ANNUAL REPORT 2023

SPACE GENERATION ADVISORY COUNCIL

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In support of the United Nations Programme on Space Applications

c/o European Space Policy Institute (ESPI)
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Acknowledgements

The SGAC 2023 Annual Report was compiled and edited by Dhanisha Sateesh (Reports Team Coordinator), Aoibhín Crowley (Report Editor), Silvia Toro Sima (Report Editor), and Mudra Bansod (Report Designer). Other contributors to this report also include Tatiana Komorná (Operations Officer) and Maria Urteaga (Alumni Team Designer). Members of the Space Generation Advisory Council worldwide were the primary contributors to the content of this report.

The Space Generation Advisory Council (SGAC) in Support of the United Nations Programme on Space Applications is a non-profit organisation and professional network that represents university students and young professionals in the space sector. SGAC has permanent observer status at the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) and is a member of the UN Economic and Social Council and the International Astronautical Federation (IAF). Headquartered in Vienna, with full-time staff, the organisation is supported by a volunteer network of over 21,000 members in more than 150 countries. SGAC is a registered 501(c)(3) in the United States.

Table of Contents

ACRONYMS

Term	Definition
AF	Africa
AP	Asia Pacific
CA	Central America
E	Europe
EU	European Union
ESA	European Space Agency
IAC	International Astronautical Congress
IAF	International Astronautical Federation
ISS	International Space Station
JAXA	Japan Aerospace Exploration Agency
LEO	Low Earth Orbit
ME	Middle East
NEO	Near Earth Object
NPoC	National Point of Contact
PG	Project Group
SA	South America
SDGs	Sustainable Development Goals
SGAC	Space Generation Advisory Council
SGAPP	Space Generation Advocacy and Policy Platform
SGC	Space Generation Congress
SGFF	Space Generation Fusion Forum
SGW	Space Generation Workshop
STEM	Science, Technology, Engineering and Maths
UAE	United Arab Emirates
UN	United Nations
UN COPUOS	United Nations Committee on the Peaceful Uses of Outer Space
UN OOSA	United Nations Office for Outer Space Affairs
USA	United States of America

SPONSORS AND PARTNERS

SGAC is ever grateful for the generous support of its sponsors and partners, who continue to expand both their financial and intellectual contributions to the organisation. From scholarships to mentoring, to advising and sponsoring, contributions from our sponsors are invaluable towards creating the experience that SGAC is able to offer its members. SGAC would like to thank all our sponsors and partners again for their contributions towards another successful year for SGAC.

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ispace


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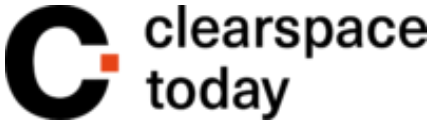
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VELOCITY
GOVERNMENT RELATIONS


SPINLAUNCH


DHV


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COMSPOC

Silver

SEDS USA

JOERG KREISEL
International Consultant

SCOT FORGE

HEDRON

CUBESPACE

KPMG

TACTICAL BLUE
SPACE VENTURES

OXFORD SPACE SYSTEMS

GGPEN
Gabinete de Gestão do Programa Espacial Nacional

GIMAS

THE COALITION FOR DEEP SPACE EXPLORATION

NEWSPACE SYSTEMS

abl SPACE SYSTEMS

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AIA AEROSPACE INDUSTRIES ASSOCIATION

METAVISIONARIES

Alén .space

AIRBUS
U.S. SPACE & DEFENSE

avs
added value solutions

UBOTICA
SEEING BEYOND

riis

YORK SPACE SYSTEMS

HESPACE
it's all about people

Bronze


SECURE WORLD
FOUNDATION


ASTRALINTU
SPACE TECHNOLOGIES


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TETHERS
UNLIMITED

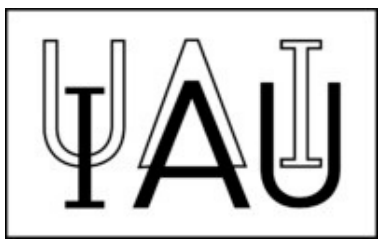

AIAA
SHAPING THE FUTURE OF AEROSPACE


KBR


TELECOSS


hellassat


PANGEA
AEROSPACE


IAU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SPACE LEADERS


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UNITED NATIONS
Office for Outer Space Affairs


INTERNATIONAL SPACE UNIVERSITY
ISU


3AF
Groupe Grand Est


FONDAZIONE
E.AMALDI


ISEB
International Space Education Board


AYAA


KARI
Korea Aerospace Research Institute


ASTRONAUTICA AD PACEM HOMINUMQUE PROGRESSUM
IAF


AMOS
Advanced Maui Optical and Space Surveillance Technologies Conference


ACADEMIE DE L'AIR ET DE L'ESPACE
AIR AND SPACE ACADEMY
AAE


SSPI
SPACE & SATELLITE PROFESSIONALS INTERNATIONAL


ESPI

FROM THE EXECUTIVE OFFICE

Letter from the Chairs

Hamza Hameed,
SGAC Chair

Antonino Salmeri
SGAC Co-Chair

Dear SGAC members, colleagues, alumni, and supporters,

2023 has been an outstanding year for SGAC. As we take a moment to reflect upon the year, it is an honour and a privilege to foreword our Annual Report.

Firstly, thank you to all of our almost 30.000 SGAC members and volunteers in 165 countries across the globe. We are first and foremost a student and young professional-led organisation. Our successes and achievements are only possible thanks to the countless hours of effort and hard work from our voluntary team members and staff. The incredible achievements recorded in this annual report is testament to the impact you, as a passionate group of young space people, have across the space industry and the world.

Thank you also to our alumni, supporters, and sponsors who enable us to carry out our mission. Your steadfast support allows us to connect, grow, and empower students and young professionals across the world. Your continued commitment allows us to invest in the next generation of young space leaders, building a better future in space for the benefit of all humanity.

One of the luckiest parts of leading SGAC is the opportunity to witness the tremendous impact our members make across the world. In 2023, we delivered impactful statements outlining the united policy position of the space youth on space and climate change, lunar governance, and space sustainability before the UN Committee on the Peaceful Uses of Outer Space. All our global events have been incredibly successful: SGx continued its remarkable growth year after year, the Space Generation Fusion Forum was the largest in the history of SGAC, and the Space Generation Congress was one of the highlights of the IAC in Baku. We also officially launched our new Platform for Education & Professional Development, providing a focal point for all our activities in this key area. Finally, our Endowment Fund, the anchor providing strong financial foundations for our long-term growth, passed an historic Million dollars mark in November 2023.

As we gear up for our 25th Anniversary in 2024, we continue to work on a stronger, more resilient organisation that can deliver on our founding mandate “to enable and empower the young generation in advancing humanity through the peaceful uses of outer space”.

Thank you everyone,
Per aspera ad astra!

Hamza Hameed & Antonino Salmeri

Letter from the Executive Director

Nikol Koleva
Executive Director

Valentina Lucchetti
Chief of Staff

As we reflect on 2023, it has truly been a year of transformation, growth, and new opportunities. SGAC has not only navigated a period of change but has thrived—reaching new heights and achieving remarkable milestones along the way. We are thrilled to announce that SGAC has now surpassed 28,000 members and alumni, representing over 165 countries across our six regions. This achievement is a testament to the strength and dedication of our global community, bound by a shared vision for the future of space.

One of our most exciting developments this year is the establishment of a new pillar, the Education and Professional Development Platform (EPDP). This platform aims to provide even more opportunities for our members by creating resources and programs that support their growth, learning, and career advancement. With the EPDP now solidified as a core part of SGAC, we are more committed than ever to supporting the next generation's professional journey in the space sector.

In addition to EPDP, all our other pillars continue to thrive. Our Advocacy and Policy Platform (SGAPP) has made impressive strides, including developing the Intergenerational Pact for the Future, a framework that emphasizes cross-generational collaboration for sustainable space policy. SGAPP has also amplified SGAC's presence at COPUOS and its subcommittees, ensuring our members have a meaningful voice in these influential forums.

Throughout this dynamic year, SGAC has continued to expand its reach and impact within the space sector, creating even more opportunities for the next generation. In collaboration with our valued sponsors and partners, we awarded over 165 scholarships and awards, empowering students and young professionals to participate in conferences and events around the world. These initiatives reflect our commitment to nurturing the talented future leaders of the space industry—enabling them to engage with sector experts, build connections, and grow professionally.

Throughout the year we also worked hard to foster new opportunities for our Project Groups. These groups are at the heart of SGAC's technical and research contributions, and we are focused on securing resources and partnerships that enable them to continue their impactful work smoothly. By enhancing support for our Project Groups, we are empowering members to tackle critical challenges in the space sector and bring forward new ideas and innovations.

SGAC has also had an outstanding year of events, with over 17 events held globally across our six regions, breaking records and setting new benchmarks. This includes Space Generation Workshops in most regions and local events in a number of countries including France, Germany, Nigeria, and Spain. Global events also achieved great success including SGx in conjunction with Satellite, SGAC's largest-ever SGFF in Colorado, and the successful Space Generation Congress (SGC) in Baku. Together, these events provided members with invaluable opportunities to collaborate, network, and engage with space sector leaders, further strengthening SGAC's global reach and local impact.

As we celebrate these achievements, we extend our deepest gratitude to each of you for your support, passion, and belief in SGAC's mission. Together, we are not just building a community; we are shaping the future of space.

Nikol Koleva & Valentina Lucchetti

Executive Members

CHAIRPERSONS

Hamza Hameed
Pakistan
Chair

Antonino Salmeri
Italy
Co-Chair

EXECUTIVE OFFICE

Nikol Koleva
Bulgaria
Executive Director

Valentina Luchetti
Italy
Chief of Staff

Tatiana Komorná
Slovakia
Operations Manager

Daniel Seybold
Germany
Treasurer

Phylis Makurunje
Zimbabwe
Executive Secretary

Kristine Jane Atienza
Philippines
Executive Secretary

Johanne Ekue
Ghana
Executive Secretary

Stephen Robison
United States
General Counsel

Ayomide Jile-Omole
Nigeria
General Counsel

Gina Petrovici
Italy
SGAPP Coordinator

Giuliana Rotola
Italy
SGAPP Coordinator

Katrin Dietmayer
Germany
Alumni Team Lead

Harriet Brettle
United Kingdom
Alumni Team Lead

Cody Knipfer
United States
SGx Manager

Simon Shuham
United States
SGFF Manager

Marcos Eduardo Rojas Ramirez
Mexico
SGC Manager

Mehdi Scoubeau
Belgium
Regional Events Coordinator

Charlotte Flory
France
Local Events Coordinator

Faith Tng
Singapore
Mentoring Team Lead

Subhrajit Barua
India
Mentoring Team Lead

Abraham Akinwale
Nigeria
HR Team Coordinator

Leonard de Guzman
Australia
HR Team Coordinator

Morgane Lecas
France
Project Groups Coordinator

Joshua Critchley-Marrows
Australia
Project Groups Coordinator

Shreya Santra
India
Scholarships Team Lead

Flavie Rometsch
Germany
Scholarships Team Lead

Anne Nethmini
India
PR & Comms Lead

Tsion Endale Bonger
India
PR & Comms Lead

Rachel Venn
United Kingdom
Reports Team Lead

Dhanisha Sateesh
India
Reports Team Lead

Laud Bentil
Nigeria
Web & Data Team Lead

SGAC Regional Coordinators

David Kasibante
Uganda
RC for Africa

Nelly Hellen
Nigeria
RC for Africa

Gillian Chin
Singapore
RC for Asia-Pacific

Antonio Stark
Republic of Korea
RC for Asia-Pacific

Bram de Winter
The Netherlands
RC for Europe

Antonio Scannapieco
Italy
RC for Europe

Niki Sajjad
Iran
RC for Middle-East

Ahmed Baraka
Egypt
RC for Middle-East

Roxy Williams
Nicaragua
RC for North, Central America and the Caribbean

Christine Dubbert
United States
RC for North, Central America and the Caribbean

Erik Busnello Imbuzeiro
Brazil
RC for South America

Julia Alvarez Vallero
Argentina
RC for South America

OUTPUT AT A GLANCE

28,000
Members

165
Countries

17
SGAC events

11
Project Groups

New Co-Chair: Antonino Salmeri from Italy was hired as the new Co-Chair

2
New staff recruited

163
mentee/mentor matches

Establishment of the Education and Professional Development Platform (EPDP)

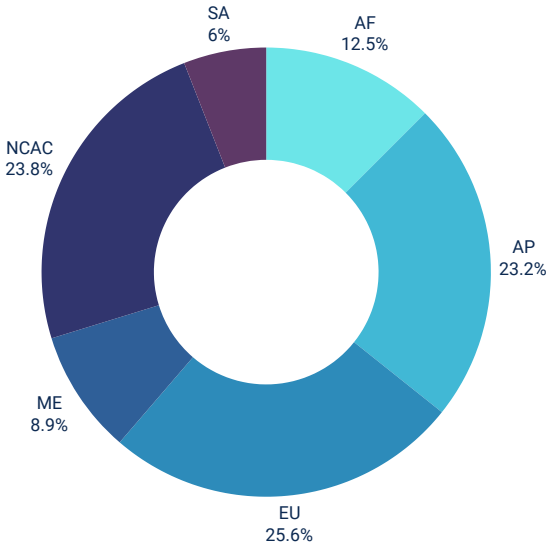
SGAC Newsletter: 10 newsletter updates

Instagram: 10.9K followers
X (Twitter): 17.5K followers
Linkedin: 41K followers
Facebook: 19K followers
Mailchimp: 19K subscribers

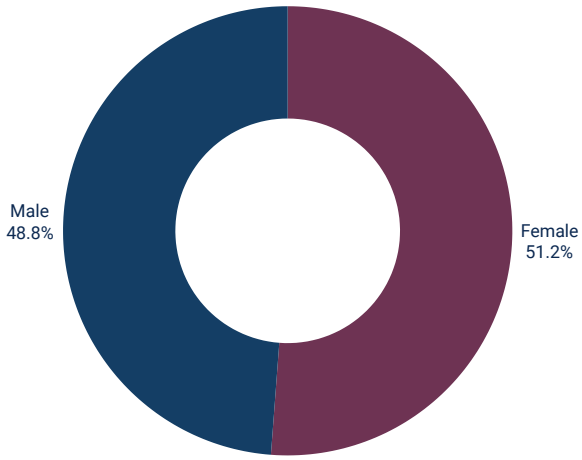
Scholarships

The SGAC Scholarships represent one of the core opportunities offered to active members of the Space Generation Advisory Council. SGAC and its partners offer a number of scholarships for students and young professionals to attend the Space Generation Congress (SGC), the International Astronautical Congress (IAC), the Space Generation Fusion Forum (SGFF), the Space Symposium (SS), the SATELLITE, the SGx, regional and local SGAC events and other space events.

In 2023, SGAC was pleased to award the following scholarships to SGAC members:



Scholarships by region



Scholarships by gender

Scholarship/Award/Competition	Event Supported	Number of Awardees
NASA SCaN	SGx/SATELLITE Show	2
SGAC4Steam Scholarship	SGx2023	1
Global Grant Programme	SGx2023	6
SGAC4Steam Scholarship	SGFF2023	1
SEDS USA Scholarship	SGFF2023	1
NASA SCaN	SGFF2023	2
Brooke Owen Fellowship	SGFF2023	1
Patti Grace Smith Fellowship	SGFF2023	1
NASA Exploration	SGFF2023	1
Nebula Award	SGFF2023	3
SGLA	SGC2023	5
Nebula Award (Chris Boshuizen)	SGC2023	10
Global Rising Star	SGC2023	6
OHB SE Scholarship	SGC2023	3
$pace is Business Competition	SGC2023	1
SGC 2024 Logo Competition / ISS Crew Fund	SGC2023	1
ASI	SGC2023	5
Space Solar Power Competition by SPACE Canada	SGC2023	3
SSS PG Essay Competition	SGC2023	1
Future Space Leaders Grant Program	SGC2023	6
NASA Exploration	SGC2023	1
NASA Earth Science	SGC2023	1
NASA SCaN	SGC2023	2
ISEB ESA	SGC2023	2
ISEB KARI	SGC2023	4
ISEB NASA	SGC2023	2
Emerging Space Leaders	SGC2023	23
UKSA	SGC2023	2
Airbus	SGC2023	2
AHAMENES - CubeSpace Scholarships	NCAC-SGW	3
NCAC-SLA	NCAC-SGW	3
NCAC-Team Patronage	NCAC-SGW	1
NCAC-Sponsor	NCAC-SGW	10
AP-SLA	AP-SGW	4

Scholarship/Award/Competition	Event Supported	Number of Awardees
SA-SLA	SA-SGW	3
AF-SLA	AF-SGW	5
ME-SLA	ME-SGW	3
E-SLA	E-SGW	5
Euroconsult - SGAC WSBW Scholarship	World Satellite Business Week	11
Euroconsult - SGAC WSBW Scholarship	World Satellite Business Week	6
NASA SCaN	SpaceOps	2
AAE - SEPG Scholarship	SGAC – AAE Conference 2023	4
Airbus	SG-Spain	1
SGAC - UKSA - SWF	SWF Summit for Space Sustainability	7
	Total	**168**

* SGAC Scholarships are organised by SGAC itself or together with a partner. Scholarships also include partnership with programmes such as the Future Space Leaders Foundation (FSLF) or the International Space Education Board (ISEB).

Awards

Member of the Month Award

The SGAC Member of the Month Award has been established to pay tribute to the most active volunteers each month, recognising their hard work and contributions to SGAC. Members of the Month may be nominated by any SGAC member, and represent those who have brought leadership and inspiration to our space community. This may be a Member (MoM), or a Team (ToM). The Member of the Month Award recipients of 2023 are:

January MoM

IMANE EL KHANTOUTI

Morroco

NPoC for Morrocco

January ToM

SGAC_DECODE TEAM

Mixed

February MoM

MEGHA CHOUDHARY

France

Onboarding Manager in HR; NPoC India

March MoM

CHARLES-AIME NZEUSSI

West Africa

NPoC Africa

April MoM

SIMON SHUHAM

USA

Space Generation Fusion Forum Organizing Team

May ToM

SG[FRANCE]2023 ORGANIZING TEAM

France

June ToM

SG[GERMANY]2023 ORGANIZING TEAM

Germany

July MoM

MEHDI SCOUBEAU

Luxembourg

Regional Event Coordinator

August ToM

EUROPEAN-SPACE GENERATION WORKSHOP 23 TEAM

Mixed

September ToM

SPACE GENERATION CONGRESS 2023 ORGANIZING TEAM

Azerbaijan

October MoM

FARAH DIYA YASMINE

Indonesia

Human Resources Recruitment Team Member

October ToM

ALUMNI TEAM

Multiple

November ToM

SG[SPAIN] 2023 ORGANIZING TEAM

Spain

December ToM

9TH AP-SGW 2023 ORGANIZING TEAM

Asia-Pacific

December MoM

FRANCESCO VENTRE

Italy

Event Manager for Italian Space Startup Competition

Pioneer Award

The Pioneer Award was created to recognise individuals who consistently go above and beyond in their work for, and personify the values of, SGAC. The recipients of the Pioneer Award represent the best of the best of our organisation and are selected through a nomination process and independent review board.

The Pioneer Award consists of a special pin with a certificate that states the accomplishments of the recipient, along with recognition on the SGAC website. The Pioneer Award is presented twice a year to up to four individuals.

The Pioneer Award recipients for 2023 are:

Yulia Akisheva (France)

Our Giant Leap 11th Project Group, SG [France] Event Manager

Yulia Akisheva is an aerospace engineer by training currently finishing a PhD in Protective Use of Regolith for Planetary and Lunar Exploration, or PURPLE in short. This PhD is supported by the European Space Agency (ESA), TRAD Tests & Radiations and ISAE-SUPAERO under the ESA OSIP collaboration platform.

Yulia has a continually growing passion for human spaceflight. Over a decade ago, she decided she would contribute to bringing people to Mars so she invested heavily in her academic background. Yulia has three Master's degrees from top European universities, including a Double-Degree in Engineering from KTH Royal Institute of Technology in Sweden and ISAE-SUPAERO in France. She specialised in Aerospace Structures and Materials, Design and Operation of Space Systems, and Sciences of the Mechanics of Materials and Structures.

Matej Poliaček (Slovakia)

SGC2023 Organising Team

Matej is currently working in the ISS Flight Operations, as a member of the Columbus Flight Control team, responsible for the commanding and monitoring of the Columbus systems and payloads, as well as providing support to the astronaut crew and other flight control positions in regards to technical aspects of the module. This includes supporting payload operators from NASA and Europe performing science runs in the Columbus module, either purely from the ground, or with the involvement of the crew.

In addition, Matej and the team prepare, plan and execute projects and specialist activities such as on-board hardware and software upgrades, or maintenance and module upgrades in collaboration with the astronauts.

Alessandra Vernile (Italy)

Space Generation Congress 2024 Manager

Alessandra is a young professional with a background in International Relations, Intelligence, and Space Policy. Alessandra took her first steps in the space sector in 2015, joining the European Space Agency (ESA) Strategy Department in Paris with a focus on Member States' space policy developments. In 2016, Alessandra was the recipient of the ASI-SIOI fellowship, bringing her to Vienna to work at the European Space Policy Institute (ESPI). There she investigated the role of private actors in the space sector and had the opportunity of learning more about the contribution of space technology to SDGs. Between 2017 and 2023, Alessandra worked full time at Eurisy facilitating the uptake of satellite-based solutions by societal actors. Currently, she works at the Italian Space Agency (ASI) in the International Relations Department, as part of the team managing the relations with the European Space Agency.

Antonio Fulvio Scannapieco (Italy)

Regional Coordinator for Europe

Antonio Scannapieco manages and ensures efficient and effective completion of several projects for Volocopter GmbH, pioneer in the Urban Air Mobility field. Previously, he was Senior Autonomous Flight Engineer for Volocopter and Autonomous Driving Engineer for Stellantis – formerly known as FCA – focusing on cutting-edge technologies for autonomous systems. He was also active in academia, with a postdoc – and then a visiting fellowship – at Cranfield Defence and Security.

Antonio holds an MSc in Aerospace Engineering (2013) and a PhD in Industrial Engineering (2017) awarded by University of Napoli "Federico II", Italy. During the PhD, he joined Fraunhofer FHR (Germany) as Visiting Researcher. He was also the Rapporteur for the "Highly Integrated Distributed Systems" session at IAC 2018 and Co-Chair for "Space Culture – Public Engagement in Space through Culture" session at IAC 2023. Antonio has also been Mentor for Constellation organisation.

Alumni Award

In 2019, on the occasion of SGAC's 20th anniversary, the organisation launched its Alumni Award Programme intending to acknowledge selected alumni for extraordinary contributions to the SGAC community, demonstrating a high degree of commitment to SGAC, and for their outstanding leadership and ongoing support to the organisation.

SGAC was very please to present the Alumni Award 2023 to Dr. Chris Boshuizen!

Dr. Chris Boshuizen

Dr. Chris Boshuizen is an Australian astronaut, scientist, entrepreneur, investor, and musician. Currently a Partner at DCVC, a deep tech investment company in San Francisco where he focuses on funding cutting edge space companies, Boshuizen completed his PhD in physics at The University of Sydney before accepting a position at the NASA Ames Research Center in California.There Dr Boshuizen established Singularity University and most notably co-created the NASA Phonesat. After leaving NASA he co-founded Planet Labs, the first company to employ nanosatellites in a commercial capacity, radically reducing the cost of lifting payloads into space and paving the way for today's large constellations of spacecraft. Today, Planet operates the largest fleet of Earth-observing satellites and maps the entire surface of the Earth daily, enabling key insights into our changing world that were previously unobtainable. Boshuizen was the 2014 Advance Global Australian of the Year award winner, and has subsequently become a member of the Advance Board of Directors where he is an active spokesperson for successful Australians abroad. Boshuizen is also a musician and releases music under the name "Dr Chrispy". Dr Boshuizen flew to space as a commercial astronaut on Blue Origin's New Shepard NS-18 mission on October 13 2021.

"Chris has been one of the early-time people of SGAC and had an executive top leadership position right along with Agnieszka. He has without any doubts been a crucial element of SGAC's growth during its age of inception.
Since then, Chris has been a longstanding supporter of SGAC – he now actively gives back to SGAC through keynote talks, attending events, mentoring, and providing incredibly generous donations to support scholarships.
We are incredibly thankful for Chris' support and kindness towards the young generation!"
-Valentina Luchetti, SGAC Acting Executive Director

Ambassador Award

Through the SpaceGen Ambassador Award programme, SGAC wants to acknowledge organisations that deeply care for our generation, our talents, skills and needs that actively support us as the 'next' generation of space leaders, empower us as such and enable us to grow. The award is presented to an organisation from the space sector, either governmental, non-governmental, or private company that demonstrates genuine care for the next generation, actively supporting and empowering young space professionals and students.
SGAC is pleased and honoured to announce that the 2023 recipient of the SpaceGen Ambassador Award is…

"The IAF is honoured to receive the prestigious SGAC SpaceGen Ambassador Award. The increasing role of space activities in our daily lives, as well as the challenges to be tackled on Earth call for highly skilled future leaders. The Next Generation represents a pillar of the IAF mission. Through its committees as well as its numerous initiatives advocating Youth, the IAF actively support the workforce of tomorrow to empower, foster, and encourage students and young professionals to create a thick web where the role of emerging talents is enhanced and valorised."

Christian Feichtinger, IAF Executive Director

In 2023, the award is presented to IAF for the high level of cooperation and engagement, demonstrating ongoing support for the next generation with constantly new initiatives within the Federation and with partnered organisation, caring and mentoring students and young space professionals, and allowing them to develop the 'know-how' for a progressive space career through top-level events all around the world.

Valentina Luchetti, SGAC Acting Executive Director, commented on the news saying "Through the invaluable partnership between the International Astronautical Federation (IAF) and the Space Generation Advisory Council (SGAC), we continually nurture the aspirations of the next generation in the space sector. The IAF's enduring support and collaboration have been pivotal in empowering SGAC members worldwide, providing a platform to develop crucial skills for their future careers. We extend our heartfelt gratitude to the remarkable contributions of individuals like Mr. Christian Feichtinger, and, notably, our sincere appreciation to IAF President Mr. Clay Mowry, for his unwavering dedication and commitment to fostering our organization's growth and fostering a vibrant space community."

[photos]

Conferences, Events and Workshops

Global

- SGx (Washington DC, USA)
- SGFF (Colorado Springs, Colorado, USA)
- SGC (Baku, Azerbaijan)
- Our Giant Leap Hackathon 2023 (Montreal, Canada

Local

- SG [Nigeria] (Abuja)
- SG [Azerbaijan] (Baku)
- SG [Germany] (Berlin)
- SG [France] (Talence)
- SG [Spain] (Barcelona)

Regional

- AF-SGW - 7th African Space Generation Workshop (Harare, Zimbabwe)
- AP-SGW - 9th Asia-Pacific Space Generation Workshop (Bengaluru, India)
- E-SGW - 7th European Space Generation Workshop (Bari, Italy)
- ME-SGW - 2nd Middle-East Space Generation Workshop (Zallaq & Isa Town, Bahrain)
- NCAC-SGW - 4th North, Central America and Caribbean Space Generation Workshop (San José, Costa Rica)

Conferences and Events with Official SGAC Representation

SGx 2023 & SATShow
March 13-14, 2023 | Washington, D.C., USA

STSC 2023
February 9-17, 2023 | Vienna, Austria
SGAC Statement and Technical Presentations

SATELLITE 2023 & SGx 2023
March 13-14, 2023 | Washington, D.C., USA

SGFF 2023 & 38th Space Symposium
April 14-17, 2023 | Colorado Springs, USA

LSC 2023
March 20-31, 2023 | Vienna, Austria
SGAC Statement and Technical Presentations

Committee on the Peaceful Uses of Outer Space, 66th Session
May 31 - June 9, 2023 | Vienna, Austria
SGAC Statement and Technical Presentations

SGC 2023 & IAC 2023
September 28-30, 2023 | Baku, Azerbaijan

World Satellite Business Week
September 15-19, 2023 | Paris, France

ASCEND 2023
October 23-25, 2023 | Las Vegas, USA

Papers, Publications and Presentations

SPACE EXPLORATION PG

Emanuele Tomassi. *"A perspective from the next generation: Building a sustainable, diverse and inclusive future for space exploration."* 2023

Mirandah Ackley. *"Sustainability Principles For Space Operations Across the Century."* 2023

Oussema Jouini. "*4D Lidar and Sensor Fusion for Autonomous Rovers Missions*". 2023

Dhanisha Sateesh. "*SCIFASE: The Intersection of Science Fiction and Space Exploration*." 2023

Maria Casanovas Crespo. "*The ACHIEVED Academy, accessible space education initiative launched by the Space Generation Advisory Council*." (ACHIEVED) 2023

Viduranga Landers. "*High-technology Operation for Planetary Exploration - uRanian mOons impActoR (HOPE-ROAR) mission: an innovative in-depth study of the Uranian satellites*". (ACHIEVED) 2023

Madison Telles. "*Project AURORA: Establishing a Long-Term Human Outpost Supporting Planetary Exploration."* (ACHIEVED) 2023

Danny Tjokrosetio. "*Global Standardization of Analog Space Missions.*" (DREAM) 2023

Celine Si Ying Gui. "*An alternative perspective in assessing the suitability of sustainable space technology.*" (ROADMAP) 2023

Akshay Rajshekhar Hiremath. "*Multifluid geothermal energy generation on Mars in the sedimentary regions utilizing indigenous resources of the Planet.*"

SPACE LAW AND POLICY PG

Danilo delle Fave, Nicolas Moraitis, Roser Almenar, Rodrigo Chacón, Dana Conzato, David Eagleson, Pervin Seker, Alice Tommasi, Ata Türkfiliz. *"The non-peaceful use of commercial satellites: existing issues and new challenges from a legal and policy perspective"*. 2023. IAC Conference Proceedings.

NEAR EARTH OBJECT PG

Dhanisha Sateesh, "*Rendezvous Mission Design And Deflection of Asteroid 2023 PDC.*" 8th IAA Planetary Defense Conference 2023

SMALL SATELLITES PG

Dhanisha Sateesh, et al. *"Building a Sustainable Climate Change Monitoring Satellite Mission through Life Cycle Assessment."* International Astronautical Congress (IAC) 2023.

Prerna Baranwal, et al. "*Analysis of Space Debris Mitigation and Removal Techniques for Small Satellites in Low Earth Orbit in Purview of the Guidelines Issued by the FCC.*" International Astronautical Congress (IAC) 2023

Andrew Karim, et al. "*Study of Small Satellite Constellation for High-Resolution Greenhouse Gas Monitoring.*" International Astronautical Congress (IAC) 2023

Aysha Alharam, et al. "*Lessons Learned from the First Generation of Interplanetary SmallSats*." International Astronautical Congress (IAC) 2023

Maren Mashor, et al. "*Feasibility study on enabling technologies for designing a Synthetic Aperture Radar payload on a Nanosatellite for monitoring water levels in flood prone areas of Nigeria*." International Astronautical Congress (IAC) 2023

SPACE AND CYBERSECURITY PG

Antonio Carlo, Nebile Pelin Manti, Paola Breda, et al. *"Towards a resilient cyber architecture for space infrastructures : mitigating the new attack vectors."* International Astronautical Congress (IAC) 2023

Paola Breda, et al.. *"An extended review on cyber vulnerabilities of AI technologies in space applications: Technological challenges and international governance of AI."* Journal of Space Safety Engineering

Antonio Carlo, et al. "The importance of cybersecurity frameworks to regulate emergent AI technologies for space applications." Journal of Space Safety Engineering

SPACE MEDICINE AND LIFE SCIENCES PG

Ivy Mayor and Chandan Sanghera. *"Cancer in space: evaluating the impact of the space environment on cancer pathogenesis and novel opportunities for cancer research."* International Astronautical Congress (IAC) 2023

Siddharth Rajput, Ivy Mayor, Madison Diamond, Mark Rosenberg, Victor Cole, Nikita Bhakare, Omar Aziz, Anderson L Wilder. "*Medical ethics of long-duration spaceflight.*" Nature Portfolio Journal Microgravity 2023

SPACE SAFETY AND SUSTAINABILITY PG

Selene Cannelli. *"Earth's orbits as a UNESCO World Heritage Site."* International Astronautical Congress (IAC) 2023

Ewan Wright. "*One million (paper) satellites*." Journal Article (Science) 2023

Andrew Ross Wilson. "*The space sustainability paradox.*" Journal Article (Journal of Cleaner Production) 2023

Andrew Ross Wilson. "*Life cycle engineering of space systems: Preliminary findings*." Journal Article (Advances in Space Research) 2023

DIVERSITY AND GENDER EQUALITY PG

Tania Gres, Saira O. Williams, Luísa Santos, Emily Matula, Simran Mardhani, Yumna Majeed, Parisa Acharya, A'laylah Morin. *"Study of the astronaut's profile evolution since 1961: What makes a good astronaut since then and how did society impact it?"*. International Astronautical Congress (IAC) 2023

Tania Gres, Megha Choudhary,, Helen Haile, Swapnil Parekh, Tomas Ducai, Bouchra Harnoufi. "Astronauts with Disabilities: Research and Experiment on the disability inclusion in the Human Space Program". International Astronautical Congress (IAC) 2023

SGAPP

IPASS Policy Division (Lead by: Gabrielle Leterre, Nicolas Moraitis) "Towards An Intergenerational Pact for Space Sustainability" SGAC Website https://spacegeneration.org/wp-content/uploads/2024/01/SGAC-Report-Towards-an-Intergenerational-Pact-for-Space-Sustainability-IPASS.pdf

IPASS Policy Division (Lead by: Gabrielle Leterre, Nicolas Moraitis). *"An Intergenerational Pact for Space Sustainability."* International Astronautical Congress (IAC) 2023

NCAC Taskforce (Lead: Lindsey Wiser). *"An Overview of Space Policy Perspectives From the Young Space Generation."* International Astronautical Congress (IAC) 2023

ACTIVITY HIGHLIGHTS

General

SGAC welcomed Nikol Koleva as the Deputy Executive Director (DED) of SGAC

SGAC appointed Antonino Salmeri (Italy) as the new Co-Chair of SGAC after an election

SGAC held the 21th Space Generation Congress in Baku, Azerbaijan and the 12th SGFF in Colorado Springs, USA

SGAC organised Find An Asteroid Campaign in collaborattion with IASC, giving 30 teams the chance to name an asteroid

SGAC selected 5 new Regional Coordinators through elections for the different regions

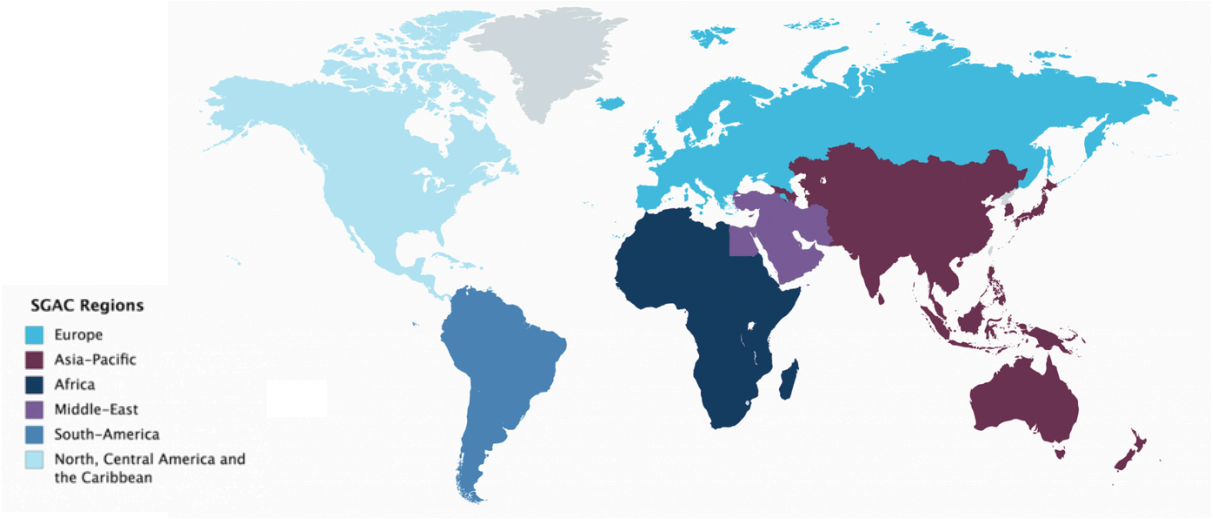
SGAC selected Tatiana Komorná as the new SGAC Operations Officer, the third SGAC full-time employee in Vienna, Austria

SGAC released “This is Our Space: Contributions from the Young Generations for Sustainable Space Activities,” a first-of- its-kind overview of SGAC's initiatives for space sustainability

SGAC was able to sponsor 10 individuals to attend the Space Generation Congress through the Nebula Award

SGAC had collaborations with NASA, UK Space Agency, OHB, Airbus among many other companies to provide scholarships for both regional SGAC events as well as for SGC and SGFF

Regional



EUROPE

- Numerous local events, showing quite significant action in the Region: SG[France], SG[Spain], SG[Germany], partnered event in Switzerland and Bulgaria
- Successful completion of 7th E-SGW, held in Bari
- Cross-border collaboration between NPoCs, resulting in combined activities (e.g. DLR visit with Dutch/German/Belgium community)
- Launch of the NPoC buddy programme, to reinforce cooperation among NPoCs, pairing newly appointed NPoCs with more experienced NPoCs
- Informal networking events set up by NPoCs in Finland, Germany, France, Netherland and more

AFRICA

- Maintain partnerships with long term partners such as the African Union
- Increased number of NPoCs
- ncreased number of African Members to global events
- Successfully hosted the 7th AF-SGW in Harare, Zimbabwe
- Renewal of the regional leadership team

SOUTH AMERICA

- Success of South America SGW in Bogotá, Colombia
- Eric Busnello Imbuzeiro from Brazil is awarded the South American Space Leader Award
- Completion of South American team: almost every country with active NPOCs and full management
- Event in partnership with ISU during the Space Studies Program 2023 in Brazil

ASIA-PACIFIC

- Expanding the regional Instagram account (@sgacasiapacific) with 760 , 100+ posts, 10,000+ accounts reached, 2,000+ accounts engaged
- Representation at global SGAC events, including SGC and SGFF as well as paper presentations at the International Astronautical Congress
- Growing the regional executive team to include 3 Regional Communications Managers and 3 Regional Secretaries and Assistants, with a 7:1 female-male gender ratio
- Supporting the 21st Space Generation Congress in Baku, Azerbaijan with significant local partner support, including those by Azercosmos and UFAZ
- Hosting the 9th Asia-Pacific Space Generation Workshop (AP-SGW), Bengaluru, India, with 52 delegates across 6 countries for a 2-day workshop
- Representation at multiple Project Groups, including Diversity and Gender Equality PG, and Space Exploration Project Group

NORTH, CENTRAL AMERICA AND THE CARIBBEAN

- Successful webinar series in El Salvador
- Attendance of a Regional Coordinator at the 5th International Space Forum at Ministerial Level - The Central America and Caribbean Chapter (ISF 2023) in Panama, NCAC-SGW in Costa Rica, Space Quiz Saint Lucia, and OGL Hackathon Canada
- Successful Black History Month Campaign, expansion of social media presence
- Executive Committee Meeting in IAC Azerbaijan
- Only Regional Team comprised of all women

Appointments

42
Vacancies Posted

346
Applications Received

102
Members Recruited

SGAC is pleased to have appointed the following new staff members in 2023:

Yashica Khatri Mentoring Team Co-Lead Finland	Taruanne Lindewall Membership Co-Manager Finland	Jomya Lei Membership Co-Manager USA	Aaromal Sujith Onboarding Co-Lead India
Nashide Pelin Kuratran HR Team Member Turkey	Laura Breckon Project Group Partnerships Lead Australia	Damilola Oladeji Web & Data Team Co-Lead Nigeria	Rishin Aggarwal HR Co-Coordinator India
Keerthana DS Diversity and Gender Equality PG Co-Lead United Arab Emirates	Aoibhin Crowley Reports Editor Ireland	Silvia Toro Sima Reports Editor Italy	Eshana Mariam John Slack Team Member India
Mourad Fakhfakh Regional Partnerships Manager Europe Tunisia	AJ Link Ethics and Human Rights PG Co-Lead USA	Finnegan Sougioultzoglou STEA Project Group Co-lead USA/Greece	Norman Kerandi Michira Local Events Coordinator Kenya
Supprabha Nambiar Local Events Coordinator India	Felipe Suazo Regional Executive Secretary South America Chile	Irene Saiz Briones Regional Executive Secretary Europe Spain	Dominique Campbell Regional Communications Manager NCAC Jamaica

Sahba El-Shawa **Ethics and Human Rights Project Group Co-Lead** **Jordan**	**Danielle Bierman** **SGFF 2024 Deputy Manager** **USA**	**Marcos Eduardo Rojas Ramirez** **Education and Professional Development Coordinator** **Mexico**	**Yulia Akisheva** **Diversity and Gender Equality Project Group Co-Lead** **Sweden**
Raphaelle Barbier **Project Group Partnerships Co-Lead** **France**	**Théa Beaury** **Project Group Media And Communications Lead** **Colombia/France**	**Tzu-Lan (Friska) Wang** **Regional Assistant Asia Pacific** **Taiwan**	**Ananda Padmanabhan** **Graphic Designer** **India**
Liana Gfrerer **Graphic Designer** **Austria**	**Flavia Zonno** **Graphic Designer** **Italy**		

Mentoring Programme

The SGAC Mentoring Programme was created in 2018, following key recommendations at SGF 2.0 (Vienna) to foster development and support in the space sector through mentoring. SGAC created the mentorship program for its members in order to help connect SGAC members with experts in the space sector, especially through our vast network of SGAC Alumni. The mentorship program aims at connecting mentees and mentors in order to provide guidance, give personalised advice, and support to mentees from the different mentors.

160	125	163
Mentee Applications	New Mentor Applications	Mentee-Mentor Matches

To recognize the dedication of our mentors, the organisation initiated the "Best Mentor Award" in late 2022. This award, presented each session, aims to acknowledge mentors who have shown outstanding commitment to develop the next space generation.

Following a blind review conducted by a panel consisting of the SGAC Executive Director, Mentoring Co-Lead, and members of the Mentoring Committee, Elisabetta Lamboglia was chosen as the recipient of the Spring 2023 award.

Elisabetta Lamboglia | Best Mentor Award

"[...] Being acknowledged in this capacity is not just a personal achievement but a celebration of the enriching volunteering exchange and shared growth with my mentee. The SGAC mentorship program is a powerful and well-structured tool, it has been profoundly rewarding for me."

Nominated by Tanjin Huda

"Elisabetta has been a great mentor sharing her knowledge and lessons learned from her personal experience [...]. She has been great in working together to help focus my interests and identify specific career goals, helping me to map out a career path to achieve those goals. [...] Overall, Elisabetta is a great mentor and holds a great well of knowledge and experience that any aspiring engineer in the space industry could learn a great deal from."

Alumni Activities

$5000
Alumni fund

2
Alumni-exclusive events

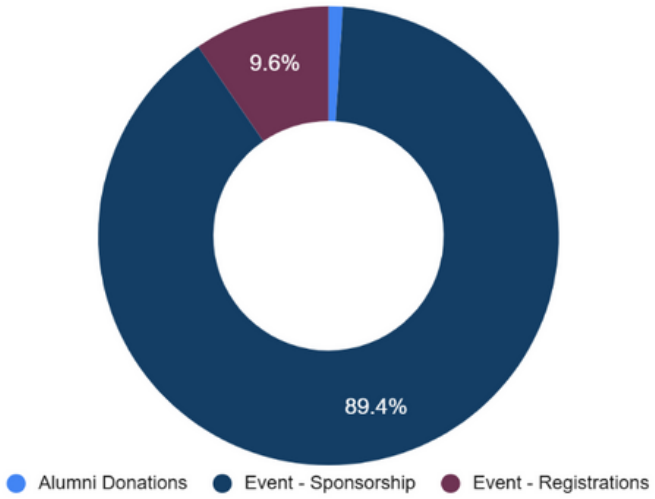
SGAC's goal is to create a long-standing sense of community for its Alumni network and provide a platform for SGAC Alumni to socialize, network, and give back to the SGAC community. The SGAC Alumni Programme was launched at the Space Generation Forum 2.0 in 2018 (after a series of successful previous alumni activities) to help reconnect SGAC Alumni and provide ways for the SGAC Alumni network to support other SGAC activities. To strengthen the Alumni Program and create new opportunities, an Alumni Team was established in 2021.
In line with these goals, the 2023 Alumni Donation Campaign, held between September 28 and October 13, achieved remarkable success. Through the extraordinary generosity of 20 dedicated donors, the campaign raised $5,107, enabling the funding of two additional SGLA scholarships for 2024. This milestone demonstrates the significant impact of the Alumni Fund in empowering future SGAC members to follow in their predecessors' footsteps, learn, grow, and make meaningful contributions to the SGAC community.

Alumni Events

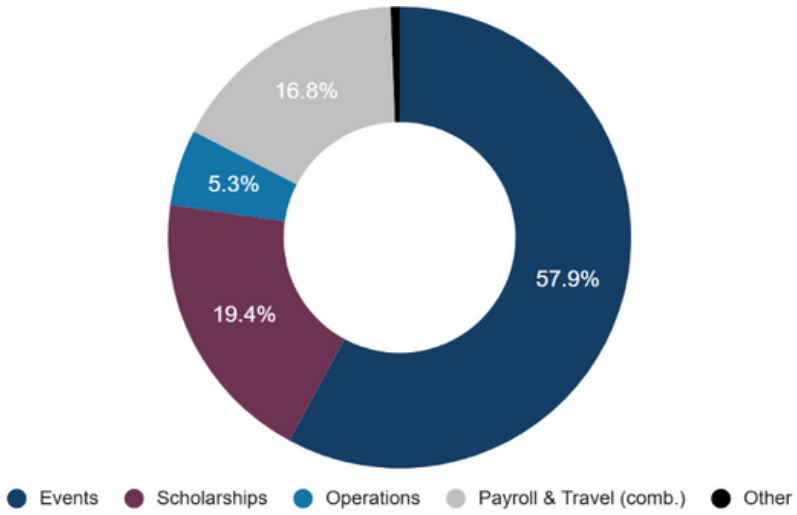
FINANCIAL SUMMARY

	2023	Change from 2022
Revenue	$ 666,997	+ 2.62 %
Expenditure	$ 624,788	- 2.43 %
Surplus / Loss	$ 42,209	+ 340.37 %
% Surplus / Loss	+ 6.33 %	

2023 Revenue



2023 Expenses



GLOBAL AND REGIONAL EVENTS

13-14 March 2023 Walter E. Washington Convention Centre, Washington DC

In partnership with the Future Space Leaders Foundation, Access Intelligence, and SATELLITE 2023 Conference, the Space Generation Advisory Council hosted its eighth SGx in Washington, DC on March 13th and 14th, 2023.

Styled in the TEDx format, SGx is a high-impact day of expert “lightning talks” and networking opportunities designed to create an environment where young professionals, industry experts, and government leaders can gather to share their insights and experiences with each other.

SGx2023 stands out as a unique two-day event focused on cultivating the next generation of space leaders: connecting them with their peers and experts, exposing them to a diverse set of knowledge, and empowering them with unparalleled speaking and career opportunities.

SGx2023 offered an engaging programme featuring thematic expert "lightning talk" sessions followed by Q&A panels. Attendees enjoyed a dedicated lunch with a keynote from a sponsor, along with networking opportunities throughout the day. The event also included a multi-day exhibit hall "job fair" in partnership with SATELLITE 2023, and introduced a new second day of programming featuring Young Professional & Student lightning talks.

Sponsors and Partners

LOCKHEED MARTIN

NORTHROP GRUMMAN

BRYCE space and technology


SGAC

Space Generation Congress

SGC BAKU 2023

28-30 September 2023 Baku, Azerbaijan

The 21st edition of the Space Generation Congress aimed to celebrate the role of SGAC as a catalyst for the next generation of space professionals worldwide. This year, 124 delegates connected in Baku, Azerbaijan, prior to the 74th International Astronautical Congress (IAC). With the theme “Building a space community to inspire, connect, and support humankind,” the congress highlighted the pivotal role that space plays in driving progress and innovation on Earth, showcasing the immense potential of space technology in addressing global challenges, fostering international collaboration, and promoting socio-economic development worldwide. The SGC strives to bring together students and young professionals with diverse cultures and backgrounds and serve as a platform for them to connect, collaborate, and share their ideas.


2023
NATIONAL AGENCIES
GOLD SPONSORS
DHB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So Glad
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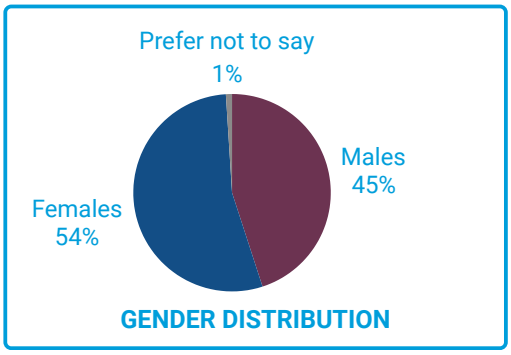
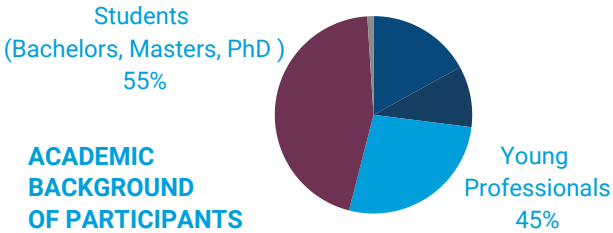
Statistics



GENDER DISTRIBUTION



ACADEMIC BACKGROUND OF PARTICIPANTS

NATIONALITIES	**51**
NUMBER OF DELEGATES	**124**
NUMBER OF WORKING GROUPS	**5**

Sponsors

NATIONAL AGENCIES

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FUTURE SPACE LEADERS

ISEB International Space Education Board

SPACE CANADA

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ASTRONAUTICA AD PACEM HOMINUMQUE PROGRESSUM
IAF
INTERNATIONAL ASTRONAUTICAL FEDERATION

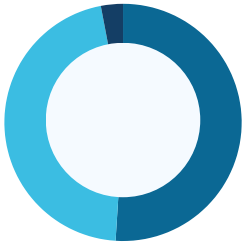
Space Generation Fusion Forum

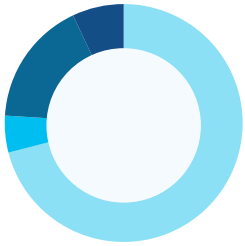
14-17 April 2023 Broadmoor Resort, Colorado Springs, Colorado, U.S.A

The Space Generation Fusion Forum (SGFF) is a multi-day, high-intensity, fast-paced professional development and networking event held annually at the Broadmoor Resort in Colorado Springs, U.S.A., in conjunction with the Space Symposium. The event attracts students and young professionals from various fields to collaborate on global space industry issues. Through breakout sessions, expert panels, keynote presentations, and networking, SGFF delegates combine their unique perspectives to formulate solutions. The output is compiled into a report for the United Nations Committee on the Peaceful Uses of Outer Space.

Statistics

90	9	28
Delegates	Breakout sessions	Countries represented





Sponsors


SPACE FOUNDATION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NORTHROP
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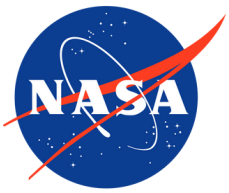
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BLUE ORIGIN


LOFT ORBITAL


planet.


AIA
AEROSPACE
INDUSTRIES
ASSOCIATION


Astroscale

SPACE GENERATION WORKSHOPS

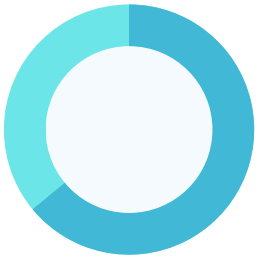
7th African Space Generation Workshop

29 - 30 November 2023 **Harare, Zimbabwe**

The African Space Generation Workshop (AF-SGW) is a regional workshop connecting students and young professionals with agency and industry representatives from across Africa.
The 7th AF-SGW was held at University of Zimbabwe, showcasing the significant contributions of students and young professionals to Africa's space industry. Organized by the Space Generation Advisory Council (SGAC), the event received substantial support from sponsors and featured influential speakers who left a lasting impact on attendees.
The theme of this workshop was "'A New Era for African Space Market: Unleashing Potential for Prosperity'" and participants were divided in several working groups focusig on different aspects of the space sector. The space Law and Policy group focused on establishing legal and regulatory frameworks for space activities in Africa, promoting international cooperation, and harmonising space policies across the continent.
The space Business and Entrepreneurship group explored economic aspects of the space industry, including innovative business models, investment opportunities, and strategies to foster entrepreneurship. The capacity Building Opportunities group aimed at enhancing skills and knowledge within Africa's space sector through educational programs, scholarships, and training initiatives. Lastly, the Developing and Using Space group concentrated on the practical applications of space technology in addressing societal challenges in areas like agriculture, climate change, and disaster management.
Overall, the workshop served as a crucial platform for collaboration, knowledge exchange, and inspiration, emphasising the potential of Africa's space industry and the importance of nurturing young talent to realise this potential.

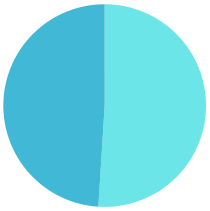
Sponsors and Partners

Statistics



Male (64%)
Female (36%)

Young Professionals
49%

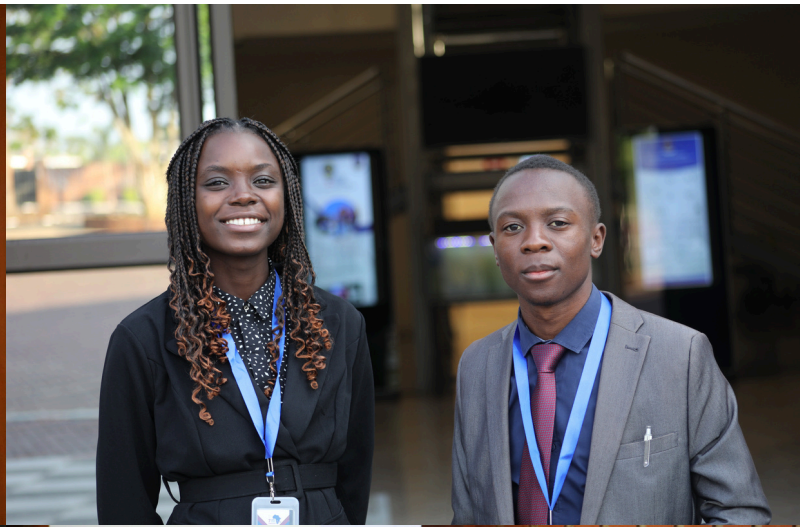


Students
51%

71
Number of delegates

9
Countries represented

7
Scholarship Winners



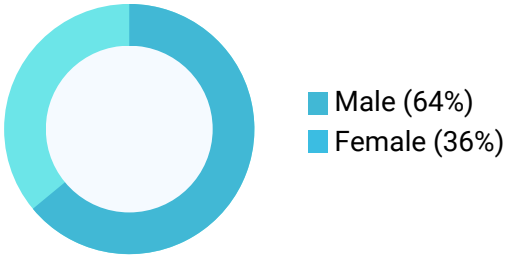
8th South American Space Generation Workshop

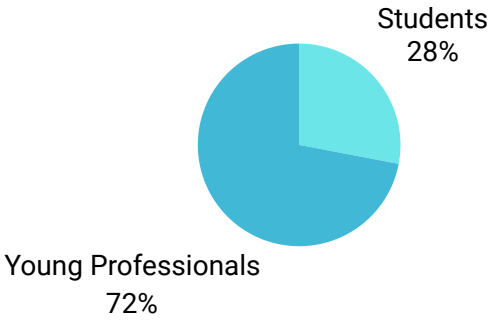
6-7 July 2023 Bogotá, Colombia

TThe South American Space Generation Workshop (SA-SGW) is a regional workshop connecting students and young professionals with agency and industry representatives from across South America.
Organised in partnership with the Cydonia Foundation and Universidad de América, this two-day event provided a platform for students, young professionals, industry leaders, and space enthusiasts from across South America and around the globe to convene and deliberate on leveraging space technology for regional development.
The workshop brought together over 60 students and young professionals. The event was structured into five working groups, each focusing on regional challenges that could be addressed through space applications.
Following intensive discussions and brainstorming sessions, participants proposed innovative solutions aimed at utilizing space technology for the betterment of the region. A summary of these recommendations and solutions was compiled and shared with the United Nations Office for Outer Space Affairs (UNOOSA) and other relevant partners for further consideration and potential implementation.

Sponsors and Partners

Statistics





61	7	5
Number of delegates	Countries represented	Breakout Sessions

9th Asia- Pacific Space Generation Workshop

18 - 19 November 2023 **Bengaluru, India**

The Asia-Pacific Space Generation Workshop (AP-SGW) is a regional workshop that connects students and young professionals with agency and industry representatives from across the Asia-Pacific region.

The 9th AP-SGW was held in Bengaluru, India, and was honored by the presence of distinguished figures, including Shri A. S. Kiran Kumar, former chairman of ISRO; Shri Sreeram Ananthasayanam, Partner at Deloitte; and Dr. A. K. Anil Kumar, Vice President of Relations with International Organizations at the International Astronautical Federation.

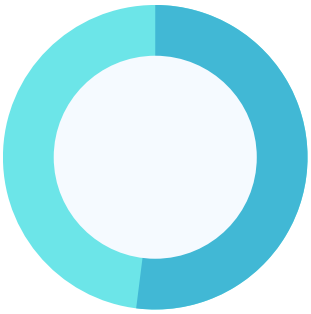
Bringing together 52 delegates from six countries—India, Bangladesh, Sri Lanka, Nepal, Thailand, and the United Arab Emirates—the event featured a keynote address by Nandini Harinath, Deputy Director of the Spacecraft Operations Area at ISRO Telemetry Tracking & Command Network, highlighting the success of the Chandrayaan-3 Mission. A panel session explored Space Technology Trends in the Asia-Pacific region, with representatives from ISRO, Boeing, and Deloitte. The International Cultural Night showcased the diversity of the region, followed by a gala dinner at Shangri-La Hotel.

The second day began with a fireside chat on the Gaganyaan mission, featuring Imtiaz Ali Khan and Rajesh P from ISRO. A panel discussion on Collaborative Space Education & Capacity Building for Accelerated Economic Development included experts from Deloitte, SSERD, WOAA India, and the Indian Institute of Astrophysics. A special astronaut session with Naoko Yamazaki, Former JAXA Astronaut, captivated the audience. The event concluded with presentations from five working groups, made possible by our dedicated sponsors and partners.

Heartfelt congratulations to each member of the organizing team for the remarkable success of the 9th Asia-Pacific Space Generation Workshop 2023. The dedication, meticulous planning, and tireless efforts of the team have undeniably contributed to making this event a resounding success.

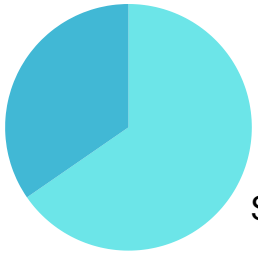
Sponsors and Partners

Statistics



Male (52%)
Female (48%)

Young Professionals
34.6%



Students
65.4%

52	6	6
Number of delegates	Countries represented	Scholarship Winners

2nd Middle East Space Generation Workshop

6-7 September 2023 Kingdom of Bahrain

The Middle East Space Generation Workshop (ME-SGW) is a two-day regional workshop connecting students and young professionals with agency and industry representatives from across the Middle East.
The 2nd ME-SGW was held in the Kingdom of Bahrain on the 6th and 7th of September 2023 at the University of Bahrain. Organized in partnership with the National Space Science Agency (NSSA) and the University of Bahrain (UOB), this event built on the success of previous regional workshops worldwide, emphasizing the growing prominence of the Middle East in the space sector.
The workshop brought together Bachelor's, Master's, and Doctoral degree candidates, young professionals, academia, space agencies, and industry representatives. Delegates had the chance to participate in discussions on contemporary topics in the space industry, engage in interactive panel discussions, and gain insights from keynote speakers and experts in the field

Sponsors and Partners

4th North and Central American and Caribbean Space Generation Workshop

9 - 10 September 2023 **San José, Costa Rica**

The North and Central American and Caribbean Space Generation Workshop (NCAC-SGW) is a two-day regional workshop connecting students and young professionals with agency and industry representatives from across the NCAC region. It provides an opportunity for the future leaders of the region to proactively establish strong relationships, exchange ideas and knowledge, and collaborate on brainstorming new ideas and solutions using space technology for the benefit of North America, Central America, and the Caribbean.

The 4th NCAC-SGW was held in San José, Costa Rica at the Colegio Federado de Ingenieros y de Arquitectos de Costa Rica and was held in conjunction with the Central America Space Congress (Congreso Espacial Centroamericano – CEC).

The theme of the 4th NCAC-SGW was: "Space Lessons Learned: Youth Innovation Today, and International Cooperation for an Improved Tomorrow." This theme addressed key areas such as Space Law, Science Diplomacy and International Cooperation, Space for the Sustainable Development Goals, Space Commerce, Mission Development, Telemetry, and more.

Sponsors and Partners

ORBITAL SPACE TECHNOLOGIES

ASTRALINTU SPACE TECHNOLOGIES

VERNE TECHNOLOGIES

7th European Space Generation Workshop

28 - 29 April 2023 **Bari, Italy**

The 7th European Space Generation Workshop (E-SGW) took place in 2023, bringing together 100 students and young professionals from across Europe for two days of discussions, networking, and collaboration.

The overarching event theme chosen for the 7th E-SGW was “Making sustainability the cornerstone for European space innovation and policy coordination”. As space innovation evolves exponentially, support towards sustainability claims is certainly justified. That is not only for the purpose of ensuring that safe and viable methods of space exploration and exploitation are developed in order to protect both earthly and space environments (“sustainability in space”), but also to ensure that space exploration supports society on Earth and enhances its development (“sustainability from space”).

During the two-day workshop, 100 students and young professionals (18-35 years of age) from all over Europe were divided into 5 Working Groups discussing a wide range of topics, from space tourism and private investments, to the use of the latest downstream applications and human adaptation to space. The results will have the opportunity to be presented at the annual meeting of UN COPUOS, or as articles or business innovations.

Attending the E-SGW provided an invaluable experience for participants to aspire, inspire, and engage in meaningful discussions that will shape the future of Europe’s space endeavors

Sponsors and Partners

Politecnico di Bari

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Università degli Studi di Bari Aldo Moro

Secure World Foundation

TELESPAZIO a LEONARDO and THALES company

PANDORA Seeding Horizons

Deloitte. Legal

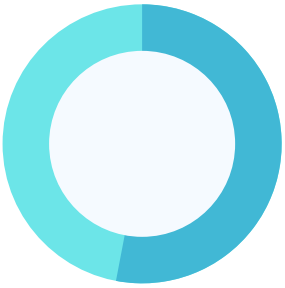
ORBITFAB Gas Stations in Space™

planetek italia

Oxford Space Systems

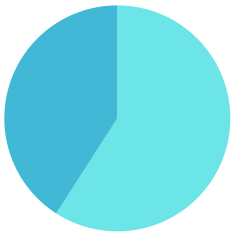
ThalesAlenia Space

Statistics



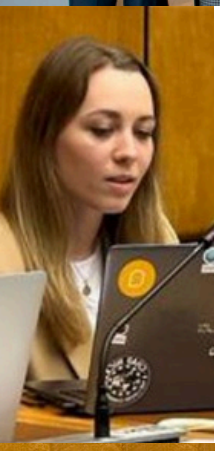
Male (53%)
Female (49%)

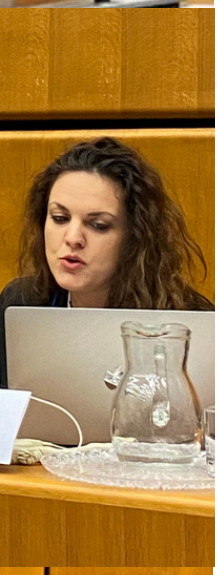
Young Professionals
40.9%



Students
59.1%

110	35	5
Number of delegates	Countries represented	Scholarship Winners





UNITED NATIONS INVOLVEMENT

In 2023, the Space Generation Advisory Council (SGAC) collaborated extensively with the United Nations Office for Outer Space Affairs (UNOOSA) through various engagements, mainly focusing on space sustainability, legal frameworks, and promoting youth perspectives in space policy. Key contributions included SGAC's presence and statements at the 66th session of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) in June. SGAC's statements highlighted youth-driven policy initiatives like the Intergenerational Pact for Space Sustainability (IPASS), which emphasized the importance of sustainable space exploration and responsible resource utilization in alignment with the UN's Sustainable Development Goals (SDGs). This pact aims to incorporate intergenerational perspectives, calling for collaboration on space sustainability policies that will endure over time.

SGAC also continued its advocacy through the Space Generation Advocacy and Policy Platform (SGAPP), which publishes youth perspectives on space-related policies and sustainability practices. This year, SGAC concentrated on the preservation of the lunar environment and promoted adaptive governance, advocating for a flexible legal framework that responds to evolving space technologies and ecological realities. These efforts align with SGAC's aim to bridge the perspectives of young space professionals and policymakers, particularly in discussions on lunar resource management and the protection of lunar heritage sites.

This engagement is part of SGAC's broader mission to ensure that the voices of young professionals are represented in key space governance discussions, supporting a sustainable and peaceful future in space exploration.

UN COPUOS Scientific and Technical Subcommittee

On February 9, during the 60th COPUOS Scientific and Technical Subcommittee, Davide Petrillo, at the time SGAC Executive Director, delivered SGAC's general statement, highlighting the organization's growth to over 24,000 young professionals from more than 165 countries and its impactful contributions to the global space community. Key achievements included advocating for space sustainability through SGAPP, hosting global events, awarding scholarships to support youth participation, and collaborating with partners such as UNOOSA, Blue Origin, and ESA. SGAC reaffirmed its commitment to diversity, inclusion, engaging emerging space economies, and amplifying youth voices in space policy and governance for a sustainable future.
Davide Petrillo and Valentina Luchetti, SGAC Chief of Staff, were part of the SGAC delegation present at the session.

In addition, SGAC actively contributed to the discussions by delivering five technical presentations under various agenda items:

- Laetitia Cesari Zarkan (SGAC Space and Cyber Security Project Group Co-Lead): What Cyber Protection for Space Technologies? A Technical Study on Safety Norms
  Agenda Item 5: Space technology for sustainable socioeconomic development
- Clarissa Luk (SGAC Space Safety and Sustainability Project Group Member): SGAC Review of the UNCOPUOS Compendium of space debris mitigation standards: What's next?
  Agenda Item 7: Space debris
- Newsha Haghgoo (SGAC Space Exploration Project Group Co-Lead): Empowering the Next Generation – the key to long-term sustainability in outer space activities
  Agenda Item 12: Long-term sustainability of outer space activities
- Virgile Gautier (SGAC Space Safety and Sustainability Project Group Member): International Consensus about Standardisation of Interfaces for On-Orbit Servicing: a project held by the Space Generation Advisory Council
  Agenda Item 13: Future role and method of work of the Committee
- Swarnajyoti Mukherjee (SGAC Space Technology for Earth Applications Project Group Co-Lead): Supplementing Earth Observation with Social Media data for Disaster Risk Management
  Agenda Item 8: Space-system-based disaster management support

UN COPUOS Legal Subcommittee

During the 62nd COPUOS Legal Subcommittee, Davide Petrillo, SGAC Executive Director, Valentina Luchetti, SGAC Chief of Staff, and Hamza Hameed, SGAC Co-Chair, delivered SGAC's general statements under Agenda Items 3, 4, and 10.
The SGAC delegation at the session included Davide Petrillo, Valentina Luchetti, and Tatiana Komorná, SGAC Operations Officer.
Additionally, the following technical presentations were made:

- Daniel Patton (SGAC Space Safety and Sustainability Project Group Member): Understanding Space as a Global Common
  Agenda Item 10: General exchange of views on potential legal models for activities in the exploration, exploitation and utilization of space resources
- Sahil Bhatia (SGAC Space Safety and Sustainability Project Group Member): Strategies for Cislunar Space Traffic Management
  Agenda Item 11: General exchange of information and views on legal mechanisms relating to space debris mitigation and remediation measures, taking into account the work of the Scientific and Technical Subcommittee
- Maya Nasr and Álvaro Piris (SGAC Space Law & Policy Project Group Members): Current Activities in the Space Generation Advisory Council (SGAC) Space Law & Policy Project Group (SLP PG)
  Agenda Item 4: Information on the activities of international intergovernmental and non-governmental organizations relating to space law
- Clare Fletcher (SGAC Space Safety and Sustainability Project Group Member): Clear and present danger: understanding risks to outstanding universal geoheritage values on Mars to guide proactive policy
  Agenda Item 15: Proposals to the Committee on the Peaceful Uses of Outer Space for new items to be considered by the Legal Subcommittee at its sixty-third session
- Lauren Fleming (SGAC Space Safety and Sustainability Project Group Member): Review of the UN COPUOS Space Debris Compendium
  Agenda Item 4: Information on the activities of international intergovernmental and non-governmental organizations relating to space law

COPUOS General Assembly

During the 66th COPUOS General Assembly, Hamza Hameed, SGAC Chair, Antonio Salmeri, SGAC Co-Chair, and Valentina Lucchetti, SGAC Acting Executive Director, delivered SGAC's general statements under Agenda Items 4, 11, and 14.

On June 2, during his general statement under Agenda Item 4, Hamza Hameed emphasized SGAC's recent achievements and initiatives. Leadership changes were highlighted including the appointment of Dr. Antonino Salmeri as Co-Chair, Valentina Luchetti as Acting Executive Director, and Tatiana Komorná as SGAC's new Operations Officer in Vienna. The statement emphasized key events like SGx 2023, the Space Generation Fusion Forum, and the European Space Generation Workshop, which engaged hundreds of young professionals globally. SGAC's increasing focus on emerging space economies was also underscored, alongside participation in major forums like the Langkawi International Space Forum and the International Space Forum in Panama.

Additionally, SGAC outlined its policy initiatives, including the release of its Climate Report and the upcoming IPASS Report on space sustainability. Plans for the 21st Space Generation Congress in Baku were shared, along with gratitude to SGAC's volunteers, sponsors, and partners for their support in fostering global youth engagement in space.

The SGAC delegation at the event included Valentina Luchetti, SGAC Acting Executive Director; Tatiana Komorná, SGAC Operations Officer; Hamza Hameed, SGAC Chair; Antonino Salmeri, SGAC Co-Chair; and SGAC Members Sahith Reddy Madara, Ruth Okoh, Nicolas Moraitis, Juliana Rinaldi-Semione, Annemay Ooms, Laura Morelli, and Alex Drozda.

Model UN COPUOS

From October 25th to 27th, 2023, Paris hosted the 2nd Model UN Committee on the Peaceful Uses of Outer Space (COPUOS), organised by SGAC and ECSL. This event aims to engage the younger generation in discussions about Sustainable Space, reflecting on the historical context of outer space law, which began with the Outer Space Treaty in 1967. Despite the development of five space treaties, a consensus has not been reached since 1984, leaving the sustainability of outer space largely unregulated.

During the Model UN COPUOS which simulates a real UN COPUOS meeting, representatives from diverse states debate and draft a resolution addressing the sustainability challenges of outer space activities. By exploring innovative solutions within the legal framework, the event advances discussions on responsible and sustainable use of space in light of its rapid development.


EXPLORATION
Proving Ground
TURKEY
UKRAINE
ARAB EMIRATES
UNITED KINGDOM


UNISEC GLOBAL
SGAC
UNISEC GLOBAL
SGAC

POLICY AND ADVOCACY

Introducing SGAPP

The Space Generation Advisory Council (SGAC) introduced the Space Generation Advocacy and Policy Platform (SGAPP) in 2021. This initiative aims to unify and elevate the voice of young people in the global space community. SGAPP seeks to enhance the effectiveness of SGAC's policy and advocacy work by consolidating and promoting space policy activities. Additionally, it aims to increase the impact of younger generations in global space policy discussions, promoting peaceful and sustainable space utilization. To this end, SGAPP will produce policy reports and overviews, supported by advocacy campaigns and implementation actions.

Statistics

173
Slack Members

3
IAC 2022 Presentations

Activity Highlights

SGAPP Policy Overview on “Responsible Behaviour in Outer Space”

SGAPP has established a dedicated project group focusing on "Responsible Behaviour in Outer Space." This specialised team is mandated to undertake a comprehensive policy overview by conducting in-depth surveys and a series of interviews as part of its assessment process. The objective of this data gathering is to measure the level of comprehension and interest concerning responsible behaviour in space operations within the range of projects, events, and other activities of the SGAC.

The policy overview serves as a foundational element. By identifying, consolidating, and understanding relevant initiatives and policies concerning responsible behaviour in outer space, the project group is effectively laying the groundwork for the implementation phase. This comprehensive overview not only provides a clear picture of the existing landscape but also highlights gaps, opportunities, and potential synergies among various projects and initiatives within the SGAC.

SGAPP Policy Position Towards an Intergenerational Pact for Space Sustainability

In light of the central role of sustainability for the prosperous and peaceful uses of space, SGAPP established a Space Sustainability division to develop a SGAC Policy Position providing the recommendations of the space youth towards "An Intergenerational Pact for Space Sustainability". A dedicated team of 12 SGAC members, the IPASS Team, was established in April 2023 within SGAC's Advocacy and Policy Platform (SGAPP) to lead this initiative. The resulting report details the official policy position of the organisation on the long term sustainability of space activities. The IPASS report is set to be reviewed and approved by the SGAC Executive Committee in 2024.

SGAPP PUBLICATIONS

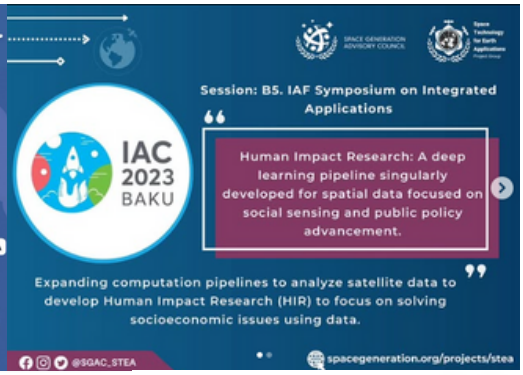
IPASS Policy Division (Lead by: Gabrielle Leterre, Nicolas Moraitis) "Towards An Intergenerational Pact for Space Sustainability" SGAC Website https://spacegeneration.org/wp-content/uploads/2024/01/SGAC-Report-Towards-an-Intergenerational-Pact-for-Space-Sustainability-IPASS.pdf

IPASS Policy Division (Lead by: Gabrielle Leterre, Nicolas Moraitis). *"An Intergenerational Pact for Space Sustainability."* International Astronautical Congress (IAC) 2023

NCAC Taskforce (Lead: Lindsey Wiser). *"An Overview of Space Policy Perspectives From the Young Space Generation."* International Astronautical Congress (IAC) 2023

PROJECT GROUPS AND ACTIVITIES

The Project Groups (PGs) of the Space Generation Advisory Council (SGAC) represent a core pillar to the organisation, and one of the largest space research communities. Originally, the PGs acted as a forum for young professionals and students from across the sector to discuss and debate on relevant space related topics, from cybersecurity to exploration.
In recent years, the PGs are now looking beyond not only ensuring a continuity of research, but also to become diversity activists, space law consultants, start-up accelerators, and satellite integrators. As a result, PGs have attracted the attention of the industry that desire access to this network. The great impact of their subjects come from the team's intercultural and interdisciplinary diversity, where young people from any part of the world may join and feel enabled to contribute, from the student to the emerging expert.



Commercial Space

Scope and Objectives

When we think of the term Commercial Space, we do not solely consider companies around the world who are endeavoring to help propel humanity into the stars. We also think of the principle that all people should have the right to be a part of mankind's reach into the final frontier. This approach has guided our organizational objectives, which are to:

- Conduct academic research on the Theory of Industrial Practice in the commercial space sector.
- Constitute a Think Tank to promote idea acceleration for commercial space purposes.
- Make our efforts influential upon decision-makers and widely publicized throughout the global space community.
- Equip the younger generation with the knowledge, tools and network to be active in the realm of commercial space and space-based entrepreneurship.

Statistics

2	20	11
Co-Leads	Active Members	Projects

Initiatives and Projects

- **Space Business in Developing Countries**
  - Identify key factors that attract foreign investment to new space-faring countries
  - Disseminate conclusions to foment such development in emerging and developing countries
  - Involve SGAC network in a wide-range analysis of such factors worldwide

- **Commercial Space Resources Activities**
  - Overview the regulatory challenges of an international framework on space mining from a commercial standpoint
  - Address the economic challenges of space mining using specific case studies on different celestial bodies
  - Disseminate conclusions to promote well-balanced regulation for commercial space resource exploitation activities
- **Think Tank**
  - Foment the entrepreneurial spirit within SGAC
  - Push the brainstorming of New Space business and technical ideas for today's and tomorrow's problems
  - Grow such ideas by providing mentoring and technical support, in an idea-accelerator scheme.
- **Outreach**
  - Organise webinars and podcasts
  - Produce newsletters
  - Conduct hackathons

Project Group Partners

ENTREPRENEURSHIP AND INVESTMENT COMMITTEE (EIC)

Other Partnerships In-Work

MOON VILLAGE ASSOCIATION

OPEN LUNAR FOUNDATION

ACSP

Space Exploration

Scope and Objectives

The SGAC Space Exploration Project Group focuses on ongoing and future deep space manned and unmanned missions. The main aim of the Group is to create an international and interdisciplinary forum focused on different aspects of space exploration, including: development of exploration technologies and capabilities; safety enhancement; performance of space, Earth and applied science; search for life; stimulation of economic expansion, and many more.

Our focus is the Global Exploration Roadmap (GER) currently being developed by 14 space agencies around the world. The GER Strategy reflects the international effort to prepare collaborative space exploration beginning with the International Space Station, continuing to the Moon, near-Earth asteroids and with the ultimate goal of a manned mission to Mars.

Statistics

2	113	3
Co-Leads	Active Members	Projects

Initiatives and Projects

- **LUNEX Prosper Project**

The proposed project addresses the critical need for sustainability in lunar exploration and habitation, emphasizing the establishment of a commercially viable lunar economy. It focuses on creating a recommendation report for the Luxembourg Space Agency, developing a roadmap for the lunar base, and potentially engaging commercial partners. Collaborating closely with Airbus and the University of Toronto aerospace teams, this initiative aims to leverage their expertise and resources to achieve the project's objectives. Moreover, the findings and recommendations from this project will be presented at the International Astronautical Congress (IAC) 2024 in Milan.

- **LUNEX Space Homes Project**

The Lunex Space Homes project focuses on developing habitats for lunar living, utilising cutting-edge technology such as Artificial Intelligence (AI) and Machine Learning (ML) to create smart and adaptable living spaces on the Moon.

- **VENUS Project**

The Venus Project aims at producing a report identifying the reasons for taking an interest in human exploration of Venus and listing some broad objectives for a potential manned mission to Venus. The project approach is based on NASA's "architect from the right" principle, which encourages first establishing clear strategic reasons for a manned mission to Venus before diving deeper into the details of how to get there.

- **Kickstarting the 5-Minute Thesis Presentation**

This activity aims at allowing members to present their projects at the end of each monthly meeting.

- **Kickstarting the End-of-Year Virtual Gathering**

This activity aims at fostering team cohesion by organizing a virtual gathering at the end of the year. It includes Kahoot games and icebreaking activities designed to help members get to know each other better and create a stronger team environment within the project group (PG).

Project Group Partners

LUXEMBOURG SPACE AGENCY

UTAT

Space Law and Policy

Scope and Objectives

The SGAC Space Law and Policy Project Group is a forum for university students and young professionals interested in working together to impact global discussions on the legal and policy aspects of outer space activities. Dedicated to addressing current and future international and national issues, the group pursues projects relevant to space law, policy, and those pertinent to the broader space community.

The goals of SLP-PG are to:

- Engage in critical debates about legal and policy aspects of space activities
- Investigate legal and regulatory challenges faced by the space community
- Propose space-related policy recommendations
- Address emerging questions and issues in the space sector
- Develop research papers on trends and issues of the space community
- Contribute and collaborate with the space community on multidisciplinary topics

Statistics

2	100+	5
Co-Leads	Active Members	Projects

Initiatives and Projects

- **Best Practices Framework for Developing Space Legislation in Africa (in collaboration with the Commercial Space PG)**

The main goal of this research is to develop a White Paper on best practices frameworks/examples that can serve as a model for developing relevant space legislation in African countries that do not currently have space legislation. Some examples could be drawn from other African countries or countries in other regions with similar socioeconomic resources and capacities (e.g., Asia-Pacific).

This research will also explore the role that Intra-African space partnerships play in the broader global context, especially in terms of space commercialisation and regulation.
This project will further examine how Intra-African space partnerships contribute to expanding the African Union's collaboration with other institutions, such as the EU (e.g., ESA). As part of this project, a webinar in collaboration with the Moon Village Association was held to provide insight into this topic.

- **Review of UNCOPUOS Space Debris Compendium (in collaboration with the Space Safety and Sustainability PG)**

This review of the UN COPUOS Compendium of space debris mitigation standards adopted by States and international organizations aims to characterise standard, good, and best practices. The compendium, developed in 2014, is designed to inform States of the current instruments and measures implemented by States and international organizations. The review's goal is to promote, streamline, and expedite regulatory reform towards a comprehensive solution for space debris.

- **Gender Equality**

The Gender Equality project team is currently conducting a comparative analysis of perspectives on gender and sexuality equality in Africa. The objective is to provide recommendations to private companies and governmental institutions to achieve equality in the space industry.

- **Non-peaceful uses of commercial satellites: existing issues and new challenges from a legal and policy perspective**

The use of commercial satellite data in contemporary warfare raises significant legal and policy questions. How is, or can, the use of civilian satellite data for military purposes be regulated? What instruments can be used? With contemporary conflicts targeting commercial satellites, the team aims to explore the broader issue of the use of commercial space systems in times of warfare. The research will have two main focuses: legal and policy.
The study aims to examine the stance of the law on this issue (treaties, legal documents, State practice) as well as real-life cases from the past and the current situation. Ultimately, we seek to provide an overview of the current situation and assess potential solutions and suggestions for the future.

- **The Role and Challenges of Earth Observation in the Beirut Explosion Assessment and Relief Response**

This study examines domestic and international legislation on satellite usage and data sharing, highlighting the need for comprehensive laws and clear policies that align with legal and ethical standards. By reviewing relevant domestic laws, international agreements, principles, and guidelines, it aims to facilitate the use of Earth Observation (EO) technology in humanitarian responses while addressing associated legal and technological challenges.
Given the dual-use nature of EO technology and the complex rights involved, the study calls for a stronger legal and regulatory framework to enhance EO application in humanitarian disasters like the Beirut explosion. Recommendations include establishing guidelines for international cooperation and balancing privacy with humanitarian needs. Existing legal foundations can support the development of specific legislation to improve EO data use in disaster management, promoting more resilient and informed responses to future crises.

Ethics and Human Rights

Scope and Objectives

The SGAC Ethics and Human Rights Project Group aims to identify how space technology can best contribute to the realization of the United Nations' objectives on Human Rights and the Sustainable Development Goals. Additionally, the project group serves as a platform for empowerment and justice from the perspective of the diverse peoples who comprise the modern space sector, aiming to influence its development to be representative of all humanity.

Statistics

2	32	3
Co-Leads	Active Members	Projects

Initiatives and Projects

- **Leadership Transition and Reformation**

The SGAC Ethics and Human Rights PG has undergone some changes over the last few years. One of the main goals for 2023 was to appoint new leadership for the project group and develop a new strategic plan for the next 18-24 months. The two co-leads and the communication lead have outlined several projects and initiatives for the group to work on, including the Palestine Project, an Ethics and Human Rights in Space Conference, and research into the relationship between defense contractors and the space industry.

Small Satellites

Scope and Objectives

The vision of the SGAC Small Satellites Project Group is to create an international and interdisciplinary forum focused on different aspects of the growing small satellite industry, aiming to promote the application of small satellite systems, technologies, and products to the betterment of both humanity and the natural world.

Statistics

2	350	5
Co-Leads	Active Members	Projects

Initiatives and Projects

- **Building a Sustainable Climate Change Monitoring Satellite Mission through Life Cycle Assessment**

This research project focused on a sustainable climate change monitoring satellite mission, utilising low-altitude remote sensing small satellites with advanced technology to provide high-resolution, frequent coverage of key climate indicators over large areas, addressing shortcomings in current remote sensing missions.

The findings of this research project were presented at the International Astronautical Congress (IAC) 2023 in Baku, Azerbaijan.

- **Analysis of Space Debris Mitigation and Removal Techniques for Small Satellites in Low Earth Orbit in Purview of the Guidelines Issued by the FCC**

This research project focused on the impact of the FCC's 2022 ruling on space debris mitigation, which requires satellites in Low Earth Orbit to be de-orbited within five years of mission completion. The project specifically examined small satellites and constellations, analysing various removal and mitigation techniques, and providing a roadmap for small satellite developers to adopt effective strategies to address the increasing accumulation of space debris.

The findings of this research project were presented at the International Astronautical Congress (IAC) 2023 in Baku, Azerbaijan

- **Study of Small Satellite Constellation for High-Resolution Greenhouse Gas Monitoring**

This research project focused on the need for improved greenhouse gas monitoring by proposing a cost-effective small satellite constellation mission with a novel payload for active remote sensing of CO2, CH4, and N2O. The study aims to enhance spatial and temporal resolution compared to existing Earth observation satellites, particularly benefiting areas with limited coverage such as high-latitude regions and offshore operations in industries with significant emissions, like oil and gas.

The findings of this research project were presented at the International Astronautical Congress (IAC) 2023 in Baku, Azerbaijan.

- **Lessons Learned from the First Generation of Interplanetary SmallSats**

This research project focused on the technical and operational challenges faced by interplanetary SmallSat missions, proposing solutions and establishing a standard framework for system development, project management, resource management, risk mitigation, and technical standards to streamline the development cycle of future missions in both management and technical aspects. The findings of this research project were presented at the International Astronautical Congress (IAC) 2023 in Baku, Azerbaijan.

- **Feasibility study on enabling technologies for designing a Synthetic Aperture Radar payload on a Nanosatellite for monitoring water levels in flood prone areas of Nigeria**

This research project focused on a feasibility study for utilizing SAR payloads on nanosatellites to monitor water levels in flood-prone areas of Nigeria. It aimed to provide technical insights and a framework for designing future SAR nanosatellite missions, enabling a fast early warning system for flood prediction and management in Nigeria.

- **A critical review on the state-of-the-art and future prospects of Machine Learning for Earth Observation Operations**

This research project focused on the diverse applications of Machine Learning (ML) in Earth Observation (EO) operations. It covered areas such as mission planning, fault diagnosis, optimization of telecommunications, on-board image processing, and more, highlighting current use cases and identifying research gaps. The project also discussed challenges, provided recommendations, and emphasized the need for standardization to enhance EO operations and build more resilient space missions. The findings of this research project were published in the 'Advances in Space Research' Journal (Volume 71, Issue 12, published June 2023).

Project Group Partners

cnes
CENTRE NATIONAL D'ÉTUDES SPATIALES

SATSURE

AIRMO

Mindseed

Near Earth Object

Scope and Objectives

The Near Earth Object (NEO) project group is focused on supporting global efforts in planetary defense by providing a youth-driven perspective on addressing Near Earth Objects. Through annual reports, competitions, conference participation, and outreach initiatives, the group engages young people in raising awareness and contributing to international discussions on NEO-related issues. Leveraging SGAC's membership of Action Team14 within UN COPUOS, the group aims to facilitate the creation of a UN legal framework for global cooperation on NEO matters.

Statistics

2	5	2
Co-Leads	Active Members	Projects

Initiatives and Projects

- **Find An Asteroid 2023 (SGAC Asteroid Search Campaign)**

The Space Generation Advisory Council (SGAC) – Near Earth Object (NEO) Project Group and the International Astronomical Search Collaboration (IASC) sponsored a special asteroid search campaign during November and December, running for four weeks from November 7 to December 4, 2023.

Thirty schools and teams worldwide were selected to participate in the "Find an Asteroid 2023" search campaign.

Teams received telescopic images taken just hours earlier along the ecliptic. Using the software Astrometrica, they accurately measured the time and position of asteroids moving against the background. These measurements were recorded in a report sent to IASC.

Weather permitting, each team received 25 unique sets of images during the campaign. Team members could download each image set and search for asteroids just hours after the images were taken along the celestial ecliptic by the Pan-STARRS telescope at the University of Hawaii.

- **Rendezvous Mission Design And Deflection of Asteroid 2023 PDC**

This poster presentation was featured at the 8th IAA Planetary Defense Conference (PDC) 2023. The objective of the paper was to analyze the rendezvous nuclear deflection of 2023 PDC from a scientific and socio-political point of view.

Project Group Partners

Space and Cybersecurity

Scope and Objectives

The scope of the PG has been extended from addressing only the cybersecurity and space intersection, to embracing a larger umbrella of space-related technologies, such as AI, Blockchain, Quantum technologies and many others. The final objective of the PG is to provide students, young professionals and researchers, a space in which they can acquire expertise, work on their ideas and have a continuous exchange of knowledge with other experts in the field. The lettered, is fostered through a multidisciplinary approach. These three objectives, altogether, will allow the PG to become a key stakeholder in the field and provide a table of discussion where senior and young-experienced people can interact and achieve new and constructive collaborations.

Statistics

2	172
Co-Leads	Active Members

Initiatives

- **Mission Control TTX Hackathon -** 1st edition of the flagship event of the PG. The event consisted of a tabletop exercise in collaboration with Space ISAC and AIAA. Aim of the hackathon was to address a crisis scenario deriving from a cyberattack on a space infrastructure.
- **IAC Papers –** “An extended review on cyber vulnerabilities of AI technologies in space applications: technological challenges and international governance of AI” and “The importance of cybersecurity frameworks to regulate emergent AI technologies for Space Applications”.
- **Return to Action -** Space and Cybersecurity has outlined plans to resume PG activities. This year we identified a lack of visibility of internal activities and members due to a lack of structure. The PG can from now on rely on reinforced organisational settings, that ensure the active involvement of members and the smooth execution of activities. We can expect the launch of new initiatives soon.

Space Safety and Sustainability

Scope and Objectives

The SSS PG aims to mobilise the SGAC young professionals to participate in research, advocacy, and policy efforts to ensure safe and sustainable space.

Statistics

3	150+	6
Co-Leads	Active Members	Projects

Initiatives

- **Essay Competition 2023 –** This essay competition is an opportunity for students and young professionals to explore the role of private and public sectors in advancing sustainable development goals (SDGs) related to a more sustainable space sector. The competition seeks to encourage critical thinking and analysis of the different approaches that these sectors can take to address the challenges of climate change when it comes to the development of space activities, architecture, food, equality, etc.
- **ICASI (On-Orbit Servicing)–** The present study is a continuation of previous research as part of the Space Generation Advisory Council's Space Safety and Sustainability initiative through On-Orbit Servicing (OOS). Satellite safety is at great risk due to the rising population of space debris. Over 50% of satellites in orbit constitute defunct satellites. Due to the Kessler effect, a cascading phenomenon where space debris is increased exponentially, non-operational spacecraft pose a significant danger to space operations. OOS is expected to minimise these risks by either actively removing space junk or reducing its growth rate. The latter approach is supported through Mission Life Extension (MLE) and was covered in the prior studies as part of this initiative.

- **UNSDGS –** Climate change poses a serious threat to our planet, requiring innovative solutions and partnerships to tackle; however, not everyone has the tools and knowledge to use climate data to develop the necessary solutions. It is imperative that steps are taken to increase access to transparent information on climate change and opportunities to develop the skills necessary for making the planet more sustainable. Space technology and partnerships can potentially reduce geopolitical barriers by offering greater access to datasets that can inform climate-related decisions, such as weather patterns, greenhouse gas emissions, vegetation health, and ocean pollution. Technological advances have made access to satellite data more affordable and organisations such as the United Nations, Group on Earth Observations (GEO), and the Global Earth Observation System of Systems (GEOSS) provide data and services to developing countries at reduced or no cost. Despite these advancements, there are two fundamental barriers at present:
    - The lack of transparent datasets accessible to everyone, and
    - The requirement to have special skills in order to interpret datasets, which include satellite, climate, programming language, and geographic software competencies.

  The “United Nations Sustainable Development Goals (UN SDGs) project” under the Space Safety and Sustainability project group of the Space Generation Advisory Council (SGAC) aims to tackle these two problems. Being the largest global network of young space professionals, SGAC enables diverse members from around the world to discuss their unique challenges and perspectives through its advocacy activities. Climate change is affecting nations differently depending on the region’s geography, economy, infrastructure, and government policy. Developed countries tend to have better access to datasets, educational opportunities, training, and resources to develop major climate projects. This paper portrays the importance of diversity within the team of young professionals for addressing the aforementioned challenges regarding access to data and data analysis tools to all and its effect on policy-making. The research presented in this paper describes the work led by the UN SDGs team, which focuses on the UN SDGs Goal 13: Climate Action. The team has provided solutions to reduce inequalities by fostering collaboration between younger generations and industry leaders, finding gaps in data accessibility in different countries, building partnerships between developing nations and space-faring countries, providing workshops and webinars on data analysis, and offering guidelines for organisations to create equal opportunities for all to access space-based climate data.

- **UNCOPUOUS Space Debris Compendium –**As the number of satellites and human-made objects launched into space increases, so does the risk of collisions and the generation of more debris. To address the threat of space debris, there are international efforts and guidelines in place. The Outer Space Treaty, the foundational legal framework for space activities, emphasises the importance of responsible national space operations, observing the principles of “international responsibility” and “due regard”. It calls upon States to adopt “appropriate” measures to avoid “harmful contamination” throughout space missions. This appeal to national responsibility extends to space debris mitigation measures.

  In 2014 the United Nations (UN) Committee on the Peaceful Uses of Outer Space (COPUOS) compiled submissions to form the Compendium of space debris mitigation standards adopted by States and international organisations (The Compendium), representing best efforts to establish norms of behaviour for space debris mitigation. Although comparative analyses of space law exist, no previous research has taken this specific focus on the Compendium outputs. This project has also included general research into non-reported State practices, such as domestic space laws in non-UNCOPUOS States, insofar as they relate to debris mitigation standards. Understanding the current state of state-based space regulation means that new efforts and reforms can benefit from hybrid models which merge strengths and eradicate weaknesses. Through comprehensive and coordinated regulatory efforts, space actors may be compelled to act more responsibly throughout design, procurement, operations, and disposal; ultimately preventing congestion of the shared environment and ensuring all generations have a chance to benefit from space.

- **Earth's Orbits as UNESCO World Heritage Sites –** Earth’s orbits are a natural resource being overused. Orbits contain hundreds of satellites, helping us navigate our daily lives. Satellites facilitate our communications, to determine the weather, and provide key information for navigation purposes. Even though satellites help us map the climate effects of excessive resource use and consumption on Earth, we are paying too little attention to how crowded Earth’s orbits are becoming. In the pursuit of better technologies, the preservation of this environment is often discarded which in turn presents the bigger issue that space debris poses to life in space and on earth. In the midst of the rapid technological evolution that we’re living in today, this study aims to suggest a sustainable solution for both space exploration and exploitation, advocating for space democratization.

  This project looks at the issue of space debris by considering the Earth’s orbits as an environment to be protected, recognizing it as an intangible natural and cultural heritage. With the projected launch schedules of satellites and other rockets, orbits will get even more crowded, posing a hazard to human life, mostly in LEO, as well to missions and objects that cost billions, years of planning, organization, and work. All of this could disintegrate in a second if debris hits. It might seem like a problem for the future but is urgent, although it might look that only future generations would have the capabilities and tools to solve. As humanity continues with its quest for space exploration and cohabitation on other planets, it is our duty to secure continuous and safe access to space for everyone.

Space Medicine and Life Sciences

Scope and Objectives

The scope of the Space Medicine and Life Sciences (SMLS) Project Group encompasses: collaboration on research projects, knowledge sharing and promoting awareness, facilitating professional development and advancing policies in the space health fields. Our primary objective is to provide a global interdisciplinary platform to build a community of young professionals in space medicine and life sciences in collaboration with international stakeholders within the space sector. This community will work towards creating tangible solutions and applications to address both space and terrestrial healthcare issues, as aligned with the United Nations (UN) Sustainable Development Goals (SDGs). In addition, this group aims to address space medical issues associated with the unique challenges of extreme space environments and to work towards standardised evidence-based space medical guidelines.

Statistics

1	2,500+	4
Co-Leads	Active Members	Projects

Initiatives

- **SMLS newsletter –** PR & Communication team were responsible for sharing news on SMLS topics and continuously informing PG members on the latest developments and opportunities within the SMLS ecosystem. This project consists of designing, researching, writing, and organising the newsletter, which is sent out once every 2 months to the members subscribed to the newsletter (2500+ persons). Though the project was already successfully conducted in the previous years, the newsletters sent out this year were more frequent and regular.

- **“Health in Space” webinar series –** The primary objectives of this project are to bring together a community interested in space health topics and to offer a platform for knowledge exchange for the participating members. A total of four educational webinars, with nine top experts in a variety of SMLS fields, have been held throughout this year. This webinar series has been a continuation from the project successfully established and conducted in previous years.

- **Collaborative research projects –** SMLS PG committee created a number of research projects for SMLS members to take part in. By bringing together online individuals from diverse backgrounds, we aimed to foster collaboration and to cultivate new partnerships within the SMLS network, enabling participants to cultivate fresh skills, to gain a comprehensive understanding of the subject matter and to aid professional advancement. In pursuit of these goals, the project group facilitated and supported research work on the following subjects: “Cancer in space: evaluating the impact of the space environment on cancer pathogenesis and novel opportunities for cancer research” and “:Medical ethics of long-duration spaceflight”. Consequently, an article was authored and presented by members of the project group at the International Astronautical Congress in Baku and one article was published in Nature Microgravity. The selection of these articles for the renowned IAC and NPJ underscores the peer recognition of the project group's valuable contributions to the international space community.

- **Research Grants Lists -** The Research Grants team has been researching and compiling a resource list of available funding opportunities for space health-related research projects and conference attendance.

Space Technologies for Earth Applications

Scope and Objectives

The Space Technology for Earth Applications Project Group aims to address the intersection of space-based technology and sustainable development by providing students and young professionals from around the world equal access to hands-on experiences, professional networks, and a platform for debates and discussions. Our activities focus on a variety of societal challenges including climate change adaptation, disaster management, environmental monitoring, urban planning and pollution mapping. In collaborative project work and capacity-building efforts with local partners, we utilise the immense potential of space technology and apply innovative analysis methods such as deep learning to extract actionable information and to support non-trivial decision-making.

The objectives of STEA are to:

- Positively impact society through collaborative project work and capacity-building efforts.
- Create an interdisciplinary forum for passionate students/young professionals and provide opportunities for personal and professional growth.
- Contribute to and enhance academic research through publications in recognized journals.

Statistics

2	470+	3
Co-Leads	Active Members	Projects

Initiatives and Projects

- **LEO2Lunar PNT**

A study of constraints and potentialities of future LEO and Lunar Constellations.

- **Human Impact Research**

Building actionable policy work through satellite data and computation.

- **Realtime Flood Risk Monitoring**

Assessment of developing countries using social media, optical, and SAR satellite data (REFRA-SOS), ongoing since 2020, supported by the United Nations.

Diversity and Gender Equality

Scope and Objectives

The SGAC Diversity and Gender Equality Project Group works on the topics of diversity, inclusion, and equality within the aerospace sector. Therefore, the group has the following objectives:

- Raise awareness and break down stereotypes within and outside SGAC
- Tackle concrete concerns raised by minorities in the space sector
- Provide concrete recommendations for implementation in industry and academia, and setting an example through SGAC
- Inspire and provide avenues for young people from all horizons (gender, background, nationality, age, status…) to join the space sector
- Enrich the aerospace industry by advocating for gender equality, diversity and inclusion
- Create a lesson learned and practice platform on how we can reach out regarding diversity (trainings, presentations): facilitate and educate SGAC volunteers
- Set up a network of people interested ready to pursue the search for solutions to existing problems

Statistics

2	98	12
Co-Leads	Active Members	Projects

Initiatives and Projects

- **Statistics & Surveys by the Research Team**

In 2023, 3 thematic surveys were released.

- **Our Giant Leap Hackathon 2023**

The second edition of the international Our Giant Leap Hackathon was hosted in Montreal, Canada. The event centered around the theme: "How can space technology and know-how support and be utilized by women in remote communities?"

- **Best Practices RESEARCH team**

Data from partner organisations was collected for Best Practices Portfolios.

- **Our Giant Leap Podcast**

The Project Group podcast is dedicated to educating and raising awareness about gender equality and diversity in the space industry. In 2023, six episodes were released, attracting a significant number of listeners.

- **FIGURES (Fill In the Gap in hUman REsearch in Space)**

The FIGURES long-term project aims at contributing to closing the gender data gap in human spaceflight and exploration through experiments that can be implemented in current and future analogue missions.

- **PADAWANS**

The PADAWANS long-term project aims at introducing to young children, from all walks of life, a multitude of professions and profiles in the space sector by inviting them to share hands-on experiences with SGAC members in their classrooms.

- **DIVINAS (DIVersity IN Astronaut Selection)**

The DIVINAS long-term project focuses on the diversity in astronaut and other space mission recruitment. Its main goals are to promote and encourage diversity during the processes, as well as to understand their different strategies and impact on society.

Project Group Partners

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