

## Practical strategies for the sharing of information

Let me say from the outset that I do not have answers to address all the problems and the risks associated with the use of outer space technologies which can be misused, or whose legitimate use can be incorrectly perceived. But I can share with you some of my experience with the discussions that take place in Vienna.

As you know, COPUOS, as its name implies, deals with the peaceful uses of outer space. This is in itself an interesting point, as it is often difficult to determine whether a given technology or activity in space belongs only to the scope of peaceful uses, so we are often faced with the need to define whether a specific point is in line with our mandate. This can be quite challenging. Dual-use is always present when we examine outer space technologies, even those that are seemingly harmless. Our exploration of outer space has its origins on military technology – if you have been to the Smithsonian Museum in DC, you will have seen the V2 rocket. GNSS systems, of which the best known is GPS, were originally designed as military systems. Even systems devices that are purely civilian in nature could be classified as potential threats in outer space, depending on how they are used. Even earth observation and communications are additional clear examples of such. Any satellite – and that includes microsatellites – can be turned into a kinetic weapon.

So this discussion we are having here is of huge relevance. The use we make of space technologies is what determines the perception of a threat in outer space. However, threat assessment in outer space is affected by a number of different factors, simply because our ability to determine what happens in space is limited. As far as space is concerned, decisions are made based on incomplete and imprecise information. A very simple way to illustrate this problem is the tracking of debris. We do not know how many pieces of debris there are out there and we can only track only a fraction of total debris. But even the information we have about tracked fragments is shaky– I recently attended a presentation by professor Moribah Jah, of the University of Texas in Austin, where I learned that depending on source of tracking information I use, I receive completely different information. Basically, the same fragment can be said to be at three different places at the same time – this is even worse than Schrodinger's cat. Now, if we think that this is

information is used to inform decisions on perceived threats, I would say we have a problem.

But debris is not the only problem. How do we perceive and interpret the intentions behind a proximity maneuver? From here on Earth, how can we tell between a normal operation required to correct the trajectory of a satellite or a less friendly alternative? How do we then react?

An additional source of risk is that space objects are not fully shielded from external interference. Satellites receive commands from ground stations. A scenario in which hackers seized control of a satellite and used it as a weapon is not science fiction. Once again, how do we react?

These examples indicate that we may not be ready to address such events. We carry out our space operations and hope that any incidents can be sorted out some way or another. But this means that we lack formally agreed mechanisms or procedures to tackle situations of risk or actual incidents. We lack standards to share information – we do not even have a commonly agreed set of parameters that should be shared among space actors, a matter that is compounded by the fact that information on space objects can also be a matter of national security.

In my view, we underestimate the risks and the consequences of a conflict in space. In a sense, we carry on and hope for the best when we should be taking concrete steps to develop approaches that would not only prevent incidents but – and more importantly so – provide us with a mechanism to deal with them. The TCBMs developed in Geneva were an important first step, but we need rules.

But we can only develop rules if we can raise awareness of this scenario and its possible consequences, like we did in the past with nuclear technologies. We were able to act and address the risks posed by WMD and nuclear technologies. We have not, however, been able to do the same with regard to the space environment – and this probably has to do with the fact that policymakers and the public are not fully aware of the potential consequences of an accident or a conflict in space, which would be far-reaching and affect all of humankind.

Progress in developing solutions is hampered by the fact that the use of space is intrinsically associated with domestic security. This was not so serious when we had two space powers. Today, this number has multiplied dramatically and, in

addition to space actors, we also have to take into account the activities of the private sector, which mean that we also have to account for the risk of economic conflict.

-x-x-

So, this is our picture. What can we do? I would like to briefly share with you what we have been doing at COPUOS. COPUOS consists of the Committee proper and two subcommittees, one devoted to scientific and technical matters and the other to legal affairs. All decisions at COPUOS are the product of consensus, meaning that issues never go to a vote. This means that progress is slow and some discussion can take a long time. This also means that decisions made there carry substantive political weight.

This political weight means that COPUOS plays a key role in providing elements to address conflict in outer space. First, it provides a forum where consolidated, new and aspiring space actors have a voice. This means that any proposal there reflects a balance of views. In this regard, COPUOS works as a forum for the discussion of the problems that affect space operations. Although the Committee has since 1979 focused on non-legally binding instruments, it has produced guidelines on matters such the use of nuclear power sources, the mitigation and remediation of space debris and the preservation of the sustainability of outer space activities. We are currently discussing matters such as the potential impact of the use of space resources, the proliferation of small satellites, the use of space technologies to support the SDGs. The interest and recognition of the role that COPUOS can play is best illustrated by the enlargement of the Committee, which now has 95 member states, as well as several observers.

But how can we affect this environment? The most important point is that our discussions raise awareness of the risks that affect the sustainability of outer space, and also of what we may lose in the event of an incident in outer space. The importance of this cannot be overestimated. By engaging in COPUOS, more and more states and non-state actors understand that space environment has to be protected and preserved, very much like our environment on Earth, with the difference that the balance of the space environment is far more delicate.

But in addition to raising awareness, COPUOS promotes and creates condition for engagement and dialogue. Whereas we often hear of the deadlock in the

discussions in other fora, COPUOS still makes progress. Slowly, but steadily. Without COPUOS, states would not have another forum to share their concerns.

And what I have witnessed from the discussions there is that we are gradually fostering greater engagement – and commitments to the preservation of space. This was particularly the case with the negotiation of guidelines on LTS – this is a process that started with discussions on practical approaches to technical aspects of space operations but then went to include elements of TCBMs, the sharing of information, capacity-building and the need to preserve space for peaceful uses. In the end, we managed to agree on 21 guidelines and seven others remain open for discussion. While we still have issues to address, the LTS process broke new ground in many ways, particularly in the way it provided a channel for countries to share their concerns about space operations and the sharing of information. Discussions on topics such as space situational awareness, space traffic management, in-orbit servicing and active debris removal, all of which have obvious security implications, were first introduced in the context of LTS. For many countries, this was the first time that such elements were discussed by other than just a handful of technical experts. It was the first time that such discussions went beyond the confines of the security and disarmament community. This was the first time that the implications of such elements were brought to a wider audience, including civil society and policymakers. While we still have a long way to go, I believe that this is one direction we could take.

Any why do I say that? Because solutions to such issues cannot be produced by the security community alone. Like other situations in the past, broader participation was needed before the international community could make progress. Just think of arms control and nuclear testing, climate action and development.

One concrete example of how we have been engaging with a broader group is the matter of commercial activities in space, in other words the extraction and mining of space resources. We are now considering the possibility of setting up a working group to develop a governance regime for such activities. Any product of this discussion, because of the characteristics of COPUOS, will be the result of a commonly agreed approach.

I believe that this underscores the importance of developing information sharing mechanisms. We need also greater collaboration across the UN system, so that the

CD and COPUOS can exchange ideas, approaches and solutions. We need to agree on what kind of information should be shared and on a mechanism or channel to share information, such as a UN information clearinghouse for space objects that would complement the existing register of space objects. We also need to get the private sector on board, because their interest in protecting their investments could act as a push towards a more stable space environment.

We need to make it clear that even though space systems are used to support security and military operations on Earth, space systems themselves cannot be subject to acts of warfare or destruction, including interference. There is simply no alternative to outlawing the use of weapons in space. This is a message that the international community needs to understand. There is no way to engage in conflict in space without producing serious and possibly catastrophic harm.

So I look forward to your questions and comments and hope that we can all work together to become advocates for the preservation of outer space.

Thank you.