### DA: Mining

#### Link Story

#### Ownership of Asteroids is necessary to create the incentive for private entities to mine them.

Ross Myers, The Doctrine of Appropriation and Asteroid Mining: Incentivizing the Private Exploration and Development of Outer Space, 2016, Oregon Review of International Law, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/19850/Meyers.pdf?sequence=1

Despite a decrease in national space program funding, corporate space missions are on the rise. In 2010, President Obama proposed that NASA exit the business of flying astronauts from Earth to low Earth orbit and move it to private companies.52 Several companies have stepped up to bat, and corporate space programs now include space tourism, supply missions, and in one case a one-way colonization mission to Mars.53 Corporate interest in space tourism and development demonstrates a strong private commercial interest in space as an industry, which could serve to finance the exploration of space in a period where national governments do not have an active financial interest in space. However, under current international treaties, the ownership of asteroids is prohibited, preventing corporations willing to invest in asteroid mining from having a secure claim.

#### Impact Story

#### Asteroid mining solves climate change, resource shortages, and environmental degradation – independently its key to space colonization that solves every existential crisis

Tina Hlimi, Canadian lawyer with a Bachelors and Masters Degrees in Environmental Sciences from McGill University, 2014, “THE NEXT FRONTIER: AN OVERVIEW OF THE LEGAL AND ENVIRONMENTAL IMPLICATIONS OF NEAR-EARTH ASTEROID MINING,” ANNALS OF AIR AND SPACE LAW, https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=2546924]/¶

THE ENVIRONMENTAL BENEFITS OF NEAR EARTH ASTEROID HARVESTING Let us recapitulate what we have already found. Shortage of resources is not a fact; it is an illusion born of ignorance. Scientifically and technically feasible improvements in launch vehicles will make departure from Earth easy and inexpensive. Once we have a foothold in space, the mass of the asteroid belt will be at our disposal, permitting us to provide for the material needs of a million times as many people as Earth can hold. Solar power can provide all the energy needs of this vast civilisation (10,000,000 billion people) from now until the Sun expires. Using less than one percent of the helium-3 energy resources of Uranus and Neptune for fusion propulsion, we could send a billion interstellar arks, each containing a billion people, to the stars. There are about a billion Sun-like stars in our galaxy. We have the resources to colonise the entire Milky Way. 122 In addition to demystifying the legal doctrine governing outer space natural resource appropriation it is also necessary to weigh the benefits and detriments of space-faring activities. Foremost, States around the world are developing at unprecedented rates and the human population is mounting in conjunction with demand for natural resources to sustain the current and newly established western standard of living. One of the fastest growing nations, China, is experiencing unhindered growth facilitated by fossil fuel use from coal and extensive mining. This has caused substantial water, soil and air degradation. In the face of these troubles, NEA mining could be the key to preserving the Earth's bounty and replenishing contaminated water supplies. The influx of natural resources could thwart the burning of dirty coal and fossil fuels, thereby mitigating the effects of climate change, such as, rising sea level, atmospheric pollution, melting of sea ice and rising temperatures. NEA harvesting could also protect the ocean and the fragile and largely unexplored deep seabeds 123 from oil and gas drilling. It could furthermore protect ecosystems from rare-earth mineral mining predominantly used to fuel the electronics sector. 124 NEA mining is especially pertinent as China restricted its global exports of rare-earth minerals in 2009, incongruously citing the need to protect the environment. Unfortunately, the supply cuts have forced dependent States like Japan, the United States and South Korea to heighten rare-Earth mineral exploration. This accordingly led to Japan's 2011 discovery of rare-earth minerals in the ocean-bed deposits of the Pacific Exclusive Economic Zone (PEEZ) thereby necessitating risky, deep-sea mining techniques, which may result in marine pollution if not carefully designed and developed. Other States, which have joined the environmentally destructive rare-earth mineral exploration movement include India, Canada, Tanzania, Australia, Brazil and Vietnam., There is accordingly much competition and exploration for rare-earth minerals which could result in significant exploitation of untouched areas like the PEEZ seabed and Mongolia.125 Other regions which may soon be targeted for mineral and hydrological resources include Antarctica and the Arctic. With the advent of technological advances, environmentally destructive practices such as refining may soon occur in outer space, sparing the Earth of pollution. 126 Accordingly, NEA mining is a viable technology for preserving the Earth's environment by curbing atmospheric and marine pollution, enhancing water supply and quality and mitigating the effects of climate change; all while allowing humankind to maintain and even improve their standard of living through increased technologies, consumption and population growth. B. THE ENVIRONMENTAL CONSEQUENCES OF NEAR EARTH ASTEROID MINING

#### **Expert consensus that warming is *real* and *existential* – it shatters the scales of cost-benefit analysis**

Treich, 15—Christoph Rheinberger (Professor of Health Policy and Management @ Harvard) and Nicolas Treich (Professor at the Toulouse School of Economics). Citing Weitzman (economist @ Harvard) and Bostrom (prof @ Oxford). “On the economics of the end of the world as we know it,” The Economist, http://www.economist.com/blogs/freeexchange/2015/07/climate-change

CLIMATE change puts humanity at risk. The Pope’s celebrated encyclical letter on the subject released last month emphasised this risk “for our common home”, arguing that “doomsday predictions can no longer be met with irony or disdain”. But apocalyptic predictions are often made by religious groups. So, how serious is this claim? Perhaps for the first time in history, there seems to be a broad consensus among scientists. They claim that our planet might face a frightening future if we cannot agree to take decisive actions here and now. Changes to how seawater circulates in the Atlantic, the melting of glaciers on Greenland and in the Antarctic, and rising sea levels might all result from inaction. Accounting for these catastrophic scenarios is a huge challenge for scientists and economists alike. So, what should we do in the face of existential risks? One, perhaps extreme, view is that the mere possibility of massive human extinction should inspire us to do everything we can to avoid it. The counterargument goes that we face several other existential risks and focusing on one may be shortsighted. In his fascinating book “Catastrophe: Risk and Response”, published in 2004, Richard Posner argues that we do not do enough to hedge against catastrophic risks such as climate change, asteroid impacts or bioterrorism. In light of the “competition” of existential risks, how much should humanity invest in the mitigation of climate change? Conventional wisdom holds that we should limit global warming to 2°C. To justify this target, economists seek to compare the cost of reducing current emissions with its benefits. Indeed, there is a trade-off: investing more resources today in climate-change prevention leaves less to combat other immediate risks. Interestingly, the Pope’s letter recognises that “decisions must be made based on a comparison of the risks and benefits foreseen for the various possible alternatives”. However, estimating these benefits means that we need to determine the value of a reduction in preventing a possible future catastrophic risk. This is a thorny task. Martin Weitzman, an economist at Harvard University, argues that the expected loss to society because of catastrophic climate change is so large that it cannot be reliably estimated. A cost-benefit analysis—economists’ standard tool for assessing policies—cannot be applied here as reducing an infinite loss is infinitely profitable. Other economists, including Kenneth Arrow of Stanford University and William Nordhaus of Yale University, have examined the technical limits of Mr Weitzman’s argument. As the interpretation of infinity in economic climate models is essentially a debate about how to deal with the threat of extinction, Mr Weitzman’s argument depends heavily on a judgement about the value of life. Economists estimate this value based on people’s personal choices: we purchase bicycle helmets, pay more for a safer car, and receive compensation for risky occupations. The observed trade-offs between safety and money tell us about society’s willingness to pay for a reduction in mortality risk. Hundreds of studies indicate that people in developed countries are collectively willing to pay a few million dollars to avoid an additional statistical death. For example, America’s Environmental Protection Agency recommends using a value of around $8m per fatality avoided. Similar values are used to evaluate vaccination programmes and prevention of traffic accidents or airborne diseases. Mr Posner multiplies the value of life by an estimate of Earth’s future population and obtains an illustrative figure of $336m billion as the cost of human extinction. Nick Bostrom, a philosopher at Oxford University, argues that this approach ignores the value of life of unborn generations and that the tentative figure should be much larger—perhaps infinitely so. The value of life as a concept is a natural candidate for a tentative estimation of the benefit of reducing extinction risk. Yet the approach seems somewhat awkward in this context. The extinction risk here is completely different from the individual risk we face in our everyday lives. Human extinction is a risk we all share—and it would be an unprecedented event that can happen only once. A lack of reliable data exacerbates the profound methodological and philosophical difficulties faced by climate change economists. Extinction is a threat to future generations, while evaluating and designing prevention policies is an urgent challenge today. The United Nations conference in Paris this December offers a chance to take appropriate steps to protect future generations from this risk. Many economists do not believe in the current pledge-and-review mechanism, and favour the implementation of a generalised carbon-trading system instead. While the Pope dismisses that solution out of hand, his attacks on technological innovation and capitalism, however, may not be very effective in overcoming the current inertia that climate negotiations suffer from.

### DA: US Space Deterrence

#### Link Story

#### First, Commercial space creates structure that maintains liberal order deterrence

Dr. John J. Klein 19, Senior Fellow and Strategist at Falcon Research, Inc. and Adjunct Professor at George Washington University’s Space Policy Institute. He frequently writes on space policy, strategy, and deterrence. Dr. Klein is the author of the forthcoming book Understanding Space Strategy: The Art of War in Space (2019), 3-25-2019, "The Influence of Commercial Space Capabilities on Deterrence," Center for New American Security, https://www.cnas.org/publications/reports/the-influence-of-commercial-space-capabilities-on-deterrence

The commercial space sector directly promotes mission assurance and resilience efforts. This is in part due to the distributed and diversified nature of commercial space launch and satellites services. Distribution refers to the use of a number of nodes, working together, to perform the same mission or functions as a single node; diversification describes contributing to the same mission in multiple ways, using different platforms, orbits, or systems and capabilities.11 The 2017 U.S. National Security Strategy, in noting the benefits derived from the commercial space industry, states that DoD partners with the commercial sector’s capabilities to improve the U.S. space architecture’s resilience.12 Although U.S. policy and joint doctrine frequently acknowledge the role of the commercial space sector in space mission assurance and resilience, there is little recognition that day-to-day contributions from the commercial industry assists in deterring would-be adversaries. The commercial space sector contributes to deterrence by denial through multi-domain solutions that are distributed and diversified. These can deter potential adversaries from pursuing offensive actions against space-related systems. Commercial launch providers enhance deterrence by providing options for getting payloads into orbit. These include diverse space launch capabilities such as small and responsive launch vehicles, along with larger, reusable launch vehicles; launch rideshares for secondary payloads; and government payloads on commercial satellites. Various on-orbit systems also promote deterrence. For example, if an aggressor damages a commercial remote sensing satellite during hostilities, similar commercial satellites in a different orbital regime, or those of the same constellation, may provide the needed imagery. If satellite communications are jammed or degraded, commercial service providers can reroute satellite communications through their own networks, or potentially through the networks of another company using a different portion of the frequency spectrum. Regarding deterrence by punishment efforts, the commercial space sector can play a role, albeit an indirect one, through improved space situational awareness (SSA) and space forensics (including digital forensics and multispectral imagery). The commercial industry may support the attribution process following a hostile or illegal act in space through its increasingly proliferating network of SSA ground telescopes and other terrestrial tracking systems. The DoD may also leverage the commercial space sector’s cyber expertise to support digital forensic efforts to help determine the source of an attack. By supporting a credible and transparent attribution process, commercial partners may cause a would-be adversary to act differently if it perceives that its aggressive, illegal, or otherwise nefarious actions will be disclosed. Doing so can help bolster the perceived ability to conduct a legitimate response following a hostile attack, which may improve deterrence by punishment efforts. Commercial space capabilities may also facilitate the application of force to punish a potential aggressor. In addition to traditional military space systems, commercial satellite imagery and communication capabilities may be used in cueing and targeting for punitive strikes against an aggressor. Although the commercial space sector is not expected to be involved directly in the use of retaliatory force following a hostile act, commercial partners may help in providing the information used to identify those responsible and to facilitate any consequent targeting efforts.

#### And, the US is leading in space due to the private sector, but it’s at the brink

**Cahan and Sadat 1/6** [(Bruce Cahan, J.D) (Dr. Mir Sadat, ) "US Space Policies for the New Space Age: Competing on the Final Economic Frontier," based on Proceedings from State of the Space Industrial Base 2020 Sponsored by United States Space Force, Defense Innovation Unit, United States Air Force Research Laboratory, 1/6/21, https://www.politico.com/f/?id=00000177-9349-d713-a777-d7cfce4b0000] TDI

Today, China’s commercial space sector is in its infancy but is set to grow with continued national and provincial support, which have been rapidly increasing over the past three years.64 Since 2004, the United States and China accounted for 74% of the $135.2 billion venture capital (VC) invested in commercial space. 65 The early 2020s are pivotal, as it would be far cheaper for China and Chinese commercial space firms to acquire space technologies from the United States or allied nation companies seeking revenues or facing cashflow constraints, than to build the companies and their teams and technologies from scratch in China. The tight coupling of Chinese military goals and an economy organized to achieve those goals magnifies the economic threats and market disruptions that the United States must immediately address, in order for DoD and national security operations to rely on US commercial space capabilities.

3. ISSUES AND CHALLENGES

Peaceful Uses of Space and Space Exploration Space has been primarily a shared, not a warfighting, domain.67 With each passing second of Planck time,68 space enables a modern way of life, provides instantaneous global imagery, assures telecommunications, and captures humanity’s imagination for civil space exploration. As a result, space is a burgeoning marketplace and territory for commercial ventures and investors. Strengthening the US commercial space industrial base is vital to and beyond US national security. Civil space activities are a source of US “soft power” in global commerce, cooperation, and investment. 69 The civil space sector, led by NASA, is fundamental to America’s national security. 70 NASA is on an ambitious critical path to return to the Moon by 2024,71 along with developing the capabilities and infrastructure for a sustained lunar presence. NASA’s lunar plans provide a lunar staging area for missions to Mars and beyond. They offer a strategic and economic presence for the United States on the Moon. Congress, the White House, DoD, and NASA must recognize that economic and strategic dominance in service of national security requires catalyzing and accelerating growth of a vibrant, private US industrial and cultural expansion into the Solar System. Human visitation and eventual settlement beyond the Earth require sustaining visionary leaders, aided by, and aiding, US national security. A recurring theme in US policy is “maintaining and advancing United States dominance and strategic leadership in space” because US global competitors and adversaries are competent and capable of outpacing American space capabilities. 72 The stakes are high: At this historic moment, there is a real race for dominance over cislunar access and resources.   
Regulations Should Foster US Commercial Space as a National Asset   
Leveraging the reimagination and disruption of terrestrial industries, the US commercial space industry is pushing the frontiers of the United States and global space economics and capabilities. A pre-COVID19 assessment by the US Chamber of Commerce projected that the US space market will increase from approximately $385 billion in 2020, to at least $1.5 trillion by 2040. 73 This projection represents a seven percent (7%) annual compound average growth rate (CAGR), driven largely by expanded business opportunities in Low Earth Orbit (LEO). Total addressable market (TAM) for US commercial space companies could be far larger were they to have federal and financial support for initiating cislunar space operations and opportunities. Recent advancements in commercial space technologies and business models have driven down costs and unlocked new areas of economic growth and space capabilities that outpace and de-risk acquiring capabilities through traditional US government economic development, research and development (R&D), procurement and regulatory policies and processes. US regulations must ensure that US companies lead in commercial space. In specific, technological advances that lower access costs and expand space mission capabilities, content, continuity, and redundancies must be fully supported by or incorporated into US government programs, budgets, requirements, and acquisition processes. Until commercial space offerings are fully incorporated, and federal acquisition policies and personnel commit to innovation, US government fiscal buying power, intelligence and program support will lag and remain inadequate in comparison to US private sector companies and the nation’s global competitors and adversaries in space.

Addressing COVID-19’s Impact on US Commercial Space The COVID-19 pandemic damaged and still challenges the US space industrial base. US domestic investors’ funding of space R&D remains inconsistent across the lifecycle of New Space companies and the spectrum of technologies necessary to grow the space economy. To date, public R&D, government procurements and visionary space entrepreneurs have played a major role in establishing and funding the New Space industrial base. In the last five years, $11 billion of private capital has been invested.74 Traditional private investors may become reluctant to fund space technologies due to perceptions of higher risk over longer time horizons before receiving profitable returns on their capital. Institutional and long-horizon investors who manage patient capital have an appetite for illiquid, but higher yielding, terrestrial alternative asset investments such as commodities, private equity limited partnerships and real estate.75 The COVID-19 pandemic has created economic uncertainties making the New Space’s funding model unreliable. COVID-19 significantly impacted venture capital (VC)-backed companies: the pace of VC space investments fell 85% between April - June, as compared to January – March, in 2020. 76 Pre-COVID-19, the New Space industrial base confronted multiple challenges in raising later stages of venture capital such as (1) the lag between having an early-stage startup with an idea and commercializing a viable revenue-generating product, (2) the lack of market liquidity for founder and private equity space investments to attract and retain talented teams, and (3) the lack of a market to re-sell contracts for space goods and services when customers buy more capacity than needed. Even prior to the COVID-19 pandemic, federal financing of US R&D was at a historically minor level, as compared to businesses and universities.77 US government support for basic research has steadily declined as a percent of GDP. The federal government will experience near- to medium-term budget constraints.78 The vibrant venture community in the United States has taken up a portion of this slack by increasing R&D investment in later-stage and applied research. However, founding teams and VC financing rely on government to fund earlier R&D for basic science and engineering. Therefore, government must resume the sustainable and impactful past levels of support for basic research, an essential role in the space economy’s public-private partnership that ensures US leadership in space.

Space as Existential Terrain for National Security  
  
In this Digital Era, space integrates and drives all elements of US national security. The Cold War may be over, but since the early 2010s, a renewed era of great power competition has emerged across terrestrial land, air, sea, and cyber domains. This competition extends into space, where a great game ensues.79 Space is no longer an uncontested or sanctuary domain. Competent and capable global competitors and peer adversaries are challenging US military, commercial, and civil space interests. The United States, along with its allies and partners, has had to accept and anticipate that space may be a warfighting domain, as suggested primarily by Russian and Chinese counter-space capabilities, military operations, and declarative statements. On December 20, 2019, the bipartisan National Defense Authorization Act (NDAA) for Fiscal Year 202080 authorized the creation of the US Space Force, under the Department of the Air Force, to secure US national interests in an increasingly contested domain.81 Back in October 1775, the Continental Congress established the US Navy to ensure that commercial and government fleets could freely navigate the Atlantic coastline - today, that includes the South China Sea. Likewise, the USSF’s mission is to ensure unfettered access to and the freedom to operate in space. The 2017 National Security Strategy considers space to be a “priority domain.”82 Freedom of navigation is a sovereign right that nations have fought to achieve and defend. 83 The USSF’s main role is to organize, train and equip, as well as to protecting US space interests and supporting terrestrial and joint warfighters (e.g., US Space Command). Thus, USSF must secure US national interests in space, whether military, commercial, scientific, civil, or enhancing US competitiveness for cislunar leadership.

#### Impact Story

**First, space weapons remove the need for conventional forces---that solves US empire, militarization, and foreign occupations that kill millions, while making hegemony sustainable**

**Dolman, 10 -** Professor of Comparative Military Studies at the US Air Force’s Air Command and Staff College (ACSC), Air University’s first space theorist, served at the National Security Agency and the United States Space Command

Dr. Everett Carl Dolman, “The Case for Weapons in Space: A Geopolitical Assessment,” APSA Annual Meeting. September 2010

--UQ – hegemony overstretched now – we have boots on ground and bases all over the world occupying foreign land when we should be using diplomacy

--Causes a slippery slope where we view occupation as answer to everything – Vietnam, Iraq, Afghanistan – why not NoKo, Iran, or Venezuela?

--Space weaponization is super expensive – money taken from bases and boots on ground. No need for ANY conventional military anymore

--We will have made heg sustainable – hold stuff at risk from sky, and no more global empire or threats to sovereignty

With the purpose of domain operations defined, the proper role of the tactical use of military force is discernible—with **serious implications for the militarization of space**. Any activity that contributes to the essential mission, preparing to control or contest the domain within the limits assigned by the political authority, and doing so when called upon, is appropriate. Although the US military is willing to take on any mission the political authority assigns it, and will do its best to carry that mission out, **many roles are simply inappropriate** for its purpose. They do not add value. Specifically, American military force is currently engaged in occupation duties around the globe that are **more properly diplomatic** or policing **than war fighting**.

The primary issue here is that diplomatic and police authorities have a different focus of effort; their purposes are to minimize or manage violence. When military personnel become **good at occupying foreign lands**, rooting out crime, building political institutions, and sponsoring markets, they are not increasing the skills needed to survive and prevail in the battlespace. This is not to say that all non-war activities are **improper**. Many of the functions necessary to war proficiency are simulated in non-war activities. Delivering humanitarian aid, for example, in a hurricane or earthquake ravaged terrain is excellent training for moving logistics into restricted access or contested territories in times of conflict. In many crisis situations, legitimate governing authority is unable to deliver goods because of lawlessness and threats to civilian personnel. In these situations, military forces carry an implicit threat of violence should bandits try to disrupt distribution activities.

As an ad hoc or temporary crisis response, all such activities have merit. They increase the capacity of civilian authorities to care for distressed populations, and they add valuable real-world training opportunities for legitimate military support functions. **Serious problems emerge when these activities become routine**, however.

For example, long duration support and logistics activities become ensconced over time as scheduled military functions, and drain away personnel and support that should be conserved for military operations. This increases the size of the military in terms of **personnel** and **budget**, and to the extent these actions become permanent (or at least long-term fixed requirements) they detract from the **war fighting capacity** of the services as these assets are not retrievable and mobile should another conflict occur.

Also, the perception of the US military as an **occupying** and **imperial** force grows the longer it is engaged in even humanitarian operations in a given locale. Americans generally believe their military is helping the people in Iraq, Afghanistan, and elsewhere, and I like to think that is the intent. Nonetheless, I can certainly understand that Afghani or Iraqi citizens would be suspicious of America ever returning control of their country after more than eight years (and counting) of significant presence.

The preceding is based on the notion that **military occupation is not going well**, thus its continuance is needed. This is a rather perverse military notion; perpetually reinforcing failure. It is the equivalent logic of the excesses of attrition warfare in WW I, or the body count mentality that extended America’s military involvement in Vietnam. It is the sunk cost dilemma. And it is accurate, to the extent the US has adopted a policy of 100 per cent success—victory— in the so-called War on Terror. The refrain that persists is that America cannot leave, for what is the price of failure?

It is just as important to ask the parallel question, what is the cost of success? Imagine that the US is wildly successful. Five or ten years from now, say, both Iraq and Afghanistan have viable liberal democratic governments with growing economies and friendly attitudes toward America. A few military personnel remain on permanent military bases fairly negotiated and welcomed by the local population. These two states become models for the Muslim world to emulate. What will it do then with this wonderful, state-building military force? Will America move on to the next authoritarian state, **North Korea or Iran**, perhaps? **Why not Venezuela, or Cambodia? Name the state where corruption or oppression exists, the US military can fix it.**

What if, in light of its extraordinary capacity to minimize violence, restore order, build governing institutions and markets, and establish popular governance, a few Americans start disagreeing with their own government’s policies? Imagine a disastrous natural event, an epoch-defining earthquake in the Mississippi basin, perhaps. Add in an economic downturn that pushes unemployment above twenty percent and an irresponsive or bumbling president and congress. No military professional today would answer the call for a military coup—but would the veterans of successful state-building in Iraq and Afghanistan be able to avoid helping their fellow citizens if they came begging for aid?

It is **a slippery slope**, to be sure, and not a danger that looms on the event horizon. But it crystallizes the propriety of use to which America’s military is being put today, and the preference that many **anti-weaponization proponents** have for a conventional response on earth for an attack on assets in space. It suggests a value for placing weapons in space that goes beyond military logic, and confronts the moral high ground claims of those who would avoid weaponizing space in all cases.

The fiduciary and social costs to weaponize space effectively will be **immense**. These are necessary costs if America, or any other state, is determined to have a military force structure that relies on space support and enablement to operate as it does now, increasingly so for the future. And it will have benefits for the military that may not be readily apparent; for **where will the money come for this space weapons capacity?** It will not come from school budgets or foreign aid programs. It will not come at the expense of health care reform or corporate bailouts. **It will come from existing or planned military budgets**, from the capacity of **conventional military capabilities** on the land and sea and in the air. There will be fewer aircraft carriers and high dollar aircraft fighters and bombers. If space weapons capable of targeting the earth are deployed, relatively slow moving ships and aircraft will be conceptually **obsolete**, instantly vulnerable to them. As money is scrounged for space lasers and exotic kinetic kill satellites, the systems these space weapons make defenseless will be scrapped. More funding will come from current ballistic and anti-ballistic missile development and deployment, as global ballistic missile defense from space is more cost and practically effective than comprehensive ground or sea-based systems. And **most importantly, it will come from personnel reductions**, **from ground troops currently occupying foreign territory**. In this way, America will retain its ability to use force to influence states around the world, but it will **atrophy the capacity to occupy their territory** and threaten their sovereignty directly. **The era of US hegemony will be extended, but the possibility of US global empire will be reduced.**

**And, hegemony through space is stabilizing, solves transition wars, and makes liberal internationalism effective avoiding multiple scenarios of extinction**

**Dolman, 10 -** Professor of Comparative Military Studies at the US Air Force’s Air Command and Staff College (ACSC), Air University’s first space theorist, served at the National Security Agency and the United States Space Command

Dr. Everett Carl Dolman, “The Case for Weapons in Space: A Geopolitical Assessment,” APSA Annual Meeting. September 2010

--War inevitable – rising powers like China try to reshape the global order, creating hegemonic wars

--China rising by claiming control of space – space will determine who wins - only response is to make challenges unthinkable via deterrence/military primacy

--IL – crushes heg – military relies on space – we lose hard power, we lose space

--Time is of the essence – China hasn’t seized it yet, but they might in future – we need to seize space now

--AT: Arms Racing 1] We have lead – too expensive to spend hundreds of billions to try to catch us only to lose 2] Nobody will care – we’re hegemon in squo and people accept it – this is no different. People are more scared of China revisionism than continuation of US order 3] Our control would allow commerce/trade in space – it would be seen as stabilizing and a public good 4] It would take money away from military occupation which would assuage concerns about US threats to sovereignty

-- Heg stabilizing – no GPW since 1945 – nobody would dare challenge us if we can hold anything at risk – hegemony over seas by British prove that there won’t be challengers

--K2 commerce and trade – prevents disruptions – sea proves unilateral control is good

Hegemony and Stability:

Almost 2,500 years ago, Thucydides foresaw the inevitability of a disastrous Peloponnesian war due to “the rising power of Athens and the fear it caused in Sparta.” Indeed, whenever an extant international order is **challenged by a rising power**, the dominant power in the system is obligated to respond. Such conditions are relatively rare in history, but when they occur, the resulting war is **not for minor spoils** or border modifications, **but for leadership of a new world order**. It is a great war, **a hegemonic war.**

This is the context in which the world now exists. The relatively stable global hegemony of US dominance since 1945, punctuated by limited wars and shifting balances of opposition, has relied on **technology-dominant global power projection**. Today, that technology is wholly **integrated** and **inextricable from space support**, and no state relies more on space power for its economic and security well-being than the US. **Any effort to deny space capabilities would be a direct challenge to its hegemonic power**, and the United States must **confront the usurper** or abdicate its leadership position.

To be sure, China’s increasing space emphasis and its cultural antipathy to military transparency suggests that **a serious attempt at seizing control of space is in the works**. A lingering fear is the sudden introduction of an unknown capability (call it Technology X) that would allow a hostile state to place multiple weapons into orbit quickly and cheaply. The advantages gained from controlling the high ground of space would accrue to it as surely as to any other state, and the concomitant **loss of military power** from the denial of space to America’s already-dependent military forces could cause the **immediate demise of the extant international system**. The longer the United States dithers on its military responsibilities, the more likely a potential opponent could seize low-earth orbit before America is able to respond.

And in such circumstances, the US certainly would respond. Conversely, **if America were to weaponize space**, it is not at all sure that any other state or group of states would **find it rational** to counter in kind. The entry cost to provide the necessary infrastructure is still too high—**hundreds of billions** of dollars, at minimum. The years of investment needed to achieve a comparable counter-force capability—essentially from scratch—would provide **more than ample time** for the United States to entrench itself in space and readily counter preliminary efforts to displace it. The tremendous effort in time and resources would be worse than wasted. Most states, **if not all**, **would** opt **not** to **counter US deployments directly**. They might oppose American interests with asymmetric balancing, depending on how aggressively it uses its new power, but the likelihood of a **hemorrhaging arms race** in space should the United States deploy weapons first—at least for the next few years—is **remote**.

This reasoning does not dispute the fact that US deployment of weapons in outer space would represent the addition of a potent new military capacity, one that would **assist in extending the current period of American hegemony well into the future**. Clearly this would be intimidating, and America must expect severe condemnation and increased competition in peripheral areas. But such an outcome is less threatening than another, particularly non-liberal authoritarian state doing so, as the necessity of a response in kind is compelling.

Placement of weapons in space by the United States would be perceived correctly as an attempt at continuing American hegemony. Although there is obvious opposition to the current international balance of power, **the majority of states seem to regard it as at least tolerable**. A continuation of the status quo is thus minimally acceptable, even to states working toward its demise. As long as the United States does not employ its power arbitrarily, the situation would be bearable initially and grudgingly accepted over time.

**Mirror-imaging does not apply here**. An attempt by China to dominate space would be part of an effort to break the land-sea-air dominance of the United States in preparation for a new international order. **Such** an **action would challenge the status quo, rather than** seek to **perpetuate it.** This would be disconcerting to nations that accept, no matter how grudgingly, the current international order—including the venerable institutions of trade, finance, and law that operate within it—and intolerable to the United States. As leader of the current system, the United States could do no less than engage in a perhaps ruinous space arms race, save graciously decide to **step aside and accept a diminished world status**.

Seizing the initiative and securing low-Earth orbit **now**, while the United States is **dominant** in space infrastructure, would do much to **stabilize** the international system and **prevent an arms race** in space. The enhanced ability to deny any attempt by another nation to place military assets in space and to readily engage and destroy terrestrial anti-satellite capacity would make the possibility of large-scale space war or military space races **less likely**, not **more**. Why would a state **expend the effort** to compete in space with a superpower that has the extraordinary advantage of holding securely the highest ground at the top of the gravity well? So long as the controlling state demonstrates a **capacity** and a **will** to use force to defend its position, in effect expending a small amount of violence as needed to prevent a greater conflagration in the future, **the likelihood of a future war in space is remote.**

Moreover, if the United States were willing to deploy and use a military space force that maintained effective control of space, and did so in a way that was perceived as tough, nonarbitrary, and efficient, such an action would serve to **discourage competing states from fielding opposing systems**. It could also set the stage for a new space regime, one that encourages space commerce and development. Should the United States use its advantage to police the heavens and allow unhindered peaceful use of space by any and all nations for economic and scientific development, over time **its control of LEO could be viewed as a global public good**. In much the same way the British maintained control of the high seas in the nineteenth century, enforcing international norms of innocent passage and property rights, and against slavery, the US could prepare outer space for a **long-overdue burst of economic expansion**.

There is reasonable **historic support** for the notion that the most peaceful and prosperous periods in modern history coincide with the appearance of a **strong, liberal hegemony**. America has been essentially **unchallenged** in its naval dominance over the last 60 years and in global air supremacy for the last 15 or more. Today, there is more international commerce on the oceans and in the air than ever. Ships and aircraft of all nations worry more about running into bad weather than about being commandeered by a military vessel or set upon by pirates. Search and rescue is a far more common task for the Navy than forced embargo, and the transfer of humanitarian aid is a regular mission. **The legacy of American military domination of the sea and air has been positive**, and the same should be expected for **space**.

Conclusions:

There is little reason to believe the United States will forego the capacity to influence decisions and events beyond its borders, with military force if necessary. Whether that capacity comes from space as well as the other military domains is undetermined. But, the operational deployment of space weapons would increase that capacity by providing for nearly **instantaneous force projection worldwide**. This force would be **precise**, **unstoppable**, and **deadly**. At the same time, the United States would forgo some of its ability to intervene directly in other states because the necessary budget tradeoffs would diminish its capacity to do so. A space-heavy American military would structurally limit potential American imperial ambitions while simultaneously **extending its global leadership role**. The need to limit collateral damage, the requirement for precision to allay the low volume of fire, and the tremendous cost of space weapons will ensure they are used for high-value, time-sensitive targets. An opposing state’s calculation of survival no longer would depend on interpreting whether or not the United States desires to be a good neighbor; whether it **will invade and occupy its territory**. Without sovereignty at risk, fear of a space-dominant American military will subside. The United States will maintain its position of hegemony as well as its security, and the world will not be threatened by the specter of a future American empire.

Geopolitics is in ascendance because it provides practical guidance to those who perceive the world in realist terms. The primary tenet of geostrategy is simple. In order **to dominate the battlespace, it is necessary to control the most vital positions**. If the most vital positions cannot be controlled, then they must be contested. The opponent cannot have uninhibited access to them. This simple dictum, known by every strategist and tactician but articulated so clearly by Mackinder, is the essence of the geostrategist’s logic. **Control is desirable, contestation is imperative**. This dictum applies to every medium and theater of war.