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International Astronautical Federation

News

Connecting Space People

4/2016 (December 2016)

President's Welcome

Dear colleagues,

Welcome to this December issue of the IAF newsletter.

This issue focuses on the highlights of the intense IAC 2016 in Guadalajara, the International Space Forum in Trento, the upcoming Global Conference on Space Exploration (GLEX) 2017 in Beijing, and preparations for the 2017 Spring Meetings and IAC in Adelaide. We are also delighted to introduce the new members who officially joined the IAF at this year's General Assembly meeting.

There is also the usual members' news highlighting the achievements and events of our member organizations. I would like to sincerely thank all of you for your hard work throughout a very successful 2016, where we saw a record number of participants in IAF activities. I look forward to working with our IAF community in 2017.

With best wishes for the holiday season,

Dr. Jean-Yves Le Gall

IAF President



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International Astronautical Federation

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IAC 2016

The #IAC2016 in Guadalajara, Mexico has been a groundbreaking congress with a record participation of more than 5200 prominent thought leaders, researchers, decision makers, academicians, media representatives, experts, students, and young professionals from more than 60 countries, energizing an international movement working to advance the dialogue between scientists around the world and to lay the foundation for international space cooperation.

Please find below all videos and photos of the wonderful moments we spent together:

[Click here for The IAC2016 Highlight Video with all your favorite moments](#)

[Click here to watch all IAC 2016 videos](#)



[Click here to see all pre #IAC2016 pictures](#)

[Click here to see all pictures from Monday](#)



[Click here to see all pictures from Tuesday](#)

Check for more news on our Social Media





[Click here to see all pictures from Wednesday](#)

[Click here to see all pictures from Thursday](#)



[Click here to see all pictures from Friday](#)



Important Decisions of IAF General Assembly at IAC 2016

(Guadalajara, Mexico September 30, 2016) The International Astronautical Federation General Assembly has gathered during the International Astronautical Congress, IAC 2016, in two sessions (Monday, 26 September 2016, and Friday, 30 September 2016). Several important decisions have been taken. Among these, the following:

2016 Elections of IAF Officers

Dr. Jean-Yves Le Gall's assumption of duties as IAF President has officially taken place during the IAF General Assembly, on Friday 30 September 2016. Dr. Le Gall had been elected incoming President at IAC 2015 in Jerusalem and has assumed full presidency at IAC 2016 for a term of 3 years.

In addition, 4 new Vice-Presidents have been elected by the General Assembly:



Pascale Ehrenfreund

Chair of Executive Board, German Aerospace Center (DLR), Austria

VP: COMMUNICATIONS, PUBLICATIONS AND GLOBAL CONFERENCES

Born in 1960, Dr. Ehrenfreund obtained degrees in Astronomy and Biology at the University of Vienna. She was appointed as a Fellow of the European Space Agency (ESA) at the Leiden Observatory in the Netherlands, upon completion of her doctoral studies. Between 2001 and 2005, Dr. Ehrenfreund held a professorship in Astrobiology at the University of Amsterdam and the University of Leiden, where she remains a Visiting Professor today. In addition, between 2005 and 2008 she was a Distinguished Visiting Scientist at the Jet Propulsion Laboratory in Pasadena, USA, which is part of the California Institute of Technology. Further, Dr. Ehrenfreund obtained a Master of Arts in Management and Leadership in 2008. Since then, she has been Professor of Space Policy and International Affairs at the Elliott School of International Affairs, George Washington University, and Lead Investigator at the NASA Astrobiology Institute. She was the first female President of the Austrian Science Fund (2013-2015), from which she stepped down upon her appointment at DLR, where she has been Chair of the Executive Board since 17 August 2015.



Sergey Krikalev

Executive Director for Piloted Spaceflights, ROSCOSMOS, Russia

VP: INTERNATIONAL RELATIONS AND OUTREACH

Sergey Krikalev was born on 27th August 1958 in Leningrad (St. Petersburg), USSR.

Graduated from Leningrad Mechanical Institute (now Baltic State Technical University) as engineer in the design and production of flying vehicles, he was working in “NPO Energia” in ground support team for “Salyut-7” orbital station. In 1985, he has passed through medical examination and became cosmonaut candidate in the “Buran” space shuttle team. Later, he was included to the main crew of the joint French-Soviet mission (1988). He accomplished 6 spaceflights (3 onboard of “Soyuz” spacecraft and 3 onboard STS “Space Shuttle”) with 803 days of cumulative spaceflight time and 41 hours of EVA (8 sorties). Apart from being a cosmonaut, he was working as Deputy Designer-General of “Energia” Corp (2007-2009), Director of the Cosmonaut Training Center (2009-2014), First Deputy of the Director General of TsNIImash Institute (2014-2016). Now he is the Executive Director of Piloted Spaceflights of the ROSCOSMOS.



Clayton Mowry

Lead – Sales, Marketing & Customer Experience, Blue Origin, United States of America

VP: FINANCIAL MATTERS AND IAC EVOLUTION

Clay Mowry has worked for over 20 years in the commercial launch and satellite sectors serving in government, as the leader of an industry trade association and as a senior executive for leading commercial launch services companies. Mr. Mowry joined Blue Origin in September 2016 to lead global sales and marketing for the innovative private company developing the New Glenn orbital launch vehicle and technologies to enable low cost commercial satellite and human space transportation. Mr. Mowry previously served for 15 years as the President and Chairman of Arianespace, Inc. As the head of the Arianespace’s U.S. subsidiary, he was responsible for managing the company’s sales, marketing, strategy, government relations and corporate communications activities. Before joining Arianespace, Mr. Mowry served for six years as Executive Director at the Satellite Industry Association, a non-profit alliance of U.S. satellite operators, manufacturers and ground equipment suppliers. Prior to his role at SIA, he worked as a commercial space industry analyst and Senior International Trade Specialist with the U.S. Department of Commerce’s International Trade Administration. Clay Mowry received a Master of Business of Administration from Georgetown University in Washington, D.C., and a Bachelor of Arts in politics and government from Ohio Wesleyan University in Delaware, Ohio.



Johann-Dietrich Woerner

Director General, European Space Agency (ESA), Germany

VP: AGENCY, PARLIAMENTARIAN AND MINISTERIAL RELATIONS

Prof. Jan Woerner 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 Woerner 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.

Selection of Host City for IAC 2019

The IAF General Assembly at its second session on September 30, selected **Washington DC** as Host City for IAC 2019. The Hosting Organization is the American Institute of Aeronautics and Astronautics (AIAA), a member of IAF since 1952.

New IAF Members

The IAF General Assembly also approved the applications of 25 new Member Organizations from 15 countries worldwide. With this, the IAF Membership comprises 327 Member Organizations from 66 countries, confirming IAF’s position as a truly global Federation.

The 1st International Space Forum at Ministerial Level and the adoption of the Trento Space Statement

42 governmental delegations, composed by Ministers, Ambassadors, Heads of space agencies, representatives of International Intergovernmental Organizations and universities, gathered in Trento (Italy) on 24 October 2016 to contribute to the 1st International Space Forum (ISF) at Ministerial level dedicated to “Space Science and Academy for Global Challenges”.



The Forum, jointly organized by the International Astronautical Federation (IAF), the International Academy of Astronautics (IAA) and the Italian Space Agency (ASI), has been an initiative born under the three-year mandate of the ASI President, Prof. Roberto Battiston, as IAF Vice-President for Science and Academy Relations.

This first ISF was meant to encourage a global discussion on the need of promoting a greater involvement of Universities and national Academies in the conception, design and exploitation of peaceful space missions and programs and of fostering space knowledge dissemination and capacity building curricula and research activities at local and regional levels.

Three were the topics through which such need was addressed and the global discussion stimulated: Climate Change, Big Data management and Earth Protection.

The first immediate result of the Trento event was the adoption by consensus of the Trento Space Statement, which represents the starting point towards the achievement of the ISF's goals. A coherent, inclusive and balanced action among different Countries could create a worldwide network of space knowledge and human capital through the sharing of intellectual resources and data processing capabilities. Space Science and Academy require adequate referents in each

country in order to promote information, exchange of new ideas and standardization of processes and to create a sustainable network of human resources able to expand a confidence building approach for the peaceful use of outer space.

The International Space Forum is also a contribution to the preparation of the UNISPACE+50 and the goals of the UN 2030 agenda. Next edition of the Forum will be organized at regional level (Kenya's candidature is to be confirmed), in order to enlarge the number of representatives from Universities and academies.



The International Astronautical Federation (IAF) is pleased to invite you to the Global Space Exploration Conference (GLEX) 2017 to take place in Beijing, China from 6 – 8 June 2017.

The Conference 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 Beijing 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. The Chinese Society of Astronautics (CSA) is a close member of the Federation since 1980, the host organisation of two outstanding International Astronautical Congresses (IAC 1996 and IAC 2013), the host organization of the successful 2010 Global Lunar Conference (GLUC) and an IAF Alliance Partner. CSA and IAF are both committed to supporting the international relationships that enable exploration of outer space and are very enthusiastic to organise GLEX 2017.

For more information on GLEX2017, click [here](#).

Call for Papers closes 15 January. Abstracts must be submitted online at www.iafastro.net. If you need any more information or have any questions, please do not hesitate to contact us at support@iafastro.org

Looking forward to meeting you in Beijing at #GLEX2017!



THE CALL FOR ABSTRACTS FOR IAC 2017 IS NOW OPEN!

Submit your abstract and contribute to the 68th IAC programme!

Our traditional Call for Abstracts is now open and will run until 28 February 2017.

As the leading platform connecting All space people and promoting the latest space information and developments, the International Astronautical Congress is the ideal venue for scientists, researchers, engineers, decision-makers, industry experts and commerce executives, academics, students, and young professionals to present their results to a global audience of space professionals.

The Congress multidisciplinary programme enables abstracts to draw inspiration from a wide range of topics and aspects to write their paper:

- **Science and Exploration**
Space Life Sciences; Microgravity; Space Exploration; Space Debris; Space Astronomy
- **Applications and Operations**
Earth observation; Space communication and navigation; Small Satellites; Integrated Applications
- **Technology**
Astrodynamics; Materials and Structures; Space Power; Space Propulsion
- **Infrastructure**
Space Systems; Space Transportation; Knowledge Management; Commercial Spaceflight Safety
- **Space and Society**
Space Education and Outreach; History of Astronautics; Business Innovation; Space Law

Accepted abstracts will be either presented as oral presentations or interactive presentations, offering high visibility to their authors and opening the door to valuable feedback as well as new ideas and collaborations.

From this year, new session formats as well as abstracts guidelines and tutorials will be added to reinforce the global Congress proposal and enhance the authors and participants' experience.

Abstracts must be submitted online at www.iafastro.net. For guidance, the IAC2017 session list is available online: <https://iafastro.directory/iac/browse/IAC-17/catalog-technical-programme>

We look forward to receiving your quality abstracts and maintain the reputation of the Technical presentations as one of the most popular features of the IAC.

If you need any more information or have any questions, please do not hesitate to contact us at support@iafastro.org

IAC 2017 - CALL FOR PLENARIES AND HIGHLIGHT LECTURES NOW OPEN!



We would like to inform you that the IAC 2017 Call for Plenary Events and Highlight Lectures for the 68th IAC in Adelaide, Australia is now open and will close on **Friday 27 January 2017** (CET time). You can download the submission form as well as the explanation of the selection criteria [here](#).



**CALL
FOR
PLENARIES**

ANNOUNCING

2017 IAF's IPMC Young Professional WORKSHOP

Sunday 24 September 2017, Adelaide Australia

The International Project/Programme Management Committee (IPMC) Young Professionals Workshop seeks to gather input from young professionals in the international space community to gain the knowledge they need to better develop and empower the next-generation workforce.

IAF affiliated organisations are invited to nominate delegates for this workshop and represent their views in this international forum. The **call for delegates** will be issued in February 2017.

The **delegates** for this workshop are asked to be physically present at the day of the workshop as well as the International Astronautical Congress and would fit the profile of a young professional. Young professionals are typically defined as being age 35 and under and having at least one to two years of experience on a project team and/or in the aerospace industry. A diversity of backgrounds (e.g., engineering, management, science, etc.) is encouraged in order to produce thoughtful and well-rounded observations and recommendations that will be presented to the IPMC. The delegates will be working in teams on the workshop topics via skype, email, webex, etc. prior to the workshop with kickoff planned for early June 2017.

The **2017 topics** for the workshop will be defined by the Workshop Organising Committee and IPMC before publication of the call for delegates.

The 2016 topics were Agile, Low-cost and High-performance space projects, Knowledge management in the aerospace sector and 5 years of IPMC Workshop. The full report of these topics and its findings and recommendations will be available on below websites in January 2017.

Additional information on the IAF and the IPMC can be found at <http://www.iafastro.org/> as well as <http://www.iac2017.org/>. For last years workshop please visit us at [2016-ipmc-yp-workshop](#).

Questions on the Young Professionals Workshop can be addressed to ipmc.yp.workshop@gmail.com.



Global Space Applications Conference 2018 (GLAC 2018)

The International Astronautical Federation (IAF) and the Centro de Investigación y Difusión Aeronáutico Espacial (CIDA-E) are pleased to announce that the next instalment in the IAF Global Series Conference, the Global Space Applications Conference 2018 (GLAC 2018), will take place in Punta del Este Uruguay in June 2018. More information on the event will be published in 2017.

WASHINGTON DC, USA TO HOST IAC 2019



During the 67th International Astronautical Congress, held in Guadalajara, Mexico from 26 – 30 September 2016, the IAF General Assembly at its second session on September 30, selected **Washington DC as Host City for IAC 2019**.



The Hosting Organization is the **American Institute of Aeronautics and Astronautics (AIAA)**, a member of IAF since 1952.



The #IAC2019 will be 21 – 25 October 2019

CALL FOR HOSTING THE IAC 2020

Each year the International Astronautical Federation (IAF) – in collaboration with the International Academy of Astronautics (IAA) and the International Institute of Space Law (IISL) – organises the International Astronautical Congress (IAC). The IAC is held in different countries of the world with an IAF member organisation serving as its host. In recent years the event attracted more than 3500 participants including up to 2000 full paying participants, retired participants and press representatives as well as approximately 800 students and young professionals.

The schedule for the selection of the site of the 71st IAC is as follows:

Announcement of Call for Proposals: 8 November 2016

Deadline for notices of intent to submit proposals: 28 February 2017

Deadline for submission of proposals: 28 April 2017



Selection of finalist candidates (if applicable): 30 June 2017

Site Inspections: July – August 2017

Deadline for submission of updated proposals from the candidates: 8 September 2017

Finalist presentations: during the 68th IAC in Adelaide, Australia from 25 – 29 Sept. 2017

Selection of the Host by the IAF General Assembly: 29 September 2017

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

IAF Symposium “Space: What is at stake in 2017 and 2018” at UN COPUOS STSC in Vienna in February 2017

The International Astronautical Federation is organising a symposium in Vienna on 8 February 2017 from 15:00 to 18:00, on the theme “Space: What is at stake in 2017 and 2018”.

This three-hour event will feature keynotes and two panels which will debate a range of issues in regard to the political, technological and legal challenges of the space scene and will present a diversity of views from experts representing various parts of the world.



IAF SPRING MEETINGS

The Spring Meetings will take place from 21 – 23 March at the NEW CAP Event Center in Paris.

For the first time IAF is announcing a “3G Diversity Day” on Tuesday 21st featuring a 3G IDEA Diversity Breakfast event dedicated to gender diversity, a 3G Luncheon dedicated to generation diversity, and a 3G Diversity After-work Gathering focusing on geographical diversity and introducing a new “International Business Etiquette” presentation series with a focus on China. On Tuesday 21st and Wednesday 22nd IAF Technical and Administrative Committees will meet followed by Global Networking Forum (GNF) events and the traditional IAF cocktail on the Wednesday evening.

The International Programme Committee (IPC) general meeting and papers selection for IAC 2017 take place on Thursday. There will also be 2 sessions of the IAF Bureau. For more on this year’s IAF Spring Meetings, click [here](#).

IAF “3G” Diversity Initiative – a key item on IAF President’s “IAF Global Innovation Agenda 2016 – 2019”



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



Following IAF President Jean-Yves Le Gall's announcement of his

"IAF GLOBAL INNOVATION AGENDA 2016-2019"

with its strong emphasis on **Fostering the Principles of "3-G" Diversity within the Federation and the Space Sector** ("3G" for Geography – Generation – Gender) an IAF International Platform for Diversity and Equality in Astronautics ("IDEA") was created.

This innovative IAF Platform will allow the Federation to take a leading role in the effort to promote and advance diversity and equality principles amongst a global space community, become an exemplary organisation in terms of geographical, generational, gender and any other diversity aspects, and live up to its motto

Connecting @ll Space People

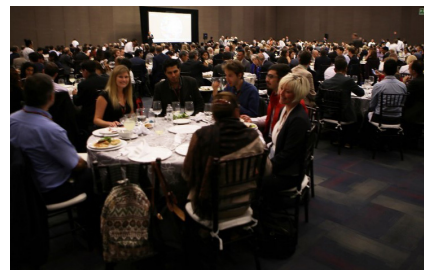
IAF "3G" IDEA provides a framework for an intensive and open exchange on diversity and equality aspects within the IAF and amongst IAF member organisations as well as potential IAF members and other organisations promoting diversity. IAF "3G" IDEA is intended to be a platform to hold events of different nature during the annual International Astronautical Congress, IAF Global Conferences, IAF Spring Meetings and other occasions, focusing on "3G" diversity topics.

IDEA Inauguration Event at IAC 2016 - "3G" IDEA Diversity Luncheon

The 67th International Astronautical Congress (IAC) in Guadalajara, Mexico, has seen the inauguration event of "IDEA" with an IAF "3G" IDEA "Diversity" Luncheon on Wednesday, 28 September. With more than 500 IAC delegates attending and top-level speakers this event was certainly one of the highlights of the IAC 2016.

In his inspiring opening speech IAF President Jean-Yves Le Gall outlined his "3G" Diversity focus as part of the "IAF Global Innovation Agenda 2016 – 2019" and referred to the late **Andrea Boese**, IAF Vice President and DLR Chief Diversity Officer, who had been passionate about diversity and devoted her professional life to promoting it. The initial idea of creating a Diversity platform was one of the topics she had discussed with the IAF only weeks before her tragic passing and with the creation of the IAF "3G" IDEA her initial concept is brought to life. Dr. Le Gall closed by embracing the essence of fostering diversity with the words **"Brilliant minds have no age, gender, nationality or handicap. Take the best of all and give diversity a chance!"**

Passionate keynote speeches on geographical diversity from European Space Agency (ESA) Director General **Jan Woerner**, generation diversity from NASA Deputy Administrator **Dava Newman** and gender diversity from Lockheed Martin Space Systems Company Strategy and Business Development Vice President **Kay Sears** were then offered to the audience.



Kay Sears told the Luncheon that the "3G" concept was "good for business," and that a study by management consultancy McKinsey & Company found that gender diverse companies were 15% more likely to outperform the industry average and ethnically diverse firms were 35% more likely. She also cited issues with "social norms" about girls and women and told the audience that women "don't own their own future" and there was no emphasis in society on telling the stories of successful women.



While Dava Newman's speech was about generation diversity, she identified an issue at NASA where it would take until 2050 before there was parity between men and women scientists. This is because the rate of increase in women scientists was only 1%. About 28% of NASA's scientists are women and 23% are engineers. Mrs. Newman pointed out that by 2050, "we will be on Mars before we reach parity." She also said that telling children they had to be the best in science and mathematics was intimidating. The conversation had to be changed to an inspirational one about helping to solve society's problems. NASA research had concluded that for young people to make their career choice, they have to see themselves as that engineer or scientist, they need to have a sense of belonging to the community associated with that career, and that community needs to act in an inclusive way.

Jan Woerner's inspiring geographical diversity speech talked about people with different geographical backgrounds having different ways of solving problems and that this was a benefit and clear added value to any organisation. He brought several examples of ESA's positive practical experience with a geographically diverse workforce.

Finally, Space Generation Advisory Council's (SGAC) Executive Director Minoo Rathnasabapathy informed about the SGAC now counting 4,000 members across 110 countries. She spoke of the work those members do in their spare time to make the SGAC's Space Generation Congress happen. She said: "We celebrated our 15th Space Generation Congress, a landmark event for SGAC," adding that the congress had 151 delegates from 32 countries. She also asked for applause for five SGAC members whose work had been outstanding. They were from Canada, Israel, Germany, France, India and Mauritius.



Thanking all speakers and the audience IAF President Jean-Yves Le Gall said that the diversity "agenda will ensure the sustainable development of our Federation". He also thanked the sponsors of this event, the Lockheed Martin Corporation and the Mexican Space Agency.

The Luncheon also allowed for valuable networking time in a relaxed atmosphere which was much appreciated by the delegates.



"Diversity Initiatives" – A new Vice-President Portfolio within the IAF Bureau

Responding to the enhanced focus of the IAF on Diversity initiatives IAF President Jean-Yves Le Gall decided to create a new Vice-President portfolio within the IAF Bureau to oversee all IAF Diversity initiatives. IAF Vice-President and Lockheed Martin Corporation Senior Manager **Mary Snitch** was entrusted to take on "Diversity Initiatives" in addition to her portfolio of "Global Membership Development".

IAF Excellence in 3G Diversity Award

At its meeting in Guadalajara, Mexico, the IAF Bureau decided to create an "IAF Excellence in 3G Diversity Award" with the aim to stimulate space organisations worldwide to contribute to the effort of achieving a balanced and diverse representation within the space sector and to recognise their achievements. This award is intended to recognize IAF member organisations (industry, government, academia) worldwide for outstanding contributions to the fostering of "3G" (Geography, Generation, Gender) Diversity within the space sector.

Only IAF member organizations are eligible to receive the award. In addition to nominations for other organizations, any IAF member organisation may also self-apply for the IAF Excellence in 3G Diversity Award following a call for applications issued by the Secretariat.

The award consists of a statue and a certificate which will be presented to an official representative of the awarded organization during the annual "IAF IDEA Diversity Luncheon" at the IAC. The awarded organization will be given a speaking opportunity at this occasion.

Selection criteria:

Serve as a model for outstanding and sustainable contribution to the fostering of "3G" Diversity within the space sector, whereby significant effort in the promotion of at least 2 of the 3G diversity aspects – Geography, Generation and Gender – including potential additional diversity aspects, and positive results in achieving a balanced representation have to be demonstrated.

Such effort may include, but is not limited to:

- Activities to recruit, retain, and professionally develop individuals who increase the "3G" diversity of the workforce
- Senior leadership in organization exemplifies commitment to diversity
- Activities to create leadership teams that promote a diverse and inclusive culture
- Sponsorship, implementation or active promotion of programs, initiatives, or projects in the area of "3G" diversity and inclusion
- Recognition of exemplary individual and team behaviours that promote diversity and inclusion

- Innovative approaches, which have resulted in a step up from business as usual

Applications will be judged on the following criteria:

- Demonstration of emerging or sustained commitment to the values of “3G” diversity by documented efforts that are above and beyond routine expectations.
- Evidence of exceptional efforts to promote a working environment that is free from bias and discrimination.
- Substantiation of the contribution that an organization has made towards advancing “3G” diversity.

Nomination package shall contain:

- A citation of the contribution to “3G” Diversity (one sentence);
- A summary description of the organisation’s outstanding contribution in the respective (at least 2) diversity aspects (geography, generation and gender); eventual contributions to additional aspects of diversity shall also be mentioned and will be considered

A call for applications/nominations has been opened by the IAF beginning of December with a deadline of **13 February 2017**.

New IAF Members

Aexa Aerospace LLC



Aexa Aerospace LLC, a small business providing engineering services in telecommunications, software and propulsion. They provide engineering services, telecommunications software and information technology (IT). They have been developing software for astronaut training and operations using Microsoft HoloLens to create mixed reality training software. Their primary area of expertise is improving, maintaining and creating new software applications to encompass all the communication needs of their clients, both propulsion and robotics, whether it is improving the efficiency of existing programs or innovating new ones. Aexa is located near the heart of Texas’ aerospace industry Johnson Space Center.

Asia and Central America, but the service is set to expand into many more regions and territories.

Their other prime focus for the technology is in its use for large scale multi-national organizations to gain enhanced situational awareness that improve their own products and services. Their clients in this area range from large scale commodities and infrastructure operators, to the energy and security sectors.

Their products have one prime aim – to mark their end user clients more effective and efficient at what they do.

Auspace Pty Ltd.



Auspace is a systems integrator with a Machine to Machine (M2M) communications specialisation, focused on providing a platform for organisational assurance and productivity efficiencies, through enabling systems for the integrated management of lone workers, vehicles and other assets.

Astrosat Limited



Astrosat is a ‘satellite as a service’ company focusing on delivering space based services primarily to the government and large scale private sector organizations. Their prime focus centers around the RAPID delivery platform from which they deliver Earth Observation based products that assist in decision making during and post natural and economic disaster events. Their prime clients for this service are currently in South East

Blue Origin



Blue Origin’s mission is to build innovative space systems to enable millions of people to one day live and work in space. As a vertically integrated space technology organization, Blue Origin excels in rocket propulsion, space craft and reusable rockets.

Cyprus Space Exploration Organisation (CSEO)



Cyprus Space Exploration Organisation (CSEO) is an independent NGO, established three years ago with a mission to promote Cyprus as a one of the leading international space-faring nations. CSEO's foresight includes the establishment of an International Space Centre in Cyprus, space sciences and exploration, R&D, incubators, observatory, space discovery missions, earth observation, and collaboration with other international space entities, just to name a few.

CSEO aspires to accomplish its vision with the following four basic pillars: "Education and Outreach", "R&D", "Industry", and "International Relations and Collaboration". As such, CSEO – via its global network, its domestic and international activities and projects – promotes scientific research and development of high-tech and space exploration; actively develops the local space industry; bridges academic and industrial collaboration; galvanizes the potential of the local and global talents into applied high-tech innovation; bridges academia with industry; contributes to turning high-tech industry into a vibrant sector with high employment opportunities; brings widespread collaboration with other space-faring nations in science, technology and space missions; actively encourages and promotes internationally and domestically, the future generation of scientists, via education and outreach, with continuous in-and-out-of-school programs and media outreach.

CSEO based in Cyprus presents a meeting point between space fairing nations; a stepping stone where space for peaceful purposes, employing technology and commerce can grow and mature.

CSEO's motto is - Non lucrur, Exposita Scientia, ad Astra - "Not for money, for discovering knowledge, approaching the heavens."

Danish Aerospace Company ApS



Danish Aerospace Company (DAC) is a high-tech company operating in the area of advanced medical instrumentation and other engineering fields primarily within space applications.

Their products are based on many years of specialized research and development. These consist of developing, integrating, and applying new as well as established medical technologies to the challenges of functioning and remaining reliable in space. These products and services bring the potential of space research and experience from space operations down to Earth for the benefit of all Mankind.

Embry-Riddle Aeronautical University



Embry-Riddle's Commercial Space Operations (CSO) program acts as a provider of undergraduate education in spaceflight operations, planning, analysis, and support. Students in the CSO program develop competencies in a number of disciplines, including aerospace safety, space policy, technology, systems engineering, and flight operations. The program blends these competencies together into a cohesive package within the context of the modern commercial spaceflight sector. Additionally, the program engages in cutting-edge research in spaceflight simulation, space traffic control, spaceflight physiology, and a number of other topics.

Friedrich-Schiller-Universität Jena



seit 1558

The university puts emphasis on intensely taking care of its students, and works on creating a "Students' Paradise in Jena." (www.studentenparadies.uni-jena.de) Special programmes support students from abroad. When it comes to teaching, Jena University combines tradition and innovation: Apart from medicine, physics, psychology, business studies and economics, or sports, bio and social sciences - all of which are highly ranked - the so-called "smaller subjects", like for instance Caucasology, Romanian or Indo-Germanic studies, are sustained. The wide range of opportunities for studying at Thuringia's only classical university shapes its appearance as well as its attitude: to act without limits - interdisciplinary and internationally. Therefore, a clear research profile has been established and will be further developed.

Korea Aerospace Industries



Korea Aerospace Industries (KAI), the only integrated aerospace manufacturer in the Republic of Korea (ROK), has been established in October 1999 in compliance with National Desires for strategic encouragement of Aerospace Industries in Korea which are the future superior-technology and high-yield industry. Since its establishment with clear vision to become one of the top fifteen aerospace companies by 2020, KAI has endeavoured to develop Korea's aerospace industry by securing advanced aerospace technologies, promoting related industries and developing indigenous satellite and launch vehicle products, all of which led to significant achievements in its pursuit. KAI has greatly contributed for more than 70% localization of Korea multipurpose satellite program (KOMPSAT series) being promoted as part of the national space effort. As the Korea's representative aerospace system integrator, KAI will perform its roles and responsibility to lead domestic suppliers and material producers so that we can all meet our national aerospace vision of becoming top eight aerospace country by 2020 and responsible for the nation's defence and aerospace development.

Korea Association for Space Technology Promotion (KASP)



The Korea Association for Space Technology Promotion (KASP) main goals are: seeking a cooperative development through sharing information and cooperation between the members; policy proposal for government to develop space technology and industry; achieving assigned duties from government in relation to space technology and industry; publicity related to space technology and industry; holding a society and seminar, forum to develop space technology and industry; collecting information of domestic and foreign related to space technology and industry; international cooperation project and, education for professional manpower training in field of space industry.

MX Space



MxSpace is a sustainable, affordable, integrated and evolving initiative to design, develop, test and fly systems that allows spatial recognition of the Earth, in order to create industrial space resources in Mexico and follows an aggressive scheduling marked by different areas like design & integration of nanosatellites systems, creation of testing facilities, and innovative payload applications for small satellites.

MXSpace includes support for the exploitation of space resources allocated to Mexico to address issues of national interest and to promote and strengthen the Mexican space sector, favouring the industrial, technological and innovative development, creating jobs highly specialized and consolidating their sector with high value-added activities.

National Institute of Information and Communications Technology (NICT)



The National Institute of Information and Communications Technology (NICT) promotes the full spectrum of research and development in ICT from basic to applied research with an integrated perspective, and thus promotes the advancement of Japan as an intellectual nation that leads the international community. Moreover, NICT forms close ties with the academic and business communities in Japan as well as with research institutes overseas and returns its R&D findings to society in a broad range of fields. In this way, NICT contributes to the creation of lifestyles that are affluent and safe, a society that is full of intellectual creativity and dynamism, and a world that values harmony and peace.

Orbital Access Ltd



Orbital Access aims to offer small payload launch services worldwide. They will harness new and more efficient horizontal take-off launch systems developed in the UK that continue this country's long track record of Tier 1 aerospace design, development and manufacture.

By harnessing the outstanding technical and industrial capabilities of the UK aerospace sector, their systems will offer best-in-class performance and reliability underpinned by Tier 1 quality and design.

Peoples' Friendship University of Russia (PFUR)



Peoples' Friendship university of Russia (PFUR) is one of the leading higher educational institutions of Russia. It is the only university in the world that annually unites students from about 150 countries. In the all-encompassing curriculum of PFUR, space technologies hold a prominent place and constantly continue to gain in significance as the modern world becomes all the more space-oriented in all fields of human activities. For many years various subdivisions of PFUR have been contributing to the relevant areas of space activities. Research and training in various space-related sectors were undertaken by the following departments: Agro-Technological Institute (Earth Remote Sensing and Agricultural Applications of Space Products), Academic-research Institute of Gravitation and Cosmology (Cosmology and Space Physics), Faculty of Economics (Space Activities for the Benefit of national Economies), Institute of Law (International Space Law), Engineering Faculty (Space communication and Navigation) and many others. Along with academic activities, the University carries out R&D projects commissioned by the leading Russian space enterprises. At present, an increasing number of other PFUR departments continue to integrate space-related programs into the local curriculums to raise awareness about the application of space technologies in medicine, ecology, engineering and fundamental science.

Politecnico di Milano



Politecnico di Milano is a scientific-technological University, which trains engineers, architects and industrial designers. The University has always focused on the quality and innovation of its teaching and research, developing a fruitful relationship with business and productive world by means of experimental research and technological transfer. Research has always been linked to didactics and is a priority commitment, which has allowed Politecnico di Milano to achieve high quality results at an international level as to join the university to the business world.

Research activity moreover constitutes a parallel path to that formed by cooperation and alliances with the industrial system. Politecnico takes part in several research and training projects collaborating with the most qualified European universities. Politecnico's contribution is increasingly being extended to other countries: from North America to Southeast Asia to Eastern Europe. Today the drive to internationalization sees Politecnico di Milano take part in the European and world network of leading technical universities and offers several exchange and double degree programs beside many programs entirely taught in English. Today Politecnico offers 30 Master degrees, out of which 9 have relevance to space activities.

RHEATECH LTD



RHEA is a leading engineering consultancy firm with demonstrated expertise in space, system- and secure software solutions. They employ skilled engineers, scientists and management professionals working alongside clients such as the European Space Agency, the European GNS Agency, ELJ METSAT, NATO and the major European satellite and space systems manufacturers.

Rovsing A/S



Rovsing A/S is an experienced Danish company developing and providing test and simulation products, systems, and software for European satellites or the NASA-ESA spaceship Orion-MPCV as well as to international customers.

Furthermore Rovsing is a renowned expert in Independent Software Validation & Verification (ISVV) in ESA projects.

Rovsing also provides on-site engineering support and services to Primes and to CSG in Kuru.

Soletop Co. Ltd



Soletop is known for innovative software technology and field-proven engineering capabilities for applications in satellites, unmanned crafts. From factory test to operation, the Defense

and Aerospace industries rely on Soletop to solve its application problems.

SpaceX



SpaceX designs, builds and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the ultimate goal of enabling people to live on other planets.

Space Trust



Space Trust is a thought leader in making Space the New Frontier for Peace by engaging world leaders to find innovative solutions for a peaceful world and to redefine Diplomacy in a New Space Age—i.e., the Commercialization of Space.

They seek to engage the civil society via a global campaign next year. Their STEAM/STEM projects under Space Generation Women Leaders Programme is aimed at empowering young women and Disaster Risk Reduction Programme for developing countries for Disaster preparedness and peaceful uses of Space Science and Technology on Earth.

The Tauri Group



The Tauri Group Space and Technology team applies deep knowledge in the space and satellite industries to the needs of government and commercial clients. They believe industry leaders require objective, data-driven analysis, free of vested interests and pre-conceptions, to make the right decisions. The Tauri Group cultivates a culture of engagement and partnership with our clients, whose success we take personally.

The Tauri Group's expertise includes market research, economic analysis, technology assessment and investment strategy, data analysis, strategic communication, presentations, and report development. Many of the existing, authoritative data sets characterizing the space industry and sub-segments were originated by The Tauri Group or by Tauri analysts. They understand the interplay of national security, civil, and commercial space programs, capabilities, and markets.

UAE Space Agency



In July 2014 UAE President His Highness Sheikh Khalifa bin Zayed Al Nahyan announced a decree to set up a UAE SA that will report directly to the Cabinet and enjoy financial and administrative independence. The UAE SA primary mandates are: develop, organize, support, guide and coordinate the UAE's growing Space sector that contributes to a diversified UAE national economy and which supports sustainable development; the development and use of Space science and technology within the UAE and provide support and advice in these areas; raise awareness of the importance of the Space sector and the development of the qualified human resources in the Space field; develop the necessary Space policy and regulation, and support their enforcement; Enhancing the UAE's position as a global player in aerospace; establish international partnerships in the Space sector, and help support knowledge transfer. The UAE SA will also be responsible for facilitating, supporting as well as supervising UAE national Space programs, such as the UAE Mission to Mars.

Universiti Teknologi Mara (UITM)



Universiti Teknologi MARA (UITM) is one of a public university In Malaysia. Currently, LIMO has 24 faculties and 3 academic centres and offers 373 programmes. The faculties are grouped into 3 clusters: Science & Technology, Social Sciences and Humanities, and Business and Management. The primary activities are education and research.

University of Adelaide



The University of Adelaide is a public university in Adelaide, South Australia. Established in 1874, it is the third-oldest university in Australia and is consistently ranked among the top 1% of universities worldwide.

The object of the University is the advancement of learning and knowledge, including the provision of University education.

Wildcard Mavericks Ltd

Wildcard Mavericks Ltd has a network of clients who operate globally and are seeking marketing, set up and strategy advice from us. They are experts in commercial product launches in digital media, e and m commerce and the app economy. Their geographical reach is focused on Europe, the United States, Russia, China and India.

Members' News

A Memorable Year for NGC Aerospace



This year was full of meaningful events for NGC Aerospace, a Canadian high-technology company known internationally for its design and deployment of guidance, navigation and control systems for autonomous land, air and space vehicles. In August, NGC Aerospace was host to the 20th IFAC Symposium on Automatic Control in Aerospace in Sherbrooke, Canada, hosting more than 100 attendees from 19 different countries. In September, the CEO of NGC Aerospace, Jean de Lafontaine, was invited at the European Space Agency Operations Center in Darmstadt, Germany, to take part in the ultimate landing of the Rosetta spacecraft on comet 67P. Jean was part of the engineering team responsible for demonstrating the technical feasibility of landing on a comet which led to the Rosetta mission. Finally, in October, celebrating fifteen years of operation, PROBA-1 was the first European satellite to include two breakthrough technologies developed by NGC Aerospace. These innovations allowed a reduction in the cost of satellite operation, by making it autonomous, and a reduction in the development cost of its on-board intelligence, by using fully automated design tools. NGC's intelligent software have demonstrated their reliability and robustness in four satellites: PROBA-1 (2001), PROBA-2 (2009), PROBA-V (2013) and Sentinel-3 (2016), accumulating more than 25 years of successful in-orbit operation.

The Hungarian Astronautical Society (MANT) Space Camp



**Hungarian
Astronautical
Society**

The Hungarian Astronautical Society (MANT), a 60-years old civil society of space professionals and enthusiasts, organised its annual Space Camp in the city of Debrecen. This July, there were more than 30 student participants at ages of 13-18 years. The week-long program included lectures by renowned space experts, team work, and visits to the University of Debrecen, the Institute for Nuclear Research of the Hungarian Academy of Sciences, and the Agora Science Centre. Building on the success of the first similar event in 2015, the second Hungarian Space Academy took place in Gödöllő in August. The 4-day event was attended by nearly 30 university students and young professionals, between ages of 18-35 years. The goal of the Space Academy is to train the future generation of space researchers and to strengthen their professional and personal ties. This years' main theme was to design an experiment for the International Space Station. Invited lecturers included leading figures of Hungarian space research and industry. The Space Academy was organized in collaboration with the Space Generation Advisory Council. We celebrated the World Space Week with our traditional Space Day in Budapest in October. The event started with a workshop on space engineering education, continued with public lectures on hot space topics, and ended with a celebration of our founding anniversary.



Solar MEMS Technologies



Solar MEMS Technologies is a Spanish technology-based company specialized in the development of equipment and engineering services for the space sector. With **flight heritage** since 2009, the company has state-of-the-art facilities and highly qualified human resources, supplying **sun sensors** to the world's leading companies and space agencies, and being part of satellites in more than twenty countries.



Solar MEMS Technologies, in its constant commitment to improve international competitiveness and industrial capacity, is developing a new sun sensor for **AOCS** that will be included in a **mega-constellation** of satellites. For this purpose, the company is developing an innovative technology based on its MEMS know-how and implementing an ambitious **industrialization** roadmap following a mass production approach.

The company, in charge of the development of the **first Andalusian satellite**, is also involved with the University of Seville, in the development of a miniaturized **star tracker** and a **horizon sensor** for high accurate satellite attitude determination. These outstanding products will complement the company's current AOCS portfolio, led by the **nanosSOC**, which is the smallest, lightest and most accurate sun sensor in the nanosatellite market with hundreds of units delivered so far.

Researchers' Night, took place during the night of 30 September. It was for the first time that the museum participated in the European event of that kind. The idea to bring research out of laboratories closer to general public was a real success. Children and adults were attracted to the museum in order learn more about the surrounding world by participating in the science demonstration "Mysteries of the Universe".



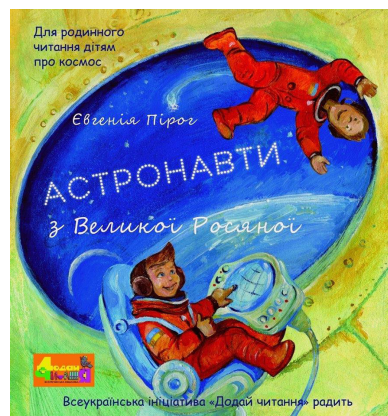
From 4-10 October the museum participated in celebration of the World Space Week. This time as the national coordinator for Ukraine. The events took place in Chernivtsy, Yahotyn and Zhytomyr. Zhytomyr hosted Open Space Festival. Over 20 events were organized in different locations in the city during the Festival. Scientists from NAS of Ukraine, science fiction writers, schools and the local university as well as other public institutions and organizations including the Association of Space Museums of Ukraine were involved. Lectures, workshops, tutorials, master classes, exhibitions and even a book published and a song written -all that happened within one week!



S. Korolev Space Museum Joins the World's Community

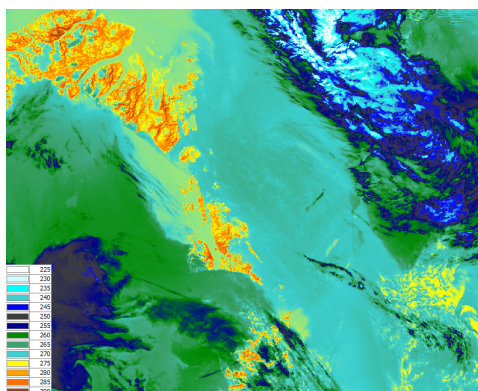


This year the S. Korolev Space Museum joined the world's community in celebrating two events. The first one, the European





EUMETSAT



Meteosat-8 provides Indian Ocean Data

Since October 2016, EUMETSAT's Meteosat-8 satellite delivers Indian Ocean data to registered users in parallel with Meteosat-7. In early February 2017, the IODC service will be switched from Meteosat-7 to Meteosat-8. The spacecraft is stationed at 41.5°E as the organisation's best-effort contribution to the Indian Ocean Data Coverage service, provided along with geostationary satellites from India, China and Russia.

Given that Meteosat-8 is a Meteosat Second Generation (MSG) spacecraft, it has three times as many channels as Meteosat-7 and improved temporal and spatial resolution of the images and products.

Paul Counet, Head of Strategy, Communication and International Relations at EUMETSAT, said, "The arrival of an MSG satellite not only secures continuity of data coverage over the Indian Ocean, but also offers improved imagery that will help better monitor severe weather events, such as cyclones, which dangerously affect the Indian Ocean population."

Watch the move of Met-8 to the Indian Ocean: <https://www.youtube.com/watch?v=yvYJCqxdNDk>

High Precision Ocean Altimetry service continues with Copernicus Jason-3 satellite

Early October was also the time when the Jason-3 satellite took over the operational ocean altimetry service from Jason-2.

In order to improve sampling and spatial coverage, Jason-2 was then moved to its final position, on the same orbit but at 162° from Jason-3, thus overflying different ocean surfaces and at a different time than Jason-3. The Jason-3 satellite will continue the long term climate data record on the ground track previously occupied by Topex/Poseidon, Jason-1 and, until recently, Jason-2. The spacecraft will continue to deliver vital data for seasonal forecasting and operational oceanography and will serve as reference mission for altimeters such as Copernicus Sentinel-3. Of vital importance is the detection of the global sea level rise as a key indicator for climate change.

Jason-3 is the result of an international partnership between EUMETSAT, the French Space Agency (CNES), the US National Oceanic and Atmospheric Administration (NOAA), the US National Aeronautics and Space Administration (NASA), and the European Union, which funds European contributions to Jason-3 mission operations as part of the European Commission's Copernicus Programme.

Sentinel-3 Product and Data Releases

After EUMETSAT took over operations of the Copernicus Sentinel-3A satellite from ESA in July 2016, the two agencies focus on getting the satellite fully operational. The October release of the first operational data from the Sentinel-3 Ocean and Land Colour Instrument (OLCI) was a major step forward, as EUMETSAT's Sentinel-3 Project Manager Hilary Wilson said.

"The release of Sentinel-3A's first operational data is the culmination of a lot of hard work by ESA, EUMETSAT and the expert user teams. It represents an important milestone for the Copernicus Marine Environment Monitoring Service and also for the wider marine monitoring community. Routine operations of the satellite have been proceeding smoothly since EUMETSAT took over this responsibility in July and we are now focusing on bringing the remaining marine products to this community."

Data from the satellite's Sea and Land Surface Temperature Radiometer became available on 17 November and operational data from the Radar Altimeter are scheduled to follow in early December.

HRH Princess Anne visits Surrey Satellite Technology Ltd

Her Royal Highness The Princess Royal visited Surrey Satellite Technology Ltd (SSTL) today, Tuesday 22 November, and was received by Major General Tim Sullivan, Deputy Lieutenant for Surrey. Her Royal Highness was given a tour of the Company's facilities hosted by Executive Chairman, Sir Martin Sweeting and CEO, Patrick Wood.



Her Royal Highness the Princess Royal being introduced to Sir Martin Sweeting, Executive Chairman of SSTL, by Major General Tim Sullivan, Deputy Lieutenant for Surrey

The tour of SSTL's Guildford site included viewing the Assembly, Integration and Test Hall where 16 spacecraft are currently in manufacture including NovaSAR-S, a low-cost radar satellite which has been part-funded by the UK Government and which is due to launch early next year.



Nimal Navarathnam, Systems Engineer, takes Her Royal Highness on a guided tour of London from space using an interactive image of London taken by one of SSTL's satellites



The Princess Royal unveils an engraved plaque commemorating her visit, with Patrick Wood (left) and Sir Martin Sweeting (right). The plaque is part of the mechanical structure of a satellite that will be launched in 2017.

The Princess unveiled a small engraved plaque that commemorates her visit and will be flown on one of SSTL's satellites due to launch in 2017.

Sir Martin Sweeting commented "I am delighted to welcome Her Royal Highness and our other distinguished guests today. SSTL has been based in Guildford on the University Research Park for over 30 years and is an example of the powerful synergy

between academic research and commercial exploitation that has resulted in a world-leading company pioneering small satellites that are used for improving agriculture, disaster monitoring, navigation and communications. Guildford has a thriving business community and strong transport links. We have been especially pleased to see space company start-ups and SMEs joining us here in the area, where the town forms part of the 'space corridor' that stretches from Portsmouth via Guildford and up to the Harwell campus near Oxford."

The tour concluded with a visit to the Spacecraft Operations Centre, SSTL's control hub designed to communicate securely with orbiting satellites via a number of ground stations located around the world, 24 hours a day, 7 days a week, 365 days a year.

WIA Breakfast



On September 28th, about 100 participants enjoyed the WIA Europe traditional breakfast. **Simonetta di Pippo**, **Kiyoshi Higuchi**, **Francisco Javier Mendieta Jimenez**, **Pascale Ehrenfreund**, **Jan Wörner** and **Kay Sears**, Vice President of Strategy and Business Development Lockheed Martin, after a warm welcome to all they expressed appreciation on WIA Europe work. Very fruitful networking held with the people attended by reaching the scope to get to know new counterparts, meet and exchange with colleagues and friends. All the participants highly appreciated informal atmosphere and opportunities to have time and space to talk to each other, to get to know new contacts and to have the chance to ask the attending Board Members from WIA-E to help to make contacts.



At the Panel, on "Space: new paths towards a balanced and inclusive development", attended about 120 participants. The director of AEM, **Mr. Mendieta**, discussed with four panelists, **Simonetta di Pippo**, **Barbara Ryan**, **Sandy Magnus** and **Minoo Rathnasabapathy**, urgent topics like the management of migration challenges, health promotion in remote areas and developing countries through tele-health approaches, benefits of medical research in microgravity and careers of young women

in the space arena. Their contributions were very illustrative, issues therefore didn't stay only theoretical.



XXIV International Conference AIDAA Palermo | Enna 18-22 September 2017



First Announcement

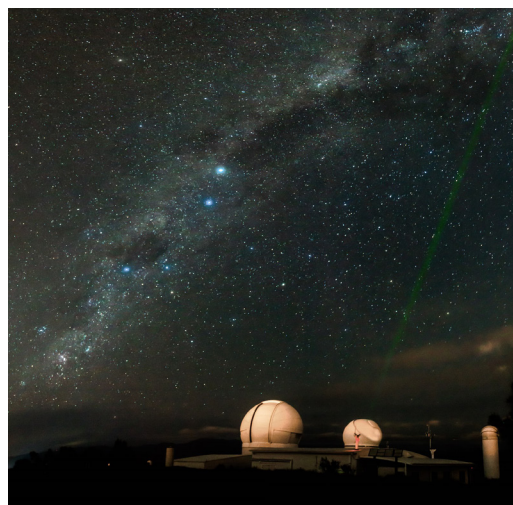
The *Italian Association of Aeronautics and Astronautics* will be hosting the XXIV AIDAA International Conference in Palermo and Enna, Sicily, between the **18th and 22nd September 2017**.

The Conference will bring together researchers and professionals active in all areas of aerospace sciences and engineering, with the aim of promoting exchange of knowledge and experience and encouraging networking within the community. Contributions in all fields are encouraged including but not limited to Aerodynamics and Fluid dynamics, Propulsion, Materials and Structures, Aerospace Systems, Flight mechanics and Flight Control.

The AIDAA Conference is currently held every two years and represents one of the most important scientific and technical networking-events in the field of aeronautics and astronautics in Italy. The Conferences address the whole sector, which includes industry, ministries as well as academia and research centers. Additionally, the Italian Association of Aeronautics and Astronautics promotes information of the general public about the scientific, technical, economic and cultural achievements in aeronautics and astronautics. The Conference is a highly important opportunity for networking, discussing new challenges and upcoming technologies and sharing ideas and skills.

Important dates and the Call for Papers will be announced soon. See: <http://www.aidaa2017.com/>

Australia Expands Its Capability in Adaptive Optics and Quantum Communication



The Australian National University (ANU) has welcomed funding from both the Federal Government and the ACT Government to expand its capability in adaptive optics and quantum communication.

The Australian Research Council has supported the development of a new laser system for the first Australian laser guide star to be developed at the [Advanced Instrumentation and Technology Centre \(AITC\)](#)

The laser guide star system will be crucial for civil and defence telescopes such as the new Giant Magellan Telescope under construction in Chile, as well as systems to track space debris.

"The ground-based telescopes used to study the universe, image satellites or track space debris all require laser guide star adaptive optics to defeat the blurring caused by atmospheric turbulence," Assoc Prof d'Orgeville said. "The semiconductor guide star laser is a key component of these systems, and the AITC will now be in a position to provide a complete solution to the problem."

The Space Based Quantum Communications project also leverages the AITC's adaptive optics expertise. The project brings together the space, telescope, adaptive optics, quantum information and optical communications capabilities of the [ANU Department of Quantum Science](#), the AITC, [UNSW Canberra](#), and ANU spin out companies, [QuintessenceLabs](#) and [Liquid Instruments](#).

This project is supported by the ACT Government through funds allocated in its 2015 Business Development Strategy. The ACT Government has identified [Space, Satellite and Spatial Science](#) as one of its seven key capability areas and a priority area for investment.

The Quantum Communication project will demonstrate the

technology for the ACT to host an Australian quantum ground station to support secure space communication links. It will demonstrate a secure quantum communication link between scientists at the AITC at Mount Stromlo and the UNSW Canberra optical telescope.

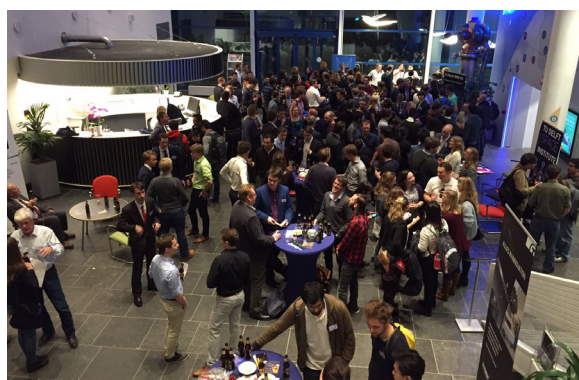
"Secure quantum communications will be crucial to future space industries, and we welcome the ACT Government support for this key project." said ANU Pro-Vice Chancellor of Innovation and Advancement Prof Mick Cardew-Hall.

These projects will be showcased at the IAC in Adelaide next year.



On 23 November, HE Space took part in the 'Discover Your Space' event, held at the Technical University in Delft. The NVR (Netherlands Space Society), the VSV Leonardo da Vinci, SGAC and SpaceNed invited HE Space and 20 other companies, agencies and initiatives, to present themselves to aerospace students starting with a short presentation in a large lecture theatre. Approximately 140 students from space-related faculties were able to get a first impression of the different kinds

of careers open to them. Three HE Space representatives were present to address the many questions students had and to specify what it would be like to work as an HE Space employee. Students were interested in how to start their careers, not only after finishing university but also during their study. HE Space as a leading engineering and recruitment partner with more than three decades of experience, well-known customers like ESA and Airbus and a strong network of different partners and initiatives rated highly with the students. Female students were particularly curious about 'Women in Aerospace' network that was presented by Barbara ten Berge of HE Space and Laura ten Bloemendaal from S&T. One of HE Space's ambitions is to enthuse young women about STEM and to encourage more women into the aerospace sector, especially into leadership roles.



Committee Broadcast

Educator Professional Development Workshop and Student Outreach Day

The Space Education Outreach Committee (SEOC) and the International Space Education Board (ISEB) collaborated to sponsor the Educator Professional Development Workshop, which was held during the 67th International Astronautical Congress on Sunday, September 25, 2016 at the Expo Guadalajara. The theme of the workshop was, "Classroom Education for the 21st Century." Over 50 local educators participated. Ian Christie, Curriculum Developer, Victorian Space Science Education Centre (VSSEC), Melbourne, Australia served as the facilitator. He provided insight into techniques, which could be used in the classroom with confidence that there would be good science to show these techniques have a significant effect on student learning. This was done by building on the work of Mid Continent Research in Education and Learning, Denver, Colorado. He also focused on "Powerful Science Activities with Simple Equipment." Participants took part in activities, which VSSEC used in its outreach program to teach fundamental science without



needing expensive or elaborate tools and equipment. The program has a built in requirement for teachers to pass on their knowledge to each other to ensure the skills are spread widely. The workshop also used the "Tickle My Droid Application," where Sphero Robotic Droids and the Tickle iPad were used to lead students into 21st Century skills in computer coding and robotics. The educators were taught how to use "Scratch" to teach students. "Scratch" is a new programming language that makes it easy to create interactive stories, games, and animations and then share the creations with others on the web. As another collaborative effort, members of the ISEB, along with ISEB students and members of the SEOC taught "Scratch" to nearly 200 local students during the "Student Outreach Day," which was held on September 30th in the International Student Zone at the Expo Guadalajara.

The following links contain photos of student outreach activities:

https://www.dropbox.com/sh/c6zc5c4bdw2kije/AAA0dSouvF1mS5ItpflixT_Oa?dl=0

https://www.dropbox.com/sh/yysimv3ouv1idpv/AACqZVRacuxgXRn_eKaU1tbCa?dl=0

Interview with Christian Sallaberger – President and CEO, Canadensys Aerospace Corporation, Chairman of the IAF Space Exploration Committee



1. A global conference on space exploration was held five years ago in Washington. What are the main reasons that led you to reorganize this conference in 2017?

Yes, five years ago, in 2012 we organized the first Global Space Exploration Conference - GLEX 2012 - in Washington D.C. It was a watershed event in many ways. It brought together all elements of the international space exploration community for several days of intense discussion. In particular, it provided a unique opportunity for leading exploration scientists and researchers to interact with engineers and managers to exchange ideas and to develop plans for humanity's space exploration activities. The fruits of that conference were realized in the global exploration programs in subsequent years. Now, five years later, the space world has evolved and it is an excellent time to bring together again the international exploration community. Space exploration programs around the world have changed dramatically over the past five years and are presented with both challenges and exciting opportunities. Budgets need to be managed carefully at the same time as new technologies are making incredible discoveries possible. New commercial approaches to space exploration are redefining what is achievable, and the interest in exploration is growing in both space professionals and the general public. GLEX 2017 promises to provide a platform to further peaceful international collaboration in space exploration for the benefit of all mankind.

2. Why are international space events such as GLEX 2017 important fora to discuss space exploration?

High level international space events such as these are very important as they provide a venue for leaders in the field to update each other on current activities and recent successes, but perhaps even more importantly to creatively explore together possibilities for collaboration and to plan future programs. GLEX 2017 in Beijing will bring together key Space Exploration stakeholders from around the world. Senior representatives of space agencies, captains of industry and leading academic researchers will come together to exchange information and to discuss collaboration in humanity's space exploration activities.

Interview with Li Ming – Vice President, China Academy of Space Technology



1. What are the main advantages that GLEX 2017 will bring to the participants present such as engineers, scientists, entrepreneurs, educators, agency representatives and policy makers?

Naturally this conference is one of those major international conferences that brings together professionals from around the world, and so delegates will be able to catch up with and learn the latest activities that their international colleagues are executing. This is quite important in an international field such as space exploration. More than this, however, GLEX 2017 is being designed to allow ample opportunity for interaction and discussion between the various active elements within our space exploration field which often don't have many occasions for this. For example, engineers who are designing and building missions can brainstorm directly with the scientists who are hoping to use these missions to answer fundamental scientific questions.

Industry leaders, entrepreneurs and educators can discuss directly with senior agency representatives and policy makers, so each can better understand the motivations and constraints of the other, and thus better manage their own activities. GLEX 2017 is being designed to be attractive to representatives from the full spectrum of space exploration activities.

2. Why is the subject of space exploration essential for humankind, now more than ever?

One of the early fathers of space exploration once said "Earth is the cradle of humanity, but one cannot stay in the cradle forever". Today we are at a moment in our history where humanity is making its first steps of exploration out from the earth. In today's world we unfortunately also still have far too many conflicts and tensions. Space Exploration is a global effort that calls us all to put aside our differences and work together to solve the hard scientific, technical, financial, legal, and political problems so that we can achieve the great goal of the expansion of human knowledge and presence off the earth. GLEX 2017 is being designed as a venue to promote and advance peaceful international collaboration in space exploration for the benefit of all mankind. It is an event that all who are active in the space exploration field should make a priority to attend!