

## Verification Of A Treaty-Base Regime for Space Security

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Since the first UNIDIR conference in Outer Space Security in 2002, have seen dramatic changes in the prospects for the sustainable use of space – many for the worse. In January 2007, China used a hit-to-kill interceptor to demonstrate its anti-satellite capability. The United States used a similar hit-to-kill missile defense interceptor to destroy one of its own satellites in February 2008, citing an alleged threat to human health from the possible reentry of a frozen tank of hydrazine. In February 2009, a defunct Russian satellite collided with a commercial Iridium satellite, creating a cloud of debris.

These incidents highlight that space is a very special, fragile environment. Unless steps are taken to preserve the orbital environment for all states, it will be available to none. A number of countries have already made proposals with regard to Preventing an Arms Race in Outer Space, or PAROS, including Canada, Russia and China. During his campaign for President, Barack Obama committed the United States to “pursue negotiations of an agreement that would ban testing anti-satellite weapons.”<sup>1</sup>

An urgent question is what role, if any, verification should play in future legal agreements relating to security in outer space. Some delegations have proposed that future legal agreements concerning the military uses of outer space should contain no verifications mechanisms. I believe this would be a mistake. Instead, I want to suggest that verification will be crucial in any agreement.

One reason to include verification measures is equity. A treaty that has no verification measures would leave the task of assessing compliance to national technical means. This would create a great disparity between those states with sophisticated intelligence capabilities and those without.

Another reason – and I would suggest this is the most important reason – is that verification will be central to the purpose of any agreement.

There has been some discussion at previous UNIDIR conferences about whether “Preventing an Arms Race in Outer Space,” is an anachronistic term. Although “arms race” has a certain Cold War aspect to it, I believe the term rather accurately captures the dynamic threatens the future of the sustainable use of space. As many more states gain access to space, space-faring states may begin to suspect that others are developing the capabilities to interfere with satellites. Whether or not this perception is accurate, suspicion could fuel the testing, deployment and possible use of large numbers of dedicated antisatellite systems.

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<sup>1</sup> “Arms Control Today 2008 Presidential Q&A: President-elect Barack Obama.” Arms Control Today. December 2008. <<http://www.armscontrol.org/2008election>>

In a world where some states have deployed significant anti-satellite capabilities, suspicion will undermine our ability to develop rules and norms for the civil and commercial use of outer space. In a crisis, the presence of large numbers of dedicated ASATs will undermine stability by creating pressure for states to use force before the loss of satellite constellations leaves them deaf, dumb and blind.

The goal is not to eliminate all means of harming or interfering with satellites – as this would be impossible – but rather to constrain the testing, deployment and use of large numbers of dedicated anti-satellite systems. This will help build the confidence that is a precondition to other forms of cooperation in preserving the space environment and reduce the pressure to “use” military force before “losing” the space-based assets that provide intelligence and communications links.

Verification is central to resolving the suspicion that inhibits cooperation in space and creates crisis instability. Conversely, the lack of verification will lead to suspicion, and consequently to recriminations that states are cheating on an agreement. This would undermine the effectiveness of any agreement.

By saying that verification is central to the purpose of any treaty, what I mean is that our ability to verify a treaty should help define the scope of any agreement. In this regard, I would support proposals made by others at this conference that the United States, Russia, China and other space-faring states agree to ban the testing deployment and use of kinetic energy ASATs (KE ASAT ban), which destroy their target satellite by slamming into it, creating significant amounts of space debris.

Today’s threat is from KE ASATS. The international community needs to act urgently to ban them. This does not mean that other so-called space weapons should remain unaddressed. But those systems are not yet realistic possibilities, if they ever will be.

To address these other systems, the United States, Russia and China could issue policy statements that they do not plan to place weapons in space. The preambular language of a treaty banning KE ASATS could recognize the contribution of such statements in creating a conducive atmosphere to ban the testing, deployment and use of debris-creating KE ASATs.

One reason to consider a limited, but verifiable, KE ASAT ban is the dual-use nature of many space technologies.

The United States theater missile defense system used in anti-satellite mode to shoot-down USA-193, for example, differed from its missile defense mode only in its software. It will be impossible to ban any system that can be used to harmfully interfere with satellites – such as theater missile defenses – but we can ban their testing against satellites, as well as their use.

Other potential anti-satellite technologies are much more difficult to address. In two cases, the problem is challenging because many verification technologies carry an

inherent ASAT risk. For example, after the United States experienced trouble communicating with one of its missile warning satellites, the American press revealed that the United States had for some time been operating a pair of inspection satellites, ANGELS, in GEO. These satellites are based on the same platform that could support space-based missile defense or anti-satellite missions. Similarly, lasers used in ranging and imaging satellites can dazzle or, in extreme cases, blind optical satellites.

Banning these technologies is neither feasible nor desirable. Fortunately, these technologies do not yet form the basis of dedicated anti-satellite systems. If our goal is not to eliminate all means of harming satellites, but to build confidence in peacetime and improve survivability, then the priority task for the international community is address the threat we face today: the development and potential proliferation of hit-to-kill anti-satellites that undermine stability and, if used, would create massive amounts of space debris.

A limited ASAT ban could contribute strongly to this goal. I believe that further testing and deployment of US and Chinese capabilities would be necessary for either side to deploy large numbers of dedicated anti-satellite weapons. We have, therefore, a limited window of opportunity to constrain the development of these capabilities. The international community should seize this opportunity.

What sort of verification measures might we include in a KE ASAT ban?

- First, the treaty should provide for the use of national technical means – ground and space based sensors – to monitor launches and satellites in orbit. This should provide a high degree of confidence – for the states with these capabilities – that others are not testing KE ASATs. The United States reportedly detected all of China’s ASAT tests, including the January 2007 test, which created hundreds of pieces of debris.
- Second, any agreement should provide for data sharing so that the treaty is equitable. This mechanism should provide an opportunity for data sharing, as many states lack the space surveillance capabilities of the United States, Russia and Europe. There are current efforts underway within the United States to share such data so that all space-faring states can operate their satellites without running into one another. Similarly, the treaty might include a provision for cooperating monitoring of space launches. The recent US-Russian Joint Statement on Missile Defense calls for “intensifying dialogue on establishing the Joint Data Exchange Center, which is to become the basis for a multilateral missile-launch notification regime.” This is a sound proposal. Similarly, some scientists are using the infrasound monitoring network under the CTBT to confirm missiles and space-launches. This too could be expanded as part of a verifiable KE ASAT ban.
- Third, the treaty should provide for non-interference with means of verification. This is generally a non-controversial provision in many arms control treaties, but in outer space we must take care to ensure that verification activities do not

provide a pretext for the development of anti-satellite capabilities. The easiest method, of course, is to ensure that any treaty is narrowly tailored in its purpose. We also, however, need to make sure that protocols are in place governing the use of verification assets such as inspector satellites and satellite laser-ranging facilities. In these cases, we will want to ensure that appropriate notifications, rules of procedure and transparency measures create confidence that the means of verification are not intended to defeat the purpose of a treaty.

Although there are many threats to space security, very few are actually related to space weapons or ASATs. The most urgent threats are the increasing amount of debris and other challenges posed by the welcome growth in access to space. Addressing these challenges, to ensure that space is available to all, requires addressing any military threats to space stability as they arise. Today, the urgent threat is from the development, testing and spread of hit-to-kill anti-satellite technologies. A verifiable ban on the testing, deployment and use of KE ASATs will not solve all our problems in space, but it is an important near-term step.