**1NC**

**T**

**1NC – Appropriation**

**Interpretation: Appropriation means use, exploitation, or occupation that is permanent and to the exclusion of others**

**Babcock 19** Professor of Law, Georgetown University Law Cente. Babcock, Hope M. "The Public Trust Doctrine, Outer Space, and the Global Commons: Time to Call Home ET." Syracuse L. Rev. 69 (2019): 191.

**Article II** is one of those succeeding provisions that curtails “the freedom of use outlined in Article [I] by declaring that outer space, including the [m]oon and other celestial bodies, is not subject to **national appropriation**.”147 It flatly prohibits national appropriation of any celestial body in outer space “by means of use or occupation, or by any other means.”148 However, “many types of ‘use’ or ‘exploitation’. . . **are inconceivable without appropriation** of some degree at least of any materials taken,” **like ore or water**.149 If this view of Article II’s prohibitory language is correct, then “it is not at all farfetched to say that the OST actually installs a blanket prohibition on many beneficial forms of development.”150 However, the OST **only** prohibits **an appropriation that constitutes** a “long-term use **and permanent occupation, to the exclusion of all others**.”151

**Violation: Space tourism is, by definition, temporary – people briefly go to space in a rocket ship and then return to Earth**

**look up "appropriation" in the 1AC – comes up zero times except for their solvency card which is generic and only about the OST**

**1] Precision – if we win definitions the aff doesn’t defend a shift from the squo or solve their advantages – so at best vote negative on presumption. The resolution is the only predictable stasis point for dividing ground—any deviation justifies the aff arbitrarily jettisoning words in the resolution at their whim which decks negative ground and preparation because the aff is no longer bounded by the resolution.**

**2] Predictable limits—Letting temporary occupation be appropriation is a limits diaster - any aff about a single space ship, satellite, or weapon would be T because they temporarily occupy space. Limits explodes neg prep burden and draws un-reciprocal lines of debate, where the aff is always ahead, turns their pragmatics offense**

**DTD and competing interps – abuse already happened – T tells the negative what they have to prepare for—there’s no way for us to know what constitutes a “reasonable interpretation” pre-tournament – reasonability is arbitrary and causes a race to the bottom, proliferating abuse**

**No RVIs—it’s your burden to be topical.**

**CP**

**1NC – Advantage**

**States other than the People's Republic of China should ban the appropriation of outer space by private entities for private space tourism.**

**States should ban the use of propellants other than liquid hydrogen and liquid oxygen to fuel rocket launches and space operations.**

**Force them to name Chinese private companies interested in space exploration in the 1AR, or else this counterplan wholly solves the aff**

**Plank 1 solves ozone because solid fuel rockets are the ones that burn the ozone layer – liquid hydrogen/oxygen are safe**

**Mortillaro 21** [Nicole Mortillaro, CBC News Senior Reporter, editor of the Journal of the Royal Astronomical Society of Canada, author of several books. "Rocket launches could be affecting our ozone layer, say experts." CBC, 4-22-2021, accessed 1-22-2022, https://www.cbc.ca/news/science/rocket-launches-environment-1.5995252] HWIC

There are different types of rocket propellants. Some, like liquid oxygen and liquid hydrogen, produce mainly water vapour and have little environmental impact. These were used in past shuttle launches and even in the Apollo-era Saturn V vehicles.

Then there are those that produce alumina particles in the stratosphere, such as those in solid rocket boosters, which were also used in past shuttle launches, and are still being used today by some launch companies.

Finally, there are those that deposit black soot in the stratosphere, such as kerosene used in SpaceX's Falcon 9 and Russia's Soyuz rockets.

It's the alumina and black soot that is most concerning to experts.

**DA**

**1NC – China**

**CCP legitimacy high now**

Yvonne **Murray 22**, “2021 saw China's Xi Jinping tighten grip on power,” 1/4/22, RTE (Ireland's National Public Service Media), https://www.rte.ie/news/2021/1231/1269202-china-year-in-review/

In 2021, while most of the world struggled to contain the virus, China kept its borders sealed, stamped out outbreaks with ruthless efficiency and in its zero-Covid bubble, set about turbo charging internal reforms.

It was the year, the Chinese leader, Xi Jinping, declared "the east is rising and the west is in decline". But his confidence was cautious, warning officials not to write off their main rival, the United States.

And as this superpower rivalry deepened, taking on what other countries feared was a distinctly Cold War hue, Taiwan took centre stage.

The US President Joe Biden appeared to break with Washington's long-held policy of "strategic ambiguity" (which is meant to keep everyone in the dark as to whether the US would defend Taiwan) by stating the US would indeed come to the island’s defence. His aides later back-pedalled on his comments.

When an unprecedented number of Chinese warplanes flew past Taiwan amid Beijing’s threats to take the island, many speculated the invasion was nigh.

And while China continued to look for parity of esteem for its authoritarian form of governance, especially in international institutions built on democratic norms, Taiwan became the touchstone in a global clash of values.

Democracy versus authoritarianism

The clashes came thick and fast. In the Spring, politicians in Europe, who had criticised human rights abuses in Xinjiang, were hit with sanctions by Beijing. The shelving of the China Investment Agreement as a result, was a clear sign that Sino-European relations had taken a nosedive. In the autumn, Beijing lost a good friend with the exit of Germany’s Chancellor, Angela Merkel.

Then the decision by an EU country, Lithuania, to allow Taiwan to open a representative office under its own name, drew fury from Beijing, culminating in the sudden flight of Lithuanian diplomats out of China.

In another dramatic diplomatic incident, Huawei’s senior executive, Meng Wanzhou, reached a deal with US prosecutors in her extradition case, allowing her to return to China.

Within hours, the two Canadian citizens, Michael Kovrig and Michael Spavor, detained on spying charges in China were suddenly released - Beijing appearing to make no secret of its hostage diplomacy. Irish businessman Richard O’Halloran, meanwhile, remained detained without charge in Shanghai.

At the same time, the number of foreign journalists inside China, dwindled further. Reporters who tried to hold the one-party state government to account on issues like the re-education camps in Xinjiang, the ongoing erosion of democracy in Hong Kong or the virus origins were frequently called "fake news" and "hostile foreign forces" by a regime now entirely intolerant of scrutiny.

When I fled Beijing with my family in March after years of intimidation and harassment by the authorities, there were no Irish journalists, reporting for Irish outlets, left in China.

In our Taipei exile, we joined a burgeoning number of China correspondents forced to cover the superpower from a distance.

In 2021, it seemed the chasm between China and much of the rest of the world - or to use Chairman Xi’s framing "east and west" - yawned wider.

The home front

But despite the chilly geopolitical atmosphere, on home turf this year the leadership was in a celebratory mood. Pomp and pageantry marked 100 years of the Communist Party in July and the party leader, Xi Jinping, used the moment to deliver a colourful message to his own people and more pointedly to the outside world.

"We will never allow anyone to bully, oppress or subjugate China," he said, to whoops and cheers in Tiananmen Square.

"Anyone who dares try to do that will have their heads bashed bloody against the Great Wall of Steel forged by over 1.4 billion Chinese people," he said.

Domestically, there is no doubt that the pandemic delivered a massive boost for the leadership. The Chinese public, looking at the infection and death rates in advanced democracies, felt a sense of national pride that China had to a large extent remained Covid-free, and the downsides of the policies, such as impact on mental health, received little attention.

However, those Chinese people who tried to document the chaos of the early response to the virus were forgotten. One citizen journalist, Zhang Zhan, is now dying in prison for attempting to report the reality of the Wuhan lockdown, countering the official propaganda. Others simply disappeared.

The government continued to push their own narratives on the origins of the virus, suggesting, alternately, that it came in on frozen food imports from Europe or it was manufactured in a US laboratory - both widely accepted by Chinese citizens and promoted by officials on international social media platforms.

The WHO's heavily choreographed mission to Wuhan resulting in the verdict that a leak from a Wuhan lab was "extremely unlikely" was another victory for the Communist Party. (Although the WHO chief, Tedros Adhanom, swiftly put the lab leak theory back on the table as soon as the team left China.)

Common prosperity

But behind the outward confidence, China’s leaders spoke of major internal challenges: a demographic crisis, pressing energy and food security issues as well as an unsustainable wealth gap which makes China one of the most unequal societies in the world.

They know that the Party’s social contract with its citizens (to stay out of politics while leaders deliver growth and jobs) could suffer in a slowing economy, damaging their legitimacy.

2021 was in many ways a dress rehearsal for 2022

And so, under the banner of "common prosperity," the government enacted a series of crackdowns on technology companies, brought wealthy entrepreneurs to heel, banned expensive online education platforms and reined in the overheated real estate sector.

The government also went after the online gaming industry, which state media labelled "spiritual opium," limiting playing time for teenagers and prompting the American makers of the game Fortnite to pull the plug on their China venture.

With all this set to continue, 2021 was in many ways a dress rehearsal for 2022 - the year in which Xi, often compared to Mao, is expected to enter an unprecedented third term as leader of an unapologetically authoritarian, deeply nationalistic and increasingly powerful regime.

**The plan alienates the PLA – they view space dominance as the linchpin of China’s legitimacy – specifically, public-private tech development is key**

**Economic Times 20** [(Economic Times, Indian daily newspaper, internally cites Dean Cheng, Senior Research Fellow at the Heritage Foundation and the Davis Institute for National Security and Foreign Policy, former analyst in the International Security and Space Program at the Office of Technology Assessment, BA in Politics from Princeton University) “China attempting to militarize space as it seeks to modernize its military power,” 8/31/2020] JL

The Jamestown Foundation, a US think-tank, hosted a webinar on August 19 entitled "China's Space Ambitions: Emerging Dimensions of Competition." One presenter, Dean Cheng, Senior Research Fellow at The Heritage Foundation, noted that **Beijing's space programme is linked to China's central concept of comprehensive national power**. "This is basically how the Chinese think about how they rack and stack, how they compare with other countries."

China recognises that military power is important, but it is not the only factor in being a great power. Cheng drew a parallel with the former USSR, where military power alone did not ensure survival of that communist state. Other comprehensive national power factors are political unity, economic power, diplomatic strength, science and technology, and even culture. "Space touches every one of these aspects in comprehensive national power, and that is a part of why Chinese see space as so important."

Indeed, a strong space industrial complex will generate benefits that ripple through the rest of China's economy. Furthermore, he said **space achievements "promote pride within China, especially for the Chinese Communist Party (CCP)** ... It's symbolic of how far China has come," he said, and "**it gives the CCP legitimacy**".

China is pushing into space services, including **satellite launches**, **satellite applications** and **Earth observation/satellite imagery** for others. Satellite customers include Belarus, Laos, Pakistan and Venezuela, for example, attracting hard currency and influence. Cheng said most underestimate the impact this has, as such countries grow almost totally dependent on Chinese equipment, assets and training over time. Incidentally, China could have manufactured back doors into these systems for foreigners to allow it access.

Mark Stokes, Executive Director at the US-based Project 2049 Institute think-tank, said in the same webinar that PLA requirements have always been fundamental to development of Chinese space capabilities. Potential PLA space missions in support of joint warfighting in a crisis include targeting (battlefield surveillance, electronic reconnaissance and ocean surveillance), communications, PNT services (obtaining target data, navigation information, navigation support and timing services), space jamming (encompassing space communications, radar, electro-optical and PNT) and space protection.

Stokes said the end of 2015 was "significant" for Chinese space efforts because consolidation of end-users under the PLA's Strategic Support Force (PLASSF) occurred, specifically within the Space Systems Department. In terms of developing and meeting requirements, the PLASSF is now "much more efficient," the American analyst posited.

Indeed, China created its space force in 2015, just a few months after Russia. After formally establishing its Space Force in December 2019, the US is still getting its equivalent off the ground. Cheng said both China and Russia have been pushing to militarise space, even though such a term is probably meaningless given that **95 per cent of space technology has dual applications for both military and civilian use**. Certainly, outer space can no longer be viewed as a sanctuary.

Stokes said that "not much has changed really in terms of the space launch infrastructure and the launch, tracking and control of space ... but they are now integrated with end-users, and that is going to have an effect on making the whole system more efficient."

China has freedom of action in space, and the creation of the PLASSF and consolidation of space/counter-space research, development and acquisition, as well as training and operations, have benefitted from a single integrated command. The PLA's ability to interfere with American military operations in places like Taiwan will continue to grow yearly.

Cheng said, "The Chinese see future war as revolving around joint operations, which are not just land, air and sea forces." They also include the outer space and electronic warfare domains, which are necessary for information dominance." China, therefore, wishes to deny an adversary like the US the use of space, plus it needs to give the Chinese military every advantage.

China has therefore developed the ability to target hostile space-based assets (from the ground or space) and their all-important data-links. Indeed, jamming and electronic warfare complement anti-satellite weapons (which China has already tested), any of which can achieve effective mission kills against US and allied satellites. Stokes has not yet ascertained which agency is responsible for satellite kinetic kills, but it could well be the PLA Rocket Force, which is traditionally very tightly controlled by the Central Military Commission.

A detailed report entitled China's Space and Counter-space Capabilities and Activities, prepared for the US-China Economic and Security Review Commission, was published on March 30. Its authors, Mark Stokes, Gabriel Alvarado, Emily Weinstein and Ian Easton, summarised China's counter-space capabilities as follows.

"China has an operational counter-space capability that will evolve through 2020 and out to 2035. These capabilities include anti-satellite kinetic kill vehicles (KKV) and space electronic countermeasures ... On the non-kinetic side, the PLA has an operational ground-based satellite electronic countermeasures capability designed to disrupt adversary use of satellite communications, navigation, search and rescue, missile early warning and other satellites through use of jamming."

China obtained its first ground-based satellite jammers from Ukraine in the late 1990s, but it has developed its own solutions since then. "The PLA is capable of carrying out electronic countermeasures to disrupt, deny, deceive or degrade space services. Jamming prevents users from receiving intended signals and can be accomplished by attacking uplinks and downlinks.

The **PLA and defence industry** are developing and deploying jammers capable of targeting satellite communications over a large range of frequencies, including dedicated military communication bands. The PLASSF also has advanced cyber capabilities that could be applied in parallel with counter-space operations."

Nonetheless, the report asserted that the US still assumed a technological lead in space.

"China also is carrying out research, development and testing on potential space-based counter-space systems. The PLASSF and defense industry have carried out advanced satellite maneuvers and are likely testing orbital technologies that could be applied to counter-space operations." The PLASSF Network Systems Department probably oversees satellite jamming operations.

**China’s “space dream” is key to Xi credibility – plan is a flip flop that undermines legitimacy**

**Kharpal 21** – senior technology correspondent based in Guangzhou, China at CNBC [Arjun, “China once said it couldn’t put a potato in space. Now it’s eyeing Mars,” 6/30/2021, https://www.cnbc.com/2021/06/30/china-space-goals-ccp-100th-anniversary.html]

Fast forward more than six decades and President Xi Jinping, China’s current leader, is seen congratulating three astronauts who were sent to the country’s own space station earlier this month.

Since Mao’s comments, China has launched satellites, sent humans to space and is now planning to build a base on Mars, achievements and ambitions Beijing has highlighted as the centennial of the CCP’s founding approaches.

Space is now another battleground between the U.S. and China amid a broader technological rivalry for supremacy, one that could have scientific and military implications on Earth.

“President **Xi** Jinping **has declared that China’s ‘Space Dream’ is to overtake all nations and become the leading space power** by 2045,” said Christopher Newman, professor of space law and policy at the U.K.’s Northumbria University. “**This all feeds into China’s ambition to be the world’s** **single science and technology superpower.”**

Why space?

In March, **China highlighted space as a “frontier technology”** it would focus on and research into the “origin and evolution of the universe.”

But there are other implications too.

**“It is important for China** and the US because it can advance technological development” **in areas such as “national security and** some **socioeconomic development,”** according to Sa’id Mosteshar, director of the London Institute of Space Policy and Law, and research fellow Christoph Beischl.

While experts doubt it could spiral into war in space, extra-terrestrial activities can support military operations on Earth.

**Space achievements are also about the optics.**

**Through space exploration** to the Moon or to Mars, **“China** and the U.S. **display their technological sophistication** to the domestic audience and the world, **increasing** their domestic and international prestige, **domestic legitimacy** and international influence,” Mosteshar and Beischl said.

**And the Chinese private sector is crucial for space competition – Xi has promised and said so before**

**Patel 21** — (Neel V. Patel, Neel is the space reporter for MIT Technology Review, and he writes The Airlock newsletter. Before joining, he worked as a freelance science and technology journalist, contributing stories to Popular Science, The Daily Beast, Slate, Wired, the Verge, and elsewhere. Prior to that, he was an associate editor for Inverse, where he grew and led the website’s space coverage., “China’s surging private space industry is out to challenge the US“, MIT Technology Review, 1-21-2021, Available Online at https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance, accessed 1-11-2022, HKR-AR)

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 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. 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, 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.

**Hardline anti-U.S. stance is key to PLA support for Xi---it takes all available resources to keep the PLA in line---and no turns because engagement can’t moderate PLA views**

Yawei **Liu 14**, director of the China Program at the Carter Center, adjunct professor of political science at Emory University and associate director of the China Research Center in Atlanta; and Justine Zheng Ren, Ph.D. in Political Science from the London School of Economics, March 2014, “An Emerging Consensus on the US Threat: the United States according to PLA officers,” Journal of Contemporary China, Vol. 23, No. 86

Though the PLA elite perceptions of the **U**nited **S**tates have fluctuated over time, there has been some regularity in the evolution of their perceptions. Comparing the dominant perceptions of the United States among different generations of Chinese military elites in the PRC, we find that the PLA elite perceptions of US intentions have been **foremost influenced by China's strategic interest** in a certain period, **rather than the level and intensity of bilateral exchanges** at the time. Using the case of US arms sales to Taiwan and the case of the South China Sea and the Diaoyu Islands, we try to assess how consistent and persistent PLA elite perceptions of the US have been in recent years. While we agree that these outspoken military men cannot be taken on the surface as indicative of China's national policies, we will also point out several important dimensions that are likely to allow the PLA to play a more influential role in setting the agenda for China's strategic interest in the era of Xi Jinping.

China's top civilian leadership, when talking about Sino–US relations in the era of Jiang Zemin and Hu Jintao, always seems to be consolatory, emphasizing the importance and mutual benefits of the bilateral relations. While they do not like certain aspects of US policies, such as selling arms to Taiwan, even their repudiation of Washington is always couched in very dry and non-inflammatory language. The approach taken by the People's Liberation Army (PLA) of lashing out at the **U**nited **S**tates, however, is vivid and vehement. In the first four years since President Obama came into office in 2009, Washington and Beijing have been trying to manage their volatile bilateral relations, but the rhetorical interventions by these PLA officers have made it hard for the Chinese leadership to present a coherent and cohesive policy towards the United States.[ 1]

At the beginning of Xi Jinping's era, one of the first things this new secretary general of the Chinese Communist Party (CCP) did was to **impose tighter control of the PLA** and build his personal network of protégés in the military. On 23 November 2012, just eight days after he became chairman of the Central Military Commission (CMC), Xi presided over a ceremony to add a third star to General Wei Fenghe, the new commander-in-chief of China's Second Artillery. All such ceremonies in the past were held in June or July of the year regardless of when a general was eligible. Xi's decision to convene this ceremony at this time appears to be a symbolic gesture. During his tour of Guangdong in December 2012, Xi inspected military units there and called upon the PLA to be prepared for wars.[ 2] In fact, since the Bo Xilai scandal and the assumption of power by Xi Jinping, a **critical moment when new leadership needs to consolidate power**, the Chinese military has been actively called upon to curtail internal corruption and prepare for war over the rising tensions of the **E**ast China Sea and the **S**outh **C**hina **S**ea. ThePLA Daily has also published editorials calling for absolute CCP control of the military. All these attempts to have tighter control over the military reflect the fact that, to the top leadership of the CCP, the PLA is **not a** uniformed and **subordinate organization** that **unconditionally complies** with the will of the leadership. Instead, the top leadership **needs to use all available resources to keep the military in check**. Against this backdrop, we see it as an interesting and beneficial exercise to explore the changing perceptions of the US among the PLA elite and to examine their influence on the evolving relationship between China and the United States at the beginning of the Xi Jinping era, through their perceptions, statements and strategic ambitions towards the US.

**That factionalizes the CCP and emboldens challenges to Xi – the PLA is increasingly powerful and not unconditionally subservient**

**Simpson 16** [(Kurtis, Centre Director with Defence Research and Development Canada, has been conducting research on China’s leadership, Communist Party politics, the People’s Liberation Army and foreign policy for over 30 years,Master’s Degree and a Ph.D from York University, previously served as an intelligence analyst at the Privy Council Office and leader of the Asia Research Section at the Department of National Defence’s Chief Defence Intelligence (CDI) organization) “China’s Re-Emergence: Assessing Civilian-Military Relations In Contemporary Era – Analysis,” Eurasia Review, 12/21/2016] JL

Paralleling **divided loyalties** between Chinese Party, military and government bodies, one must also recognize that within each, **factions exist**, based upon generational, personal, professional, geographic, or institutional allegiances.19 These minor fault lines are most pronounced during crises, and they continue independent of professionalization.20 As was demonstrated by the civil-military dynamics of the Chinese government’s suppression of student demonstrators, both divisions and allegiances of interests emerged with respect to how to contain this situation and factional interests largely determined which troops would carry out the orders, who commanded them, what civilian Party leaders supported the actions, and who would be sanctioned following the mêlée. A consequence of factionalism within the PLA is that the Party’s control mechanisms (particularly because rule of law and constitutional restraints on the military are weak) needs to be robust to control not only a single military chain of command but (particularly during crises) perhaps more than one. This is not likely the case. A review of the evidence indicates the military’s influence, on the whole, is increasing, and the Party’s control decreasing.

On one level, the Party clearly controls the military as the Central Military Commission or CMC (the highest military oversight body in the PRC) is chaired by a civilian, President Xi Jinping. Moreover, the PLAs representation on formal political decision-making bodies (such as the Politburo Standing Committee, the Politburo, the Central Committee, and the NPC) has decreased over the years, but this does not necessary equate to a reduced level of influence. For example, the two Vice-Chairman of the CMC are now military generals, as are the remaining other eight members. Irrespective of institutional membership, military leaders retain considerable say. Personal interactions and informal meetings with senior party elites provide venues to sway decisions. They do, also, hold important places on leading small groups dedicated to issues like Taiwan and other security questions, such as the South China Seas.21

In a similar vein, other methods of Party influence, as exercised through political commissars, party committees, and discipline inspection commissions are no longer empowered to enforce the ideological dictates of a paramount leader. In the face of **diffuse reporting chains**, **competing allegiances**, and often effective **socialization** by the military units they are supposed to be watching over, most do not provide the Party guardian and guidance function once so pervasive.

While perhaps overstated, Paltiel’s observation that “…China’s energies over the past century and half have given the military a prominent and even dominant role in the state, preempting civilian control and inhibiting the exercise of constitutional authority” is likely now truer than ever before in history.22 While still loyal to the party as an institution, **the PLA is not unconditionally subservient to a particular leader** and retains the resources to enter the political arena if (at the highest levels) a decision is made to do so.

The civilian-military trend lines evident in China since the end of the Cultural Revolution affirm that the symbiotic nature of the Party-PLA relationship has morphed in important respects since the late 1960s. The promotion of professionalism, a reduced role for ideological indoctrination, an increasing bifurcation of civil-military elites, and growing state powers (complete with divided loyalties and continued factionalism) has complicated the political landscape informing how the CCP interacts with the PLA. If, as postulated, we have moved from a fused, ‘dual role elite’ model to one of ‘conditional compliance’ in which **the military actually holds a preponderance of the power capabilities** and where its interests are satisfied through concessions, bargaining, and pay-offs, empirical evidence should reflect this. A review of China’s three major leadership changes since the transition from the revolutionary ‘Old Guard’ to the modern technocrats confirms this.

Formally anointed and legitimized by Deng in 1989, Jiang assumed leadership without military credentials and few allies, viewed by many as a ‘caretaker’ Party Secretary in the wake of the Tiananmen Massacre. Despite his limitations, Jiang was well versed in the vicissitudes of palace politics. Informed by a high political acumen, he immediately promoted an image as an involved Commander-in-Chief, personally visiting all seven military regions, a sign of commitment not made by either the likes of Mao or Deng. Symbolic gestures like this were bolstered by his providing incentives to the PLA, such as: consistent raises in the defence budget; funds for military modernization; as well as equipment, logistics, and augmented R&D.23

Referred to as the ‘silk-wrapped needle,’ Jiang marshalled Party resources to not only reward, but to punish.24 His institutional authority over appointments enabled him to manipulate factions, dismiss those who opposed him, enforce new rigid retirement standards, and promote loyalists. A delicate equilibrium was established during the early-1990s until his semi-retirement in 2004,25 where Jiang guaranteed military priorities such as supporting ‘mechanization’ and an ‘information-based military’ (promoting the concept of RMA with Chinese characteristics) in exchange for the PLA backing of his legacy contributions to Marxist Leninist Mao Zedong thought with the enshrinement of his “Three Represents” doctrine.

Like Jiang, Hu Jintao’s succession was the product of negotiation, compromise, and concessions. While neither opposed by the PLA, nor supported by the military ‘brass,’ Hu was a known commodity, having served as Vice-President (1998) and CMC Vice-Chairman since 1999. He was deemed acceptable until proven otherwise. In the shadow of Jiang (who retained the position of CMC Chair until 2004), Hu did not exert the same kind of influence in, nor engender the same kind of deference from, China’s military, but equally proved capable of fostering a pragmatic relationship with the army which ensured its interests, and in so doing, legitimized his leadership position.

Ceding much of the military planning and operational decisions to the PLA directly, Hu played to his strengths and focused upon national security issues (such as the successful resolution of SARs in China), which bolstered his credibility as a populist leader among the masses, indirectly increasing his power within both the military and the Party. Additionally, he focused upon foreign military security affairs (most notably, North Korea-US negotiations), which enabled him to link his personal political agenda with the military’s latest ambitions.

In according the military a distinct place in China’s national development plan, supporting China’s rise, and ensuring its vital interests, Hu recognized the military’s evolving requirement to ‘go global’ and its worldwide interests in non-combat operations, such as peacekeeping and disaster relief, as well as stakes in the open seas, outer space, and cyberspace as interest frontiers with no geographic boundaries.26 Under the slogan of ‘China’s historical mission in the new phase of the new century’ and his acquiescence to the PLA’s stated requirements ‘to win local wars under modern conditions’ by funding new technology acquisition, Hu received the army’s formal recognition for his contributions to military thought based upon “scientific development” which informed a “strategic guiding theory,” resulting in a new operational orientation for China’s military. Emulating his predecessor, Hu won ‘conditional compliance’ from the PLA by successfully bartering military needs and wants for the army’s support and endorsement of his political tenure. This was not done outside of self-interest. Hu, as did Jiang, skillfully coopted, fired, and promoted select Generals to serve his greater ends, and he did this through varied means. Ultimately, however, it was done in a manner acceptable to the military.

Xi Jinping’s rise to power in 2012, while replicating the ‘horse-trading’ of Jiang and Hu, marks a fundamental departure in leadership style. Often described as a transformative leader, Xi is openly critical of his predecessors and rails against earlier periods where reform stalled and corruption grew.27 An advocate of ‘top-level design,’ incrementalism is being supplanted by a massive attempt to centralize all aspects of the CCP’s power, which includes a major restructuring of the economy, government, administration, and military.

Nicknamed “the gun and the knife” as a slight for his attempts to simultaneously control the army, police, spies, and the ‘graft busters,’ Xi’s power appears uncontested at present. Nevertheless, **he is also viewed as ‘pushing the envelope too far’ and endangering the equilibrium which has been established between the Party and PLA over the past 25 years**. For example, only two years into his mandate, he fostered a Cult of Personality, “the Spirit of Xi Jinping” which was officially elevated to the same standing as that of Mao and Deng, by comparison, foundational figures in Chinese history. His open attacks of political ‘enemies’ (most notably Zhou Yongkang, a Politburo Standing Committee member and former security czar) breeds fear among almost every senior official, all of whom are vulnerable on some point. Equally true, an unprecedented anti-corruption campaign is inciting comrades to turn on comrades, not unlike a massive game of prisoner’s dilemma.

Nowhere is the pressure for reform greater than in the PLA. Xi advocates administering the army with strictness and austerity, promoting frugality and obedience. At his direction, “mass-line educational campaigns” designed to “rectify work style” through criticism and self-criticism are being implemented.28 Ideological and political building is now equated with army building, as a means of ensuring the Party’s uncontested grip over the troops ideologically, politically, and organizationally. Select military regions (those opposite Taiwan and adjacent to the South China Seas) and commanders from those regions are witnessing favoritism and promotion at the expense of others. Moreover, a new “CMC Chairmanship Responsibility System” has been instituted, which directly calls into question the support of some of Xi’s senior-most generals.

A ‘hardliner’ by nature, Xi recognizes that he must earn the support of the PLA. New military priorities he supports include: accelerating modernization; Joint Command and C4ISR; training; talent management, as well as equipment and force modernization. That said, his goal of achieving the Chinese dream of building a “wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation” by 2021, the 100th anniversary of the founding of the CCP, is exceptionally ambitious. It will require endless commitments to competing interests in a period of economic stagnation and global economic downturn. Should the PLA come to believe they are not first in line for government largess, **support for Xi could erode very quickly**.29

**CCP instability collapses the international order – extinction**

**Perkinson 12** [(Jessica, MA in international affairs from American University) “The Potential for Instability in the PRC: How the Doomsday Theory Misses the Mark,” American University School of International Service, 2012] JL

Should the CCP undergo some sort of dramatic transformation – whether that be significant reform or complete collapse, as some radical China scholars predict2 – the **implications for international and US national security are vast**. Not only does China and the stability of the CCP play a significant role in the maintenance of **peace in the East Asian region**, but China is also relied upon by many members of the international community for foreign direct investment, economic stability and trade. China plays a key role in maintaining stability on the Korean Peninsula as one of North Korea’s only allies, and it is argued that instability within the Chinese government could also lead to instability in the already sensitive military and political situation across the Taiwan Strait. For the United States, the effect of instability within the CCP would be widespread and dramatic. As the United States’ **largest holder of US treasury securities**, instability or collapse of the CCP could threaten the stability of the already volatile economic situation in the US. In addition, China is the **largest trading partner of a number of countries**, including the US, and the US is reliant upon its market of inexpensive goods to feed demand within the US.

It is with this in mind that China scholars within the United States and around the world should be studying this phenomenon, because the potential for reform, instability or even collapse of the CCP is of critical importance to the stability of the international order as a whole. For the United States specifically, the potential - or lack thereof - forreform of the CCP should dictate its foreign policy toward China. If the body of knowledge on the stability of the Chinese government reveals that the Chinese market is not a stable one, it is in the best interests of the United States to look for investors and trade markets elsewhere to lessen its serious dependence on China for its economic stability, particularly in a time of such uncertain economic conditions within the US.

**Independently, Xi will lash out to preserve cred in the SCS – US draw-in ensures extinction**

**Mastro 20** [(Oriana Skylar, Assistant Professor of Security Studies at Georgetown University's Edmund A. Walsh School of Foreign Service, Resident Scholar at the American Enterprise Institute) “Military Confrontation in the South China Sea,” Council on Foreign Relations, 5/21/2020] JL

The risk of a military confrontation in the **South China Sea** involving the United States and China could rise significantly in the next eighteen months, particularly if their relationship continues to deteriorate as a result of ongoing trade frictions and recriminations over the novel coronavirus pandemic. Since 2009, China has advanced its territorial claims in this region through a variety of tactics—such as reclaiming land, militarizing islands it controls, and using legal arguments and diplomatic influence—without triggering a serious confrontation with the United States or causing a regional backlash. Most recently, China announced the creation of two new municipal districts that govern the Paracel and Spratly Islands, an attempt to strengthen its claims in the South China Sea by projecting an image of administrative control. It would be wrong to assume that China is satisfied with the gains it has made or that it would refrain from using more aggressive tactics in the future. Plausible **changes to China’s domestic situation** or to the international environment could create incentives for China’s leadership to adopt a **more provocative strategy in the South China Sea** that would increase the risk of a **military confrontation**.

The United States has a strong interest in preventing China from asserting control over the South China Sea. Maintaining free and open access to this waterway is not only important for economic reasons, but also to uphold the global norm of freedom of navigation. **The United States is also at risk of being drawn into a military conflict** with China in this region as a result of U.S. defense treaty obligations to at least one of the claimants to the contested territory, the Philippines. China’s ability to control this waterway would be a significant step toward displacing the United States from the Indo-Pacific region, expanding its economic influence, and generally reordering the region in its favor. Preventing China from doing so is the central objective of the U.S. National Security Strategy and the reason the Indo-Pacific is the U.S. military’s main theater of operations. For these reasons, the United States should seek ways to prevent Chinese expansion, ideally while avoiding a dangerous confrontation and being prepared to deftly manage any crises should they arise.

China considers the majority of the South China Sea to be an inalienable part of its territory. Exercising full sovereignty over this area is a core component of President Xi Jinping’s “China Dream.” China does not accept or respect the sovereignty claims of Brunei, Indonesia, Malaysia, the Philippines, Taiwan, or Vietnam in this region. Although China has been cautious in pressing its claims thus far, three developments could convince Xi that China should be more assertive.

Xi could feel compelled to accelerate his timeline in the South China Sea to maintain his consolidated position within the Chinese Communist Party (CCP), particularly if the political situation in Hong Kong worsens, peaceful reunification with Taiwan becomes less likely, or domestic criticism of his management of the novel coronavirus outbreak increases. With China’s economic growth for 2020 projected to hit only 1.2 percent—the lowest since the mid-1970s—Xi could find it necessary to demonstrate strength while Beijing deals with internal fallout from the pandemic. China has already declared two new administrative districts in the South China Sea in April 2020 and has escalated its criticism of U.S. freedom of navigation operations (FONOPs) in the area. Moreover, with expectations that the first stage of China’s military modernization efforts will be completed in 2020, Xi could become more confident that China would succeed in pressing its claims militarily, especially if the United States is distracted internally with managing the coronavirus pandemic or its aftermath.

**Case**

**Ozone**

**They don’t ban rocket launches for any purpose besides private tourism – public space sectors, asteroid mining, space col, space exploration terminally non-uq all of their advantages – None of the hype from their Rosenblum card came to be – none of the aff has a brink, but even if you take thousands of launches per year to be that brink, it’ll take centuries to get there - cx**

**Rockets constitute a tiny percentage of global emissions**

**Brown 21** — (Mike Brown, Mike Brown is a London-based journalist who covers innovation at Inverse. He is the author of Musk Reads, a regular newsletter that focuses on electric cars, space exploration, clean energy, and everything in-between. Mike holds a BA in English from Queen Mary, University of London, and an MS in journalism from Columbia Journalism School. His work has featured in CityMetric, International Business Times, Neowin.net, Building Magazine, and more. He has also made guest appearances on CBC Radio, Cheddar, Good Day New York, Trailblazers, and more. , “Are space rockets bad for the Earth? Why the question ignores an important truth“, Inverse, 11-23-2021, Available Online at https://www.inverse.com/innovation/are-rockets-environmentally-friendly, accessed 1-15-2022, HKR-AR)

Current rocket launches have a negligible effect on total carbon emissions — Everyday Astronaut found they accounted for 0.0000059 percent of global carbon emissions in 2018, while the airline industry produced 2.4 percent the same year.

But the long-term effect is less clear, especially as companies like SpaceX move from hosting 26 launches in a year to 1,000 launches per rocket in a year.

“I think we can guess that rockets won't be a huge impact on the environment, and they probably won't stand out as a sole source of new problems,” Darin Toohey, professor at the University of Colorado Boulder’s Atmospheric and Ocean Sciences, tells Inverse. “But they will add to the growing list of activities that have negative impacts on the environment.”

**NASA Rockets are worse and their studies are flawed**

**Brown 21** — (Mike Brown, Mike Brown is a London-based journalist who covers innovation at Inverse. He is the author of Musk Reads, a regular newsletter that focuses on electric cars, space exploration, clean energy, and everything in-between. Mike holds a BA in English from Queen Mary, University of London, and an MS in journalism from Columbia Journalism School. His work has featured in CityMetric, International Business Times, Neowin.net, Building Magazine, and more. He has also made guest appearances on CBC Radio, Cheddar, Good Day New York, Trailblazers, and more. , “Are space rockets bad for the Earth? Why the question ignores an important truth“, Inverse, 11-23-2021, Available Online at https://www.inverse.com/innovation/are-rockets-environmentally-friendly, accessed 1-15-2022, HKR-AR)

In January 2020, a new article in the Journal of Cleaner Production warned that rocket launches moving through the ozone layer is a key concern. It explained that rockets do cause ozone loss, but solid rocket motors like those on the NASA space shuttle cause far greater loss.

Newer rockets that use liquid propellant, like SpaceX’s Falcon 9, cause less ozone loss. These rockets have increased in popularity since the 2009 study. The problem is that most studies have focused on solid rocket motors, so more research is needed to understand how they differ.

**Environment resilient**

**Kareiva et al 12**

**Chief Scientist and Vice President, The Nature Conservancy (Peter, Michelle Marvier --professor and department chair of Environment Studies and Sciences at Santa Clara University, Robert Lalasz -- director of science communications for The Nature Conservancy, Winter, “Conservation in the Anthropocene,” http://thebreakthrough.org/index.php/journal/past-issues/issue-2/conservation-in-the-anthropocene/)**

As conservation became a global enterprise in the 1970s and 1980s, the movement's justification for saving nature shifted from spiritual and aesthetic values to focus on biodiversity. Nature was described as primeval, fragile, and at risk of collapse from too much human use and abuse. And indeed, there are consequences when humans convert landscapes for mining, logging, intensive agriculture, and urban development and when key species or ecosystems are lost.¶ But ecologists and conservationists have **grossly overstated** the fragility of nature, frequently arguing that once an ecosystem is altered, it is gone forever. Some ecologists suggest that if a single species is lost, a whole ecosystem will be in danger of collapse, and that if too much biodiversity is lost, spaceship Earth will start to come apart. Everything, from the expansion of agriculture to rainforest destruction to changing waterways, has been painted as a threat to the delicate inner-workings of our planetary ecosystem.¶ The fragility trope dates back, at least, to Rachel Carson, who wrote plaintively in Silent Spring of the delicate web of life and warned that perturbing the intricate balance of nature could have disastrous consequences.22 Al Gore made a similar argument in his 1992 book, Earth in the Balance.23 And the 2005 Millennium Ecosystem Assessment warned darkly that, while the expansion of agriculture and other forms of development have been overwhelmingly positive for the world's poor, ecosystem degradation was simultaneously putting systems in jeopardy of collapse.24¶ The trouble for conservation is that the data simply do not support the idea of a fragile nature at risk of collapse. Ecologists now know that the disappearance of one species does not necessarily lead to the extinction of any others, much less all others in the same ecosystem. In many circumstances, the demise of formerly abundant species can be **inconsequential** to ecosystem function. The American chestnut, once a dominant tree in eastern North America, has been extinguished by a foreign disease, yet the forest ecosystem is surprisingly unaffected. The passenger pigeon, once so abundant that its flocks darkened the sky, went extinct, along with countless other species from the Steller's sea cow to the dodo, with **no catastrophic or even measurable effects**.¶ These stories of **resilience are not isolated** examples -- a **thorough review of** the scientific literature identified **240 studies** of ecosystems following **major disturbances** such as deforestation, mining, oil spills, and other types of pollution. The abundance of plant and animal species as well as other measures of ecosystem function recovered, at least partially, in 173 **(72 percent) of** these **studies**

.25¶ While global forest cover is continuing to decline, it is rising in the Northern Hemisphere, where "nature" is returning to former agricultural lands.26 Something similar is likely to occur in the Southern Hemisphere, after poor countries achieve a similar level of economic development. A 2010 report concluded that rainforests that have grown back over abandoned agricultural land had 40 to 70 percent of the species of the original forests.27 Even Indonesian orangutans, which were widely thought to be able to survive only in pristine forests, have been found in surprising numbers in oil palm plantations and degraded lands.28¶ Nature is so **resilient** that it can **recover rapidly** from even the **most powerful** human disturbances. Around the Chernobyl nuclear facility, which melted down in 1986, wildlife is thriving, despite the high levels of radiation.29 In the Bikini Atoll, the site of multiple nuclear bomb tests, including the 1954 hydrogen bomb test that boiled the water in the area, the number of coral species has actually increased relative to before the explosions.30 More recently, the massive 2010 oil spill in the Gulf of Mexico was degraded and consumed by bacteria at a remarkably fast rate.31¶ Today, coyotes roam downtown Chicago, and peregrine falcons astonish San Franciscans as they sweep down skyscraper canyons to pick off pigeons for their next meal. As we destroy habitats, we create new ones: in the southwestern United States a rare and federally listed salamander species seems specialized to live in cattle tanks -- to date, it has been found in no other habitat.32 Books have been written about the collapse of cod in the Georges Bank, yet recent trawl data show the biomass of cod has recovered to precollapse levels.33 It's doubtful that books will be written about this cod recovery since it does not play well to an audience somehow addicted to stories of collapse and environmental apocalypse.¶ Even that classic symbol of fragility -- the polar bear, seemingly stranded on a melting ice block -- may have a good chance of surviving global warming if the changing environment continues to increase the populations and northern ranges of harbor seals and harp seals. Polar bears evolved from brown bears 200,000 years ago during a cooling period in Earth's history, developing a highly specialized carnivorous diet focused on seals. Thus, the fate of polar bears depends on two opposing trends -- the decline of sea ice and the potential increase of energy-rich prey. The history of life on Earth is of species evolving to take advantage of new environments only to be at risk when the environment changes again.¶ The wilderness ideal presupposes that there are parts of the world untouched by humankind, but today it is impossible to find a place on Earth that is unmarked by human activity. The truth is humans have been impacting their natural environment for centuries. The wilderness so beloved by conservationists -- places "untrammeled by man"34 -- never existed, at least not in the last thousand years, and arguably even longer.

**Debris**

**Every escalation scenario is nonsense – the nuclear taboo is incredibly strong and no state wants all-out nuclear war – if anything more debris**

**Launches and debris are inevitable – space tourism and state programs**

**Impey 21** [Chris Impey, professor and deputy head of the department of astronomy at the University of Arizona. His astronomy research focuses on observational cosmology—using telescopes and other instruments to study the large-scale structure and evolution of the universe. He also does research on education and science literacy. "2021: More space launches than any year in history since Sputnik." The Hill, 12-29-2021, accessed 1-22-2022, https://thehill.com/opinion/technology/587630-2021-more-space-launches-than-any-year-in-history-since-sputnik?rl=1] HWIC

The pace of space exploration was frenetic in 2021, with major developments in space policy, and 2022 promises to be just as exciting. Let’s pause and look back on the space milestones of this year:

Moguls in space

It’s an indelible image of science fiction made real. Actor William Shatner, who played Captain Kirk in the original Star Trek TV series, choking up as he described his flight with Blue Origin, after he became the oldest person to reach space at 90 years old. “I hope I never recover from this,” he said.

This year saw three billionaires bolt from the starting blocks in a new commercial space race. First to go up was Sir Richard Branson in July, in the second suborbital flight of his SpaceShipTwo craft. He beat Amazon and Blue Origin founder Jeff Bezos by just nine days, but Bezos can claim bragging rights because his New Shepard craft flew above the Karman line, which is the official demarcation of outer space.

The third billionaire in this elite club is Elon Musk. The Tesla and SpaceX CEO also had a banner year, sending eight astronauts and a ton of supplies to the International Space Station for NASA, and his Inspiration4 mission was the first orbital spaceflight with only private citizens aboard. In a signpost for the future, Musk’s Starship, part of his plan to colonize Mars, stuck its first landing.

A fourth billionaire, Japanese fashion mogul Yusaku Maezawa — who doesn’t have his own rocket company — paid his way to the Space Station on a Russian Soyuz spacecraft.

For one brief moment in December, there were a record 19 people weightless in space, eight of them private citizens. The six tourist spaceflights in 2021 were also a record, and part of a resurgence in activity in space. There were 134 successful orbital missions, with China edging out the United States for the most by any country.

That’s more launches in 2021 than in any year in the history of the space program since Sputnik!

The new Wild West

If all this activity has a downside, it’s the fact that near-Earth orbits are getting crowded, a situation that will only get worse.

People looked anxiously to the sky in May, when a 10-story chunk of China’s biggest rocket plunged to Earth. It landed harmlessly in the Indian Ocean, but there will be many more uncontrolled reentries as China builds its space station. A more ominous event occurred in November, when Russia destroyed one of its own orbiting satellites. This created a vast cloud of fast-moving debris which forced astronauts in the International Space Station to take shelter in their escape spacecraft.

Space junk is a growing problem. There are 23,000 pieces of debris larger than a softball orbiting the Earth. But space junk moves so fast that any of the 100 million pieces larger than a millimeter could damage a spacecraft. In addition to launching 12 people into Earth orbit, SpaceX launched 800 small satellites in 2021. Musk’s eventual goal is 42,000 Starlink satellites to deliver wireless internet to remote parts of the world. These mega-constellations of satellites being launched by SpaceX and other companies will clutter low-Earth orbit. And they’re also bright, shiny objects that will adversely affect ground-based astronomy.

**Space debris creates existential deterrence and a taboo**

**Bowen 18** [(Bleddyn, lecturer in International Relations at the University of Leicester) “The Art of Space Deterrence,” European Leadership Network, February 20, 2018, https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/] TDI

Fourth, the ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence. As space is so useful to modern economies and military forces, a large-scale disruption of space infrastructure may be so intuitively escalatory to decision-makers that there may be a natural caution against a wholesale assault on a state’s entire space capabilities because the consequences of doing so approach the mentalities of total war, or nuclear responses if a society begins tearing itself apart because of the collapse of optimised energy grids and just-in-time supply chains. In addition, the problem of space debris and the political-legal hurdles to conducting debris clean-up operations mean that even a handful of explosive events in space can render a region of Earth orbit unusable for everyone. This could caution a country like China from excessive kinetic intercept missions because its own military and economy is increasingly reliant on outer space, but perhaps not a country like North Korea which does not rely on space. The usefulness, sensitivity, and fragility of space may have some existential deterrent effect. China’s catastrophic anti-satellite weapons test in 2007 is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.

**No space war – attributability checks escalation**

**Pavur 19** [James, DPhil Researcher at the Cybersecurity Centre for Doctoral Training at Oxford University, and Ivan Martinovic, Professor of Computer Science in the Department of Computer Science at Oxford University, “The Cyber-ASAT: On the Impact of Cyber Weapons in Outer Space”, 2019 11th International Conference on Cyber Conflict: Silent Battle, <https://ccdcoe.org/uploads/2019/06/Art_12_The-Cyber-ASAT.pdf>]

A. Limited Accessibility Space is difficult. Over 60 years have passed since the first Sputnik launch and only nine countries (ten including the EU) have orbital launch capabilities. Moreover, a launch programme alone does not guarantee the **resources** and **precision required** to **operate a meaningful ASAT capability**. Given this, one possible reason why **space wars have not broken out** is simply because only the US has ever had the ability to fight one [21, p. 402], [22, pp. 419–420]. Although launch technology may become cheaper and easier, it is unclear to what extent these advances will be distributed among presently non-spacefaring nations. **Limited access to orbit** necessarily reduces the scenarios which could plausibly escalate to ASAT usage. Only major conflicts between the handful of states with ‘space club’ membership could be considered possible flashpoints. Even then, the **fragility of an attacker’s own space assets** creates **de-escalatory pressures** due to the **deterrent effect of retaliation**. Since the earliest days of the space race, dominant powers have recognized this dynamic and demonstrated an inclination **towards de-escalatory space strategies** [23]. B. Attributable Norms There also exists a **long-standing normative framework** favouring the **peaceful use of space**. The effectiveness of this regime, centred around the Outer Space Treaty (**OST**), is highly contentious and many have pointed out its serious legal and political shortcomings [24]–[26]. Nevertheless, this status quo framework has somehow supported over **six decades of relative peace** in orbit. Over these six decades, **norms have become deeply ingrained** into the way states describe and perceive space weaponization. This de facto codification was dramatically demonstrated in 2005 when the US found itself on the short end of a 160-1 UN vote after opposing a non-binding resolution on space weaponization. Although states have occasionally pushed the boundaries of these norms, this has typically occurred through incremental legal re-interpretation rather than outright opposition [27]. Even the most notable incidents, such as the 2007-2008 US and Chinese ASAT demonstrations, were couched in rhetoric from both the norm violators and defenders, depicting space as a peaceful global commons [27, p. 56]. Altogether, this suggests that **states perceive real costs** to breaking this normative tradition and may even **moderate their behaviours** accordingly. One further factor supporting this norms regime is the **high degree of attributability** surrounding ASAT weapons. For kinetic ASAT technology, **plausible deniability** and **stealth** are essentially **impossible**. The literally explosive act of launching a rocket cannot evade detection and, if used offensively, retaliation. This imposes **high diplomatic costs** on ASAT usage and testing, particularly during peacetime. C. Environmental Interdependence A third stabilizing force relates to the **orbital debris consequences** of ASATs. China’s 2007 ASAT demonstration was the largest debris-generating event in history, as the targeted satellite dissipated into thousands of dangerous debris particles [28, p. 4]. Since debris particles are indiscriminate and unpredictable, they often threaten the attacker’s own space assets [22, p. 420]. This is compounded by Kessler syndrome, a phenomenon whereby orbital debris ‘breeds’ as large pieces of debris collide and disintegrate. As space debris remains in orbit for hundreds of years, the **cascade effect** of an ASAT attack can constrain the attacker’s long-term use of space [29, pp. 295– 296]. Any state with kinetic ASAT capabilities will likely also operate satellites of its own, and they are necessarily exposed to this collateral damage threat. Space debris thus acts as a strong strategic deterrent to ASAT usage.

**Redundant systems check miscalc and escalation**

**Tertrais, 17** – Deputy Director at the Paris-based Fondation pour la Recherche Stratégique (Foundation for Strategic Research) and a member of the editorial board of The Washington Quarterly (Bruno, On The Brink” – Really? Revisiting Nuclear Close Calls Since 1945, The Washington Quarterly, 40:2, 51-66)

**The System Worked** Based on the above examples, one must wonder: is luck a necessary hypothesis to explain why none of these events led to nuclear war? Is it not at least equally possible that since 1945, people in charge of nuclear weapons “have taken greater care [of them] than is taken in any other situation involving human agents and complex mechanical systems”?23 Nuclear-armed countries have set up mechanisms designed to ensure that nuclear weapons will not be used by mistake. **This includes fail-safe procedures (where non-use remains the default condition up until the last possible moment) as well as dual phenomenology (the need to confirm the attack by two independent means relying on different physical principles).** When The Man Who Saved The World was shown in New York City, the Russian mission to the United Nations issued a communiqué that stated: “Under no circumstances a decision to use nuclear weapons could be made or even considered in the Soviet Union (Russia) or in the United States on the basis of data from a single source or a system. For this to happen, **a confirmation is necessary from several systems: ground-based radars, early-warning satellites, intelligence reports,** etc.”24 In all the incidents mentioned above, safety mechanisms worked, even in the early 1960s when they were still rudimentary. Furthermore, is it credible to imagine that the head of a State or government would order a nuclear strike without being certain that a major military attack was underway? U.S. nuclear expert Jeffrey G. Lewis rightly argues that he cannot imagine that an American president would embark in nuclear reprisals if there was the slightest doubt on the reality of the attack.25 Retired Russian General Vladimir Dvorkin thinks similarly, claiming that “No president, no matter what president it is, will ever make a decision about launch-onwarning based on information about one rocket or missile or even…two or three missiles.”26 From the point of view of logic and complex systems analysis, it remains possible that a combination of incidents can lead to the failure of all safety mechanisms designed to prevent **accidental nuclear war**. Such a thesis is embodied by the classic work of Scott D. Sagan, The Limits of Safety. It would thus only be “a matter of time” due to cumulative probabilities.27 In a recent documentary about nuclear risks, author Eric Schlosser reiterates the point: “it’s also due to In all the incidents, safety mechanisms worked, even in the early 1960s when they were rudimentary. luck, pure luck, and the problem with luck is that eventually it runs out…Every machine ever invented eventually goes wrong.”28 **But the probability of failure increases markedly with time only if conditions do not change—and conditions do change**. Safety mechanisms have been perfected (without necessarily becoming more complex) and lessons of past incidents are being learned.

Sagan claimed in 1993 that the Yom Kippur war (see below), as well as the 1979 and 1980 incidents (see above), are proof that organizations fail to learn from experience. But if that was the case, why would the number of known incidents have significantly declined since 1983? We only know of one significant incident in nearly 35 years: the Black Brant XII episode. Charles Perrow, the father of “normal accidents” theory (those resulting from the complexity and interconnection of systems), wrote: “with regard to firing [nuclear weapons] after a false warning we reach a surprising conclusion, one I was not prepared for: because of the safety systems involved in a launchon- warning scenario, it is virtually impossible for well-intended actions to bring about an accidental attack.”29