



## INFORMATION SERIES

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Issue No. 471

November 30, 2020

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### **Deterrence in Space: Requirements for Credibility**

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#### **Introduction**

*To deter, the United States must be able to attribute an attack on its satellites...  
to justify a punitive response elsewhere...*

-Michael Gleason and Peter Hays  
Aerospace Corp Center for Space Policy and Strategy

*Even in a relatively peaceful period, under circumstances where a hostile relationship is unclear, the presence and development of one side's space systems and the boosting of its space [weapons] capability, still can potentially influence and constrain the military activity of other nations and generate a certain deterrent effect.*

-Sun Zhaoli  
People's Liberation Army's Science of Strategy



China has an active, attack to deter, approach to space deterrence. It is one grounded in a first-mover advantage, escalation dominance framework. It is not an approach based on mutual vulnerability, space security, or space environmental concerns. As such, the U.S. framework for assessing and developing a credible deterrence posture must be focused on who the adversary believes they are, not what we want them to be. Towards this end, a reality-based approach to deterrence in space requires a tailored framework that takes this vital context into account.

### **The Deterrence Through Attribution Concept**

In recent years, space policy writers have attempted to re-define space deterrence in a way that is not deterrence at all. Recently, for example, two space analysts proposed a concept that can be described as deterrence through attribution.<sup>1</sup> The authors correctly assert that space is “an offensive dominant arena, meaning it is considered materially easier and less costly to attack a satellite than to defend a satellite.”<sup>2</sup> It is therefore imperative to deter attacks against critical U.S. space infrastructure. The concept they posit relies not on a credible space warfare-winning capability to deter aggression but on being able to attribute an attack on satellites and demonstrating the resilience of non-weapons space capabilities.<sup>3</sup> In other words, the ability to keep absorbing attacks while being able to identify the perpetrator is the key to deterring the attacks one is enduring. Does that make sense?

Attribution “refers to the ability to determine the actor(s) responsible for creating certain effects and, in many space scenarios, can be difficult to determine.”<sup>4</sup> This can be difficult depending on the type of an attack, such as electronic warfare (i.e. jamming), where the effects can be similar to naturally occurring phenomena like “geomagnetic storms which can interfere with satellite operations...”<sup>5</sup> In order to deter an attack by an aggressor, it is imperative for deterrence strategies to be able to attribute interference or attacks to the correct perpetrator. While attribution and tracking of ground-based or orbital anti-satellite (ASAT) strikes is important, by itself it is not a deterrent.

Deterrence, as described by classical deterrence theorists such as Herman Kahn and Thomas Schelling, is typically achieved in one of two ways: punishment or denial. In the concept of deterrence by attribution, a “deterrence by punishment strategy has more stringent attribution requirements.”<sup>6</sup> To deter, “the adversary must perceive that it will not be able to escape responsibility for an attack in space due to the United States’ inadequate ability to confidently attribute the attack.”<sup>7</sup> This threat of attribution must be communicated through a declaratory policy that the adversary can understand.<sup>8</sup> Moreover, while the deterrent enhancement comes from attribution “threats,” the retaliation itself is assumed to be a “punitive response elsewhere” implying a reliance upon horizontal escalation, meaning a response in a domain other than space. This is an indirect reference to the declaratory policy currently found in the



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2017 *National Security Strategy of the United States of America* and 2018 *National Space Strategy*, both of which state that aggression in space “will be met with a deliberate response at a time, place, manner, and domain of our choosing.”<sup>9</sup> In order for deterrence by punishment to be effective, the attribution information must be “credible and available to share with [a] broad range of stakeholders” such as allies and commercial partners.<sup>10</sup>

By contrast, “deterrence by denial emphasizes the ability to absorb an attack” and to communicate the “resilience of U.S. space capabilities” through “disaggregation, diversification, deception, protection, proliferation, and distribution” of space assets that will convince “the adversary that it will be unable to achieve its objective.”<sup>11</sup>

### **Comparing Deterrence by Attribution with Classical Deterrence Theory and Practice**

Since the end of the Cold War, the idea of space warfare, especially kinetic engagements in space, has been viewed by some as “unthinkable.”<sup>12</sup> This view is rooted in fear of the negative environmental impact of debris generation that would threaten “space security.” However, the focus of deterrence or national defense policy should be the protection and defense of the nation’s critical space infrastructure, not the space environment.

When the United States, or any country for that matter, declares a deterrent threat to an adversary state, in any domain, that threat must be underpinned by a credible resolve to use force, not merely the capability to attribute and absorb attacks.<sup>13</sup> The risk of deterrence failure increases when the threat to respond is not taken seriously. Some commentators have argued that rhetoric and statements that appear to be threatening are “dangerous” and destabilizing to an already tense situation.<sup>14</sup> However, to be credible, deterrence must be based on more than just words. It relies on armed capability and the perceived willingness to use it.<sup>15</sup>

If a state is willing to retaliate regardless of escalation risk, then most likely the status quo can be maintained through deterrence. If, however, a state is perceived as unwilling to follow through on its threats, then the credibility of the threat is degraded, risking deterrence failure.<sup>16</sup> Appearing to do nothing in response to an act of aggression by an enemy demonstrates a lack of will. Standing firm and being willing to assume the costs and risks associated with that threat displays determination.<sup>17</sup> Declaratory policy serves as the mechanism to convey U.S. determination, capability, and will to deter aggression.<sup>18</sup>

China appears to recognize the importance of acting proactively and decisively as a way of bolstering its deterrence threats. Beijing has been taking actions to exert its sovereignty and expand its terrestrial land and sea claims in the South China Sea and East China Sea by establishing Economic Exclusion Zones, Air Defense Identification Zones, and building up island military bases throughout the first and second island chains. There are concerns that the rapid deployment of Chinese counterspace capabilities and its aggressive behavior in the



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Pacific could lead Beijing to assert it has the legal right to attack foreign spacecraft overflying Chinese territory.<sup>19</sup> This would have serious repercussions on current customary norms such as freedom of overflight that have existed since Sputnik 1.

### China's View of Space Deterrence and Warfighting

The Chinese People's Liberation Army (PLA) space forces and their political leadership in the Chinese Communist Party (CCP) do not subscribe to the aforementioned deterrence through attribution concept, or the horizontal escalation methodology of retaliation in "a domain of their choosing." Instead, they have a well-developed space deterrence concept undergirding general deterrence, which is supported by a rapidly growing, deployed space weapons capability. As one Chinese document highlights, simply an infringement upon China's perceived rights and interests could be viewed as an attack in and of itself:

...when another state conscientiously infringes upon China's space rights and interests and causes harm to national space security, China [may] implement space deterrence against the enemy, and launch a space counterattack.<sup>20</sup>

In the PLA's writings on space warfare and deterrence, the development of "real capabilities" for space attack are considered an "integral part of battle planning by the People's Liberation Army in any future conflict."<sup>21</sup> This not only includes states of war, but also "periods of tension."<sup>22</sup> Space forces, unlike nuclear forces, are considered by Chinese military leaders to be subject to a much lower threshold of use and therefore "space strategic power must not only have a deterrent effect, but real warfighting potential."<sup>23</sup>

In the Chinese language, the definition of deterrence is different than that of the West. While the United States views deterrence as the prevention of war through cost/benefit calculation and attempts at controlling perceptions, the Chinese term *weishe* is a combination of coercive, pro-active force and self-defense responses.<sup>24</sup> The focus of space deterrence operations is to deter behavior that endangers China's own interests by enhancing deployed military capabilities.<sup>25</sup> To do this requires "powerful comprehensive national power" in space that supports the overarching general or "integrated-whole" deterrence strategy.<sup>26</sup>

While space support capabilities have become very important to the PLA space strategy, they alone are not what creates a deterrent effect. For the Chinese, having a credible "attack to deter" capability in space to threaten other nation's space capabilities is where their deterrence of the adversary's space capabilities resides. "In this way, both sides would be reluctant to attack the other's space assets lest they also come under attack."<sup>27</sup>

In addition to having credible space attack weapons for effective deterrence and warfighting in space, the Chinese advocate that they should reveal "firm resolve to dare...and use this





capability” in order to create “certain psychological pressure on and fear in the adversary, and [force] the adversary to dare not conduct space operations with initiative.” PLA strategists argue for conducting “limited space operational activities” that include “warning and punishment as goals.”<sup>28</sup> The overarching objective of space deterrence is to “choose appropriate deterrence means to display the horribleness, severity, and urgency of the consequences.”<sup>29</sup> This type of space deterrence (which might be called “space deterrence with Chinese characteristics”) suggests how China views space warfighting, as the Chinese have written about how the United States will have to deal with the “grave aftermath” that “rapid and destructive” space warfare will have upon its space-enabled society and armed forces.<sup>30</sup>

### **A Suggested Path towards Credible Space Deterrence for the United States**

Deterrence is a fundamentally a cognitive issue. The mind of a potential aggressor must be as clearly understood as possible in order to have any chance at achieving deterrent credibility by design. Attribution, while important, is not the “capability” most needed to achieve a deterrent threat.

As noted above, China has an active, attack to deter, approach to space deterrence. As such, the U.S. framework for assessing and developing a credible deterrence posture must be based on a realistic assessment of what an adversary believes, not a mirror-image of our own views based on what we think they should believe. This requires innovative thinking and development of a tailored framework for implementing reliable space deterrence. Such a framework requires acknowledging four key items.

First, American strategists should recognize that effective deterrence requires the ability to understand an adversary’s decision-making process. This can be facilitated through observation and analysis of its strategic culture, doctrine, and behavior.<sup>31</sup>

Second, strategists and policymakers must acknowledge that space is an offensive dominant medium.<sup>32</sup> As a result, in order to provide effective deterrence in space, the United States must actively protect its space systems through a credible offensive, counterforce capability.<sup>33</sup>

Next, any future national security space posture should acknowledge that damage limitation measures such as active defense of critical U.S. space and terrestrial infrastructures are vital to ensure credible deterrence.<sup>34</sup> Deployment of active defenses supports the view expressed by deterrence scholars such as Keith B. Payne, who argues that to exercise force projection requires management of risk to the U.S. homeland and deployed forces. This includes damage limitation measures such as “offensive capabilities for counterforce strikes; active defenses such as air and ballistic missile defenses; and passive defenses such as physical protection” and hardening against space-borne electromagnetic pulse (EMP) attacks.<sup>35</sup>



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Finally, policymakers and strategists must view space systems as a critical infrastructure of the United States and not just a support structure for force enhancement and terrestrial operations.<sup>36</sup> Though this concept has been evident in national strategy and doctrine for years, it has never received a commensurate level of funding or support by senior leadership.<sup>37</sup>

### Conclusion

According to the Department of Defense, China is rapidly developing a multi-layered attack architecture to make its military space doctrine a reality.<sup>38</sup> This array of space forces includes “kinetic-kill missiles, ground-based lasers, and orbiting space robots, as well as expanding space surveillance capabilities, which can monitor objects in space within their field of view and enable counterspace actions.”<sup>39</sup> While some are still in development, such as space electronic warfare jammers, offensive cyber capabilities, and directed-energy weapons, China has deployed ground-based anti-satellite missiles “intended to target low-Earth orbit satellites,” with assessments indicating Beijing’s intention to pursue additional ASAT weapons capable of “destroying satellites up to geosynchronous Earth orbit.”<sup>40</sup> Doctrines are being developed at Chinese service academies and schools that stress the necessity of “destroying, damaging, and interfering with the enemy’s reconnaissance and communications satellites, “ in order to “blind and deafen the enemy.”<sup>41</sup> Because of these developments, the United States must have the ability to achieve an escalation dominance-based approach to space deterrence. It does not possess sufficient capability at the present time.

The *Chief of Space Operations’ Planning Guidance* for 2020 mentions many of the above threats posed by Chinese space forces; however, it does not suggest the United States is developing credible, survivable, ASAT forces of its own. It does, however, mention the importance of “investments in orbital warfare, space electronic warfare, and tactical intelligence portfolios to enable effective defensive options and prompt offensive capability to deter adversaries from initiating conflict....in space.”<sup>42</sup> This is a good start, but deterring and, if deterrence fails, defeating potential adversaries like China will require the United States to develop and deploy a much more robust space posture in order for its deterrent threats to be credible.

The safety and security of Americans and American interests depend upon the U.S. ability to employ and defend its space assets. This should be a priority of the President and the next Congress.



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