China Waging War in Space: An After-Action Report

Nonproliferation Policy Education Center
Occasional Paper 2104

August 2021
Series Editor: Henry D. Sokolski
Nonproliferation Policy Education Center

The Nonproliferation Policy Education Center (NPEC), a 501(c)3 nonprofit organization, is a nonpartisan, educational organization founded in 1994 to promote a better understanding of strategic weapons proliferation issues. NPEC educates policymakers, journalists, and university professors about proliferation threats and possible new policies and measures to meet them.

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Acknowledgments:

This research was supported by generous grants from the MacArthur Foundation, the Sarah Scaife Foundation, the Carnegie Corporation of New York, and the Smith Richardson Foundation.

About NPEC:

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Executive Summary:

This debrief reflects not only what happened during a three-move wargame NPEC hosted in June, but the game’s three preparatory meetings. Game participants represented the United States, the People’s Republic of China (PRC), and Japan and U.S. Indo-Pacific allies. The first move was set in 2027. The second and third moves were set in 2029. In the first move, PRC initiated space control operations intended to weaken U.S. regional allied (e.g., Japan, Republic of Korea (RoK), Australia) resolve in opposing a PRC economic exclusion zone enforcement effort directed against Taiwan.

The game produced four takeaways:

1. The United States and its space allies will have to defend against new, immediate Chinese co-orbital anti-satellite threats and make efforts to operate near and beyond the moon, or risk losing free access to space. Chinese co-orbital anti-satellite weapons capabilities (ASATs) in low Earth orbit (LEO) and Geosynchronous orbits (GEO) are real and growing and require immediate U.S. and allied acquisition and pre-positioning of bodyguard spacecraft to protect high-value military satellites. Pre-positioning is essential given that orbital mechanics do not allow for last-minute launches or maneuvers. Unfortunately, neither the United States nor its space allies have bodyguard spacecraft on station with the maneuverability required to protect their military satellites. Chinese efforts to control cislunar space are also a major emerging threat that the U.S. and its allies’ moon exploratory efforts do not adequately address. Unless America and its space allies act more quickly to address these issues, China will get the right stuff at the right time and gain much more control of space than America and its allies.

2. The U.S. and its space allies must give greater attention to how commercial space systems could be targeted and used for military purposes. Peaceful space operations – co-orbital satellite servicing and refueling, debris removal, laser satellite tracking, etc. – could be quickly flipped from legitimate civil activities to hostile military actions. At a minimum, the U.S. and its space allies should be worried that China might use its financial clout to buy and control foreign commercial space firms (especially those operating in states that are not signatories to the Outer Space Treaty). This could allow China to use these firms’ space systems to undermine U.S. and allied space operations with plausible deniability.

3. Given the history of Russian and Chinese gaming of diplomatic agreements, and the ambiguities associated with space controls, the U.S. and its space allies should reach no new space agreements with either China or Russia unless those understandings are clearly enforceable. This includes agreements to clarify redlines and penalties for when the redlines are crossed. Because hostile space operations can produce significant strategic military results quickly, any effective space agreement should give all parties the unilateral right to protect their own assets and place the burden of proof on the accused party. Finally, enforcement actions should be proportional. The scope of defensive actions should be limited to measures sufficient to bring the violating party back into compliance; no more, no less. For example, bodyguard spacecraft should be used not to destroy hostile space systems, but to gently push offending satellites far enough away that they no longer violate agreed safety zones. Also, certain laser, cyber and electronic warfare systems can be operated only to disable their targets temporarily. Agreements that meet the criteria noted (agreed to either internationally or, at least, among America’s space allies) would make it far easier to orchestrate timely, effective responses to hostile space actions. Agreeing to anything less, however,
could risk encouraging just the opposite.

4. The United States will have no chance of contesting or besting China in space unless Washington works much more closely with its space allies. Being able to call on NATO, the EU and America’s Indo Pacific allies to deescalate or prevail in a space confrontation is an advantage the United States enjoys over China. America and its space allies must maintain this advantage by increasing U.S.-allied space training, planning, and gaming. America’s space allies need to know in advance what the United States is likely to do in a variety of space conflict scenarios. Any major surprises on this front will come at a steep cost to U.S.-space allied relations. Finally, the game demonstrated that it is far less likely that China can successfully peel Japan from the United States than it might separate South Korea from the United States. This recommends increasing U.S. and allied space-related cooperation with Seoul.

Game Format and Scenario:

Game participants were assigned to one of three teams: (1) United States, (2) People’s Republic of China, and (3) Japan and Regional Allies (Australia, RoK, Taiwan and other nations in the region). The control center observed and conducted overall game administration (the team assignments and participant’s roles are available [here](#)).

Move one began in 2027 and participants engaged in operational space capabilities that were assumed to be in an experimental phase. Each team was provided a set of capabilities with which they could conduct space situational awareness, and offensive and defensive space control operations. Commercial assets resided in all orbits by 2027-2029, and teams were able to target these assets as desired or use these assets to support military missions.

Move two replayed move one in 2029 with each team having more space operational capabilities. Finally, move three examined the long-term implications of the crisis. After move three, teams were asked two questions: What worked and what didn’t and what new initiatives and capabilities might have made a decisive difference in the game’s outcome.

At the start of move one (2027), the PRC had not put significant naval, air, or ground forces behind its enforcement of its declared Taiwan exclusive economic zone. The PRC’s goal in implementing the Taiwan exclusive economic zone was not to starve the island, but to increase China’s political jurisdiction and control over its renegade province.

In NPEC’s earlier Taiwan wargame, held in October of 2020, China attempted military enforcement of an exclusive Taiwan economic zone. This devolved into a series of air and naval battles with the United States and Japan. These battles resulted in significant casualties and loss of assets for all sides and left the long-term resolution of the conflict very much in doubt.

In this China space wargame, the PRC took a different course, it initiated space control operations in hopes of weakening U.S. resolve and separating American regional allies (e.g., Japan, RoK, Australia) from opposing China’s future economic zone enforcement effort against Taiwan. For this scenario (see space orders of battle), the PRC had ten rendezvous satellites that could serve as ASATS, and up to 17 ground-based laser systems that might be used for ASAT purposes. The 10 service satellites’ commercial raison d’etre was to rendezvous with an operational satellite to provide refueling. However, the satellites’ robotic
arms also could be used to interfere with another satellite without its permission, essentially acting as an ASAT platform. In the American case, ASAT capabilities included several first-generation commercial re-fueling satellites in GEO, two commercial satellites with “space-tug” capability, and the U.S. X-37B space plane for possible LEO anti-satellite missions, and several commercial laser-track systems, (such as the EOS system in Australia) with enough power to move LEO space debris from collisions with active satellites.

**Move One - 2027**

The PRC team deployed ten rendezvous ASAT systems into orbits within reach of the U.S. nuclear command, control, and communications space infrastructure. The aim here was to deter the United States while preserving some degree of plausible deniability.

Several PRC players thought China should have held some of its rendezvous ASATs in reserve while threatening critical Japanese and U.S. Position-Navigation-Timing (colloquially referred to as GPS) satellites. They thought this would be less provocative and so, less risky. A suggested alternative to attacking allied GPS satellites was to jam their coverage over Taiwan. These launch and deployment decisions were supported by the operational deployment of PRC mobile and fixed ASAT laser platforms to threaten U.S. intelligence satellites in LEO.

As the PRC team waited for the United States to respond, it debated China’s next move. The team agreed that China’s primary goal was to create tension between the United States and its key Indo-Pacific allies. Actions that created economic disincentives for Japan and America’s other regional allies were discussed at length. The approaches the China team considered included lazing or jamming Japanese satellites, creating small disruptions in key services every time a U.S. warship entered allied waters; using dual-use or commercial assets to take overt action while claiming the private operators acted of their own accord; and seeding doubt among allies by damaging the PRC’s own satellites and claiming that Australia or Singapore was responsible.

Instead of any of these options, the China team decided to threaten specific US nuclear command control and communications satellites that were essential to deliver on America’s nuclear guarantees to its allies. This drew a harsh demarche from the United States and the repurposing and repositioning of several U.S. satellites as “escorts” for the threatened nuclear command, control, and communications satellites. The United States also deployed the X-37B space plane, which was able to put comparable PRC nuclear arsenal command, control, and communications satellites at risk.

The Japan and Regional Allies team thought the PRC efforts to threaten U.S. nuclear command and control satellites was an aggressive warning and were eager to learn what Washington’s response would be, as well as what diplomatic options were available. The United States wanted first to consult with its space allies and then move to the United Nations to present a clear view of what constitutes a space safety zone and to clarify what self-defense actions could be taken in response to potentially hostile operations within these zones against a nation’s space assets.

After this first move, the participants agreed that:

1. The United States and its space allies would benefit from an international agreement that clarified what constitutes irresponsible and aggressive behavior in space. Although the odds of the PRC
ever agreeing to such an understanding seem slim, Washington will have real difficulty leading any alliance space efforts if it fails to seek such an understanding, at least among its allies.

2. Japan, South Korea, Australia, and other US space allies are more easily allied with the United States than they are with each other. All would likely look to the United States for assistance in response to hostile PRC space actions. PRC threats or actions against their commercial or sovereign assets, or a regional denial of GPS capabilities would also prompt them to seek U.S. support and assistance.

3. The type of assistance America’s space allies would seek from the United States would include information sharing, a commitment to defend allied satellites, access to U.S. space capabilities to compensate for any loss of space capabilities they themselves might experience, and a U.S. commitment to use offensive nuclear and conventional force to deter China.

4. The PRC might invest in or otherwise gain control of third-party commercial space service companies and use those assets in gray, deniable operations to provoke or embarrass the United States and its allies.

5. Rendezvous satellites and other dual-use technologies (e.g., ground-based lasers) are likely to become more developed and ubiquitous requiring international scrutiny and space situational awareness.

6. The United States should encourage the rapid launch of satellite constellations into LEO to replace large, vulnerable LEO systems.

7. The United States should accelerate the development of small satellite technologies to disperse and create greater resiliency in critical space functions (such as nuclear command and control) while at the same time creating a cheap proliferated class of “escort” satellites that can run interference for large, expensive legacy systems.

8. The United States should acquire a fleet of space planes or spacecraft that have enough fuel on-board to easily move to different orbits, quickly. This fleet can and should include both military and commercial systems.

Move Two – The First Six Months of 2029

Move two was a restart of the 2027 scenario in 2029. The primary purpose for replaying move one was to allow the teams to rethink their earlier diplomatic and military strategies with a more robust space order of battle.

At the start of move two, the United States tried unsuccessfully to establish international guidelines to define aggressive space behavior. Washington proposed a summit of the major space powers but the PRC demanded that the proposed meeting be moved to a UN venue that would force the United States to seek consensus. Once the UN meeting was convened, the Chinese insisted that historical U.S. “inspection” actions were no different than what the PRC proposed to do with its own rendezvous service satellites and vetoed America’s proposals. This blocked agreement.

The PRC, though, lacked true allies. Instead, it only had client states. Washington, in contrast, could
count on several Asian nations, including Japan, RoK, Taiwan, and Australia, to stand with it. In addition to its Asian allies, the United States expected some level of European Union and NATO support against aggressive PRC activities in space. The Japan and Regional Allies team saw strengthening the “Quad” (the United States, Japan, Australia, and India) as an additional counterweight to Chinese expansionism.

In an effort to undermine Washington’s space alliance efforts, the PRC economically entangled various Asian nations, offering them access to Chinese lunar facilities and China’s space station (assumed to exist in some form by 2029). China reached out to countries Washington had excluded from NASA’s Artemis Program. The U.S. and Japan and Regional Allies teams viewed these PRC efforts as an extension of China’s One Belt One Road initiative, i.e., as a further extension of the PRC’s client state strategy. The Japan and Regional Allies team, though, thought these initiatives were unlikely to neutralize Japan, which would draw closer to the United States if threatened by the PRC.

The crisis early in 2029 begins when the PRC secretly starts launching ten rendezvous satellites into various orbits close to U.S. military satellites. The Chinese then augmented this effort with periodic ground-based jamming of Japanese naval communications satellites and the lazing of Japanese Earth observation satellites.

As the PRC launches progressed over the first six months of 2029, the United States allowed the Japanese to use America’s military communications satellites. The United States also launched “defensive” escort satellites that could prevent PRC rendezvous satellites from freely threatening the Japanese satellites. The United States complimented these efforts by sharing intelligence, reconnaissance, and surveillance information with Japan, Australia, RoK, and Taiwan. The United States attempted to draw the EU into the crisis by offering EU nations use of U.S. GPS assets should future PRC activities degrade EU assets.

The Japan and Regional Allies team noted that most allied nations wanted to secure a diplomatic solution to the crisis. However, Australia was also willing to make reversible offensive strikes, with cyber and electronic warfare actions, or pre-emptive self-defense. In addition, the U.K. and France were willing to employ their bodyguard satellites in support of the United States (so long as their operation inflicted no irreversible harm), but German hesitancy blocked EU and NATO consensus to support such action. The Japan and Regional Allies team noted that the United States would have difficulty enlisting the support of the RoK unless the RoK thought lending such support would improve its defenses against North Korea’s nuclear missiles.

This was the situation at the close of the sixth month in the 2029 space crisis.

Move Three – The Second Six Months of 2029

The seventh month in the 2029 space crisis began with a Japanese radar Earth observation satellite in LEO falling into a deteriorating orbit. The cause was unknown. The United States and Japan and Regional Allies teams tried to ascertain what caused the satellite’s rapidly deteriorating orbit and the inability to recover it using ground control stations. Unfortunately, U.S. and Japanese space situational awareness capabilities were inadequate to shed light on this.

This prompted a discussion, which focused on four possible U.S. – allied responses:

The first was diplomatic. The United States team called for an immediate summit to define what constituted “defense zones,” which ought not be violated without permission of the controlling nation. The
Japan and Regional Allies team stipulated that rules regarding defense zones would be more effective if they specified the consequences of violating the zones.

The PRC categorically rejected any such zoning rules arguing that “they are in blatant violation of Article II of the Outer Space Treaty that outer space ‘is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.’” China went on to note that it would order its satellites to exercise the “right of freedom of navigation” into any number of these zones and would retaliate if its right is infringed. It also noted that the United States had previously inspected China’s satellites and that China was free to do the same.

The second possible response was using reversible space countermeasures. In this regard, most of the allied players favored using cyberweapons and low-powered lasers (for dazzling) to interfere with Chinese military and rendezvous satellites. These techniques do not create debris and do no lasting harm.

The third was deploying “bodyguard” or escort spacecraft to protect critical Japanese and U.S. satellites. These bodyguard spacecraft would not destroy Chinese satellites or spacecraft, but only push them away from key U.S. and allied satellites or temporarily disable them. The low inventory of U.S. bodyguard satellites in the 2029 scenario limited what the United States and its allies could do. This shortfall was shored up to a limited extent with the X-37B space plane, which could make close approaches to PRC rendezvous systems in LEO.

The fourth possible response was the sharing of U.S. space situational awareness information, intelligence surveillance reconnaissance data, and communications (particularly Naval communications) to compensate for PRC interference with allied satellites. The sharing of these capabilities strengthened U.S. alliance ties.

Finally, the U.S. and Japan and Regional Allies teams discussed taking military action against terrestrial targets, but ultimately did not agree on what specific targets to hit given fears of escalation. That noted, both the PRC and Japan and Regional Allies teams were skeptical that moves in space alone would enable the PRC to break U.S. allies away before enforcing a Taiwan economic exclusion zone.

Despite American efforts to work all of the agreed categories of responses, the PRC escalated its space operations. In addition to the 60 rendezvous spacecrafts the PRC had already placed in various orbits, China continued to launch, in fast pace, the remaining 48 of the 108 rendezvous spacecraft (100 from PRC space order of battle plus eight repurposed from 15 such spacecraft originally intended for satellite servicing and space debris removal). These 108 spacecraft were prepositioned in the vicinity of all U.S. (86), Japanese (9), Australian (7), South Korean (6) and Taiwanese (0) GEO, MEO and HEO satellites (as shown in their space orders of battle respectively). Also, Chinese ground-based lasers could damage LEO satellite sensors and even exterior structures.

**Wargame Takeaways**

This game drove home four important points.

1. The United States and its space allies will have to defend against new, immediate Chinese co-orbital anti-satellite threats and make efforts to operate near and beyond the moon, or risk losing free access to space. Chinese co-orbital anti-satellite weapons capabilities (ASATs) in low Earth orbit (LEO) and Geosynchronous orbits (GEO) are real and growing and require immedi-
ate U.S. and allied acquisition and pre-positioning of bodyguard spacecraft to protect high-value military satellites. Pre-positioning is essential given that orbital mechanics do not allow for last-minute launches or maneuvers. Unfortunately, neither the United States nor its space allies have bodyguard spacecraft on station with the maneuverability required to protect their military satellites. Chinese efforts to control cislunar space are also a major emerging threat that U.S. and its allies’ moon exploratory efforts do not adequately address. Unless America and its space allies act more quickly to address these issues, China will get the right stuff at the right time and gain much more control of space than America and its allies.

2. **The U.S. and its space allies must give greater attention to how commercial space systems could be targeted and used for military purposes.** Peaceful space operations – co-orbital satellite servicing and refueling, debris removal, laser satellite tracking, etc. – could be quickly flipped from legitimate civil activities to hostile military actions. At a minimum, the U.S. and its space allies should be worried that China might use its financial clout to buy and control foreign commercial space firms (especially those operating in states that are not signatories to the Outer Space Treaty). This could allow China to use these firms’ space systems to undermine U.S. and allied space operations with plausible deniability.

3. **Given the history of Russian and Chinese gaming of diplomatic agreements, and the ambiguities associated with space controls, the U.S. and its space allies should reach no new space agreements with either China or Russia unless those understandings are clearly enforceable.** This includes agreements to clarify redlines and penalties for when the redlines are crossed. Because hostile space operations can produce significant strategic military results quickly, any effective space agreement should give all parties the unilateral right to protect their own assets and place the burden of proof on the accused party. Finally, enforcement actions should be proportional. The scope of defensive actions should be limited to measures sufficient to bring the violating party back into compliance; no more, no less. For example, bodyguard spacecraft should be used not to destroy hostile space systems, but to gently push offending satellites far enough away that they no longer violate agreed safety zones. Also, certain laser, cyber and electronic warfare systems can be operated only to disable their targets temporarily. Agreements that meet the criteria noted (agreed to either internationally or, at least, among America’s space allies) would make it far easier to orchestrate timely, effective responses to hostile space actions. Agreeing to anything less, however, could risk encouraging just the opposite.

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# Appendix I: Space Orders of Battle

![Map of Cislunar Space](image)

---|---|---|---|---|---|---
**LEO** | 9 Observation, 6 Radar, 9 Optical, 23 Unknown, 10 Tech Dev, 30 Communications, 1 Space Observation, 13 Electronic, 105 Meteorological Weather Satellites, US X-37B Space Plane | 200 ISR satellites (optical, radar and electronic), 25 Communications, 3 Observation | 7 Optical, 7 Radar, 4 Earth Observation, 5 Technology, 4 On-orbit servicing/active debris satellites | 1 Communication, 1 Technology Development | 3 Optical, 1 Radar, 1 Technology Development | 1 Optical, 1 Weather
**MEO** | 34 Positioning, Navigation & Timing (PNT) | 29 Positioning, Navigation and Timing (PNT) | | | | |
**GEO** | 20 Observation, 4 Space Observation, 20 Communications | 1 Optical Earth Observation, 4 Communications, 20 PNT | 3 Weather, 2 Communications, 4 Positioning, Navigation and Timing (PNT) | 7 Communications | 5 Communications, 1 Optical Earth Observation | |
**HEO** | 5 Observation, 3 Communications | | | | | |
**L1** | Surveillance (prototype) | | 1 Surveillance | | | |
**L2** | Comsat (NASA) | | 2 Communications | | | |
PRC ASAT Capabilities

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<th>Year of Conflict</th>
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U.S. ASAT Capabilities

- Several first-generation commercial re-fueling satellites in GEO later this decade, with capability to perform simple repair with a robotic arm.
- NASA may contract with commercial companies to provide two systems for active debris removal in LEO
- Two commercial satellites with “space-tug” capability to provide propulsion to US and commercial GEO satellites
- U.S. X-37B Spaceplane, possible ASAT missions
- Several commercial laser-track systems, (such as the EOS system in Australia) with enough power to move LEO space debris from collisions with active satellites.

Commercial assets reside in all orbits, and teams can target these as desired

- Commercial satellites in 2027-2029 will be used by various governments to support military missions
- Commercial satellites may be targeted
- Teams seeking information on specific commercial assets should ask Control
Appendix II: Team Notes by Move

The material in this document represents the team notes from each move of the NPEC China Space Wargame, May 2021. They have only been edited to remove names of participants, and represent the content in its original form for archival purposes and reference.

Move One

PRC Team

Team Actions & Decisions

One team member began the discussion by stating that if the PRC team’s goal is to sever the alliance system, then it would want to establish that there will be a price to pay. That price should be demonstrating that the PRC can harm the economies of U.S. allies. The idea is to interrupt the service of satellites via both local jamming and instilling nervousness that the PRC might hurt satellites using space robot arms.

Therefore, that same team member proposed that the PRC launch all ten of China’s rendezvous spacecraft, eight against Japan’s GPS satellites (because Japan has active debris removal satellites, the PRC should put two per satellite to frustrate attempts to get rid of Chinese satellites, which would require U.S. assistance). Two satellites should be deployed in geosynchronous orbit (GEO), one vs. the ROK, one vs. Australia. Furthermore, China should establish that whenever a U.S. military vessel transits into sovereign Chinese airspace, they would face a five-minute disruption of services, and the PRC should also establish that this is the minimum and that it could further escalate.

A second team member countered by noting that the scenario (largely because of the questions posed to the PRC) seems to be less oriented around what damage can be done to allies, and more oriented around what the PRC can do to the U.S. It’s a classic space deterrence play, except it’s China attempting to deter the U.S., perhaps by threatening U.S. satellites so that the U.S. doesn’t take an action. As such, there are two ways to look at problems. One of those is something along the lines of the first team member’s proposal, whereas the other is whether China can do something to U.S. space assets to make them second-guess their willingness to interfere?

A third team member agreed with the premise of the first team member’s proposed idea, but wondered if the PRC should reserve some of its assets for use against the U.S. If the PRC was planning for space war, would it really commit all its assets for use against U.S. allies, or would the PRC instead hold some in reserve for potential action by the U.S.?

Rather than agree with the proposed plan, a fourth team member pointed out that China would be likely to take an aggressive action but pin the blame on another actor, e.g., by painting planes to make it look like the DPRK is acting. That would draw attention away from China, make the U.S. become embroiled in providing support to Japan or the ROK in a potential conflict against the DPRK, and subsequently draw attention away from Chinese actions.

A fifth team member posed yet another potential plan by pointing out that China’s strategy in the region in the status quo centers around breaking down the cohesion of U.S. alliances (the best example of this is the
Indonesia sub that went down in Bali—the Australian navy was there and then sent away, which is when the Chinese navy came in). Therefore, China is looking to disrupt regional connections. Making it difficult for countries in the region like Indonesia and Vietnam, to work with Australia and the U.S. causes problems for regional alliances. One potential way of doing this would be by disrupting commercial satellites.

A sixth team member remarked that a realistic Chinese strategy would likely include some element of disruption, but would also include some amount of accommodation, which would send mixed signals. That team member explained this strategy by using the following example: On one hand, China could deploy a robotic arm (to show that if the U.S. escalates there’d be grabbing) and prepare lasers for deployment (because that creates fear). But on the other hand, China would also likely try something like accommodation with India, while also creating disruption in East China Sea. That way, the U.S. must think about how it would react to Chinese actions in such a situation. As such, the team member believed that a Chinese move should be clear and direct, but must also be diversified. As such, not all satellites should be immediately deployed.

A seventh team member remarked that they believed the question being asked should instead be: What action can the PRC take to make the U.S. not act in the interest of East Asian allies? The way that this can be done, that team member explained, is by taking action that will ensure the U.S. does not intervene at all without firing a single shot.

That team member believed that it is possible to achieve such a goal by implementing the following strategy: China should use all ten rendezvous spacecraft and focus them on U.S. nuclear command and control satellites. Doing this puts the U.S. between a rock and a hard place. They cannot destroy the crafts because that makes the U.S. the aggressor. On the other hand, if they do intervene, they would risk losing all of their nuclear satellites. In such a situation, the U.S. president would very understandably decide not to intervene, because they cannot risk losing nuclear control satellites, as that would risk a nuclear apocalypse.

An eighth team member was unsure about the seventh’s proposal. On one hand, that team member explained, the U.S. would certainly be very threatened, and such an action would certainly give pause. On the other, it would also necessitate some U.S. response at some point. The eighth team member believed that insofar as the first team member’s proposal was concerned, an optimal approach would focus on the weakest links: Taiwan and Australia. That would cause the ROK and Japan to hesitate, as it would demonstrate that alliances are weakening.

A ninth team member pointed out that the team had not yet discussed a strategy involving the use of ostensibly private PRC assets that the PRC can control through party committees. That team member explained that there are a fair number of private low-Earth orbit (LEO) satellites which could move in the way of U.S. intelligence, surveillance and reconnaissance (ISR) satellites or could do some light hacking of ground stations.

The ninth team member supported the sixth team member’s proposed strategy, which involved the incorporation of mixed signals, as this would draw out the initial phase as long as possible. This team member also pointed out that once a conflict breaks out, there is one thing that has not yet been discussed—there are a lot of U.S. troops in allied countries that the U.S. may like to use; the U.S. may be tempted to draw in those troops in some scenario, and the PRC could want to apply early pressure to, for instance, the ROK to incentivize them not to let the U.S. stage troops from there.

The second team member interjected with a few questions. Namely, 1. How much does the PRC need to hold in reserve for rounds two and three of the game? 2. What is the PRC’s usual strategy—do they go all out or hold some satellites in reserve? 3. Should the team attempt to strike a balance between overt activities and covert grey-zone activities?
The same team member posed a specific, targeted proposal. The team could choose to blanket-jam GPS near Taiwan. There would be no need to spill it over to Japan, the Philippines, and the rest of Southeast Asia, as blanket-jamming GPS near Taiwan would threaten Japan around the East China Sea, and therefore also threaten Australia by establishing the threat of jamming GPS there too. Furthermore, rendezvous proximity operations (RPO) satellites with robotic arms could start shadowing U.S. and allied satellites. The team could increase incidents of lazing U.S. ISR satellites and threaten to jam comm satellites. Essentially, the team could do several things to the U.S. but hold back from doing it to allies. That could also involve doing some more overt anti-satellite weapons (ASAT) tests, tests of kinetic energy weapons, ground-based tests, etc.

The seventh team member countered by saying that the team needed to make one specific remark and that the proposed strategy was too broad. According to this team member, the team needed to make clear the following: Chinese interests and Chinese actions depend on the scenario. Therefore, the team must specify behavior in different situations. If the contingency involves taking Taiwan by force, then the team might have to attack U.S. nuclear command, control and communications satellites.

A tenth team member pointed out that a pivotal question was where the team’s move should fall on the continuum of overt to covert, ultimately claiming that the team should take an action that is overt but deniable. This would mean that it is clear the Chinese are taking said action, but the action should be just deniable enough that China can sow enough doubt that political actors cannot act in defense of Japan, Australia, etc.

According to this team member, the strategy proposed by the first team member, therefore, should be deployed without necessarily proving that China is responsible. The first action the team should take should be dispersing mobile ASATs so that the intelligence community is starting to pay attention.

The sixth team member asked what the team’s first move should be.

Control intervened, remarking that there were two areas close to consensus: 1. The seventh team member’s idea of launching robotic rendezvous satellites and getting them close to command-and-control satellites. 2. Everyone on the team seems to want deniability; the team does not want to lock itself into escalation. Therefore, satellites should be deployed near nuclear command-and-control, but China should also maintain deniability. The PRC could claim that the satellites are there for service purposes.

The ninth team member skeptically remarked that it was likely that the U.S. would interpret such an action as a prelude to a nuclear strike. There is the potential that this would escalate much more than the team plans on. Though the PRC tends to think that they have perfect control over escalation dynamics, this is not always the case.

The tenth team member asked whether the PRC would launch all ten of its rendezvous satellites or just some of them.

Control once again intervened, remarking that the team would launch all ten rendezvous satellites and that they would be positioned in the vicinity of U.S. command-and-control satellites.

The first team member pointed out that this is a risky strategy and one that was likely to cause escalation; this is not an action that would be taken a year before the blockade, rather, this move says, “let’s start the war today.” Therefore, the team member points out, while this strategy might cause the U.S. to take a pause, it is also likely to cause U.S. overreaction.

Control continued, stating that the PRC team’s move will also include dispersing some mobile ASATs.
from their bases.

The seventh team member wanted to remove the section of the move that maintains some deniability that Chinese satellites are “in the area.” The second team member agreed with the seventh team member, stating that this move is an overt one and that there is no reason to deny that the satellites are in the region.

The first team member stated that if the first move works the way the team intended, the U.S. will either overreact or try to move their nuclear command-and-control satellites. That means there would be a period where this move acts as a nuclear umbrella; it will create a period where the U.S. is willing to ignore low-level conflict, making allies feel vulnerable.

Therefore, this team member continued, while the PRC has the opportunity, it should let U.S. allies know that every time they collaborate with U.S. military logistics (such as by allowing a military plane to land or allowing a ship to transit), the PRC will reversibly laze their satellites. The second team member countered with a question: Why the focus on lazing satellites when other strategies such as jamming could be used?

The second team member also pointed out that, alternatively, there is the prospect of accommodation, which was brought up earlier. The team could punish the U.S. and accommodate allies or do a little bit of both to everyone. This same team member posed the following question: Is GPS jamming more provocative than jamming satellites? The second team member also stated that they supported the idea of placing robotic satellites in a place where they could quickly become threatening.

The first team member explained that the team has used up its budget of robotic satellites, as they are all deployed near U.S. nuclear command-and-control satellites. The focus on lazing is because the listed stockpile of ASAT capabilities in the scenario does not say anything about jamming capabilities, which means that the team does not know what China’s budget for jamming is.

The sixth team member then spoke up with a question: Is the reason for the deployment of laser capabilities that the PRC wants to use a higher level of escalation? Since lazing is much more threatening than jamming, it would be viewed as more escalatory.

The first team member answered the question by saying no. This team member has no problem applying the same principle—that any time an ally aids and abets U.S. military logistics, the PRC punishes them—to other technologies as well. Primarily, the focus is on wanting to give the ally an immediate slap every time they do something the PRC does not like, which would slow the U.S. down.

The second team member also asked a question: What if we instead focus on imposing economic costs? The first team member explained that this is what the proposed strategy would do. It’s a way of harming allied economies if they collaborate with the U.S.

The seventh team member interjected by once again stating that the team is focusing on the wrong set of questions and saying that the team needs to talk about scenarios. According to this team member, the team should state that the PRC’s first move has been suggested because it is focusing on major contingencies such as taking Taiwan by force. The team should also say that in other lower contingencies, we would do something else. Putting satellites next to U.S. command-and-control satellites is the only way the U.S. would be so scared that they wouldn’t intervene. It would break the alliance system, and that’s the point. However, if there are other minor contingencies, we can and should do less escalatory things like jamming.

The fifth team member agreed with the seventh team member’s statement that what we are dealing with here is fear. This is to say, fear in the region that when things hit the fan, that the U.S. will not come to the aid of the region, either because they can’t (because China is effectively holding the U.S. hostage), or
because there’s some reason they won’t. One thing that China could do to sow fear, said this team member, is deploy dual-use satellites, allow regional actors to use them for civilian purposes, and then deliberately make the satellites start to malfunction. We don’t need a laser; we can instead make satellites suddenly go out of order or something similar.

This team member underscored that what is most important is to create dissent in the region about whether there is a coherent block of allies. That is the most powerful thing China has, because everyone is, on some level, already doubting cohesion in the status quo.

The ninth team member countered by claiming that China’s strategy in the region, on one hand, centers on the creation of fear and seeks to showcase that there’s economic vulnerability. But, on the other hand, China also offers the ability to compromise.

Given that this is China’s strategy, this team member said, we need to ask ourselves: How do we create fear that supporting the U.S. will create economic disruption, but also always leave compromise on the table?

The third team member pointed out that the team has not been talking a lot about Taiwan and is a little confused because this game takes place during the year leading up to the blockade. Maybe in the real world, the PRC would not do anything leading up to the blockade, but given that the team has been tasked with doing something, we might want to ask ourselves: what can the PRC do to Taiwan to show what can go wrong if they do not give into PRC demands? This is especially true since a lot of Chinese actions in recent years are directed at Taiwan.

This team member also stated that there is a need for a discussion regarding how the PRC can emphasize the economic impact against Japan, Australia, South Korea, etc. when they decide to support the U.S. and Taiwan.

The eighth team member remarked that in the past, a strategy that has proven successful is forcing the U.S. to be the destabilizing actor. Though the PRC’s initial move in this game has been provocative, we have not done anything aggressive, so the question then becomes: How can we build on that to convince U.S. allies that they will suffer if there is a war and convince them that the U.S. is making it worse? This team member is unsure how this strategy would translate to the space context, though.

The second team member proposed that, since China has a beta GPS system, the team could choose to ramp up spoofing through the course of the year. This would signal to Taiwan that their critical national infrastructure will take a hit if the PRC starts to blockade. Furthermore, if you look at the first island chain, there are Japanese islands that come very close to Taiwan. That means spoofing would affect the Japanese even if narrowly focused on Taiwan, which gives Japan a message that this is getting serious. Foreclosing the ability for navigation through the South China Sea by spoofing would be disruptive but would not cross the line into conflict.

The ninth team member then said that jamming GPS might be a good idea, but one point to keep in mind is that most receivers are compatible with three or four different networks, which means jamming would not affect capability. However, it would signal hostile intentions without materially escalating.

This team member continued by saying that another separate problem is that there are a lot of countries that host U.S. forces. One way to address that would be to stir up fears that U.S. troops are hurting them, which would incentivize them to make the U.S. not intervene.

The seventh team member interjected by stating that they were unsure whether this wargame was meant
to focus on the blockade of Taiwan’s exclusive economic zone (EEZ), and that they thought it was meant to be a prelude to something bigger, namely taking Taiwan by force. This is to say, in this team member’s eyes, there would likely be some indication that China is using blockade as a vehicle to take Taiwan by force. That is why this team member sees putting up the threat to nuclear command and control is so important: because that’s the only way China can prevent the U.S. from intervening.

The first team member countered by explaining that the PRC has already deployed the satellites and that if what you want to do is attack the satellites, then you have already lost because that would make China the aggressor. The seventh team member rebutted by stating that the point is not to attack satellites and that they only want to threaten U.S. satellites.

The first team member then explained that by deploying all of the PRC’s spacecraft close to U.S. nuclear command-and-control satellites, the team has taken out its ability to engage in higher orbit threatening capabilities, meaning the team cannot go after GPS or other communication. With no ability to do that, this team member explains, the team needs to think about the best way to make the unification of China and Taiwan possible. Given the current situation, the PRC can do that by jamming from the ground, but not space, which means it needs to target low earth orbit. China needs to attack the systems that enable other operations, of which there are only 26 targets in LEO, 13 controlled by the U.S., and 13 controlled by Japan. The PRC should attempt to target optical satellites because anything you can remove in terms of optical satellites is a good deal.

The seventh team member then stated that they agreed with the first team member 100%, explaining that we need to threaten the U.S. (by threatening nuclear command-and-control satellites) so that they do not intervene. However, this team member explained, “if we smell that they might intervene anyway, all the things that the first team member outlined should then occur.” To this team member, it was a matter of sequencing. The first team member’s actions are the second step, not the first.

The second team member interjected, saying that there has been some ambiguity in this discussion that should be cleared up. The scenario does not say that China will take Taiwan by force, just that the PRC plans on enforcing an EEZ blockade. It could be that after enforcing the blockade, Taiwan will rejoin through coercion. We need to separate the U.S. from regional allies, not Taiwan. The seventh team member then said that the team should ask control if the scenario involves taking Taiwan by force.

The eighth team member countered by stating that even if the PRC’s ultimate goal is just to enforce the blockade, reunification will inevitably be by force in some way or another because Taiwan will have to ask the U.S. for help to dispel the blockade.

The ninth team member then spoke up with a question: Is it possible to use commercial assets? This team member explained that the key question is deniability; China’s past strategy has been to say that private actors have acted on their own (e.g., with fishing boats). Therefore, this team member wondered, is it possible that the PRC could do such a thing in space as well?

The first team member answered by stating that the team could do such a thing and it is likely that China would do something of the sort. However, this team member pointed out that the PRC capability inventory does not include commercial capabilities.

Therefore, this team member pointed out, this might be an interesting request for a change for 2029. Of the 100 satellites granted to the PRC, the team member explains, the team could request that some of them be the equivalent of civilian fishing boats.
The second team member interjected with some questions about this: Are we talking commercial satellites that are going to make a kinetic suicide attack and crash into something? Are we talking jammers? Covert space-based lasers? This team member explained that we need to specify what civilian operations we are talking about.

The ninth team member answered the question by stating that one possibility is rendezvous proximity operations. It would not be a suicide attack, but satellites would come close enough that it would make the people controlling U.S. satellites very uncomfortable. That way, the team member explained, there is deniability, but U.S. behavior would be restricted, bringing U.S. legitimacy into question.

The first team member expressed support for this idea, saying that deliberately playing chicken with whoever is displeasing the PRC could be smart since the PRC has the confidence that it will be a near miss, but no one else does, so they must move their satellites. That way, every time someone displeases the PRC, they must worry about losing major assets because a PRC commercial satellite is unfortunately out of control at the moment.

The ninth team member further elaborated by saying that what is even more interesting is that such an incident would also cause diplomatic leaders to reach out, which creates discussion and proliferates further uncertainty.

The second team member interjected, stating that some very interesting ideas have been posed, but that the team needs to start coalescing around a couple of ideas for its next proper move.

At this point, the discussion continued under the specific pretense of planning for a second move in this session.

The fifth team member first pointed out that the brief does say that the PRC can use commercial assets and seek further info if necessary.

The second team member stated that one thing worth considering that has been mentioned a couple of times is the use of incentives. The team member explained that this would be a way commercial could be brought up in this move, by entangling allies and commercial capabilities. This same team member elaborated, saying that the team could incentivize the use of Chinese commercial satellites, maybe as a part of a move to show that China is willing to engage in diplomatic accommodation. The team could also do something more aggressive in tandem with that.

The ninth team member expressed support for this idea, saying that the PRC’s goal is to ensure that the alliance system gets broken up, which can be done through both aggression and conciliatory moves. The seventh team member also supported the mixed idea of trying to give economic benefits to U.S. allies.

The second team member then spoke up with a specific plan: What the team could do is have China proliferate LEO broadband satellites and offer them to Southeast Asian countries such as Japan and the Philippines. Since China will have so many of those satellites, that is an excellent incentive. China could also offer space station seats to countries.

The seventh team member agreed, underscoring the importance of the second team member’s latest point, as what is being discussed is the deployment of 13,000 Chinese satellites, which is similar in size to SpaceX’s original plan of about 12,000 Starlink satellites. The fifth team member interjected by stating that they would also want to include Indonesia in the countries being offered incentives. The second team member stated that they would also want to add Thailand, Singapore, and Malaysia. Essentially, all the ASEAN countries on that side of the Pacific, and that the team may also want to subsidize other countries.
to adopt BeiDou.

The seventh team member then pointed out that offering GPS satellites may also be very useful. Japan only has four GPS satellites, so they are using U.S. satellites to improve accuracy. Similarly, South Korea won’t have GPS until 2034, which means they heavily rely on the U.S. If China could offer its GPS satellites to these countries, that may separate them from the U.S.

The ninth team member posed a question: Is the PRC starting the development of these technologies and satellites now? Has the PRC already started developing them? The seventh team member agreed that is a very good question. There are many good things we should start now, and many things should already have been started. The PRC should not wait until 2027 to develop some of these capabilities, but should start them as soon as possible.

The ninth team member also pointed out that China will have its space station operational in 2022, which means that will already be happening by 2027. Maybe, then, instead of offering seats, we could threaten to revoke seats. The second team member responded with a question: Does China have any space station partners now?

The ninth team member explained that China has announced some specific projects but has not announced any plans for foreign astronauts yet. They have, however, been open to the idea of offering seats to other countries, hypothetically. The third team member pointed out that Russia has expressed some interest in sending more cosmonauts up with China’s space station.

The second team member then said that it would be good to include something more threatening in the PRC’s next move. The seventh team member posed the possibility of using mobile high-power lasers to threaten U.S. imaging satellites.

The second team member countered by saying that since we are still in the pre-conflict, overtly threatening would likely be escalatory, but said that the PRC could perhaps instead engage in some testing. The seventh team member explained that they were not talking about pre-conflict. Instead, this team member meant to say that the team could use mobile high-power lasers if the U.S. decides to intervene.

The ninth team member interjected with a question: The U.S. has not responded to the PRC’s initial move yet, correct? If that’s the case, why would the PRC want to escalate when it does not know what the U.S. is going to do in response? This is especially true given the fact that the Chinese strategy has empirically been to not escalate unless there is a response for the other side. The second team member responded by explaining that this is why an overt laser test was being considered. It would not be escalating; it would just be a test.

The fifth team member then spoke up with another potential idea: The team could choose to damage one of its own satellites and claim it was done by Australia or Singapore. That way, the PRC could isolate allies while making the PRC look like the victim. The fourth team member expressed support for this idea, saying that it is exactly what China would do. The second team member also expressed support for the idea and asked whether Australia has space situational awareness capabilities that could be blamed for a Chinese satellite malfunction. The seventh team member answered by saying that Australia does have those capabilities. The fifth team member echoed the seventh’s answer and said that the team could claim the Australians have engaged in a rendezvous proximity operation.

The seventh team member pointed out that while the team discussed these potential actions, it should send in the move with the soft, conciliatory actions. The second team member echoed this sentiment, saying that the conciliatory move should be sent.
The first team member then spoke up, asking whether the team thinks steady-state actions would be a good idea. This team member explains that such an idea would bring the team back to the very first proposed idea: every time a U.S. warship enters allied waters, the PRC could disrupt that ally’s service. Potentially, over a year, the PRC could even escalate the length of time from seconds to minutes to hours.

The second team member interjected by saying that, while the team has lots of great ideas, it cannot do them all at the same time. Therefore, this begs the question: When should the team make each of these moves? Elaborating, they said that perhaps the team should set up an escalation ladder.

The first team member interjected by explaining that steady-state actions would be the lowest rung on the escalation ladder, inflicting harm on allies such that they are less inclined to help the U.S.

In response, the second team member suggested that the team start explicitly designing an escalation ladder.

The tenth team member expressed support for the idea of steady-state action. However, they pointed out that there are problems regarding the triggers for said actions, explaining that it would likely be best to start with small triggers and slowly ramp up to every single transit in about 6 months or so from now.

The second team member then asked whether there is a consensus that the PRC should laze something and blame it on Australia. The fifth team member answered by saying that it does seem like consensus.

The second team member then asked the following clarification questions: What should the PRC to laze? Perhaps a U.S. comm satellite so that it is not too escalatory? Maybe something more provocative?

In response, the fifth team member explained that what the team wants to do is damage its own asset and blame it on another country.

Expressing support for this idea, the second team member pointed out that ISR satellites do not last forever, so they would be perfect for testing. The PRC could pick an old malfunctioning ISR satellite, test its own high-powered laser on it, and blame Australia.

The third team member then asked a technical question: If the PRC wants to blame Australia, doesn’t the satellite need to be over Australia for them to be able to target it? Since PRC lasers are in China, how does this work sequentially? The seventh team member pointed out that, given these logistical issues, the team may want to save laser usage for 2029.

In response, the fifth team member pointed out that the PRC does not necessarily need to laser the satellite. Importantly, this is a disinformation operation. The PRC just needs to convince the international community.

The second team member expressed agreement with the sentiment; even if it does not add up, the world likely would not care.

The first team member then pointed out that cyberattacking is certainly easier and more plausible than using a laser. The seventh team member agreed that a cyberattack would be easier and more plausible.

The first team member then spoke up with another strategy to consider: if the team thought it could get away with it, China could put two lasers on boats, putting one in the Arctic and one in the Antarctic. This would give the PRC many more lazing opportunities for all the things that matter since they are mostly in polar orbit.
**At this point, the discussion was wrapped up without finalizing a second move, as time was running short, and the questions had yet to be discussed.**

**Move 1 Questions**

1. **What space actions and capabilities of the PRC would cause the U.S. not to act in the interest of its East Asian allies?**

   The second team member was the first to speak up, stating that the seventh team member’s idea about threatening nuclear command-and-control satellites is the top way to accomplish this.

   The seventh team member then added that it is necessary to specify that such an action would be useful in “major contingencies such as taking Taiwan by force.”

   The second team member further elaborated that another strategy that could be employed is the threatening of U.S. critical national infrastructure by attacking U.S. satellites. That would make the U.S. pause. This would likely mainly entail GPS, but also telecommunication, commercial, especially since much of U.S. critical infrastructure has commercial stuff intertwined.

   The first team member then said that the action that is most easily in reach is to make it clear to the U.S. that their “crown jewels” (i.e., intel community satellites, which the U.S. wants for the whole world) are under threat. That can be accomplished with lasers.

2. **Is there a window of vulnerability during the 2020s decade where the PRC might handcuff America’s ability to use its space assets in some important way?**

   The second team member expressed disagreement with the yes/no nature of the question, explaining that a better question to ask would instead be: “What cost might the PRC impose on the US’s ability to use its space assets?”

   a. **What could the PRC acquire now to ensure this advantage?**

      The fifth team member pointed out that another way of interpreting this question involves how China could use diplomacy and the international legal context to restrict U.S. actions in space. In particular, this team member explained, China and Russia are focusing on the definition of “space weapons” in international law. One way to handcuff U.S. behavior is to define “space weapon” restrictively.

      The seventh team member agreed, pointing out that the PRC would likely insist on using an international organized forum to decide all rules concerning rules of the road in space. That is because these forums are by consensus, so the PRC can say no to anything they don’t like, including bodyguards, preemptive self-defense, etc.

      The second team member expressed agreement with all of the above points, adding that insofar as what the PRC could acquire now, they could acquire international agreement supporting their position on certain space assets, which would constrain the U.S. position in space.

      The first team member added that the PRC could also acquire a gray, deniable fleet. That might include commercial assets that are flagged in some third country, maybe even one of these islands
that is not a signatory to the OST.

This team member explained that those satellites would be ones that China could play chicken with, do jamming with. It would only be restricted to things that are one step deniable. Further, China can also acquire cyber control of U.S. allied nations’ commercial space companies, causing them to appear to be behaving poorly as a form of provocation or embarrassment.

The fifth team member expressed agreement with the first’s point, adding that the PRC does not even necessarily need cyber control, as China could also acquire commercial ownership control.

The seventh team member added that one more important points concerns rendezvous spacecraft. China will likely continue to develop rendezvous spacecraft under the cover of peaceful operations such as servicing other satellites or removing debris.

b. Are there rules that the US will promote with its allies or internationally that would restrict the PRC advantage?

The tenth member pointed out that some of what was said to answer the other question could be applicable here if flipped. This is to say, the U.S. could promote international norms and such that would prevent the PRC from using forums and establishing their own norms. Prioritization of transparency in space would be one key way to accomplish this.

The second team member expressed agreement with this sentiment, as the U.S. could and would prioritize transparency because China relies on a lack of transparency to conduct many of its space operations.

The seventh team member then added that, for many of the actions it takes in space, the U.S. will likely try to get an agreement with allies beforehand so that they can gain consensus and momentum, meaning they do not have to deal with Chinese attempts to sow dissent.

Finally, the ninth team member pointed out that the team earlier mentioned that China could promote norms and treaties that serve its interests, which it does (e.g., its moves to ban space-based weapons, but not ground-based weapons). Logically, this team member explained, the other side of that is that the U.S. could promote things in its interest in space. Naturally, however, China could lobby against those actions; neither one is a sure thing.

Japan and Regional Allies

Team Actions & Decisions

One team member noted that Japan’s primary role in the defense of Taiwan is providing logistical support for the United States and Taiwan, especially from U.S. bases in Japan. The JSDF could also provide logistical support to U.S. forces.

A second team member agreed with this statement, also noting that Japan’s deep space radar will not be operational in 2027. This team member also noted that Japan has other surveillance capabilities.
The first team member also noted that Japan’s space capabilities are of unique importance to the United States due to its location in East Asia, which means Japan can engage in regional space situational awareness.

Agreeing with this statement, a third team member noted that space situational awareness, active debris removal, and RPOs are likely be Japan’s strongest and most unique uses. This team member also noted that Australia possesses less unique capabilities because many of their capabilities are jointly operable with the U.S.

A fourth team member asked whether the team believed that Japan should seek clarification from the U.S. on whether the U.S.-Japan Mutual Defense Treaty applies in space.

A fifth team member agreed this was a good question to ask, and also noted that Japan should figure out information sharing logistics between Japan and the United States, so as to make sure Japan can share its space situational awareness capabilities.

The first team member noted that Japan should ask whether the U.S. is prepared to defend allies in space, as it is not really a clarification that has been sought. Another worthwhile clarification is whether the U.S. is willing to use offensive forces.

The fourth team member asked whether the team should assume that the Quad is in place or not. The fifth team member responded that Quad consultations are likely, and that they are likely to stay involved in the process.

The third team member asked whether there are places where allied interests are different than the U.S.’s, and whether there are any positions that allies need to clarify to the U.S., such as things allies are unwilling to do or that they would rather the U.S. not do.

The second team member explained that it is unclear whether the U.S. would ask Japan to take any offensive moves, as Japan is notoriously uncomfortable with taking such offensive action. This, then, means that Japan’s primary role in such a conflict would likely be information gathering, rather than Rendezvous Proximity Operations satellites (RPOs), as somebody claimed earlier.

The same team member then agreed with previous statements that information-sharing agreements would not be of use in 2027, as it will still not be easy for data to be synchronized. Are we going to assume that its really easy for the U.S. to have Japanese data?

The second team member then noted that commercial assets can also be used, at the very least for information sharing.

Agreeing with previous team member’s claims about information sharing, the fifth team member noted that always confirming intel with official sources is important. Understanding how the U.S. reaches decisions makes it easier for allies to explain things to policymakers and publics.

A sixth team member then asked: Is there any threshold to be crossed that would cause Japan to act aggressively to defend itself? What would that threshold be? The fourth team member agreed with this, further adding the question of whether there are any assets that Japan considers to be critical capabilities that would elicit a response.

The third team member added the question: What do we think the normative environment that we have signed onto is? Are there existing standards about keep-out zones, RPO operations, or debris removal operations? That is not something we want to define in the last minute in a crisis.
At this point, a message was received from the United States. The message was as follows: “To all regional allies, let’s have a conversation about what is a safe distance for close approach so we can put out a unified message on that. We want the Japanese to understand we want an explicit focus on the self-defense portion of that.”

The sixth team member commented that the U.S. should define that distance by itself.

The fifth team member then noted that, by the time 2027 rolls around, they would hope that more established norms on these kinds of things already exist, as allies have already been working closely with the U.S., so there should already be a common understanding. There have already been discussions about cooperative RPO. The fifth team member then agreed with the sixth team member’s statement, saying that Japan should just ask the U.S. what it thinks.

The fourth team member noted that, while the RPO discussion is important, in co-orbital situations, proximity matters because of the risk of a kinetic conjunction, which means that the existence of a safe distance standard is not always enough to solve the problems.

The second team member then said that what they are keeping an eye out for from the PRC is announcements of maneuvers into uncommon orbits where the U.S. has certain assets. That is, to this team member, the most suspicious thing that could happen.

Agreeing in part with the fourth team member’s points about proximity and the second team member’s points about patterns being more important, the fourth team member noted that different amounts of information are obtainable in different orbits, which should inform reactions.

The first team member then noted that, at this point in time, Japan’s space situational awareness capabilities are the most useful capabilities to the United States, but that its capabilities are limited only to space situational awareness, and that Japan will likely not have many offensive space capabilities.

Regarding the earlier points about how many satellites Japan would be willing to sacrifice, the first team member also noted that Japan would likely be willing to sacrifice some of its own satellites.

In regards to the earlier U.S. question about safe distances, the fourth team member noted that the response that the team should send should be: “It depends.”

The second team member then explained that they are not requesting an announcement of uncommon orbits, but that they would worry about the U.S. engaging in certain orbits. Therefore, they agree with the fourth team member’s claim that it depends.

The fifth team member then suggested that Japan refer the U.S. to established international agreements for RPO as a starting point.

The third team member agreed with this, saying that the allies should tell the U.S. that they are likely to be on the same page unless the U.S. picks something crazy.

The fourth team member also pointed out that commercial companies are likely to establish their own standards, which would further muddy the waters.

The third team member then inquired into the allies’ willingness to allow U.S. counter space firing from their own territory, as they believe it is an important discussion. What is Japan’s willingness to allow for offensive counter-space operations?
A seventh team member then spoke up, saying that China could run this scenario in one of two ways: fight the U.S. to drive allies away, or fight allies to get the U.S. to refuse to intervene. The first scenario, picking a fight with the U.S., does not seem like a way to break the U.S. from its allies; instead, it seems like a way to get them to resolve a bunch of messy issues, but would not break the alliance. The question then becomes: What can China do to allies to get them to back off and change how they think about this.

The first team member then explained that, from the view of Japan, China can use threats to alter public opinion or against capabilities such as SatCom and GPS, which are important for the Japanese Navy. Insofar as public opinion, attacks or threats of attacks against weather satellites and GPS, which are broadly used by the public, would impact public opinion.

The fourth team member then asked for clarification as to whether an attack on GPS satellites would cause Japan to back down from a conflict.

The first team member explained that attacks on U.S. GPS capabilities would be most impactful to the Japanese public, but also noted that attacks on Quasi-Zenith Satellite System (QZSS) would be very harmful for the Japanese governments.

An eighth team member then asked if an attack that might split allies could be on a critical commercial asset. The team member explained that they are unsure if allies would want to get involved if the U.S. came to the defense of a commercial capability.

The fourth team member noted that this is a good question, especially since there can be grey areas between governmental and commercial assets. The question of what Japan thinks the U.S.’s response to an attack on a public-private partnership satellite should be is an important one.

A ninth team member then spoke up, noting that the willingness to cooperate in certain circumstances can vary wildly both by country and scenario. For instance, the team member noted, the ROK is mostly focused on the DPRK, so they would face limitations reassigning assets focused on the DPRK, which is something to keep in mind when answering questions. The team member noted that this is where bilateral agreements can be important for sharing information among countries that have difficulty cooperating.

In the absence of a communication from China, the allied team facilitator suggested the team turn to answering the Move 1 questions for the time being.

**Move 1 Questions**

1. What could the PRC hold at risk in space that would cause Japan/Allied Powers to seek the assistance of the U.S.?

The third team member noted that, as a baseline answer across all of the questions, while there are assets that are particularly critical to specific powers, none of the allies in the region have tremendous capability to defend their own assets, which means that once China starts going offensive in space, all allies would likely look to the U.S. for some sort of response.

The seventh team member agreed, saying that a better question may actually be what would an allied power not seek U.S. assistance for.

The fifth team member noted that allies would probably seek assistance any time a sovereign national asset is attacked. The team member also noted that of the allies, none of them have nuclear command,
control and communications assets (which are often the most critical ones) and probably will not by 2027.

In response, the fourth team member said that commercial assets would likely cause allies to seek assistance as well, not just government ones.

The seventh ally then posed a question: Does anything exist that would be the “wedge” issue the U.S. would not want to defend, and that the allies would therefore not ask the U.S. to defend?

Responding, the third ally noted that they do not believe this sort of “competitive” asset exists. The team member also explained that the type of attack done by the PRC also matters. For instance, the U.S. is unlikely to tangibly interfere against Chinese laser dazzling.

The same team member also pointed out that the bilateral issues between allies are worth looking into. For instance, if Japan were attacked, countries like Australia would work to defend them, but the ROK likely would not. The team member also noted that Australia is the country most aligned with the United States, whereas the ROK and Taiwan are the most complicated cases.

**Team Actions & Decisions (cont.)**

At this point, a communication from Control was received, noting that the PRC has moved 10 satellites to be near U.S. space assets. As such, discussion shifted away from the questions. The communication was as follows: “PRC is launching and positioning 10 robotic rendezvous satellites in the vicinity of the U.S. nuclear command and control satellites. Some of the mobile ASAT satellites will start to disperse from their bases.”

The fourth team member noted that this is a very aggressive action.

The fifth team member said that this is a unique aspect of the U.S.’s satellites, as the nuclear command, control and communications satellites are something that the U.S. have, and allies do not. The question, then, is why does this matter for allies. The answer to that question is probably that allies depend highly on extended deterrence.

The third team member then commented that this is a very aggressive and threatening move from the PRC, but not necessarily militarily very effective, as the whole point of nuclear command, control and communications infrastructure is that there are lots of ways to get messages across. In threatening satellites, China has raised the stakes, but they have not affected anyone’s ability to engage in conventional conflict or the U.S.’s ability to engage in a response. It is a weird enough thing to do, this team member explained, that they assume there is some underlying signal or purpose.

The second team member noted that Japan and allies would likely care more about the potential threat to missile warning satellites, as those are necessary for the operation of missile defense systems that might be protecting Japanese and Korean territory.

The fifth team member then suggested that the allies should seek clarification from the U.S. regarding its own interpretation of the move.

The allied team facilitator once again suggested the team turn to answering the Move 1 questions while waiting for the U.S. and China to take further actions.
**Move 1 Questions (cont.)**

1. What could the PRC hold at risk in space that would cause Japan/Allied Powers to seek the assistance of the U.S.?

   The eighth team member suggested that GPS disruption be added as a potential risk that would cause allies to seek U.S. assistance.

2. What do Japan/Allied Powers believe are the U.S.’ responsibilities to its allies and what do they expect the U.S. to do? What aspects of our space capabilities do we expect the US to protect?

   The first team member noted that information sharing, U.S. commitment to defend allied space assets, and allied access to U.S. space capabilities are the primary perceived responsibilities. The team member also noted that allies value the U.S.’s commitment to use offensive force.

   The sixth team member added that allies expect the U.S. to provide functionalities in case allied assets malfunction or are targeted.

   The third team member noted that the above expectations are true for all allies other than Taiwan, which has lower expectations for defense. The team member also noted that allies have different expectations for use of offensive force depending on the type of attack that the PRC has engaged in, as nobody expects the U.S. to respond with offensive force to something like dazzling.

**Team Actions & Decisions (cont.)**

At this point, a communication from the U.S. requesting that Japan engage in satellite maneuvering was received. As such, discussion once again shifted away from the questions.

The fifth team member suggested that the team still send the aforementioned message asking the U.S. for clarification regarding its assessment of the China situation, which was being drafted until the communication from the U.S.

The seventh team member also noted that asking Japan to do this themselves is an odd request, and one that seems to be forcing allies to put skin in the game, which the team would like to avoid.

Agreeing, the third team member said that, as Japan, they are willing to put forward a united diplomatic front, but that they are less willing to engage in such overt actions.

The second team member also noted that this is a bizarre ask, especially given Japan’s general hesitation to engage in offensive military action.

Once again referring to the above message, the fifth team member recommended asking the following questions before moving forward with potential allied maneuvering: 1. Has the U.S. raised this issue with China? 2. What was China’s response? 3. What are potential diplomatic options?

A version of the fifth team member’s aforementioned message including the above three questions was then sent by the allied team facilitator.

At this point, the discussion once again shifted back to the Move 1 questions.
**Move 1 Questions (cont.)**

2. **What do Japan/Allied Powers believe are the U.S.’ responsibilities to its allies and what do they expect the U.S. to do? What aspects of our space capabilities do we expect the US to protect?**

The fourth team member noted that the U.S. has mutual defense agreements with Japan, the ROK, and Australia. Therefore, the allies expect the U.S. to satisfy those mutual defense obligations.

The fifth team member commented that all allies also expect the U.S. to provide extended deterrence. This is most salient for Japan and the ROK, but is also important for Australia.

The seventh team member interjected with a question: Would Taiwan expect the U.S. to provide functionalities in case assets have problems?

The third team member responded by saying that Taiwan will probably want that stuff, but that they would not expect the U.S. to make a public statement contradicting their China approach. Taiwan will likely expect the U.S. to maintain ambiguity.

Clarifying, the seventh team member explained that they were thinking more along the lines of commercial capabilities.

3. **What capabilities and policies can the Japan/Allied Powers use to de-escalate the crisis to their advantage?**

The first team member noted that allies can use space situational awareness capabilities to detect PRC activity in space for the purpose of attribution as well as reaction and response. The team member also pointed out the existence of navigation capabilities other than SatCom could serve to de-escalate the crisis in the face of Chinese space threats. This team member also noted that capability-sharing can de-escalate crisis by demonstrating that Chinese threats cannot split allies.

The second team member commented that QZSS can be helpful in deterring attacks on systems because it makes the U.S. and allies more united in defense.

The third team member then said that Australia has funded U.S. assets (in particular, the WGS satellite), which go a long way to demonstrate alliance solidarity.

According to this team member, there are also some unique capabilities that allies have that could be useful: for instance, Japan has ADR capabilities and Australia has laser capabilities.

Turning more specifically to potential “policies” that could be taken, the sixth team member noted that allies would impose tariffs on commercial exports to deter Chinese aggression.

The third team member agreed, saying that economic and diplomatic actions are the most likely tools that allies will jump to, apart from Taiwan, where taking those actions becomes a bit more complicated.

Seeking clarification, the seventh team member then asked how much allied countries rely on Chinese systems. Would refusing to use them be a credible threat?

Responding, the fifth team member explained that no allies really rely on Chinese satellites for anything that matters because there is always a risk that the satellites could be revoked.
Team Actions & Decisions (cont.)

At this point, yet another communication was received requesting, among other things, that Australia engage in laser ranging debris removal. As such, discussion once again shifted away from the questions.

The fifth team member noted that many of the allies, especially the ROK, could certainly agree that the U.N. is a good forum for resolving these issues. The team member also said that they wished they had more time to process and discuss this information.

The third team member agreed that Japan and Australia would certainly be willing to align with the diplomatic piece, whereas the ROK may be a little less unwilling, due to its complicated relationship with China. As far as the laser request is concerned, this team member explained, it seems like a bit of a tough ask, and also seems to undermine the diplomatic nature of the U.S.’s request; China is doing something irresponsible in space, but the U.S. then asks Australia to do something arguably even more irresponsible.

The fifth team member then said that Australia should explicitly reject this request, citing the fact that Australia is still under peacetime rules of engagement.

The fifth team member also recommended that Japan should include the U.S. and the European Union in any statement, as the West should attempt to remain unified.

At this point, a communication from China was received, offering Japan and other regional allies broadband satellites. The communication was as follows: “Allies—PRC is willing to offer the following: -PRC will have proliferated LEO broadband satellites. They will offer use to southeast Asian countries, Japan, Indonesia, Thailand, Singapore, Malaysia and the Philippines—ASEAN countries. This is 13,000 satellites for internet systems. -PRC is threatening to revoke privileges on their space station. -Subsidizing other countries to adopt BeiDou. -Offer access to GPS to Japan and South Korea. It would be helpful for China to offer this to Japan and S. Korea.”

The third team member noted that these are not offers that are attractive to allies like Japan and the ROK, which means there is no real reason to accept this offer, especially because it would be bad for their allies’ own space economies.

The same team member also commented that it is unclear what China is requesting from allies as part of this exchange.

Asking for clarification, the second team member explains that they were under the impression that BeiDou is free.

In response, the eighth team member explained that China has offered military BeiDou services to other countries.

The fifth team member commented that China may be doing this as a precursor to taking down U.S. GPS.

The third team member then suggested that it may be a good idea to reject the request, tell the United States about it, and tell the PRC that allies seek peaceful resolution at the U.N.

The fifth team member expressed agreement with this response.

At this point, a communication from the U.S. is received, seeking a joint declaration at the U.N. that the PRC’s actions in positioning dangerously near U.S. assets, particularly assets as important for international stability as nuclear command, control and communications satellites, are a violation of due regard
as articulated in Article IX of the Outer Space Treaty. The communication also seeks to reaffirm that an imminent threat to nuclear C&C infrastructure would justify preemptive use of force in self-defense.

The third team member pointed out that this U.S. request is not unreasonable, and that all of the allies would get on board with the first half. The part of the request that says “imminent threat” only makes sense if it is just a reaffirmation of a pre-existing norm, but not if it is an attempt to create a new norm.

The fifth team member suggested that allies express agreement with the first sentence, but not the part about preemptive self-defense. About all we can say is that we support the U.S.’s right to inherent right to self-defense. That would not, however, be a joint declaration.

Finally, the third team member agreed, saying that a non-committal response would be best.

**U.S. Team**

**NOTE:** Because the U.S. team did not explicitly discuss the Move 1 questions, that section has been omitted from this document.

**Team Actions & Decisions**

One team member noted that CubeSats would be a good strategy because there is not much in deep space, and they will likely be highly maneuverable and small by the end of the decade. They could help in GEO and beyond. Furthermore, according to this team member, CubeSats could be created and deployed quickly and from various places. The team member also explained that, because they can be a surprise and they are so maneuverable, they would constitute an advantage for the United States. Another team member inquired as to what kinds of capabilities CubeSats should have onboard to be useful.

The first team member responded by explaining that the Chinese may threaten to get close to satellites, especially in GEO where there is a lot more value for security purposes, which means that the ability to act as an escort, even if it does not do all that much, constitutes a CubeSat capability. Furthermore, the team member explained, some CubeSats can provide backup and surveillance capabilities. This team member also added that, in Move 3, if China were to station assets that could threaten U.S. or allied satellites, CubeSats could be used to block those assets or hold them at risk.

The second team member asked whether CubeSat escorts would simply be sacrificial satellites that serve only to take hits. Responding to this question, the first team member explained that CubeSats could also act in a counter-aggressive manner, meaning that PRC satellites would also take a hit. They further explained that even if the capability was not very big, the PRC would not know that.

The second team member asked whether these satellites were something the first team member would like to look into acquiring for 2029. After answering the question affirmatively, the first team member further explained that CubeSats would have tremendous utility in GEO because you can get lots of places by flying by the moon and using things already in position. Although, the team member explained, LEO is a different issue requiring ground launches, which would require the use of other capabilities, such as, for instance, fast launch capabilities.

A third team member strongly agreed with all of the first team member’s points but emphasized that the bodyguard satellite component should be prioritized. This team member also emphasized the importance
establishing a clear understanding of what variant of zones approach the U.S. will adopt and their legality, as these are crucial for the effective use of bodyguard satellites.

In line with this discussion, the second team member noted that they are a proponent of using the phrase “safety zones” over “keep-out zones” because the primary response to be had if something approaches is to maintain the safety of U.S. and allied satellites. The first team member explained that the adoption of safety zones gives confidence to allies that the U.S. is there for allies not only in support of U.S. assets but also in support of allied assets.

The second team member asked team members’ opinions on sending a message to allies indicating the assets the U.S. will acquire, as well as having a conversation about what a safe distance for close approach is with regional U.S. allies, explaining that they believe such a discussion is of paramount importance for clarifying the U.S.’s approach.

The third team member noted that they believe it is important to emphasize the self-defense components of the approach in order to align the U.S.’s approach with Japan’s, especially to ensure that Japan is on board in case the U.S. needs to preemptively strike China.

A fourth member agreed with the previous points, then asked whether the established standards should be announced by the U.N. or some other multilateral body. The second team member responded by saying that the U.S. should start by announcing standards to allies and then bringing them to the U.N. jointly with allies. The second team member further elaborated that they are unsure about the right distance to set for close approach, but that said distance should be negotiated with allies.

The third team member noted that assuming the Move starts in 2027, China would have at least 10 co-orbital ASATs, and their first move would likely be prepositioning those satellites, which means it would likely be helpful to start a dialogue with China in the first place to ensure that the broad strokes of the U.S.’s stance are clear.

The second team member then asked whether the U.S. should send a message to the PRC about close approaching U.S. assets based on the third team member’s comments.

The third team member explained that it is most important that it is clear to the PRC that the redline is not just attacking U.S. assets, but rather holding them at risk via prepositioning, as, in the U.S.’s view, that constitutes an imminent threat as though an attack is always underway. In this team member’s view, sending that message in advance and being crystal clear is extremely important.

The second team member noted that the way the above redline should be phrased is as “a threat of the use of force on our assets.”

The first team member interjected, saying that the U.S. needs to have a preemptive statement in case there is a use of laser assets as an act of aggression, as the Chinese have a substantial advantage in terms of lasers.

Though agreeing with the general statement, the third team member said that they believe the U.S. needs to distinguish response to lasers and prepositioning of satellites in threatening positions. According to this team member, the threat of the use of lasers is bad, but not the same, as it does not put the U.S. in a strategically tricky spot. Furthermore, the team member said, the U.S. should do a similar thing with GPS, deploying bodyguard satellites around some subset of U.S. GPS.

The first team member then explained that the laser threat will largely be to commercial assets in LEO, as there will be huge economic dependences on those. Lasers can destroy star sensors, which would be an
escalation to put pressure on the U.S. to back off. Otherwise, according to this team member, the alternative to that is responding in kind by hitting things in China.

The second team member noted that the question then becomes whether the U.S. can and should respond in kind to Chinese attacks. The first team member spoke in favor of responding in kind to Chinese laser attacks, particularly in LEO, as doing so would establish that the U.S. will not respond to things in the way that the rest of the world will.

The third team member echoed this sentiment, claiming that the ability to credibly inflict costs is important. According to this team member, that means that striking Chinese lasers in response to an attack seems fully in bounds as a response.

A fifth team member spoke up to articulate some concerns with potential response, asking at what point the U.S. wants to draw the distinction with lasers and whether the U.S. can preempt in any circumstance, only in circumstances where some sort of irreversible damage is done to a satellite, or in any circumstance where something is at risk.

The first team member responded to the question by saying that responses should be thought of as a continuum and that a lot of it depends on the system. The team member explained that there are likely to be tens of thousands of satellites, and actors like SpaceX could just launch more. On some level, it is harassment, and on some level it begins to affect communication, so it is just a judgment call that needs to be made.

The third team member explained that in most circumstances responses should not be direct kinetic strikes, but rather costs that should be inflicted in other ways, assuming the U.S. does not have a more robust deterrence posture. For instance, according to this team member, employing sanctions and other mechanisms seems like a much more proportionate response until it reaches the point of being a war scenario.

The first team member pointed out that insofar as substantial asymmetric responses are concerned, using the cyber realm to respond is always a possibility.

The fourth team member then asked whether there are any indicators that could have significance attached to them, other than ranging. In response, the fifth team member explained that, in terms of lasers, ranging is probably most important, but that it is unclear whether China will have mobile lasers in 2027, though it is unlikely.

The third team member responded to this by pointing out that, in the order of battle laid out prior to Move 1, China was said to have six ground-based lasers. According to this team member, those lasers can destroy solar panels and other structures such as sensors, however, the latter of those is less likely to be successful.

The first team member pointed out that, in order to avoid alienating allies, the U.S. should be willing to make responses to PRC aggression in the event that an attack on an ally takes place, not just in response to attacks against the U.S.

The third team member explained that it is possible to divide the sets of Chinese actions into two categories: 1. Strategic, which includes moves meant to forward a deterrence strategy, such as prepositioning, 2. Gray zone, which involves engaging in low-level aggression against regional allies, which has not been fully discussed.

A sixth team member pointed out that it seems like the situation has already moved into the aggression phase. The team member inquired as to whether the team had discussed two possible avenues of recourse: 1. international organization messaging; 2. that the U.S. might know or discern about what the Chinese are
doing with their communication assets and the like.

The fourth team member pointed out that there are other strategies that could be employed by the U.S., such as more asymmetric strategies or other options that could be taken in the gray zone. However, the team member is unsure whether these options should be considered in the bounds of the game.

The sixth team member then said that the U.S. can see what people are doing with their communication satellites and that the U.S. tracks satellites and knows who is moving and performing maneuvers, both anticipated and unanticipated. The team member explained that, while this all occurs in the space realm, there are other ways to get indications and warnings, such as through international bodies. Therefore, the team member continued, if there are any actions that the U.S. would want to take (such as the aforementioned tracking of satellites) that the team would normally assume to have happened, the team should nevertheless make those an explicit part of the move.

The U.S. team facilitator responded to concerns about the bounds of the game by clarifying that if there are salient actions to the Move that take place outside of space, those should certainly be discussed.

The second team member then noted that this point could also be said in the policy section of the third question.

The fourth member stated that security council resolutions are an option as well. Private conversations happen very often. Elaborating, they explained that the U.S. may want to move assets and have a diplomatic campaign and quiet communication about what happens if the PRC takes action.

The third team member noted that shoring up capabilities in GEO and recognizing types of attribution challenges with lasers and jamming is important, especially given the space situational awareness challenge in GEO. Further, the team member explained that the U.S. should employ information sharing with the commercial sector so as to ensure the U.S. taps into private sector capabilities, which is important for the purpose of definitively attributing the type of operations China may take.

The sixth team member added that if the Chinese were to stop insuring satellites, that would be an INW, but if they chose not to and instead made some other move, such as seeking insurance on a bunch of new satellites, that is also useful information.

A message from Control was then received, explaining that the PRC has launched ten of the rendezvous satellites and those satellites are positioned within the realm of U.S. nuclear command and control communication satellites.

The second team member asked whether there is an explanation of what the PRC is doing here, asking whether it is clear from the message that there is a pattern in PRC behavior, or if there is plausible deniability.

Control responded by saying that there is some plausible deniability, but that there are enough satellites that it is clear there is a pattern.

The first team member pointed out that because it is clear there is a pattern, if we are placing satellite escorts, there is no need to have plausible deniability for what the U.S. is doing, as what we are doing is a preemptive defense move meant to send a message to both the PRC and allies.

The second team member then asked if any of the things on the U.S.’s list of items could be deployable now, or if the U.S. would have to wait until 2029. The third team member said that deployment of co-orbital ASAT capabilities, which the U.S. does have, might be the best move in the bodyguard mission as
a short-term stopgap, but also underscored that such a move would need to be coupled with a lot of communication.

The first team member pointed out that the U.S. toolkit includes some commercial refueling and repair systems on slide 20 and suggested that the U.S. team could choose to deploy a handful of those near high-priority assets.

The fourth team member asked question clarifying whether the U.S. expects PRC RPOs to be in the vicinity of U.S. assets or whether they are already close by, and whether the U.S. team has sent a message about how they would interpret such a move.

The third team member responded by pointing out that they have now moved into the vicinity of those sets of assets with all 10 of their co-orbital ASATs. This team member noted that they would be curious about what parts of the U.S.’s nuclear command, control and communications in GEO are being approached by PRC satellites. Are they surrounding just a couple of satellites or a lot of them?

The third team member proceeded to explain that, while the ship has already sailed in terms of being able to ex-ante draw a line preventing China from prepositioning, figuring out where Chinese satellites are is still important so as to figure out what lines the U.S. can still draw to prevent escalation.

The U.S. team facilitator then sent a message to Control on this question.

A seventh team member spoke up asking whether the U.S. has co-orbital satellites that could be prepositioned as a deterrent. The second team member responded by clarifying that the U.S. does have some assets, and then said that the question is whether the U.S. wants to position satellites to get in between U.S. assets or in some other manner.

A message from Japan was then received, outlining the following Japanese response to the previously sent message: “U.S. team we agree on need for common understanding of this issue would point to international guidelines for cooperative RPOs as a starting point. Issues are identified based on the orbit.

Responding to the second team member’s question, the third team member said that satellites should be positioned based on how many we have available, since the cost to China would not be sustainable. However, according to this team member, other levers would need to be in place for positioning of those satellites to be effective. This is to say, China would both have to know they exist and would have to know that the U.S. is confident it is on international footing.

The second team member responded by asking whether the team wants to put into place a demarche to China saying that we see this as an unsafe behavior. The fourth team member indicated that they believe this to be a good idea.

The third team member elaborated by saying that in order for positioning bodyguard satellites to be effective, it is important that China both know they exist and also think that the U.S. is confident that they are on firm international legal footing, which is why articulating a self-defense justification is important.

The seventh team member pointed out that the goal should be to make China feel like they need to attack allies by strengthening alliances and cooperation. The U.S.’s goal, then, should be to get allies to agree to cooperate, or, at the very least, make it seem like they have agreed even if they have not by putting out some sort of statement.

The third team member suggested that the U.S. should make a statement indicating that if it sees further threatening behavior, it will not hesitate to act on those behaviors. According to this team member, those
behaviors would be acts of aggression taken by China is against the U.S.

The fourth team member asked whether the U.S. should specify what the aggressive acts that would receive responses are. In response, the third team member explained that they don’t think the U.S. should specify what said “aggression” is in order to maintain flexibility, and that articulating the self-defense authority is the best we can do.

An eighth team member expressed support for communicating clearly with allies to avoid miscommunication and to avoid engagements that allies do not agree with. The same team member also pointed out the necessity of improving cislunar space situational awareness capabilities, both of which are important and have largely gone without discussion. The eighth team member also suggested using X-37B capabilities to bother the PRC and to cause trouble for them and their highest value assets, as the U.S. should not be entirely on the defensive in this situation.

The seventh team member expressed support for this idea, suggesting the creation of an asymmetric deterrence situation since the U.S. is more reliant on space than China.

The third team member then asked what set of assets would be most helpful to hold at risk in such a situation.

The fourth team member suggested telling Japan to engage in maneuvers in LEO to send a message to China. This could happen by having Japan move one of their four on-orbit service satellites closer to a PRC asset. The second team member supported this idea but pointed out that any threshold for response would need to be agreed upon, and that Japan would not be likely to agree absent overt Chinese aggression. The fourth team member pointed out that having Japan and allies engage in maneuvers in LEO does not ask them to do anything in deviation from safe maneuvers at all.

The second team member suggested that the U.S. could tell allies that China is threatening nuclear command and control assets and instruct them to take that threat as seriously as possible. Furthermore, according to this team member, the U.S. needs to propose cooperation in outer space and should ask allies to not take this lightly, as the nuclear umbrella that protects U.S. allies is at risk.

A communication was then sent to Japan and allies. The communication said the following: “We would like to ask you to perform a maneuver because PRC is holding our assets at risk, in LEO. We would like to take this action because China is threatening our nuclear command and control assets. This action does not deviate from safety maneuvers we have already agreed upon.”

The second team member noted that the discussion thus far had mostly focused on the third question. The team member suggested that the team look a little more at the first two questions: 1. What does the U.S. believe its responsibilities are to its allies and what do they expect of us? 2. What could the PRC hold at risk in space that would cause the U.S. not to act in the interest of its East Asian allies?

A message from Control, responding to earlier questions about China’s prepositioning location, was then received. The message said the following: “US Space Force determines that the current location of China’s rendezvous satellites are in easy Delta-V range of 7 US nuclear command control satellites and 3 military communication satellites (GEO). PRC mobile laser ASAT platforms have dispersed.”

The second team member asked whether the U.S. should add something to its communications to reflect that the U.S. believes China is in violation of due regard. The third team member responded by saying that they would support that as long as it remains explicitly separate from the self-defense justification. This team member also said that giving China the opportunity to get to muddy the water in violations of the
Outer Space Treaty should be avoided.

The second member pointed out that such a statement from the U.S. could simply say the U.S. believes Chinese maneuvers to be unlawful behaviors and that the U.S.’s measures are lawful as countermeasures.

In response, the third team member pointed out that the U.S. does not need to be right about the Outer Space Treaty and its violations to be right about self-defense and when it is justified.

The eighth team member recommended maneuvering the X-37B to be in close Delta-V range of the PRC satellites threatening U.S. nuclear command, control and communications, pointing out that no discussion about the X-37B has occurred. The first team member expressed support for this recommendation, saying that such a maneuver would send a very strong message, as the PRC is likely very concerned about that asset.

A communication was then received from Japan, Australia, and the ROK. The communication said the following: “Intelligence services have noted the presence of 10 rendezvous satellites near U.S. satellites, are these missiles? Before we consider your request, we have 3 questions: Have you raised this issue with China? What was their response? Is there anything we can do diplomatically to help?”

The first team member pointed out that Japan has laser ranging debris removal and that the U.S. could request to utilize it. The third team member agreed with this, suggesting that based on the communication, they would expect U.S. allies to be on board for a public statement on the lawful imminence standard and on responding to use of force.

The second team member said that they believe the U.S. should tell Japan that ten of the satellites are nuclear command and control satellites. This is why the U.S. is messaging strongly, especially since the U.S. has raised the issue with the Chinese and received no response.

The fourth team member agreed with this statement, also suggesting that the U.S. might want to have Australia move a piece of debris in the way of Chinese co-orbital ASATs to demonstrate the U.S. and allies can pick up things and move them if they have to.

The second team member pointed out that the U.S. could ask allies for diplomatic support against the unlawful actions the PRC has taken, when the U.S. sends its demarche message to the PRC.

The second team member then asked, “What could the PRC hold at risk in space that would cause the U.S. not to act in the interest of its East Asian allies?” The third team member responded by saying that the primary action the PRC could take is the prepositioning actions that the PRC team has already taken. Given the way allies have reacted, the strategy has failed in this case, but what matters is the Chinese rationale.

This team member also noted that potential U.S. responses to Chinese grey zone actions below the threshold of escalation are also worth discussion, as it is important to establish when the U.S. would and would not meaningfully respond. According to this team member, some examples of things that do not warrant a response but are nevertheless “annoying” are jamming civilian airliners and taking actions around the East China Sea and South China Sea.

At this point, an initial demarche to the PRC was drafted. The initial demarche was as follows: “We have determined that the current location of China’s rendezvous satellites are in easy Delta-V range of seven U.S. nuclear command control satellites and three military communication satellites (GEO). PRC mobile laser ASAT platforms have dispersed. We view the positioning of your close approach assets near our nuclear command and control satellites as a destabilizing, threatening, and unsafe behavior and are positioning our own assets to protect our nuclear infrastructure. Additionally, we feel strongly that these ac-
tions are carried out without due regard for the space activities of the U.S. and our allies. If we see further threatening behavior from those assets, we will not hesitate to act against them. We are also maneuvering other assets in coordination with our allies, in response to the PRC’s actions as a countermeasure against PRC unlawful behaviors. If the PRC removes the assets holding our nuclear C2 at risk, we will coordinate maneuvers away from PRC assets.”

The fourth team member noted that improving surveillance should particularly focus on L1 and L2 around the moon, as those are important points of focus that the PRC likely cares about.

The second team member asked whether the team wanted to include anything explicit about exercising the right of self-defense in the demarche.

The second team member said that if language about self-defense is included, it should be specific and include language about proportionate responses. The same team member explained they are nervous that saying “preemptive” could scare U.S. allies. Allies might be more comfortable with saying “proportionate” in general.

The third team member agreed with that statement and then suggested that the U.S. might want to pursue a joint declaration with allies, explaining that the U.S. would be a lot more willing to undertake the use of force if it has been hashed out with allies beforehand. They further explained that so long as the U.S. could reasonably interpret something to be imminent, that is sufficient, which is why using that language could be helpful for addressing that problem.

The first team member agreed with this and pointed out both that the message could include reference to due regard, and that the U.S. could potentially ask friends and allies to adopt a more proactive notion of self-defense.

In response to this point, the third team member explained that they think Japan would be likely to cross the self-defense rubicon given the measures taken in the last few years, especially since this would be an extreme step for China to take. The same team member noted that they do agree with including language about due regard.

At this point, the initial demarche to the PRC was revised. The revised demarche read as follows: “We have determined that the current location of China’s rendezvous satellites are in easy Delta-V range of seven U.S. nuclear command control satellites and three military communication satellites (GEO). PRC mobile laser ASAT platforms have dispersed. We view the positioning of your close approach assets near our nuclear command and control satellites as a destabilizing, threatening, and unsafe behavior and are positioning our own assets to protect our nuclear infrastructure. Additionally, we feel strongly that these actions are carried out without due regard for the space activities of the US and our allies. If we see further threatening behavior from those assets, we will not hesitate to act against them and/or to undertake proportionate actions in response. We are also maneuvering other assets in coordination with our allies, in response to the PRC’s actions as a countermeasure against PRC unlawful behaviors. If the PRC removes the assets holding our nuclear C2 at risk, we will coordinate maneuver away from PRC assets.

Added: As we have consistently messaged for decades, we view nuclear command and control as essential for national and international security and will not stand by while these assets are threatened.”

The U.S. team facilitator then asked if there was a question that could be reiterated to China since a response was never received. The fourth team member pointed that the U.S. would want to be reporting that it is moving conventional forces elsewhere, as it would be bad to be narrowly focused on a narrow sliver in space.
In addition to the above demarche, a note to Japan was sent. The note was as follows: “We seek a joint declaration at the UN that PRC’s actions in positioning dangerously near our assets, particularly assets as important for international stability and maintenance of peace as nuclear command and control satellites, are a violation of due regard as articulated in Article IX of the Outer Space Treaty.”

The following note was also sent to allies: “We also seek a joint declaration with our allies expressly reaffirming that an imminent threat to our nuclear command and control infrastructure would justify the preemptive use of force in self-defense.”

The third team member inquired about what set of proportionate responses would be employed in response to gray zone actions in other places. The same team member pointed out that damaging cyber-attacks might be a possibility, along with heavy sanctions on Chinese banks and a number of other levers that could be considered, such as deployment around the Senkakus or other areas.

A communication from allies was then received, saying the following: “Australia will operate its civil assets in accordance with accepted behavior, which does not include moving debris. Both Australia and Japan agree with the use of the UN as a forum.”

A communication was also received from Japan regarding the U.S.’s earlier request about maneuvering Japanese satellites. The communication said the following: “Japan rejects the maneuver because it falls outside of their views of safe maneuver.”

Building on the above points about proportionate responses, the second team member pointed out that jamming is a tool in space that could be employed if we want to limit our response to space.

The third team member noted that they do not believe the response to Chinese grey zone actions should be limited to space if they continue to be aggressive, as they do not view the primary concern being the domain, but rather the function, which can be achieved through cyber or physical means.

The second team member countered by explaining that they are concerned that escalation beyond the space domain could prompt something like a quarantine of Taiwan to the CCP, which could warrant further aggressive actions. Therefore, this team member explained, they would rather constrain responses to the space domain.

The third team member explained that they do not believe that this is how China sees things and that inflicting proportionate costs is likely helpful here.

The first team member pointed out that they do not think China threatening Australia is realistic, as the U.S. could use its facility to counter-threaten and inflict harm on China since the facility is U.S.-built. The second team member pointed out that the Australians in this game do not seem likely to cooperate, so the U.S. will have to suspend disbelief during this game in particular. The first team member agreed, expressing that it may be best to leave this option at that and discuss it in the wrap-up.

The second team member then suggested that perhaps a good strategy would be first trying to respond only in space and responding outside of space afterward, once China is engaging in more aggression.

The fourth team member pointed out that the U.S. would likely not be perceived as aggressive in this situation, as U.S. actions have been and will continue to be in line with previously established international precedent. The third team member interjected, stating that they are not certain they agree, as they believe the U.S. is in a situation where it is important to act in a way to enforce some sort of redline to prevent the PRC from going further. This team member pointed out that the PRC has not crossed an easy redline, as, at the moment, they are simply in GEO just like the United States.
The U.S. team was then informed of a message from China to Japan. The message consisted of the following offer: “China offers LEO satellites to Southeast Asian countries, 13,000 satellites for their systems, and China is willing to offer to subsidize GPS for BeiDou to offer to Japan and South Korea.”

The seventh team member pointed out that GPS is free anyway, so subsidizing for BeiDou does not do anything. The third team member made note of the fact that no condition was attached. The first team member commented that they find it unlikely the ROK and Japan would trust China’s request because the PRC is known for censorship. The third team member generally agreed with this notion but noted that they are less confident that this is true of the ROK.

The first team member then said that the U.S.’s response to this message should be to say that the United States, along with global allies, will guarantee free and open access. Furthermore, they explained, if China does not do this, the U.S. may want to ask allies to reduce economic dependence on China.

By the recommendation of the second team member, a communication was then sent to allies. The communication was as follows: “We’re promising continued access to GPS for GNSS services (Japan already has an augmentation system in place) and continued access to StarLink and similar assets for LEO broadband to our allied nations.”
Move Two

PRC Team

Team Actions & Decisions

One team member began the discussion by stating that the team should first decide what the actual problem is, as the scenario is still relatively ambiguous. The questions are different from what the scenario says the goal is. The PLA topline chart says the goal is to neutralize the Japanese navy and weaken Japanese capabilities, whereas the questions are broader.

The team member also stated that the team should also think about how we can use the toolkit without going too far beyond the toolkit.

Furthermore, this team member proposed a specific plan. According to the plan, first, the team should start taking actions to stir things up. The team should set up a little bit of an escalation ladder as we talked about last time. The team could mess with Japan’s capabilities through spoofing, jamming GPS, lazing ISR satellites intermittently, or messing with space situational awareness capabilities through cyberattacks. The team should ramp up disruption progressively throughout the next 12 months. Japan will get nervous and will want to retaliate, but the U.S. may instead decide to not take any action, which might start creating a rift between Japan and the United States.

The same team member further elaborated by explaining that there is also the question of the diplomatic and strategic shaping that they engaged in from 2021-2029 in between moves 1 and 2, such as using BeiDou, the space station, etc., to get as many countries as possible entangled with Chinese space capabilities, as that was a precondition leading up to 2029.

Finally, this team member concluded by saying that the team should figure out its goal before going too far. If it is just to neutralize the Japanese navy, then we are good, but there might be other goals. The team member then posed the following question: Does everyone agree that these are the goals we’re supposed to be pursuing?

Answering the question, a second team member pointed out that in the briefing, it was mentioned that the goal is to plan for a year to weaken the U.S.-Asian alliance, particularly the Japanese alliance. The timeline of 2029, therefore, entails the PLA weakening Japanese resolve so that China can enforce our EEZ.

As far as this team member could see, the main goal should be to weaken Japanese resolve to break the alliance. Therefore, the primary question is how the team can accomplish that.

A third team member interjects, stating that there is also another goal: The team needs to be prepared and engage in preparations because those preparations cannot be done overnight.

This team member is in support of what has been said so far but states that the team should also focus on being prepared, pointing out that the team needs to know, at minimum, how and where to position its rendezvous spacecraft.

The first team member then pointed out that someone suggested that the PRC begin shadowing Japanese military satellites with RPO satellites.

The third team member agreed with this idea, but pointed out that additional information is still required: What does it mean to shadow Japanese military satellites? What is the narrative that we are going to espouse?
This team member underscored that the narrative needs to weaken the alliance so that Japan will not support the U.S. It is not just a question of what the PRC will do, but also of what narrative it wants to present.

The first team member explained that, because a huge problem with the alliance is the classification of space capabilities, that could be a potential narrative. U.S. classification of space capabilities might start creating problems between the U.S. and Japan if the U.S. has a better sense of what is going on than Japan does. The same goes for the RPOs: the U.S. could say they are a threat, Japan might say they are not, which creates tensions.

The third team member interjected, saying that the point of all the team’s actions is to make sure that there is doubt that the U.S. will intervene. If you have solidified that doubt, all other things will become much more effective.

Certainly, this team member agrees, the PRC wants to use the rendezvous spacecraft when the time is right, but the primary motivation should be the creation of doubt.

The first team member provided a potential alternative course of action: China could potentially communicate with Japan that it is providing a diplomatic opening over the status of the Senkaku Islands and that it is looking forward to negotiating with Japan over sovereignty disputes.

A fourth team member asked, what do we assess the Japanese navy is most dependent on in terms of their satellite infrastructure?

Answering the first question, the first team member stated that they do not know, but that they believe the Japanese navy is mostly territorial, meaning they probably are not too ISR-dependent. Given that this is the case, this team member believes SATCOM is the obvious dependence as well as GPS, although Japan could likely continue to navigate without GPS.

The fourth team member agreed with this assessment, stating that SATCOM is probably a critical part of Japan’s infrastructure, further adding that they also rely on radar and optic for early warning and targeting.

This team member explained that if the PRC were able to get inside Japan’s intel somehow, it would be interesting to use that to the PRC’s advantage. China might be able to make Japan appear to be leaking intel such that the United States might not want to share future intel with Japan. If China could leak American radar images, that would make Japan unable to trust their radar images but would also make the U.S. less willing to give Japan radar satellite info in the future.

The first team member expressed support for the idea of revealing sources, methods, and info to make cooperation and sharing less likely through disinformation, stating that it might be a useful move in the second or third month to create doubt in America’s mind about whether Japan could be trusted.

At this point, the fifth team member spoke up with another potential course of action, suggesting that the PRC could threaten Japanese nuclear reactor control through cyberattacks. The team member explained that China would not necessarily have to materially affect Japanese control, but it could. According to this team member, this could be an effective strategy, especially because there was a lot of buzz this year over the Indian incident which may or may not have been caused by China.

The first team member countered by asking what this strategy has to do with space.

The fifth team member then explained that while this strategy would not necessarily target space assets, the attack would still be done by the PLASSF, which could use space forces to attack Japanese infrastructure. Furthermore, it would be a means of leverage to break the alliance, which this team member believes
fits the objective.

The second team member expressed support for this strategy, particularly underscoring the importance of the Indian incident because the attack in Mumbai was seen by many as having played a part in India’s decision to deescalate the incident on the border. This team member also seconded the idea of a private actor doing the attack so that China can deny accountability.

A sixth team member interjected, stating that they were not sure about this idea, as the team might get too far afield if it start bringing up attacks on non-space targets.

The fifth team member countered by explaining that if China were to do such an attack, it could be done by space forces. Plus, the team member explains, the SSF does have the control to do it, which would make it a space attack of sorts.

The sixth team member rebutted by saying that even if this carried out by the same organization, the team’s goal is still mostly to engage in actions in the space domain involving satellites, launch domains, etc., instead of non-space assets, which means this still probably does not fit in the scenario.

The first team member agreed and further elaborated by saying that attacking Japan’s nuclear reactors might be too specific. Perhaps, the team member suggests, the PRC could instead target all of Japan’s critical infrastructure by taking out their GPS. However, that is something that would be done in the twelfth month, since it is so escalatory.

The sixth team member expressed support for this idea, also saying that the team should think about whether there is anything it could target in space that would harm Japan economically.

The fifth team member brought up the strategy about the Senkaku Islands proposed earlier by the first team member. This team member explained that the dynamic here is that the Chinese side does want to resolve the issue in some capacity, but Japan says it is unwilling to negotiate at all on questions of sovereignty. Therefore, simply telling Japan that China wants to negotiate may not do all that much.

The third teammate expressed worry about whether the PRC could fool anyone that China is not responsible by blaming another actor, as there are so many ways to trace sources (countries have intelligence info, etc.). Why not just own what we are doing?

The first team member agreed that the team might be overcomplicating it, stating that it should try to adhere to the “keep it simple principle.”

The third team member stated that the PRC’s first move should be to deploy the rendezvous spacecraft. The first team member explained the narrative they had in mind, one where Japan has different info about what is happening than the U.S. and China. According to this team member, even that simple difference in information would create daylight in the alliance; maybe Japan does not want help when the U.S. thinks they need it, or maybe Japan thinks they need help when the U.S. thinks they do not. This team member also said that if the team wants to go with RPO operations as its first move, that is fine.

A seventh team member then added that the team’s first move should be something that could be deployed quickly to create doubt, explaining that the rendezvous spacecraft strategy could fit that bill.

This team member explained that the strategy is a question of sowing confusion through intermittent interference. Therefore, according to this team member, the RPOs can come, but since they take a while to deploy, it should primarily be a question of sowing the seeds of dissent. This team member also asserted that they like the idea of something covert and simple that makes Japan start to feel like it is on its own.
The third team member interjected, stating that they are fine with the idea of something covert as long as it does not backfire (i.e., China trying to fool somebody, but everybody knowing that China is the culprit).

The first team member suggested that perhaps China could progressively launch RPO satellites not right next to U.S./Japan/ROK satellites but in the same orbital plane. That way, it only takes a couple of days for the satellites to get to the position that they need to be in. This team member added that, after launching, the PRC can also mess with Japanese SATCOM through intermittent jamming and spoofing.

The second team member expressed some disagreement with this strategy, explaining that instead of just launching, the PRC should also prioritize creating doubt in Japan’s mind. According to this team member, this could be done, for instance, by saying that the U.S. was aware this was going to happen but did nothing for however many days.

The third team member then explained that, at this point in 2029, the Japanese (and everybody else) do not know that China has 100 rendezvous spacecraft and will not know until the spacecraft are launched. This gives China the inherent ability to create doubt about the adequacy of U.S. intelligence and its ability to know China is preparing rendezvous ASATs years before their actual use.

The second team member added that, if you just launch and do not create doubt, then that would just bring Japan closer to the U.S., and not meet our goal of creating dissension.

The third team member explained that that is why we need a narrative, but that we can have that discussion after doing the first move.

The first team member then spoke up, saying that the problem with creating dissent is that we can only control what China does, we do not have any say in what the U.S. does. The second team member rebutted this concern by explaining that this is not a problem, as it would be an anonymous source that is revealing the information in question, not China. We do not need to control what the U.S. does, just sow doubt.

The third team member then expressed support for the suggestion of the anonymous source.

The first team member proposed a specific course of action: Over the next 12 months, the PRC is going to launch at an increasingly rapid tempo rendezvous satellites in the same orbital plane as Japan’s, South Korea’s, and the U.S.’s satellites.

The seventh team member interjected, saying that we should leave the U.S.’s satellites out of it for now since the goal is to create dissent in alliances. The first team member seconded that suggestion, stating that they were already second-guessing their inclusion of the U.S.

The second team member then spoke up to ask: Do we want to target the ROK? Since our primary goal is to antagonize Japan, do we want to antagonize the ROK at the same time?

The third team member offered a suggestion, saying that the team should not specify that satellites are “in the same orbital plane as all of Japan and South Korea’s satellites,” and that it can just say that the satellites have been deployed “for an unknown purpose.”

The first team member countered by explaining that the PRC is only specifying where the satellites are being deployed to make it clear that it is deploying its spacecraft near Japan’s satellites.

The fifth team member spoke up to offer an alternative suggestion, saying that China could just say the orbital planes to which they are launching their spacecraft. The team member further explained that the team doesn’t need to clarify the reason it is launching to those planes, and that the PRC can just say it is
launching to GEO, for instance.

The first team member counted by explaining that this is not the type of orbital plane they are talking about, as it is instead a question of the angle of orbit. This team member then suggested that the team could instead just say the phrase “that could be threatening to Japanese satellites.”

The third team member expressed support for this suggestion but said that the phrase “rapid tempo” also does not to be included, as they are unsure what it means, and it could potentially mean the wrong thing.

The first team member then spoke up to explain that it is unclear if the strategic entanglement activities that were being discussed between moves 1 and 2 were ever actually implemented. This team member would like to know if we have strategically shaped the region over the last 9 years or not.

The third team member interjected to explain the narrative that the team wants to spin: China should blame everything on the U.S. and say that the PRC is doing fine. According to this team member, the team wants to develop a sense that China has been doing very well with its neighbors and that it is the U.S. that has gotten jealous and has kept interfering with China’s internal affairs. The PRC should attempt to convince other countries that the U.S. is trying to coerce those countries to be on the U.S.’s side, forcing them to participate in the U.S.’s interference in Chinese internal affairs, which makes the U.S. the aggressor, not China.

The second team member offered another suggestion: Using the Belt and Road (BRI) space initiative corridor as part of the narrative. According to this team member, the narrative would then be as follows: The U.S. is trying to coerce neighbors to intervene in internal affairs, whereas Xi is trying to build an alliance through BRI. Therefore, this would draw Japan and the ROK into the fold. This team member also expressed ample support for this narrative.

The third team member added that this narrative changes the situation in another important way: China has launched satellites to watch what is going on because the U.S. has been engaging in so much aggression. Therefore, according to this team member, we can say that our satellites were launched to prevent the U.S. from killing the good relationship between China and the rest of East Asia.

A message from Control was then received, asking the following question: How many rendezvous satellites were launched?

The third team member answered by explaining that over the course of 1 year, all 100 will be operating.

The third team member clarified that the PRC is deploying them at an increasing rate so that after a year, 90% are in orbit, explaining that the team wants to keep 10% in reserve.

The third team member interjected, reminding the team that the assumption is that before 2029, the U.S. does not even know that China has so many satellites on the ground.

The first team member suggested that the team should send an email from the South China Morning Post, saying something along the lines of “anonymous U.S. sources are saying there are increasing threats to Japanese satellites by China, but the Chinese say they are not aware of such threats.”

The second team member expressed support for the idea of an article from the South China Morning Post. If you put the message in the Global Times, the team member explained, Japan would not take it seriously since it is China’s official news source. However, because the South China Morning Post is from Hong Kong, it will carry a greater sense of independence.
The sixth team member added that the article could also assert that China says they are committed to the peaceful use of outer space. The first team member suggested that the article should say China denies having taken such actions. The sixth member said that the piece should also point out that the U.S. has a long history of developing space weapons, and that the PRC can use this opportunity to call for a treaty on space weapons.

An eighth team member chimed in, saying that China could also use this opportunity to throw Australia or New Zealand under the bus, as they have a track record of not being nuclear weapons countries, which means this could be a good way of sowing dissent in the area.

The first team member suggested that the South China Morning Post could instead say that anonymous Japanese sources have reported threats to satellites and that the U.S. has no comment.

The seventh team member interjected, asking why the PRC would claim a Japanese source, as this team member was under the impression that China was trying to create dissension by making it seem like the U.S. knew about the threat.

The first team member suggested that the article could instead say that anonymous sources said the U.S. was aware of the threat to Japan and did not warn Japan.

The seventh team member further added that the article should include the phrase: “a threat to satellite x and satellite y.” According to this team member, the broad brushstroke is too generic, which means it is not credible. Since there is always some sort of threat, we need to specify what satellites are threatened to make the threat more credible.

Per this suggestion, the first team member suggested that the article state there are threats to a dozen earth observation satellites.

The seventh team member expressed some support for this idea but then suggested the team say half of the earth observation satellites are threatened. Since Japan will not know which half is threatened, they will doubt all of them.

The third team member expressed some confusion, as they believed the RPOs were supposed to threaten all satellites, and just saying “earth observation satellites” implies that Chinese spacecraft are only a threat to satellites in LEO.

The first team member asked for clarification, saying that they did not understand the concern.

The third team member then rephrased, asking the following questions: “Why are we saying there is an increasing threat to half of earth observation satellites? We don’t mean half of GPS satellites, do we? If not, then what do we mean?”

The first team member answered by saying that the PRC toolkit mentions earth observation satellites, but also optical and radar satellites and that the team is claiming that there is a threat to those satellites.

Still confused, the third team member then asked: Why not say GEO instead?

In response, the first team member explained that the team can say that later, but that they need to get this message out quickly, and that China should specify LEO in this first message.

The third team member expressed further confusion, saying that LEO has nothing to do with RPOs.

To answer this concern, the first team member explained that LEO does have to do with RPOs, as RPOs
are capable of targeting satellites in LEO.

Still confused, the third team member pointed out that satellites in LEO can be targeted by other things and that since we have a limited budget of spacecraft, China does not want to target satellites in LEO with our RPOs.

To rebut this concern, the first team member explained that the toolkit provided to all the teams said that all the earth observation satellites are in LEO. None of them are in GEO.

The seventh team member then pointed out that none of these concerns are salient, as we are not actually attacking these satellites, and this is just a disinformation campaign.

After expressing agreement with this, the first team member said that the team should also send another South China Morning Post email saying that the Japanese are claiming that their LEO optical satellites are being lazed and that the U.S. has no comment. This team member then added that China should also start lazing, and then posed the following question: Does China want to laze or jam first?

Answering the question, the second team member asserted that jamming should be first. The sixth team member expressed agreement with the second team member, saying that jamming is lower on the escalatory ladder.

Following these statements, the first team member suggested that the team send a South China Morning Post email saying that China is going to jam Japanese navy SATCOM transponders intermittently.

The fourth team member pointed out that, of the total satellites that are out there, 100 spacecraft may seem like a lot, but it is not a lot for a fait accompli against the U.S. and allies. Therefore, according to this team member, an important question to ask is the following: “If we are going to spend some of our satellites on an attack on Japan, what percentage should we use?”

The third team member expressed agreement with this sentiment, saying that the team needed to think carefully about what it is going to do with its spacecraft. Furthermore, the team member cited that GPS is the most important to target, as the U.S. has 34 GPS satellites, Japan has 4, and that’s it, making those the number one priority.

The fifth team member interjected, suggesting a tweak to the wording of the second South China Morning Post email. Since Japan and U.S. can see deployed Chinese satellites equally well, the difference that should be made clear in the email is that the U.S. may have assessed those Chinese deployments as a threat and decided to not tell Japan.

The first team member added that the second South China Morning Post email should say that “someone” is jamming Japanese navy satellite communications, that the U.S. has no comment, and that a source says the U.S. is concerned about sensitive information leaking from Japan.

Then, the following message was received from Control:

Australia, Japan, ROK, and the U.S. – the “Pent” clarifies how the U.S. might respond to attacks on allied satellites and what the U.S. expects of its allies if U.S. satellites are attacked.

India and Taiwan receive limited space situational awareness military information but would be full partners in efforts on commercial and dual-use capabilities.

The U.S. and like-minded nations provide details on agreed “responsible behavior” norms to the U.N. as
well as bilateral exchanges with China and Russia based on their own agreement about RPO, laser, and ADR concerns.

The U.S. partners with E.U., India, Taiwan, and non-NATO allies on “Blue Sky” initiative to advance standards and protocols for resilient and trusted space broadband and geospatial services. Blue Sky parents vigorously counter PRC attempts to advance a “Belt and Road Spatial Information Corridor” through unfair trade practices through manipulation of ITU.

The first team member responded to this message by saying that this calls for a cyberattack on U.S. and Japanese space situational awareness networks. Cyberattacks are a good strategy because they are plausible but have a relatively ambiguous meaning.

The sixth team member interjected, saying that China does not want to escalate too far. China wants to keep this below a certain threshold. It depends on the goal of the cyberattack, but to what extent would it be escalatory depending on what we want to achieve here? The PRC wants to keep this below war. Does cyber keep this below that threshold, or does it escalate?

Clarifying, the first team member explained that the attack would be disruptive, but not crippling.

The fourth team member then suggested that now would be a great time for China to claim that the U.S. are the aggressors and that they are the ones jamming and spoofing us.

Building on this suggestion, the eighth team member asked the following question: Should the PRC complain about this to the U.S.? Or should we go straight to the U.N.?

Answering this question, the second team member said that the PRC should go straight to the U.N, as that is what China would do in the real world, as it would delegitimize the U.S. and make it an international issue.

With all these suggestions in mind, the first team member suggested that the team send an email saying that the PRC is complaining to the U.N. about aggressive U.S. space actions and jamming.

Building on all of this, the seventh team member suggested that the team throw in some lines about supporting Southeast Asian countries in the latest email. After all, if China goes to U.N., it will want to be seen as a reliable state actor. The team member explained that the PRC can attempt to fracture U.S. support by supporting some smaller Southeast Asian countries.

The sixth team member suggested that the PRC should enlist the support of Russia, as the U.S. is bringing on its allies. The third team member interjected, saying that the problem with enlisting the support of Russia is that this would be going back to the old style. This is to say, China and Russia are on one side, while the U.S. and Western allies are on the other side. Furthermore, this team member added that there is no way that this would fracture the U.S. alliance with its allies. Does not see any benefit in enlisting Russia’s support.

The fourth team member commented that, so far, it does seem like the team is not meeting our objective of splitting. The U.S. and its allies are still on the same team. The first team member agreed, wondering why this was the case.

The sixth team member explained that the goal is not to have Japan side with the PRC, just to have them acquiesce to what China does. Therefore, bringing Russia aboard means Japan must think about that if they want to assist the U.S. in a conflict.
The first team member then expressed that they were not opposed to sending a version of the message about complaints that includes Russia. That keeps things moving and keeps people occupied.

Also, this team member explained that different information needs and sensitivities between the U.S. and Japan could create daylight between them. They then posed the following question: Could there be anything else that would create distance between the U.S. and Japan and affect Japan’s navy? There are surely other differences in perceptions that China can play around with.

The third team member said that the PRC should complain about the U.S. to East Asian countries; China needs to make it very clear that the U.S. is breaking up good relations among Asian countries.

The fourth team member asked whether the PRC could speak directly to Japan, as China could use such an opportunity to say something along the lines of: “U.S. is hanging you out to dry here. Look at how they’re deploying their assets. You’re going to be crushed.”

The first team member added that the email could include something along the lines of: “Also, the first island chain is in range of our missiles. You don’t want to get involved.” The first team member then asked whether that is the kind of thing that the fourth team member was thinking about.

The fourth team member clarified that the idea was less along those lines, and more along the lines of making it clear that the U.S. is willing to throw Japan under the bus and sacrifice Japanese satellites and bodies.

The third team member added that we should mention that Chinese GPS is helping Japan; there are more BeiDou satellites over Japan than there are U.S. satellites over Japan. The team member added that the PRC could say we are neighbors, that we could help Japan more, and that the U.S. is focusing on their own benefits. This team member clarified that this is not a very great statement by itself, but it is along the lines of what the fourth team member was saying and makes clear that the U.S. is operating based on its own self-interest, which makes a schism between U.S. objectives and Eastern Asian communities.

The seventh team member expressed support for the third’s ideas, pointing out that the PRC has not done anything aggressive yet, and that it is just creating a sense of doubt that the U.S. is going to help if there is a threat. This team member added that this might be the time where the PRC wants to hold out a hand to help Eastern Asian countries, and may be the time to try to get Japan to do a space project with the PRC.

The second team member built on the idea, saying that the PRC could point out to Japan that the Chinese space station is the one that will continue, and that the ISS ceased operations in 2028. We could ask Japan to join the PRC so that there could continue to be Japanese astronauts.

The first team member further elaborated, saying that a statement along the following lines could be included in the email: “We are going to be neighbors for eternity, whereas the U.S. is eventually going to leave the neighborhood.” The team member also suggested that the email include a backhanded threat, such as, for instance: “Eventually, one way or another, our interests will align.”

The second team member disagreed with this idea, explaining that the PRC goal is to get Japan to cooperate. Therefore, according to this team member, a good strategy would be to point out that the PRC already has an MOU with the UN Space Agency and that there are obvious benefits for Japan if they go along with this broader, international, Asian-based space alliance. China should point out that we it is putting in 60% of the funds, and that there is much good to come.

The seventh team member suggested that the team get ready to throw Australia under the bus next, as the PRC needs to sort of carve out that last little bit of alliance between Japan and Australia. The team member suggested that China accuse Australia of being racists, as that plays out well in the region. One
specific suggestion was that the PRC offer commercial Chinese space services to Japan from the Papua New Guinea space launch facility so that they no longer have to deal with the racist Australians.

The second team member then posed the following question: What will make Japan want to stay home? If Japan feels like the U.S. is just using them, this team member pointed out, if they feel like they’re paying an unfair price, they may not want to get involved.

Bringing back the stair-stepping escalation idea from Move 1, the team member suggested that it may be the best strategy to achieve the PRC’s goals, as we certainly have enough resources to do that now.

The team member then suggested that the PRC could put some of its assets against high-value U.S. satellites so that the U.S. thinks they cannot help Japan and instead have to focus on their own issues; one way for China to do so would be position its own satellites near nuclear command, control and communications satellites. The third team member chimed in, saying that they have no qualms with deploying near nuclear command, control and communications satellites, as such a strategy would not be overtly escalatory.

The first team member interjected, saying that China is ready to send Papua New Guinea spaceport email and that it should now begin pressuring the U.S. by placing satellites near nuclear command, control and communications assets.

In response, the fifth team member asked the PRC wanted to clarify that it is offering nuclear command, control and communications assets for both construction and launch purposes.

In response, the first team member said that it does matter, especially since time for moves is running out.

The third team member pointed out that the PRC does not need to say anything specific concerning nuclear command, control and communications. Rather, it can say that the U.S. has been deploying satellites near Chinese satellites for close inspection, which calls for the need for the PRC to put satellites near both U.S. and Asian ally satellites. That way, according to this team member, the PRC is doing the same thing that the U.S. has done for Chinese and Russian satellites. The first team member expressed support for this idea.

In line with the previously presented idea, the third team member noted that the PRC should also add the following phrase to the latest email: “For close inspection as well as other applications such as servicing other satellites as well as removing space debris.” According to this team member, the employment of this phrase lets China have the moral high ground, as it seems like they are doing things in space for the good of other countries.

The sixth team member added that, oftentimes, the Chinese say that the PLA is a source of peace in the world as a subtle reference to restraining the U.S. and that perhaps the team should include such language in the email. One specific phrase that could be added, according to this team member, is the phrase: “To prevent war.”

The first team member noted that the PRC should make it clear that it is doing this to keep an eye on US nefarious behavior.

The second team member further suggested that the team could also add that China has a partnership system along the BRI and across the globe, including the African Space Agency, Luxembourg, Italy, New Zealand, and 130 other countries. The U.S. referenced a large alliance system in their email, so, according to this team member, China wants to make it clear that it has a large alliance system as well; listing these specific countries makes it clear that China has partners in Europe and beyond.
A message was received from Control stating that the U.S. publicly condemns Chinese attempts to jam Japanese Navy transponders.

The first team member responded to this by saying that the PRC should say that it denies everything and that does not take responsibility for the attacks.

**Move 2 Questions**

1. **What PRC space actions, capabilities and agreements would cause the U.S. not to act in the interest of its East Asian allies, and in what periods?**

   The first team member noted that they disagreed with the premise of the question and that the question should instead be: “What PRC space actions, capabilities, and agreements would cause East Asian allies to change their interests so that they don’t want the U.S. to intervene on their behalf?”

   According to this team member, that is what we have been talking about this whole time, and that if we answer that question, we can throw in everything we have been talking about insofar as incentives, spaceports, and the entanglement strategy of getting Asian countries entangled in Chinese space systems so that they will not want the U.S. to do anything.

   The third team member expressed support for those ideas, but noted that there are two sides to the story, whereas the rephrased question only talks about one side. According to this team member, the inability of the U.S. to protect Asian allies is also a major part of the story. Countries are not dummies, and they know that there are some issues where only the U.S. can help them, so it needs to be made clear that the U.S. cannot help even in those cases. Then, after that, the countries will be averse to getting the U.S. to cooperate with them.

   The first team member added that the actions the PRC took between 2021-2029 to strategically shape the Asia Pacific entangled many East Asian countries in China’s space enterprise, and that disentanglement would be costly in 2029.

   The first team member noted that they would like to add a sub-bullet to the above: The PRC’s rendezvous spacecraft tactic can threaten all U.S. and East Asian allied satellites at GEO, MEO, and HEO. Moreover, PRC can threaten all U.S. and East Asian allied satellites at LEO with ground-based jammers and lasers.

   The first team member added that the PRC is attempting to prevent the U.S. from protecting allies even if there is something of common interest, also saying that it wants to clarify that economies would also be entangled, and that China can also deter the U.S. from intervening by threatening high-value nuclear command, control and communications satellites.

   The second team member stated that we should also note that China can use diplomatic space activities, including the space station and BRI, to offer incentives to East Asian allies of the U.S. to get them to consider joining China space exploration activities, including a joint lunar base construction.

   The third team member agreed with these ideas but said that it would be good to have examples, one of which was to make the GPS of Asian countries more accurate by offering Chinese satellites.

   The first team member noted that the phrase “comprehensive national strategy” should be included in the last bullet point about diplomatic activities, as China is comprehensive in its national planning, whereas the U.S. is not, because U.S. planning is mostly military.
2. What actions might the U.S. and its regional allies take that would constrain or concern us the most?

The second team member first noted that the U.S. and regional allies ganging up in a countervailing alliance would be the biggest concern, which is why the PRC is trying to break them up. Of course, this is true in larger contexts, but also and especially true of space.

The first team member then added that another concern would be the U.S. and its alliance somehow stimulating domestic upheaval in China. Of course, the team member noted, that is not necessarily space-related, but we could put a space twist on it: one way it could be done in space is through satellite broadcasts into the country.

The fourth team member noted that hacking a Chinese Starlink equivalent means they would be unable to control information access. This team member added that another interesting action would be to threaten Chinese space services along OBOR. For instance, removing Chinese preferential precision and timing navigation could be very embarrassing for them.

The first team member expressed support for all these ideas, especially underscoring their intrigue regarding the ideas about breaking the control of information, as controlling access to information within China is something the U.S. could plausibly do.

The sixth team member added that another detrimental action of the U.S. would be to include Taiwan in bilateral, multilateral, or international space forums. The first team member supported this idea, noting that the Taiwan aspect of the scenario has been largely neglected in the discussion so far.

The third team member further noted that one of the most concerning things to the PRC would be the U.S. going beyond international forums to settle space issues. That is especially true if the U.S. is using a two-track strategy, such that if China does not agree to measures, the U.S. and its allies can resort to those measures for their own, using the lucrative Western space market to incentivize China to join. In this case, according to this team member, they would have no urgency to agree to anything that we say, which would be hugely detrimental for China.

According to the seventh team member, another potential concern would be if the U.S. was successful in taking actions in a multilateral forum or obtaining international consensus on the lack of legitimacy of Chinese actions, such as the right to enforce safety zones or the illegitimacy of RPOs being too close.

The fifth team member noted that if the U.S. were successful in the medium-term in disaggregating exquisite capabilities from a small number of large platforms to a larger number of smaller platforms, that would make it harder to coerce the U.S. because it would no longer be possible to threaten individual important assets, decreasing coercive leverage over platforms.

Finally, the sixth team member noted that the term China uses to refer to the “comprehensive national strategy” that was discussed above is a “whole of nation strategy.”
Japan and Regional Allies Team

**Team Actions & Decisions**

One team member indicated that a message should be sent to the United States, clarifying the allied stance.

A second team member agreed, saying that this is important and necessary because the U.S. did not seem to listen very much throughout Move 1.

A third team member inquired as to what information the China team would be aware of at this point.

The second team member noted that this question is exactly why allies like Japan should be more judicious about sharing information with the Chinese than the U.S.

The allied team facilitator then sent the following communication to the U.S.: “Find the Japan/Regional Allies stance attached. Please send over your decisions made since your last move.”

A fourth team member asked how allies can mitigate the risks they face through the use of new technologies such as ionic thrusters, micro-satellites, or jet gun technologies, and also regarding what risks those new technologies themselves pose.

A fifth team member replied that new technologies, especially micro-satellites, can be a game-changer for improving allied resilience.

A sixth team member spoke up with a related inquiry. We can assume that in a Taiwan scenario, China would try to deny U.S. GPS access. Therefore, this team member was wondering where those capabilities would be development-wise at this point.

The first team member responded, saying the U.S. is likely to develop alternative military GPS, also saying that the answer depends on the U.S.’s plan for a Taiwan contingency. The team member noted that if you are trying to sink the Chinese navy, GPS is not important because terminally-guided munitions are being used; on the other hand, if hitting fixed targets, GPS matters more. Therefore, the importance of GPS depends on the weapon set.

The third team member also noted that the U.S. could use Galileo as an alternative to GPS, but also stated that it is hard to predict how any new technology will pan out in the future. The third team member also noted that most of those new technologies can be grouped into the deterrence-by-denial category.

A seventh team member commented that lots of the new technologies make kinetic aggression harder, but make electronic and cyber aggression easier since there are smaller satellites and constellations.

An eighth team member agreed that modifications are something that can be interesting to think about in the future.

The allied team facilitator then mentioned that a reply from the U.S. team including the U.S. team notes and actions was received.

The second team member inquired as to whether the U.S. wants allies to develop ASAT options of their own.

Control responded by saying yes but also noted that ASATs can mean many different things and can be defined broadly to include several technologies.
The second team member then asked if the US’ request includes Japan developing long-range strike capabilities.

Control then indicated that such a request could include LSRMs, but would not necessarily have to, as the U.S. request could be interpreted to mean jamming and other cyber-related actions.

The third team member inquired as to whether the U.S. wants allies like Japan to develop the technology for “limited strikes on Chinese infrastructure in the South China Sea.”

Control responded by explaining that U.S. allies’ primary role is generally to spook enemies into not acting in the first place and that doing things together with the United States may shape the attitudes of adversaries, meaning Japan may not need hard kill capabilities in the first place.

One of the U.S.’s points of action was the following: “Buy all available commercial imagery and SIGINT to deny its use by China and strengthen the allied kill chain.”

The third team member indicated that this is difficult to feasibly accomplish.

The second team member agreed, saying that this is likely to be especially true in 2029.

Another one of the U.S.’s points of action was the following: “Prioritize development of Japan’s capability and willingness to defend Taiwan, including not only their military capacity but also their legal framework governing such operations and the conditions under which they may occur as exercises of collective self-defense.”

The fifth team member noted that the problem for Japan is not the existence of a framework, but rather, political will. The team member notes that dialogue and joint exercises with the U.S. are the most likely to boost Japan’s effort to work with the U.S.

The second team member spoke up, wanting to send this message to the US: “We fully support ops that increase deterrence and defense posture with Japan. It would be difficult to participate in offensive strike capabilities or anticipatory self-defense. Exercises though are ways to sort out redlines.”

A ninth team member then spoke up to say that anticipatory self-defense is something none of the allies would likely be particularly drawn to. They indicated that the idea of anticipatory self-defense is completely off the table, especially since space war will still be a relatively new phenomenon.

The sixth team member then asked if the team assumes that allies would put shutter controls on commercial imagery providers.

The third team member responded, saying that it would likely not be feasible at all.

The first team member also added that, beyond the practicality of it, even if China is cut off from third-party satellites, they will still see everything.

The ninth team member commented that the biggest problem for the U.S. would be implementing such controls for U.S. companies.

Building on the message Japan drafted to send to the U.S. earlier, the second team member asked if Australia and the ROK would have different messages.

A tenth team member stated that it would be very difficult for the ROK to pursue offensive kinetic strike capabilities and anticipatory self-defense. The seventh team member agreed with this and indicated that
offense would likely be slightly less difficult for Australia, but difficult nonetheless. An eleventh team member interjected to say that if the U.S. ties space problems to the ROK’s North Korea issue, that would likely create more room for the U.S. to maneuver to get the ROK back on board.

A message was then sent from Japan, the ROK, and Australia to the U.S., the contents of which were drafted above by the second team member.

The ninth team member noted that perhaps another message could be sent, suggesting other efforts that the U.S. could have allies engage in. One such effort, according to this team member, could be the U.S. leveraging allied SatCom.

In response, the seventh team member noted that each ally has unique amounts of satellites in certain spots because of differences in geography, meaning those advantages could be offered to the U.S.

The second team member proposed the following message from Australia, Japan, and the ROK: “Allies would welcome the opportunity to offer their national space capabilities to strengthen our collective resilience and signal their shared resolve to China.”

The above message was then sent to the U.S.

At this point, a message was received from the United States requesting engagement with India.

The second team member noted that India would be unlikely to engage in self-defense given that they are not even a treaty ally. They also noted that India would not be opposed to privately working things out with the U.S.

The seventh team member proposed to say that in general, India would not be opposed to preemptive self-defense, but that in this instance, they cannot get on board.

The first team member noted that it is unclear if India would have a legal or moral objection to preemptive self-defense, but India would likely not jump in during a crisis.

The eighth team member then brought up a European perspective, mentioning that Europe would approach the situation diplomatically, meaning they would avoid military involvement. In terms of capabilities, mostly France could begin to support the United States. According to this team member, the EU could provide commercial or institutional assets and that, for positioning, telecommunications can be provided in case US comms are off.

The fourth team member chimed in, saying that Europe would likely be even more fragmented than any Asian country. They said that there are so many nuances in this situation that it would be difficult for European countries to even want to get involved.

The following message was then received from the U.S. in response to the previous allied message: “Can you clarify these points a bit further? What will you and won’t you do?”

The second team member interjected with the following draft of a message from India to the United States: “As a founding member of the Non-Aligned Movement, we favor the peaceful resolution of disputes through the UN Security Council over pre-emptive self-defense. We would welcome the opportunity to discuss enhanced coordination of our exercise of our inherent right to self-defense to avoid unintended fratricide. However, such discussions are very sensitive and need to be conducted at the White House to PM Office level.”
This message from India was then sent to the United States.

Regarding the message from the U.S., the first team member explained that Japan would be willing to line up diplomatically but not take shots on the U.S.’s behalf.

The ninth team member added that all of Japan’s capabilities would be at the U.S.’s disposal, but that Japan is not willing to employ offensive strike capabilities.

The second team member noted that ROK and Australia might be willing to separately work on reversible operations.

However, the seventh team member interjected to disagree that the ROK would be willing to employ offensive strike capabilities, mentioning that this might put the ROK in an awkward spot. The ninth team member agreed with the seventh team member’s analysis. The second team member agreed with this analysis, saying that the ROK should send the same message as Japan.

The third team member mentioned that the Australians would perhaps be willing to commit to reversible offensive activities.

Bringing the discussion back to India, the seventh team member mentioned that India, when considering Chinese space capabilities, might be more bullish than we would initially assume. The first team member agreed, noting that India might intervene if something happened near the Himalayas, but not simply if the U.S. asked nicely such as in a Taiwan contingency.

The second team member agreed with the earlier analysis about France, saying they are the most likely European actor to get involved, whereas Germany would very likely be unwilling. The first team member also agreed, noting that there will be no European consensus on how to compete with China in the case of a space crisis. The team member noted that Britain and France might be willing to help the US, but also that the Germans might not, which would be enough to veto a coordinated European response. The eighth team member mentioned that the UK would likely be willing to help the US and Australia in such a situation.

The second team member then noted that France and the UK could make a similar statement as the Asian allies did for capabilities, emphasizing that space is global; for example, according to this team member, if an ISR gets shot down in the South China Sea, it can affect things in the Ukraine-Russia border.

The eighth team member then mentioned that France has been experimenting with bodyguard satellites and asked if they would be willing to provide them to other actors. The second team member noted that this is an interesting idea, and questioned to whom France would sell the bodyguard satellites, mentioning that they are self-defense satellites, not strike satellites. Would they perhaps sell them to Japan?

The previously discussed message from France and the U.K. to the United States was then sent.

A message from China was then received, telling allies that Japanese sources say there are increasing threats by the PRC to Japanese Earth observation satellites at LEO. China said it was committed to peaceful uses of outer space and denies taking such actions.

A member of Control who was on the call questioned the source, the South China Morning Post, as it is a relatively questionable source that is controlled by the party.

The second team member mentioned that China has been making statements similar to those in the second half of this email in the past, as they often call for treaties in response to U.S. use of weapons.
The seventh team member proposed asking the US to confirm if the South China Morning Post’s report is true. The second team member agreed, mentioning that the U.S. and Japan should have had data-sharing networks established, which makes this even more confusing.

The allied team facilitator then sent an email to the PRC team including 2 slides from the allied team’s established position.

The seventh team member commented that if the U.S. knew about increasing threats, the U.S. is in violation of the information-sharing agreements the U.S. established with Japan.

The ninth team member added that the Chinese message is rather ambiguous and that it is difficult to discern proper meaning. They added that the message is likely just an attempt to create a wedge in the U.S.-Japan relationship. The fifth team member agreed, noting that both Japan and the U.S. both have the capability to observe LEO threats and both countries continuously share information. Therefore, they explain, this means the message is more than likely a disinformation campaign, meaning that it is important for Japan to get a comment from the U.S.

A message from Control was then received, stating: “Japanese intel confirms US intel that 10 PRC rendezvous satellites are in matching sun-synchronous orbits with 10 government earth observation optical and radar satellites. Japan reports that Japanese Navy Sat-comm transponders are being intermittently jammed by PRC mainland assets.”

A message was also received from the United States, warning all allies that U.S. space surveillance systems over the last month detected an increased rate of rendezvous satellite launches into sun-synchronous orbits that seem to be aligned to Japanese Earth observation satellites. The message also requested that the ROK send defense satellites to Japan and also offers to share ISR with both countries.

The third team member commented that they are unsure what the request of the ROK means. The first team member mentioned that they do not know whether or not the ROK has bodyguard satellites, but noted that this would be an acceptable ask if the ROK does have those satellites.

The second team member reiterated this question, asking whether the ROK has these capabilities. The third team member explained that bodyguard satellites might not be available yet at this time, as they are difficult to deploy unless they are not already in the appropriate orbit.

A message was then sent to Control asking how many bodyguard satellites allies have at their disposal.

The seventh team member drafted the following question to send to the U.S.: “Please comment on this. Our understanding was that the information-sharing agreements we’ve implemented over the past several years have been put in place to avoid such surprises.”

The team member once again noted that the U.S. took too long to message Japan and that Japan should express mild discontent, but said that they would edit the message to reflect the fact that the U.S. did eventually tell us. The second team member noted that the U.S. only sent a message after the Chinese press.

The following message was then received from China: “Anonymous Japanese sources state someone is jamming Japanese navy satellites communications. The U.S. government has no comment. Anonymous U.S. source is concerned about sensitive information leaking from Japan. China says they are committed to the peaceful uses of outer space and denies taking such action. The U.S. has a long history of developing space weapons and calls for an international treaty on the use of weapons in space.”

The ninth team member then commented that anticipating the U.S. will ask Japan to use debris removal
capabilities for offensive purposes, the answer is still no for Japan, because Japan will not want to use civilian assets for defense purposes. The team member explains that Japan would think the onus is on the United States.

The third team member expressed agreement with this statement, saying that commercial sites should not be targets, as there are conventions that prohibit it.

A message from Control was then received, indicating that allies have 6 bodyguard satellites at their disposal.

The first team member asked for the location of the bodyguard satellites, noting that GEO is the relevant area. The third team member agreed with this question, saying that it should be brought to Control. Control replied, indicating that the satellites are in LEO.

The first team member commented that technical details in space matter a lot, but that, for the sake of the game, the team can pretend the satellites are relevant in this situation.

The seventh team member suggested that to strike the balance, allies could say that they are able to put defense satellites up, but that they need American support.

Another message from Control was received saying that Japan’s only GEO satellites are comm, not Earth observation.

The seventh team member drafted the following message to send to the United States: “Our understanding was that the information-sharing agreements we’ve implemented over the past several years have been put in place to avoid such surprises. While we greatly appreciate you passing on the information in question, we are somewhat disconcerted that we first read about these developments in the SCMP. The US-Japan alliance is and remains the bedrock of Asian security, we hope the speed and quality of alliance communications improves in the future.”

The following message from the U.S. to Australia was then received: “Australia: we’re asking you to intermittently dazzle Chinese assets with your ground-based lasers.” The first team member noted that the problem here is that Australian capabilities are intended for debris removal and civilian actions, which means that this action would bring up several law of war points. The team member explained that crossing the civilian to offensive line is tough.

The seventh team member suggested that Australia counter-offer by saying that Australia could engage in cyber but not engage in the exact way that the US requests. The second team member agreed, saying that Australia and Japan can work on counter jamming and cyber, but that Australia would disagree with taking a civilian object and turning it into a weapon.

The first team member then drafted the following message to send to the U.S. from Australia: “From Australia (and all of the relevant allies), ‘we are willing to coordinate a response to Chinese aggression that makes use of cyber or electronic warfare capabilities, but we will not make use of civilian debris removal capabilities in an offensive military role.’” That message was then sent from Australia to the United States.
**Move 2 Questions**

**Japan Questions**

1. **What could the PRC hold at risk in space that would cause Japan to seek the assistance of the U.S., and what does Japan believe the U.S. should be expected to do on their behalf?**

The fifth team member said that the team’s Move 1 answer remains true here. Any attack on Japan’s space assets would make Japan request U.S. assistance, especially attacks on operationally important satellites such as GPS and SatCom.

The ninth team member added that Japan would likely also request assistance if Japanese IGS satellites were targeted.

The eighth team member inquired if the assistance in question is for the U.S. to protect attacked assets or for the U.S. to provide capabilities. According to this team member, if Japan faces jamming, they would likely only ask for protection and information rather than asking for the U.S. to take offensive action.

2. **What capabilities and policies can Japan use to de-escalate the crisis to their advantage?**

The first team member said that, if Japan has defensive bodyguard capabilities, those would be a useful tool to signal Japanese intent or resolve, providing a tool to either escalate or deescalate.

The third team member noted that in the toolkit, active debris removal was provided, but not necessarily bodyguards.

The first team member responded to this by explaining that they were referring to the 6 bodyguard satellites that Control added to the toolkit in the middle of the move. This team member’s understanding is that active debris removal and bodyguard satellites are different things.

The first team member then added that Japan needs capabilities to attribute attacks to China and to detect the source of jamming. The team member also added that Japan needs cooperation with the U.S. insofar as intelligence jamming, which could be helpful to find the source of jamming and the like.

The fourth team member commented that Japan reducing its reliance on space-based capabilities through the use of new technology could be helpful.

The seventh team member added that allied powers should develop the necessary policies to be able to use capabilities to rapidly transfer information from satellite to satellite. This same team member also stated that if Japan is unable to develop new technology by itself, it could also request assistance from the U.S. on that front. This team member added that another potential policy would be to keep a close hold on all the information, either hiding it from the Chinese or shaming the Chinese. The team member explained that this would be helpful because information in space is limited, and only so many people know what is happening.

3. **Are there international rules/asymmetric capabilities that would reduce Japan’s space asset vulnerability?**

The fifth team member suggested the use of asset information sharing to reduce space vulnerability. The
team member explained that U.S. allies have asymmetric advantages that should be exploited.

The seventh team member added that the U.S. and allies have more options when it comes to launch sites, which means Japan being able to use the U.S.’s latitudinal range to its advantage would reduce vulnerability.

The eleventh team member further said that location matters a lot when it comes to launching satellites because the U.S. is developing a boost-phase intercept concept. This means there will be a larger window to intercept missiles and rockets from China, increasing the probability of intercepting Chinese missiles and rockets, and making it more likely that allies would be able to preempt Chinese aggression. The team member added that the U.S. should be able to play a big role in pushing the ROK to work with Japan in case Japan satellites are down. The team member was unsure if the ROK would be willing to send bodyguard satellites to aid Japan, but mentioned that they believed communication sharing would be likely.

**Regional Allies Questions**

1. **What could the PRC hold at risk in space that would cause Regional Allies to seek the assistance of the U.S., and what do Regional Allies believe the U.S. should be expected to do on their behalf?**

The first team member said that the answer to this question is likely the same as the answer for Japan, noting that even allies with their own capabilities would likely want to coordinate their response with the United States.

2. **What capabilities and policies can Regional Allies use to de-escalate the crisis to their advantage?**

The eighth team member noted that asset sharing would likely be helpful in de-escalation of crises for regional allies.

The fifth team member added that information sharing would be helpful for regional allies, as having the extra information available would make detecting the source of jamming or attacks easier.

3. **Are there international rules/asymmetric capabilities that would reduce Regional Allies’ space asset vulnerability?**

The eighth team member mentioned that Australia could consider developing cyberattack capabilities and that other allies might want to co-invest in commercial capabilities.

The second team member expressed agreement with this idea, also noting that allies may want to use “Blue Sky” cybersecurity to their advantage.

**Team Actions & Decisions (cont.)**

After the team was done discussing the questions, the eleventh team member suggested that the team could suggest a more palatable option for the U.S.-ROK alliance by adding the following statement to the next sent message: “ROK is willing to extensively cooperate with the US and other allies as long as the
requisite capabilities can improve ROK’s defense against DPRK, including its nuclear missiles.”

The eleventh team member explained that the premise behind this is hoping that the U.S. will read between the lines and figure out that the best way to get the ROK to assist in space is to draw focus on the DPRK.

A message was then received from China indicating that the U.S. is hanging allies out to dry and proposing to do a space project with Japan.

The third team member noted that this is a weak attempt to create a wedge in the U.S.-Japan alliance, and added that the allies should respond by saying that they will not be separated from the U.S. The ninth team member agreed that this is not a compelling offer and noted that it would be more strategic for China to target the ROK. The third team member also noted that they do not see anything space-related that would drive a wedge between Japan and the U.S. The ninth team member agreed with this assessment.

The first team member concurred with the assertion that it is odd for China to target Japan instead of the ROK, as the ROK would make more sense, as the fact that the ROK is an ally of the U.S. against North Korea matters more than as an ally against China.

The following message was then sent from Japan to China: “China, Nothing in this scenario involving threats to our shared security interests would separate Japan from its allies.”

The seventh team member then interjected to ask what the team believes would break the US-Japan alliance.

The fourth team member answered by saying that the main thing that could break the U.S. from its allies would be a refusal to show up in a crisis. The fifth team member agreed with this assessment, also adding that U.S. and Japan space policies are extremely well-aligned. The team member also noted the Senkaku islands as an example of something that could fluster Japan.

The seventh team member then asked whether the alliance could be split by the U.S. trying to drag Japan into a conflict that Japan wants nothing to do with. The tenth team member mentioned that there can be a situation in which the U.S. is framed for doing an action towards Japan, saying that such a situation could create tension.

Another message from China was then received, saying the following: “We’re offering commercial space service to Japan, ROK, from our Papua New Guinea (PNG) space launch/spaceport facility so that you no longer have to deal with the racist Australians.”

The first team member responded to this message by mentioning that Chinese infrastructure in PNG could hurt relations with potential new allies like Indonesia.

The third team member noted that the incentive for allies to adopt this is unclear.

The first team member also added that Japan and the ROK have their own commercial space launch capabilities, which means they do not need these capabilities at all. The team member also noted that the PRC team does not seem to be considering the fact that countries like Japan and the ROK have their own domestic space industries.

An exchange between the U.S. and China regarding the deployment of Chinese satellites was received.

Finally, a message from the U.S. was received condemning Chinese attempts to jam Japanese naval transponders. In response to this, China denied everything.
U.S. Team

**Team Actions & Decisions**

One team member referenced the debriefing slides, which suggested that the U.S. could offer the Japanese help on the Senkaku islands as an incentive for helping out with Taiwan. The team member pointed out that making that offer to allies might help get them to stay on board with the U.S.

In response, a second team member referenced a situation a few years ago with the ROK, where Korea was concerned because the U.S. was difficult about ROK developing independent launch capabilities, and the U.S. was not helpful on the ROK’s lunar aspirations. According to this team member, there are many positive things we could offer the ROK might help sweeten the deal in space. Furthermore, they explained, Australia has large ambitions, and including them as a bigger partner in lunar explorations is a civil thing that could be quite helpful.

A third team member noted the fact that as of right now, South Korea is not part of the Artemis Accords, and suggested sending a message asking the ROK if they wanted to join the Artemis Accords. The second team member expressed support for that idea, especially because the U.S. was very difficult, largely due to nonproliferation, with the ROK on their booster development and non-proliferation. Therefore, we could offer more collaborative work on their launch aspirations.

The first team member commented that the U.S. should consider offering allies things that China cannot give them. For example, the ROK wants to develop nuclear submarines, and the U.S. could offer to help with those reactors. ROK would also like authority for pyro processing or enrichment, though the first team member is less supportive of that idea. Similarly, for Japan we could recognize the Senkakus. It is important to think of things America could offer the allies that China cannot.

A fourth team member noted that two other big things for the ROK missile defense assets and long-range strike capabilities. Responding to this, the first team member explained that the U.S. already gave them the necessary authority to build long-range strike capabilities. They further said that the U.S. could help build those missiles but they seem to already have those. Also, this team member said that the ROK may not even want more missile defense, as they took a lot of heat for the last time they implemented missile defense, to them, it may seem like a favor to the U.S.

The same team member also noted that Australia also wants more non-nuclear submarines; we could offer to put pressure on France or Germany. Finally, they noted that India is another country that may want space offers.

The fourth team member then pointed out that another thing that was not covered in the preparation for Move 2 was tightening the Quad’s integration in space, especially with sharing space domain data. This team member also agrees with the third team member’s point about India.

Agreeing, the second team member pointed out that bringing India in would upset China, which is a positive. According to this team member, it would allow us to tell our other allies that we have reached out and achieved cooperative agreements on mutual support in space.

A fifth team member pointed out that the “enemy of my enemy is my friend”, and suggested that because Pakistan is very closely aligned with China, India would likely be open to cooperation.

A sixth team member spoke up to point out that insofar as regional allies and our close partners are concerned we have not discussed anything about directly bolstering Taiwan. This team member then said that if we recognize the Senkakus, that will greatly inflame China, so if we are already doing that, why not
bolster Taiwan as well, such as, for instance, bolstering air defense capabilities.

The fourth team member strongly supported this and pointed out that, per the briefing, these may be steps that the U.S. has already taken. The fourth team member asked: Are these things our allies are aware of? The U.S. team facilitator clarified that, yes, the allies have been informed about what steps the U.S. has taken.

The first team member then wondered if it would be possible to get a statement from allies, pointing out that if China uses satellites to attack our military assets, they should respond. The same team member suggested sending a message to India and pointed out that the ROK could join the Artemis Accords by themselves, as the Artemis Accords are open to join.

Countering this, the fifth team member pointed out that the ROK would be more likely to join the Artemis Accords as a quid pro quo, and that it is always good to attempt to engage them thoroughly.

Insofar as formulating a request for India, the second team member commented that U.S. use of Indian launch capabilities has always been a challenge. The U.S. objected to them developing independent launch capabilities, so for U.S. companies to use Indian launch vehicles has always been a challenge. However, rebutting this, the fifth team member said that, by 2029, U.S. capabilities will long bypass Indian capabilities, so we won’t think we get much out of that.

Answering this concern, the second team member explained that India will have new systems under development that will be useful for the United States. Agreeing with this, the third team member added that such Indian capabilities would likely be especially useful and cost-effective for launching things to LEO.

The fourth team member then added that, assuming allies have been on board about publicly articulating the previously discussed stance about defending satellites preemptively, having India to publicly issue a statement to this effect seems most valuable.

The fifth team member then asked for clarification regarding the meaning of “preemptive.” In response, the fourth team member explained that the only way to prevent attack from co-orbital satellites if they are positioned near U.S. nuclear command, control and communications satellites is a preemptive action.

A seventh team member then interjected to comment that India has already tested an ASAT, which means that the U.S. should work to privately figure out their highest value targets so that the U.S. and India do not go after the same things. The team member then continued by explained that the biggest difference in 2029 is that the Chinese now have 100 ASATS and that our strategy for dealing with that will be insufficient, as 100 is a lot different than ten.

The fourth team member agreed that this was a big difference on China’s end, but explained that they thought the U.S. had enough assets to deal with that. In response, the seventh team member explained that they did not see anything clarifying that this is the case in the slide deck. The U.S. team facilitator clarified that building and deploying body safeguard satellites is something that the U.S. team has been pursuing.

In clarifying how these would be implemented, the second team member explained that the idea is that these satellites would be small and cheap. They would probably be CubeSats with electric propulsion, making it more of a deterrent than an actual capability.

The fourth team member interjected saying that they believed the U.S. specified putting those body safeguard satellites around satellites in GEO as well as GPS.

The U.S. team facilitator then asked if the team was alright with sending a message to India. The third
team member responded by saying that there were no objections, and the message was subsequently sent.

A message was received from Japan in response to the U.S.’s pre-move notes. The message stated the following: “We welcome the U.S. proposals and fully support all areas that enhance our collective deterrence and self-defense posture. We also will work with the U.S. to define keep-out zones where practicable. It would be very difficult for Japan to pursue offensive kinetic strike capabilities and anticipatory self-defense.”

The fourth team member asked for clarification about whether the last piece is about the defense of Taiwan. The U.S. team facilitator reached out to the allied team to ask for clarification.

A message was received from Japan, the ROK, and Australia. The message was as follows: “We all would welcome the opportunity to offer our national space capabilities to strengthen our collective resilience and signal our shared resolve to China.”

The third team member asked what is being done to send that signal of shared resolve.

The fourth team member said that they assume this is about the U.S.’s previous actions about interoperability. The phrasing of the US pre-move measure that this might be in response to: “The US will [...] Pursue Interoperability with allied space assets, satellite command control, and ground infrastructure. Focus on GPS constellations (e.g., GALILEO, Quasi-Zenith Satellite System) in the event of GPS degradation or disruption.” The same team member pointed out that the message is not contextualized at all.

The first team member then stated that the U.S. should respond quickly with a positive affirmation. The fourth team member agreed, but also said that it is unclear what this means allies are doing.

In response, the first team member said that, because it is so vague, perhaps the U.S. could use that to its advantage and define it to mean that the U.S. military can be in touch and use allied satellites in case U.S. satellites don’t work.

Rebutting this, the fourth team member pointed out that simply using allied satellites is far more complicated than just interoperability. In that case, then, the first team member said, the U.S. could perhaps offer to allies the opportunity to send a joint statement to China.

An eighth team member then agreed with that idea, explaining that they believe messaging is even more important regarding the alliance than technical capabilities like with space situational awareness.

The seventh team member recommended that the U.S. and allies should do exercises and simulations to test and improve those capabilities, also saying that having backups for everything that we can is important. The more we exercise that and include commercial capabilities, the stronger and more resilient the ally capabilities will be, which also sends a great message to the Chinese.

Building off this, the second team member commented that the U.S. could announce a schedule for space interoperability exercises, as these are some of the things that will upset our adversaries.

A message was then received from India. The message was as follows: “As a founding member of the NAM, we favor the peaceful resolution of disputes through the UN Security Council over pre-emptive self-defense. We would welcome the opportunity to discuss enhanced coordination of our exercise of our inherent right to self-defense to avoid unintended fratricide. However, such discussions are very sensitive and need to be conducted at the White House to PM Office level.”

The first team member said that inviting India to the White House would be a good idea and would send
a powerful signal.

The seventh team member recommended that, if this is going to be done with India, the U.S. may need to meet with all allies. They pointed out a concern that the Japanese might not be that happy if we invite the Indians at that level.

In response, the third team member explained that we have coordinated with Japan more at that level, which means inviting India would just be inviting them into the fold and bringing the allies into one discussion. According to this team member, this would be in addition to regional exercises.

The fourth team member commented that the easiest way to accomplish something like this would likely be via the Quad.

The third team member inquired as to whether there is a reason we are not including South Korea? The fourth team member replied that including South Korea would make it trickier, but that it could be done. This team member continued to explain that there is a semi-institutionalized strategic dialogue that does not include South Korea because of tensions between South Korea and Japan. Those core allies plus Japan would be this team member’s recommendation for engagement.

The third team member rebutted that letting North Korea drive a wedge between the ROK and Japan lets China achieve that objective of dividing the allies, so trying to keep the allies together is important if at all possible.

The sixth team member expressed support for this view, saying that the ROK should be invited to participate in this aggression, also saying that by 2029, the ROK-Japan dispute will hopefully have largely diminished because of increasing Chinese aggression.

In response, the first team member pointed out that the ROK may be more willing to cooperate with China at this point, as it is largely a problem on the ROK’s part, not the part of other actors. The fourth team member expressed agreement with the first team member’s point.

A message was then received from Japan and the ROK, indicating that they would be willing to support the U.S. diplomatically and saying that their non-strike capabilities are at the U.S.’s disposable. However, they are not willing to employ long-range strike capabilities.

A message was also received from Australia indicating that they would be willing to support the U.S. diplomatically and saying that their non-strike capabilities are at the U.S.’s disposable. Unlike the ROK and Japan, Australia is only unwilling to deploy irreversible long-range strike capabilities.

A message from control was also received, indicating that China has been increasingly deploying rendezvous satellites in SSO. As of now, 35 of them have been deployed.

The fourth team member spoke up to indicate that the most significant of Japan’s message is the phrase offensive strike capabilities because of Japan’s domestic legal architecture, which is very weird and different. The U.S. should indicate agreement that “offensive” capabilities are distinct from using force in self-defense.

The second team member pointed out that non-offensive moves would not exclude positioning escort satellites, as that is a defensive activity.

The first team member noted that the PRC is trying to wedge U.S. and allies apart, which is why they put satellites near Japan. Therefore, the U.S. should give Japan capabilities. The team member continued by
saying that one thing the U.S. could do is offer defense escorts for Japan. The fourth team member agreed, but pointed out that the deployment of these satellites should be explicitly stapled to the self-defense justification, or else Japan will be hesitant to say yes.

The seventh team member added that it matters how many bodyguard satellites we have, as China has already put up 35 attack satellites. We do not want to waste all of our bodyguards. The first team member said that this is a good point, and it would be worth asking the ROK to send satellites to protect Japan, as that would send a powerful signal. The fourth team member agreed but was not sure that would be possible. The team member also asked the U.S. team facilitator for an estimate of approximately how many bodyguard satellites the U.S. can build. The first team member agreed, pointing out that we should ask how many satellites the U.S. and allies have collectively.

The eighth team member asked whether the team thought pursuing some pre-stage discussions about sharing of ISR data is worthwhile. It might be useful to potentially have agreements in place in case they lose some, like buying some from the U.S. industry or NTM at certain levels.

According to the U.S. team facilitator, the U.S. and allies have 100 bodyguard satellites collectively.

The first team member said that the U.S. should do the following 3 things: 1) Share intel with everyone. 2) Ask the ROK and Japan to deploy defense satellites for Japan. 3) Offer to share ISR capabilities.

A message was then received from the UK and France. The message was as follows: “We will support you diplomatically and our non-strike space capabilities are at your disposal, however, we are not willing to employ irreversible offensive strike capabilities.”

The first team member commented that the U.S. should use this to its advantage to get them to send the U.S. some defense satellites for its own satellites.

A message was then received from China detailing a post from the South China Morning Post.

The first team member commented that this is what they were worried about with not sharing information immediately. Therefore, this team member suggested that the U.S. should share information and send some of our satellites to Japan.

The fourth team member commented that the U.S. should only send those satellites if it is willing to destroy those satellites, and doing that in LEO over low-stakes satellites is a much riskier proposition than what happened in Move 1.

The seventh team member interjected to point out that environmental satellites are not the most important satellites, saying that we should conserve our resources for defending more valuable satellites. The team member continued by saying that the U.S. should make a good faith effort to stop China, but that even if these satellites go away, it would not be catastrophic.

In response, the first team member pointed out that the point of the game is to keep Japan with the U.S., so the U.S. should send a couple of satellites to signal support. If China holds weather satellites at risk and the U.S. does not defend Japan, Japan may be more willing to cooperate with China later.

The fourth team member pointed out that this only matters insofar as it seems like a thing Japan wants. Furthermore, if the U.S. backs down on defending satellites it initially said it would defend, that is the worst-case scenario, so the U.S. should tread carefully.

The first team member commented that the simple signal of the U.S., Japan, and ROK working together
to defend Japan is an important signal.

The fourth team member explained that the only reason China would destroy satellites is to call the U.S.’s bluff in a situation where the U.S. says they would defend the satellites.

The second team member expressed disagreement, saying that the key is keeping Japan on board. Even though these are just weather satellites, the Japanese space arsenal is not that big, so defense is important. According to this team member, it is a question of move countermove.

The fourth team member asked whether the means the U.S. would prefer to use to defend Japan are the escort satellites. The first team member responded that, yes, the U.S. would like to use a few of them.

A message was then received from Japan. The message was as follows: “Japanese intelligence confirms US intelligence that 10 PRC rendezvous satellites are in matching sun-synchronous orbits with 10 government earth observation optical and radar satellites. Japan reports that Japanese Navy Sat-comm transponders are being intermittently jammed by PRC mainland assets.”

The seventh team member noted that what the Chinese just did is a lot more significant than weather monitoring satellites. They also noted that the U.S. should ask Australia to do reversible laser dazzling against those Chinese satellites because it is very hard to attribute that dazzling, and because Australia said they would be willing to.

The fourth team member strongly agreed with those points, and also said that there should be some means of inflicting a cost signaled by clarifying response measures.

Another South China Morning Post message was then received: Someone is jamming Japanese Navy satellite communications, and anonymous U.S. sources are concerned about the leaking of information from Japan.

The fourth team member spoke up to inquire as to what would be proportionate here. They also suggested perhaps increasing deployments around the Senkakus and publicly clarifying that China is responsible for aggression.

A message from Control was then received, asking for clarification as to what, “wanting the ROK to send defense satellites,” means. The first team member explained that the U.S. assumes they have defender satellites that they could deploy since they said they would help assist the U.S.

The same team member also asked if the U.S. had asked Australia to engage in reversible dazzling yet.

The fourth team member then said that the U.S. should not ask if they’re willing to, and should instead just tell them to dazzle as a response to Chinese aggression.

The sixth team member inquired as to whether disclosures about jamming are non-public, and then noted that they could also be disclosed publicly.

The fourth team member chimed in by saying that the U.S. should publicly declare that China is jamming Japanese naval transponders and that if they don’t stop, the U.S. will ___. They then inquired if people had thoughts about filling in the blank.

The seventh team member suggested that the U.S. should position the X-37B to counter PRC ASATS targeting 10 EO satellites. The third team member responded by noting that, in terms of the numbers, the X-37B cannot cover all of that at once. The seventh team member agreed with this, but thought the X-37B
should be positioned so that it is prepared to do something to protect highest-priority assets. Arms could also be used to snatch satellites.

The fifth team member then asked if the satellites are at the right inclination to do this. The seventh team member pointed out that they can maneuver because they are highly maneuverable, but also pointed out that China is unsure whether or not the craft can do so, meaning there is an element of uncertainty.

The fourth team member commented that the communication that should be done now is a public clarification explaining what the U.S. will be doing. The first team member suggested that the U.S. could put its own aggressor satellites near Chinese satellites. Explaining the problem with this, the fourth team member explained that allies have not agreed to this, which poses legal barriers.

This same team member then commented that the U.S. should figure out what threat should be made in terms of transponders, and agreed that having Australia dazzle would be a good idea. The same team member then suggested that it might be a good idea to increase U.S. military deployments in the Senkakus, and also said that they would be in favor of attaching costs to that as well.

The third team member commented that a cyber response is also an option.

The seventh team member recommended having a private discussion with the Japanese to understand how significant jamming is, both because the U.S. does not want the Chinese to know how effective jamming is and because the U.S. does not want to do Japan’s battle damage assessment for them.

The first team member then asked whether we sent the message about meeting with the Indian PM and the President. The seventh team member agreed that this would be a good idea, commenting that it would still be effective.

The U.S. team facilitator answered by saying that the message was not sent to India, and also noted that a message had been received from Japan. The message was as follows: “Our understanding was that the information-sharing agreement we have implemented over the last several years has been put in place to avoid such surprises, we are somewhat disconcerted we read about such developments in the South China Morning Post. We view the U.S. as the bedrock of Asian Security.”

The third team member responded by noting that now would be a good time to initiate a summit by saying that we agree communication should be increased and that a summit would do so.

The U.S. team facilitator asked whether we would want to include the Indians are well. The fourth team member then said that that would be a good idea. The U.S. team facilitator further inquired into whether the U.S. would want to include the Europeans in that summit. The third team member responded by saying that the U.S. would likely want to keep the summit regional but noted that they are open to alternative suggestions on that point.

The fifth team member drafted the following message: “In the spirit of regional cooperation, we propose to all regional allies, we have a training exercise to develop our interoperability and share.”

The fourth team member noted that everybody had agreed with the interoperability stuff, everybody was on the same page about jamming and dazzling, so the team should then discuss what the U.S. response to Chinese jamming should be.

The seventh team member noted that they want to discuss the details about what is going on with the jamming and how allies are going to counter that, but noted that this discussion should be private.
The third team member noted that the team might want to briefly discuss some of the Move 2 questions at this point.

**Move 2 Questions**

1. What does the U.S. believe its responsibilities are to its allies and what do they expect of us?

The third team member noted that cooperative defense of allied assets is one potential thing, and then asked whether the team believed that support for territorial claims like the Senkakus could be part of that list. In response, the sixth team member noted that the team had only talked about the Senkakus, and then inquired as to whether other territorial claims could be discussed. The fourth team member noted that, to capture that, the list could just say “support in certain territorial disputes.”

The third team member suggested that joint exercises for interoperability on the military side are another responsibility that the U.S. believes it has. The same team member noted that space situational awareness intelligence sharing is another priority.

The seventh team member noted that intelligence sharing is likely more important, as proven by the fact that the Japanese got upset about this earlier in the Move.

2. What could the PRC hold at risk in space that would cause the U.S. not to act in the interest of its East Asian allies?

The fourth team member noted that nuclear command and control and GPS are two of the big things that China wants to target to create a wedge in the alliance. The team member also noted that the set of responsibilities adopted by the U.S. in Move 2 seemed fairly effective in preventing China from taking those actions.

**Team Actions & Decisions (cont.)**

The discussion then turned away from the discussion questions and toward the actions being taken.

First, the U.S. team facilitator sent a message informing allies of the jamming, and stating that China was responsible.

The U.S. team sent an additional message making a public declaration that it is sending bodyguard satellites and the X-37B to help protect Japan’s satellites from Chinese aggression.

A third U.S. message was sent publicly condemning Chinese attempts to jam Japanese naval transponders. This message was sent to all teams, including the Chinese.

Separately from the summit, the U.S. asked Japan to meet with the U.S. directly to work out what the U.S. response to jamming should be.

A message from Control was then received, indicating that Japanese intelligence confirms 40 Chinese rendezvous satellites are in matching SSO with Japanese radar satellites. Japan also continued to report that assets were being intermittently jammed by PRC assets.

The U.S. team facilitator responded by saying that the current timeframe in the Move is four months.
The second team member noted that Chinese satellites are vulnerable to laser dazzling because they are in SSO. The fourth team member indicated they would support dazzling, and noted they thought because the PRC has been messing with Japan for four months, the U.S. would have, at this point, been able to communicate with the Chinese pretty extensively and attached costs to aggression.

The second team member commented that the U.S. also has laser assets, not just Australia, so the U.S. could independently block PRC ASATS.

The fourth team member responded by indicating that jamming is the most pressing issue and that it requires the imposition of another cost. They indicated that they would like to deploy more troops, conduct cyberattacks or impose sanctions. The second team member agreed, saying that now is the time for active measures to be taken by the U.S., not just allies.

The fourth team member asked whether the U.S. should just take those actions, or if the U.S. should first warn China. The second team member indicated that the U.S. should just take those actions. The same team member also formulated the following list of options: broader set of operations if there is a target, light or heavy sanctions, taking stances on territorial disputes, conducting limited strikes on Chinese infrastructure in the South China Sea, conducting cyber-attacks on China, or increasing missile deployments in the region.

The following message from China was received: “With the ambition of the U.S. and the tendency of the U.S. trying to coerce the East Asian Allies to go along, it calls for the need for the PRC to put satellites over both US and East Asian allies’ satellites in order to monitor and perform close inspection. Just the same way that the US has done multiple times to Chinese and Russian satellites. However, the PRC will also perform other applications, such as servicing other satellites and actively removing space debris for China and other people. Space situational awareness is a commonly accepted practice among nations. The PLA is a force for peace in the world and is doing this to keep an eye on US nefarious behavior and prevent war. China has a partnership system along the Belt and Road initiative across the globe, including the African Space Agency, Luxembourg, Italy, New Zealand and 130 countries.”

The sixth team member noted that now might be an opportune time to counter that message because China is threatening other assets. The team member supported the fourth team member’s list of options, but also suggested that taking actions to counter A2/AD in the South China Sea could also be good.

The fourth team member pointed out the PRC can do monitor and perform close inspection with just a couple satellites at a time, explaining that there is no need to preposition multiple simultaneously. Alternatively, the U.S. could just accept the PRC’s action, because it would not necessarily be a bad norm if it caught on.

The seventh team member further recommended that the U.S. do its own dazzling since the team had not heard back from the Australians. They noted that they have assets in theater, that dazzling is hard to attribute and that dazzling is temporary and reversible.

The fourth team member underscored the importance of increased military deployments near Senkaku and noted that dazzling does not cost China anything, so attaching a material penalty to jamming is important. They also noted that they would increase missile defenses in the region. The team member finally suggested that the U.S. should send China a message that the US is responding to PRC jamming, and if the PRC continues to jam there will be additional consequences.

The U.S. team facilitator noted that telling this to the PRC would tip our hand and tell them our move.
The fourth team member explained that this would not necessarily be a bad thing, as the only thing this would do to China is potentially making them end jamming.

The U.S. team facilitator then asked if the earlier statement about China not needing to use multiple satellites should be sent at this time. The fourth team member stated that this message should be sent separately. The team member then inquired as to what the U.S. should say are the on-orbit rules for RPOs.

The third team member noted that if the PRC stated it needs to monitor and inspect, there needs to be consultation of Article 9 of the Outer Space Treaty. If the PRC is unwilling to do so, that means it does not have peaceful intent.

The first team member noted that a potential concern here is that they might want to consult. The fourth team member responded by pointing out that the self-defense justification provides a separate justification for U.S. actions.

Responding to concerns, the third team member explained that even if China accepts consultation, it should be reciprocal, meaning the U.S. should also get to inspect Chinese satellites.

The first team member then asked if that reciprocity should be explicit in communication.

The third team member responded by explaining that the first thing the U.S. should do is cite Article 9 and mention consultation, and then mention reciprocity if China accepts consultation.

The fourth team member said the following about Chinese RPOs in chat: “Respond to this Chinese RPO thing by saying: 1.) we agree that it is fine for both them and us to do space situational awareness, and appreciate them saying as much; 2.) the Outer Space Treaty requires that states act with due regard; and 3.) states have an inherent right to self-defense and if China positions in such a way that an attack is imminent and requires use of force to prevent it the US will use force - but that if they instead use only a couple of satellites such that it is clearly not a use of force, they are fine.”

Similarly, the seventh team member said the following in chat: “Agree with consultation but USG bottom line. Should reiterate language in 2015 NSS: ‘The United States considers unfettered access to and freedom to operate in space to be a vital interest. Any harmful interference with or an attack upon critical components of our space architecture that directly affects this vital U.S. interest will be met with a deliberate response at a time, place, manner, and domain of our choosing.’”

The third team member then noted that the team had not discussed the final Move 2 question.

**Move 2 Questions (cont.)**

3. Are there international rules/asymmetric capabilities that would reduce U.S. space asset vulnerability?

The third team member noted that prior consultation and coordination of rendezvous prox-ops of non-allied targets would likely be an important action to take.

The fourth team member agreed with this, but suggested splitting this into two categories: first, clarification of threatening and non-threatening behavior; and second, self-defense rules and things like that.

The third team member asked how the self-defense rules portion of that should be worded.
The fourth team member then explained that there seems to be confusion around the idea that Chinese positioning itself can constitute an imminent attack, justifying use of force. The team member explained that, as such, clarification of application of preemptive self-defense would be valuable.

The third team member asked whether, in terms of capabilities, discussing shifting to capabilities that make the U.S. less reliant on space is worthwhile, or whether that is outside of the scope of the game. The fourth team member agreed that this would be a necessary action, but noted that it would be insufficient in the near term, as there are some capabilities that the U.S. could not reasonably shift quickly.

The seventh team member then noted the importance of coming to an allied consensus about what is acceptable allied behavior (e.g., what is reversible) and what is not. The fourth team member agreed and noted that another important discussion to have is what is and what is not offensive.

The third team member interjected, asking whether we want to make a point about inclusion of India and the ROK. The fourth team member stated this is certainly something worth including, but also noted that alliance coordination should be the top priority.

The same team member thought it was worth considering whether the U.S. should synthesize an array of graduated response options to create a clear understanding of what tools are available. In terms of imposing costs now, they noted that they would be in favor of offensive cyber operations and sanctions if China does not back off on jamming. These would essentially constitute countermeasures.

The sixth team member noted that the U.S. had previously objected to RPO activity and asked why the U.S. would not do so in the future. The fourth team member explained that it is a question of degree, saying that they think jamming is much more escalatory because it targets Japanese naval transponders. Therefore, according to this team member, responding to jamming should be the top priority.

The seventh team member suggested the U.S. look into what allied national laws say about their cyber operations. Some allies might have more or less flexibility than the U.S. does under their laws, which means the U.S. needs to understand what it can and cannot do through clarification in private. They explained that the U.S. should not tie its hands and limit unacknowledged actions that could be taken.

The fourth team member agreed, but noted it might be worth stating both cyber and space, as those are both contexts where allies might have differing laws and may be willing to do low-level dazzling in contexts where the U.S. would not.
Move Three

PRC Team

Team Actions & Decisions

One team member began by inquiring into whether each member of the group read the final email they had written in an exchange that occurred post-Move 2.

** EMAIL INSERTED FOR REFERENCE:

1. I suggest we transmit via demarche and the press that China will respect the US warning zones as long as the US and allies respect the PRC EEZ around Taiwan. If they violate the EEZ, we violate the satellite warning zone. (tit for tat strategy). In parallel, the PRC Navy claims that a US warship not only violated the EEZ but bumped/rammed into a PRC large fishing boat and the PRC provides a satellite picture to the world that shows a fishing boat being bumped by a US navy vessel (a deep fake).

1a. Xinhua News Agency reports that the U.S. is preparing for military actions against China and coercing its allies to assist in the campaign. China warns that Japan and other U.S. allies should not aid and abet any U.S. aggression. Otherwise, China will retaliate accordingly.

1b. China denies any knowledge of the Japanese satellites problems/anomaly.

3. PRC immediately rejects all U.S.-allied proposed rules, because they are in blatant violation of Article II of the Outer Space Treaty that outer space “is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” China will order its satellites to exercise the right of freedom of navigation into any number of these zones if US/allies move into EEZ around Taiwan. China will retaliate reciprocate in space if its right in its EEZ and in space are infringed.

3a. In addition, China attempts to enlist Russian support in the UNSC and for its position that the US, EU and allies are infringing on China’s legitimate rights. China also objects in the UN General Assembly, the ASEAN Regional Forum and through the Shanghai Pact [SCO], in which the PRC tries to enlist India’s and Pakistan’s support against such neo-colonial suppression of its rights. China also enlists the support of its Belt and Road partners and offers them a variety of lucrative economic incentives to support them (we can emphasis space services here if needed), while also threatening economic penalties (and/or withdrawal of space-based services provided in move 2) if they do not support China.

4. PRC Asset Maneuver for MOVE 3: In addition to the 60 rendezvous spacecraft already placed in various orbits, China continues to launch in fast pace the remaining 48 of the 108 rendezvous spacecraft (100 from PRC space order of battle plus 8 repurposed from 15 such spacecraft originally intended for satellite servicing and space debris removal). These 108 spacecraft will soon be prepositioned in the vicinity of ALL U.S. (86), Japanese (9), Australian (7), South Korean (6) and Taiwanese (0) GEO, Medium Earth Orbit (MEO) and Highly Elliptical Orbit (HEO) satellites (as shown in their space orders of battle respectively).

4a. We maneuver our RPO satellites to fly past the US/allied satellites but keeping .5 miles from the warning zone. The uncertainty in space situational awareness makes impossible for the US to confirm if the PRC satellites are actually crossing the redline or not, creating doubt among allies
China Waging War in Space: An After-Action Report

and US decision-makers about their next move and what it all means.

4b. PRC also increases “reversibly” jamming and dazzling of Japanese and East Asian allies space capabilities to degrade their capabilities 50-70 percent. They also begin spoofing GPS and Quasi-Zenith Satellite around all Japanese harbors/ports and airports south of Osaka through the first island chain, to severely reduce confidence in space-based GPS. Spoofing about 50-70 percent of the time also. The same for South Korean ports/airports, which makes South Korea and UN forces in South Korea very nervous given their prioritization of the daily threat from North Korea.

5. Chinese ground-based lasers are deployed. To use the element of surprise, a Chinese X-37B (like) space plane re-enters over Taiwan Strait and lands at spaceport on Hainan Island after test dropping a guided munition on a derelict Chines fishing boat off its coast.

Another team member raised a question about the enforcement of the Taiwan EEZ: Is China just using it to keep out military ships or is the goal to prevent the intrusion of all foreign ships? Often, they explained, the PRC complains about surveillance of their activities through military ships, so that could be a reason to only apply the EEZ to military ships.

The first team member responded by asking whether anyone in the group knew how EEZs generally tend to work? The second team member explained that a country’s EEZ is a max of 200 miles from the shore. From the end of the contiguous zone to the end of the EEZ, a country has the right to economic exploitation, but countries can travel through as long as they are not taking any economic resources. At least, that’s how United Nations Convention on Laws of the Sea (UNCLOS) interprets EEZs, but the PRC does it differently and interprets EEZs as more restrictive of travel. The same team member finished with a question: How are we treating this, in the UNCLOS way or the PRC way?

The first team member expressed understanding of the explanation, noting that they had been confusing an EEZ with an Air Defense Identification Zone (ADIZ). To clarify the distinction between the two, the second team member explained that an ADIZ has no basis in international law whereas an EEZ does.

Answering the second team member’s earlier question, the first team member noted that the team should probably treat this in the PRC way since the team is playing the PRC. A third team member spoke up, stating that the key fact to remember is that the EEZ overlaps with the territory of Taiwan, which is the reason why we are enforcing it in the first place. Therefore, according to this team member, enforcing control over Taiwan is the key question guiding how the team should settle this.

In agreement, the second team member noted that what the team should do is declare Taiwan’s internal waters as part of the PRC’s territorial waters and perhaps say it is a response to the U.S. creating warning zones. The first team member agreed with this idea, saying that this was how they had been thinking about the scenario.

To reiterate their explanation of the concept of EEZs, the second team member explained that the way that it works is that the use of a normal EEZ in Taiwan means that there would be a strip in the middle that would still be international. However, the team member explained, if the team were to declare the whole thing as PRC waters, that would make it all off-limits to other actors.

The first team member asked if that strategy is what China had implemented in the South China Sea. In response, the second team member explained that the strategies are technically different, as what China did was make the whole South China Sea off-limits instead of allowing EEZ pockets, which the U.S. and UNCLOS did not like.
The third team member supported the idea of connecting the PRC’s enforcement of the EEZ to the U.S.’s creation of a warning zone.

A fourth team member interjected with a question: What has Control given the PRC as an objective? What is the PRC trying to accomplish this move?

Answering the question, the first team member explained that the objective is the same as in Move 2. The PRC aims to create space between the U.S. and its allies and to break the U.S.-Japan alliance. Furthermore, the team member explained, the PRC wants to prevent the Japanese Navy from intervening.

Interjecting, the third team member noted that, in their view, more importantly, part of the PRC’s objective is creating a justification for the PRC to enforce an EEZ, and that tying enforcement to the creation of warning zones is a natural way to do that.

Seeking clarification, the fourth team member inquired as to whether all the U.S. has done is create these zones, noting that this is not a particularly interesting action.

In response, the PRC team facilitator explained that yes, that is more or less it, citing a previous document that explicitly noted the following actions: “1. There are now diplomatic agreements between U.S., E.U., and East Asian Allies to create rules on warning zones. 2. The U.S. has augmented Japanese Navy communications to offset intermittent jamming of Japanese Naval communication satellites. 3. The U.S. is sharing ISR and GPS capabilities with Japan, ROK, and Australia.”

The first team member then asked whether, in Move 1, there was the question of declaring an EEZ and the problem of the U.S. not recognizing it, inquiring as to whether that was the entire setup of the conflict.

Clarifying, the third team member explained that, in their view, the bottom line is that the U.S. is setting up the warning zone to introduce bodyguard spacecraft and that the PRC needs to argue that U.S. cannot do that, as that is the outcome of the model. Therefore, according to this team member, the PRC should not allow them to deploy bodyguard crafts, as, logistically, there is no way that the U.S. could have 100 bodyguards in 2029 given that they did not even try to develop them before.

Seeking further clarification, the fourth team member asked whether the U.S. team had alleged that they now have 100 bodyguard satellites.

In response, the PRC team facilitator explained that the U.S. team does not have 100 bodyguard satellites, they have six.

Though not in an attempt to discredit the third team member’s previously proposed plan, the fourth team member proffered an alternative option, explaining that the PRC could accept the precedent that the U.S. is setting and using orbital keep-out zones to its own advantage. For instance, the PRC could declare even larger ones or even go big and say, “everything over this region in Asia ought to be a demilitarized zone and if there are foreign actors like the U.S., their satellites are not welcome in that area.”

Elaborating, this team member explained that it could also be interesting to adopt a strategy attempting to reveal that the U.S. is a paper tiger. According to this team member, this could be done by putting satellites capable of executing RPOs near the U.S.’s 6 bodyguard satellites so that they need to worry about the PRC attacking those. While they are busy doing that, China could cause problems with critical Japanese satellites (such as Quasi-Zenith Satellite Systems (QZSS)), which would become very embarrassing when the U.S. does not come to help. Finally, the PRC could also say that these actions are in response to U.S. aggression since they violated the Outer Space Treaty (OST) through the creation of warning zones.
The team member also noted that the fourth team member’s ideas are similar to the ones posed in the first team member’s email, noting that they are willing to trade U.S. zones for China zones.

A fifth team member pointed out some flaws in this strategy. Firstly, according to this team member, if China does accept the warning zones, it would appear to be against what they stand for now, as one of China’s complaints about the Artemis Accords was that it has keep-out zones, and accepting these zones would contradict that position. On the other hand, this team member noted, if the PRC can execute a trade of space keep-out zones for a Taiwan EEZ, then China have won. The team member also noted that some Chinese military writings do talk about space blockades, which supports the fourth team member’s idea of declaring larger Chinese space zones.

The third team member expressed support for the points made by the fifth team member but criticized the idea to associate the Taiwan EEZ with keep-out zones. According to this team member, China does not want to make the trade, as it should be the PRC’s goal to say that it can do anything with its territory because Taiwan is sovereign Chinese territory.

Therefore, in this team member’s view, the PRC should make this a question of internal affairs, which means there would be no reason to try to make a trade. That solves China’s problem and does not contradict previous Chinese positions.

Bringing the discussion back to the email cited at the beginning, the first team noted a few concurrent elements of its strategy: carrots and sticks, misinformation, and disinformation. The team member explained that the goal is to separate Japan from the U.S. by creating a disparate understanding of what is going on. The email also brings in the ROK, attempting to prevent them from allowing the U.S. to escalate.

The team member then began listing some final edits to be made to different parts of the email:

First, to #1: We want to transmit privately via demarche, but not via the press. We should say that the PRC will accept warning zones if the US and allies respect the EEZ as part of a tit-for-tat strategy. In parallel, the PRC Navy should publicly claim that a U.S. warship not only violated the EEZ but bumped into a PRC large fishing boat. The proof we have of this will be a deepfake.

Second, to #3: The PRC should publicly reject all U.S.-allied proposed rules. To #3a: China should publicly attempt to enlist Russian support. At the end, add a sentence that says: “Lastly, China threatens to leave the Outer Space Treaty if the U.S. and allies don’t agree to roll back the warning zones.”

Finally, regarding #5: We do not have an X-37B space plane in the toolkit, so we would need permission from Control before taking this action.

The fourth team member noted that threatening to leave the Outer Space Treaty is an interesting proposition.

Then, in criticism of the proposed strategy, the third team member referenced the fourth team member’s previous claim that the PRC’s strategy should not be to fire the first shot. According to this team member, the team should let the U.S. fire the first shot and then react defensively. This team member explained that they quite liked the idea of acting defensively as well as the fifth team member’s points about attempting not to contradict past Chinese doctrine. Therefore, this team member explained, they are puzzled by the email’s approach, as points #1 and #2 seem to be contradictory with the aforementioned points. The team member also noted that they believed the strategy is too overcomplicated.

The second team member then spoke up with another inquiry: Is this a blockade or just declaring an EEZ? The team member noted that the opening scenario says we are enforcing a blockade of the Taiwan EEZ,
which does seem to imply that ships mobilize to prevent other ships from accessing the area. The first team member answered by saying that the second team member’s explanation is also how they had interpreted the scenario.

A sixth team member stated that they believed it is the team’s prerogative to decide how to interpret the situation, noting that in Move 2 the PRC did not do a strict blockade because that would create more international sympathy for Taiwan. According to this team member, the PRC could choose to just prevent weapons shipments and try to not prevent trade too much so long as commercial ships agree to inspections; this would allow the PRC to spin the situation as: “We are not doing a blockade, we are just enforcing political control over this renegade island.”

The first team member noted that they believe a blockade is considered an act of war, which could pose problems.

In response to this concern, the sixth team member explained, because the PRC considers Taiwan to be a rogue province, it would functionally amount to China fighting a war against itself.

The first team member agreed with this explanation, also saying that the PRC could assert control without preventing trade, which might dampen backlash.

The fourth team member then said that they would refer to it as a “security cordon.”

Countering all of this, the third team member explained that the move does not need to get so complicated. According to this team member, the PRC can just say that it is trying to manage its internal affairs and that the U.S. is being the aggressive actor by creating these zones. Later, if that is insufficient, the PRC can always come up with an excuse; for instance, say that the PRC is creating this blockade because we want better management over Taiwan’s transit.

Seeking clarification, the first team member inquired as to whether Move 3 takes place during the 12 months of covert operations that lead up to the Taiwan blockade or if the blockade is now imminent.

The third team member explained that this move takes place 6 months before the blockade, then explained that the PRC’s first action in this Move should just be to send out the 2 things that this team member wrote in their original email, as those actions are gentle and ambiguous.

**EMAIL INSERTED FOR REFERENCE:**

1. Upon the creation of rules on warning zones by the U.S., E.U. and East Asian Allies in space, PRC immediately rejects all U.S.-allied proposed rules, because they are in blatant violation of Article II of the Outer Space Treaty that outer space “is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” China will order its satellites to exercise the right of freedom of navigation into any number of these zones. China will retaliate if its right is infringed.

2. Xinhua News Agency reports that the U.S. is preparing for military actions against China and coercing its allies to assist in the campaign. China warns that Japan and other U.S. allies should not aid and abet any U.S. aggression. Otherwise, China will retaliate accordingly.

The first team member expressed support for the third team member’s email but explained that their own previously cited email incorporated all of it while also adding clarification and specificity.

The third team member noted that they like all of the first team member’s additions, saying that those can
be kept.

The first team member then said that, because the blockade has not been initiated, the section of the email about a tit-for-tat strategy should be removed.

Opposing this modification, the sixth team member countered that they would keep that section, but put it in another part of the email.

A seventh team member then spoke up, expressing confusion as to why the tit-for-tat section would be removed. According to this team member, removing that section of the email would mean the PRC is choosing not to respond to an illegal U.S. action.

This team member also reiterated the importance of a point previously explained by the third team member: that the PRC views Taiwan as an internal affair, which means enforcing the EEZ is also an internal affair.

Because it is an internal affair, the first team member explained, the PRC can say that it considers Taiwan to be its internal territorial waters. Therefore, according to this team member, the tit-for-tat strategy can be as follows: “if you come into our internal waters in the Taiwan Strait, we will go into the warning zone.”

The third team member responded by saying that these parts of the PRC’s strategy could be sent to Control in the future, after the first two points in the third team member’s previously cited email.

The fourth team member explained that, in the U.S.’s perspective, China threatening to remove itself from the Outer Space Treaty might be more central to U.S. interests than Taiwan, as it would mean that China could put nukes in space and claim territory on the moon, which would be much more serious than letting China get a rogue province.

An eighth team member supported the fourth team member, explaining that equating the Taiwan EEZ with zones in space would be a bad idea and that the team should stick with the Outer Space Treaty idea. According to this team member, the needs to make it very clear that Taiwan and space are different and that the EEZ is an internal issue. Furthermore, China wants to be able to keep monitoring what the U.S. does in space.

The first team member then noted that the Outer Space Treaty threat could potentially be credible, as, for example, it would be the same thing as when the U.S. withdrew from the INF Treaty because Russia did not comply. That means it is a reasonable move; it would be a credible threat and would also reasonable because the U.S. and its allies are throwing the Outer Space Treaty out the window anyway.

Speaking up in opposition to this idea, the fifth team member explained that withdrawing from the Outer Space Treaty would go against how China has been acting in international relations as, generally, it is the U.S. that leaves treaties.

Furthermore, they explained, China has been pounding against the U.S. because it often does not operate under the rules-based order insofar as the U.N. By staying in the Outer Space Treaty, this team member elaborated, China could say that it is the U.S. and its allies that are undermining the rules-based order, which is the way they have been working recently, which is something withdrawing would undermine.

The first team member noted that the fifth team member’s points are good ones, saying that the Outer Space Treaty idea should be held in reserve and that the team should be working to send an email of some sort before the time for taking actions runs out.
The fifth team member spoke up in support of some comments being made in the WebEx chat: saying “we are taking control over Taiwan” is going too far at this stage in the game, and makes it seem like we are invading, which means the team might want to stick with “it’s just an exclusive economic zone for now.”

Acquiescing to these concerns, the first team member said that the email should just stick with the third team member’s original language, but also noted that #3a from the first team member’s original should be included, as that is the section about how specifically China is going to protest. The third team member interjected to support point #3a. The fifth team member inquired as to whether the team wanted to keep the Outer Space Treaty language in point #3a. In response, the first team member said that instead of “threatens to leave,” the email should say, “points out that the U.S. is violating the rules-based order, as laid out in the OST.”

The team received a message from Control, relaying the following message from Japan: “As we have noted publicly, a Japanese satellite is currently deorbiting after a Chinese RPO spacecraft came nearby. We would appreciate any information China could provide on this situation.”

Responding to this message, the PRC team said that we should tell Japan that we have no knowledge and that we should tell them to ask the U.S. to give information through their space situational awareness sharing agreement.

After that message was sent, the third team member explained that the most important discussion was now their own move #3.

** EMAIL INSERTED FOR REFERENCE: **

3. PRC Asset Maneuver for MOVE 3: In addition to the 60 rendezvous spacecraft already placed in various orbits, China continues to launch in fast pace the remaining 48 of the 108 rendezvous spacecraft (100 from PRC space order of battle plus 8 repurposed from 15 such spacecraft originally intended for satellite servicing and space debris removal). These 108 spacecraft will soon be prepositioned in the vicinity of ALL U.S. (86), Japanese (9), Australian (7), South Korean (6) and Taiwanese (0) GEO, MEO and HEO satellites (as shown in their space orders of battle respectively). Also, Chinese ground-based lasers can damage LEO satellite sensors and even exterior structures. (Please note that the numbers of rendezvous spacecraft and their allocations to various satellites are provided for the U.S. and allied teams’ benefits only. In the actual situation, the U.S. and its allies would have to spend time and effort to find out these details.)

The first team member then noted that this had also been folded into the big email, where it had become point #4.

The third team member once again noted that they support the fourth team member’s idea of not firing the first shot. According to this team member, the U.S. should fire the first shot so that the PRC is on the defensive. Furthermore, they explained that this strategy would work very nicely with this move since it is still defensive.

In agreement, the first team member then said that points #4 and #4a from the original email should be ready to be sent.

The third team member interjected to say that the email should not include the phrase “0.5 miles,” and that the PRC should just say that it is asserting its right of navigation within the illegally declared warning zones.

In response, the first team member explained that the phrase had been included because sensors do not
have fidelity to know whether crafts in the zone or not, which means the U.S. would think the PRC is in the zone when it is not.

The problem with this, the third team member countered, is that the U.S. is making a much larger zone than 0.5 miles. Because this is the case, they explained, it makes no sense to say 0.5 miles.

The first team member then noted that point #4b is worded very aggressively. Agreeing, the third team member said that, because China wants to be peaceful, they should not do that. Once again agreeing, the first team member reiterated their impression that point #4b is overly aggressive for the PRC at this point in the scenario.

The eighth team member shared an alternative proposition of simply having a satellite malfunction instead, explained that this would play into the doubt element as the PRC could simply say the satellite is out of its control.

The third team member rebutted this alternative by saying that there is no point in doing that. The U.S. and allies already know China is sneaky, so, according to this team member, China needs to play this Move straight arrow, and say that the U.S. is interfering in China’s internal affairs; nothing more, nothing less.

Proffering yet another alternative, the first team member said that the team could instead say that there is increased spoofing of QZSS and GPS satellites around the first island chain. According to this team member, those are common nowadays, which means it would not be a big deal.

Though not opposed to this strategy, the third team member explained that the word “spoofing” should not be included because spoofing is overly aggressive. Instead, this team member said that the team should simply say that China is engaging in close inspection of GPS and QZSS satellites, just as the U.S. and Russia have done in the past.

The first team member then asked whether the third team member meant this to mean RPO monitoring.

Interjecting to clarify a point, the seventh team member asked whether it was the case that the team had decided not to respond to the U.S. augmenting Japanese Navy capabilities. The first team member responded that yes, the team had decided not to respond because the PRC is not doing the blockade yet, which means there is no need to be overly aggressive. However, this team member elaborated, the PRC could keep the move about increased spoofing and jamming, as that would degrade the Navy but not be completely disruptive.

The seventh team member then expressed support for the third team member’s idea of having satellites close by to create a threat but not be offensive about it. The team member also noted that, if U.S. is increasing space situational awareness capabilities, the team needs to be careful about spoofing.

In response to concerns about spoofing, the first team member explained that they had been assuming the use of ground-based spoofing as one method of disrupting the Japanese Navy, further adding that such a strategy could be combined with inspections. The third team member interjected, noting that spoofing violates the previously established rule of avoiding being the aggressor. Rebutting this concern, the third team member explained that the U.S. and Japan cannot credibly attribute ground-based spoofing, so we can deny that it was us, which means it would not be perceived as aggression. In that case, the third team member noted, we should add the word “unidentified” to modify spoofing in the email.

Expressing support for this modification, the first team member said that this email should be sent out. Then, the team member asked whether any other members of the team had any other ideas, especially about potential misinformation strategies.
The fourth team member interjected with several questions: How do we think this is going to play out? How will the U.S. and Japan respond? Will this meet the PRC objective of severing the U.S. from Japan or is that an impossibility? Is anything China is doing likely to encourage Japan to split away?

The first team member then spoke up with another question: Could the PRC maybe have X37 planes even though they are not in the toolkit? Answering the question, the second team member explained that, because X37 planes are being built in the present day, it is exceedingly likely that the PRC would have at least some of them by 2029. In that case, the first team member said, point #5 should be sent to Control in an email.

Then, returning to the fourth team member’s questions regarding the question of separating the U.S. and Japan, the first team member explained that the way they see to get a victory is if there are divergences in information (the U.S. might be worried Japan is leaking, etc.).

Therefore, the team member explained, the PRC should just try to create a bit of distrust as opposed to the total trust that exists in the status quo; creating some differences in information could establish a wedge in the alliance.

Expressing an alternative view, the third team member noted their view: if the U.S. is scared to intervene, then neither will Japan. Therefore, according to this team member, the team should aim to take care of both the U.S. and Japan at the same time.

Speaking up with yet another view, the seventh team member explained that, if they were China, their goal of victory would be peaceful reunification. According to this team member, the EEZ is the beginning of that, which means the goal is to take over Taiwan without it getting any support.

The fourth team member then expressed a concern, explaining that, in their view, it is difficult to not think that any action might not make conflict more likely. We might have a theory that taking an action in space would distract the U.S., but, this team member explained, the U.S. views threat as cumulative, so any action that the PRC takes in space would only make the U.S. think that war in Taiwan is more likely.

Furthermore, the team member noted, the same goes for Japan—anything the PRC does only draws the U.S. closer to Japan. In this team member’s view, then, unless China does something that makes it immediately clear that Japan would lose, they will just run into the arms of the U.S. which means the only way to feasibly accomplish the PRC’s goal is by revealing the U.S. to be a paper tiger.

Addressing these concerns, the third team member explained that the U.S. has a couple of weaknesses to exploit: They want low casualties, and they want to avoid war. Therefore, they explained, the team needs to degrade U.S. space capabilities and make the war longer. Without GPS accuracy, more casualties are inevitable.

If the U.S. does not intervene when we take Taiwan by force, the third team member elaborated, the goal is accomplished; if Japan sees that the U.S. has not intervened, why would they participate? Therefore, if the U.S. does not intervene, nobody will.

On top of all of that, the first team member added, the other 800-pound gorilla is that these are nuclear-armed countries, which China should use to its advantage.

The second team member explained that this is why they have previously suggested attempting to target nuclear command, control and communications satellites. Because China is weaker than the U.S. both militarily and economically, China needs to take risks; there is no other way to come out ahead.
A message from Control was then received inquiring into what the PRC planned to do regarding the fallen Japanese satellite.

The first team member simply noted that the PRC does not have anything to do with this.

The fourth team member then interjected asking for clarification as to whether or not the PRC had anything to do with the fallen satellite. “We don’t have anything to do with it, right?”

Another message from Control was then receiving, detailing the following message from the U.S.: “We would like the Chinese to publicly share any space situational awareness information that they can provide.”

In response to this message, the fourth team member noted that if this were the real world and we were calculating the risk of escalation, this message might be an indication that there is some flaw on the U.S.’s end in calculating the aggression the PRC taken, which is why they are asking for information. According to this team member, that then means that sharing information would reduce the propensity for escalation.

With these concerns in mind, the first team member drafted the following response to the message: We are happy to share space situational awareness information. We will gather it and collect it, and we will send it to the foreign ministry. The foreign ministry will share with the U.S. embassy in Beijing.

Elaborating, the third team member noted that we should also clarify that there is no rendezvous spacecraft in the area. The team member further said that the PRC should encourage and challenge the U.S. to check and look more into it; make them show us proof. According to this team member, that sends a public signal that the PRC is a good actor in space.

The seventh team member interjected, explaining that we need to keep in mind that, as China, we are always signaling to the U.S. and the world. Therefore, this team member underscored the importance of saying we are very sorry about this unfortunate event and of trying to stay positive.

Reiterating their previous point, the third team member then underscored the need to tell the U.S. to “prove it,” saying that the PRC should encourage the U.S. to cross-validate information with other nations.

Yet another message from Control was then received, detailing the following message from Japan: “For the most critical satellites with PRC stalking satellites, we will conduct a coordinated Delta V to change our orbits against potential PRC hostile action.”

Responding to this action, the third team member noted that the PRC should say that this is in Japan’s right, but that it is also within the PRC’s right to keep close.

The eighth team member suggested that the response also include the phrase “In accordance with the OST,” as this emphasizes that the PRC accepts things in accordance with the rules-based order.

**Move 3 Questions**

1. **What worked, what didn’t work, and why?**

The sixth team member noted that they are skeptical that moves in space alone would enable the PRC to break U.S. allies away from the U.S. before enforcing a Taiwan EEZ.

The fourth team member seconded the sixth team member’s point, saying that it appears that space does
not offer the necessary tools to create that split in the alliance.

The team member also said that one thing that was not assessed in this game was astro-economic warfare. Because the PRC team did not engage in any economic warfare, we do not know how they would have reacted if we had tried to coerce their economy.

The eighth team member noted that, while the PRC team had a lot of nuanced discussion around things that could be done, the U.S. never had an opportunity to respond, which means it is impossible to know whether they would have responded at all. According to this team member, it is unlikely that the U.S. would respond, since the response in this game was always simply to stick with allies, which means the question then becomes: What would the U.S. do if allies look like they’re trying to split?

In agreement with the eighth team member, the seventh team member pointed out that the PRC’s disinformation campaign did not work, serving only to bring allies closer to the U.S by doing things like improving GPS.

Furthermore, the seventh team member noted that attempts to use the BRI as a carrot did not work either. In the specific context of the BRI, the team member noted, it is interesting that nobody reacted, especially since in the real world, the Philippines reacted to BRI by becoming a Chinese partner despite being a U.S. ally.

The seventh team member also posed the following question: Is it because any attempt to divide the U.S. and Japan is setting China up for failure, since such a goal is impossible in some sense?

The first team member believed that many other wargame scenarios have China act against the U.S. to keep the U.S. from defending its allies, which this game seems to have turned on its head, as it talked about changing allied interests so that they do not want the U.S. to help. According to this team member, that seems to have been a different twist than usually in these games, however, they noted that they have not participated in enough games to say so confidently.

**Move/Action Discussion (cont).**

** At this point, the team received an email from Control outlining an action taken by the U.S. As such, the team briefly returned to discussing the scenario and moves taken.

A message from Control was received, with the following message from the U.S.: “1. The U.S. and Australia dazzle Chinese rendezvous satellites. 2. In accordance with Japan’s answer to our question regarding the conditions under which they would want us to preempt close approach to satellites—move U.S. rendezvous satellites into position near whatever set of their satellites that we agree upon. 3. Preposition bodyguards around U.S. GPS and nuclear command, control and communications satellites. 4. Implement countermeasures against China because they’ve failed to cease jamming. Apply reversible sanctions to CCP officials, and clarify to them that costs will continue to increase as long as attempts at jamming continue. If Chinese efforts escalate, apply heavier sanctions to Chinese banks. 5. If we can confidently determine that China is causing the deorbiting—a. raise it to the UNSC, b. respond by attempting to hijack the Chinese rendezvous satellites and de-orbit them via cyber and EW means. 6. If China moves to position a substantial number of their rendezvous satellites in close proximity to multiple critical U.S. satellites or the agreed-upon subset of Japanese satellites, attempt to de-orbit them via cyber and/or intercept/disable/destroy them via bodyguard satellites. 7. Maneuver X-37B into position to threaten LEO ISR capabilities that overfly Northeast Asia. 8. Prepare/posture to conduct limited strikes on Chinese infrastructure in the
South China Sea, and clarify to China that if they move aggressively we will do so.”

The third team member was the first to speak up, explaining that what is most important here is what they had said earlier about the bodyguard satellites. According to this team member, the PRC team should tell Control that, based on the order of the battle for the PRC, between now and 2029, the U.S. has no indication of having developed a bodyguard program, or of a bodyguard ever having been sent to space. The U.S. can only have up to six bodyguard satellites, not anywhere near 100. The U.S. is a democratic society, therefore, it is unlikely that this would happen through a stealth program. Furthermore, they did not have zones until 2029. Without zones, there is no reason to have secretly developed the bodyguards, because they go hand-in-hand with zones. Therefore, the fact that they declared zones in 2029 is proof that they have not thought about bodyguards until 2029. The U.S. could have 15 commercial rendezvous satellites it could repurpose as bodyguards, but nowhere near 100. Control should disallow them.

Or, the fourth team member noted, Control could say that they can start developing bodyguards now to be deployed when they’re done in however many years.

The first team member added that we therefore we perceive these U.S. threats to be empty because the U.S. does not have the technology they say they have.

The fourth team member further elaborated that if there were to be another move, the infrastructure thing would be important, as it indicates that the U.S. is preparing for war, which removes from the table earlier concerns about not wanting to be aggressive. Therefore, the PRC should think about what it wants to be our target doctrine: What does the PRC want to kill and why?

The third team member then said that the answer to this is very simple: The PRC puts its satellites next to the U.S.’s satellites, as, that way, if the U.S. want to take out the PRC’s GPS, we can take out their GPS.

The seventh team member interjected with a question: When the U.S. says they are using bodyguards, did the toolkit give them bodyguards?

The PRC team facilitator responded by explaining that the toolkit only gave the U.S. 6 bodyguards.

**Move 3 Questions (cont).**

**At this point, the team returned to discussing the Move 3 Questions.**

**1. What worked, what didn’t work, and why? (cont.)**

The fifth team member spoke up in agreement with everything said so far, saying that the actions taken were not enough to separate Japan from the U.S.

Furthermore, the fifth team member explained that a bloody-minded conclusion to be drawn from this information could be that the PRC needs to raise the stakes for Japan and punish them to separate the alliance since the grey-zone actions taken were not enough. They explained that this is not necessarily correct, but it is a conclusion that someone could make.

The sixth team member interjected, saying that such a conflict could go either way and that it depends on the scenario in question. Furthermore, they added that it would be hard to separate U.S. allies prior to any kind of conflict, but that there are also lots of reasons outside of space as to why other countries would not intervene.
On the point of bloodying Japan, the sixth team member added, it would have to be so overwhelming that there is nothing Japan could do, but also, hurting them too badly could potentially draw them closer to the U.S.

The fifth team member explained that they do not disagree with this analysis, but that they believe that the above is one conclusion that could be drawn.

The third team member then noted that this game worked very well in demonstrating the vulnerability of U.S. and its allies’ critical satellites to China’s rendezvous spacecraft, as, for example, the U.S. brought out both bodyguards and zones, which they do not have now, at the 11th hour, something that should have been done earlier. According to this team member, the recommendation that they should make from this information, then, is that the U.S. should begin developing more bodyguard spacecraft.

The eighth team member cited the fact that the PRC did not consider commercial assets as we could have this time around. Though it was briefly mentioned in the toolkit, the PRC team never took advantage of them.

In agreement, the first team member noted that this goes along with the issue mentioned above of the pre-Move 2 items not bubbling up. We talked about a huge commercial endeavor of China’s that involved the development of more commercial rendezvous satellites, which would have muddled the grey zone stuff even more.

The third team member then said that all of what has been said so far also goes to show the danger, if dual-use capabilities are being used as ASATs by adversaries.

The fourth team member stated the importance of having a clear understanding of the technologies and capabilities, and what the dependencies among various space technologies were. Expressing support for these concerns, the first team member noted that the following paper would help with providing a baseline understanding: https://aerospace.org/paper/physics-space-war-how-orbital-dynamics-constrain-space-space-engagements

2. What initiatives and capabilities would have made a decisive difference in the outcome?

The fourth team member explained that a real advantage in offensive cyber would make a difference; if one side can steal the other’s satellites and deorbit them or cause them to malfunction, that could certainly be very advantageous.

Then again, the fourth team member noted, “decisive” in this case would mean splitting the U.S. from Japan, and it is unclear if there is anything we could confidently assert would do that.

The first team member added that understanding core Japanese cultural differences and interests is also key to separate the U.S. from Japan. An initiative or capability that would have been very helpful to have, according to this team member, would be a good study on how the Japanese think and how they perceive their interests. The team member further noted that it is also unclear what cyber-capabilities you can say you have and what their effect would be, which makes it difficult to figure out how to play cyber.

The seventh team member noted that enhanced RPOs from China could also be a game-changer, as it creates decision-making loops that make things more difficult for the U.S., especially given the dependence on space systems for just about anything.
The first team member cited Chinese espionage, as, according to this team member, it gives China the ability to catch up to the U.S. very quickly. Countering the first team member’s point, the third team member noted that Chinese development tends to be much slower when done via espionage. However, they noted that China has a lot of its development and innovation that allows them to catch up.

The third team member again underscored the importance of dual-use, which they explained is a game-changer that allows China to do anything, it is a cover that lets China threaten U.S. satellites under the guise of commercial application.

Elaborating on this, the first team member noted that because the U.S. does not want to make countries nervous, they have been transparent about space development. However, they explained, China has not been transparent; the PRC is going to continue using commercial development as a front, giving them an advantage over the U.S.

The U.S. doesn’t want to make countries nervous, so they’ve been transparent about development. But in the meantime, do we think China is going to be transparent? No. They’re going to use commercial development as a front, which gives them an advantage.

Finally, the third team member explained that lots of people in the international community think that China should be allowed to engage in close inspection of satellites because the U.S. is allowed to. The reason this is problematic, they explain, is because the U.S. is a democratic society, whereas China is a Communist country, which means they can do a lot of aggressive things with those operations that the U.S. cannot do.

Japan and Regional Allies Team

**Team Actions & Decisions**

The first team member suggested a diplomatic communique asking what China’s intention with their satellite is. They further elaborated that the major question for Japan is whether Japan cares enough to respond at all.

A second team member proposed asking the U.S. if it had any intelligence related to the radar satellite.

A third team member agreed. They added that Japan should engage in a two-pronged effort:

Reaching out to the U.S. for space situational awareness data on any Chinese objects that could do anything nefarious or any cyber insights that they might have.

Internally, Japan should perform its own diagnostics to figure out what has happened.

The first team member once again indicated that they would like clarification regarding what the intention was concerning China’s rendezvous satellites.

A fourth team member suggested approaching China themselves and asking what China’s intentions are. This team member also mentioned that Japan should have concerns about whether China is violating Western standards.

The first team member then suggested that Japan could go public with this in an attempt to name and
Appendix II: Team Notes by Move

shame the PRC. The fourth team member responded by saying that the etiquette is to use diplomatic channels first, as a technical failure could be to blame. Naming and shaming should be avoided until after diplomacy is attempted.

The third team member mentioned that the 60 RPO satellites are obvious and threatening enough that Japan could issue a public statement expressing its concern off the bat.

The fourth team member proposed first asking the US to share information about the situation before asking China or going public. They explained that Japan will have to go public after going to the Chinese diplomatically since this issue will inevitably end up being a high visibility one.

The U.S. sent the following message: “To the Japanese: Do you still have control over the satellite, it sounds to us like you don’t. We want to share our space situational awareness data with all regional allies. And we want to make a public announcement that we’re working with our allies to understand the full scope of this situation.”

The third team member mentioned that Japan should want U.S. assistance in determining if anything nefarious has occurred.

A fifth team member suggested double-checking with Control to find out if Japan has control of the satellites. The fourth team member suggested that Japan should also ask Control if China has an RPO near that satellite.

A message including both of those questions was sent to Control.

The fourth team member said that although the U.S. seems to want to go public before taking diplomatic action, Japan would want to use diplomatic channels before going public despite the U.S.’s request.

The third team member commented that going public about the fact that a satellite has been affected is not necessarily a bad idea.

The second team member mentioned that people who have space situational awareness data would notice that the satellite is failing because it has de-orbited, even if the public does not notice.

The third team member added that the fact that the satellite is in deteriorating orbit means that its failure would be apparent to anyone with space situational awareness capabilities, including people who have an account with these space situational awareness providers. Because of that, Japan should make a public announcement. Furthermore, according to this team member, Japan should also make an announcement to display transparency about space discussions. The team member added that Japan should also share data for anything that might be affected by this satellite.

A message from Control was then received indicating that Japan has lost control of the satellite and that there was a Chinese RPO near the satellite.

Commenting on whether Japan should go public, the fourth team member mentioned that they are okay with going public, if Japan goes public out of transparency, it will need to tell the U.S. it has to think about what will happen if the systems that they have not acknowledged have started having problems. Therefore, Japan should tell the U.S. before going public, not to ask for permission, but instead as an FYI.

The U.S. sent a message asking Australia to dazzle any Chinese satellites that they can. The third team member indicated that Australia should respond “no” to this request because it is irresponsible. The fourth team member agreed and suggested that Japan should go to the Chinese about the fact that Japan lost con-
trol over its satellite and should ask China for help resolving questions. Japan should ask whether China has breached the “responsible RPO line” set by the EU, US, and Japan, noting that there was an RPO near the Japanese satellite.

The third team member noted that the RPO piece is separate from the failure piece and that Japan could make a separate statement about the RPO line. Agreeing, the fourth team member said that Japan should ask Control whether a Chinese RPO was breaching the aforementioned “responsible RPO line.”

The first team member also recommended asking other countries or the commercial sector for information about what happened to Japan’s satellites, as they may have more information. The fourth team member then agreed that this would be a good thing to do in parallel with the communication to China.

A message asking whether Chinese RPOs were breaching established responsible RPO lines was then sent to Control.

A message containing a public statement about Japan’s satellite failure was then sent to everybody. The message also explained that Japan would investigate the matter.

A sixth team member proposed the following note from Australia to Control: “The U.S. asked us to act on Chinese RPOs, but we are considering instead a covered cyber action. Did we manage to implant that capability between 2027-2029? Is this option available?”

A seventh team member then noted that, even if cyber options are available, Australia may not want to pursue that course of action because, even though the U.S. wants Australia to be more aggressive, the U.S. would likely be upset if Australia independently pursued its own offensive actions.

A message was then received from Control clarifying that Chinese RPOs were not inside of the limit set by the U.S.

The fourth team member commented that Japan should still send a message to China regardless, as China could still have useful information.

A message was then sent from Japan to China about the Chinese RPO in the vicinity of the Japanese satellite.

The following message was then received from the United States: “To all allies: We want to coordinate on what is acceptable self-defense and what are appropriate safety zones, red lines and to generally create a common understanding of good practices. To Japan: Under what set of circumstances would you want us to destroy satellites positioned near yours?”

Responding to the question, the fourth team member mentioned that anything to fire back on has to be on a breach of responsible distance. The question is how much less. The third team member added that if the Chinese are doing close spying, we do not need to shoot that down. But, if they are doing something close to destroying satellites, we can strike because of preemptive self-defense. For instance, Japan may not want to destroy an on-orbit jammer. The team member explained that Japan would want a level of awareness of hostile intent before striking.

The seventh team member mentioned that the burden of proof could be defined as when the U.S. can tell that aggressive behavior will have a nonreversible effect on a satellite.

The fifth team member countered, noting their hesitance, and saying that if we are going to raise the burden of proof to an irreversible level, then the keep-out zone gets fuzzier and loses its value. Therefore,
this team member believed that the team may want to take a broader position than that to maintain value. The third team member then pointed out that is indicative of an inherent weakness of the “keep-out zone” concept. Furthermore, they explain that the problem with a standard based on intent is that there are limitations on space situational awareness capabilities. It is hard to determine a specific line.

The seventh team member rebutted by explaining that this is exactly why Japan should put the responsibility on the United States.

An eighth team member agreed that the concepts of keep-out zones and armed attacks can get very unclear and muddy. Therefore, according to this team member, the U.S. and Japan should discuss specific applications and distances very closely.

A message from Control was received, responding “yes” to the question, “Was the distance from the Chinese satellite to the Japanese satellite less than what the U.S., EU, and Japan had defined as a ‘responsible’ distance?”

The first team member then agreed that determining hostility based on proximity alone is difficult or even impossible because those sorts of proximity operations are almost an inevitability.

The fifth team member then mentioned that the unmanned aspect of droning changes things about surveillance and distance insofar as messing with other powers based only on proximity. The team member explained that this gives a little more latitude for proactive self-defense because there are no people caught in the crossfire.

The seventh team member then proposed this response to the U.S. about whether Japan should destroy Chinese assets if they get too close: “If the United States determines that a Chinese space-based asset is trying to destroy one of our IGS satellites, we would consider a U.S. pre-emptive response appropriate; however, we ultimately defer to the U.S.”

The second team member then asked what response allies would want if a satellite were hacked and China took control. Would we want the U.S. to take action? The team member suggested removing “destroy” with “destroy or take active control.”

The fifth team member pointed out that if China took active control of a satellite, there would likely be a different set of measures involved in responding. The team member then acquiesced to the second team member’s version of the message.

A message was then received from the U.S. telling Japan that the U.S.’s lack of information led the U.S. to investigate any cyber-attacks that might have taken place on information gathering systems.

Another message from the U.S. requested that the Chinese publicly share any space situational awareness data that they have available.

Yet another U.S. message indicated that the U.S. wants to raise China’s actions at the UN Security Council, but that the U.S. cannot raise that concern unless they have more data on the cause of the satellite incident.

The fourth team member agreed that taking things up at the Security Council would be a good idea. The team member suggested that the U.S. and Japan could co-sponsor a resolution.

The sixth team member then suggested that the team send a message to the U.S. saying that Australia will not dazzle Chinese satellites, but that the U.S. has Australia’s cyber option available to them.
A message was sent including the fourth team member’s comments about the UNSC and the sixth team member’s comments about Australia.

The following message was then received from the PRC: “Upon the creation of rules on warning zones by the U.S., E.U. and East Asian Allies in space, PRC immediately rejects all U.S.-allied proposed rules, because they are in blatant violation of Article II of the Outer Space Treaty that outer space “is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” China will order its satellites to exercise the right of freedom of navigation into any number of these zones. China will retaliate if its right is infringed.

“In addition, China publicly attempts to enlist Russian support in the UNSC and for its position that the US, EU, and allies are infringing on China’s legitimate rights. China also objects in the UN General Assembly, the ASEAN Regional Forum and through the Shanghai Pact [SCO], in which the PRC tries to enlist India’s and Pakistan’s support against such neo-colonial suppression of its rights. China also enlists the support of its Belt and Road partners and offers them a variety of lucrative economic incentives to support them (we can emphasize space services here if needed), while also threatening economic penalties (and/or withdrawal of space-based services provided in move 2) if they do not support China. Lastly, China points out the US is violating the rules-based order as covered in the OST.”

The fourth team member then said that Japan does not have to respond to this message, as it does not involve Japan. Only the U.S. created warning zones, which means it does not necessarily concern Japan. Instead, the team member pointed out that Japan will see what happens in the Security Council meeting.

Another message from China was received indicating China knows nothing about Japan’s deorbiting satellite.

A message from Control was then received indicating that there is no way to save Japan’s deorbiting satellite.

The U.S. sent the following message, “We are going to propose a multilateral conference on space rules. We want to invite China. Will you guys support us in the call for this conference?”

The seventh team member spoke up in support of such a conference. The fourth team member also supported the suggestion, pointing out the fact that the UNSC would never result in anything because China can veto. Such a conference, therefore, would be helpful, even if only as theatre. The fifth team member agreed, saying that such a conference would be a good move. The fourth team member added that Japan could perhaps recommend hosting the conference in a neutral place like Geneva.

The team agreed to send the following response to the U.S.: “U.S. Team, We are on the side of responsibility. The Japan / Regional Allies will support this conference and will propose to host it in Geneva.”

A message was then received from China, outlining the following move: “In addition to the 60 rendezvous spacecraft already placed in various orbits, China continues to launch in fast pace the remaining 48 of the 108 rendezvous spacecraft (100 from PRC space order of battle plus 8 repurposed from 15 such spacecraft originally intended for satellite servicing and space debris removal). These 108 spacecraft will soon be prepositioned in the vicinity of ALL U.S. (86), Japanese (9), Australian (7), South Korean (6) and Taiwanese (0) GEO, MEO and HEO satellites (as shown in their space orders of battle respectively). PRC has maneuvered our RPO satellites to exert our right of freedom of navigation within the illegally declared warning zones. We are doing a close on-orbit inspection of QZSS and GPS, just as US and Russia have done multiple times in the past to Chinese assets. Increase in the unidentified ground-based spoofing of GPS and ground-based jamming of their Japanese Naval Sat COMM.”
The first team member proposed having Japan change the routes of satellites using delta-v, to tell if China is trailing them. If the satellites did trail Japan, this would be a scenario for anticipatory self-defense. Everyone agreed with the first team member’s proposal to have Japan change the routes of satellites through a delta-v change to determine if China is trailing Japanese satellites. The fourth team member supported this move.

The first team member explained that this would be helpful at conferences; if China keeps tracking Japan, that would provide some credibility to the Japanese position. The fifth team member pointed out that this action on China’s part is a next-level sort of aggression. The first team member also added that this is the exact sort of scenario where anticipatory self-defense would be justified.

The seventh team member inquired as to whether there is something else that Japan can do in a different domain to convey the same message without having to move a lot of Japan’s satellites, especially ISR satellites that are in a specific place for a specific reason.

A message was then sent outlining the Japanese delta-v move.

**Move 3 Questions**

1. **What worked and what did not work, and why?**

The eighth team member indicated that Japanese space situational awareness and other efforts to attribute attacks did not work. They also added that the fear of being attributed did not prevent China from conducting attacks. The same team member continued, stating that diplomatic agreements among allies to create rules on warning zones did not work because the countries involved did not sufficiently specify or imply the consequences of violation of the rules, which meant the PRC simply ignored the rules.

The eighth team member also suggested that the U.S. effort to offset intermittent jamming of Japanese Naval communication satellites did work because the U.S. was able to give Japan alternative methods of cooperation. Furthermore, this team member explained, U.S. efforts to share ISR and GPS capabilities were successful and meant that malfunctions of Japanese LEO radar satellites could have minimal effects.

The seventh team member added that a U.S.-Allied shared understanding of what CONOPS would look like failed. There was a delta in what the U.S. expected and what the allies were willing to do. There should be a better understanding of what CONOPS might look like, and what fundamental allies’ roles will be.

Adding onto this, the eighth team member mentioned that there should be more multilateral exercises. The seventh team member then mentioned that, in particular, the U.S. did not have a very good understanding of what allies would find acceptable. The third team member commented that the concept of keep-out zones is tough and likely to fail if Japan lacks the capabilities and will to enforce said zones under ambiguous threats. The seventh team member further added that this problem demonstrates the inherent limits of keep-out zones and shows that they can often risk escalation. A ninth team member spoke in support of this statement, agreeing that there are limits to what keep-out zones can do because of the risk of escalation.

The fourth team member underscored the fact that the U.S.’s attempt to strong-arm allies into being aggressive was a failure. The fifth team member mentioned that the U.S.’ approach putting allies on the leading edge of offensive actions was probably wrong. At the very least, they explained, this would not be the right approach to get the regional allies to cooperate. The seventh team member agreed that allies should not be the aggressors.
The second team member then noted that there were no space capabilities or economic ways for China to convince the allies to side with China. Agreeing with this, the seventh team member said that there is no scenario for China to wedge the alliance; it is never going to be an achievable objective in a scenario like this. The fourth team member pointed out that the above points are indicative of the fact that alliance cohesion worked.

A tenth team member pointed out that the Chinese made a fundamental miscalculation about their trustworthiness in the region, which meant that many of China’s strategies were doomed to fail. The fourth team member noted that China’s economic incentives for allies failed as well and added that those incentives would fail for the Global South (e.g., ASEAN) as well. The fifth team member agreed, adding that China’s economic strategy in this game would never succeed in splitting alliances.

An eleventh team member mentioned that the allies were exceptionally good at assigning different nations to use their individual capabilities (e.g., Australia’s cyber capabilities). The team member also mentioned that even though China tried to create a wedge, the alliance was still able to stay together, which is another thing that worked. The eleventh team added that if China had targeted South Korea or ASEAN rather than Japan, they likely would have been much more successful.

The second team member then inquired as to whether anyone had any thoughts about India. In responses, the fourth team member pointed out that India seemed largely unaligned in the actual gameplay. The team member added that, given the fact that India has its own counter-space capabilities, the fact that it did not intervene is a good thing and indicative of something that worked.

The sixth team member then mentioned that allies did not overreact even though China deployed an unreasonable number of satellites. Therefore, they explained, Kessler Syndrome was avoided, which is a success.

The fifth team member countered that the simple fact that China deployed so many satellites at the end of the move could be perceived as a failure.

2. What initiatives and capabilities would have made a decisive difference in the outcome?

The eighth team member noted that if the allies had reacted more jointly to early Chinese violations of rules, this might have prevented more Chinese actions in the future. Furthermore, the eighth team member noted that if Japanese satellites under attack had had U.S. and other countries’ payloads as a hosted-payload program, this might have made China more hesitant to attack because it could have resulted in a stronger resolve.

The fourth team member expressed support for the eighth team member’s first point but noted that a hosted-payload program may not matter to China at all, although it would affect alliance cohesion.

The third team member then mentioned that actual defensive capabilities on satellites would give allies more room to respond to Chinese RPO satellites. The fourth team member then asked for clarification on the type of defense that satellites would have on them. The third team member responded by explaining that reversible defenses like jamming and direct energy may have been best.

The second team member added that there was no clear order of battle regarding cyber and irreversible attacks as a response to Chinese aggression, noting that the existence of such an order would have cleared up a lot of the confusion that damaged allied cohesion.
The ninth team member also noted that better forensic capabilities would have been helpful, as they would have resolved much of the ambiguity that made decision-making difficult throughout the game. Agreeing with this, the fourth team member added that improved “pooling of analysis” would help, as that also did not seem to be occurring.

Returning to question 1, the fifth team member added that the deorbiting of the Japanese LEO radar satellite was a clear failure.

As far as the potential for defensive capabilities is concerned, the fourth team member added that Japan would likely have to publicly announce the existence of these capabilities, as it would be difficult to keep a program secret.

3. Other suggestions?

The seventh team member mentioned that all of the U.S. responses were offensive space control, explaining that the U.S. did not seem to consider any terrestrial moves. The team member added that terrestrial responses might be more likely in the real world than the U.S. knocking satellites out.

U.S. Team

Team Actions & Decisions

A first team member asked what capabilities the U.S. can use to figure out what is going on with the Japanese radar satellite and how the U.S. can help. A second team member agreed and also noted that it sounded liked Chinese jamming has continued, so the U.S. may want to discuss potential responses.

A third team member noted that one can never know what the capabilities are that engage in monitoring, and explained that the only way to de-orbit would be continuous pressure from a laser, so it should be obvious if de-orbiting was done deliberately.

A fourth team member suggested that the U.S. should start communication and begin sharing space situational awareness data that could provide leads on what happened to the vehicle. Agreeing, a fifth team member said that the key is to have a detailed private conversation with Japan, sharing all the information that the U.S. has available.

The fourth team member then inquired as to who knows about the de-orbiting. The first team member noted that, because this was briefed to everyone, everyone should know.

The fifth team member noted that the main thing they want to know from the Japanese is whether they still have control over that satellite because it seems like they do not. This team member also recommended that this inquiry be sent to Japan immediately, and further recommended a public announcement that the U.S. is working closely with allies to ensure space security.

The second team member noted that such a message should include two specific things: 1. Sharing space situational awareness data and capabilities in LEO that will determine if close approach occurred, 2. Explicitly asking Japan about the status of control for that satellite.
The message was sent, including the following: Asking Japan if they still have control, making a public statement, and sharing all space situational awareness data with regional allies.

The second team member noted that in the last move, the team mentioned coordination with Japan regarding jamming, so a message to that effect seems important.

Along these lines, the fifth team member then noted that the team was also trying to get a common understanding of self-defense on safety zones during Move 2, then inquired as to whether a response was received. The U.S. team facilitator noted that no response was ever received, and then said that they could send a message asking once again.

The fifth team member noted that a private message should be sent to allies seeking a common understanding on safety zones, redlines, acceptable self-defense, and specifics regarding what the allies want from the U.S. on sharing space situational awareness and ensuring that they are sharing their space situational awareness with all U.S. partners.

The following message was then received from Japan: “We would appreciate any space situational awareness data you have on Chinese RPO operations as well as data you have that may let us identify the root cause of the deteriorating orbit of one of our radar satellites including space situational awareness data on potential RPO causes or intelligence on foreign cyber operations?”

The fifth team member asked what information the U.S. does have on that question. The U.S. team facilitator reached out to Control asking for clarification.

With respect to clarification, the second team member noted that it was worth sending a separate message asking Japan to coordinate under what sets of circumstances they would want the U.S. to militarily pre-empt close approaches to satellites.

The third team member noted that the key question is whether the Chinese are causing the de-orbiting somehow and what specifically the U.S. response will be: Will the U.S. do something to the Chinese satellite? Will the U.S. take aggressive actions? What will those actions be?

The U.S. messages being drafted were then sent.

A response was received from Control, “Japan has lost control of the satellite.”

The second team member pointed out that the U.S. likely has awareness of the environment, and wondered whether the U.S. can rule out the deorbiting being caused by close approach of another satellite, especially since it is in LEO. The question was sent to Control. A sixth team member agreed that this is a good question, and then noted that if lazing had occurred the U.S. would know as well.

The third team member noted that if the satellite were Japanese, both their telemetry and our tracking would tell us if there were any sudden moves. They explained that there should be a lot of information that the U.S. could use to tell if the de-orbiting was natural or accidental.

The fifth team member noted that beyond the de-orbiting, the U.S. ought to do something about the 60 rendezvous satellites that were deployed in addition to the earlier ones. They recommended that the U.S. continue dazzling those, ask the Australians to continue dazzling, and maneuver the X-37B near high-value assets to protect them.

The second team member noted that two things had mostly been agreed on for moves: 1. U.S. and Australia dazzle rendezvous satellites, 2. Depending on Japan’s answer to the question about conditions under
which they want the U.S. to preempt close approach, do the corresponding prepositioning.

The U.S. team facilitator then sent a communication asking the Australians to dazzle any satellites they can, and stating the U.S. would also continue dazzling.

The second team member referenced the fifth team member’s point about the threat of the other 60 Chinese satellites, saying that they assume that the U.S. already has bodyguard satellites, but that if they do not, acquiring those seems important.

A message from Control was received regarding the Japanese deorbiting. The message indicated that the U.S. has no extra information.

The third team member suggested, pointing out that in the past, the U.S. knocked down one of its own out-of-control satellites using Aegis. Presumably, those can be pressed into service to take out the Japanese satellite if necessary.

The first team member inquired as to whether the response from control could be implying that U.S. systems are being interfered with or unable to identify hacking or something else. Could the U.S. respond to Control by saying: “Our lack of info has prompted us to look further into what cyber or other attacks could be occurring against information gathering assets?” The second team member commented that this inquiry seemed to be worth a shot.

The following suggestions/questions were posed in chat: “1. (If this has not already occurred) Preposition bodyguards around U.S. GPS & nuclear command, control and communications satellites 2. Implement countermeasures vs. China because they have failed to cease jamming 3. What do we want to do to China if the deorbiting is caused by them? 4. What do we want to do if China is interfering with US SDA capabilities?”

The first team member stated that if China is causing the de-orbiting, to keep allies happy, the U.S. may want to raise this issue at the UN Security Council even though China would veto it, as that would help check boxes for allies.

The U.S. team facilitator asked whether the team would like to look into a joint public statement with allies. The first team member explained that this would be a good idea, but that the U.S. wants more information first, so that the team does not erroneously accuse China of something caused due to a malfunction.

This message was received from the Japanese: To everyone including China, based on publicly available space situational awareness data, a Japanese satellite has suffered a fault of unknown origin, Japan will share relevant data with any space-faring nation.

The sixth team member suggested that the U.S. publicly request China share any data they may have, and U.S. team facilitator sent the message.

The second team member noted if the only Chinese aggression is jamming, sanctions seem sufficient, but asked, “if China is responsible for deorbiting, would the team be willing to strike certain targets in the SCS?” The third team member commented that the U.S. should have the capabilities to knock down escort satellites using something like Aegis. The second team member rebutted, pointing out that losing those satellites would not cause China to change its behavior, as the PRC was intending to use them offensively anyway.

Responding to this concern, the third team member explained that the point is that China will then be uncertain in its ability to win an all-out space engagement. In response, the second team member pointed out
that if this is the goal, a better strategy may be to target other Chinese satellites. The third team member agreed with this, saying that this would be a tit-for-tat strategy and that a suitable target would have to be chosen.

A seventh team member then pointed out that the U.S. is not just trying to convince China, but also Japan and Australia.

The fifth team member asked whether the U.S. has any on-orbit servicing in range of the out-of-control Japanese LEO radar satellite, as that would potentially allow the U.S. to maybe “save” it. The sixth team member agreed and mentioned that if the U.S. is trying to preserve maneuver space, the team may want to consider bolstering the U.S.’s position in the First Island Chain. The second team member agreed with these points, noting that trying to deorbit via cyber means would avoid debris issues. The third team member also agreed with those assessments.

The second team member asked what the sixth team member thought should be done to shore up the U.S.’s position in the First Island Chain. The sixth team member explained that a range of things should be considered, including offensive actions, long-range rocketry, or even to simply threaten those things. They explained that this could be done with space assets or naval forces, assuming the U.S. has a multitude of better options by 2029 to counter Chinese capabilities.

The fifth team member noted that the Japanese have four on-orbit servicing and active debris satellites, and the U.S. should suggest Japan use those satellites to save their de-orbited satellite. The second team member agreed with this assessment. The third team member agreed, suggesting the U.S. could ask if Japan needs any help with communications or surveillance support.

The U.S. team facilitator then sent those two points to the Japanese.

The first team member asked what actions the U.S. should take as part of its move, outside of coordination and communication.

The following message was then received from the PRC: “Upon the creation of rules on warning zones by the U.S., E.U. and East Asian Allies in space, PRC immediately rejects all U.S.-allied proposed rules, because they are in blatant violation of Article II of the Outer Space Treaty that outer space “is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” China will order its satellites to exercise the right of freedom of navigation into any number of these zones. China will retaliate if its right is infringed.

In addition, China publicly attempts to enlist Russian support in the UNSC and for its position that the US, EU, and allies are infringing on China’s legitimate rights. China also objects in the UN General Assembly, the ASEAN Regional Forum and through the Shanghai Pact [SCO], in which the PRC tries to enlist India’s and Pakistan’s support against such neo-colonial suppression of its rights. China also enlists the support of its Belt and Road partners and offers them a variety of lucrative economic incentives to support them (we can emphasize space services here if needed), while also threatening economic penalties (and/or withdrawal of space-based services provided in move 2) if they do not support China. Lastly, China points out the US is violating the rules-based order as covered in the OST.”

The seventh team member commented that the U.S. should clarify that it was not declaring international law, but rather a redline that makes clear that the PRC was hurting the feelings of the American people.

Building on this, the first team member noted that the U.S. should respond by saying: “No, you are violating due regard and people’s ability to maneuver freely.”
The seventh team member noted that this is the U.S. is making a declaratory policy; the military is operating under the presumption that we attack if you violate rules. According to this team member, the U.S. can negotiate later in UNSC, but the U.S. should clarify that for the time being, this is our declaratory policy, and the U.S. is warning China.

The fifth team member said that the U.S. could respond by saying: “We are happy that you acknowledge freedom of navigation, and we will be expressing it in the South China Sea.”

The seventh team member recommended that the U.S. put out a public statement to allies that the U.S. is calling China to engage in multilateral negotiations over space rules, that China has indicated it will support, and encourage other countries to participate. This would put the ball in China’s court. However, according to this team member, the U.S. should confer with allies first.

A message was then received from Control indicating that Japan has tried several things and is incapable of saving the satellite.

The following public message was drafted by the seventh team member and subsequently sent: “Today, the United States, EU, Japan, South Korea, Australia, and India publicly announced they have invited the People’s Republic of China and all other countries for a meeting in Geneva next week to discuss space rules to ensure all nations have free access to space.”

Japan sent the following message: “If the United States determines that a Chinese space-based asset is trying to destroy or take active control over one of our IGS satellites, we will consider a U.S. pre-emptive response appropriate; however, we ultimately defer to the U.S.”

The first team member pointed out that the U.S. does not have any such data. The seventh team member agreed, noting that it seems like Japan wants to be dovish on this, noting that this is not necessarily bad for the United States team.

A message was received from the Japanese, stating that they agree with the U.S.’s earlier suggestion of raising the issue at the UNSC. A message was also received from Australia, stating that they would not dazzle Chinese satellites, but that the U.S. cyber option is a possibility.

The fifth team member pointed out that the Australians already said they would do temporary and reversible things, and that we are simply asking them to follow up on what they had said they would do.

The third team member then pointed out that the U.S. should take some actions in response to the Chinese space order of battle. The first team member asked whether there is something the U.S. could do in L2 as a different but proportionate response to what the Chinese have done in LEO.

Another message was then received from the Japanese, stating that they would support a conference and that it should take place in Geneva.

A message was then received from China, outlining the following action: “In addition to the 60 rendezvous spacecraft already placed in various orbits, China continues to launch in fast pace the remaining 48 of the 108 rendezvous spacecraft (100 from PRC space order of battle plus 8 repurposed from 15 such spacecraft originally intended for satellite servicing and space debris removal). These 108 spacecrafts will soon be prepositioned in the vicinity of ALL U.S. (86), Japanese (9), Australian (7), South Korean (6) and Taiwanese (0) GEO, MEO and HEO satellites (as shown in their space orders of battle respectively). PRC has maneuvered our RPO satellites to exert our right of freedom of navigation within the illegally declared warning zones. We are doing a close on-orbit inspection of QZSS and GPS, just as US and Russia have done multiple times in the past to Chinese assets. Increase in the unidentified ground-based spoofing of
GPS and ground-based jamming of their Japanese Naval Sat COMM.”

In response to this move, the following final moves were drafted and then shared by the second team member:

- US & Australia dazzle Chinese rendezvous satellites, in accordance with Japan’s answer to our question regarding the conditions under which they would want us to preempt close approaches to satellites.

- Move US rendezvous satellites into position near whatever set of their satellites we agree upon.

- (If this has not already occurred) Preposition bodyguards around U.S. GPS & nuclear command, control and communications satellites.

- Implement countermeasures vs. China because they’ve failed to cease jamming.

- Begin to apply reversible sanctions on CCP officials as countermeasures because China has failed to cease jamming and clarify to them that costs will continue to increase as long as attempts at jamming continue.

- If we confidently determine that China is causing the de-orbiting: A. Raise it at the UNSC and B. Respond by attempting to hijack the Chinese rendezvous satellites and de-orbit them via cyber and EW means.

- If China moves to position a substantial number of their rendezvous satellites in close proximity to US or the agreed-upon subset of Japanese satellites, attempt to de-orbit them via cyber and/or intercept them w/ bodyguard satellites.

- Prepare/posture to selectively strike key targets within the first island chain, and clarify to China that if they move aggressively, we will do so.

The first team member stated that these were good actions, but wondered if the U.S. should more clearly specify which countermeasures the U.S. plans to engage in. For example, would the U.S. want to use jamming or cyber as countermeasures? The second team member noted that they meant to delete that section and replace it with specifics such as sanctions.

The first team member asked if the Chinese satellites have been deployed near U.S. nuclear command, control and communications and GPS. The fourth team member noted that the U.S. order of battle includes many more satellites, so it is unclear what the Chinese are targeting. The second team member agreed, then commented that if they PRC is targeting nuclear command, control and communications, the U.S. would immediately deorbit those satellites.

The first team member added that they would be interested in what the commercial response would be to these actions, as a commercial response tends to be standard in these situations. Furthermore, this team member added, commercial actors would likely be getting involved in making statements about the situations at hand.

The sixth team member expressed approval for the U.S.’s final move but indicated that the last point should include the phrase “Chinese assets within the South China Sea” for clarification.

The fifth team member added that the move should include the X-37B being in the vicinity of the highest value assets. Even if it is not authorized to engage in attacks, the U.S. wants China to worry about what
the X-37B is going to be doing.

In response, the second team member inquired as to what the highest-level asset that the X-37B could target would be. The fifth team member answered that LEO ISR would be the highest-value asset that the X-37B could threaten.

A message was then received from the Chinese, regarding the de-orbiting of the Japanese satellite. The message indicated that the Chinese are very sorry about the situation that happened with Japan. The request indicated willingness to share space situational awareness information, and further asked the U.S. to show the PRC proof that PRC assets are in the area of the Japanese satellite.

The sixth team member commented that this seems to be a deliberate slow roll on the PRC’s behalf. The team member suggested that the U.S. could announce publicly that they have waited a long time before sharing information.

A revised version of the U.S.’s final move as detailed above was then sent.

**Move 3 Questions**

2. **What initiatives and capabilities would have made a decisive difference in the outcome?**

The first team member suggested that more effort in the development of RPO assets would be helpful. The second team member agreed, and also noted that the development of a self-defense regime particularly for nuclear command, control and communications & GPS satellites would be helpful. The second team member further added that the development of bodyguard assets could make a significant difference.

The first team member commented that the continued development of space situational awareness capabilities could also make a meaningful difference. The second team member agreed, noting that this is especially true in GEO. The first team member also that this is also of special salience in cis-lunar contexts. The third team member agreed and noted that the real China is likely to be taking much more action in the cis-lunar area by the time 2029 rolls around.

The first team member noted that building a stronger relationship with India might be something to list, as that was part of the U.S.’s Move 2. The second team member countered by saying that building this relationship does not rise to the level of decisive. Agreeing with this, the first team member noted that, in this game, the U.S. does not have the Indian order of battle. Therefore, according to this team member, India would not have been decisive given the information provided, but in the real world, India could be of more importance.

The second team member stated that one thing that stands out as being particularly important is the need to have an integrated approach, cross-domain and whole of government, to deterrence tools and prioritize having the full speed of proportionate costs to inflict. They added that each move has crystallized the importance of that approach.

1. **What worked and what did not work, and why?**

The first team member commented that space situational awareness/intel gathering capabilities apparently did not work.
The second team member also noted that alliance coordination did not work. According to this team member, there was a lack of allied follow-through.

The same team member then noted that most other things that the U.S. engaged in did work. Interoperability and building of bodyguards meant that even with Chinese pre-positioning, the U.S. was not under much pressure.

The first team member noted that they did not think the U.S. would have been that in the dark.

The second team member added that, as far as zones and bodyguard satellites are concerned, it is worth adding that they seemed to work well for deterrence, as China did not feel as confident making the move out of the gate this time around. Further, the team member added that, because of safety zones and bodyguards, the U.S. would have been able to act quickly and with little international dissent had the Chinese immediately engaged in a more aggressive option.

The first team member then inquired if any of the U.S.’s alliance coordination did work, or if the team believed it was all a bust.

Responding, the second team member noted that proactive coordination and sharing of information with Japan was helpful and effective. They noted that their takeaway from this is that, over the next 5-10 years, the U.S. should deliberately emphasize space and counter-space coordination among the whole Quad, in addition to with Japan.

The fifth team member stated that communications with allies were slow and clunky, thought that was an artifact of the game. For instance, they noted, it is unclear if the summit that was being discussed ever even occurred. Building on this, the third team member noted that, even though one of the main pushes made by the U.S. was India, little information was ever received on that front. The second team member then interjected to note that increased Quad coordination would likely help to prevent events such as Australia’s failure to follow through on lazing.

2. What initiatives and capabilities would have made a decisive difference in the outcome?

Returning to question 2, the first team member noted that they wondered if it would be too late once we get to the 2020s. To what extent, if any, they wondered, will some of the PRC population utilize/rely on western commercial capabilities like StarLink? Could that be a useful lever or not at that point?

The second team member agreed with this, also noting that what China’s space dependency would look like by the late 2020s is worth investigating.

The fifth team member added that anything that helps to undermine China’s pervasive surveillance state capabilities, and which provides alternative information sources would help target China. Some of those capabilities, they noted, could certainly be from space.

The second team member also added that putting into place mechanisms for information sharing with the commercial sector would likely have a big impact, as it would allow the U.S. to affirmatively establish early that China is responsible for any given act of aggression.