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The impact of space militarization on global peace and political stability

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Executive summary

Outer space has become increasingly asserted as a key strategic domain of contemporary international relations, and advanced counter-space technologies are being developed, tested, and operationalized that could undermine Allies' access to and ability to operate in space, as well as their freedom of action for everyone. Although the international legal framework was established with the aim of preserving outer space for peaceful purposes, accelerated development of military space capabilities, and special dual-use technologies indicate the continued use of space for defense purposes. The increasing dependence of states on space-based assets reinforces the strategic importance of satellite systems and space-based infrastructure, as well as their vulnerability to political and military tensions. The development of anti-satellite technologies and space defense doctrines deepens the "security dilemma" among states. In the space context a "security dilemma" arises because measures taken by one state to improve the protection of its space resources are often perceived by other states as potential threats, which encourages those states to also act to strengthen their security, which in turn leads to competing military and technological responses that can increase overall insecurity. Yet, the growing role of private actors in space technologies adds to the "security dilemma" as commercial and dual-use capabilities can intensify competition.

This policy brief enforces the "security dilemma" to explain the continued weaponization trend in outer space. Strategies implemented by one country to protect its own space capabilities for defense purposes only may be perceived by other actors as a potential threat, which increases the risk of an arms race and destabilization. This dynamic reinforces an increase of mistrust between states and deepens the risk of an arms race in outer space, with potential direct consequences on the sustainability of the outer space environment and the security of Earth's critical infrastructure.

Space militarization

The international legal framework established by the foundational Outer Space Treaty of 1967 prohibits the placement of weapons of mass destruction in orbit, but it does not limit the development of conventional military capabilities, satellite surveillance and anti-satellite technologies. The existing legal framework leaves room for certain military uses of space, allowing states to expand strategic competition that affects the global balance of power. Observed through several key activities include:

1. Satellite development: The development of military satellites, early warning systems and jamming or anti-satellite technologies in modern times is increasingly considered part of national security strategies. Emergent security challenges are further enhanced by the dual-use nature of space technologies with dual functions for both civil and military. The United States has expanded its military satellite architecture through the United States Space Force and space development agencies, while China has demonstrated the ability to directly control anti-aircraft missile (ASAT) systems. Russia has also conducted similar ASAT tests.

2. Satellite networks: Satellite communication, navigation and Earth observation have become key infrastructures of modern societies, but at the same time military structure. The use of commercial satellite systems in contemporary conflicts shows that the border between civilian and military activities in space is becoming increasingly blurred, which increases the risk of escalation and destabilization.

3. Geopolitical competition: Space militarization advances the geopolitical competition of great powers and contributes to the formation of a new dimension of strategic competition. Space is increasingly viewed as a "strategic height" that enables surveillance, communication and power projection, where states invest in the development of space military capabilities as part of a broader security policy.

The “Security Dilemma” in Outer Space

The “security dilemma” is one of the fundamental theoretical ideas in the field of international relations. It was developed within the framework of the realist theory of international relations, which explains the measures that states take for their own security and how it can unintentionally increase the insecurity of other actors, deepening further militarization. Defense realists view the “security dilemma” as the enabler of true cooperation between states that goes beyond a transitory alliance faced with a common enemy. “Security dilemma” is therefore furthermore the theoretical backbone of defense realism. For offensive realists the “security dilemma” presents war as an inevitable and rational outcome. The application of the concept of the “security dilemma” to the outer space model explains the continuous growth of armaments in space and the strengthening of strategic competition between states. For example, the “security dilemma” is most pronounced when obligations, strategies, or technological developments lead states to believe that they can achieve security only through expanding defense capacities. For the sake of its security, one country develops satellite systems, anti-satellite technologies and military space doctrines as a defensive measure. Simultaneously, this causes mistrust and reactions from other countries, potentially inducing them to develop their own satellite systems, anti-satellite technologies and military doctrines, thus creating a dynamic of mutual competition. Growing space militarization deepens the security dilemma among states with the development of one state’s space capabilities often interpreted as a potential threat by another.

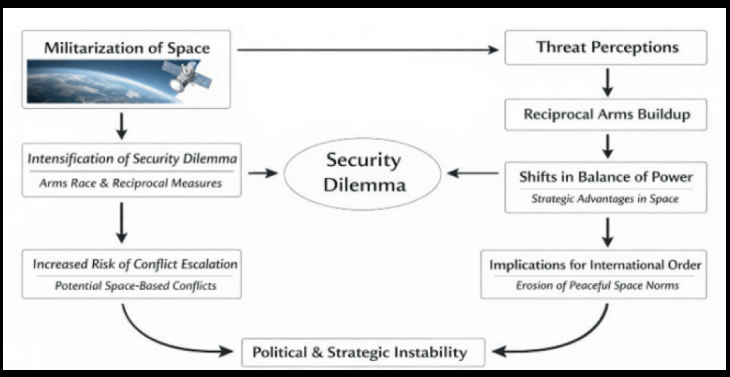


Photo 1: Application of the “security dilemma” in relation to the militarization of outer space

Global security and the balance of power

Security is therefore based on deterrence and not protection from attack. States do not avoid attacks because they can stop it, but because any attack would provoke a counterattack and mutual destruction. This makes attack irrational, and stability is maintained through the threat of retaliation. In this sense, there is no effective defense, as the logic of mutually assured destruction discourages either side from using weapons first. Space militarization affects changes in the global balance of power, because states that possess advanced space capabilities gain significant strategic advantages in surveillance, communication and projection of military power. The development of military satellite systems, anti-satellite technologies and space defense doctrines enables individual states to have greater control over information and the operational environment, thus changing the traditional patterns of power in international relations. For example, the deployment of military satellite constellations by the United States and the anti-satellite (ASAT) tests conducted by China and Russia illustrate the growing strategic role of space capabilities. The entry of new space actors and the growth of commercial space companies further complicate security dynamics and increase competition, which contributes to the fragmentation of the international order and encourages states to invest in their own space capacities to preserve strategic balance and reduce potential dependence on other actors.

Risks for global peace and political stability

The potential destruction or jamming of satellites can have direct consequences for communications, navigation, the financial system and military operations, making space-based assets a potential target in crisis situations. For military operations or societies in general, i.e. civilian applications as well. This increases the likelihood of miscalculation and faster escalation, especially in conditions of limited transparency and lack of control mechanisms. The testing of anti-satellite systems furthermore creates space debris that threatens the sustainability of the space environment and the security of all actors including civil and commercial operations in the

long term. The militarization of space can destabilize international order, deepen geopolitical tensions and increase the risk of conflicts with global consequences in the banking system, communication system and navigation system. Although existing international mechanisms addressing space security and militarization include COPUOS, the Conference on Disarmament, the Outer Space Treaty, and the United Nations Open-Ended Working Group (OEWG) processes, the growing use of dual-use and commercial space technologies highlights the need to strengthen international cooperation on responsible, safe and sustainable space activities, in the growth of private-sector competition.

Table 1: Risks of space militarization for global peace and political stability

Aspect	**Mechanism**	**Risk**	**Impact**
Anti-satellite weapons	Destruction of enemy satellites	Escalation of conflicts	Increased Insecurity between states
Military surveillance from space	Improved intelligence dominance	Arms race	Mistrust between powers
Dual-use satellites	Civil-military use	Misjudgment of intentions	Diplomatic tensions
Dependence on states on satellites	Infrastructure vulnerability	Asymmetric attacks	Destabilization
Militarization of the orbit	Eexistence of military capacities	Militarization of new domains	Weakening of international norms

Policy Recommendations

The recommendations are interconnected because of the common goal of reducing the risk of miscalculations, increasing transparency and strengthening cooperative governance in space activities.

1. Emphasizing transparency in ongoing space activities.
   Advance communication about space capabilities, announcing tests and publishing data about space objects would reduce the risk of misjudgment and unintended escalation by other states. While such transparency measures should certainly be defined and potentially limited in scope to protect sensitive national security information, they could be further operationalized through agreed international reporting standards and verification mechanisms within institutional frameworks.
2. The need for institutionalization and cooperation.
   A clearly defined interaction through institutions would enable more transparent cooperation and protection of outer space. States should work through international organizations and forums to establish common standards for responsible behavior and coordination of activities in space. Considering the growing role of the private sector, it is necessary to develop cooperation mechanisms between the state and commercial operators to preserve the safety and sustainability of the space environment. This could be addressed through structured public-private consultation mechanisms that would enable national space authorities in coordination with existing international frameworks such as UNCOPUOS.
3. Norms and communication through institutions.
   Communication channels, voluntary norms of responsible behavior and consultation mechanisms in crisis situations can contribute to reducing the "security dilemma" and increasing stability. Develop clearer binding norms that would regulate the testing of anti-satellite systems, the military use of outer space and the prevention of the creation of space debris. The norms would include both rules of engagement and broader standards for the military use of space.

Bibliography

1. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, opened for signature 27 January 1967, UNTS, vol. 610, p. 205 (entered into force 10 October 1967).
2. Ballamudi, K., 2020, Militarization of Space, Solution Architect, Software Engineering Architecture Department, Cyber Global, Inc., USA, Asian Journal of Applied Science and Engineering, Volume 9, No 3/2020 ISSN 2305-915X(p); 2307-9584(e).
3. Muthia, N., Muhni, A., Nurisnah H., 2025, Dual use satellites in the Ukraine conflict: The dilemma between state sovereignty and the principle of non-militarization of outer space, Priviet Social Sciences Journal, Volume 5, E-ISSN 2798-866X, Issue 10P-ISSN 2798-6314.
4. Dvorkin, V., and Arbatov, A., 2010, Outer Space: Weapons, Diplomacy, and Security,Carnegie Endowment for International Peace, https://doi.org/10.2307/j.ctt6wpj66.10.
5. Jervis, R., 1978, Cooperation Under the Security Dilemma, World Politics, Vol. 30, No. 2, pp. 167-214. Cambridge University Press.
6. Waltz, K., 1979, Theory of International Politics, University of California, Berkeley.
7. Tang, S., 2009, The Security Dilemma: A Conceptual Analysis, Security Studies, Taylor & Francis Group, LLC ISSN: 0963-6412, DOI: 10.1080/09636410903133050.
8. Charles G., 1997, The Security Dilemma Revisited, World Politics 50, no. 1.
9. Jervis, R., 2001, Was the Cold War a Security Dilemma?, Journal of Cold War Studies 3, no. 1.
10. Glaser, C., 2004, When Are Arms Races Dangerous?, International Security 28, no. 4.
11. Alan R. Collins, The Security Dilemma of Southeast Asia (London: Macmillan, 2000), 24.
12. Tang, S., 2010, A Theory of Security Strategy for Our Time, Defensive Realism, Palgrave Macmillan.
13. NATO. 2019. NATO's overarching Space Policy. https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2019/06/27/natos-overarching-space-policy

14. Enholm, Mackenzie. "The Security Dilemma and Conflict in Space: Impossible or Inevitable?." Journal of Strategic Security 17, no. 4 (2024) : 48-70. DOI: https://doi.org/10.5038/1944-0472.17.4.2255 Available at: https://digitalcommons.usf.edu/jss/vol17/iss4/4.

15. Global Counterspace Capabilities. 2026 by Secure World Foundation is licensed under Attribution-Non Commercial 4.0 International. 2026 Global Counterspace Capabilities Report. https://www.swfound.org/publications-and-reports/2026-global-counterspace-capabilities-report.

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