Space as an Operational Domain: What Next for NATO?

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NATO has declared space to be an operational domain. Questions must be addressed to understand what this means for future strategy and capabilities.

In December 2019, NATO formally declared space to be an operational domain. This announcement was evidence that the role of space in military operations and the importance of space for national security had been recognised by the Alliance and that more was needed to assure the integration and interoperability of member states’ assets. Coupled with ongoing concerns about the orbital activities of states such as Russia and China and a potential arms race in space, it could be argued that this announcement is overdue.

While it is encouraging that the Alliance is moving forward in its thinking on the space domain, questions remain. Will the Alliance continue to rely on the assets of a relatively small number of members, and how will collective priorities be balanced against those of individual states? Similarly, what does this mean for states with few or no sovereign space assets, and will investment in space become a requirement for all members in the future? Finally, and most importantly, how do activities in space fit into the context of an event that triggers Article 5? These are all issues NATO will need to grapple with to ensure it fully realises the benefits that space can bring and is able to withstand any activities that threaten its access. Recognising the importance of the domain is one thing, deciding how to act is another.

NATO and Space: A Brief History

NATO was formed before the beginning of the first ‘space age’ and for most of its history, the US has provided the majority of available space assets, such as the US Air Force-managed GPS system, which is used for a range of activities including navigation and precision-guided munitions. Although a programme beginning in the early 1970s saw the deployment of NATO communications satellites, this policy was changed in the early 2000s to one giving NATO access to satellites operated by member states. Since that time, NATO has not operated its own space assets, instead relying on members to provide access and information.

National satellite programmes have played an increasingly important role in NATO operations, both during conflict and in its ongoing operations, training exercises and intelligence, surveillance and reconnaissance (ISR) activities. NATO’s 2019 declaration is a recognition of these longstanding activities and intention to respond to the increased security concerns regarding space rather than a completely new policy in itself. Space is now a priority, rather than an afterthought. It does, however, raise a question as to whether the current model is effective, relying as it does on the goodwill of states to share their assets and the difficulties that can be present in ensuring integration and interoperability. While this recognition is a step forward, further issues must be taken into consideration for the development of a truly workable NATO space policy and strategy.

Space as a Domain: Warfighting or Operational?

While it may seem purely academic, there are important distinctions about space as an operational and a warfighting domain. In contrast to the US, the NATO member state with the largest military space programme, which has been clear in its view of space as a warfighting domain, NATO as a body has gone down a different route. By declaring space to be an operational domain, it appears that NATO is focusing on the integration and interoperability of assets belonging to different member states, and with a focus more on these assets as enablers of military operations (such as for communications and ISR) rather than those with the capability of denying space to adversaries. Indeed, NATO Secretary-General Jens Stoltenberg stated that NATO would not ‘weaponise’ space by developing offensive capabilities.

NATO and space security are collective activities, and neither can work without the participation of all concerned.

An argument can be made that the development and deployment of offensive space capabilities contribute to the inevitability of conflict in space, accelerating a perceived ‘arms race in outer space’, and that doing so will in effect increase the threats faced by satellites. Focusing instead on space systems as enablers of terrestrial operations (and also accepting that risks, while present, are more likely to be at a sub-threshold level) can be seen as a way of maintaining the status quo.
of an admittedly fragile balance of power, decreasing the likelihood of outright orbital conflict.

However, as NATO members increase their activities in space and adversaries develop counterspace capabilities that could destroy, degrade or deny essential assets, the Alliance needs to make a decision on what is perhaps the most difficult issue related to military action in space: what level of action against Allied space assets would trigger Article 5, and what might a response look like? With counterspace capabilities spanning kinetic anti-satellite (ASAT) missiles to cyber attacks and electronic interference, this is not an easy decision. Non-kinetic activity, such as GPS jamming, is not new, and can be seen within the context of the sub-threshold or greyzone activity that is seen in all domains. It is therefore unlikely that such activity would be considered in an Article 5 context. At the other end of the spectrum, an attack that physically destroys a satellite is overtly aggressive, but the decision is still not clear. It may be dependent on the functionality of the satellite and what capabilities are lost or damaged as a result of its destruction. There is also the question of whether kinetic ASATs are even likely to be used given the implications of increased orbital debris on the long-term sustainability of orbit. Despite recent ASAT tests by a number of states, an argument can be made that this capability is more about deterrence and power projection than the development of a ‘weapon’ that would actually be used, particularly towards the beginning of a conflict.

Simply being a user of space, rather than an actor, does not negate the need for participation in space defence and resilience

The question becomes more complicated when looking at those capabilities that occupy a ‘middle ground’ between destruction of a satellite and the reversible effects of jamming or interference. For example, rendezvous and proximity operations (RPO), in which satellites manoeuvre in orbit and approach others, or the possibility of using high-powered microwave frequencies to disable a satellite without physically destroying it, could be considered more threatening than less hostile acts. One only needs to look at the response to recent Russian activity regarding a ‘projectile’ released from a satellite compared to the ways in which the US and its allies react to the much more frequent use of GPS jamming. When do these ‘middle ground’ capabilities cross a line and become an act of aggression? Not only does the range of capabilities create complexity in deciding where a red line may be; in assessing whether a capability may be used in reality, there is also the question of whether such a line exists at all. Finally, there is a question of whether a satellite can be classified as a target requiring collective defence under Article 6.

Should these questions be resolved, and NATO commits to a policy of collective defence regarding space, what would a proportional, or indeed,
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non-proportional, response constitute, and in what domain would this take place? A NATO response might wish to avoid attacking a satellite, and indeed this may not be possible if it lacks the capabilities to do so by staying away from acquiring offensive space assets. Understanding the repercussions of the loss of a satellite, even for a limited time, is needed, and this will vary depending on the satellite’s function and the situation on the ground at the time. It is not simply a case of ‘an eye for an eye’, and a response could be anything from jamming satellite signals, to kinetic attacks on land assets, to economic or diplomatic actions, depending on the severity of the event. If NATO does decide that collective defence is appropriate for space, it must also decide on a collective response and to what extent it is willing to act.

What Next?

All the available evidence suggests that space will continue to play an increasing role in future conflicts. The reliance of military operations on space assets is also likely to increase and space will be seen as an even more essential domain. NATO members such as the US, the UK and France have all responded to this through the reorganisation of how space is managed within their armed forces, for example, through the establishment of the US Space Force and Space Command, the appointment of a Director Space in the UK’s Ministry of Defence, and the creation of a French space command. Others, too, have increased their military space activities, all of which may have been part of what led to the NATO announcement.

This is not to say that all NATO members will, or should, develop extensive military space programmes. Not only is this not practical or financially feasible for many but it also does not take into account the other ways that states can contribute to a secure and resilient collective space architecture. Space situational awareness (SSA), also often referred to as space domain awareness (SDA), involves monitoring the orbital environment, tracking satellites and pieces of debris, assessing the threat of space weather and the actions and intent of space actors – in short, acquiring as full a picture as possible about what is happening in orbit. It is an essential activity for protecting space assets, but is still an activity carried out by relatively few NATO members. States without space capabilities can be involved in this through developing their own SSA programmes or hosting ground stations as part of existing programmes, as well as participating in intelligence activities. These options would be particularly important should there be a future requirement for all member states to contribute to the NATO space enterprise.

The Alliance must also take into account potential future conflicting priorities. One such possible scenario relates to the increased attention of the US on its interests in the Pacific, while significant NATO focus remains on the threat posed by Russia, particularly in Northern and Eastern Europe. Ensuring that assets are available to monitor Russian activity in the High North or on its borders is essential. Reliance on one or a few states for these assets may not be sustainable, particularly if there is a hesitation to make them available, and it may be the case that NATO will need to acquire dedicated capabilities to carry out priority operations, either through a national programme that is managed by NATO, or one similar to that of NATO communications satellites.

It is clear that more work is required to ensure NATO space policy is effective, both now and as new developments in space emerge. This is an activity not just for NATO as a whole but for each member state individually. For those with larger sovereign programmes, they must assess the balance between their own and NATO’s future priorities and what effect this may have on their space assets, as well as their willingness to allow others access to what may be sensitive programmes. For smaller states, including those without any space programme, thought must be given to how comfortable they are with reliance on others as well as the ways in which they can contribute to the Alliance’s space policy, whether through deploying space assets or involvement in space surveillance and intelligence. Simply being a user of space, rather than an actor, does not negate the need for participation in space defence and resilience. Every member state has a role to play. Both NATO and space security are collective activities, and neither can work without the participation of all concerned. The next step for NATO is to develop a space strategy that does just this.

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