"Space Security: Why It Matters"

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Thank you for having me here. I was asked to step back and try to provide a contextual discussion on space security and why it matters. The goal is a predictable, stable space environment that will allow us to continue to enjoy the benefits of use of and access to space. A growing number of actors are using space for an increasing variety of socioeconomic, security, and commercial benefits. However, many of these activities utilize the same regions of Earth orbit, leading to crowding and potential interference. Unsafe or irresponsible actions by one actor can have long-term consequences for all.

The goal of space sustainability should be not to prevent beneficial use of space, but rather to ensure that it is done in such a way as to preserve the utility of Earth orbit for the long term. Fostering international cooperation, strengthening stability, and promoting responsible actions to help prevent mishaps, misperceptions, and mistrust are all key elements of space sustainability

It is important to remember that while space is a vacuum, the politics of space do not occur in one. Activities in space generally are not the impetus of hostilities on the ground, but rather the other way around. If we wish to have an effective international approach to the space security challenge, we must recognize that international relationships on other issues will affect this and respond accordingly.

There is a tendency to put space in its own category: many people tend to think of space as a question about scientific or technical capacities (human space flight, planetary exploration, and so forth). However, space is just one part of the overall security spectrum.

So why is space a security issue? The most obvious answer is that conflict on the ground can lead to conflict in space. Or vice versa; conflict in space can affect relationships or security here on the ground. Accusations of bad intent in space will have consequences. Additionally, actions in space, decisions about space spending, resource allocation of national capabilities – those can all have ripple effects and thus either help or harm other initiatives.

There is no one single approach that will make space secure, just like there is no one single action that will inherently make the international political system secure. Rather, there are a series of behaviors in or decisions about space that will lead to a secure, stable space environment, again, much like how for international security, there are many factors that can enhance or weaken it.

There is the worry about space activities affecting security on the ground. It is not always going to be as obvious as one country does something and this leads to a shooting match on orbit. (Just to be clear, we obviously want to avoid this type of situation.) But also it should be said that very few people think that an exchange of hostilities in space would be the only place such hostilities would take place. Instead, it most likely would be a part of a larger security upset.

As always, there will be shades of grey, as there are various levels of interference with space assets, and various possible causes for that interference. Given all these questions, when there is interference in space assets, how do we determine the originator and cause of this? What is considered a fair and reciprocal response? Complicating matters is that with the continued emergence of new actors in space, it is increasingly likely that a pre-existing political enmity will get caught up with space politics/activities.

As well, conflict in space can affect all space users, even the ones who are completely unrelated to the conflict. If two countries begin attacking each other's satellites, the debris that would be created from the conflict would not discriminate where it would go- the laws of physics dictate that, not political considerations. So it is entirely possible that innocent bystanders would see their very expensive space assets being affected by a conflict which had nothing to do with them.

Along those lines, space assets are extremely international. It is rare indeed to have a satellite that carries communications for solely one country; more often, we see satellites of one country carrying TV signals or communications for one or more other countries. So there is also the possibility that a satellite your country depends on for national communication – even if it's not your own – could be harmed by interference with or debris created by an outside conflict. An example of how internationalized space assets have become is that 80 percent of U.S. military's satellite communications is carried over commercial satellites.

There are several ways that space can affect strategic security and stability. Space is used to enhance national security through military surveillance, communications, position, navigation, and timing, etc. For countries that depend on their space assets for military surveillance, the loss of those assets could cause them to assume that worst and to respond accordingly in a military manner. But space is also used by commercial entities that allow for our economies to function (banking and so forth). We have seen rioting in countries where the economy was disrupted by

various shocks, so we have seen how disruptive those economic shocks can be to national security.

As was mentioned earlier at this conference, space is used to help national development (via tele-health, tele-medicine, agricultural monitoring, etc.). If that were interrupted, it could have consequences for national and regional security as well. In general, more and more countries are finding that their daily lives are wrapped up in data derived from or capabilities garnered from space assets. When that is disrupted, it can lead to hostilities on the ground. We only have to look at the history of the Cold War and arms control agreements which, even at the times of the most strained relations between the nuclear superpowers, had clauses which specifically protected each other's national technical means (that is to say, satellites). Those agreements were written decades ago, and our dependence on space has only increased since then.

The concern for international stability is how space affects overall strategic relations. If countries are in dispute over space activities, it is likely that they will become less cooperative on other issues. The converse is true as well: cooperating on space activities can open up the possibility to cooperate on other issues. At the very least, this helps provide the chance for different countries to become familiar with their international counterparts, which could be helpful further down the line. It also establishes an expectation of cooperation that can be very useful when trying to work on sticky security issues elsewhere. For example, SSA sharing requires, as we heard yesterday, the ability to know who to contact when a possible satellite conjunction might occur; as well, it enhances mil-mil communication between countries that might not otherwise have much military contact.

Attribution in space is a challenge. If a satellite doesn't work, it is not always clear why – we only need to draw attention to Phobos-Grunt's failure this past fall to see how many different theories can be proposed for why a satellite fails on orbit. It could be a quality control issue, it could be caused by space weather (or solar radiation) harming the satellite's sensitive electronics, it could be due to the sheer technical complexity of what the designers were trying to achieve – after all, this *is* rocket science – or, it could be unintentional or deliberate interference. If we have established an environment of cooperation on space, this allows us to work through the various possibilities when satellites malfunction and prevents us from immediately jumping to the conclusion that it was a deliberate and malicious act, and perhaps reacting in a rash manner. This may allow cooler heads to prevail and prevent confusion from turning to outright hostilities, where it could spill over on the ground.

One common element we are seeing in space is an international approach. This recognizes several characteristics of the space environment. One of these is an acknowledgement that space is a shared domain; as such, actions by one entity can affect the ability of all to use it, so an international approach is necessary. But another reason for this collective approach is the recognition that even if countries wanted to go it alone in space, they cannot financially afford to do so any more. This perspective – recognizing the importance of handling space security through international mechanisms - could help strengthen relations so that there are ripple effects elsewhere.

At this meeting, we have heard about several different approaches which move away from the more traditional, more formal methods of dealing with international security issues. The Group of Government Experts' work on space transparency and confidence-building measures, the draft international Code of Conduct, COPUOS' work on the Long Term Sustainability of Space Activities – these all involve a collective, non-legally binding approach to dealing with an issue of common interest. This could be a model for how to handle increasingly complicated security issues which cross multiple national lines.

Whether or not a treaty is eventually done on the issue of space security, there are concrete steps which can be taken now by space users that could lead to stability in space and on the ground; we should not lose sight of that. We have had many years to figure out cooperation on other shared domains, so we should recognize that figuring out how to share responsibility for space may take a while to build up established norms of behavior and not be discouraged if measurable progress does not immediately occur. There are difficult issues which may not be dealt with for a while, so this is a perfect case of seeking out the low-hanging fruit to achieve momentum for cooperation, which will allow us to work toward the more complex aspects of space security and stability later on. All we are looking for is progress and seeking out the realm of the possible. This is not to say that we should give up on the more challenging aspects, but instead should be cognizant of the complexity of the task we have set for ourselves.

There are some lessons learned from space security that could be transferrable to other security issues. The first is the importance of having a common lexicon, or at least a shared frame of reference. I am not saying that having universal agreement about the nature of the threat is crucial, as that most likely is not going to happen. But it is important to have a general consensus on what key terms mean, because otherwise we may end up heading in different directions or have perhaps contradictory end-state goals. For example, there is a lot of discussion about how crucial it is to have responsible space behavior, so it would be good if there was a definition that everyone could agree to. It is hoped that norm-building exercises like the proposed draft Code of Conduct will lead to a fuller definition or understanding about responsible space behavior. As well, red lines in space are not, generally speaking, very useful. This is because their very existence tends to imply that anything up to the red line is acceptable, and that may not in actuality be the case. However, if there truly is a certain action by one country that will invoke an active military response by another, it might be useful for that understanding to be shared so that decisions can be made with full knowledge; in other words, there is no use having a secret red line.

Having strong international norms of behavior will allow for a stable and predictable environment. Legally-binding treaties, while standard for many arms control and disarmament topics, may not be called for in every circumstance. This is particularly the case for issues where current events are overtaking the diplomatic process (and I think the typical example for that is cyberspace). We don't want perfection to be the enemy of good enough. The challenge of establishing a legal framework is getting a harmonized response. It is important to emphasize that norms of behavior versus legal regimes is not an either/or proposition.

Another lesson learned from space that might be transferable to other strategic security issues is the importance of bringing in all stakeholders on an issue – in space's case in particular, the role

of commercial actors and civil society. I understand that the UN is an inherently state-centric model, but the necessity of including the commercial sector in any solution or governance model that attempts to regulate and ensure a stable space environment should be recognized. As an aside, one of the criticisms of the CoC that we have heard here is that the process initially was not as inclusive as it could have been; this leads me to ask if commercial actors and civil society will be able to participate in the international discussions that will be held this summer on the CoC. Otherwise, you leave yourselves open to accusations that a norm-building event was held but not all the stakeholders were included. Again.

Overall, I am encouraged by the focus on space security and sustainability here, and hope that we can work together to help ensure a stable, predictable international security environment. Thank you.