



SPACE GENERATION
ADVISORY COUNCIL

Empowering the Next Generation: The Key to Long-Term Sustainability in Outer Space Activities

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Agenda



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- Importance of Long-Term Sustainability in Outer Space Activities
- Why Empowering the Next Generation is Crucial for Long-Term Sustainability in Outer Space Activities
- How Space Exploration Project Group (SEPG) at SGAC is Contributing to the Involvement of Young Generations in Space Exploration
- Conclusion

Long-Term Sustainability in Outer Space Activities



- It is crucial to prioritize long-term **sustainability** in outer space activities to ensure that the benefits of space are **accessible** to all and **preserved** for **future generations**.
- Empowering the **next generation** is crucial to ensuring the **longevity** of our endeavors in space and contributing to a **sustainable future**.



Image by NASA

Why Empowering the Next Generation is Crucial for Long-Term Sustainability in Outer Space Activities



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- They will play a vital role in **shaping the future** of space exploration and development.
- They will inherit the legacy of **current space activities** and be responsible for **making decisions** that impact sustainability.
- **Engaging** and **educating** the next generation will ensure they have the skills, knowledge, and values needed for **informed decision-making**.
- The next generation will bring **new perspectives** and **innovative ideas** to the table.

“Leaders are like gardeners ... As leaders we are not only responsible for harvesting our own success but for cultivating the success of the next generation.”

Susan Collins

Empowering the Next Generation for a Sustainable Future in Space



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A recent study commissioned by Inmarsat and conducted across **11 countries** with **20,000 participants** worldwide revealed a concerning trend of **decreasing engagement** in space among younger generations, particularly **“Generation Z”** ^{1,2}.

¹ Inmarsat, 2022. "Value of Space Report." [Online]. Available: <https://www.inmarsat.com>

² "Generation Z" is defined as the generation born between the late 1990s and early 2010s

Empowering the Next Generation for a Sustainable Future in Space (Proposed Solutions)



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- **Emphasize the Importance of Sustainability and Peaceful Uses of Outer Space**
 - Highlight the need for prioritizing space sustainability to engage the younger generations.
 - Inspire and motivate younger generations to become active participants in space sustainability
- **Foster Collaboration**
 - Encourage cross-disciplinary partnerships between the space industry, environmental organizations, arts, education, media and other sectors
 - Create new and innovative approaches to space sustainability through collaboration
- **Invest in Education**
 - Invest in education and outreach programs to educate and inspire the next generation about space sustainability
 - Provide opportunities for hands-on experience
 - Encourage young people to pursue careers in STEM¹ fields.
 - Provide more mentorship and internship opportunities

¹ STEM stands for Science, Technology, Engineering, and Mathematics.

Space Generation Advisory Council

Space Generation Advisory Council (SGAC), a global non-governmental, non-profit organisation and network which aims to **connect** and **represent** university students and young space professionals ages 18 – 35 to the United Nations, space agencies, industry, and academia.

Our Mission

To enable and empower the youth in advancing humanity through the peaceful uses of outer space

Our Vision

The peaceful and inclusive use of space for the benefit of all



SGAC The Five Pillars



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Events

**Project
Groups**

**Professional
Development**

Scholarships

**UN-related
Activities**

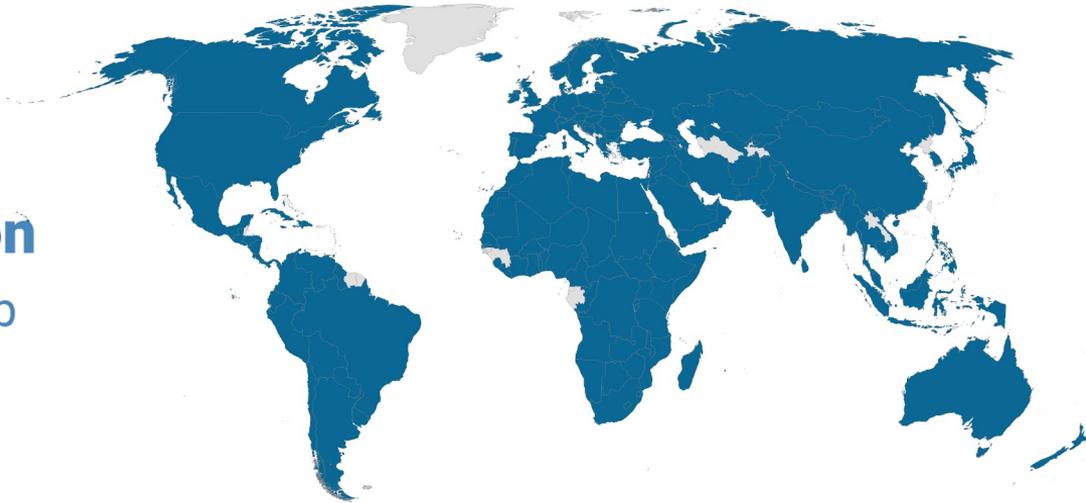
Our Project Group



6 Regions, 700+ Members



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SEPG's Projects



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**Conference
Papers**

**Mission Design
Projects**

**Analog Mission
Research Project**

**Space Exploration
RoadMap**

**Newsletter &
Book Project**

Conference Papers



- Our members engage in ongoing research efforts centered on space exploration
- These papers are presented at international conferences, such as IAC, IEEE, AAE, etc.
- **7 papers** from our project group were accepted for presentation at **IAC 2022** in Paris:
 - Lessons Learned From SGAC's ACHIEVED Mission Design Project, Adapting Projects Based on Curiosity and Needs of the Next Generation.
 - Mercury Sample Return Mission Design Utilizing Innovative Systems and Technologies
 - Space Radiation Safety For Female Astronauts: A Thorough Study on Radiation-Induced Cancer
 - Immersion in the New Space Age: Harnessing Innovative Technology For a More Diverse and Inclusive Outreach to Inspire the Next Generation
 - Review of Menstrual Blood-Derived Cell Therapy to Support Astronauts in Long-Term Space Missions.
 - CubeSat-Based Mission Architecture for Outer Planet Exploration: Uranus Case Study
 - Multiphase Geo-Energy Production on Mars Using Geologic CO₂ Storage in the Sedimentary Basins

Mission Design Project



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- **ACHIEVED** is an international (15+ countries) and interdisciplinary team of 20 students and young professionals who are preparing the young generation to design space exploration missions.
 - **HOPE (High-technology Operations for Planetary Exploration)**
 - This research team works on a high-tech realistic space mission to Neptune. The mission involves complex engineering, mission operations, and scientific aspects.
 - **RAISE (Research Assembly for Innovative projects in Space Exploration)**
 - This research team aims to investigate an innovative approach to a Mercury sample return mission. The science gathered from this mission will bring us closer to understanding the formation of Mercury.



Analog Mission Research



- **DREAM** initiative (Design and Research of Exploratory Analogue Missions) aims to foster an inclusive community which shares the common vision of using analogue missions as scientific testbeds for space exploration.
 - Centralised database
 - Combining the past and current knowledge of analogue missions (including research, logistics, operations etc.) on one user-friendly platform.
 - Standardization
 - Developing a quality management standard for future analogue astronaut missions to ensure rigorous cohesion within the global community.

RoadMap Committee



- **Roadmap Committee** initiative aims to directly implement Space Exploration ideas from the next generation in an inclusive **Space Exploration Roadmap** that can be provided to the space community. The program will start with 4 sub-committees:
 - **Planetary Sciences**
 - **Human Safety for Space Exploration**
 - **Engineering challenges and robotics**
 - **Gender Equality and Diversity in Space Exploration**

Newsletter & Book Project



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SPACE EXPLORATION PROJECT GROUP

NEWS FROM YOUR SOLAR SYSTEM AND BEYOND



ISSUE 1 JUNE 2020

Newsletter



SPACE X DEMO 2 A new era of human spaceflight

Location is Launchpad 39A, Florida, date is May 30th, 7:22pm UTC, 3:22 local time: this is a new historical date in the era of human spaceflight.

Almost 9 years after the last Space Shuttle mission, STS 135, NASA, more in general USA, gained again the capability of sending human beings in orbit thanks to the new crew vehicle Dragon (renamed Launch America by the crew members) developed by Space-X as part of the NASA's Commercial Crew Programme. The two astronauts, Robert Behnken and Douglas Hurley, lifted-off from the Kennedy Space Center on board the Falcon 9 and successfully docked with the International Space Station (ISS) the following day at 14:19 UTC, where their connational Chris Cassidy, ISS Commander, and the two Russia crew members, Anatoly Ivanishin and Ivan Vagner, welcomed them on-board.



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SEPG

Performed and Upcoming Events

In these difficult times with millions of people affected by the on-going worldwide coronavirus pandemic, SGAC members prepared a solidarity message to comfort people and let them know that nobody is alone:

[SGAC sharing a message of hope amidst CoVid-19](#)

The SEPG leadership team is working on a series of webinars on different topics with professionals and experts in the field:

- Can we mine the Moon? Benefits and challenges of Space Resources Utilization with Mr. Paolo Pino from Politecnico di Torino
- Forward to the Moon: Sustainable Lunar Activities and Principles for a Moon Village, with Dr. Piero Messina from ESA, Prof. Mark Sundahl from Cleveland Law and Ms. Dimitra Stefoudi from Leiden University
- Towards a Lunar Economy with Dr. Giuseppe Reibaldi from the Moon Village Association and Mr. Carlos Espejel from ispace Europe
- Fly me to the Moon - Analogue Missions for Lunar Exploration with Dr. Ilaria Cinelli, SEPG Co-Lead, and Dr. Aleksander Wasniowski from LUNARES

All the videos are posted on the SEPG Facebook page:
https://www.facebook.com/pg/sepg.sgac/videos/?ref=page_internal

SEPG is proud to announce that starting from the end of May, a group of SEPG members joined the SGAC team that will participate in the international Mars City State Contest organized by the Mars Society. A team of 30 students and professionals will try to design in a bit more than a month a city that could self-sustain as much as possible 1'000'000 inhabitants.

All the information about the contest can be found at:



Website

Remind that SGAC has a dedicated Calendar with all the upcoming webinars, give it a look to see what is coming next:

<https://spacegeneration.org/events/category/webinar>



VENUS

SEPG's Goals



- Create an international and interdisciplinary forum integrated by students and young professionals to approach Space Exploration from a multidisciplinary point of view
- Integrate the perspectives of the next generation of space explorers into the GER implementation.
- Support members to foster space exploration careers by creating chances in educational activities, space projects and networking events.



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Conclusion



The future of outer space activities lies in the hands of the young generation and their commitment to sustainable practices. It is time to support and empower next generation!

THANK YOU

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