



SCHOOL FOR
INTERNATIONAL STUDIES

Outer Space in Russia's Security Strategy

Nicole J. Jackson



Simons Papers in Security and Development

No. 64/2018 | August 2018

The **Simons Papers in Security and Development** are edited and published at the School for International Studies, Simon Fraser University. The papers serve to disseminate research work in progress by the School's faculty and associated and visiting scholars. Our aim is to encourage the exchange of ideas and academic debate. Inclusion of a paper in the series should not limit subsequent publication in any other venue. All papers can be downloaded free of charge from our website, www.sfu.ca/internationalstudies.

The series is supported by the Simons Foundation.

Series editor: Jeffrey T. Checkel

Managing editor: Martha Snodgrass

Jackson, Nicole J., *Outer Space in Russia's Security Strategy*, Simons Papers in Security and Development, No. 64/2018, School for International Studies, Simon Fraser University, Vancouver, August 2018.

ISSN 1922-5725

Copyright remains with the author. Reproduction for other purposes than personal research, whether in hard copy or electronically, requires the consent of the author(s). If cited or quoted, reference should be made to the full name of the author(s), the title, the working paper number and year, and the publisher.

Copyright for this issue: Nicole J. Jackson, [nicole_jackson\(at\)sfu.ca](mailto:nicole_jackson(at)sfu.ca).

School for International Studies
Simon Fraser University
Suite 7200 - 515 West Hastings Street
Vancouver, BC Canada V6B 5K3



Outer Space in Russia's Security Strategy

Simons Papers in Security and Development
No. 64/2018 | August 2018

Abstract:

This paper shows how and why Russia's outer space strategy and capabilities have evolved since the 1990s, including recent diplomatic initiatives on outer space governance. The leadership has placed space strategy in the context of defence requirements and state military control. No longer economically competitive in the race for control of outer space, Russia still invests in new technologies and also uses diplomacy – working with UN and other disarmament organisations – to influence the growing militarisation of space. It has come to promote a collective approach to the problem, rather than one dominated by the richer and more powerful states.

Note: This paper will appear as Chapter 19 in the forthcoming *Routledge Handbook of Russian Security Strategy*, edited by Roger Kanet.

About the author:

Nicole J. Jackson is an international relations and security studies scholar specializing in Russia and the former Soviet Union. She is Associate Professor at the School for International Studies at Simon Fraser University. She has published on Russian foreign and security policy, regional security governance and trafficking in Central Asia. She is currently working on two projects: The first examines the role of Russia in global security governance (including in outer space); and the second is a critical analysis of Canadian and NATO policy towards Russia.

About the publisher:

The School for International Studies (SIS) fosters innovative interdisciplinary research and teaching programs concerned with a range of global issues, but with a particular emphasis on international development, and on global governance and security. The School aims to link theory, practice and engagement with other societies and cultures, while offering students a challenging and multi-faceted learning experience. SIS is located within the Faculty of Arts and Social Sciences at Simon Fraser University. Our website is www.sfu.ca/internationalstudies.

Outer Space in Russia's Security Strategy

Today, the Russian Federation is a major actor in space and outer space governance. Its presence in space is second only to that of the United States. Meanwhile, the challenges of keeping outer space 'secure' are growing in importance and complexity in the current context of globalisation, rapid technological change, and the increasing access to space for state and non-state actors. Russia considers outer space as a strategic region to enhance its military capabilities on earth, provide intelligence and communication functions, and achieve international status and prestige as a space power. It is sensitive to US strategy and actions and has developed counterspace technologies (e.g. electronic weapons that can jam satellites) to provide Russia with an asymmetrical edge to offset US military advantages. However, Russia's outer space rhetoric and policy are also driven by domestic and identity issues. Outer space strategy is an instrument through which Russia pursues its goal to be a 'great power' and to shape the international system more closely to Russia's vision of the new multipolar world. Space also may bring Russia economic benefits and mask internal challenges.

President Vladimir Putin has taken both symmetric and asymmetric actions in outer space, increasing Russia's investment in new technologies (satellites, electronic warfare¹, strategic offensive weapons, etc.) and simultaneously pursuing diplomatic initiatives to control weapons in space. During the Cold War, despite military tensions and serious concern about a possible arms race in outer space, Russia and the US negotiated internationally binding agreements related to the governance of space activities. Today, both powers are again warning of a new arms race in outer space while continuing to strengthen the roles of their militaries in the field.

Since 2000 Russia has actively pursued both binding laws and non-binding norms to ban and control weapons in outer space, and has advocated for non-binding, voluntary transparency

¹ Electronic Warfare plays a role in counterspace in terms of interfering with the functioning of satellites used for intelligence, surveillance and reconnaissance (ISR) and other communications activities, and thus overlaps with anti-satellite weapons (ASATs).

and confidence building measures (TCBMs). Sometimes it has done this in cooperation with other states, sometimes in opposition to them. This diplomatic endeavour may seem somewhat at odds with Russia's growing militarisation, however, the dual role on outer space fits well within Russia's overall foreign and security strategy which is both reactive to US policy and simultaneously positive towards the United Nations (UN) and consensus-based multilateral negotiations. Russia is strengthening its comprehensive power, including military, diplomatic and normative global influence, in order to make its voice heard on the international stage. Russia's diplomatic activism is that of an aspirational great power, but it also reflects the limits of its current economic and military weaknesses. International negotiations enable Russia to be recognised as a key player in global affairs, while also benefiting from an opportunity to highlight the US/West's declining influence and the rise of a multipolar world.

This chapter examines why outer space is so important for Russia. Then, it shows how and why the Russian government's outer space strategy and capabilities have evolved since the 1990s. The paper concludes with an appraisal of Russia's recent diplomatic initiatives on outer space governance.² No longer economically competitive in the race for control of outer space, Russia has attempted several strategies to enable it at least to keep in the running. It has placed its space strategy in the context of defence requirements and state military control. It is using diplomacy -- working with international organisations affiliated with the UN - to discuss, cooperate on and influence the race for the militarisation of space. It works with disarmament organisations to influence and promote a collective approach to the problem, rather than one dominated by the richer and more powerful states.

Russia's Securitisation of Outer Space: Threats and Opportunities

The Russian state defines threats largely in traditional terms of territorial protection from military challenges and views space assets as vital for military communication and defence. Russia's geography highlights the need to protect its extensive borders and military and

² Word count constraints mean that this paper does not examine Russia-US international space cooperation which focuses on the International Space Station, nor on scientific cooperation in the exploration of space, in which Russia professes keen interest.

economic assets and infrastructure scattered over its vast territory (Barvinenko, 2007). The state has traditionally considered that it is surrounded by hostile powers and thus needs 'buffers' or a 'sphere of influence' to protect itself. Today, Russia has expanded this rhetoric of vulnerability to include attacks from outer space. Russians use the term 'aerospace' rather than outer space because of the interrelatedness of air space and outer space in the context of contemporary threats and conflicts, and because there is no distinct boundary between the two concepts (Kupriyanov, 2005). Russia's rhetoric on outer space broadly mirrors that of the US, stressing urgency to prepare for a possible future war there. In 2017 US Navy Vice Admiral Charles Richards, deputy commander of US Strategic Command, argued that 'With rapidly growing threat of a degraded space environment, we must prepare for a conflict that extends into space' (quoted in Daniels, 2017).

Rapid technological advancements in the space industry have influenced perceptions that there are economic benefits from being a space power. At the same time, they have given rise to concerns about threats stemming from the militarisation of space. For example, the development of cheap miniature satellites promises speedy replacement of disabled satellites in the event of attack. Theoretically, this could allow the US military (or other actors) to use such space constellations to support operations during a conflict.³ Through technology outer space has become integrated with other domains – land, sea, air, and cyber. Most recently, the first generation of hypersonic weapons has 'set the conditions for the merger of air and missiles defence and the air and outer space domains' (Charron and Fergusson, 2018). Of course, a healthy space industry provides strategic resources for a state's military and economy. In Russia's case, the announcement of new technological developments also masks unaddressed structural and systemic weaknesses, and confers domestic and international legitimacy on Russia's aspiration to be a 'great power'.

³ Space X Falcon 9 is another breakthrough technology that would allow precision rocket landings after orbital flight. The concern is that such technical breakthroughs could facilitate the militarisation of space by greatly decreasing the cost for landing and providing maintenance to space-based weapons and manned bases (Stratfor, 2015).

Russia's official perceptions today are not very different from those of the Soviet period. Outer space has long been significant to Russia, and now it again has the resources to be a major contender. Under Putin, as in Soviet times, Russia seeks global strategic parity with the US and securitises the US threat to its nuclear deterrence. Russia perceives a US first strike against its nuclear forces from space-based weapons as the key security threat from space. Its 2010 and 2014 Military Doctrines classify both the deployment of strategic missile defences (the intention to place weapons in space) and the deployment of strategic conventional precision weapons as key military dangers to Russia. Other threats listed include: impeding state command and control and disruption of strategic nuclear forces, missile early warning systems, and systems for monitoring outer space. Both these doctrines and the 2016 Foreign Policy Concept highlight the US and NATO as potential enemies at a time of 'increased global competition' and conclude that Russia needs to focus on the credibility of its nuclear deterrent but also on conventional and non-conventional elements in a complex toolkit of responses (Russian Security Council, 2010 and 2014; Russia's Ministry of Foreign Affairs, 2016).

Russia has also adamantly opposed US plans for ballistic missile defence (BMD), which it perceives as opening a door towards space-based weapons integrated into BMD architecture, and in turn threatening Russia's strategic missiles forces. The 2002 US withdrawal from the 1972 ABM Treaty paved the way for deployment of intercept missiles, and Russians interpreted this move as undermining the consensus on the strictly peaceful use of space. In this context, in 2015 Russia threatened that 'Any action undermining strategic stability will inevitably result in counter measures' (Russian Government, 2015). Russia's key security preoccupation has been the prospect of space-based interceptors and the US refusal to accept constraints on BMD. It continues to denounce the US withdrawal from the ABM treaty and argues that the development of US ground and sea-based missile defence have increased tensions and led to increased missile proliferation which Russia directly links to space-based threats.

The Russian (and Chinese) governments also believe that their missiles and satellites are targeted by US anti-missiles.⁴ Russia perceives anti-satellite weapons tests (ASATs) by China (2007) and US (2008) to be precursors to the weaponisation of space. ASAT capabilities are those that target an adversary's satellites with the intention of disabling their function – communications, intelligence, surveillance, and reconnaissance (ISR), navigation, positioning – through interference or damaging/destroying the satellite entirely. The latter has a second-order effect of creating space debris that threatens other space assets and activities in that region of space.

The Russian government argues that these multiple developments are leading to a new arms race that disrupts broader arms control and disarmament processes and requires Russia's huge expenses for its space program. (Luzin, 2015). In March 2018 Putin announced the development of some 300 new 'strategic weapons' which he said was a response to US missile defence capabilities, and then unveiled several at the annual Victory Day military parade (RFE/RL, March 1, 2018).⁵ Such showmanship was not new, but Putin's hyperbole and critique of the West has intensified, and Western concern about Russia's intentions and its growing, if overblown, capabilities is likely to continue.

The Evolution of Russia's Outer Space Strategy 2000-2008: Russia's Securitisation and Militarisation of Outer Space

The Soviet Union had been a pioneer and military superpower in outer space. The 1990s in Russia were characterised overall by economic stagnation, military disintegration and dependency on the West. This was reflected in a dramatic decrease of Russia's space budgets and space assets (Arbatov, 2011). The Russian economic recovery in the 2000s coincided with a political emphasis on space as a strategic sector and subsequent increases in its state budget.

⁴ There is a similar assessment from the US about Russia. See DNI's assertion that that 'Russia and China continue to pursue weapons systems capable of destroying satellites in orbit, placing US satellites at greater risk in the next few years' (Coats, 2018).

⁵ The West is particularly concerned about new anti-access/area-denial (A2/AD) capabilities: air and missile defences, surface-to-surface ballistic missiles, land, air and sea-launched cruise missile batteries and layered anti-submarine capabilities.

Space became a symbol of Russia's revived international standing, and attempts were made to restore its former space glory and prestige (Facon and Sourbes-Verger, 2007). For Putin, space policies became a central tool in Russia's rebirth as a great power and its drive for independence from the West, and he prioritised rebuilding and modernising Russia's military space capabilities. Clearly, he aimed to reduce Russia's dependencies on West (especially on technology and military data) and ensure strategic autonomy and independent access to space.

Russia began restructuring its space industry in the early 2000s, increasing the role of the state (as it did in other strategic sectors). Space and defence industries reoriented production away from export markets towards national armed forces. Both sectors were placed under the new Military-Industrial Commission (*Voенно-промышленная комиссия*, VPK). Venet writes that this led to mixed results, including some 'spectacular failures' e.g. the loss of military and dual use satellites, foreshadowing President Medvedev's call for more extensive military reforms (Venet, 2015, 360). Russia's policies on space militarisation (use of space assets to support military actions on Earth) continued to focus on the territory of Russia and the former Soviet Union. According to Venet, Russia could not return to the Soviet global approach – i.e. maintain the 'high number of military launches and... extensive constellations of military spacecraft needed for all for military communications, navigation, surveillance, early warning, signals intelligence etc.' (Venet, 2015, p.363).

During Putin's first two terms, many state programs⁶ and presidential decrees brought Russia into a leading position in the space industry, developed new public-private partnerships and expanded international cooperation (Edelkina, Kraasev, Velikanova, 2015). However, even with steady economic growth during these years, space spending remained precarious, prompting Roskosmos (the Federal Space Agency) to petition President Putin for more funding. In the early 2000s, GLOSNASS (Global Navigation Systems) was revived and new satellites were launched (Honkova, 2013). This provided a source of prestige and a symbol of independence from the US in positioning, timing, information and navigation.

⁶ These included three major space policy documents: Federal Space Program (FSP) (2005–2015); Federal Program on Global Navigation Systems (GLOSNASS) for 2002–2011; Federal Special Program for the Development of Russia's Cosmodromes (DRC) for 2006-2015; Federal Target Program for GLOSNASS development 2013–2020.

Concurrently, Russia began to modernise its ground infrastructure (important for satellite control, space surveillance networks and cosmodromes). It brought ground-based assets back to Russian territory, and militarised space assets already there. For example, Roskosmos took over the Baikonur Cosmodrome in Kazakhstan, and the Plesetsk Cosmodrome in Northern Russia was set to become Russia's major military spaceport. Russia also revived its ASAT system program (now co-orbital ASAT system) and made substantial advances in ballistic missiles, radars and missile defence interceptors (details below).

2008–2013: Halting Modernisation and Growing Ambitions following the Russia-Georgia Conflict

After Russia's war in Georgia in 2008, and with President Medvedev in power, the push for space modernisation resumed, however uncertainty over funding and over-ambitious plans continued. Russia's space industry did survive the 2008 world economic crisis, declining oil revenues, and foreign capital flight thanks to government subsidies. However, the war in Georgia highlighted the limits of Russia's military capabilities, and the failure of its command and control system. Space-based intelligence was deficient and satellite communications facilities were not useable. There was no situational awareness and satellite targeting (for artillery or precision-guided munitions) was not operational.

Russia's early warning system, crucial for nuclear deterrence, improved in subsequent years but still lacked global detection. Then, it then lost its last major satellites in 2014. GLONASS (Global Navigation Systems) regained full operational capacity only in December 2011 when the second generation, GLONASS-MA, entered service, but difficulties with the technology, and political disputes over its deployment lingered. However, there is evidence that the Russian government during these years increasingly perceived space-based systems as highly important and essential for integration of command, control, communications, information, surveillance and reconnaissance (C3ISR), and also for what Russians call the 'information-strike operations' – which consist of 'information-strike battles, information-weapons engagements and strikes with the goal of disrupting enemy troop command and control of weapons systems and the destruction of its information resource' (Johnson-Freese, 2017, 44).

The 2011 Presidential decree on science and technology, which provides the current legal basis for technological development of the Russian economy, included plans for space, information and communications systems (President of the Russian Federation, 2011). However, many of the projected missions and launches were postponed, and a gap between stated goals (e.g. creation of a unified, information, command and control system) and realities remains (Samoylova, 2013). Many experts question the quality of Russia's space-based communication system as well as the required infrastructure on the ground. As a result, it has often been suggested that the Russian armed forces did not evolve relative to new combat realities and that Russia should focus more on reconnaissance, electronic warfare capabilities, command and control, data processing and information distribution systems (Gareyev, 2009; McDermott, 2012; Roffey, 2013).

2014 and Beyond: Moving to the Offensive?

Since Russia's annexation of Crimea in 2014 and its military involvement in Syria, tensions between Russia and the West have dramatically increased. Russia's 2014 military doctrine included in its list of key external threats: 'global strike'⁷, the intention to station weapons in space, and strategic non-nuclear precision weapons (Russian Security Council, 2014). Russia continues to argue that to preserve the strategic balance of power it must respond to US actions. It therefore seeks to limit the technical superiority of the US by focusing on counter-space activities such as cyber and electronic warfare while fostering uncertainty about its own intentions. The potential threat to Russia's strategic nuclear deterrent and the US pursuit of 'global strike' conventional precision missile systems are frequently cited as the main reasons that Russia cannot consider further reductions of offensive forces at this time⁷. Overall, while Russian rhetoric has become increasingly bellicose, Russia continues to militarise and centralise its policies on outer space with an emphasis on the importance of information. The stated priorities of its current Security Strategy include: 'Strengthening the country's defence, ensuring the inviolability of the Russian Federation's constitutional order, sovereignty, independence and

⁷ Prompt Global Strike is the Pentagon's strategy of being able to strike anywhere in world with a conventional warhead in less than an hour.

national and territory integrity' and 'consolidating the Russian Federation's status as a leading world power, whose actions are aimed at maintaining strategic stability and mutually beneficial partnerships in a polycentric world' (The National Security Strategy of the Russian Federation, 2015).

Some argue that a close reading of Russia's current space documents reveals confusion about different goals and budgets. (Zak, 2018). However, the documents also reveal Russia's key principles on space policy, including the protection of state interests such as the right to self-defence; the promotion of economic development, including the development of space assets, launch vehicles, ground infrastructure; the development and use of space technology and goods and services in the interests of Russia's socio-economic sphere and the space and rocket industry; and maintenance of Russia's primary position in the use of piloted flights. Public documents include plans to create a new generation of space complexes and systems to be competitive in the world market and, once again, the completion of the GLONASS system (President of the RF, 2013).

The Federal Space Program, a long-term planning document (Space Activity of Russia in 2013–2020) (Russia Federal Government, 2014) listed three goals: contributing to the development of the economy; enhancing national security and strengthening Russia's position in the world; and increasing the welfare of Russia citizens. The subsequent Federal Space Program 2016–2025 continues to prioritise the competitiveness and large-scale use of the GLONASS system as well as ground infrastructure for space activities (Interfax, 2015).

Since 2014 the centralisation of Russia's space industry has advanced. It reverted to state ownership in the 2000s, but the heads of companies retained their autonomy and were involved in bureaucratic fights with Roscosmos. Then, Roscosmos merged with state-owned United Rocket and Space Corporation to create the Roscosmos State Corporation. This new state corporation has been criticised as being similar to the old Soviet model with no incentive other than to follow instructions from political leaders (Luzin, 2015). Other recent development plans include new systems for intelligence and warning of air and space attacks; and destruction and suppression of forces and means of air and space attack. In 2015, the Russian Space Forces (established in 1992) was merged as a new branch of Russia's Aerospace Defence Forces

responsible for monitoring space objects, identifying potential threats to the nation from space, and preventing ‘attacks as needed’ (Jotham, 2018). This branch combines elements of space forces, air forces, as well as air and missile command. (Meanwhile, US President Trump is moving to separate space activities from the Air Force with his executive order in June 2018 to create a new Space Force.)

Russia has continued to work on ground facilities to control orbit and wage electronic warfare by targeting space communication and navigation systems. It allegedly jammed GPS signals during the Crimean conflict in 2014 (Harrison, Johnson, Roberts, 2018). Luzin wrote in 2016 that outer space communications and reconnaissance remain the Achilles’ heel of the Russian Army (Luzin, 2016). However, during the Syrian conflict Russia used reconnaissance aircraft in addition to Soviet-era Vishnya-class intelligence gathering vessels (AGIs) and ground-based SIGINT facilities on Syrian territory (Hendrickx, 2017). Nevertheless, for now Russia remains dependent on airborne, sea-based, and ground-based reconnaissance assets to complement satellite data. Future plans include investment in counter-drone and electromagnetic warfare capabilities, as part of an ‘automated reconnaissance and strike system’ towards advanced communications, reconnaissance, and targeting capabilities (Tucker, 2018). US Director of National Intelligence, Daniel Coats, concluded in 2018 that ‘Russia aims to improve intelligence collection, missile warning, and military communications systems to better support situational awareness and tactical weapons targeting... Russia plans to expand its imagery constellation and double or possibly triple the number of satellites by 2025’ (Coats, 2018).

Russia also allegedly has, or is developing, new ASAT capabilities including direct energy lasers⁸, interceptor missiles, manoeuvrable satellites, robotics, and electronic warfare (Weeden, 2015; Mizokami, 2018). Although many of these remain unverified or denied by the Russian government, US experts believe that the biggest threats from outer space are ‘non-kinetic threats such as jamming satellite-based capabilities such as GPS and communications’ and that Russia has sent micro-satellites into space which could be used to ram another satellite or snoop on it to collect data or interfere with its capabilities (Daniels, 2017). Russia is also

⁸ These are designed to blind US intelligence and ballistic missile defence satellites.

developing ballistic missile defence capabilities, which are now centred around Moscow with plans for a national missile defence dome (Luzin, 2018; Bodner, 2018). Missile defence capabilities may have a dual function as ASATs, particularly systems deployed around the Kremlin. Russia has reportedly carried out the world's longest test of a surface-to-air missile system (Moscow Times, 25 May 2018). Its efforts to develop hypersonic glide vehicles are argued to be explicitly aimed at evading US missile defence systems (Podvig quoted in Live Science, 2018).

Addressing the Russian Military Academy of the General Staff in March 2018, Army General Valery Gerasimov announced that the next phase of Russia's new high-tech approach will focus on robotics, artificial intelligence, the information and space spheres as well as on economic and non-military targets (quoted in Tucker, 2018). This approach is likely to continue. It is reactive to increases in the US military budget, as well as to rapid technological developments and is part of a larger effort to move possible conflicts into areas of 'non-traditional warfare'. However, despite all of its modernisation programs, upgrades and plans, Russia continues to be weak in many space systems and many argue that long term structural weaknesses affecting the broader economy, such as an aging work force, inefficiency and brain drain, have still not been solved.⁹

Russia's strategy on outer space security issues since 2000 has also included diplomacy, just as it did in the Soviet period. Previously, the Soviet Union co-sponsored the Partial Test Ban of 1963 and the landmark Outer Space Treaty (OST) of 1967. Soviet delegates were active at the Conference on Disarmament (CoD) to promote discussion on the 'Prevention of an Arms Race in Outer Space' (PAROS).¹⁰ Under Putin, Russia has used the United Nations and its affiliated bodies to attempt to develop binding laws, non-binding norms and transparency and confidence building measures to prevent and to control the use of weapons in space. Russia's official

⁹ Details about Russia's development of a long-term strategy since 2012 can be found on Anatoly Zak's website RussianSpaceWeb.com.

¹⁰ The CoD, a sixty-five-member body in Geneva, is supposed to serve as a United Nations' forum for discussing multilateral agreements on arms control and disarmament. Since 1994, the CoD has been deadlocked due to competing priorities. CoD needs unanimous agreement to move forward on issues and set agenda. PAROS gained near universal support in annual UN General Assembly resolutions, but the United States has consistently objected arguing that space weapon cannot be defined or effectively verified.

rhetoric is that it cooperates with states that share its goals and preference for multilateral and inclusive negotiations at the UN. Certainly, Russia's diplomatic activism reflects a desire to participate in international organisations and fora to shape international rules, but it may also be a strategy to hedge its comparative economic and military weaknesses. Russia participates in the UN as part of a broader attempt to develop relations with other states of the emerging 'multipolar international system' and as a platform to denounce what Russia perceives as the US' role in undermining the international rules of the game (e.g. the US unilateral pulling out of the ABM treaty but also Western military operations that lack the UN Security Council's mandate, Iraq and Kosovo).

Russia introduced a working paper in 2002, and then two more in 2004 at the CoD. These became the basis for the 2008 Russia-Chinese Draft Treaty on 'Prevention of the Placement of Weapons in Outer Space and the Threat or Use of Force Against Outer Space Objects' (PPWT). This draft treaty extended the OST prohibitions on placement of weapons of mass destruction (WMD) to all forms of weapons. It sought to ban 'any device placed in Outer Space, based on any physical principle, specially produced or converted to eliminate, damage or disrupt normal function of objects' (CD, 2008). As Paul Meyer explains, the termination of the ABM treaty meant the elimination of the only prohibition on space-based weapons agreed upon beyond the ban on WMD in the 1967 Outer Space Treaty" (Meyer, 2016). As mentioned above, Russia equates space weapons with weapons of mass destruction and has consistently argued that their deployment would have a destabilizing effect on the global strategic balance. The US and other critics of the PPWT argued that the Russia-China treaty did not include a verification mechanism; only limited deployment not building of weapons; did not include terrestrial-based ASAT weapons¹¹; and did not resolve the problem of how to define a 'weapon'. In response, in June 2014, Russia and China presented a revised version of the PPWT, which included a new article acknowledging the need for verification measures and suggested that these could be elaborated in a subsequent protocol to the treaty.

¹¹ Although given the inherent ASAT capability of ballistic missile interceptors, any effort to include ground-based systems runs up against US commitment to deploy ballistic missile defence.

However, further consideration of the PPWT has been prevented by the general blockage of the CoD, and Russia and China have not taken the draft to another forum. They prefer the CoD which protects their interests and gives them a voice and legitimacy (Lavrov, 2017). Unsurprisingly, Russia also opposed the 2008 EU Draft Code of Conduct for Outer Space (and its latest draft of March 2014), arguing that the EU code is undermining the work of the UN on space security. Russia and the BRICS argue that the proper format for such deliberations must be 'inclusive and consensus-based multilateral negotiations within the framework of the UN', and to 'take into account the interests of all States' (BRICS, 2015).

Since 2005 Russia has also solicited and proposed ideas for non-legally binding and voluntary TCBMs at the UN General Assembly. A UN Group of Governmental Experts (GGE), chaired by Victor Vasiliev, head of the Russian delegations to the UN GGE, produced a report in 2013 that enumerates several potential transparency and confidence-building measures, including information exchange, risk reduction measures, visits to space-related facilities, and consultative mechanisms (UN General Assembly, 2013). This report led to subsequent UNGA resolutions encouraging states to review it. To quote Vasiliev (2015): '...we tried to put forward proposals that were practical, implementable, did not undermine sovereign rights or security of States.' In 2018–2019, a new GGE will make recommendations on creating international legally binding instruments to prevent an arms race in outer space, including the prevention of the placement of weapons in outer space. Since the CD remains in a state of paralysis, this means that Russia and China have finally shown some creativity and found another platform for official work on their PPWT and other possible legal instruments. As a final example of Russia's active diplomacy, Russia has also been pushing a 'no first placement of weapons in outer space' resolution which was adopted by the UN General Assembly in 2015. This resolution, critiqued by the US for not being truly transparent, encourages states to adopt a political commitment not to be the first to place weapons in outer space. In 2016, Russia and Venezuela (after years of Russian loans and weapon deals to Venezuela) released a joint statement to the CoD declaring that they will not be the first to deploy any type of weapon in outer space (CoD, 2016).

Conclusion

For Russia, outer space has become an important area through which to respond to or negate Western strategy and capabilities and influence global norms. Its economic, military and technological weaknesses compared to the US and NATO have led it to pursue asymmetrical tactics including working through bodies affiliated through the UN which give it publicity and some legitimacy but little ability to make real progress. Asymmetrical tactics adopted to advance Russia's goals include traditional and new military capabilities, use of denial and uncertainty about Russian intentions, psychological manipulation, diplomatic negotiation and cooperation and legal means (including attempting to develop or reinforce norms). The separation between global security and governance is not distinct. Russia's outer space strategy fits within its security and foreign policy efforts which focus on asserting Russia's authority and prestige. Military efforts are but one part of a complex set of tools, which include not only outer space and new technology such as electronic warfare, but non-military actions (negotiation, finance, propaganda etc.) employed to navigate what Russia perceives as an increasingly hostile world.

This situation is likely to become even more complicated. Outer space is increasingly interrelated with land, sea and air and cyber domains. It also is increasingly congested with other state and non-state actors, including private companies. This proliferation of actors is taking place just as military strategies are increasingly forced to consider previously separate 'battlefields' as a seamless whole.

Today, tensions between Russia and the US are high and each recognises what is sometimes called 'an integrated multi-domain threat' coming from the other. This is reinforced by recent technological advances, and significant distrust about each other's intentions. The result is the growing militarisation of space. A pressing challenge for the future will be how to reconcile different security perceptions of states as well as non-state actors and their understandings about how the laws of armed conflict apply to military (and even civilian) space activities. For example, how does one define proportionality of response to an attack on a satellite? Is radio jamming a use of force or an armed attack? Which activities are legitimate, and which are not? There is a plethora of ambiguity. The goal of creating the sustainable use of space for peaceful purposes and for the benefit of all humankind seems ever elusive.

References

- Arbatov, Alexei (2011) 'Russian Perspective on spacepower', in Lutes C and P.L. Hayes, ed., *Towards a theory of spacepower*. Washington DC: National Defence University Press, pp.441-449.
- Barvinenko, V.V. (2007) 'Aerospace Defense: Modern Aspects', *Military Thought*, 16, 1.
- Bodner, Matthew (2018) 'Russia Releases Video of its Modernised Ballistic Missile Defense System,' *Defense News*, 20 February, accessed 4 April 2018 at <https://www.defensenews.com/land/2018/02/20/russia-releases-video-of-its-modernised-ballistic-missile-defense-system/>.
- BRICS (2015) 'BRICS Joint Statement Regarding the Principles of Elaboration of International Instruments on Outer Space Activities' New York, July 27, 2015, accessed 2 March 2018 at <www.mid.ru/en/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/1623220>.
- Charron, Andrea and James Fergusson (2018) 'From NORAD to NOR [A] D: The Future Evolution of North American Defence Cooperation', *Policy Paper*, May, Toronto: Canadian Global Affairs Institute.
- Coats, Daniel (2018) *Worldwide Threat Assessment of the US Intelligence Community, Congressional Testimonies*, 13 February Accessed 02 April 2018 at <https://www.dni.gov/index.php/newsroom/congressional-testimonies/item/1845-statement-for-the-record-worldwide-threat-assessment-of-the-us-intelligence-community>
- Conference on Disarmament (CoD) (2008) 'Draft 'Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects,' February 29, 2008, CoD/1839.
- Conference on Disarmament (2016) 4 April 2016, CoD/12060.
- Daniels, Jeff (2017) 'Space arms race as Russia, China emerge as 'rapidly growing threats' to US', *CNBC*, 29 March, accessed 2 April 2018, <https://www.cnn.com/2017/03/29/space-arms-race-as-russia-china-emerge-as-rapidly-growing-threats-to-us.html>
- Edelkina, Anastasia, Oleg Kraasev, Natalia Velikanova (2015) 'Space Policy Strategies and Priorities in Russia', *Basic Research Program Working Paper*, Moscow: National Research University Higher School of Economics.
- Facon, Isabelle and Sourbes-Verger (2007) 'La coopération spatiale Russie-Europe - une entreprise inachevée' *Géoeconomie* 43, automne, pp.75-89.
- Gareyev, M.A. (2009) 'Issues of Strategic Deterrence in Current Conditions', *Military Thought* 18, no. 2 (April).

- Harrison, Todd, Kaitlyn Johnson and Thomas G Roberts (2018) *Space Threat Assessment*, Washington, April, CSIS.
- Hendrickx, Bart (2017) 'Russia Encounters Hurdles in Satellite Development and Expansion,' *Jane's IHS Markit*, 21 June.
- Hendrickx, Bart (2017) 'Update: Apparent identification of Classified Russian Military Satellite,' *Jane's Intelligence Review*, 12 July.
- Honkova, Jana (2013) 'The Russian Federation's Approach to Military Space and Its Military Space Capabilities', *Policy Outlook*, November.
- Interfax (2015), Russia's space program to cut back by another 500 billion rubles, *Interfax*, 9 October. Accessed on 2 May at <http://www.interfax.ru/business/472276>
- Johnson-Freese, Joan (2017) *Space Warfare in the 21st Century: Arming the Heavens*, Abingdon: Routledge.
- Jotham, Immanuel (2018) 'Russia's 'Space Forces' Just Completed the Construction of Two New Radar Facilities', 1 February, Accessed on 2 March 2018 at *International Business Times* <https://www.ibtimes.co.uk/russias-space-forces-just-completed-construction-two-new-radar-facilities-1657957>
- Kupriyanov, G.P. (2005) 'Principal Trends in the Evolution of Space Warfare' *Military Thought* 14, January. Accessed on 2 May 2018 at <https://www.highbeam.com/doc/1G1-136342873.html>
- Lavrov, Sergey (2017) Speech to CoD informal session dedicated to the 110th anniversary of the second Hague Peace Conference, 1 March, 2017.
- Luzin, Pavel (2015) 'Russia's Space Program-2025: Will Russia be capable of cosmic exploits given the crisis and its political isolation?', *Intersection*, 2 November. Accessed 4 May 2018 at <http://intersectionproject.eu//article/economy/space-program-2025>
- Luzin, Pavel (2016) 'Russia's Position in Space, *Foreign Affairs*, September. Accessed, 2 March 2018 at <https://www.foreignaffairs.com/articles/2016-09-21/russias-position-space>
- Luzin, Pavel (2018) 'Russia's Tactical Nuclear Weapons: A reality check', *Riddle*, 1 May. Accessed 5 May 2018 at <http://www.ridl.io/en/russias-tactical-nuclear-weapons-a-reality-check/>
- McDermott, Roger (2012) 'Russia's 'New Look' Military Reaches Out to Space', *Eurasia Daily Monitor* 9, no.140.
- Meyer, Paul (2016) 'Dark forces awaken: the prospects for cooperative space security', *The Nonproliferation Review*, vol.23, issue 2-3, pp. 495-503.
- Mizokami, Kyle (2018) 'Russia, China Will Have Anti-Satellite Weapons 'Within a Few Years'', *Popular Mechanics*, 15 February. Accessed 2 May 2018 at

<https://www.popularmechanics.com/military/weapons/a18197465/russia-china-anti-satellite-weapons/>.

RFE/RL (March 1, 2018) 'I'm Not Bluffing': Putin Touts New Advanced Russian Arsenal', *RFE/RL*, 1 March. Available at <https://www.rferl.org/a/putin-new-advanced-russian-arsenal-nuclear-capable-weapons/29071274.html>

President of the Russian Federation (2010) 'The Military Doctrine of the Russian Federation' approved by Russian Federation presidential edict on 5 February 2010.

President of the Russian Federation (2011) The presidential decree 'On the approval of the priority directions of science and technologies of the Russian Federation' approved by the President of the Russian Federation on July 7, 2011, no.899.

President of the Russian Federation (2015) The Russian Federation's National Security Strategy, 31 December 2015.

RFE/RL (March 1, 2018) 'Russia Conducts World's Longest Surface-to-Air Missile Test with New S-500', *Moscow Times*, 28 May. Available at <https://themoscowtimes.com/news/russia-conducts-worlds-longest-surface-to-air-missile-test-with-new-s-500-media-reports-61577>

Roffey, Roger (2013) 'Russian Science and Technology is Still Having Problems -Implications for Defence Research', *The Journal of Slavic Military Studies*, 26, no.2, pp.162-188.

Russia Federal Government (2014) 'Space Activity of Russia in 2013-2020 approved by the Federal Government on April 15, 2014 (no. 306).

Russia's Ministry of Foreign Affairs (2016) Russian Foreign Policy Concept, 30th November 2016.

Russian Government (2015) '*Russian Assessment of the US Global ABM Defence Programme - International security and disarmament*, 5 March 2015.

Russian Security Council (2010) 'The Military Doctrine of the Russian Federation', 5 February 2010.

Russian Security Council (2014) 'The Military Doctrine of the Russian Federation', 25 December, 2014.

Samoylova, Svetlana (2013) 'Space 'Scare Tactic' for Medvedev', *Politkom.ru*, 15 April.

Stratfor (2015) 'The Battle to Militarise Space has Begun', 11 November. Accessed 1 May at <https://www.stratfor.com/analysis/battle-militarise-space-has-begun>

Tucker, Patrick (2018) 'Russian Military Chief Lays Out the Kremlin's High Tech War Plans', *Defense One*, 28 March. Accessed 2 April 2018 at <https://www.defenseone.com/technology/2018/03/russian-military-chief-lays-out-kremlins-high-tech-war-plans/147051/>

UN General Assembly (2013) 'Group of Governmental Experts on Transparency and Confidence building Measures in Outer Space Activities,' A/68/189, Sixty-eighth session, July 29, 2013.

Vasiliev, Victor (2015) *Statement at the Joint Ad hoc meeting of the First and Fourth Committees of the 70th session of the UN General Assembly*, 22 October 2015, Accessed 2 May 2018 at <www.reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com15/statements/22October_SpaceGGE.pdf>

Venet, Christoph (2015) 'Space Security in Russia' in Shrogl, K.U. et al, eds., *Handbook of Space Security*, New York: Springer, pp.355-370.

Weeden, Brian (2015) 'Dancing in the Dark Redux: Recent Russian Rendezvous and Proximity Operations in Space,' *The Space Review*, 5 October.

Zak, Anatoly (2018) *Russian Space Program in the 2010s: Decadal Review*, 6 April. Accessed 8 April at http://www.russianspaceweb.com/russia_2010s.html