



RUSSIA'S ANTI-SATELLITE TEST: IS OUTER SPACE RIPE FOR COMPETITION?

By
Ghazala Yasmin Jalil
Research Fellow

Arms Control & Disarmament Centre (ACDC), ISSI

Edited by
Najam Rafique

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Russia conducted an anti-satellite missile test on April 15. Although it was not the first anti-satellite test (ASAT) by Russia, it elicited protests by the US. It was a direct-ascent anti-satellite (DA-ASAT) test that is capable of destroying satellites in Low Earth Orbit (LEO) which extends to about 2000 km.

US, China and India have all conducted ASAT tests. The test by Russia comes in the backdrop of increasing military offensive activities in space. In December 2019, United States Space Command (USSC) was established which is specifically designed to maintain US supremacy in space and coordinate military activities in space. China also conducted an ASAT test in 2007, while India conducted its test in March 2019. Moreover, the latter increasingly has a military space program. The offensive turn in space activities thus runs the risk of fueling an arms race in outer space.

The interceptor that was used for the Russian ASAT test was Nudol which is a mobile rocket system that can target satellites in LEO that's designed to take out satellites in Earth orbit. The test was not the first one; it was earlier tested in November 2019 as well. The latest test was not a contact test i.e. it did not hit a target satellite. It therefore, did not create any space debris. A single such test can create hundreds of pieces of debris, sometimes over thousands which orbits the space for a long time. Space debris and can harm satellites, space stations and can be hazardous to other space assets.

The Russian ASAT test has elicited protests from the US and counter accusations from Russia. USSC Commander General John Raymond said that the, "Russia's DA-ASAT test provides yet another

example that the threats to US and allied space systems are real, serious and growing.”¹ He reiterated US commitment to deter aggression and protecting US interests in space. He further called Russian proposals for arms control in space hypocritical. Russia responded to the accusations by pointing out that the US has refused to engage in dialogue on non-deployment of weapons in space. Russian Deputy Foreign Minister Sergei Ryabkov said, "If the United States rejects this proposal, the natural conclusion that we draw is that they headed for the creation of attack systems for deployment in outer space.”² Expressing concern, he also said, "We have many reasons to be concerned about the activities that the US is conducting in outer space, about their plans, including plans to deploy elements of an anti-ballistic missile system in space.”

Russian Foreign Ministry spokeswoman Maria Zakharova has said that US accusations are nothing but attempts to distract the world from Washington placing weapons in space and to procure more funding for these weapons. She said that US is systematically trying to discredit Russian activities in space as well as undermine its initiatives for prevention of an arms race in outer space.³

The history of US and Russian ASAT tests goes a long way back. The first ever ASAT was conducted by US in October 1959 in the form of an air-launched ballistic missile from B-47. In 1962, the Nike-Zeus was developed by US which could target objects at an altitude of 240 km, and later modified Thor missile for an ASAT role which could target objects at an altitude of 640 km.⁴ Soviet Union (SU) conducted its first test in 1963 using the co-orbital method which was essentially launching a satellite which would enter the orbit and kill the target. SU conducted 20 or so tests of this genre of ASAT before it was decommissioned in 1993.⁵ SU announced a unilateral moratorium on ASAT testing in 1983. The two countries also worked on miniature anti-satellite missile that could be carried on fighter planes. In 1985, US used the miniature ASM-135 missile fired from F-15 plane to destroy a satellite.⁶ However, after the initial spate of ASAT development during the Cold War, both US and Soviet Union stopped further advancements in ASAT capabilities.

For over two decades, there were no more ASAT tests until China conducted its test in 2007 using a modified ballistic missile to destroy one of its own satellites at an altitude of 850 km. The US-Soviet

¹ "Russia has test-launched an anti-satellite missile, says US Space Command," *Fox News*, April 16, 2020.

² "Russian ASAT Test Sparks War of Words," *Arms Control Association*, May 2020, <https://www.armscontrol.org/act/2020-05/news-briefs/russian-asat-test-sparks-war-words>

³ "Moscow: US Accusing Russia of Missile Tests to Distract From Deployment of American Weapons in Space," April 17, 2020, <https://english.almanar.com.lb/1003378>

⁴ Justin Paul George, "History of anti-satellite weapons: US tested 1st ASAT missile 60 years ago," *The Week*, March 27, 2019, <https://www.theweek.in/news/sci-tech/2019/03/27/history-anti-satellite-weapon-us-asat-missile.html>

⁵ Laura Grego, "A History of Anti Satellite Programmes," *Union of Concerned Scientists*, January 2012, https://www.ucsusa.org/sites/default/files/2019-09/a-history-of-ASAT-programs_lo-res.pdf

⁶ *Ibid.*

Union ASAT moratorium held until US again conducted an ASAT test using modified SM-3 to destroy its own satellite in 2008.⁷ In March 2019, India conducted its first ASAT test. Reportedly, India used its Prithvi missile which is part of its missile defense system, to shoot down one of its own satellites.

In addition, major spacefaring countries are also researching and developing counter-space capabilities in four broad categories – kinetic, non-kinetic, electronic and cyber. These include jamming technologies, laser weapons that can disrupt or damage satellites and other assets, directed energy weapons, on-orbit capabilities, and ground-based anti-satellite missiles.⁸ This makes space an increasingly weaponized domain.

Major spacefaring nations have huge space assets in the form of satellites – both military and civilian. In the contemporary era, reliance on satellites has become tremendous, from communication and navigation in everyday life to providing support to air, land, naval and nuclear forces. Satellites are an integral part of modern world. Out of a total of 2228 operational satellites, US has 1007, China 323, and Russia 164. Of these, US hold 189 military satellites, Russia 85 and China 62.⁹ The increasing emphasis on ASAT and other offensive weapons puts these assets at risk and threatens to ignite an arms race in the fourth medium of warfare – space – which was thus far relatively peaceful.

Iran also has space launch vehicle and has successfully launched its first military satellite in orbit on April 22, 2020. The satellite that Iran has named Nur was launched at 425 km altitude.¹⁰ The US was displeased with the launch. In effect, more and more states are becoming active in space and would be affected by the offensive capabilities

International legislation regarding outer space has not progressed much beyond the 1967 Outer Space Treaty (OST) which prohibits the placement of nuclear, chemical and biological weapons in space but does not cover other weapons. Russia and China have been trying to give proposals for negotiation of Prevention of an Arms Race in Outer Space (PAROS) that has been under negotiation in Conference on Disarmament (CD) for decades. They gave proposals as recently as 2012 and 2014. However, US has rejected all proposals. The US refuses to negotiate formal arms control in space and other domains and has been promoting a “normative” approach whereby US Assistant Secretary

⁷ “Russian ASAT Test Sparks War of Words,” op.cit.

⁸ Todd Harrison et al, “Space Threat Assessment 2020,” *CSIS*, March 2020, https://csis-prod.s3.amazonaws.com/s3fs-public/publication/200330_SpaceThreatAssessment20_WEB_FINAL1.pdf?6sNra8FsZ1LbdVj3xY867tUVu0RNHw9V

⁹ “Union of Concerned Scientists Satellite Database,” <https://www.ucsusa.org/resources/satellite-database>

¹⁰ “Iran's Revolutionary Guards ‘successfully launch military satellite’” *BBC News*, April 22, 2020, <https://www.bbc.com/news/world-middle-east-52380507>

of State Christopher Ford said, "US diplomats are looking ... to work constructively with their counterparts in other spacefaring nations to develop approaches to outer space norms that will help improve predictability and collective 'best practices' in the space domain."¹¹ This approach shuns formal arms control and promotes best practices and responsible behavior that in effect would not impose any curbs on US offensive capabilities in the domain of outer space.

At present, space is indeed ripe for competition. On top of the competition are major spacefaring countries like US, China, Russia and perhaps India. These nations have increasingly sophisticated ASAT capabilities and are developing offensive space capabilities and counter-space capabilities that amount to weaponization of space. This is a worrying turn of events for a domain that was relatively peaceful two decades ago. This threatens to ignite an arms race in space as well. Arms control negotiations in outer space have not met with much success which leaves this domain vulnerable to unchecked weaponization and arms races. This is indeed a double-edged sword – major spacefaring nations that are developing counter-space capabilities are, in fact, the most vulnerable since they have large assets in space.

¹¹ "Russian ASAT Test Sparks War of Words," op.cit.