## **Util fwk**

#### **[Standard] The standard is maximizing expected wellbeing. Prefer:**

#### **1] Theory first –**

#### **A] Ground – both debaters have ground underneath util because every action has a consequence that can be weighed fairly using different metrics under the framing – other frameworks flow exclusively to one side.**

#### **B] Topic lit – most articles are written through a utilitarian lens because they are crafted for policymakers and the general public who believes consequences are important – key to fairness because topic lit is how we determine in-round engagement.**

#### **2] Actor specificity:**

#### **A] Aggregation – governments only have access to averages and aggregates which are the basis of justification for their policies**

#### **3] Extinction outweighs**

Seth D. **Baum &** Anthony M. **Barrett 18**. Global Catastrophic Risk Institute. 2018. “Global Catastrophes: The Most Extreme Risks.” Risk in Extreme Environments: Preparing, Avoiding, Mitigating, and Managing, edited by Vicki Bier, Routledge, pp. 174–184.

2. What Is GCR And Why Is It Important? Taken **literally**, a global catastrophe can be any event that is in some way catastrophic across the globe. This suggests a rather low threshold for what counts as a global catastrophe. An event causing just one death on each continent (say, from a jet-setting assassin) could rate as a global catastrophe, because surely these deaths would be catastrophic for the deceased and their loved ones. However, in common usage, a global catastrophe would be **catastrophic** for a significant portion of the globe. Minimum thresholds have variously been set around ten thousand to ten million deaths or $10 billion to $10 trillion in damages (Bostrom and Ćirković 2008), or death of one quarter of the human population (Atkinson 1999; Hempsell 2004). Others have emphasized catastrophes that cause **long-term declines in the trajectory of human civilization** (Beckstead 2013), that human civilization **does not recover from** (Maher and Baum 2013), that drastically reduce humanity’s potential for future achievements (Bostrom 2002, using the term “**existential risk**”), or that result in **human extinction** (Matheny 2007; Posner 2004). A common theme across all these treatments of GCR is that **some catastrophes are vastly more important than others**. Carl Sagan was perhaps the first to recognize this, in his commentary on nuclear winter (Sagan 1983). Without nuclear winter, a global nuclear war might kill several hundred million people. This is obviously a major catastrophe, but humanity would presumably carry on. However, with nuclear winter, per Sagan, humanity could go extinct. The loss would be not just an additional four billion or so deaths, but the loss of **all future generations**. To paraphrase Sagan, the loss would be billions and billions of lives, or even **more**. Sagan estimated **500 trillion lives**, assuming humanity would continue for ten million more years, which he cited as typical for a successful species. Sagan’s 500 trillion number may even be an **underestimate**. The analysis here takes an adventurous turn, hinging on the evolution of the human species and the long-term fate of the universe. On these long time scales, the descendants of contemporary humans may no longer be recognizably “human”. The issue then is whether the descendants are still worth caring about, whatever they are. If they are, then it begs the question of how many of them there will be. Barring major global catastrophe, Earth will remain habitable for about one billion more years 2 until the Sun gets too warm and large. The rest of the Solar System, Milky Way galaxy, universe, and (if it exists) the multiverse will remain habitable for a lot longer than that (Adams and Laughlin 1997), should our descendants gain the capacity to migrate there. An open question in astronomy is whether it is possible for the descendants of humanity to continue living for an **infinite length of time** or instead merely an **astronomically large but finite** length of time (see e.g. Ćirković 2002; Kaku 2005). Either way, the stakes with global catastrophes **could** be **much larger than the loss of 500 trillion lives.** Debates about the infinite vs. the merely astronomical are of theoretical interest (Ng 1991; Bossert et al. 2007), but they have **limited practical significance**. This can be seen when **evaluating GCRs from a standard risk-equals-probability-times-magnitude framework**. Using Sagan’s 500 trillion lives estimate, it follows that reducing the probability of global catastrophe by a mere one-in-500-trillion chance is of the same significance as saving one human life. Phrased differently, society should **try 500 trillion times harder to prevent a global catastrophe than it should to save a person’s life**. Or, preventing one million deaths is equivalent to a one-in500-million reduction in the probability of global catastrophe. This suggests society should **make extremely large investment in GCR reduction, at the expense of virtually all other objectives.** Judge and legal scholar Richard Posner made a similar point in monetary terms (Posner 2004). Posner used $50,000 as the value of a statistical human life (VSL) and 12 billion humans as the total loss of life (double the 2004 world population); he describes both figures as significant underestimates. Multiplying them gives $600 trillion as an underestimate of the value of preventing global catastrophe. For comparison, the United States government typically uses a VSL of around one to ten million dollars (Robinson 2007). Multiplying a $10 million VSL with 500 trillion lives gives $5x1021 as the value of preventing global catastrophe. But even using “just" $600 trillion, society should be willing to spend at least that much to prevent a global catastrophe, which converts to being willing to spend at least $1 million for a one-in-500-million reduction in the probability of global catastrophe. Thus while reasonable disagreement exists on how large of a VSL to use and how much to count future generations, even low-end positions suggest **vast resource allocations** should be redirected to reducing GCR. This conclusion is only **strengthened** when considering the **astronomical size of the stakes**, but the same point holds either way. The bottom line is that, as long as something along the lines of the standard riskequals-probability-times-magnitude framework is being used, then **even tiny GCR reductions** merit significant effort. This point holds especially strongly for risks of catastrophes that would cause **permanent harm to global human civilization**. The discussion thus far has assumed that all human lives are valued equally. This assumption is **not universally held**. People often value some people more than others, favoring themselves, their family and friends, their compatriots, their generation, or others whom they identify with. Great debates rage on across moral philosophy, economics, and other fields about how much people should value others who are distant in space, time, or social relation, as well as the unborn members of future generations. This debate is crucial for all valuations of risk, including GCR. Indeed, if each of us only cares about our immediate selves, then global catastrophes may not be especially important, and we probably have better things to do with our time than worry about them. While everyone has the right to their **own views and feelings**, we find that the strongest arguments are for the **widely held position** that **all human lives should be valued equally**. This position is succinctly stated in the United States Declaration of Independence, updated in the 1848 Declaration of Sentiments: “We hold these truths to be self-evident: that all men and women are created equal”. Philosophers speak of an agent-neutral, objective “view from nowhere” (Nagel 1986) or a “veil of ignorance” (Rawls 1971) in which each person considers what is best for society **irrespective of which member of society they happen to be**. Such a perspective **suggests valuing everyone equally**, regardless of who they are or where or when they live. This in turn suggests a **very high value for reducing GCR**, or a high degree of priority for GCR reduction efforts.

## **Asteroid mining DA**

#### **We are at the brink of extinction through global warming- current emission rates leave us seven years until irreversibility.**

**Hassan ‘20(**Hassan, Jennifer. “How Long until It's Too Late to Save Earth from Climate Disaster? This Clock Is Counting down.” The Washington Post, WP Company, 21 Sept. 2020, [www.washingtonpost.com/climate-environment/2020/09/21/climate-change-metronome-clock-nyc/](http://www.washingtonpost.com/climate-environment/2020/09/21/climate-change-metronome-clock-nyc/).) SJ

How long does the world have left to act before an irreversible climate emergency alters human existence as we know it? A new digital clock unveiled in Manhattan’s Union Square over the weekend promises to tell you — down to the very second. The [Climate Clock](https://climateclock.world/) unveiled by artists Gan Golan and Andrew Boyd warned at 1:30 p.m. Monday that there were 7 years, 101 days, 17 hours, 29 minutes and 22 seconds until Earth’s carbon budget is depleted, based on current emission rates. A total depletion would thrust the world into further turmoil and suffering through more flooding, more wildfires, worsening famine and extensive human displacement, according to the artists. The display, plastered onto the side of a glass building for Climate Week, shows two numbers. The first, displayed in red, is what the creators refer to as a “deadline.” The timer counts down how long it will take for the world to burn through its carbon budget if swift action isn’t taken to keep warming under 1.5 degrees Celsius above preindustrial levels. If Earth’s temperatures increase by 1.5 degrees Celsius, the planet will fall victim to extreme heat waves, fires, droughts and limited water availability, a 2019 NASA report on global climate change [warns](https://climate.nasa.gov/news/2865/a-degree-of-concern-why-global-temperatures-matter/). Under the Paris agreement, more than 180 countries have pledged to work together to keep Earth’s temperature below a rise of two degrees Celsius (3.6 degrees Fahrenheit) — and if possible, 1.5 degrees. (President Trump announced in November that [the United States was withdrawing from the climate accord](https://www.washingtonpost.com/climate-environment/2019/11/04/trump-makes-it-official-us-will-withdraw-paris-climate-accord/?itid=lk_inline_manual_8).) The clock’s second figure, displayed in green, is labeled a “lifeline.” It tracks the percentage of available energy being supplied from renewable sources. “Simply put, we need to get our lifeline to 100% before our deadline reaches 0,” the clock’s official website notes. The installation, which was unveiled Saturday, replaces the astronomical clock that was first erected at [Metronome](https://www.publicartfund.org/exhibitions/view/metronome/), New York City’s public art wall that was constructed in 1999. The original 60-foot-wide monument at 1 Union Square South was designed by Kristin Jones and Andrew Ginzel, who wanted to explore “the relationship between the city and time,” according to the Public Art Fund website. The string of numbers known as “The Passage” showed how much time had passed since midnight and how much time was left until midnight. But the somewhat peculiar design, with its brickwork, bursts of smoke and perplexing LED display, sparked major confusion over the years, with many unsure as to what the numbers actually represented; some people falsely believed the digits were an indicator of national debt. For Golan and Boyd, the message behind the new numbers is simple: For Earth to survive, carbon emissions must be reduced — and time is running out. “Our planet has a deadline. But we can turn it into a lifeline,” Boyd told The Washington Post on Monday. Golan explained that the idea to create a Climate Clock was inspired by the birth of his first child a week before the United Nations’ Intergovernmental Panel on Climate Change (IPCC) “released its [devastating report](https://www.washingtonpost.com/energy-environment/2018/10/08/world-has-only-years-get-climate-change-under-control-un-scientists-say/?itid=lk_inline_manual_20) on how little remaining time we had left to make progress on climate change, before the catastrophic effects became irreversible.” He added that the arrival of his daughter dramatically changed his view of the world: “What we did in the next few years would determine the world my daughter would live in, that all of us would live in, and I felt that timeline needed to be understood by everyone, everywhere.” [Doomsday Clock is 100 seconds to midnight, the symbolic hour of the apocalypse](https://www.washingtonpost.com/weather/2020/01/23/doomsday-clock/?itid=lk_interstitial_manual_24) This isn’t the first time Golan and Boyd have joined forces to make a statement about global warming. In September 2019, just days before Greta Thunberg addressed the U.N. General Assembly, the teen climate activist asked Boyd and Golan to build her a handheld climate clock. At the time, she said she wanted to show it to the U.N. secretary general — and had found the artists after they had offered to work with the IPCC on a clock to accompany its scathing 2018 climate report. In what they describe as a “lightning-speed effort,” Golan and Boyd pulled together a team of climate science experts, programmers, electrical engineers and designers to create the clock Thunberg wanted — battery-powered and synchronized to the Climate Clock. Thunberg’s bespoke device was hand-delivered to her hotel the night before her speech. She has since carried it around the world on her travels. [Greta Thunberg had one question at the U.N. climate summit: ‘How dare you?’](https://www.washingtonpost.com/climate-environment/2019/09/23/greta-thunberg-vows-that-if-un-doesnt-tackle-climate-change-we-will-never-forgive-you/?itid=lk_interstitial_manual_31) The New York climate clock will be on display until Sept. 27, although the creators say it may one day become a permanent fixture of the Manhattan landscape. The artists are now calling on people to [create](https://climateclock.world/make) their own clocks and say they are working with cities around the world to install their own versions. “Different countries and different communities may have different roles, but we all have to be on the same timeline,” Golan said, calling for “global unity.” While some may draw parallels between the climate clock and the Doomsday Clock — a symbolic timepiece intended to signal how close the world is to ending, based on a variety of threats — Golan insists that there’s a sliver of optimism to be had. “This is not a doomsday clock; the number is not zero. It’s telling us there is still time, but we can’t waste it,” he said. But as the world continues to grapple with the [coronavirus](https://www.washingtonpost.com/health/2020/02/28/what-you-need-know-about-coronavirus/?arc404=true&itid=lk_inline_manual_39) pandemic that has killed nearly 1 million people worldwide, the artists are urging the public not to lose sight of the threat of climate change. Together they hope that the project will remind people to “flatten the climate curve” to protect the planet. As he unveiled the clock Saturday, Golan encouraged onlookers to reflect on their own carbon footprint and to come together to create change. “The world is literally counting on us,” he said. “Every hour, every minute, every second, counts.”

#### **Private entities are key to asteroid mining and fulfilling demand for rare earth elements**

**Britt 21** (Hugo Britt, August 19, 2021, Companies Are Preparing for Space Mining, <https://www.thomasnet.com/insights/companies-are-preparing-for-space-mining/>) SJ

Rare Earth Materials Are Abundant. There are around two million near-earth asteroids brimming with rare earth minerals, precious metals, iron, and nickel. The Moon contains helium-3, yttrium, samarium, and lanthanum, while Mars contains an abundance of magnesium, aluminum, titanium, iron, chromium, and trace amounts of lithium, cobalt, tungsten, and other metals. Importantly, many planetary bodies contain water, which through hydrolysis can be used as rocket fuel. It Helps with Sustainability Earth’s resources are finite. [Non-renewable metal resources are inherently unsustainable](https://www.nature.com/articles/s43247-020-0011-0), and mining causes environmental degradation all over the world. The answer is to source our minerals off-world. Off-world minerals are exhaustible as well, but the argument is that mining lifeless rocks such as the Moon or asteroids is infinitely preferable to continuing to damage Earth’s fragile biosphere. Discoveries May Be Made Opening space to commercial mining does not mean that science takes a back seat. Space-mining interests could drive scientific advancement by discovering extremely rare or unknown minerals on other planetary bodies. Robotics Would Do the Work While countless lives have been lost on Earth over the centuries due to mining accidents and disasters, it is likely that humans will not have to risk their lives by traveling in-person to off-world mining sites. [Regolith-sampling probes](https://www.thomasnet.com/insights/nasa-uses-pogo-stick-probe-to-retrieve-sample-from-asteroid-that-may-one-day-hit-earth/) are already in use and provide an early glimpse of what a scaled-up robotic mining craft may one day look like. Off-Earth Mining and Space Law The [1967 Outer Space Treaty](https://www.thomasnet.com/insights/is-the-outer-space-treaty-outdated/) is unclear in terms of whether any country — or private company — can claim mineral rights in space. It states that “exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind.” The [1979 Moon Treaty](https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html) was an attempt to declare the Moon and its natural resources to be CHM (Common Heritage of Mankind). Significantly, it called for “an equitable sharing [by all countries] in the benefits derived from these resources.” Most nations, including the U.S., did not ratify this treaty. Recently, the U.S. has accelerated its efforts to create a legal framework for the exploitation of resources in space. The Obama administration signed the [U.S. Commercial Space Launch Competitiveness Act of 2015](https://www.faa.gov/about/office_org/headquarters_offices/ast/media/US-Commercial-Space-Launch-Competitiveness-Act-2015.pdf), allowing U.S. citizens to “engage in the commercial exploration and exploitation of space resources.” In April 2020, the Trump administration issued an [executive order](https://www.space.com/trump-moon-mining-space-resources-executive-order.html) supporting U.S. mining on the Moon and asteroids. In May 2020, NASA unveiled the [Artemis Accords](https://www.washingtonpost.com/technology/2020/05/15/moon-rules-nasa-artemis/), which included the development of safety zones around lunar mining sites. Former NASA administrator Jim Bridenstine said: “It’s time to establish the regulatory certainty to extract and trade space resources,” and clarified in a separate statement that: “We do believe we can extract and utilize the resources of the moon, just as we can extract and utilize tuna from the ocean.” NASA planned an [Asteroid Redirect Mission](https://www.nasa.gov/content/what-is-nasa-s-asteroid-redirect-mission) which involved collecting a multi-ton boulder from an asteroid and redirecting it into a stable orbit around the moon, but the mission was canceled in 2017. What Companies Are Preparing for a Future of Space Mining? One thing that is becoming clear is that off-earth mining is unlikely to be a state-run activity. Instead, several private companies are jockeying to be first in line to access minerals in space. [iSpace](https://ispace-inc.com/) (Japan) has a mission to “help companies access new business opportunities on the moon,” including the extraction of water and mineral resources to spearhead a space-based economy. Planetary Resources (defunct) was founded in 2009 with the goal of developing a robotic asteroid mining industry. Despite having high-profile founding investors including Alphabet’s Larry Page, Eric Schmidt, and Virgin Group founder Richard Branson, Planetary ran into financial trouble in 2018 and was gone by 2020. Deep Space Industries (defunct) was another early mover that intended to explore, examine, sample, and harvest minerals from asteroids. DSI was acquired by Bradford Space in 2019. [Offworld](https://www.offworld.ai/) is an AI company building “universal industrial robots to do the heavy lifting [including mining] on Earth, the Moon, asteroids, and Mars.” [The Asteroid Mining Corporation](https://asteroidminingcorporation.co.uk/) (UK) is a venture currently crowdfunding for a 2023 satellite mission called “El Dorado,” which will conduct a spectral survey of 5,000 asteroids to identify the most valuable for mining. Alongside the U.S., the tiny European nation of Luxembourg has also developed a space mining framework and has subsequently [emerged as a European hub](https://www.businesswire.com/news/home/20201118005699/en/) for the fledgling industry.

#### **Reducing dependency on terrestrial rare earth elements is key to combating climate change.**

**Serpell 21** (Oscar Serpell, Associate Director of Academic Programming, Kleinman Center For Energy Policy. “Rare Earth Elements: A Resource Constraint Of The

Energy Transition,”. May 18, 2021. <https://kleinmanenergy.upenn.edu/research/publications/rare-earth-elements-a->

resource-constraint-of-the-energy-transition/.)

Climate change is presenting humans with an unprecedented challenge: the need to wean ourselves off of a group of valuable natural resources; not because of scarcity or cost, but because of their long-term global pollution impacts. Although the combined capabilities of wind, solar, hydropower, and geothermal technologies have the potential to harness near limitless amounts of energy from our environment, they are not free from the limitations of resource availability. On the contrary, the clean energy transition will require economic mobilization on a scale not seen since the industrial revolution, and will strain the global production of silicon, cobalt, lithium, manganese, and a host of other critical elements (Behr2019).

#### **Climate change causes extinction through unsurvivable heat and food scarcity.**

**Sprat and Dunlop 19** (David Spratt and Ian Dunlop, \*Research Director for Breakthrough National Centre for Climate Restoration and co-author of Climate Code Red: The case for emergency action; \*\*member of the Club of Rome AND formerly an international oil, gas and coal industry executive, chairman of the Australian Coal Association, chief executive of the Australian Institute of Company Directors, and chair of the Australian Greenhouse Office Experts Group on Emissions Trading, "Existential climate-related security risk: A scenario approach," Breakthrough National Centre for Climate Restoration, 5-30-2019, <https://docs.wixstatic.com/ugd/148cb0_90dc2a2637f348edae45943a88da04d4.pdf>, Date Accessed: 7-5-2019, SB)

2050: By 2050, there is broad scientific acceptance that system tipping-points for the West Antarctic Ice Sheet and a sea-ice-free Arctic summer were passed well before 1.5°C of warming, for the Greenland Ice Sheet well before 2°C, and for widespread permafrost loss and large-scale Amazon drought and dieback by 2.5°C. The “hothouse Earth” scenario has been realised, and Earth is headed for another degree or more of warming, especially since human greenhouse emissions are still significant. While sea levels have risen 0.5 metres by 2050, the increase may be 2–3 metres by 2100, and it is understood from historical analogues that seas may eventually rise by more than 25 metres. Thirty-five percent of the global land area, and 55 percent of the global population, are subject to more than 20 days a year of lethal heat conditions, beyond the threshold of human survivability. The destabilisation of the Jet Stream has very significantly affected the intensity and geographical distribution of the Asian and West African monsoons and, together with the further slowing of the Gulf Stream, is impinging on life support systems in Europe. North America suffers from devastating weather extremes including wildfires, heatwaves, drought and inundation. The summer monsoons in China have failed, and water flows into the great rivers of Asia are severely reduced by the loss of more than one-third of the Himalayan ice sheet. Glacial loss reaches 70 percent in the Andes, and rainfall in Mexico and central America falls by half. Semi-permanent El Nino conditions prevail. Aridification emerges over more than 30 percent of the world’s land surface. Desertification is severe in southern Africa, the southern Mediterranean, west Asia, the Middle East, inland Australia and across the south-western United States. Impacts: A number of ecosystems collapse, including coral reef systems, the Amazon rainforest and in the Arctic. Some poorer nations and regions, which lack capacity to provide artificially-cooled environments for their populations, become unviable. Deadly heat conditions persist for more than 100 days per year in West Africa, tropical South America, the Middle East and South-East Asia, which together with land degradation and rising sea levels contributes to 21 perhaps a billion people being displaced. Water availability decreases sharply in the most affected regions at lower latitudes (dry tropics and subtropics), affecting about two billion people worldwide. Agriculture becomes nonviable in the dry subtropics. Most regions in the world see a significant drop in food production and increasing numbers of extreme weather events, including heat waves, floods and storms. Food production is inadequate to feed the global population and food prices skyrocket, as a consequence of a one-fifth decline in crop yields, a decline in the nutrition content of food crops, a catastrophic decline in insect populations, desertification, monsoon failure and chronic water shortages, and conditions too hot for human habitation in significant food-growing regions. The lower reaches of the agriculturally-important river deltas such as the Mekong, Ganges and Nile are inundated, and significant sectors of some of the world’s most populous cities — including Chennai, Mumbai, Jakarta, Guangzhou, Tianjin, Hong Kong, Ho Chi Minh City, Shanghai, Lagos, Bangkok and Manila — are abandoned. Some small islands become uninhabitable. Ten percent of Bangladesh is inundated, displacing 15 million people. According to the Global Challenges Foundation’s Global Catastrophic Risks 2018 report, even for 2°C of warming, more than a billion people may need to be relocated due to sea-level rise, and In high-end scenarios “the scale of destruction is beyond our capacity to model, with a high likelihood of human civilisation coming to an end”.

## **Solar power satellites da**

#### **[Horowitz] There is an energy crisis and its only going to get worse in the next couple months**

**Horowitz 21** (Julia Horowitz, a senior writer. She leads CNN Business international coverage of global markets and business , October 7th, 2021, A global energy crisis is coming. There's no quick fix, CNN Business, <https://www.cnn.com/2021/10/07/business/global-energy-crisis/index.html>) SJ

A global energy crunch caused by weather and a resurgence in demand is getting worse, stirring alarm ahead of the winter, when more energy is needed to light and heat homes. Governments around the world are trying to limit the impact on consumers, but acknowledge they may not be able to prevent bills spiking. Further complicating the picture is mounting pressure on governments to accelerate the transition to cleaner energy as world leaders prepare for a critical climate summit in November. In China, [rolling blackouts](https://edition.cnn.com/2021/09/28/economy/china-power-shortage-gdp-supply-chain-intl-hnk/index.html) for residents have already begun, while in India power stations are scrambling for coal. [Consumer advocates in Europe](https://twitter.com/beuc/status/1445702126336761865?s=20) are calling for a ban on disconnections if customers can't promptly settle what they owe. "This price shock is an unexpected crisis at a critical juncture," EU energy chief Kadri Simson said Wednesday, confirming the bloc will outline its longer-term policy response next week. "The immediate priority should be to mitigate social impacts and protect vulnerable households." In Europe, natural gas is now trading at the equivalent of $230 per barrel, in oil terms — up more than 130% since the beginning of September and more than eight times higher than the same point last year, according to data from Independent Commodity Intelligence Services. In East Asia, the cost of natural gas is up 85% since the start of September, hitting roughly $204 per barrel in oil terms. Prices remain much lower in the United States, a net exporter of natural gas, but still have shot up to their highest levels in 13 years. "A lot of it is feeding off of fear about what the winter's going to look like," said Nikos Tsafos, an energy and geopolitics expert at the Center for Strategic and International Studies, a Washington-based think tank. He thinks that anxiety has caused the market to break away from the fundamentals of supply and demand. The frenzy to secure natural gas is also pushing up the price of coal and oil, which can be used as substitutes in some cases, but are even worse for the climate. India, which remains extremely dependent on coal, said this week that as many as 63 of its 135 coal-fired power plants have [two days or less](https://edition.cnn.com/2021/10/06/energy/india-energy-crisis-coal-hnk-intl/index.html) of supplies. The circumstances are causing central banks and investors to worry. Rising energy prices are contributing to inflation, which already was a major concern as the global economy tries to shake off the lingering effects of Covid-19. Dynamics over the winter could make matters worse.

#### **[Stossel] Government space programs are ineffective at innovating**

**Stossel 20** (John Stossel, July 29, 2020, The Private Space Race, <https://www.capitalismmagazine.com/2020/07/the-private-space-race/>) SJ

An Obama administration committee had concluded that launching such a vehicle would take 12 years and cost $36 billion. But this rocket was finished in half that time — for less than $1 billion (1/36th the predicted cost). That’s because it was built by Elon Musk’s private company, Space X. He does things faster and cheaper because he spends his own money. “This is the potential of free enterprise!” explains aerospace engineer Robert Zubrin in my newest video. Of course, years ago, NASA did manage to send astronauts to the moon. That succeeded, says Zubrin, “because it was purpose-driven. (America) wanted to astonish the world what free people could do.” But in the 50 years since then, as transportation improved and computers got smaller and cheaper, NASA made little progress. Fortunately, President Obama gave private companies permission to compete in space, saying, “We can’t keep doing the same old things as before.” Competition then cut the cost of space travel to a fraction of what it was. Why couldn’t NASA have done that? Because after the moon landing, it became a typical government agency — overbudget and behind schedule. Zubrin says NASA’s purpose seemed to be to “supply money to various suppliers.” Suppliers were happy to go along. Zubrin once worked at Lockheed Martin, where he once discovered a way for a rocket to carry twice as much weight. “We went to management, the engineers, and said, ‘Look, we could double the payload capability for 10% extra cost.’ They said, ‘Look, if the Air Force wants us to improve the Titan, they’ll pay us to do it!'” NASA was paying contractor’s development costs and then adding 10% profit. The more things cost, the bigger the contractor’s profit. So contractors had little incentive to innovate. Even NASA now admits this is a problem. During its 2020 budget request, Administrator Jim Bridenstine confessed, “We have not been good at maintaining schedule and … at maintaining costs.” Nor is NASA good at innovating. Their technology was so out of date, says Zubrin, that “astronauts brought their laptops with them into space — because shuttle computers were obsolete.” I asked, “When (NASA) saw that the astronauts brought their own computers, why didn’t they upgrade?” “Because they had an entire philosophy that various components had to be space rated,” he explains. “Space rating was very bureaucratic and costly.” NASA was OK with high costs as long as spaceships were assembled in many congressmen’s districts. “NASA is a very large job program,” says Aerospace lawyer James Dunstan. “By spreading its centers across the country, NASA gets more support from more different congressmen.” Congressmen even laugh about it. Randy Weber, R-Texas, joked, “We’ll welcome (NASA) back to Texas to spend lots of money any time.” Private companies do more with less money. One of Musk’s cost-saving innovations is reusable rocket boosters. For years, NASA dropped its boosters into the ocean. “Why would they throw it away?” I ask Dunstan. “Because that’s the way it’s always been done!” he replies. Twenty years ago, at Lockheed Martin, Zubrin had proposed reusable boosters. His bosses told him: “Cute idea. But if we sell one of these, we’re out of business.” Zubrin explains, “They wanted to keep the cost of space launch high.” Thankfully, now that self-interested entrepreneurs compete, space travel will get cheaper. Musk can’t waste a dollar. Space X must compete with Jeff Bezos’ Blue Origin, Richard Branson’s Virgin Galactic, Boeing, Lockheed Martin and others.The private sector always comes up with ways to do things that politicians cannot imagine. Government didn’t invent affordable cars, airplanes, iPhones, etc. It took competing entrepreneurs, pursuing profit, to nurture them into the good things we have now. Get rid of government monopolies.

#### **[Snowden] Solar power satellites solves the energy crisis**

**Snowden 19** (Scott Snowden, Mar 12, 2019, has written about science and technology for 20 years for publications around the world, Solar Power Stations In Space Could Supply The World With Limitless Energy, Forbes, <https://www.forbes.com/sites/scottsnowden/2019/03/12/solar-power-stations-in-space-could-supply-the-world-with-limitless-energy/?sh=23471fec4386> ) SJ

While on the surface of the Earth, society still struggles to adopt solar energy solutions, many scientists maintain that giant, space-based solar farms could provide an environmentally-friendly answer to the world's energy crisis. Only last week, we reported that China [was planning to](https://www.forbes.com/sites/scottsnowden/2019/03/05/china-plans-to-build-the-worlds-first-solar-power-station-in-space/#51f7f9c35c94) build the world's first solar power station to be positioned in Earth's orbit. Because the sun always shines in space, an orbital solar power station is seen as an inexhaustible source of clean energy. "Above the Earth, there's no day and night cycle and no clouds or weather or anything else that might obstruct the sun's ray, so a constant power source is available," said Ali Hajimiri, professor of electrical engineering at the California Institute of Technology and co-director of the university’s [Space Solar Power Project](https://www.spacesolar.caltech.edu/). Collecting solar power in space and wirelessly transmitting was first described by Isaac Asimov in 1941 in his short story Reason. In 1968, American aerospace engineer Peter Glaser published the first technical article on the concept – Power From The Sun: Its Future in the journal [Science](http://www.sciencemag.org/). Space-based solar power attracted considerable attention in the 1970s as the necessary individual technical components – in essence, photovoltaic cells, satellite technology and wireless power transmission – were developed. Despite the concept being technically feasible, it was considered economically unrealistic at the time and research ultimately stalled. “The idea seems to be going through a resurgence and it’s probably because the technology exists to make it happen,” said John Mankins, a former NASA scientist who was at the forefront of this field in the 1990s, before it was abandoned. Global energy demands are only going to grow, says Hajimiri. The global population is expected to reach a staggering 9.6 billion by 2050, according to a [United Nations report](http://www.un.org/en/development/desa/news/population/un-report-world-population-projected-to-reach-9-6-billion-by-2050.html), so methods of generating large quantities of clean energy must be found. A space-based solar power system could provide energy to everyone, even in places that don't receive sunlight all year round, like northern Europe and Russia. In April of 2015, a research agreement between Northrop Grumman and Caltech provided up to $17.5m for the development of innovations necessary to enable a space solar power system. Three Caltech professors head up the project: joining Hajimiri were Harry Atwater and Sergio Pellegrino. Caltech is just one institution working on developing this technology. We know that scientists at the Chongqing Collaborative Innovation Research Institute for Civil-Military Integration in China are constructing a facility to test the theoretical viability of the concept and plans to develop an orbital photovoltaic array [were announced](https://phys.org/news/2009-11-japan-eyes-solar-station-space.html) in Japan some time ago. One of the biggest issues to overcome is that of getting an array of solar panels large enough to make the project viable into orbit. Early concept designs in the 1970s featured giant arrays that would've proved very difficult to actually get into orbit. "The systems of the 70s for solar power satellites, the cost estimates suggested, at that time, that it might be as much as a trillion dollars to get to the first kilowatt hour because of the way the designs worked. Essentially a single satellite, a platform, an integrated, monolithic platform about the size of Manhattan," said Mankins.However, with SpaceX and Blue Origin slowly driving the cost of orbital delivery down, suddenly the concept seems a little closer to reality. "Going to modular systems to allow mass production, I believe was the answer to how to get solar power satellite costs down to something more reasonable," said Mankins.

#### **[Klare] Energy crisis results in war**

**Klare 14** (Micheal T Klare, July 15, 2014, Twenty-first century energy wars: how oil and gas are fuelling global conflicts, a Five Colleges professor of Peace and World Security Studies, <https://energypost.eu/twenty-first-century-energy-wars-oil-gas-fuelling-global-conflicts/>) SJ

As these conflicts and others like them suggest, fighting for control over key energy assets or the distribution of oil revenues is a [critical factor](http://www.tomdispatch.com/blog/175540/) in most contemporary warfare. While ethnic and religious divisions may provide the political and ideological fuel for these battles, it is the potential for mammoth oil profits that keeps the struggles alive. Without the promise of such resources, many of these conflicts would eventually die out for lack of funds to buy arms and pay troops. So long as the oil keeps flowing, however, the belligerents have both the means and incentive to keep fighting. In a fossil-fuel world, control over oil and gas reserves is an essential component of national power. “Oil fuels more than automobiles and airplanes,” Robert Ebel of the Center for Strategic and International Studies [told](http://2001-2009.state.gov/s/p/of/proc/tr/10187.htm) a State Department audience in 2002. “Oil fuels military power, national treasuries, and international politics.” Far more than an ordinary trade commodity, “it is a determinant of well being, of national security, and international power for those who possess this vital resource, and the converse for those who do not.” If anything, that’s even truer today, and as energy wars expand, the truth of this will only become more evident. Someday, perhaps, the development of renewable sources of energy may invalidate this dictum. But in our present world, if you see a conflict developing, look for the energy. It’ll be there somewhere on this fossil-fueled planet of ours.

## **cp**

**Counterplan text: the space faring nations should collaborate with the private sector on space mining and include indigenous voices**

**Jegarajah 2016** (Sri Jegarajah, November 3 2016, “Governments should collaborate on space mining for humanity’s benefit: Expert,” CNBC, <https://www.cnbc.com/2016/11/03/governments-should-collaborate-on-space-mining-for-humanitys-benefit-expert.html>) //neth

-solves all of the aff offense ab unregulated private mining bc it’s now regulated by the government

-avoids the disad bc private space exploration/mining still exists in some form

-consult indigneous people to make sure outer space exploration isnt anti indigenous

Space mining is a reality, so the public and private sector need to collaborate, not compete, to advance humanity, a senior scientist told CNBC. Alongside tourism, mining is a major hot-button area of research in the multi-billion dollar space industry. Asteroids are rich with minerals that are rare on Earth. One platinum-rich 500 meter-wide asteroid could contain about 174 times the world’s yearly output of the metal, and 1.5 times the known global reserves of platinum-group metals, according to U.S. firm Planetary Resources, one of the major asteroid mining players. The hope is that asteroids near Earth can become developed into mining centers that can send refined materials, rare metals and even clean energy to Earth, Jose Cordeiro, a founding faculty and energy advisor at the Singularity University, told CNBC. So much energy lies beyond Earth that it can help resolve Earthly issues, such as climate change, water and food security, he added. But with any new frontier lies the thorny issue of regulation. “We shouldn’t think about countries when talking about the universe, we should be talking about planets. Thinking just about the U.S.A, Russia or China is not the way to go, we have to think about humanity and its continuation outside Earth,” Cordeiro explained. Interplanetary travel is important for the future of humanity, just as artificial intelligence is for the human condition, he insisted. “Going to the Moon was fundamental for humanity and a trip to Mars will do the same....We simply need more collaboration.”

## **Case**

Ov u don’t have a framing so deault to mine

### **adv 1**

**Probability – 0.1% chance of a collision.**

**Salter 16** [(Alexander William, Economics Professor at Texas Tech) “SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS” 19 STAN. TECH. L. REV. 221 \*numbers replaced with English words] TDI

The probability of a collision is currently low. Bradley and Wein estimate that the **maximum probability** in LEO **of a collision over the lifetime of a spacecraft remains below one in one thousand**, conditional on continued compliance with NASA’s deorbiting guidelines.3 However, the possibility of a future “snowballing” effect, whereby debris collides with other objects, further congesting orbit space, remains a significant concern.4 Levin and Carroll estimate the average immediate destruction of wealth created by a collision to be approximately $30 million, with an additional $200 million in damages to all currently existing space assets from the debris created by the initial collision.5 The expected value of destroyed wealth because of collisions, currently small because of the low probability of a collision, can quickly become significant if future collisions result in runaway debris growth.

**Their impacts take centuries and mitigation checks.**

**Lewis 15** – Senior Lecturer in Aerospace Engineering at the University of Southampton [Hugh Lewis, “Space debris, Kessler Syndrome, and the unreasonable expectation of certainty,” 2015, *Room*, <https://room.eu.com/article/Space_debris_Kessler_Syndrome_and_the_unreasonable_expectation_of_certainty>]

There is now widespread awareness of the space debris problem amongst policymakers, scientists, engineers and the public. Thanks to pivotal work by J.C. Liou and Nicholas Johnson in 2006 we now understand that the continued growth of the debris population is likely in the future even if all launch activity is halted. The reason for this sustained growth, and for the concern of many satellite operators who are forced to act to protect their assets, are collisions that are expected to occur between objects – satellites and rocket stages – already in orbit. In spite of several commentators warning that these collisions are just the start of a collision cascade that will render access to low Earth orbit all but impossible – a process commonly referred to as the ‘**Kessler** Syndrome’ after the debris scientist Donald Kessler – the reality is not likely to be on the scale of these predictions or the events depicted in **the film Gravity**. Indeed, results presented by the Inter-Agency Space Debris Coordination Committee (**IADC**) at the Sixth European Conference on Space Debris show an expected increase in the debris population of only 30% after **200 years** with continued launch activity. **Collisions** are still predicted to occur, but this is far from the **catastrophic scenario** feared by some. Constraining the population increase to a modest level can be achieved, the IADC suggested, through widespread and good compliance with **existing** space debris **mitigation guidelines**, especially those relating to passivation (whereby all sources of stored energy on a satellite are depleted at the end of its mission) and post-mission disposal, such as de-orbiting the satellite or re-orbiting it to a graveyard orbit. Nevertheless, the anticipated growth of the debris population in spite of these robust efforts merits the investigation of additional measures to address the debris threat, according to the IADC.

**Space commercialization is a strong constraint on conflict – solves your nuke war scenario**

Wendy N. Whitman **Cobb 20**, is currently an associate professor of strategy and security studies at the US Air Force's School of Advanced Air and Space Studies, 7-21-2020, "Privatizing Peace: How Commerce Can Reduce Conflict in Space," Routledge & CRC Press, <https://www.routledge.com/Privatizing-Peace-How-Commerce-Can-Reduce-Conflict-in-Space/Cobb/p/book/9780367337834> // AAli

By the end of the twentieth century, scholars zeroed in on the democratic peace theory which attempts to explain why democracies do not go to war with other democracies and why, in some analyses, they seem to be more prone to peace in general than non-democracies. Similar to the golden arches, what is it about democracy that seems to induce such peacefulness? Academics have proposed everything from the nature of mediating institutions to the restraint of public opinion, to trade relations. While these variations will be explored further in Chapter 3, of interest here are the versions that focus explicitly on trade, commercial ties, and capitalism. Along these lines, Erik Gartzke argues, "peace ensues when states lack differences worthy of costly conflict."31 **If the costs of conflict are too high**, then **states should be more unlikely to engage in it**. To this end, economic globalization can provide the means through which costs are raised. “The integration of world markets not only facilitates commerce, but also creates new interests inimical to war. Financial interdependence ensures that damage inflicted on one economy travels through the global system, **afflicting** even **aggressors**."32 Focusing his analysis primarily on the influence of capitalism, Gartzke's findings suggest that states with markets more closely tied to the global economy are far less likely to experience a militarized dispute. In thinking about the space environment today, there are obvious principles of capitalism at work. However, China, a major spacefaring state that has been making capitalist reforms, arguably remains far from a true capitalist country. This is especially true in their space industry which is heavily subsidized by the state and almost wholly integrated with China's military.34 Many other states continue to subsidize space activities heavily as well. A better approach through which to examine conflict in space is presented by an offshoot of the capitalist peace which is termed the commercial peace. The commercial peace thesis emphasizes the role of trade and the connections made through it to explain a lack of conflict. Han Dorussen and Hugh Ward write: Trade is important not only because it creates an economic interest in peace but also because trade generates 'connections' between people that promote communication and understanding.... Based on these ideas, the flow of goods between countries creates a network of ties and communication links. If two countries are more embedded in this network, their relations should be more peaceful 35 Given the interconnectedness of the global economy to space-based assets, a version of the commercial peace thesis can be used to argue that the chance of conflict in space is less than is commonly understood or recognized precisely because of the extent to which **the global economy has become dependent on space-based assets.** To understand this argument, consider a scenario in which Russia, in preparation for a new assault on Eastern Europe, attacks a key US military satellite with the purpose of disrupting and disabling military communications in Europe. This action would conceivably enable the Russians to undertake their attack under more favorable conditions and prevent a quicker response from America and its allies. However, if the satellite was attacked via an ASAT that kinetically destroyed the US satellite, the debris cloud created from the attack could have disastrous consequences beyond military communications Much like the movie Gravity, the debris cloud could cause a chain reaction, hitting and disabling dismantling other satellites that would in turn disrupt civilian communications, business transactions, and perhaps even Russian military satellites. The economic effects of lost satellites would not be restricted to one country alone; the global economic consequences in terms of lost property (satellites), lost transactions, and financial havoc would echo throughout the world, including in Russia itself. Finally, the attack on one satellite could even ultimately endanger the ISS and its inhabitants, several of which are Russians. Destruction of the ISS would negate billions of dollars in investment from not just Russia, but other countries that have participated in it including Japan, Italy, and Canada. Therefore, an attack on a US military satellite would not just be an attack on one but an attack on all. While the previous scenario highlights several reasons why it would not be in Russia's best interest to attack a US satellite, this book argues that the economic argument is both the strongest and the most restraining especially as space becomes more congested, competitive, contested, and commercialized. The emergence of private space companies enhances this argument. "In the commercial sector, companies need reliability and legal enforcement mechanisms if they are going to operate profitably in a shared environment."36 In order to foster the growing area of space commercialization, companies must be assured that the activities they undertake in space will be protected in some way or, at a minimum, allowed to proceed to the extent where they can reap the profit. This could be done through international organizations that would provide some sort of space traffic control, but **the likelihood of a major international breakthrough on rules regarding space is unlikely in the near term**. Therefore, **actors must rely on** the **protections afforded them by an increasingly globalized economy that is ever more dependent on space-based assets**.

#### **[Reisner et al] There’s no nuclear winter. Prefer our study – it has 9 PhD’s with experts in every relevant scientific field.**

**Reisner et al 2018[** [Jon Reisner](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Reisner%2C+Jon) - Climate and Atmospheric Sciences PhD at Los Alamos National Laboratory; [Gennaro D'Angelo](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=D%27Angelo%2C+Gennaro) – PhD [Los Alamos National Laboratory](https://www.researchgate.net/institution/Los_Alamos_National_Laboratory), [Theoretical Division](https://www.researchgate.net/institution/Los_Alamos_National_Laboratory/department/Theoretical_Division2) [Eunmo Koo](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Koo%2C+Eunmo) - Ph.D., Mechanical Engineering, University of California at Berkeley, Expertise: Atmospheric fluid dynamics, Modeling fluid-solid interactions, Fire spread in urban and wildland environment, Wind energy harvest, High-performance computing simulations; [Wesley Even](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Even%2C+Wesley) - Ph.D. Physics - Louisiana State University, Expertise: Computational Physics, Astrophysics [Matthew Hecht](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Hecht%2C+Matthew) – Expert in Climate and Ocean Modeling [Elizabeth Hunke](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Hunke%2C+Elizabeth) - Ph.D., Program in Applied Mathematics, University of Arizona, Expertise: Sea Ice Models; [Darin Comeau](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Comeau%2C+Darin) – PhD, Applied Mathematics, University of Arizona , Expert in High dimensional data analysis, statistical and predictive modeling, and uncertainty quantification, with particular applications to climate science, as well as process-based modeling of the cryosphere; [Randall Bos](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Bos%2C+Randall) – PhD, Expert in Nuclear Weapon Effects Modeling and Simulation [James Cooley](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Cooley%2C+James) - Ph.D. -- Physics, University of Maryland, Expert in Weapon Physics, Emergency Response, Computational Physics, Verification, and Validation (2018). Climate impact of a regional nuclear weapons exchange: An improved assessment based on detailed source calculations. Journal of Geophysical Research: Atmospheres , 123 , 2752 – 2772. <https://doi.org/10.1002/2017JD027331> Received 20 JUN 2017 Accepted 1 FEB 2018 Accepted article online 13 FEB 2018 Published online 14 MAR 2018 ©2018. The Authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distri- bution in any medium, provided the original work is properly cited, the use is non-commercial and no modi fi cations or adaptations are made.] LHSBC

Abstract We present a multiscale study examining the impact of a regional exchange of nuclear weapons on global climate. Our models investigate **multiple phases of the effects of nuclear weapons** usage, including growth and rise of the nuclear fireball, ignition and spread of the induced fi restorm, and comprehensive Earth system modeling of the oceans, land, ice, and atmosphere. This study follows from the scenario originally envisioned by Robock, Oman, Stenchikov, et al. (2007, <https://doi.org/10.5194/acp-7-2003-2007>), based on the analysis of Toon et al. (2007, <https://doi.org/10.5194/acp-7-1973-2007>), which assumes a regional exchange between India and Pakistan of fi fty 15 kt weapons detonated by each side. We expand this scenario by modeling the processes that lead to production of black carbon, in order to re fi ne the black carbon forcing estimates of these previous studies. When the Earth system model is initiated with 5 × 10 9 kg of black carbon in the upper troposphere (approximately from 9 to 13 km), the impact on climate variables such as global temperature and precipitation in our simulations is similar to that predicted by previously published work. However, while our thorough simulations of the fi restorm produce about 3.7 × 10 9 kg of black carbon, we fi nd that the vast majority of the black carbon **never reaches an altitude above weather systems** (approximately 12 km). Therefore, our Earth system model simulations conducted with model-informed atmospheric distributions of black carbon produce signi fi cantly lower global climatic impacts than assessed in prior studies, as the carbon at lower altitudes is more **quickly removed from the atmosphere**. In addition, our model ensembles indicate that statistically signi fi cant effects on global surface temperatures are limited to the fi rst 5 years and are much smaller in magnitude than those shown in earlier works. None of the simulations produced a nuclear winter effect. We fi nd that the effects on global surface temperatures are not uniform and are concentrated primarily around the highest arctic latitudes, dramatically **reducing the global impact on human health and agriculture** compared with that reported by earlier studies. Our analysis demonstrates that the probability of significant global cooling from a limited exchange scenario as envisioned in previous studies is **highly unlikely**, a **conclusion supported by examination of natural analogs,** such as large forest fires and volcanic eruptions.

#### **turn: Nuke war won’t cause extinction, but it’ll spur political will for meaningful disarmament.**

**Deudney 18** [Associate Professor of Political Science at Johns Hopkins University. 03/15/2018. “The Great Debate.” The Oxford Handbook of International Security. www.oxfordhandbooks.com, doi:10.1093/oxfordhb/9780198777854.013.22] // Re-Cut Justin

Although nuclear war is the oldest of these technogenic threats to civilization and human survival, and although important steps to restraint, particularly at the end of the Cold War, have been achieved, the nuclear world is increasingly changing in major ways, and in almost **entirely dangerous directions**. The third “bombs away” phase of the great debate on the nuclear-political question is more consequentially divided than in the first two phases. Even more ominously, most of the momentum lies with the forces that are pulling states **toward nuclear-use**, and with the radical actors bent on inflicting catastrophic damage on the leading states in the international system, particularly the United States. In contrast, the arms control project, although intellectually vibrant, is **largely in retreat** on the world political stage. The arms control settlement of the Cold War is **unraveling**, and the world public is more divided and distracted than ever. With the recent election of President Donald **Trump**, the United States, which has played such a dominant role in nuclear politics since its scientists invented these fiendish engines, now has an **impulsive and uninformed leader**, boding **ill for nuclear restraint and effective crisis management**. Given current trends, it is prudent to assume that **sooner or later**, and probably sooner, **nuclear weapons will again be the used in war**. But this bad news may contain a **“silver lining” of good news**. Unlike a **general** nuclear war that might have occurred during the Cold War, such a nuclear event now would probably **not mark the end of civilization (or** of **humanity**), due to the great **reductions in nuclear forces** achieved at the end of the Cold War. Furthermore, **politics** on “the day after” could have **immense potential for positive change**. The survivors would not be likely to envy the dead, but would surely have a **greatly renewed resolution for “never again.”** Such an event, completely unpredictable in its particulars, would **unambiguously put the nuclear-political question back at the top of the world political agenda**. It would unmistakeably remind leading states of their **vulnerability** It might also trigger more robust efforts to achieve the **global regulation of nuclear capability**. Like the bombings of Hiroshima and Nagasaki that did so much to catalyze the elevated concern for nuclear security in the early Cold War, and like the experience “at the brink” in the Cuban Missile Crisis of 1962, **the now bubbling nuclear caldron holds the possibility of inaugurating a major period of institutional innovation and adjustment toward a fully “bombs away” future**.

### **adv 2**

#### **Space exploration isn’t inherently colonial- indigenous perspectives can be inserted into it**

**Smiles 20** (Deondre Smiles, October 26, 2020, The Settler Logics of (Outer) Space, <https://www.societyandspace.org/articles/the-settler-logics-of-outer-space>) SJ

One potential avenue of Indigenous involvement comes through the active involvement of Indigenous peoples and Indigenous perspectives in space exploration, of course. This involvement can be possible through viewing outer space through a ‘decolonial’ lens, for instance. Astronomers such as Prescod-Weinstein and Walkowicz have spoken about the need to avoid replicating colonial frameworks of occupation and use of space when exploring places such as Mars, for example (Mandelbaum, 2018). The rise of logics of resource extraction in outer-space bodies have led to engagements by other academics such as Alice Gorman on the agency and personhood of the Moon. Collaborations between Indigenous people and space agencies such as NASA help provide the Indigenous perspective inside space exploration and the information that is gleaned from it, with implications both in space and on a Earth that is dealing with climate crisis (Bean, 2018; Bartels, 2019).

#### **Asteroid mining will actually help Global South countries resist neo-colonialism- we solve better bc we target root cause**

Smedile, **Vincent.** “Space...The Cure For Neo-Colonialism?.” Planetary Praxis. September 13,

2019. Web. December 11, **2021.**

<https://sites.psu.edu/tovarishspeakspolicy/2019/09/13/space-the-cure-for-neo-

colonialism/>.

For many nations in the Global South, dependence on larger, often western, capitalist powers is the norm. This is nothing new, as the west has been using less developed nations for economic gain since the start of colonization and the era of rapid African Imperialism. While nations are no longer controlled by direct military intervention or colonial governments (usually), many of these former colonies experience the phenomena of Neo-Colonialism. Kwame Nkrumah best described this phenomenon as: “The result of neo-colonialism is that foreign capital is used for exploitation rather than for the development of the less developed parts of the world. Investment under neo-colonialism increases rather than decreases the gap between the rich and the poor countries of the world. The struggle against neo-colonialism is not aimed at excluding the capital of the developed world from operating in less developed countries. It is aimed at preventing the financial power of the developed countries being used in such a way as to impoverish the less developed.” The Global South thus finds itself inextricably sucked into a relationship where they are leeched off of and used as nothing more than sources of cheap labor and resources, all by economically and politically tieing these nations to their former colonial masters through economics. They can try to get out of this relationship, often by electing someone who defies this relationship. However, this often ends in either military intervention or extreme and punitive economic sanctions. How can these nations then worm their way out of these relationships and achieve national liberation from foreign capital? Now in a perfect world, they’d conduct a socialist revolution and install a strong people’s state capable of withstanding western intervention, such as Cuba, which has stood up to US sanctions and coup attempts all while a few miles offshore. However, the nearly worldwide presence of western military dominance nowadays makes this very difficult, as numerous attempts at popular mass movements often get hijacked or defeated with the help of the western military. In order to help nations experience greater economic development and independence from the west, and to help foster and strengthen anti-imperialist national liberation movements, these nations need to gain resources and develop scientifically. The best place for technological and scientific development, especially one that helps generate respect and quick attention, is space exploration and mining. Right now, space exploration and asteroid mining are some of the biggest targets for corporations and governments alike. Astroids stand to have resources such as rare metals, water, and building materials, often in larger quantities than on Earth, thus making them prime targets for profit. But why give these resources to Bezos and Musk, men who make more in a year than the GDP of some nations? Why not give it to the nations lacking in resources needed for economic growth and economic independence? Helping to develop space programs in the neo-colonialized global south could not only help them gain access to resources they’d need to jumpstart their final breaks from neo-colony status, but also allow them to sustain further scientific and economic development. Space exploration has numerous benefits that can help a nation rise to economic prominence. China and India’s rapidly growing space and science fields have allowed it to rise to its global position of economic dominance today, for example. Likewise, if once-colonized and neo-colonialized nations like China and India can use this as an avenue to economic prosperity, so too can the global south.

#### **Illusion DA – small, ineffective “moral steps” actually make the problem worse because they create the illusion that the problem has been solved discourages search for effective reform. Aff’s strategy cleans their conscience but relinquishes responsibility for finding a policy that solves.**

### **Solvency**

**Plan gets circumvented – empirics prove. Circumvention doesn’t turn the case but waters down enforcement**

**Johnson 20** [Matthew Johnson, PhD, University of Technology Sydney, “Mining the high frontier: sovereignty, property and humankind’s common heritage in outer space,” 2020, PhD Thesis, <https://opus.lib.uts.edu.au/handle/10453/142380>, EA]

However, the terrestrial history of mineral sovereignty tells us that **even modest constraints** imposed on private space mining interests may be undermined through the capture of democratic institutions. Private mining firms that have drawn on the political infrastructure of the neoliberal network have proven adept at **hindering** **policies** and **governments** that protect common interests in common spaces, from **counter-movements against** the **nationalisation** of mining operations to **concerted lobbying efforts against international agreements** that seek to impose limits on atmospheric carbon emissions. The US rejection of the Moon Agreement is consistent with neoliberal resistance to protective ‘double movements’ in a host of policy arenas, ranging from the creation of ecological conservation zones and provision of free healthcare, to increasing minimum wages or funding for public education. When the interests of mining capital are supported by and even embedded within political institutions (as in the case of **‘revolving doors’** between industry and public office), a concerted effort will need to be made in domestic and international institutions to push international space law towards anything resembling the ambitions of the Moon Agreement. Given the emergent connections between NewSpace and the Atlas Network, any double movement towards the preservation of intergenerational rights in the space commons would likely meet **well-funded and well-organised resistance.**