# 1NC

### 1NC – OFF

#### 1] Interp – Unjust refers to a negative action – it means contrary.

Black Laws No Date "What is Unjust?" <https://thelawdictionary.org/unjust/> //Elmer

Contrary to right and justice, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

#### 2] Violation – The Aff is a positive action – it creates a new concept for Space i.e. the treating of Space as a “Global Commons”.

#### 3] Standards –

#### a] Limits – making the topic bi-directional explodes predictability – it means that Aff’s can both increase non-exist property regimes in space AND decrease appropriation by private actors – makes the topic untenable.

#### b] Ground – wrecks Neg Generics – we can’t say appropriation good since the 1AC can create new views on Outer Space Property Rights that circumvent our Links since they can say “Global Commons” approach solves.

#### Independently - the Plan is both Extra-T - since it establishes a new property rights regime AND Effects-T - since the Global Commons ISNT INTRINSICALLY a reduction on Private Property in Space, it involves actions like creating a governance system AND redistribution/cooperation which is the I/L to their Colonialism Advantage - both of which are voters for Limits and Predictability

#### 4] TVA – just defend that space appropriation is bad.

#### 5] No RVIs: a. Chills theory – If people know they might lose for reading theory, it will disincentivize them. b. You don’t get to win by being fair. c. Theory Baiting – good theory debaters will bait people into reading theory against certain cases. T link turns 1AR theory – proves the aff forced me to be abusive

#### 6] Use competing interpretations: a. Reasonability causes a race to the bottom with testing the limit of it b. Judge intervention shouldn’t be allowed bc it produces bias c. Uniquely, use competing interps on T – you can’t be reasonably topical

#### 7] Drop the debater: for being abusive – we can’t restart the round from the 1AC and I’m skewed for the rest of the debate.

### 1NC – OFF

#### Xi’s regime is stable now, but its success depends on strong growth and private sector development.

**Mitter and Johnson 21** [Rana Mitter and Elsbeth Johnson, [Rana Mitter](https://hbr.org/search?term=rana%20mitter&search_type=search-all) is a professor of the history and politics of modern China at Oxford. [Elsbeth Johnson](https://hbr.org/search?term=elsbeth%20johnson&search_type=search-all), formerly the strategy director for Prudential PLC’s Asian business, is a senior lecturer at MIT’s Sloan School of Management and the founder of SystemShift, a consulting firm. May-June 2021, "What the West Gets Wrong About China," Harvard Business Review, [https://hbr.org/2021/05/what-the-west-gets-wrong-about-china accessed 12/14/21](https://hbr.org/2021/05/what-the-west-gets-wrong-about-china%20accessed%2012/14/21)] Adam

In China, however, growth has come in the context of stable communist rule, suggesting that democracy and growth are not inevitably mutually dependent. In fact, many Chinese believe that the country’s recent economic achievements—large-scale poverty reduction, huge infrastructure investment, and development as a world-class tech innovator—have come about because of, not despite, China’s authoritarian form of government. Its aggressive handling of Covid-19—in sharp contrast to that of many Western countries with higher death rates and later, less-stringent lockdowns—has, if anything, reinforced that view.

China has also defied predictions that its authoritarianism would inhibit its capacity to [innovate](https://hbr.org/2011/06/what-the-west-doesnt-get-about-china). It is a global leader in AI, biotech, and space exploration. Some of its technological successes have been driven by market forces: People wanted to buy goods or communicate more easily, and the likes of Alibaba and Tencent have helped them do just that. But much of the technological progress has come from a highly innovative and well-funded military that has invested heavily in China’s burgeoning new industries. This, of course, mirrors the role of U.S. defense and intelligence spending in the development of Silicon Valley. But in China the consumer applications have come faster, making more obvious the link between government investment and products and services that benefit individuals. That’s why ordinary Chinese people see Chinese companies such as Alibaba, Huawei, and TikTok as sources of national pride—international vanguards of Chinese success—rather than simply sources of jobs or GDP, as they might be viewed in the West.

Thus July 2020 polling data from the Ash Center at Harvard’s Kennedy School of Government revealed 95% satisfaction with the Beijing government among Chinese citizens. Our own experiences on the ground in China confirm this. Most ordinary people we meet don’t feel that the authoritarian state is solely oppressive, although it can be that; for them it also provides opportunity. A cleaner in Chongqing now owns several apartments because the CCP reformed property laws. A Shanghai journalist is paid by her state-controlled magazine to fly around the world for stories on global lifestyle trends. A young student in Nanjing can study propulsion physics at Beijing’s Tsinghua University thanks to social mobility and the party’s significant investment in scientific research.

#### Xi has committed to the commercial space industry as the linchpin of China’s rise – the plan is seen as a complete 180

**Patel 21** [Neel V. Patel, Neel is a space reporter for MIT Technology Review. 1-21-2021, "China’s surging private space industry is out to challenge the US," MIT Technology Review, <https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/> accessed 12/14/21] Adam

Until recently, China’s space activity has been overwhelmingly dominated by two state-owned enterprises: the China Aerospace Science & Industry Corporation Limited (CASIC) and the China Aerospace Science and Technology Corporation (CASC). A few private space firms have been allowed to operate in the country for a while: for example, there’s the China Great Wall Industry Corporation Limited (in reality a subsidiary of CASC), which has provided commercial launches since it was established in 1980. But for the most part, China’s commercial space industry has been nonexistent. Satellites were expensive to build and launch, and they were too heavy and large for anything but the biggest rockets to actually deliver to orbit. The costs involved were too much for anything but national budgets to handle.

That all changed this past decade as the costs of making satellites and launching rockets plunged. In 2014, a year after Xi Jinping took over as the new leader of China, the Chinese government decided to treat civil space development as a key area of innovation, as it had already begun doing with AI and solar power. It issued a policy directive called [Document 60](https://archive.md/o/bc9l4/www.cpppc.org/en/zy/994006.jhtml) that year to enable large private investment in companies interested in participating in the space industry.

“Xi’s goal was that if China has to become a critical player in technology, including in civil space and aerospace, it was critical to develop a space ecosystem that includes the private sector,” says Namrata Goswami, a geopolitics expert based in Montgomery, Alabama, who’s been studying China’s space program for many years. “He was taking a cue from the American private sector to encourage innovation from a talent pool that extended beyond state-funded organizations.”

As a result, there are now 78 commercial space companies operating in China, according to a[2019 report by the Institute for Defense Analyses](https://archive.md/o/bc9l4/https:/www.ida.org/-/media/feature/publications/e/ev/evaluation-of-chinas-commercial-space-sector/d-10873.ashx). More than half have been founded since 2014, and the vast majority focus on satellite manufacturing and launch services.

For example, Galactic Energy, founded in February 2018, is building its Ceres rocket to offer rapid launch service for single payloads, while its Pallas rocket is being built to deploy entire constellations. Rival company i-Space, formed in 2016, became the first commercial Chinese company to make it to space with its Hyperbola-1 in July 2019. It wants to pursue reusable first-stage boosters that can land vertically, like those from SpaceX. So does LinkSpace (founded in 2014), although it also hopes to use rockets to deliver packages from one terrestrial location to another.

Spacety, founded in 2016, wants to turn around customer orders to build and launch its small satellites in just six months. In December it launched a miniaturized version of a satellite that uses 2D radar images to build 3D reconstructions of terrestrial landscapes. Weeks later, it [released the first images taken by the satellite](https://archive.md/o/bc9l4/https:/spacenews.com/spacety-releases-first-sar-images/), Hisea-1, featuring three-meter resolution. Spacety wants to launch a constellation of these satellites to offer high-quality imaging at low cost.

To a large extent, China is following the same blueprint drawn up by the US: using government contracts and subsidies to give these companies a foot up. US firms like SpaceX benefited greatly from NASA contracts that paid out millions to build and test rockets and space vehicles for delivering cargo to the International Space Station. With that experience under its belt, SpaceX was able to attract more customers with greater confidence.

Venture capital is another tried-and-true route. The IDA report estimates that VC funding for Chinese space companies was up to $516 million in 2018—far shy of the $2.2 billion American companies raised, but nothing to scoff at for an industry that really only began seven years ago. At least 42 companies had no known government funding.

And much of the government support these companies do receive doesn’t have a federal origin, but a provincial one. “[These companies] are drawing high-tech development to these local communities,” says Hines. “And in return, they’re given more autonomy by the local government.” While most have headquarters in Beijing, many keep facilities in Shenzhen, Chongqing, and other areas that might draw talent from local universities.

There’s also one advantage specific to China: manufacturing. “What is the best country to trust for manufacturing needs?” asks James Zheng, the CEO of Spacety’s Luxembourg headquarters. “It’s China. It’s the manufacturing center of the world.” Zheng believes the country is in a better position than any other to take advantage of the space industry’s new need for mass production of satellites and rockets alike.

Making friends

The most critical strategic reason to encourage a private space sector is to create opportunities for international collaboration—particularly to attract customers wary of being seen to mix with the Chinese government. (US agencies and government contractors, for example, are barred from working with any groups the regime funds.) Document 60 and others issued by China’s National Development and Reform Commission were aimed not just at promoting technological innovation, but also at drawing in foreign investment and maximizing a customer base beyond Chinese borders.

“China realizes there are certain things they cannot get on their own,” says Frans von der Dunk, a space policy expert at the University of Nebraska–Lincoln. Chinese companies like LandSpace and MinoSpace have worked to accrue funding through foreign investment, escaping dependence on state subsidies. And by avoiding state funding, a company can also avoid an array of restrictions on what it can and can’t do (such as constraints on talking with the media). Foreign investment also makes it easier to compete on a global scale: you’re taking on clients around the world, launching from other countries, and bringing talent from outside China.

Although China is taking inspiration from the US in building out its private industry, the nature of the Chinese state also means these new companies face obstacles that their rivals in the West don’t have to worry about. While Chinese companies may look private on paper, they must still submit to government guidance and control, and accept some level of interference. It may be difficult for them to make a case to potential overseas customers that they are independent. The distinction between companies that are truly private and those that are more or less state actors is still quite fuzzy, especially if the government is a frequent customer. “That could still lead to a lack of trust from other partners,” says Goswami. It doesn’t help that the government itself is often [very cagey about what its national program is even up to](https://archive.md/o/bc9l4/https:/www.bbc.com/news/science-environment-54076895).

And Hines adds that it’s not always clear exactly how separate these companies are from, say, the People’s Liberation Army, given the historical ties between the space and defense sectors. “Some of these things will pose significant hurdles for the commercial space sector as it tries to expand,” he says.

#### Shifts in regime perception threatens CCP’s legitimacy from nationalist hardliners

Weiss 19 Jessica Weiss 1-29-2019 “Authoritarian Audiences, Rhetoric, and Propaganda in International Crises: Evidence from China” <http://www.jessicachenweiss.com/uploads/3/0/6/3/30636001/19-01-24-elite-statements-isq-ca.pdf> (Associate Professor of Government at Cornell University)//Elmer

Public support—or the appearance of it—matters to many autocracies. As Ithiel de Sola Pool writes, modern dictatorships are “highly conscious of public opinion and make major efforts to affect it.”6 Mao Zedong told his comrades: “When you make revolution, you must first manage public opinion.”7 Because autocracies often rely on **nationalist mythmaking**,8 success or failure in defending the national honor in international crises could burnish the leadership’s patriotic credentials or spark opposition. **Shared outrage at the regime’s foreign policy failures could galvanize street protests or elite fissures, creating intraparty upheaval** or inviting military officers to step in to restore order. Fearing a domestic backlash, authoritarian leaders may feel compelled to take a tough international stance. Although authoritarian leaders are rarely held accountable to public opinion through free and fair elections, fears of popular unrest and irregular ouster often weigh heavily on autocrats seeking to maximize their tenure in office. Considering the harsh consequences that authoritarian elites face if pushed out of office, even a small increase in the probability of ouster could alter authoritarian incentives in international crises.9 A history of nationalist uprisings make Chinese citizens and leaders especially aware of the linkage between international disputes and domestic unrest. The weakness of the PRC’s predecessor in defending Chinese sovereignty at the Paris Peace Conference in 1919 galvanized protests and a general strike, forcing the government to sack three officials and reject the Treaty of Versailles, which awarded territories in China to Japan. These precedents have made Chinese officials particularly sensitive to the appearance of hewing to public opinion. As the People’s Daily chief editor wrote: “History and reality have shown us that public opinion and regime safety are inseparable.”10 One Chinese scholar even claimed: “the Chinese government probably knows the public’s opinion better and reacts to it more directly than even the U.S. government.”11

#### Xi will launch diversionary war to domestic backlash – escalates in multiple hotspots

Norris 17, William J. Geostrategic Implications of China’s Twin Economic Challenges. CFR Discussion Paper, 2017. (Associate professor of Chinese foreign and security policy at Texas A&M University’s Bush School of Government and Public Service)//Elmer

Populist pressures might tempt the **party leadership** to encourage **diversionary nationalism**. The logic of this concern is straightforward: the Communist Party might seek to **distract a restless domestic population** with **adventurism abroad**.19 The **Xi** administration wants to **appear tough** in its **defense of foreign encroachments** against China’s interests. This need stems from a long-running narrative about how a weak Qing dynasty was unable to defend China in the face of European imperial expansion, epitomized by the Opium Wars and the subsequent treaties imposed on China in the nineteenth century. The party is **particularly sensitive** to **perceptions of weakness** because much of its **claim to legitimacy**—manifested in **Xi’s Chinese Dream** campaign today—stems from the party’s claims of leading the **restoration of Chinese greatness**. For example, the May Fourth Movement, a popular protest in 1919 that helped catalyze the CPC, called into question the legitimacy of the Republic of China government running the country at that time because the regime was seen as not having effectively defended China’s territorial and sovereignty interests at the Versailles Peace Conference. **Diversionary nationalist frictions** would likely occur if the Chinese leadership portrayed a foreign adversary as having made the first move, thus forcing Xi to stand up for China’s interests. An example is the 2012 attempt by the nationalist governor of Tokyo, Shintaro Ishihara, to buy the Senkaku/Diaoyu Islands from a private owner.20 Although the Japanese central government sought to avert a crisis by stepping in to purchase the islands—having them bought and administered by Ishihara’s Tokyo metropolitan government would have dragged Japan into a confrontation with China—China saw this move as part of a deliberate orchestration by Japan to nationalize the islands. Xi seemingly had no choice but to defend China’s claims against an attempt by Japan to consolidate its position on the dispute.21 This issue touched off a period of heated tensions between China and Japan, lasting more than two years.22 Such dynamics are not limited to Japan. Other possible areas of conflict include, but are not necessarily limited to, **Taiwan**, **India**, and the **South China Sea** (especially with the **Philippines** and **Vietnam**). The Chinese government will use such tactics if it believes that the costs are relatively low. Ideally, China would like to appear tough while avoiding material repercussions or a serious diplomatic breakdown. Standing up against foreign encroachment—without facing much blowback—could provide Xi’s administration with a tempting source of noneconomic legitimacy. However, over the next few years, Xi will probably not be actively looking to get embroiled abroad. Cushioning the fallout from slower growth while managing a structural economic transition will be difficult enough. Courting potential international crises that distract the central leadership would make this task even more daunting. Even if the top leadership did not wish to provoke conflict, a smaller budgetary allotment for security could cause **military interests** in China to **deliberately instigate trouble** to **justify** their **claims over increasingly scarce resources**. For example, an air force interested in ensuring its funding for a midair tanker program might find the existence of far-flung territorial disputes to be useful in making its case. Such a case would be made even stronger by a pattern of recent frictions that highlights the necessity of greater air power projection. Budgetary pressures may be partly behind a recent People’s Liberation Army reorganization and headcount reduction. A slowing economy might cause a further deceleration in China’s military spending, thus increasing such pressures as budgetary belts tighten. Challenges to Xi’s Leadership Xi Jinping’s efforts to address economic challenges could fail, unleashing consequences that extend well beyond China’s economic health. For example, an **economic collapse** could give rise to a Vladimir **Putin–like redemption figure** in China. Xi’s approach of centralizing authority over a diverse, complex, and massive social, political, and economic system is a **recipe for brittleness**. Rather than designing a resilient, decentralized governance structure that can gracefully cope with localized failures at particular nodes in a network, a highly centralized architecture **risks catastrophic**, **system-level failure**. Although centralized authority offers the tantalizing chimera of stronger control from the center, it also puts all the responsibility squarely on Xi’s shoulders. With China’s ascension to great power status, the consequences of internecine domestic political battles are increasingly playing out on the world stage. The international significance of China’s domestic politics is a new paradigm for the Chinese leadership, and one can expect an adjustment period during which the outcome of what had previously been relatively insulated domestic political frictions will likely generate **unintended international repercussions**. Such dynamics will influence Chinese foreign policy and security behavior. Domestic arguments over ideology, bureaucratic power struggles, and strategic direction could all have **ripple effects abroad**. Many of China’s party heavyweights still employ a narrow and exclusively domestic political calculus. Such behavior increases the possibility of international implications that are not fully anticipated, **raising the risks** of **strategic miscalculation** on the world stage. For example, the factional power struggles that animated the Cultural Revolution were largely driven by domestic concerns, yet manifested themselves in Chinese foreign policy for more than a decade. During this period, China was not the world’s second largest economy and, for much of this time, did not even have formal representation at the United Nations. If today’s globally interconnected China became engulfed in similar domestic chaos, the effects would be felt worldwide.23 Weakened Fetters of Economic Interdependence If China successfully transitioned away from its export-driven growth model toward a consumption-driven economic engine over the next four or five years, it could no longer feel as constrained by economic interdependence. To the extent that such constraints are loosened, the U.S.-China relationship will be more prone to conflict and friction.24 While China has never been the archetypal liberal economic power bent on benign integration with the global economy, its export-driven growth model produced a strong strategic preference for stability. Although past behavior is not necessarily indicative of future strategic calculus, China’s “economic circuit breaker” logic seems to have held its most aggressive nationalism below the threshold of war since 1979. A China that is both comparatively strong and less dependent on the global economy would be a novel development in modern geopolitics. As China changes the composition of its international economic linkages, global integration could place fewer constraints on it. Whereas China has been highly reliant on the import of raw materials and semifinished goods for reexport, a consumption-driven China could have a different international trade profile. China could still rely on imported goods, but their centrality to the country’s overall economic growth would be altered. Imports of luxury goods, consumer products, international brands, and services may not exert a significant constraining influence, since loss of access to such items may not be seen as strategically vital. If these flows were interrupted or jeopardized, the result would be more akin to an inconvenience than a strategic setback for China’s rise. That said, China is likely to continue to highly depend on imported oil even if the economic end to which that energy resource is directed shifts away from industrial and export production toward domestic consumption.

#### **US–China war goes nuclear – crisis mis-management ensures conventional escalation - extinction**

Kulacki 20 [Dr. Gregory Kulacki focuses on cross-cultural communication between the United States and China on nuclear and space arms control and is the China Project Manager for the Global Security Program at the Union of Concerned Scientists, 2020. Would China Use Nuclear Weapons First In A War With The United States?, Thediplomat.com, https://thediplomat.com/2020/04/would-china-use-nuclear-weapons-first-in-a-war-with-the-united-states/] srey

Admiral Charles A. Richard, the head of the U.S. Strategic Command, recently told the Senate Armed Service Committee he “could drive a truck” through the holes in China’s no first use policy. But when Senator John Hawley (R-MO) asked him why he said that, Commander Richard backtracked, described China’s policy as “very opaque” and said his assessment was based on “very little” information. That’s surprising. **China** has been exceptionally **clear** **about** its **intentions** **on** the possible **first** **use** **of** **nuclear** **weapons**. On the day of its first nuclear test on October 16, 1964, China declared it “will never at any time or under any circumstances be the first to use nuclear weapons.” That **unambiguous** **statement** **has** **been** a **cornerstone** **of** **Chinese** **nuclear** **weapons** policy for 56 years and has been repeated frequently in authoritative Chinese publications for domestic and international audiences, including a highly classified training manual for the operators of China’s nuclear forces. Richard should know about those publications, particularly the training manual. A U.S. Department of Defense translation has been circulating within the U.S. nuclear weapons policy community for more than a decade. The commander’s comments to the committee indicate a familiarity with the most controversial section of the manual, which, in the eyes of some U.S. analysts, indicates there may be some circumstances where **China** **would** **use** **nuclear** **weapons** **first** **in** a **war** **with** **the** **U**nited **S**tates. This U.S. misperception is understandable, especially given the difficulties the Defense Department encountered translating the text into English. The language, carefully considered in the context of the entire book, articulates a strong reaffirmation of China’s no first use policy. But it also reveals **Chinese** military planners are **struggling** **with** **crisis** **management** **and** **considering** **steps** **that** could **create** **ambiguity** **with** **disastrous** **consequences**. Towards the end of the 405-page text on the operations of China’s strategic rocket forces, in a chapter entitled, “Second Artillery Deterrence Operations,” the authors explain what China’s nuclear forces train to do if **“**a strong military power possessing nuclear‐armed missiles and an absolute advantage in high‐tech conventional weapons is carrying out intense and continuous attacks against our major strategic targets and we have no good military strategy to resist the enemy.**”** The military power they’re talking about is the United States. The authors indicate China’s nuclear missile forces train to take specific steps, including increasing readiness and conducting launch exercises, to “dissuade the continuation of the strong enemy’s conventional attacks.” The manual refers to these steps as an “adjustment” to China’s nuclear policy and a “lowering” of China’s threshold for brandishing its nuclear forces. Chinese leaders would only take these steps in extreme circumstances. The text highlights several triggers such as U.S. conventional bombing of China’s nuclear and hydroelectric power plants, heavy conventional bombing of large cities like Beijing and Shanghai, or other acts of **conventional** **warfare** **that** “**seriously** **threatened**” the “safety and **survival**” of the nation. U.S. Misunderstanding Richard seems to believe this planned adjustment in China’s nuclear posture means China is **preparing** **to** **use** **nuclear** **weapons** first under these circumstances. He told Hawley that there are a “number of situations where they may conclude that first use has occurred that do not meet our definition of first use.” The head of the U.S. Strategic Command appears to assume, as do other U.S. analysts, that the **Chinese** would **interpret** **these** types of U.S. conventional **attacks** **as** **equivalent** **to** a **U.S. first use** **of** **nuclear** **weapons** against China. But that’s not what the text says. “Lowering the threshold” refers to China putting its nuclear weapons on alert — it does not indicate Chinese leaders might lower their threshold for deciding to use nuclear weapons in a crisis. Nor does the text indicate Chinese nuclear forces are training to launch nuclear weapons first in a war with the United States. China, unlike the United States, keeps its nuclear forces off-alert. Its warheads are not mated to its missiles. China’s nuclear-armed submarines are not continuously at sea on armed patrols. The manual describes how China’s nuclear warheads and the missiles that deliver them are controlled by two separate chains of command. Chinese missileers train to bring them together and launch them after China has been attacked with nuclear weapons. All of these behaviors are consistent with a no first use policy. The “adjustment” Chinese nuclear forces are preparing to make if the United States is bombing China with impunity is to place China’s nuclear forces in a state of readiness similar to the state the nuclear forces of the United States are in all the time. This step is intended not only to end the bombing, but also to convince U.S. decision-makers they cannot expect to destroy China’s nuclear retaliatory capability if the crisis escalates. Chinese Miscalculation Unfortunately, alerting Chinese nuclear forces at such a moment could have terrifying consequences. Given the relatively small size of China’s nuclear force, a U.S. president might be tempted to try to limit the possible damage from a Chinese nuclear attack by destroying as many of China’s nuclear weapons as possible before they’re launched, especially if the head of the U.S. Strategic Command told the president China was preparing to strike first. One study concluded that if the United States used nuclear weapons to attempt to knock out a small fraction of the Chinese ICBMs that could reach the United States it may kill tens of millions of Chinese civilians. The authors of the text assume alerting China’s nuclear forces would “create a great shock in the enemy’s psyche.” That’s a fair assumption. But they also assume this shock could “dissuade the continuation of the strong enemy’s conventional attacks against our major strategic targets.” That’s highly questionable. There is a **substantial** **risk** **the** **U**nited **S**tates **would** **respond** **to** this implicit **Chinese** **threat** **to** **use** **nuclear** **weapons** **by** **escalating**, rather than halting, its **conventional** **attacks**. If China’s nuclear forces were targeted, it would put even greater strain on the operators of China’s nuclear forces. A **slippery** **slope** **to** **nuclear** **war** Chinese military planners are aware that attempting to coerce the United States into halting conventional bombardment by alerting their nuclear forces could fail. They also know it might trigger a nuclear war. But if it does, they are equally clear China won’t be the one to start it. Nuclear attack is often preceded by nuclear coercion. Because of this, in the midst of the process of a high, strong degree of nuclear coercion we should prepare well for a nuclear retaliatory attack. The more complete the preparation, the higher the credibility of nuclear coercion, the easier it is to accomplish the objective of nuclear coercion, and the lower the possibility that the nuclear missile forces will be used in actual fighting. They assume if China demonstrates it is well prepared to retaliate the United States would not risk a damage limitation strike using nuclear weapons. And even if the United States were to attack China’s nuclear forces with conventional weapons, China still would not strike first. In the opening section of the next chapter on “nuclear retaliatory attack operations” the manual instructs, as it does on numerous occasions throughout the entire text: According to our country’s principle, its stand of no first use of nuclear weapons, the Second Artillery will carry out a nuclear missile attack against the enemy’s important strategic targets, according to the combat orders of the Supreme Command, only after the enemy has carried out a nuclear attack against our country. Richard is wrong. There are no holes in China’s no first use policy. But the worse-case planning articulated in this highly classified military text is a significant and deeply troubling departure from China’s traditional thinking about the role of nuclear weapons. Mao Zedong famously called nuclear weapons “a paper tiger.” Many assumed he was being cavalier about the consequences of nuclear war. But what he meant is that they would not be used to fight and win wars. U.S. nuclear threats during the Korean War and the Taiwan Strait Crisis in the 1950s – threats not followed by an actual nuclear attack – validated Mao’s intuition that nuclear weapons were primarily psychological weapons. Chinese leaders decided to acquire nuclear weapons to free their minds from what Mao’s generation called “**nuclear** **blackmail**.” A former director of China’s nuclear weapons laboratories told me China developed them so its leaders could “sit up with a straight spine.” Countering nuclear blackmail – along with compelling other nuclear weapons states to negotiate their elimination – were the only two purposes Chinese nuclear weapons were meant to serve. Contemporary Chinese military planners appear to have added a new purpose: compelling the United States to halt a conventional attack. Even though it only applies in extreme circumstances, it **increases** the **risk** **that** a **war** between the United States and China **will** **end** **in** a nuclear exchange with unpredictable and **catastrophic** **consequences**. Adding this new purpose could also be the first step on a slippery slope to an incremental broadening the role of nuclear weapons in Chinese national security policy. Americans would be a lot safer if we could avoid that. The United States government should applaud China’s no first use policy instead of repeatedly calling it into question. And it would be wise to adopt the same policy for the United States. If both countries declared they would never use nuclear weapons first it may not guarantee they can avoid a nuclear exchange during a military crisis, but it would make one far less likely.

### 1NC – OFF

#### Counterplan text: The Committee on the Peaceful use of Outer Space ought to

#### establish an application system for property rights on celestial bodies. Applications and approval of property rights should be granted upon the condition of

#### open disclosure of data gathered in the exploration of a celestial body

#### Applications must be publicly announced

#### Property Rights will be made tradeable between private entities

#### Property Rights will be set to expire on the conclusion of a successful extraction mission

#### Private Entities will only be allowed one property right grant per celestial body and cannot have more than one grant at a time

#### The counterplan establishes international norms for safe extraction of resources on celestial bodies while increasing R&D in outer space.

**Steffen 21** [Olaf Steffen, Olaf is a scientist at the Institute of Composite Structures and Adaptive Sytems at the German Aerospace Center. 12-2-2021, "Explore to Exploit: A Data-Centred Approach to Space Mining Regulation," Institute of Composite Structures and Adaptive Systems, German Aerospace Center, [https://www.sciencedirect.com/science/article/pii/S0265964621000515 accessed 12/12/21](https://www.sciencedirect.com/science/article/pii/S0265964621000515%20accessed%2012/12/21)] Adam

4. The data-centred approach to space mining regulation

4.1. Core description of the regulatory regime and mining rights acquisition process

The data gathered in the exploration of a [celestial body](https://www.sciencedirect.com/topics/social-sciences/astronomical-systems) is not only of value for space mining companies for informing them whether, where and how to exploit resources from the body in question, but also for science. The irretrievability of information relating to the solar system contained in the body that will be lost during resource exploitation carries a value for humanity and future generations and can thus be assigned the characteristic of a common heritage for all mankind as invoked in the Moon Agreement. This characteristic makes exploration data an exceptional and unique candidate for use in a mechanism for acquiring mining rights because its preservation is of public interest and its disclosure in exchange for exclusive mining rights does not place any additional burden on the mining company. The following principles would form the cornerstones of the proposed regulatory regime and rights acquisition mechanism based on exploration data:

Without preconditions, no entity has a right to mine the resources of a celestial body.

An international regulatory body administers the existing rights of companies for mining a specific celestial body.

Mining rights to such bodies can be applied for from this international regulatory body, with applications made public. The application expires after a pre-set period.

Mining rights are granted on the provision and disclosure of exploration data on the celestial body within the pre-set period, proposedly gathered in situ, characterising this body and its resources in a pre-defined manner.

The explorer's mining right to the resources of the celestial body is published by the regulatory body in a mining rights grant.

The data concerning the celestial body are made public as part of the rights grant within the domain of all participating members of the regulatory regime.

The exclusive mining rights to any specific body are tradeable.

The scope of the regulatory body with respect to the granting of mining rights is not revenue-oriented.

The international regulatory body would thus act as a curator of a rights register and an attached database of exploration data. The concept is superficially comparable to patent law, where exclusive rights are granted following the disclosure of an invention to incentivise the efforts made in the development process. In the following section, the characteristics of such a regulatory regime are further discussed with respect to the formation of [monopolies](https://www.sciencedirect.com/topics/social-sciences/monopolies), market dynamics, conflict avoidance, inclusivity towards less developed countries and the viability of implementation.

4.2. Discussion and means of implementation

The proposed regulatory mechanism has advantages both from a business/investor and society perspective. First, it prevents already highly capitalised companies from acquiring exploitation rights in bulk to deny competitors those objects that are easiest to exploit or most valuable, which would otherwise be possible in any kind of pay-for-right mechanism and could result in preventing market access to smaller, emerging companies. Thus, early monopoly formation can be avoided.

The use of data disclosure for the granting of mining rights ensures the scientific community has access to this invaluable source of information. In this way, space mining prospecting missions can lead to a boost in research on small celestial bodies at a speed unmatchable by pure government/agency funded science probes. This usefulness to the scientific community could lead to sustained partnerships between prospecting companies and scientific institutions and could even provide a source of funding for the companies through R&D grants and public-private partnerships. The results of the exploration efforts contribute to research on the formation of planets and the history of the solar system and provide valuable insight for space defence against asteroids. The transition of exploration from a tailored mission profile with a purpose-built spacecraft to a standard task in space flight would also lead to a cost reduction of the respective exploration spacecraft through [economies of scale](https://www.sciencedirect.com/topics/social-sciences/economies-of-scale). This describes the very benefits Elvis [[24](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib24)] and Crawford [[25](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib25)] imagined as possible effects of a space economy. Thus, there is an immediate return for society from the exploitation rights grant. It also reconciles the adverse interests of space development and [space science](https://www.sciencedirect.com/topics/social-sciences/space-sciences) as laid out by Schwartz [[26](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib26)]. It ensures that, by exploitation, information contained in celestial bodies is not lost for future generations.The application period should not be set in a manner that creates a situation that can be abused through the potential for stockpiling inventory rights. Rather, it is intended to prevent conflict in the phase before exploration data gathered by a mission, as a prerequisite to the mining rights grant, is available. In other words, only one exploration effort at a time can be permitted for a specific body. The time frame between the application and the granting of mining rights (meaning: availability of the required exploration data set) should be tight and should only consider necessary exploration time on site, transit time and possibly a reasonable launch preparation and data processing markup. These contributors to the application period make it clear that the time frame could be dynamic and individualistic, depending on the exploration target (transit time and duration of exploration) and the technology of the exploration probe (transit time). After the expiration of the application period, applications for the exploration target would again be permissible. To prevent the previously mentioned stockpiling of inventory rights, credible proof of an imminent exploration intention would need to be part of the application process, for example, a fixed launch contract or the advanced build status of the exploration probe. Such a mechanism would not contradict the statement in the OST that outer space shall be free for both exploration and scientific investigation. Applications would not apply to purely scientific exploration. An application would only be necessary as a prerequisite for mining. Even resource prospecting could take place without an application (for whatever reason), with a subsequent application comprising in situ data already gathered. For such cases, the application process would need to provide a short period for objections to enable the secretive explorer to make their efforts public. The publication of the application for the mining rights, which is nothing more than a statement of intention to explore, thus provides a strong measure for avoiding conflict.

The transparency of where exploration spacecraft are located and, at a later stage, where mining activities take place, provides additional benefits for the sustainable use of space, trust building and deterrence against malign misuse of mining technology. Involuntary spacecraft collisions of competitors in deep space are prevented by the reduction of exploration efforts at the same destination through the application for mining rights by one applicant at a time. As pointed out by Newman and Williamson [[20](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib20)], this is relevant because space debris does not de-orbit in deep space as in the case of LEO. Deep space may be vast, but the velocities involved mean that small debris particles are no less dangerous. Considering NEO mining with fleets of small spacecraft, malfunctions and/or destructive events could create debris clouds crossing Earth's orbit around the sun on a regular basis, presenting another danger to satellites in Earth's own orbit. Thus, by effectively preventing the collision of two spacecraft, one source of debris creation can be mitigated through this regulation mechanism. With respect to Deudney's [[11](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib11)] scepticism of asteroid mining and the dual-use character of technology to manipulate orbits of celestial bodies, it has to be stated that this potential is truly inherent to asteroid mining. An asteroid redirect mission for scientific purposes was pursued by NASA [[49](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib49)] before reorientation towards a manned lunar mission. In one way or another, each type of asteroid mining will require the delivery of the targeted resource to a destination via a comparable technology as formerly envisioned by NASA, be it as a raw material or a useable resource processed in situ, even if this is not necessarily done through redirecting the whole asteroid and placing it in a lunar orbit. However, to be misused as a weapon, space mined resources would have to surpass a certain mass threshold to survive atmospheric entry at the target. This seems unfeasible for currently discussed mining concepts using small-scale spacecraft as described in this article. Redirecting larger masses or whole asteroids would require far more powerful mining vessels or small amounts of thrust over long periods of time. The continuous, (for a mining activity) untypical change in the orbit of an asteroid would make a redirect attempt with hostile intent easily identifiable, effectively deterring such an activity in the first place by ensuring the identification of the aggressor long before the projectile hits its target. The proposed database would provide a catalogue of asteroids with exploration and mining activities in place that should be tracked more closely because of their interaction with spacecraft. This would, in fact, be necessary per se as a precaution to avoid catastrophic mishaps, such as the accidental change of a NEO's orbit to intercept Earth by changing its mass through mining.

#### Space mining fails now due to profitability and unsafe tech which only the cp solves

**Steffen 21** [Olaf Steffen, Olaf is a scientist at the Institute of Composite Structures and Adaptive Sytems at the German Aerospace Center. 12-2-2021, "Explore to Exploit: A Data-Centred Approach to Space Mining Regulation," Institute of Composite Structures and Adaptive Systems, German Aerospace Center, [https://www.sciencedirect.com/science/article/pii/S0265964621000515 accessed 12/12/21](https://www.sciencedirect.com/science/article/pii/S0265964621000515%20accessed%2012/12/21)] Adam

* answers timeframe deficits
* creates solvency vs inequality/developing nation affs

The data-driven mechanism also addresses another potential risk of an emerging space-based resource economy: the reinforcing of the incontestable market positions of the market leaders based on an advantage in knowledge unattainable by new competitors. Explorations of celestial bodies will have a likelihood of failing from the perspective of the actual value of the explored object vs. the expected value. In this case, the costs of exploration would be a loss for the company, which could be significant and possibly ruinous considering the budgets needed for contemporary space agency-led exploration missions. Sanchez and McInnes [[5](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib5)] explicitly mention the uncertainties in object distribution models used in their asteroid distribution study and for the conclusions drawn concerning reachable object masses with certain delta-v capabilities of spacecraft. With an increasing number of exploration missions led by a company, the data collected may lead to better in-house models and a higher probability of exploring the ‘right’ body for the value/resources aimed at. This may even provide information on the best spacecraft designs for matching the targeted objects’ orbit distribution. This risk is known from the digital platform economy, where the companies that are now leading have an uncatchable advantage in user data compared with market newcomers, translatable to a more refined and comfortable user experience, attracting additional users and thus offering superior services to business customers. This also holds true for space mining companies. Through their lack of legacy mission data, market newcomers would have a higher risk of misallocating exploration missions, making investments in those companies riskier than in established companies. To avoid the preferred investment in a single or a few companies, the risk of the investment in emerging companies is reduced by the proposed mechanism by ensuring the equal access to data for market newcomers and established companies alike. From a prospecting risk perspective, the market entrance of a new company becomes progressively less risky for investors with increasing amounts of publicly available exploration data, promoting progressive and dynamic development.

The long lead times of asteroid mining ventures coincide with a long time frame for an ROI. The exclusive mining rights granted after the exploration phase give investors security half-way into their space mining endeavours. The proposed tradability of the rights offers an early chance of gaining investment proceeds. It also offers the possibility of new business models: the classical asteroid mining system concept, as shown by Andrews et al. [[43](https://www.sciencedirect.com/science/article/pii/S0265964621000515" \l "bib43)], for example, covers exploration, exploitation and resource transfer. This maximises the investment needed to develop the technologies required for the entire process chain. Giving exploration a value could lead to a division of labour. Dedicated prospecting companies could emerge, providing mining companies with the data and mining rights to a body with the specific resource profile they are seeking. In this way, the investment needed for a successful mining endeavour is divided between different specialised companies. This considerably reduces the risk for investors as well as the investment needed for a company to meet their business goals, which are now aimed at just a particular part of the overall space mining endeavour. Third-party applications for mining rights should be possible to allow a mining company to subcontract to exploration companies. Such a regulatory mechanism design would also be more easily inclusive of less developed countries. They could simply contract exploration missions made affordable through economies of scale to become part of the emerging space mining economy as holders of tradeable mining rights. Through a wise selection of such missions’ targets, they could gain powerful positions of influence.

## Case

### 1NC – AT: Solvency

#### Normal means has the plan implemented through the *Committee on the Peaceful use of Outer Space.*

Halstead 10—(B.S., Psychology, The University of Alabama; J.D., The University of Alabama School of Law; LL.M., Institute of Air and Space Law, McGill University; Lieutenant Colonel, U.S. Air Force Judge Advocate General's Corps). C. Brandon Halstead. 2010. "Prometheus Unbound - Proposal for a New Legal Paradigm for Air Law and Space Law: Orbit Law," Journal of Space Law 36, no. 1, 143-206

The debate on how to distinguish airspace from outer space is as old as the space age itself. The problems emerging from space exploration first entered the agenda of the United Nations in 1957, and were later placed on the agenda before the General Assembly through the establishment of an Ad Hoc Committee on the Peaceful Uses of Outer Space (COPUOS) in 1958.' Although this Committee initially focused on the debate of disarmament, its status was later made permanent in 1961 while its charter was expanded to include examination of all issues relating to the field of exploration and use of outer space by governmental and non-governmental organizations.16 In 1962 the Scientific and Technical Sub-Committee and Legal Sub-Committee began their true substantive work and became the main center of international cooperation and coordination for exploration of peaceful uses of outer space." Successive sessions focused on general and specific issues of space law, including the establishment of a frontier between outer space and atmospheric space18.

#### OST Fails

**Evanoff 17** [Kyle Evanoff, Kyle is a research associate in international economics and U.S. foreign policy at the Council on Foreign Relations 10/10/17, "The Outer Space Treaty’s Midlife Funk," Council on Foreign Relations [https://www.cfr.org/blog/outer-space-treatys-midlife-funk accessed 12/11/2021](https://www.cfr.org/blog/outer-space-treatys-midlife-funk%20accessed%2012/11/2021)] Adam

Half a century later, however, the Outer Space Treaty has entered something of a funk. Despite the universal aspirations of the UN Committee on the Peaceful Uses of Outer Space, which molded the document into its completed form, many of the principles enshrined within the text are less suited to the present than they were to their native Cold War milieu. While the anachronism has not reached crisis levels, current and foreseeable developments do present challenges for the treaty, heightening the potential for disputes. At the crux of the matter is the ongoing democratization of space. During the 1950s and ‘60s, when the fundamental principles of international space law took shape, only large national governments could afford the enormous outlays required for creating and maintaining a successful space program. In more recent decades, technological advances and new business models have broadened the range of spacefaring actors. Thanks to innovations such as reusable rockets, micro- and nanosatellites, and inflatable space station modules, costs are decreasing and private companies are crowding into the sector. This flurry of activity, known as New Space, promises nothing less than a complete transformation of the way that humans interact with space. Asteroid mining, for example, could eliminate the need to launch many essential materials from Earth, lowering logistical hurdles and enabling largescale in-space fabrication. Companies like Planetary Resources and Deep Space Industries, by extracting and selling useful resources in situ, could help to jumpstart a sustainable space economy. They might also profit from selling valuable commodities back on terra firma. As a recent (bullish) Goldman Sachs report noted, a single football-field-sized asteroid could contain $25 to $50 billion worth of platinum—enough to upend the terrestrial market. With astronomical sums at stake and the commercial sector kicking into high gear, legal questions are becoming a major concern. Many of these questions focus on Article II of the Outer Space Treaty, which prohibits national appropriation of space and the celestial bodies. Since another provision (Article VI) requires nongovernmental entities to operate under a national flag, some experts have suggested that asteroid mining, which would require a period of exclusive use, may violate the agreement. Others, however, contend that companies can claim ownership of extracted resources without claiming ownership of the asteroids themselves. They cite the lunar samples returned to Earth during the Apollo program as a precedent. Hoping to promote American space commerce, Congress formalized this more charitable legal interpretation in Title IV of the 2015 U.S. Commercial Space Launch Competitiveness Act. Luxembourg, which announced a €200 million asteroid mining fund last year, followed suit with its own law in August. Controversies like the one surrounding asteroid mining are par for the course when it comes to the Outer Space Treaty. The agreement’s insistence that space be used “for peaceful purposes” has long been the subject of intense debate. During the treaty-making process, Soviet jurists argued that peaceful meant “non-military” and that spy satellites were illegal; Americans, who enjoyed an early lead in orbital reconnaissance, interpreted peaceful to mean “non-aggressive” and came to the opposite conclusion. Decades later, the precise meaning of the phrase remains a matter of contention. While the Outer Space Treaty has survived past disputes intact, some experts and policymakers believe that an update is in order. Senator Ted Cruz (R-TX), for instance, worries that legal ambiguity could undermine the nascent commercial space sector—a justifiable concern. Russia and Brazil, among other countries, hold asteroid mining operations to constitute de facto national appropriation. And while there are plenty of asteroids to go around for now (NASA has catalogued nearly 8,000 near earth objects larger than 140 meters in diameter), more supply-side saturation could lead to conflicts over choice space rocks. The absence of clear property rights makes this prospect all the more likely. Plans to establish outposts on the moon and Mars present a bigger challenge still. Last week, prior to the first meeting of the revived National Space Council, Vice President Mike Pence described the need for “a renewed American presence on the moon, a vital strategic goal” in an op-ed for the Wall Street Journal. His piece came on the heels of SpaceX Founder and Chief Executive Officer Elon Musk’s announcement at the 2017 International Astronautical Congress of a revised plan to colonize the red planet, with the first human missions slated for 2024. Musk hopes for the colony to house one million inhabitants within the next fifty years. While mining might require only temporary use of the celestial bodies, full-fledged colonies would necessarily be more permanent affairs. With some national governments arguing that mining operations would constitute territorial claims, lunar and Martian bases are almost certain to enter the legal crosshairs. And, even under the favorable U.S. interpretation of the Outer Space Treaty, states and private companies would need to avoid making territorial claims. If viable colony locations are relatively few and far between, fierce competition could make asserting control a practical necessity. Even so, policymakers should avoid hasty attempts to overhaul the Outer Space Treaty. The uncertainties associated with altering the fundamental principles of international space law are greater than any existing ambiguities. Commercial spacefaring already entails high levels of risk; adding new regulatory hazards to the mix would jeopardize investment and could slow progress in the sector. While the current property rights regime may be untenable over longer timelines, it remains workable for now.

#### All your solvency advocates assume the aff creates legal institutions and frameworks to create sustainable use of outer space – but you haven’t read an internal link that says simply the declaration of outer space as a global commons does that

### 1NC – AT: Advantage

#### No IL between establishing outer space as a global commons and an equitable distribution of space to states – and if the aff does then that’s just blatantly extra topical which is a voting issue for limits and ground since they can tak on an infinite amount of permutations of planks to solve for neg ground which hurts in depth clash and engagement

#### **We won’t care about losing a satellite**

Bleddyn Bowen 18, University of Leicester International Relations Lecturer, "The Art of Space Deterrence," European Leadership Network, 2-20-18, https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/

As consensus emerges on the possibility that, should a major war occur, satellites will mostly likely be attacked or harassed in one way or another, there is increasing deliberation on ‘space deterrence’, or how to prevent would-be aggressors from attacking satellites and other parts of space infrastructure on Earth. Reasoned analysis focuses on applying imagined thresholds of sensitivity and reaction based on the types of satellites attacked, how they are attacked, and when they are attacked in a crisis. For example, a Planet Labs imaging satellite being jammed outside of a crisis is a different incident compared to a Keyhole imagery satellite being destroyed during a Taiwan crisis.

Indeed, it is crucial to think about what systems any space power may value above all others, which they may be able to suffer losing, and which losses may provoke a stern reaction. Most tools of space warfare today, of which America, China, and Russia lead, include jamming and Earth-based kinetic-kill capabilities that are ground, sea, or air missile based. Additionally, many Earth-based weapons such as missiles, attack aircraft, and naval vessels can bombard ground facilities if they are in range. However, as those narrow discussion tend to delve into the technical and tactical weeds, there are useful principles to remember when considering space deterrence on a more strategic level.

With the tools of space warfare spreading, then, how does one deter an adversary from attacking one’s valuable and essential space infrastructure that is responsible for precision warfare as well as precision farming? This is a very difficult question to answer, and there are no direct and holistic ones to be given. But general ground rules for strategic thought can be provided. The difficulty is that any reason to think that space deterrence may be easier to achieve than equivalents on Earth has a counter that may highlight why, in some circumstances, space deterrence may be harder to impose in the mind of the adversary.

First, politics, strategy, and deterrence relationships in space are extensions of those on Earth. Space deterrence remains an art of understanding the opponent’s psychology, valued possessions, and political objectives, as space deterrence is just a thematic or geographic variant of deterrence in general. Although space specialists are needed to understand spacepower, war in space is still subject to the same strategic logic as other terrestrial environments, and therefore deterrence in space cannot ignore events on Earth. Space warfare is merely the continuation of Terran politics by other means; a shooting war is space does not occur in a political vacuum. Additionally, some countries may have an ability to attack or disrupt satellites but possess no space-based assets of their own. Therefore, a tit-for-tat exchange of responding to a satellite attack with a satellite attack will not always be an option. Terrestrial threats and retaliation may be called for to deter attacks on space assets and space deterrence requires a joint approach, just as a joint approach to modern deterrence on Earth requires spacepower to function.

Adhering too narrowly to the concept of ‘space deterrence’ can mislead analysis to isolate space from Earth. It is as misleading as speaking in terms of ‘air deterrence’ or ‘sea deterrence’. Deterring a state from taking a particular action in any environment requires more than one method of deterring by denial or punishment. Rather, modern deterrence relationships need to account for the role space systems play in building holistic deterrent and warfare capabilities in every environment, as well as the role satellites and space infrastructure may play in triggering, exacerbating, or resolving crises on Earth, as well as winning wars.

Space is often an afterthought or a miscellaneous ancillary in the grand strategic views of top-level decision-makers. A president may not care that one satellite may be lost or go dark; it may cause panic and Twitter-based hysteria for the space community, of course. But the terrestrial context and consequences, as well as the political stakes and symbolism of any exchange of hostilities in space matters more. The political and media dimension can magnify or minimise the perceived consequences of losing specific satellites out of all proportion to their actual strategic effect.

#### No retal or escalation from satellite attacks

Dr. Eric J. Zarybnisky 18, MA in National Security Studies from the Naval War College, PhD in Operations Research from the MIT Sloan School of Management, Lt Col, USAF, “Celestial Deterrence: Deterring Aggression in the Global Commons of Space”, 3/28/2018, https://apps.dtic.mil/dtic/tr/fulltext/u2/1062004.pdf

PREVENTING AGGRESSION IN SPACE

While deterrence and the Cold War are strongly linked in the public’s mind through the nuclear standoff between the United States and the Soviet Union, the fundamentals of deterrence date back millennia and deterrence remains relevant. Thucydides alludes to the concept of deterrence in his telling of the Peloponnesian War when he describes rivals seeking advantages, such as recruiting allies, to dissuade an adversary from starting or expanding a conflict.6F6 Aggression in space was successfully avoided during the Cold War because both sides viewed an attack on military satellites as highly escalatory, and such an action would likely result in general nuclear war.7F7 In today’s more nuanced world, attacking satellites, including military satellites, does not necessarily result in nuclear war. For instance, foreign countries have used high-powered lasers against American intelligence-gathering satellites8F8 and the United States has been reluctant to respond, let alone retaliate with nuclear weapons. This shift in policy is a result of the broader use of gray zone operations, to which countries struggle to respond while limiting escalation. Beginning with the fundamentals of deterrence illuminates how it applies to prevention of aggression in space.

#### Squo debris thumps

**Wall 21** [Mike Wall, Michael Wall is a Senior Space Writer with [Space.com](http://space.com/) and joined the team in 2010. He primarily covers exoplanets, spaceflight and military space. He has a Ph.D. in evolutionary biology from the University of Sydney, Australia, a bachelor's degree from the University of Arizona, and a graduate certificate in science writing from the University of California, Santa Cruz. 11/15/21, "Kessler Syndrome and the space debris problem," Space, [https://www.space.com/kessler-syndrome-space-debris accessed 12/10/21](https://www.space.com/kessler-syndrome-space-debris%20accessed%2012/10/21)] Adam

Earth orbit is getting more and more crowded as the years go by. Humanity has launched about 12,170 satellites since the dawn of the space age in 1957, [according to the European Space Agency](https://www.esa.int/Safety_Security/Space_Debris/Space_debris_by_the_numbers) (ESA), and 7,630 of them remain in orbit today — but only about 4,700 are still operational. That means there are nearly 3,000 defunct spacecraft zooming around Earth at tremendous speeds, along with other big, dangerous pieces of debris like upper-stage rocket bodies. For example, orbital velocity at 250 miles (400 kilometers) up, the altitude at which the ISS flies, is about 17,100 mph (27,500 kph). At such speeds, even a tiny shard of debris can do serious damage to a spacecraft — and there are huge numbers of such fragmentary bullets zipping around our planet. ESA estimates that Earth orbit harbors at least 36,500 debris objects that are more than 4 inches (10 centimeters) wide, 1 million between 0.4 inches and 4 inches (1 to 10 cm) across, and a staggering 330 million that are smaller than 0.4 inches (1 cm) but bigger than 0.04 inches (1 millimeter). These objects pose more than just a hypothetical threat. From 1999 to May 2021, for example, the ISS conducted 29 debris-avoiding maneuvers, including three in 2020 alone, [according to NASA officials](https://www.nasa.gov/mission_pages/station/news/orbital_debris.html). And that number continues to grow; the station performed [another such move in November 2021](https://www.space.com/space-station-dodging-chinese-space-junk-spacex-crew-3), for example. Many of the smaller pieces of space junk were spawned by the explosion of spent rocket bodies in orbit, but others were more actively emplaced. In January 2007, for instance, China intentionally destroyed one of its defunct weather satellites in a much-criticized test of anti-satellite technology that generated [more than 3,000 tracked debris objects](https://swfound.org/media/9550/chinese_asat_fact_sheet_updated_2012.pdf) and perhaps 32,000 others too small to be detected. The vast majority of that junk remains in orbit today, experts say. Spacecraft have also collided with each other on orbit. The most famous such incident occurred in February 2009, when Russia's defunct Kosmos 2251 satellite slammed into the operational communications craft Iridium 33, producing [nearly 2,000 pieces of debris](https://swfound.org/media/6575/swf_iridium_cosmos_collision_fact_sheet_updated_2012.pdf) bigger than a softball. That 2009 smashup might be evidence that the Kessler Syndrome is already upon us, though a cataclysm of "Gravity" proportions is still a long way off. "The cascade process can be more accurately thought of as continuous and as already started, where each collision or explosion in orbit slowly results in an increase in the frequency of future collisions," [Kessler told Space Safety Magazine in 2012](http://www.spacesafetymagazine.com/space-debris/kessler-syndrome/don-kessler-envisat-kessler-syndrome/).