

TIME FOR A GLOBAL BAN ON SATELLITE DESTRUCTION TESTS

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Reckless behaviour by a space power as responsible as Russia calls for strict restrictions to preserve humanity's access to space

Russia is a top-rung space power. In terms of technological capabilities, it ranks alongside the US and even surpasses it in some areas. The Russian establishment has a highly sophisticated understanding of the space domain. Moscow's intellectual horsepower in space science, economics and strategy is outstanding. The Soviet Union and its successor, the Russian Federation, have demonstrated no less responsibility towards the preservation and protection of space for human activities than any other power. That is what makes Moscow's anti-satellite (ASAT) test surprising.

On 16 November, Russia destroyed one of its old satellites by causing a tail-on collision with an ASAT rocket it had fired, at an altitude slightly higher than that of the International and Chinese space stations. The thousands of pieces of debris that resulted now pose a risk to space-stationed astronauts, other spacecraft that occupy low-earth orbits and launch vehicles destined for higher orbits. Space debris move faster than bullets and even tiny bits have enough kinetic energy to severely damage spacecraft. The lower the elevation of the fragments from earth, the sooner the junk will fall back upon the planet and burn up in the atmosphere. Debris at higher altitudes can remain in space for years and decades before falling down.

Space is vast, but the probability of collision increases with the number of objects in orbit. Junk from the Russian test is expected to intersect with the International Space Station's (ISS) orbit 31 times a day, before spreading out further.

Clearly, debris pose a risk for all spacefarers, including Russian cosmonauts and satellites. I find it difficult to understand why the otherwise space-smart Russians would do such a thing. First, Russia did not really need to test this direct-ascent ASAT, given that it has far more sophisticated missile interception capacity. Furthermore, in recent years, it has demonstrated advanced co-orbital ASAT capabilities, manoeuvring its spacecraft into close proximity to target satellites. Second, even if it wished to carry out a direct-ascent ASAT test for political signalling, it could have done so at lower, relatively safer altitudes. When India carried out its Mission Shakti ASAT test in 2019, the Indian Space Research Organisation launched the target satellite at an altitude of 274km (and much lower than that of the ISS) before destroying it a couple of months later. That test created fewer bits of trackable debris, and today only one of the few hundred objects remains detectable in orbit. All ASAT tests create debris, not all of which are trackable, but it is possible for responsible spacefaring nations to minimize negative externalities to the extent possible.

Russia's behaviour is thus a puzzle. While it is possible that its defence establishment acted without consulting its space agency, it is hard to accept that such a test would have received political authorization without the country's top space agency being in the loop. We must therefore assume that the Kremlin made a considered decision that knowingly hurts the interests of all spacefaring nations. Whatever Russia's political and strategic objective, the poisoning of the pond harms everyone.

There is now an urgent case for a strict international ASAT non-proliferation and test-ban treaty.

The norms that kept space clean for decades can no longer be relied upon. There are approximately two dozen countries that possess ballistic missiles or satellite launch capability that jeopardize human access to space. If a major space power like Russia could do it, what of desperado regimes that have nothing to lose in space?

Incidentally, just two weeks before the Russian test, the United Nations General Assembly's First Committee, which deals with international security and disarmament, set up a new working group to develop principles and rules for the military use of space. Initiated by the UK, the institution of the working group was supported by a vast majority of nations. Russia and China voted against, but only because they are in favour of an alternative mechanism for preventing an arms race in space, and for hard treaty obligations against space weapons that the US is opposed to. India abstained. But as the working group begins its deliberations, New Delhi must weigh in strongly on the side of a strict ban on anti-satellite weapons.

As a country that already possesses ASAT capability, it is in India's interest to deter other countries from acquiring it. To be clear: our successful 2019 test does not automatically mean India has operational ASAT weapons. There is still some way to go. Even so, it is inconceivable that we can easily carry out another destructive test without hurting our own interests in one way or another. At this stage, it is far better to push for a treaty that might prevent India's adversaries from further developing space weapons. A treaty will not prevent anyone—including India—from developing more advanced ASAT weapons. But it will make it harder, and prohibit destructive testing.

Space offers Indian entrepreneurs and businesses an opportunity to create another engine of growth. It is in our interest not to allow garbage to come in the way of our success.

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