Convene – Midtown West
New York City, USA

A Wrapup of the 5th Summit for Space Sustainability

13-14 June 2023

SECURE
WORLD
FOUNDATION

About the Secure World Foundation

The Secure World Foundation strives to be a trusted and objective source of leadership and information on space security, sustainability, and the use of space for the benefit of Earth. The Foundation engages with the space and other relevant communities to support steps that encourage the long term sustainability of outer space and the effective use of space to benefit humanity. It works through three primary methods. The Foundation generates research and analysis for decision-makers to promote creation of sound policy and raise awareness of key issues that may threaten the security, sustainability and utility of outer space. The Foundation convenes timely public and private meetings with stakeholders on key issues to encourage discussion and constructive dialogue for next steps in support of its mission. And, when viable solutions or next steps become apparent, the Foundation formulates and disseminates policy positions that are aligned with its vision and mission in order to move them from idea to implementation.

Published November 2023

Convene – Midtown West
New York City, USA

A Wrapup of the 5th Summit for Space Sustainability

The 5th Summit for Space Sustainability served as a critical platform to address the pressing need for responsible conduct in space. Amid discussions of international partnerships and the sustainability of outer space activities, the event brought together industry leaders, policymakers, and academics to find concrete solutions.

A central focus was the challenge posed by space debris, particularly in the wake of anti-satellite (ASAT) tests. Experts across various panels emphasized the importance of cooperative measures to minimize new debris and encouraged responsible operations.

The conference also highlighted governmental initiatives marking a significant stride towards standardized practices in space. The complexity of balancing security with private sector interests was explored, reflecting concerns over strict regulations constraining beneficial capabilities like debris removal or on-orbit servicing.

Geopolitical issues were addressed, recognizing the necessity for collaborative diplomatic efforts and the gradual process of reaching global consensus on resolutions and treaties. This theme resonated with the conference's overarching goal of contributing a stable, predictable, and sustainable space environment.

The event's talks, keynotes, and panels were characterized by both urgency and optimism. With the outer space environment becoming increasingly competitive and congested, the conference demonstrated a shared commitment to responsible stewardship of this vital frontier.

By uniting diverse perspectives and fostering meaningful dialogue, the **5th Summit for Space Sustainability** set a determined course towards a future where outer space continues to inspire and connect humanity responsibly. It reasserted the shared global responsibility for the cosmos, emphasizing the tangible, concrete steps needed to ensure long-term sustainability and prevent conflict. The stakes are high, but the conference's outcomes offered a hopeful path forward.

Attendance from around the World

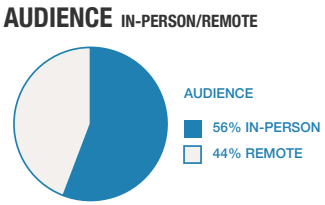
Over 500 people from 49 countries participated online and in person. We had participants from Japan, Ghana, Nigeria, Portugal, and Malaysia, to name a few.

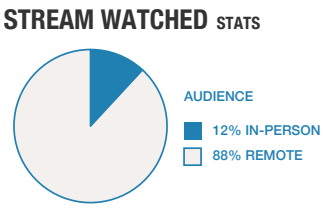
Of these attendees, 193 were students/young professionals, and 50 of those were in-person attendees. SWF was were thrilled to host the in-person young professionals to a special mentoring breakfast. Lt. Gen Shaw was a surprise guest speaker, joining a stellar lineup of mentors and speakers from the space sector to meet and network with our young professionals. SWF thanks all the mentors and speakers for inspiring the next generation of leaders in space.

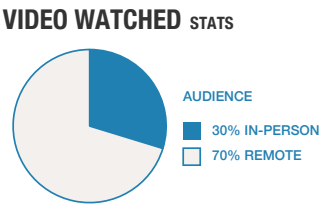
Who Participated

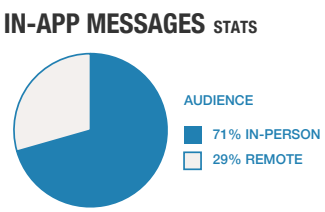
- **Government:** 32 organizations
- **Commercial:** 253 organizations
- **Financial:** 13 organizations
- **Non-profit/Research/Education:** 83 organizations
- **Media/News:** 9 organizations
- **International Organizations:** 20 organizations
- **Legal/Consulting:** 20 organizations
- **Associations/Foundations:** 14 organizations
- **Downloaded Event App:** 400 individuals, 78% of all attendees
- 1,700+ messages sent on the Whova App

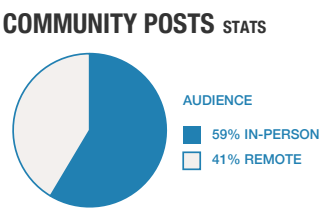
Audience Interaction











AGENDA Day One

AGENDA Day Two

A SUMMARY OF KEYNOTE REMARKS BY

Guy Ryder

Under-Secretary-General for Policy, EOSG, United Nations

Key Points

- The United Nations has been a critical partner in space governance since 1945, focusing on its peaceful use and recognizing the need to enhance space diplomacy.
- The unprecedented increase in objects in space, including debris, highlights urgent governance needs hampered by varying standards across different entities.
- The lack of international mechanisms to monitor and remove space debris presents significant challenges, especially for smaller countries and startup companies.
- The present excitement for deep space exploration underscores a need for international agreements and standards on resource management and the protection of historical sites.
- As a global community, we need accelerated space diplomacy, inclusive governance frameworks, and collaboration in the coming months to build a beneficial space governance architecture.

> For decades, the United Nations has served as a platform to bring people together to solve problems and unleash human potential. If we actively work together, we can build up a space governance architecture that will benefit outer space activity today and the space farers of far future generations.

About Guy Ryder

On 7 October 2022, UN Secretary-General António Guterres appointed Guy Ryder of the UK as Under-Secretary-General for Policy, succeeding Volker Türk, the new High Commissioner for Human Rights.

Ryder, who was most recently the Director-General of the International Labour Organization, has an extensive background in international labor relations.

He speaks English, French, and Spanish, and has studied at the Universities of Cambridge and Liverpool.

WATCH FULL KEYNOTE

youtu.be/T-IwHa27vNU

PANEL SUMMARY FOR

Why Space Sustainability Matters & Its Impact on Our Global Future

Key Points

- Private sector and industry representation will be critical, particularly in space sustainability efforts. Collaboration between the public and private sectors is crucial for holistic problem-solving.
- Multilateral agreements may be the consensus way forward, recognizing the challenge of reconciling various perspectives and the necessity of working together.
- Young professionals and the rising generation will play an essential role in the future of sustainable space activities. We must engage the younger generation, who often have a firmer grasp of sustainability concepts and innovative ideas, to ensure the future of safe and sustainable space activities.
- Direct outreach and communication to citizens about space, expanding the conversation beyond technical spheres to make it more accessible and resonant with the broader public.
- Space sustainability has an underrepresented economic dimension, with significant potential for prosperity through responsible management of space activities.
- There is an urgency to take immediate and substantial actions to address current challenges in space sustainability.

> I would very much like to see greater private sector representation at [The Committee on the Peaceful Uses of Outer Space] through technical presentations and other engagement. And we need to find a way not just U.S. industry but industry from across the globe.
>
> VALDA VIKMANIS KELLER

> Time's running out. Time's the essence. And we need to act quickly. We need to do some things more than we've done in the past.
>
> MARK DICKINSON

The Panelists

HUGO ANDRÉ COSTA
Executive Board Member, Portuguese Space Agency

MARK DICKINSON
Deputy CTO & Vice President, Space Segment, Viasat

REBECCA EVERNDEN
Director for Space, UK Department for Science, Innovation and Technology

WALTER EVERETTS
Vice President, Space and Ground Services, Iridium

VALDA VIKMANIS KELLER
Director of the Office of Space Affairs, Bureau of Oceans and International Environmental and Scientific Affairs, US Department of State

PETER MARTINEZ
Moderator, Executive Director, Secure World Foundation

WATCH FULL PANEL

youtu.be/fNGloxrFASw

A SUMMARY OF "WHY A MORATORIUM ON ANTI-SATELLITE TESTING IS IMPORTANT" SPOTLIGHT TALK BY

Audrey Schaffer

Director for Space Policy, National Security Council, The White House

Key Points

- The UN overwhelmingly passed a resolution endorsing a direct ascent anti-satellite missile testing moratorium, and that kind of vote count indicates a very strong base of support
- The US is leading the way on this issue of anti-satellite testing because we believe it is in our interest and that of the international community
- It was a whole of government effort because we're acutely aware of how dependent we are on space for our economic prosperity and national security
- Those representing a commercial space company or an NGO can and should voice their support for this norm. Companies and organizations can go on record and say the world should end destructive DA-ASAT missile testing, because creating indiscriminate and harmful space debris is in no one's interest.

> We do believe though that it's important, if not imperative, for as many nations as possible to stand up and say publicly that they too will not conduct [ASAT] tests.
>
> It's nonetheless valuable for as many states as possible to publicly commit to the norm of responsible behavior, because that is how we establish international norms.

About Audrey Schaffer

Audrey M. Schaffer is the Director for Space Policy at the National Security Council.

As the lead for national security space policy matters within the Executive Office of the President, and lead for space policy on the National Security Council staff, she advises the President of the United States and the National Security Advisor on military, intelligence, civil, and commercial space policies and strategies.

She works closely with the National Space Council, Office of Science and Technology Policy, Office of Management and Budget, and a range of U.S. government departments and agencies to develop and oversee implementation of national space policies and strategies.

WATCH FULL TALK

youtu.be/Te1CN8343rw

A SUMMARY OF "WHY A MORATORIUM ON ANTI-SATELLITE TESTING IS IMPORTANT" SPOTLIGHT TALK BY

Mark Mozena

Vice President of Government Affairs, Planet

Key Points

- Destructive ASAT weapons threaten our operations in low Earth orbit, Jeopardize astronaut safety, and risk destroying satellites that provide critical services to humanity, and they are frankly irresponsible
- Planet praises the work of the Biden Administration in taking the first steps to create a safer space environment with the announcement of the moratorium on destructive testing
- The community needs to works towards a binding agreement on destructive ASAT testing that can create orbital debris

> They [Destructive DA-ASAT weapons] threaten our operations in LEO, low Earth orbit, they jeopardize astronaut safety, and risk destroying satellites that provide critical services to humanity, and they are frankly irresponsible …
>
> But I urge our community to build on these great first steps, to work towards a binding international ban on the use of testing of all kinetic and debris creating ASATs.

About Mark Mozena

Mark Mozena is the Vice President of Government Affairs for Planet in Washington, D.C., leading government relations with Congress and U.S. agencies.

His past roles include work for United Launch Alliance (handling civil space relations), and serving as Senior Policy Advisor for Congressman Michael Honda.

Mark holds a Ph.D. in Astrophysics from the University of California, Santa Cruz, focusing on galaxy evolution.

His background includes teaching high school physics, living abroad as a diplomat's son, and earning his bachelor's degree from Rice University.

WATCH FULL TALK

youtu.be/lhTJJCbvdP8

PANEL SUMMARY FOR

Can the Space Community Actually Learn Something From Internet Governance?

Key Points

- Space, like many other domains, requires a polycentric governance approach with multiple levels of decision-making and ability for all stakeholders to have a voice
- The U.S. military plays an important role in sharing SSA information today to help avoid collisions, but there are limitations on what they can do and a lot of room for improvement
- A critical part of what makes the Internet work are a small set of common protocols that connect the many different types of hardware infrastructure to the vast array of applications that provide services and benefits
- A key point in the history of the internet is when the US government gave up control over domain names to a multi-stakeholder organization (ICANN) that is run collectively by governments, industry, and civil society
- The world is approaching a space traffic management tipping point. Collisions are going to become more frequent unless we come up with a system that coordinates across enterprises
- It's clear that space is not an Internet-like coming together but rather the proliferation of SSA systems by governments and commercial organizations.
- There has to be a coming together in the space community on standards and interoperability like there was in the Internet community

> The problem is that the math doesn't work, that we don't today have a way to compare the results of two independent systems and know the truth and be able to define truth.
>
> RICHARD DALBELLO

> Successful intergovernmental organizations are cooperative, collaborative, and inclusive, and their creation and design should be based on consensus to ensure legitimacy.
>
> BRUCE MCCLINTOCK

The Panelists

RICHARD DALBELLO
Director, Office of Space Commerce, National Oceanic and Atmospheric Association

MALLORY KNODEL
Chief Technology Officer, Center for Democracy and Technology

BRUCE MCCLINTOCK
Lead, Space Enterprise Initiative, RAND Corporation

CHARLIE MCGILLIS
Senior Vice-President, Gov't Relations & Strategy, Slingshot Aerospace

CLAIRE OTO
Senior Policy Analyst, National Security Policy Center, University of Virginia

BRIAN WEEDEN
Moderator, Director of Program Planning, Secure World Foundation

WATCH FULL PANEL

youtu.be/hnMzBdbNX8U

A SUMMARY OF KEYNOTE REMARKS BY

Julie Black

Director, Missions & Capability for Discovery & Sustainability, UK Space Agency

Key Points

- The UK Space Agency is rolling out space surveillance and tracking services to UK-licensed satellite operators for the first time to warn of possible collisions, allowing them to maneuver as necessary.
- The UK Space Agency launched funding initiatives for emerging technologies and invested in European Space Agency's space safety programs, including debris removal missions and improved space situational awareness.
- The UK Space Agency's newly established sustainability team will coordinate cross-agency activities for the sustainable use of space. They're working with global organizations, including the United Nations Committee on the Peaceful Uses of Outer Space, to promote best practices.
- The UK Space Agency is committed to maintaining momentum and seeking new opportunities to collaborate and grow. Their plans include servicing missions in 2028, developing orbital assembly, and fostering strong international partnerships for space sustainability goals.
- In distributing taxpayers' money, they strive to catalyze investment in private companies that work towards space sustainability. The UK Space Agency aims to fund the priorities of the UK space agency without over-investing public money.
- To address complex challenges, they must tap into diversity in thought, background, and culture. Collaboration is vital to ensure safe and responsible use of space, encouraging everyone to work together as sustainability champions.

> We have made it a priority to invest in industry, especially in companies that work directly to deliver space sustainability through innovation.

About Julie Black

Julie serves as the UK Space Agency's Director of Missions and Capability for Discovery and Sustainability.

Her work focuses on tracking objects in orbit, reducing debris, leading global regulation, and making space activities more sustainable. She also leads Space Science and Space Exploration programs in the UK.

Julie's career began in automotive engineering with Lotus Cars, and she later moved into the public sector, specializing in major project delivery across various fields, including education, central banking, energy regulation, and law enforcement.

WATCH FULL KEYNOTE

youtu.be/wf7k4VoVv0c

A SUMMARY OF "INVESTMENT LANDSCAPE FOR SPACE" SPOTLIGHT TALK BY

Maureen Haverty

Vice President, Investor, Seraphim Space

Key Points

- Venture capital interest in space really started ramping up in 2018. Key drivers of this interest include: space is a market that's being disrupted, the move of the government away from doing missions in-house to buying services from commercial providers, and the huge reduction in the cost of accessing space, including launch and cost of satellites. All of these are indicators that there a potential for large returns
- Only in the last 5 years did VCs see that space was a large enough potential market to drive the types of revenues that VCs want to see for potential returns.
- VCs see rapid change in the space sector, and that adds to the sense of potential
- The space sector is not immune from the overall macroeconomic environment, and space has seen a dropoff in investment in 2022 and 2023, but by some measures, this is smaller than the dropoff seen in other sectors. We are beginning to see a rebound.
- Space sustainability is emerging as an investment area, including in-space servicing and refueling applications, space situational awareness, and in-orbit data processing (driven by climate change monitoring).

> In-space services are exceptionally interesting. This is a sector that VC style [investing] couldn't exist five years ago. It's a sector that just focuses on servicing satellites and constellations in space and how you get the most out of them. So how do these companies help space sustainability and, importantly, how do they help constellations drive revenue which I think will be a real driver of sustainability.

About Maureen Haverty

Maureen is a Vice President of Investment at Seraphim Space, a space and drone-focused deep tech VC fund.

She has over a decade of experience combining operating and investing experience in the space and nuclear industry.

Her career highlights include being an early-stage employee and COO at Apollo Fusion, which was acquired by Astra for $145M, one of the largest ever acquisitions of a space component company. She is a board observer at D-Orbit and Edgybees and an investor in Voyager Space.

Maureen received her PhD in Nuclear Engineering from The University of Manchester.

WATCH FULL TALK

youtu.be/R3yB3u5eidE

A SUMMARY OF "AN INTRODUCTION TO ESG" SPOTLIGHT TALK BY

Erin Smith

Sustainability Strategy Executive, Global Commercial Bank and Business Bank, Bank of America

Key Points

- Driven by regulatory, market, political, and demographic factors, sustainability practices are being increasingly integrated into business practices across the economy, whether it's labeled Environmental, Social, and Governance (ESG), corporate social responsibility, or something else.
- These practices have gone from a nice to have to something that is necessary.
- Climate change response (net zero emission goals) and the Sustainable Development Goals (SDGs), in particular, are key drivers.
- Companies that can align their business model and their purpose with an ESG-aligned mission are going to be better prepared to attract, recruit, develop, and retain top talent.
- In this day and age, data is king. Data tells a story. It tells you where you've been, it can help you predict where you're going, and it and it can help your decisions.

> I like to refer to [ESG] as the intersectionality of people, planet, and prosperity and as a framework that speaks to how we live our lives and how we operate our businesses such that we do no harm to the planet we occupy and the communities that we reside in.

About Erin Smith

Based in Charlotte, Erin is the Sustainability Strategy Executive for Business Banking (BB) and Global Commercial Banking (GCB) at Bank of America, aligning sustainability efforts and focusing on social impact and climate action.

She joined the Bank in 2016, after working in real estate financial services at KPMG and managing real estate assets at JPMorgan Chase.

Erin holds degrees from Fordham University and NYU, with additional certificates in sustainable finance and leadership.

She serves on various boards, participates in leadership programs, and actively mentors younger professionals.

WATCH FULL TALK

youtu.be/vUfydvKJ7a8

PANEL SUMMARY FOR

ESG Innnnn Spaaaace

Key Points

- When considering connecting space sustainability to ESG plans and metrics, it's tempting to focus on the "E" (environment), but the "S" and "G" are equally important.
- ESG plans, reporting, and motivation have been common across the economy; space and satellite companies are not different in this regard. Shareholder and investment sources are interested, company employees are interested, and regulatory requirements are also drivers. ESG is a political issue in the US, but in the view of the panelists, that is unlikely to change the driver and prevalence of ESG efforts.
- Need to think about applying sustainability practices across the entire organization and mission, not just in-space operations, including setting responsibility as part culture at the firm, using life-cycle assessment practices, and looking at supply chain issues. The ground segment is a massive part of the space industry, and we often don't talk about sustainability in that part of our industry.
- Metrics are essential, and voluntary measures and reporting have a valuable role, but more than voluntary efforts are likely required to drive sustainability. Some regulatory actions will also be needed.
- ESG plans and reporting can help the space industry think about the impact of its activities on both the space environment and the terrestrial environment, going beyond space debris and covering impacts such as GHG emissions, resource depletion, acidification, and other atmospheric interactions.

> It is up to us to define [sustainability] metrics, and it is up to us to collaborate together. I think each individual company, if you have an ESG program that doesn't involve space sustainability and you're a space company, then you're probably missing out.
>
> AMBER LEDGERWOOD

> If...it's really important for every nation around the world to have access to the space economy, I think it leads you to the conclusion that there needs to be some constraints put into place so a few people don't overdo it.
>
> JOHN JANKA

The Panelists

JOHN P. JANKA
Chief Officer, Global Government Affairs & Regulatory, Viasat Inc.

GARETH KEANE
Partner, Promus Ventures

AMBER LEDGERWOOD
Head of Social and Environmental Impact SES

JUSTYNA REDELKIEWICZ
Market and Downstream Innovation - EU Head of Section Entrepreneurship and Environment, European Union Agency for Space Program (EUSPA)

BRIAN SCHOENING
Principal & Founder, One Small Step - Sustainability Consulting

IAN CHRISTENSEN
Moderator, Director of Private Sector Programs, Secure World Foundation

WATCH FULL PANEL

youtu.be/VcXXI-XwUpc

A SUMMARY OF THE

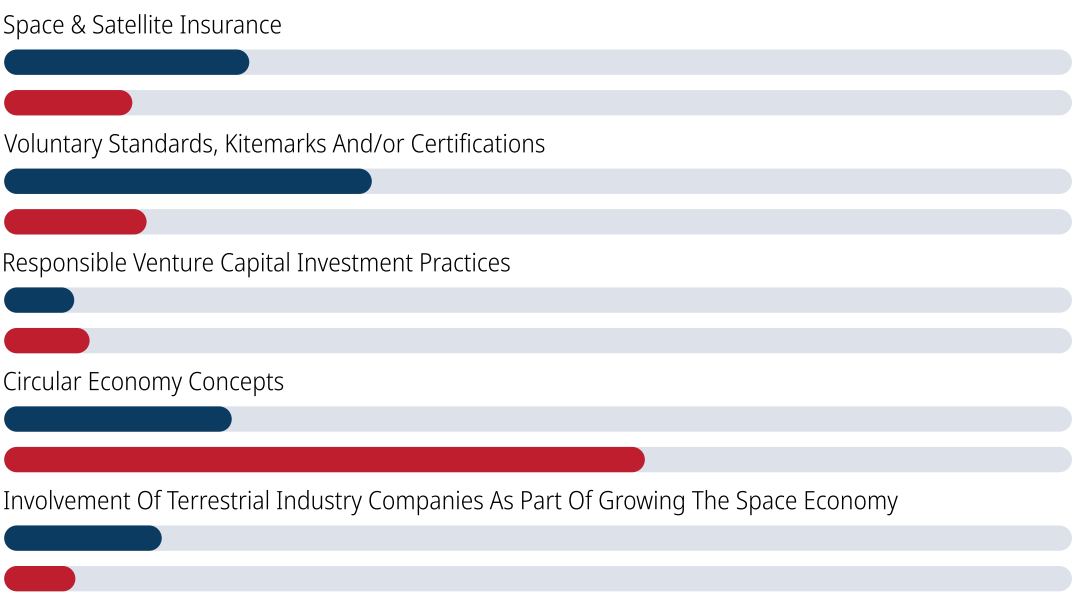
Pitch Session: How Can We Enable Space Sustainability

The Pitches

- **Chris Kunstadter**, *AXA XL* | Space and Satellite Insurance
- **Brian Lagana**, *CONFERS* | Voluntary standards, kitemarks and/or certifications
- **Clare J. Fairfield**, *Venture Capital Institute* | Responsible venture capital investment practices
- **Carolyn Belle**, *Astroscale U.S.* | Circular Economy Concepts
- **Masayasu Ishida**, *SPACETIDE Foundation* | Involvement of terrestrial industry companies as part of growing the space economy

Which of the following do you think offers the greatest potential to contribute to advancing space sustainability goals or outcomes?

POLL RESULTS: **BEFORE** & **AFTER** PITCHES



The Pitchers

CHRIS KUNSTADTER
Global Head of Space, AXA XLE

BRIAN LAGANA
Executive Director, CONFERS

CLARE J. FAIRFIELD
Executive Chairman, Venture Capital Institute

CAROLYN BELLE
Senior Director, Advanced Systems, Astroscale U.S.

MASAYASU ISHIDA
Co-Founder, President & CEO, SPACETIDE Foundation

The Judges

BRIAN BERGER
Editor-in-Chief, SpaceNews

NICHOLAS MILBURN
Special Counsel, Transportation & Space Group, Milbank

SENJUTI MALLICK
Senior Legal & Compliance Officer, COMSPOC Corp.

WATCH FULL SESSION

youtu.be/vLKf2jtwiUI

A SUMMARY OF KEYNOTE FIRESIDE CHAT REMARKS

Industry and the WEF Sustainable Space Initiative

Key Points

- The development of voluntary guidelines has encouraged industry actors to adapt to new standards, with a focus on sustainability and responsible management of space resources. This includes a five-year deorbiting requirement and increased sharing of space traffic management data.
- Addressing the challenges of collision events within growing constellations and developing solutions for maneuvering satellites without propulsion systems emphasize the importance of innovation and adaptability in space operations.
- A natural self-checking mechanism was highlighted, where companies are held accountable by their employees and the community. Publicly declaring commitment to guidelines strengthens adherence and fosters a culture of responsibility.
- New opportunities for industries and capabilities to adhere to the guidelines may eventually be linked to space emphasizing the potential growth if resources are managed correctly.
- Collaboration between sectors could help address challenges and unlock stalemates in policy discussions.
- The guidelines' direct impact on early-stage companies illustrates the practical influence of these standards on industry planning and operations, shaping the future of space endeavors.

> I think what's undeniable is that if we do this right and manage our orbital resources correctly and sustainably, the opportunity is on the horizon for us as a civilization.
>
> NIKOLAI KHLYSTOV

The Speakers

NIKOLAI KHLYSTOV
Lead, Future of Space, World Economic Forum

BRYN ORTH-LASHLEY
Technical Operations & Service Delivery Manager, GHGSat

JACQUELINE FELDSCHER
Moderator, Managing Editor, Payload

WATCH FULL KEYNOTE

youtu.be/sBBhj100nEM

A SUMMARY OF KEYNOTE FIRESIDE CHAT REMARKS

The Future of Military Space Activities

Key Points

- The Space Force and Space Command have different functions. The Space Force is focused on recruiting, training, and acquiring systems and capabilities. US Space Command is the combatant command for space and is in charge of warfighting and operations.
- Space today looks a lot like the other domains, and there's so much we can learn from them about addressing challenges like sustainability and coordination.
- Those companies and programs that I just mentioned have built into their systems the ability to deorbit their satellites. They didn't need to do that, here's no law that said they had to do that. They did it because they were being responsible.
- The biggest dynamic right now in our relationship with China with regard to space is a lack of communication, and virtually zero transparency. We need to talk.
- We can do our job well underneath the framework of the Outer Space Treaty.

> We were one of the earliest and biggest proponents of [a moratorium on ASAT testing.
>
> We've been a big proponent of that effort. And thanks to the 13 nations that have signed up and to many that have expressed support already in the UN.
>
> LT. GEN. JOHN E. SHAW

> US Space Force and US Space Command are as interested in sustainability as anybody else.
>
> It's part of our mission.
>
> LT. GEN. JOHN E. SHAW

About Lt. Gen. John E. Shaw

Lt. Gen. John Shaw serves as the U.S. Space Command deputy commander. A graduate of the U.S. Air Force Academy, he entered the Air Force in 1990, later earning master's degrees from the University of Washington and George Washington University.

He has held various command positions and served as a Senior Policy Advisor for the Department of Defense's Space Policy. His joint and combined assignments have included work with international partners.

An associate fellow of the American Institute of Aeronautics and Astronautics, he is also a frequently-published author on space power and strategy and actively mentors younger professionals.

WATCH FULL KEYNOTE

youtu.be/sBBhj100nEM

PANEL SUMMARY FOR

Space Security is YOUR Problem, Too

Key Points

- There is a need for sustained engagement among states, commercial actors, and other stakeholders to build trust and develop cohesive space security policies.
- The growing role of commercial actors in space adds complexity but also transparency, making it harder to hide activities and thereby contributing to increased consensus.
- Calls were made for legally binding regulations to hold states accountable for irresponsible behaviors in space and to promote transparency.
- The commercial sector expressed the challenges in protecting against cyberattacks, with a focus on encryption and escalating security standards.
- The low Earth orbit (LEO) environment was highlighted as fragile and potentially the next environmental crisis if not managed responsibly.
- There was a strong emphasis on the immediate need for collective action from governmental, commercial, and military organizations to address space sustainability before it becomes a crisis.
- The necessity of incorporating voices from various stakeholders, including commercial actors, civil society, and academia in intergovernmental processes was stressed, reflecting a shift towards a more integrated approach to space security.

> It's time for us to act on both prevention and remediation of what's already happening. We are at the right time to solve that; the burden is on the ecosystem, including commercial, public, private, and military organizations, to work together and solve for it right now.
>
> ANIRUDH SHARMA

> How truly can we confirm the level of transparency that states actually exhibit but through advocation for legally binding measures to regulate space-based activities.
>
> ANRETI DAMAZIO

The Panelists

ANRETI DAMAZIO
Counsellor, Ministry of Foreign Affairs, Nigeria

MARYSE DUCHARME
Special Advisor on Space, Strategic Joint Staff, Department of National Defence and the Canadian Armed Forces

TIM MACLAY
CSO and US General Manager, ClearSpace

ANIRUDH SHARMA
Co-Founder and CEO, Digantara

MICHAEL SPIES
Senior Political Affairs Officer, United Nations Office for Disarmament Affairs

VICTORIA SAMSON
Moderator, Washington Office Director, Secure World Foundation

WATCH FULL PANEL

youtu.be/OaGBxMDmgbo

PANEL SUMMARY FOR

Help Not Hinder: Ensuring Regulation Supports Innovation in Space

Key Points

- The area of best practices, especially regarding maneuverability, is central to the future of space safety, allowing all stakeholders to learn and contribute towards sustainability.
- The green spacecraft standard is a significant move toward sustainability in space and ground operations, intending to foster discussion and collaboration with other industry players.
- The potential introduction of new and sudden regulations is a concern for businesses, calling for ongoing discussions with government involvement and information sharing in real-time.
- Speed in the licensing process is critical for competitive advantages and revenue generation, with suggestions to improve efficiency through automation and other means without compromising standards.
- Transparency is seen as a focus for regulatory updates, especially in providing clear information to new entrants about their obligations and expectations.
- The conversation between government and industry is vital and appreciated, symbolizing a willingness to address challenges together and create thoughtful solutions for the broader audience.
- Interaction between UK-registered assets and those from other countries requires clarity on regulations, emphasizing operating across borders in space safely without regulatory difficulties.

> We continue to watch the ongoing [licensing] discussions in the industry. We would also like the government to be involved in such discussions, which are sometimes G2G, and to share the acquired information among us in a real-time manner.
>
> YUYA NAKAMURA

> The ability to operate across borders in space safely without any regulatory difficulties, I think, would be a great thing to achieve that could be done in the next 12 months.
>
> RAY FIELDING

The Panelists

RAY FIELDING
Head of Sustainability and Active Debris Removal Mission, UK Space Agency

KALPAK GUDE
Head of Domestic Regulatory Affairs, Project Kuiper, Amazon

YUYA NAKAMURA
President and CEO, Axelspace

MANNY SHAR
Managing Director, Orbit Fab

MERISSA VELEZ
Chief, Satellite Programs and Policy Division, FCC Space Bureau

KRYSTAL AZELTON
Moderator, Conference Chair, Director of Space Applications Programs, Secure World Foundation

WATCH FULL PANEL

youtu.be/XpOCul4g9VQ

A SUMMARY OF "WHAT'S HAPPENING ON THE MOON IN THE NEXT DECADE?" SPOTLIGHT TALK BY

Matthew Daniels

Assistant Director, White House Office of Science and Technology Policy

Key Points

- The White House released the first-ever National Cislunar Science and Technology Strategy. This strategy notes that the Moon and the space regions around the Moon are still largely unexplored. Its strategy addresses how the United States will support responsible, sustainable, and peaceful exploration in this region of space.
- Human activity in cislunar space is expected to grow significantly in the next decade. Multiple countries are planning up to 150 individual missions to the Moon in the coming decade, including both governmental and commercial activity. Some of this will be the beginning of sustained presence on the Moon.
- The US is proposing an International Lunar Year for some time later this decade to demonstrate how the scientific community can build work across international boundaries, build responsible practices and promote transparency and confidence-building measures, even in the context of geopolitical tensions.
- We have an opportunity to learn from history and to set out to do better in a new region of space.
- Space Situational Capabilities will be the foundation of responsible behavior as human activities expand into cislunar.

> The US is committed to demonstrating how cislunar activities can be carried out in the interests of and in the benefit of all nations, while enhancing transparency and building confidence and cooperation among Moon-faring entities.

About Matthew Daniels

Dr. Matthew Daniels serves as Assistant Director of the White House Office of Science and Technology Policy (OSTP) for Space Security & Special Projects, focusing on U.S. space programs and technology strategy.

His experience includes roles at NASA and the Department of Defense, as well as affiliations with Georgetown's Center for Security and Emerging Technology, MIT, and Stanford.

Starting as a research engineer at NASA, his work covered spacecraft design and control. He holds engineering degrees from Stanford, a B.A. in physics from Cornell, and received the Department of Defense Medal for Distinguished Public Service.

WATCH FULL TALK

youtu.be/HeYMYEC0jpA

PANEL SUMMARY FOR

It's Still Not a Lunar Space Race

Key Points

- While economic, diplomatic, and political competition between the US and China is a feature of the current context of lunar activities, the metaphor of a race does not fit. More than two actors are involved in planning and executing the more than 100 lunar missions anticipated in the next decade, and the motivations and drivers behind those missions are varied and complex. The situation is more aptly characterized as a mix of cooperation and a series of smaller competitions.
- Many lunar activities are being planned as the beginning of sustained presence on the Moon. Achieving this will require new thinking and approaches to infrastructure, coordination, and resource use that go beyond an emphasis on being the first to arrive.
- Lunar operations bring new space sustainability challenges - we can't rely on practices we've developed for orbits around the Earth. This is a shared challenge for all lunar actors.
- Competition is fundamental to capitalism and encourages excellence, but it can become destructive if monopolies evolve, undermining the competitive process. The context and regulation of competition are vital to ensuring its positive effects.

> It's definitely not a race, we think, with just one winner. There are opportunities for a lot of entities, both private and public. And of course, we hope that this is going to be done in a very inclusive and international way so that there are many winners at the end.
>
> MATHIAS LINK

> It is incredible the number of new companies and new nations as well getting involved in this lunar space, so it's not just from the Artemis program from NASA or from the lunar program driven by Russia or China, but really we're seeing a global effort, and uniquely I think a commercial effort.
>
> KAITLYN JOHNSON

The Panelists

KAITLYN JOHNSON
Deputy Director and Fellow, CSIS

MATHIAS LINK
Director, Luxembourg Space Agency

RICHARD LOWE
Director, Technical Services, Satellite Applications Catapult

ASIF SIDDIQI
Professor of History, Fordham University

IAN CHRISTENSEN
Moderator, Director of Private Sector Programs, Secure World Foundation

WATCH FULL PANEL

youtu.be/LVbCV_pqc74

A SUMMARY OF "SPACE SUSTAINABILITY & NASA'S GATEWAY PROGRAM" SPOTLIGHT TALK BY

Holly Ridings

Gateway Deputy Program Manager,
National Aeronautics and Space Administration

Key Points

- NASA is emphasizing the Moon as a stepping-stone to Mars, detailing architectural concepts, plans for Artemis missions, and the lunar exploration timeline.
- Ridings discussed the logistical and financial challenges of turning plans into functional hardware and celebrated the first Artemis mission's success as an important milestone.
- The speech delved into the Gateway's specifics, such as its orbit, explaining the choice of the near rectilinear halo orbit in Cislunar space, and emphasizing sustainability, accessibility, and long-term functioning (15+ years).
- Ridings highlighted the Gateway Program's multinational nature, detailing contributions from the Canadian Space Agency, Japanese Space Agency, and European Space Agency, and stressing the collaboration's geopolitical significance.
- She emphasized the need for collaboration between different systems and nations, including data interoperability, supply chain logistics, resupply, and the ongoing challenge of balancing standardization with innovation.
- She also outlined various practical issues surrounding long-term sustainability, such as dealing with dust, trash, orbital debris, degradation of solar arrays, and integrating these challenges into the Gateway's design and planning.

> Interoperability is challenging because you don't want to be too prescriptive and stifle innovation, but you want everything to work together. And so, as we think about bringing in policy and bringing in new elements, we've got to find the balance.

About Holly Ridings

Holly Ridings is the deputy program manager for NASA's Gateway Program, working on the space station around the Moon.

Her role includes leading teams in building and launching this deep space infrastructure, paving the way for a permanent Moon presence and Mars missions.

Previously, she was NASA's first female chief flight director (2018-2022), managing human spaceflight, including commercial missions to the ISS.

She has achieved key milestones such as the first commercial cargo mission to the space station in 2012.

An Amarillo native, she began her career at Goddard Space Flight Center in 1997 and earned a degree from Texas A&M University.

WATCH FULL TALK

youtu.be/w0Jvuf-So9w

PANEL SUMMARY FOR

The Artemis Accords and the Moon Agreement: Living in Harmony?

Key Points

- Decisions related to space have a lasting impact of space decisions, requiring inclusive dialogue and consideration of changing geopolitical landscapes.
- Regional space agencies should include emerging countries and view them as a vital path for inclusive space discussions.
- There has been success in space governance related to achieving consensus with all parties, particularly concerning unique areas like the moon.
- A forward-thinking, holistic approach to inclusive governance that aligns with legal obligations was encouraged.
- Lunar priorities should intertwine science and commerce, the panel argued, supporting a step-by-step approach informed by industry stakeholders.
- During the initial development of the current space accords, national security and commercial aspects emphasized the need for peaceful norms.
- Identifying collaborative solutions for space governance underscores the importance of engaging both established and emerging players and highlights the complexity and urgency of the matter.

> In terms of lunar priorities, science, is science and commercial activities are not mutually exclusive. So, let's learn from the scientists. And science and commerce are mutually beneficial.
>
> EMILY PIERCE

> Success is not about having a lot of different kinds of accords in different geopolitical blocs. Success is when we have everybody somehow talking together and arriving at consensus, especially about something so important.
>
> GUSTAVO MEDINA-TANCO

The Panelists

GUSTAVO MEDINA-TANCO
Professor, LINX ICN UNAM

EMILY PIERCE
Attorney-Adviser, U.S. Department of State

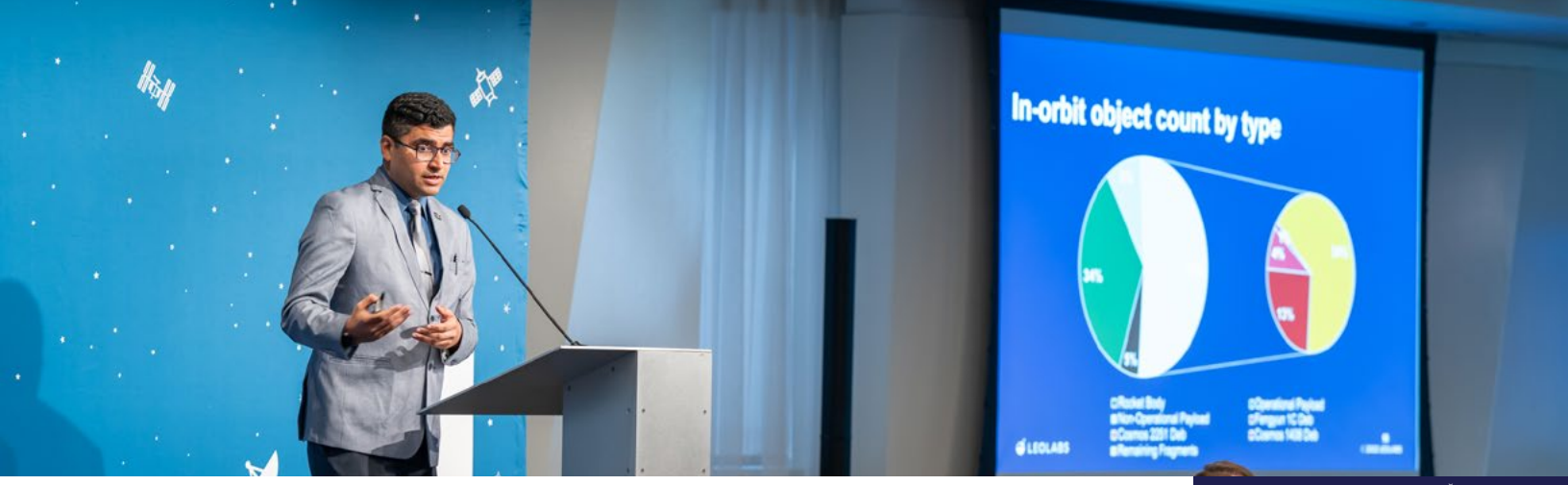
ANTONINO SALMERI
Director, Lunar Policy Platform

MIKE GOLD
Chief Growth Officer, Redwire

CHRISTOPHER JOHNSON
Moderator, Space Law Advisor, Secure World Foundation

WATCH FULL PANEL

youtu.be/kMPjwxZgbak



A SUMMARY OF "WHY A MORATORIUM ON ANTI-SATELLITE TESTING IS IMPORTANT" SPOTLIGHT TALK BY

Rachit Bhatia

Space Safety Analytics and Research Lead, LeoLabs

Key Points

- Anti-satellite testing activities have had a quantifiable impact on low Earth orbit. Commercial companies like LeoLabs are identifying and quantifying threatening and dangerous behavior on orbit. This can be a critical tool for operators and governments to make better policy and other decisions moving forward.
- The data clearly shows that direct ascent anti-satellite tests pose increased risk to operating satellites. A complete ban on these tests is the ideal outcome, but if testing still occurs, the information and collision risk should be shared publicly with all operations. Commercial companies are major stakeholders along with governments and need good information in order to be able to operate safely.

> And even now, 600 days since the event, we have seen rapid deorbiting of the cloud, and the majority of the cloud has decayed. But large debris remains in orbit, which continues to pose a threat to our customers and in general to other operators.

About Rachit Bhatia

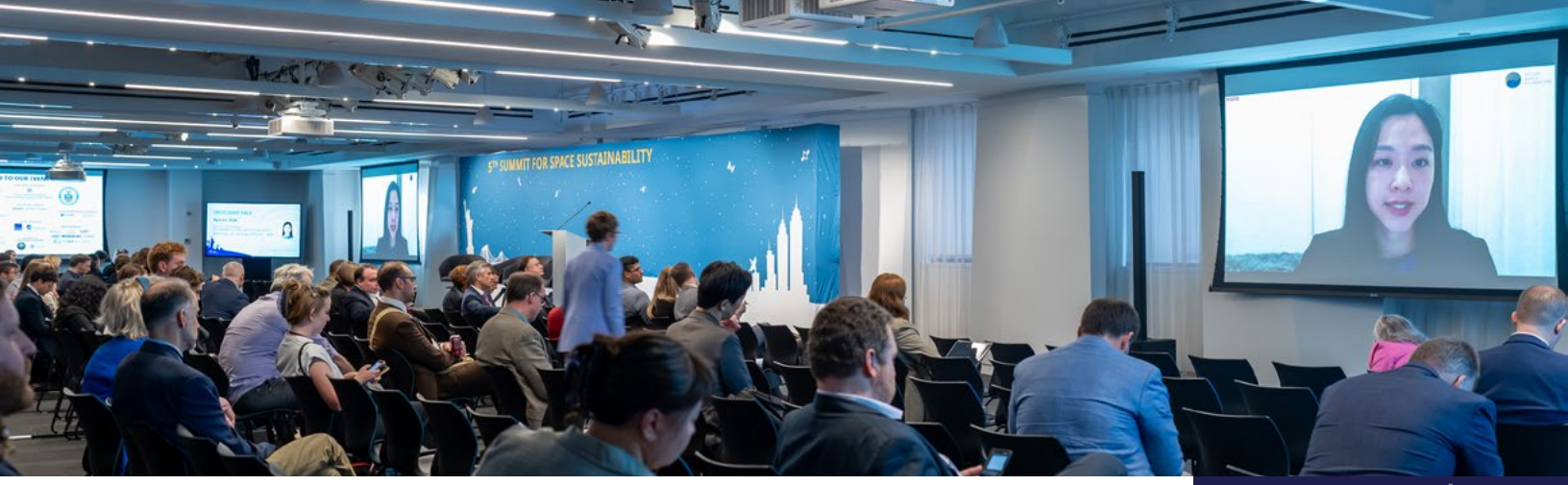
Dr. Rachit Bhatia is the Space Safety Analytics and Research Lead at LeoLabs, specializing in designing software applications for space situational awareness (SSA), such as state estimation and collision probability analysis.

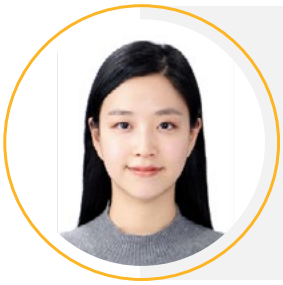
He leads technical research, supports analytics, and enhances tracking processes. He previously served as an Astrodynamics expert at Aquarian Space and an Aerospace Engineer at SpaceNav.

Rachit holds a B.S. in mechanical engineering from SRM University and a master's and Ph.D. in aerospace engineering from Utah State University. His research interests encompass space safety, autonomous spacecraft navigation, and control system design.

WATCH FULL TALK

youtu.be/pekDnSTpTKw





A SUMMARY OF "WHY A MORATORIUM ON ANTI-SATELLITE TESTING IS IMPORTANT" SPOTLIGHT TALK BY

Hyerin Kim

Second Secretary, Disarmament and Non-Proliferation Division, Ministry of Foreign Affairs (MOFA), Republic of Korea

Key Points

- South Korea recognizes the immeasurable importance of maintaining a safe, secure, and sustainable space environment, reflecting the country's concern about destructive direct ascent anti-satellite missile testing.
- Expressing concern regarding the ascent missile testing in November 2021, South Korea welcomed the U.S. decision not to conduct destructive missile testing in April 2022.
- Following the U.S. announcement, the Republic of Korea convened seven interagency meetings to form a national position on joining the commitment against such testing, reflecting the country's need to protect its space assets.
- South Korea was one of the main sponsors of the United Nations General Assembly resolution on reducing space threats and has actively participated in the open-ended working group to develop space norms.
- The Republic of Korea ultimately reached a whole-of-government understanding that destructive missile testing is an evident and urgent threat to space assets, and it joined the commitment in October 2022.
- South Korea sponsored the United Nations resolution, receiving huge support from the international community, and continues efforts to raise awareness of the risks of missile testing.
- The nation firmly believes that increasing support for the commitment against destructive missile testing will positively impact the safety, security, and sustainability of the space environment, and encourages other states to join this commitment.

> We believe that [DA-ASAT] testing itself is a direct threat to space assets and the long-lived space debris created during the testing poses a great risk and threat to space safety, security, and sustainability.

About Hyerin Kim

Ms. Hyerin Kim serves as the second secretary in the Disarmament and Non-Proliferation Division at South Korea's Ministry of Foreign Affairs.

Her work focuses on space security cooperation and issues related to UN bodies like COPUOS and UNOOSA.

She has been involved in UN initiatives on space threats, helped organize the 21st ROK-UN Joint Conference on Disarmament in 2022, and previously served in the Embassy of South Korea in France.

Ms. Kim holds a BA from Seoul National University.

WATCH FULL TALK

youtu.be/hoDffXa6zXU

A SUMMARY OF THE CLOSING SPOTLIGHT TALK WITH

Eric Desautels

Senior Coordinator, U.S. Department of State

Key Points

- The space community will depend on collaboration and the development of global goals, recognizing the exponential growth of actors in outer space to foster a shared understanding of the importance of a moratorium on ASAT testing.
- A call for the immediate need to halt ASAT tests, drawing on the recent destructive examples, to minimize further space debris and protect satellite life.
- Encourage nations, including the United States, to formally commit to responsible behavior in space as concrete steps toward establishing a moratorium on ASAT testing.
- Promote diplomatic efforts to regulate space activities, taking inspiration from nuclear arms treaties, to lay the groundwork for international agreements on ASAT test restrictions.
- Recent U.N. agreements advocated for increased multilateral cooperation to build consensus around the need for a moratorium on ASAT testing.
- The international community faces the complexities of carefully defining and verifying space objects while avoiding hasty, legally binding agreements that might limit beneficial capabilities, simultaneously pushing for sensible regulations on ASAT testing.
- All space-faring nations are responsible for maintaining open lines of communication and striving for continued collaboration to ensure that a moratorium on ASAT testing remains a central focus in preserving space stability.

> in this current environment, it is important that we take tangible and concrete steps to address the risks that could lead to conflict or negatively impact the long-term sustainability of outer space.

About Eric Desautels

Since January 2023, Eric Desautels has been serving as Senior Coordinator for Emerging Security Challenges in the Arms Control, Verification and Compliance Bureau at the U.S. Department of State.

In this role, Mr. Desautels is responsible for missile defense issues, outer space security issues, emerging technology security issues, undersea cables security issues, and Polar security issues.

WATCH FULL TALK

youtu.be/N0UTB8mIYnM

EVENT SUMMARY FOR

The Young Professionals Breakfast

Summary

Of the event attendees, 193 were students/young professionals, and 50 of those were in-person attendees. SWF hosted in-person young professionals to a special mentoring breakfast. SWF thanks all the mentors and speakers for inspiring the next generation of leaders in space.

- Of the more than 500 attendees, 193 were students/young professionals, and 50 of those were in-person attendees.
- SWF partnered with the United Kingdom Space Agency and the Space Generation Advisory Council to host a scholarship competition. Scholarship winners included:
  - *Robert Cowlishaw, United Kingdom*
  - *Ewan Wright, United Kingdom*
  - *Nicolas Moraitis, Greece*
  - *Marie-Claire de Bruijn, Luxembourg/Germany*
  - *Emily McColville, United Kingdom*
  - *Anjali Santhakumar, United Kingdom*
  - *José Pedro Ferreira, Portugal*
- The young professional breakfast session focused on personalized interactions between the in-person attendees and high-profile mentors. Lt. Gen Shaw was a surprise guest speaker, joining Walter Everetts, Chris Blackerby, and Victoria Samson from the space sector to meet and network with the young professionals.

The Speakers

WALTER EVERETTS
Vice President, Space and Ground Services, Iridium

CHRIS BLACKERBY
Chief Operating Officer, Astroscale, Astroscale Holdings

LT. GEN. JOHN E. SHAW
Deputy commander, U.S. Space Command

VICTORIA SAMSON
Washington Office Director, Secure World Foundation

THANK YOU TO OUR EVENT SPONSORS

ANCHOR SPONSORS

UK SPACE AGENCY

Oceans and International Environmental and Scientific Affairs
U.S. DEPARTMENT of STATE

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

PLATINUM SPONSOR

amazon | project kuiper

GOLD SPONSORS

inmarsat · Viasat · SpaceLogistics — A Northrop Grumman Company

YOUNG PROFESSIONAL SPONSORS

Astroscale · iridium

SILVER SPONSORS

RAND CORPORATION · LSA LUXEMBOURG SPACE AGENCY

FRIENDS OF THE SUMMIT

SERAPHIM · OSA CONSULTING · COMSPOC · clearspace today · ROCKETLAB · SLINGSHOT AEROSPACE

LEOLABS · MAXAR · AXELSPACE · CATAPULT Satellite Applications · ORBITFAB

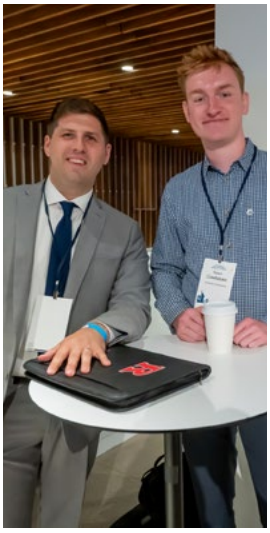
MEDIA PARTNERS

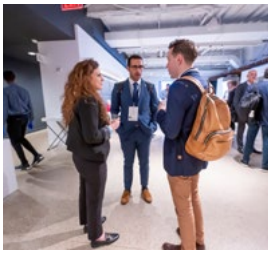
AUSTRALIA IN SPACE · satnews · GVF Satellite Solutions The World · SSPI · AEROSPACE

SPACENEWS · G&A GOVERNANCE & ACCOUNTABILITY INSTITUTE, INC.™ · spacewatch.global · Tree Branch Films

UNIVERSITY AND NON-PROFIT SPONSORS

SPACE GENERATION ADVISORY COUNCIL





525 Zang Street, STE. D
Broomfield, CO 80021 USA
v: + 1 303 554 1560
e: info@swfound.org

1779 Massachusetts Ave. NW
Washington, DC 20036 USA
v: + 1 202 568 6212
e: info@swfound.org

SWF Publication: PP23.10
Published: 23.11