



# International Astronautical Federation



Connecting @ll Space People

1/2019 (March 2019)

## President's Welcome

Dear Colleagues,

Welcome to your March 2019 IAF Newsletter. As it is the first of this year, I would like to take the opportunity to wish you all a happy 2019. I look forward to another successful year of collaboration.

This issue will give you a complete calendar of the Federation's activities for the year ahead. From Tuesday 26 to Thursday 28 March, we will be convening in Paris for the IAF Spring Meetings, where there will be the IAF Committee Meetings, IAC Abstract Selection, the IAF Global Networking Forum (GNF) and Bureau Meetings.

As per last year, we will again be celebrating the IAF IDEA "3G" Diversity Day on Tuesday 26 March with two events. The first one will focus on Generational and Gender Diversity, specifically on Career Development in Space Industry and the second one on Geographical Diversity, specifically on Engaging Emerging Space Countries in Global Space Activities.

We will then meet from Wednesday 24 to Friday 26 April in Marrakech, for this year's Global Series Conference on Space for Emerging Countries - GLEC 2019. First Conference of its kind, #GLEC2019 aims at actively engaging emerging countries in the space scene by highlighting the socio-economic benefits of space applications; by understanding the various financial models for the optimal resourcing of national space programmes; by identifying opportunities for technology and skills transfer; by creating awareness about the base infrastructure requirements needed for operationalising national space programs and by creating awareness on the essential legislative and policy elements that must be considered in establishing the foundation for national space programmes.

Later in the year, from Monday 21 to Friday 25 October, you are invited to Washington, D.C. to attend the 70<sup>th</sup> International Astronautical Congress. With the theme "*Space: The Power of the Past, the Promise of the Future*", the IAC 2019 will provide a focus for the international space community to reflect on its accomplishments since the landmark Apollo Moon landing and to imagine the future of this global enterprise. The Capital of the United States will be the place to be to properly celebrate the 50<sup>th</sup> anniversary of this extraordinary engineering, scientific, and political achievement as well as the international accomplishments and partnerships that have become the hallmarks of space exploration.

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

I look forward to what promises to be a fantastic year and I hope to seeing you @ll very soon.

With my best personal regards.

Dr. Jean-Yves Le Gall  
IAF President



### IN THIS ISSUE

#### PRESIDENT'S WELCOME

#### IAF NEWS

- IAF Spring Meetings 2019
- IAF Distinguished Service Award
- IAF Bureau - News
- GLEC 2019
- IAC 2019
- IAC TV

#### MEMBERS' CORNER

#### OUR LATEST PUBLICATIONS

- [2018 IAF Highlights Journal](#)
- [IAC 2018 Highlights Booklet](#)

**INTERVIEW WITH:** Saeed Al Mansoori, IPC Co-Chair, IAC 2020

#### IMPORTANT DATES:

- IAF Spring Meetings 2019: 26 – 28 March 2019
- GLEC 2019: 24 – 26 April 2019
- Closing of GNF Session Proposals – June 2019
- IAC 2019: 21 – 25 October 2019
- IAC 2020: 28 September – 2 October 2020



To unsubscribe, please send an email to [newsletter@iafaastro.org](mailto:newsletter@iafaastro.org)

**International Astronautical Federation**

100, Avenue de Suffren, 75015 Paris, France | Tel. +33 1 45 67 42 60 | E-mail: [newsletter@iafaastro.org](mailto:newsletter@iafaastro.org)



Platinum



Gold



Silver



Bronze



## IAF 2019 SPRING MEETINGS – MEETING PLANNER



Time	Event	Room
<b>Tuesday 26 March 2019</b>		
09:30 - 12:00	IAF Space Education and Outreach Committee (SEOC)	Seine 8
10:00 - 12:00	IAF Committee on Space Security	Seine 5
10:00 - 12:00	IAF Space Universities Administrative Committee (SUAC)	Seine 2
10:00 - 12:00	IAF Space Power Committee	Seine 4
10:00 - 12:30	IAF Finance Committee	Seine 1
10:00 - 13:00	IAA Space Debris	Seine 6
11:00 - 12:00	IAF Working Group on Emerging Countries	Seine 3
11:00 - 13:00	IAF Knowledge Management for Space Organisations (KMTC)	Seine 7
12:00 - 13:00	IAF Committee on Near Earth Objects (NEO)	Seine 2
14:00 - 15:00	IAF Next Generation Coordination Committee (NGCC)	Seine 2
14:00 - 15:30	IAF/IAA/IISL Advisory Committee on History Activities (ACHA)	Seine 7
14:00 - 16:00	IAF Industry Relations Committee (IRC)	Seine 1
14:00 - 16:00	IAF Entrepreneurship and Investment Committee (EIC)	Seine 3
14:00 - 16:00	IAF Congress and Symposia Advisory Committee	Seine 5
14:00 - 16:00	IPC Steering Group	Seine 6
15:00 - 17:00	Committee for the Cultural Utilisation of Space (ITACCUS) - Follow up	Seine 2



15:00 - 17:00	IAF Workforce Development - YP Programme Committee (WD-YPP)	Seine 4
15:00 - 17:00	IAF Committee for Liaison with International Organisations and Developing Nations (CLIODN)	Seine 8&9
16:00 - 17:30	GLEC 2019 IPC Meeting	Seine 8
16:00 - 18:00	IAF Human Spaceflight Committee	Seine 6
16:00 - 18:00	IAF Committee on Integrated Applications	Seine 7
16:00 - 18:00	IAF Space Exploration Committee	Seine 3
17:00 - 18:00	Members of Parliaments Meeting	Seine 1

### Wednesday 27 March 2019

09:00 - 10:00	IAA Space Debris - Study group	Seine 8
09:00 - 10:00	Moon Village Association Meeting	Seine 2
09:00 - 12:00	IAF Space Education and Outreach Committee (SEOC)	Seine 4
09:00 - 12:00	IAF Space Operations Committee	Seine 9&10
09:00 - 13:00	IAF Astrodynamics Committee	Seine 1
09:00 - 13:00	IAF Earth Observations Committee and Subcommittee on the Global Earth Observation System of Systems (GEOSS)	Seine 3
09:00 - 13:00	IAF Bureau Meeting - Part 1	Rooftop
09:00 - 14:00	IAF Materials And Structure Committee	Grenelle 3 - G3
10:00 - 11:00	IAA Space Debris - Study group (part 2)	Seine 6
10:00 - 11:30	IAF Committee for the Cultural Utilisation of Space (ITACCUS)	Seine 2
10:00 - 13:00	IAF Space Life Sciences Committee	Seine 8
11:00 - 13:00	International Project/Programme Management Committee (IPMC)	Seine 6
11:30 - 13:30	IAF Commercial Spaceflight Safety Committee	Seine 2
12:00 - 13:30	IAF Student Competition Subcommittee	Seine 4
12:00 - 14:00	IAF Enterprise Risk Management Committee (ERMC)	Seine 9&10
12:30 - 13:30	IAF Microgravity Sciences and Processes Committee	Mezzanine 1
13:00 - 14:00	Presidents' Meeting	Rooftop
13:00 - 14:30	IAF Space Museums and Science Centres Committee	Seine 3
13:00 - 15:00	IAF Space Propulsion Committee	Seine 1
13:00 - 15:00	IAF Space Astronomy Technical Committee (SATC)	Seine 8
13:00 - 15:00	IAF Space Communications and Navigation Committee (SCAN)	Seine 6
13:30 - 14:30	IAF Space Economy Committee	Seine 4
13:30 - 15:30	IAF Space Transportation Committee	ESA
14:00 - 15:00	IAF Excellence in "3G" Diversity Award Subcommittee	Seine 2
14:00 - 15:30	IAF Space Systems Committee	Seine 9&10
14:30 - 16:30	IAF Space Societies Committee	Seine 3
15:00 - 17:30	SGAC Advisory Board Meeting	Seine 1
15:00 - 17:30	IAF Working Group on New Communities	Seine 2





15:30 - 17:30	Technical Activities Committee Meeting (TAC)	Grenelle 3 - G3
15:30 - 17:30	IAF Honours and Awards Committee	Seine 4

## Thursday 28 March 2019

08:00 - 10:00	IPC General Meeting & IAF Distinguished Service Award Ceremony	All Seine
09:00 - 13:00	IAF Earth Observations Committee and Subcommittee on the Global Earth Observation System of Systems (GEOSS)	Seine 3
10:00 - 13:00	IAC 2019 Abstracts Selection	All Seine
10:00 - 13:00	IAF Bureau Meeting Part 2	Roof top
13:00 - 14:00	IAF President Press Conference	Eiffel



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



## IAF IDEA “3G” Diversity Day during 2019 Spring Meetings in Paris (Tuesday 26 March 2019)

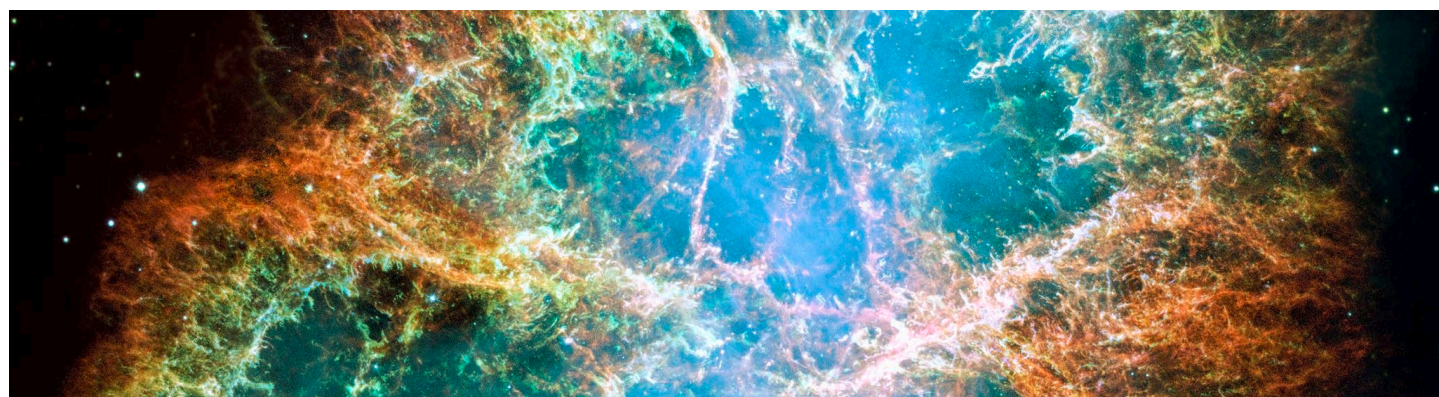


### Background:

In continuation of the IAF initiative to foster the principle of “3G” Diversity in the space sector, the IAF “3G” IDEA platform will be again activated during the IAF Spring Meetings (26 – 28/03/2019) in Paris.

Tuesday, 26 March 2019 will again be declared as IAF IDEA “3G” Diversity Day with 2 main key events

focusing on different diversity aspects and using valuable networking opportunities to bring together a global IAF community, including IPC members, IAF committee members and IAF member representatives. The IAF IDEA “3G” Diversity Day will be moderated by the Special Advisor to the IAF President on Diversity Initiatives, Mary Snitch, and will also feature an introductory speech by the IAF President, Dr. Jean-Yves Le Gall.



### Overall Schedule:



### Detailed Planning:

The IAF IDEA “3G” Diversity Day (26 March 2019) will feature two main events:

- IDEA Breakfast (8:00 – 9:30)
- IDEA Lunch (13:00 – 14:00)

### 08:00 – 09:30: IDEA Breakfast

8:00 – 9:30 an IDEA Breakfast will focus on **Generational and Gender Diversity**, specifically on **Career Development in Space Industry**, offer a keynote speech by **Ane Aanesland**, Founder and CEO, Thrustme, a successful space StartUp, provide a platform for the IAF community to share, discuss and elaborate with prominent space industry leaders from IAF member organizations issues of career development in the space industry sector.

For this event the IAF will be supported by **SGAC** and the **IAF young generation community**.

The event will be opened with a welcome by the IAF President, **Jean-Yves Le Gall** and moderated by the Special Advisor to the IAF President on Diversity Initiatives, **Mary Snitch**. After a Keynote on “Space – A Great Opportunity for Startups?”, roundtable discussions will follow, where prominent space industry leaders will be invited to mentor groups of young generation delegates (selected by SGAC and the IAF WD/YPP Committee) on industry career development issues. The conclusions of these discussions will be shortly presented by each group.

Coffee/tea and viennoiseries will be offered.

### Programme:



#### 08:00 – 08:05: Welcome

**Jean-Yves Le Gall** (IAF President) .



#### 08:05 – 8:10: Introduction and Presentation of Industry Mentors

**Mary Snitch** (Special Advisor to IAF President on Diversity Initiatives)





**08:10 – 8:20: Keynote on “Space – A Great Opportunity for Startups?”**  
*Ane Aanesland* (Founder and CEO, Thrustme)

**08:20 – 09:05 : Roundtable Discussions**

4 roundtables with 2 prominent space industry leaders each shall discuss with young generation delegates space industry career development issues. This shall provide valuable mentoring for the young generation delegates while focusing on the following questions:

- How to start a successful space industry career?
- What competencies and skills is the space industry looking for?
- What are the roles of traditional and so-called “new-space” industries in the future global space arena?
- Globalization of space industry – an opportunity or a challenge for the young generation?
- What are the ideas and thoughts of the next generation for space industry development?

**Prominent Roundtable space industry leaders:**



**TABLE 1**

- **Clayton Mowry** (Blue Origin, Vice President for Global Sales, Marketing & Customer Experience; IAF Vice President)



- **Ane Aanesland** (Thrustme, Founder and CEO)



**TABLE 2**

- **Mary Snitch** (Lockheed Martin, Senior Staff, Global S&T Organizations; Special Advisor to IAF President on Diversity Initiatives)



- **Andreas Lindenthal** (OHB Systems, Chief Operating Officer)



**TABLE 3**

- **Bruce Chesley** (The Boeing Company, Senior Director of Strategy, Space and Missile Systems; IAF Vice President)



- **Maria Antonietta Perino** (Thales Alenia Space, Head of Advanced Exploration Programs, Infrastructures and Transportation Systems Business Unit; Past IAF Vice President)



**TABLE 4**

- **Nicolas Chamussy** (Airbus Defence and Space, Executive Vice President Space Systems)



- **Adnan Al Rais** (MBRSC, Senior Director – Remote Sensing Department)

**09:05 – 09:25: Presentation of conclusions (5 min per table)**

**09:25 – 09:30: Closing Remarks by Moderator**



**13:00 – 14:00: IDEA Lunch:**

The IDEA Lunch will focus on **Geographical Diversity**, specifically on **Engaging Emerging Space Countries in Global Space Activities**. IAF in partnership with the Centre Royal de Télédétection Spatiale (CRTS) of Morocco and the Centre National d'Études Spatiales (CNES) of France will organize the first **Global Conference of Space for Emerging Countries (GLEC 2019)** in Marrakech, Morocco, from 24 – 26 April 2019. With the aim of drawing the attention of the IAF Spring Meeting community to this exceptional event, the 3 Co-Chairs of the GLEC 2019 International Programme Committee will provide background and in-depth information on this conference and present the status of the programme, speakers and organizational details.



- **Driss El Hadani** (Director, The Royal Centre for Remote Sensing – CRTS, Morocco)





- **Valanathan Munsami** (CEO, South African National Space Agency – SANSA; IAF Vice President, Developing Countries and Emerging Nations)



- **Jean-Pascal Le Franc** (Director of Planning, International Relations and Quality, Centre National d'Etudes Spatiales - CNES, France)



In the frame of GLEC2019 a half-day Seminar on the **Next Generation's view on Space for Emerging Countries** will be organized in cooperation with the Space Generation Advisory Council (SGAC). IAF Vice President for Education and Workforce Development, **Minoo Rathnasabapathy**, and SGAC Executive Director, **Clementine Decoopman**, will present details of the Seminar.



## IAF Global Networking Forum Programme

### GNF Morning Session

08:00 – 08:30

#### Results from the International Space Forum 2018 in Buenos Aires – The Latin American and Caribbean Chapter

The Head of International Relations of the Italian Space Agency (ASI), Dr. Gabriella Arrigo, will be presenting the results and outcomes of the 3rd International Space Forum at Ministerial Level that took place in Buenos Aires, Argentina in November 2018 where important aspects regarding the role space technologies for the socio-economic development of the region were discussed.

#### Speaker:

**Gabriella Arrigo**  
Head of International Relations  
Italian Space Agency (ASI)  
Italy



08:30 – 09:00

#### Welcome (back) to Space: An Overview of SS2's Historic Spaceflights

Virgin Galactic, a privately funded company based in the United States, is on-track to become the world's first commercial space-line. Virgin Galactic is currently testing SpaceShipTwo, a reusable vehicle designed to reach space altitudes on frequent, affordable, and safe suborbital voyages. Virgin Galactic's vehicles have been designed with the intention of setting new standards for human spaceflight safety, frequency, flexibility, and cost. Our suborbital spaceflight system consists of two vehicles: WhiteKnightTwo is a four-engine, dual-fuselage jet aircraft capable of high-altitude heavy lift missions, including but not limited to fulfilling its role as a mothership for SpaceShipTwo, a suborbital spaceplane designed to safely and routinely transport people and payloads to space and back.



Virgin Galactic's current vehicle, named VSS Unity, is presently undergoing flight testing at our facilities in Mojave, CA, USA. Unity made its maiden flight to space on December 13, 2018 reaching almost three times the speed of sound and an apogee of 82.7 km. The flight was piloted by Mark "Forger" Stucky and Frederick "CJ" Sturkow who received their FAA Commercial Astronaut wings in Washington D.C. after the flight. On February 22, 2019 Unity reached space for a second time reaching speeds of Mach 3.04 and an apogee of almost 90km. This flight carried three people into space - pilots Dave Mackay and Michael "Sooch" Masucci, and Galactic's chief astronaut trainer Beth Moses.

A representative from Virgin Galactic will provide an overview of these historic spaceflights, and discuss the company's future operations and its goals to open space for all.

#### Speaker:

**Stephen Attenborough**  
Commercial Director  
Virgin Galactic  
United States



### GNF Afternoon Session

17:30 – 18:30

#### ISS and Beyond: Commercialisation, Privatisation and Global Collaboration

Since 20 years the International Space Station - ISS - is the most impressive machine in space. The ISS Partners NASA (USA), Roscosmos (Russia), JAXA (Japan), ESA (Europe) and CSA (Canada) have agreed to operate the Space Station until 2024. But what becomes of the ISS and what's beyond?

What will be the next "Big Thing"? What kind of role will the different Space Agencies play? Are we able to broaden our horizon and invite other states (China, India or the United Arab Emirates for example) to be part of the next "Big Thing"?

These and more questions will be discussed with different key players of the Space Community.



#### Speakers:

**Sam Scimemi**  
Director for International Space Station  
National Aeronautics and Space  
Administration (NASA)  
United States

**Pascale Ehrenfreund**  
Chair of the Executive Board  
German Aerospace Center (DLR)  
Germany

**Junichiro Kawaguchi**  
Professor and Senior Fellow  
Institute of Space and Astronautical Science (ISAS)  
Japan Aerospace Exploration Agency (JAXA)  
Japan

**Jean-Yves Le Gall**  
President  
Centre National d'Etudes Spatiales (CNES)  
France



**Piero Benvenuti**  
Special Commissioner  
Italian Space Agency (ASI)  
Italy

**Sergey Krikalev**  
Executive Director of Piloted Spaceflights,  
ROSCOSMOS  
Russian Federation

**MODERATOR**  
**Jan Wörner**  
Director General  
European Space Agency (ESA)  
France

## 18:40 – 19:10

### An Overview of the Mission of Chang'e 4 Lunar Probe

Chang'e 4 Lunar Probe had softly landed on the farside of the Moon for the first time in the world and carried out in-situ and roving exploration. In this presentation, the scientific significance and engineering difficulties of Chang'e 4 are introduced and the probe's general design, including the aspects of landing site selection, relay communication, trajectory design of relay satellite. Furthermore, the prospect of the prominent technological breakthrough of Chang'e 4 will be described.

#### Speaker:

**LI Ming**  
Vice President  
China Academy of Space Technology  
(CAST)  
China



## 19:15 – 19:45

### Moon Village Association: Preparing a Solid Ground for the Moon Village

The event will feature few presentations followed by Q&A. The topics of the presentations are:

- Moon Village Association activities status
- Presentation of the MV Principles and announcement of the first Moon Village Mission and Activity
- Presentation of the "Women on the Moon" initiative
- Q&A session



#### Speakers:

**Giuseppe Reibaldi**  
President  
Moon Village Association  
Italy

**Emeline De Antonio**  
Member of the Board of Directors  
Moon Village Association  
Russian Federation

**Gongling SUN**  
Member of the Board of Directors  
Moon Village Association  
France

**MODERATOR**  
**Oleg Ventskovsky**  
European Office Director  
Yuzhnoye  
Belgium



## 19:45 – 20:00

### Baku – Candidate City from Azercosmos to Host 73rd IAC in 2022

At this event the guests will get acquainted with the Candidate City Baku, which is considered a commercial, political and cultural bridge between East and West, North and South for many centuries. In addition, guests will meet Azercosmos, the one and only satellite operator in South Caucasus, which is to organize the 73th International Astronautical Congress (IAC) in 2022.

At the promotional event the Chairman of the Board & CEO of Azercosmos Mr. Rashad Nabiyev will talk about Azercosmos, its satellites, projects and contributions to the space industry as well as to the start-up ecosystem. He will tell about the steps taken by Azercosmos in international cooperation for the achievement of the goals to turn Azerbaijan into an important space science and technology hub of the region.

After Mr. Nabiyev's speech, the representative of State Tourism Agency of the Republic of Azerbaijan Ms. Sevda Aliyeva will give information about Baku city. Ms. Aliyeva will mention the large-scale international events to which Baku served as a host city throughout the past years, how the guests enjoyed those events hold in the largest city of the Caucasus region tasting its delicious food, walking through the walls of Old City and enjoying various entertainment.

Both speeches will be accompanied by videos.



#### Speakers:

**Rashad Nabiyev**  
CEO  
Azercosmos  
Azerbaijan

**Sevda Aliyeva**  
Deputy Director  
Azerbaijan Convention Bureau  
Azerbaijan

**MODERATOR**  
**Aysel Soltanova**  
PR Director  
Azercosmos  
Azerbaijan

## 2019 IAF Distinguished Service Award – Recipients



Alfred Ng

For Selfless Effort and Outstanding Contributions to Astrodynamics Committee and Astrodynamics Symposium since 2007.



Christiane Schmullius

For Outstanding Contributions to the IAF as Chair of the IAC2018 Programme Committee in Bremen.



Christophe Bonnal

For Outstanding Contributions to the IAF in the Area of Space Debris, Launcher Systems, IAC Programme Evolution and Interactive Sessions.







Edward W. Ashford

For more than 20 years of Dedicated Work for the IAF, the Promotion of Advanced Satellite and Navigation Systems and Services in Industry, Space Agencies and in Academia, for 45 years Highly Qualifies Ed for the IAF Distinguished Service Award.



Manola Romero

For her Dedication, Competence and Organizational Skills to the Symposium on Quality and Safety of Space Operations.



Nickolay Smirnov

For his Contribution to the Microgravity Sciences and Processes Committee and to the Microgravity Symposium for more than 20 years.



Otto Koudelka

For Outstanding Services to the Federation, his Continuous Support to the Space Communications and Navigation Committee (SCAN), his Dedicated Commitment to the Bureau activities as IAF Vice President for Technical Activities



## IAF Global Conference on Space for Emerging Countries – GLEC 2019

### Online registration is open until 19 April!

The International Astronautical Federation – IAF is pleased to announce that the registration for the upcoming Global Conference on Space for Emerging Countries - GLEC 2019 to be held from 24 - 26 April 2019 in Marrakech, Morocco is open online until 19 April.

GLEC 2019 is co-organized by the International Astronautical Federation (IAF) and the The Royal Centre for Remote Sensing (CRTS), with the support of the Centre National d'Études Spatiales (CNES).

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

The Conference programme is designed to bring together the international community, including senior representatives of the major space agencies, industry, governments, policy makers, academia and NGOs. These leaders in the field will converge in Marrakech to present results, exchange ideas, debate roadmaps, and discuss the future opportunities provided by space activities to emerging nations.

The comprehensive programme will include 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, and legal and policy.

More information is available on [www.glec2019.org](http://www.glec2019.org)

**REGISTER NOW!**



## IAC 2019

### THE REGISTRATION FOR THE 70<sup>th</sup> INTERNATIONAL ASTRONAUTICAL CONGRESS IS NOW OPEN

#IAC2019 Washington, D.C. United States, 21 – 25 October 2019

**The International Astronautical Federation – IAF is pleased to announce that the registration for the 70<sup>th</sup> International Astronautical Congress – IAC 2019 to be held from 21 - 25 October 2019 in Washington, D.C., United States is now open!**

The IAC 2019 will be hosted by the American Institute of Aeronautics and Astronautics (AIAA), an IAF Member since 1952. With the theme “*Space: The Power of the Past, the Promise of the Future*”, the IAC 2019 provides a focus for the international space community to reflect on its accomplishments since the landmark Apollo Moon landing and to imagine the future of this global enterprise. The capital of the United States will be the place to be to properly celebrate the 50<sup>th</sup> anniversary of this extraordinary engineering, scientific, and political achievement as well as the international accomplishments and partnerships that have become the hallmarks of space exploration.

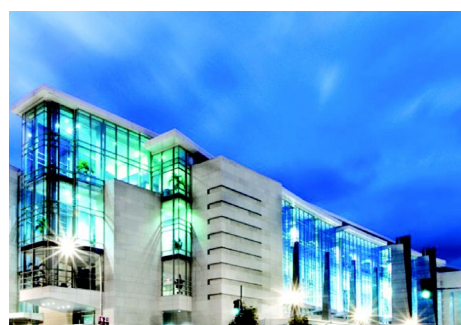


The #IAC2019 will also be a unique occasion to celebrate the 70<sup>th</sup> anniversary of this congress, a one-of-a-kind event which, since its creation, not only gathers year after year an exceptional amount of space professionals to dig deeper into what can be done in space, but also continuously draws the general public's attention to space and its undeniable benefits for humankind.

The IAC is a professional event that supports the International Astronautical Federation in its mission to advance knowledge about space and to foster the development of space assets by facilitating global cooperation.

More information on the IAC 2019 programme will soon be available [here](#).

## REGISTER NOW!



### Technical Programme Calls

#### Call for Abstracts results:

The 70<sup>th</sup> International Astronautical Congress is already making history – and it is still months away. A record of more than 4320 abstracts were submitted through the open call!



Members of the International Programme Committee will be carefully reviewing all submissions at the IAF Spring Meetings scheduled on 26-28 March in Paris, France. We expect the abstract selection process to be highly competitive. Thank you to @II who submitted an abstract for #IAC2019! Notifications will be sent third week of April. The abstracts submitted in this year's programme represent the forefront of networking research, as they explore important new ideas and directions in the field. For a congress the size of IAC, a high-quality Technical Programme would not be possible without countless hours of hard work from many volunteers in the community. We would like to thank the IPC Co-Chairs and all the IPC members for their outstanding dedication and hard work. We would like also to thank the IPC Co-Chairs, the Special Advisor to IPC Co-Chairs and IPC Steering Group Committee, for their continuous leadership, support and guidance, especially given the significant changes to the new review assignment processes that we introduced this year. Last but not the least, we would like to thank the authors for their continuing support in submitting their hard work and original contributions to our congress

#### Call for Special Session Proposals results:

The IAC Special Sessions were introduced last year in Bremen. The community has shown a massive interest in this new feature of the Technical Programme and translated into an *overwhelming number* of proposals after the closure of the Call for SpS on 18 February. Following an overwhelming number of proposals with 80 submissions, the IPC Steering Group is now evaluating the proposals and the selection results will be announced after the Spring Meetings.



The aim of the Special Sessions is to provide a complementary flavor and novel perspectives to the regular Technical Sessions and can take the form of:

- Panels, discussing visionary and/or controversial issues
- Group Discussions, dealing with the introduction and discussion of new R&D problems
- Workshops, addressing trends in the technical domains that are of interest to the congress participants

We also welcome the submission of other formats (campfires, fishbowls, design sprints...) as long as the organizer(s) provide a convincing rationale and structure related to the theme of IAC 2019 *"Space: the Power of the Past, the Promise of the Future"*. Special Sessions offer a unique opportunity for in-depth discussions, where delegates are invited to share their research and development results on specific areas and novel challenging topics. All proposals will be evaluated in terms of their novelty, quality, multidisciplinary and transversal aspects, and technical/scientific contribution. Topics that strengthen and/or extend the congress Technical Programme of the Congress in new directions and introduce new paradigms will be prioritized.

### Call for Plenaries and Highlight Lectures

We are pleased to announce that we have reached a new record of 45 submission proposals for the IAC2019 Plenary Programme. The selected plenary events and highlight lectures will be announced during the IAF Spring Meetings 26 – 28 March 2019 in Paris. Then, the selected Plenary Events and Highlight Lectures will take place over the five days of the IAC2019 event 21 – 25 October 2019 in Washington D.C.





## IAC TV returns in 2019 to Highlight Innovations in Astronautical Engineering

We are excited to announce the return of IAC TV at the International Astronautical Congress in Washington D.C., United States. IAC TV brings a thrilling element to the conference, using video to enhance your experience throughout this world leading event. It serves as a unique platform to highlight the most important issues and aspects of human endeavours in space.

Partnering with award winning international film and broadcasting company, WebsEdge, IAC TV will produce a daily episodes throughout the conference. Each episode will feature:

- Conference News: Onsite, IAC TV will film interviews, capture session highlights and hear delegates' insights and reactions from around the conference.
- In-Depth Reports: Five-minute documentary style films from universities, institutions, and organizations looking to highlight programs, case studies and ongoing initiatives that are making a difference.

You will be able to view IAC TV in a host of different ways. At the conference itself, IAC TV will be on screens around the venue as well as available in selected hotel rooms. We will also make the programme content available on the event website, on [YouTube](#), as well as across social media channels ([Facebook](#), [Twitter](#), [Instagram](#)).

As part of IAC TV there is unique opportunity for certain organizations to feature their work and research in case study films, to be included in the IAC TV 2019 programme. There is a cost to be featured on these pre-recorded slots and only a limited number of organization will be able to take part in IAC TV 2019. If you are interested in learning more about the in-depth reports, please contact: Tom Sapsted - [tom@websedge.com](mailto:tom@websedge.com).

In 2018, IAC TV featured case study films:

- Spire Global - Spire & ESA Bring Space-as-a-Service to The World:  
<https://www.youtube.com/watch?v=HmD6ETbwNG4&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&index=31&t=0s>
- Lunar Station Corporation - Moon Navigational Services:  
<https://www.youtube.com/watch?v=5XmvlzZijKo&index=30&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&t=0s>
- Orbital Propulsion Centre, Ariane Group - We Bring Your Mission to The Right Orbit:  
<https://www.youtube.com/watch?v=pgLWPqg8s-k&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&index=29&t=0s>
- Space Communications Laboratory at the National Institute of Information & Communications Technology:  
<https://www.youtube.com/watch?v=U5b94NlvhsI&index=28&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&t=0s>
- Bundeswehr University Munich - Space Research Center:  
<https://www.youtube.com/watch?v=LKbOI788ICM&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&index=27&t=0s>
- Andøya Spaceport - A new European launch facility for small satellites:  
<https://www.youtube.com/watch?v=4P8C6EIVhqw&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&index=26&t=0s>
- Surrey Space Centre, University of Surrey:  
<https://www.youtube.com/watch?v=mXNBfOxosCA&index=25&list=PLGve6BxyFHNW5RS3cbvoyOyr9m3balGEr&t=0s>



## NEWS!



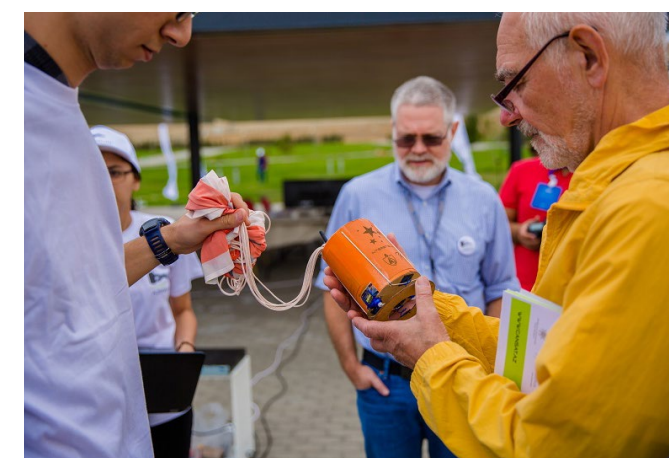
### Azercosmos Announced CanSat Azerbaijan 2019

Azercosmos, together with the Ministry of Education of the Republic of Azerbaijan, announced the student model satellite competition **CanSat Azerbaijan 2019**. The main purpose of the project, which is held annually, is to increase the interest of youth in satellite projects in the country, to represent Azerbaijan with more experienced teams in similar international competitions, and to achieve the acquisition of skills and knowledge for the development of nano- and other real satellites by local specialists in Azerbaijan.

38 teams from 15 universities of Baku and other regions have registered for the competition. The teams consist of bachelor's and master's degree students who have knowledge and competencies in electronics, mechanics, programming and communication.

Now participants are on preliminary design review stage in which they prepare conceptual design of the satellites, analyze different solutions and determine the required components for the model. After this stage, the implementation stage starts when teams develop the model on the basis of the submitted conceptual design and conduct the required tests. Then the pre-flight tests stage, flight stage and, finally, post-flights review stages take place.

For more information, please, visit: [www.cansat.az](http://www.cansat.az)



### Azercosmos Announced NewSpace Business Accelerator Program

Azercosmos, together with SIL (Social Innovation Lab) Innovation Center, announced **NewSpace Business Accelerator Program**. The aim of the program is to bring out innovative startup projects and products to space and related industries and to create a bridge between startups and markets, investment and financial resources.

With its approach based on the specific requirements and needs of the industry, the program offers startups intensive development through 4 months of intensive acceleration. "NewSpace" consists of **3** main stages:

#### Step 1: Intensive Bootcamp

Selected startups go through an intensive 2-day Bootcamp to establish the solid foundation of their projects. The program includes hands-on training and workshops on 10 essential modules in building a new tech venture.

#### Step 2: Acceleration Phase

The program continues with 16 weeks of acceleration program



where the startups learn essentials of building a business on and around a disruptive tech solution. Through the hands-on workshop series, participants learn the most up-to-date tools, techniques and methodologies to validate their idea, define value proposition and build it into a sustainable business model.

### Step 3: Demo Day

After 16 weeks of intensive acceleration program, the startups will come together to compete for the seed investment and take their sustainable tech solution to the next level.

### What the program participants get?

Selected startup teams will develop their projects with the 50.000 EURO worth of benefits package (including satellite resources, technical and business support resources, workspace and etc.) provided by the program during four months period.

The first three winning startups will have an opportunity to present their products to foreign markets, taking part in the international techno-innovative exhibitions and conferences together with Azercosmos.

In addition, the winners will be accepted to the 6-month "scale up" program, in which innovative ideas will turn into a real businesses. At this stage, startups will work on the production of real products and start their initial sales based on contracts signed with Azercosmos (and its partners).

To get more information, please, visit the official website: <http://newspace.az/>



## New Chair For Space Industry Association Of Australia Appointed



Following the first meeting of the Space Industry Association's (SIAA) Board of Directors for 2019 we are pleased to announce the 2019 SIAA office holders: Chair Mr Rod Drury CSC, Deputy Chair/Treasurer Mr David Ball, Deputy Chair Dr Alice Gorman and Secretary Mr Peter Nikoloff.

As the new Chair SIAA, Rod brings significant experience to the role gained from a career spanning 35 years in both the local and global aerospace sector, including 20 years in the Royal Australian Air Force and over 15 years in various governance and leadership roles with multi-national aerospace companies.

"I am honoured to be elected by the Board to lead the Space Industry Association of Australia, particularly during such a challenging and exhilarating time for the Australian space industry," said Rod. "I expect the global space industry to continue to grow and expand over the next few decades and it is important for Australia to be part of, and benefit from, that growth. As always, with new opportunities comes challenges and I am excited to be leading an Association focused on supporting its members with the challenges ahead."

The new SIAA Board once again acknowledged the significant achievements of the previous Board and key supporters under the leadership of Mr Michael Davis, including the successful International Astronautical Congress in 2017, the SIAA white paper "Advancing Australia in Space", and the launch of a funding scheme to support worthwhile Australian industry projects.'

For more information and interviews contact:

Mr Rod Drury  
0477 787 388  
[chair@spaceindustry.com.au](mailto:chair@spaceindustry.com.au)

Sherri Dawson  
0488 105 775  
[operations@spaceindustry.com.au](mailto:operations@spaceindustry.com.au)

For information about the SIAA go to <https://www.spaceindustry.com.au/>



Telespazio VEGA UK, a 67/33% joint venture between Leonardo and Thales, has won a major €6.8m Framework Contract with the European Space Agency (ESA) to support its initiative to foster an ecosystem of IT platforms enabling the wider exploitation of Earth Observation (EO) data for the benefit of society.

The goal of the "Common Architecture" activity is to define and agree the technical interfaces for the future exploitation of EO data in a distributed computing environment. The Common Architecture will provide the interfaces to facilitate the federation of different EO resources into a "Network of EO Resources". The Architecture will be defined using open interfaces that link the different resources so that a user can efficiently access and consume the various services to fulfil their needs.



In the initial 2-year programme, Telespazio VEGA UK will lead the definition of the Common Architecture through an open process of public discussion and consensus building with the

relevant stakeholders. The resulting reference architecture will aim to meet a broad set of use cases covering Federated Identity Management, Processing & Chaining, and Data Access & Management. Leveraging free and open source software, a reusable Reference Implementation will be developed and deployed operationally, to act as a validation of the architecture and to provide a ready-made solution to third parties wishing to develop and integrate an exploitation platform.

The Telespazio VEGA UK-led consortium will combine system level technical expertise with knowledge of the key technology domain areas. It will also build on its existing wide network to engage with the many scientific/academic, public sector and commercial stakeholders.

## ANNOUNCEMENT IAASS PRESIDENT 10/2019-10/2021



The International Association for the Advancement of Space Safety (IAASS) ([iaass.space-safety.org](http://iaass.space-safety.org)) announces it is seeking candidates for the position of President of the Association for a 3-year term. The current President's, Isabelle Rongier, second term will end in October 2019.

The IAASS is a non-profit organization dedicated to furthering international cooperation and scientific advancement in the field of space systems safety. In 2004, IAASS became a member of the International Astronautical Federation (IAF), and in 2010 was granted Observer status at the United Nations COPUOS (Committee on the Peaceful Uses of Space). The Association exists to help, shape and advance an international culture of space safety (technical, organizational and socio-political), which would contribute to make space missions, vehicles, stations, extraterrestrial habitats, equipment and payloads safer for the general public, ground personnel, crews and flight participants. The Association also pursues the safeguarding and sustainability of the on-orbit environment to allow unimpeded access to space by future generations.

The roles of the President are to serve as the Association's Supreme Ambassador to external organizations and to provide leadership internal to the Association for the achievement of the association's goals. Externally, the President will interface with personnel who occupy Senior Government Agency positions and those who occupy similar positions in the Corporate Sector. The President will be responsible for seeking areas of common



needs and opportunities to participate in projects that benefit both the Association and Government/Corporate entities. Internally, the President will provide leadership to the overall development and administration (non-financial) functioning of the organization, in close relationship with the Board Secretary. The President will also endorse the technical orientations and positions issued by the Association, relying on the proposals of the Technical Director. Approval and management of financial matters, such as the budget, are under the purview of the Board Secretary and the Association's Board.

The term will begin on 1<sup>st</sup> of October 2019, after the decision taken during the Association's General Membership meeting being held in conjunction with the 10th IAASS Conference in May 2019 in El Segundo, CA. The length of term is 3 years renewable for a second term.

Being the Association's membership mainly in US and Europe, for alternation reasons, the Association is most interested, this time, in candidates who are recognized outstanding professionals in space safety or in related engineering fields, who are US citizens, reside in the US and are employed by a space related government agency or private sector organization. These interests are not to be interpreted as excluding any individual from applying. The candidate selected should be required to be an IAASS member in good standing for the previous 3 years.

Persons interested in the position shall submit a CV/Resume and a Letter of Motivation addressing how they would carry out the President's roles described above. The due date for submission is 31<sup>st</sup> of March 2019.

For additional information, please contact:  
Paul Kirkpatrick  
Director Policy, Procedures and Data  
[iaass.ppd@gmail.com](mailto:iaass.ppd@gmail.com).

### Austrian Research Promotion Agency (FFG). Summer School Alpbach



The 43<sup>rd</sup> edition of the Summer School Alpbach will be held from 16 to 25 July 2019, and will focus on "Geophysics from Space Using Micro- or Nano-Satellite Constellations". The Summer School is open to science and engineering university students and graduates from ESA Member, Associate and Cooperating States. 60 students will be selected to participate.

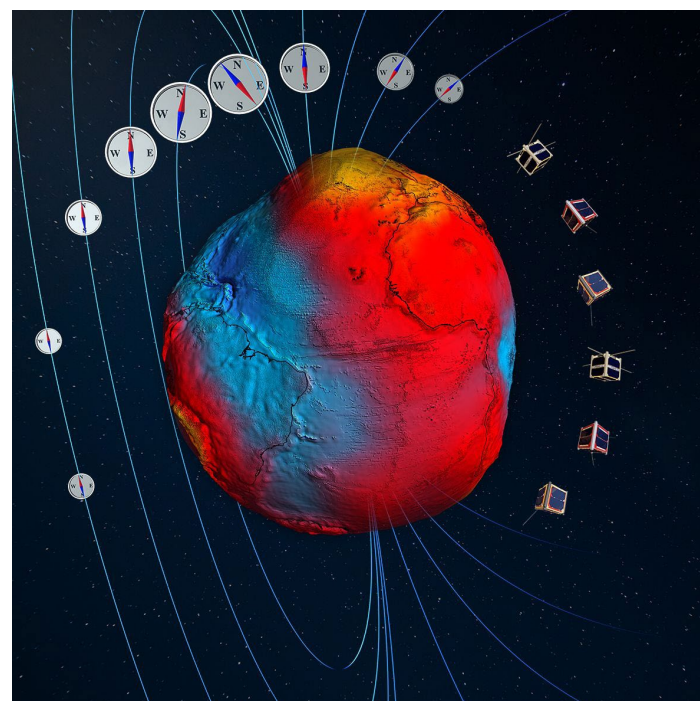
The participants will be challenged to propose ideas for new satellite missions to observe the magnetic and gravitational field of the Earth from space with a high resolution in space and time using a mission configuration that goes beyond all missions that have been realized so far.

Four student teams will be set up to define the scientific objectives of a space mission and a preliminary end-to-end mission design including the spacecraft, scientific instruments, mission and science operations that will meet the stated objective under the supervision of noted scientific and engineering experts. Each student team will conceive and elaborate an innovative satellite mission and present it to an expert review panel on the last day.

**Application Deadline:** 31 March 2019

**Online Application:** [www.summerschoolalpbach.at](http://www.summerschoolalpbach.at)

The Summer School Alpbach is organised by the Austrian Research Promotion Agency (FFG). It is co-sponsored by ESA and the national space authorities of its Member, Associate, and Cooperating States. A traditional partner is the International Space Science Institute. It is also supported by Austrospace, the association of Austrian space industries and research institutions. EuroPlanet offers grants for students.



### GMV reinforce its leading role in GNC solutions for complex robotic exploration missions



During 2018 GMV has been awarded with multiples contracts to provide design concepts up to complex technological solutions for GNC systems for the most important planned robotic exploration missions: HERA, HERACLES and MSR, orbital and surface components, among others.

Common elements of those GNC being, they are all visual based solutions with high level of on-board autonomy and they all correspond to missions suitable to be proposed for approval to the next Ministerial Council, planned late November 2019 in Seville, Spain.

Strongly based on AIM experience, HERA Phase B1 activity started in September 2018 lead by OHB System in Germany, with the challenging objective of consolidating as a solid mission design, ready for implementation and reaching a TRL6 for the critical technologies of the autonomous GNC among others. Hera will be the first probe to rendezvous with a binary asteroid system Didymos. The system primary body has a diameter of around 780 m and a rotation period of 2.26 hours, whereas the Didymos secondary body has a diameter of around 160 m and rotates around the primary at a distance of around 1.2 km from the primary surface in around 12 hours. Hera is meant to be the European contribution to an international double-spacecraft mission. NASA will first perform a kinetic impact on the smaller of the two bodies, then Hera will follow-up with a detailed post-impact survey that will turn this grand-scale experiment into a well-understood and repeatable planetary defense technique. The planned HERA's GNC incremental validation chain includes tests in Hardware-in-the-Loop using a space qualified camera called the Asteroid Framing Camera, already available at GMV's optical lab. A huge team of GNC experts, spread all over five countries (Spain leading, Romania, Sweden, Portugal and Poland) has the responsibility of the HERA GNC subsystem, including Image Processing and GNC-FDIR.

During September 2018 GMV also has been awarded by ESA with the NRO-GNC activity. NRO-GNC will provide the design concept for a full GNC system for the next big ESA-led international Moon mission HERACLES.

HERACLES will land on the lunar surface, demonstrate surface operation, and return samples from the surface to the Lunar Orbital Platform – Gateway. A lunar ascent element will carry the samples from the lunar surface to the LOP-G space station. The NRO-GNC project will focus on the development of the GNC system of this Lunar Ascent Element for the pre-launch, launch,

ascent, orbit transfer and rendezvous with the LOP-G space station orbiting in a near-rectilinear halo orbit close to the Moon. A key challenge for the GMV system will be to enable a safe and efficient rendezvous of the lunar ascent element with the Lunar Gateway for the purpose of transferring precious lunar samples to the crew on board the Gateway.

GMV is also involved in one of the HERACLES system studies with the responsibility of the Rendezvous phase definition, including the GNC specifically designed for this phase, being the NRO-GNC activity is fully relevant/applicable.

In August 2018 GMV was awarded with the MSR GNC - Delta Development project. The activity is focused on the development and validation (up to Hardware In-The Loop optical and dynamics tests) of image processing algorithms integrated in an Image Processing Bread Boarding (IP BB) together with Narrow and Wide Angle Cameras (NAC and WAC). The reference scenario for the optical navigation test campaign will be the Mars Sample Return Rendezvous phase and sample capture (MSR-RdV). The starting point for the development is the simulator developed and validated during a previous activity (iGNC), where GNC and IP algorithms had been developed and tested with respect to a former applicable version of the MSR RvD scenario and system. This activity shall adapt those algorithms (especially the image processing) to the new mission/system baseline coming from the parallel system study MSR-ERO and shall provide also all the feedback necessary to correctly define the rendezvous and sample capture phase of the Mars Sample Return mission.

As in case of HERACLES, GMV is also involved in one of the MSR Earth Return Orbiter GNC system studies with the responsibility of the Rendezvous and Capture phase.

In the frame of MSR GMV is also involved in both on-going parallel studies for the Sample Fetch Rover Phase A/B1 with responsibilities related to the rover navigation system or components (localization function) of the same system respectively.

GMV expertise in guidance, navigation, and control, both for orbital and surface mission components, is a clear example of European excellence in robotic space exploration.





### New Managing Director at HE Space Operations GmbH



**Robert Rouse appointed for company leadership in Germany**



31. January 2019

Robert (Bob) Rouse has been appointed as Managing Director of HE Space Operations GmbH. Bob joined HE Space as Business Development Manager in May 2009 and has been instrumental in growing the business in southern Germany as well as supporting group wide business development and strategy. Bob brings extensive experience with over 30 years in the space business including 15 years as Managing Director of space companies in Germany, like Vega GmbH and Anite. He ensures that HE Space continues to provide high quality services to the existing clients as well as moving the business forward into managed services and projects. "I am really looking forward to my new role, and know that I can rely on the full support of a great team to enable HE Space to achieve our goals. The space business is always striving towards new achievements – this is what we as a company also reflect", states Bob.

**The company is moving forward with a fresh culture of innovation**

HE Space Operations is currently working on a sound future strategy. The corporate philosophy remains. The management team as well as the founder and owner Scott Millican, who trained astronauts for the procedures of Apollo Missions 11 to 17 to the Moon, care about the employees' wellbeing. For the more than 200 employees working for HE Space in Europe the path leads in one direction: forward.

#### About HE Space

HE Space Operations is located in Bremen and Darmstadt (Germany), Noordwijk (The Netherlands) and Houston (USA).

For more than 35 years they have provided engineers, scientists, and other professionals to clients such as European Space Agency (ESA), Airbus Defence and Space, ArianeGroup, Eumetsat and DLR GfR. HE Space Operations does the matchmaking and invests in the best personnel – for enterprises of any size to successfully achieve space missions.

<https://www.hespace.com>

### Robot Guide and Science Lessons at the Space Museum



The S. Korolev Space Museum has now a new staff member, a robot, which helps human guides. The new guide has instantly become very popular: it can tell interesting facts about space, respond to voice commands, dance and show exercises for future astronauts.

The robot contributes to the education program, which now offers integrated science lessons for high school students. The lessons are a mix of Maths, Biology, Chemistry and Physics knowledge, which students have to apply in an imaginary spaceflight. Though the flight itself is unreal, children are to solve real tasks. It depends from their answers whether they will be able to send a manned spaceship into the orbit and return the crew safely to the Earth.



Firefly Aerospace recently commenced integrated stage testing of the Firefly Alpha second stage, which includes flight-configuration propulsion, structures and tankage, pressurization and propellant management systems, and avionics. The stage operates autonomously, controlled by Firefly-developed flight software. These tests also demonstrate full activation of Firefly's large-scale vertical test stand, "TS2", at Firefly's Briggs, TX test facility. In 2019 Firefly will continue qualification testing of both the first and second stages of Alpha and begin flight acceptance testing in May, supporting our goal of December 2019 first launch from Vandenberg Air Force Base SLC-2W.

We have also recently announced our mass production facility in Exploration Park, Florida and our latest launch site at Cape Canaveral Spaceport SLC-20. Our Exploration Park facility will support over 200 jobs and give Firefly the capacity to manufacture up to 24 Firefly Alpha vehicles per year.







### Valispace teaching aerospace students about concurrent engineering at International Space University (ISU) and Instituto Superior Tecnico (IST)

Valispace is a browser-based collaboration tool to enable smart, data-driven engineering. Since 2016 Valispace has provided this powerful tool to design complex systems in the hands of space engineers at customers such as Airbus, Luxspace, Gomspace, DLR and others. We are proud to share with the IAF community that we are now making the power of concurrent engineering more accessible: since February 2019 the Valispace team started teaching aerospace students how to use Data-Driven Systems Engineering (DDSE) during concurrent design workshops.

Concurrent design workshops have a long-standing history, and one of Valispace's use cases along the development lifecycle is to enable small teams to iterate quickly on early designs. The MSS19 class of ISU and the group (mostly) MSc. Aerospace

students from IST had the task to make a preliminary design of a lunar base. They work together in a team where different systems are being designed concurrently with all their dependencies, allowing them to iterate quickly when changes from customers are given last minute. By going through this experience early on in their careers and learning about DDSE, the right mindset is being taught when approaching future complex engineering projects.

The insights from these workshops as well as concurrent design sessions with Valispace at ISU this year are used to work towards the proposed Special Session at IAC2019 to collectively design a mission to Mars with up to 100 attendees. If you want to learn more about DDSE, head over to [Valispace's blog](#).



Workshop on concurrent design of a lunar base at ISU (upper and left picture) and IST (right)



### H-SPACE conference in Budapest – for the 5<sup>th</sup> time



The H-SPACE 2019 international conference was held at the Budapest University of Technology and Economics on February 27–28, 2019. This year's special focus was water and environment. The event was co-organized by the Hungarian Astronautical Society (MANT). Just before the conference, we started with a widely publicized open podium discussion (in Hungarian), connecting the imminent 50<sup>th</sup> anniversary of the first Apollo Moon landing with the perspectives of Mars travel. The 200 registered participants of the H-SPACE 2019 conference enjoyed a diverse scientific program, covering topics from Earth observation to space astronomy, from space dosimetry to quantum cryptography, from balloon-borne experiments to a CubeSat mission. A special session was devoted to space education and outreach projects. Altogether, there were more than 20 oral and 15 poster presentations. The next conference in the H-SPACE series will take place in early 2020. More information and the abstracts can be found on the website [space.bme.hu](#).



### EOS LandViewer Adds 10 Satellite Imagery Collections and Advanced Analytics



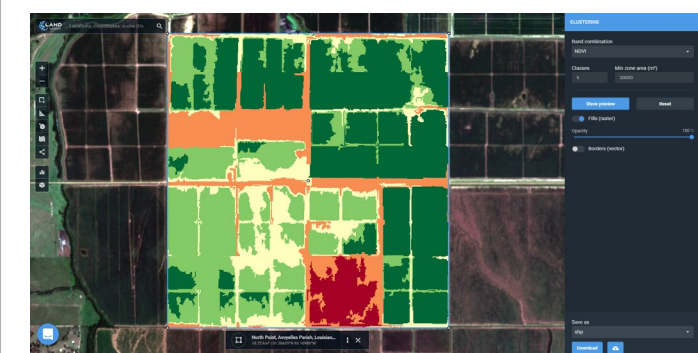
EOS company continues to deliver new satellite imagery and expand the analytical feature set through the series of their flagship [LandViewer](#) tool updates.

Addition of over 10 collections of commercial satellite images with global coverage, short revisit periods, and spatial resolution up to 0,4 m/pixel from the world's top imaging companies, Airbus, SpaceWill, and SI IS, turned LandViewer into a go-to satellite imagery platform for free downloading of open-source data and ordering of commercial data with a 3-day delivery.



Preview of high-resolution GAOFEN 2 image of Palm Jebel Ali in Dubai, UAE.

Next step was to advance tools for remote sensing analysis, encouraging users to derive the many insights contained in satellite imagery. The latest developments have enabled long-term observations of territory up to 10 years back via time series analysis, NDVI-based area clustering into zones for efficient zone management, and more precise vegetation studies with extra spectral indexes minimizing atmospheric impact. Additionally, the new [Time-Lapse Animation](#) maker now allows to create and share satellite time-lapse GIFs and videos. Most of newly added and long-existing functionalities were presented at the introductory LandViewer webinar in January ([full recording](#)).



NDVI-based clustering of agricultural lands in LandViewer.

The company currently prepares to launch a new digital agricultural platform that will provide real-time in-field insights, predict yield, and minimize weather risks.



### Momentum growing for New Zealand's space sector



Rocket Lab Launch complex, Māhia Peninsula, New Zealand (Image credit: Rocket Lab)

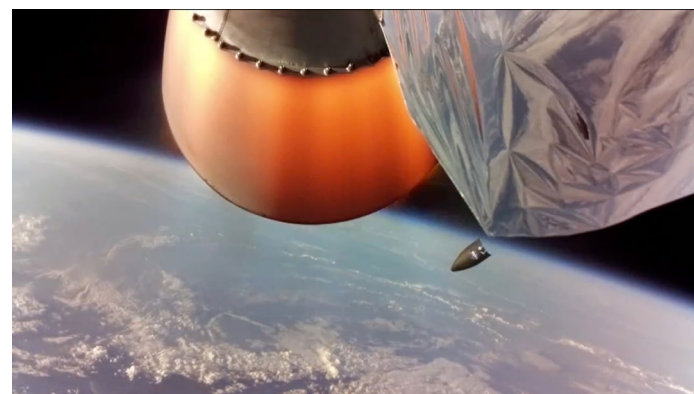
New Zealand's nimble innovation system is enabling the country's space sector to gain momentum, with exciting new partnerships, dedicated Research & Development, and a future-focused regulatory regime driving growth.

New Zealand is now recognised as a space-faring nation, well-positioned to offer a suite of space-related services including ground services, and space-based information services.

#### Highlights

Rocket Lab has capitalised on New Zealand's clear seas and skies and access to valuable launch angles, launching 4 rockets and sending 24 satellites to orbit from Māhia Peninsula in its first year. In December 2018, Rocket Lab undertook a dedicated mission for NASA, deploying NASA CubeSats and highlighting the increasingly significant role small satellites are playing in exploration, technology demonstration, research and education. American space innovator LeoLabs recently announced it will establish a phased-array radar in New Zealand to track small satellites and space debris – the first of its kind in the Southern Hemisphere. The radar will be able to track objects as small as 2 centimetres in low Earth orbit and will be 1 of only 3 currently operating in the world. Space debris is a growing issue and LeoLabs' pioneering technology provides high resolution mapping data and services to mitigate the risks of collisions that could potentially create thousands of new particles of space debris and damage expensive equipment.

Expanding international collaborations are also a key focus for New Zealand. At last year's IAC the New Zealand Government and German Aerospace Centre (DLR) signed a Letter of Intent which will see the development of joint research on areas such as space systems (satellite and rocketry technologies and ground-based infrastructure) earth observation technologies and applications, as well as transport and energy technologies. We look forward to showcasing our strengths and developments at IAC 2019, see you in Washington D.C.



Rocket Lab's NASA ELaN-19 mission from New Zealand (Image credit: Rocket Lab)

### The Space Generation Advisory Council (SGAC)



The Space Generation Advisory Council (SGAC) is proud to announce the [18<sup>th</sup> Space Generation Congress](#) (SGC) to be held in Washington, D.C. during October 17-19, 2019 prior to the 70<sup>th</sup> International Astronautical Congress (IAC). As the only event of its kind, the Space Generation Congress offers the next generation of space leaders the opportunity to network and to examine critical questions that are facing the space

and international community at large. Over 150 top university students and young professionals (aged 18-35) with a passion for space will travel from all around the globe to participate in an intensive three-day event tackling some of the most pertinent challenges that face our sector today. SGAC is proud to partner with the International Astronautical Federation (IAF) and other [partners](#) on this endeavour. If you are interested in learning more about the event, participating, or becoming a partner, please see our [website](#) or reach out to [sgcinfo@spacegeneration.org](mailto:sgcinfo@spacegeneration.org). Applications to attend as a delegate will open on April 1<sup>st</sup>, 2019!

### European Union and EUMETSAT extend Delegation Agreement for the Copernicus Programme



In January the signing of an updated Delegation Agreement took place between EUMETSAT and the European Union, represented by the European Commission (EC) in Brussels.

Those signing were EUMETSAT Director-General Alain Ratier and DG GROW (Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs) Director-General Lowri Evans.

Director-General Professor Jan Wörner was also in attendance to sign an extended Agreement for [Copernicus](#) with the [EC](#) on behalf of [ESA](#).

The document was first drawn up back in [2014](#) and details the close cooperation between EUMETSAT and DG GROW on Copernicus activities. EUMETSAT will continue to support the implementation of the Copernicus Programme including the delivery of its data and products and preparation for the next generation of Sentinel satellites.

The extended collaboration will also include contributions to the assessment of technical requirements and studies needed to support the European Commission in the preparation of possible additional Sentinel missions. These will be considered for deployment over the period 2021-2027 of the next Multiannual Financial Framework (MFF). For that period, EUMETSAT expects to have a new Agreement in place with the EC.



### Greener Aerospace Innovative Technologies and Operations for a human friendly environment

To pave the way for a single European aerospace conference, 3AF and CEAS have decided to join forces to launch the very first edition of the Aerospace Europe Conference (AEC2020).

Aerospace Europe Conference 2020, will feature 3AF 3<sup>rd</sup> Greener Aviation, CEAS 7<sup>th</sup> Air & Space Conference and the 8<sup>th</sup> edition of Aircraft Noise and Emissions Reduction Symposium (ANERS, a joint 3AF/AIAA event).

This conference will be offering scientists and engineers from industry, government, and academia an exceptional opportunity to exchange knowledge and results of current studies and to discuss directions for future research in the fields of aeronautics and space. Individually, each of the three conferences has proven to be very successful. In joining the three we expect to be even more attractive, offering additional transversal topics and synergies between aeronautics and space towards a greener and cleaner environment.



By welcoming worldwide contributions, this new conference will give attendees a unique overview of the global research efforts aimed at reducing the environmental impact of aviation and space activities.

The core theme of AEC2020 is GREENER Aerospace

More information can be found at <http://www.aerospace-europe2020.eu>

Questions should be addressed to [aec2020@3af.fr](mailto:aec2020@3af.fr)

## Summit for Space Sustainability

June 25-26, 2019

National Press Club, Washington, DC

Please join Secure World Foundation and its partners at the inaugural Summit for Space Sustainability, a high-level multi-day event focused on inspiring action towards space sustainability. A unique gathering of global stakeholders from government, industry, and civil society, this event will feature keynotes, interactive sessions, panels, and networking designed to highlight opportunities and challenges for developing solutions for space sustainability.

To attend or partner, please go to [www.swfsummit.org](http://www.swfsummit.org). Enter code "Sustainability10" by April 30 to receive a 10% discount.



### SUMMIT FOR SPACE SUSTAINABILITY

JUNE 25-26, 2019

NATIONAL PRESS CLUB, WASHINGTON, DC

Please join Secure World Foundation and its partners at the inaugural Summit for Space Sustainability, a high-level multi-day event focused on inspiring action towards space sustainability. A unique gathering of global stakeholders from government, industry, and civil society, this event will feature keynotes, interactive sessions, panels, and networking designed to highlight opportunities and challenges for developing solutions for space sustainability.

To attend, please go to [www.swfsummit.org](http://www.swfsummit.org)

Enter SUSTAINABILITY10 by April 30 to receive a 10% discount.



PROMOTING COOPERATIVE SOLUTIONS FOR SPACE SUSTAINABILITY

## Interview with Saeed Al Mansoori, IPC Co-Chair, IAC 2020



**1. It will be the very first time that the IAC is hosted in the United Arab Emirates. What does it represent politically, historically and culturally for the country?**

Hosting the International Astronautical Congress (IAC 2020) in Dubai is a milestone for the UAE and the entire Arab region. IAC is the largest specialised conference in the space sector worldwide. The Dubai edition of the congress will be held in 2020, under the patronage of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai.

Space has become an attractive sector to many Emiratis in the country. Mohammed bin Rashid Space Centre (MBRSC)'s strategy focuses on harnessing space technology to attain socioeconomic development.

Hosting IAC 2020 will enrich the youth's knowledge in space science and technology. It will act as an accelerator for STEM education, and will be a source of enormous pride and inspiration for the ambitious younger generations.

Furthermore, hosting IAC 2020 in Dubai and launching the Emirates Mars Mission – Hope Probe in the same year will send a strong message about the Arab world impact in space, and their contributions in the field of Space and Science. Hosting the IAC in this region will open a lot of opportunities to the Arab world and for further collaborations as it brings the whole world

of space together. Space is a growing sector in the UAE, and, consequently, in the entire region. Seeing an Arab nation hosting the IAC is an accelerator to this growth, as it shows the impact of the UAE after just over a decade of space activity.

The UAE has a vision of continuing to make a great contribution to humanity and to science. In hosting IAC 2020, this vision moves another step nearer to accomplishment.

**2. Given the predictable success of the IAC 2019, how is IAC 2020 setting high standards to attract as many participants as possible and make IAC 2020 the best IAC ever?**

As IAC 2020 comes to Dubai, along with more than 5,000 leading figures in the international space industry from 70 countries, a platform will be developed that further cements space as one of the seven key sectors for the UAE. The year 2020 will be a significant milestone in the UAE's history as it will witness accommodating EXPO 2020 in Dubai, and the launch of the Emirates Mars Mission – Hope Probe, synchronized with the hosting of the International Astronautical Congress (IAC), the largest specialised conference in the space sector worldwide.

The congress has historically had a huge impact on all the nations that has been chosen as the host. This impact ranges from new business opportunities, new collaborative initiatives and increased support of missions, operations and services.







**International Astronautical Federation**

100 Avenue de Suffren

75015 Paris, France

Tel: +33 1 45 67 42 60

E-mail: [info@iafastro.org](mailto:info@iafastro.org)

[www.iafastro.org](http://www.iafastro.org)



Be part of the conversation **@iafastro**



***Connecting @ll Space People***

The next newsletter will be issued in June 2019