



THE IAF YP MAGAZINE

Juventia

Volume 3, Issue 1

April 2021



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Message

Dear friends,

You are looking at the first issue of our new magazine "Juventa". We have gotten so much positive response to the design and content for our quarterly newsletter, that the Communications team of WD/YPP committee thought that it might be more adequate to turn this newsletter into a quarterly magazine for Young Professionals. They have done a tremendous job, so if you enjoy the content please feel free to share your continued feedback with us on social media! For this first issue of the new magazine we also want to share a little bit of background information on our committee. We have four teams that put together the Young Professionals Programme at the IAC and much more.

Otherwise, we are very busy preparing the programme for this year's IAC and also for GLEX which will take place in June in St. Petersburg, Russia. We certainly hope to see all of you in person again at one of the next IAF events!

Patrick Hambloch

Chair, IAF WD/YPP Committee

Juventa YP magazine is an official information document from IAF-WD/YPP committee.

This is volume 3, Issue 1

The International Astronautical Federation—Workforce Development Young Professionals Programme Committee (IAF-WD/YPP) is one of the administrative committees dedicated to Young Professionals and Students. The committee's scope includes all matters pertaining to international space community workforce development. The committee focuses on early career professionals in all the areas of the aerospace community and provides overall guidance to IAF's Young Professional Programme:

Leadership



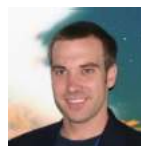
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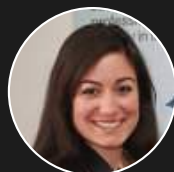
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IAF WD/YPP Committee
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Editorial

Dear IAF Community, Young professionals and students:

FROM APRIL 2021 ISSUE, THE IAF YP NEWSLETTER IS NOW THE YOUNG PROFESSIONALS MAGAZINE. THE NEW TITLE IS

"JUVENTA"

Last year humanity confronted our biggest challenge in a century. Science helped us see the light at the end of the tunnel. But we need to keep moving forward to emerge. However, in order to emerge, we must continue to move forward. People all over the world have been navigating a potentially deadly new reality for months, living under the weight of an ominous pandemic. Economies are struggling to regain footing as a result of the extreme disruption of business as normal, and many people's livelihoods are on the line. We also had a virtual International Astronautical Congress – The Cyberspace Edition in 2020, which was a huge success. In this extraordinary moment, we at IAF pray for all of you and hope that our community remains strong and safe.

In 2019, the communication team of the IAF Workforce Development-Young Professionals Programme (IAF WD/YPP committee) agreed to launch a newsletter for young professionals and students, in consultation with committee and IAF leadership. The aim was to provide information on advancements in all fields of space science and technology, support IAF and YP activities, conduct motivational interviews with space industry leaders, young professionals and much more. IAF WD/YPP is an administrative committee of the IAF that is solely dedicated to young professionals in and around the world who are interested in space and also in IAF and its activities. We decided to turn this newsletter into a YP magazine as we progressed, based on the content and response we received from our readers. It's perfectly acceptable to plant the seeds for future communication objectives, such as promoting committee operations, YP sponsorship, and IAF promotion, in order to achieve short-term communication goals.

Guys, please help your committee to make this initiative a huge success. Please submit articles, posts, tech stories, and reports and widely share it among your contacts. We are also pleased to run promotional ads for organizations all over the world in our magazine, which has a large readership.

Please feel free to write to us: iaf.wdypp@gmail.com

Stay safe and strong!

Balbir Singh

Editor-in-Chief and
Vice-chair (Communications)
IAF WD/YPP Committee



Kyle Acierno

Chief Executive Officer
ispace Technologies, United States

Please introduce yourself to our readers in the IAF community.

My name is Kyle Acierno. I am an international expert in commercial space and a specialist in lunar exploration. Over the past decade, I have developed broad knowledge extending into space science, engineering, law, policy, finance, and business development. As an international speaker, I have presented at over 100 conferences worldwide. I am the member of numerous working groups, both commercial and technical, and regularly contributes to legal debates surrounding space resources. Currently, I am working as the CEO of ispace technologies, U.S. ispace is a lunar exploration and transportation company with its headquarters in Japan and regional offices in Luxembourg and in Denver,

Colorado. ispace managed the front-running competitor in the Google Lunar XPRIZE, Team Hakuto and has raised over \$120M USD. With both Canadian and Italian citizenship and a passion for exploration, I have visited over 100 countries. I received a Bachelors in International Security and a Masters of Science in Space Studies.

As industry leader, you have been involved in space for some time. How and why did you choose to work for space?

Like all living things, I believe our main purpose is to ensure our species continues to grow and prosper. After traveling to many regions of the world and witnessing the environmental destruction humanity's expansion is having on the planet, I decided to study International Relations with a focus on environmental security. I worked in many countries, trying to find ways to solve global problems associated specifically with resource depletion. Resources on Earth are finite and in order for us to continue to evolve and grow, it was obvious we need to increase the supply of resources. Once I learned that space could provide the solution, I decided to change my career and focus in life. Now, I am dedicated to unlocking the unlimited resources that exist space and, as a first step, especial those that exist on the Moon. In the future, I hope that all the resources humanity needs can be mined off planet, allowing the Earth to become a 'Green Zone'.

How long have you been involved with the International Astronautical Federation, what convinced you to join, and how have you been involved?

I joined the IAF in 2015 and since then have participated in every IAC and numerous associated events. In 2016 I was selected to be on the Next Generation Plenary and discuss innovative solutions for making space accessible and affordable to all countries. In 2018 I joined the Industrial Relations Committee and worked with a team to create a Start-up Pitch competition.

What has been one of your biggest challenges in your career?

Over the past 6 years I have worked in three offices, including starting our office in Luxembourg and here in the US. As our global footprint grows, I have invested a lot of time in understanding cultural values and how those intersect with working habits. Uniting and empowering diverse teams towards a common goal has always been the most exciting challenge!

.

As CEO of the newly opened ispace office in Colorado, USA, what do you do exactly and what is the most relevant and exciting thing you get to do?

A CEO of a subsidiary in a multi-national company has many roles. One of the reasons I love my job so much is because of the daily changes and challenges. In one day I could be negotiating a contract, hiring a new candidate, trying to solve a technical or business problem, or coming up with new ideas to inspire or reward our team. For me the most exciting part of the job is the technology. Our lander is simply a vessel that enables thousands of other business cases to work. Over the past few years the types of payloads that our lander will carry have become increasingly more complex. I am always excited to talk to customers and find out how we can support their payloads.

If people wanted to contribute to the lunar lander how should they do so?

ispace US has over 10 positions open while globally, at our office in Japan and Luxembourg, we have over 30 jobs open, including internships! Please join us or, if you have a great idea, start your own company!

How do you think the space business is going to develop in the next decade?

By 2040, we envision having 1000 people living and working on the lunar surface. If we want to succeed at this goal, in the next decade we will have to take the first steps to lay the foundation. That means sending thousands of tonnes of cargo to the Moon to support the

humans which will come soon after. By the early 2030's I believe we will have humans permanently living on multiple bases around the lunar surface.

What is your advice to the young professionals and students to have a successful career in the space sector?

First, I encourage people to invest in relationships. Our sector is still relatively small, so it is important to spend the time necessary to build strong ties with colleagues around the world. Second, I encourage young professionals to join small companies or start their own. We have a lot to accomplish in space, and innovation can come quick from small companies. Lastly, seek challenges. Rapid advancement in your career requires a constant reinvention of yourself and your role in the organization you serve. Always look for ways to go above and beyond and never be afraid to seek more responsibilities.

Describe yourself in 3 hashtags.

#InsatiableExplorer
#Driven
#ToTheMoon

 i s p a c e



Prof. Pascale Ehrenfreund appointed as ISU's next president

Prof. Ehrenfreund is currently the Chancellor of ISU and the President of the International Astronautical Federation. She is also a Research Professor of Space Policy and International Affairs at George Washington University in Washington DC. The International Space University is pleased to announce that its Board of Trustees has selected Professor Pascale Ehrenfreund as ISU's next President to take office in September, succeeding Mr. Juan de Dalmau whose term ends in August 2021. As President Elect until the start of the next academic year, Prof. Ehrenfreund will maintain her role of Chancellor and continue her interactions with students, staff, faculty and alumni.

Source: [ISU](https://www.isu.ch)

A FACTSHEET | SPACE DEBRIS: A GROWING THREAT

Space Debris

Growing Threat



UNITED NATIONS
Office for Outer Space Affairs



#SpaceCare

SATELLITES VS DEBRIS

2700 working satellites share their orbits with **8800** tonnes of space debris



≈ 1950
discarded rocket stages



≈ 2850
defunct satellites



Debris objects travel many kilometres per second. In case of impact, they may destroy working satellites



≈ 128 million
debris fragments
1 mm–1 cm in size



≈ 900 000
fragments
1–10 cm in size



≈ 21 000
unidentified debris
objects and fragments



≈ 34 000
fragments larger
than 10 cm



About **26 000** debris objects are **monitored from Earth**

Smaller objects that cannot be monitored **estimated by statistical models**

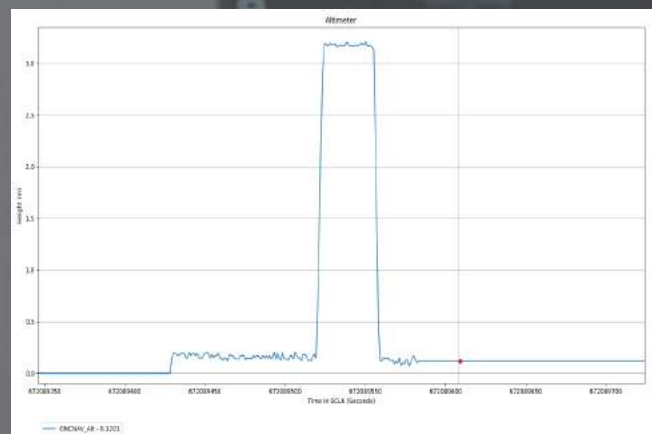


#SpaceSustainability

Up-to-date as of December 2020

MARS 2020

INGENUITY RECORD FLIGHT PERFORMANCE



Ingenuity successfully completed its fourth flight on 30 April, 2021. The helicopter took off at 10:49 a.m. EDT (7:49 a.m. PDT, or 12:33 local Mars time), climbing to an altitude of 16 feet (5 meters) before flying south approximately 436 feet (133 meters) and then back, for an 872-foot (266-meter) round trip. In total, it was in the air for 117 seconds. That's another set of records for the helicopter, even compared to the spectacular third flight. It captured lots of images during the flight with the color camera and with Ingenuity's black-and-white navigation camera.



Capturing images like that provides a technical challenge – another way to test Ingenuity – and provides an aerial perspective of Mars that humanity has never seen before. The images will be used to study the surface features of the terrain. Including this dimension, in future missions could open up a world of scouting opportunities in areas where rovers cannot go, close-ups that orbiters cannot provide, and ways to expand the scope of future human explorers.

Data of Just first four flights

| Flight No | Date and Time | Altitude and Time | Distance | Objectives | Flight Outcome |
|-----------|---------------------------|--------------------|----------|---|----------------|
| 1. | 19 April, 2021: 07.34 UTC | 3.0 m and 39 Sec | 0.0 m | Take off, hover, yaw 90°, landing | Success |
| 2. | 22 April, 2021: 09.33 UTC | 4.9 m and 51.9 Sec | 4.3 m | VTO, hover, shift westwards , landing | Success |
| 3. | 25 April, 2021: 11.31 UTC | 5.2 m and 80 Sec | 100 m | VTO, hover, shift northwards at 2 m/s | Success |
| 4. | 30 April, 2021: 14.30 UTC | 4.9 m and 117 Sec | 266 m | VTO, hover, shift southwards at 3.5 m/s | Success |

Perseverance rover's Mastcam-Z captures Ingenuity's third flight



PERSEVERANCE INGENUITY

Mars 2020 is rover mission of NASA's Mars Exploration Program that includes the rover Perseverance and the small robotic, coaxial helicopter Ingenuity. Mars 2020 was launched from Earth on an Atlas V launch vehicle at 11:50:01 UTC on 30 July 2020, and confirmation of touch down in Jezero crater on Mars was received at 20:55 UTC on 18 February 2021.



TIANWEN - I MARS MISSION

Tianwen-1 is mission by CNSA to send a robotic spacecraft to Mars, consisting of an orbiter, deployable camera, lander and the Zhurong rover. The mission was successfully launched from the Wenchang Spacecraft Launch Site on 23 July 2020 on a Long March 5 heavy-lift launch vehicle. After 7 months of transit, it entered orbit around Mars on 10 February 2021.



Hope is the first of three space missions sent toward Mars during the July 2020 Mars launch window. The spacecraft was launched from the Tanegashima Space Center in Japan with a Japanese rocket, the Mitsubishi H-IIA launch vehicle. The Emirates Mars Mission was the first of the three missions to perform a successful orbit entry maneuver on 9 February 2021.



HOPE MARS MISSION

THREE SUCCESSFUL MISSIONS TO MARS

2021



Emmanuelle David is the executive manager of the EPFL Space Center. The EPFL Space Center (eSpace) is an interdisciplinary unit responsible for the federation of space activities at the school and co-lead a research initiative on sustainable space logistics. Emmanuelle has 10 years' experience in space transportation in academia, agency and industry from pre-development projects up to launch operations. She holds Space Engineering degrees both from the University of Technology of Compiègne, France, and the Technical University of Braunschweig, Germany. She has also built up her leadership and volunteerism in the IAF, within the IAF Space Transportation committee since 2012, which she co-chaired in 2016-2017. She attended several Spring Meetings to perform paper selection and chaired technical sessions of the Space Transportation committee. She is also a member of the Young Professional and Workforce Development committee.

MEMBER SPOTLIGHT:

Emmanuelle David

M.Sc (Space Engineering)

Executive Manager, EPFL Space Center, Lausanne

ORGANIZED BY:



72nd INTERNATIONAL ASTRONAUTICAL CONGRESS

25-29 October 2021 | Dubai

Inspire, Innovate & Discover
for the Benefit of Humankind

IAC2021.ORG



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**SAVE
THE
DATES**

The International Astronautical Congress IAC 2021 will be a 72nd conference this year, branded as the "IAC 2021 - Inspire, Innovate & Discover for the Benefit of Humankind. For registration and congress related details, go to IAF News on Pages 29-30. Follow us on:



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IAF IPMC Young Professionals Workshop

Image: © IAF

The IAC IPMC Young Professionals Workshop: a chance for you to shape your future. No matter if you are a young or a seasoned professional. If you are working in the space field, the odds are that you may be facing challenges due to generational and cultural gaps in your workplace.

Do you think young professionals have a lot to say and contribute on how the space sector enables the future of the next-generation workforce?

Maybe you are a senior professional, and you know younger colleagues who are keen on contributing fresh ideas and insight on how to foster organisational excellence in program management, systems engineering and engineering disciplines at large.

Or maybe you are an early career employee, and you would like to make your voice heard and rub shoulders with field experts and great mentors.

Then read through: we may have just the perfect forum for you!

The IPMC Young Professionals Workshop (IPMC YP WS in short) was initiated in 2012 to gather ideas and proposals from early career employees in the international space

community and provide IAF member organisations with greater knowledge, insights, and perspectives that can help them better develop and empower the next generation of space program employees. The initiative is supported by the IPMC, an IAF committee dedicated to project and program management. The YP Workshops are held annually. Each WS consists in approximately four months of teamwork via virtual meetings culminated by a one-day event held in connection with the annual International Astronautical Congress (IAC).

Twenty-five to fifty young space professional delegates, nominated by IAF member organizations, are selected in the spring of each year to take part in the Workshop. The participants are then assigned to discussion groups that focus on a specific research topic. The teams work through virtual exchanges during the summer and then meet during the final event when they present the results of their deliberations to all the workshop participants, as well as to representatives of the IPMC member organizations. Following the workshop, a final written report is prepared and distributed to the IPMC as well as interested IAF member organizations.

We believe the workshop has something to offer for everybody.



As an early career employee, you will be able to experience the challenges of working on innovative topics as members of delocalized heterogeneous international teams. You will learn to extend the boundaries of your core competences while dealing with differences in professional background, culture and personality. You will get a chance to experiment project management in a demanding and time-constrained context and you will benefit from hands-on training and learning partnerships with expert mentors. Also, our expert talks will let you exchange directly with Space Legends, an incredible opportunity available exclusively to our young delegates.

As a seasoned professional, you can be involved at different levels. You can help define the research topics and create a focus on your areas of interest, you can attend the final presentation and learn about the findings and recommendations created by the workshop delegates, or you can even get involved as a mentor and contribute to the growth of the future space workforce. The workshop covers a variety of research topics and it is not just addressing aspiring program managers. It has interesting opportunities for the entire spectrum of jobs involved in the space sector, from HR to scientists, from managers to engineers, from artists to physicians. We encourage diversity in delegates' professional background and affiliation.

Last but not least, workshop delegates will also be able to experience complementary events such as a number of Expert Talks, virtual meetings in which VIP guests present their insight and engage in a conversation with the young professionals, or the WD-YPP program, which runs throughout the IAC and allows YPs to network with peers from all continents.

The 2020 edition revolved around the overarching topic of "Space Project Management in the world of global lockdown, remote work and mobile technology", and had five sub-themes:

1. How do fragmented, remote, delocalized and virtual teams affect the way space projects are managed?

2. Which are the key leadership and planning aspects of PM in a time of crisis?
3. What is the role of space programs and the space community at large in shaping the societal impacts of forced social isolation and economic lockdown?
4. What is the impact of the current international crisis for the future of space projects, and how can PMs shape this impact into successful progress, ensuring acceptable risk and pioneering a new way forward?

The report showcasing the results is publicly available at: [CLICK HERE](#)

Topics that will be researched in 2021 are:

1. Management of remote collaboration in the space industry.
2. Attracting and managing diversity in order to create successfully inclusive teams
3. Engaging Young Professionals in large space programs.
4. Knowledge management for the Generation Z: how, when, and what do Young Professionals choose to learn?
5. Project management practices for enabling short term and rapid turnaround activities for space projects.
6. Successful outreach practices in the space sector.

2021 will mark the 11th anniversary for IPMC and the 10th occurrence of the YP WS: join us if you want to make your voice heard and help shape the future of the space sector. Make your managers aware of this opportunity and let them know you would like to be nominated as delegate. We look forward to having you onboard for our 2021 IPMC YP WS edition! For more on the IPMC visit

[CLICK HERE](#)

For more on the IPMC YP WS visit

[CLICK HERE](#)

To contact the Workshop Organizing Committee: ipmc.yp.workshop@gmail.com

THE TECH STORY | MOXIE - MARS OXYGEN IN-SITU RESOURCE UTILIZATION EXPERIMENT

MARS OXYGEN IN-SITU RESOURCE UTILIZATION EXPERIMENT



JPL

Jet Propulsion Laboratory
California Institute of Technology

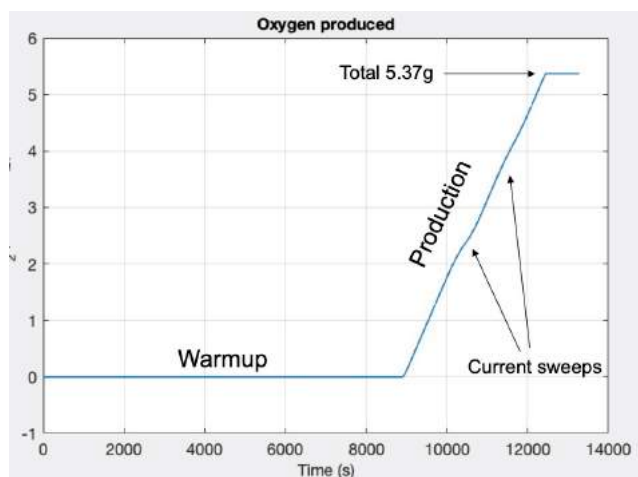
MOXIE



O₂ Guys
Yeahhh !!

MOXIE - Mars Oxygen In-situ Resource Utilization Experiment produced oxygen from carbon dioxide in the Martian atmosphere by using solid oxide electrolysis on April 20, 2021. In this first operation, MOXIE's oxygen production was quite modest – about 5 grams

Image: © NASA/JPL-Caltech



equivalent to about 10 minutes worth of breathable oxygen for an astronaut. MOXIE is designed to generate up to 10 grams of oxygen per hour.

This technology demonstration was designed to ensure the instrument survived the launch from Earth, a nearly seven-month journey through deep space, and touchdown with Perseverance on February 18. MOXIE is expected to extract oxygen at least nine more times over the course of a Martian year (nearly two years on Earth).

These oxygen-production runs will come in three phases. The first phase will check out and characterize the instrument's function, while the second phase will run the instrument in varying atmospheric conditions, such as different times of day and seasons.

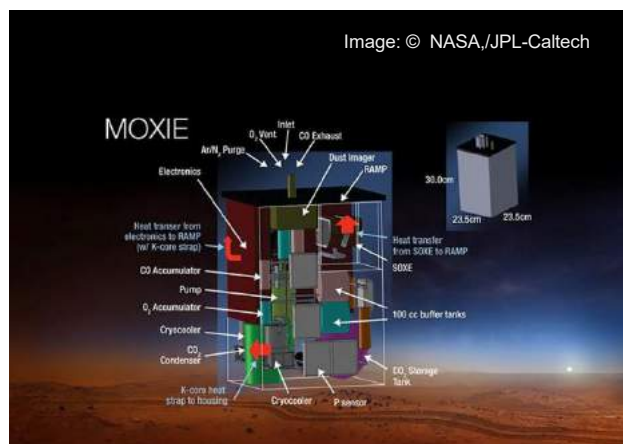


Image: © NASA/JPL-Caltech

In coming time, new operating modes will be tested, or “new wrinkles, will be introduced such as a run where operations can be compared at three or more different temperatures.”

As per the information on NASA/JPL and wikipedia. MOXIE acquires, compresses, and heats Martian atmospheric gases using a HEPA filter, scroll compressor, and heaters alongside insulation, then splits the carbon dioxide (CO₂) molecules into oxygen (O) and carbon monoxide (CO) using solid oxide electrolysis, where the O atoms combine to form gaseous oxygen (O₂).

The conversion process requires a temperature of approximately 800°C. CO₂ diffuses through the porous electrode (cathode) and reaches the vicinity of the

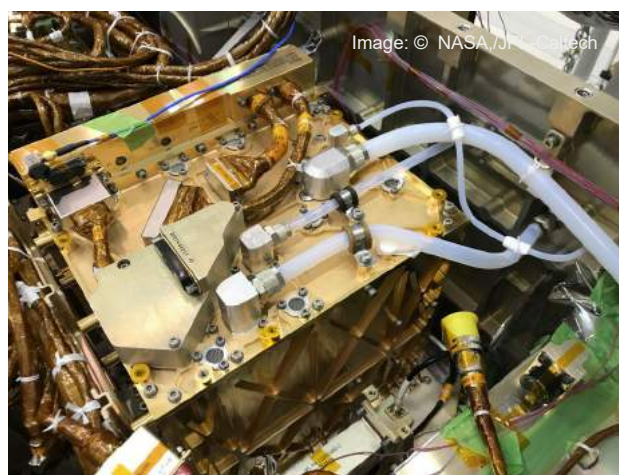


Image: © NASA/JPL-Caltech

electrode-electrolyte boundary. Through a combination of thermal dissociation and electrocatalysis, an oxygen atom is liberated from the CO₂ molecule and picks up two electrons from the cathode to become an oxide ion via oxygen ion vacancies in the crystal lattice of the electrolyte, the oxygen ion is transported to the electrolyte–anode interface due to the applied DC potential.

At this interface, the oxygen ion transfers its charge to the anode, combines with another oxygen atom to form oxygen (O₂), and diffuses out of the anode. What happens then



Inert gases such as nitrogen gas (N₂) and argon (Ar) are not separated from the feed, but returned to the atmosphere with the carbon monoxide (CO) and unused CO₂.

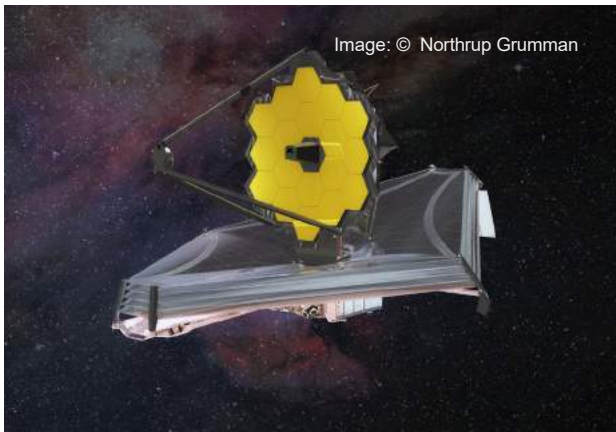
Text Source: NASA/JPL-Caltech/Wikipedia

THE COVER STORY | JWST - JAMES WEBB SPACE TELESCOPE

JAMES WEBB SPACE TELESCOPE

Anticipation for Launch: A Look Inside the James Webb Space Telescope



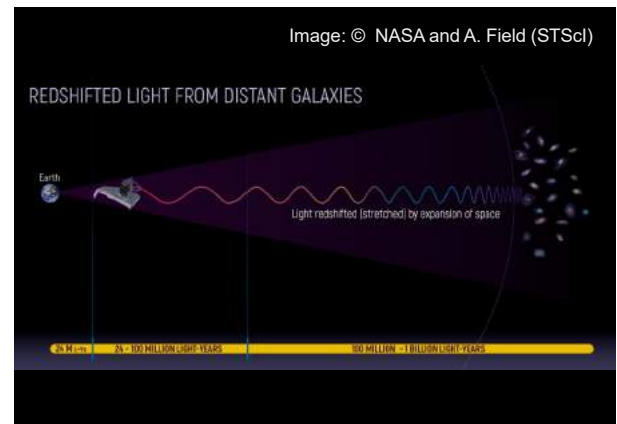


The James Webb Space Telescope (Webb) will be the next great space science observatory, led by NASA in partnership with Europe (European Space Agency – ESA) and Canada (Canadian Space Agency – CSA). The telescope is scheduled for launch on an Ariane 5 rocket from Europe's Spaceport in French Guiana on 31 October 2021. Scientists will use Webb to observe galaxy evolution, the formation of stars and planets, exoplanetary systems, and our own solar system, in ways never before possible. Webb will build on the success of another international endeavor, the Hubble Space Telescope, which is a project of international cooperation between ESA and NASA that has revolutionized the field of astronomy. Webb will not be a like-for-like replacement of Hubble, as it will be building on the success of Hubble's impactful 30-year history thus far. The biggest difference is that it will be optimized for observing infrared light (with limited visible light capabilities), while



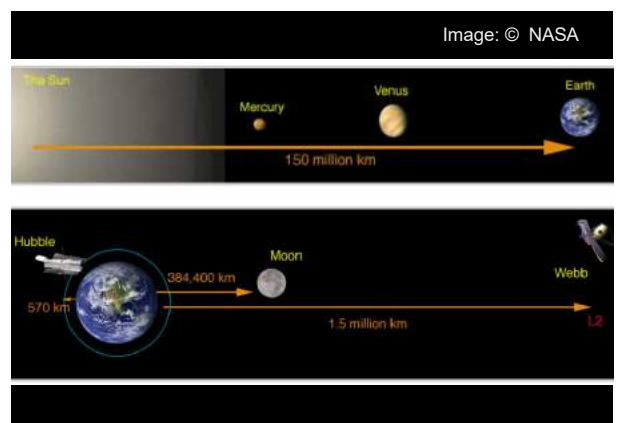
Hubble is optimized for visible and UV light (with limited infrared capabilities). With a bigger mirror - spanning 6.5 meters or 21.3 feet in diameter, compared to Hubble's 2.4-meter mirror, making it the largest telescope ever sent to space - and more advanced instruments, Webb will exceed Hubble's ability to image in the infrared. It is also for this reason that Webb's mirrors are coated in gold, which improves the mirror's reflection of infrared light. Webb's infrared capability means it will be better at looking through dust and gas clouds to reveal the hidden

universe to our eyes: stars shrouded in clouds of dust, water in the atmospheres of other worlds, and the first light from the earliest galaxies ever formed.



It will also be much better for studying highly redshifted objects – those which are very far away. It is therefore expected that Webb will make major contributions to the study of the very early Universe.

The telescope will be orbiting the second Lagrange point (L2), roughly 1.5 million kilometers (1 million miles) from Earth. At Lagrange points, the gravitational pull of equals the force required for a small object to move with them. The L2 point lies outside Earth's orbit while it is going around the Sun, keeping two large masses (in this case, the Sun and the Earth) and all three in a line at all times. Its distanced position here also means it will not be serviceable after launch (unlike Hubble, which occupies a circular Earth orbit roughly 547 kilometers and was therefore serviced by the Space Shuttle five times). Webb requires a distant orbit for several reasons. As Webb will observe primarily in the infrared part of the spectrum, which is a form of heat radiation, the telescope will therefore emit infrared light. To avoid interfering with the very faint astronomical signals with radiation from the telescope, the telescope and its instruments must be very cold. Webb's operating temperature is therefore less than 50 degrees above absolute zero: -223°C (-370°F or 50 Kelvin).



Webb has a large shield that blocks the light from the Sun, Earth and Moon, which otherwise would heat the telescope, and interfere with the observations. At L2, Webb's sunshield can block both the Sun and Earth (and Moon) all the time. The cold and stable temperature environment of the L2 point will allow Webb to make the very sensitive infrared observations needed.

In order for Webb to reach its home in orbit around the L2 point, it will take roughly one to travel this distance. During this trip, Webb will be fully deployed, cooled to its operating temperature, and its systems will be tested and adjusted. These checks will continue until 6 months after launch, at which point routine scientific operations will begin.

Webb's highly anticipated launch follows a series of delays caused by various challenges, including funding and testing – some of which were caused by the global pandemic. In 2020 however, several significant accomplishments were made. .



For example, in May, the entire assembled observatory was successfully folded into its launch position for the first time, as the telescope has been explicitly engineered to fit within a 5.4-meter (17.8 feet) section of the Ariane 5 rocket. In August, it was determined that the commands sent from the Mission Operations Center at the Space Telescope Science Institute (Baltimore, USA) could be successfully connected to the Deep Space Network and to the spacecraft. The final test and deployment of the observatory's 5-layer sunshield, a component that's unique to Webb, was successfully completed in December.

In the coming months leading up to October, the final comprehensive systems check will be completed and the initial scientific program of Webb's observing time will be established (known as "cycle 1"). The observatory will eventually be stowed for the last time, and a final launch readiness exercise will be conducted. It is expected that the telescope will be transported to the launch site in French Guyana in August 2021. Once there, final tests will be performed, and then the spacecraft will be packaged into the Ariane 5.

Assuming weather, temperature, and other conditions cooperate, Webb's launch date is set for 31 October 2021. There is however a launch window for more than a week on either side of this date, and another possible launch window will follow a few weeks later if needed.

As we countdown to October, the space community and the public alike look forward to the impactful science discoveries and awe-inspiring images that Webb will deliver over the coming years.

Article Source: NASA/ESA



Newsletter is now Juventa YP Magazine
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Volume 1, Issue 1, 2019



Volume 2, Issue 1, 2020



Volume 2, Issue 2, 2020



Volume 2, Issue 3, 2020

KNOW YOUR COMMITTEE - PART I



The IAF Workforce Development / Young Professionals Programme Committee is the focal point for activities targeting Young Professionals within the International Astronautical Federation. It was formed to advocate for YPs and prepare a programme at the IAC each year that is tailored to advance the careers of the next generation of space professionals. The committee itself consists of four teams (Career Development, Technical Activities, Communications, and IAF Internal Relations). The roles of these four different teams are described in different sections further below. As a whole, the committee is responsible for a number of activities, including the magazine that you are currently reading. At each annual IAC we try to create activities and events that provide opportunities for YPs to mingle and network amongst themselves, as well as provide the opportunity of face time with space industry leaders and experts. We are also organising technical activities that take place at the IAC and hybrid Global Technical Sessions that are simultaneously accessible online, to give opportunities to YPs to follow these sessions and also present at the IAC even if they are not able to travel to the congress. In addition, in recent years we have started to expand our online and communication activities outside of IAC, to provide resources and overall interesting events to YPs year round. There are many facets to the committee, we hope to highlight some of them in this issue of Juventa to give you an impression of what all we do. We couldn't do all we are currently doing without our fantastic committee members who volunteer their time to make it all happen. Nonetheless, if you have any suggestions on potential improvements of our events or what else we can do to make the IAF events better for YPs - please let us know.

- PATRICK HAMBLOCH (CHAIR, IAF WD/YPP COMMITTEE)



The IAF Relations Team works with multiple IAF Secretariat and IAF Technical and Administrative Committees with specific tasks to improve the visibility and experiences of Young Professionals. The Team also develops and maintains for a long-term strategic plan for the WD/YPP Committee to ever evolve our activities for Young Professionals.

- KEVIN STUBE
(VICE CHAIR, INTERNAL RELATIONS)



Our team supports virtual technical sessions for non-physical as well as for in-person participants to engage in a larger global audience. The team works closely with GTS sessions, accepted authors to ensure smooth execution. Virtual programs/webinars with YPP and other technical sessions have been discussed to expand the team activities beyond the spring meetings and IAC.

- STEPHANIE WAN
(VICE CHAIR, TECHNICAL PROGRAMMES)



Our team work for your development as a young professional. We perform varied and demanding activities within our creative ventures. For our YPs, we emphasize networking activities, trainings, collaborative programs, and other opportunities to learn from peers in the vast space industry. Within IAF framework and your active participation in our activities, you can quickly build a large network.

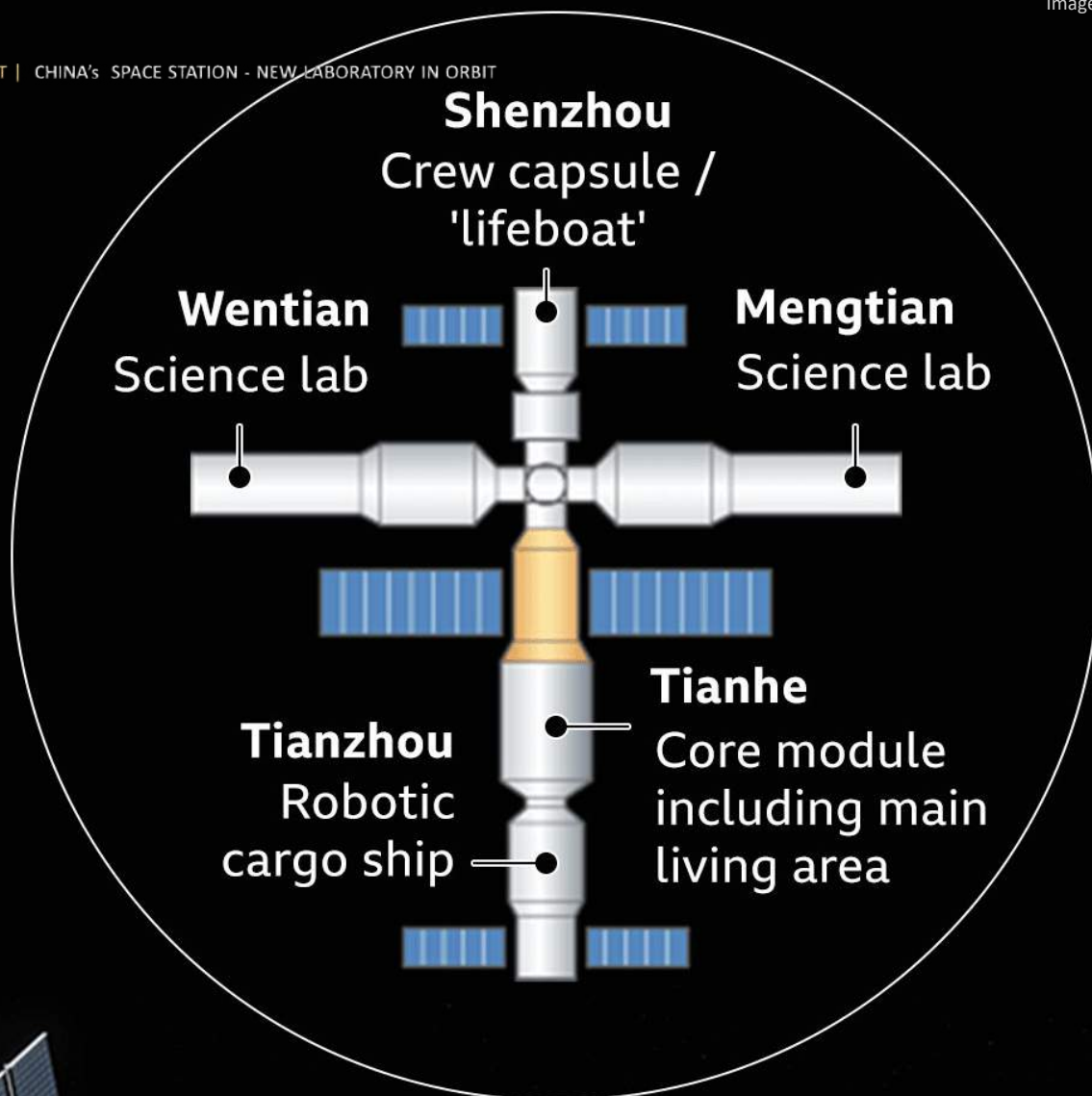
- KATE BECKER
(VICE CHAIR, CAREER DEVELOPMENT)



We make certain that the committee's activities, as well as those of its members, are widely publicized among the international space community. We are in charge of updating social media pages, managing the member's database, sending out monthly news blasts, and publishing the YP magazine "Juventa" quarterly. Our long-term goal is to launch our own technical journal.

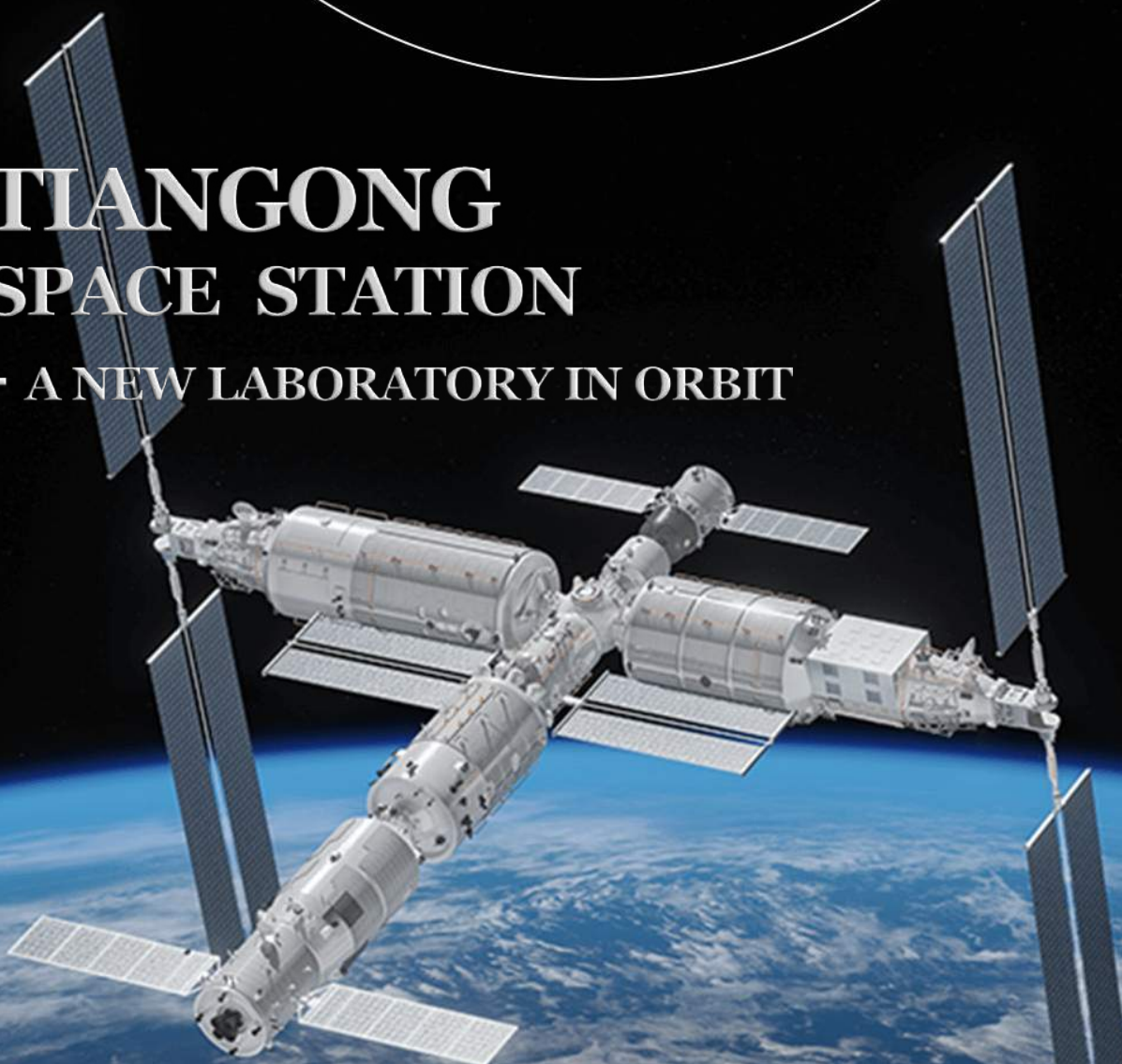
- BALBIR SINGH
(VICE CHAIR, COMMUNICATIONS)

A REPORT | CHINA'S SPACE STATION - NEW LABORATORY IN ORBIT



TIANGONG SPACE STATION

- A NEW LABORATORY IN ORBIT





China's Tiangong space station's core module is now orbiting Earth. The first module, called Tianhe ("Harmony of the Heavens"), launched Wednesday April 28, 2021 atop a Long March-5B Y2 carrier rocket from the Wenchang Spacecraft Launch Site on the northeastern coast of south China's Hainan Province. Tianhe is the Chinese space station's first foundational module. The module is the nation's largest spacecraft, measuring 54.4 feet (16.6 meters) long, 13.8 feet (4.2 meters) across at its widest stage, and weighing 22.5 tons at liftoff.

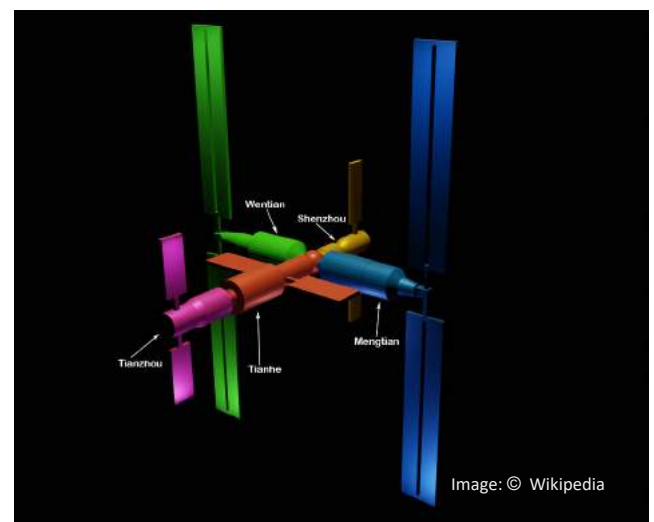
The target is to complete the station by the end of 2022. So this launch will be followed by a couple of more fast missions that will include crew and cargo to facilitate the construction process. The 'Tianhe' Core Cabin Module provides life support and living quarters for three crew members, and provides guidance, navigation, and orientation control for the station. The module also provides the station's power, propulsion, and life support systems. The module consists of three sections: living quarters, service section and a docking hub. The living quarters will contain a kitchen and toilet, fire control equipment, atmospheric processing and control equipment, computers, scientific apparatus, communications equipment to send and receive communications via ground



control in Beijing, and other equipment. As per CGTN, this requires 10 additional missions with the help of three types of Long March launch vehicles, two modules, for crew members and four cargo missions to accomplish the task from 2021 to 2022.

Development of the Long March rocket series allowed the PRC to initiate a commercial launch program in 1985, which has since launched over 30 foreign satellites, primarily for European and Asian interests.

As per space.com and according to Zhou Jianping, chief designer of China's crewed space program, when completed, China's orbiting outpost will form a T-shape with Tianhe at the center and two other modules, Wentian and Mengtian, on each side. China's space station is to operate in low Earth orbit at an altitude from 211 miles (340 kilometers) to 280 miles.



It has a designed lifespan of 10 years, although it could last more than 15 years with appropriate maintenance and repairs, CCTV reported. The other two Laboratory Cabin Modules (LCM) 'Wentian' & 'Mengtian' respectively, will provide additional navigation avionics, propulsion and orientation control as backup functions for the core module.

Both LCMs will provide a pressurised environment for researchers to conduct science experiments in freefall or microgravity which could not be conducted on Earth for more than a few minutes. Experiments can also be placed on the outside of the modules for exposure to the space environment, cosmic rays, vacuum, and solar winds.

Text Source: space.com/Wikipedia



The astronauts of Crew -1
aboard SpaceX Crew Dragon
capsule "Resilience" safely
returned to Earth.



SPACE X CREW-2 ARRIVE AT INTERNATIONAL SPACE STATION

SpaceX Crew-2 arrived at the ISS on 24 April 2021, well ahead of the launch and docking of the Nauka module launching on a Proton-M launch vehicle on 15 July 2021 that will carry a portion of the European Robotic Arm (ERA). Expedition 65 crew members will oversee the installation of Nauka and the ERA on the ISS. Full story can be accessed here: <https://www.theverge.com/2021/4/24/22400857/spacex-capsule-astronauts-nasa-international-space-station>

- Source: [theverge.com](https://www.theverge.com/)/Wikipedia.com

Davide Petrillo

Executive Director
Space Generation Advisory Council (SGAC)

Davide is currently the Executive Director of the Space Generation Advisory Council (SGAC). Davide holds a M.Sc. in Aerospace Engineering from the University of Padova (Italy). His professional experience brought him to London (UK) as a Business Manager for Alten Ltd and previously in Milano (Italy) as a Business Analyst for Accenture, global management consulting company that provides strategy, consulting, technology and operations services. Previously, he was the Team Leader of FELDs Experiment selected by the European Space Agency (ESA) for the Drop Your Thesis! 2014 programme. FELDs tested a tethered electromagnetic soft docking technology in microgravity conditions at the Drop Tower of the Centre of Applied Space Technology and Microgravity (ZARM) in Bremen, Germany. In 2015, he won the "Hans Von Muldau Team Award" for the best team project that took place in Jerusalem at the 66th International Astronautical Congress (IAC). Davide joined SGAC in 2016 and has been appointed as part of the 3rd E-SGW organizing team, the SGC 2018 organizing team specifically focused on the organization and management of the Special Track "Bridging the Space Divide" Working Group, Space Generation Congress 2019 Deputy Manager (Washington D.C., USA) and Space Generation United Manager.

Ciao Davide, thanks for your time! Please introduce yourself and describe yourself in three hashtags!

Thank you for giving me the opportunity to introduce myself to the IAF community! My name is Davide (David + an additional “eh” - yes, it could sound weird to pronounce, in English). I am 28, I am an Aerospace Engineer and I am Italian. Three hashtags for me would be #energetic, #passionate, and #perseverant.

Why did you choose the space sector?

The space field caught me in an unusual way. When I was in high school, my dream was to be an airplane pilot and I decided to apply to the Italian Aeronautical Academy. During the selection process, I got rejected because my legs were 1 cm longer than the standard requirement (a good problem to have, I guess). Because of this, my passion for maths and Aerospace brought me to say “okay, let’s make the airplanes bigger” and I decided to study Aerospace Engineering. From there, space was just an additional small leap to make.

What did lead you to become SGAC Executive Director?

In 2015, I attended my first International Astronautical Congress (IAC) in Jerusalem and with my team I won the “Hans Von Muldau Team Award” for the best team project. This was also where I learnt about SGAC and decided to join the organisation. The following year I joined SGAC as an active volunteer, becoming a member of the 3rd European Space Generation Workshop organizing team. In 2018, I joined the organizing team of the Space Generation Congress (SGC), SGAC’s flagship event, specifically focusing on the organization and management of the Special Track “Bridging the Space Divide” Working Group.

In 2019, I was then selected as SGC2019 Deputy Manager, supporting the organization of the Congress in Washington D.C., USA, and then becoming the manager for Space Generation United 2020, SGAC’s first online congress. Whilst I was supporting the organization of these events, SGAC opened the vacancy for Executive Director and it made perfect sense to apply. I am very happy and honoured with the appointment and I have been thrilled with this adventure so far!

You mentioned the IAC, organized by the IAF. SGAC has been a partner supporting the Congress and other IAF activities. How important is this long-lasting partnership?

That’s right, SGAC and the International Astronautical Federation, as well as its Committees, have been working together for years in a very prolific way.

One very important aspect of the partnership is undoubtedly the series of events we organize with and in association with the IAF. SGAC puts a lot of effort into the Space Generation Congress, which is an event held in conjunction with the IAC, as well as in activities targeting students and young professionals during the IAC. We work with IAF Committees as the Workforce Development - Young Professionals Programme (WD-YPP) Committee, supporting the organization of events part of the IAC Young Professionals Programme, or the NextGen Plenary, or the successful NextGen Summit organized last October, together with the IAF WD-YPP and the IAF Space Education and Outreach Committees, and the International Space Education Board.



Another important aspect of this partnership is that SGAC, being a member organization of the IAF, can support the nomination of young people to join one of the IAF Technical or Administrative committees. Gaining access to such committees are a great opportunity for SGAC members, as they manage to work side-by-side with the sector's leaders.

Overall, partnership is first and foremost important to students and young professionals: our joint activities are vital to raise awareness of the opportunities in the sector, as well as to help young people build a wide network to better access such opportunities.

2020 was a challenging year - how did SGAC fare and how did you cope with it?

Fulfilling our mission has been a hard endeavour. SGAC needed to facilitate and support our global network of students and young professionals, stimulating and propelling the creativity of our community. We took into account a sustainable development of the organization, making sure to address current and future global challenges caused by the pandemic. Most of our events were postponed or cancelled and this required us to make a significant effort to keep our members engaged and motivated with alternative activities.

So we took this as an opportunity to reinvent ourselves and look for other ways to engage with our members. Luckily for SGAC, our members (unsurprisingly!) demonstrated having the right stuff, showing all the leadership needed for the organization to react, re-imagine itself as more agile, innovative and resilient: whilst the world was entering the first wave of lockdowns, SGAC established a COVID-19 Task Force to plan its future steps and activities, coming together to discuss ideas in order to address the pandemic. As a result, in less than one year, SGAC's members ended up organizing more than 100 webinars, with more than 10000 people connected from more than 130 countries. We also took the initiative to organize SGAC's first online congress, bringing together 143 delegates from 53 different countries, for a packed nine-day programme and more than 50 experts and speakers involved.

Despite the hardship, the pandemic has given us the chance to engage and inspire the present and future workforce of the space sector in new ways.

What is your advice to the young professionals and students to have a successful career in the space sector?

First of all: volunteer - Volunteering in organizations in the sector is a rewarding experience in so many ways. It helps you to learn new skills and to build a network of passionate people. If you learn to manage your time properly and lead side activities on top of your university or job workload, it can come in handy to impress potential employers.

Get informed and get involved! Plenty of formal and informal networks exist. Talk with people who work in the field. They'll be happy to answer your questions!

Take part in hands-on projects, as this will help you see what fits you and what doesn't.

Be curious and explore to find a field that you love, and - once you find it - work hard and hold on to your dreams!

And what would instead be your advice to veterans of the sector? How can they help young people flourish?

Listen to what young people have to say! Today's youths are among the most active and engaged, globally: they are activists, innovators, and, more and more, good communicators. Listen to what young people have to say, because no matter the issue your company or organization (or the society at large) might have, young people surely can and should be the solution. Taking the pandemic and consequent crisis as an example: I'm sure young people's ideas are the key to a more inclusive and diverse recovery.



SPACE NEWS

April 2021

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April 29, 2021

STRATOLAUNCH FLIES SECOND TEST FLIGHT

The biggest airplane ever built now has two flights under its belt. Stratolaunch's Roc carrier plane, which is being groomed to haul hypersonic vehicles aloft, conducted its second-ever test flight Thursday morning (April 29). The giant aircraft, which features a wingspan of 385 feet (117 meters), took off from Mojave Air and Space Port in southeastern California at 10:28 a.m. EDT (1428 GMT; 7:28 local California time) on a data-gathering shakeout cruise that lasted three hours and 14 minutes. Roc reached a maximum altitude of 14,000 feet (4,267 m) and a top speed of 199 mph (320 kph) during test flight, which Stratolaunch deemed a success.

- Source: space.com



April 30, 2021

NASA CANCELS SPACEX'S 2.9 BILLION MOON LANDER CONTRACT AFTER PROTESTS

NASA has suspended work on SpaceX's new \$2.9 billion lunar lander contract while a federal watchdog agency adjudicates two protests over the award, the agency said. Putting the Human Landing System (or HLS) work on hold until the GAO makes a decision on the two protests means SpaceX won't immediately receive its first chunk of the \$2.9 billion award, nor will it commence the initial talks with NASA that would normally take place at the onset of a major contract. Elon Musk's SpaceX was picked by NASA on April 16th to build the agency's first human lunar lander since the Apollo program, as the agency opted to rely on just one company for a high-profile contract that many in the space industry expected to go to two companies. NASA has said picking one company was the best decision it could make at the time with the funds made available from Congress. Last year, Congress gave the agency \$850 million of the \$3.3 billion it requested to procure two lunar landers.

- Source: theverge.com



April 26, 2021

ARIANESPACE LAUNCHED 36 ONEWEBS ON SOYUZ

Arianespace launched 36 OneWeb satellites on a Soyuz rocket, bringing the entire OneWeb constellation to 182 satellites, Arianespace said. Flight ST31 was the 56th Soyuz mission carried out by Arianespace and its Starsem affiliate; it was the 326th mission in the Arianespace family of launchers, bringing the total number of satellites launched by Arianespace to 868. The satellite prime contractor is OneWeb Satellites, a joint venture of OneWeb and Airbus Defence and Space. Starsem's shareholders are Arianespace, ArianeGroup, the Russian state space corporation Roscosmos and the Samara Space Center RKTs-Progress.

- Source: spacewatch.global

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March 22, 2021

ISRO'S FREE SPACE QKD OVER 300 m

For the first time in the country, ISRO has successfully demonstrated free-space Quantum Communication over a distance of 300 m. A number of key technologies were developed indigenously to accomplish this major feat, which included the use of indigenously developed NAVIC receiver for time synchronization between the transmitter and receiver modules, and gimbal mechanism systems instead of bulky large-aperture telescopes for optical alignment. The demonstration has included live videoconferencing using quantum-key-encrypted signals. This is a major milestone achievement for unconditionally secured satellite data communication using quantum technologies.

-Source: [ISRO](#)



April 30, 2021

ISS EXPEDITION - 65/66 HEROES

Akihiko Hoshide (born December 1968), is a Japanese engineer, JAXA astronaut, and current Commander of the International Space Station. On August 30, 2012, Hoshide became the third Japanese astronaut to walk in space. **Robert Shane Kimbrough** (born June 1967) is a retired United States Army officer, and a NASA astronaut. Kimbrough is a veteran of three spaceflights, the first being a Space Shuttle flight, and the second being a six-month mission to the ISS on board a Russian Soyuz craft. He was the commander Expedition 50. **Thomas Pesquet** (born February, 1978) is a French aerospace engineer, pilot, and ESA astronaut. From November 2016 to June 2017, Pesquet was part of Expedition 50 and Expedition 51 as a flight engineer. Pesquet returned to space in April 2021 on board the SpaceX Crew Dragon for a second six-month stay on the ISS. **Megan McArthur** (born August, 1971) is an American oceanographer, engineer, NASA astronaut. McArthur has flown one space shuttle mission, STS-125 and one SpaceX mission, SpaceX Crew-2 on Crew Dragon Endeavour.

- Source: [Roscosmos/wikipedia](#)



March 23, 2021

ASTROSCALE CELEBRATES SUCCESSFUL LAUNCH OF ELISA-d

Astroscale Holdings Inc. ("Astroscale"), the market leader in satellite servicing and long-term orbital sustainability across all orbits, confirmed the successful launch of its End-of-Life Services by Astroscale demonstration (ELISA-d) mission. This marks the start of the world's first commercial mission to prove the core technologies necessary for space debris docking and removal. ELISA-d, which consists of two satellites stacked together was launched by GK Launch Services into a 550 km orbit on a Soyuz rocket from the Baikonur Cosmodrome in Kazakhstan on Monday, March 22, at 6:07 am (UTC).

- Source: [Astroscale](#)

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March 30, 2021

VIRGIN GALACTIC UNVEILS VSS IMAGINE SPACESHIP III

Virgin Galactic today unveiled the Company's first Spaceship III in its growing fleet, VSS Imagine. The spaceship showcases Virgin Galactic's innovation in design and astronaut experience. Imagine also demonstrates progress toward efficient design and production, as Virgin Galactic works to scale the business for the long-term. VSS Imagine will commence ground testing, with glide flights planned for this summer from Spaceport America in New Mexico. The breakthrough livery design, finished entirely with a mirror-like material, reflects the surrounding environment, constantly changing color and appearance as it travels from earth to sky to space.

-Source: [Virgin Galactic](https://www.virgin Galactic.com)



April 12, 2021

UAE SELECTS NEW ASTRONAUTS

The United Arab Emirates doubled the size of its astronaut corps April 10 with the selection of two new astronauts, including the first woman, who will train at NASA starting later this year. The UAE government announced it picked Nora AlMatrooshi and Mohammad AlMulla from a pool of 4,305 applicants to join the country's small astronaut corps. They join Hazzaa AlMansoori and Sultan AlNeyadi, the first Emirati astronauts selected in 2018. AlMatrooshi is the first woman selected as an Emirati astronaut. A mechanical engineer, she has been working for the National Petroleum Construction Company in the UAE. AlMulla is a pilot and head of the training department of the Dubai Police's Air Wing Centre. The two emerged from a selection process that started after the application period for the astronaut program closed in May 2020. That effort, run by the Mohammed Bin Rashid Space Centre (MBRSC), narrowed down the 4,305 initial applicants to 122 candidates, who were interviewed virtually.

- Source: [MBRSC/Spacenews.com](https://www.mbrsc.gov.ae)



April 28, 2021

NASA REMEMBERS MICHAEL COLLINS

Former NASA astronaut Michael Collins passed away on April 28, 2021. "Today the nation lost a true pioneer and lifelong advocate for exploration in astronaut Michael Collins," said acting NASA Administrator Steve Jurczyk. "As pilot of the Apollo 11 command module – some called him 'the loneliest man in history' – while his colleagues walked on the Moon for the first time, he helped our nation achieve a defining milestone. He also distinguished himself in the Gemini Program and as an Air Force pilot.

- Source: [NASA](https://www.nasa.gov)

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April 3, 2021

FIRST HIGH DEFINITION IMAGES FROM TIANWEN - I

The China National Space Administration made public on Thursday morning the first high-definition pictures of Mars taken by the nation's spacecraft. The pictures – two black-and-white and one color – were shot recently by China's Tianwen 1 robotic probe when the spacecraft was travelling in Mars orbit, according to the administration. The two black-and-white 7-meter-resolution images were taken by the high-definition camera on Tianwen 1's orbiter when the probe was about 330 to 350 kilometers above the Martian surface. Craters, mountain ridges and sand dunes on the red planet are clear on the pictures.

- Source: [CNSA](#)



April 29, 2021

ESA AND ASA TO BUILD SECOND DEEP SPACE DISH IN AUSTRALIA

ESA and the Australian Space Agency announced the construction of a second 35-metre, deep space antenna at ESA's New Norcia station, located 140 kilometres north of Perth in Western Australia. The 620-tonne antenna will be a new model complementing the existing deep space antenna on the site, with novel functionality and support for additional communication frequencies. It will feature the latest in deep space communication technology, including a super-cool 'antenna feed' that will be cryogenically cooled to around -263 C and increase data return by up to 40%. The antenna will be so sensitive it can detect signals far weaker than the signal from a mobile phone - if there were one - on the surface of Mars. The new deep space antenna at the New Norcia site is a joint undertaking contributing to the long-term cooperation between ESA and Australia in the space domain.

-Source: [ESA](#)



May 3, 2021

NASA'S NEW ADMINISTRATOR SEN. BILL NELSON

Sen. Bill Nelson was sworn in as the 14th NASA administrator on May 3, 2021, tasked with carrying out the Biden-Harris administration's vision for the agency. Nelson chaired the Space Subcommittee in the U.S. House of Representatives for six years and later served as the Ranking Member on the Senate Commerce, Science, and Transportation Committee, where he was recognized as the leading space program advocate in Congress. In 1986 he flew on the 24th flight of the Space Shuttle. The mission on Columbia orbited the earth 98 times over six days. Nelson conducted 12 medical experiments including the first American stress test in space and a cancer research experiment sponsored by university researchers.

- Source: [NASA](#)

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April 1, 2021

JIM BRIDENSTINE JOINS VIASAT'S BOARD

Former NASA administrator Jim Bridenstine is joining space-based broadband firm Viasat's board of directors as his latest post-NASA gig, after joining a space-focused private equity firm in January. Wading into the world of satellite internet, he says he's concerned about the digital divide and the future of humanity, and he wants to try something new. Southern California-based Viasat, a longtime provider of internet from space, plans to launch its technologically complex but long-delayed trio of internet satellites, called ViaSat-3, in roughly six-month intervals beginning in the first quarter of 2022.

- Source: theverge.com

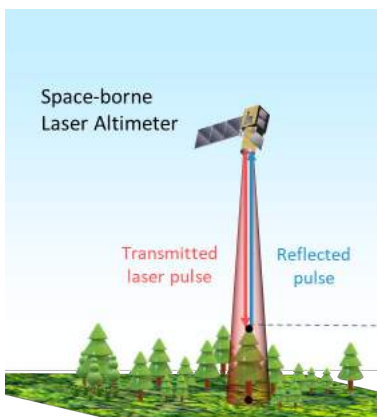


April 30, 2021

LITHUANIA BECAME ESA ASSOCIATE MEMBER

Lithuania signed an Association Agreement with ESA on 28 April 2021. This Association Agreement between ESA and the Government of the Republic of Lithuania, builds on the successful results achieved under the previous frameworks of cooperation and will enter into force for a duration of seven years. Comprising 18 Articles and two Annexes, it orchestrates the strengthening of Lithuania's relations with ESA. Ms Aušrinė Armonaitė, Minister of Economy and Innovation, signed the Association Agreement between the Government of the Republic of Lithuania and ESA on 28 April in Vilnius. Associate membership will become effective upon notification that respective internal procedures have been completed. For about a decade, ESA and Lithuania have been engaged in various forms of cooperation, first under a general Cooperation Agreement, followed by a European Cooperating State (ECS) Agreement.

- Source: [ESA](https://esa.eu)



March 26, 2021

JAXA AND NTTDATA LAUNCH JOINT RESEARCH ON SPACE-BORNE LASER ALTIMETER

Japan Aerospace Exploration Agency (JAXA), the Japanese national aerospace and space agency, and NTT DATA Corporation, a leading digital business and IT services provider, will jointly conduct research to enhance the precision of three-dimensional mapping using laser altimeters (LIDAR1) mounted on a satellite or other spacecraft. The purpose of this joint research is to solve the technical challenges in 3D mapping from satellites over forest areas covered with trees and vegetation, and to improve the accuracy of 3D maps used in a variety of fields such as disaster response and management as well as preparing various types of hazard maps in the world.

- Source: [JAXA](https://jaxa.jp)



NEWS

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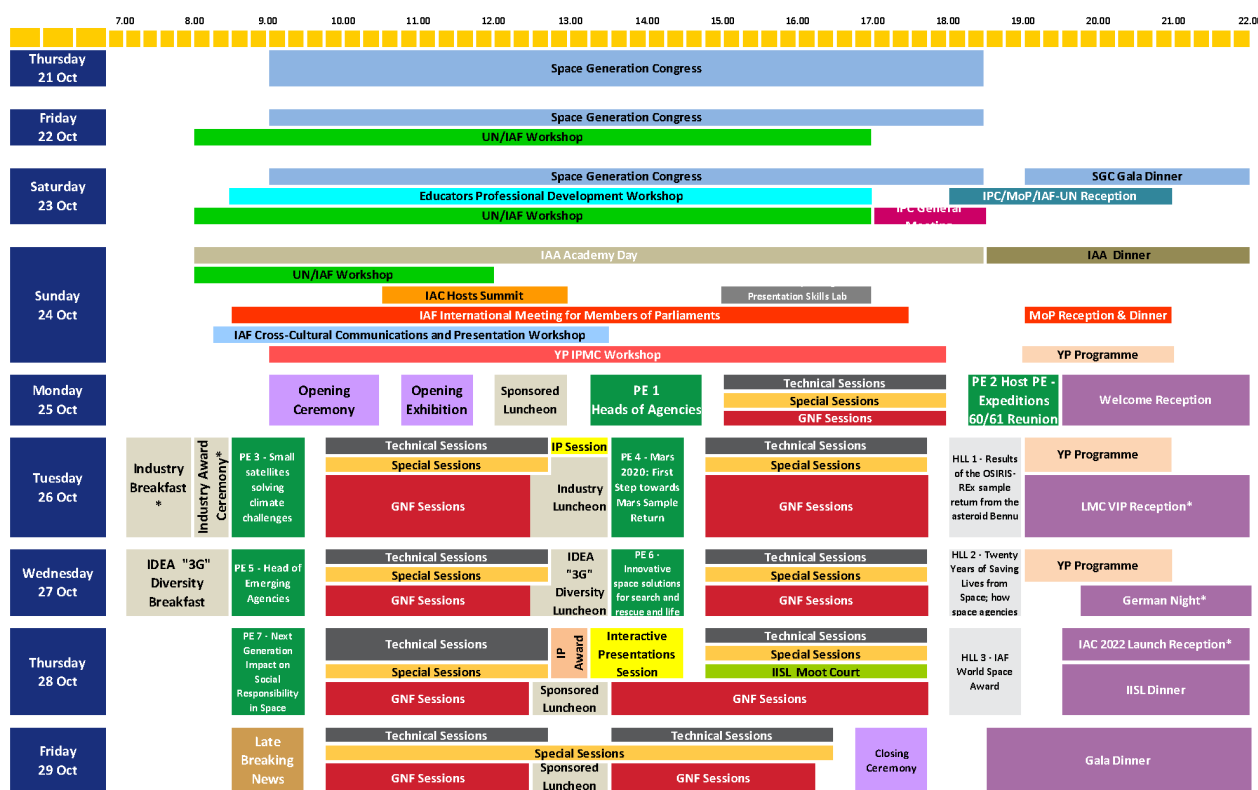
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Please Note: *By invitation only; Pre-Congress events as well as the IISL Moot Court are dedicated to the respective participants



NEWS



GLEX 2021

GLOBAL SPACE EXPLORATION CONFERENCE

DATE: 14 - 18 JUNE, 2021

VENUE: TAVRICHESKY PALACE, ST. PETERSBURG, RUSSIA 191015

2021 will celebrate the 60th anniversary of Yuri Gagarin's spaceflight – marking the beginning of humankind's spaceflight era. To celebrate this important milestone, the International Astronautical Federation (IAF) and ROSCOSMOS are organizing the Global Space Exploration Conference (GLEX) 2021 that will take place in St. Petersburg, Russian Federation from 14 – 18 June 2021. The Conference, co-organized by the International Astronautical Federation (IAF) and ROSCOSMOS, will bring together leaders and decision-makers within the science and human exploration community – engineers, scientists, entrepreneurs, educators, agency representatives and policy makers. The leaders in the field will converge in St. Petersburg to discuss recent results, current challenges and innovative solutions and it will contain several opportunities to learn about how space exploration investments provide benefits as well as discuss how those benefits can be increased through thoughtful planning and cooperation. GLEX 2021 will consist of:

- an Opening Ceremony with prominent speakers,
- a Plenary Programme with panel discussions,
- Keynote Lectures,
- a Technical Programme with Sessions in several parallel technical streams,
- an IAF Global Networking Forum (IAF GNF) Programme,
- Small Space Exhibition,
- an attractive social and networking programme including a Welcome Reception and a Gala Dinner,
- a pre-conference Next Generation Seminar,
- Post-conference cultural visits to landmarks sites of Saint Petersburg,
- Live streaming of selected sessions.

[PROGRAMME](#)

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[ACCOMMODATION](#)



Organizer:



Host:



14 - 18 JUNE 2021

St. Petersburg, Russia

60th Anniversary of Yuri Gagarin's Spaceflight



GLEX 2021
GLOBAL SPACE EXPLORATION
CONFERENCE

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NEWS



72ND INTERNATIONAL ASTRONAUTICAL CONGRESS

25 - 29 October 2021, Dubai, UAE

IAF DISTINGUISHED SERVICE AWARD 2021

Congratulations to the IAF WD/YPP Committee members
for being awarded Distinguished Service Award 2021

RYAN L. KOBRICK, DSA 2021



Ryan L. Kobrick, Ph.D. is the Integrated Product Team Lead (IPTL) for the Human Lander System (HLS) Environmental and Control Life Support System's (ECLSS) Atmospheric Monitoring Subsystem (AMS) at Paragon Space Development Corporation (PSDC). Dr. Kobrick additionally acts as a PSDC point of contact for Dust Mitigation Working Group efforts for HLS. As the PSDC IPTL HLS ECLSS AMS, Ryan contributes to enabling human spaceflight exploration to the Moon and on to Mars. Ryan is active in the global space community contributing to committees in the American Institute of Aeronautics and Astronautics (AIAA) and the International Astronautical Federation (IAF). Dr. Kobrick holds a Bachelor's in Mechanical Engineering (Queen's University), Master's of Space Studies (International Space University), Master's of Science in Aerospace Engineering (Pennsylvania State University), and Doctorate of Philosophy in Aerospace Engineering Sciences (Bioastronautics, University of Colorado at Boulder).

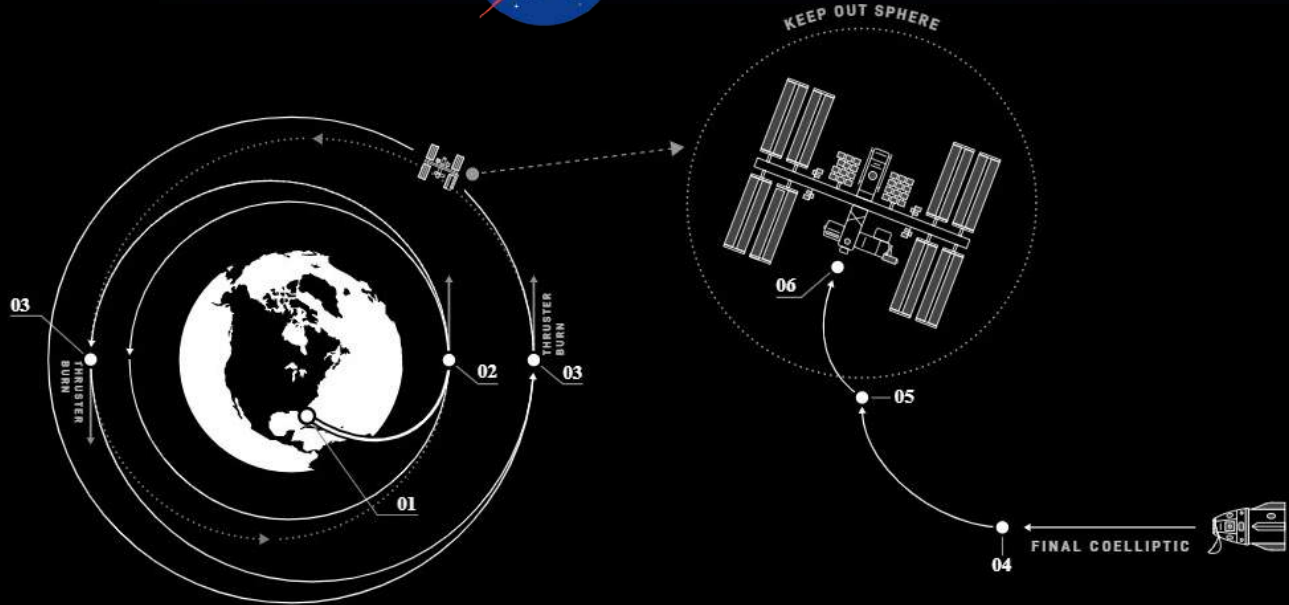
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STEPHANIE WAN, DSA 2021



Stephanie Wan is a Systems Analyst at Overlook Systems Technologies Inc., providing support to NASA's Space Communication and Navigation (SCaN) Office in Washington, DC. Her leadership experiences through the Space Generation Advisory Council (SGAC) over the past 9 years and passion to connect her global network with creative opportunities led to secondments with the U.S. Department of State (Space and Advanced Technology Office) and the Department of Commerce (National Coordination Office on GPS). She graduated from American University with a Bachelors degree in International Studies, and a Masters degree in International Science and Technology Policy, with a focus in Space Policy from The George Washington University – Space Policy Institute. Her international background and travel interests have led her to live/study abroad in Belgium, China, Japan, and South Korea, as well as learn to speak more than five different languages.

[Read more ...](#)

Crew-2 is the second crewed operational flight of a Crew Dragon spacecraft, and its third overall crewed orbital flight. The mission was launched on 23 April 2021 at 09:49:02 UTC (5:49:02 AM EDT). The Crew-2 mission transported four members of the crew to the International Space Station (ISS). Crew-2 also used the same capsule as Demo-2 (Endeavour) and used the same booster as Crew-1. Endeavour docked with the International Space Station on 24 April 2021 at 09:08 UTC. SpaceX Crew-2 arrived at the ISS on 24 April 2021, well ahead of the launch and docking of the Nauka module launching on a Proton-M launch vehicle on 15 July 2021 that will carry a portion of the European Robotic Arm (ERA).



- Text Source: Wikipedia

K. Megan McArthur
NASA
Spacecraft Pilot

Shane Kimbrough
NASA
Spacecraft Commander

Thomas Pesquet
ESA
Mission Specialist - 2



Akihiko Hoshide
JAXA
Mission Specialist - 1





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