

Progress and Planning Ahead:

International Best Practices for Outer Space Sustainability



Agenda

8:15 – 9:00 Arrival and Registration with Continental Breakfast

9:00 – 9:15 **Welcome Remarks**

- Jonathan Margolis, U.S. State Department, Deputy Assistant Secretary for Science, Space, and Health, for Oceans, Environment, and Science
- Michael Simpson, Executive Director, Secure World Foundation

9:15 – 10:30 **Panel 1: Multilateral Organizations: International Efforts and Successes**

- Simonetta di Pippo, United Nations Office for Outer Space Affairs (UNOOSA)
- David Kendall, United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)
- Peter Martinez, COPUOS Long Term Sustainability Working Group
- Moderator: Victoria Samson, Secure World Foundation

10:30 – 10:45 Break

10:45 – 12:00 **Panel 2: National Efforts: Space Cooperation and Guideline Implementation**

- Alexander E. Ermolaev, Embassy of the Russian Federation
- Pascal Faucher, Centre National d'Etudes Spatiales, France
- Ken Hodgkins, Department of State, United States
- Liu Jing, China National Space Administration, China
- Andre Rypl, Agência Espacial Brasileira, Brazil
- Atsushi Saito, Ministry of Foreign Affairs, Japan
- Sarah Telford, British Embassy in Washington, United Kingdom
- Moderator: Theresa Hitchens, University of Maryland

12:00 – 1:00 Lunch

1:00 – 2:30 **Panel 3: Industry Support of International Approaches to Space Sustainability**

- Mike Gold, U.S. Federal Aviation Administration (FAA)'s Commercial Space Transportation Advisory Committee (COMSTAC)
- Elliot Pulham, Space Foundation
- Madhurita Sengupta, American Institute of Aeronautics and Astronautics (AIAA)
- Frank Slazer, Aerospace Industries Association
- Charity Weeden, Satellite Industry Association
- Moderator: Marcia Smith, SpacePolicyOnline.com

2:30 – 3:00 Coffee Break

3:00 – 4:30 **Panel 4: Where Do We Go From Here?**

- Gerard Brachet, space policy consultant, former chair of COPUOS
- Sergio Marchisio, University Sapienza of Rome
- Mazlan Othman, Academy of Sciences Malaysia, former Director of UNOOSA
- Scott Pace, George Washington University's Space Policy Institute
- Moderator: Ken Hodgkins, U.S. Department of State

4:30 **Closing Remarks**

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SPEAKER BIOGRAPHIES

Gérard Brachet completed an engineering degree at the Ecole Nationale Supérieure d’Aéronautique in 1967 and an MSc in Aeronautics and Astronautics from the University of Washington in 1968. He began his professional career at the Centre National d’Etudes Spatiales (CNES), the French Space Agency, and from 1972 to 1982 was successively Head of the Orbit Determination and Spacecraft Dynamics Department, the Scientific Programmes Division, and the Application Programs Division.

Brachet was directly involved in defining and developing the French SPOT satellite program in 1978 and led the set-up of the SPOT IMAGE Company to market their earth observation images. In 1982, Brachet was appointed Chairman and Chief Executive Officer of SPOT IMAGE and remained in this position until 1994. At the same time, he was an advisor on space matters to the European Commission, and in 1991-1992, he helped formulate space policy for the European Union. Brachet returned to CNES in 1994 as Director for Programs, Planning and Industrial Policy. He became later Director General of CNES from July 1997 to September 2002. He chaired in 1997 the international Committee on Earth Observation Satellites (CEOS), which brings together 20 space agencies and 7 international organizations with the objective of coordinating Earth observation satellite programs.

Since January 2004, Brachet has been a highly respected aerospace consultant. He chaired the United Nations Committee for the Peaceful Uses of Outer Space (UNCOPUOS) from 2006 to 2008. He was in 2012-2013 the French expert in the Group of Governmental Experts (GGE) set up by the United Nations Secretary General to develop Transparency and Confidence-building Measures (TCBMs) in Outer Space.

Brachet is a member of the International Academy of Astronautics (IAA) and a member of the Air and Space Academy/Académie de l’Air et de l’Espace, which he chaired from 2009 to 2012. He is also Honorary Secretary of the International Astronautical Federation (IAF).

Brachet received many international awards, including the “Brock Gold Medal Award” of the International Society for Photogrammetry and Remote Sensing in 1992, the Gold Medal of the British Remote Sensing Society in 1994, and the “Social Sciences Award” of the International Academy of Astronautics in 2007. Brachet is « Officier de l’Ordre national du Mérite » (1997) and « Officier de la Légion d’Honneur » (2001).

Alexander E. Ermolaev is the Counselor for Science & Technology at the Embassy of the Russian Federation with responsibilities for all S&T cooperation issues, including space, for the organization. Joined the Foreign Service in 2000 and since that time was on different assignments within Department for North America and Department for Latin America of the Ministry of Foreign Affairs of Russia. Before coming to Washington, DC served at the Russian Embassies in Colombia and Argentina. Ermolaev holds a Master of Science in Chemistry from the Moscow State University.

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Pascal Faucher graduated from the Ecole Nationale Supérieure de l'Aéronautique et de l'Espace (SUPAERO), Toulouse (1997). He also holds a Master's Degree (1998) and a Ph. D. in Physical Oceanography (2001) by the University Paul Sabatier, Toulouse (thesis financed by DGA/SHOM, Ministry of Defence), and an Executive Master of Business Administration (2007) by ESCP Europe, Paris. After a post-doctoral position at LEGOS for the MERSEA project (Marine Environment and Security for the European Area), his experience includes 14 years of various positions at CNES Headquarters as international relations adviser and program manager. For the last five years, in the Defence and Security team, he has been responsible for the following themes: Space Security, Space Situational Awareness (Space Surveillance and Tracking, Space Weather, Near-Earth Objects), Space Debris and Maritime Surveillance. He is a French delegate at the Steering Committee and the Security Committee of the European SST Consortium (following the Decision of the European Parliament and the Council establishing a Space Surveillance and Tracking Support Framework in 2014), delegate at the Programme Board SSA of ESA, delegate at the Steering Group of the Inter-Agency Space Debris Coordination Committee (IADC), delegate at the Scientific and Technical Subcommittee of UN-COPUOS (participating in the Working Group on the Long Term Sustainability of Outer Space Activities, previously as a member of the Expert Group B (Space Debris, Space Operations and Tools for Collaborative Space Situational Awareness)), and delegate at the Steering Committee of the Space Mission Planning Advisory Group (SMPAG). He is a member of the Space Debris Committee of the International Academic of Astronautics and Secretary of the Space Security Committee of the International Astronautical Federation. In France, he is responsible for the national Working Group on Space Weather (GTME). He is a member of the French Steering Group on Unidentified Aerospace Phenomena (GEIPAN).

Mike Gold is Vice President of Washington Operations and Business Development for Space Systems/Loral ("SSL"), America's most prolific commercial satellite manufacturer and a global leader in space systems and robotics. At SSL, Mr. Gold is responsible for interactions with Congress and Executive Branch agencies as well as business development for emerging space technologies.

In 2008, Mr. Gold was appointed by the U.S. Secretary of Transportation to serve on the Commercial Space Transportation Advisory Committee ("COMSTAC"), and was appointed to serve as Chair of the organization in 2012. The COMSTAC is a federal advisory committee comprised of leading commercial space industry executives that provides advice to the FAA Office of Commercial Space Transportation. Additionally, Mr. Gold was appointed by the National Research Council to serve on the Space Technology Industry-Government-University roundtable which supports NASA's Space Technology Mission Directorate.

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Mr. Gold is an attorney and has written three law review articles describing the intersection between the commercial space industry and export controls. Mr. Gold has had two editorials entered into the Congressional Record, and has testified before the U.S. Senate and the House of Representatives as a subject matter expert in commercial space policy, law, and innovation.

Kenneth Hodgkins has been with the Department of State since 1987 and presently is the Director for the Office of Space and Advanced Technology in the Bureau of Oceans, Environment and Science. The office is responsible for bilateral and multilateral cooperation in civil and commercial space and high technology activities, including the International Space Station, collaboration in global navigation satellite systems, the International Thermonuclear Experimental Reactor (ITER), and nanotechnology, and represents the Department in national space policy review and development. Mr. Hodgkins serves as the U.S. Representative to the UN Committee on the Peaceful Uses of Outer Space (COPUOS). He has been the State representative for major Presidential policy reviews on remote sensing, the Global Positioning Satellite (GPS) system, orbital debris, and the use of space nuclear power sources in space. Before coming to the State Department, he was the Director for International Affairs at the National Environmental Satellite Data and Information Service (NESDIS) of the Department of Commerce.

In 2010 he was the first Department of State recipient of the American Institute of Aeronautics and Astronautics' International Cooperation Award and was named by GPS World as a "GNSS Leader to Watch in 2009-2010."

Mr. Hodgkins holds a BA in Political Science (1978) and an MPA (1980) from the University of Maine at Orono. He joined the Federal government in 1980 as a Presidential Management Fellow.

Dr. David Kendall is the current Chair of the United Nations Committee on the Peaceful Uses of Outer Space for 2016-2017. During his career he has held senior positions with the Canadian Space Agency including as the Director General of Space Science and Space Science and Technology. He is also a faculty member of the International Space University based in Strasbourg, France.

Born near London, England, Dr. Kendall obtained his doctoral degree in Atmospheric Physics from the University of Calgary. After his PhD he worked in private industry as an R&D scientist and then for the Canadian federal government, first with the National Research Council of Canada and later, with the newly created Canadian Space Agency.

Dr. Kendall is an academician of the International Academy of Astronautics (IAA) and, during his career, has acted in various capacities on a number of national and international bodies, including the International Space University, the International Astronautical Federation, the Committee on Space Research (COSPAR), UN COPUOS, the European Space Agency, IADC, and the Group on Earth Observations.

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In 2002, Dr. Kendall was awarded the Queen Elizabeth II Golden Jubilee Medal in recognition of his significant contributions and achievement to Canada.

Dr. Sandra H. "Sandy" Magnus is the Executive Director of the American Institute of Aeronautics and Astronautics (AIAA), the world's largest technical society dedicated to the global aerospace profession.

Born and raised in Belleville, Ill., Dr. Magnus attended the Missouri University of Science and Technology, graduating in 1986 with a degree in physics and in 1990 with a master's degree in electrical engineering. She received a Ph.D. from the School of Materials Science and Engineering at Georgia Tech in 1996.

Selected to the NASA Astronaut Corps in April, 1996, Dr. Magnus flew in space on the STS- 112 shuttle mission in 2002, and on the final shuttle flight, STS-135, in 2011. In addition, she flew to the International Space Station on STS-126 in November 2008, served as flight engineer and science officer on Expedition 18, and returned home on STS-119 after four and a half months on board. Following her assignment on Station, she served at NASA Headquarters in the Exploration Systems Mission Directorate. Her last duty at NASA, after STS-135, was as the deputy chief of the Astronaut Office.

While at NASA, Dr. Magnus worked extensively with the international community, including the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA), as well as with Brazil on facility-type payloads. She also spent time in Russia developing and integrating operational products and procedures for the International Space Station.

Before joining NASA, Dr. Magnus worked for McDonnell Douglas Aircraft Company from 1986 to 1991, as a stealth engineer. While at McDonnell Douglas, she worked on internal research and development and on the Navy's A-12 Attack Aircraft program, studying the effectiveness of radar signature reduction techniques.

Dr. Magnus has received numerous awards, including the NASA Space Flight Medal, the NASA Distinguished Service Medal, the NASA Exceptional Service Medal, and the 40 at 40 Award (given to former collegiate women athletes to recognize the impact of Title IX).

Prof. Sergio Marchisio is a Professor of International Law at the University Sapienza of Rome and Director of the Institute for International Legal Studies of the National Research Council (ISGI-CNR). Since 2007 Marchisio is Chairman of the European Centre for Space Law (ECSL) within the European Space Agency (ESA). Representative of the Italian government in a number of international conferences, he acts as Legal Expert of the Ministry of Foreign Affairs. As a member of the Italian delegation to the UNCOPUOS, he served as Chairman of the Legal Subcommittee (2004-2006).

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He was appointed by the UN Secretary General as one of the 15 members of the Group of Governmental Experts (GGE) on Outer Space Transparency and Confidence-Building Measures (TCBMs) established by General Assembly resolution 65/68. In July 2015, he was chair of the New York multilateral meeting on the draft International Code of conduct on outer space activities. In addition, he is member of the Specialized Panel of Arbitrators of the Permanent Court of Arbitration for disputes related to space matters.

In 2010, Marchisio was appointed as Member of the Task Force of the EEASEU for the Draft Code of Conduct on Space Activities. He is a Member of the Board of Directors of the International Institute of Space Law (IISL), Full Member of the International Academy of Astronautics (IAA), Member of the Académie de l'air et l'espace (ANAE) and a Member of Faculty of the London Institute of Space Policy and Law.

Jonathan Margolis serves as Acting Deputy Assistant Secretary for Science, Space, and Health in the Department of State's Bureau of Oceans and International Environmental and Scientific Affairs. In this position, he is responsible for policies and programs in the areas of International Science & Technology Cooperation, Space, & Advanced Technologies, and International Health and Biodefense. From 2007-2011, Margolis served as Deputy Assistant Secretary for Global Communications in the Bureau of International Information Programs. From 2006-2007, Margolis served as the Senior Coordinator for Global and Functional Issues in the Office of the Director of Foreign Assistance. From 1997-2006, Margolis served as the Department's Special Representative for Sustainable Development and headed the U.S. Delegation to the UN Commission on Sustainable Development. He also served as a member of international science and technology boards and sustainability partnerships. Margolis has a Ph.D. from Harvard University in psychology, focusing on negotiation and conflict resolution. He holds a master's degree from the Fletcher School of International Law and Diplomacy, and his undergraduate degree is in fine arts from Harvard College. He has also served as an Adjunct Professor at American University, and the Foreign Service Institute, where he has conducted courses on environmental policy, negotiations, and international organizations.

Peter Martinez has made several key contributions to the development of the South African national space program as well as national policy and regulatory development and capacity building. From 2009 to 2015, he was the Chairman of the South African Council for Space Affairs. He Chairs the UN COPUOS Working Group on the Long-Term Sustainability of Outer Space Activities. He served on the UN Group of Governmental Experts on Transparency and Confidence Building Measures in Outer Space Activities in 2012 and 2013. He is a Professor of Space Studies at the University of Cape Town and a Member of the International Academy of Astronautics and the International Institute of Space Law.

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Mazlan Othman was educated in Malaysia and received her PhD in Astrophysics at the University of Otago, New Zealand. On returning to Malaysia in 1981, she pioneered an academic program on astrophysics at the National University of Malaysia and was appointed Professor of Astrophysics in 1994.

She was seconded to the Prime Minister's Department in 1990 to direct the establishment of the National Planetarium, under the Space Science Studies Division. As its first Director-General, she also led the design and manufacture of Malaysia's first remote-sensing satellite, TiungSAT-1, launched in 2000.

In 1999, she was appointed Director of the United Nations Office for Outer Space Affairs (UNOOSA) and returned to Malaysia to set up the National Space Agency (ANGKASA). As its founding Director-General, she established the National Space Centre which houses TT&C, AIT, calibration and research facilities; founded the Langkawi National Observatory; and initiated the program which placed the world's first remote-sensing satellite in the near-Equatorial orbit. She spearheaded the Angkasawan Programme which saw the launch of the first Malaysian astronaut to the International Space Station in 2007. That year, she left Malaysia again to resume the post of Director of UNOOSA. In 2009, she was appointed Deputy Director-General of the United Nations Office at Vienna (UNOV). She retired from the UN in 2013.

She is currently Project Director of Mega Science 3.0 at the Academy of Sciences Malaysia. The Project examines global mega trends going to 2050 and aims at positioning Malaysia within these future scenarios. She is a fellow of several national and international professional bodies and is the recipient of several national and international awards.

Dr. Scott Pace is the Director of the Space Policy Institute and a Professor of the Practice of International Affairs at George Washington University's Elliott School of International Affairs. He is also a member of the faculty of the Trachtenberg School of Public Policy and Public Administration. His research interests include civil, commercial, and national security space policy, and the management of technical innovation. From 2005-2008, he served as the Associate Administrator for Program Analysis and Evaluation at NASA.

Prior to NASA, Pace was the Assistant Director for Space and Aeronautics in the White House Office of Science and Technology Policy (OSTP). From 1993-2000, Pace worked for the RAND Corporation's Science and Technology Policy Institute (STPI). From 1990 to 1993, Pace served as the Deputy Director and Acting Director of the Office of Space Commerce, in the Office of the Deputy Secretary of the Department of Commerce. He received a Bachelor of Science degree in Physics from Harvey Mudd College in 1980; Masters degrees in Aeronautics & Astronautics and Technology & Policy from the Massachusetts Institute of Technology in 1982; and a Doctorate in Policy Analysis from the RAND Graduate School in 1989.

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Pace received the NASA Outstanding Leadership Medal in 2008, the US Department of State's Group Superior Honor Award, GPS Interagency Team, in 2005, and the NASA Group Achievement Award, Columbia Accident Rapid Reaction Team, in 2004. He has been a member of the U.S. delegation to the World Radiocommunication Conferences in 1997, 2000, 2003, and 2007. He was also a member of the U.S. delegation to the Asia-Pacific Economic Cooperation Telecommunications Working Group, 1997-2000. More recently, he has served as a member of the U.S. delegation to the UN Committee on the Peaceful Uses of Outer Space in 2009, and 20011-15. Pace has been a member of the NOAA Advisory Committee on Commercial Remote Sensing (ACCRES) since 2012. Pace is a former member of the Board of Trustees, Universities Space Research Association, a Member of the International Academy of Astronautics, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a member of the Board of Governors of the National Space Society.

Simonetta Di Pippo joined the UN Office for Outer Space Affairs on 23 March 2014. After having graduated with a Masters degree in Astrophysics and Space Physics from the University "La Sapienza" in Rome, Italy in 1984, Di Pippo joined the Italian Space Agency (ASI) in 1986. Her responsibilities ranged from Earth Observation to Automation & Robotics, Science and Human Spaceflight. From 2002 to 2008, she served as the Director of the ASI's Observation of the Universe, since when in 2008 she got appointed Director of Human Space Flight at the European Space Agency (ESA), where she served in this role until 2001, before returning to ASI to lead the European Space Policy Observatory at ASI-Brussels until March 2014.

Di Pippo co-founded, in June 2009, Women in Aerospace Europe (WIA-E) and has acted as President since then. WIA-E, with a legal base in the Netherlands, aims to expand the representation and leadership of women in the aerospace sector. Since April 2013, she has been a member of the Global Board Ready Women (GBRW), the list of potential top managers created by European Business Schools in the framework of the Women on Board initiative. Appointed Academician of the International Academy of Astronautics (IAA) in July 2013, she has been appointed in the Board of Trustees of the Academy in 2015.

In May 2013, she received an Honoris Causa Degree in Environmental Studies from the St. John University in Vinovo (TO). She has been invited to teach at various Universities, including the George Washington University in Washington D.C. and the LUISS-Business School in Rome. From Nov. 1, 2013 she has been a Visiting Scholar at CalPoly, CA.

Di Pippo was knighted by the President of the Italian Republic in 2006 and, in 2008, the International Astronomical Union assigned the name "dipippo" to asteroid 21887, in recognition of her effort in space exploration.

Elliot Pulham has been the chief executive officer of the Space Foundation since 2001, and leads a premier team of space and education professionals providing services to educators and students,

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government officials, news media and the space industry around the world. He is widely quoted by national, international and trade media in coverage of space activities and space-related issues. Before joining the Space Foundation, he was senior manager of public relations, employee communication and advertising for all space programs of Boeing, serving as spokesperson at the Kennedy Space Center for the Magellan, Galileo and Ulysses interplanetary missions, among others. He is a recipient of the coveted Silver Anvil Award from the Public Relations Society of America - the profession's highest honor. In 2003, the Rotary National Awards for Space Achievement Foundation presented him with the coveted Space Communicator Award, an honor he shares with the late legendary CBS News Anchor Walter Cronkite and former CNN News Anchor Miles O'Brien. Pulham is a former Air Force Civic Leader and advisor to the Chief of Staff and Secretary of the Air Force and a recipient of the U.S. Air Force Distinguished Public Service Medal. He serves on the editorial board of *New Space Journal*.

Andre Rypl is a career diplomat who specializes in space affairs and is currently the head of the International Cooperation Office of the Brazilian Space Agency (AEB). He is a keen supporter of space diplomacy initiatives and has been actively involved in the discussions of the Working Group on the Long-term Sustainability of Outer Space Activities at the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), where he also coordinates the participation of the Brazilian delegation. Mr. Rypl additionally participates in discussions of other initiatives designed to ensure that only activities of a peaceful nature are conducted in the outer space environment, such as the European proposal of an International Code of Conduct for Outer Space Activities and the Prevention of an Arms Race in Outer Space initiative (PAROS).

Atsushi Saito is Director of Space Policy Division. He is concurrently the Senior Negotiator for International Security Affairs, National Security Policy Division and Director of Cyber Security Policy Division, Foreign Policy Bureau, Ministry of Foreign Affairs, Japan.

He joined the Ministry of Foreign Affairs in 1997, after graduating from Graduate school, Keio University. He received a MA degree in Economics.

Before assuming his current post in October 2015, Mr. Saito served as Senior Deputy Director and Senior Foreign Policy Coordinator, Policy Coordination Division, Foreign Policy Bureau (2014-2015).

He has experience as Executive Assistant to the Parliamentary Vice-Minister for Foreign Affairs (2007) and Deputy Director, Loan Aid Division, Economic Cooperation Bureau (2004), Western Europe Division (2005) and Economic Partnership Division, Economic Affairs Bureau (2008).

His overseas posts include First Secretary and Counsellor, Embassy of Japan in Indonesia (2012-2014) and First Secretary, Permanent Mission of Japan to the International Organizations in Geneva (2010-2012).

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Victoria Samson is the Washington Office Director for Secure World Foundation and has more than eighteen years of experience in military space and security issues. Before joining SWF, 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. Previously, Samson was the Senior Policy Associate at the Coalition to Reduce Nuclear Dangers and a researcher at Riverside Research Institute. Known throughout the space and security arena as a thought leader on policy and budgetary issues, Samson is often interviewed by multinational media outlets, including the New York Times, Space News, and NPR. She is also a prolific author of numerous op-eds, analytical pieces, journal articles, and electronic updates on missile defense and space security matters. Samson holds a Bachelor of Arts in political science with a specialization in international relations from UCLA and a Masters of Arts in international relations from the Johns Hopkins School of Advanced International Studies.

Dr. Michael K. Simpson is the Executive Director of Secure World Foundation. Dr. Simpson joined SWF as the Senior Program Officer in September 2011 following seven and a half years as President of the International Space University (ISU). Dr. Simpson holds a post as Professor of Space Policy and International Law at ISU. He is a member of the International Academy of Astronautics and the International Institute of Space Law and is a Senior Fellow of the International Institute of Space Commerce. After 23 years of service, Dr. Simpson retired from the Naval Reserve in 1993 with the rank of Commander.

Dr. Simpson's practical experience includes service as a Political Military Action Officer, observer representative to the UN Committee on the Peaceful Uses of Outer Space, participating organization representative to the Group on Earth Observations (GEO) and member of the Association of Space Explorers International Panel on Asteroid Threat Mitigation. He currently serves on the Commercial Spaceflight Safety and Space Security Committees of the International Astronautical Federation (IAF) and is a Vice Chair of the Hague Space Resources Governance Working Group. He sits on the governing board of the World Space Week Association, and is a governor of the National Space Society in the United States.

Frank A. Slazer is the Aerospace Industries Association (AIA) Vice President, Space Systems with responsibilities for all space related issues for the organization. His 30 year career has involved working on a wide range of civil and military space programs for a number of major aerospace companies including Northrop Grumman, the United Launch Alliance and Boeing.

He began his career as a propulsion engineer at McDonnell Douglas on the Delta Launch Vehicle in Huntington Beach, CA. Over the years, he held positions of increasing responsibility and transitioned from engineering to business development in 1986. In 1988, he was chosen by McDonnell Douglas to participate in the Conference Board/Brookings Institution Congressional Fellowship Program in

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Washington, D.C. After a year of working for North Dakota Congressman Byron Dorgan (who was later elected to the Senate), he moved to the McDonnell Douglas Washington office where, for six years, he was the company's principal representative on NASA's Space Station program.

In 1996 he relocated back to Huntington Beach when he was named Director of Business Development for Space Flight programs. In 1997, he was named Director, EELV/Delta IV Business Development – a position he retained following McDonnell Douglas' merger with Boeing. In 1998, after Boeing's EELV contract award, he headed USAF/DOD Sales in the new Delta Launch Services organization until 2001 when he was chosen to lead Boeing's Space Shuttle Business Development organization. In 2003, he transitioned back to lead civil space business development for Boeing Launch Services. He continued leading civil space sales after the formation of the United Launch Alliance joint venture between Boeing and Lockheed Martin until February 2008.

Prior to joining AIA in March 2011, for more than two years, he was the leading business development focal at Northrop Grumman in support of its space exploration and re-usable space launch new business pursuits. In addition to his responsibilities with his corporate employers, Frank has been President of the American Astronautical Society since 2007. His involvement with AIA's Space Council goes back to 1992 which he chaired in 2001 and 2002. His education includes both a BS in Aerospace Engineering and a BA in Political Science from Syracuse University, and an MBA from the Paul Merage School of Business at the University of California, Irvine.

Marcia S. Smith is President of Space and Technology Policy Group, LLC and founder and editor of the website SpacePolicyOnline.com. A veteran space policy analyst, Smith spent 31 years as a science and technology policy expert specializing in space activities at the Congressional Research Service (part of the U.S. Congress) except for a one-year leave of absence when she served as Executive Director of the 1985-1986 National Commission on Space chaired by former NASA Administrator Tom Paine.

After leaving CRS, she was Director of the Space Studies Board and of the Aeronautics and Space Engineering Board at the National Research Council, the operating arm of the National Academies of Sciences, Engineering and Medicine. She left the NRC in 2009 to found her own consulting company and create a website providing objective information and analysis about the full range of domestic and foreign space programs and policies – SpacePolicyOnline.com.

Among her professional activities, she is a Fellow of the American Institute of Aeronautics and Astronautics (AIAA), a Fellow of the American Astronautical Society (AAS), and the North American editor of the quarterly journal *Space Policy*.

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Charity Weeden joined the Satellite Industry Association as its Senior Director of Policy in February 2016. In this role, Weeden supports SIA's work on government services, regulatory, legislative, defense, export-control and trade issues of critical importance to the Association's members.

Prior to joining SIA, Weeden was co-founder and President of Lquinox Consulting LLC, an independent space and data management consulting company that fosters international partnerships and provides expert advice on the economic, security, scientific, and societal benefits of satellite applications. Weeden completed a distinguished 23-year career in the Royal Canadian Air Force, most recently as Assistant Attaché of Air & Space Operations for the Canadian Defence Liaison Staff in Washington, where she worked closely with U.S. government and industry as well as the Washington embassy community. She started her career as a CP-140 (P-3) maritime patrol Air Navigator, conducting airborne maritime surveillance operations followed by two tours in space operations and policy, including experience as Deputy Sensor Manager for the U.S. Space Surveillance Network, providing space policy inputs to NORAD and USNORTHCOM leadership, and serving on the International Space Station robotics management team.

Weeden holds a Master of Science, Space Studies from the University of North Dakota and graduated from the Royal Military College of Canada with a Bachelor of Engineering Degree in Mechanical Engineering. Weeden also earned Brookings Executive Education's (BEE) Certificate in Policy Strategy and a Certificate, Interdisciplinary Space Studies from the International Space University.

Sarah Telford has worked for the United Kingdom's Foreign and Commonwealth Office for the past thirteen years in a variety of policy roles. Telford is the Second Secretary for Counter Proliferation, Arms Control and International Security at the British Embassy in Washington.