# 1NC

## Off

### 1

#### Interp --- Outer space is the space between the atmospheres of celestial bodies

New World Encyclopedia ND [New World Encyclopedia, No Date, “Outer space” New World Encyclopedia, accessed 12-14-2021, <https://www.newworldencyclopedia.org/entry/outer_space> ww

Outer space (often called space) consists of the relatively empty regions of the universe outside the atmospheres of celestial bodies. Outer space is used to distinguish it from airspace and terrestrial locations. There is no clear boundary between Earth's atmosphere and space, as the density of the atmosphere gradually decreases as the altitude increases.¶ For practical purposes, the Fédération Aéronautique Internationale has established the Kármán line, at an altitude of 100 kilometers (62 mi), as a working definition for the boundary between aeronautics and astronautics. This line was chosen because, as Theodore von Kármán calculated, a vehicle traveling above that altitude would have to move faster than orbital velocity to derive sufficient aerodynamic lift from the atmosphere to support itself. The United States designates people who travel above an altitude of 50 miles (80 km) as astronauts. During re-entry, roughly 120 kilometers (75 mi) marks the boundary where atmospheric drag becomes noticeable, depending on the ballistic coefficient of the vehicle.¶ Contrary to popular understanding, outer space is not completely empty, that is, it is not a perfect vacuum. Rather, it contains a low density of particles, predominantly hydrogen plasma, as well as electromagnetic radiation. Hypothetically, it also contains dark matter and dark energy.

#### Insert Violation --- planets have atmospheres --- planets large enough to warrant exploring and colonizing have atmospheres even if they aren’t habitable to humans they still exist and should be the Brightline of what is and isn’t topical

#### Standards ---

#### [1] Limits --- limiting the aff to be outside the atmosphere of celestial bodies and above 100km above the earth creates a stable definition of what is and isn’t topical, telescopes, asteroids, and satellites are T but preventing limits out colonization affs which reduces the topic by thousands of affs which allows for in-depth and nuanced debates

## On

### Plan

#### There is no solvency advocate – affirming the resolution is not enough to create a magical poof with fiat – we literally do not know how they’re enforcing bc Collins 8 just says policy is needed – incredibly abusive bc they can shift

### Adv 1

AT Haskins

1. Ev is in context of Trump , we sippin neolib koolaid from biden now
2. Your authors say its unprobable – circumvents the aff – check the rehighlighting

1AC Haskins 18. [Caroline Haskins] 15 March 2018. The Outline. “THE LEGAL BATTLE TO COLONIZE MARS” Accessed 28 December 2021. <https://theoutline.com/post/3739/mars-colony-settlement-spacex-elon-musk-trump> //L. Su

So if Musk were to establish a private Martian settlement, that settlement would be an (illegal) territory of the United States. But to a figure like Trump, who recently established the National Space Council and an agenda to support private space commerce, the prospect of a private Martian settlement may be appealing. And there’s ample precedent for the U.S. ignoring treaties that are inconvenient to its national interests. In fact, according to Dodge, the Cold-War-era Outer Space Treaty was written to be ambiguous and open to interpretation. “I think that [The Outer Space Treaty] was written that way purposefully to get some disparate factions — especially the U.S.S.R. and U.S.A., who were ideologically, of course, quite opposed at the time — to the same table,” Dodge said. But today, according to Listner, this ambiguity could give nations like the U.S. wiggle room to manipulate the treaty's meaning. “When it comes to the Outer Space Treaty, it’s about what we want it to say versus what it really does say,” Listner said. “I think if we really, really wanted [space colonization], we’re going to take a position that the Outer Space Treaty legally justifies it, even if it doesn’t. We’re going to make it say what we want it to say, even if it doesn’t say it.” However, it’s worth noting that the U.S. would face consequences for anything that went wrong during a mission. John Rummel, a Senior Scientist at the Search for Extraterrestrial Life Institute, said that the biological risks alone to Martian astronauts could be significant. “You don’t know if there is life on Mars, or literal viruses left over from life on Mars, or ancient viruses that are actually leftover from life on Earth that get transported there by an asteroid impact,” Rummel said. And according to Listner, every potential risk involves a heavy political calculus when the U.S. considers authorizing a potential SpaceX launch to Mars. “Mars will kill you very easily, so if that happened under the U.S. government’s watch, the blowback is going to be significant,” Listner said. “If colonists die, which they probably will, regrettably people will use that as a geopolitical tool to beat on the United States and make us look bad in the eyes of the world.” Let’s say the U.S. authorizes Musk’s launch to Mars, and the astronauts survive. The territory may be open to other astronauts who can make it to Mars, at least at first. That scenario opens up a whole new slew of political problems. After all, Musk has explicitly stated that he intends for his colony to be an independent city-state, complete with direct democracy and his own laws. According to Dodge, it’s possible that several decades from now, a Martian colony could not be so dependent on Earthly resources, like water and oxygen. “It’s conceivable to think that eventually a new government or a new political entity could be developed on another celestial body,” he said. “It’s not necessarily just the stuff of science fiction.” But would Musk’s idea of a direct democracy make sense on Mars? Rhetorically, Musk has characterized a Martian government with a direct democracy as a more pure form of democracy. But according to Daniel Smith, chair and professor of the University of Florida’s political science program who has written about direct democracy, that system of government isn’t necessarily more pure, nor is it easy to implement. “I suspect that it’s actually easier to make it to Mars and set up critical infrastructure than it is to establish a system of direct democracy on the red planet,” Smith said. “From a practical standpoint, direct democracy is not terribly efficient.” An artist's depiction of a Martian astronaut. An artist's depiction of a Martian astronaut. Wikimedia Commons/Pat Rawlings Smith said it’s unrealistic to think that every single citizen will have the time to properly research and be completely informed about every issue—even if Musk hopes to solve this issue by avoiding “long laws.” Smith also noted that in the U.S., direct democracy typically takes the form of ballot measures, which can easily be manipulated. For instance, in 2013, Silicon Valley investor Tim Draper paid to try and pass a ballot measure that would have split California into six separate states. That ballot didn’t pass. But in a theoretical Martian settlement founded by SpaceX and supported by commercial space companies hoping to make a profit, it’s difficult to say that money wouldn’t influence the way city-state direct democracy would work. Representatives for SpaceX did not respond for comment. Even under existing laws, space is vulnerable to the will of private companies. The Outer Space Treaty states, “The 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.” However, “benefit” and “interest” are not specifically defined. Henry Hertzfeld, a professor of space policy at The George Washington University, said it’s not evident that the term “province of mankind” protects the Martian environment at all. “The bottom line is that there’s nothing in [international] treaties to prohibit private activity in space,” Hertzfeld said. It’s very possible that Musk never makes it to Mars. But heavily-funded companies such as Lockheed Martin will be more than eager to step in over the next several decades. According to Dodge, this immutable human will to go to Mars means that we need to examine our reasons for wanting to do so. “Some of the questions we have to ask ourselves are why do we want to do it in the first place?” Dodge said. “Is it just flashiness, or is it because we want to engage in scientific information? Is it for our profitability?”

AT Spencer 17

1. No i/L to authoritarian exploitation causing conflict with Earth and Mars
2. States are rational actors they will cooperate
3. Its literally made of earth ppl which means they will continuously rely on earth for a while, we’ll read the card below

#### we can’t currently colonize mars – that supercharges our response on McCormick and is an indepent reason to negate – we’re winning a timeframe question now at the very least – we read Blue

-- Spencer, Keith A. [senior editor at Salon] “Keep the Red Planet Red.” Jacobin, 2 May 2017, [https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization. //](https://www.jacobinmag.com/2017/02/mars-elon-musk-space-exploration-nasa-colonization.%20%20//) Accesserd 12/15/2021 // marlborough JH, rc a^c

As the Western liberal order continues to unravel, can you really blame anyone who wants to get off this planet? Since space travel became technologically feasible in the twentieth century, many thinkers — from Arthur C. Clarke to Buckminster Fuller — envisioned the human colonization of other planets as all but inevitable. “Man will not always stay on Earth,” wrote Soviet rocket scientist Konstantin Tsiolkovsky, “the pursuit of light and space will lead him to penetrate the bounds of the atmosphere, timidly at first, but in the end to conquer the whole of solar space.” In their heydays, both the American and Soviet space programs funded [research](http://www.astronautix.com/m/mpk.html) into Mars colonization, viewing it as the next logical step for humanity. In the past two decades however, people have started to pin their hopes for intergalactic travel on private groups instead of public agencies. While President Obama was [privatizing](http://www.businessinsider.com/startups-in-space-2009-8) much of the American space program, a flurry of ventures released competing proposals to visit and/or colonize the red planet. These schemes’ feasibility and harebrained-ness vary: the Mars Foundation, run by multimillionaire former investor Dennis Tito, is soliciting private donations to send a couple on a [flyby](http://www.space.com/19981-private-mars-mission-married-2018.html) of the red planet. Mars One, a Dutch nonprofit, wants to [fund](http://www.mars-one.com/faq/finance-and-feasibility/what-is-mars-ones-funding-model) a permanent human colony through “merchandise sales, ads on video content, brand partnerships, speaking engagements, [b]roadcasting rights, intellectual property rights, games & apps, and events.” The most famous — and perhaps most likely to succeed — comes from entrepreneur and engineer Elon Musk, the multibillionaire CEO of SpaceX and Tesla Motors. Musk’s articulation of his Mars mission reveals not only what’s wrong with how we think about extraterrestrial colonies and resources, but also how little faith most people have in democracy here on Earth. Interplanetary Technocracy Given his reputation as an engineering genius, Musk’s vision for colonization seems the most plausible of the private missions to Mars. After all, SpaceX, which he admitted to founding [specifically](https://www.bloomberg.com/news/articles/2016-09-27/elon-musk-s-vision-for-mars-travel-focuses-on-reusable-rockets) to colonize the solar system, became the first private company to successfully launch a rocket into orbit in 2008. In September 2016, at the International Astronautical Congress in Guadalajara, Musk laid out a detailed [vision](https://www.wired.com/2016/09/elon-musk-colonize-mars/) for his colonization project, including financial estimates, engineering specs for the reusable “Interplanetary Transit System,” and the price of a passenger ticket — around $200,000. Musk’s presentation even included a snazzy computer-animated [video](https://www.nytimes.com/2016/09/28/science/elon-musk-spacex-mars-exploration.html?_r=0) of the transit system in action and [details](http://www.slate.com/blogs/future_tense/2016/09/27/elon_musk_details_his_crazy_very_real_plan_to_colonize_mars.html) about the long trip there, which would offer colonists games, restaurants, and entertainment. “It’ll be, like, really fun to go . . . You’re gonna have a great time,” Musk said. His approach to colonizing Mars comes straight out of Silicon Valley’s playbook: Musk has taken a “problem” — how to colonize Mars — and hacked a feasible “solution” that is one part engineering, one part moxie. Just add investors and we’ll be building cities on the red planet in no time. Though vague, Musk reiterated that his vision would need funding. His talk of “tickets” implies that colonists will likely pay for much of the mission. Unlike a space agency’s astronaut selection process, then, his Mars mission will be limited to those who can afford it. In that sense, Musk’s colonization plan looks a lot like joining a country club or gated community — or any other model of private access to space for those who can afford it. Musk’s proposal — heavy on the engineering and business details, light on the philosophical or political implications of colonization — epitomizes technocracy. He doesn’t seem interested in thinking through Mars’s policy or governance, the labor necessitated by building a civilization from scratch, or the problems that will arise from sending rich tourists to self-manage in a place with scant resources demanding communal organization and thinking. The True Value of Mars For some, sending a few rich folks off to Mars seems like a great idea. After all, it’s hardly an Eden waiting to be destroyed. Unlike previous colonial projects, there are no natives to exploit; no wildlife to hunt to extinction; no ecosystem to radically alter; no fossil fuels to extract; and no climate in danger of destruction from carbon emission. Mars’s atmosphere is already 96 percent carbon dioxide! Why not let Musk and his millionaire buddies take off for a few rounds of golf on the [frosted dunes](https://www.nasa.gov/image-feature/frosted-dunes-on-mars)? If they get stuck there, all the better. From a humanistic perspective, however, even a lifeless world like Mars holds incredible scientific, educational, and environmental value. To let private interests colonize, terraform, or populate it without considering this collective value would be short-sighted. Indeed, when it comes to colonization, we should hope humanity has learned from its past mistakes and is ready to set upon a more democratic process. Perhaps Earth can agree to hold a public discussion before we set about strip-mining Mars’s glorious dunes, vistas, and mountains, lest [the tallest mountain](https://mars.jpl.nasa.gov/gallery/atlas/olympus-mons.html) in the solar system become a [trash heap](https://www.washingtonpost.com/news/morning-mix/wp/2015/03/03/decades-of-human-waste-have-made-mount-everest-a-fecal-time-bomb/) like Everest. Government space agencies have gone to great lengths to keep the scientific and social benefits of publicly funded exploration intact. This is why NASA makes all its mission data [public](https://www.nasa.gov/open/data.html), and also why it insists on sterilizing space probes to avoid contaminating other worlds with cellular life from Earth — one stray terrestrial extremophile could confuse the search for microbial life off-planet. The agency, recognizing its work’s educational value, has sent elementary school children’s [experiments](https://www.nasa.gov/feature/first-cubesat-built-by-an-elementary-school-deployed-into-space) into space and hosted [public naming competitions](https://www.nasa.gov/press/2015/april/nasa-extends-campaign-for-public-to-name-features-on-pluto) for geographic features. Likewise, NASA thinks beyond the engineering challenges: they also consider space travel’s psychological and biological effects, surely an important field of study in anticipation of the long space flights required for interplanetary travel. Private industry will be unlikely to follow these collective practices, as its desire for profit or for exclusive property rights — physical and intellectual — will outweigh any public benefit. I Want to Believe The public and media reaction to Musk’s presentation — more than the presentation itself —reflects the current state of our politics. “The mood at the conference was almost as giddy as a rock concert or the launch of a new Apple product, with people lining up for Mr. Musk’s presentation a couple of hours in advance,” wrote Kenneth Chang in the [New York Times](https://www.nytimes.com/2016/09/28/science/elon-musk-spacex-mars-exploration.html?_r=1), who devoted 1,200 words to it. “Elon Musk finally told the world his vision for colonizing Mars, and it turned out to be one hell of a show,” exclaimed Loren Grush in a [video article](https://www.theverge.com/2016/9/30/13114704/spacex-elon-musk-vs-mars-one-nasa-mission-timeline) for the Verge. Grush noted that Musk drew an “insane crowd,” describing how “people actually stampeded into the hall where his lecture was in order to get a good seat.” He began in lofty tones: “I want to . . . make Mars seem possible. Make it seem as though it is something we can do in our lifetimes.” This statement implied that we needed some great technological leap forward before embarking on this adventure, but, in fact, travel to Mars has been possible for well over half a century. Given the political will, we can go right now. The subtext of Musk’s message, then, was that our democratic governments will never execute big science and engineering projects. People should trust in the private vision for colonization and space travel instead. In Earth politics, this lack of faith in democratic institutions is nothing new. This idea’s policy implications — that collectively we can’t have big public projects or any sort of real democratic decision-making, and must cede our whims to privately funded foundations and technocratic “experts” — have already taken hold of most countries. As far as I could find, none of the magazines that covered Musk’s announcement mentioned this metatheme, namely, that a public and democratically organized colonization of Mars will never happen. No one questioned the premise that we must let billionaires decide how and when to go to Mars — or that it is the only possible way to get there. Musk’s tech-industry social circle benefits from branding technology as synonymous with progress. As a result, many tech employees work long hours to achieve this invisible notion of progress, but their work just fattens their employer’s profit margins. One can imagine the grueling labor required to make an inhospitable planet habitable. On Mars, employees would exhaust themselves for a corporation under the guise of “survival.” After all, regardless of whether a foundation or a corporation spearheads the colonization effort, they will be incentivized, even forty million miles away, to squeeze [as much labor out of their workers](https://www.dailykos.com/story/2015/5/5/1372730/-Skylab-and-the-Sit-Down-Strike-in-Space) at the lowest cost. Further, the question of who is allowed to go to Mars will become as important as the question of who isn’t. If, as Musk proposes, the trip requires a “ticket” — which, as he claims, will eventually drop to only $100,000 — it seems probable that those who can afford to go will mostly resemble, ethnically and politically, Earth’s ruling class. Imagine: the red planet turned racist country club. These questions matter more than how to engineer a rocket or how to build greenhouses or how to harvest water. In fact, state-funded research has already largely solved these technical problems — or, at the least, led to numerous [creative ideas](https://www.newscientist.com/article/mg21628855.100-build-a-mars-base-with-a-box-of-engineered-bugs.html) about making a Mars colony self-sufficient. The Martian Commons Any colonization effort on Mars — even if only a small number of humans go — will present huge political challenges in terms of the labor and personal rights of its citizens. To wit: what kinds of reproductive restrictions will exist on a planet of scarce resources? How will colonists ration food and activity? What about personal privacy? If Martian citizens are working in a life-or-death situation, can the workers strike? At least in its early years, Mars would have a scarcity economy — in other words, resources would likely have to be rationed in order for the collective to survive. A private colony would be unlikely to make any kind of egalitarian guarantee — after all, if there’s a ticket price, there will certainly be a Martian service economy pampering the space tourists. Inequalities will emerge in terms of labor, housing, food, and access to other resources. In fact, we already know what a privatized Mars might resemble: Mount Everest. At higher elevations, it becomes a barren, lifeless, cold world, where climbers require oxygen tanks to survive. The cost of ascending is as steep as the mountain: [between $30,000 to $100,000](https://www.outsideonline.com/1929131/how-much-does-it-cost-climb-everest). Climbers’ journeys are only made possible by their Sherpas’ exploited labor, many of whom die in accidents and are paid [as little as](https://kristof.blogs.nytimes.com/2016/03/28/sherpa-they-die-we-go-home/) $5,000 a year by Western companies. Now imagine this situation replicated forty million miles off, on a lifeless planet, where two-way Earth communication takes almost an hour, and you can envision how dire things could get. A New Hope Musk spent nearly an hour of his speech detailing the technological aspects of Mars travel: the landers, the rockets, the fuel costs, and so on. Musk takes a technology-first approach and rarely mentions the numerous social aspects. His speech and its collective reactions attest to a naïve, John Galt fantasy about how policy and engineering come to pass: through the mind of the lone genius, who alone holds the key to humanity’s future. We saw the same fantasy at work last week when, in the wake of President Trump’s executive order banning emigration from seven majority-Muslim countries, Starbucks CEO Howard Schultz [announced](http://www.businessinsider.com/starbucks-boycott-after-ceos-refugee-support-2017-1) his plan to hire ten thousand refugees and was immediately hailed as a [liberal hero](http://www.huffingtonpost.com/entry/boycott-starbucks-backfires_us_58903e39e4b0c90efeffd8af). The message was clear: we can’t hope to help refugees ourselves, or on a democratic basis — we must rely on the whims of the rich to push forward progressive causes. Alas, the reaction to Musk’s speech also demonstrates how public sentiment has changed: collectively, we no longer believe in public space exploration. Even if we know state agencies can launch a Mars mission, few think it will happen. This doesn’t bode well for how we think of the commons. Are rich people and their foundations the [only ones who can save us](https://www.jacobinmag.com/2016/11/david-brock-clinton-sanders-donald-trump/)? The plethora of private Mars proposals reflects a [lack of faith in democracy on Earth](https://www.jacobinmag.com/2016/07/populism-democracy-technocrats-brexit-trump-sanders-voting-referendum/), in particular in our democratic influence over the directions science and engineering research take. And while faith in public institutions sits at an all-time low, we seem more than happy to hear what the rich can make possible and to believe their promises. Musk is just one of many technocrats who think of a Mars voyage as a technological problem. Not only is it not a technological problem, it’s not even a problem. Colonization of Mars should be seen as a complex social and political policy, with so much potential to create inequality and oppression that it cannot rationally be undertaken without political consensus and a stratagem for maintaining democracy and egalitarianism. We are ready to colonize Mars, and have been for half a century. Doing so without a democratic plan will present unimaginable dangers for the planet and colonists alike. As socialists, our rallying cry should be this: [Keep the red planet red](https://www.jacobinmag.com/2015/04/aliens-extraterrestrials-active-seti/)!

#### DPT just means democracies go to war with non-democracies way more

Muller 15 (Harald, director of the Peace Research Institute in Frankfurt, professor of International Relations at Goethe University, “Democracy, Peace, and Security”, Lexington Books) //BS 12-17-2017

My own proposal for solving the problem. developed together with my colleague Jonas Wolff (Müllcr 2004. Muller/Wolff 2006). turns the issue upside down: We do not start with explaining mutual democratic peacefulness, but its opposite. the proven capability of democracies to act aggressively against non-democracies. We note that—apart from self-defense where there is no difference between democracies and non-democracies——democratic states go to war—in contrast to non-democracies—to uphold international law (or their own interpretation thereof), to prevent anarchy through state failure, to “save strangers” when dictatorships massacre their own people, and to promote democracy. None of these acts is likely to find its target in a democracy. Since the use of force by democracies is hardly possible without public justification, even the rhetorical use of the said reasons will not stand public scrutiny when uttered against a democracy—people will not believe it, War other than for self-defense thus can only be fought by democracies against non-democracies because against a fellow democracy justification would fail. Because whether this is the case or not to a degree that justifies war as the ‘ultimate means” must rely on practical judgments. and practical judgments can differ among even reasonable people. democracies might disagree whether or not the judgment applies in specific cases. Democracies also show variance in that regard due (o a systematic. political-culturally rooted different propensity to judge situations as justifing war or not, and to participate in such wars (Gels et al, 2013). It should also be noted that, given the continuum between autocracy, anocracy and democracy, whether a given state is a democracy or not can be subject to interpretation. and this interpretation may even change over time (Oren 1995, Hayes 2013). The fact is that there are a couple of fairly warlike democracies, and that the democracies participating most frequently in military disputes (apart from the special case of Israel) are, by and large. major powers such as the United States, the United Kingdom. France. or India. This pattern is important to keep in mind when the question of the utility of democratic peace for today ‘s world problems is to be answered. Transnational terrorism, failed states, civil wars and the like dominate the international agenda on war and peace. At the classical level of international relations, in the relationships among major powers. developments arc undcr way which potentially pose an even greater threat than this diverse collection of non-interstate problems presently does. We are living in an era of rather rapid and disturbing power change (Tammcn et al. 2000). The United States are still the leading power of the world with unprecedented militany and economic poer. But others are coming closer: China. India. Braiil and Indonesia, China is at the top of this cohort, All major power changes chal lenge existing structures and thus contain the potential for great disturbance. The leading power may start to fear for its dominant position and take measures to ensure its position at the lop. These actions may frustrate emerging powers and even lead to the perception that their security is endangered. which would motivate counter-measures that further propel a political escala tion spiral. An increasingly focused competition in which a true power change appears increasingly possible. that is. a change of position at the top of the international hierarchy, has an even greater risk potential. If the inherent dangers are not contained—which remains always a possibility major power war may ensue defying all propositions that major war has become obsolete or that nuclear deterrence will prevent this calamity once and for all. Of course, states can grow peacefully into roles of higher responsibility. status and influence on the world stage. There arc no natural laws saving that changes in the world’s power structure must end in war, despite all distur bances and ensuing risks (Rauch 2014). The less conflict an emerging power experiences with established ones, and with peer challengers that emerge simultaneously, the better the chances that the rise will travel a peaceful trajectory. Looking through this lens. thc relations of only one emerging power with the present hegemon appear to be partially conflict-pronc. and seriously so: it concerns the pair China/United States. The Iwo great powers are rivals for preponderance in East and South East Asia and eventually for being the number one at the global level. There is also Chinese resentment stemming from the US role in China’s past as a victim of Western imperialism. On the other hand. China’s authoritarian system of rule and ensuing violations of human and political rights trigger the liberal resentment discussed in the first part of this chapter. which is rooted particularly strongly in US political culture. The Chinese—US relationship is thus thc key to a peaceful. tense or even violent future at the world stage. A small group of major powers. Including the United States and China, is interconnected today by a complex conflict system. China has territorial claims against Japan, South Korea, Vietnam. the Philippines. Brunci. and India which it pursues by a variety of means, not shying away from the limited, small scale usc of militan force in some cases, notably against obviously weaker counterparts (Ellcman ci al. 2012). China’s relation (o wards Japan is the one most burdened by China’s past as a victim of Japanese oppression and related cruelties, and the propcnsit of the conservative part of Japan’s elite to display cavalier attitudes towards this past or even sort of celebrate it (as through visits to the notorious Yasukuni shrine hosting the remnants of war criminals) only adds to anti-Japanese feelings in China (Russia. another great power. also openly pursues a revisionist agenda. as vividly shown in the recent Crimean move, but these territorial ambitions are not part of the most virulent conflict complex in Asia). Territorial claims are always emotionalized and dangerous. Territorial claims by a major power bear particular risks, because threatened countries look for protective allies which are, by necessity, major powers with the capability to project power into the region of concern. The great power claimant and the great power protector then position themselves on the opposite sides of the conflict. A classical constellation of great power conflict results that looks far more traditional than all the talk about post-modern global relations in which state power struggles fade into oblivion would suggest. In the Asian conflict complex that structures the shape of the US—Chinese contest (Foot/Walter 201 1). Japan. South Korea and the Philippines arc for mall allied ith the United Slates. India and Vietnam today entertain rda (ions ith the United States that can be depicted as cordial entente, already include military cooperation, and might move further towards an alliance. depending on deelopmens in Asia. The United States is also a protector of Taiwan. officially a Chinese province, factualh an independent political entity. and the main object of Chinese interest because of the unfinished agenda of national re-unification. Given the enormous asymmetries between China and Taiwan. the latter’s independence depends fully and unambiguously on the US guarantee. Russia and China have a fairly ambivalent relation with each other that is officially called a strategic partnership. Ambiguous as this relationship is, it is predictable that the more the West and Russia are at loggerheads, the closer the Russian—Chinese relations might become. On the other hand. Chi na is the stronger partner and harbors not completely friendly feelings to wards Moscow. as Russia took part in China’s humiliation during the imperi alist period no less than the United States did. Russian fears concerning covert immigration into Eastern Siberia and demographic repercussions and political consequences that might result therefrom add to the uneasiness. China and India arc natural rivals for regional preponderance in Asia (Gilbov/Hcginbotham 2012). Both arc developing rapidly. with China still ahead. Territorial disputes. India’s liospitalit Lo TibeLan exiles including the Dalai Lama. China’s close relation to Pakistan and a growing naval rivalry spanning the Indian Ocean from the Strait of Malacca to Iranian shores (Garofano/Dew 2013) run parallel to rapidly growing economic relations and ostensible efforts lo present the relationship if not as amiable then at least as partner-like. The United States, China, Russia and India even today conduct a multi- pronged nuclear arms race (Fingar 2011: Gangul /Thompson 2011: O’Neill 2013. Müllcr 2014). In this race, conventional components like missile de fense. Intercontinental strike options, space-based assets and the specter of cbcr war play their role, as does the issue of extended dcterrcncc The general US militar’ superiority induces Russia and China to improve their nuclear arsenals, while India tries not to be left too far behind the Chinese in terms of nuclear capability. Pakistan and North Korea ork as potential spoilers at the fringe of this arms race. They are not powerful but thc arc capable of stirring up trouble, whenever they move. In tems of the military constellation, the most disquieting development is the drafting of pre-emptive strategies of a first (most likely conventional) strike by the United States and China, on either side motivated by the per ceived need to keep the upper hand early in a potential clash close to Chinese shores (such as in the context of a Taiwan conflict). China is building up middle-range ballistic capabilities to pre-empt US aircraft carrier groups from coming into striking distance and to desiroy US Air Force assets in Okinawa. while the United States is developing means to neutralize exactly these Chinese capabilities. They are steering towards a hair-trigger security dilemma in which the mutual postures cry out for being used first before the enemy might destroy them (Goldstein 2013: Le Miôre 2012). It cannot be excluded that this whole conflict system might collapse into two opposing blocks one da the spark for a major violent cataclysm could even be lighted by uncontrolled non-state actors inside some of the powers. or—in analogy to the role of Serbia in 1914— a ‘spoiler” state with a particularly idios ncralic agenda. Pakistan. North Korea or Tai an arc con ceivable in this role. Even Japan might be considered, if nationalism in Nippon grows further and seeks confrontation with the old rival China. If anything. this constellation does not look much better than the one which drove Europe into World War I a century ago. and it contains a nuclear component. To trust in the infallibility of nuclear deterrence in this mufti- pronged constellation needs quite a lot of optimism Can democratic peace be helpful in this constellation? Our conflict system includes democracies—the United States, India, Japan. Indonesia and non- democracies such as China. Russia, and Vietnam, but not necessarily on the same side. Should the European theater become connected to the Asian one through continuous US—Russian disputes and a Russian—Chinese entente. defective democracies like Ukraine and Georgia may feature rather importantly as potential triggers for a worsening of relationships. While democracy is useful in excluding certain conflict dyads in the whole complex, such as India and the United States. Japan and the United States. Japan and India. from the risk that they might escalate into a violent conflict, and as democratic peace is pacifying parts of the world. such as South America or Europe. it helps little in disputes between democracies and non-democracies. To the contrary: as discussed above, democracies have a more or less moral-emotional inclination to demonize non-democracies once they disagree, and to feel a missionary drive to turn them democratic. This might exacerbate the existing, more interest-based conflicts between democracies and non-democracies, and it creates fears in the hearts of autocratic leaders that they might be up for democratization sooner or later. The close inter- democratic relations which democratic peace tends to produce, in turn, only exacerbate these fears as democracies tend to be rich, well organized, and powerful and dispose together of much more potent military capabilities than their potential non-dcnwcratic counterparts. Rather than helping with peace. the inter-democratic consequences of the democratic peace tend to exacerbate the security dilemma which exists between democracies and non-democracics an way. This non-peaceful dark side of democratic peace has escaped the attention of most academic writings on this subject and certainly all political utterances about democratic peace in our political systems. But democratic militancy is the Siamese twin of democratic peace as the Bush Administration unambiguously taught us (Gels et al. 2013: Müllcr 2014b).

#### Outer Space Laws are unclear – private corporations are still capable of escaping due to loopholes in the plan.

**Green and Stark 17** [Christopher and Eda, “Outer Space Treaty and Beyond: Do Existing Space Laws Put an Astronomical Barrier to Private IP Rights in Space?”, JDSUPRA. 8 September 2020 https://www.jdsupra.com/legalnews/outer-space-treaty-beyond-do-existing-44028/] //DebateDrills LC

Our **limited body of space law provides little guidance**. The first international treaty, the “Outer Space Treaty,” was signed by the U.S., Russia, and the U.K. in 1967, quickly followed by the Rescue Agreement. Over the next two decades, three other treaties—the Liability Convention, the Registration Convention, and the Moon Agreement—were also signed by these nations, with most countries following in their footsteps.[3] But after that rapid succession of international treaties, there have since been few others. These five documents form the basis of the international space law we have today, but **none address** the issue of [intellectual property rights in space](https://www.fr.com/fish-litigation/ip-rights-outer-space/). Rather, upon inspection, it appears that **the stated purpose of these treaties may be antithetical to intellectual property protection.**

The “Outer Space Treaty” espouses communal themes in characterizing space as the “province of all mankind,” the “common heritage of mankind” and to the “benefit of all countries.”[4] Unsurprisingly, Article II of the Outer Space Treaty prohibits any appropriation of areas in space, keeping in line with its principle of communal property.[5] On the other hand, **patents are fundamentally territorial and grant monopoly rights for a period of time. Applied to space, it is unclear just what is open for patent protections.**

For example, **can private companies patent orbital patterns of satellites**? Currently, companies may patent the technology or design of satellites that stay in a particular orbit, even if not the orbital pattern itself.[6] The practical implications of this are significant, especially with the advent of satellite constellations. If particular satellite technologies, and, indirectly, their orbital patterns, are patentable, then a significant portion of space may be occupied by one satellite constellation, i.e. one company alone.[7] Does this private apportionment of space run counter to our notions of sharing space? Some argue that **the Outer Space Treaty only bans sovereign appropriation and does not limit private entities from exerting claims**. Others counter that private property rights flow from sovereign property claims, so the former is meaningless without the latter.[8] So the question remains, **can the stated goals of sharing outer space be reconciled with the proprietary nature of patents**?

**Our current corpus of space treaties comes from a period of history when space exploration was undertaken primarily by governments** rather than private actors. The cooperative goals were likely a reaction to the time, as the world was coming out of a charged space race. **The silence of these space treaties on intellectual property rights presents an opportunity for modern-day agreements to provide patent protections for private companies**. Without robust international agreement on patents for space, we may even see less international cooperation as companies refuse to divulge their discoveries.[9] Now, as more and more private companies enter space exploration and carry the torch of innovation, **it is more important than ever to strike a balance between sharing our “common heritage” and providing patent protections that incentivize invention.**[10]

#### No Space War -

#### 1] Deterrence

Bowen 18

[Bleddyn Bowen, Lecturer in International Relations at the University of Leicester. The Art of Space Deterrence. February 20, 2018. https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/]

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

#### 2] Redundancy – their ev is hysteria

Johnson-Freese and Hitchens ‘16

Johnson-Freese and Hitchens 16 [Dr. Joan Johnson-Freese is a member of the Breaking Defense Board of Contributors, a Professor of National Security Affairs at the Naval War College and author of Space Warfare in the 21st Century: Arming the Heavens. Views expressed are those of the author alone. Theresa Hitchens is a Senior Research Scholar at the Center for International and Security Studies at Maryland (CISSM), and the former Director of the United Nations Institute for Disarmament Research (UNIDIR) in Geneva, Switzerland. Stop The Fearmongering Over War In Space: The Sky’s Not Falling, Part 1. December 27, 2016. https://breakingdefense.com/2016/12/stop-the-fearmongering-over-war-in-space-the-skys-not-falling-part-1/

In the last two years, we’ve seen rising hysteria over a future war in space. Fanning the flames are not only dire assessments from the US military, but also breathless coverage from a cooperative and credulous press. This reporting doesn’t only muddy public debate over whether we really need expensive systems. It could also become a self-fulfilling prophecy. The irony is that nothing makes the currently slim possibility of war in space more likely than fearmongering over the threat of war in space.

Two television programs in the past two years show how egregious this fearmongering can get. In April 2015, the CBS show 60 Minutes ran a segment called “The Battle Above.” In an interview with General John Hyten, the then-chief of U.S. Air Force Space Command, it came across loud and clear that the United States was being forced to prepare for a battle in space — specifically against China — that it really didn’t want.

It was explained by Hyten and other guests that China is building a considerable amount of hardware and accumulating significant know-how regarding space, all threatening to space assets Americans depend on every day. If viewers weren’t frightened after watching the segment, it wasn’t for lack of trying on the part of CBS.

Using terms like “offensive counterspace” as a 1984 NewSpeak euphemism for “weapons,” it was made clear that the United States had no choice but to spend billions of dollars on offensive counterspace technology to not just thwart the Chinese threat, but control and dominate space. While it didn’t actually distort facts — just omit facts about current U.S. space capabilities — the segment was basically a cost-free commercial for the military-industrial complex.

In retrospect though, “The Battle Above” was pretty good compared to CNN’s recent special, War in Space: The Next Battlefield. The latter might as well have been called Sharknado in Space – because the only far-out weapons technology our potential adversaries don’t have, according to the broadcast, seems to be “sharks with frickin’ laser beams attached to their heads!”

First, CNN needs to hire some fact checkers. Saying “unlike its adversaries, the U.S. has not yet weaponized space” is deeply misleading, like saying “unlike his political opponents, President-Elect Donald Trump has not sprouted wings and flown away”: A few (admittedly alarming) weapons tests aside, no country in the world has yet weaponized space. Contrary to CNN, stock market transactions are not timed nor synchronized through GPS, but a closed system. Cruise missiles can find their targets even without GPS, because they have both GPS and precision inertial measurement units onboard, and IMUs don’t rely on satellite data. Oh, and the British rock group Pink Floyd holds the only claim to the Dark Side of the Moon: There is a “far side” of the Moon — the side always turned away from the Earth — but not a “dark side” — which would be a side always turned away from the Sun.

More nefariously, the segment sensationalized nuggets of truth within a barrage of half-truths, backed by a heavy bass, dramatic soundtrack (and gravelly-voiced reporter Jim Sciutto) and accompanied by sexy and scary visuals.

Make no mistake there are dangers in space, and the United States has the most to lose if space assets are lost. The question is how best to protect them. Here are a few facts CNN omitted.

The Reality

The U.S. has all of the technologies described on the CNN segment and deemed potentially offensive: maneuverable satellites, nano-satellites, lasers, jamming capabilities, robotic arms, ballistic missiles that can be used as anti-satellite weapons, etc. In fact, the United States is more technologically advanced than other countries in both military and commercial space.

That technological superiority scares other countries; just as the U.S. military space community is scared of other countries obtaining those technologies in the future. The U.S. military space budget is more than 10 times greater than that of all the countries in the world combined. That also causes other countries concern.

More unsettling still, the United States has long been leery of treaty-based efforts to constrain a potential arms race in outer space, as supported by nearly every other country in the world for decades. Indeed, under the administration of George W. Bush, the U.S. talking points centered on the mantra “there is no arms race in outer space,” so there is no need for diplomat instruments to constrain one. Now, a decade later, the U.S. military – backed by the Intelligence Community which operates the nation’s spy satellites – seems to be shouting to the rooftops that the United States is in danger of losing the space arms race already begun by its potential adversaries. The underlying assumption — a convenient one for advocates of more military spending — is that now there is nothing that diplomacy can do.

However, it must be remembered that most space-related technologies – with the exception of ballistic missiles and dedicated jammers – have both military and civil/commercial uses; both benign — indeed, helpful — and nefarious uses. For example, giving satellites the ability to maneuver on orbit can allow useful inspections of ailing satellites and possibly even repairs.

Further, the United States is not unable to protect its satellites, as repeated during the CNN broadcast by various interviewees and the host. Many U.S. government-owned satellites, including precious spy satellites, have capabilities to maneuver. Many are hardened against electro-magnetic pulse, sport “shutters” to protect optical “eyes” from solar flares and lasers, and use radio frequency hopping to resist jamming.

Offensive weapons, deployed on the ground to attack satellites, or in space, are not a silver bullet. To the contrary, U.S. deployment of such weapons may actually be detrimental to U.S. and international security in space (as we argued in a recent Atlantic Council publication, Towards a New National Security Space Strategy). Further, there are benefits to efforts started by the Obama Administration to find diplomatic tools to restrain and constrain dangerous military activities in space.

These diplomatic efforts, however, would be undercut by a full-out U.S. pursuit of “space dominance.” This includes dialogue with China, the lack of which Gen. William Shelton, retired commander of Air Force Space Command, lamented in the CNN report.

Given CNN’s “cast,” the spin was not surprising. Starting with Ghost Fleet author Peter Singer set the sensationalist tone, which never altered. The apocalyptic opening, inspired by Ghost Fleet, posited a scenario where all U.S. satellites are taken off-line in nearly one fell swoop. Unless we are talking about an alien invasion, that scenario is nigh on impossible. No potential adversary has such capabilities, nor will they ever likely do so. There is just too much redundancy in the system.

#### 3] International norms

Pavur and Martinovic 19

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

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

#### Colonization is good

#### 1] Try or die for Colonization - Getting off the rock prevents extinction

Pelton ‘17

former Dean and Chairman of the Board of Trustees of the International Space University, Founder of the Arthur C. Clarke Foundation and the founding President of the Society of Satellite Professionals International, serves on the Executive Board of the International Association for the Advancement of Space Safety, Director Emeritus of the Space and Advanced Communications Research Institute (SACRI) at George Washington University [Joseph N. Pelton, 2017, Chapter 1: Why This Gold Rush Is Different in *The New Gold Rush The Riches of Space Beckon!*, pgs 1-2, Springer, DOI: 10.1007/978-3-319-39273-8] AMarb

What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artificial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. There is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival.

#### 2] Earth won’t be inhabitable forever – colonization is essential to preventing extinction

Newitz 13 [(Annalee, is the author, most recently, of the science fiction novel The Future of Another Timeline, a contributing opinion writer at the New York Times, and co-host of the podcast Our Opinions Are Correct.), “Escape Plans,” Slate, 5/15/13, https://slate.com/technology/2013/05/surviving-the-next-mass-extinction-humans-will-need-to-leave-earth-for-space-colonies.html] MN

When the Russian asteroid became a fireball in the air over Chelyabinsk, destroying buildings and injuring hundreds, we were lucky it wasn’t worse. What about when the next one hits? Just for fun, let’s say a 10-kilometer-diameter asteroid—much larger than the one over Chelyabinsk but close to the size of one that hit the planet 65 million years ago—smashed into central California. It wouldn’t just destroy Hollywood and Silicon Valley. It would punch a hole in the atmosphere. That’s what surprises people the most. Every disaster-from-space movie we’ve ever seen prepares us for fire and explosive destruction. Instead, blowback from the strike would be so powerful that it would hurl millions of tons of debris back into space. A thick, toxic cloud layer would settle over our upper atmosphere, wrapping itself around the world within hours after the impact, cutting off the sun. We’re not talking about an ordinary cloud, either. Packed with carbon, dust, and sulfur particles, it would reflect a lot more sunlight than a normal cloud would. Our satellites would record images of a once-blue planet gone brilliant white, like a pool ball. On Earth, it would be twilight for months. Temperatures would plummet. Crops would die, and then the forests. There would be fires the whole time, of course, especially around the impact site. Plus earthquakes and volcanic eruptions. But most of the 5 billion people who are likely to be killed by an asteroid strike like this would die of famine. In many parts of the world, permanent dusk would mean nothing to feed our animals, let alone our families. Food supplies would dwindle. And that’s when the riots would start. This is an all-too-plausible scenario for the near future if we suffered an asteroid strike comparable to the one that killed most of the dinosaurs 65 million years ago. It wasn’t a giant explosion that exterminated Tyrannosaurus rex, Triceratops, and their kin. In reality, most of those giants died out over thousands of years, their numbers winnowed down to nothing as their food-rich, tropical environments grew barren and cold. Today, we have solid evidence that confirms environmental changes like these can be blamed directly or indirectly for most mass extinctions that have scourged the Earth. And that’s why our space program isn’t just something educational we’re doing to learn more about the universe. It’s vital to our survival as a species, because the Earth isn’t going to be a safe place for us in the long term. I learned about the many pathways to mass death while researching my book published this week: Scatter, Adapt and Remember: How Humans Will Survive a Mass Extinction. There is a pattern to how mass extinctions happen. A calamity like an asteroid strike or an enormous volcanic eruption causes an initial disaster that kills a lot animals and plants at once. And this leads to climate changes that eventually kill more than 75 percent of all species on the planet, usually in less than a million years—the blink of an eye in geological time. There is a pattern to survival, too. Every mass extinction has its survivors. A group of furry, mouselike mammals took over the planet after the dinosaurs’ heyday and eventually evolved into us. What these survivors have in common are three abilities encapsulated by the title of my book: They are able to scatter to many places in the world, adapt to them, and remember how to avoid danger. Humans are exceptionally good at all three, but perhaps our greatest strength is an ability to reconstruct the deep history of our planet—and to plan for the future. Because we know Earth is inherently dangerous, any long-term plan for humanity has to involve building communities on other worlds, or maybe in vast, artificial environments in space. But the process of doing so will take a lot longer, and be a lot weirder, than what you see in most science fiction stories. It’s likely we won’t have bustling cities the size of San Francisco on Mars or Titan in the next hundred years, so in the meantime we need to come up with a plan to deal with threats to Earth from space. Already, the U.N. Office for Outer Space Affairs and space agencies like NASA monitor the skies for potentially deadly asteroids in our neighborhood, called near-Earth objects (NEOs). These groups have already proposed simple solutions to the asteroid problem, all of which are within our technological grasp.

#### 3] Getting off the rock solves extinction---travel capabilities are advancing---surviving in harsh conditions is the key challenge

Everett 16 (Sean, CEO of Prome Biological Intelligence, a global biotechnology company, editor of Medium’s news outlet dedicated to space colonialization titled “The Mission”, BS Mathematics & Actuarial Science, MBA from UChicago,“Humanity’s Extinction Event Is Coming” https://medium.com/the-mission/humanitys-extinction-event-is-coming-c0f84f1803f)

But the reality is that an asteroid impact, a change in our magnetic field, or the rising temperature of Earth’s climate are all events that we currently cannot escape. There is no back-up plan. We are, for better or worse, tied to the fate of this planet. As history has shown, that’s not a good fate to be tied to. In fact on September 7, 2016 a 30-foot asteroid flew between the Earth and the Moon. Our most powerful instruments only detected it with two days notice. Two days. If the asteroid was only 1000-foot wide, it would destroy all human life and we’d have no back-up to get out of it. Even the White House is worried about it. Five, yes five, major extinction events have occurred on our planet that we know about. We’re due for another. And when that happens, what’s our alternative? You can’t move to another house. You can’t buy survival, even with a billion dollars in the bank. The only way out, is up. We must find a way to become multi-planetary if we want to save humanity, your family, and yes, even yourself. Only this can restore the honor we seemed to have lost from the brave days of the 60s, while also ensuring our survival. It’s for the species, folks. And as a species, we have not allowed ourselves the opportunity to blast off for the stars. Only the space race in the 60s when we were afraid enough of a self-inflicted global extinction event (read: nuclear) that we put forth the funding required to launch into orbit and onto our moon. We didn’t have calculators back then, and now we have supercomputers in our pocket, but no one is allowed out of our atmosphere, save for a few communication and spy satellites. Doesn’t that make you mad? It’s not some oppressive government that tells us no. It’s us. We pay our taxes. We elect leaders. Those leaders choose Defense as the primary budget line item, but forget about defending against the forthcoming apocalypse. Funding for NASA in the United States has decreased from 4% of the national budget in the 60s to about 0.5% from 2010 onwards. That’s just the money side. But in order to move past this threshold from our home planet to space and then onto other planets, we need to do two things: Travel there. Survive. Luckily, we can simplify the problem of passing this barrier by sending machines in our place. Like TARS from Interstellar, they can go places humans cannot and explore the environment for habitability and resources, even in particularly hostile conditions. Maybe not black hole hostile, but definitely Mars hostile, as the Curiosity Rover has shown. Only now, with a few bold, private startups are we beginning to see a re-emergence of the space industry. We are about to pass a few very important tests that allow us to explore and visit the cosmos. The first is launching physical things into space. This is the catalyst that will jump start a new space race. Prices of sending cargo are falling dramatically, down to nearly $500 per pound of payload with SpaceX’s Falcon 9 heavy re-usable rocket. Note that the re-usable part is key. We can’t throw away our “space car” every time we Uber it. And once that becomes standard and cost-optimized we might be able to get that down to $10 per pound. Imagine what could happen when it costs the same amount to ship something across town as it does into space. The second, and this is just as important, is the wave of autonomous machines. Tesla has popularized the notion of self-driving cars. SpaceX lands their rocket onto a small barge in the ocean autonomously. Companies are buying startups in the space. Self-driving will be our gift, our talisman, on the quest to save the species by becoming multi-planetary. II. Shipping Ourselves to Space The graph below is from the Founders Fund manifesto, showing the decreasing cost of launching something into space. It begins with the 1960s US-versus-Russia space race and extends to the present day SpaceX-versus-Blue Origin reusable rocket race. The cheapest method we have today is SpaceX’s Falcon series rockets. With the Falcon 9 Heavy, it’s predicted launching cargo into space will be cheaper than ever before, at $750 per pound of payload delivered to low earth orbit (LOE)on an expendable rocket. You have to note here, however, that these statistics are as cheap as possible. It costs more to deliver payload on a non-reusable rocket, and on something that’s further out than LEO, like geosynchronous orbit, or to Mars. For example, based on SpaceX’s published pricing, it would be at least 4x more expensive to deliver far less cargo to Mars. So what happens when we reduce that cost to $10 per pound? Namely, an explosion of startups, much like iOS. Instead of pushing to production for your continuously deployed web and mobile app, we will see future developers push to production by deploying physical things into space. “STAGE” takes on an entirely new meaning for software developers when it means your automated regression tests fail, it could blow up a rocket and hurt people on board. That’s why SpaceX and Blue Origins exist. To make this continuous-deployment-to-space process as cheap and fast as possible. By Elon’s calculations, every 15 minutes. III. Self-Driving Space Explorers The most successful products for space, at least in the beginning, will make money by pushing this stuff into orbit. Things like science experiments and new 3D printers. A company called Made in Space creates a number of these products, including the empty box you see below used for sending things up with Blue Origin. The box shown in gray is a specialized 3D printer that works in zero gravity. Remember how most 3D printers work. It squeezes out a single layer of liquid ooze, and then another, over and over again until it builds up enough vertically that it creates an object. This can be simple plastic or more esoteroic metals. But when you’re “dripping” something, held down in place by gravity, the entire process has to be re-imagined for space. Things in zero-G would just float away. Enter these chaps. There’s also the very real need for oxygen, food, water, and shelter from the harsh elements. Funny how we will end up recreating Maslow’s Heirarchy in every new voyage or planetoid we want to colonize. And space mining is off to the races with the recent announcement of Deep Space Industry’s Prospector-1: Their vision is to extract water from asteroids and use the chemical components to hydrate us, but also as oxygen (breathing) and hydrogen (fuel). To do that, you have to identify candidate asteroids, physically get to them, land and attach, and then do surveying, prospecting, and extraction. In short, you’re going to need some level of self-driving capabilities to make this happen. And wouldn’t it be nice if it “just worked” right out of the box. Unfortunately, in space you don’t have fleets of these space craft, millions of miles of training data, maps, or an internet connection to the cloud so how the heck are deep learning algorithms going to work? I don’t think they will. And that’s what I believe we need a better approach.

#### 4] Space col solves extinction

Britt, 1 -- Senior Science Writer (Robert Roy, Space.com, “The Top 3 Reasons to Colonize Space” http://www.space.com/missionlaunches/colonize\_why\_011008-4.html)

It's no secret. Sooner or later, Earth's bell will be rung. A giant asteroid or comet will slam into the planet, as has happened many times before, and a deadly dark cloud will envelop the globe, killing much of whatever might have survived the initial impact. "We live on a small planet covered with the bones of extinct species, proving that such catastrophes do occur routinely," says J. Richard Gott, III, a professor of astrophysics at Princeton and author of "Time Travel in Einstein's Universe." Gott cites the presumably hardy Tyrannosaurus rex, which lasted a mere 2.5 million years and was the victim of an asteroid attack, as an example of what can happen if you don't plan ahead. But space rocks may not be the only threat. Epidemics, climatological or ecological catastrophes or even man-made disasters could do our species in, Gott says. And so, he argues, we need a life insurance policy to guarantee the survival of the human race. "Spreading out into space gives us more chances," he says. And the time is now: History instructs that technological hay should be made while the economic sun shines. "There is a danger we will end the human space program at some point, leaving us stranded on the Earth," Gott warns. "History shows that expensive technological projects are often abandoned after awhile. For example, the Ancient Egyptians quit building pyramids. So we should be colonizing space now while we have the chance.">

#### 5] Space colonization solves extinction

Filling Space 19, 4-19, "Deflecting Existential Risk with Space Colonization," Filling Space, https://filling-space.com/2019/04/19/deflecting-existential-risk-with-space-colonization/

The first living organism on Earth emerged approximately three and a half billion years ago. Since then, life has evolved into countless forms and colonized the planet. But the story of life is not a rosy one. At least five mass extinctions have occurred, and nearly all species that have ever existed on our planet are now dead. One of the most well-understood mass extinctions occurred when the Alvarez asteroid impacted Earth and, likely combined with other factors, killed many dinosaurs and other species. Life then had no tools to detect the coming asteroid or to be able to plan proactively to ensure its survival. In order to avoid sharing the same fate as the dinosaurs, scholars argue that humans should become a multi-planetary species. We spoke with Professor Gonzalo Munevar, Emeritus Professor at Lawrence Technical University, to hear his thoughts on the existential risks we face and how colonization of the cosmos can help us address them. He has written extensively about the philosophy of space exploration and human consciousness. Why do you argue that “failure to move into the cosmos would condemn us to oblivion”? By having a significant presence in the solar system in the next few thousands of years and beyond, we will be in a better position to deflect asteroids and comets that might bring the end of humanity, and much other Earth life, in a horrible collision. And if perchance one such catastrophe proves inevitable (e.g. a rogue planet passing through the solar system), humanity would still survive by having colonized Mars and other bodies, as well as by having built artificial space colonies of the type advocated by Gerard O’Neill. Once the sun begins to turn into a red giant in a few billion years, we must have long moved into the outer solar system. In the very long run, we have to move into other solar systems. Relativistic-speed starships would be nice, but they are not necessary for the task of moving humanity to the stars. We can reach them, slowly but surely, by propelling some of our space colonies away from the sun, carrying perhaps millions of human beings. They would take advantage of the many resources to be found in the Oort Cloud, and then of equivalent clouds in other solar systems. Even interstellar space has resources to offer. Nuclear energy, probably fusion, would likely be required. It may take us tens of thousands of years, but in the cosmic time scale, that is but a blink in the eye. What are these catastrophic threats? Are there any records of catastrophic events happening before humans appeared on Earth? I have already mentioned collisions with asteroids and comets. Although the active geology of our planet tends to erase the record of many collisions, we can find a well-preserved record on the Moon and Venus, the two closest bodies to Earth. On the 600-million-years-old Venusian surface, the spacecraft Magellan discovered about one thousand impact craters at least twice the diameter of meteor craters on Earth. This impact record makes it reasonable to estimate a catastrophic impact on Earth every half a million years or so. Collisions with bodies of 5 km across would happen, on the average, every 20 million years. Apart from the Alvarez asteroid (crater near Yucatan) that led to the extinction of the dinosaurs and the majority of species on Earth 65 million years ago, there have been at least two more impacts by asteroids 10 km or larger in the last 300 million years. How could human colonization of outer space save other terrestrial life? On both O’Neill types of colonies as well as on colonies on other planets, and particularly on terraformed planets, we would need all sorts of organisms like bacteria and plants for food, medicine, and ornamentation, as well as many animals for food and other purposes. We cannot have a proper colony without an Earthly environment to surround and nourish us. So, we have to take much other terrestrial life with us in order to survive and flourish. And given the value of biodiversity we would make it a point to take a great variety of organisms that contribute to our biosphere. Of course, we should heed Mark Twain and be sure not to include mosquitoes in our future space arks. I myself would keep out tarantulas and some other obnoxious viruses, bacteria, plants, and animals.

#### Every delay kills trillions of humans

Bostrom 3 – Department of Philosophy, Yale University, Director of the Future of Humanity Institute at Oxford University, 2002 (Nick, “Astronomical Waste: The Opportunity Cost of Delayed Technological Development,” Preprint, Utilitas Vol. 15, No. 3, pp. 308-314, http://www.nickbostrom.com/astronomical/waste.html)

As I write these words, suns are illuminating and heating empty rooms, unused energy is being flushed down black holes, and our great common endowment of negentropy is being irreversibly degraded into entropy on a cosmic scale. These are resources that an advanced civilization could have used to create value-structures, such as sentient beings living worthwhile lives. The rate of this loss boggles the mind. One recent paper speculates, using loose theoretical considerations based on the rate of increase of entropy, that the loss of potential human lives in our own galactic supercluster is at least ~10^46 per century of delayed colonization.[1] This estimate assumes that all the lost entropy could have been used for productive purposes, although no currently known technological mechanisms are even remotely capable of doing that. Since the estimate is meant to be a lower bound, this radically unconservative assumption is undesirable. We can, however, get a lower bound more straightforwardly by simply counting the number or stars in our galactic supercluster and multiplying this number with the amount of computing power that the resources of each star could be used to generate using technologies for whose feasibility a strong case has already been made. We can then divide this total with the estimated amount of computing power needed to simulate one human life. As a rough approximation, let us say the Virgo Supercluster contains 10^13 stars. One estimate of the computing power extractable from a star and with an associated planet-sized computational structure, using advanced molecular nanotechnology[2], is 10^42 operations per second.[3] A typical estimate of the human brain’s processing power is roughly 10^17 operations per second or less.[4] Not much more seems to be needed to simulate the relevant parts of the environment in sufficient detail to enable the simulated minds to have experiences indistinguishable from typical current human experiences.[5] Given these estimates, it follows that the potential for approximately 10^38 human lives is lost every century that colonization of our local supercluster is delayed; or equivalently, about 10^31 potential human lives per second. While this estimate is conservative in that it assumes only computational mechanisms whose implementation has been at least outlined in the literature, it is useful to have an even more conservative estimate that does not assume a non-biological instantiation of the potential persons. Suppose that about 10^10 biological humans could be sustained around an average star. Then the Virgo Supercluster could contain 10^23 biological humans. This corresponds to a loss of potential equal to about 10^14 potential human lives per second of delayed colonization. What matters for present purposes is not the exact numbers but the fact that they are huge. Even with the most conservative estimate, assuming a biological implementation of all persons, the potential for one hundred trillion potential human beings is lost for every second of postponement of colonization of our supercluster.[6]

### Adv 2

#### Hasn’t launched any still awaiting for approval LMAO – our ev is specific and new

Grush 2/11 – [Grush, Loren. “Elon Musk is hopeful Texas site will clear approval for Starship’s first orbital launch”. <https://www.theverge.com/2022/2/11/22927706/elon-musk-spacex-starship-update-boca-chica-texas>. The Verge. 11 Feb 2022. Accessed 12 Feb 2022.] a^c

Perhaps the biggest topic that journalists wanted to know about was where SpaceX stood in getting its launch license from the FAA. The FAA is currently deciding whether to grant SpaceX approval to launch Starship out of Boca Chica, as the agency is responsible for ensuring that launches to orbit do not pose a hazard to uninvolved people or property. While the approval process has been highly polarizing, with some environmentalists contending that the FAA needs to conduct a more in-depth review of Starship’s impacts on the surrounding area, Musk indicated that he thought the decision would go in SpaceX’s favor. “We don’t have a ton of insight into the way things stand with the FAA,” Musk said. “We have gotten sort of a rough indication that there may be an approval in March.”

#### 1] No climate impact

Zycher 21 --- Benjamin Zycher is a resident scholar at the American Enterprise Institute, doctorate in economics from UCLA, a Master in Public Policy from the University of California, Berkeley, and a Bachelor of Arts in political science from UCLA, “The Case for Climate-Change Realism”, National Affairs, Summer 2021, https://www.nationalaffairs.com/publications/detail/the-case-for-climate-change-realism

Beyond exhibiting extreme overconfidence in a cherry-picked analysis of climate-change causes, politicians and activists frequently ground their alarmism in frightening predictions about consequences that are likewise far from certain. This is not only true within the very new (and still quite unreliable) field of predictive climate science; it is true even in the context of ongoing climate phenomena. Indeed, politicians and journalists frequently characterize dramatic or unusual climate phenomena as the product of anthropogenic climate change, yet there is little evidence to support those claims

For one thing, there is no observable upward trend in the number of "hot" days between 1895 and 2017; 11 of the 12 years with the highest number of such days occurred before 1960. Since 2005, NOAA has maintained the U.S. Climate Reference Network, comprising 114 meticulously maintained temperature stations spaced more or less uniformly across the lower 48 states, along with 21 stations in Alaska and two stations in Hawaii. They are placed to avoid heat-island effects and other such distortions as much as possible. The reported data show no increase in average temperatures over the available 2005-2020 period. In addition, a recent reconstruction of global temperatures over the past 1 million years — created using data from ice-sheet formations — shows that there is nothing unusual about the current warm period.

Rising sea levels are another frequently cited example of impending climate crisis. And yet sea levels have been rising since at least the mid-19th century. This rise is tied closely with the end of the Little Ice Age that occurred not long before, which led to a rise in global temperatures, some melting of sea ice, and a thermal expansion of sea water. There is some evidence showing an acceleration in sea-level rise beginning in the early 1990s: Satellite measurements of sea levels began in 1992 and show a sea-level rise of about 3.2 millimeters per year between 1993 and 2010. Before 1992, when sea levels were measured with tidal gauges, the data showed an increase of about 1.7 millimeters per year on average from 1901 to 1990.

But because the datasets are from two different sources — satellite measurements versus tidal gauges — they are not directly comparable, and therefore they cannot be interpreted as showing an acceleration in sea-level rises. Moreover, the period beginning in 1993 is short in terms of global climate phenomena. Since sea levels have risen at a constant rate, remained constant, or even fallen during similar relatively short periods, inferences drawn from them are problematic. It is of course possible there has been an acceleration in sea-level rise, but even still, it would not be clear whether such a development stemmed primarily from anthropogenic or natural causes; clearly, both processes are relevant.

A study of changes in Arctic and Antarctic sea ice yields very different inferences. Since 1979, Arctic sea ice has declined relative to the 30-year average (again, the degree to which this is the result of anthropogenic factors is not known). Meanwhile, Antarctic sea ice has been growing relative to the 30-year average, and the global sea-ice total has remained roughly constant since 1979.

Extreme weather occurrences are likewise used as evidence of an ongoing climate crisis, but again, a study of the available data undercuts that assessment. U.S. tornado activity shows either no increase or a downward trend since 1954. Data on tropical storms, hurricanes, and accumulated cyclone energy (a wind-speed index measuring the overall strength of a given hurricane season) reveal little change since satellite measurements of the phenomena began in the early 1970s. The number of wildfires in the United States shows no upward trend since 1985, and global acreage burned has declined over past decades. The Palmer Drought Severity Index shows no trend since 1895. And the IPCC's Fifth Assessment Report, published in 2014, displays substantial divergence between its discussion of the historical evidence on droughts and the projections on future droughts yielded by its climate models. Simply put, the available data do not support the ubiquitous assertions about the causal link between greenhouse-gas accumulation, temperature change, and extreme weather events and conditions.

Unable to demonstrate that observed climate trends are due to anthropogenic climate change — or even that these events are particularly unusual or concerning — climate catastrophists will often turn to dire predictions about prospective climate phenomena. The problem with such predictions is that they are almost always generated by climate models driven by highly complex sets of assumptions about which there is significant dispute. Worse, these models are notorious for failing to accurately predict already documented changes in climate. As climatologist Patrick Michaels of the Competitive Enterprise Institute notes:

During all periods from 10 years (2006-2015) to 65 (1951-2015) years in length, the observed temperature trend lies in the lower half of the collection of climate model simulations, and for several periods it lies very close (or even below) the 2.5th percentile of all the model runs. Over shorter periods, such as the last two decades, a plethora of mechanisms have been put forth to explain the observed/modeled divergence, but none do so completely and many of the explanations are inconsistent with each other.

Similarly, climatologist John Christy of the University of Alabama in Huntsville observes that almost all of the 102 climate models incorporated into the Coupled Model Intercomparison Project (CMIP) — a tracking effort conducted by the Lawrence Livermore National Laboratory — overstate past and current temperature trends by a factor of two to three, and at times even more. It seems axiomatic to say we should not rely on climate models that are unable to predict the past or the present to make predictions about the distant future.

The overall temperature trend is not the only parameter the models predict poorly. As an example, every CMIP climate model predicts that increases in atmospheric concentrations of greenhouse gas should create an enhanced heating effect in the mid-troposphere over the tropics — that is, at an altitude over the tropics of about 30,000-40,000 feet. The underlying climatology is simple: Most of the tropics is ocean, and as increases in greenhouse-gas concentrations warm the Earth slightly, there should be an increase in the evaporation of ocean water in this region. When the water vapor rises into the mid-troposphere, it condenses, releasing heat. And yet the satellites cannot find this heating effect — a reality suggesting that our understanding of climate and atmospheric phenomena is not as robust as many seem to assume.

The poor predictive record of mainstream climate models is exacerbated by the tendency of the IPCC and U.S. government agencies to assume highly unrealistic future increases in greenhouse-gas concentrations. The IPCC's 2014 Fifth Assessment Report, for example, uses four alternative "representative concentration pathways" to outline scenarios of increased greenhouse-gas concentrations yielding anthropogenic warming. These scenarios are known as RCP2.6, RCP4.5, RCP6, and RCP8.5. Since 1950, the average annual increase in greenhouse-gas concentrations has been about 1.6 parts per million. The average annual increase from 1985 to 2019 was about 1.9 parts per million, and from 2000 to 2019, it was about 2.2 parts per million. The largest increase that occurred was about 3.4 parts per million in 2016. But the assumed average annual increases in greenhouse-gas concentrations through 2100 under the four RCPs are 1.1, 3.0, 5.5, and an astounding 11.9 parts per million, respectively.

The studies generating the most alarmist predictions are the IPCC's Special Report on Global Warming of 1.5°C and the U.S. government's Fourth National Climate Assessment, both of which were published in 2018. Both assume RCP8.5 as the scenario most relevant for policy planning. The average annual greenhouse-gas increase under RCP8.5 is over five times the annual average for 2000-2019 and almost four times the single biggest increase on record. Climatologist Judith Curry, formerly of the Georgia Institute of Technology, describes such a scenario as "borderline impossible."

RCP6 is certainly more realistic. It predicts a temperature increase of 3 degrees Celsius by 2100 in the average of the CMIP models. But on average, those CMIP models overstate the documented temperature record by a factor of at least two. Ultimately, models with a poor record of successfully accounting for past data and highly unrealistic future greenhouse-gas concentrations should not be considered a reasonable basis for future policy formulation.

#### 2] Even if there is some impact, it definitely does not trigger extinction

* peer-reviewed journal shows IPCC exaggeration
* history proves resilience
* no extinction- warming under Paris goals
* rock breaking strategy could offset warming

IBD 18 [Investors Business Daily, Citing Study from Peer reviewed journal by Lewis and Curry, “Here's One Global Warming Study Nobody Wants You To See”, 4/25/18, https://www.investors.com/politics/editorials/global-warming-computer-models-co2-emissions/]

Settled Science: A **new study published in a peer-reviewed journal finds** that **climate models exaggerate** the global warming from CO2 emissions by as much as 45%. If these findings hold true, it's huge news. No wonder the mainstream press is ignoring it.

In the study, authors Nic Lewis and Judith Curry looked at actual temperature records and compared them with climate change computer models. What they found is that the planet has shown itself to be far less sensitive to increases in CO2 than the climate models say. As a result, they say, the planet will warm less than the models predict, even if we continue pumping CO2 into the atmosphere.

As Lewis explains: "Our results imply that, for any future emissions scenario, future warming is likely to be **substantially lower** than the central computer **model-simulated** level projected by the (United Nations **I**ntergovernmental **P**anel on **C**limate **C**hange), and highly unlikely to exceed that level.

How much lower? Lewis and Curry say that their findings show temperature increases will be 30%-45% lower than the climate models say. If they are right, then there's **little to worry about**, even if we don't drastically reduce CO2 emissions.

The planet will warm from human activity, but not nearly enough to cause the sort of end-of-the-world calamities we keep hearing about. In fact, the resulting warming would be **below the target** set at the Paris agreement.

This would be tremendously good news.

The fact that the Lewis and Curry study appears in the peer-reviewed American Meteorological Society's Journal of Climate

lends credibility to their findings. This is the same journal, after all, that recently published widely covered studies saying the Sahara has been growing and the **climate boundary** in central U.S. **has shifted 140 miles to the east** because of global warming.

The Lewis and Curry findings come after another study, published in the prestigious journal Nature, that found the **long-held view that a doubling of CO2 would boost global temperatures** as much as 4.5 degrees Celsius **was wrong.** The most temperatures would likely climb is 3.4 degrees.

It also follows a study published in Science, which found that rocks contain vast amounts of nitrogen that plants could use to grow and absorb more CO2, potentially offsetting at least some of the effects of CO2 emissions and reducing future temperature increases.

#### 3] Alt causes – the entire fossil fuel industry is still alive and thriving after the aff

#### 4] No internal link – no reason why rockets alone cause climate change – they haven’t isolated just how much they emit and how that directly translates into climate impacts

#### 5] Double bind a) colonization is good because it saves us from climate change which is bad b) climate change doesn’t matter