President’s Welcome

Dear Colleagues,

Welcome to the autumn edition of our newsletter. This edition highlights the latest news on the upcoming 69th IAC to be held in Bremen, Germany, from 1-5 October.

The Congress is going to feature a rich programme of plenaries, highlight lectures, special sessions, global networking forum, interactive presentations, keynote lectures, press conferences, announcements, technical sessions and also cocktail receptions, late-breaking news breakfasts and delicious lunches. Likewise, the IAC places strong emphasis on youth development, for which we have the Emerging Space Leaders grants programme to support young talent to attend the Congress. Also, as per the IAF Spring Meetings in Paris last March, this year’s IAC will have a Diversity Day on Wednesday 3rd to celebrate the Space Community 3Gs: Gender, Generation, and Geography. The IAC will also be recognizing individuals who have made an outstanding contribution to advancing astronautics during its annual Awards Ceremony. Furthermore, you will find some helpful logistical information in the pages that follow. The newsletter also gives you the latest on IAF activities and a selection of members’ news in the Members’ Corner. Our members are crucially important to us and I encourage all of you to consider submitting short items for future newsletters, to share your news with the wider IAF community.

Last but not least, I would like to express my sincere thanks in advance to all the organizing teams, for what promises to be a successful congress, rich in diversity and international cooperation. I am very much looking forward to welcoming all of you to the Congress and enjoying every moment of it.

See you online #IAC2018

Dr. Jean-Yves Le Gall
IAF President
IAC 2018

It is with great pleasure that the International Astronautical Federation (IAF) invites you to the 69th annual International Astronautical Congress (IAC).

IAC 2018 will involve everyone offering a rich programme of Plenaries, Highlight Lectures, Technical lectures as well as a Global Networking Forum and many social events abundant in networking opportunities.

Download and use the IAFASTRO App to organize your IAC 2018!

Dear IAC Friends,

With the IAFASTRO App, you can personalize your IAC 2018 schedule, receive the latest updates, see the list of all sessions, plenaries, GNFs, press conferences and social events, contact all app users, check on all the speakers, watch IAC TV, connect on social media, reach out exhibitors, and so much more!

The App name on the “App Store” and on the “Google Play Store” is IAFASTRO

Should you have any questions please contact IAF App Manager: Abed Aldaas abed.aldaas@iafastro.org

You can download the App on:
- Apple Store: https://itunes.apple.com/app/id1328269635
- IAF Web App: http://bofn3r.m.attendify.com/app/events

Or directly with this QR code:

---

#IAC2018 AT A GLANCE

---

---
IAC2018 Plenaries

The IAC Plenary Programme features an exciting selection of Highlight Lectures, high-level Plenary Sessions, and Late-breaking News events.

Highlight Lectures:

**Highlight Lecture 1: The Growing Role of Artificial Intelligence in Space Exploration**
Tuesday 2 October 2018, 18:00 – 19:00
Location: Bremen Exhibition & Conference Center – DLR Hall

**Highlight Lecture 2: Gravitational Wave Detection on Ground and in Space – The New Window to The Universe**
Wednesday 3 October 2018, 18:00 – 19:00
Location: Bremen Exhibition & Conference Center – DLR Hall

**Highlight Lecture 3: The Sky is not the Limit – Paving the Way for an Orbital Society**
Thursday 4 October 2018, 18:00 – 19:00
Location: Bremen Exhibition & Conference Center – DLR Hall

Plenaries:

**Plenary 1: Heads of Agencies**
Monday 1 October 2018, 13:15 – 14:45
Location: Bremen Exhibition & Conference Center – DLR Hall

**Plenary 2: Host Plenary – How to live and work on ISS, Moon and Mars**
Monday 1 October 2018, 18:15 – 19:30
Location: Bremen Conference Center – DLR Hall

**Plenary 3: High Tech Entanglement: How the Diverse Global Space Industry and Other High-tech Sectors are Becoming More Entwined and Interdependent**
Tuesday 2 October 2018, 08:30 – 09:30
Location: Bremen Exhibition & Conference Center – DLR Hall

**Plenary 4: The Game Changers – for a Joint Future in Space**
Tuesday 2 October 2018, 13:30 – 14:30
Location: Bremen Exhibition & Conference Center – DLR Hall

**Plenary 5: The Next Generation Plenary – Small Sats – Involving Everyone through Their Applications**
Wednesday 3 October 2018, 08:30 – 09:30
Location: Bremen Exhibition & Conference Center – DLR Hall

**Plenary 6: From Deep Impact to Gravity through Space Weather: Working Together to Protect From Space Hazards, Human-made or Natural**
Wednesday 3 October 2018, 13:30 – 14:30
Location: Bremen Exhibition & Conference Center – ÖVB Arena

**Plenary 7: Greenhouse Gas Measurements from Space – Difficult Challenges, Emerging Success, and Plans for the Future**
Thursday 4 October 2018, 08:30 – 09:30
Location: Bremen Exhibition & Conference Center – DLR Hall

[Technical Programme](https://iafastro.directory/iac/browse/IAC-18/catalog-technical-programme)
The 69th IAC continues its tradition of offering Interactive Presentations, a great opportunity for presenters to showcase their work, emerging ideas, late-breaking results, experiences, and challenges on space topics. The Interactive Presentations Session is a dynamic forum among presenters and the audience and highly interactive, and allow authors and participants to engage in in-depth discussions about the presented work from which new collaborations, ideas, and solutions can emerge.

Interactive Presentations include multimedia, such as audio and video, as well as images and animations. Their flexibility helps foster presenters' creativity and skills, and provides a platform for building engaging, collaborative, and visually powerful presentations.

The Interactive Presentations Session will take place on Thursday 4 October, from 13:15 to 14:45.

The five best Interactive Presentations of the IAC2018 will be awarded during a dedicated ceremony to be held just before the IP Session on Thursday 4 October, from 12:45 to 13:15.

**Keynotes**


---

**Monday 1 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:00</td>
<td>2018 Activities of the International Committee on Earth Observation Satellites (CEOS) By Marie-Astrid Koch</td>
</tr>
<tr>
<td>15:30</td>
<td>Fifty Years of Space Solar By John C. Mankins</td>
</tr>
<tr>
<td>15:45</td>
<td>The European Way for Liquid Propulsion – Hydrogen / Methane Family Concept By Gerald Hagemann</td>
</tr>
<tr>
<td>16:00</td>
<td>Using Design Competition Projects for a Spacecraft Design Capstone By David B. Spencer</td>
</tr>
</tbody>
</table>

**Tuesday 2 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:45</td>
<td>Fluid Science Experiments Conducted on the ISS By Valentina Shevtsova</td>
</tr>
<tr>
<td>14:45</td>
<td>Wireless Power Transportation World Research Center – Purpose and Operation By Guy Pignolet</td>
</tr>
<tr>
<td>14:45</td>
<td>Recent Developments in Solid Propulsion By Jean-François Guery</td>
</tr>
<tr>
<td>14:45</td>
<td>Advance of Scramjet Operating Mode Comprehension based on Shock Tunnel Experiments and Numerical Modelling By Klaus Hannemann</td>
</tr>
<tr>
<td>14:45</td>
<td>Experience from Suborbital Reusable Launches By Ariane Cornell</td>
</tr>
<tr>
<td>14:45</td>
<td>Space Law and International Organizations By Marco Ferrazzani</td>
</tr>
</tbody>
</table>

**Wednesday 3 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:45</td>
<td>Rocket Lab: Liberating the Small Satellite Market By Peter Beck</td>
</tr>
<tr>
<td>14:45</td>
<td>How to Sense Gravity? By Eberhard Gill</td>
</tr>
<tr>
<td>09:45</td>
<td>Santini Lecture, given by Gerben Sinnema: Safety of Spaceflight Structures - The Application of Fracture and Damage Control By Gerberdinenna</td>
</tr>
<tr>
<td>09:45</td>
<td>Reflections on the Economic Impact of Profit Policies by Public Procurement Authorities in Space and Defence Programmes By Eric Morel de Westegaver</td>
</tr>
</tbody>
</table>

**Friday 5 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30</td>
<td>Practical Debris Mitigation Manual for Developers of Microsatellites and Smaller By Darren McKnight</td>
</tr>
<tr>
<td>13:30</td>
<td>Challenges and Opportunities in Space Propulsion for Small Satellites By Paulo Lozano</td>
</tr>
<tr>
<td>13:30</td>
<td>Green Solutions for Space Propulsion By Ulrich Gotzig</td>
</tr>
</tbody>
</table>

---

**Special Sessions**

http://www.iafastro.org/events/iac-iac-2018/technical-programme/special-sessions/

**Monday 1 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:00-16:30</td>
<td>New Challenges for Planetary Protection</td>
</tr>
<tr>
<td>16:45-18:15</td>
<td>Open Source Space Workshop</td>
</tr>
</tbody>
</table>

**Tuesday 2 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:45-11:15</td>
<td>A Global Space Partnership Towards 2030: Addressing the Needs of Member States of the United Nations to Achieve the Sustainable Development Goals</td>
</tr>
<tr>
<td>11:30-13:00</td>
<td>Commercial Platforms on the International Space Station - New Low Cost Opportunities for Commercial and Institutional Missions</td>
</tr>
<tr>
<td>14:45-16:15</td>
<td>The Nexus of Blockchain and Space (Part I)</td>
</tr>
<tr>
<td>14:45-16:15</td>
<td>The Nexus of Blockchain and Space (Part II)</td>
</tr>
<tr>
<td>16:30-18:00</td>
<td>Swarm Systems for Future Space Exploration</td>
</tr>
</tbody>
</table>

**Wednesday 3 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:45-11:15</td>
<td>Earth Observation and Sustainable Development Goals – Views from a Decade with the Group on Earth Observations, Panel Discussion on Readiness for a Landsat-Copernicus Sentinel 2 Collaboration: Integrated operational land imaging to meet user needs worldwide</td>
</tr>
<tr>
<td>11:30-13:00</td>
<td>The Golden Age of the European Earth Observation</td>
</tr>
<tr>
<td>16:30-17:30</td>
<td>Galileo, the European Global Navigation System</td>
</tr>
<tr>
<td>16:30-18:00</td>
<td>Challenges, Technologies and Solutions for Exploration of icy and Ocean Worlds</td>
</tr>
<tr>
<td>14:45-16:15</td>
<td>New Approaches to Space for a Better World: Space for Sustainable Development</td>
</tr>
</tbody>
</table>

**Thursday 4 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:45-11:15</td>
<td>Space Journalism and Outreach Workshop</td>
</tr>
<tr>
<td>09:45-11:15</td>
<td>Twenty years of the International Space Station: Shaping the Future of Human Space Exploration</td>
</tr>
<tr>
<td>09:45-11:15</td>
<td>Quantum technologies for Space - Development and Applications</td>
</tr>
<tr>
<td>11:30-13:00</td>
<td>Global Space Exploration: Increasing Benefits through International and Commercial Partnerships</td>
</tr>
<tr>
<td>16:30-18:00</td>
<td>Quantum Key Distribution – The Future of Cryptography</td>
</tr>
</tbody>
</table>

**Friday 5 October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:45-10:45</td>
<td>#HiddenNoMore: Empowering Young Women in the Space Sector</td>
</tr>
<tr>
<td>09:45-11:15</td>
<td>Commercial Suborbitals: Opening the Aperture for Space Utilization</td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>Adoption of Space Technologies and Applications in Emerging / NewSpace Actors</td>
</tr>
</tbody>
</table>

---
### Global Networking Forum (GNF)

**MONDAY 1 OCTOBER**  
**GNF Opening Day** - Room: DLR Hall  
- 15:00 – 15:15: GNF Opening  
- 15:15 – 15:45: Results from the AMS experiment on the International Space Station  
- 15:50 – 16:20: Results of the UN / IAF workshop on Space Technology for Socio-Economic Benefits: "Industry, Innovation and Infrastructure for Development (3Is4D)"  
- 17:15 – 18:00: Human Spaceflight Beyond Low Earth Orbit  

**TUESDAY 2 OCTOBER**  
**GNF Industry Stream** - Room: DLR Hall  
- 09:45 – 11:15: Including Everyone in Lunar Exploration  
- 11:30 – 12:00: The Australian Space Ventures  
- 14:45 – 16:15: IAF Start-up Pitch Session  

**WEDNESDAY 3 OCTOBER**  
**GNF Public Stream** - Room: DLR Hall  
- 09:40 – 10:40: What Will Shape the Future of European Launchers?  
- 10:50 – 11:30: Space Spin-Ins from the Underground – CERN’s Aerospace Applications  
- 11:30 – 12:00: Reusability: The Key to Reliability and Affordability  
- 14:45 – 15:05: In-Flight Call with Alexander Gerst (N.B. Room: ÖVB Arena)  
- 15:05 – 16:05: IAF-ASE Astronauts Event (N.B Room: ÖVB Arena)  
- 16:30 – 17:30: European Industry Contribution to a Lunar Orbital Platform  

**THURSDAY 4 OCTOBER**  
**GNF Future Stream** - Room: DLR Hall  
- 09:40 – 10:40: Space Station and the Next Generation: Launching the LEO Ecosystem  
- 10:50 – 11:30: Space & Mobility  
- 12:00 – 13:00: URBAN: Concealing a Lunar Base Using 3D Printing Technologies  
- 14:20 – 15:20: How Will Quantum Technologies Change the Future of Space?  
- 15:30 – 16:30: Life in Space: the Science, the Challenges, and the Broad Horizon  

**FRIDAY 5 OCTOBER**  
**GNF Challenges Stream** - Room: CCB Hansesaal  
- 10:50 – 11:50: Climate Change – How Can Space Based Measurements Be Used to Understand the Changing Human Impact on the Sources and Sinks of Greenhouse Gases and Global Climate Change?  
- 12:00 – 13:00: Prospect of China’s New Generation Recoverable Satellite Piggyback Service  
- 13:45 – 14:44: The Young Generations’ Perspective of Space and Security  
- 16:05 – 17:05: Developing Space Workforce – Industry Focus  

**FRIDAY 5 OCTOBER**  
**GNF Exploration Stream** - Room: DLR Hall  
- 07:30 – 08:30: Ahead of the Curve – How Our Next Steps Fuel the Path to the Moon and Beyond  
- 09:40 – 10:40: Monitoring Asteroids: Defending our Planet, Threats or Opportunities?  
- 10:50 – 11:50: Igniting International Excitement for Interplanetary Space Travel  
- 12:00 – 13:00: EarthMoonMars : Involving Everyone  
- 13:45 – 14:44: Digitization in the Space Sector – from Hardware to Software  
- 14:55 – 15:40: Creating the Moon Village: First Results from the Drawing Board
An International Asteroid Endeavour – A Splendid Achievement of International Cooperation and Excellent Example of Geographical Diversity

Hayabusa2 is an asteroid sample return mission of the Japanese Space Agency (JAXA); its aim is to learn more about the nature and composition of near Earth asteroids and the origin and evolution of our Solar System. The MASCOT lander (Mobile Asteroid Surface Scout) - developed by the German Aerospace Center DLR and built in close cooperation with the French Space Agency CNES – is on board the Japanese Hayabusa2 spacecraft. In the very early hours of 3 October 2018, it will touch down on the C-type near-Earth asteroid Ryugu. For about 16 hours, four instruments (camera, radiometer, magnetometer, spectrometer) will be operated on the asteroid's surface. In addition, MASCOT is able to 'hop' around on the surface and take measurements in several places. This will be the first time that a lander was especially built to operate on an asteroid surface and the first time that data will be collected at more than one site on an asteroid's surface. The international effort of the asteroid sample return mission Hayabusa2, the MASCOT lander and possibly the confirmation of touchdown will be announced by the following speakers:

- Pascale Ehrenfreund, Chair of the Executive Board of DLR
- Jean-Yves Le Gall, President of CNES
- Hiroshi Yamakawa, President of the Japan Aerospace Exploration Agency JAXA

ESAs are以为了esa members and ESA Hayabusa2 project. In August 2018 ESA helped to provide children with disabilities the opportunity to experience weightlessness and lunar gravity on aircraft flights. Eight children from five ESA member states – UK, France, Germany, Belgium, and Italy – boarded the converted Airbus A310 in Bordeaux, France on 24 August as part of the Kid's Weightless Dreams campaign organized by Novespace and Reves de Gose. The children also took part in science demonstrations, including lighting a candle, mixing liquids of different densities, playing ping-pong with bubbles of water and working a fidget spinner to demonstrate the effects of microgravity.

Joining the children were ESA astronauts from their corresponding member states: Tim Peake (UK), Frank De Winne (Belgium), Maurizio Cheli (Italy), Thomas Reiter (Germany), Claudie Haigneré (France) and Jean-François Clervoy (France) were on board to mentor the children and answer their questions. Two disabled adults, former athlete and German television personality Samuel Koch, a strong advocate for disabled causes, and Philippe Carette, a very active Rêve de Gose volunteer, also took part in the flight.

ESA Director General Jan Woerner joined the Kid’s Weightless Dreams flight and will welcome one of them, Paula Monfeld (from Cologne), to talk with her about this exceptional experience. Also joining the event will be ESA astronaut and former ESA Director of Human Spaceflight Thomas Reiter, who had accompanied Paula at this flight experience.

UNOOSA's "Space for Women" – Project

UNOOSA is looking for partners for the implementation of the activities developed during the "Space for Women" - Expert Meeting held in October 2017 in New York to answer the recurring questions of:

- How to attract more women for space?
- What can women do for space?
- What can space do more for women?
- What do women need from space?

With a special focus on Sustainable Development Goals 4 (Quality Education) and 5 (Gender Equality) this project seeks to promote the critical role of women in the implementation of all the Sustainable Development Goals (SDG) as many targets specifically recognize women’s equality and empowerment as both the objective, and part of the solution.

The "Space for Women" project will facilitate the strengthening of the awareness, capacity and skills of individuals and institutions related to the importance of promoting gender equality in the space sector and its fundamental educational fields.

Simonetta di Pippo, Director of UNOOSA, will give a keynote on the project and its current status focusing on:

- Space for Women
- Importance of inclusion, equality and empowerment
- Networking and importance of role models and the possible established champions programme under "Space for Women"
- Some personal experience

08:15 – 8:30 Lockheed Martin Early Career Role Models

Keynote Speech by two Lockheed Martin Early Career Females:

- Danielle Richey, Space Exploration Architect, LMC
- Kat Codette, Systems Engineer, LMC
About the winners
This year's first place Katherine Pangalos, 21 years old, of Dutch nationality and MSc in Astronautics and Space Engineering. For the first time, the second and third places are also recognized. This year, these are held by Christopher Ogunlesi and Kwasi Kansah.

This competition was organized for a second year by Young ESA in cooperation with Space Generation Advisory Council (SGAC). This year's winner of this award is the Space Generation Advisory Council (SGAC). This Luncheon is dedicated to the award ceremony for the “2018 IAF Excellence in 3G Diversity Award”.

Programme:

12:45 – 12:50 Welcome by Jean-Yves Le Gall, IAF President
12:50 – 12:55 Introduction of the IAF 3G Diversity Award
Mary Snitch, IAF VP for Diversity Initiatives
12:55 – 13:00 Award Ceremony and Photo

13:00 – 13:15 Presentation by the Award winner
Space Generation Advisory Council (SGAC)
13:20 – 13:30 Networking

IAF IDEA “3G” Diversity Afternoon
(16:00 – 17:45, ÖVB Arena Olbers)

The IAF IDEA 3G Diversity Afternoon is organized in cooperation with and with participation of Young ESA, SGAC and WIA-Europe.

Programme Overview:

Master of Ceremony: IAF VP for Diversity Initiatives, Mary Snitch

16:00 – 16:05 Welcome by IAF President, Jean-Yves Les Gall
16:05 – 16:30 Young ESA / SGAC Diversity Award

About the award
This competition was organized for a second year by Young ESA in cooperation with Space Generation Advisory Council (SGAC). Participants were asked to submit a video and an essay on a diversity related topic as well as their CV. The selection was done through an internal committee of ESA representatives lead by the Strategy Department.

About the winners
This years’ first place Katherine Pangalos, 21 years old, of Dutch nationality and MSc in Astronautics and Space Engineering. For the first time, the second and third places are also recognized. This year, these are held by Christopher Ogunlesi and Kwasi Kansah.

16:30 – 16:50 WIA-E Update & Awards Ceremony

Passionate about expanding women’s opportunities for leadership and increasing their visibility in the aerospace sector WIA-E is encouraging members of the space community to be part of their ever-growing network of like-minded professionals. Rich with opportunity, their various functions offer something for everyone. WIA-E offers mentoring programmes, awards, grants, training workshops, networking local groups and much more. In addition to this, both regional and central events regularly feature speakers and panel discussions on a wide range of topics of interest to the community, and keep members updated with valuable industry information such as scholarships and conferences.

Awards Background information
WIA-Europe would like to encourage and support upcoming talent – young professionals and students alike – and for this a grants programme was established. The programme provides grants of € 1000 to cover attendance at aerospace workshops and conferences and is intended to support new and young colleagues with their first experiences in presenting a paper in an international context. Applicants were selected based on their papers from all related aerospace disciplines. A grants committee of space pro-fessionals under the lead of Chris Welch, Professor at the International Space University, evaluated and decided on the winners. Along with the grant of € 1000 for the conference, they will also win a year-long free membership to WIA-Europe for the following year.

Programme

• Short Welcome by Young ESA Moderator, Christopher Vasko
• Welcome by ESA Director General, Jan Woerner
• ESA DG, Jan Woerner to present winners with their Awards
• Closing remarks by SGAC Executive Director, Clementine Decoopman
• Group photo

16:50 – 17:45 IAF IDEA Mentoring Session with Young ESA / SGAC / WIA-E & Networking reception

About the Mentoring Session
The IAF, SGAC, Young-ESA and WIA-E have joined forces for the first time to offer a joint Mentoring Session to Young Professionals with top space professionals. This speed mentoring serves as a bridge between the experienced and the incoming generation of actors in the space sector.

Programme

• Welcome and Keynote by WIA – E President and Interim Chair, Luisella Giulicchi
• Introduction to the WIA-E Grant programme by Chris Welch
• Short 5 minute presentation by Grant winner(s) about their work
• Congratulations by WIA-E Director of Professional Development, Christina Giannopapa
• Group photo

Event Structure
There will be 5 tables for 6 participants and 1 mentor each.

• Welcome by the Moderator, Mary Snitch (5 minutes)
• 5 Speed mentoring sessions of 9 minutes each (45 minutes)
• Summary and closing remarks by Moderators (5 minutes)
### Meeting Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THURSDAY 27 SEPTEMBER 2018</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:00 - 18:30</td>
<td>SPACE GENERATION CONGRESS (SGAC)</td>
<td>UNIVERSITY OF BREMEN</td>
</tr>
<tr>
<td><strong>FRIDAY 28 SEPTEMBER 2018</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08:00 - 17:00</td>
<td>26th WORKSHOP ON SPACE TECHNOLOGY FOR SOCIO-ECONOMIC BENEFITS: &quot;INDUSTRY, INNOVATION AND INFRASTRUCTURE FOR DEVELOPMENT (3IS4D)&quot;</td>
<td>CCB BORGWARD, CCB DANZING, CCB LONDON</td>
</tr>
<tr>
<td>09:00 - 18:30</td>
<td>SPACE GENERATION CONGRESS (SGAC)</td>
<td>UNIVERSITY OF BREMEN</td>
</tr>
<tr>
<td>09:00 - 18:00</td>
<td>IAF/SEB EDUCATORS PROFESSIONAL DEVELOPMENT WORKSHOP</td>
<td>DLR SchoolLab</td>
</tr>
<tr>
<td><strong>SATURDAY 29 SEPTEMBER 2018</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08:00 - 17:30</td>
<td>26th WORKSHOP ON SPACE TECHNOLOGY FOR SOCIO-ECONOMIC BENEFITS: &quot;INDUSTRY, INNOVATION AND INFRASTRUCTURE FOR DEVELOPMENT (3IS4D)&quot;</td>
<td>CCB BORGWARD, CCB DANZING, CCB LONDON</td>
</tr>
<tr>
<td>09:00 - 18:00</td>
<td>TUTORIAL 3: PLANETARY PROTECTION 101</td>
<td>CCB FOCKE-WULF-SAAL</td>
</tr>
<tr>
<td>10:00 - 13:00</td>
<td>IAA SPACE DEBRIS COMMITTEE MEETING</td>
<td>CCB LILIENTHAL</td>
</tr>
<tr>
<td>11:00 - 13:00</td>
<td>IAF FINANCE COMMITTEE MEETING</td>
<td>ÖVB 1</td>
</tr>
<tr>
<td>12:30 - 13:00</td>
<td>IAA COMMISSION PLENARY MEETING</td>
<td>CCB OSLO</td>
</tr>
<tr>
<td>13:00 - 15:00</td>
<td>IAF SPACE EXPLORATION COMMITTEE MEETING</td>
<td>CCB GAUR</td>
</tr>
<tr>
<td>13:00 - 15:00</td>
<td>IAF NEXT GENERATION COORDINATION COMMITTEE (NGCC) MEETING</td>
<td>CCB HERSHEY</td>
</tr>
<tr>
<td>13:00 - 16:00</td>
<td>IAA COMMISSION MEETING 1</td>
<td>CCB LILIENTHAL</td>
</tr>
<tr>
<td>13:00 - 16:00</td>
<td>IAA COMMISSION MEETING 2</td>
<td>CCB ROSELIUS</td>
</tr>
<tr>
<td>13:00 - 16:00</td>
<td>IAA COMMISSION MEETING 3</td>
<td>CCB BERGEN</td>
</tr>
<tr>
<td>13:00 - 16:00</td>
<td>IAA COMMISSION MEETING 4</td>
<td>CCB SCHEURIN</td>
</tr>
<tr>
<td>13:00 - 16:00</td>
<td>IAA COMMISSION MEETING 6 - SPACE &amp; SOCIETY, CULTURE &amp; EDUCATION</td>
<td>CCB OSLO</td>
</tr>
<tr>
<td>13:00 - 17:00</td>
<td>JAXA SPACE EDUCATION AND OUTREACH</td>
<td>ÖVB 6</td>
</tr>
<tr>
<td>14:00 - 15:30</td>
<td>IPC STEERING GROUP MEETING SESSION 1</td>
<td>ÖVB 5</td>
</tr>
<tr>
<td>15:00 - 16:30</td>
<td>IAF TECHNICAL ACTIVITIES COMMITTEE (TAG) MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>16:00 - 17:30</td>
<td>IAA SCIENTIFIC ACTIVITIES COMMITTEE (SAC) MEETING</td>
<td>CCB OSLO</td>
</tr>
<tr>
<td>17:00 - 18:30</td>
<td>IPC GENERAL MEETING</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td><strong>SUNDAY 30 SEPTEMBER 2018</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:00 - 17:00</td>
<td>26th WORKSHOP ON SPACE TECHNOLOGY FOR SOCIO-ECONOMIC BENEFITS: &quot;INDUSTRY, INNOVATION AND INFRASTRUCTURE FOR DEVELOPMENT (3IS4D)&quot;</td>
<td>CCB BORGWARD, CCB DANZING, CCB LONDON</td>
</tr>
<tr>
<td>09:00 - 18:00</td>
<td>SPACE GENERATION CONGRESS (SGAC)</td>
<td>UNIVERSITY OF BREMEN</td>
</tr>
<tr>
<td>09:00 - 18:00</td>
<td>SGAC PROFESSIONAL DEVELOPMENT WORKSHOP</td>
<td>CCB HERSHEY</td>
</tr>
<tr>
<td>08:00 - 18:30</td>
<td>PRESS CONFERENCE: IAC KICK-OFF</td>
<td>ÖVB 5</td>
</tr>
<tr>
<td>13:00 - 14:45</td>
<td>IPH GENERAL SESSION 1</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>15:00 - 15:15</td>
<td>IAA COMMISSION MEETING 5</td>
<td>ÖVB 6</td>
</tr>
<tr>
<td>15:00 - 18:00</td>
<td>IAA GENERAL ASSEMBLY SESSION 1</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>15:15 - 15:45</td>
<td>IPH: HEADS OF AGENCIES: INVOLVING EVERYONE - WHAT’S NEW FOR THE SPACE AGENCIES</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>15:00 - 16:00</td>
<td>PRESS CONFERENCE: HEADS OF AGENCIES</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>16:00 - 17:00</td>
<td>IPA ELECTRONICS COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>17:00 - 18:00</td>
<td>IAF SPACE TECHNOLOGY COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>18:00 - 19:00</td>
<td>IAF SPACE TRANSPORTATION COMMITTEE MEETING</td>
<td>CCB LILIENTHAL</td>
</tr>
<tr>
<td>19:00 - 20:00</td>
<td>PRESS CONFERENCE: IAC KICK-OFF</td>
<td>ÖVB 5</td>
</tr>
<tr>
<td>19:00 - 20:00</td>
<td>IPA ELECTRONICS COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>18:00 - 21:00</td>
<td>A CONVERSATION ABOUT SPACE ARCHITECTURE</td>
<td>CCB FRANZUS</td>
</tr>
<tr>
<td>19:00 - 20:00</td>
<td>IPA ELECTRONICS COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>19:00 - 20:00</td>
<td>IPA ELECTRONICS COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>19:00 - 20:00</td>
<td>IPA ELECTRONICS COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>19:00 - 20:00</td>
<td>IPA ELECTRONICS COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
<td>Room</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>10:30 - 12:30</td>
<td>IAF SPACE ECOLOGY COMMITTEE MEETING</td>
<td>CCB GAUß</td>
</tr>
<tr>
<td>10:50 - 11:50</td>
<td>GNF: SPACE &amp; MOBILITY</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>10:50 - 11:50</td>
<td>GNF: CLIMATE CHANGE - HOW CAN SPACE BASED MEASUREMENTS BE USED TO UNDERSTAND THE CHANGING HUMAN IMPACT ON THE SOURCES AND SINKS OF GREENHOUSE GASES AND GLOBAL CLIMATE CHANGE?</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>11:00 - 11:00</td>
<td>MOON VILLAGE ASSOCIATION GENERAL MEETING</td>
<td>ÖVB 6</td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td>PRESS CONFERENCE: RBC SIGNALS AND ECUADORIAN CIVILIAN SPACE AGENCY (EXA)</td>
<td>CCB GALLERY</td>
</tr>
<tr>
<td>12:00 - 13:00</td>
<td>GNF: URBAN: CONCEIVING A LUNAR BASE USING 3D PRINTING TECHNOLOGIES</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>12:00 - 13:00</td>
<td>GNF: PROSPECT OF CHINA’S NEW GENERATION RECOVERABLE SATELLITE PIGGYBACK SERVICE</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>12:00 - 12:30</td>
<td>IAF SPACE SOCIETIES COMMITTEE MEETING</td>
<td>CCB BESSEL</td>
</tr>
<tr>
<td>12:30 - 13:30</td>
<td>IAF HISTORY COMMITTEE MEETING</td>
<td>CCB GAUß</td>
</tr>
<tr>
<td>12:45 - 13:15</td>
<td>INTERACTIVE PRESENTATIONS (IP) AWARD CEREMONY</td>
<td>IF HALL</td>
</tr>
<tr>
<td>13:10 - 14:10</td>
<td>GNF: INTRODUCTION TO MANNED ENVIRONMENT AND SCIENTIFIC EXPERIMENTAL RESOURCES OF CHINESE SPACE STATION</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>13:30 - 15:00</td>
<td>IAF SPACE UNIVERSITIES AND ADMINISTRATIVE COMMITTEE (SUAC) MEETING</td>
<td>CCB HUMBOLDT</td>
</tr>
<tr>
<td>13:45 - 14:45</td>
<td>GNF: THE YOUNG GENERATIONS’ PERSPECTIVE OF SPACE AND SECURITY</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>14:00 - 19:00</td>
<td>ISL MOOT COURT COMPETITION (FINALS)</td>
<td>BREMEN COURT</td>
</tr>
<tr>
<td>14:20 - 15:20</td>
<td>GNF: HOW WILL QUANTUM TECHNOLOGIES CHANGE THE FUTURE OF SPACE?</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>14:55 - 15:55</td>
<td>GNF: SGAC SPACEGEN ENTREPRENEURS FORUM</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>15:00 - 17:00</td>
<td>IPC STEERING GROUP MEETING SESSION II</td>
<td>ÖVB 5</td>
</tr>
<tr>
<td>15:00 - 17:00</td>
<td>IAF ENTERPRISE RISK MANAGEMENT COMMITTEE (ERMAC) MEETING</td>
<td>CCB HUMBOLDT</td>
</tr>
<tr>
<td>15:30 - 16:30</td>
<td>GNF: IAF IN SPACE: THE SCIENCE, THE CHALLENGES, AND THE BROAD HORIZON</td>
<td>DLR HALL</td>
</tr>
<tr>
<td>16:00 - 17:30</td>
<td>IAA STUDY GROUP 3.24</td>
<td>ÖVB 5</td>
</tr>
<tr>
<td>16:05 - 17:05</td>
<td>GNF: DEVELOPING SPACE WORKFORCE – INDUSTRY FOCUS</td>
<td>CCB HANSESAAL</td>
</tr>
<tr>
<td>17:00 - 18:00</td>
<td>IAF ASTRODYNAMICS COMMITTEE MEETING</td>
<td>ÖVB 6</td>
</tr>
<tr>
<td>17:00 - 19:30</td>
<td>SGAC EXECUTIVE COMMITTEE MEETING</td>
<td>ÖVB 5</td>
</tr>
<tr>
<td>18:00 - 19:00</td>
<td>HILJ: THE SKY IS NOT THE LIMIT: PAYING THE WAY FOR AN ORBITAL SOCIETY</td>
<td>DLR HALL</td>
</tr>
</tbody>
</table>
The International Astronautical Congress welcomes each year a large number of students and young professionals eager to expand their knowledge and meet inspiring people. The IAF has observed a strong need of mentoring amongst students and young professionals who attend the IAC. This was one of the main outcomes of a survey conducted for the young professionals who participated in the IAC 2016 held in Guadalajara, Mexico. From this observation, the IAF came up with the idea of organizing a contest on social media where students and young professionals would compete to get the opportunity to be mentored by senior space experts at the next IAC in Bremen, Germany. The #UnlockYourIAC in Bremen will be the first edition.

The IAF is pleased to inform you that, based on the evaluation of the IAF Next Generation Coordination Committee (NGCC) members, the six winners selected for the first edition of the #UnlockYourIAC contest are:

- Audrey Berquand, Student, France
- José Medina, Young Professional, Argentina
- Jochim Maene, Student, Belgium
- Harriet Brettle, Student, United States
- Shambo Bhattacharjee, Student, India
- Helia Sharif, Student, Canada

Congratulations and see you on Wednesday 3 October at the #IAC2018!

#UnlockYourIAC is an online contest for students and young professionals under 35 years of age. The contest gives them the opportunity to access a « speed date » alike event with senior space experts:

- Business Incubator: how to get your business started and how to make it successful?
- Astronaut: what qualities and skills do you need to become an Astronaut?

Stay tuned for next year’s edition!
IAC 2018 Sponsors and Media Partners

Platinum Sponsors

LOCKHEED MARTIN

Gold Sponsors

LANDSCAPE

Sponsors

EUMETSAT

Media Partners

AVIATION WEEK

Team Germany

DLR

DHB

Airbus

ananeufôégôp

MT Aerospace

ZARM

ISF 2018

3rd International Space Forum 2018 -
The Latin American Chapter

Space Science and Academia for better Solution to Latin America’s Challenges.

Buenos Aires, Argentina | 1 November 2018

Venue: Centro Cultural de la Ciencia
Avenida Godoy Cruz 2320, C1425FQD, Buenos Aires

The third edition of the International Space Forum – the Latin American Chapter (ISF 2018) – is expected to bring together Latin American Ministers of Education, Science and Research, Heads of Space Agency, representatives of Universities and Academia involved in space activities, as well as members of International Space Organizations, with the aim to encourage the discussion on how Space education and technology can support the understanding and exploitation of space benefits to help solving some of Latin American’s challenges.

3 Keynote Speeches on:

• Management of Natural Resources and Prevention of Disasters
• Space Partnerships
• Education and Capacity Building

Optional visit to the CONAE Space Centre and Mario Gulich Institute in Cordoba will be organized on 2 November 2018.

Social Programme:

• Welcome Reception on 31 October 2018
• Gala Dinner on 1 November 2018

Contact: spaceforum@iafastro.org

Be part of the conversation @iafastro and #ISFbuenosAires
GLEC 2019

MARRAKECH, MOROCCO

24-26 APRIL 2019


The International Astronautical Federation (IAF) together with the Centre Royal De Télédétection Spatiale (CRTS) and with the support of the Centre National D’Études Spatiales (CNES) are very proud to officially invite you to the Global Conference on Space for Emerging Countries (GLEC2019) to be held in Marrakech, Morocco from 24 to 26 April 2019.

Being the first Conference of its kind, GLEC2019 aims at actively engaging emerging countries in the global space sector 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 operationalizing national space programmes and by creating awareness on the essential legislative and policy elements that must be considered in establishing the foundation for national space programmes.

High-level Keynotes and Round Tables focusing on:

- Benefits of Space Technology and Applications to Socio-Economic Development,
- Financial Models and Resourcing,
- Technology and Skills Development,
- Base Infrastructure Requirements,
- Space Industry Development and Support,
- Legal and Policy.

For more information:
Website: www.glec2019.org
E-mail: glec2019@iafastro.org

Be part of the conversation @iafastro and #GLEC2019

IAC 2019

The IAC 2019 will be very special, as next year will mark the 70th anniversary of the IAC as well as 50 years since the first Moon human landing. It is with great pleasure that we cordially invite you to submit an abstract for the 70th International Astronautical Congress to be held in Washington, D.C.

Join us in Washington D.C. next year for the 70th IAC, an unforgettable event!
The Committee for Liaison with International Organizations and Developing Nations (CLIODN) advises the President and the Bureau of International Astronautical Federation on opportunities to foster international cooperation in space programmes, to encourage public interest in astronautics and its application in developing countries and to promote interest in using space science and technology for national development activities in all countries. The Committee acts as liaison with international organizations, governmental and nongovernmental, and provides advice to the Federation on relations with these international organizations. In particular, the Committee considers and recommends steps to stimulate interest in the Federation’s activities among institutions and individuals from the developing countries, taking into consideration the emergence of space activities in several developing nations.

The Committee Chair and committee members work closely with the IAF Secretariat and with the United Nations Office of Outer Space Affairs in supporting approved projects including the annual Highlight in Space report on outer space activities and the UNIAF Workshop on the Use of Space Science and Technology for the Benefits of Developing Countries held in conjunction with the International Astronautical Congress. This years UN/IAF workshop focused on “Space Technology for Socio-Economic Benefits: Industry, Innovation and Infrastructure for Development (3is4D).” The workshop aimed at discussing space science, technologies and applications in support of economic, social and environmental development with a focus on the role of industries as key players to offer innovation and infrastructure needed for sustainable development.

Additionally, this year the CLIODN Committee jointly organized and moderated with the IAF Vice President for Developing Countries and Emerging Members the Global Networking Forum on “The role of Education in Support of Emerging Countries”. The event included interventions by Simonetta Di Pippo, Director of UNOOSA, Francisco Javier Mendieta Jiménez, Director General of the Mexican Space Agency, Driss El Hadani, Director of Center Royal de Teledetection Spatiale, Kai-Uwe Schrogl, IISL President and ESA Chief Strategy Officer, Roberto Battiston, President of the Italian Space Agency (ASI), Seishiro Kibe, IAF VP and Advisor, Japan Aerospace Exploration Agency and Jörg Feustel-Büechl, Advisor to the Bavarian State Ministry for Economic Affairs and Media, Energy and Technology. The event was moderated by Valanathan Munsami, VP for Developing Countries and Emerging Members and Christina Giannopapa, CLIODN Chair.

EUMETSAT – on the cusp of a new era

EUMETSAT is delighted to be taking part in this year’s IAC in Bremen at a particularly important time in the organization’s history.

After the successful launch of Copernicus Sentinel-3B in April, EUMETSAT is preparing to take over spacecraft operations from ESA in November and begin the operational release of the mission’s marine data stream.

Also scheduled for November is the launch of the final spacecraft in the EUMETSAT Polar System (EPS) – Metop-C. Metop-C’s sister spacecraft – Metop-A and –B – are both still operational and have brought about a new era for numerical weather prediction in Europe, and worldwide, for forecasts 12 hours to 10 days in advance. We expect Metop-C to contribute still more to these benefits for society.

Meanwhile, EUMETSAT is preparing for the launches of the next generations of its geostationary and polar-orbiting satellites – Meteosat Third Generation and EPS-Second Generation – within the next few years. The ocean-monitoring Jason-CS/Sentinel-6 is scheduled for launch in 2020. The control centre in Darmstadt has been undergoing a major upgrade to handle more satellites and the massive increase in data they will generate.

All of this is undertaken with the aim of protecting lives, communities and industries by improving understanding of the weather and climate.

We’d love to talk to you about this in Bremen!

[Exhibition Hall 5 stand B25]
The main objective of the PROSS seminar is to provide a tutorial on the basics of Planetary Protection. The seminar will be structured around the current international policy framework for Planetary Protection and cases studies attached to the different planetary protection categories recognized in the COGSPAR policy. The seminar will be held in English. Expected size of the tutorial: 100 participants.

Date: Saturday, 29 September 2018, 08:00 – 18:00
Location: Room CCB Focke Wulff Saal

More information on: http://poss.org/poss-tutorial-iac/

The Canadian Space Society

The Canadian Space Society proudly announces the 2018 Canadian Space Summit, co-hosted with the Satellite Canada Innovation Network (SatCan). The Canadian Space Summit is Canada’s only annual conference dedicated to the whole of the Canadian space industry. Since 2000, the Summit has reached thousands of Canadian and international stakeholders from government, industry, academic and public roles. The theme for the 2018 Summit is “Canada’s Place in Space”, in anticipation of a long-awaited space policy to be revealed later this year.

This year, the Summit combines three exceptional events:

• The 18th annual Canadian Space Summit, to discuss Canadian achievements, future opportunities and international collaborations in the space sector;
• The Canadian Space Policy Symposium, to specifically address policy-related topics in the Canadian space sector;
• SatCom Canada Workshop, to focus on the massive disruption in satellite communications coming from LEO constellations and the Internet of Things.

All three events take place at the Brookstreet Hotel in Ottawa, Ontario, Canada from November 27th to 29th.

Sponsorship opportunities are available. For more information, please visit: https://css.ca/summit/canadian-space-summit-2018/ or email summits@css.ca.

We look forward to seeing you there!

New GIS platform and high-resolution data for better analysis

EOS Data Analytics company, whose cloud products are designed to transform satellite imagery into actionable insights, has launched EOS Platform. Comprised of 4 powerful GIS tools, the platform allows for uninterrupted, high-speed analysis in browser. Users get access to petabytes of satellite imagery, their own cloud storage, tools to derive on-the-fly remote sensing indices, apply AI-enabled image processing algorithms, and extended mapping capabilities.

Recently, EOS’ flagship tool LandViewer expanded its satellite data catalog by adding high-resolution imagery from the world’s leading satellite companies – Airbus, SSL, Imaging Service and Space View. It now features multispectral optical and radar images that resolve between 8 and 0.25 meters, update frequently or even daily, and have applications across multiple industries.

Whenever the need for rapid imagery acquisitions arises (crisis mapping), Pléiades 1 twins or SPOT-6,7 satellites prove most useful in providing daily coverage. The archive data for multitemporal analysis can be sourced from KOMPSAT-2,3 constellation and SPOT-5 satellite, while for all-weather data one can turn to TerraSAR-X and KOMPSAT-5 radar imagery. Along with the Chinese satellites’ optical data (Gaofen, SuperView), there’s also a much rarer Ziyuan-3 stereo imagery, vital for 3D modeling and DEM extraction.

Changes in Long Beach seaside identified with the help of urban change detection algorithm.

‘First Women on the Moon’ 100-word Essay Contest


Galaxy Forum Hainan, co-sponsored by CSA, IIF, NAOC and CSA-ASC, will include Astronaut Yang Liwei, Dr. Aldrin, Ziyuan Ouyang, Christian Feichtinger, Gilles Leclerc, Emeline De Antonio, Maria Antonietta Perino, Steve Durst, Chris Sallaberger, Henk Rogers, Takeshi Hakamada and others. Luncheon panel “First Women on the Moon” features Soyeon Yi, Naoko Yamazaki, women Astronauts from China, USA, and potentially an Apollo Moonwalker. Attendees are international lunar
As known, the SpaceLand group has set several world-records such as preparing underwater and bringing the world’s first person with disabilities (Elma Schippa, in April 2005, paving the way to Stephen Hawking’s flight afterwards), the world’s oldest person with disabilities (Elma Schippa, in April 2005, paving the way to Stephen Hawking’s flight afterwards), the world’s oldest person with disabilities (Elma Schippa, in April 2005, paving the way to Stephen Hawking’s flight afterwards), the world’s oldest person with disabilities (Elma Schippa, in April 2005, paving the way to Stephen Hawking’s flight afterwards), the world’s oldest person with disabilities (Elma Schippa, in April 2005, paving the way to Stephen Hawking’s flight afterwards), the world’s oldest person (Mr. Bracht, who was the Chair of the COPUS for the period 2006–2008, made great efforts to raise awareness of the urgenty of addressing the space sustainability issue in the Committee. In 2010, COPUS established a Working Group on the Long-Term Sustainability of Outer Space Activities under its Scientific and Technical Subcommittee. The Working Group was tasked with producing a set of voluntary guidelines for all space actors to help ensure the long-term sustainable use of outer space. The Working Group’s mandate ended in June 2018 at the 61st session of UN COMPUOS. During its mandate, the Working Group agreed on 21 guidelines and a context-setting preambular text that included the following definition of space sustainability:

The long-term sustainability of outer space activities is defined as the ability to maintain the conduct of space activities indefinitely into the future in a manner that realizes the objectives of equitable access to the benefits of the exploration and use of outer space for peaceful purposes, in order to meet the needs of present generations while preserving the outer space environment for future generations.

Although this Working Group was able to agree on 21 guidelines by full consensus of all the COPUS Member States, agreement could not be reached on seven draft guidelines by the time the Working Group’s mandate came to an end in June 2018. The Working Group did not reach consensus on the way forward for these draft guidelines, but it did agree to continue discussion of the long-term sustainability of outer space activities under a dedicated agenda item of the Scientific and Technical Subcommittee of COPUS in 2019. This Subcommittee will meet again in February 2019 to decide on the way forward for the LTS discussions.

The earliest discussions in COPUS were initiated and promoted by former IAF Vice President Gérard Bracht of France. Mr. Bracht, who was the Chair of the COPUS for the period 2006–2008, made great efforts to raise awareness of the urgency of addressing the space sustainability issue in the Committee. In 2010, COPUS established a Working Group on the Long-Term Sustainability of Outer Space Activities under its Scientific and Technical Subcommittee. The Working Group was tasked with producing a set of voluntary guidelines for all space actors to help ensure the long-term sustainable use of outer space. The Working Group’s mandate ended in June 2018 at the 61st session of UN COPUS. During its mandate, the Working Group agreed on 21 guidelines and a context-setting preambular text that included the following definition of space sustainability:

The long-term sustainability of outer space activities is defined as the ability to maintain the conduct of space activities indefinitely into the future in a manner that realizes the objectives of equitable access to the benefits of the exploration and use of outer space for peaceful purposes, in order to meet the needs of present generations while preserving the outer space environment for future generations.

Although this Working Group was able to agree on 21 guidelines by full consensus of all the COPUS Member States, agreement could not be reached on seven draft guidelines by the time the Working Group’s mandate came to an end in June 2018. The Working Group did not reach consensus on the way forward for these draft guidelines, but it did agree to continue discussion of the long-term sustainability of outer space activities under a dedicated agenda item of the Scientific and Technical Subcommittee of COPUS in 2019. This Subcommittee will meet again in February 2019 to decide on the way forward for the LTS discussions.

The growing number and diversity of space actors, and the rapidly increasing number of space activities, poses great opportunities as well as great challenges to the long-term sustainability of outer space activities. Through its committees and IAC symposia, the Federation promotes the exchange of ideas and dialogue to support and collectively strengthen space sustainability, space safety and space security. In this regard, the IAF is pleased to note the progress made by the Working Group on the Long-Term Sustainability of Outer Space Activities under UN COPUS, the United Nations Committee on the Peaceful Uses of Outer Space. The process, which was led by Dr Peter Martinez of South Africa since 2011, has concluded its mandate with 21 voluntary guidelines and a politically important context-setting preambular text for these guidelines.

The process, which began in 2010, received formal inputs from the IAF during the sessions of UN COPUS. The IAF also facilitated discussions of relevance to the UN process among experts in various IAF Committees and in symposia at International Astronautical Congresses with sessions dedicated to the topic. The process also received support from the IAF and local organizers of the International Astronautical Congresses in Prague (2010), Cape Town (2011), Naples (2012) and Beijing (2013), all of whom created opportunities for experts to hold special meetings on the margins of these IACs to advance the UN process.

Don’t miss to register for IAC 2018 Matchmaking!

As Local Organizer of IAC 2018, the Center of Applied Space Technology and Microgravity of the University of Bremen (ZARM) is happy to offer the complimentary service of IAC 2018 Matchmaking to all delegates at this year’s congress! We have teamed up with Enterprise Europe Network Bremen to offer this free service to all attendees and exhibitors. If you are interested in using this service just register online on www.iac2018.b2match.io, complete your profile and start booking meetings! The matchmaking will take place from 1 - 4 October 2018 in the exhibition hall right next to the Bremen - City of Space booth (SD 25)!

What is Matchmaking?

Bilateral meetings (Matchmaking) are a quick and easy way to meet potential cooperation partners, customers and suppliers. Attendees meet and greet in 20-minute intervals, then the bell rings and the next discussion begins. Instead of arranging meetings by chance, our matchmaking sessions guarantee fixed reserved tables for every meeting. A great opportunity to enhance your network!

As delegates, please do take advantage of this free service. You can register until 28 September, but the earlier you are, the better the chance to get most out of it! You can find more information on www.iac2018.b2match.io.

Don’t miss to register for IAC 2018 Matchmaking!

As Local Organizer of IAC 2018, the Center of Applied Space Technology and Microgravity of the University of Bremen (ZARM) is happy to offer the complimentary service of IAC 2018 Matchmaking to all delegates at this year’s congress! We have teamed up with Enterprise Europe Network Bremen to offer this free service to all attendees and exhibitors. If you are interested in using this service just register online on www.iac2018.b2match.io, complete your profile and start booking meetings! The matchmaking will take place from 1 - 4 October 2018 in the exhibition hall right next to the Bremen - City of Space booth (SD 25)!

What is Matchmaking?

Bilateral meetings (Matchmaking) are a quick and easy way to meet potential cooperation partners, customers and suppliers. Attendees meet and greet in 20-minute intervals, then the bell rings and the next discussion begins. Instead of arranging meetings by chance, our matchmaking sessions guarantee fixed reserved tables for every meeting. A great opportunity to enhance your network!

As delegates, please do take advantage of this free service. You can register until 28 September, but the earlier you are, the better the chance to get most out of it! You can find more information on www.iac2018.b2match.io.

What is Matchmaking?

Bilateral meetings (Matchmaking) are a quick and easy way to meet potential cooperation partners, customers and suppliers. Attendees meet and greet in 20-minute intervals, then the bell rings and the next discussion begins. Instead of arranging meetings by chance, our matchmaking sessions guarantee fixed reserved tables for every meeting. A great opportunity to enhance your network!

As delegates, please do take advantage of this free service. You can register until 28 September, but the earlier you are, the better the chance to get most out of it! You can find more information on www.iac2018.b2match.io.

What is Matchmaking?

Bilateral meetings (Matchmaking) are a quick and easy way to meet potential cooperation partners, customers and suppliers. Attendees meet and greet in 20-minute intervals, then the bell rings and the next discussion begins. Instead of arranging meetings by chance, our matchmaking sessions guarantee fixed reserved tables for every meeting. A great opportunity to enhance your network!

As delegates, please do take advantage of this free service. You can register until 28 September, but the earlier you are, the better the chance to get most out of it! You can find more information on www.iac2018.b2match.io.
Interview with Marc Avila, Director of the Center of Applied Space Technology and Microgravity (ZARM)

Marc Avila studied mathematics at the Universität Autónoma de Barcelona and at the University of Glasgow. From 2005 to 2008 he did his doctorate on fluid mechanics at the Universitat Politécnica de Catalunya in Barcelona. Half of his graduation time he spent at the Arizona State University as a research scholar. After his graduation, he was a postdoc at the Max-Planck-Institut für Dynamik und Selbstorganisation in Göttingen working with Prof. Björn Hof. From 2011 to 2016 he held a professorship for simulation in nano- and microfluidic mechanics in the Friedrich-Alexander-Universität Erlangen-Nürnberg. Since March 2016 he is the Executive Director of the Center of Applied Space Technology and Microgravity (ZARM) and Professor for fluid mechanics at the Faculty of Production Engineering of the University of Bremen. For his work on turbulence he received the Young Scientist Award of the European Mechanics Society in 2009, and in 2018, he was awarded the Richard-von-Mises Prize of the International Association of Applied Mathematics and Mechanics (GAMM). He aims at supporting the new generations of young scientists and engineers, as well as increasing the impact of science beyond the scientific community.

1. What is your overall impression of this year's IAC?
I feel a great excitement in the space community for the IAC to return to Europe and Germany after many years. Bremen, which we like to call the City of Space, has been preparing for this event since the beginning of this year with plenty of activities related to space that will culminate with the IAC 2018. This global and local excitement I anticipate a very successful IAC at all levels. Because of the record in abstract submissions, the IPC had a hard time. Overall, I think that ICP has done an incredible job, with for example the plenary event “Game Changers” catching the spirit of #BremenizingEveryone in the best possible way.

In addition to the official programme, there will be technical visits for students and young professionals to find out what it is like to work with the global space players located in Bremen. Moreover, we will be offering free classes in off-job skills that can possibly enhance your daily routine at home, like camera training, graphic recording, Tai Chi and 8-minute relaxation exercises. We will provide free daily child care for young families and a free public transport pass for the whole week for all participants so everyone can make the most of their time during the IAC and their spare time in Bremen. We at ZARM and Team Germany will do our best to host an IAC that you will remember with a smile on your face.

2. The IAC 2018 has many events, which ones do you particularly recommend not to be missed?
Certainly recommended is the plenary event, though I may be biased here. In addition to this, I would like to encourage all attendees to come early to enjoy the performance of the German Philharmonic Orchestra during the Opening Ceremony. Also not to be missed is the public event ‘space is big – space is public’ with a live call to Alexander Gerst who will then become the first German commander of the ISS. And last but not least, in the week of IAC the whole city of Bremen will be alive with space activities – including in the pubs and night clubs. On Thursday night, during the Yuri’s Night @IAC 2018 event in the Modernes, the IAC community has the chance to mix with all the young space enthusiasts from Bremen or to watch the world premiere (for IAC participants only!) of the bio-pic on Neil Armstrong “First Man” on Wednesday night. So everyone should use the chance to enjoy the IAC 2018 even outside the conference premises.

3. Why, as the IAC 2018 Host, did you decide to focus your Host Plenary on research under space conditions?
Well, as a research institute this is our focal point. We use space technologies - from our Bremen Drop Tower, to parabolic flights, sounding rockets and the ISS - to advance science and foster innovation. This year we celebrate the Space Station’s 20th anniversary in orbit, so it is the perfect occasion to highlight the achievements of microgravity research to date. But of course, the ISS is not the end, we hope to see researchers working on Moon and Mars in the future, and we will address this in the plenary talk as well!

4. What would you like to see implemented after the IAC 2018 in the space sector?
Unfortunately, I have too many wishes! First, I hope to see more private money invested in risky but innovative space endeavours. Especially in Europe, there is a lot of work to do in this direction. In addition, we need modern structures to attract more young people to space sector, for example by promoting a good life-work balance. I also hope for more investment in fundamental scientific research, for example in the areas of which we perceive as an active space with others.

5. What can ICP 2018 do to ensure you return for future IACs?
This year we celebrate the Space Station’s 20th anniversary in orbit, so it is the perfect occasion to highlight the achievements of microgravity research to date. Of course, the ISS is not the end, we hope to see researchers working on Moon and Mars in the future, and we will address this in the plenary talk as well!

1. Can you tell us something about the Argentinian National Commission of Space Activities (CONAE) and its most recent achievements?
CONAE is the national space agency of Argentina. It functions under the umbrella of the Ministry of Education, Culture, Science and Technology, and it is the national organization with the mandate to define and implement the National Space Program. The main goal of this long-term strategic plan is the development of knowledge and infrastructure technology so that socio-economic and productive sectors of our country have access to the information that space technology can offer, in order to increase their productivity and competitiveness. Space information is highly valuable for government management, scientific and technological areas, productive sector and federal planning. To this end, CONAE develops its own satellite missions and their related ground segments, as well as access to space and programs for reaching the user communities.

CONAE’s national Ground Segment is composed of the Cordoba Ground Station and the Tolhuin Ground Stations (in Tierra del Fuego Province), which provide TT&C and Data Acquisition services. Since its creation in 1991, CONAE has developed and flown, in partnership with NASA four satellite missions, which were designed and built in Argentina: SAC-C, SAC-B, SAC-C and, the latest one, SAC-D/Aquarius. This series included participation from the ASI (Italy), CNES (France), DLR (Germany) and AEB/INPE (Brazil), and CSA (Canada).

The upcoming mission is SAOCOM, consisting of the two identical satellites, SAC-A and SAC-B, of which CONAE is an L-Band SAR (Synthetic Aperture Radar) polarimetric instrument. Its main purpose is to provide soil moisture information about the central Pampean Area in Argentina. SACOM, together with the Italian COSMO-SkyMed constellation are part of cooperation with the ASI: the Italian-Argentine Satellite System for Emergency Management (SISAGE). With both constellation flying along the same orbit will enable a rapid response in the provision of SAR information at emergency situations. SAOCOM has also participated of ESA’s ground segment and technical support from CSA and NASA. The SAOCOM satellites will be launched with SpaceX’s Falcon 9 launchers. SACOM 1B is scheduled for launch on October 6, 2018 and 1B, one year later. After SACOM, CONAE is taking its first steps into the field of international studies, through cooperation with international partners, ESA and China.

CONAE also promotes the regional development of human capacities with several training and education programs (from elementary to Master levels, in collaboration with national universities), and the organization of activities to foster the use of space information in disaster management, health applications, land use, and monitoring of environmental and productive activities through the Gulich Institute for Advanced Space Studies, located in the Space Center in Cordoba.

2. This will be the third edition of the International Space Program, why did you decide it was now the time for a Latin American chapter?
In recent years, Latin America has experienced rapid growth in the development of space technologies capacities with the creation of national space agencies, and we understand that this Forum is important to give visibility to this growth. The three main goals of the meeting are Education and Capacity Building, Management of natural resources and prevention of disasters, and space partnerships, all of which are central issues in this development.

3. How do you see in Latin America in particular a greater involvement of Universities and national Academies into space activities?
In the universities, and their research capacities, together with the industrial sector, are fundamental players that contribute significantly to the development of the space architecture in the region defined by the space agencies.
International Astronautical Federation
100, Avenue de Suffren
75015 Paris, France
Tel: +33 1 45 67 42 60
Fax: +33 1 42 73 21 20
E-mail: info@iafastro.org
www.iafastro.org

Be part of the conversation @iafastro

Connecting @ll Space People

The next newsletter will be issued in December 2018