# Reducing Space Threats through Responsible Behaviours: a UK-led new approach at the UN General Assembly

In 2020, the UK launched the first phase of a multi-year UN process to agree internationally-accepted responsible space behaviours that would increase the transparency, predictability and security of all space systems. The inclusive approach paid off: on 7 December, the UN General Assembly voted (164-Y;12-N;6-A) in favour of the UK’s resolution, Reducing space threats through norms, rules and principles of responsible behaviours.

The resolution mandates the UN Secretary-General to seek the views of Member States on existing and potential threats and security risks to space systems, including those arising from actions, activities or systems in outer space or on Earth, to characterize actions and activities that could be considered responsible, irresponsible or threatening and their potential impact on international security, and to share their ideas on the further development and implementation of norms, rules and principles of responsible behaviours and on the reduction of the risks of misunderstanding and miscalculations with respect to outer space and to compile a report as the basis for “further discussions by Member States”. The Secretary General’s report will set the context for UNGA76 in October 2021.

Without a holistic view of the threats to space, and a view on how to manage them, we risk states developing more, and more destructive counterspace weapons in an arms race. Only by considering all threats to space systems, such as kinetic inspector mini-satellites or ground-based lasers, can we reduce the risk of a destabilising arms race in outer space. Establishing what constitutes responsible behaviour in space would increase transparency and predictability in a relatively new domain – and one on which the security of our societies and economies increasingly depends.

Space is fundamental to the way of life for all people on earth.

Space systems are vital for our **economies**, with the global space economy estimated to be worth around $400bn. Almost everyone is a consumer of space products: everything from air traffic management to cash machines is controlled using information from space. Space systems are essential for our **societies**. We rely on them for communications, navigation (GPS), earth observation, maritime surveillance, ecosystem monitoring, disaster management, precision agriculture, and tele-medicine. These are all essential tools for the global effort to meet the Sustainable Development Goals, including taking action to combat climate change and its impact. For **National Defence**, States also rely on data, communications and positioning information from satellites to protect and defend citizens and conduct operations both at home and abroad.

It is in every nation’s interest to increase the transparency and predictability of operations and to build trust and confidence between States. Defining transparency measures, especially those necessary for enhancing communications would contribute to **reducing the risk of misunderstanding and miscalculation**. That is important as some operations carried out for the common good – for example operations to remove debris - could be perceived as threatening if they are not carried out in a transparent way or are communicated poorly. The risks of misunderstanding and miscalculation would be much reduced if a clear and common understanding existed of what constitutes responsible behaviour in space.

## Why a new approach to threats in space?

While we have made progress on the peaceful uses of space in Vienna, the multilateral bodies working on threats are currently blocked. There is currently no credible way forward. Meanwhile, items on PAROS-related topics have been introduced in to the peaceful uses agenda in Vienna – which creates confusion and risks complicating dialogue on both space security and peaceful uses.

Preventing an Arms Race in Outer Space, PAROS, is an agenda item in the First Committee and the Conference on Disarmament in Geneva. This is where all security threats to space systems should be considered. Discussions in both the CD and in New York on preventing an arms race in space have made little progress over many years. In New York, discussions on transparency and confidence building measures in outer space at the UN Disarmament Commission are similarly stuck.

New technologies are being deployed on earth and in space that can threaten space systems and raise the risk of crises and miscalculation. Most satellites are dual-use and can be used to create a collision. More threatening are kinetic-kill vehicles or direct energy weapons. Russia has announced an earth-based laser system capable of degrading satellite capabilities and Russia, China, the US and India have launched anti-satellite missiles. In addition, space systems can be targeted by cyber-attacks or physical attacks on ground stations.

**International law, such as the law of armed conflict, applies in space**. The principal international agreement governing this domain is the Outer Space Treaty of 1967. It is still relevant but was drafted and agreed before recent technological advances were even conceived.

Vienna hosts the **UN Committee on the Peaceful Uses of Outer Space**, COPUOS, which covers prosperity issues, including legal and regulatory coordination in and of space. COPUOS is the primary multilateral platform for deciding the future of commercial space regulations such as for launch (which the UK is developing) and provides an opportunity for nations to develop their space economies. 92 UN Member States are members of COPUOS which has agreed five international treaties governing outer space.

**21 guidelines for the Long Term Sustainability of Outer Space Activities** (the 21 LTS) took a decade to negotiate and were agreed in June 2019 at COPUOS. These set minimum standards and good practice for space operators, a level playing field for commercial exploration and are grouped into four categories: Policy and regulatory framework for space activities; Safety of space operations; International cooperation, capacity-building, and awareness, and; Scientific and technical research and development. Although these are not comprehensive, the guidelines show that the international community takes seriously the need to keep the space environment sustainable. The next steps will focus on implementation and there is a new working group which will learn from implementation and consider new topics on the peaceful uses of space.

## The new UK approach.

Nations should consider the broad range of threats to space systems and how we might reduce the risk of miscalculation or misunderstanding in deploying these capabilities. It is a question that falls under the agenda of Preventing an Arms Race in Outer Space.

One possible end result is a set of agreed responsible behaviours for space. Such set of agreed practical behaviours could create better relationships and trust between states at a point where nations are a long way from reaching agreement on a legally binding instrument. Agreed behaviours could cover threatening operations in space as well as earth-based activities in peacetime that interfere with the operation of space systems, in their widest definition. They would seek to minimise implications for the operation of the framework of rules, standards, regulation or legislation that enable commercial operations. An agreed set of behaviours would also provide a stronger and more clearly understood basis for complaint if ignored and for avoidance of misunderstandings. It would therefore be in the interests of all states to follow them.

It is possible that establishing what constitutes responsible behaviours in space could be a stepping-stone to a legally binding solution. But we should not allow that possibility to divert us from reaching an earlier understanding on how to better communicate activities in space, thereby avoiding miscalculation and misunderstanding.

In the UN General Assembly First Committee, Russia has launched an initiative calling for all countries to declare that they would not be the first to place weapons in space. The draft “Prevention of the Placement of Weapons in Space Treaty” (the PPWT) was introduced at the CD in 2008 and updated in 2014. The initiative is endorsed by an annual UNGA resolution, which is widely, but mistakenly, supported. It does not take into account the fact that countries – including Russia itself - have already put weapons in to space and that, in any case, many of the threats to space systems emanate from proliferating earth-based systems. The draft treaty is too narrow and does not deal with difficult issues such as verification (once a satellite is in space, it is almost impossible to verify its capabilities) or what a weapon is (many systems which have a civilian purpose can also be used for military purposes).

# Background

In order to ensure the socio-economic benefits of space are available to all nations, now and into the future, we must ensure safe, secure and effective access to space systems and a space environment that is peaceful, protected and free from conflict.

Space is increasingly:

1. **Congested** by a growing volume of satellites and debris. New commercial large-constellations with hundreds or thousands of satellites could revolutionise communications and connectivity, but they will also make the useful bits of space around the earth – a finite resource – more crowded, notably the most sought-after orbits. There are already 34,000 large (>10cm) and several hundred thousand small (1-10cm) pieces of debris orbiting the Earth right now. They travel at enormous speeds: any one of them could destroy the satellites that we rely on and pose a serious risk to human spaceflight. This calls for a better coordination and communication between nations, especially to preserve the right of all countries to explore and use space in accordance with international law.
2. **Contested** by States. An increasing number of actors are developing, proliferating, and employing the means to harm or deny the use of space assets. Various capabilities are able to interfere with space systems and/or their services are in development or already deployed in forces. These can affect satellites from space, from the ground or in cyber space. An increasing number of States and International Organisations are concerned at these developments seeing them as a growing threat to national interests. If States do not address these threats, an arms race in outer space could, as a result, become more likely.
3. **Competed in** by commercial and other non-state space actors. Space presents an economic opportunity in many areas, including Earth Observation, communications and broadcasting. Technology development is running faster than regulation. And some technology designed and used for civilian purposes could have military uses. These dual uses of technologies mean the boundaries between civilian and military capabilities are becoming blurred – making the space environment even more difficult to understand and to predict.

In short, the threats to our essential space infrastructure are growing. States are getting more concerned about the security of their satellites due to capabilities developed or already in operations. Consequently, the risk of misunderstanding and miscalculation is increasing