



OUTER SPACE AND GLOBAL SECURITY

Geneva - 26-27 November 2002

CONFERENCE REPORT

A joint conference of
Simons Foundation
Project Ploughshares Canada
Simons Centre for Peace and Disarmament Studies
United Nations Institute for Disarmament Research (UNIDIR)

Executive Summary

The Outer Space and Global Security Conference examined the current and future uses of space, assessing ways to prevent the deployment or use of weapons in and from outer space. Participants, who included governmental and nongovernmental representatives, discussed a wide range of short-term and long-term measures to enhance space security, including the possibility of a ban on the deployment of any weapons in space. Short-term measures included a variety of confidence-building measures, space debris mitigation measures, cooperative space traffic control, non-offensive defenses for space assets, agreements on non-interference with space assets, and increased public engagement on space security issues. In discussions of longer-term strategies, the conference explored the potential role of the market and commercial interests in support of space security, the feasibility of negotiating a space weapons ban treaty in the foreseeable future, and plans for getting the CD back to work on the space security challenge.

Introduction

For 50 years, human activity in outer space has been guided by the principle of the 'peaceful uses of space', first enunciated in 1958 by US President Dwight Eisenhower.¹ Although the term 'peaceful purposes' was never clearly defined, it was generally understood to include military, commercial, and scientific activity in space, but to exclude the placement of weapons or the targeting of objects in space. But recent developments suggest that this norm against the weaponization

¹ Exchange between Dwight Eisenhower and Nikolai Bulganin, Chairman, Council of Ministers, USSR January 13, 1958. [Online.] Available from The Eisenhower Institute, in "The Historical Context" at <http://www.eisenhowerinstitute.org/programs/globalpartnerships/fos/newfrontier/letters.htm>.

of space is now threatened. The Bush administration withdrew from the Anti-Ballistic Missile (ABM) Treaty in June 2003 and has committed to deploying a multi-layered missile defence system, the first stage of which could be ready by 2004, with testing of a space-based element as early as 2008. As part of this pressure for missile defences, elements within the US Department of Defense are pushing hard to expand the military uses of space to include war-fighting capabilities from, in, and into space.

Internationally, there is broad consensus in opposition to the weaponization of space, reaffirmed annually by virtually unanimous support for a UN General Assembly resolution "Prevention of an Arms Race in Outer Space." (PAROS)² Although there is clearly broad international support for the creation of a legal instrument prohibiting the placement of weapons in outer space, to date there is still no agreement on ways and means of achieving such a ban. At the same time, talks on PAROS in the Conference on Disarmament (CD) have been blocked by US opposition since 1995.

It was with a view to exploring these dilemmas and developing options for future actions that an international conference on 'Outer Space and Global Security' was held in Geneva on November 26-27, 2002. Jointly convened by the Simons Centre for Peace and Disarmament Studies, at the Liu Institute for Global Issues, the United Nations Institute for Disarmament Research, and Project Ploughshares, with support from The Simons Foundation and the Canadian Department of Foreign Affairs and International Trade, the Conference brought together experts from military, industry, government, and non-governmental organizations, representing countries with interests across the range of civilian and military space activity. (Participants List, Appendix 1) The speakers gave presentations on a variety of technical, political and legal issues regarding space use and space security, including current civilian and military uses of space, technical and political considerations regarding space weapons, the legal regime governing space use, and the prospects and problems of developing a space weapons ban. (Agenda, Appendix 2)

The Militarization of Space

Introducing the space weaponization debate, Bruce DeBlois, of the Council on Foreign Relations, distinguished between the militarization of space – force enhancement including communications, navigational and intelligence gathering activity – and the deployment of weapons in space. He examined a wide variety of perspectives both for and against space weaponization – from those who argue it is

² The 2002 First Committee vote on the PAROS Resolution was 156 in favour, zero against, with Israel and the US abstaining. UN General Assembly 2002, A/C.1/56/L.30, *Prevention of an Arms Race in Outer Space*, First Committee Voting Record, 57th Session of the UN General Assembly, 21 October. [Online] Available from: www.reachingcriticalwill.org/1com/1com02/vote/voteindex.html. See also the analysis of this discussion in Fiona Simpson, "Anxiety, Hope and Cynicism: the 2002 UN First Committee", *Disarmament Diplomacy* 68 (December 2002/January 2003).

inevitable to those who think it is costly, destabilizing and a bad precedent – noting that the debate tends to get polarized in a way that “incites emotional response and misdirects attention away from the real issue: that is, what is the best approach toward international security in space?” DeBlois emphasized the importance of exploring the middle-ground of the debate and considering options, including collaborative efforts rather than unilateral action or multilateral negotiations, such as temporary deployment of weapons in space in the face of immediate threats, confidence building measures to establish ‘rules of the road’, and attention to immediate concerns like space debris and overcrowding.

Civil and Commercial Uses of Space

Professor Alain Dupas, a Paris-based consultant on space issues, examined the central role of civil space activity in creating the ‘global village’ and raising awareness of our fragile environment. Examining the overlap between civil and military space operations, he demonstrated how activities such as remote sensing, navigation, communications and space transportation have both civil and military uses. Public funding far outweighs commercial investment in space, with the US the dominant investor; it provides 94.8% of military investment in space, but only 64.3% of public investment for civil activity in space. Predicting that revenues from commercial space applications will continue to rise, Dupas demonstrated the vast potential for expansion, arguing that this will be maximized if space systems provide relevant solutions for terrestrial needs, particularly sustainable development, and if balance is found between public and private investors, including international co-operations.

Recalling the 1998 malfunction of the Galaxy IV satellite, a shutdown which interrupted communications, banking and other commercial activities across the globe, Atef Sherif, Director of the National Authority for Remote Sensing in Egypt, examined satellite vulnerabilities. He identified threats from both natural and synthetic space debris, arguing that the risk of a satellite or space vehicle being hit is growing exponentially as a consequence of the vast increase in human-generated debris. Considering other threats to satellites, including ASAT weapons, jamming techniques and land-based lasers, Atef noted the need for increased attention to satellite hardening and other defensive technologies. He emphasized that the potential benefits of civilian space programs, particularly with regard to sustainable development and communications in developing nations, must be protected from such emerging threats.

In the discussion of commercial uses of space, several participants noted that space offers immense opportunities to developing countries – for communications, access to information, monitoring of agriculture, weather trends, and coastlines. Examining the threat that weaponization poses to space assets, there was particular concern that space be preserved for these peaceful purposes. The opportunities for economic growth and sustainable development were noted and it was argued that all States should have access to these benefits. Some called for increased cooperation and information sharing with regard to civil space programs, while one

participant stated that the extreme cost of space weapons and the underlying motivation of full spectrum dominance and control are offensive and threatening to developing countries.

Colonel Chris Hadfield, an astronaut with the Canadian Space Agency currently serving as NASA Director of Operations in Star City, Russia, was the keynote speaker at the conference luncheon, hosted by The Simons Foundation. He spoke about his personal experiences training for and traveling in outer space, aboard the shuttle, the Russian Space Station Mir and the International Space Station. With a compelling presentation that included photographs from his space walks and work on the Canadarm 2, Colonel Hadfield illustrated the great potential for international cooperation, technological development and peaceful exploration in outer space, graphically demonstrating the need to regulate human activity and protect space assets.

Military and Security Uses of Space

Lt. Col. Peter Hays, of the United States Air Force, assessed current military uses of space, examining how space assets are used for force enhancement. Geodesy, environmental monitoring, communications, assessing position, time, and velocity, navigation, integrated tactical warning and attack assessment and surveillance, intelligence and reconnaissance are some of the military activities requiring satellite technology. Arguing that “virtually all issues of space strategy and military space cooperation are shaped by [this] spectrum of views on the utility of weaponizing space”, Hays identified four views on space weaponization within the military establishment – space hawks, who seek dominance and control through space weaponization; inevitable weaponizers, who believe that the weaponization of space is inevitable and so the US must be first and retain its dominance; realists who believe the US has little to gain from weaponizing space, in part because it would threaten its considerable military assets for targeting and conventional ‘force support’; and space doves, who advocate that space should be preserved for peaceful uses. The divergence of views, together with the development of new space technologies, the role of the commercial sector and tools of verification, complicate efforts to arrive at consensus on space arms control, but Hays suggested that commercial interests will play a deciding role in whether or not the US develops space weapons.

Examining the implications of space weapons development, Phillip Baines, of the Canadian Department for Foreign Affairs and International Trade, argued that moves to weaponize space respond to three stimuli: missile defences respond to continued reliance upon and proliferation of nuclear weapons and their means of delivery; anti-satellite technologies respond to growing reliance upon and proliferation of artificial satellites and their means of delivery; and offensive space weapons respond to potential threats from unpredictable States. Outlining the variety of technically possible space weapons systems, Baines surveyed the perceived military advantages and disadvantages of basing weapons in space: on one hand they have a global reach, assured access, provide a rapid response, and

are durable, but on the other hand they are a static defence, have predictable orbits and immense logistic expense, require a significant constellation size, and there are legal consequences for deploying space weapons. Baines argued that the deployment of space weapons would have negative implications for strategic and political stability, the environment, industry, and international co-operation – and ultimately these negative consequences, their limited military advantages and immense cost outweigh any benefits from space weapons.

Andrei Vinnik, of the Russian Ministry of Foreign Affairs, examined the political implications of the possible deployment of space weapons. He compared legitimate military use of space for strengthening strategic stability, with activities based on the logic of confrontation and the quest for military superiority – namely, space weaponization. The latter, he argued, threatens to undermine international security and stability, and to incite an arms race of symmetrical and asymmetrical space technologies. Vinnik described the June 2002 joint proposal, led by Russia and China, which put forward a possible draft treaty preventing the deployment of space weapons. He explained that this initiative was designed to facilitate peaceful activity and multilateral cooperation in space, and to protect objects currently in orbit, by preventing an arms race in outer space.

Securing Space for Peaceful Purposes

Jonathan Dean, of the Union of Concerned Scientists, assessed the current legal regime related to outer space activity, which includes but is not confined to the 1967 Outer Space Treaty (OST).³ Dean argued that this body of law establishes a legal norm against the weaponization of space, and also places certain constraints on potential space weapons development. He argued that to use weapons against any early warning, imaging or intelligence satellite would violate the concept of non-interference with national technical means of verification, described in the SALT and START treaties. This principle provides the basis for General Assembly resolutions calling for non-interference with communications, weather and GPS satellites. He also suggested that there are grounds for the UN General Assembly to call for an Advisory Opinion from the International Court of Justice (ICJ) to assess specific actions the US might take in pursuing space-based missile defence for example, and establish a legal opinion on the validity of pursuing space weapons. Articles VII and IX of the OST allow for consultations to resolve dispute over space activity, including a Liability Claims Commission. Dean argued that immediate steps should be taken to demonstrate international concern over US intentions.

Assessing options for a space security regime, Rebecca Johnson, representing the Simons Centre, argued that although the technological prospect for space weaponization is some years away, political action on this issue is of immediate relevance in view of the Bush administration's ideological approach and military

³ Others are the Partial Test Ban Treaty (1963), the Astronauts Rescue Agreement (1968), the Liability Convention (1972), the Registration Convention (1976) and the Moon Agreement (1984), as well as several General Assembly resolutions and the conditions of the SALT and START treaties.

doctrine. Johnson suggested that to ensure continued dialogue with the US, the international debate needs to be framed not as a polarization of those for and against weaponizing space, but rather in terms of ensuring the present and future security and safety of the assets in space on which we now depend, and also of advancing security on earth. Some of the strategies Johnson proposed to lay the groundwork for a comprehensive space security treaty included alliance-building across military, political and industrial sectors; information sharing to strengthen advocates of a space weapons ban and contribute towards unifying States behind a coherent concept of space security; and maximizing the engagement of global civil society around achievable goals to prevent the weaponization of space.

Responding to these presentations, Clay Moltz of the Monterey Institute argued that the time is right to pursue space arms control – noting that there were signs that Republican members of Congress have reservations about the push to weaponize space. He suggested some immediate steps to set the stage for a future ban, including confidence-building measures involving debris mitigation, unilateral national declarations or commitments not to develop space weapons, public education and a UN Convention on non-interference with satellites.

In his response, Li Song, of the Chinese Ministry of Foreign Affairs, noted the centrality of US policy in international options for addressing this issue and encouraged wider discussion within the US and the engagement of a variety of actors, including NGOs, which he said have a role to play in providing expertise and promoting awareness for wider public debate. Acknowledging the variety of proposals and approaches on the table, he cautioned against becoming frustrated, stressing that the process itself is an important step toward promoting awareness and developing international consensus on the issue. While advocating that the CD should assume the lead in negotiations, Li Song encouraged discussion in a variety of fora to promote this issue and make steps forward.

Pursuing a Space Weapons Ban

Participants differed in opinion regarding the best approaches to pursue space security and a space weapons ban. Below is a summary of the major arguments and counter-arguments raised:

- An incremental approach was favoured by many, to achieve regulation in specific areas where there is currently agreement, thus improving space security in the short term, while preparing the ground to achieve the longer term goal of a space weapons ban. Concerns were raised, however, that though specific steps can be part of a gradual approach, they need to be integrated into a holistic strategy with the clear aim of a comprehensive space weapons ban. The fear is that interim measures could take years of negotiating, allowing the core issue to be avoided, while space weaponization continues to be pursued until it is a fait accompli.

- A market-driven approach to space regulation could have advantages in preserving and maximizing the economic benefits of the peaceful uses of space, while taking into consideration the exorbitant costs of developing space weapons. Others cautioned that commercial uses of space should not drive the debate, and that care must be taken to prevent arguments about their vulnerability being manipulated or accepted as a rationale to permit weaponization.
- Several participants addressed the CD's role in negotiating a space weapons ban, expressing frustration with the continued stalemate and with its inability to establish a program of work. It was recognized that compromise would be required to begin multilateral negotiations on PAROS. The CD was called the 'logical' place for these discussions, but many also acknowledged that the issue might need to be addressed in a variety of fora.

Participants also proposed several measures that would immediately increase the security of outer space for current peaceful uses, and could help lay the groundwork for a space weapons ban:

- Confidence building measures, including unilateral or bilateral statements of opposition to space weaponization, pre- and post-launch notification to build a framework of trust and increase transparency.
- Debris mitigation, tracking and elimination to address one of the greatest concerns about space security – the increasing presence of space debris and its potential to damage and destroy space assets. Suggestions include improved tracking of debris, 'space worthiness licenses' granted to those in compliance with debris mitigation standards, and cooperation to develop debris elimination technologies.
- Space traffic control, or rules of the road, to regulate space activity and improve transparency. Some suggestions include management of access to orbital slots, establishment of 'keep out zones' or buffer space around satellites, improved tracking, standard practices for de-orbiting, and limitations on frequency of launch.
- Non-offensive defences – decoys and maneuverable satellites, and providing redundant or spare satellites – should be encouraged as effective and non-threatening alternatives to weaponization
- A UN resolution on non-interference with satellites might receive support from commercial sectors and the US government.
- Increasing public awareness about the prospect of space weaponization and the debris issue would serve to decrease space 'illiteracy' and motivate public action.
- Analysis of the long-term costs of space weaponization to explore cheaper, alternative forms of space security.
- Linking members of industry, military and government who are skeptical about weaponization to maximize this opposition.

- Broader awareness and discussion within the US, to motivate public engagement in US policy development.

Conclusion

Outer space offers immense potential for commercial, military, and scientific use, but these beneficial opportunities are threatened by the prospect of weapons testing and deployment in space. Broad international support for a space weapons ban has been frustrated by the continued stalemate in the Conference on Disarmament. Meanwhile, the US drive to develop space weapons appears to be accelerating, pulled along by the current administration's plans to deploy multilayered missile defences. By bringing together diplomats and nongovernmental experts in Geneva, this well attended conference fulfilled its purpose of furthering an important international debate. In particular, it highlighted several immediate steps that can be taken to address the broader question of achieving security for space assets and assuring access to space for peaceful purposes, while encouraging continued discussion towards a multilateral instrument to ban the deployment and use of weapons in, from and into space.