



# International Astronautical Federation

# News

2/2020 (July 2020)



## IAF President's Welcome

Dear Members and Friends,

We are facing a global health crisis unlike any in the 70-year history of the International Astronautical Federation, one that is spreading human suffering, infecting the global economy and upending people's lives.

In these challenging times, the Federation, more than ever, must play its unifying role for the space community. Since its first edition in 1950, the IAC has been THE place for all space people to come together and discuss about the latest developments in space.

Presently, physical meetings are near-impossible, this is why I would like to invite you all to the first CyberSpace International Astronautical Congress. The IAC 2020 - The CyberSpace Edition will be available to all without registration fee, free of charge for a global community. The IAF needs to reach out to new communities and stakeholders that would normally not have the means and/or time to physically travel to an IAC. These times call for solidarity.

I warmly encourage you to read through this newsletter to find out how you can get involved into the first #CYBERSPACEIAC2020 and also what will happen next. We will meet again in March 2021 for the IAF Spring Meetings in Paris, then in St. Petersburg to talk about Space Exploration in June 2021 and finally in Dubai for the IAC 2021 in October 2021.

Be safe, stay healthy!

Warmest Regards,

Pascale EHRENFREUND  
IAF President



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#### IMPORTANT DATES:

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- Deadline of IAF Distinguished Service Award Call for Nominations – 30 August 2020
- Deadline of Luigi G. Napolitano Award Call for Nominations – 30 August 2020
- IAC 2020 Video Lecture submission – 25 September 2020
- IAC 2020 Paper submission – 2 October 2020
- IAC 2020 - The CyberSpace Edition – 12 - 14 October 2020
- IAF Spring Meetings 2021 – 23 - 25 March 2021
- SpaceOps 2021 Conference – 3 - 7 May 2021
- IAF GLEX 2021 – 14 - 18 June 2021
- IAC 2021 – 25 - 29 October 2021
- IAF GLOC 2022 – 31 May - 2 June 2022
- IAC 2022 – 18 - 22 September 2022
- IAC 2023 – 25 - 29 September 2023

## Connecting @ll Space People



## 2020 CALL FOR NOMINATIONS OF IAF ELECTIVE OFFICERS

To the attention of IAF Members,

In accordance with the IAF Constitution, the selection of Elective Officers required to lead the International Astronautical Federation (IAF) and serve on the IAF Bureau takes place annually. These volunteer officers are elected by the IAF General Assembly, in accordance with procedures established in the IAF Constitution and By-Laws.

IAF Officers are elected to serve for one, three-year, non-consecutive term. In addition, an Elective Officer is entitled to serve the Federation for another non-consecutive period of office, with a maximum of two terms in the same office. All elected Officer positions are honorary, and officers serve without any remuneration.

For the 2020 Elective Officers selection the following 4 officers positions are now open for election by the General Assembly in October 2020 in conjunction with the during the 71st International Astronautical Congress – The CyberSpace Edition:

- **4 Vice Presidents** to serve the Federation from October 2020 for a three-year period

A list of the current IAF Officers and the period of their service is available on the right column.

In recent years, interest in serving as volunteer Officers of the IAF has grown significantly. With this in mind, and in order to ensure that the Federation evaluates candidates in a fair and transparent fashion, the procedure for officers' elections has been laid down in the IAF Constitution and Bylaws. Given the virtual nature of this year's General Assembly, and in the interest of providing maximum transparency to IAF member organizations, the following rules and procedures will be applied:

- Nominations of individuals to serve as Officers of the Federation shall be submitted by an IAF Member Organization in good standing. The nominee shall be a representative of the organization submitting the nomination, and shall confirm acceptance of his/her nomination.
- Nominees may only be recommended for one open position.
- The nomination package shall include:
  - Nomination letter submitted by an IAF Member organization in good standing, including any background documentation on the qualifications of the proposed officer, and on his/her past experience as an IAF volunteer;
  - CV/Biography of the nominee;
  - One-page motivation letter from the nominee;
  - A one-minute video from the nominee presenting her/himself and outlining her/his motivation to serve on the Bureau of the Federation.
- The complete nomination package should be received by the IAF Executive Director on or before 7 August 2020.
- The IAF Secretariat will maintain a list of those individuals nominated that will be made available on the restricted area of the IAF web site at the IAF Members' page (name, nominating organization, country).

In addition, after the deadline, all nomination packages will be available (including one-minute videos) on the restricted area

- According to the IAF Constitution, article 12.1, the General Assembly on a proposal by the Bureau shall appoint a five-persons Nomination Committee, which will review the nomination packages, interview the nominees and take input from IAF member organizations and volunteers and shall be responsible for the elaboration of a recommendation to the IAF Bureau and General Assembly concerning the election of Officers.

On 11 September 2020, the IAF General Assembly members will receive, via email, the Bureau recommendation on the list of Nomination Committee member candidates, inclusive of their bios for approval through electronic voting by 25 September 2020

- On 9 October 2020 the IAF General Assembly members will receive, via email, the Nomination Committee and IAF Bureau recommendations on those nominees who shall serve as Officers of the Federation for the period applicable for approval through electronic voting by 13 October 2020, 15:00 Paris Time.
- At its live-streamed plenary session, the IAF General Assembly will be informed about the results of the voting and the elected IAF Officers.

Most officers of the Federation have had experience in serving on IAF technical and/or administrative committees. Some have also served in leadership roles within the Federation. The Nomination Committee and the General Assembly will take this experience into account in evaluating prospective candidates.



In addition to the nominees' qualifications, the Nomination Committee and General Assembly will give due regard to nominees from nations or international organizations that have reached a high degree of development in space activities. In line with the Federation's focus on "3G" Diversity (Gender – Geography – Generation) the Nomination Committee and General Assembly will also consider the importance of an equitable "3G" distribution within the IAF Bureau.

Member Organizations of the Federation are kindly requested to submit via email nomination packages, as described above, of individuals to serve as Officers of the International Astronautical Federation for the applicable period no later than **7 August 2020** to:

Christian Feichtinger  
Executive Director  
International Astronautical Federation  
Email: [christian.feichtinger@iafastro.org](mailto:christian.feichtinger@iafastro.org)

## ELECTIVE OFFICERS 2019 - 2020

### PRESIDENT:

Pascale Ehrenfreund – Austria - (2019 – 2022)

*German Aerospace Center (DLR)*

### VICE PRESIDENTS:

Mohammed Nasser Al Ahbabi – United Arab Emirates – (2018 – 2021)

*United Arab Emirates Space Agency (UAE SA)*

Gabriella Arrigo – Italy – (2017 - 2020)\*

*Italian Space Agency (ASI)*

Bruce Chesley – United States – (2018 – 2021)

*The Boeing Company*

Seishiro Kibe – Japan – (2017 – 2020)\*

*Japan Aerospace Exploration Agency (JAXA)*

Valanathan Munsami – South Africa – (2017 – 2020)\*

*South African National Space Agency (SANSA)*

Deganit Paikowsky – Israel – (2019 – 2022)

*Tel Aviv University*

Minoo Rathnasabapathy – USA – (2018 – 2021)

*Massachusetts Institute of Technology (MIT)*

Sergey Saveliev – Russian Federation – (2019 – 2022)

*State Space Corporation "Roscosmos"*

Mary Snitch – United States – (2019 – 2022)

*Lockheed Martin*

S. Somanath – India – (2018 – 2021)

*Indian Space Research Organisation (ISRO)*

Dominique Tilmans – Belgium – (2019 – 2022)

*Eurisys*

Baohua Yang – China - (2017 – 2020)\*

*Chinese Society of Astronautics (CSA)*

(\*) Term ending in October 2020



## IAF GNF SPACE CONVERSATIONS SERIES

The IAF GNF Space Conversations Series are a fortnightly, free-of-charge registration, live online webinars that will touch upon the most recent developments in space, organized within the frame of the IAF Global Networking Forum (IAF GNF).

Throughout these bi-weekly live conversations, the IAF will aim at strengthening even further the ties with its Members and will flag topics that are relevant for the overall space community. These conversations will offer you all the opportunity to come together, connect, be inspired and informed by leaders and experts in multiple fields of space.

The IAF GNF Space Conversations Series are set to start the **16 September 2020** and will take place on a bi-weekly basis, every Wednesday prior and following the IAC 2020 the CyberSpace Edition. The sessions will start at **14:00 Paris Time** and will not exceed the **60 minutes** timeframe.

### CALL FOR PROPOSALS AND SUBMISSION

An ongoing Call for Proposals is now open for all IAF Members. The proposal can be submitted through the [IAF GNF Proposals Form](#) and sent to [gnf@iafastro.org](mailto:gnf@iafastro.org).

Proposals can be submitted by IAF Member organizations, however, the IAF can also accept proposals from IAF Committees, prospect IAF Members and Sponsors. These proposals will be dealt with on a case by case basis. In addition, the IAF invites all IAF GNF and Special Sessions proposers who have originally submitted for the IAC in Dubai, to consider the opportunity of submitting their proposal for an IAF GNF Space Conversations Series.

### SELECTION PROCESS

The IAF Secretariat is responsible for implementing the programme development and selection process according to the received proposals, in close cooperation and under the leadership of the IAF President and IAF Vice President for the Global Networking Forum.

The selection of the IAF GNF Sessions will be based on several criteria's:

- Relevance of the topic with regards to the current space sector and worldwide developments;
- Timeliness of the topic;
- Quality and originality of the proposal;
- Novelty and originality of the topic.

### SPONSORSHIP

Sponsorship will provide an excellent opportunity for IAF Members and session organizers to get an exclusive and unprecedented online visibility. IAF GNF event organizers are typically asked for a financial contribution to the organization of their session.

Typical levels of contributions are:

- 30 minutes – 5,000 €
- 45 minutes – 8,000 €
- 60 minutes – 10,000 €



Meet. Share. Connect.

[Click here to find out more](#)



## CALL FOR NOMINATIONS OF IAF AWARDS



### IAF Distinguished Service Award 2021 Call for Nominations

The International Astronautical Federation (IAF) is pleased to announce the call for nominations for the 2021 “IAF Distinguished Service Award” that recognizes distinguished service by volunteers and/or staff to the activities of the Federation.

The call for nominations for the IAF Distinguished Service Award is addressed to IAF Technical or Administrative Committees' members, Delegates/members of IAF member organizations in good standing, IAF Bureau members and IAF Secretariat.

Nominations should contain:

- A citation (one sentence)
- A biography of the nominee including, i.e., the person's profile, career achievements and history, education, list of publications, etc.
- 1 letter of support clearly addressing contributions of the nominee to IAF

Selection criteria:

- Duration of nominee's service
- Leadership in nominee's service
- Excellence of nominee's service

As a guideline, those recognized for distinguished service should normally meet several of the following criteria:

- More than 10 years volunteering for the IAF or longer
- A leadership role in a Technical or Administrative Committee or Sub-Committee, or served on the Bureau
- Attended the IAC and Spring Meetings on a regular basis
- Activities that required significant volunteering hours

The IAF Distinguished Service Award Sub-Committee will review the nominations received for the IAF Distinguished Service Award and will make recommendations to the IAF Honours and Awards Committee (HAC). The HAC will review the recommendations and make final recommendations to the IAF Bureau at the IAC 2020 – The CyberSpace Edition.

The IAF Distinguished Service Award comprises a distinctive pin and certificate presented at the IPC General Meeting during the Spring Meeting 2021 in Paris. The recipient's registration fee for the International Astronautical Congress (IAC) will be reduced to 50% of the applicable fee for the year of induction (IAC 2021 in Dubai, United Arab Emirates).

Nomination documents must be received by IAF Secretariat no later than 15:00 CET (Paris time) on the **30 August 2020**, preferably by email at [award@iafastro.org](mailto:award@iafastro.org) (Subject line: NOMINEE'S LAST NAME Nominee's First Name-IAF Distinguished Service Award).

If e-mail is not available, the nomination documents can be sent by postal mail within the above deadline to:

IAF Secretariat  
Attention:  
IAF Distinguished Service Award  
100 Avenue de Suffren  
75015 Paris  
France



## Luigi G. Napolitano Award 2020 Call for Applications

The International Astronautical Federation is pleased to announce the opening of the Call for Applications for the **2020 Luigi G. Napolitano Award**. The Luigi G. Napolitano Award is assigned every year to one (1) young scientist who has significantly contributed to the advancement of the Aerospace Science.

All the Authors who qualify (see Criteria below) and who wish to apply for the Award should send the selection material (see below) by e-mail before **30 August 2020** to the IAF Secretariat to [award@iafastro.org](mailto:award@iafastro.org).

The applications will be forwarded to the Space Education and Outreach Committee, Honors and Awards Subcommittee.

The Award consists of the Luigi G. Napolitano commemorative medal and a certificate of citation. It will be given at the International Astronautical Congress.

### Criteria

The Napolitano Award is presented annually to a young scientist (below 30 years of age) who contributed significantly to the advancement of the Aerospace Science and gives a paper at the International Astronautical Congress on such a contribution.

### Nomination and Selection

The Napolitano Award will be announced each year by the IAF Space Education and Outreach Committee. Anybody wishing to apply should send the following information to the IAF Secretariat before the published deadline:

- Full text of the paper to be presented at the IAC 2020
- Curriculum vitae
- The applicant contribution should be clearly identified if the paper is co-authored as the paper must represent the applicant's work and not just part of a group effort.

### Napolitano Award Event

The Napolitano Award winner will be announced during the IAC 2020 Closing Ceremony.

For more information please visit [iafastro.org](http://iafastro.org) or contact [award@iafastro.org](mailto:award@iafastro.org).

Looking forward to your applications!



## IAC 2020

## IAF Connecting @ll Space People

The 71<sup>st</sup> International Astronautical Congress, IAC 2020, will be held as a Cyberspace Edition and will be free of charge for the entire global community. In these challenging times of the COVID-19 pandemic, the role of the Federation within the space community has become more important than ever. The IAC 2020 will, once again, be the place for people to connect: virtually and for free, the space community will embrace resilience.





**#CYBERSPACEIAC2020** will be hosted on the professional vFairs platform. This interactive platform built specifically for virtual events, offers several features and will allow all IAC delegates to:

- follow the live Plenary Events, IAF Global Networking Forum Session and Special Sessions in a dedicated virtual auditorium
- to browse the comprehensive Technical Programme with numerous pre-recorded Technical Video Presentations
- to visit the virtual exhibition and interact with all the exhibitors
- to participate in a dedicated Networking Session for the Next Generation

Sydney Time	19:00	20:00	21:00	22:00	23:00	00:00	01:00	02:00	03:00
Beijing Time	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	01:00
Paris Time	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
Washington Time	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00
Los Angeles Time	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00

Tuesday 6 Oct	IPC Steering Group	TAC Meeting	IAF Committees (3 parallel streams max)
Wednesday 7 Oct	IAF Administrative Committees	IAF Committees (3 parallel streams max)	IAF Administrative Committees
Thursday 8 Oct	IAF Administrative Committees	Honours and Awards Cmt.	IAF AC
Friday 9 Oct	IAF Administrative Committees	IAF Finance Committee	IAF Committees (2 parallel streams max)
Saturday 10 Oct	IAF Administrative Committees	IAF Bureau	
Sunday 11 Oct	Live Session	IPMC Young Professionals Workshop	IPMC Workshop Online Technical Gallery (accessible 24 hours)

Monday 12 Oct OPENING/ AGENCY DAY	Live Sessions											
	Introduction	Opening Ceremony	Announcements	PE (HoA)	Press Conference	Announcements	Special Session - Response of the Space Community to the COVID-19 pandemic	IAF GNF - DLR Session TBD	Announcements	HLL - The Chang'e 4 Mission Leaders	Recap Session	
Technical Sessions Online Gallery (accessible 24 hours from Monday 12 October, 14:40 Paris Time to Wednesday 14 October, 16:30 Paris Time)												
Virtual Exhibition (accessible 24 hours from Monday 12 October, 14:40 Paris Time to Wednesday 14 October, 16:30 Paris Time)												
Tuesday 13 Oct INDUSTRY DAY	Introduction	IAF Excellence in Industry Award	IAF GNF - ISS Commercialization and Future Industry Innovation in Low Earth	Announcements	PE - Small and Medium Sized Companies - Strategies for Survival and Recovery in the Age of	Announcements	IAF GNF - The Artemis Program	IAF GNF - Lockheed Martin TBD	Networking Session - Inspiration and Innovation: Public/Private	Announcements	HLL - MEV 1: The World's First Commercial On-Orbit	Recap Session
	Technical Sessions Online Gallery (accessible 24 hours from Monday 12 October, 14:40 Paris Time to Wednesday 14 October, 16:30 Paris Time)											
Virtual Exhibition (accessible 24 hours from Monday 12 October, 14:40 Paris Time to Wednesday 14 October, 16:30 Paris Time)												
Wednesday 14 Oct DIVERSITY/ OUTREACH DAY	Introduction	IAF 3G Diversity Award	Special Session	Announcements	PE - Early 2020s - Launch of Worldwide Missions to Mars	Announcements	IAF GNF - Astronauts Panel	IAF Mentoring Platform	Announcements	Closing Ceremony		
	Technical Sessions Online Gallery (accessible 24 hours from Monday 12 October, 14:40 Paris Time to Wednesday 14 October, 16:30 Paris Time)											
Virtual Exhibition (accessible 24 hours from Monday 12 October, 14:40 Paris Time to Wednesday 14 October, 16:30 Paris Time)												
Thursday 15 October	IAF General Assembly											

## IAC 2020 – Sponsors

### Anchor Sponsor



### Platinum Sponsor



### Silver Sponsors



### Sponsors



### Media Partners



Give your organization the opportunity to get an unprecedented online visibility!

We offer a wide range of innovative and exciting sponsorship opportunities suitable for this unique virtual event, allowing you to display your brand before, during and after the event!

For more information about our sponsorship opportunities we invite you to have a close look at the [IAC 2020 – The CyberSpace Edition Sponsorship Kit](#).



## IAC 2020 – Exhibitors





## IAF SPRING MEETINGS 2021

As each year, the IAF is pleased to invite you to its Spring Meetings taking place in Paris, France where the IAF community will get together for three days, from **23 – 25 March 2021** in New CAP Conference Centre.





Organizer:



Host:



**GLEX 2021**  
GLOBAL SPACE EXPLORATION  
CONFERENCE



**14 - 18 JUNE 2021**  
**St. Petersburg, Russia**

[www.glex2021.org](http://www.glex2021.org)

## IAF GLEX 2021 – St. Petersburg, Russia

**#GLEX2021**

**G**LEX 2021 is co-organized by the IAF and IAF Member ROSCOSMOS. It will bring together leaders and decision-makers within the science and human exploration community - engineers, scientists, entrepreneurs, educators, agency representatives and policy makers. The leaders in the field will converge in the beautiful city of St. Petersburg to discuss recent results, current challenges and innovative solutions and it will contain several opportunities to learn about how space exploration investments provide benefits as well as discuss how those benefits can be increased through thoughtful planning and cooperation.

[Visit website for more info](http://www.glex2021.org)







ORGANIZED BY:



HOSTED BY:



MOHAMMED BIN RASHID SPACE CENTRE

**72<sup>nd</sup> INTERNATIONAL  
ASTRONAUTICAL CONGRESS**

**25-29 October 2021 | Dubai**

Inspire, Innovate & Discover  
for the Benefit of Humankind

[IAC2021.ORG](http://IAC2021.ORG)






## IAC 2021 – Dubai, United Arab Emirates

#IAC2021

On Wednesday 3 June 2020, an extraordinary session of the Bureau of the International Astronautical Federation (IAF) was chaired by Pascale Ehrenfreund, IAF President. Following the COVID-19 pandemic and subsequent lockdown, the IAF Bureau reviewed and approved the updated calendar of the forthcoming editions of the International Astronautical Congress (IAC). The IAC 2021 will take place on **25 - 29 OCTOBER 2021** in **Dubai, United Arab Emirates** with the following theme: **Inspire, Innovate & Discover for the Benefit of Humankind**

For the very first time, the IAC will open its doors to the global space community in the United Arab Emirates, the first Arab country to host the IAC since its establishment in 1950. This IAC will be making a contribution to humanity and to science by strengthening and enhancing cooperation between all countries in the space sector.

Stay tuned to find out how you can get involved!



Organized by:



Hosted by:



Norsk Romsenter  
Norwegian Space Agency

[www.GLOC2022.org](http://www.GLOC2022.org)




**GLOC 2022**  
IAF GLOBAL SPACE  
CONFERENCE ON  
CLIMATE CHANGE

**31 MAY - 2 JUNE 2022 | OSLO, NORWAY**



## IAF GLOC 2022 – 31 May - 2 June, Oslo, Norway

#GLOC2022

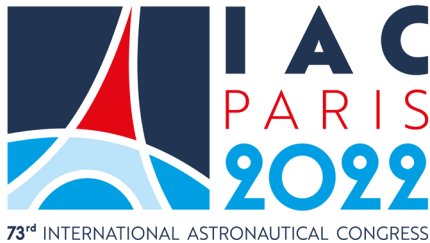
Following its mission to promote international development and share knowledge, the IAF and its member the Norwegian Space Agency (NOSA) are to organize the 2022 Global Space Conference on Climate Change (GLOC 2022). GLOC 2022 will contribute to the global efforts to better understand and battle climate change through the use of space-based services and





applications. First conference of its kind, GLOC 2022 is defined to encouraging the sharing of programmatic, technical and policy information, as well as collaborative solutions, challenges, lessons learnt, and paths forward among all nations.

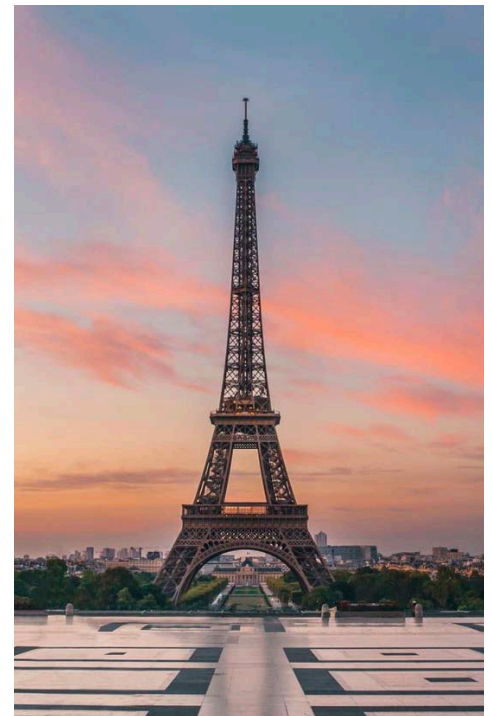
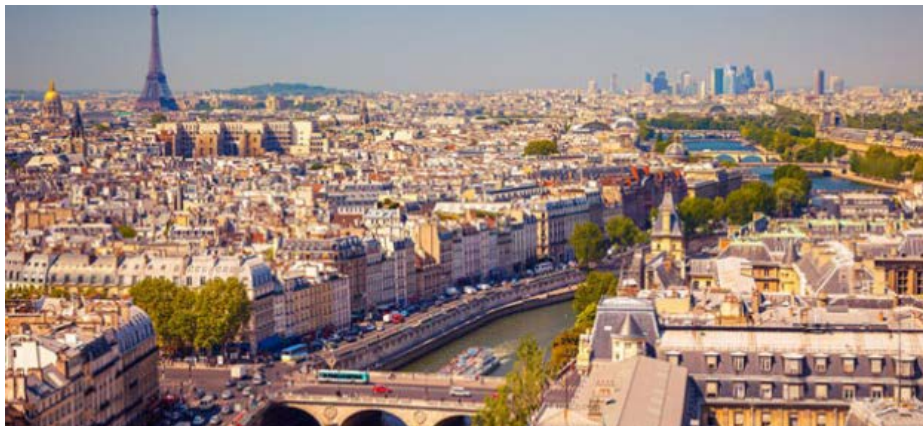
[Visit website for more info](#)



**IAC 2022**  
**18 - 22 SEPTEMBER 2022,**  
**Paris, France**  
**#IAC2022**

*Space for @ll*

The IAC is coming back to Paris for the fourth time to reach beyond the space community and bringing together all communities to offer great opportunities for networking and forging new contacts and potential partnerships. Exceptionally, the IAC 2022 will be from Sunday till Thursday.



**IAC 2023**  
**25 - 29 SEPTEMBER 2023, Baku, Azerbaijan**  
**#IAC2023**



**Global Challenges and Opportunities: Give Space  
A Chance**

The IAC 2023 in Azerbaijan will make a significant contribution to the closer ties with foreign space agencies, companies and organizations, to the development of human capital.



## CELEBRATION OF IAF AWARDEES

### IAF World Space Award

The IAF World Space Award is presented for an outstanding contribution or contributions in space science, space technology, space medicine, space law or space management of exceptional impact to the world's progress in astronautics.

The recipients of this year's award are the Chang'e 4 Mission Leaders WU Weiren, YU Dengyun, SUN Zezhou.

*"For Making an Outstanding Contribution to Space Exploration and Technology in their achievement to soft land on the far side of the Moon for the first time in history of humankind and successfully sustain relay communication between the far side of the Moon and the Earth".*



**WU Weiren**

Designer-in-Chief,  
China's Lunar Exploration Program,  
China



**SUN Zezhou**

Designer-in-Chief of probe system,  
Chang'e-4 Program,  
China



**YU Dengyun**

Deputy Designer-in-Chief,  
China's Lunar Exploration Program,  
China

### Allan D. Emil Memorial Award

The Allan D. Emil Memorial Award is one of the most prestigious IAF awards. Since 1977, the Allan D. Emil Memorial Award is presented annually for an outstanding contribution to space science, space technology, space medicine or space law. This contribution either involved the participation of more than one nation or furthered the possibility of greater international cooperation in astronautics.

The recipient of this year's award is K. Sivan.



**K Sivan**

Chairman,  
Indian Space Research Organisation (ISRO),  
India

*"Who has strongly contributed to the development of the Indian Space Programme, fostering international cooperation and inspiring emerging space agencies in continuing with their efforts".*



## IAF Hall of Fame

The IAF Hall of Fame is intended to create a standing forum of personalities that have contributed substantially to the progress of space science, technology, and space benefits to humankind.

The recipients of this year's award are Tomifumi Godai, Elizabeth Kordyum, Meng Zhizhong, Yu Menglun.



### Tomifumi Godai

Former President, International Astronautical Federation (IAF),  
Former Senior Vice President of National Space Development Agency of Japan (NASDA),  
Japan

*"As one of the leaders of Japan's space program, Dr. Godai played a fundamental role in launch vehicle research and development beginning with Japan's early sounding rockets and continuing up to the H-II launcher. Throughout his long and very distinguished career Tomifumi Godai has dedicated himself to the advancement of our space profession both in Japan and internationally."*



### Elizabeth Kordyum

Head of the Department of Cell Biology and Anatomy of the Institute of Botany,  
National Academy of Sciences of Ukraine,  
Ukraine

*"For outstanding contribution to the advancement of astronautics in the field of space and gravitational biology, acquisition of fundamental knowledge on plant adaptation to microgravity and working the theoretical bases of space planting"*



### Yu Menglun

Engineer,  
China Academy of Launch Vehicle Technology (CALT),  
China

*"Mr. Yu Menglun has made significant and irreplaceable pioneering contributions to the design of Long March (LM) series launch vehicle trajectory and guidance scheme"*



### Meng Zhizhong

Chief senior technical adviser,  
Shanghai Academy of Space Flight Technology,  
China

*"Mr. Meng Zhizhong, a pioneer and leader in the field of meteorological satellite not only in China but also in the whole world, has made outstanding contributions to the development of polar-orbiting meteorological satellite in China and the rest of the world."*

## Frank J. Malina Astronautics Medal

Since 1986, the Frank J. Malina Astronautics Medal is presented annually to an educator who has demonstrated excellence in taking the fullest advantage of the resources available to them to promote the study of astronautics and related space sciences.

The recipient of this year's award is Peter Martinez.



### Peter Martinez

Executive Director,  
Secure World Foundation,  
South Africa

*"For his outstanding contributions to space education in South Africa and beyond as well as being an educator and promoter of the study of astronautics and space sciences in academic teaching as well as performing education, public, scientific and political outreach."*

## IAF Excellence in "3G" Diversity Award

The IAF Excellence in "3G" Diversity Award is intended to recognize IAF member organizations (industry, government, academia) worldwide for outstanding contributions to the fostering of "3G" (Geography, Generation, Gender) Diversity within the space sector.

The recipient of this year's award is European Space Agency (ESA).



*"For their commitment to create a modern and inclusive working environment and striving to enhance the innovative perspectives brought in by a diverse pool of talents".*



## IAF Excellence in Industry Award

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

The recipient of this year's award is Airbus Defence and Space.

# AIRBUS

*"For delivering world-beating space technology to customers around the world: from the 2400 space craft equipment, to the 18 satellites successfully placed in orbit".*



## 2020 IAF Young Space Leaders (YSL) Recognition Programme

These awards are issued to students and young professionals who are in the course of their academic or professional activities, and have helped promote astronautics by enhancing outreach opportunities, expanding knowledge of space among the general public or fostering deeper engagement within the international space community.



**Hiroki Akagi**

Deputy Director of JAXA Houston Office,  
Japan Aerospace Exploration Agency  
(JAXA),  
Japan



**Chiara Cocchiara**

System Operations Engineer working as  
Staff member,  
EUMETSAT, the European Organization  
for the Exploitation of Meteorological  
Satellites,  
Italy





**Emmanuelle David**

Executive Manager,  
EPFL Space Center,  
Switzerland



**Luis Ferreira**

Strategist,  
Airbus Defence and Space,  
Portugal



**Arnau Pons**

Chair,  
Space Generation Advisory Council in  
support of the United Nations, Program  
on Space Applications,  
Spain



**Bruno Sarli**

Aerospace Engineer, contractor,  
NASA Goddard Space Flight Center,  
Brazil

## IAF Distinguished Service Award 2020 Winners

The IAF Distinguished Service Award is intended to reward active volunteers for their distinguished service to the activities of the Federation and we are very pleased to announce the award recipients of the 2020 IAF Distinguished Service Award:



**Anna Guerman**

Associate Professor,  
Dept. of Aerospace Engineering,  
University of Beira Interior,  
Portugal

*"A Strong Cross-Pollinator of Astrodynamics in IAF and IAA"*



**Kathleen Howell**

Distinguished Professor of Aeronautics and Astronautics,  
Purdue University,  
United States

*"Outstanding Competence and Continuous Dedication to the IAF Astrodynamics Committee and Astrodynamics Symposium for over Twenty Years"*



**Tom Krimigis**

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

*"For his outstanding services to the Federation as an active IPC member and co-chair as part of the symposium on small satellite missions, for over 25 years"*



## Ali Nasseri

Program Manager and Consultant,  
LDC Solutions,  
Canada

*"Mr. Ali Nasseri has actively engaged with the activities of the IAF from its committees to the IACs and has had numerous contributions to the development of the next generation of space leaders; he is truly a role model for young professionals who wish to get involved within the IAF and contribute to the space community."*



## Robie Samanta Roy

Vice President for Technology and Innovation,  
Lockheed Martin Space Systems Company,  
United States

*"Recognizing steadfast commitment to excellence in building Industry Day to a premier highlight of the IAC, fostering diversity and cooperation across IRC leaders and IAF member organizations"*



## Rainer Sandau

Director Satellites and Space Applications,  
International Academy of Astronautics (IAA),  
Germany

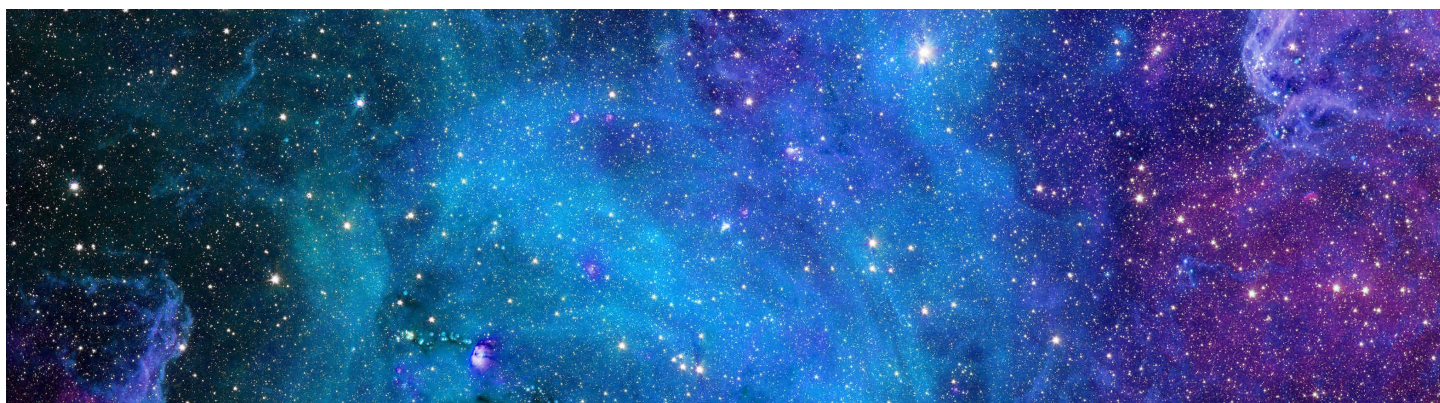
*"For his outstanding services to the Federation as an active IPC member, co-coordinator, and co-chair as part of the symposium on small satellite missions for over 25 years being one of the early advocates and initial supporters of the topic within the IAC and IAF"*



## Gunter Schreier

Deputy director of the German Remote Sensing Data Center (DFD),  
German Aerospace Center (DLR),  
Germany

*"For outstanding services to the Federation as Chairmen of the Earth Observation Committee"*





## IAF Entrepreneurship & Investment Committee

It was another year of upward trajectory in 2019 as EIC members continued to take action to propel space pursuits along. Serving the space industry's up-and-coming generation, the EIC-YP efforts included the **Space is Business Paper Writing Competition** with the winning paper for the 2019 SIB competition presented at IAC 2019 in DC: Scoubeau, M., Iranmanesh, M., Gontier, C., & Caprace, D. (2019). Towards a scalable and financially viable test platform for microgravity research.

EIC members and practitioners took charge of a multitude of interesting and compelling efforts:

- Space advisor, investor and entrepreneur **Joerg Kreisel** (CEO, JKIC) exited two space startups in 2019 of the 10 total in his portfolio and is currently in midst of funding roadshow as the chairman of **iBOSS GmbH** ([www.iboss.space](http://www.iboss.space)) which has a fully modular scalable standard space system coupling kit iSSI (intelligent Space System Interface) that was shipped as a lab model to multiple organizations around the globe for testing. Joerg was also awarded Associate Fellow of the **AIAA** last summer.
- **Juergen Drescher** played a role in the **Union of the German Industry's** workshop on the space economy and the question of spaceports.
- **Brad Cheetham** of **Advance Space** received a \$13M award to fly a 12U cubesat to the moon in Dec 2020.
- **Gary Martin** reported that the one year old **Luxembourg Space Agency** saw immense activity in its first year with a space resources class, Mining Space Summit, and an **ESA ISRU** workshop (a new Master's program at the university started in September) and many new space companies have moved to Luxembourg.
- **Jose Ocasio-Christian** shared that **Caelus Foundation** added new employees and that he presented a paper on space terminology in October. He also reported that the first China-US workshop was held in China, with US Dept. of State and PLC in attendance. On the minds of many was what the possible LEO markets could be.
- **Luigi Scatteia** informed that **PWC** is reviewing private companies' business plans for specific exploration endeavors as well as working with ESA to review business plans for the partnership proposal initiative. He launched a new offer to support "non-space" companies to include space data in their businesses and announced a new publication on space trends and challenges, available for download and in print.
- **Dave Bearden** of the Office of Formulations says **NASA** is constructing the Earth Science missions, looking at large systems while NASA recognizes that new science capabilities represent businesses of the future.
- **Chuck Lauer** of **Rocketplane Global** shared that the \$2M Michigan launch initiative is funded and underway for spaceport licensing process for polar orbit, orbital access, and launching north over Lake Huron.
- **John Culton** stated that **University of Adelaide** is the home of a new "**Center for Sustainable Planetary and Space Resources**" where he serves as the director tasked with looking at the mining aspect value chain. To this end CSPSR signed an agreement with Space Tango with the aim of putting things on station, building out up to 6 new labs.
- **Ian Christensen** of Secure World Foundation continues the work began in 2016 on the Hague international space resources governance group developing policy and is soon announcing their 20 legal building blocks. Additionally Ian is working on CONFERS, (consortium for the execution of rendezvous and support operations), published two papers: best practices and principles, and first standard for on-orbit servicing. He's also working with Caelus and Chinese Society of Astronautics on space activities.
- **Misuzu Onuki** and Space Access Corp. established the New Space Global Strategic Laboratory last May with Board members including a space senator, and 80+ member companies, 30 advisors. NSGSL has three functions: convenes monthly committee meetings of approx. 100; as a Think Tank undertakes policy studies; and serves as matchmaker between new space and traditional space companies.
- **Lisa La Bonte** of Dubai's **Arab Youth Venture Foundation** celebrated the 13 year anniversary as the region's pioneering NGO for space education and programming and architected the inaugural U.N. Assoc. UAE's SDGs Solutions Challenge. Members of the UAE NASA Research Fellows Alumni Org. continued their annual Schools Roadshow. She also shared that one of AYVF's historic NASA interns, a 24 year old Emirati female, was awarded her Ph.D. in Perovskite Photovoltaics from the University of Cambridge.
- **Olga Stelmakh-Drescher** was re-elected to the Council for Experimental Technology whose aim is the conceptualization of space sustainability and a consortium has been created to make this operational.
- **Liz Seward – Airbus Defense and Space** is working on the internally based Airbus Biz (sic) Lab giving groups or companies (50% within Airbus, 50% outside Airbus) EUR50K to start a business. She added that ADS sponsors Seraphim space camps two to three times a year.
- **Michal Kunes** and **ESA Praha** celebrated the third anniversary of their space incubator. Their portfolio of 21 start-ups has lead to nine that are operational and eight others have received external investment totaling approx. 9M EUR. The incubator hosted students and start-ups in November.
- **Manny Shar** shared that **Bryce** has been undertaking projects for the UK Space Agency, trying to forecast demand, and recommending government contributions.

# NEWS!



## Azercosmos Signs New Partnership Agreements

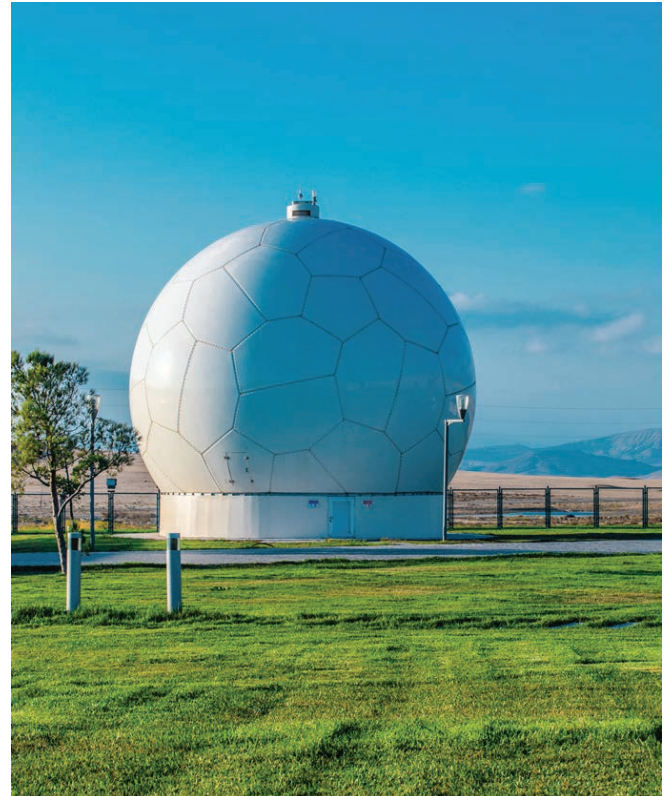
Despite the current COVID-19 pandemic, Azercosmos has signed a number of new partnership agreements this year, particularly with GORSE & Co of France, M-Three Sat of Italy, Zebrafish of Austria, Digisat of Ghana, Softsol Mediatech PVT of India, TheAngle and Horizonsat of the UAE, Space Engineering Company of Kenya, etc. According to the agreements, Azercosmos will deliver video and data services via Azerspace-1 and Azerspace-2 telecommunication satellites to its customers.

Another important agreement was signed with a Japanese ground segment service provider Infostellar. This agreement enables access to Infostellar customers' satellite constellations from the Azercosmos Direct Receiving Station (DRS). Infostellar's CEO, Naomi Kurahara, said, "It is important to have a ground station in the right location for delivering satellite remote sensing images at the right time. Azercosmos' ground station is located in a unique position, which with our platform, will allow satellite operators to design and deploy a strategic ground station network for their satellite data intelligence service. We are very happy to improve the coverage of our platform together with Azercosmos' professional, reliable ground station team."



Furthermore, Azercosmos became the winner of the Establishment of product forecasting system using methods of remote sensing tender in Tajikistan. As a result, Azercosmos will provide consulting services on monitoring of agricultural lands and forecasting productivity using the images acquired via high-resolution Earth observation satellite Azersky.

These agreements expand and diversify partnerships of Azercosmos and contribute to strengthening the position of Azerbaijan as a space hub of the region.



## Azercosmos Has Launched Webinars for Schoolchildren and Students

Due to the COVID-19 pandemic, schools and universities in Azerbaijan, like in most countries across the globe, were temporarily shut down to prevent the further spread of the coronavirus. In order to make sure that students spend their time in quarantine productively, Azercosmos, under the initiative "Stay home, follow the science and education!" has launched webinars, which cover space-related and other popular topics.

During the webinars, Azercosmos' employees gave lectures for students of technical universities and public schools as well as the public on various topics such as the history of astronautics, humans in space, orbits and satellites, satellites and their technical characteristics, behavioral economics, AI, robotics, big data, etc.

Azercosmos plans to turn these webinars into a series and conduct them on continuous basis. This way, Azercosmos will further contribute to the development of human capital in the space sector of the country.



**UAEU**

جامعة الإمارات العربية المتحدة  
United Arab Emirates University



## The National Space Science and Technology Center (NSSTC)

The National Space Science and Technology Center (NSSTC) was established in 2016 in Al Ain City, which is a city in the eastern region of the emirate of Abu Dhabi, the capital of the United Arab Emirates UAE. NSSTC has been established jointly by UAE University, the UAE Space Agency and the Telecommunications Regulatory Authority (ICT-Fund). The center has been established with the intension to make it the leading center of Excellency in space sector in the UAE to serve the UAE's national strategic innovation agenda in the space sector by providing excellent opportunity for the next generation of space scientists and space engineers to explore various scientific arenas in order to achieve international standards. The Center is focusing its research in six research areas. These areas include space resource utilization, space communication and precision positioning, on-board real time systems, space and atmospheric science, space situational awareness and ground station, and propulsion and combustion.



Figure 1: 813 satellite, artist perspective

One of the main center's projects is the development of the 813 satellite, a Hyperspectral Satellite for remote sensing. The project is coupled with a supporting group of scientists to perform high quality hyperspectral data processing chain at different levels.

Another promising project that has been developed in the center and expected to launch in 2021 is the GNSS RF signaling technology demonstrator satellite. A 6-U CubeSat that will be used to experiment communication and global navigation augmentation signaling techniques in a low earth orbit.



Figure 2: GNSSaS, artist perspective

In order to support the development of these and other future planned satellite projects, the center is working on the development of an in orbit attitude and orbital control systems (AOCS) as well as a, rad-hard, general purpose, command and data handling (CDHS) system. The center is also in the process of constructing a unique space systems' assembly, integration, and testing (AIT) facility. This world-class facility is designed and being built with top standards to accommodate the AIT activities for NSSTC's projects. Upon it's completion, this facility will be capable of hosting the development of multiple satellites each of size up to 200 kg, emphasizing the world's satellite miniaturization movement. In addition to the AIT facility, the center is currently developing a Ground Station and Mission Control with large antenna for satellite's communication.

NSSTC has established scientific research groups focusing on planetary and mars atmosphere, based around work in collaboration with the Emirates Mars Mission EMM (Hope probe) which will be launched in 2020, arriving at Mars in early 2021. This research focuses on atmospheric retrievals using thermal infrared observations; data assimilation of EMM thermal infrared and visible observations into a Mars general circulation model (GCM); studying the Martian dust cycle using GCMs; and studying processes linking the lower atmosphere and surface of Mars. The groups are also researching in Earth observation and surface processes, Jupiter's atmosphere, surface and subsurface processes on Mars, high-performance computing, radiative transfer, and other robotic exploration of the Solar System. Another study group is focusing on the land use land cover (LULC) of the UAE which has tremendously changed in the past few decades because of the growth in economy and population. This study aims to develop a nationally consistent multi-temporal land cover and land use change database at a high spatial and temporal resolution which can make ecological monitoring easy and reliable to facilitate an understanding of the indicators of ecological changes due to extreme urbanization and changing climate.

## AIRBUS

### Unlocking the secrets of the sun

The European Space Agency's Solar Orbiter, built by Airbus, has started its 21-month journey to our closest star.

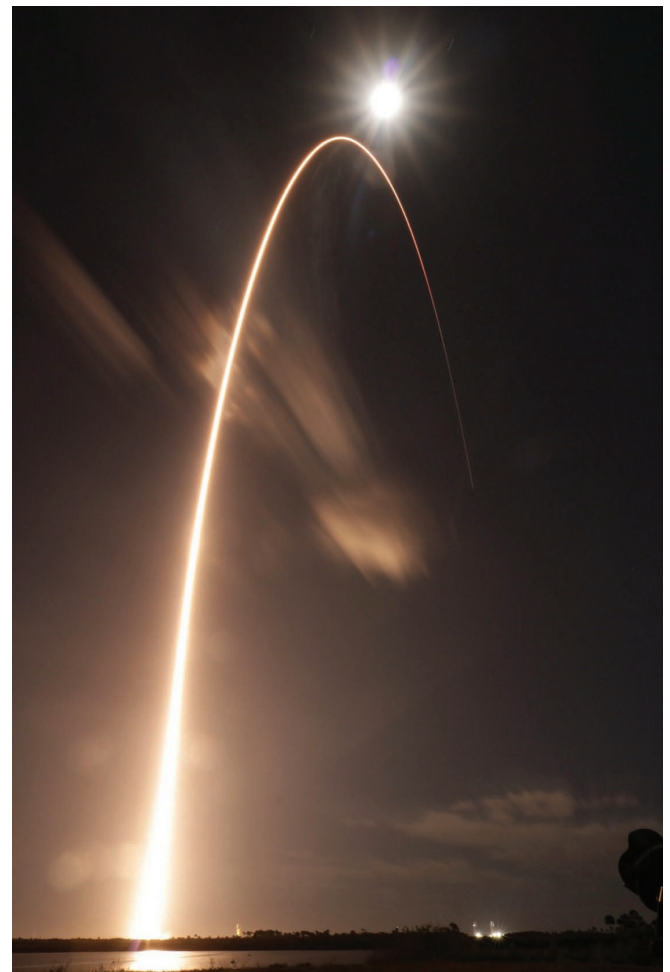
Launched last month, Solar Orbiter will help us learn more about how the Sun generates its life-giving energy and how to protect our way of life by understanding how its electrical and magnetic influence affects the technology we rely on.

"Solar Orbiter has been one of the most challenging and exciting missions we have ever designed and built – indeed, when the project was first kicked off many scientists believed it to be mission impossible," says Philippe Pham, Airbus' Head of Earth Observation, Navigation & Science

The spacecraft has 10 in-situ and remote sensing instruments which will create a unique cause-and-effect picture of how the Sun works as a system.

"Our team has overcome immense heat, vast distances and conflicting instrument needs so that everything on Solar Orbiter can work together to deliver incredible new knowledge – all we have to do now is wait for the spacecraft to reach its destination, in autumn 2021!" adds Philippe.

Solar Orbiter is expected to have a mission lifetime of up to 10 years.



### ULA's Vulcan Centaur Rocket on Track for First Flight in 2021

With more than a century of combined space launch heritage, ULA is the world's most experienced and reliable launch provider and has successfully delivered 137 satellites to orbit with its Atlas and Delta launch vehicle families, delivering perfect 100% mission success.

ULA's next generation launch vehicle, Vulcan Centaur, is on track for a first flight in 2021. An evolution of the flight proven, highly successful Atlas and Delta vehicles, Vulcan introduces a balance of new technologies and innovative features transforming the future of space access. Vulcan will be more



than 200 feet tall and deliver as much as 3.8 million pounds of thrust. That performance enables a single-core Vulcan to launch the largest payloads, including new multi-spacecraft launch capability.

In ULA's factory in Decatur, Alabama, the qualification booster was completed and is currently undergoing testing, while concurrently the first flight vehicle is being manufactured in advance of shipment to the Cape. At the launch site at Cape Canaveral in Florida, the structure for the new Mobile Launch Platform (MLP) from which the next-generation Vulcan rockets will lift off has been built. ULA is significantly updating and investing in its launch facilities to be more capable and flexible, including transforming the SLC-41 launch pad into a dual-use pad that will seamlessly handle both Atlas V and Vulcan rockets simultaneously.



Astroscale has been selected as the commercial partner for Phase I of the Japan Aerospace Exploration Agency's (JAXA) first debris removal project, a groundbreaking step by Japan to commercialize space debris removal. The JAXA Commercial Removal of Debris Demonstration project (CRD2) consists of two mission phases to achieve one of the world's first debris removal missions of a large object, the first of which has been awarded to Astroscale. This first phase will be demonstrated by the end of the Japan Fiscal Year 2022 and will focus on data acquisition on an upper stage Japanese rocket body. Astroscale will be responsible for the manufacturing, launch and operations of the satellite that will characterize the rocket body, acquiring and delivering movement observational data to better understand the debris environment. The CRD2 project will further cement Japan's leadership in developing the technology and policies that will drive this growing market.



## An Entrepreneurial Endeavor Began at the IAC

The morning of October 5<sup>th</sup>, 2018 was sunny in Bremen, Germany. The smells of Megan's freshly baked bread, and of Nancy's Starbucks coffee were not the only things in the air. On top of it lay the excitement of being in a brand new city, the perfect environment for a brand new adventure. That Saturday witnessed two women with a lot of determination drafting a brand new plan focusing on research, education, and non-traditional business to disrupt the Space Industry with positive and necessary changes.

The IAC is a perfect example of multi-cultural community dedicated to explore all technical and theoretical possibilities when it comes to the final frontier. At the same time we also realized that the space community is growing from a male dominated community to a more balanced and equal one, in which more woman, LGBT, new (non-space) actors and the public can get involved.

What started as a brainstorming session while exploring the cobble-stone streets of downtown Bremen grew into something more. We created Disrupting Space, to tackle and change the status quo. Our idea is to bring outsiders and non-space people together with the space community to learn from each other and grow for the benefit of all. We plan to organize and execute research missions and to implement educational initiatives that would bring space to the people, especially international youth and women, and inspire them to get involved with the space community. We believe that by facilitating cross-discipline and cross-industry international collaboration we can advance space research, technology and education. We want to deliver a refreshingly disruptive experience to the space community and to all.

In 2019 we made a strong start towards these goals. In addition to attending 9 of conferences, we became members of the IAF, and were actively involved in IAC 2019. Between running a GNF session on Women in the Space Industry, presenting papers, sitting on committees, and being part of the STEAMED for Space booth, we made sure to network. Particularly reaching out to the young men and women just joining the industry.

We are starting 2020 by launching exciting new mentorship program. Aimed at the newest members of the community, the

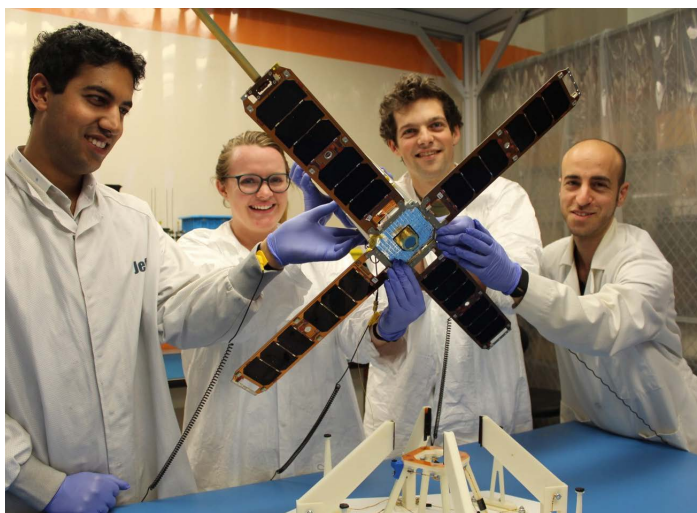
workforce of the future, to foster cross-discipline and cross-industry international collaboration. If you are interested in becoming a mentor, or know someone who could benefit from the program please let us know!

Check out [DisruptingSpace.com](http://DisruptingSpace.com) for all our exciting updates!

Megan Kane & Nancy C. Wolfson

Email: [disruptingspace@gmail.com](mailto:disruptingspace@gmail.com).

LinkedIn: [linkedin.com/company/disrupting-space](https://www.linkedin.com/company/disrupting-space)



USC Astronautics students with the Space Engineering Research Center's third Cubesat. PHOTO/DAVID BARNHART.

The Astronautical Engineering department in the Viterbi School of Engineering at the University of Southern California (USC) combines coursework focused on theoretical fundamentals and hands-on experience. The latter includes solid-propellant and liquid-propellant rocketry and satellite technology.

The Viterbi School's Space Engineering Research Center (SERC) delivered its third Cubesat in 2019, now scheduled for launch in 2020. The satellite will validate a new payload and test a novel attitude control system. At SERC, astronautics faculty and staff direct space system development with undergraduate and graduate students playing critically important roles. SERC continues to lead in development of space systems training and curriculum insertion through hands-on activities for USC students.



## Australian Space Agency partners with NASA on Moon to Mars

In September last year the Prime Minister of Australia Scott Morrison launched a new partnership on future space cooperation between the Australian Space Agency and NASA. This partnership includes an AU\$150 million investment by the Australian Government for Australian businesses and researchers to join NASA's inspirational plan to go forward to the Moon and then go on to Mars.

Australia's Moon to Mars initiative will support Australian businesses and researchers to access international space supply chains, lift space capability in Australia and support the growth of industries across Australia's economy through the development and application of space technologies.



L-R: NASA Deputy Administrator Jim Morhard; U.S. Secretary of Commerce Wilbur Ross; Australian Prime Minister Scott Morrison; Australian Space Agency Head Dr. Megan Clark AC. Photo Credit: NASA/Joel Kowsky.

The Australian Space Agency held public consultations across Australia in February and March 2020 to inform the objectives, program design and potential areas of investment of the Moon to Mars initiative that will develop Australia's space industry and inspire all Australians. This investment will be focused in Australia and is available over a five year period, with funding for the first two programs – a Supply Chain program and Demonstrator program – commencing in late 2020 and into early 2021.

This is an important step in boosting Australian space capabilities, particularly in Australia's small to medium businesses.



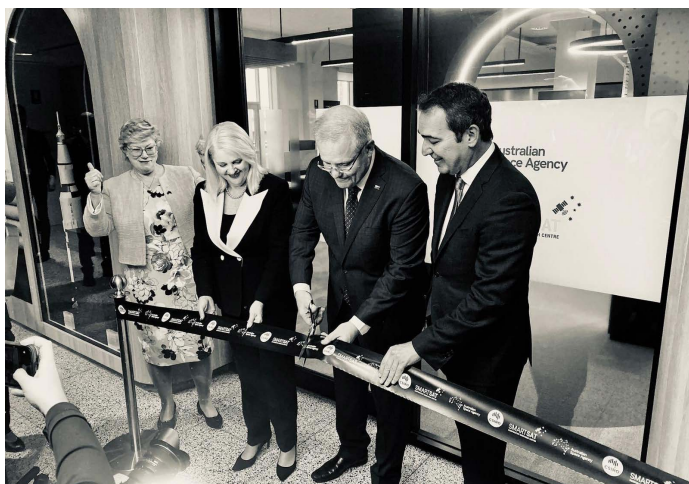
Read more about the Australian Space Agency's [Moon to Mars initiative](#). The Agency will highlight the initiative further through the IAF International Project/Programme Management Committee meetings.

## Australian Space Agency launches official headquarters

On 19 February, the Australian Space Agency's headquarters in Adelaide, South Australia was officially opened by the Prime Minister of Australia Scott Morrison and Federal Minister for Industry, Science and Technology Karen Andrews. From its headquarters, the Agency will work across Australia to grow and transform our space industry.

The headquarters will also host a national Mission Control and Australian Space Discovery Centre in early 2021. The Mission Control facilities will allow Australian businesses to command their space missions, and provide a viewing platform to allow visitors to see these missions being undertaken in real-time. The Australian Space Discovery Centre will be an interactive educational facility that provides science, technology, engineering and mathematics (STEM) education, engagement and inspiration for Australians. In doing so, it will inspire the Australian community and support the growth of Australia's space workforce.

The Adelaide HQ will ensure the Agency advances Australia's space industry and delivers on its mandate to be the front door for national and international engagement. The Agency's national reach is achieved through a range of activities, including through programs such as the Moon to Mars initiative, the Space Infrastructure Fund and International Space Investment initiative - all of which support investments across the nation.



L-R: Australian Space Agency Head Dr Megan Clark AC; Federal Minister for Industry, Science and Technology Karen Andrews; Australian Prime Minister Scott Morrison; South Australian Premier Steven Marshall.



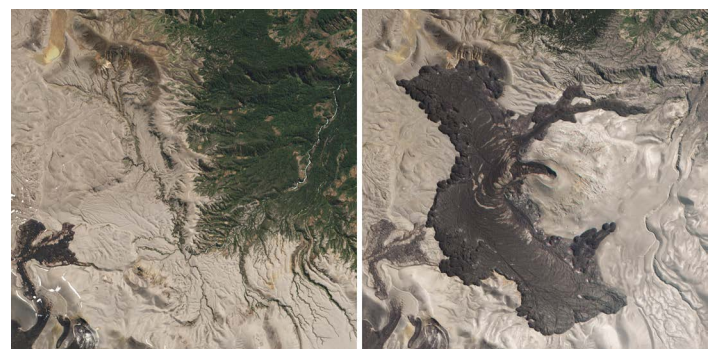
## Planet's RapidEye Constellation to be Retired in 2020

After an impressive 11 year run, Planet's RapidEye constellation is [retiring as of March of 2020](#). These satellites surpassed their mission and expectations—generating the largest global archive of five meter satellite imagery to date. In accordance with Planet's satellite operating license, we have chosen to retire the satellites proactively, staying committed to space exploration best practices and space debris regulations.

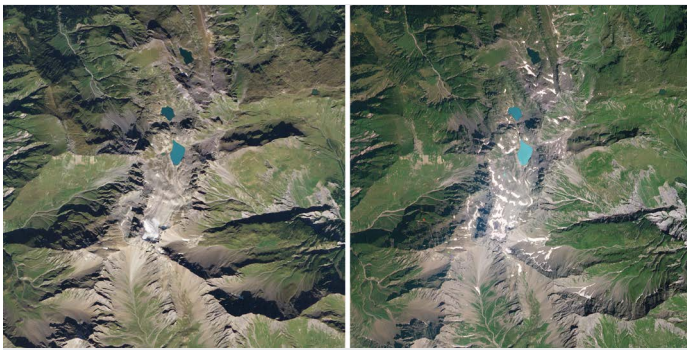
While there are no plans to build a second generation of RapidEye satellites, Planet forecasts that our [Next-Generation PlanetScope](#) product will meet, or exceed, RapidEye's historical coverage of Earth's landmass. We also will continue to invest in future iterations of Dove satellites, creating significant enhancements to our medium-resolution PlanetScope imagery.

RapidEye satellites will no longer collect imagery for commercial or noncommercial use, but Planet will remain the steward of RapidEye's vast [archive of impressive imagery](#), which Planet customers will be able to continue to leverage.

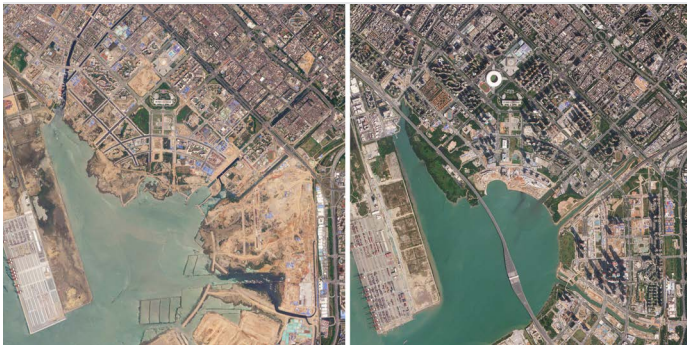
The RapidEye constellation proved its worth again and again, supporting a large number of international businesses and research and development projects over the last decade. RapidEye has been a notable contributor to Planet's mission of making change visible, accessible and actionable, and its impact on space exploration will always be remembered.



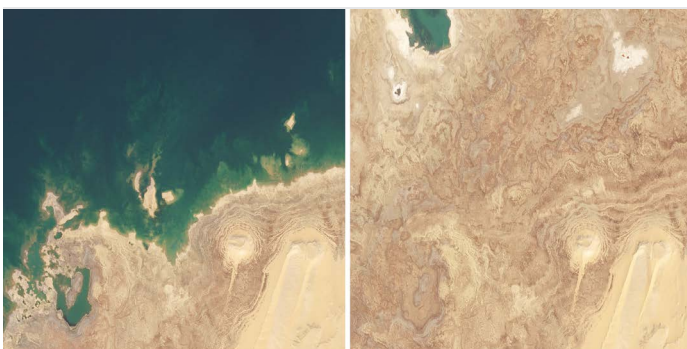
From June 2011 to April 2012, Puyehue-Cordón Caulle covered 16 square kilometers of the Andes in a lava flow about 30 meters thick. These RapidEye images show the area shortly before the eruption—on March 24, 2011 and eight years later on March 10, 2019. (c) 2011 and 2019, Planet Labs Inc. All Rights Reserved.



Over the course of a decade, Switzerland's Pizol Glacier wasted away, transforming from an active glacier into scattered snow fields. The imagery was captured on September 8, 2009 (left) and August 9, 2019 (right). (c) 2019, Planet Labs Inc. All Rights Reserved.



Shenzhen, in China's Pearl River Delta, grew tremendously during the life of the RapidEye constellation. This image pair, from May 1, 2009 and November 5, 2019, shows the transformation of the area around Qianhai Bay. (c) 2019, Planet Labs Inc. All Rights Reserved.



Since filling in the late 1990s, the Toshka Lakes in southern Egypt have fluctuated wildly due to changes in rainfall over the Nile River Watershed. These changes are visible in complex fossil shorelines in the dry lake-bed. These RapidEye images show the changes in one of the lakes from January 9, 2011 to February 28, 2019. (c) 2011 and 2019, Planet Labs Inc. All Rights Reserved.



From satellite communication and navigation to Earth imagery, satellite technology improves our daily life in numerous different ways. However, between service-providers and end-users there is still a severe gap nurtured by the lack of awareness of the specific needs of the relevant users' communities and, on the other side, on the benefits of the existing space-based services. This asymmetry could eventually generate a mismatch between the users' demand and the supply from the space sector.

[Eurisy](#), an association of space agencies established thirty years ago, works to bring end users' needs into the spotlight. This pioneering [user model](#) is gathering momentum nowadays. The exploitation of user-oriented space programmes such as Copernicus and Galileo, will enable Eurisy to play a key role in advising providers and policy makers, as well as in raising awareness to the general audience.

Through the release of the latest Eurisy [handbook](#) dedicated to satellites for cultural heritage, the beginning of the [satellites for sports](#) series and a set of [interviews](#) on the most recent initiative of its members, Eurisy aims at informing and inspiring its audience.

In the upcoming months, among other activities Eurisy will be involved in supporting Europe's contribution to the GEOSS. Finally, the upcoming [Copernicus Hackathon](#) will provide the next-generation of space entrepreneurs with the right tools so to reach the full potential of our digitalising society.

This is just a short overview of our major activities, to know more visit our website at [www.eurisy.org](http://www.eurisy.org) and get involved!



Beijing Interstellar Glory Space Technology co., Ltd. (i-Space), which is the first private enterprise in China capable of independently developing launch vehicle and successfully completing Hyperbola-1 Y1's high-precision launch missions to orbit the earth, plans to launch multiple satellites into space by Hyperbola-1 Y2 launch vehicle in June 2020. Hyperbola-1 Y2 launch vehicle is composed by three-stage solid propellant engine and one-stage liquid propellant attitude control engine, capability to SSO at 500km is 300kg,



which make Hyperbola-1 Y2 the strongest private launch vehicle in Asia at present.

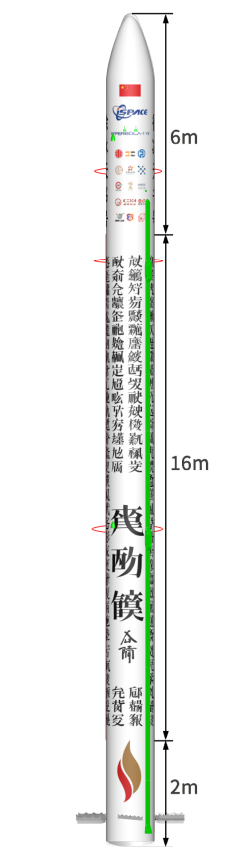
Via Hyperbola-1 Y2 launch mission, i-Space will cooperate with the international artist Xu Bing to create a crossover art work of launch vehicle, which will make the first space exhibition of art works in human history.

Hyperbola-1 Y2 launch mission will be named by Xu Bing, and carry 300kg payload to the SSO at 450km including a Rubik's cube, Xu Bing will carve his representative work "Square Word Calligraphy" on every surfaces of the Rubik's cube.



*Xu Bing's Rubik's cube*

At the same time, Xu will write excerpts from his "A Book from the Sky" on the surface of the Hyperbola-1 Y2 launch vehicle to realize his dream sending "A Book from the Sky" back to the sky, which can be also considered as a performance art work created by Xu.



## H-SPACE 2020 and IAC 2023

The 6<sup>th</sup> edition of the H-SPACE international space conference was held at the Budapest University of Technology and Economics on February 26–27, 2020, with a special focus on education of the next generation. The event was co-organized by the Hungarian Astronautical Society (MANT). Over 200 registered participants listened to presentations, sometimes in parallel sessions of science & technology and education & outreach. Just to mention a few topics from the diverse programme: space telecommunications, Earth observation, GNSS applications, space chemistry, and small satellites, including the two recently launched successful Hungarian PocketQubes. Also, there were around 20 posters on display during the conference. The abstract booklet can be accessed via the website [space.bme.hu](http://space.bme.hu).

During the H-SPACE 2020 opening ceremony, the president of MANT revealed that our Society, a member of IAF since 1959, submitted a letter of intent and is in the process of preparing a bid for hosting the 74<sup>th</sup> International Astronautical Congress (IAC) in Budapest in 2023. In this endeavour, we are supported by the Hungarian Ministry of Foreign Affairs and Trade. The last time the world's largest space congress visited Hungary was quite long ago, exactly 40 years earlier, in 1983. We hope to see you again in 2023!



## CEAS/3AF Aerospace Europe 2020 Conference

Despite the Corona virus alert which precluded all travels from China and gradually severely affected other countries like Italy,

the CEAS Aerospace Europe Conference 2020, 1st of its kind, organized by 3AF, could boast of more than 500 registered people on the eve of the event and around 350 papers. Held in Bordeaux, France, from 25 to 28 February, it featured the 3AF 3<sup>rd</sup> Greener Aviation Conference, the CEAS 7th Air & Space Conference and the 8th edition of Aircraft Noise and Emissions Reduction Symposium (ANERS) with the AIAA.

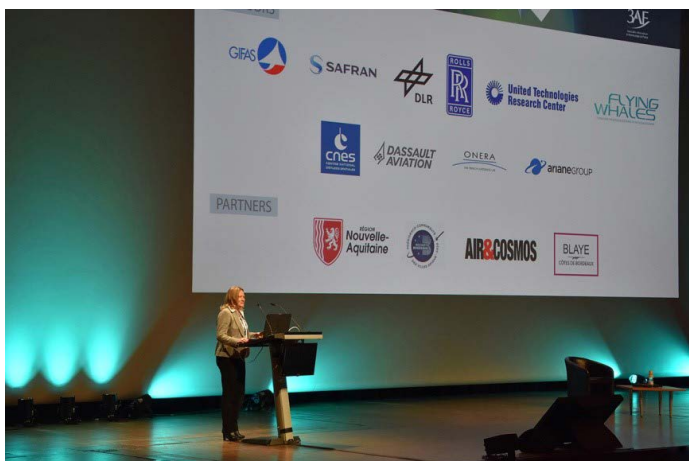
Meant to promote and exchange on Greener Aerospace Innovative Technologies and Operations for a human friendly environment, it was supported by AIAA, CEAS and 3AF.

To quote Dominique Nouailhas, Manager and Vice-President of the conference: "The concept of bringing together 3 European legacy conferences under the single umbrella of the Aerospace Europe Conference has proven to be extremely successful. High level keynotes and round-tables in addition to the strong programme of scientific contributions attracted significant international participation"

The 2<sup>nd</sup> CEAS Aerospace Europe Conference will be held in Warsaw, Poland, last week of September 2021.



From left to right: Dominique Nouailhas – 3AF, Alain Rousset President, Nouvelle Aquitaine region, Jean-Yves Le Gall CNES President and IAF Past-President



## GRBAlpha satellite mission update

Since winning the second place at the Competition for the Free Launch of 1U CubeSat on the First Commercial Mission of GK Launch Services in October 2019, the GRBAlpha satellite mission team has had a very busy time. The Faculty of Aeronautics of the Technical University of Košice is undertaking the GRBAlpha mission, which is focused on the detection of Gamma Ray Bursts occurring after the gravitation wave runs thru the Earth's ionosphere. Some of the team members working on our team were also part of the project group for the First Slovak Satellite, skCUBE, as well as most of the satellite subsystems. The project is led by Jakub Kapuš, who also led skCUBE. Until today, we have held several technical meetings, a countless number of teleconferences, we have also recently received our callsign OM9KSI and the Dean of the Faculty of Aeronautics, Assoc. prof. Stanislav Szabo, PhD., has signed a launch services agreement with GK Launch Services. We are continuing to work on the satellite assembly and environmental testing to be ready for our project deadline.







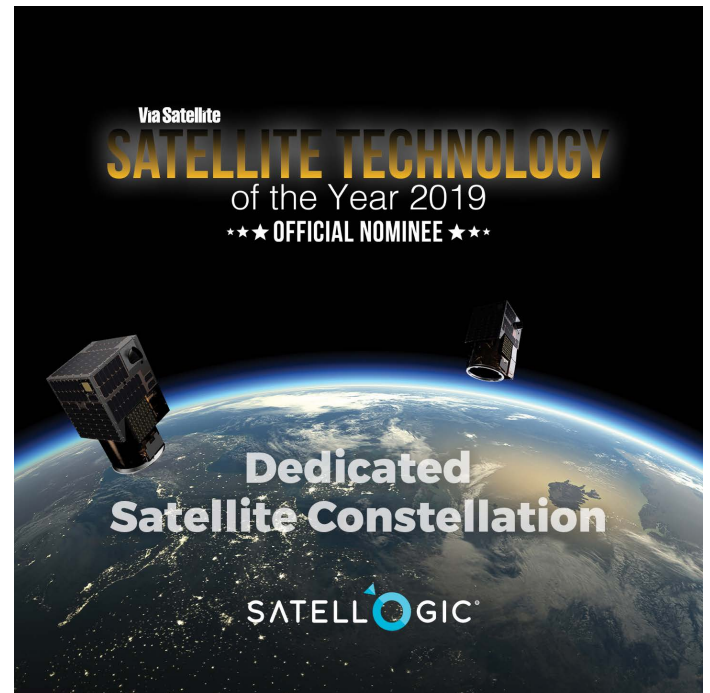
(photo credit: IAF, Spacemanic, Faculty of Aeronautics)



## SATELLOGIC®

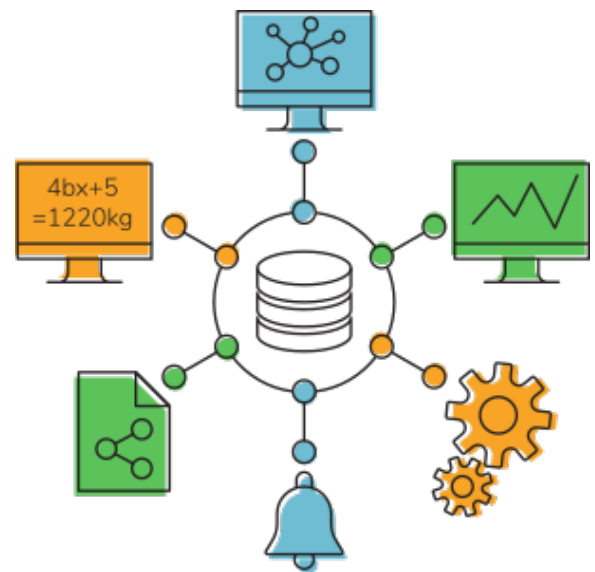
Satellogic's Dedicated Satellite Constellation (DSC) has been [nominated for Via Satellite's "2019 Satellite Technology of the Year" Award](#). The finalist candidate group of companies/products were chosen based on innovation, benefit to the industry, and overall disruption to the satellite landscape, and the winner was determined by a combination of the Via Satellite editorial team and votes that come directly from industry. This is another validation of the value that DSC is providing to customers, as well as the ambitious technical challenge the company set for itself to develop the first Earth Observation platform with the power to remap the entire planet weekly at 1-meter resolution and drive down the cost of geospatial analytics.

Satellogic's [unique satellite-as-a-service](#) model offers the opportunity to develop a national geospatial imaging program at unmatched frequency, resolution and cost, giving customers access to geospatial analytics and insights with no capital outlay and no technical or operational risks.



## VALISPACE

**The importance of distributed teams for business continuity**



Valispace has been built so teams can collaborate and design complex hardware systems while working simultaneously on the same data. This allows organisations to work efficiently together both in-person and remotely.

Nowadays, the ability to work remotely has become even more important. Having the infrastructure in place to work in distributed teams in any situation, even more so in situations when [external factors demand it](#), is key to successfully speeding up design and development.

We aim to help people to work together: whether they are in the same room, at the same company, partially at home or even entirely remote. In times like these, Valispace hopes to facilitate the remote work for many teams out there building complex hardware and allow them to continue their design work and operations with minimal disturbances.

Anyone interested in making this transition, let us schedule a [short call](#) to find out how we can be best of help. In the next few days we will be publishing an article [on our blog](#) on how to best work as a distributed team on complex hardware projects such as satellites, rockets, medical devices or transportation vehicles, and how Valispace allows you to do that.



The American Astronautical Society (AAS) is the premier network of current and future space professionals dedicated to advancing all space activities. Part of our mission is bringing professionals together to discuss all things space. As such we host many events every year. Highlighted events include:

**CanSat Student Competition:** In June 2019 we held our international design-build-launch competition for university students. The event saw more than 100 team applications from all around the world, with the top 40 teams travelling to Texas to launch their payloads. The 2020 CanSat competition will take place at Virginia Tech University in June.



**Glenn Symposium:** AAS held the first annual John Glenn Memorial Symposium from July 10-12 in Cleveland, Ohio which turned out to be a great success. The program included noted speakers such as James Morhard, Deputy Administrator of NASA; Fred Kennedy, Former Director of the Space Development Agency; David Glenn, son of John Glenn; Janet Kavandi, Director of NASA Glenn and former Astronaut; Charlie Bolden, former NASA Administrator and former Astronaut; and many more. The second annual Glenn Symposium will take place July 14-16 with the theme, "Powering Innovation from the Sky to the Stars."





**von Braun Symposium:** The von Braun Memorial Symposium took place in September and covered a diverse set of topics including exploration systems, workforce, policy, propulsion systems, lunar landers, and more. The 2020 von Braun Symposium will take place October 26-28 in Huntsville, Alabama.

Find more information about these events and AAS at [astronautical.org/events](http://astronautical.org/events)



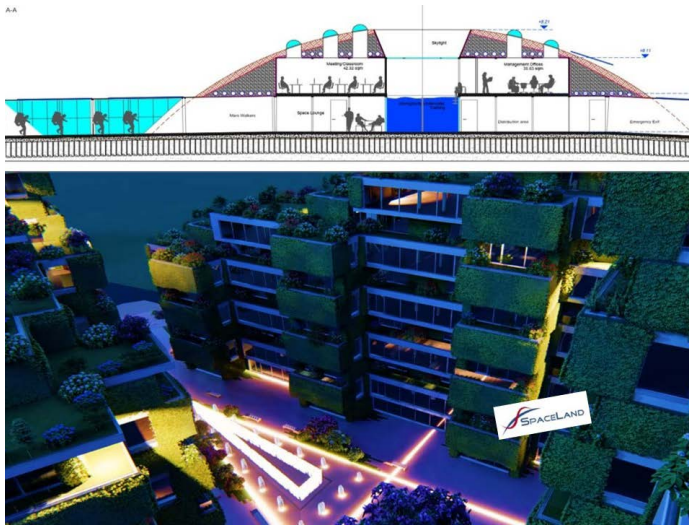
## The first Mauritius Astronauts to shake-off crisis

**SpaceLandAfrica** will soon start a process which is unprecedented for the African and the Indian Ocean islands to identify the **first female and male astronaut-candidates** to innovate and revamp the local economy, as *new testimonials* of world's first "**Space Island**". The program will also benefit also from the license for the spaceport qualification study granted to SpaceLand by the **USA Government** for Mauritius.

Techno-scientific experiments, also to counteract major medical issues such as osteoporosis and neuropathologies in elderly people, will be assembled at the **SpaceLand City's Center of Excellence for Moon-Gravity and Mars-gravity** which "*will greatly benefit the African continent and the countries of the Indian Ocean*", as written by **Dr. Christian Feichtinger**, DG of the **IAF**; he also added that "*the microgravity-STEM disciplines of the SpaceLand Center will definitely contribute to the international cooperation and socio-economic development of Mauritius and to the gender, geography, generation diversity for a new Space Economy to thrive*", explaining, in a recent letter to the **Prime Minister of Mauritius**, that "*such an innovative new industry, including its hundreds of highly-skilled direct jobs to be created around the SpaceLand Center also for aerospace leisure & educational tourism, will certainly characterize Mauritius as the first Space Economy Island*".

The program will set new records, after the ones achieved by SpaceLand at **NASA** with people from **11 to 93 years of age**, including the **first disabled in 0-G**, on board biomed & high-tech weightless test flights led by **NASA/ESA Zero-Gravity Flight Veteran Doct. Carlo Viberti**, also for neuro-science research groups founded by the **Nobel Prize winner Rita Levi-Montalcini**.

The first Mauritius astro-candidates will be working as ambassadors in a "space-themed" smart city designed by **Managing Architect Celeste Petraroli**, frm supervisor of facilities for the international mass media at the **Olympic Games**: SpaceLand City means unparalleled Near-Zero-Energy-Buildings resembling human outposts on Mars, while also providing international users with beautiful green-energy luxury apartments and penthouses in a marvellous tropical destination. Generating labour-intense eco-sustainable progress impossible in normal ground-based environments, from 3D-biomanufacturing to robotized bio-agriculture, from anti-ageing regenerative medicine to unprecedented low-gravity leisure and educational programs, SpaceLand City is expected to inject up to **one billion USD** in the Mauritius economy. Investors are welcome to join in: check [www.SpaceLand.it](http://www.SpaceLand.it) for more details.



INTERNATIONAL  
LUNAR  
OBSERVATORY  
ASSOCIATION



ILOA sends its best Galaxy wishes to the Space Community / Humankind during this time with hopes that the recovery from the Covid-19 and success of the 2020 New Decade will accelerate with advances toward the Moon, Mars and Galaxy Stars. Our Galaxy Forum education outreach program continues to expand with a most notable event held in Chiang Mai, Thailand at which (pictured) Thai HRH Princess Maha Chakri Sirindhorn, nicknamed the “Princess of Astronomy”, gave welcoming remarks and met with ILOA Director Steve Durst, NARIT co-sponsors and members of the international astronomy / space commerce organizations. The re-scheduled GF China on Hainan Island may take place on 12-15 Jan 2021 (TBD), and in 2020 ILOA is planning GF Korea in Daejeon on 2 May (TBC), GF USA in Silicon Valley CA on 4 July, GF Europe in Vienna on 18 Sep, GF South America in Bariloche, Argentina on 8 Dec, and Galaxy Forums in Hawaii, Kansas and New York. We are also organizers of the 236 AAS Special Session

on ‘Astronomy from the Moon’ scheduled for Monday 1 June, which could evolve into a regular series of sessions.

## AIRBUS

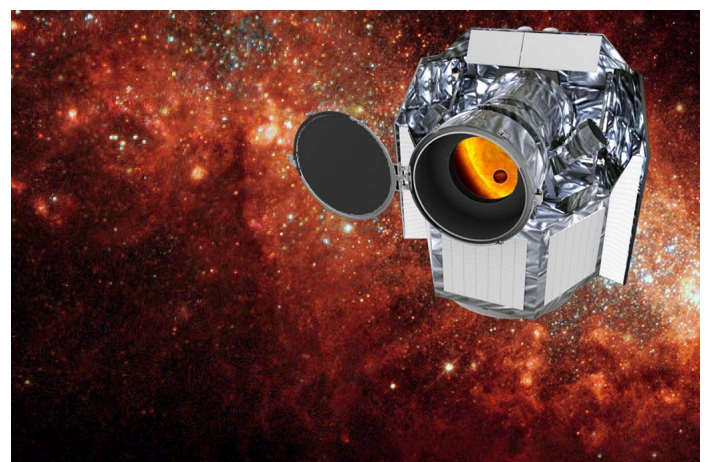
### CHEOPS gets down to business!

On 26 March 2020, Airbus received confirmation from the European Space Agency (ESA) of a successful end to the In Orbit Commissioning (IOC) of CHEOPS (CHARacterising ExOPlanet Satellite).

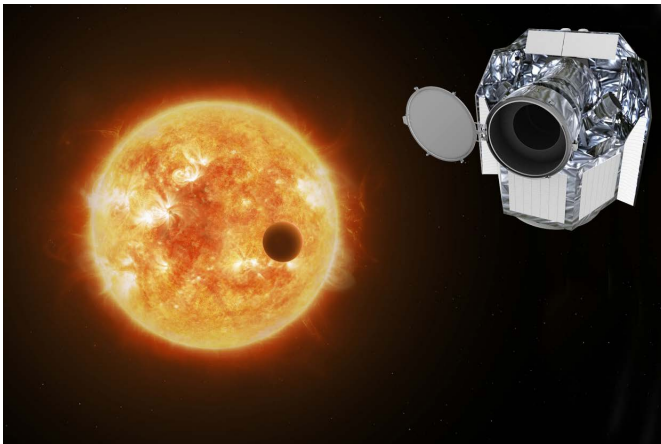
The 2.5 month IOC phase verified the performance of the satellite, ground segment and science package. This critical phase was performed by Airbus in Spain with the support of the Instrument Team (University of Bern), Mission Operation Centre (INTA), Science Operation Centre (University of Geneva) and ESA.

Launched from the European spaceport in Kourou on 18 December, CHEOPS is ESA's first exoplanetary mission. CHEOPS has now started characterising exoplanets of nearby stars. It is observing known planets in the size range between Earth and Neptune and measuring their radius to determine their density and understand what they are made of. The satellite uses proven technologies to pave the way for bigger and more ambitious missions – with the aim of verifying if any exoplanet may be capable of supporting life.

Phillipe Pham, Airbus' Head of Earth Observation, Navigation and Science said: “CHEOPS, a pathfinder for future exoplanets missions, is a very important programme for Airbus as it is the first Science mission primed from Spain. With the expertise and the strong engagement of our team and our 24 partners from 11 European countries, we were able to deliver the satellite perfectly on time to ESA and contributed to this success.”







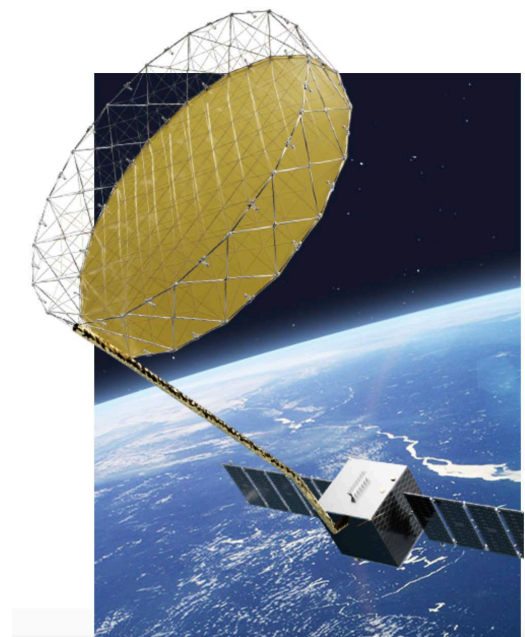
## EOS SAR to launch full-scale production in 2020

EOS SAR, backed by Noosphere Ventures, has begun full-scale production in 2020 following a year of groundbreaking progress in 2019.

Since the beginning in late 2017, EOS SAR has made significant advancements towards bringing accessible, affordable, and persistent high-resolution synthetic aperture radar (SAR) imagery to both commercial and government remote sensing markets. Recent accomplishments include successfully validating key technologies such as high-power transmitters, deployable antennas, and AI-based data analytics software. By December 2020, the company will complete its "end-to-end" system for SAR data technology in a terrestrial configuration, and will build and launch a full-performance SAR satellite in 2022.

Despite unprecedented economic damage resulting from the coronavirus pandemic, Noosphere Ventures' unique vertically integrated approach to investing has fortified the firm from any financial hardships. Furthermore, the firm's robust connections to ventures within their investment portfolio like Firefly Aerospace and EOS Data Analytics have provided EOS SAR with assurances that logistical and analytical services will remain uninterrupted.

EOS SAR will continue to work closely with potential US-based partners that are well positioned to leverage Noosphere Ventures' capabilities. Together, EOS SAR and its partners will emerge from today's challenges stronger than before.



Firefly Aerospace continues to make significant progress towards the first launch of the Firefly Alpha small satellite launch vehicle. The second stage of Alpha Flight 1 is currently being integrated in preparation for ATP and shipment to Firefly's Vandenberg SLC-2W launch facility. Construction at the SLC-2W launch site is progressing rapidly to prepare for launch during the summer of 2020.

At our 200-acre Briggs, Texas manufacturing and test site, we recently completed assembly of our structural test stand (TS4). TS4 allows us to apply flight-like loads to fully fueled stages to verify that our structural systems will succeed in flight.

The Firefly Aerospace team has also expanded greatly over the last several months. With over 300 employees in the United States, Firefly has assembled a team that is comprised of industry

experts and the future generation of the aerospace industry. Firefly continues to hire for multiple open positions, which are listed on [www.firefly.com](http://www.firefly.com).

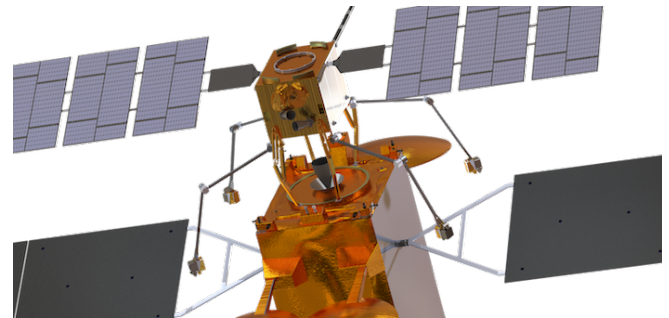


Astroscale U.S., the Denver-based unit of Astroscale, announced June 3 it has acquired the intellectual property and other assets of Effective Space Solutions ("ESS"), and hired staff members of the Israeli satellite life-extension and servicing company. These moves make Astroscale the only company solely dedicated to on-orbit services across all orbits, bringing the company closer to realizing its vision of orbital sustainability for future generations.

Astroscale U.S. has created a new subsidiary, Astroscale Israel, which is staffed by the former ESS employees and headquartered in Tel Aviv. This new group will enable Astroscale U.S. to focus on meeting clients' satellite servicing needs, including those of the U.S. government. The Astroscale Israel team serves as the company's satellite servicing research and payload development group for life extension of GEO satellites, which provide critical communications, navigation and national security services.

With this transaction, Astroscale U.S. has started to redefine the markets it will pursue. "We've started thinking about the debris remediation part of the market as a subset of on-orbit services.

It's one thing you can do once you have a satellite up there that can rendezvous and dock with other satellites," said Ron Lopez, President and Managing Director of Astroscale U.S. "We're bringing all of those resources to bear to move into the GEO life-extension business, to complement what we're doing in low Earth orbit on the debris and the situational space awareness side."



## Now Virtual: Summit for Space Sustainability September 9-11, 2020



Please join Secure World Foundation and its partners at the 2<sup>nd</sup> Summit for Space Sustainability, a high-level multi-day event focused on inspiring action towards space sustainability. Building on the success of the inaugural Summit in 2019, this year's Summit will focus on the progress being made in improving space sustainability and the gaps and challenges that remain. Participants will engage with a diverse group of international stakeholders to examine a range of issues across civil, commercial, and national security sectors and ideas for action.



Due to the uncertainties surrounding the spread of COVID-19, Secure World Foundation has decided to transition this year's Summit for Space Sustainability from a two-day in-person event to a three-day virtual event on September 9, 10, and 11. While we regret the loss of the on-site interaction, this decision was made in order to protect the health of staff and participants and to provide logistical certainty in these uncertain times. By switching to a fully virtual event we hope to provide you with the best opportunity possible to explore the important topic of space sustainability. Our world relies on space applications and data to facilitate our way of life, and we think it's important to continue to develop solutions for space sustainability.

For more information, please visit [www.swfsummit.org](http://www.swfsummit.org).



## DISRUPTSPACE

### The Talk About Increasing Mentoring for Women in the Business and PD-NEO Sectors Within the Space Industry is On at the AIAA ASCEND Virtual Conference 2020

The America Institute of Aeronautics and Astronautics (AIAA) annual conference ASCEND was originally scheduled to happen in Las Vegas, but due to COVID-19, the conference will go virtual on November 16 – 18, 2020. ASCEND's coalition of speakers for this virtual event includes representatives from Lockheed Martin, the Aerospace Corporation, Blue Origin among many including Nancy C. Wolfson. Nancy will be speaking about "The Importance of Modern Mentorship for Women in the Space Industry, From Traditional to Digital Platforms". The space industry is doing a good job including everyone, but more work needs to be done in terms making mentoring more accessible to women in Business, Planetary Defense-NEOs and across all sector of the space industry. Taking a leap into developing a career in the space industry can be simultaneously exciting and intimidating. The gender factor when it comes to obtaining benefit from mentorship can play a key role in our workforce success. Mentoring works for everyone, but women in any sector of the space industry including the NEO community can truly benefit from mentoring, Nancy said. Wolfson's work in academia focuses on space education, research along with organizing outreach activities to educate and inspired the general public to learn more about space exploration, Planetary Defense-NEOs and the cosmos. Wolfson is currently the President of Disrupting Space Company, Vice Chair of the IAF TC Committee on NEOs among others. "This global crisis somehow has forced organizers and

leader in the space industry to re-think how we could continue spreading the latest technical and non technical developments utilizing digital and on-line technology. Mentoring women in the digital era across all sectors of the space industry is an important topic of discussion for our space workforce development"



### Yuzhnoye SDO successfully accomplish firing tests of RD861K liquid rocket engine

On June 26, 2020, Phase 2 of the final development tests for a single-chamber RD-861K liquid-propellant rocket engine was completed in Dnipro, Ukraine. The RD-861K was developed by Yuzhnoye SDO and manufactured at PA Yuzhmash.

These final development tests (three series, 5 burns each, with a total burning time of 1601.6 s) completed a full cycle of the engine

ground development tests and demonstrated the performance of the selected engine design, systems, and assemblies within a specified range of operating conditions. The tests also confirmed that the RD-861K basic performance parameters comply with those specified in the Requirements Specification.

The RD-861K is an upper stage open-cycle rocket engine with a turbopump feed system. The engine provides a multi-burn capability and pitch and yaw thrust vector control in space during payload delivery to the target orbit.

These were the final and the most critical ground tests, which confirmed the RD-861K readiness for flight tests as part of a launch vehicle stage.

The RD-861K engine is developed as the main engine for Stage 2 of the Cyclone-4M rocket.

## RD-861K ENGINE BASIC SPECIFICATIONS

Propellants: NTO + UDMH

Vacuum thrust: 7.916 kgf

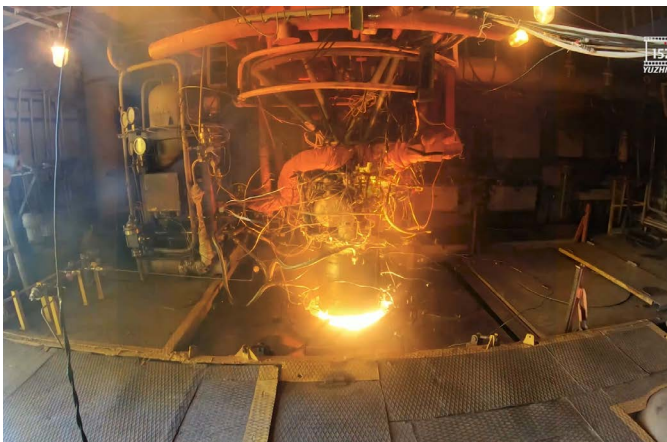
Vacuum specific impulse: 330 s

Number of restarts: 5

Operation time in flight: 481 s

Gimbal angle:  $\pm 5$  ang. deg

Mass: 207 kg



SPACE GENERATION  
ADVISORY COUNCIL

For the past 20 years, SGAC has been representing students and young professionals from around the world that share a passion for space. This year more than ever, SGAC felt the need to keep our community connected, and decided to do so with a new initiative: SpaceGen United – SGAC's very first online Congress!



On July 26<sup>th</sup>, 2020, SpaceGen United concluded its gathering of 143 participants, coming from more than 50 nationalities! During the 9 day-long event, SGAC proudly collaborated with our different [sponsors and partners](#), inviting experts from across the space industry, as well as SGAC Alumni, to provide a unique and dynamic experience to its participants. SpaceGen United included workshops, podcasts, virtual coffee hours, keynote speeches, a trivia night and many other online gatherings and challenges for our delegates to take part in. If you are interested in catching up with what happened during the week of the event, you can check our [website](#) or watch the different [online Keynote and Panels](#) on YouTube that were hosted during SpaceGen United!

But this is just the beginning, there is more to come! SGAC is proud to work with the International Astronautical Federation (IAF) and more partners in support of the [IAC2020 - The CyberSpace Edition](#). Stay tuned for updates coming in the following weeks, as SGAC will announce a great opportunity to engage and connect with delegates from the past, present and future of the space industry.



**MANT**

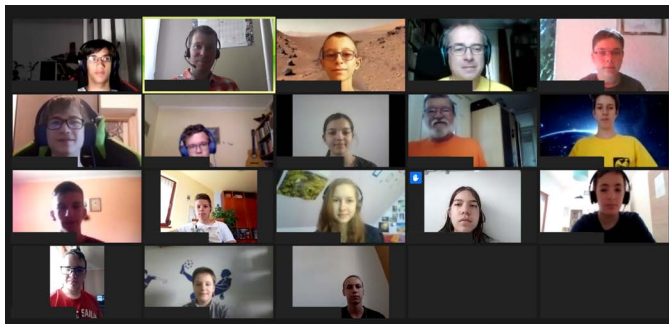
Hungarian Astronautical Society

## The Space Camp goes virtual

The Hungarian Astronautical Society (MANT) has been organizing its annual Summer Space Camps since 1994. Last year, we proudly reported on the 25th event where students at the age of 13–18 years participated. Like in all years during the last quarter of century, we began the preparations for the 2020 Space Camp



enthusiastically. The location was selected in due time, the call for participation was issued, the program took shape, and interested students from Hungary and the neighboring countries already started to register. But the COVID-19 pandemic forced us to postpone the camp in its traditional form until next Summer. However, we did not completely give up, and decided to have a special “virtual edition” of the Space Camp this year. It took place between 7–10 July, during the week originally planned for the “real” event. Participation in the Virtual Space Camp 2020 was free, and the on-line platform allowed us to deliver interesting presentations and organize interactive sessions for the nearly 20 students joining in. The lectures given by experts in their fields covered interesting topics, like building small satellites, providing energy supply for spacecraft, and doing radio astronomy from the ground and space. There were interactive chats about being a space engineer or space researcher, and the possibilities available for the young generation. Of course, the location and host of next year's Hungarian Youth Space Camp were also introduced. We do hope that this traditional series of events can safely return to normal life from 2021 – along with everything else now adversely affected by the pandemic.



## VALISPACE

### Paperless Test Management

-  **Measure voltage over batteries**  
Measured value: 24.3V  RQ-BAT-012
-  **Inspect batteries for visual damage**  
Measured damage: none  RQ-BAT-02
-  **Do vibration testing on battery casing**  
Test to be performed  RQ-BAT-042

The moment your designs are finally put through testing shouldn't be painful.

Testing and test management remains a manual and tedious affair often resulting in painfully slow iteration cycles. Upon hearing our users' frustrations, we have a testing and verification module.

Now available to all, it allows you to track and store test specifications, procedures and test data including links to the relevant requirements and verifications.

Close collaboration between customers and suppliers is finally a reality, possible through our browser-based interface.

The new module enables all phases of planning from high level down to the specifics of test steps and results. Users can understand test data in context and communicate details to the whole team when design changes are required. Maintaining an easy overview of testing progress, planning, and ensuring traceability through digital data connectivity get teams back to what matters most

By linking tests and requirements automatically, the verification process is dramatically more efficient, since a successfully completed and approved test closes out the associated requirements.

The Valispace team has been hard at work actively helping customers from initial idea phase all the way to final designs and have gathered the most effective ways to use data-driven engineering. Whilst novel, these processes are adopted in a multitude of industries such as space, automotive and medical devices, and are sure to benefit your team.

We are gradually releasing new parts of this module to best suit our clients. Talk to our solution managers to request a demo at [contact-us@valispace.com](mailto:contact-us@valispace.com).



### Satellogic Celebrating a Decade in Space

Ten years ago this July Satellogic was founded in the hope that they could build a company that would help to solve some of the world's most pressing problems. Through the past decade, it has evolved from a small startup into a leader in geospatial analytics, delivering affordable and actionable planetary-scale insights from Earth Observation (EO).

In the first half of 2020, Satellogic launched two new satellites, expanded its AIT facility, and has been chosen as a finalist for the Satellite Technology of the Year Award. In October, the company will launch 10 more satellites on a dedicated rocket and will continue to give exclusive access to dedicated constellations at a price point that is attractive to national and municipal governments as well as smaller enterprises.

Within the next three years, they expect to increase their capacity to remap the entire planet at sub-meter resolution every week. With more than 20 commercial satellites in orbit by 2021, Satellogic will be able to revisit any specific point of interest at a global average of 4 times per day, scaling to up to 18 times per day by 2024. At the same time that the company is improving the frequency of the data acquisition, they are also improving the resolution of their imagery. In 2021 they will start delivering 70cm resolution data to best serve existing and new customers.

Satellogic is in a unique position to become [the global Earth Observation](#) utility, to deliver fresh actionable insights from orbit to help every organization be prepared for the challenges of tomorrow.



## ASI capacity building activities in Africa for Africa

In the framework of its capacity building activities, the Italian Space Agency (ASI) is promoting a series of training courses dedicated to specific regions of the world. The first one was the "Training Course on Remote Sensing, Space Sciences and Space Policy" for African students that took place from 9 to 13 December 2019 at the Broglio Space Centre (BSC), in Malindi (Kenya) - an ideal location thanks to its unique equatorial position and advanced space infrastructures that can be applied to scientific teaching and learning activities, also capitalizing on the heritage and expertise developed by Italy and Kenya in more than 50 years of space cooperation.

The course – launched during the *International Space Forum – The African Chapter* held in Nairobi in February 2018 as a joint initiative by ASI, KSA and IAF - was organized by ASI, in collaboration with the Kenya Space Agency (KSA) and the support of the UN Office for Outer Space Affairs (UNOOSA). Its objective was to prepare African students and young professionals to become the space leaders of future Africa for a peaceful and sustainable development of the continent, based on the belief that space sciences, technologies and related applications can play a crucial role for both the socio-economic development of Africa and the achievement of the Sustainable Development Goals of the UN 2030 Agenda.

Africa is experiencing a spike in space activities, with several of its countries recently joining the community of space-faring nations. Space can provide Africa with tools that can fundamentally improve policymaking and accelerate sustainable development all over the continent. The young participants in the training will be part of this change.







The American Astronautical Society (AAS) is the premier network of current and future space professionals dedicated to advancing all space activities. Part of our mission is bringing professionals together to discuss all things space. As such we host many events every year. Highlighted events include:

## CanSat Student Competition:

Each summer, AAS holds our CanSat small payload design-build-launch competition for university students from around the world. This year's event looked a little different. While there were over 100 team applications, due to COVID-19 the top 40 teams were not allowed to travel to Virginia to launch their payloads. AAS did host a virtual awards ceremony that included a special guest speaker, former NASA Administrator and Astronaut Charlie Bolden. We hope the 2021 event will take place in Blacksburg, Virginia next June.

## Glenn Symposium:

AAS held the second annual John Glenn Memorial Symposium from July 15-17 online, which turned out to be a great success. (Due to COVID-19, our society was not able to host an in-person event.) The program included noted speakers such as Jim Bridenstine, NASA Administrator; Janet Karika, Principal Advisor for Space Transportation at NASA; Kathy Lueders, HEO Mission Directorate at NASA; and many more. We look forward to our third annual Glenn Symposium next summer.

**von Braun Symposium:** The von Braun Memorial Symposium took place in September and covered a diverse set of topics including exploration systems, workforce, policy, propulsion systems, lunar landers, and more. The 2020 von Braun Symposium will take place October 26-28 in Huntsville, Alabama or possibly online.

Find more information about these and other AAS events please visit [astronautical.org/events](https://astronautical.org/events).





## WEKEO V1 cloud platform provides a new gateway to Copernicus data

The [WEKEO](#) V1 cloud platform provides a comprehensive portfolio of original Copernicus Programme and Sentinel satellite data (and supporting missions), with harmonised data access, cloud infrastructure and expert user support.

With the goal to democratise, facilitate, and standardise access to Copernicus and other relevant data, the [European Commission](#) (EC) launched an initiative to develop Copernicus Data and Information Access Services (DIAS) in 2016.

WEKEO DIAS has been designed by EUMETSAT, Mercator-Ocean International, and ECMWF, and implemented by industry, to provide easy access to Copernicus information and processing tools, in one centralised location, so that users can develop applications for their own specific needs.

Focusing on delivering an excellent user experience, WEKEO [User Support](#) benefits capitalises on its operating organisations' expertise in Earth observation, operational services, education

and training:

- [Mercator Ocean International](#) the implementer of the Copernicus Marine Service;
- [EUMETSAT](#) (European Organisation for the Exploitation of Meteorological Satellites) operates Europe's weather satellites and provides data services from the Copernicus Sentinel satellites it operates (Sentinel 3 Marine Mission, Sentinel 4, Sentinel 5 and Sentinel 6);
- and [ECMWF](#) (European Centre for Medium-Range Weather Forecasts) the implementer of the Copernicus [Atmosphere](#) and [Climate](#) services.

WEKEO offers services on a free basis as well through a suite of paid advanced plans to fit the scalable needs of individuals, businesses and institutional operations.

For more information please contact:  
[communication@mercator-ocean.fr](mailto:communication@mercator-ocean.fr)

### Philip Evans appointed next DIRECTOR-GENERAL

The Council of EUMETSAT, Europe's operational satellite agency for weather and climate, has appointed Philip Evans as the organisation's next Director-General for a five-year term, starting on 1 January 2021. Evans will take over the reins of the 30-Member-State organisation from Alain Ratier, who will retire at the end of 2020, after serving nine-and-a-half years as Director-General.



Investors are welcome into the development of SpaceLand the new, green, space-tech-inspired SpaceLand Cities.

These post-COVID-19 urban eco-systems for innovative "on-line" business & life-style are being designed world-wide by SpaceLand architects and senior engineers as state-of-the-art Near-Zero-Energy-Buildings (NZEB) mixed-use districts implementing sustainable green-energy ISRU policies (In-Situ-Resources-Utilization), for a new post-pandemic philosophy of living: a holistic renaissance for on-line work and life in renewable-energy-powered homes immersed in nature and high-tech, striving for a greener, healthier planet.

Such new eco-friendly suburbs are being planned at international level, starting from European territories and tropical islands of the Indian Ocean within the strategic corridor between Africa and China, to enable residents and tenants to enjoy a new "dolce vita", with future-facing high-tech study and job opportunities without having to spend time far from home.

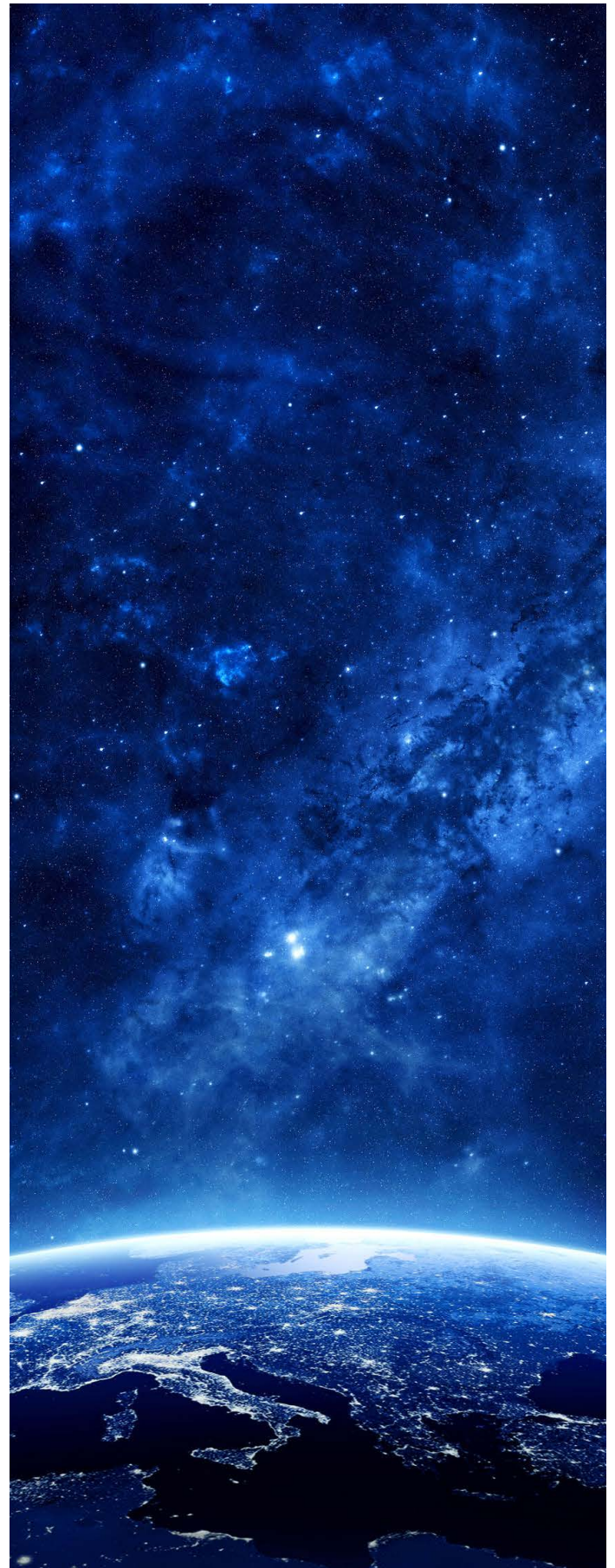


This ground-breaking SpaceLand urbanistics generates more freedom, flexibility and spirituality for a new type of social communities, characterized by bio-technologies and “bio-thinking”, integrating innovations in waste-to-energy-powered, pollution-free towns, beautifully outfitted and featuring bio-techno-science research and development (R&D) facilities inside totemic Mars-themed R&D and educational hubs, named SpaceLand Centers, in the city’s outskirts.

These Centers will showcase groundbreaking 3D-printing construction methods for martian-base analogs utilizing local materials and hosting low-gravity environments and emulation systems to offer a large portfolio of opportunities at walking distance from home, related to the benefits stemming from microgravity STEAMM (Science, Technology, Engineering, Arts, Math, Medicine) which can be transferred into everyday’s life, including most valuable educational, hand-on research and testing tools in weightlessness: inter alia, robotics and lifetime-extending bio-engineering, bio-nutrition, new vaccines will be investigated, by pursuing those zero-gravity three-dimensional R&D projects on, respectively, devices and macro-molecular compounds, e.g. proteins, which are impossible in standard labs on ground.

Such game-changing green-NZEB Cities built with the newest green-facades & dry-wall technologies as well as their 3D-printed Mars-base analogs built with local bio-materials, as presented at several events of the United Nations, will also serve to demonstrate technologies and operational scenarios for future bases on the Moon and Mars while showcasing innovative concepts for inexpensive, saluber habitations catering for more decent, cheaper and healthier homes for the poors of our troubled planet.

info: [www.SpaceLand.it](http://www.SpaceLand.it)

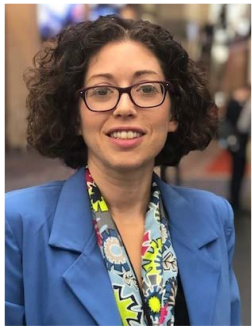




## IAF SPACE ECONOMIC PLATFORM

### Interview with

**IAF Vice President for Diversity Initiatives and New Space Economy,  
Deganit PAIKOWSKY**



**1. What is the new space economy and why is it so important to promote it?**

Presently, the global space economy is worth more than 350 billion dollars of which 70% are accounted to commercial revenue. In accordance with the definition provided by the OECD, *"The Space Economy includes the full range of activities and the use of resources that create value and benefits to human beings in the course of exploring, researching, understanding, managing, and utilising space"*.

The space economy is expanding and becoming increasingly global, with numerous space activities and innovative technologies emerging around the world, from government space programs to new space systems. It is important to reach a new audience and reflect on space activity in new markets in order to raise awareness of the potential uses of space services and products

**2. The IAF will now play a great role in advocating for a greater diversification of space activities and greater inclusion of space products and services in day-to-day life thanks to the new portfolio in the IAF Bureau entitled Diversity Initiatives and New Space Economy. What is the agenda of this portfolio?**

Observing the new trends and developments in global space activity and looking ahead to the next decade and beyond, the IAF is tasked with playing a meaningful role in advancing this new emerging economy. Embracing a vision for greater diversification of space activity, and greater inclusion of space products and services in day-to-day life, as part of the current IAF Space Advocacy Agenda, the IAF announced the new initiative: the *"IAF Space Economic Platform – Bringing Space Down to Earth/Bringing Earth Up to Space"*.

Through this platform, the IAF aims to continue playing a significant role in global space activity, adapt to the "new order", grow professionally, reach out to new audiences, voice a variety of new actors in the space sector, and reflect on the new markets space activity is entering and creating. The platform is intended to serve as an overarching framework for a variety of new and existing IAF activities which will be conducted in collaboration with the different IAF committees.



**3. The IAF also plans to enhance the IAF 3G (Gender, Generation and Geography) initiative through the creation of the IAF Space Economic Platform, ISEP. Can you tell us what the 3G+ strive for and how the ISEP will help?**

In 2016, the IAF has developed an Agenda focusing on the 3G Diversity: Gender, Generation, Geography. These elements are significant components of the “new space” trend, and will also affect the emerging new space economy. For this reason, the IAF Space Economic Platform (ISEP) will be complimentary to the existing IAF 3G Initiative and will be combined under the catchphrase 3G+.

**4. Why Bringing Space Down to Earth and Bringing Earth Up to Space?**

Space is extremely important in our daily lives that is why we need to bring it down to Earth. Space technologies and applications are helping to improve life on earth, and therefore space is becoming a notable investment in many sectors, such as energy, agriculture, health care, telecommunications, and many others.

At the same time, we need to keep bringing earth up to space. The development of space tourism or even the opening of the International Space Station for commercial activities in lower Earth orbit and for private astronaut missions represent new commercial opportunities that will increase the value of the global space economy.

**5. How the IAC cyberspace edition and other IAF digital activities contribute to the new space economy?**

Under its motto “Connecting @ll Space People” the Federation brings IAF events and its community to various regions of the world, providing the main platform for global space actors to meet, share and connect. The coming IAC2020 cyberspace edition will be open and provide free access to all space enthusiasts.

The IAF is actively supporting the space activities and raising space awareness on a global scale. Through its digital activities, the Federation will help the new space economy by integrating new space actors, entrepreneurs and non-space industry and organizations through new dedicated activities. In the context of the International Astronautical Congress, there will be dedicated panels focusing on current events such as the effect of Covid-19 on space activities. With the help of the IAF Industry Relations Committee chaired by Clay Mowry (Blue Origin) and IAF VP for Industry Relations Bruce Chesley (Boeing) the IAF ISEP Startup pitch competition will take place digitally. Later in the year and next year we will have more digital events focusing on issues such as stimulating national eco-systems in the new space economy or on the potential role of “new-space” companies in exploratory missions.

**6. Who should participate in the IAF ISEP Startup pitch competition?**

Early-stage space-related or space-enabled companies incorporated before June 1<sup>st</sup>, 2020, can apply and gain an opportunity to pitch. Each startup will have the opportunity to present a 5 minutes pitch video which will be distributed in the designated IAF Space Economy Platform booth for startups as part of the Virtual Exhibition and will be available 24 hours a day throughout the event. This is your opportunity!





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**Connecting @ll Space People**



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The next IAF newsletter will be issued in October 2020