



Fifth PSSI Space Security Conference
Evolution of the Counterspace Threat
and Strengthening of International Space Partnerships
June 9–11, 2019 Prague, Czech Republic



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CONFERENCE CONCEPT PAPER

BACKGROUND

PSSI has been at the forefront of the European space security debate, producing analyses and conferences for senior levels of the international space community. The Institute, in partnership with PSSI Washington, initiated in 2010 what is now regarded as the leading NGO conference series in this field. Four such international conferences have been convened to date, involving leading space security experts and senior officials from Europe, the United States and Japan. Two were held in Prague (in 2011 and 2016), one in Tokyo (in 2013), and one in Washington, DC (in 2017). The key partnering organizations included the European Space Policy Institute (ESPI), the European Space Agency (ESA), the Japanese Prime Minister's Office of National Space Policy, the Secure World Foundation (CWF), and the Center for Strategic and International Studies (CSIS). The fifth conference is taking place in **Prague** on **June 9–11, 2019**.

The first conference sought to establish space security as a policy priority directly relevant to the broader defense and strategic dialogue among Europe, the U.S. and Japan. The second conference examined more concrete elements of collaboration that would enhance each partner's national and space security interests. It also sought to assess how best to combine their capabilities to prevent and/or preempt various counterspace threats from materializing, involving the deliberate actions of one space-faring nation against another. The third conference focused on the growing intersection of space security and terrestrial geopolitical events/conflicts. It reviewed steps that had been taken by European countries, the EU, the U.S. and Japan to address increasingly complex and fast-moving space security environment, including efforts to align national space security priorities with various multilateral efforts. The fourth event, held in Washington, DC, discussed the highest priority space security issues facing the then-new Trump Administration.

CONFERENCE GOAL

The purpose of this series is to illuminate the evolving threats to space security, particularly those posed by non-democratic space powers. These events have repeatedly called for more robust contingency planning and allied crisis management procedures as well as greater resilience, deterrence and creativity concerning measures available to penalize transgressions (e.g. cross-domain responses, etc.)

This fifth conference, entitled "Evolution of the Counterspace Threat and Strengthening of International Space Partnerships," will focus on the rapidly advancing counterspace threats and the role of space partnerships in addressing this higher risk environment. We will also examine the nature of space partnerships themselves, as China and Russia are now actively seeking to recruit and incentivize foreign governments to adopt, in effect, an authoritarian model of such partnership through what PSSI terms "space sector capture."¹

¹ PSSI defines space sector capture as "a state actor's provision of space-related equipment, technology, services and financing ultimately designed to limit the freedom of action and independence of the recipient state's space sector, generally implemented on an incremental basis."

Similarly, we will examine space hybrid operations that span an increasing number of areas (including the commercial space sector). PSSI defines such operations as "intentional, temporary, mostly reversible, and often harmful space actions/activities specifically designed to exploit the links to other domains and conducted just below the threshold of requiring meaningful military or political retaliatory responses."² Cyberattacks immediately come to mind. Allied militaries have tolerated dazzling, jamming/spoofing, RPOs, and other efforts to disrupt normal space operations as competitor nations test their anti-satellite (ASAT) and other capabilities. The question is under what circumstances does this hybrid gambit become intolerable and be regarded as actions that warrant a significant retaliatory response?

As most expert observers acknowledge that the space domain is facing greater peril of purposeful disruption/conflict, what adjustments, if any, should be made by private space operators? While closer coordination with their governments is clearly in order, do commercial space players need to develop their own contingency plans with regard to incidents that appear to be deliberate and even hostile? It is with good reason that the blinking lights of space security are rapidly coming into the view of commercial operators. Indeed, the private sector could add a good deal to the effort to deter disruptive or hostile behaviour in space, including refusing to do business with counterpart companies from the offending nation directly tied to the malevolent behavior, as well as possibly voice opposition to their equity and debt offerings in the U.S. and allied capital markets.

One of the most effective means of deterrence is what is referred to by the military as "Phase Zero" – communicating with the prospective adversary prior to any open hostilities. Such communications can often include a list of risks and consequences that will be associated with the commission of certain hostile acts, including economic and financial penalties that, to date, have not been on the menu of Western space-related responses. There is little doubt that it was the counterspace predations of China and Russia that stimulated President Trump and others to call for a dedicated Space Force. If that is the case, then the subjects covered by this fifth PSSI Space Security Conference seeks, as in the past, to contribute importantly to configuring an effective, updated deterrence strategy and, if necessary, quick and persuasive retaliatory measures in response to overzealous hybrid operations or outright denial of space services.

The topics of this year's conference will include:

- Evolution of the Counterspace Threat
- Space Domain Awareness and Hybrid Operations
- Space Resilience and Risk Management
- International Space Partnerships: Competition or Collaboration?
- Deterrence and Space Crisis Management
- Private Sector Role in Space Security

² Robinson, J. et al. (2018). *Europe's Preparedness to Respond to Space Hybrid Operations*, Prague Security Studies Institute, (July 2018).



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CONFERENCE PROGRAM

SUNDAY, 9 JUNE 2019

Venue: Golden Well Restaurant (Terasa U Zlaté Studně), U Zlaté Studně 166/4, Prague 1

18:00–20:00 **OPENING RECEPTION** (by special invitation only)

Opening Remarks:

Roger W. Robinson Jr., Chairman and Co-Founder, Prague Security Studies Institute

Peter Martinez, Executive Director, Secure World Foundation

MONDAY, 10 JUNE 2019

Venue: Ministry of Foreign Affairs of the Czech Republic, Czernin Palace, Loretánské nám. 5, Prague 1

8:30–9:00 **COFFEE AND REGISTRATION**

9:00–9:30 **OPENING SESSION**

Welcome Remarks:

Roger W. Robinson Jr., PSSI Chairman and Co-Founder, Prague Security Studies Institute

Peter Martinez, Executive Director, Secure World Foundation

Opening Remarks:

Aleš Chmelař, Deputy Minister of Foreign Affairs for European Issues, Czech Republic

9:30–10:45 **PANEL 1: EVOLUTION OF THE COUNTERSPACE THREAT**

The space domain is rapidly evolving. An increasing number of countries and commercial actors are getting involved in space, resulting in more innovation and benefits on Earth, but also more congestion and competition in space. From a security perspective, an increasing number of countries are looking to use space to enhance their military capabilities and advance their strategic agendas. The growing use of, and reliance on, space for national security has also led more countries to consider the development of their own counterspace capabilities that can be used to deceive, disrupt, deny, degrade, or destroy space systems. This has the potential to heighten tensions on the ground that extend into space, or vice versa. Panelists will discuss the current status of counterspace capabilities globally, highlighting recent trends and predicting what the domain could look like in the relatively near-term. Finally, the panel will seek to address the most promising mitigation measures.

Moderator: Victoria Samson, Washington Office Director, Secure World Foundation

Panelists:

Jamie M. Morin, Vice President, Defense Systems Operations, Center for Space Policy and Strategy, The Aerospace Corporation

Martina Šmuclerová, Senior Fellow, Prague Security Studies Institute

Shuzo Takada, Director-General, National Space Policy Secretariat, Cabinet Office, Japan

Ashley J. Tellis, Senior Fellow, Carnegie Endowment for International Peace

10:45–11:00

COFFEE BREAK

11:00–12:30

PANEL 2: SPACE DOMAIN AWARENESS AND HYBRID OPERATIONS

The introduction of Offensive Cyber and Counterspace operations into the arena of international conflict has led to situations where activities short of military action are more easily employed by malign actors to accomplish strategic goals without the fear of clear attribution. To an ever-expanding degree, these tools are being used in combination with more traditional forms of non-military activities to coerce behavior that would have previously required more overt aggression. The difference here is in the ability to use non-kinetic cyber and other 'grey zone' actions. Given these realities, what role does space domain awareness activities play in this dynamic, and what new or enhanced capabilities are required to deter or respond to this type of space-related hybrid warfare?

Moderator: Douglas L. Loverro, former U.S. Deputy Assistant Secretary of Defense for Space Policy

Panelists:

Peter L. Hays, Associate Director, Eisenhower Center for Space and Defense Studies

Travis Langster, Vice President, Space Situational Awareness Business, Analytical Graphics, Inc. (AGI)

Pascal Faucher, EUSST Chairman and Security and Defense Officer, French Space Agency (CNES)

Dana J. Johnson, Director, International Outreach and Policy, Office of the Under Secretary of Defense (Research and Engineering), U.S. Department of Defense

12:30–13:00

SPECIAL ADDRESS:

Kai-Uwe Schrogl, Chief Strategy Officer, seconded to the German Federal Ministry for Economic Affairs and Energy, European Space Agency (ESA)

Carine Claeys, Special Envoy for Space (acting), Space Task Force, European External Action Service (EEAS)

Introduced by:

Václav Kobera, Director, Intelligent Transport Systems, Space Activities and R&D Department, Ministry of Transport of the Czech Republic

13:00–13:45

BUFFET LUNCHEON

Keynote Remarks: Toshihiko Kasahara, Deputy Director, Cabinet Satellite Intelligence Center (CSICE), Japan

Introduced by:

Peter Martinez, Executive Director, Secure World Foundation (SWF)

14:00–15:30

PANEL 3: SPACE RESILIENCE AND RISK MITIGATION

Resilient architecture should be able to support all necessary mission functions, including during hostile actions or across a range of adverse scenarios, conditions, and threats. It should be able to leverage cross-domain or alternative capabilities (government, commercial or partner). To what extent are our space architectures resilient today and what is missing in our space policies to ensure space resiliency in the long-term?

Moderator: Jean-Jacques Tortora, Director, European Space Policy Institute (ESPI)

Panelists:

Carine Claeys, Special Envoy for Space (acting), Space Task Force, European External Action Service (EEAS)

Kevin Mcloughlin, Head of Space Security, UK Space Agency

Hiroshi Koyama, Fellow, Electronic Systems Group, Mitsubishi Electric Corporation

Tanja E. Zegers, Policy Officer, DG for Internal Market, Industry, Entrepreneurship and SME – DG GROW



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15:30–15:45 **COFFEE BREAK**

15:45 – 17:30 **PANEL 4: INTERNATIONAL SPACE PARTNERSHIPS: COMPETITION OR COLLABORATION?**
Absent strengthened international space cooperation, civilian and commercial space assets, services and applications will likely be at considerably greater risk due to the increasingly competitive and contested space environment. At the same time, the U.S. national space strategy puts America first, Europe calls for greater strategic autonomy, including in space, and Japan recognizes a national need to develop its own strategic space capabilities. This begs the question of how these high-level strategic national security initiatives affect allied space security cooperation operationally. This is especially relevant as our competitors, notably China and Russia, are undertaking to challenge the current international governance regime, including through forging their brand of international space partnerships, accompanied by an effort to gain technological superiority. This panel will discuss options for strengthening trilateral efforts to establish more robust global space partnerships and space norms based on transparency, the rule of law and recognition that a heated competition is well underway.

Moderator: Jana Robinson, Space Security Program Director, Prague Security Studies Institute

Panelists:

Regina Peldszus, Senior Policy Officer, Department of Space Situational Awareness, DLR Space Administration

John P. Stopher, Principal Assistant to the Secretary of the U.S. Air Force for Space

Ajey Lele, Senior Fellow, Institute for Defence Studies and Analyses (IDSA), India

Eric Desautels, Director, Office of Emerging Security Challenges, Bureau of Arms Control, Verification and Compliance, U.S. Department of State

19:15 **GALA DINNER (BY SPECIAL INVITATION ONLY)**

Venue: Mlýnec Restaurant, Novotného lávka 9, Prague 1

Keynote Speaker: Lt Gen David D. Thompson, Vice Commander, U.S. Air Force Space Command

Introduced by: Roger W. Robinson Jr., Chairman and Co-Founder, Prague Security Studies Institute

TUESDAY, 11 JUNE 2019

Venue: Ministry of Foreign Affairs of the Czech Republic, Czernin Palace, Loretánské nám. 5, Prague 1

7:30–8:00 **COFFEE AND REGISTRATION**

8:00–8:45 **OPENING SESSION**

Opening Remarks:

Andrea L. Thompson, Under Secretary for Arms Control and International Security, U.S. Department of State

Introduced by: Jana Robinson, Space Security Program Director, Prague Security Studies Institute

8:45–10:15 **PANEL 5: DETERRENCE AND SPACE CRISIS MANAGEMENT**

As referenced in panel 2 on "Space Domain Awareness and Hybrid Operations", the employment of hybrid operations for the achievement of strategic goals without the fear of clear attribution is becoming an increasingly popular counterspace go-to option. Is it past time to expand space-related deterrence measures, including pre-crisis communication of specific consequences that will befall a space-faring nation that engages in cyberattacks, jamming/spoofing, dangerous proximity operations and other forms of activities in this 'grey zone'? Is there an allied crisis management architecture in place that can be instantly activated in the event of a serious denial of services or damage to space assets? What should be the thresholds for triggering a crisis management response? The goal of this panel is to address these and related issues.

Moderator: Steve Eisenhart, Senior Vice-President Strategic & International Affairs, The Space Foundation

Panelists:

Brig Gen Michel Friedling, Commander, Joint Space Command, Ministry of Defence, France

Heidi Robinson, Director for Engagement, Office of Deputy Assistant Secretary of Defense for Space Policy, U.S. Department of Defense

Cassandra Steer, Interim Executive Director, Women in International Security, Canada

Lt Col Manfred Schwiebert, German Ministry of Defence

10:15–10:45 **COFFEE BREAK**

10:45–12:30 **PANEL 6: PRIVATE SECTOR ROLE IN SPACE SECURITY**

Many in the space community are excited about the prospects for commercialization of space. Traditional players, as well as new private companies, seek to position themselves to provide commercial services beyond telecommunications, ranging from launch, Earth observation, SSA, on-orbit servicing, to mining on celestial bodies. This panel will discuss the evolving role of the private sector in space security. It will also probe Western space industry competitiveness globally, particularly vis-a-vis the predatory commercial/strategic practices of non-democratic space powers collecting their brand of international space partnerships. Finally, it will assess its status in supporting allied militaries (e.g. in resilience and deterrence).

Moderator: John B. Sheldon, Chairman, ThorGroup GmbH

Panelists:

Kevin O'Connell, Director of the Office of Space Commerce, U.S. Department of Commerce

Bhavya Lal, Science and Technology Policy Institute, Institute for Defense Analyses (IDA)

Masahiro Atsumi, Vice President & Senior General Manager Space Systems Division, Mitsubishi Heavy Industries

Agnieszka Lukaszczyk, Senior Director, European Affairs, Planet Labs, Inc.

12:30–13:30 **CLOSING LUNCHEON**



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SPEAKERS' BIOGRAPHIES

Masahiro Atsumi

is the Vice President and Senior General Manager of Space Systems Division in Mitsubishi Heavy Industries, a position which he has held since April 2019. Prior to this role, he served as the Senior Chief Engineer, and since 2016 as the Senior General Manager at the Space Systems division of Integrated Defense & Space Systems within the present company.

Aleš Chmelař

is the Deputy Minister for European Affairs at the Ministry of Foreign Affairs of the Czech Republic, a position which he has held since December 2018. Prior to this assignment, Mr. Chmelař held multiple roles at the Office of the Government of the Czech Republic, including the State Secretary for European Affairs and the Director of EU Economic Policies Coordination Department.

Carine Claeys

is the acting European External Action Service (EEAS) Special Envoy for Space since September 2018 and the Head of the EEAS Space Task Force which was set up in 2015. In that capacity, she advises the EEAS Secretary General on all space matters of EU interest. She also chairs the Board of the EU Satellite Centre and the ad-hoc GNSS security expert group advising the EU Political and Security Committee in the framework of the Council's and High Representative's responsibilities to respond to possible threats linked to the European Global Navigation Satellite System (Galileo/Egnos).

From 2011 to 2015 she was responsible of the corporate processes coordination in the then-newly established EEAS. Before the EEAS was established, Carine Claeys served in the General Secretariat of the Council of the European Union. She was head of the "Security of space tools" cell (Galileo, GMES – then Copernicus) in the EU Situation Centre from 2005 to 2011. She was responsible for maritime transports and for transport intermodal questions and networks in DG Transports of the General Secretariat of the Council

from 2000 to 2005, after having worked in several other sectors of this administration from 1992 on (mainly energy, human rights, United Nations, drugs, terrorism, agriculture and enlargement).

Carine Claeys holds a PhD in political sciences, a Master's Degree in business engineering, a Master's Degree in international relations and a Master's Degree in development cooperation.

Eric Desautels

has served as Director of the Office of Emerging Security Challenges in the Arms Control, Verification and Compliance Bureau at the U.S. Department of State since 2015. The office is responsible for missile defense issues, outer space security cooperation and engagement, promoting transparency and confidence on cyber security issues, and Polar security issues. Prior to this, he served as the Chief of Staff in the Arms Control, Verification and Compliance Bureau. Mr. Desautels served as a senior advisor to the Under Secretary of State for Arms Control and International Security with responsibility for missile defense, space issues, interdiction issues, WMD and missile nonproliferation, sanctions, North Korea, Syria and Libya. Previously, Mr. Desautels worked in the Office of Strategic and Missile Issues in the State Department's Bureau of Verification, Compliance and Implementation, with responsibility for missile nonproliferation issues. During that time Mr. Desautels planned, executed and eventually led the effort to verify the elimination of Libya's missile programs according to its December 2003 commitment. Prior to that, Mr. Desautels served as a staff member on the Senate Subcommittee on International Security, Proliferation and Federal Services and worked for TASC, Inc.

Steve Eisenhart

is the Head of International Affairs at the Space Foundation, principally responsible for the Space Foundation's global strategy and relationships with international space agencies and organizations, foreign embassies and U.S. organizations involved with global space programs. He is directly responsible for the program development and integration of key Space Foundation activities including the annual Space Symposium and the New Generation Space Leaders program.

Since joining the Space Foundation in 1996, Eisenhart has had a broad range of responsibilities, serving as senior vice president of strategic communications, director of communications and public affairs and communications manager. Eisenhart was a military public affairs official and is a graduate of the United States Military Academy at West Point.

Pascal Faucher

is a graduate of the École Nationale Supérieure de l'Aéronautique et de l'Espace (SUPAERO). He also holds a Master's Degree (1998) and a Ph.D. in Physical Oceanography (2001) by the University Paul Sabatier, financed by the Ministry of Defence, and an Executive Master of Business Administration (2007) by ESCP Europe. After a post-doctoral position in the EU project "Marine Environment and Security for the European Area", his experience includes 17 years of various positions at CNES headquarters as international relations adviser and programme manager. For the last 8 years, in the defence and security office, he is responsible for the following themes: space security, space situational awareness (SST, SWE, NEO), and space debris. He is currently the Chairman of the Steering Committee of the EU SST Consortium. He also acts as a French delegate to the Programme Board SSA of ESA, the Steering Group of the Inter-Agency Space Debris Coordination Committee (IADC), the Steering Committee of the Space Mission Planning Advisory Group (SMPAG), the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), actively participating to the Working Group on the Long Term Sustainability of Outer Space Activities (WG LTS). In France, he is responsible for the National Coordination Group on Space Weather (GCME). He is a member of the French Steering Group on Unidentified Aerospace Phenomena (GEIPAN).

Michel Friedling

is a graduate of the French Air Force Academy (year 1986) as a fighter pilot and obtained a degree in aeronautics engineering. He exercised different levels of command and responsibilities in operational units, flying Mirage F1 and Mirage 2000, mainly in Cambrai AFB, to include several deployments in Africa, Balkans and Middle East between 1990 and 1998. From 2009 to 2011, he took command of Saint-Dizier Air Base. The Air Base was under his command when the French Air Launched Nuclear Missile - ASMPA - was fielding as a Rafale weapon system.

From 2012 to 2013, Michel Friedling served in the Joint Military Staff, where his areas of responsibilities included successively nuclear deterrence and military strategy. Then, he became head of the Plans Department of the French Air Force (2014-2016). Among his staff responsibilities, general Friedling actively contributed to the French Defense and Security White Papers 2008 and 2013 as well as the Military Expenditure Laws 2009-2014 and 2014-2019. From Aug.2016 to Feb.2017, he was the French Senior National Representative to USAFCENT Cdr - Al Udeid, Qatar – for Operation Inherent Resolve and commanded the French Air Component allocated to the international coalition against ISIS. Promoted to Air Force Brigadier General in June 2017, he became the deputy Chief of Staff responsible for developing the Military Strategy at the French joint Staff HQ in Paris. On September 2018, Brigadier General Friedling was appointed as the Commander of the French Joint Space Command.

Peter L. Hays

is an Adjunct Professor of Space Policy and International Affairs at George Washington University's (GWU) Space Policy Institute and a Senior Policy Advisor with Falcon Research. He has been directly involved in helping to develop and implement major national security space policy and strategy initiatives since 2004 and also serves as a senior advisor on governance, cadre, and strategic messaging issues. Dr. Hays was presented the National Intelligence Professional Award by the Director of National Intelligence in 2014 and was chosen as the SAIC National Security Solutions Employee of the Year in 2008. He served as a Staff Augmentee at the White House Office of Science and Technology Policy in 1988 and at the National Space Council in 1990. Dr. Hays serves on the Space Security Index Governance Group, the Center for Strategic and International



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Studies Missile Defense Project Advisory Board, was a term member of the World Economic Forum's Global Agenda Council on Space Security from 2010-2014, and is a member of the editorial board for Space and Defense and Astropolitics. He holds a Ph.D. from the Fletcher School and was an Honor Graduate of the USAF Academy. Dr. Hays served as an Air Force officer from 1979-2004; flew C-141 cargo planes; and taught international relations, defense policy, and space policy courses at the USAF Academy, School of Advanced Airpower Studies, and National Defense University; he now teaches the Airpower Seminars for the Marine Corps School of Advanced Warfighting and the Space and National Security and Science, Technology, and National Security Policy graduate seminars at GWU. Major publications include: Handbook of Space Security, Space and Security, and Toward a Theory of Spacepower.

Dana J. Johnson

is Director, International Outreach and Policy, Office of the Under Secretary of Defense (Research and Engineering) (OUSD[R&E]), U.S. Department of Defense (DoD). She serves as the principal advisor to the Under Secretary and other OUSD(R&E) senior leadership on matters concerning international engagement, defense strategy and policy, and is the single point of contact within OUSD(R&E) on international and national defense policy matters that fall within the scope of R&E. She also serves as the U.S. National Coordinator for the NATO Science and Technology Organization. She joined DoD in August 2018 from the U.S. Department of State where she was the Senior Advisor for Space Policy, Office of Emerging Security Challenges, Bureau of Arms Control, Verification and Compliance. At State she was responsible for providing analysis and expert advice on national security space policy and issues in support of the Department's strategic and foreign policy objectives and implementing U.S. national space policy. Her activities included participation in interagency policy deliberations, and in bilateral and multilateral space security dialogues with allies and other spacefaring nations to discuss U.S. national space policy, space situational awareness information sharing, transparency and confidence-building measures, and

"best practices" for orbital debris mitigation. Prior to joining State, Dr. Johnson was the Senior Analyst for Space and Missile Defense at the Northrop Grumman Analysis Center and a national security researcher/policy analyst at the RAND Corporation. Other prior experience included Member of the Technical Staff at Rockwell International, and as a diplomatic historian at the State Department's Office of the Historian. Dr. Johnson is also an adjunct professor at Georgetown University and George Washington University, teaching courses on space policy. She has a Ph.D. in International Relations from the University of Southern California, an M.A. in International Studies from The American University, and an A.B. in Government from the University of Redlands, and has written and contributed to numerous books, monographs, and presentations.

Toshihiko Kasahara

is Deputy Director at the Cabinet Satellite Intelligence Center of Japan, a position which he has held since August 2017. Prior to this role, he held multiple high-ranking roles at the Metropolitan Police Department and served as the Defense Councilor for Cyber Security and Information Technology Management within the Minister's Secretariat at the Japanese Ministry of Defense. Mr. Kasahara also held multiple roles at the National Police Agency which he entered in 1984, including the Director of International Affairs Division, and the Director of Public Safety Division in the Security Bureau.

Václav Kobera

is Director of Intelligent Transport Systems, Space Activities and R&D and Innovation Department at the Ministry of Transport of the Czech Republic. He joined the Ministry of Transport in 2004 and served in various functions, including in the Department of Strategy and Department of Security Systems. Mr. Kobera has a Doctor of Law degree (J.D.) from the Charles University, Faculty of Law.

Hiroshi Koyama

is a fellow in the Electronic Systems Group of the Mitsubishi Electric Corporation. In March 1987, he received Ph.D. from the Faculty of Engineering at the University of Tokyo of Japan and in April of 1987, he joined in MELCO and started his career as Chief Engineer for Rendezvous and Docking System of Engineering Satellite-VII (ETS-VII) & H-II Transfer Vehicle (HTV) in Kamakura Works.

From October of 2014, he was appointed to CTO including space and defense aspects of Electronic Systems Group and assigned to present position from April of 2015.

Bhavya Lal

is the leader of strategy, technology assessment, and policy studies and analyses at the IDA Science and Technology Policy Institute (STPI) for the White House Office of Science and Technology Policy (OSTP), the National Space Council, and Federal space-oriented organizations including NASA, the Department of Defense and the Intelligence Community. She has applied her expertise in engineering systems and innovation theory and practice to topics in space, with particular focus on commercial activities, especially related to space nuclear power, on-orbit servicing assembly and manufacturing, small satellites, human exploration, and space science.

She is currently serving on a National Academy of Science (NAS) committee on assessing the relative merits of infrared vs. visual observations by a space-based telescope to detect and characterize near Earth objects. She recently co-chaired a NAS Committee on the State of U.S. Electronic Parts Radiation Testing Infrastructure for Space Applications, and was previously vice-chair of the NAS committee on Achieving Science Goals with CubeSats, and member of the committee on 3D Printing in Space. She is serving a second term on the NOAA Advisory Committee on Commercial Remote Sensing (ACCRES), and participated on the UN Committee on Space Research (COSPAR) to develop an international scientific roadmap for small satellites. She co-organizes a seminar series on space history and policy with the Smithsonian National Air and Space Museum. She co-founded and is co-chair of the policy track of the annual conference of space nuclear power.

Dr. Lal holds B.S. and M.S. degrees in nuclear engineering from the Massachusetts Institute of Technology (MIT), a second M.S. from MIT's Technology

and Policy Program, and a Ph.D. in Public Policy and Public Administration from George Washington University.

Ajey Lele

is currently working as a Senior Fellow at the Institute for Defence Studies and Analyses (IDSA), New Delhi. He started his professional career as an Indian Air Force Officer and took early retirement from the services to pursue his academic interests. His specific areas of research Space Security and Strategic Technologies. Dr. Lele has various publications against his name and his important book publications include Strategic Technologies for the Military (Sage, 2008) and Asian Space Race: Rhetoric or Reality (Springer, 2013). Disruptive Technologies for the Militaries and Security (Springer, 2019).

Travis Langster

is the Vice President for AGI's Space Situational Awareness Business Unit. In this role, Mr. Langster is responsible for strategy and business execution in delivering commercial space situational awareness solutions to commercial, civil and military organizations worldwide. Mr. Langster has more than 20 years professional experience in military and commercial satellite planning and operations, support to defense and intelligence operations, strategic planning, technical management, and systems engineering. Mr. Langster began his aerospace career in 1992 as an engineer with General Electric Aerospace, where he focused on the launch and on-orbit operations of Air Force satellite systems. From 1994–1996, he was a systems engineer with Lockheed Martin Astro Space. During this time, he performed engineering analysis on satellite subsystems and payloads, mission planning and orbit analysis software tools.

Mr. Langster is a member of several industry associations and a Board Member of Future Space Leaders and Boys & Girls Club of America (Prince George's Co). Mr. Langster earned a B.S. in aeronautical and astronautical engineering with a minor in mathematics from Purdue University.



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Douglas L. Loverro

is a highly regarded senior DoD space thinker and leader. During his 30 years on active duty, he led multiple programs within DoD and the NRO including the AF's GPS program, NRO's Future Imagery Program, and all AF Space Control programs. He also served over 10 years as a DoD civilian in positions such as the Deputy for System Engineering at the NRO, Executive Director for the AF's Space and Missile System Center as well as the Deputy PEO for Space, and most recently, as DoD's Deputy Assistant Secretary of Defense for Space Policy. He left the government in 2017 after almost 45 years of service.

He holds a Master's Degrees in Physics from the University of New Mexico, a Master's of Political Science from Auburn University, and an MBA from the University of West Florida in addition to his BS in Chemistry from the US Air Force Academy. He was a distinguished graduate from the Air Force's Air Command and Staff College and Squadron Officer School, and was the top graduate from DoD's Industrial College of the Armed Forces. He is the recipient of multiple prestigious awards including the Secretary of Defense's Medal for Outstanding Public Service, AIAA's Durand Lecture for Public Service, the National Defense Industrial Association's (NDIA) Bob Hope Distinguished Citizen Award, the Lifetime Achievement Award from the Federation of Galaxy Explorers, the Society of Satellite Professional Engineers Stellar Award, and the Armed Forces Communicants and Electronics Association's (AFCEA) Benjamin Oliver Gold Medal for Engineering amongst many other civilian and military honors.

Agnieszka Lukaszczyk

is a Senior Director for European Affairs at Planet. As a Polish/American national, she has worked at the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs, Space Data for Societal Challenges and Growth Unit. She also worked at the Directorate General for Enterprise and Industry, Space Policy and Research Unit. Before she joined the Commission, Agnieszka was the Brussels Office Director for the Secure World Foundation. In addition, she is the former Chairperson and the former Executive Director of the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications. Agnieszka also worked at the European Space Policy Institute as a research fellow. Agnieszka serves as the Vice President - Europe for the World Space Week And Sits on the Board Of Directors for the Women in Aerospace-Europe. She is currently pursuing a PhD in Space Security at the Polish Defence Academy. She holds a Master's degree from the Warsaw School of Economics in Management of Space in New Economies and a Master's degree from the American University School of International Service in International Politics plus a Bachelor degree in Political Science from the University of Tennessee. She also studied at the Universite Catholique de Louvain in Brussels, Belgium; the Jagiellonian University in Krakow, Poland and the World Trade Institute in Berne, Switzerland. She gained professional experience at the Political Section of the Polish Embassy in Washington DC, American Electronics Association in Brussels, European Department of the Polish Senate in Warsaw and the Warsaw Business Journal.

Peter Martinez

is Executive Director of the Secure World Foundation. He has extensive experience in space policy formulation, space regulation and space diplomacy. He also has extensive experience in capacity building in space science and technology and in workforce development. Prior to joining SWF, Dr Martinez held the post of Professor of Space Studies at the University of Cape Town. Before this he acquired fifteen years of executive level management experience and associated general management skills gained in the research and development environment of the South African Astronomical Observatory, a National Facility under the South African National Research Foundation, where he served as Acting Director for two extended terms and for shorter periods on numerous other occasions. From 2010 – 2015 he was the Chairman of the South African Council for Space Affairs, the national regulatory authority for space activities in South Africa. From February 2011 to June 2018, he served as the Chairman of the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) Scientific and Technical Subcommittee's Working Group on the Long-Term Sustainability of Outer Space Activities. From 2012-2013 he was South Africa's representative on the United Nations Group of Government Experts on transparency and confidence building measures for space activities. He is a member of the International Academy of Astronautics, the International Institute of Space Law and a Fellow of the Royal Astronomical Society. He has authored or co-authored over 200 publications on topics in astronomy, space research, space law and space policy.

Kevin Mcloughlin

is Head of Space Security Policy in the UK Space Agency, responsible for providing the tools and environment to enable assured access to, through and from space for the civil space user and operator community. The role involves understanding and supporting civil and critical national infrastructure dependency on space; supporting the development of space security and protection capabilities such as Space Weather monitoring, Space Situational Awareness, Surveillance and Tracking and international norms. Previously Kevin has worked in the defence and security community for a number of years and most recently was engaged in the development of assurance and risk management of cross cutting technologies.

Jamie M. Morin

is Vice President of Defense Systems Operations, Defense Systems Group. He assumed this position in March 2017. In this role, Morin also serves as executive director of the Center for Space Policy and Strategy, which provides objective analysis to ensure well-informed and forward-looking space policy. Prior to joining Aerospace, Jamie served as director of Cost Assessment and Program Evaluation (CAPE) for the Department of Defense, where he led the Department's premier analytical organization, responsible for evaluating plans, acquisition programs, and budgets in relation to U.S. defense objectives, threats, estimated costs, and resource constraints. Prior to his confirmation as CAPE director, Morin served for five years as the assistant secretary of the Air Force for financial management, overseeing an annual budget of more than \$110 billion. Jamie also served for nearly a year as acting under secretary of the Air Force, where he was the Air Force's Chief Management Officer, led the Air Force Space Board and Air Force Council, and guided Air Force implementation of new defense strategic guidance under the constraints of the Budget Control Act. Previously, Morin was a member of the professional staff of the U.S. Senate Committee on the Budget, serving as the committee's lead analyst for the defense, intelligence, and foreign affairs budgets. He also served in the Office of the Under Secretary of Defense for Policy and as an economist and strategist with the firm J.E. Austin Associates.

Kevin M. O'Connell

is Director of the Office of Space Commerce at the U.S. Department of Commerce. Within this position, Mr. O'Connell leads an office with responsibility as a space industry advocate within the Executive Branch of the U.S. government. Mr. O'Connell brings over 35 years of experience in the U.S. government, in research organizations, and as an entrepreneur and business leader to this position. Mr. O'Connell has researched and written extensively on the policy, security, and global market issues related to commercialization of remote sensing. Aside from numerous articles and op-eds, he was co-author of Commercial Observation Satellites: at the Leading Edge of Global Transparency (2000). He served as the Executive Secretary and Staff Director of the NIMA Commission (1999-2000). He was a member, and later Chair, of NOAA's federal advisory committee on remote sensing from 2002–2016.



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Previously, Mr. O'Connell served as the CEO of Innovative Analytics and Training, a Washington, D.C. professional services firm focused on analysis and decision support for U.S. government and commercial clients. Among other issues, the firm focused on market trends and anticipatory/futures analysis for high-technology industries such as cyber, cloud computing, and geospatial technologies. During this time, he also served as a senior consultant to the Office of the Director of National Intelligence and as an independent advisor to the Director, National Geospatial Intelligence Agency.

Mr. O'Connell's background also includes extensive experience in national security and intelligence matters, including assignments in the Department of Defense, Department of State, National Security Council, and the Office of the Vice President. He spent a decade conducting and managing research in these areas at the RAND Corporation, including as the first director of RAND's Intelligence Policy Center.

Finally, Mr. O'Connell has taught a long-running course on comparative intelligence in Georgetown University's School of Foreign Service, Security Studies Program.

Regina Peldszus

is a senior policy officer with DLR Space Administration, Department of Space Situational Awareness. She leads the German delegation to the Consortium implementing the European Space Surveillance & Tracking (SST) Support Framework for the European Commission, serves as Co-Chair of its Steering Committee, and handles studies at the intersection of space policy, foresight, security, and infrastructure. From 2013 to 2015 Regina was an Internal Research Fellow with ESA's European Space Operations Centre (ESOC), Studies & Special Projects Division, focusing on resilience during critical mission phases such as LEOP. Prior to this, she contributed to various future systems and safety projects, including at ESA's Astronaut Training Division, Special Skills & Exploration Unit. Regina holds a Ph.D. from Kingston University, London, on human systems integration and analogues for crewed exploration mission scenarios. Her interests include governance and dual use in complex systems and high reliability domains, including polar and nuclear.

She is a member of the AIAA; the IFIP Working Group on Resilience, Reliability, Safety and Human Error in System Development; and the ESA/ CNES/ DLR committee for Human Dependability.

Heidi Robinson

is Director for Engagement under the Deputy Assistant Secretary of Defense for Space Policy in the U.S. Department of Defense. Ms. Robinson leads Department of Defense engagement efforts across the globe to build a common understanding of the space environment, and identify opportunities for partnerships to build resilient space architectures. Prior to joining the Space Policy Office, Ms. Robinson was the Deputy Director of the Secretary of Defense Policy Resource Management Office, responsible for the budgeting and execution of a \$2.1 billion annual budget, and fifteen support contracts.

Before entering the civil service, Ms. Robinson taught English in Japan for two years in Yamanashi-ken and notes that teaching at three junior high schools and two elementary schools taught her the terrors of the English language (particularly spelling!) and an appreciation for a single syllabary. As a Peace Corps Volunteer in West Africa in Cote d'Ivoire she lived in a rural village while working at a local health clinic teaching basic health education, drinking water from the well in her backyard, and learning the art of raising banana trees. Highlights of her accomplishments with the Peace Corp include assisting a village build a maternity ward thereby doubling the size of the local healthcare facilities, developing a national-level health education curriculum, and partnering with an Ivorian Coast non-governmental organization to manage a scholarship program for 35 Ivorian junior high and high school girls.

Ms. Robinson has an MBA from St. Ambrose University, with a certificate in international management, and a BA from the University of Iowa in Global Studies and Political Science.

Jana Robinson

is currently Space Security Program Director at the Prague Security Studies Institute (PSSI). She previously served as a Space Policy Officer at the European External Action Service (EEAS) in Brussels, as well as a Space Security Advisor to the Foreign Ministry of the Czech Republic. From 2009 to 2013, Ms. Robinson worked as Resident Fellow at the European Space Policy Institute (ESPI), seconded from the European Space Agency (ESA), leading the Institute's Space Security Research Programme. Prior to joining ESPI, Dr. Robinson served as Development Director at PSSI from 2005 to 2009, and administered its affiliate organization in Washington DC, PSSI Washington. Ms. Robinson is an elected member of the International Institute of Space Law (IISL) and the International Academy of Astronautics (IAA). She is also a member of the Advisory Board of the George C. Marshall Missile Defense Project of the Center for Strategic and International Studies (CSIS) in Washington, D.C. Ms. Robinson holds a PhD from the Charles University's Faculty of Social Sciences, Institute of Political Studies, in the field of space security. She also holds two Master's Degrees, from George Washington University's Elliott School of International Affairs and Palacky University in Olomouc, respectively. She received scholarships to attend the International Space University's (ISU) 2009 Space Studies Program (SSP09), the 2008 Summer Training Course at the National Taiwan Normal University in Taipei, and a one-year course of study at Shanghai University 1999-2000.

Roger W. Robinson, Jr.

is former Senior Director of International Economic Affairs at the Reagan National Security Council, where he was the principal architect of the secret economic and financial strategy for the take-down of the Soviet Union. He later served as Chairman of the Congressional U.S.-China Economic and Security Review Commission for the bulk of 2001-2006. Prior to his government service, Mr. Robinson was a Vice President in the International Department of the Chase Manhattan Bank with responsibility for Chase's loan portfolios in the USSR, Central/Eastern Europe and Yugoslavia. He also served as a personal staff assistant to then-Chase Chairman David Rockefeller for some three years. Mr. Robinson is currently President & CEO of RWR Advisory Group, a data services and risk management firm that specializes in assessing Chinese

and Russian market risks. Mr. Robinson is also Chairman and Co-Founder of the Prague Strategic Studies Institute in the Czech Republic.

Victoria Samson

is the Washington Office Director for the Secure World Foundation and has twenty years of experience in military space and security issues.

Before joining SWF, Ms. Samson served as a Senior Analyst for the Center for Defense Information (CDI), where she leveraged her expertise in missile defense, nuclear reductions, and space security issues to conduct in-depth analysis and media commentary. Prior to her time at CDI, Ms. Samson was the Senior Policy Associate at the Coalition to Reduce Nuclear Dangers, a consortium of arms control groups in the Washington, D.C. area, where she worked with Congressional staffers, members of the media, embassy officials, citizens, and think-tanks on issues surrounding dealing with national missile defense and nuclear weapons reductions. Before that, she was a researcher at Riverside Research Institute, where she worked on war-gaming scenarios for the Missile Defense Agency's Directorate of Intelligence.

Kai-Uwe Schrogl

is Chief Strategy Officer of the European Space Agency (ESA). From 2007 to 2011 he was Director of the European Space Policy Institute (ESPI) in Vienna, Austria, the leading European think tank for space policy. Previously, he was the Head of the Corporate Development and External Relations Department in the German Aerospace Center (DLR) in Cologne, Germany. He also worked with the German Ministry for Post and Telecommunications and the German Space Agency (DARA) in Bonn, Germany. He has been a delegate to numerous international fora and served from 2014 to 2016 as Chairman of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, the highest body for space law-making, comprising 73 Member States. He is President of the International Institute of Space Law (IISL), a professional association of space law experts from 48 countries, a member of the International Academy of Astronautics and the Russian Academy for Cosmonautics as well as Corresponding Member of the French Air and Space Academy.



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Manfred Schwiebert

currently serves in the Strategy and Politics Department of the German Ministry of Defence, and is the responsible desk officer for space policy and strategy. He is charged with developing and coordinating the general MoD positions on space security, embedding space security in the general MoD strategic documents. His task is to facilitate and enhance Germany's whole-of-government approach to space security from a MoD perspective as well as coordinating bilateral and multilateral partnerships on space security within MoD responsibility. After entering Service into the Luftwaffe in 1998, LtCol Schwiebert passed Officers training, then studied at the Armed Forces University in Hamburg and completed with a Master's Degree in Business Administration. Within the armed Forces he was trained as IT/Comms Officer, subsequently to IT-Security professional, and performed tasks at different command levels, including two deployments to ISAF (Afghanistan). After being selected for a general staff officers career, LtCol Schwiebert completed the German (2011-2013) and French (2014-2015) general staff officer courses before serving within the Luftwaffe's strategy and future development branch.

John B. Sheldon

is the Chairman and President of ThorGroup GmbH, a Swiss-headquartered publisher and consultancy group specialising in strategic space and cyberspace issues. ThorGroup GmbH is the publisher of SpaceWatch.Global. Dr. Sheldon formerly served in the British Diplomatic Service and was a faculty member at the School of Advanced Air & Space Studies (SAASS) at Maxwell AFB, Alabama. He currently resides in the UAE where he is a strategic advisor.

Cassandra Steer

is Executive Director of Women in International Security-Canada, and an independent space security consultant, currently working with Space Strategies Consulting Ltd (SSCL). She specialises in the application of the law of armed conflict and use of force in outer space, and issues of space security in general. Dr. Steer is an Associate Expert on the Woomera Manual on the International Law of Military Activities in Outer Space, and a member of the International Institute of Space Law. Her former positions include Acting Executive Director of the Center for Ethics and the Rule of Law at the University of Pennsylvania, Executive Director of the McGill Centre for Research in Air and Space Law, and an academic at McGill University and the University of Amsterdam. She is author of several articles on international criminal law, space law, the law of armed conflict, as well as a book titled "Translating Guilt: Identifying Leadership Liability for Mass Atrocity Crimes".

John P. Stopher

is the Principal Assistant to the Secretary of the Air Force for Space, the Pentagon, Arlington, Va. In this role, he advises the SECAF, Under Secretary, and the Chief of Staff of the Air Force on all space-related matters and serves as the Headquarters Air Force official for space matters, to include planning, policy, strategy, international relations, and space interagency relations. Dr. Stopher also serves as the primary HAF interface for space matters to entities and organizations outside the Air Force to include the Office of the Secretary of Defense, Congress, and industry. He directs the Headquarters staff responsible for space policy, issue integration, and strategy, and oversees Air Force integration with the National Security Space Enterprise.

Dr. Stopher's career began in 1988 with Eastman Kodak in Rochester, New York, where he worked as a systems engineer on advanced imaging systems, including optics and image processing in the Hawkeye Works facility. Dr. Stopher worked in industry for several years as a senior engineer, then joined the U.S. House of Representatives, Permanent Select Committee on Intelligence as a professional staff member in

August 1998. He began his HPSCI work as a program monitor for the National Reconnaissance Office and the National Geospatial-Intelligence Agency before becoming the Staff Director for the Subcommittee on Technical and Tactical Intelligence and focusing on the authorization and oversight of all technical programs in the intelligence community. He also served as the HPSCI Budget Director and was responsible for the preparation, presentation, and negotiation of the annual Intelligence Authorization Bill.

Most recently, Dr. Stopher was the founder and president of 377 Omega, Inc., a consulting services company focused on national security, space, and intelligence community technology and policy.

Martina Šmuclerová

is a Senior Fellow at PSSI. As an international legal expert and university lecturer, she provides counsel in Public International Law, with an emphasis on Space Law and Law of International Security.

Dr. Šmuclerová has served at the Czech Ministry of Foreign Affairs as a diplomat and international lawyer and has represented the Czech Republic at the United Nations Committee for Peaceful Uses of Outer Space, the European Space Agency, the European Union and other fora. She initiated and led important international law projects such as the UN Space Debris Compendium. Dr. Šmuclerová is a Senior Lecturer at Institut d'études politiques de Paris (SciencesPO) and teaches various courses in Public International Law, including Space law in collaboration with ESA.

Shuzo Takada

is Director-General of the National Space Policy Secretariat of the Cabinet Office, a position which he has held since June 2016. He was born in Tokyo in 1963, and has a long service career in the field of energy policy, manufacturing industrial policy, economic growth and national security in the Ministry of Economy, Trade and Industry since 1986.

Ashley J. Tellis

is a Senior Fellow at the Carnegie Endowment for International Peace, specializing in international security and U.S. foreign and defense policy with a special focus on Asia and the Indian subcontinent, and holds the Tata Chair for Strategic Affairs. While on assignment to the U.S. Department of State as senior adviser to the Under Secretary of State for political affairs, he was intimately involved in

negotiating the civil nuclear agreement with India. Previously he was commissioned into the Foreign Service and served as senior adviser to the ambassador at the U.S. Embassy in New Delhi. He also served on the National Security Council staff as special assistant to President George W. Bush and senior director for strategic planning and Southwest Asia. Prior to his government service, Tellis was senior policy analyst at the RAND Corporation and professor of policy analysis at the RAND Graduate School. He is a counselor at the National Bureau of Asian Research, the Research Director of its Strategic Asia program and co-editor of the program's fifteen most recent annual volumes, including this year's Strategic Asia 2019: China's Expanding Strategic Ambitions. He is the author of India's Emerging Nuclear Posture (2001) and co-author of Interpreting China's Grand Strategy: Past, Present, and Future (2000). In addition to numerous Carnegie and RAND reports, his academic publications have appeared in many edited volumes and journals.

Tellis serves on the Chief of Naval Operations Executive Panel. He is a member of several professional organizations related to defense and international studies including the Council on Foreign Relations, the International Institute of Strategic Studies, the United States Naval Institute, and the Navy League of the United States.

He earned his PhD in political science from the University of Chicago. He also holds an MA in political science from the University of Chicago and both BA and MA degrees in economics from the University of Bombay.

Andrea L. Thompson

was confirmed as Under Secretary for Arms Control and International Security on April 26, 2018. Before her arrival at the Department of State, Under Secretary Thompson served as the Deputy Assistant to the President and National Security Advisor to the Vice President. Prior to her tenure at the White House, Under Secretary Thompson served as the Director of the McChrystal Group Leadership Institute. She brings more than 25 years of service in the United States military to her role, including deployments on multiple combat tours, such as: Intelligence Directorate/J2 Chief of Staff in Afghanistan, Senior Intelligence Officer for Multi-National Division (North) in Iraq, as well as tours in Iraq, Bosnia, and operational and strategic deployments around the world.



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Under Secretary Thompson also served as the National Security Advisor for the Chairman, U.S. House of Representatives Committee on Homeland Security and Senior Military Advisor to the Chairman, U.S. House of Representatives Foreign Affairs Committee. She graduated with honors from the University of South Dakota (Phi Beta Kappa), and received her Masters' Degrees from Long Island University and National Defense University. Under Secretary Thompson is the co-author of the book *Achieving Victory in Iraq: Countering an Insurgency*.

A native South Dakotan, Under Secretary Thompson lives in Alexandria with her family.

David D. Thompson

is Vice Commander, Air Force Space Command, Washington, D.C. He is responsible to the commander of Air Force Space Command in carrying out Air Force space missions and integrating space policy, guidance, coordination and synchronization of space-related activities, and issue resolution for Air Force Space Command and the Department of the Air Force. General Thompson was commissioned in 1985 as a graduate of the U.S. Air Force Academy. He is a career space officer with assignments in operations, acquisition, research and development, and academia. He has commanded operational space units at the squadron, group and wing levels. The general is also an Olmsted Scholar, graduate of the Senior Acquisition Course and Level III-Certified Program Manager. Prior to his assignment as Vice Commander, General Thompson was the Special Assistant to the Commander, Air Force Space Command, Peterson Air Force Base, Colorado.

Jean-Jacques Tortora

is Director of the European Space Policy Institute. From 2007 to mid 2016 he was the Secretary General of ASD-Eurospace, which is the trade association of the European Space Industry. From 2004 to mid 2007, he was head of the French Space Agency (CNES) office in North America and the Attaché for Space and Aeronautics at the Embassy of France in Washington, D.C. Previously he was Deputy Director for Strategy and Programs, responsible for the Industrial Strategy of CNES, the French Space Agency. From 1998 to 2000, Mr. Tortora was adviser to the French Ministry of Research for Industrial Policy Funds management. From 1996 to 1998, he was appointed by Arianespace in Evry, France. From 1990 to 1996, Mr. Tortora was based in Kourou, French Guiana, as Head of Arianespace Operations Quality Department. Mr. Tortora started his career in 1984 at the French military procurement agency, DGA, as a naval weapons integration and test engineer, expert in signal processing and warships acoustic discretion.

Tanja E. Zegers

joined the European Commission in 2011 where she worked on challenging files such as the preparation of Horizon 2020, Galileo, and in general space & security related files. She is currently leading the GOVSATCOM initiative.

Prior to joining the Commission she worked for ESA and the Dutch administration managing space science programmes. She has a PhD in geosciences and worked as a university researcher and lecturer in The Netherlands, Australia and the United States.



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LIST OF PARTICIPANTS

Marek Aldorf

Programme Manager
ESA BIC Prague
Czech Republic

Michael S. Angle

Government Contractor with
Linquest
Joint Force Space Component
Command
USA

Masahiro Atsumi

Vice President & Senior General
Manager Space Systems Division
Mitsubishi Heavy Industries
Japan

Petr Bareš

President and MD
Czech Space Alliance & Iguassu
Software
Czech Republic

Mathieu Bataille

Resident Fellow
European Space Policy Institute
(ESPI)
Austria

Marc Becker

Policy Officer, Space Situational
Awareness
DLR Space Administration
Germany

Petr Boháček

Research Fellow
Charles University
Czech Republic

Brad Brewington

Deputy Director, Space Policy
Engagement
Office of the Secretary of Defense
for Policy
USA

Jakub Brož

Member
Space Generation Advisory Council
Czech Republic

Richard H. Buenneke

Senior Advisor for National Security
Space Policy, AVS, U.S. Department
of State
USA

Andrea Capurso

Czech Republic

Carine Claeys

Special Envoy for Space (acting)
Space Task Force, European
External Action Service
Belgium

Colin D. Clark

Director- Business Development
Verum Securitas
USA

Frederic Cornet

GNSS Expert
EU
France

Mfon-Obong David

Founder/Head
International Students Forum
Czech Republic

Eric Desautels

Director, Office of Emerging
Security Challenges, Bureau of
Arms Control, Verification and
Compliance
U.S. Department of State
USA

Bohumil Doboš

Researcher
Institute of Political Studies,
Faculty of Social Sciences, Charles
University
Czech Republic

Marek Dvořáček

Research Trainee
European Space Policy Institute
(ESPI)
Austria

Thomas Dyble

Owner
DYBLE Associates
USA

Steve Eisenhart

Senior Vice-President, Strategic &
International Affairs
The Space Foundation
USA

Mari Amanda Eldholm

Governmental Affairs Manager
PTScientists
Germany

David Elliman

Chairman
Elmrock Capital
USA

Mirella Fatica

Research Fellow
Italian Space Agency
Italy

Pascal Faucher

Chairman, EU SST Consortium
Defence and Security, CNES
France

Michel Friedling

Commander, Joint Space Command
Ministry of Defence
France

Gina D. Galasso

Principal Director
The Aerospace Corporation
USA

Alexandru Georgescu

Department for Cybersecurity and
Critical Infrastructure Protection
National Institute for Research and
Development in Informatics
Romania

Øystein Glomsvoll

Staff Officer
Norwegian Ministry of Defence
Norway

Amélie Gravier

Secretary
EU SST Consortium
France

Aphrodite Gregoriou

Embassy of the Republic of Cyprus
in Prague
Czech Republic

Odd-Harald Hagen

Chief of Department for Defence
Policy and Long Term Planning
Royal Norwegian Ministry of
Defence
Norway

Petr Havlík

Space Policy Officer
European External Action Service
Belgium

Peter L. Hays

Associate Director
Eisenhower Center for Space and
Defense Studies
USA

Sachiko Hoshino

Second Secretary, Economic
Section
Embassy of Japan
Czech Republic

Marcela Hradská

Public Administration Officer
National Cyber and Information
Security Agency
Czech Republic

Tomáš Hrozenský

Research Fellow
European Space Policy Institute
Austria

Stefano Iannitti

Head of Security
European GNSS Agency - GSA
Czech Republic

Takashi Ikeda

Deputy Director
National Space Policy Secretariat
Japan

Shlomo Indy

Ground Segment Director
ImageSat International N.V.
Israel

Hiroshi Ishibashi

Vice President
NEC
Japan

Tatsuya Ishikawa

Branch President
Mitsubishi Electric Europe B.V.,
Japan

Taku Izumiyama

General Manager
IHI Corporation
Japan

Moriba Jah

Associate Professor, Aerospace
Engineering and Engineering
Mechanics
The University of Texas at Austin
USA

Christopher Johnson

Space Law Advisor
Secure World Foundation
USA

Dana J. Johnson

Director
International Outreach and Policy,
Office of the Under Secretary
of Defense (Research and
Engineering)
USA

Kristína Juul

Editor
ThorGroup
Slovakia



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Toshihiko Kasahara

Deputy Director
CSICE
Japan

Peter Keulers

Deputy Head of Mission
Embassy of the Kingdom of the
Netherlands
The Netherlands

Kenichi Kinomura

JGSDF, Ret. Adviser
NEC
Japan

Adéla Klečková

Project Manager
Friedrich Naumann Foundation
Czech Republic

Radovan Klíma

National PRS Centre/Competent
PRS Authority
National Cyber and Information
Security Agency
Czech Republic

Kenneth Klock

Director of Plans and Policy
Joint Force Space Component
Command
USA

Václav Kobera

Director, Intelligent Transport
Systems, Space Activities and
Research, Development and
Innovation
Ministry of Transport
Czech Republic

Ivana Kočovská

National Security Officer
National Cyber and Information
Security Agency
Czech Republic

Jan Kolář

Director
Czech Space Office
Czech Republic

Hiroshi Koyama

Fellow, Electronic Systems Group
Mitsubishi Electric Corporation
Japan

Torsten Kriening

COO / Publisher
ThorGroup / SpaceWatch.Global
Germany

Alexandr Lagazzi

Communications Manager
EUROPEUM Institute for European
Policy
Czech Republic

Roman Lajčiak

Third Secretary
Slovakian Embassy
Czech Republic

Bhavya Lal

Research Staff Member
IDA Science and Technology Policy
Institute
USA

Travis Langster

Vice President, Space Situational
Awareness Business
Analytical Graphics, Inc.
USA

Zachary Lavengood

Student
Charles University
Czech Republic

Thomas Leclerc

Researcher
Chair in Defence & Aerospace
(Sciences Po Bordeaux)
France

Ajey Lele

Senior Fellow
Institute for Defence Studies and
Analyses
India

Douglas L. Loverro

President
Loverro Consulting, LLC
USA

Agnieszka Lukaszczyk

Senior Director, European Affairs
Planet Labs, Inc.
Belgium

Miloslav Machoň

External Lecturer
University of Economics, Prague
Czech Republic

Adrian Malacz

Senior Expert
Polish Space Agency
Poland

Seiji Manabe

Deputy Director
National Space Policy Secretariat
Japan

Peter Martinez

Executive Director
Secure World Foundation
USA

Atila Matas

Senior Satellite Regulatory
Consultant
OrbitSpectrum
Switzerland

Seiji Matsuda

General Manager of Defense
Systems Department
IHI Aerospace
Japan

Kevin Mcloughlin

Head of Space Security
UK Space Agency
United Kingdom

Andrew Monham

LEO Spacecraft Operations
Manager
EUMETSAT
Germany

Sebastien Moranta

Coordinator of Studies
European Space Policy Institute
(ESPI)
Austria

Jamie M. Morin

Vice President, Defense Systems
Operations
Center for Space Policy and
Strategy, The Aerospace
Corporation
USA

Stig Nilsson

Head of Space Program
Norwegian Ministry of Defence
Norway

Jiří Novák

Director Consulting Services
CGI
Czech Republic

Kevin O'Connell

Director of the Office of Space
Commerce
U.S. Department of Commerce
USA

Takatoshi Obata

Manager, Procurement Engineering
Mitsubishi Electric Europe
United Kingdom

Patrick O'Keeffe

Non-Resident Fellow
Institute for Security Policy at Kiel
University (ISPK)
Germany

Stijn Paulissen

Trainee
Embassy of Belgium
Czech Republic

Giulia Pavesi

Researcher
Leuven Centre for Global
Governance Studies
Belgium

Marcianna Pease

Executive Officer to the Vice
Commander, Air Force Space
Command
Air Force Space Command
USA

Regina Peldszus

Policy Officer, Department of Space
Situational Awareness
European Space Surveillance &
Tracking (SST) Support Framework,
German Aerospace Center (DLR)
Germany

Massimo Pellegrino

Public Policy Program Manager
IEEE
Austria

Vladimír Petera

Director of Space Division
Czech Aerospace Research Centre
Czech Republic

Běla Plechanová

Associate Professor
Charles University
Czech Republic

Malgorzata Polkowska

Professor
War Studies Academy Warsaw
Poland

Matěj Procházka

Student
University of Economics, Prague
Czech Republic

Edvilas Raudonikis

Ambassador
Embassy of Lithuania
Czech Republic

Thomas G. Roberts

Program Manager and Research
Associate, Aerospace Security
Project
Center for Strategic and
International Studies
USA



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Jana Robinson

Space Security Program Director
Prague Security Studies Institute
Czech Republic

Heidi Robinson

Director for Engagement
Office of Deputy Assistant
Secretary of Defense for Space
Policy, U.S. Department of Defense
USA

Roger W. Robinson Jr.

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Prague Security Studies Institute
Czech Republic

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Head of the Galileo Security
Monitoring Centre
GSA
France

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DHOM
Embassy of Finland
Czech Republic

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Washington Office Director
The Secure World Foundation
USA

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ThorGroup GmbH
Switzerland

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Mitsubishi Electric Corporation
Japan

Yoshihiro Shiraishi

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NEC
Japan

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VP Information Security
LuxGovSat S.A.
Luxembourg

Nikola Schmidt

Researcher
Charles University
Czech Republic

Jiří Schneider

Executive Director
Aspen Institute Central Europe
Czech Republic

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Chief Strategy Officer
European Space Agency
Germany

Manfred Schwiebert

Responsible Desk Officer for Space
Policy and Strategy
German Ministry of Defence
Germany

Cassandra Steer

Interim Executive Director
Women in International Security
Canada

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USA

Sebastien Steinberger

Canada

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Alumnus
Univerzita Karlova
Czech Republic

Aurimas Šimkus

Deputy Head of Mission
Embassy of Lithuania
Czech Republic

Martina Šmuclerová

Senior Fellow
Prague Security Studies Institute
Czech Republic

Markéta Šonková

Czech Republic

Ema Šťastná

Senior Political Officer
British Embassy
Czech Republic

Shuzo Takada

Director-General
National Space Policy Secretariat
Cabinet Office
Japan

Ashley J. Tellis

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Carnegie Endowment for
International Peace
USA

Antonios Theocharous

Ambassador
Embassy of the Republic of Cyprus
in Prague
Cyprus

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Vice Commander
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USA

Andrea L. Thompson

Under Secretary for Arms Control
and International Security
U.S. Department of State
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Defence & Security Manager
Ministry of Higher Education,
Research and Innovation
France

Naoji Tomita

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NEC
Japan

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(ESPI)
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François Valverde

Commandement Interarmées de
l'Espace
Relations Internationales
France

Martin van de Pol

Air&Space Warfare Center, Space
Operations
Royal Netherlands Air Force
The Netherlands

Tomáš Vedra

GNSS Security Officer
National Cyber and Information
Security Agency
Czech Republic

Lukáš Vitek

Assistant Political and Economical
Section
Embassy of Belgium in Prague
Czech Republic

Alžběta Vítková

Student
University of Economics, Prague
Czech Republic

Adéla Vondrovicová

Student
Sciences Po
France

Tanja E. Zegers

Policy Officer, DG for Internal
Market
Industry, Entrepreneurship and SME
– DG GROW
Belgium



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Prague Security
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Prague Security Studies Institute

The mission of the Prague Security Studies Institute is to help safeguard and strengthen the individual freedoms and

democratic institutions of the countries in Central and Eastern Europe and beyond. The Institute also seeks to illuminate select unconventional threats emanating from authoritarian governments that challenge the transatlantic alliance and other partners globally, especially in the economic & financial and space domains. PSSI is dedicated to the education and training of new generations of security-minded students and young professionals, including through its programmatic activities and growing academic network in the Czech Republic and abroad.

pssi.cz



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PSSI Washington is dedicated to illuminating select, lesser known security challenges facing the United States and its key allies in Europe and

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European Space Agency

The European Space Agency (ESA) is an international organisation with 22 Member States. ESA is Europe's gateway to space. Its job is to

configure the European space programme and carry it through to implementation. ESA's programmes are designed to learn more about Earth, its immediate space environment, our Solar System and the Universe, as well as to develop satellite-based technologies and services, and to promote European industries. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. By coordinating the financial and intellectual resources of its members, ESA can undertake programmes and activities far beyond the scope of any single European country.

esa.int



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Secure World Foundation (SWF) is a private operating foundation dedicated to the secure and sustainable use of space for the benefit of Earth

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BAWD Foundation

The BAWD Foundation is a private, United States based, charitable corporation established to support the charitable interests of the Elliman family. The interests of the foundation are concentrated in science and education. As the mission of PSSI, with elements of both security technology and education, are closely linked to the foundation's purpose, BAWD has been a longstanding proponent and supporter of its programs.

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PSSI CONFERENCE TEAM

Jana Robinson, Space Security Program Director

Petr Lang, Program Director

Jakub Pražák, International Logistics Coordinator

Tereza Barbora Kupková, Project Coordinator

Patrik Martínek, Project Assistant

Kateřina Krejčířová, PR Coordinator

Filip Šebek, Media Coordinator

Pavel Ditmar, Logistics Coordinator

Boris Kaliský, Local Logistics Coordinator

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1/ Hotel Savoy, Keplerova 6

2/ Lindner Hotel Prague Castle, Strahovská 128

3/ Hotel Aria Tržiště 9, 118 00 Malá Strana

4/ Ministry of Foreign Affairs – Czernin Palace, Loretánské nám. 5

5/ Prague Security Studies Institute, Pohořelec 6

6/ Mlýnec Restaurant, Novotného lávka 9

7/ Terasa u Zlaté Studně, U Zlaté Studně 166/4

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