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Conference on Disarmament

23 August 2011

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Letter dated 21 June 2011 from the Permanent Representative of Canada to the Conference on Disarmament addressed to the Secretary-General of the Conference transmitting the summary report on the tenth annual space security conference entitled Space Security 2011: Building on the Past, Stepping toward the Future, organized by the United Nations Institute for Disarmament Research (UNIDIR) in April 2011

It is my pleasure to forward to you a copy of the summary report on the 10th Annual Space Security Conference organized by the United Nations Institute for Disarmament Research. This conference, which took place in April 2011, was entitled: *Space Security 2011: Building on the Past, Stepping towards the Future.*

The Canadian Mission would be grateful if this report could be issued as an official document of the Conference on Disarmament and distributed to all Member States to the Conference as well as to Observer States participating in the Conference.

(*Signed*): Marius Grinius
Ambassador
Permanent Representative
to the Conference on Disarmament

Space Security 2011: Building on the Past, Stepping towards the Future[1]

1. "Space Security 2011: Building on the Past, Stepping towards the Future" was the tenth annual conference in the series organized by the United Nations Institute for Disarmament Research on the issue of space security, the peaceful uses of outer space, and the prevention of an arms race in outer space (PAROS).

2. The purpose of this conference series is to broaden and deepen the debate on the need to prevent an arms race in outer space and to foster space security for the future and, in line with UNIDIR's mandate, to promote informed participation by all states in disarmament efforts and to assist delegations to the Conference on Disarmament (CD) in preparation for possible substantive discussions on PAROS. Since the first conference was held by UNIDIR on this issue in 2002, these conferences have received the financial and material support of a number of Member States, foundations and non-governmental organizations, demonstrating the broad and sustained political support for these discussions.

3. The conference comprised six panel discussions, each followed by question and answer sessions:

(a) The Threats—Today and Tomorrow;

(b) Ongoing Processes and Proposals—Next Steps;

(c) Incorporating Today's Tools into Future Regimes;

(d) The Verification Challenge—The Art of the Possible;

(e) Cross-institutional Cooperation—Linking and Learning; and

(f) Engaging Critical Actors.

4. The conference convened in Geneva, Switzerland, at the Palais des Nations on 4–5 April 2011. The meeting was organized by UNIDIR with the assistance of Secure World Foundation and The Simons Foundation and was supported financially and materially by the Governments of Canada, the People's Republic of China, the Russian Federation and the United States of America, as well as by the Secure World Foundation and The Simons Foundation. Conference participants included representatives from UN and CD member states, CD observers, non-governmental organizations and civil society.

OPENING REMARKS

Mr. Sergei Ordzhonikidze
Director-General of United Nations Office at Geneva

5. The conference was opened with remarks from Mr. Sergei Ordzhonikidze. He welcomed the opportunity to participate in another UNIDIR conference and pointed out that the international community would be celebrating the fiftieth anniversary of the first manned spaceflight the following week on 12 April 2011. That flight by Soviet cosmonaut Mr. Yuri Gagarin turned a new page in the history of civilization and opened space to humanity, Mr. Ordzhonikidze remarked. Today, outer space is indispensable to everyday life. It is used for telecommunications, banking, agricultural planning, natural resource

[1] The full report and audio files of all of the presentations are available on UNIDIR's website (www.unidir.org).

protection and early warning of extreme environmental events. In addition, space technology is critically important to monitoring the pace and extent of global warming. Mr. Ordzhonikidze emphasized that while space assets are not a panacea for today's global challenges, their usage has, and will continue to have, a major role to play in enabling multilateral responses. As a consequence, it is more urgent than ever before that space remain a peaceful domain.

6. All states have an inalienable right to access outer space for research and peaceful use as the 1967 Outer Space Treaty (OST) dictates. Therefore, it is natural that space security should be their common goal. States must join their efforts in search of a way to consolidate space security and stability, because one depends critically on the other. The weaponization of space will trigger unpredictable consequences, similar to those at the onset of the nuclear era. Weapons deployment in outer space by one state will inevitably spark a chain reaction and risk a spiralling arms race both in space and on Earth, Mr. Ordzhonikidze warned. He reminded the audience that PAROS is one of the CD's four core agenda issues and has been included in all proposals since 1982 for the CD's programme of work. Further, there is a growing demand in the international community to see concrete measures taken to strengthen space security. The more we depend on space, the more we need space security.

7. Mr. Ordzhonikidze pointed out that, lately, several states have tabled a number of proposals for preventive measures against the emergence of new, destabilizing weapons. In 2008, Russia and China officially submitted to the CD a draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT), which could provide a good basis for further discussions and possibly lead to eventual PAROS negotiations. Additionally, the General Assembly adopted resolution 65/68, which emphasized the need for transparency- and confidence-building measures (TCBMs). Mr. Ordzhonikidze concluded by expressing his hope that this conference would contribute to a balanced discussion of all tabled initiatives and help promote space security issues in the CD.

Mr. Wang Qun
Ambassador for Disarmament Affairs and Deputy Permanent Representative of the People's Republic of China to the United Nations Office at Geneva and Other International Organizations

8. Mr. Wang Qun began his remarks by acknowledging that UNIDIR has enabled the CD and its PAROS discussions through these annual space security conferences. In turn, the CD has made important contributions to safeguarding space security. Annual General Assembly resolutions have transformed space security into a concept with growing popular support. From 1985 to 1994, the ad hoc PAROS committee in the CD conducted discussions that laid the technical groundwork for possible formal negotiations. Mr. Wang recognized that since 1995 the CD had been unable to conduct substantive discussions under the PAROS agenda item. However, he added that some CD members had nevertheless conducted a large amount of research and discussion on the subject, which lay a substantive foundation for any work the CD would do in the future.

9. Mr. Wang highlighted that the importance of space grows every day. On the one hand, the ever increasing growth of space activities may engender a growing risk of an arms race and uncertainty in space security. On the other hand, even though the shortcomings of the existing legal regime are widely recognized, it has been very difficult to discuss the option of negotiating a new treaty. Mr. Wang questioned how the international community could work through such a dilemma. He hoped that three issues might stimulate further discussion. First, he argued that the CD should remain the primary forum for political, legal, technical and institutional discussions and for constructing any

new legal instruments on the PAROS issue. He reminded the audience that the CD has a clear mandate as the sole forum for negotiating international arms control measures. Additionally, the CD is the most representative forum for such discussions and is home to more than 30 years of valuable expertise in related fields. He added that the CD is well equipped to negotiate any new legal instruments on outer space. Second, Mr. Wang argued for the advancement of establishing rules for space behaviour in a pragmatic manner. As part of this effort, TCBMs can enhance trust, reduce accidents and errors, and regularize space activities. They can also be a useful supplement to any binding legal instrument aimed at preventing an arms race in space. Mr. Wang emphasized that the best way to establish rules is through broadly participatory and representative TCBMs. The Code of Conduct for Outer Space Activities proposed by the European Union and the Canadian proposal in the CD has attracted great interest from many parties in regard to possible TCBMs. Further, the General Assembly resolution calling for the formation of a Group of Governmental Experts (GGE) will provide a highly authoritative forum for discussions on the subject. Third, Mr. Wang called for the adoption of a varied and inclusive approach. The pursuit of a legally binding PAROS agreement and TCBMs are two complementary processes. Therefore, Mr. Wang underlined, the international community cannot pursue one and avoid or lose sight of the other. He hopes that the two approaches will build on each other to reduce risk and enhance security and safety in space.

Marius Grinius
Ambassador and Permanent Representative of Canada to the United Nations and to the Conference on Disarmament

10. Mr. Marius Grinius began his remarks by establishing that the topic of space security is more relevant than ever as mankind's use of space has grown exponentially and the global community greatly depends on the sustainable and peaceful use of outer space. Yet, Mr. Grinius highlighted, humanity's ability to ensure such continued use is challenged. That is the challenge the CD must face.

11. Mr. Grinius mentioned that Canada has always supported space activities and planetary exploration missions as a way of expanding human knowledge. The importance of space to Canada can be seen in its thriving commercial, civil, defence and university research programmes on space-related issues. Furthermore, the Canadian Space Agency is recognized worldwide for the quality of its projects and capacity to cooperate effectively with other agencies. The Canadian commercial space sector is a global leader in developing space robotics and satellite equipment. For these reasons and more, promoting the peaceful use of outer space is very important to Canada. As such, Canada has taken an active role in leading PAROS discussions at the CD.

12. Mr. Grinius reminded that more work needs to be done in order to ensure that humanity is guaranteed peaceful and sustainable use of outer space. He acknowledged UNIDIR's valuable contribution to the work of the CD and the UN Committee on the Peaceful Uses of Outer Space (COPUOS) in bringing together relevant players. He concluded by stating that the Government of Canada is very pleased to support this conference and is sure that the ensuing discussions will advance work towards ensuring that all mankind benefits from the peaceful use of outer space.

Panel 1
The threats—today and tomorrow

13. One of the biggest challenges in building future binding or non-binding regimes for space security is understanding the current threats and where technology is rapidly heading. The first panel aimed to shed light on those issues and began with a presentation from

Mr. Lars Höstbeck, Deputy-Head of the Defence and Security Systems and Technology Division of the Swedish Defence Research Agency. Mr. Höstbeck presented on "Available and Emerging Weapons Technologies", which looked at the concept of space weapons, how they work and some possible and impossible examples.

14. The next presentation was given jointly by Mr. Tal Dekel and Mr. Ram Levi from the Yuval Ne'eman Workshop for Science, Technology and Security at Tel Aviv University in Israel. Together, they presented on "National Capabilities and Programmes" and provided an overview of various states' current space abilities. Mr. Dekel began by quoting the *2010 Space Security Index* definition of space security: "the secure and sustainable access to, and use of, space and freedom from space-based threats". He noted that, based on their research, this definition of space security should be expanded to address all threats to space systems. The study's methodology was to perform a bottom-up analysis of recent space security events and then perform a top-down analysis of the official programmes and capabilities of a few spacefaring states.

15. Mr. Ram Levi discussed national programmes and capabilities. Much of the technology under development or being deployed is dual-use and designed for peaceful purposes such as debris removal or broadcasting, but some systems could be said to be just one decision away from becoming anti-satellite weapons (ASATs). Jamming capabilities are most common and their use poses a serious threat; of particular concern is the potential for escalation in a crisis situation. Additionally, many states are developing cyberattack capabilities, which would represent a true threat to space systems.

16. Mr. Emmet Fletcher, Head of the Space Situational Awareness, Space Surveillance, and Tracking Segment of the European Space Agency, presented on "Flying Blind: the Need for Multilateral Space Surveillance Capability". He began by providing a brief survey of the many ways humanity relies on space. From navigation to telecommunications, from treaty verification to land surveys, space is increasingly incorporated into daily life. Mr. Fletcher then showed a graph of the growth of space objects and pointed to moments where growth had spiked, such as around the Iridium–Cosmos collision of February 2009. There are about 800 active satellites among the millions of space objects in orbit. Moreover, the quantity of these objects is only set to increase further.

Discussion segment

17. A question was asked about the difference between the Inter-agency Space Debris Coordination Committee (IADC) Mitigation Guidelines and the upcoming ISO guidelines. It was mentioned that the ISO standards had already been issued, under the number 24113. The IADC brings together national space agencies to coordinate research. No other actors are involved. Their guidelines are meant to be implemented at state level if they are found to be sufficient. The ISO standards, on the other hand, were developed by academia, industry and governments. They can be used as binding requirements in licensing, for example, and, in this sense, are very useful in commercial and government operations.

18. Another participant asked if a hypersonic space plane might become a weapon if it entered orbit. If it enters orbit, it is no more a weapon than a satellite simply because it is in orbit. The question is what payloads it carries and from where (in orbit or in airspace) it might release or use any weapon-type payload. However, this area is still unexplored and should be better understood if the discussion on space security is to move forward.

Panel 2
Ongoing processes and proposals—next steps

19. The second panel began with a presentation from Mr. Sergey Koshelev, Deputy Director of the Department of Security and Disarmament Affairs at the Russian Federation Ministry of Foreign Affairs. His presentation was entitled "Using the 2012 GGE to Forward the Process". He commenced his remarks by noting that he had participated in the first UNIDIR space security conference. Mr. Koshelev then turned to the issue of TCBMs. He mentioned that the proposed PPWT was designed to prevent a worst-case scenario. TCBMs are important elements of any effort to prevent the placement of weapons in outer space. They are not at odds with the PPWT. On the contrary, they are part of the proposed treaty negotiations. The Russian Federation strongly believes that the pursuit of TCBMs could facilitate negotiations on the PPWT. Increased predictability of military space activities through such measures could reduce tensions in the space domain and prevent future conflict. Mr. Koshelev acknowledged that the development of formal verification measures for the PPWT would be a complex task. As a result, Russian federation and China proposed that these measures be added later as an annex to the original treaty. Meanwhile, TCBMs will compensate for the interim lack of verification mechanisms.

20. Next, Mr. Frank Rose, Deputy Assistant Secretary for Space and Defense Policy at the USA Department of State, presented on "Strengthening Stability in Space". He expressed his hope that the conference would help inform the international community's efforts to strengthen security and stability in space. He also mentioned the new USA National Space Policy, which was released in 2010. Consistent with President Obama's guidelines in the Policy the United States of America is pursuing measures to strengthen space security and stability. His remarks focused on how shared space situational awareness (SSA) and TCBMs might help achieve that.

21. Mr. Zhang Ze, Deputy Director at the Chinese Ministry of Foreign Affairs, presented on the topic of "Deepening Discussions on the PPWT" and summarized how past events have led to the current draft treaty. He began by giving a brief history of PAROS in the CD. It was first introduced to the Conference in 1981 by General Assembly resolution 36/97C. The following year, it was listed as a CD agenda item. From 1985 to 1994, there was an ad hoc committee on PAROS in the CD that produced 10 annual reports. Mr. Zhang acknowledged the contribution made by this ad hoc committee to deepening discussions on PAROS. In spite of the stalemate in the CD that began in 1995, discussions have continued on PAROS. In addition, many states launched useful initiatives for enhancing space security.

Discussion segment

22. One participant asked whether the United States of America viewed TCBMs as an alternative to a legally binding instrument. The United States of America sees TCBMs as a first step in laying down a much-needed foundation of trust and transparency. It was mentioned that TCBMs also preceded the OST.

23. Another participant pointed out that current space security negotiations focus on the prevention of space weaponization and conflict. If the CD and the international community continue to delay these negotiations, they will be forced to deal instead with the control of weaponization and hostilities in space. This particular participant was optimistic because, when the PPWT was first proposed, the United States of America presented a long list of complaints. That list seems to have diminished. The participant encouraged the United States of America to consider discussing the proposal and re-emphasized China's and the Russian Federation's willingness to discuss draft revisions. The concerns of the United

States of America with the PPWT were reiterated, and it was stated that the United States of America sees the Code of Conduct as the next best step.

24. One participant referred to the United States of America concerns about the PPWT draft not including ground-to-space kinetic ASATs and not being effectively verifiable. It was explained that such weapons go through a process of research, development, testing and use against an adversary. While the first two elements are not effectively verifiable, the latter are easily so and most states currently have the technology to do so. The participant wondered if the United States of America would reconsider the PPWT if the draft were amended to include those two verifiable elements for kinetic ASATs. It was pointed out that the United States of America is also concerned with the PPWT on the issue of breakout capability. In order for the United States of America to be comfortable with the draft treaty, this would need to be addressed as well. It was also pointed out that the USA ratification process for legally binding agreements is particularly difficult. The USA Senate would be unlikely to consider any treaty that was not perceived as effectively verifiable.

25. Another participant questioned how the PPWT might contribute to space security from the standpoint of the broader political context. It was pointed out that space security reflects the security dynamic on Earth. The current draft of the PPWT seems to largely ignore the changing political and security dynamic on Earth. In that sense, how could the PPWT add to the security dynamic? This open-ended question is extremely difficult to answer. How does any arms control, non-proliferation or disarmament treaty contribute to international security? China and the Russian Federation are open to discussing how the draft PPWT might enhance the security of all in space and on Earth. Further, it was commented that the PPWT is a preventive measure, which is preferable to measures that aim to control events after they have occurred. Also, as a preventive measure, it could forestall an arms race in space and enhance international transparency. Finally, it was observed that the PPWT aims to strike a balance between preventing space conflict, protecting the inherent right of states to self-defence and enabling states to continue developing military capabilities—if certain major players are unwilling to discuss the treaty, there will be a stalemate.

Panel 3
Incorporating today's tools into future regimes

26. Mr. Steven Freeland, Professor of International Law at the University of Western Sydney in Australia, opened the third panel with his presentation on "International Humanitarian Law and Codifying Constraints on Space Warfare". Before explaining how international humanitarian law (IHL) relates to space, Mr. Freeland summarized some legal aspects of the space domain. From the onset, outer space was designated a unique environment from a legal perspective. Along with that designation came some relatively uncontroversial fundamental principles about the domain's legality, such as freedom of access and non-appropriation principles. However, it is important to understand that there is still no legal definition of outer space. Many states have adopted different demarcation lines for where sovereign airspace ends and outer space begins. In Mr. Freeland's opinion, establishing an internationally accepted definition for outer space will facilitate progress on space security debates.

27. The next presentation was entitled "Diplomatic Options Reinforcing Outer Space Security", delivered by Mr. Paul Meyer (Ambassador) of The Simons Foundation. He began by referring to diplomacy as the art of the possible. Most diplomatic practitioners tend towards pragmatism and make the most of any given situation by considering the actors and elements at play. This is especially the case in multilateral relations. However, what is perceived to be possible can change rapidly. Such changes in outlook are the result

of significant external events that alter threat perceptions and, thus, perceptions of what is possible in international relations.

28. The last presentation of the third panel was on “Lessons from Other Legal Regimes”. Mr. Michael Krepon, President Emeritus of the Henry L. Stimson Center, presented on this topic. He began by acknowledging that outer space is a demanding domain in which to operate and warned that it could worsen if states do not cooperate with each other. He indicated that the international community faces an important crossroads defined by the growing potential for cooperation on one hand and growing friction on the other. The path followed now will have lasting effects on the space environment and humanity’s ability to operate there.

Discussion segment

29. A question was asked about the emergence of norms in commercial and military sectors and how it compares to progress made in the diplomatic realm. It was stated that norm-building in the commercial and military sectors is far more advanced and that diplomacy lags behind. In the military realm, most norms rely on a sort of tacit understanding. If someone engages in provocative actions in space, others respond in a manner that is noticeable to the provocateur. Further, there has been considerable military restraint in the space domain thus far, arguably out of a shared understanding of the domain’s fragility with respect to debris. The real question is how the military and commercial sectors can facilitate the “catch up” of diplomacy in establishing norms.

30. The second question was how IHL might apply to commercial space capabilities that are used to support military operations. It was pointed out that the application of IHL is difficult even in terrestrial matters. One could argue that a commercial satellite is a valid target in a conflict situation if it supports military operations. While it is very difficult to generalize definitively, one could easily construct an argument to support the view that such civilian assets could become legitimate targets given the activities in which they engage. Additionally, it must be kept in mind that IHL is judged by reasonableness. Even if such an argument were judged to be invalid later, if it was taken on reasonable grounds at the time, it would pass *jus in bello* conditions.

31. A participant asked if there were other legal regimes from which the realm of space security could draw lessons. Is the norms-based approach recommended for other difficult negotiations? One lesson learned from the nuclear regime is that even though legally binding instruments are preferable, they are extremely difficult to ratify in the United States of America. Arguably, one should not press for a binding treaty that will never be ratified or enter into force. Conversely, though not officially ratified, the Comprehensive Nuclear-Test-Ban Treaty seems to have developed into a norm in the United States of America that constrains nuclear testing. In that sense, the absence of a treaty does not preclude norm-building and norm-building might be a more practical and successful way forward.

32. Another participant suggested that some national ambitions for space dominance were at odds with the pursuit of norms. Nevertheless, norms are inherently equitable. If a state is trying to establish dominance and norms at the same time, it will not work. Norms require that all states follow the same rules—equality of action even where there is inequality of capacity.

33. Lastly, it was pointed out that a consensus seemed to exist for taking further measures, but not on what those should be. The discussion suggested that one could move from norms to customary practice to binding arrangements. Though a legally binding treaty may be the ultimate goal, it is not currently possible to move directly to such negotiations. However, in looking at the historical record, it is typical in dynamic and difficult domains to gradually move from norm-building to codes of conduct to UN resolutions and,

eventually, to a treaty. It is possible to imagine such a process, especially if the international community approaches each arrangement as an interim step, not a final position. It should be recognized that, at the very least, the international community has reached a consensus that the time for multilateral action in the realm of space security has come. The devil is in the details, but at least every state agrees it is in their best interest to pursue a multilateral solution.

Panel 4
The verification challenge—the art of the possible

34. The fourth panel began with a presentation on "The Basic Elements of a Successful Verification Regime" from Mr. Larry MacFaul, a Senior Researcher with the Verification, Research, Training and Information Center (VERTIC). He started with the basic definition of verification, which aims to gather, interpret and analyse information in order to make a judgment about a member's compliance under a binding agreement. Verification is closely related to monitoring and in some cases they are almost the same. In some ways verification could be interpreted more loosely. It is used throughout business, commerce and in both international and national contexts. It can be used for both binding and non-binding arrangements.

35. Ms. Laurence Nardon (Doctor), Senior Research Fellow at l'Institut français des relations internationales (IFRI), presented on the topic of "TCBMs as Steps toward Verification". She pointed out that her presentation was sandwiched between two much more concrete presentations on what verification measures should be and which verification systems are currently, or may soon be, available. In order to complement these presentations, Ms. Nardon focused on the political context surrounding TCBMs and verification measures and, more precisely, on the relationship between the two. She noted that the title of her presentation reflected a widespread belief that TCBMs are a weaker version of verification measures; that TCBMs are agreed upon when verification is not possible; essentially, that TCBMs remain a "Plan B" solution. The title also presumes that progress would eventually be made towards the adoption of formal verification measures and that those would be an improvement on the previous TCBMs. Ultimately, the entire topic is a judgment about the order of measures that disarmament proponents should pursue. In her presentation, Ms. Nardon sought to question this underlying assumption.

36. Mr. Dave Finkleman (Doctor) delivered the last presentation of the fourth panel on "Current and Potential Verification Capabilities". He aimed to demonstrate that existing technology could enable sufficient verification of existing and potential space treaties. Mr. Finkleman began by emphasizing that no international agreement can be unequivocally verified. In fact, most multilateral agreements lack verification mechanisms altogether since many parties are unable to verify anything on their own and because the consequences of violation are so harsh that explicit verification is unnecessary. Given these realities, one must determine what level of verification is sufficient for the purpose at hand. In the case of space verification, Mr. Finkleman argued that almost all states are capable of contributing to achieve a sufficient level.

Discussion segment

37. The question and answer portion of the panel began with a statement that the distinction between TCBMs and verification is not always so black and white, as Mr. Nardon's presentation suggested. In fact, there were collaborative and cooperative aspects to the earliest iterations of national technical means. It was then asked if consultative mechanisms could play a role in the process towards a binding treaty. It was pointed out that there is already a consultative mechanism in the OST, but it requires

consultations on the part of states about to engage in an act that might affect other actors. Recent experience exposes the problem of such wording because, in some cases, such an event will occur without any prior consultations. Perhaps a future agreement could incorporate retroactive consultations as part of its mechanisms. It was agreed that while these consultative mechanisms can serve a beneficial purpose, they need to be worded very carefully in order to be fully operational.

38. A participant asked whether any existing verification regimes are able to successfully verify intent. It was recognized that intent is one of the most difficult aspects of verification, especially given the dual-use nature of many technologies and the possibility of accidents. Usually, it depends on whether technology exists that can prove attribution and malice. In addition, some regimes have incorporated complicated judicial processes for determining intent where evidence is gathered and presented. It really depends on how much time parties wish to devote to uncovering and proving intent.

39. Next, it was asked what measures could be used to verify that weapons are not placed in outer space, which is currently the only verifiable provision of the proposed PPWT. It was reiterated that nothing can be verified unequivocally. It is virtually impossible to determine if something is a space weapon until it is used. The only other way to verify this provision would be through invasive, on-site inspections of launches and payloads—and even that may be insufficient. Not all states would support such intrusiveness. It took decades for the United States of America and the Soviet Union to allow inspections of their nuclear facilities. Unfortunately, any robust arms control treaty will require effective verification and this is often only achieved through such intrusive measures.

Panel 5
Cross-institutional cooperation—linking and learning

40. Mr. Yvon Henri, Chief of the Space Services Department at the International Telecommunication Union (ITU), opened the fifth panel with his presentation on “The ITU’s Role in Promoting Space Security: Non-Interference as a Norm”. He began by stating that the ITU’s role is to regulate the radio-frequency spectrum. The Union was established by a binding international agreement, but still faces challenges in implementation and enforcement. Additionally, engineers authored the founding document, which further complicates its interpretation.

41. Next, Mr. Dumitru-Dorin Prunariu (Doctor), Current Chair of COPUOS, presented on “Space Sustainability: Setting a Technical Baseline for New Regimes”. He began by highlighting the importance of space sustainability, stating that it was a matter of concern for both spacefaring states and commercial satellite operators. If outer space is not safe, secure or peaceful, the ability to use it for national security purposes, Earth observation, telecommunications, financial transactions, navigation, scientific exploration and economic development would be hindered and even denied. The growing number of space actors, both governmental and private, the harmful effects of space weather, the proliferation of space debris and the development of private human spaceflight all call into question the ability to continue operating in a safe space environment. If the international community addresses space sustainability now, it could ensure humanity’s access to and use of space for the long term. In order to promote sustainable operations, all spacefaring parties must have access to complete, accurate and timely SSA. This requires international monitoring, communication and coordination.

42. Ms. Annalisa Giannella, EU Director for Non-Proliferation and Disarmament, presented on “A Multilateral Code of Conduct as a First Step Toward Building Consensus”,

which specifically examined the European Union's proposed International Code of Conduct for Outer Space Activities. She began by emphasizing the danger posed by the growing risk of collision and debris in outer space. For the European Union, this danger stresses the importance of establishing rules of the road for space activities. In response, the European Union put together a proposal for a politically, not legally, binding instrument whose purpose is to ensure safety, security and predictability of space operations. Two underlying principles are found throughout the proposed Code of Conduct: the right of all to access space for peaceful uses and the right of all to self-defence, either individual or collective.

Discussion segment

43. A participant asked if there were any way to strengthen ITU regulations. For example, in the event of non-compliance, could the ITU take away the violating party's rights? Many states have agreed on the need to strengthen the ITU's enforcement mechanisms. However, it is a consensus-based organization and will likely face resistance in trying to establish tougher mechanisms. Another participant pointed out that because the ITU lacks monitoring, verification and enforcement mechanisms, it is really no more than a code of conduct. In response, another participant explained that the ITU's monitoring capacity is growing, but it is very difficult to prove attribution when non-compliance occurs, even if monitoring shows from where the non-compliance is coming. However, in many cases, treaty non-compliance is solved via political means regardless of whether or not the treaty has formal enforcement mechanisms. The beauty of a well-designed treaty, though, is that states have a "Plan B" when political solutions cannot be found.

44. Another participant pointed out that the "bottom-up approach" endorsed by Mr. Prunariu could take decades. In the case of an urgent need, such as for space traffic management, this process may take too long. Has COPUOS considered pursuing a top-down approach for urgent issues? Space traffic management itself is not specifically mentioned on the COPUOS agenda, but long-term space sustainability is a broad enough framework that it could include such an issue. It does take years to solve problems within COPUOS, especially since the main input to the body is political. Several states must agree on the need to discuss an issue before it gets placed on the agenda. Even in cases where there is agreement, last-minute problems can interfere with finding a solution. It is not clear how something like space traffic management could get on the COPUOS agenda in the immediate future, but if a related crisis were to occur, it could prioritize the issue as was seen with space debris.

45. One participant pointed out that the Code of Conduct is superior to TCBMs because it takes TCBMs and embeds them in norms. Some had pointed to the commonalities between the Code of Conduct and the GGE's objectives. If the Code of Conduct were discussed within the GGE, it might provide further impetus to norm-building. However, if the Code were to become part of the GGE mandate, it would become wrapped up in the PAROS debate. The European Union feels this would delay progress on the Code of Conduct, which EU officials see as an urgent issue. This is why the European Union chose a less formal, less ambitious approach.

46. Another question was posed on jurisdictional tension between COPUOS and the CD. The mandate of both bodies is clearly delineated. While some matters overlap, COPUOS is not meant to discuss security issues and certain member states ensure that this remains the case.

47. Some questions specific to the Code of Conduct were raised, seeking clarification on its call for a central point of contact, its assurance of the right to self-defence and its consultation mechanisms. Section 11 of the Code calls for the nomination of a central point of contact. Typically, such nominations are followed by an official appointment, election or approval process. How would this be carried out and would the point of contact be

permanent? This is not yet defined and the European Union is open to discussing this issue further with interested states. Perhaps this point of contact could be linked somehow to the UN Secretariat. In article 4, paragraph 2, the Code of Conduct states when and how the right to self-defence is activated. On the Code's consultation mechanism, if an impacted state calls for a consultation, who assesses the allegations and makes a judgment that it is actually needed? Since the Code does not establish a supranational body to make such judgments, the trigger for consultations must come from a subscribing state. However, the other state must also be a subscriber and willing to engage in consultations. That is why the consultation mechanism is a TCBM because, by signing the Code, a state agrees to be open to bilateral consultations. No third party would reach a decision based on those meetings, they are purely meant to foster communication.

Panel 6
Engaging critical actors

48. Mr. John Sheldon, Assistant Professor of Space and Cyber Strategic Studies at the USA Air Force School of Advanced Air and Space Studies, began the panel with a presentation on "Reducing Military Tensions, Building Trust", which looked at how military-to-military relationships might reduce tensions and build trust on issues of space security.

49. Ms. Victoria Samson, Washington Office Director for Secure World Foundation, presented on the topic of "Industry Inputs: From TCBMs to Verification". She began by highlighting the importance of the commercial sector in space. Satellite communications are usually provided by international companies. In fact, about 75% of the USA Department of Defense's satellite bandwidth is purchased from international consortia. Given the international nature of satellite operators and their growing role in government operations, they will likely need to be involved in deciding norms of responsible behaviour in space. Ms. Samson emphasized the importance of SSA. The number and types of actors participating in space activities is rising, making the space environment even more crowded. Sharing SSA data is one basic area where international cooperation should be enhanced. This need is currently met through SpaceTrack.org, an initiative of the USA military. While this database is useful, the information it provides is relatively limited since private companies often know more about the location of their space assets.

50. Ms. Beatrice Fihn, Project Associate at Reaching Critical Will, presented on "The Role of Civil Society in Building Awareness" and provided an overview of the roles civil society and non-governmental organizations (NGOs) can play in promoting and enhancing space security. She began by explaining that states remain the principal actors in the security arena. While NGOs and civil society have penetrated other international issue areas (such as human rights and the environment) rather successfully, they remain relatively uninvolved in disarmament and security initiatives. The importance of national security in these issues has made formal involvement more difficult, even though NGOs have a potentially significant role to play in fostering understanding, political will, awareness and a better environment in which to discuss security issues.

Discussion segment

51. The question and answer session began with a participant positing the possibility of micro-loans to developing states that were interested in becoming involved in space. These States could then provide data over minimally covered areas in the southern hemisphere. This was considered a good idea, especially because space can provide human and environmental security benefits to these developing countries. Additionally, COPUOS

already engages in capacity-building for developing states. It is one of COPUOS' main goals and NGOs, including Secure World Foundation, help to achieve it.

52. Another participant pointed out that because many States, including developing States, are joining the space community, this highlights the need for norms of responsible behaviour. Actions by any space actor can harm all others. These actions need not be intentional or hostile; they could be accidents. Capacity-building should also focus on educating these new space actors about responsible space behaviour.

53. A participant raised the issue of multiple sectors within a government needing to cooperate and coordinate policymaking for space issues. They felt that civil society could also play an important role in building awareness and facilitating cooperation among agencies within a state. Unfortunately, raising awareness can be difficult and sometimes a crisis or dramatic event is needed to motivate interagency or international cooperation and coordination.

54. The issue of industry and private sector self-regulation came up next. If industry is allowed to completely self-regulate, there would be no export control and space might be even more crowded. However, government and international legal approaches can take decades. Could a balance be found between the two? In some cases, industry initiatives demonstrate interesting possibilities. And in the event that profit-driven industry initiatives threaten space sustainability, political leadership could step in to ensure that efforts are guided towards the long-term use of space.

Closing remarks

55. Mr. Ben Baseley-Walker, Advisor on Security Policy and International Law for Secure World Foundation, concluded the conference by emphasizing that timing is crucial. Extensive diplomatic discussion of PAROS in formal multilateral settings is easy to undertake in principle, he said, but the activities and initiatives of industry and other relevant space actors demonstrate that if the CD waits too long to take action, it will be too late to influence the outcome. He added that the past two days of the conference had been productive and showed a definite shift in tone towards progress compared to previous years. The international community has clearly prioritized space security issues and the USA delegation has rejoined CD discussions, both demonstrating a renewed negotiation climate based on a shared understanding of common goals.

56. Mr. Baseley-Walker highlighted that the conference placed an emphasis on building foundations together. A lack of shared understanding of the foundations that underpin space security discussions has hindered previous efforts to move forward. This conference showed that the CD is much closer than ever before to reaching a mutual understanding of fundamental concepts. A Code of Conduct or TCBMs will be key steps for moving forward, Mr. Baseley-Walker stated, and though they may not lead to binding treaties, these panel discussions have shown that the CD has a clearer understanding of what the path forward may be from both a diplomatic and political perspective.