



مركز تريندز للبحوث والاستشارات
TRENDS RESEARCH & ADVISORY

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Trends-SWF E-Symposium

Space, Security and Stability and the Middle East: Relevance, Rights, and Responsibilities

Tuesday – October 19, 2021

5:00-7:00 PM, UAE time

Overview

The space domain is undergoing a significant set of changes. A growing number of countries and commercial actors are getting involved in space, resulting in more innovation and benefits on Earth but also more congestion and competition in space. From a security perspective, an increasing number of countries are looking to use space to enhance their military capabilities and national security. Most of the space applications they are developing are not new. What has changed is the proliferation of these capabilities beyond just superpowers.

This creates an increased risk that incidents in space can spark or escalate conflict on Earth. As well, the actual use of offensive counterspace capabilities could have long-lasting consequences for humanity, whether through the loss of critical space capabilities that underpin the global economy and societies or through the creation of long-lived space debris that hinders future space activities.

Multilateral discussions on space security are stuck: they have not been able to make much progress on space security issues and have been having the same arguments for decades. Furthermore, given geopolitical complexities, the gulf between various established space powers as to what is considered to be a space security threat is widening; meanwhile, emerging space actors are not substantially engaged beyond rhetoric, yet space security and stability affects all.

In order to truly see that space continues to be accessible to and usable for all over the long-term, all stakeholders should be part of the conversation about how best to work toward a predictable, stable domain. It is important to improve the capacity of all actors to understand the relevance of space security to their continued benefiting from space and to ensure that the solutions generated meet the needs for all space stakeholders.



TRENDS Research & Advisory and the Secure World Foundation (SWF) co-hosted an e-symposium which aimed to highlight the importance of space to the people of the Middle East and to discuss why space security matters; the current state of counterspace capabilities globally; the role countries of the Middle East can play in multilateral discussions on space security and identifying responsible behavior on orbit; and paths forward to generating progress in multilateral fora on these issues.

The event consisted of two panels, each with several speakers and a short open discussion. Panel 1 discussed “The Importance and Relevance of Space to the Middle East.” Panel 2 addressed “Space Security and Stability: Status, Vulnerabilities, Ways Ahead.”

The event was moderated by **Dr. Stephen Blackwell**, Director of Strategic Studies and Scientific Advisor, TRENDS Research & Advisory, Abu Dhabi (UAE) and **Victoria Samson**, Washington D.C. Director of the Secure World Foundation (SWF), Washington, DC.

Executive Summary

Prof. Kazuto Suzuki: *Current Status of Space Security and Stability*

The current state, according to Dr Suzuki, is quite difficult and dire, largely because there are two opposite trends. Firstly, there is the increasing importance of space in society, everyone uses space daily. Secondly, space is being used more and more by space for military purposes, that space is the area of strategy-power domains. A very peaceful use contrasting with a very combative use. There are likewise two kinds of people working in space, those who are more commercially driven and working the civilian side and want to maintain stability, and those who have less interest in sustainability and work to maximize military control over space. This is the basis for the discussion on how to develop order in space. Space is very vulnerable, it is easy to access and hard to protect satellites once in space from physical (and often technological) attacks. There are a lot of incentives to attack someone’s space craft, and this incentive is the one that we need to address and reduce. There is a growing issue of non-intentional accidents, aka space debris and space traffic. As per Dr Suzuki, now have two issues: how to avoid intentional disruption/attacks and how to mitigate the issue of space debris and space traffic disruption/accidents. This is particularly important for the users of space, including countries in the Middle East, those who are using space as the basic infrastructure for society (communication, weather forecasting, GPS, etc). To establish this stability in space, we need to balance the use of civilian,



commercial, and military spacecraft. How do we control the traffic in space? Unfortunately, there is no fixed definition for Space Traffic Management (STM), this needs to be resolved. Furthermore, space is not the kind of domain in which traditional power structures can be applied. On the earth, the international order is based on geography, we can define borders and territories, and control can be established within these regions. War fighting is about protecting your assets and territory. In space, you cannot define this geography, and instead you have to protect constantly moving individual spacecraft. They face both intentional and unintentional threats. Securing the spacecraft and the systems requires constant surveillance of position, surrounding satellites and debris, and changes as such. This is where SSA and STM enters, since as per the presenter, we need to improve the transparency of spacecraft and space debris. With transparency, you can clearly understand the intention of other spacecraft, whether benign, hostile, or space debris. It is equally important to understand the intention of others as well as the movement of others, it allows nations to reduce their suspicion and paranoia around others. We need to improve SSA and the exchange of information and intent. Japan and the UK are trying to establish a high standard of transparency, leading by example and showing other countries that this is a safe and sustainable way to protect all space satellites, to make sure all feel comfortable and secure in their operations when concerns arise with the UK or Japanese satellites. They aim to set a precedent and normative standard on how to approach other spacecraft, streamline and reduce space traffic, and decrease space debris.

In closing, Dr Suzuki stated that Japan is planning to set up a new regulation for licensing private companies to operate rendezvous and proximity operations (RPO) with the highest transparency to notify of its operation. The transparency will reduce the opacity and anxiety. Japan is committed to set up a standard of behavior in orbit as a precedent that may be followed by other operators. It is unilateral and non-legally binding, but given the current dire situation in space security, it is the time to act and do something instead of repeating the same argument all over in Geneva and Vienna.

Dr. Jessica West: *Space Security and Stability: Norms of Behavior*

Norms have a key role to play in promoting security and stability in outer space. In contrast to law, which dictates what actions 'must' be taken, norms, as per Dr West, refer to what specific types of actors 'ought' to do. Three elements are key: norms inform and are reflected in *behaviour*; these behaviours are rooted in *shared values and principles*; and there is a strong social or moral *obligation to comply*. Norms might not be law, but we expect them to be followed, and we notice when they are not. Examples of norms in space include many of the behaviours related to space traffic management.



According to the presenter, norms can facilitate strategic stability by helping to avoid unintentional conflict. Established norms of behaviour for specific types of activities can help to interpret – and avoid misinterpreting – the actions of others. Many behavioural rules and practices serve as transparency and confidence-building measures (TCBMs) that help to allay mistrust. Norms related to rules or restraints on the use of weapons can help to mitigate some of the insecurity and instability that is derived from technical capabilities, particularly when dealing with emerging, dual-use, or rapidly changing capabilities. Finally, norms help to stabilize legal regimes by filling in the details about how laws are interpreted and put into practice. In short, norms are the glue of collective governance.

Norms of behaviour already exist in outer space, but most of these are related to the values of safety and sustainability. Significant work is needed to extend norms to include practices related to the military uses of outer space and to align them with this existing framework.

To do this, process is key. Efforts to develop additional norms must be as inclusive as possible, including a wide range of actors in space as well as space users. Starting with shared values and principles, the process should seek to build likeminded by focusing on mutual obligations and benefits. Reflecting on response to the discussion on norms initiated by the United Kingdom in 2020, two key areas stand out for progress: mitigating risks within the operating environment by prioritizing transparency, communication, and data sharing mechanisms; and addressing the threat posed by debris by considering actions to ban or restrict the testing of kinetic anti-satellite weapons (ASATs).

This international discussion is expected to continue within the United Nations under the auspice of an Open-Ended Working Group. In contrast to traditional approaches to strategic stability, participation by small and middle-sized states is essential to the development of norms. These voices are needed to reinforce the collective values in the Outer Space Treaty, to advocate behaviors that align with those values, to call out bad behaviour, and to adopt thoughtful policies at the national level as examples of best practices going forward.

In closing, Dr West emphasized, that we all have a role to play in holding the international community accountable for actions in space and making sure that they reflect and nurture our fundamental values.



Ms. Almudena Azcárate Ortega: *Multilateral Space Security Discussions: Outlook and Policy Implications*

The speaker started by stating that security in space has been of concern since the launching of the first satellite in 1957. The international community has realised early on how much our way of life depended on space. This concern by the international community with the issue of security in space increased especially when the latter became a military domain. The international community has realized that 'our' way of life is highly dependent on space and therefore has concluded many treaties regulating the use of space.

The speaker highlighted the efforts made by the United Nations in achieving the Binding Convention on the Regulation of Space Uses and Prevention of conflicts and disputes. First, the concretization of these endeavours was the 1967 outer space – treaty. It has left too much freedom to the individual states. Too many developments have taken place since regarding space technology and space usages, therefore, new regulations and norms were needed.

The speaker pointed out that in spite a general consensus within the international community of the danger of arm conflict in space could represent to the life on earth, efforts during the last 40 years have failed to achieve a binding treaty.

Russia and China have proposed a legally binding treaty in 2008 but this also has not received enough support from the international community.

Prospects according to the lecturer are not all bleak for discussions continue, in 2020 UK organised conversation on issues of reduction of threats and of principles of responsible behaviour, and it was bottom-up approach where the individual states have to commented where 30 states came up with propositions on the issue of discussion and have highlighted common concerns, and the dialogue is encouraging and came to a common understanding.

Ms. Krystal Azelton: *The Role of Space in Monitoring Climate Change*

Krystal Azelton started her presentation by pointing at the benefits of studying the Earth's transformation through the use of satellites and continued by introducing the concept of "Human Environmental Security".

Azelton emphasised that the use of space data to inform climate adaptation and mitigation policy is not a recent product. Indeed, the 1987 Montreal Protocol, which is the 1st international agreement focused on addressing global environmental concerns, found its *raison d'être* in the NASA satellite data about the early problems with the Ozon depletion around the South Pole.



Azelton stressed the strong relation between the success of the societies' response to climate change and the societies' capacity to understand, anticipate, and prepare for such climatic transformation. In this regard, the role of space data is of critical importance as far as it allows scientists to better understand climate change and, consequently, leading policymaker to adopting more effective measures. The general rule of thumb is "if you can't measure it, you can't manage it".

Space data have a great range of applicability when it comes to climate change. Indeed, they are of critical important to measure the levels of the sea water and emissions in the air, or to track deforestation, desertification, and wildlife.

The importance of data relies in their capacity to improve models. This triggers a reaction chain where better observation led to deeper understanding, and, consequently, more effective predicting and policing.

Azelton continued by referring at the critical importance of realising partnership capable of including academia, government, and commercial dimensions in order to make satellites as much smarter and agile as possible.

The fact that stakeholders in the battle against climate change are quite diverse among themselves is not a negative fact according to Azelton, on the contrary, such degree of diversity among the actors involved help to make the climate change initiatives a global effort.

In concluding her presentation, Mrs. Azelton presented 5 challenges ahead concerning space data and their use:

1. Data Continuity: a constant inflow of investments in research activities is very much needed,
2. Growing Awareness: the recognition of the importance of data by the policy is necessary,
3. Data Accessibility: to be useful, data must be accessible to most people. This means guaranteeing internet access and interoperability of the data among different system,
4. Continuing Training & Capacity Development,
5. Space Sustainability: satellites must be usable, effective, and sustainable tools once in orbit



Dr. Jill Stuart: *Space Priorities and Challenges in the Middle East: A Geopolitical Perspective*

“The HOPE probe is orbiting Mars. Oman is also looking to place their first sat into orbit, and Qatar, Egypt, Bahrain, and Israel all are getting involved in space. There is a huge interest in space activity in the region.”

Instead of focusing regionally, however, Dr Stuart looked at why any country invests in space activity? It is expensive and risky. It is geopolitical and “noble”.

From a geopolitical standpoint, it comes down to power and prestige. Highly visible activities such as exploration and crewed activities capture global headlines, allowing a country to establish global power and prestige in a respectable manner. If a country can have a space program you demonstrate you have a strong economy, a strong political background which can support macro, long-term projects, and establishes that you have strong international relations, as partnerships are also needed. Next, space activities demonstrate that you have strong technological and military technology into space; if you can launch a sat you can launch a missile. Finally, they demonstrate leadership. If you can be the dominant space force in the region you take on a leadership role.

A second argument, according to Dr Stuart is that science is Noble. Science inspires youth to get into STEM, and science bolsters space infrastructure, a critical component of a modern country’s system. Environmental monitoring goals to track critical changes. Development goals within a country, there are a myriad of ‘noble’ reasons to get into space. In combining geopolitical and noble you get security. Traditionally, space security = military security. It was space centric and about a country’s ability to defend their infrastructure in space. But in line with an evolving understanding of security today, let us redefine it as “contemporary space security” = space for security + security in space + security from space. This involves space traffic management, protecting against natural phenomenon, and the idea that space can ensure a safe life on earth (i.e. monitoring climate change, agriculture, development, etc.). Returning to the topic of the Middle East, it makes sense that many are investing in space. It benefits them geopolitically and to insure the safety and security of individuals and the globe at large.



Dr. Brian Weeden: *Global Counterspace Threat Assessment*

Dr Weeden talked about Global Counterspace Capabilities (GCC) as a grounding point on the threats to space security. GCC are the abilities for countries to work against the space actions and goals of others. Here are a few kinds: direct ascent and co-orbital satellite weapons, things that approach and attack a target in space by a variety of means; Directed energy, weapons that user focused energy to disrupt the working of satellites or to outright destroy them; electronic warfare, using radio frequency to jam or disrupt communication between states; cyber, using software to compromise, control, or interfere with active states and space tech; space situational awareness, key to both offense and defense. Like most things space related, these categories and capabilities were developed during the Cold War. Some were tested and a few operationally deployed. During the end of the Cold War the US begin developing more direct systems such as GPS and tracking systems. This movement spread globally, seeing operation during the Gulf and Iraq war. While the US has the most robust capabilities, dozens of countries are looking to use space capabilities for their national security benefits. This includes reconnaissance and tracking as well as mussel detection capabilities. This use and increasing in military space capabilities has spurred a resurgence in counter-space capabilities. Look at the increase in ASAT tests, it has ramped up since 2005 with US, Russia, China and India all getting involved. *Pivots to a global assessment of the current capabilities of various countries, assessment is continuously ongoing.* There are a number of countries either with these capabilities or exploring them currently or plan to in the future. We are seeing that non-destructive capabilities as the most frequently used. This is good news in part, as they have less of an impact on the sustainability in space environment, they don't create as much space debris. However, we are seeing 3-4 countries who are doing R&D and testing of ASAT capabilities. He will close in referencing two publications: SWF GCC report, and the center for Strategic International Studies report Defense against the Dark Arts of Space

Mr. André Rypl: *Looking Ahead to Improving Space Security and Stability*

An increasing number of geopolitical competitors attempt to seek superiority as countries develop counterspace capabilities. As rivals attempt to position their respective space programs as impetus of economic growth, security advantage and diplomatic leverage, narrative of new space race underway emanates.

Mr. Rypl's is of opinion it would be beneficial to frame a long-term competition driven by national, regional and geopolitical goals. According to Rypl: "the process being the key".



The way we move forward determines how successful we will be. We need to trust what we do we are doing in earnest. Questions to be talked about to focus this process: what do we agree on and what do we want? We want a stable environment; no one wants to see an armed conflict in space. If you have an incident, not even an act of aggression, you harm everyone in space. If an armed conflict occurs than everyone will be hurt, not just the combatants. We all agree that this cannot arise, but that is where agreement sometimes ends. Countries bring baggage and olden concepts to talks around space where they do not apply/commute. We cannot be talking about deterrence and resilience in space, those require terrestrial applications, this is space. You cannot retaliate in kind in space. It is these morals and approaches that we are disagreeing over, not the desired goal. We need to work on interplay and dialogue between actors. We need to be more flexible, a bit daring in our thinking, think outside the box. Talk about disarmament as a way to preserve space as a peaceful environment, we need increased awareness and education to inform our discussion. For diplomats this is key. He notices, quite often, that location determines mindset, where you come from determines your goal, mission, and background. Greater awareness and mindfulness of others in this conversation is absolutely crucial in order to understand their stake. We also need to look at including private sectors in these conversations. Conflict in space is bad for business, they want and need to be involved in these discussions. As diplomats, how do we bring their concerns into the conversation? In Vienna antiquated structures prevent key dialogues from occurring. We are going through a moment of change, not only in space activity, but in how we address the new leveling field, the rise of private sector, and the need for future, multi-party sustainability. We need to be open minded in our approach, more flexible and creative. Such changes will allow shared understandings to reveal themselves. We do not want a conflict in space, we cannot afford a conflict in space. We need to be reminded of what we are working to achieve, this goal must maintain its focus and importance.

Stakeholders, especially connected to governments shall be involved and diplomats' role is to how to address them, remaining flexible, creative and open minded.

The key matter remains in agreeing that we do not want a conflict in space. Once this is agreed upon, then the discussion on how the work is supposed to be carried out, shall follow.