



**UNIDIR**

# **UNIDIR Space Security 2014 Conference**

**The Evolving Space Security  
Regime: Implementation,  
Compliance, and New Initiatives**

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**UNIDIR RESOURCES**

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# **UNIDIR Space Security 2014 Conference**

## **The Evolving Space Security Regime: Implementation, Compliance, and New Initiatives**

### **Conference Report**

19–20 March 2014, Geneva, Switzerland

Organized by the United Nations Institute for Disarmament Research in collaboration with Secure World Foundation and The Simons Foundation.

With support from the governments of Canada, the People’s Republic of China, the Russian Federation, and the United States of America.

### **Introduction**

UNIDIR held its 2014 Space Security Conference entitled “The Evolving Space Security Regime: Implementation, Compliance, and New Initiatives” on 19–20 March 2014 in Geneva, Switzerland. The conference was organized in collaboration with Secure World Foundation and The Simons Foundation with the support of the governments of Canada, the People’s Republic of China, the Russian Federation, and the United States of America. The conference presented an opportunity for states and relevant stakeholders to discuss how to take pragmatic steps towards a more stable and predictable outer space environment and to discuss how to support the existing space security regime including an examination of implementation of and compliance with existing, proposed, and future space security instruments.

### **The 2014 Space Security Context**

Due to wide-ranging applications including telecommunications, Earth observation, navigation, and weather forecasting, the world is increasingly dependent on space-based services and the space domain. As such, it is clear that any destabilization of the space environment or disruption to space-based services has the potential to cause far-reaching instability in nearly all states around the world.

In 2013 many space security processes concluded or passed key milestones. These include the conclusion of the Group of Governmental Experts on trust and confidence-building measures (TCBMs) in outer space activities, the conclusion of the first phase of the work of the Long-term Sustainability of Space Activities Working Group of the Committee on the Peaceful Uses of Outer Space (COPUOS) and the commencement of open-ended consultations on the proposal for an International Code of Conduct for outer space activities. In light of these developments, the 2014 Space Security Conference was an opportune forum for discussion on how best to implement already agreed space initiatives, for dialogue on how better to increase adherence to existing legally binding tenets of the space security regime, and for exploration of the way ahead on the future development of space security instruments.

Additionally, the expected release of a new draft of a space security-focused treaty and other work of the Conference on Disarmament, as well as various General Assembly resolutions on the prevention of space conflict, demonstrate that the international peace and security implications of space activities are of growing importance to the international community.

In light of these constructive developments, it is key that participation of the international community in developing a stable and resilient space security regime be as broad and inclusive as possible. This conference, as in previous years, contributes to inclusive discussion and progress by supporting dialogue and working to build increased understanding of space security issues among Geneva-based diplomats, policymakers in capital, as well as civil society representatives and experts.

## PROCEEDINGS

### Seminar Chair

- **Mr. Ben Baseley-Walker**, Programme Lead, Emerging Security Threats, UNIDIR

### Welcoming Remarks

- **Ms. Theresa Hitchens**, Director, UNIDIR  
“The Evolving Space Security Regime: Implementation, Compliance and New Initiatives”

Ms. Hitchens opened the conference by welcoming all panellists and participants. To her, the UNIDIR Space Security Conference represents one of the primary forums for discussion at the multilateral level on the policy and politics of space security. The international community is at a critical juncture in many space-related discussions—2013 has seen the negotiation and advancement of several space initiatives. It is imperative to examine and question how effectively the international community has implemented previous agreements such as the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the Outer Space Treaty), and how the international community can move forward on current recommendations such as those found in the 2013 consensus report of the United Nations Group of Governmental Experts (GGE) on transparency and confidence-building measures (TCBMs) in outer space activities. Ms. Hitchens affirmed that this conference and the discussions undertaken may provide a strong reference point from which the international community can reflect on past

achievements, identify remaining gaps, and explore the required measures in the pursuit of a stable space security regime.

### **Panel 1: Space Security Perspectives**

- **Amb. Wu Haitao**, Ambassador for Disarmament Affairs and Deputy Permanent Representative to the United Nations Office at Geneva and other International Organizations in Switzerland, People's Republic of China
- **Mr. Vladimir Yermakov**, Deputy Director of the Department for Security Affairs and Disarmament, Ministry of Foreign Affairs, Russian Federation
- **Mr. Chris Buck**, Chargé d'affaires ad interim, United States delegation to the Conference on Disarmament

The first panel, entitled "Space Security Perspectives", provided the Chinese, Russian, and American national interpretations of current challenges and opportunities in the pursuit of a stable space environment. The first panellist, Amb. Wu, focused on the role of the People's Republic of China in the realm of outer space security. He began by stressing that in order to ensure the benefits of outer space exploration for the world, the maintenance of peace in outer space is essential. In pursuit of this, Amb. Wu felt that preventive measures must be taken to avoid the risk of outer space weaponization. To highlight the contribution of the People's Republic of China and the Russian Federation to the prevention of such weaponization, he cited their February 2008 submission of the draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPWT) to the Conference on Disarmament (CD).

Amb. Wu affirmed that the creation of a stable, sustainable outer space environment was a common responsibility shared by all states. He emphasized the practicality and usefulness of the conclusions and recommendations of the GGE on TCBMs and stressed that mutually beneficial international cooperation in supporting the peaceful uses of outer space is a solid foundation for common development. However, it was noted that more extensive and substantive international exchanges and cooperation should be encouraged in this realm. The ambassador concluded by affirming that the People's Republic of China is committed to the use and peaceful exploration of outer space and looks forward to strengthening space capacity-building through cooperation and exchanges.

The presentation by Mr. Yermakov examined current proposals for international agreements and multilateral treaties related to space security. He outlined four interrelated initiatives that are important to the space security field: (1) the promotion of the PPWT; (2) awareness-raising about the No First Placement of Weapons in Outer Space (NFP) initiative; (3) the implementation of the recommendations from the GGE on TCBMs; and (4) continuing discussion on the European Union initiative on an International Code of Conduct (ICOC) for outer space activities. Mr. Yermakov affirmed that the Russian Federation sees the PPWT as a strong foundation for discussions and progress on identifying where gaps remain and what measures need to be agreed upon for the next stages of building a stable and enduring space security regime. He stressed the benefits of the proposed treaty, in particular the fact that it would remove many concerns about the possible placement of offensive weapons in outer space. In his view, the PPWT could therefore become a landmark treaty in moving towards universal and complete outer space disarmament and promoting a solution to other problems in the sustainability of space activities.

Mr. Yermakov also informed participants that the Russian Federation and the People's Republic of China are finalizing a new draft of an updated PPWT which will reflect recent comments and observations made by interested states. The new draft is expected to be submitted during the 2014 CD session. As a final remark, Mr. Yermakov explained that an important practical step towards the fundamental goals of the PPWT is the Russian NFP initiative, a draft of which the Russian Federation intends to submit to the sixty-ninth session of the United Nations General Assembly.

Adding the American perspective on space security to the panel, Mr. Buck focused on the provision of recommendations to the international community that could increase trust and confidence among space-faring states. He considered that several steps can be taken to ensure the long-term sustainability of space activities, such as implementing and following international guidelines to mitigate space debris and increasing cooperation on orbital collision avoidance. He suggested that one first step potentially could be for states to increase state-to-state engagement on space activities. Mr. Buck explained that the United States is an active participant in many space endeavours, including extensive participation in bilateral expert workshops, multinational technical exchanges, and the United Nations Committee on the Peaceful Uses of Outer Space.

Mr. Buck stressed as a second step the necessity of building a climate of trust and confidence in space by encouraging the implementation of information-sharing measures that might provide clarity of intent about military space activities and avoid potentially catastrophic misunderstandings or miscalculations. One example of such information-sharing is the publication of national space policies, strategies, and budgets for military space activities—which is done by the United States and a number of other states. Thirdly, the pursuit of multilateral commitments should be encouraged to promote responsible action in and peaceful use of outer space. Mr. Buck added that the United States supports and participates in the EU effort to develop an ICOC. Furthermore, he indicated that the United States would welcome future sessions of the General Assembly First Committee to discuss the implementation of specific bilateral measures such as exchanges of information on military space activities, provision of space flight safety notifications to other space-faring states, and multilateral work on an ICOC. To conclude, Mr. Buck suggested that discussions at the sixty-ninth session of the General Assembly could address the possibility of a joint ad hoc meeting in 2014 between the First and Fourth Committees to address challenges to space security and sustainability.

The discussion following the panel examined key issues related to outer space security, including the implementation of verification mechanisms. One participant argued that space debris is a more urgent risk than weaponization and therefore should be the focus of multilateral processes. Various participants discussed the utility of verification mechanisms in outer space—one participant found such mechanisms not to be cost effective.

## **Panel 2: Space Stability 101—A Policy Perspective**

- **Mr. Anatoly Zak**, Publisher of russianspaceweb.com and author of “Russia in Space: The Past Explained, The Future Explored”  
“Anti-Satellite Weapons (ASATs): History and Definitions”
- **Mr. Giacomo Mazzone**, Head of Institutional Relations, European Broadcasting Union, on behalf of **Mr. Abdelrahim Suleiman**, Technical Director, Arab States Broadcasting Union  
“The Realities of Radio Frequency Interference”

- **Ms. Theresa Hitchens**, Director, UNIDIR  
“Debris Removal/Rendezvous and Proximity Operations: Looking at Policy Implications”
- **Ms. Victoria Samson**, Washington Office Director, Secure World Foundation  
Keynote: “The Challenges to Implementing Space Agreements: A Context”

Panel 2, entitled “Space Stability 101—a Policy Perspective”, explored the fundamental challenges to securing a stable space environment. The first presenter, Mr. Zak, examined the technological progression and development of anti-satellite (ASAT) weapons systems. He began his presentation by explaining that the line is extremely blurry between anti-satellite technology and anti-missile technology. Despite widespread scepticism among military specialists about the viability of ASAT systems, many methods for destroying satellites were developed and tested during the Cold War.

In providing a history of American ASAT efforts, Mr. Zak explained that several programmes were successfully developed though not implemented. Only a few were deployed, such as programmes 505 and 437, involving the Nike Zeus anti-ballistic missile with a range of up to 550km and the PGM-17 Thor ballistic missile with a range of up to 1,300km. He also explained that the Soviet Union built and deployed a “co-orbital spacecraft”—a vehicle that could enter orbit, manoeuvre towards a target, and detonate producing destructive shrapnel. He suggested that this theoretical target could be a satellite. While this programme was regularly updated, it was finally replaced by a newer generation ballistic system at the end of the 1980s.

Mr. Zak concluded by stating that three states have demonstrated ASAT capabilities—the United States, the Russian Federation, and the People’s Republic of China—while two others—Israel and India—are developing such systems.

The following presenter, Mr. Mazzone, spoke on behalf of Mr. Abdelrahim Suleiman. He focused on the distinction between unintentional and deliberate satellite interference. According to Mr. Mazzone, radio frequency interference has mainly occurred in the Middle East and North Africa due to the extensive use of satellites and a recent substantial increase in broadcasting channels. To address this issue, the European Broadcasting Union created an international group that seeks to distinguish between unintentional and deliberate interference events. Mr. Mazzone went on to explain that tackling the problem of interference could be handled by training, however distinguishing between unintentional and deliberate interference events is a difficult task that is marred by a lack of good faith and cooperation among international partners.

To illustrate the severity of satellite interference, Mr. Mazzone identified two consequences of such activity: (1) economic consequences—because deliberate interference impacts satellite signals, it can affect all channels carried on the affected transponder, which can disrupt economic activity; and (2) consequences for human rights—deliberate interference can temporarily disrupt the free flow of online content and public access to information and programmes. This second consequence is politically delicate, as the use of deliberate interference affects entire regions and not simply specific areas within the confines of a particular state. Therefore, the Satellite Interference Forum was created on the initiative of the Arab States Broadcasting Union. The goal of the forum is to bring together important satellite operators, to distinguish between intentional and unintentional interference and to raise awareness about interference among involved institutions and stakeholders. The underlying goal is to legally establish, nationally and internationally, a solution that could

ban or at least hold accountable those who conduct deliberate interference. To conclude, Mr. Mazzone said that the next step for his organization will be to bring the issue of radio frequency interference to the International Telecommunication Union and to develop a code of conduct for professionals of the broadcasting community.

The following presenter, Ms. Hitchens, provided an overview of the challenges and opportunities involved in space debris removal. She began by affirming that space debris is the greatest threat to space sustainability: there are currently some 10,000 pieces of debris larger than 10cm in orbit, including 3,300 intact objects in low Earth orbit, and millions of smaller pieces. The problem is further compounded by the rapidly increasing amount of debris, especially in low Earth orbit. In her view, in the future, active debris removal (ADR) will be a necessary part of satellite protection and the sustainability of low Earth orbit. She proceeded to explain the long-term objective of ADR: to stabilize growth in the debris population, to reduce the threat of collision with space debris for active satellites, and to maximize the potential for innovation in outer space technology such as extending the life of satellites. To illustrate this, Ms. Hitchens described the Swiss programme Clean-mE, which aims to increase awareness and responsibility regarding orbital debris, demonstrate ADR technologies, and remove pieces of debris from orbit.

Despite such benefits, high costs and technological difficulties are substantial hurdles for ADR in addition to various political, legal, and security challenges—if not conducted in a transparent and collaborative manner, ADR may lead some space actors to perceive additional threats to their space security, as anything that can rendezvous or dock with a satellite can arguably also be used as a weapon. She concluded by stating that the international community needed more studies from the technical community on feasible technological options for ADR.

The discussion period explored the issue of deliberate satellite interference. One participant asked for a current state-of-play on international deliberate satellite interference; in other words, what is the problem today as regards this type of interference? Another participant answered that currently, deliberate interference appears mainly in crisis regions throughout the world. One participant inquired as to when interference reaches a ‘harmful’ level for satellite broadcasters. One response was that the ITU has a working definition for ‘harmful interference’. Furthermore, it was noted that the ITU Constitution, which has treaty status, contains a set of rights and responsibilities for satellite operators that requires operators to avoid interference and to intervene to correct any unintentional interference. However it was suggested that the ITU lacks mechanisms for sanctioning those who engage in deliberate, harmful interference. It was also noted that the international community has witnessed a rise in incidences of deliberate and harmful interference, and therefore the issue of interference is likely to become increasingly important to the ITU and other relevant stakeholders.

Ms. Samson presented on the challenges the space community encounters when applying international agreements. She began by outlining some important differences in opinion within the space community, including varying priorities and interests among space actors and divergent views on the best forums and processes with which to approach space issues. She argued that the success of negotiations at the multilateral level depends on widespread acceptance of the negotiations’ content among all space actors, which raises the problem of including all actors at the negotiating table and navigating political challenges domestically in each involved state. Such negotiations can also be weakened as long as commercial entities are not represented or their input is not incorporated into national positions.



### **Panel 3: International Space Security Measures—Assessing Policy Impact**

- **Prof. Li Juqian**, China University of Political Science and Law  
“Reviewing the Space Treaties”
- **Prof. Richard Crowther**, Chief Engineer, United Kingdom Space Agency  
“Debris Mitigation Guidelines: Moving Towards Effective Impact?”
- **Mr. Ben Baseley-Walker**, Programme Lead, Emerging Security Threats Programme, UNIDIR  
“GGE: Looking to the Future of Implementation”

Panel 3, entitled “International Space Security Measures: Assessing Policy Impact”, evaluated the strengths and weaknesses of international treaties, agreements, and conventions. Prof. Li provided a review of legally binding international space security measures. He explained that the most significant steps were made in the 1960s and 1970s, such as the Outer Space Treaty (1967), the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1967), the Convention on International Liability for Damage Caused by Space Objects (1972), the Convention on Registration of Launched Objects into Outer Space (1974), and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979). In order to explain the pioneering role of the Outer Space Treaty, Prof. Li listed its three main tenets—no appropriation of outer space (articles 1 and 2); maintaining international peace and security and promoting international cooperation (article 3); and restricting the placement in outer space of weapons of mass destruction (article 4). Additionally, rules in the area of responsibility in space activities are clearly established by the principles of responsibility and liability mentioned in articles 6 and 7, as well as by the Rescue Agreement and the Liability Convention.

Although these treaties are important achievements of the international community in the realm of space activity, Prof. Li felt that they are no longer sufficient as many developments occurred after 1979 that are not reflected in these treaties, including increasing space debris and the fast-paced evolution of space weaponry and related technologies. Prof. Li saw the lack of rules on recent issues such as space debris and the commercialization of space activities as cause for concern. As a potential solution, he envisaged the utilization of two tools: legally binding frameworks such as treaties and international customary law, and non-binding rules such as guidelines and an ICOC. He felt that priority should be on building consensus in the international community, as non-binding rules are a necessary first step that may allow the international community to move towards legally binding frameworks.

Prof. Crowther presented on issues related to space debris. He explained that currently there are more than 16,000 catalogued objects in outer space such as operational space craft, rocket bodies, mission-related objects, defunct space craft, and fragments due to past collisions or explosions. In light of this information, Prof. Crowther stressed that there is a real possibility of collision between these objects. He explained that fragmentation in outer space is produced from the break-up of an object where the resultant debris will tend to follow the trajectory of the original object and continue to split over time. Therefore, the dispersion of such debris is unavoidable unless an object is struck at a very low altitude, so that the debris quickly burns up in the atmosphere.

In light of these realities, Prof. Crowther explained that a priority in space debris mitigation is to avoid large objects breaking into very small pieces, which would produce millions or even billions of untraceable pieces of debris. The Space Debris Mitigation Guidelines provide technical solutions to the problem of space debris such as removing rocket bodies and

defunct spacecraft, avoiding the production of mission-related debris, and minimizing potential for fragmentation, all while protecting operational spacecraft. Prof. Crowther affirmed that managing the debris environment does work and that information on this topic must be shared among operators. He concluded by stating that it is necessary to focus efforts on the cause of space debris rather than just its effects and to ensure that best practice becomes common practice.

Mr. Baseley-Walker focused on the work of the GGE on TCBMs and presented ways to avoid repetition, competition, and potentially conflicting directions among the various initiatives with which the international community is dealing. He began by listing the four goals highlighted by the GGE: (1) continuing dialogue; (2) changing behaviour, for example by putting in place actions at the multilateral level that contribute to stability and security within the space community; (3) laying down parameters of definitions (e.g. what a TCBM in space or the next generation of space security might look like); and (4) supporting existing space security regimes, for example looking at how the United Nations guidelines on space debris mitigation or the existing legal treaties can be supported. Mr. Baseley-Walker expressed concern about the realities of translating words into deeds when these goals are employed in the multilateral context. He raised several questions. How does one interpret the tenets of the GGE into clear action that can define the future of space security? How does one guarantee the complementarity of the TCBM recommendations? How does one assess implementation? He explained that a key step for verifying the direction that states are taking on TCBMs and how they are rendering them into clear, verifiable action is to make sure that the positions taken are expressed clearly.

Mr. Baseley-Walker moved on to explain the value of implementation. In his view, the GGE laid out a comprehensive foundation for a next step. Therefore, it is crucial to make sure that this document will have real impact on issues related to space security and stability. He concluded by stating that it is important to clarify what is and what is not a TCBM in space activities, to understand how TCBMs are included in legally and non-legally binding documents, and to have a clear idea of what implementation means as opposed to simply discussing the nature of what we might like to implement.

#### **Panel 4: Regional Perspectives on Issues Affecting Space Security and Stability**

- **Dr. Natália Archinard**, Deputy Head of Education, Science and Space Section, Federal Department of Foreign Affairs, Switzerland  
“Switzerland: The View of Small, Space-Dependent Countries”
- **Dr. Jiyoung Park**, Research Fellow and Director, Science and Technology Policy Center, Asan Institute for Policy Studies, and Deputy Director, Asan Nuclear Policy and Technology Center  
“South Korea”
- **Ms. Victoria Samson**, Washington Office Director, Secure World Foundation  
“South Asia Perspectives”

Panel 4 explored the perspectives on space security and stability of Switzerland, the Republic of Korea, and India. Dr. Archinard explained Swiss involvement in space activities, including extensive cooperation with the European Space Agency (ESA) and the 2012 creation of the Swiss Space Centre, which brings together space stakeholders from the academic and private sectors. To illustrate her point, she provided examples of Swiss space

activities, including scientific and technological contributions to almost all ESA programmes, and the CHEOPS project, a space telescope to be placed in orbit in 2017.

Dr. Archinard reaffirmed that Switzerland stands against the placement of weapons in outer space and supports the development of legally binding instruments to regulate such action. In addition, Switzerland believes that new international instruments are necessary to address the rapidly changing field of space activities, especially given the diversity of threats. Consequently, Dr. Archinard mentioned that Switzerland is open to discussing all relevant proposals and will continue to engage in the development of international instruments to ensure the stability, security, safety, and sustainability of outer space. She concluded her remarks by noting that the recommendations of the GGE should be taken into account in the elaboration of these instruments and that channels of communication should be established between the CD, or “disarmament” community, and COPUOS, or “peaceful uses” community.

Dr. Park elaborated on the current status of space development in the Republic of Korea. The space programme has made remarkable progress in recent years, especially in the development of space technologies, with the first satellite launched in 1992 and 12 more expected to be launched by 2025.

However, despite much of this progress, Dr. Park sees several issues that must be addressed as regards space exploration and space security. As funding remains a major source of concern, Dr. Park provided some suggestions for the Korean government in terms of raising the necessary capital: gaining more consent from taxpayers to invest in space technology development, and encouraging voluntary investment from industries. Dr. Park further explained that the Republic of Korea hoped that outer space would not be controlled by only a few developed states, such is the case in the nuclear domain.

Ms. Samson focused on India’s space programme. She first explained that it began as a means to improve the daily life of the populace. However, the state has recently adopted a more militarized attitude, evidenced both by the funds and effort spent on adding military elements to the space programme, as well as several guidance documents emerging from the Indian Defense Research and Development Organization. In this perspective, Ms. Samson sees India using its space efforts as part of a larger effort to establish its leadership in Asia and counter the People’s Republic of China’s increasing political and regional power.

Analysing Indian interpretations of international initiatives related to outer space security, Ms. Samson explained that many in India believe that the ICOC has been promoted by Western states at the expense of other states and that the lack of verification mechanisms is a cause for concern. She concluded by explaining that India has been trying to become a full partner in international discussions on space security as opposed to being presented with documents that others have already negotiated. This suggests the positive development of future cooperative approaches to space security and recognition of India’s responsibility as a major space player.

The discussion period explored the respective situations of India and the Republic of Korea regarding ASAT intentions and international partnerships. One participant asserted that India has consistently opposed the weaponization of space, and supported the role of legally binding agreements. According to another participant, information-sharing should encompass two crucial domains: flight data and space policy.

## Panel 5: Current Initiatives Under Discussion: Status Update

- **Dr. Peter Martinez, Chair**, Working Group on the Long-Term Sustainability of Outer Space Activities, COPUOS  
“COPUOS Long-term Sustainability of Space Activities Working Group: Post-2015 Impacts”
- **Amb. Jacek Bylica**, Principal Advisor and Special Envoy, Non-Proliferation and Disarmament, European External Action Service, European Union  
“ICOC: A Status Update”
- **Mr. Andrey Malov**, First Counsellor, Disarmament and Political Affairs, Permanent Mission of the Russian Federation to the United Nations and other International Organizations in Geneva, and Mr. Andrey Belousov, Head of Division for Multilateral Disarmament, Department for Security and Disarmament Affairs, Ministry of Foreign Affairs, Russian Federation  
“The Rationale for the PPWT and the Principle of No First Placement of Weapons in Space”

Panel 5, entitled “Current Initiatives under Discussion: Status Update”, outlined the present situation of international agreements on space security. Dr. Martinez, detailed the composition of COPUOS, which he defined as the principal international forum for the development and codification of laws and principles governing the activities of states in outer space. He mentioned that the committee currently comprises 76 Member States and a large number of permanent observers. The technical work of the committee is carried out by the Legal Subcommittee and the Scientific and Technical Subcommittee. In 2010, the Scientific and Technical Subcommittee established the Working Group on the Long-Term Sustainability of Outer Space Activities, tasked to consider current practices, operating procedures, technical standards, and policies associated with the long-term sustainability of outer space activities. In addition, four expert groups were subsequently created and tasked to contribute inputs to the report of the working group and to propose candidate guidelines for consideration. Reviewing the progress made this year, Dr. Martinez mentioned that a total of 33 guidelines with legal implications, not all legally binding, were proposed by the expert groups for consideration by the working group.

The manner in which COPUOS is addressing the issue of long-term sustainability is indicative of a new mode of multilateral norms-setting and rule-making for space actors based on voluntary “soft law” instruments. A number of states have expressed concern that such voluntary instruments are inherently fragile, and would not prove effective. However, guidelines that are not legally binding can be politically binding. Moreover, given the lack of consensus on the need to develop new legally binding instruments, the development of a voluntary framework provides a pragmatic alternative to address the pressing issue of space sustainability. According to Dr. Martinez, the COPUOS Long-Term Sustainability of Space Activities Guidelines have the advantage of being the result of a multilateral consensus-based process and will therefore have a greater chance to be implemented by a wide range of space actors.

Amb. Bylica gave an update on the current situation of the ICOC and expanded on its expected future benefits. He defined the conceptual framework through which the EU initiative for the ICOC can be considered—one step on the long road towards developing and codifying international norms. According to Amb. Bylica, a great convergence continues to be seen between this process and many ongoing activities within the United Nations system, including COPUOS, and most recently with the work of the GGE on TCBMs,

which unanimously endorsed the value and timeliness of a multilateral space code of conduct. Initially, the EU proposed an ICOC in 2007 in a response to the United Nations Secretary-General's letter soliciting proposals for TCBMs in outer space activities, following resolution 61/75. The latest version of the draft text of the ICOC was first presented to the international community in Vienna in June 2012. The EU was then called upon to develop the ICOC initiative in a more transparent and inclusive manner, and thus embarked on a process of open-ended consultations, two instances of which have been held so far: in May 2013 in Kiev, Ukraine (61 participating states) and in November 2013 in Bangkok, Thailand (66 participating states). In September 2013, the EU unveiled a revised draft of the Code, taking into account many of the suggestions voiced by the participants in the Kiev OEC meeting. It is the view of the EU that an ICOC would only bring the necessary benefits to the international community if it is comprehensive in scope through applying to all activities in outer space, regardless of their nature. Amb. Bylica concluded by stating that the EU was preparing both a revised draft text, which should be distributed at the end of March 2014, and the third instance of the open-ended consultations, to be held at the end of May 2014.

Mr. Malov explained the logic and reasoning behind the Russian Federation's support and formulation of the PPWT and NFP initiatives. His first set of comments focused on space-based weapons, which according to him should be considered as a new kind of strategic weapon that could potentially be employed. He added that the presence of space-based weapons would make it impossible to seriously discuss the security and the long-term sustainability of outer space. Mr. Malov also tackled the notions of verification, compliance, and sanctions. He said that verification procedures could only be preventive and include collective data exchange and information analysis. He emphasized that compliance with a PPWT regime would be stimulated by the political understanding that in the case of violation, negative international implications will substantially outweigh the benefit of breaking the regime. Finally, he concluded by stating that the political consequences for a violator of the NFP initiative would also always outweigh the potential benefits of violation.

Adding to Mr. Malov's presentation on the Russian Federation's perspectives on space security, Mr. Belousov conceptualized the security of outer space as a complex, multi-component system. He described his state's official position on this issue: no serious discussion on the security of outer space activity is possible unless it is assured that weapons will not be placed in outer space in the near future. In his view, the Outer Space Treaty is not sufficient to regulate the issue of weaponizing outer space and the potential arms race such an action would cause because it does not explicitly cover conventional weapons or new technological advances in weaponry. To conclude, Mr. Belousov explained that the Russian Federation was working on raising international awareness of the NFP initiative.

The discussion following centred on the definition, or lack of definition, of a space weapon and the need for verification mechanisms. One participant mentioned that the definition of a space weapon should focus on the weapon's capability rather than its nature, while another participant stated that such a definition was a sensitive issue that should be addressed in the new PPWT draft. The importance of verification mechanisms was equally underlined by some as a necessary prerequisite for the security of space and the effectiveness of treaties.



## Panel 6: NGO Perspectives

- **Amb. (retd.) Paul Meyer**, Senior Fellow, The Simons Foundation  
“Space Security and Diplomatic Disconnect: A Canadian Perspective”
- **Ms. Caroline Baylon**, Research Associate, International Security, Chatham House  
“A Review of the Chatham House Space and Cyber Linkages Project”
- **Ms. Beatrice Fihn**, Manager, Reaching Critical Will  
“Moving Beyond Documents to Action”

Panel 6, entitled “NGO Perspectives”, provided an update on the viewpoints, projects, and expectations of non-governmental organizations (NGOs) working on space security. Opening the conversation, Amb. Paul Meyer focused his remarks on the progress of diplomatic negotiations. He began by explaining that he sees a stark contrast between word and deed in multilateral forums dealing with space security. Despite the asserted intentions of states to prevent an arms race in outer space, he felt that very little has been done to respond to this threat. He also explained that there have been, over the last decade, a handful of diplomatic initiatives regarding space security—or instance, the Russian Federation has been the initiating force behind a series of General Assembly resolutions promoting consideration for TCBMs in outer space. Moreover, Amb. Meyer saw resolution A/RES/68/29 on prevention of an arms race in outer space (PAROS) as very action oriented and, in several places, quite prescriptive as to what should be done, clearly indicating that further measures are needed, that bilateral and multilateral agreements are part of such measures, and that limiting the weaponization of outer space is a core element of the prevention of a space arms race.

Providing recommendations on current initiatives related to outer space security, Amb. Meyer expressed some concern regarding the NFP Initiative, which could be conceptualized as an invitation to preemptively develop space weapons in order to be in a position to react quickly after one state has become the first to place weapons in space. He preferred a multilateral pledge not to weaponize outer space at all. In this context, the International Code of Conduct was described as a diplomatic vehicle that other supporters of space security initiatives should consider utilizing if they wish to see a debate on their specific proposals. He also suggested that it may be time for a meeting of states parties to the 1967 Outer Space Treaty to review its implementation and the prospects for reinforcing its core legal regime with some additional measures, such as those expressed in PAROS. Finally, he concluded by stating that the international community, including the expanding group of non-governmental stakeholders in space, cannot afford further delay and prevarication regarding action to enhance space security.

Ms. Baylon presented Chatham House’s work on the intersection of cyber and space security, a project based on commonalities between the two realms and the idea that space components have become an integral part of cyberspace. Ms. Baylon explained that cyberattacks on satellite infrastructure are a growing concern for the international community. The most common form of these attacks is jamming, for example where false Global Positioning System (GPS) signals are created to overpower the real GPS signals of a given satellite. She also mentioned spoofing, a second form of cyberattack on satellites, which is the act of deceiving the GPS receiver into tracking counterfeit GPS signals. Ms. Baylon emphasized the potential catastrophic consequences of jamming and spoofing, such as interfering with the functioning of banks and stock exchanges; and disrupting civil aviation systems, law enforcement, and emergency service communications. As for policy recommendations, different methods to strengthen GPS resilience were mentioned. Some examples include altering GPS receivers to make it easier to detect a spoof attack, lowering

the prices of atomic clocks, which would reduce problems with jamming of mobile phones, or using eLoran, i.e. ground-based radio signals, as a complementary technology.

Ms. Fihn provided some perspective on the multilateral processes devoted to space security. She defined the well-being of the space environment as an issue of global concern because its socioeconomic and humanitarian implications affect ordinary people whose lives depend on space-based technologies. Ms. Fihn then tackled the issue of actors involved in negotiations related to space security. She specified that it was necessary to encourage discussions in forums where a broader diversity of states can participate, and insisted on the involvement of international organizations, NGOs, civil society, and the private sector. These kinds of political processes were described as part of a larger movement where consultations and negotiations in and of themselves can build confidence, increase transparency, and have a positive impact on a wide spectrum of issues. To conclude, the constructive dimension of consultations on an ICOC, the draft PPWT, and the discussions at COPUOS was emphasized, as well as the need to advance these discussions into concrete results.

### **Concluding Remarks**

Mr. Baseley-Walker highlighted a key challenge for the international community: reaching consensus on space security issues while simultaneously mitigating crises. In looking ahead, he stressed the importance of communication and cooperation at the multilateral level, the necessity of involving a wide range of stakeholders in multilateral forums, and translating key space processes into action. As a closing remark, he thanked the panellists and attendees for their contributions.



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## **UNIDIR Space Security 2014 Conference**

### **The Evolving Space Security Regime: Implementation, Compliance, and New Initiatives**

UNIDIR held its 2014 Space Security Conference entitled “The Evolving Space Security Regime: Implementation, Compliance, and New Initiatives” on 19–20 March 2014 in Geneva, Switzerland. The conference was organized in collaboration with Secure World Foundation and The Simons Foundation with the support of the governments of Canada, the People’s Republic of China, the Russian Federation, and the United States of America. The conference presented an opportunity for states and relevant stakeholders to discuss how to take pragmatic steps towards a more stable and predictable outer space environment and to discuss how to support the existing space security regime including an examination of implementation of and compliance with existing, proposed, and future space security instruments.