. Bernhard Rebele (male) received his Diploma in Mechanical Engineering (Dipl.-Ing.) from the Technical University of Munich (2000). Since 2001 he is employed at the Institute of Robotics and Mechatronics of DLR. He is a system and research engineer with more than 15 year experience in space robotics. He has been working as WP manager in ESA project Exomars and as DLR's project leader in the EU project ROV-E, HDGSA and FACILITATORS. His major emphasis is in planetary exploration, mechatronics systems modelling and simulation, terramechanics and in rover assessment, design and testing for planetary rovers. Since 2009, he is also the manager of the Planetary Exploration Lab.

Robert Zubrin

Founder,
Mars Society,
United States

Robert Zubrin is President of Pioneer Astronautics, an aerospace R&D company located in Lakewood, Colorado. He is also the founder and President of the Mars Society. Formerly a Staff Engineer at Lockheed Martin Astronautics in Denver, he holds a Masters degree in Aeronautics and Astronautics and a Ph.D. in Nuclear Engineering from the University of Washington. Zubrin is the author of 20 patents and over 200 published technical and non-technical papers in the field of space exploration and technology.

In addition to his many technical publications, Dr. Zubrin is the author of nine books, including "The Case for Mars: How We Shall Settle the Red Planet and Why We Must," published by Simon and Schuster's Free Press Division in Oct. 1996, "Entering Space: Creating a Spacefaring Civilization," published by Tarcher Putnam in Aug. 1999, "Mars on Earth: Adventures of Space Pioneers in the High Arctic," published by Tarcher Penguin in Sept. 2003, "Energy Victory: Winning the War on Terror," published by Prometheus Books in November 2007, the humorous "How to Live on Mars: A Trusty Guidebook to Surving and Thriving on the Red Planet," published by Random House in December 2008,"Merchants of Despair: Radical Environmentalists, Criminal Pseudoscientists, and the Fatal Cult of Antihumanism," published by Encounter Books in 2012, and "The Case for Space: How the Revolution in Spaceflight Opens Up a Future of Limitless Possibility," published by Prometheus Books in 2019.

Since founding Pioneer Astronautics in January 1996, Dr. Zubrin has served as the Principal Investigator of over fifty research and development projects in areas including spacecraft and launch vehicle propulsion systems, Mars and Lunar in-situ resource utilization technology, EVA life support and propulsion, and robotic exploration systems. As leader of the Mars Society he led the construction of two Mars analog research stations – one in the Canadiaan high Arctic in 2000 and the other in the American desert in 2001 – and has overseen a programme involving over 200 simulated Mars exploration missions at those stations during the period since.

11:45 – 12:35 The Mars/Moon Generation Lawyers: A Discussion of the Legal Framework Taking NASA Back to the Future

Location: The Walter E. Washington Convention Center – Grand Ballroom A

NASA's current legal framework is built on NASA's past 60 years and now a new generation of lawyers will be tasked to transition the framework of the past into the future. Discussion by NASA lawyers who are at the forefront of their legal careers and who will be with the Agency into the next phase of Space Exploration to the Moon and Mars. Panelists will include attorneys from NASA's various field centers and practice areas, focusing on commercial space, international law, the lunar gateway project, ISS commercialization, intellectual property, and lunar science cooperation.

Organized by:

NASA Office of General Counsel

Speakers:

William Johnson
Attorney, Intellectual Property,
NASA Glenn Research Center,
United States

William ("Bill") Johnson is a Patent Attorney at the NASA Glenn Research Center. His practice focuses on patent prosecution and more general intellectual property issues, such as IP licensing and data rights negotiations in various agreements. Bill has a B.S. in physics from Michigan State University and a Law Degree from the University of Chicago. Prior to joining NASA, Bill was a Patent Examiner at the United States Patent and Trademark Office and an attorney at a private law firm, focusing on patent procurement and counseling.

David Lopez
Attorney, International Law,
National Aeronautics and Space Administration (NASA),
United States

David Lopez is an Attorney-Adviser for the International Law Practice Group in the Office of the General Counsel at NASA Headquarters in Washington, DC. He received his J.D. from University of Houston Law Center in Houston, Texas where he interned at Johnson Space Center's Office of the Chief Counsel. He received his Bachelor's degree from Vassar College in political science focusing on international affairs and U.S. foreign policy. While in law school, Mr. Lopez and his teammate were crowned National Champions of Catholic University of America's National Moot Court Immigration Competition in 2016 held in Washington DC.

At NASA, Mr. Lopez supports the Science Mission Directorate, Space Technology Mission Directorate, and the Aeronautics Research Mission Directorate by reviewing and advising on international agreements with other space agencies and foreign partners. He also supports on export control matters, planetary defense, and space law-related matters.

Christine Pham
Attorney, Human Exploration and Operations,
NASA Ames Research Center,
United States

Christine M. Pham is currently detailed to the National Aeronautics and Space Administration (NASA) Headquarters as the Directorate Lead Counsel providing on-scene legal support for the Human Exploration and Operations Mission Directorate (HEOMD) Associate Administrator. In this role, she provides legal advice and guidance on directorate priorities as well as facilitate cross-disciplinary and cross-center legal support for all of the HEOMD divisions at the agency level. Christine was recognized with the 2018 NASA Early Career Achievement Medal and the 2018 Rising Star Award from the NASA Office of the General Counsel. She has also been recognized as the 2017 Silicon Valley Business Journal 40 Under 40 for her professional and community leadership. Prior to law school, Ms. Pham worked as a senior congressional aide in the district office of the former Congressman Michael M. Honda, covering appropriations. Ms. Pham received both her J.D. and B.S. in political science from Santa Clara University.

Brian Stanford
Attorney, ISS Commercialization,
National Aeronautics and Space Administration (NASA),
United States

Brian Stanford is a senior attorney with NASA Headquarters Office of General Counsel, serving in the Contracts & Acquisition Integrity practice group. Brian advises and counsels Agency personnel on a host of issues concerning federal procurement law and litigates government contracting matters on behalf of the Agency. He previously served as lead procurement counsel to the U.S. Department of Education and began his legal career with the Washington office of Fried, Frank, Harris, Shriver & Jacobson, as an associate in the firm's Government Contracts practice group.

MODERATOR
Jessica Deihl
Attorney, Space Act Agreements,
NASA Goddard Space Flight Center,
United States

Jessica A. Deihl is an attorney with NASA Goddard Space Flight Center focusing on a wide variety of government contract and fiscal law issues including interagency and Space Act agreements, contract financing, public-private partnerships, real estate, and procurements. Jessica originally joined NASA as a Presidential Management Fellow at NASA Headquarters supporting the Commercial Spaceflight Programme on the Commercial Crew and Commercial Cargo initiatives. Jessica detailed to the Federal Aviation Administration's Office of Chief Counsel, where she supported the Office of Commercial Space Transportation on launch and re-entry licensing. Jessica also served the White House Office of Science and Technology Policy as special assistant counsel for commercial spaceflight legislation. Jessica received her Bachelor of Arts from Cornell University in Ithaca, NY and her Juris Doctor from the American University, Washington College of Law where she was the Managing Editor of the Business Law Review. Jessica also volunteers as legal counsel for the Space Generation Advisory Council (SGAC).

MODERATOR

Lisette Washington

Attorney, Contracts,
National Aeronautics and Space Administration (NASA),
United States

Lisette S. Washington is a government contracts attorney in the Office of the General Counsel at NASA Headquarters. Lisette provides legal advice to NASA for government contracts that support space activities and related operations. In addition, Lisette represents NASA in bid protests before the U.S. Government Accountability Office and contract claims before the Armed Services Board of Contract Appeals. Lisette's legal portfolio also includes small business contracting, procurement policy, and contract administration. Lisette gained an interest in Federal government contracts during law school and, as a law student, Lisette worked on government contract matters at the U.S. Court of Federal Claims, the U.S. General Services Administration, and the U.S. Small Business Association. Lisette earned her Juris Doctor from The George Washington University Law School in 2017. Lisette is an active member of the Litigation and Public Contracts Sections of the American Bar Association.

12:20 – 12:50 4th International Space Forum at Ministerial Level – The Mediterranean Chapter

Location: The Walter E. Washington Convention Center – Grand Ballroom C

On September 5th, 2019, the Italian Minister of Education, University and Research welcomed in Reggio Calabria (Italy) the Ministers and Authorities for Space of the Mediterranean countries, as well as the representatives and experts of international space agencies and organizations, under the auspices of the International Astronautical Federation (IAF), the Italian Space Agency (ASI) and the University "Mediterranea" of Reggio Calabria, for the 4th International Space Forum – The Mediterranean Chapter.

After the first International Space Forum (ISF) in Trento (Italy) in 2016 and the following regional Chapters dedicated to Africa in Nairobi (Kenya) in 2017 and to the Latin America and the Caribbean in Buenos Aires (Argentina) in 2018, the Mediterranean Chapter provided a Forum for an open and productive discussion to further involve the Academia and the Universities of the region in space programmes to contribute to find space solutions that better meet Mediterranean needs.

As a matter of fact, the main goal of the ISF initiative is the creation of a network among scientific institutions, international experts and governmental representatives in order to disseminate space knowledge, promote capacity building activities in space disciplines and contribute to the regional development of space economy. As happened in Nairobi and Buenos Aires, also in Reggio Calabria the delegates adopted the Reggio Calabria Page, a set of recommendations to continue the debate and start new space programmes and curricula.

The GNF, after a brief introduction of the ISF initiative, will focus the attention on the results and perspectives of the Mediterranean Chapter.

The speakers will be the representatives of the three organizing institutions of the ISF 2019, namely IAF, ASI and the University Mediterranea of Reggio Calabria.

The IAF Vice President for Science and Academic Relations will moderate the discussions.

Organized by:

Italian Space Agency (ASI)
International Astronautical Federation (IAF)

Speakers:

Stamatios M. Krimigis

Counselor on Space,
Minister of Digital Governance of Greece,
Greece

Dr. Stamatios Krimigis is Counselor on Space to the Minister of Digital Governance of Greece, serves as Chairman of the National Committee for Space Research at the Academy of Athens, is Emeritus Head of the Space Exploration Sector of the Johns Hopkins Applied Physics Laboratory (APL), is Principal Investigator (PI) on NASA's Voyagers 1, 2, and PI Emeritus on the Cassini-Huygens mission, among others. He received B. Phys. from the University of Minnesota (1961), his Ph.D in Physics from the University of Iowa (1965) under J.A. Van Allen, served on the faculty, moved to APL in 1968, became Chief Scientist (1980), Space Department Head (1991) and Emeritus in 2004. He has built and/or participated in instruments that have flown to all nine classical planets beginning with Mariner 4 to Mars in 1965. He has published over 610 papers in peer-reviewed journals and books with over 21,000 citations. He is a three-time recipient (1981, 1986, 2014) of NASA's Exceptional Scientific Achievement Medal. In 1999 the International Astronomical Union named asteroid 1979 UH as 8323 Krimigis. He is a Fellow of the American Physical Society (APS), the American Geophysical Union (AGU), the American Association for the Advancement of Science (AAAS) and the American Institute of Aeronautics and Astronautics (AIAA). More recent awards include the Council of European Aerospace Societies CEAS Gold Medal in 2011, the European Geophysical Union Jean Dominique Cassini Medal (2014), the AIAA Van Allen Space Environments Award (2014), the National Air and Space Museum (NASM) Trophy for Lifetime Achievement (2015), the International Academy of Astronautics (IAA) Laurels Award for the MESSENGER Team (2015), the American Astronautical Society Space Flight Award, the NASM Trophy for Current Achievement (New Horizons Team), and the NASA Distinguished Public Service Medal, all in 2016, the IAA Theodore von Karman Award (2017), was elected member of the Academia Europaea (2017), and honored by the U. S. Senate for exceptional contributions to space science (2018)

Jean-Yves Le Gall

President,
International Astronautical Federation (IAF),
France

Jean-Yves Le Gall is President of the Centre National d'Études Spatiales (CNES), the French space agency, since 2013. In this capacity, he is Interministerial Coordinator for satellite navigation programmemes and Chair of the Administrative Board of GSA, the European GNSS Agency. He is also Co-Chair of the Council of the European Space Agency (ESA) and President of the International Astronautical Federation (IAF).

CNES is responsible for proposing and implementing space policy in France. It is involved in all aspects of space (Ariane, Sciences, Observation, Telecommunications, Defence) through its four centres of excellence in Paris, Toulouse and French Guiana, with 2,450 employees and a budget of more than €2.3m (2017). CNES also represents France on the ESA Council and at many other international organizations, and is a partner in various commercial enterprises.

Born in 1959, Jean-Yves Le Gall is a qualified engineer and scientist who has devoted his entire career to the European space programme, holding positions within the French national scientific research agency CNRS, several French ministries, at Novespace and a first stint with CNES before joining Starsem and Arianespace for 12 years, where he was CEO then Chairman & CEO.

Jean-Yves Le Gall is a member of the International Academy of Astronautics (IAA) and Vice-President of the "Space Circle" at French think-tank CEPS (Centre d'Etude et de Prospective Stratégique). He also chairs the France-Japan business council of Medef International, and is a member of the French-Mexican Strategic Council.

He received the Astronautics Prize from the French Association of Aeronautics and Astronautics (AAAF) in 2001. He was named Via Satellite magazine's 2005 Satellite Executive of the Year and received the Lifetime Achievement Award in 2007 from the Asia-Pacific Satellite Communications Council (APSCC). In 2011 he was inducted into the Hall of Fame of the Society of Satellite Professionals International (SPPI) and received the Icarus Prize from the French association of professional aerospace journalists (AJPAE). In 2014 he received a Laureate Award from Aviation Week & Space Technology magazine.

Jean-Yves Le Gall holds the rank of Officer in both the Legion of Honour and the National Order of Merit in France. He has also been awarded the Order of Friendship by the Russian Federation and the Order of the Rising Sun, Gold and Silver Star, by the government of Japan.

Giorgio Saccoccia

President,
Italian Space Agency (ASI),
Italy

Born in Belluno, on January 11 1963, Giorgio Saccoccia is the President of Italian Space Agency. He graduated from the University of Pisa (Italy) with a degree in Aerospace Engineering and from Webster University at Leiden (The Netherlands) with a Master in Business Administration. He has been Head of the Electric Propulsion Section of ESA between Mar 1997 – Jan 2003 and subsequently, until now, Head of the Propulsion and Aerothermodynamics Division of ESA. Over the same period he has been also Acting Head of the Mechanical Engineering Department of ESA (Jan 2016 – Nov 2016).

Giorgio Saccoccia is an Associate Fellow of the AIAA (American Association for Aeronautics and Astronautics), Full Member of the International Academy of Astronautics (IAA) and Emeritus Member of French Aeronautics and Astronautics Association.

Santo Marcello Zimbone

Rector,
University Mediterranea of Reggio Calabria,
Italy

Born in 1961. Graduated in Civil Engineering (Hydraulic curriculum) at the University of Catania, Italy. PhD in Environmental Hydraulics at the University of Padua, Italy, in 1994. Professor of Agricultural Hydraulics and Land Conservation at the University Mediterranea of Reggio Calabria, Italy, since 2000 as associate and 2005 as full professor. Dean of the Faculty of Agriculture of the University Mediterranea of Reggio Calabria, for two triennial academic mandates from 2006 to 2012.

General Director of the University Mediterranea of Reggio Calabria, from February 2013 to April 2017, and vice-Rector, from May 2017 to November 2018. Rector of the University Mediterranea of Reggio Calabria from November 2018, for a six-years academic mandate.

Vice-President of the Permanent Conference of Deans of the Italian Faculties of Agriculture from 2008 to 2012. Member of the "National Commission for the Evaluation of Continuous Education" within the National Council of Agronomist and Forest Professionals, from 2010 to 2012.

Member of Italian Association Idrotecnica, Italian Association of Agricultural Engineering, European Society for Soil Conservation, Italian National Hydraulic Group, European Society of Agricultural Engineers, American Society of Agricultural and Biological Engineers, International Association of Hydrological Sciences.

Coordinator of several research programmes at international, national and regional level.

Coordinator of collaboration with Universities and Research Centers of United Kingdom (Silsoe College, Cranfield University, Bedfordshire, attended for several years since 1992 also as a fellow researcher; King's College and Queen Mary's University, London), United States of America (Department of Agriculture, Oxford, Mississippi and West Lafayette, Indiana), Belgium (Katholieke Universiteit, Leuven), Spain (CSIC, Còrdoba and Murcia, Universidades de Còrdoba y de Castilla -La Mancha, Albacete) and Brazil (Universidade Estadual Paulista, Sao Paulo, Botucatu).

Author of about 200 papers published in conference proceedings, handbooks and thematic volumes, national and international journals, dealing with: hydrology and soil erosion, torrent control and evaluation of control works, agricultural use of wastewater and by-products of the agro-food industry, irrigation with urban waste water, management of collective irrigation systems, management of water resources in agriculture, silting of large artificial reservoirs and management of sediments.

Invited speaker, chairman or member of the organizing and scientific committee in various national and international conferences.

Referee for some international indexed journals, such as the Journal of Agricultural Engineering, Catena, Earth Surface Processes and Landforms, Agricultural Water Management, Transactions of the ASABE, Water Resources Management, Geomorphology.

MODERATOR

Gabriella Arrigo

Head of International Relations,
Italian Space Agency (ASI),
Vice President, Science & Academic Relations and Global Networking Forum,
International Astronautical Federation (IAF),
Italy

Director of International Relations at the Italian Space Agency (ASI), where she started her space professional career in 1991. After a degree in Political Sciences at the University of Messina (1984), she has specialized in international humanitarian law at the University of Geneva (CH) and in international relations at the Italian Society for International Organization (SIOI) in Rome.

Elected Vice President of the International Astronautical Federation (IAF) in 2017 in Adelaide (Australia). Under her portafolio for science and academic relations for the years 2018-2020, she implemented the International Space Forum 2018 in Buenos Aires (Argentina) – The Latin American and Caribbean Chapter – and the International Space Forum 2019 in Reggio Calabria (Italy) – The Mediterranean Chapter – to involve Academies and Universities in space activities.

Member of the Italian delegation to the European Space Agency (ESA) in the International Relations Committee (IRC) since 1992 and at the United Nations Committee of the Use of Outer Space for Peaceful Purposes (COPUOS) since 1994. ASI representative, Chairperson or advisor in several intergovernmental committees, international councils, task forces and working groups, as well as in the Board of the European Space Policy Institute (ESPI) in Vienna and of the International Space University (ISU) in Strasbourg. She coordinates the Italian participation in the Space Forum of the OECD.

Expert in space policy and space affairs, she negotiated numerous international space agreements on behalf of the Italian Space Agency or in support of the Italian government.

Founder and Director since 2009 of the first Master's course in Space Institutions and Policies at SIOI in Rome, where she teaches space policy and international relations. In 2018, in Bremen, the International Academy of Astronautics (IAA) awarded her as Academic in the "Social Sciences" section. She is author of several articles and essays on international space policy issues, speaker or moderator in international conferences and seminars around the world.

12:40 – 13:30 Spaceports: Gateway to a Global Space Economy

Location: The Walter E. Washington Convention Center – Grand Ballroom A

This GNF Event will focus on a key component of current and future space operations, one that until recently has not received much attention: spaceports. Traditionally, spaceports have been known as the place from which satellites are launched into orbit. That role will certainly continue. However, there are at least five other potential roles that we should expect spaceports to play going forward, including hosting suborbital space tourism flights; conducting research and technology development activities; operating vehicles that provide high-speed, long-distance, point-to-point transportation through space; being a hub for aerospace manufacturing; and serving as a community focal point for aerospace workforce development and training.

According to the Airports Council International, there are currently 17,678 commercial airports in the world, and they have a tremendous economic impact. When it comes to space, there are only a handful of operational launch sites today. However, a report by Goldman Sachs projected that the global space economy could total more than $1 trillion per year within 25 years. Much of that economic activity could take place at or near spaceports. Governments, companies, and academic institutions that aspire to be a part of, and to benefit from, that increased economic activity, need to start now to form strategic partnerships, and to begin planning for the facilities, technologies, and policies that will be required.

The "Spaceports: Gateway to a Global Space Economy" GNF Event will feature an international panel of six distinguished experts, who will share their perspectives on the role that spaceports play today and how they can operate in the future. They will also highlight current capabilities, challenges that have been encountered, lessons learned, implications for the workforce, and ideas for potential international collaboration. The event will conclude with an opportunity for the audience to ask questions and provide feedback for the panel members.

Organized by:

Commercial Space Technologies, LLC

Speakers:

Talal Al Kaissi

Advisor – Strategic Projects,
Office of the Director General,
UAE Space Agency (UAESA),
United Arab Emirates

Talal Al Kaissi joined the UAE Space Agency in September 2018 as an Advisor to the Director General on Strategic Projects. Among several duties one of his core focus functions is supporting the activation of the UAE Space Agency Investment Promotion Plan, and the development of a holistic national Space Economy with an emphasis on attracting space startups and investments to the UAE. Prior to his role at the Agency, Talal served at the UAE Embassy in Washington DC for 9 years as a Senior Advisor for Commercial Affairs at the UAE Trade & Commercial Office and also led US / UAE Space Affairs. Talal graduated from California State University in Long Beach with a BS in International Business in 2006.

Dan Hicks

CEO,
Spaceport America,
United States

Prior to joining Spaceport America in 2016, Mr. Hicks had a successful 34-year career with the U.S. Army White Sands Missile Range (WSMR) where he held positions of increasing responsibility with various directorates. He was the Supervisory General Engineer of the Patriot Missile System, leading the execution of all aspects of developmental and operational testing of that major system. Later, as the acting Division Chief of the Materiel Test Directorate, he managed the activities of the Air and Missile Defense, Tactical Missiles and Targets, and Space, Sensor and Interoperability branches. These programmes focused on theater missile and national missile defense, air defense battle management, U.S. Army directed energy and space programmes, space related programmes/applications under NASA, DoD, foreign and other commercial programmes. By 2013 Dan had become Deputy Executive Director of the range responsible for assisting the Commanding General and the Executive Director in the operations of the range, with over eleven billion dollars of infrastructure and a noontime population of approximately twelve thousand personnel. A graduate of Las Cruces High School, Mr. Hicks received his Bachelor of Science in Mechanical Engineering from New Mexico State University and received an honorary selection to the Mechanical and Aerospace Engineering Academy at New Mexico State University.

Masami Onoda

Director, Washington D.C. Office,
Japan Aerospace Exploration Agency (JAXA),
United States

Masami Onoda was appointed Director of the JAXA Washington D.C. Office as of 1 July 2018, representing Japanese space to the U.S. and Americas. Prior to that she was the U.S., European and multilateral interface at the International Relations and Research Department of JAXA. She is also engaged in the private sector advising the space debris start-up Astroscale since its foundation in 2013. From 2009-2012. Dr. Onoda was Scientific and Technical Officer at the intergovernmental Group on Earth Observations (GEO) Secretariat hosted in the World Meteorological Organization in Geneva, Switzerland. In 2003-2008, while pursuing her graduate studies, she was invited to the JAXA Kansai Satellite Office in Higashiosaka as a Space Technology Coordinator to support technology transfer to SMEs for a small satellite project. In 1999-2003 she worked in the field of Earth observations at JAXA (then NASDA), serving as the Secretariat of the Committee on Earth Observation Satellites (CEOS). In 1999 she was seconded to the UN Office for Outer Space Affairs (UNOOSA). She holds a Ph.D. in Global Environmental Studies (2009) and a master's degree in environmental management (2005), both from the Kyoto University Graduate School of Global Environmental Studies. Her undergraduate degree is in international relations from the University of Tokyo.

Carley Scott

CEO,
Equatorial Launch Australia,
Australia

Carley Scott is the CEO of Equatorial Launch Australia – Australia's national commercial spaceport. Carley is known for building strong and innovative businesses in fast changing environments. She is currently leading the development of Australia's first commercial spaceport, with NASA planning to launch from the site in 2020. Carley is an advisor to Australia's leading research institute, the CSIRO and the Space Industry Association of Australia, and is a member of Women in Aerospace. Carley's team continues to play a critical role in conversations with the Australian Space Agency regarding the nation's developing approach to commercial launch regulations and procedures. She is also working with the world's oldest continuous culture, linking 50,000-year-old stories told by Yolngu First Nations people to new space innovations going forward. With a history leading enterprise and site development, Carley knows how to make new enterprises work. She was previously entrusted by Rio Tinto and government as the inaugural CEO tasked with building a multi-million-dollar economic development company from the ground up.

The company is now internationally referred to as best practice for developing post-mining regions. Carley and her teams have won several Australian economic development and business awards. In 2018 she was also nominated for the prestigious 'Australian of the Year' award and in 2015 she won a gold medal at the Australian National Archery Championships (long bow). Carley is passionate about space, technology, industry, and appropriate development – having fun now in a manner that will build a better future for the generations to come.

Roberto Vittori

Former ESA Astronaut & Space Attaché,
Italian Embassy,
United States

Roberto Vittori is an Italian air force officer and an ESA astronaut. After graduating from the Italian Accademia Aeronautica in 1989, Vittori flew in the Italian Air Force. He then trained as a test pilot in the United States. In 1998, Vittori was selected by the ESA to join the European Astronaut Corps. Since then, he has participated in three spaceflights: the Soyuz TM-34/33 and Soyuz TMA-6/5 taxi flights to the ISS, as well as STS-134, the penultimate mission of the American Space Shuttle Programme. He was the last non-American to fly aboard the shuttle.

MODERATOR

George Nield

President,
Commercial Space Technologies, LLC,
United States

Dr. George C. Nield is the President of Commercial Space Technologies, LLC, which was established to encourage, facilitate, and promote commercial space activities. He served as the Associate Administrator for Commercial Space Transportation at the Federal Aviation Administration (FAA) from 2008-2018. Dr. Nield has over 30 years of aerospace experience with the Air Force, at NASA, and in private industry. A graduate of the United States Air Force Academy, he holds an M.S. and Ph.D. in Aeronautics and Astronautics from Stanford University, and an MBA from George Washington University. He is also a Flight Test Engineering graduate of the USAF Test Pilot School.

12:55 – 13:20 Global Navigation Satellite System (GNSS) Market: What's Next for Industries, Applications and the User Community

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The all-new 2019 GSA GNSS Market Report will be launched in October, and this session provides a sneak peek at the market intelligence and insight you'll find inside.

When it comes to GNSS market intelligence and insight, the GSA's GNSS Market Report sets the standard. Regularly referenced by policy-makers and business leaders around the world, the publication has earned its reputation as the go-to resource for an in-depth look at GNSS macro trends, and market opportunities and trends across an array of key market segments. The 2019 edition has expanded the number of segments and applications covered, now including: consumer solutions, road, manned aviation, drones, maritime, rail, emergency response, agriculture, geomatics, and critical infrastructures. In addition, the 2019 editor's special looks at new frontiers with GNSS and New Space. The report serves a wide variety of industries, private businesses, institutions and public stakeholders.

Organized by:

European GNSS Agency (GSA)

INTRODUCTION

Jolanda Van Eijndthoven

Deputy Head of Unit for EU Satellite Navigation Programme (Galileo and EGNOS) Legal & Institutional,
European Commission,
Belgium

Speaker:

Omar Valdés

Market Development Officer,
European GNSS Agency (GSA),
Czech Republic

Omar Valdés joined the European GNSS Agency (GSA) in 2013, where he is currently a Market Development Officer responsible for fostering the adoption of the European GNSS in the Space and IoT market segments. His previous experience included managing service development projects for the Directorate General for Informatics of the European Commission and the SSA and ARTES programmes of ESA. Mr. Valdés holds a master degree from the University of Applied Sciences in Offenburg, Germany and a Master in Sciences of Management from the Catholic University of Louvain, Belgium.

13:25 – 14:25 Space Sustainability Rating: Addressing the Orbital Challenge

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The ever-increasing amount of space debris continues to pose a threat to valuable space assets. The reliance on space assets coupled with an expected growth of large constellations of micro-satellites and nano-satellites emphasize the critical need to foster responsible behavior by all actors to ensure long-term sustainability of the space environment.

The Space Sustainability Rating (SSR) was first conceptualized within the World Economic Forum Global Future Council on Space Technologies, and is currently under development jointly by an international and transdisciplinary team. The official launch of the SSR including revealing the selection of the development/managing entities will be announced prior to the 70th International Astronautical Congress. The SSR aims to act as a tool to help incentivize sustainable behavior on-orbit, providing the necessary instrument to support measurement and recognition of such behavior. Based on industry-identified best practices and objective analysis, the SSR provides a structure for a voluntary, self-publicized rating (or through third party) of the degree to which operators adopt procedural, behavioral and systematic approaches taken to orbital missions (satellites and constellations) that support long-term sustainability of the orbital environment.

The SSR has the potential to positively impact elements of the Space value chain – from manufacturers and insurers to launch providers and operators, as well as end customers. Over time, the SSR will extend to issues beyond debris (transportation, satellite servicing, property rights), and become more multi-stakeholder. As such, the Global Networking Forum at the 70th International Astronautical Congress provides a unique international platform to bring together a panel of experts and stakeholders to share their insights on the development of the SSR, and its impact on the long-term sustainability of the space environment.

Organized by:

Space Enabled Reseach Group (MIT Media Lab)
European Space Agency (ESA)
World Economic Forum

Speakers:

Carissa Christensen

CEO,
Bryce Space and Technology,
United States

Carissa Bryce Christensen is the founder and CEO of Bryce Space and Technology. Ms. Christensen is an internationally-recognized expert in commercial space and the interplay of government, military, and commercial activities in the aerospace sector. For more than two decades she has engaged the leading edge of the space industry with innovative analysis of space systems and advanced technology. Carissa serves as a strategic advisor to government and commercial clients, and has been an expert witness and testified before Congress on market dynamics. She currently sits on the board of the Aerospace Center for Space Policy and Strategy and serves on the National Research Council Space Technology Industry-Government-University Roundtable (STIGUR) advisory group.

Ms. Christensen holds a Master of Public Policy degree from Harvard University's Kennedy School of Government, where she specialized in science and technology policy. She also completed the General Course in Government at the London School of Economics and was a Douglass Scholar at Rutgers University. Ms. Christensen is a Fellow of the American Institute of Aeronautics and Astronautics.

Simonetta Di Pippo

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

Simonetta Di Pippo is Director of UN Office for Outer Space Affairs (UNOOSA). Prior to joining UNOOSA, she served as Director of Human Spaceflight at ESA, and Director of the Observation of the Universe at ASI. She is an Academician of IAA and member of its Board of Trustees. She is member of WEF Global Future Council on space technology since 2016. She co-founded Women in Aerospace Europe in 2009. In 2017, she became a UN International Gender Champion. She holds a Master's Degree in Astrophysics and Space Physics from University "La Sapienza", and Honoris Causa Degree in Environmental Studies, and an Honoris Causa Degree of Doctor in International Affairs. In 2008, IAU named asteroid 21887 "Dipippo" in honour of her contribution to space activities.

Moriba Jah

Associate Professor,
The University of Texas at Austin,
United States

Dr. Moriba Jah is the Director of the Advanced Sciences and Technology Research in Astronautics (ASTRIA) programme, and Associate Professor of Aerospace engineering and Engineering Mechanics in the Cockrell School of Engineering at The University of Texas at Austin, where he trains a new generation of astrodynamicists and space traffic leaders through research and education at the intersection of engineering, policy, and commercialization. He has authored more than 100 scientific articles, columns, and book chapters, including a handful of op-eds. A highly sought public speaker, he has given more than 50 lectures, speeches, and invited talks in the last few years, such as testimony for hearings of U.S. Senate committees, keynotes for business meetings, plenary lectures for scientific conferences, lecture series for NATO's Science and Technology Organization, TEDx talks, and the Air Force Research Laboratory's INSPIRE series. Dr. Jah has served as a member of the U.S. delegation to the United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS) and is the chair of the NATO SCI-279-TG activity on defining a Common NATO Space Domain Awareness Operating Picture.

Nikolai Khlystov

Lead, Aerospace Industry,
World Economic Forum,
United States

Nikolai Khlystov is the Aerospace Industry Lead at the World Economic Forum, the international organization for public-private collaboration with the mission of improving the state of the world. He also manages the Global Future Council on Space Technologies, which brings together global multi-stakeholder experts in the space sector. As part of the role, Nikolai drives the community to address sector related issues which affect the industry at a global level and at the same time have a direct link to societal progress. Nikolai is also a member of the Socio-Economic Panel that supports the Hague International Space Resources Governance Working Group. He was previously responsible for managing the relationships with strategic Mobility partners of the Forum. Nikolai is a graduate of the Global Leadership Fellows Master programme at the Forum; he also holds a Master degree in international business management from University of Geneva and a Bachelor degree in commerce from Carleton University in Ottawa.

Francesca Letizia

Space Debris Engineer,
European Space Agency (ESA),
France

Dr Francesca Letizia is a space debris engineer at the European Space Agency (ESA) Space Debris Office, where her main tasks include the assessment of general compliance to space debris mitigation guidelines and the development of a metric for the contribution of a mission to the space debris environment. Before joining ESA Space Debris Office, Francesca was a mission analysis engineer at OHB System, where she worked on the trajectory design and the collision avoidance strategies for satellites with electric propulsion. Francesca holds a PhD from the University of Southampton where she graduated with a thesis on a model for space debris clouds evolution and worked on the development of a tool to assess the compliance with planetary protection guidelines.

Jennifer A. Warren
Vice President, Technology Policy & Regulation, Civil & Regulatory Affairs,
Lockheed Martin,
United States

Jennifer A. Warren is Vice President, Technology Policy & Regulation in Lockheed Martin Corporation's Government Affairs organization. In this capacity, she is responsible for leading the development and implementation of corporate domestic and international regulatory and associated policy strategies affecting Lockheed Martin business interests and opportunities; her portfolio includes spectrum, unmanned aerial systems, commercial space/launch, ocean minerals, privacy, and emerging technologies.

Ms. Warren is also an appointed member of several Federal Advisory Committees – Department of Commerce Spectrum Management Advisory Committee (CSMAC), Federal Aviation Administration Commercial Space Transportation Advisory Committee (COMSTAC), and NASA Advisory Council's Regulatory Policy Committee.

In 1996, Ms. Warren joined Lockheed Martin's Space & Strategic Missiles Sector, and in 2001 she became part of LM's Washington Operations as Senior Director, Trade & Regulatory Affairs. Prior to Lockheed Martin, Ms. Warren served in several senior roles at the U.S. Federal Communications Commission. Prior to joining the U.S. Government, Ms. Warren worked for the Commission of the European Union – both in Brussels, with a focus on EU-Japan and EU-U.S. issues, and in Washington, DC, with a focus on EU-U.S. trade.

Ms. Warren is an Adjunct Professor at Georgetown University Law Center (GULC) where she teaches an annual course on International Information and Communications Tech Policy & Regulation. She is also a graduate of Georgetown University (B.S. in Languages) and GULC (J.D.); she is a member of the Federal Communications Bar Association, American Bar Association, the Women's Bar Association, and the Illinois State and D.C. Bars.

Ms. Warren holds leadership positions in several professional and civic organizations. She serves on the Boards of the Satellite Industry Association and the U.S. ITU Association, and also on NAM's Public Affairs Executive Committee. She is a co-chair of the Signers Circle of the Foundation of the National Archives & Records Administration (NARA), and serves on the Board of the Gadsby's Tavern Museum Society in Old Town Alexandria, Virginia.

MODERATOR
Minoo Rathnasabapathy
Research Engineer,
Space Enabled Reseach Group (MIT Media Lab),
United States

Dr. Minoo Rathnasabapathy is a Research Engineer within the Space Enabled Research Group at the MIT Media Lab. In this role, she helps coordinate projects in collaboration with international development organizations, national governments and entrepreneurial companies to apply space technology in support of the United Nations' Sustainable Development Goals. Previously, Dr. Rathnasabapathy served as the Executive Director of the Space Generation Advisory Council (SGAC), a global non-governmental organization which acts in support of the United Nations Programme on Space Applications. Dr. Rathnasabapathy earned her PhD in Aerospace Engineering from RMIT University, researching the impact dynamics of novel materials used in aerospace structures. Dr. Rathnasabapathy serves as a Vice President of the Bureau of the International Astronautical Federation (IAF), and is a member of the World Economic Forum Global Future Council on Space Technology, and the Advisory Board for Via Satellite.

13:40 – 14:10 This Time to Stay: How Markets Will Ensure Sustained Interest in the Lunar Region

Location: The Walter E. Washington Convention Center – Grand Ballroom A

When America last went to the moon, we did so mostly for prestige and to beat the Soviets. Since then, nations have conducted scientific robotic missions to the moon, but those have been relatively infrequent. As the world begins planning for a human return, we must begin thinking about how to avoid the mistakes of the past. This discussion will look at how various emerging markets will ensure our collective interest in the lunar region does not go dormant for another 50 years. We will also explore how best to align the private sector's goals with those of various government agencies, and come to grips with the fact that while lunar markets exist, they are far from independently sustainable without continued government leadership and resources.

Organized by:
University of Tokyo
ULA

Speakers:

Tory Bruno
President and CEO,
United Launch Alliance,
United States

Tory Bruno is the president and CEO for United Launch Alliance (ULA). In this role, Bruno serves as the principal strategic leader of the organization and oversees all business management and operations. He has completely transformed the company to compete in the new competitive landscape, lowering costs while maintaining an industry leading record of mission success. He presides over ULA's work to develop and eventually rollout the company's new launch vehicle – the Vulcan Centaur rocket.

14:20 - 15:20 Governance of Space Activities – Comparative Studies on National Space Policy and Law

Location: The Walter E. Washington Convention Center – Grand Ballroom A

Governance for space activities will be one of the key topics when we discuss on how human beings should do space activities. Space related treaties enacted through 1960s and 1970s are applied to government space activities and based on the assumption that commercial businesses are subject to government supervision. However, New Space companies that emerged in 2000s are doing their space activities with their own visions and business models. They contribute to vitalization of global space activities with their business proposals on mega-constellation or space resource exploration. On the other hand, concern about sustainability of space activities by human beings are expressed because of gradual and unexpected increase of space debris. Continuous space activities by national space agencies, infrastructure, or vitalization of space industries are still governmental tasks.

This session aims to share the results of comparative studies on national space policy and law, mainly studies on roles of national space agencies, to provide with reference related to governance for national space activities. In addition, Japan Society for Aeronautics and Space Sciences (JSASS) will release "JSASS Space Vision 2050" in April 2019, which points out governance as a key theme of studies in their road map of space policy and law. We will introduce this vision here.

Organized by:

University of Tokyo GraSPP THE UNIVERSITY OF TOKYO

Speakers:

Koichi Kikuchi
Lecturer,
Graduate School of Public Policy,
University of Tokyo,
Japan

Koichi Kikuchi is a part-time lecturer for the course of "Space Development and Public Policy" at the Graduate School of Public Policy, The University of Tokyo. He joined this course as a space policy expert in 2018. He has long time experience in working for various sections in Japan Aerospace Exploration Agency (JAXA), which include Washington DC Office (2009-2012), Strategy and Planning Division (2007-2009), and International Relations Department (2005-2007). He has also experience in working for Japanese government, Ministry of Foreign Affairs (2005-2007) and Science and Technology Agency (1999-2001).

Motoko Mizuno
Lecturer,
Graduate School of Public Policy,
University of Tokyo,
Japan

Ms. Mizuno has graduated from UoT (Faculty of Law) and entered former NASDA in 1994. She has long time experiences of space law practices and space industrialization such as IGA (1998) negotiation and ratification (dispatched to Ministry of Foreign Affairs). Ms. Mizuno was former Manager of Legal and Compliance Division and now is Manager of Aviation Industrial Collaboration and Coordination Division of JAXA. LLM for International Law (Leiden Univ.). Small Business Consultant. Founder for "Sorajo" and "Tanegashima Space Art Festival" Her research subject at UoT is legal framework for moon base, and she planned this WS at the timing of ISEF2, wishing to be a starting point for its realization.

Mukund Kadursrinivas Rao
Chief Executive,
NIAS Centre for Spatial Analytics and Advanced GIS (C-SAG),
India

Mukund Kadursrinivas Rao is Chief Executive, Centre for Spatial Analytics and Advanced GIS (C-SAG) & Adjunct Professor, National Institute of Advanced Studies (NIAS). Dr Rao is an expert in space technology and applications – especially in Earth Observation (EO), Geographical Information Systems (GIS) and satellite communications. He has MSc Geology, MPhil in RS and GIS and PhD in RS and GIS. Dr Rao has ~35 years of unique government/industry/consulting experience in EO, GIS and space. Dr Rao has served ISRO providing leadership to various national EO/GIS programmes and defining national policies for EO and for National GIS. Dr Rao has led EO/GIS industry to develop various business solutions. Dr Rao has undertaken various space technology and policy research at National Institute of Advanced Studies (NIAS), Bangalore on National GI Policy, Space Policy, Indian Space eco-system, commercialization and privatization of Indian space, space policy cooperation in AP region, National GIS Standards and Indian Human Space Flight programme. Dr Rao has been intensely active in international EO, GIS and Space fora; has been honored with many awards and has almost 240+ publications to his credit.

Yuri Takaya
Visiting Researcher,
Institute for Future Initiatives
University of Tokyo,
Japan

Yuri Takaya(-Umehara) is a visiting researcher at the University of Tokyo since April 2017. She was affiliated to the Kobe University to provide a course on space law to post-graduate students (2011-2017), served as a regional organizer for the Asia-Pacific Regional Round of the Manfred Lachs space Law Moot Court in 2012 and serves as a memorial judge since then. She chairs a working group on the formulation of global norms in space law organized by the Keio University since 2018. Her publications focus on legal aspects of military and commercial uses of outer space including space resources, cyber security and export control.

She obtained her Ph.D. degree at the IDEST of Paris XI University in France, LL.M. at the Leiden University in the Netherlands. She is alumni of the International Space University and a former intern at the UNOOSA.

Quentin Verspieren
Researcher,
Intelligent Space Systems Laboratory,
University of Tokyo,
Japan

Quentin Verspieren is a Researcher at the Intelligent Space Systems Laboratory (ISSL) of the University of Tokyo, where he is in charge of establishing international collaboration programmes for space technology development and utilization, mostly targeting developing countries in Southeast Asia and Africa. In parallel, Mr. Verspieren is pursuing a PhD on the role of the military on international regime-making for space traffic management at the Graduate School of Public Policy, University of Tokyo and holds various consultancy positions in the Japanese government and Japanese space ventures.

Mr. Verspieren obtained an MSc in Aeronautical and Space Engineering from ISAE-Supaéro in Toulouse, France and an MSc in Aeronautics and Space from the University of Tokyo. He has also been a Visiting Scholar at the Japan Space Forum in Tokyo and the Secure World Foundation in Washington, DC.

Frans von der Dunk
Professor,
Harvey and Susan Perlman Alumni, College of Law,
University of Nebraska,
United States

Professor Dr. Frans G. von der Dunk holds the Harvey and Susan Perlman Alumni / Othmer Chair of Space Law at the University of Nebraska-Lincoln's LL.M. Programme on Space, Cyber and Telecommunication Law since January 2008. He also is Director of Black Holes BV, Consultancy in space law and policy, based in Leiden, The Netherlands. He successfully defended his doctoral dissertation on 'Private Enterprise and Public Interest in the European 'Spacescape'' in 1998, has edited and written the first major Handbook of Space Law in 2015, and has published some 200 articles and various other books on space law, as well as given some 140 presentations worldwide on the subject.

MODERATOR
Hideaki Shiroyama
Professor,
Graduate School of Law and Policy / Graduate School of Public Policy,
University of Tokyo,
Japan

Hideaki Shiroyama is a professor of public administration at the Graduate School of Public Policy and the Graduate School for Law and Politics, The University of Tokyo. He studies about global governance/ international administration, science/ technology and public policy and policy process. He was the Dean of the Graduate School of Public Policy from 2014 to 2016 and the Director of Policy Alternatives Research Institute from 2010 to 2014. He was also a Visiting Scholar at MIT from 1997 to 1999 and Visiting Professor at Science Po from 2008 to 2009.

He is currently working on interdisciplinary programme as the Director of Science, Technology, Innovation and Governance Programme and the Coordinator of Graduate Programme for Social Design and Management. He also served as the Chairman of the Planning Committee of New Initiatives for Humanities and Social Sciences Programme at the Japan Society for the Promotion of Science from 2003-2008, as President of the PI forum, an NPO for consensus building in Japan from 2006-2008 and as a member of various government advisory councils on higher education, nuclear safety, food safety, fire protection, scenarios for climate mitigation, industrial policy and space.

14:35 – 15:05 Making Lunar Missions Accessible, a New Approach to Planetary Exploration

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The Founder and CEO of Spacebit, Pavlo Tanasyuk, will discuss the potential of and the technical challenges to the robotic exploration of The Moon, which must be overcome to help us create sustainability on Earth.

The session will consist of two parts. First: Spacebit presentation by Pavlo Tanasyuk. Second: Moon Village Association round table and a special announcement. The technical presentation will also focus on how blockchain and DLT technologies can create value in space exploration and commercialization. It will discuss collaboration with industry players like Astrobotic and launching the first commercial UK mission to The Moon.

After the presentation, the audience is welcome to join a short Q&A session that will offer inspiration to a new generation of change-makers.

Organized by:
Spacebit SPACEBIT

Pavlo Tanasyuk
Founder and CEO,
Spacebit,
United Kingdom

Pavlo Tanasyuk is the Founder and CEO of a UK space startup called Spacebit, which Forbes recently featured as "Mystery Startup".

Initially, he ran a highly successful payment system company MoneXy which he later sold and invested the proceeds in space projects and the setting up of Spacebit.

Pavlo's passion has led Spacebit to sign a joint agreement with Astrobotic to begin commercial and scientific lunar exploration with the first mission in 2021 on the Peregrine lunar lander; marking the first payload from the UK to reach the Moon surface.

He earned a degree in Management and Information Systems from LSE and holds MPhil in Technology Policy from the University of Cambridge Business School.

Pavlo's favorite saying is "We have to explore and research the environments and resources of other planets to help us create sustainability on Earth."

15:30 – 16:30 Artemis: Enabling Lunar Exploration

Location: The Walter E. Washington Convention Center – Grand Ballroom A

This IAC presentation examines the diverse robotic and human landers being developed to perform ground-breaking science, exploration, and commercialization of the lunar frontier. Around the world, space agencies and private enterprises are planning to visit the lunar surface within the next decade. In the near term, robotic landers such as CNSA's successful Chang'e 4 and NASA's CLPS programme will demonstrate new technologies and survey key regions. Publicizing results will allow new missions to build off the last, paving the way for the first human landings since Apollo 17 in 1972.

Organized by:

Lockheed Martin

Speakers:

Rob Chambers

Director of Human Spaceflight Strategy and Business Development,
Lockheed Martin,
United States

Rob Chambers is the director of Human Spaceflight Strategy and Business Development for Lockheed Martin's Corporation's Space Systems Company.

In this role, he is focused on Lockheed Martin's blueprint for deep space exploration, leveraging the company's proven heritage in robotic and human spaceflight to extend humanity's understanding of our solar system to answer fundamental questions about where we come from, where we're going, and whether we're alone in the universe.

Rob has been with Lockheed Martin since 1993 and has worked on a variety of Space Systems Company programmes including Earth remote sensing satellites, the Space Shuttle, Orion, and deep space habitats.

Rob has bachelor's and master's degrees in Aeronautical and Astronautical Engineering from Purdue University. Throughout his career, Rob has led the development of guidance and controls subsystems, avionics, and flight software.

Joe Landon

Vice President of Advanced Programs Development for Commercial Civil Space,
Lockheed Martin,
United States

Joe Landon serves as Vice President of Advanced Programmes Development for Lockheed Martin's Commercial Civil Space Line of Business. In this role, Joe leads strategy development and new business growth for Lockheed's Human Space Exploration, Communications Satellite Solutions, Deep Space Exploration and Weather & Remote Sensing lines of business.

Previously, Joe was Chief Financial Officer of Planetary Resources, Inc., a company that seeks to expand the economy of humanity into the Solar System through the development and use of resources found in space. Joe also Co-Founded and served as Chairman of the Board of Space Angels, the leading source of capital for space startups. Joe also developed commercial communications satellites at Boeing as an engineer and project manager. Joe is a Trustee of the Museum of History and Industry in Seattle, and in 2016 he was named one of Seattle's '40 Under 40' by the Puget Sound Business Journal.

Joe holds a bachelor's degree in Engineering-Physics from Embry-Riddle Aeronautical University, a master's degree in Aerospace Engineering from the University of Southern California and an MBA from Harvard Business School.

MODERATOR

Lisa Callahan

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

Lisa B. Callahan is Vice President and General Manager of the Commercial Civil Space line of business for Lockheed Martin Space. In this role, she is responsible for all aspects of execution and growth for Commercial and Civil markets in human and robotic deep space exploration, communications and weather and remote sensing. Ms. Callahan is also responsible for Michoud Operations and related activity at Stennis Space Center.

In her previous role as Vice President of Corporate Internal Audit of Lockheed Martin Corporation – reporting directly to the Lockheed Martin Audit Committee of the Board of Directors – Ms. Callahan provided independent, objective assurance and advisory activity to improve the Corporation's operations. Under her leadership, Corporate Internal Audit determined the adequacy and effectiveness of the Corporation's network of risk management, internal control, and governance processes as designed and represented by management.

Her prior leadership roles also include Vice President and General Manager of the Mission Systems & Training Undersea Systems line of business for Lockheed Martin Corporation, Vice President of Lockheed Martin Corporation's Maritime Ballistic Missile Defense Programme, and Programme Director for Lockheed Martin's Simulation Training and Support business.

Ms. Callahan graduated from Virginia Polytechnic Institute and State University with a Bachelor of Science in Electrical Engineering. Currently, she is a member of the Dean of Engineering Advisory Board.

15:45 – 16:30 EU Space: Trends for the Future

Location: The Walter E. Washington Convention Center – Grand Ballroom C

The global space sector is undergoing an important transformation increasing the opportunities and the solutions available. This is crucial considering that space technologies, data and services have become indispensable in the daily lives of everyone: when using mobile phones and car navigation systems, watching satellite TV or withdrawing cash.

Space is a perfect example of investment that serves as enabler for many of the world challenges today and for the future – including monitoring the sustainable management of natural resources, climate change or migration flows for Copernicus, enabling smart transport systems and precision agriculture for Galileo. Space is also a key enabler of security and protection of people. Above all, Space enables international cooperation, courage, boldness and entrepreneurship.

Organized by:

European Union External Action Service

Speakers:

Carine Claeys
Head of EEAS Space Task Force,
European Union External Action Service,
Belgium

Pierre Delsaux
Deputy Director General for Internal Market, Industry, Entrepreneurship and SMEs,
European Commission,
Belgium

Krzysztof Kanawka
CEO,
Blue Dot Solutions,
Poland

MODERATOR
Jean-Luc Bald
First Secretary for Space,
Delegation of the European Union to the United States of America,
United States

Friday 25 October 2019

GNF PUBLIC DAY
Room: Grand Ballroom A

09:40 – 10:40 From the Moon to Mars NASA's Artemis Program

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

NASA is called to land American astronauts, including the first woman and the next man, on the Moon by 2024. We're committed to achieving this bold goal. Through the Artemis Programme, we will go to the Moon in a way we have never gone before – with innovative new partnerships, technologies and systems to explore more of the lunar surface than ever before. Then we will use what we learn on the Moon to take the next giant leap – sending astronauts to Mars.

Organized by:

National Aeronautics and Space Administration (NASA)

Speakers:

Jim Bridenstine
Administrator,
National Aeronautics and Space Administration (NASA),
United States

James Frederick "Jim" Bridenstine was nominated by President Donald Trump, confirmed by the U.S. Senate, and sworn in as NASA's 13th administrator on April 23, 2018.

Bridenstine was elected in 2012 to represent Oklahoma's First Congressional District in the U.S. House of Representatives, where he served on the Armed Services Committee and the Science, Space and Technology Committee.

Bridenstine's career in federal service began in the U.S. Navy, flying the E-2C Hawkeye off the USS Abraham Lincoln aircraft carrier. It was there that he flew combat missions in Iraq and Afghanistan and accrued most of his 1,900 flight hours and 333 carrier-arrested landings. He later moved to the F-18 Hornet and flew at the Naval Strike and Air Warfare Center, the parent command to TOPGUN.

After transitioning from active duty to the U.S. Navy Reserve, Bridenstine returned to Tulsa, Oklahoma, to be the Executive Director of the Tulsa Air and Space Museum & Planetarium.

Bridenstine was promoted to the rank of Lieutenant Commander in 2012 while flying missions in Central and South America in support of America's war on drugs. Most recently, he transitioned to the 137th Special Operations Wing of the Oklahoma Air National Guard.

Bridenstine completed a triple major at Rice University, and earned his MBA at Cornell University. He has three children with his wife, Michelle.

10:50 – 12:20 IAF – ASE Astronauts Event

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

This year, as we celebrate the 50th anniversary of the first human landings on the Moon, we also look forward to an exciting future in human space exploration. New technologies, new visions, and new capabilities are inspiring new generations of explorers, enabling us to develop ambitious, exciting plans for travel to deep space destinations.

Where are we going to go?

How are we going to get there?

How will what we learn in space improve our lives right here on planet Earth?

Join us for an interactive discussion with our panel of international astronauts and cosmonauts and learn how YOU can become a part of the journey to space! Bring your questions!

Organized by:

International Astronautical Federation (IAF)
Association of Space Explorers (ASE)

Speakers:

Hazzaa Al Mansoori
Astronaut,
UAE Space Agency (UAESA),
United Arab Emirates,

Charlie Bolden
Former NASA Astronaut and Former NASA Administrator,
National Aeronautics and Space Administration (NASA),
United States

Mary Cleave
Former NASA Astronaut,
National Aeronautics and Space Administration (NASA),
United States

Reinhold Ewald
European Astronaut,
Professor,
Institute of Space Systems,
University of Stuttgart,
Germany

Sergey Krikalev
Cosmonaut and Executive Director for Piloted Spaceflights,
ROSCOSMOS,
Russian Federation

André Kuipers
ESA Astronaut,
European Space Agency (ESA),
The Netherlands

MODERATOR
Leland Melvin
Former NASA Astronaut,
National Aeronautics and Space Administration (NASA),
United States

13:30 – 14:30 The Science-Fiction Continuum

Location: The Walter E. Washington Convention Center – Grand Ballroom ABC

This conversation will explore how creative expression and concrete research and development are in a continual feedback loop showing that art inspires action and vice-versa. Experts in the history of science-fiction and technology talk about how quality science-fiction is rooted in research done by authors to understand what's around the corner, what science tells us and expand on that, and conversely, how scientists are inspired by the fictional envelope-pushing to drive their innovations. How Sci-Fi sometimes gets it right and sometimes wrong – sometimes picturing what does not happen and missing what does, and why. And, what does that mean for all of us?

Organized by:

American Institute of Aeronautics and Astronautics (AIAA)

Speakers:

Art Dula
Trustee,
Heinlein Prize Trust,
United States

Art Dula assists clients in the areas of corporate, aerospace and intellectual property law, and holds Martendale Hubble's "AV" peer rating for the Highest Level of Professional Excellence. He is a registered patent attorney at the United States Patent and Trademark Office and has served as a past chairman of the American Bar Association's Section of Science and Technology. Art's interest in space and space law is reflected through his elected memberships in the International Academy of Astronautics and the International Institute of Space Law. Art is a member of the Texas Bar College. He has taught Space Law, Environmental Law and Legal Ethics as an adjunct professor at the University of Houston Law Center for many years.

Ariel Ekblaw

Founder and Lead,
Space Exploration Initiative,
MIT Medial Lab,
United States

Ariel Ekblaw is the founder and lead of the MIT Media Lab's Space Exploration Initiative, a team of over 50 graduate students, faculty, and staff actively prototyping our Sci-Fi space future across 40+ in house research projects. For the Initiative, Ariel coordinates space research and launch opportunities across the spectrum of science, engineering, art, and design, and builds collaborations on this work with MIT and Space Industry partners.

Ariel is simultaneously a graduate research assistant at the MIT Media Lab, where she is completing a PhD in Aerospace Structures in Dr. Joseph Paradiso's Responsive Environments group. Her current research includes designing, testing and deploying self-assembling space architecture, as future habitats for space tourists and science missions in orbit around the Earth and Mars.

Ariel brings an interdisciplinary approach to her research at the Media Lab, with undergraduate degrees in Physics, Mathematics and Philosophy from Yale University and a master's in blockchain research from MIT. Her past work experience includes blockchain product development, cloud computing analytics at Microsoft Azure, big data programming at the CERN Particle Physics Laboratory, microgravity research with NASA, and Mars2020 rover hardware systems engineering at NASA's Jet Propulsion Laboratory. Ariel's work has been featured in AIAA, IEEE, WIRED, Ars Technica, MIT Technology Review, Harvard Business Review, The Wall Street Journal, PRI's ScienceFriday, CNN, the BBC, and more.

Previously, in the Viral Communications group at the Media Lab, Ariel researched and prototyped technologies that "scale with user inventiveness". Her projects explored digital currencies, applications for blockchain (Bitcoin's cryptographic protocol), and decentralized networks.

Mékell Mikell

Manager,
Sustainability Disclosures and Reporting,
Lockheed Martin,
United States

Mékell Mikell, PhD serves as Manager for Disclosures and Reporting at Lockheed Martin. She manages environmental, social and governance corporate disclosures. Prior to this role, she was the corporate communications lead for Sustainability and Environmental Remediation.

Before joining the corporation, Dr. Mikell led stakeholder engagement for a $2 billion international clean energy programme as an acting director in the Office of Energy Efficiency & Renewable Energy at the Department of Energy. She also led outreach efforts for the Department's Minorities in Energy Initiative to engage diverse communities in STEM careers. Dr. Mikell also previously served as the communications advisor for the Office of Environmental Remediation, the world's largest nuclear cleanup programme.

Dr. Mikell holds a Bachelor's in Broadcast News from the University of Georgia and began her professional career in TV and radio news. She also has a Master's in International Studies and a PhD in Political Science from the University of South Carolina.

MODERATOR
Margaret Weitekamp

Curator and Department Chair,
Space History Department,
Smithsonian National Air and Space Museum,
United States

In addition to serving as the department chair, Dr. Margaret A. Weitekamp curates the Museum's social and cultural history of spaceflight collection, more than 5,000 artifacts that include space memorabilia and space science fiction objects. These everyday mementos of the space age—which include toys and games, medals and awards, buttons and pins, as well as comics and trading cards—complete the story about spaceflight told by the Museum's collection of space hardware and technologies.

Weitekamp earned a BA from the University of Pittsburgh and an MA and PhD in history from Cornell University. During her graduate work, she was a Mellon fellow in the humanities and spent a year in residence at the NASA Headquarters History Office in Washington, D.C. as the American Historical Association / NASA Aerospace History Fellow. Before joining the Smithsonian, Weitekamp taught in the Women's Studies Programme at Hobart and William Smith Colleges in Geneva, New York.

She is the author of numerous scholar articles as well as Right Stuff, Wrong Sex: America's First Women in Space Programme, which won the Eugene M. Emme Award for Astronautical Literature from the American Astronautical Society. In addition, she wrote an award-winning children's picture book Pluto's Secret: An Icy World's Tale of Discovery (Abrams Books for Young Readers, 2013), in collaboration with David DeVorkin and illustrated by Diane Kidd. With Anne Collins Goodyear, she co-edited the ninth volume in the Artefacts series on the material culture of science and technology, Analyzing Art and Aesthetics (Smithsonian Institution Scholarly Press, 2013). She is currently completing a new book project, a social and cultural history of space memorabilia.

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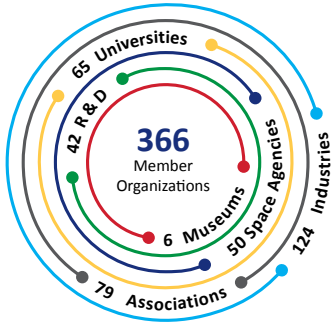

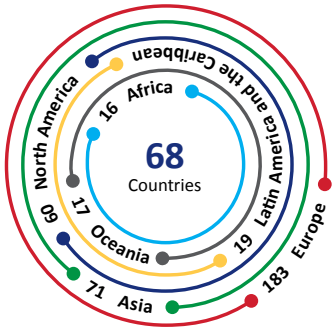

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9-11 JUNE 2020

St. Petersburg, Russia

The International Astronautical Federation (IAF) is pleased to invite you to the **Global Space Exploration Conference (GLEX) 2020** to take place in **St. Petersburg, Russian Federation from 9 – 11 June 2020.**

The Conference, co-organized by the **International Astronautical Federation (IAF)** and **ROSCOSMOS**, will bring together leaders and decision-makers within the science and human exploration community – engineers, scientists, entrepreneurs, educators, agency representatives and policy makers. The leaders in the field will converge in St. Petersburg to discuss recent results, current challenges and innovative solutions and it will contain several opportunities to learn about how space exploration investments provide benefits as well as discuss how those benefits can be increased through thoughtful planning and cooperation.

Call for Papers

1. International Cooperation for Space Exploration
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3. Mars Exploration
4. Exploration of Near-Earth Asteroids
5. Exploration of Other Destinations
6. Space Transportation
7. Key Technologies
8. Challenges of Life Support/Medical Support for Human Missions
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