In all its aspects: further developing PAROS as a modern concept for addressing space security threats

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I. Introduction

1. This brief working paper aims to look at how the concept of PAROS was first conceived, the ways it has been addressed over the ensuing decades, and whether the initial idea of PAROS continues to be reflective of the current international security environment. It examines how PAROS is already being considered by States in a more broad and comprehensive manner, and that it is increasingly understood as “pertaining generally to questions of international security related to outer space.”

II. History of PAROS

2. PAROS was first introduced as a concept in 1978 during the UN General Assembly’s Tenth Special Session devoted to disarmament (SSOD). It was stated in the final document of the meeting that “in order to prevent an arms race in outer space, further measures should be taken and appropriate international negotiations held in accordance with the spirit of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.” However, it is important to note that SSOD did not specify by what mechanism PAROS should be addressed – the conclusions the session drew were agnostic on the types of measures to be adopted (on capability or conduct) and whether they should be non-binding or legally binding.

3. The UN General Assembly further addressed the issue in 1981 with two resolutions, each of which took different approaches – one space-based (prohibiting weapons in outer space), the other terrestrial (prohibiting ASAT systems). The Conference on Disarmament (CD) subsequently took up the question of PAROS in 1982, with an ad hoc committee established in 1985. Its programme of work considered three elements: issues relevant to PAROS, existing agreements relevant to PAROS, and proposals and future initiatives on PAROS. Little progress was made at the time or over the ensuing decades. Indeed, divisions persisted over the most pressing threats and the ways and means to best address them.

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1 Further practical measures for the prevention of an arms race in outer space, report by the Secretary General. A/77/80, distributed 24 June 2022, page 6.
4. Significant new initiatives were not brought forward until the Russian Federation and China presented their draft treaty to the CD in 2008 on the Prevention of the Placement of Weapons in Outer Space and the Threat or Use of Force against Space Objects (PPWT), along with a draft International Code of Conduct for Outer Space Activities developed by the EU in the same year. Subsequent notable initiatives included the GGE in 2013 on transparency and confidence building measures for outer space activities, the 2018-2019 GGE on PAROS, and the 2022-2023 Open-Ended Working Group on reducing space threats through norms, rules, and principles of responsible behaviour.

III. Current geopolitical and space threat environment

5. The geopolitical and strategic environment has changed significantly since 1978. Gone are the days of a rivalry solely between two competing superpowers. Recent conflicts have demonstrated how geopolitical tensions on earth can extend into space (or vice versa), creating greater mistrust and increasing the risk for misperceptions and miscalculations.

6. The space environment has also changed dramatically since that time. There are more actors in space than ever before – including both States and private actors – with more and more satellites providing a growing range of benefits and services to communities here on Earth. This includes critical services, both civilian and military. Our daily existence has never more relied on space-based infrastructure for its effective functioning. Given this increased dependency, each UN State has its own perspectives and considerations on space security, safety, and sustainability, and these need to be taken into account.

7. Moreover, there is no longer a division between the existence of just two threats, either ASATs or the placement of weapons in space. There is a greater variety of threats from all vectors – space-space, space-earth, earth-space, earth-earth – that States must contend with. This includes kinetic threats that can result in the destruction of a space object, either from capabilities on the ground or placed in space (or even from the deliberate collision of one space object into another), as well as non-kinetic threats. The latter can include directed energy (lasers, high-powered microwaves, and electro-magnetic pulses), radiofrequency (jamming and spoofing), and cyber-attacks. These threats will be perceived differently depending on a State’s own interests and level of technological advancement in space capabilities, but nonetheless the threat of conflict extending into or from outer space would have significant consequences for everyone.

8. When looking at what it means to be in an arms race, there are three aspects to consider: rivalry, comparable capabilities, and acceleration. On rivalry, this must involve two or more states that have roughly equal military capabilities and are seeking geopolitical influence or territory, or have a history of antagonism. Regarding comparable capabilities, these must relate to each other (but do not need to be in the exact same category). And finally, there needs to be a considerable acceleration in the development (quantitative or qualitative) of related weapons or weapon systems.

9. These aspects can be difficult to characterize and quantify in the space context, and may not all be fully present, especially in light of the difficulties in distinguishing space weapons from civilian capabilities. Nonetheless, it is not unreasonable to question whether we already find ourselves in the midst of an arms race. Indeed, in the 2022 report of the Secretary-General on Further Practical Measures for the Prevention of an Arms Race in Outer Space, it was “suggested that an arms race in space was already ongoing and should be contained.” What does PAROS mean if this is the case? And would our efforts be better focused on regulating behaviour rather than trying to prevent something that may now be overtaken by events?

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4 Further practical measures for the prevention of an arms race in outer space, report by the Secretary General. A/77/80, distributed 24 June 2022, page 4.
IV. Implications for PAROS today

10. In light of this range of threats, and changes in both the geopolitical and space environments, PAROS should not be considered a static concept. While it may have been understood as one thing in the past, this does not mean that it cannot evolve. To continue being relevant, PAROS as a concept needs to reflect where we are now, not what it once was more than four decades ago.

11. A modern interpretation of the concept of PAROS needs to include both the idea of preventing the possibility of the extension of armed conflict into outer space as well as broader considerations to reduce the risk of tensions arising from misperceptions and miscalculations. To address this, States will have to find ways to restrain themselves – this can be done unilaterally, through political declarations like the commitment not to conduct constructive direct-ascent anti-satellite missile tests, or bilaterally and/or multilaterally, through arms control agreement and other related measures. There are a range of ways that this can be achieved effectively and does not have to be limited to a singular consideration of armaments.

12. This is what many States are already articulating as they consider a broader understanding of PAROS. Regardless of whether it is believed that an arms race in outer space is already underway, it is important to acknowledge that its prevention cannot be considered synonymous with, nor limited to, prohibiting the placement of weapons in outer space or the prohibition of the threat or use of force against outer space objects. If we understand the objectives of PAROS as the improvement of space security, this can be achieved by different sorts of mechanisms, whether legally binding or non-legally binding, and efforts that are not solely focused on armaments.

13. Finally, there needs to be further consideration as to how success is defined. PAROS will not be solely achieved by the signing of an international legally binding instrument. Even if a legally binding instrument was able to be concluded, the work on PAROS would not be complete. New technologies and/or challenges would emerge as the space environment continues to evolve. The geopolitical climate on earth would continue to shift and impact space security. PAROS should be seen as an iterative process by which we address international security related to outer space through a range of normative actions, and that is work that requires ongoing vigilance, care, and attention.