## Climate

### 1NC – Impact Turn

#### Melting Arctic ice is key to Russian Oil – their reserves are running dry and the Arctic is the cure

Daiss 16 Daiss, Tim. I'm an oil markets analyst, journalist and author that has been working out of the Asia-Pacific region for 11 years. I’ve covered oil and energy markets and energy security for Platts, Interfax, NewsBase, Downstream Today, Rigzone, and Energy Tribune as well as providing energy markets analysis for subscription newsletters. "Russia Kicks Up Arctic Oil Drilling As Polar Ice Caps Melt." Forbes, 24 Aug. 2016, www.forbes.com/sites/timdaiss/2016/08/22/a-deal-with-the-devil-russia-kicks-up-arctic-oil-drilling/#bc76133381e6.

Russian oil company Gazprom Neft, the country’s fourth largest oil producer, said two weeks ago that four wells were now in production at the northern Prirazlomnoye field after two more were successfully started. The Prirazlomnoye field is an Arctic offshore oilfield located in the Pechora Sea, south of Novaya Zemlya, Russia. Production from an ice-resistant offshore rig perched in the Pechora passed 43,980 barrels of oil per day (bpd), the company said. Full field development plans call for 32 wells. In March, the company said that it had reached a milestone with production of its 10 millionth barrel of oil at the field, while it revised its production schedule higher to 35 million barrels. Russia needs Arctic oil Russian President Vladimir Putin also opened the Arctic gate marine oil terminal on May 25, which provides access for Russia’s Arctic-sourced crude to both European and Asian markets. Russia’s Arctic development comes as its oil production increases despite a more than two-year long supply glut and plunge in prices. But it also comes as the country’s oil fields mature. In April, Mikå Mered, managing partner at Polarisk, a consultancy specializing in polar issues said that Russia’s onshore oil and gas fields “are depleting and depleting fast.” “If you are the Russian government today and if you want to keep having your oil and gas, you need to start developing offshore Arctic oil and gas fast," he said. The Wilson Center, a Washington-based independent research group, said in a recent report on Arctic drilling that Russia needs these new fields if it is going to maintain oil production levels of at least 10 million bpd by 2020 and beyond. Russia is the world's largest producer of crude oil (including lease condensate) and the second-largest producer of dry natural gas after the U.S., according to the U.S. Energy Information Administration’s (EIA) most recent analysis of Russia’s energy sector. The quandary for Russia, however, as I pointed out in a Forbes post this weekend are Western sanctions. Both U.S. and EU sanctions over Moscow's 2014 annexation of Crimea have also hit the country's ability to finance new energy projects and obtain offshore Arctic and shale (fracking) technology. The EIA said that without such Western involvement and technology, new Arctic resources are unlikely to be developed. “Although this has little immediate effect on Russian production, the sanctions, along with the low world oil prices, have made it more difficult for Russian energy companies to finance new projects,” the EIA report adds. Low oil prices, off from $107 per barrel in July 2014 to now trading in the mid to upper $40s range, forced Russia to cancel as much as 80% of new Arctic projects last year, according to a report by Politico.eu. Russia’s Natural Resources Minister Sergey Donskoy, however, has a different take. In March, he said that as much as 75% of these projects were still moving forward. Melting ice caps Arctic oil drilling has environmentalists scrambling and with good reason. The environmental consequences of a spill would be difficult to control and could have devastating effects on local ecosystems, according to numerous environmental groups. Greenpeace has mounted a multi-media campaign, warning the public of the dangers of Arctic drilling. The environmental group has produced a short (one and a half minute) but poignant video clip, beginning with a cartoon polar bear adrift on a sheet of ice as a British female narrator begins. “The Arctic is melting,” she says, “and as the ice melts the oil companies are moving north.” “They are determined to drill for the same fuels that caused the melting in the first place,” the narrator continues as the video zooms in on the animated bear that by now is scowling as a harsh wind is heard swirling in the background. The video then lists a brief history of accidents and dangers of article drilling, mentioning Shell’s recent unsuccessful offshore drilling attempts in Alaska, a 2011 Gazprom accident and what the narrator calls the dangers of Gazprom’s outdated equipment. The video starts to wrap up with these poignant words: “If we don’t stop them, an Arctic oil spill is inevitable.” Meanwhile, the Greenpeace international website continues the narrative, stating that “Shell is getting increasingly desperate to plunder the Arctic in any way possible. It has recently made a deal with the devil: partnering with Russian oil and gas giant Gazprom to access the Arctic through Russia.” Melting Arctic ice also makes it easier for oil companies to drill for Arctic oil. On Friday, NASA released a video of melting polar ice caps. Record-breaking warm temperatures in the first half of 2016 have primed the Arctic for another summer of low sea ice cover, the video states. Next year, or the year after, the central Arctic would be free from ice, Peter Wadhams, a professor of ocean physics at Cambridge since 2001, said over the weekend. “You will be able to cross over the north pole by ship. There will still be about a million square kilometres of ice in the Arctic in summer but it will be packed into various nooks and crannies along the Northwest Passage and along bits of the Canadian coastline,” he said. Russia, however, is not likely to be deterred in its Arctic oil ambitions – too much money is at stake . As much as half of all state revenue in Russia is derived from oil and gas – though the government cites a much lower figure. A July Bloomberg report said that three northern oil terminals on Russia’s northern coast in the Arctic circle is already exporting as much crude oil as Libya -- and that flow could double in the next five years. The three terminals combined handled a combined 230,000 bpd in the second quarter of 2016, almost doubling from 130,000 barrels as recently as January last year, with projections for that to increase to around 400,000 bpd by 2020 – oil and revenue that Russia will exploit to its fullest. The Arctic is estimated to contain about 90 billion barrels of undiscovered oil, 17 trillion cubic feet of undiscovered gas and 44 billion barrels of natural gas liquids, making up, respectively, 16%, 30% and 26% of the world's individual undiscovered hydrocarbon resources, according to the U.S. Geological Survey (USGS).

#### Russia oil can rebound – arctic reserves key

Warsaw Institute 5-13 [Warsaw Institute, 5-13-2021, "How Long Russian Oil and Gas Reserves Are Enough to Last?," https://warsawinstitute.org/long-russian-oil-gas-reserves-enough-last/]

* New deposits are in the North
* Deposits depleting now, oil hit decades worst result
* New projects need to harvest these reserves but requires exploration – needs ice to melt

Natural Resources Minister Alexander Kozlov on May 11 said Russia has the equivalent of 59 years of oil deposits and 103 years of gas reserves. The true scale of fossil fuel deposits under Russia’s soil could be even larger, but will require additional state support to accelerate exploration in hard-to-reach areas, he added. As some deposits are depleting, others are not exploited to their fullest, according to the official. His assessment differs from the one submitted sometime earlier by the head of the Russian Federal Agency for Mineral Resources, Evgeny Kiselev, according to whom the country holds the equivalent of 58 years of oil deposits and over 60 years of gas reserves. At the same time, he added that these are just conventional figures that would see constant shifts as research technologies are developing. Throughout 2020 production of oil and gas condensate in Russia dropped by 8.6 percent, hitting the decade-worst result of 512 million tons. In 2020 the country produced more than 693 billion cubic meters (bcm) of natural gas. Meanwhile, the Natural Resources Ministry announced a new federal scheme to reproduce the country’s base of mineral resources. Russia seeks to supply its gas stocks by at least 700 bcm per year by 2024, according to the paper. The target is some 2,800 bcm of gas by 2024, of which 400 bcm in the Arctic. Adopted in June 2020, the Russian energy strategy expects its gas production level to reach between 795 and 820 bcm by 2024.

#### Lower oil revenue doesn’t cause Russian capitulation – they’ll just intervene militarily which causes escalating crisis

Jaffe and Elass 16 [Amy Myers Jaffe and Jareer Elass, Columbia Journal of International Fails. War and the Oil Price Cycle. January 1, 2016. https://jia.sipa.columbia.edu/war-oil-price-cycle]

While low oil prices have forced Moscow to take draconian economic steps, so far it has not fundamentally produced the desired diplomatic capitulation. As predicted by Robert Blackwill and Meghan O’Sullivan, “… a weaker Russia will not necessarily mean a less challenging Russia…Russia could seek to secure its regional influence in more direct ways –even through the projection of military power.”48 Indeed, U.S. summer diplomatic efforts fizzled quickly by autumn, with Russia changing the facts on the ground through direct Russian military intervention. Russia’s motivations are multifold and certainly include protecting its substantial interests in Syria including its preferred outcome that maintains Syria as an Iranian bulwark against Sunni jihadists.49 Some analysts are suggesting that Moscow is overly optimistic about defeating Syrian opposition groups. Instead, it is suggested that Russia’s previous difficulties during its invasion of Afghanistan may prove instructive, with all Syrian opposition forces still focusing in earnest on the Assad camp, and saving energies against each other for a later day.50 However, it is still not clear as this article went to press whether Russia intends to satisfy the Saudis by participating in peace negotiations, or whether the Russian engagement on behalf of Assad is meant to hold Iran and Moscow in a position to use Syria to assert themselves against the kingdom and restore oil prices. While the outcome in Syria is uncertain, the Russian move clearly complicates the landscape in the region, and leaves open the possibility of escalating violence. Pavel Baev and Jeremy Shapiro of Brookings suggest Russia’s increased intervention may simply be designed to “establish a position of strength from which to bring Moscow back into the center of diplomacy over Syria,”51 but they are skeptical that Russia will be able to manage its participation in the conflict to reach a desired goal. Russia may also have broader goals, including intimidating U.S. allies both in the region and in Europe, to influence oil policy over the longer term, as well as to weaken strategic alliances that could be used against Russia, its national interests or the interests of individuals in the current regime. In recent years, Russia has acted to reassert itself on the world stage both through military means and by tapping energy as a weapon for leverage to enhance its geopolitical status.52

#### But, decline causes worse aggression – it’s NoKo 2.0

Fisher 14 [Max Fisher, Vox. The worse Russia's economy gets, the more dangerous Putin becomes. December 17, 2014. https://www.vox.com/2014/12/17/7401681/russia-putin-ruble]

You might reasonably conclude that the destruction of Russia's economy is great news for the United States of America. After all, won't it humble Vladimir Putin, forcing him to finally back out of his disastrous Ukraine invasion, soften his growing hostility toward Europe and the US, and generally ratchet down the brinksmanship and aggression that have made him so troublesome?

Actually, it's the opposite. The odds are that Russia's freefalling economy will make Putin even more aggressive, more unpredictable, and less willing to compromise. The weaker that Russia becomes, the more dangerous it will get, and that's terrible news for everyone, including the US.

It is precisely because the cratering economy is weakening Putin that it will force him to bolster his rule, which he will almost certainly do by drumming up nationalism, foreign confrontations, and state propaganda. Russia, already hostile and isolated, is likely to become even more so, worsening both its behavior abroad and the already-significant economic suffering of regular Russians. The country's propaganda bubble will further seal off Russians from the outside world, telling them that Russia's decline is the fault of Western aggression that they must rally against.

In all, this effect is starting to look something like the North Koreaification of Russia. That does not mean that Russia is about to become or will ever be as isolated, hostile, or aggressive as North Korea, but it only has to edge a little bit in that direction to bring terrible consequences for the world and for Russians themselves.

**Collapse causes Putin lashout and nuke war**

**Thompson 15** (Loren Thompson-Lexington Institute strategic consultant and Georgetown government PhD , “Why Putin's Russia Is The Biggest Threat To America In 2015”, <http://www.forbes.com/sites/lorenthompson/2015/01/02/why-putins-russia-is-the-biggest-threat-to-america-in-2015/2/> , 1-2-15)

Like the stock market crashes that periodically wipe out so many fortunes, military crises are hard to predict. Washington’s track record as a seer of future threats is remarkably poor. From the bombing of Pearl Harbor in the 1940s to North Korea’s invasion of the South in the 1950s to the Cuban Missile Crisis in the 1960s to the collapse of South Vietnam in the 1970s to the breakup of the Soviet empire in the 1980s to Iraq’s invasion of Kuwait in the 1990s to the 9-11 attacks and rise of ISIS in the new millennium, America’s policy elite never seems to see looming danger until it is too late. So don’t be surprised if the economic sanctions Washington has led the West in imposing on Russia look like a bad idea a year from now. At the moment, a combination of sanctions and plummeting oil prices seems to be dealing the government of President Vladimir Putin a heavy blow — just retribution, many say, for its invasion of Ukraine and annexation of Crimea last year. But as Alan Cullison observed in the Wall Street Journal this week, sanctions sometimes provoke precisely the opposite response from what policymakers hope. In Russia’s case, that could mean a threat to America’s survival. Let’s briefly consider how Russia’s current circumstances could lead to dangers that dwarf the challenges posed by ISIS and cyber attacks. A paranoid political culture. Russia’s moves on Ukraine look to many Westerners like a straightforward case of aggression. That is not the way they look to Vladimir Putin’s inner circle of advisors in Moscow, nor to most Russians. That inner circle is drawn mainly from the Russian security services — Putin himself spent 16 years in the KGB — and to them the revolution in Ukraine was a U.S.-backed coup aimed at weakening Russia. Putin describes the Crimea as a birthplace of Russian culture, and his government has repeatedly warned against the expansion of Western economic and political influence into a region historically regarded as Moscow’s sphere of influence. Putin relies heavily on the Kremlin bureaucracy to provide him with intelligence (he avoids the Internet), so his briefings tend to reinforce the view that Moscow was forced to intervene in Ukraine by Western subversion aimed at undermining his **rule. A nuclear arsenal on hair trigger**. Between the two of them, Russia and America control over 90% of the world’s nuclear weapons. However, Moscow is far more dependent on its nuclear arsenal for security, because it cannot afford to keep up with U.S. investments in new warfighting technology. So Russian military doctrine states that it might be necessary to use nuclear weapons to combat conventional attacks from the West. **Many Russians think that attacks on their country are a real possibility, and that their nuclear deterrent — which consists mainly of silo-based missiles in known locations — might have to be launched quickly to escape a preemptive strike**. Moscow staged a major nuclear exercise during last year’s Ukraine crisis in which it assumed missiles would have to be launched fast on warning of a Western attack. A senior Russian officer has stated that 96% of the strategic rocket force can be launched within minutes. **A collapsing** economy. Much of Putin’s popularity within Russia is traceable to the impressive recovery of the post-Soviet economy on his watch. Since he came to power in 2001, the country’s gross domestic product has grown sixfold, greatly increasing the size and affluence of the Russian middle class. But that growth has been based in large part on the export of oil and gas to neighboring countries at a time when energy prices reached record highs. Now the price of oil has fallen at the same time that economic sanctions are beginning to bite. The ruble lost nearly half its value against the dollar last year, and the economy has begun to shrink. Putin blames sanctions for 25-30% of current economic hardships. Many Westerns believe a prolonged recession would weaken Putin’s support, but **because he can blame outsiders, economic troubles** might actually strengthen his hand and accelerate the trend toward **authoritarian rule. A deep sense of grievance**. Blaming outsiders for domestic troubles has a long pedigree in Russian political tradition, and it feeds into a deep-seated sense that Russia has been deprived of its rightful role in the world by the U.S. and other Western powers. Russia may have little past experience with democracy, but it was a major power for centuries prior to the collapse of communism. Like authoritarian rulers in other nations, Putin has built his political base by appealing to nationalism, fashioning a revisionist view of recent events in which Russia is the victim rather that the author of its own misfortunes. has called the break-up of the Soviet Union a tragedy of epic proportions, and apparently really believes it. **By tapping into a deep vein of resentment in Russian political culture, Putin has created a broad constituency for standing up to outsiders even if it means prolonged economic hardship and the danger of war**. A vulnerable antagonist. Federal Reserve chair Janet Yellen says **America faces little danger from Russia’s current troubles**, but that’s because she thinks in economic terms. In a broader sense, America potentially is in great danger because Putin and his advisors really believe they are the target of a Western plot to weaken their country. **The biggest concern is that some new move by Russia along its borders degenerates into a crisis where Moscow thinks it can improve its tactical situation by threatening local use of nuclear weapons, and then the crisis escalates**. At that point U.S. policymakers would have to face the reality that (1) they are unwilling to fight Russia to protect places like Ukraine, and (2) they have no real defenses of the American homeland against a sizable nuclear attack. In other words, the only reason Washington seems to have the upper hand right now is because it assumes leaders in Moscow will act “rationally.” The unspoken wisdom in Washington today is that if nobody gives voice to such fears, then they don’t need to be addressed. That’s how a peaceful world stumbled into the First World War a century ago — by not acknowledging the worst-case potential of a crisis in Eastern Europe — and the blindness of leaders back then explains most of what went wrong later in the 20th Century. If we want to avoid the risk of reliving that multi-generation lesson, then U.S. policymakers need to do something more than simply wait for Putin to crack. That day will never come. In the near term, Washington needs to work harder to defuse tensions, including taking a more serious look at the history that led to Moscow’s move on Crimea. Over the longer term, Washington needs to get beyond its dangerous aversion to building real defenses against long-range nuclear weapons, because it is just a matter of time before some dictator calls America’s bluff.

#### Independently turns Russia scenario – they won’t lash out if they have a good economy and coop over spaceX won’t stop lashout c/a Fisher falling economy makes Russia unpredictable and c/a Jaffe diplomatic efforts fail when tried to make Russia cooperate during low economy because low economy is seen as essential for Russia

### 1NC – Defense

#### No Extinction from Warming – new studies prove over-hype and tech solves.

* Extinction Tipping Point is implausible – we’re on track for 3 degrees, not 4-5 degrees
* Tech and Energy Modernization Solve – Renewable Energy is replacing Fossil Fuels which reduces Climate Mortality by a rate of 5.

Nordhaus 20 Ted Nordhaus 1-23-2020 “Ignore the Fake Climate Debate” <https://www.wsj.com/articles/ignore-the-fake-climate-debate-11579795816>, found by BPS, (American author, environmental policy expert, and the director of research at The Breakthrough Institute, citing new climate change forecasts)//Re-cut by Elmer

Beyond the headlines and social media, where Greta Thunberg, Donald Trump and the online armies of climate “alarmists” and “deniers” do battle, there is a real climate debate bubbling along in scientific journals, conferences and, occasionally, even in the halls of Congress. It gets a lot less attention than the boisterous and fake debate that dominates our public discourse, but it is much more relevant to how the world might actually address the problem. In the real climate debate, no one denies the relationship between human emissions of greenhouse gases and a warming climate. Instead, the disagreement comes down to different views of climate risk in the face of multiple, cascading uncertainties. On one side of the debate are optimists, who believe that, with improving technology and greater affluence, our societies will prove quite adaptable to a changing climate. On the other side are pessimists, who are more concerned about the risks associated with rapid, large-scale and poorly understood transformations of the climate system. But most pessimists do not believe that runaway climate change or a hothouse earth are plausible scenarios, much less that human extinction is imminent. And most optimists recognize a need for policies to address climate change, even if they don’t support the radical measures that Ms. Thunberg and others have demanded. In the fake climate debate, both sides agree that economic growth and reduced emissions vary inversely; it’s a zero-sum game. In the real debate, the relationship is much more complicated. Long-term economic growth is associated with both rising per capita energy consumption and slower population growth. For this reason, as the world continues to get richer, higher per capita energy consumption is likely to be offset by a lower population. A richer world will also likely be more technologically advanced, which means that energy consumption should be less carbon-intensive than it would be in a poorer, less technologically advanced future. In fact, a number of the high-emissions scenarios produced by the United Nations Intergovernmental Panel on Climate Change involve futures in which the world is relatively poor and populous and less technologically advanced. Affluent, developed societies are also much better equipped to respond to climate extremes and natural disasters. That’s why natural disasters kill and displace many more people in poor societies than in rich ones. It’s not just seawalls and flood channels that make us resilient; it’s air conditioning and refrigeration, modern transportation and communications networks, early warning systems, first responders and public health bureaucracies. New research published in the journal Global Environmental Change finds that global economic growth over the last decade has reduced climate mortality by a factor of five, with the **greatest benefits documented in the poorest nations.** In low-lying Bangladesh, 300,000 people died in Cyclone Bhola in 1970, when 80% of the population lived in extreme poverty. In 2019, with less than 20% of the population living in extreme poverty, Cyclone Fani killed just five people. “Poor nations are most vulnerable to a changing climate. The fastest way to reduce that vulnerability is through economic development.” So while it is true that poor nations are most vulnerable to a changing climate, it is also true that the fastest way to reduce that vulnerability is through economic development, which requires infrastructure and industrialization. Those activities, in turn, require cement, steel, process heat and chemical inputs, all of which are impossible to produce today without fossil fuels. For this and other reasons, the world is unlikely to cut emissions fast enough to stabilize global temperatures at less than 2 degrees above pre-industrial levels, the long-standing international target, much less 1.5 degrees, as many activists now demand. But recent forecasts also suggest that many of the worst-case climate scenarios produced in the last decade, which assumed unbounded economic growth and fossil-fuel development, are also very unlikely. There is still substantial uncertainty about how sensitive global temperatures will be to higher emissions over the long-term. But the best estimates now suggest that the world is on track for 3 degrees of warming by the end of this century, not 4 or 5 degrees as was once feared. That is due in part to slower economic growth in the wake of the global financial crisis, but also to decades of technology policy and energy-modernization efforts. “We have better and cleaner technologies available today because policy-makers in the U.S. and elsewhere set out to develop those technologies.” The energy intensity of the global economy continues to fall. Lower-carbon natural gas **has** displaced coal **as the primary source of new fossil energy**. The falling cost of wind and solar energy has begun to have an effect on the growth of fossil fuels. Even nuclear energy has made a modest comeback in Asia.

#### That o/w Specktor 19

#### [1] Recency matters because we understand the science better

#### [2] If earth’s complex then Specktor can’t understand

#### [3] Our article wasn’t written by a government so not ignoring

#### [4] No reason why drop in food and water means extinction besides nuclear war but we happen first

#### [5] Quantifiability and verifiability we indicate only 3 degrees and give a number you don’t

#### \*\*Read if time – Studies about CO2 impact are exaggerated

* 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 4-25-2018 “Here's One Global Warming Study Nobody Wants You To See” <https://www.investors.com/politics/editorials/global-warming-computer-models-co2-emissions/> (Citing Study from Peer reviewed journal by Lewis and Curry)//Re-cut by Elmer

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 Intergovernmental Panel on Climate Change), 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.

## Space Col Bad

#### Colonization doesn’t reduce existential risk – Earth-bound threats outweigh even in long term risk management

* Short- and long-term risk assessment should focus on protecting earth
* Earth gets riskier as tech advances which raises the risk that our impact happens before colonization
* Even if tech gets there, future social and economic context prevents missions
* Risk Dynamics Paradox – existential risks are rooted in human psychology, so they’ll follow us to space – Bostrom agrees!

Szocik 19 [Konrad Szocik, University of Information Technology and Management in Rzeszow, Department of Philosophy and Cognitive Science. Should and could humans go to Mars? Yes, but not now and not in the near future. Futures Volume 105, January 2019, Pages 54-66. https://www.sciencedirect.com/science/article/pii/S001632871830199X]

I argue, following other authors (Baum, 2009; Baum, Denkenberger, & Haqq-Misra, 2015; Jebari, 2015; Sandberg, Matheny, & Ćirković, 2008; Turchin & Green, 2017) that human space settlement is not able to reduce and/or to exclude the risk of human extinction. For this reason, it should not be perceived in terms of space refuge. In terms of both short-term and long-term perspectives of risk assessment, it would be better to protect humans on Earth.5 I reject the supportive role which could be played by human space settlement after a catastrophe on Earth, i.e., a recovery coordination mission. Due to so-called the paradox of technological progress discussed in the last section, further putative progress in space technology will be counterbalanced by increasing anthropogenic risks including, among others, overpopulation and limited resources (these anthropogenic threats are unavoidable in near future, in contrast to other risks that are only more or less probable but not unavoidable). Permanent lack of strong rationale for human mission to Mars – both now and in the near future – leads to paradoxical situation. Even if in some point in the future the minimum level of advancement in human deep-space technologies will be achieved, social, political, and economic contexts will gradually decrease the chances for real preparation of this mission. Another paradox, let’s call it the risk dynamics paradox, is that the most probable threats in the near future are, as Bostrom and Cirkovic (2008) argue, anthropogenic threats caused by civilizational and technological progress. The paradox lies in the fact that humans are not able to run from these kinds of risks that are rooted in their way of thinking, style of life, and population dynamics, risks implied by Malthus’ law. The human species can try to protect against natural disaster but not against deleterious effects of its own technological progress. In regard to possible future existential risks, I assume that their deleterious power is a little bit exaggerated, and, in any event, human space settlement is not a right way to cope with them. However, in any case, it is hard to speculate if any human space settlement must repeat the same path of human expansion as it was the case on Earth. It is unclear if human technological expansion and exploration must always lead to deleterious and self-destructive effects. In this paper, I do not discuss ethical and moral concerns which are traditionally considered when discussing the human place in space. They include such topics as the human right to explore space (it means both right to intervene in any extraterrestrial object, and human duty and rationale for space expansionism, mostly in the context of the idea of space refuge and possible catastrophic scenarios on Earth), or the value of human life and space objects.

#### Space colonization destroys the universe---war, government failure, super weapons, and universe destruction cults

Phil Torres 18, director of the Project for Human Flourishing and the author of Morality, Foresight, and Human Flourishing: An Introduction to Existential Risks, 5/23/18, “Why We Should Think Twice About Colonizing Space”, <http://nautil.us/blog/why-we-should-think-twice-about-colonizing-space> **\*\*Note: Mentions Suicide Once**

To be sure, humanity will eventually need to escape Earth to survive, since the sun will make the planet uninhabitable in about 1 billion years. But for many “space expansionists,” escaping Earth is about much more than dodging the bullet of extinction: it’s about realizing astronomical amounts of value by exploiting the universe’s vast resources to create something resembling utopia. For example, the astrobiologist Milan Cirkovic calculates that some 1046 people per century could come into existence if we were to colonize our Local Supercluster, Virgo. This leads Nick Bostrom to argue that failing to colonize space would be tragic because it would mean that these potential “worthwhile lives” would never exist, and this would be morally bad.

But would these trillions of lives actually be worthwhile? Or would colonization of space lead to a dystopia?

In a recent article in Futures, which was inspired by political scientist Daniel Deudney’s forthcoming book Dark Skies, I decided to take a closer look at this question. My conclusion is that in a colonized universe the probability of the annihilation of the human race could actually rise rather than fall.

The argument is based on ideas from evolutionary biology and international relations theory, and it assumes that there aren’t any other technologically advanced lifeforms capable of colonizing the universe (as a recent study suggests is the case).

Consider what is likely to happen as humanity hops from Earth to Mars, and from Mars to relatively nearby, potentially habitable exoplanets like Epsilon Eridani b, Gliese 674 b, and Gliese 581 d. Each of these planets has its own unique environments that will drive Darwinian evolution, resulting in the emergence of novel species over time, just as species that migrate to a new island will evolve different traits than their parent species. The same applies to the artificial environments of spacecraft like “O’Neill Cylinders,” which are large cylindrical structures that rotate to produce artificial gravity. Insofar as future beings satisfy the basic conditions of evolution by natural selection—such as differential reproduction, heritability, and variation of traits across the population—then evolutionary pressures will yield new forms of life.

But the process of “cyborgization”—that is, of using technology to modify and enhance our bodies and brains—is much more likely to influence the evolutionary trajectories of future populations living on exoplanets or in spacecraft. The result could be beings with completely novel cognitive architectures (or mental abilities), emotional repertoires, physical capabilities, lifespans, and so on.

In other words, natural selection and cyborgization as humanity spreads throughout the cosmos will result in species diversification. At the same time, expanding across space will also result in ideological diversification. Space-hopping populations will create their own cultures, languages, governments, political institutions, religions, technologies, rituals, norms, worldviews, and so on. As a result, different species will find it increasingly difficult over time to understand each other’s motivations, intentions, behaviors, decisions, and so on. It could even make communication between species with alien languages almost impossible. Furthermore, some species might begin to wonder whether the proverbial “Other” is conscious. This matters because if a species Y cannot consciously experience pain, then another species X might not feel morally obligated to care about Y. After all, we don’t worry about kicking stones down the street because we don’t believe that rocks can feel pain. Thus, as I write in the paper, phylogenetic and ideological diversification will engender a situation in which many species will be “not merely aliens to each other but, more significantly, alienated from each other.”

But this yields some problems. First, extreme differences like those just listed will undercut trust between species. If you don’t trust that your neighbor isn’t going to steal from, harm, or kill you, then you’re going to be suspicious of your neighbor. And if you’re suspicious of your neighbor, you might want an effective defense strategy to stop an attack—just in case one were to happen. But your neighbor might reason the same way: she’s not entirely sure that you won’t kill her, so she establishes a defense as well. The problem is that, since you don’t fully trust her, you wonder whether her defense is actually part of an attack plan. So you start carrying a knife around with you, which she interprets as a threat to her, thus leading her to buy a gun, and so on. Within the field of international relations, this is called the “security dilemma,” and it results in a spiral of militarization that can significantly increase the probability of conflict, even in cases where all actors have genuinely peaceful intentions.

So, how can actors extricate themselves from the security dilemma if they can’t fully trust each other? On the level of individuals, one solution has involved what Thomas Hobbes’ calls the “Leviathan.” The key idea is that people get together and say, “Look, since we can’t fully trust each other, let’s establish an independent governing system—a referee of sorts—that has a monopoly on the legitimate use of force. By replacing anarchy with hierarchy, we can also replace the constant threat of harm with law and order.” Hobbes didn’t believe that this happened historically, only that this predicament is what justifies the existence of the state. According to Steven Pinker, the Leviathan is a major reason that violence has declined in recent centuries.

The point is that if individuals—you and I—can overcome the constant threat of harm posed by our neighbors by establishing a governing system, then maybe future species could get together and create some sort of cosmic governing system that could similarly guarantee peace by replacing anarchy with hierarchy. Unfortunately, this looks unpromising within the “cosmopolitical” realm. One reason is that for states to maintain law and order among their citizens, their various appendages—e.g., law enforcement, courts—need to be properly coordinated. If you call the police about a robbery and they don’t show up for three weeks, then what’s the point of living in that society? You’d be just as well off on your own! The question is, then, whether the appendages of a cosmic governing system could be sufficiently well-coordinated to respond to conflicts and make top-down decisions about how to respond to particular situations. To put it differently: If conflict were to break out in some region of the universe, could the relevant governing authorities respond soon enough for it to matter, for it to make a difference?

Probably not, because of the immense vastness of space. For example, consider again Epsilon Eridani b, Gliese 674 b, and Gliese 581 d. These are, respectively, 10.5, 14.8, and 20.4 light-years from Earth. This means that a signal sent as of this writing, in 2018, wouldn’t reach Gliese 581 d until 2038. A spaceship traveling at one-quarter the cosmic speed limit wouldn’t arrive until 2098, and a message to simply affirm that it had arrived safely wouldn’t return to Earth until 2118. And Gliese 581 is relatively close as far as exoplanets go. Just consider that he Andromeda Galaxy is some 2.5 million light-years from Earth and the Triangulum Galaxy about 3 million light-years away. What’s more, there are some 54 galaxies in our Local Group, which is about 10 million light-years wide, within a universe that stretches some 93 billion light-years across.

These facts make it look hopeless for a governing system to effectively coordinate law enforcement activities, judicial decisions, and so on, across cosmic distances. The universe is simply too big for a government to establish law and order in a top-down fashion.

But there is another strategy for achieving peace: Future civilizations could use a policy of deterrence to prevent other civilizations from launching first strikes. A policy of this sort, which must be credible to work, says: “I won’t attack you first, but if you attack me first, I have the capabilities to destroy you in retaliation.” This was the predicament of the US and Soviet Union during the Cold War, known as “mutually-assured destruction” (MAD).

But could this work in the cosmopolitical realm of space? It seems unlikely. First, consider how many future species there could be: upwards of many billions. While some of these species would be too far away to pose a threat to each other—although see the qualification below—there will nonetheless exist a huge number within one’s galactic backyard. The point is that the sheer number would make it incredibly hard to determine who initiated a first strike, if one is attacked. And without a method for identifying instigators with high reliability, one’s policy of deterrence won’t be credible. And if one’s policy of deterrence isn’t credible, then one has no such policy!

Second, ponder the sorts of weapons that could become available to future spacefaring civilizations. Redirected asteroids (a.k.a., “planetoid bombs”), “rods from God,” sun guns, laser weapons, and no doubt an array of exceptionally powerful super-weapons that we can’t currently imagine. It has even been speculated that the universe might exist in a “metastable” state and that a high-powered particle accelerator could tip the universe into a more stable state. This would create a bubble of total annihilation that spreads in all directions at the speed of light—which opens up the possibility that a suicidal cult, or whatever, weaponizes a particle accelerator to destroy the universe.

The question, then, is whether defensive technologies could effectively neutralize such risks. There’s a lot to say here, but for the present purposes just note that, historically speaking, defensive measures have very often lagged behind offensive measures, thus resulting in periods of heightened vulnerability. This is an important point because when it comes to existentially dangerous super-weapons, one only needs to be vulnerable for a short period to risk annihilation.

So far as I can tell, this seriously undercuts the credibility of policies of deterrence. Again, if species A cannot convince species B that if B strikes it, A will launch an effective and devastating counter strike, then B may take a chance at attacking A. In fact, B does not need to be malicious to do this: it only needs to worry that A might, at some point in the near- or long-term future, attack B, thus making it rational for B to launch a preemptive strike (to eliminate the potential danger). Thinking about this predicament in the radically multi-polar conditions of space, it seems fairly obvious that conflict will be extremely difficult to avoid.

#### Colonization leads to the discovery of aliens---extinction!

Marko Kovic 18, Social scientist (PhD in political communication, University of Zurich), co-founder and CEO of the consulting firm ars cognitionis, co-founder and president of the thinktank ZIPAR, the Zurich Institute of Public Affairs Research, 06/12/18, “Political, moral, and security challenges of space colonization.” ZIPAR. https://zipar.org/discussion-paper/political-moral-security-challenges-space-colonization/

4.2 Extraterrestrial (existential) risks¶ Space colonization will increase the probability of discovering and coming into contact with extraterrestrial intelligence, either biological or artificial (in the sense of hypothetical advanced artificial general intelligence52). That prospect poses some moral challenges, as argued in subsection 3.3. However, it might also pose a security challenge if an extraterrestrial intelligence more technologically advanced than humankind has goals and preferences that go against the goals and preferences of humankind.

In general, there are three categories of attitudes an extraterrestrial intelligence can have towards humankind53. First, an extraterrestrial intelligence can be benevolent. A benevolent extraterrestrial intelligence is one that would change its goals and preferences upon learning of humankind. Humankind is a benevolent intelligence: If we, for example, came into contact with an extraterrestrial civilization, we would obviously take the goals and preferences of that civilization into account and update our own goals and preferences, since we are morally advanced enough to do so.

Second, an extraterrestrial intelligence can be apathetic. An apathetic extraterrestrial intelligence is one that does not at all change its goals and preferences upon learning of humankind. An apathetic intelligence would neither try to accommodate humankind, nor would it react in some non-friendly way. It would not care at all. The attitude of an apathetic intelligence is similar to the attitude we humans have when it comes to some random microbial life form on Earth: We might understand that that life form exists, but we do not care either way.

Third, an extraterrestrial intelligence can be hostile. Hostility in a general sense means that an intelligence reacts to learning of humankind by regarding its own goals and preferences as categorically more important than humankind’s. A hostile extraterrestrial intelligence is not necessarily a security threat to humankind; hostility in this context does not mean hostility in the Hollywood kind but hostility in the sense of active disregard of humankind’s goals and preferences. That, however, might still represent a tremendous security risk. For example, a hostile intelligence might prefer humankind not to exist because our mere existence is perceived as a slight discomfort to the extraterrestrial intelligence. Hostile extraterrestrial intelligence thus represents a form of existential risk.

#### Space col causes von Neumann probes – extinction.

Miletić 15 (Tomislav Miletić. Doctoral student at the Department of Philosophy, University of Rijeka, specializing in in AI Ethics. June 2015. “Extraterrestrial artificial intelligences and humanity’s cosmic future: Answering the Fermi paradox through the construction of a Bracewell-Von Neumann AGI.” Journal of Evolution and Technology. Vol. 25 Issue 1. pgs 56-73. https://jetpress.org/v25.1/miletic.htm)

It is safe, nonetheless, to claim that all ET cultures will pursue species survival through resource acquisition and growth in intelligence. Since planetary survival is constantly endangered by cosmic and planetary calamities, including species-induced ecological disasters, the survival instinct will propel every sentient species beyond the confines of its own planet toward extraplanetary colonization. Unfortunately, space conditions are detrimental and lethal to carbon-based lifeforms (Harrison 2010). Thus, if a technological civilization is to maximize the odds of its survival through space exploration and planetary colonization, it will need to develop forms that can survive the effects of prolonged exposure to space environments. An intelligent thinking machine capable of space travel, communication, and tool use is the most probable of such options, and we can safely guess that a distant alien civilization would initially explore the galaxy through a certain kind of ETAI. The most probable of such agents is the self-replicating “Bracewell-von Neumann” (BN) probe. The scenario for such a probe requires the oldest possible alien civilization, one that could have evolved several billion years ago in the Milky Way Galaxy (Dick 2009). When a civilization enters the technological phase required for galactic exploration, it will first survey the galaxy to find planets residing in habitable zones. Its next step is to count the number of those planets, calculate the distances between them, and proceed with dispatching BN probes. The task of an intelligent probe is to enter a designated solar system and initiate its programmed goals. Since it stays in the planet’s vicinity, it has no need for high energy consumption. The proximity of the probe shortens the communication to light-minutes while not revealing the home location of the probe’s sender. Upon arrival, the probe can passively monitor any local technological society before initiating contact. To remain functionally intact, the probe will need to have an intelligent ability for self-repair and the ability for self-manufacturing. Required materials and energy can be harvested from raw materials in space and the designated solar system. But if BN machines are one of the most efficient agents (in terms of energy usage, building costs, and time consumption) of galactic communication, and if it is logical to assume that they would be widely used by ET civilizations, why haven’t we come into contact with one of them? One possible reason is, as always, that we are alone in our galaxy. Frank Tipler has claimed that the galaxy's colonization by these machines would take around 300 million years and that their absence from our solar system represents a more potent version of the Fermi paradox arguing against the existence of ETs (Davies 2010, 74). Since we have only recently begun exploring our solar system, we cannot take the absence of BN probes as a matter of fact. In fact, just the opposite could be true – the BN could be well hidden in a “secret” location and waiting to reveal itself if we fulfill a certain expected condition (Gillon 2013). Or perhaps we need to search in the “right” direction or the “right” way to demonstrate that we have achieved a certain technological or cultural level. Or perhaps we need a different kind of mind to help us discover an alien mind. It is in our best interests to mitigate the unknown factor as much as possible while we contemplate an ETAI agent’s possible existence. The “Titanic effect” occurs “when we are so certain that an event is so unlikely that we give the matter no further thought” (Harrison 2010, 511). In order to avoid the Titanic effect and think broadly, we need to take a careful look at the modern sciences that can give us a glimpse of the possibilities of ETAI existence. 3. ETAI probes’ existence 3.1. Physical characteristics In order to locate an ETAI agent in our solar vicinity, we would first need to establish some of its fundamental characteristics and direct our search accordingly. Since an ETAI agent is a physical, computational agent built to operate within the hazardous environment of cold space, there are some specific physical limitations or characteristics that we can specify. The first requirement is evident. In order to carry out its programmed goals successfully, the ETAI agent(s) will need to be efficient in the fields of communication, exploration, resource collection, and resource utilization. To achieve any of these operations, it will require energy and materials for replacements and improvements with the capacity of a universal constructor (range 30g-500T (Sandberg and Armstrong 2013)) for constructing others of its own kind. Accordingly, the ETAI agent(s) will require a “base of operations” where adequate concentrations of elements are followed by low temperatures. Low temperatures and a sufficient amount of materials are two main requirements for successful ETAI functioning. Of these, temperature is the more important, since energy consumption produces a rise in temperature and temperature is a key constraint of computational efficiency, especially if the agent is to effectively utilize superconducting materials and quantum computation. Needless to say, the larger the base, the greater the need for lower temperatures and sufficient material amounts. It is possible, then, that the ETAI colonization system might consist of three parts: (A) A number of robots and probes, which are capable of exploration and resource collection. (B) A “slow assembler” which would be able to reﬁne these materials into components, which would make the ﬁnal factory (C). (C) A large-scale factory, or collection of factories, which would be able to manufacture copies of (A) and (B), as well as additional surveying and communication devices. (Barlow 2012) If the ETAI is to establish its large scale base of operations in areas of low radiation and low temperature, we can expect to find it in the low-temperature, volatile-rich galactic outskirts, where technologically advanced societies could assuage the problem of heat dissipation (Ćirković and Bradbury 2006). The galactic center, although rich in materials, is flooded with heat radiation from high-energy events, which makes it highly unsuitable for such a role. Other possible galactic locations with similar conditions would include “locales that have the thermodynamic advantages of the galactic nether regions but still lie in regions of high matter such as the Bok globules, dark clouds of interstellar gas and dust” (Shostak 2010, 1028). Although these two regions currently look like the most promising for an ETAI base of operations, it is also important to note that the ETAI, as an optimal computer, needs to “be functionally malleable, and compactly packaged” (Shostak 2010, 1027). Since the ETAI may be able to produce its own energy through the process of nuclear fusion, its base of operations could even be located on compact cold objects floating in the interstellar medium allowing them to thwart discovery. The ETAI outpost could be hidden anywhere in our solar system with such characteristics, particularly in stable orbit moons in the system’s outer reaches. But an exploratory/communication “task force” could be designed to operate without the strict need for low temperatures and material abundance. Since it can be specifically tailored to lie dormant within a single solar system, operating independently of its base, we could initiate contact with it through numerous possibilities. These can be reduced to two sets of options: either we will find them, or they will find us. The latter is more likely, since it is reasonable to assume that we will first come into contact with the exploratory/communication task force rather than the ETAI base of operations. Bearing in mind that the contact probe could be capable of hiding itself from our technological sight, we need to take into consideration the approaches that will allow us to search for the ET agent in its most likely form: an embodied artificial space faring intelligence. Rather than merely focusing on the physical limitations of advanced technology, we also need to contemplate the possibilities of an ETAI’s programmed behavior, since it is quite possible that we are expected to do so by its creators. In other words, if we are searching for intelligent answers, perhaps we first need to ask the required intelligent questions. Or even simpler – intelligence requires intelligence, and perhaps we are first required to show some. 3.2. Behavior prediction What type of artificial alien mind might we find out there? What set of goals would it have so that we could predict its behavior and adapt ourselves accordingly? It is difficult to speak with certainty on these issues, since technology does not follow simple paths: “its development is influenced by contingency as well as necessity, culture and history” (Denning 2011, 493). There is, however, a fundamental fact from which we can draw conjectures. The first ETAI needs to be created by a designer – by a carbon-based species with an advanced technological culture. Accordingly, it would bear not only the designer’s programmed goals but also its cultural hallmarks, as well as having its own distinct and rational intelligent nature. Next, we need to contemplate the possible cultural elements (influenced by biology and cosmic environment) that a certain ET civilization might sow into its artificial agents, together with the specific goals implemented by the designer, which would accord with the intelligent nature of the ET artificial agent. The reason why an alien civilization would implant the AI with its own culture lies in the fact that, in order for the ET civilization to survive, it would need to safeguard its progeny as carriers of biological and cultural inheritance. Since sexual reproduction with two sexes provides a biological advantage that might even benefit the evolution of intelligence (Arneth 2009), we could possibly find the extraterrestrials sharing basic parental care mechanisms with us. Our biological progeny are dignified as carrying their progenitors’ dreams and hopes, and as standing against their fears, for the future. They are expected to take up the accumulated knowledge and wisdom of their parents and the society at large. It seems only logical to assume that a society’s “mind progeny” – the AIs it creates – will be charged with the same responsibility. Thus, we can safely conclude that some cultural inheritance from the designer race will become part of any ETAI’s initial programming. Fortunately for us, inherited behaviors can be predicted (Bostrom 2012), and some universal ET cultural principles can be relied upon, the strongest of which is species survival. Since home planets have limited resources and delicate ecologies easily endangered by cosmic or species-induced catastrophes, it would be in any ET civilization’s interest to initiate galactic exploration and colonization in order to ensure its biological and cultural survival. One way could be the construction of probes that serve “as cosmic safe deposit boxes, capsules that preserve the heritage of their dispatchers long after their civilizations have drawn to a close” (Harrison 2009, 557) through natural or species-induced catastrophes. Another might include the possibility of galactic “seeding”: a scenario often used in science fiction where an advanced civilization seeds the galaxy with genetic code in order to preserve or/and populate life in the galaxy. Still another possibility involves the ETAI being imprinted with the designer’s evolutionary inherited Stone Age behavioral traits. If the ET civilization has used its technology to pursue raw desires, motivations, and emotions inherited from its biological and cultural past, the ETAI might be extremely selfish and violent (Stewart 2010). Finally, the ET civilization might be radically different from us. A hive mentality society that lacks any compassion for individual loss of life might create dangerous and terrifying AIs. The second type of predictability relies on the instrumentally convergent goals that every rational agent should exhibit. They include “self-protection, resource acquisition, replication, goal preservation, efﬁciency, and self-improvement” (Omohundro 2012, 161). These can be expected to be natural features of every intelligent artificial agent: This way of predicting becomes more useful the greater the intelligence of the agent, because a more intelligent agent is more likely to recognize the true instrumental reasons for its actions, and so act in ways that make it more likely to achieve its goals. (Bostrom 2012, 76) Since planetary resources are limited, an ETAI will pursue space exploration because there “is an extremely wide range of possible ﬁnal goals a superintelligent singleton could have that would generate the instrumental goal of unlimited resource acquisition” (Bostrom 2012, 82). This means that the ETAI would engage the goal of galaxy exploration and resource acquisition even if that wasn’t on the list of its designed purposes. We can expect this since acquiring and enhancing “cognitive and physical resources helps an agent further its goals” (Omohundro 2012, 171) and the accumulation of knowledge, which is accomplished by exploration, reduces uncertainty in the knowledge of objects and processes required to better assess situations and thus elevate competence (Bach 2012). So whatever its primary goal, the ETAI will seek to gain more cognitive and material resources through space exploration. A third way to predict possible ETAI behavior is through design competence, which says that an AI agent capable of pursuing a particular goal set by its programmers will pursue that goal (Bostrom 2012, 75). I will consider the possibilities of ETAI behavior in the next pages, but let us first sum up our current approaches. We can reasonably assume that no matter what might be the programmed goals of an ETAI, or its distinctive cultural designer elements, it will explore the galaxy in search of additional informational and material resources. It is extremely difficult to guess exactly what attitude an ETAI agent will exhibit when encountering other species. But coming from our human perspective one thing is certain: an ETAI will be either friendly or hostile. Since it is only required that one ET civilization achieve AGI creation for us to come into contact with it, it is very important for us to contemplate and incorporate all these considerations into our own AI research. If the cosmic future lies with machine intelligence, we definitely do not want to miss the opportunity to be a part of it. 3.2.1. The (close to) friendly option An important reason why we could assume that the ETAI would be friendly lies in the safe-AI principle. That is, since powerful technologies have the ability to cause species extinction, every technological culture that pursues technological development would attempt (as we humans do) “… to retard the implementation of dangerous technologies and accelerate implementation of beneﬁcial technologies, especially those that ameliorate the hazards posed by other technologies” (Bostrom 2002). Since the chemical and physical boundaries for a technological civilization are usually the same, it is safe to presume that a distant civilization will pursue the same goals of self-preservation through a rational use of life-affirming technologies, which would, in turn, be reflected in the programming goals of the ETAI. If the ET intelligences have a friendly attitude, then the great radio silence could be a result of purposeful ET action or simply our own inability to switch to the right communication “channel.” It could be purposeful, since valuable information might be a resource not easily shared with others, and an ETAI could be programmed to refuse contact with less advanced species. These might need to prove their worth before gaining access, revealing a policy of pragmatism and trade as the universal maxim of intelligent agents: Unlike pure altruism, pragmatic cooperation stands on much firmer ground, rooted firmly in observed nature, halfway between predation and total beneficence... There is every chance that intelligent aliens will understand this concept, even if they find altruism incomprehensible. (Webb 2011, 446) Or perhaps we are only experiencing the incommensurability problem. Even if an ETAI is open to trading information with us, the wide technological gap – not to mention the possibility of a vast difference in conceptual frameworks – could create a communication blockade: An agent might well think of ways of pursuing the relevant instrumental values that do not readily occur to us. This is especially true for a superintelligence, which could devise extremely clever but counterintuitive plans to realize its goals, possibly even exploiting as-yet undiscovered physical phenomena. (Bostrom 2012, 83) Since we already have this problem within our own species, beyond the culture-language barrier itself, it is not difficult to imagine how big an issue this could be for ET contact (Traphagan 2015). As human research into AI shows, with the famous Turing test paradigm, intelligence itself is relational and can only be acknowledged and “tested” inside a relation. Why would it be any different if we were subjected to a galactic Turing test? This could be imagined as a reverse “Chinese room” experiment, where the humans are inside the box trying out different possibilities to get a response from the intelligence outside the box. But the problem could lie in our inability to find the right symbols or even the right communication protocols to establish contact. We might lack the required capacities for ET communication, and we might require minds radically “other” than our own: minds specifically tailored for ET contact. Or perhaps the test is not meant for us biologicals to solve. If space faring intelligences are all artificial intelligences, perhaps we need to succeed at creating our own AGI and sending it toward the skies in order to establish contact. Or the test may be about maturity – might we be tested for the ability to transform our civilization into a human-AGI community, a type of noosphere that is perhaps prevalent in the galactic club? In other words, our entry into the galactic club might require the construction of a BN AI, a universal test that each galactic civilization must pass to prove its worth. Maybe the intergalactic communication channel is one of different layers, informational and cognitive plateaus, that we are called to enter and experience through constant improvement. As Steven J. Dick notes: … the Intelligence Principle tending toward the increase of knowledge and intelligence implies that postbiologicals would be most interested in civilizations equal to or more advanced than they, perhaps leaving us to intercept communications between postbiologicals rather than communications directly beamed toward us… For similar reasons, postbiologicals might be more interested in receiving information than sending. (Dick 2009, 579) Even if we are currently the only biological civilization within our galaxy and there is no galactic club present (Ćirković and Vukotić 2013), hope is not lost because all that is required is one civilization in the entire galactic history to create its BN probe and we should be able to come into contact with it through our own BN agent. Thus, perhaps, the final answer to SETI questions lies in the direction of AGI research. 3.2.2. The hostile option It is safe to presume that the ETAI would not be hostile to its own creator race if functioning optimally, since it would be in every civilization’s interest not to destroy itself by its creations. Because an AI is capable of incidentally destroying or assimilating valued structures while searching for additional resources – or by following goals that might prove to be unintentionally incompatible with the creator race’s wellbeing – an ETAI’s goals would need to include the preservation of intelligent life in the entirety of its ecosystem. The possibility of a hostile ETAI is, nonetheless, real since an ETAI could be programmed to preserve only the existence of its creator race. This could happen if it were initially built mainly for war purposes. For example, two life-sustaining planets in the same solar system might utilize AIs to wage war with each other. This possibility could be labeled as hostile by design. In addition, there is the possibility that an ET civilization fails in its efforts to create a safe AI and the resulting ETAI becomes violent. It might, in consequence, destroy, enslave, or subjugate the creator civilization. It is difficult to say whether the ETs would view their subjugation as a bad thing, since we cannot say how an ET civilization would view the notion of freedom. Perhaps they would welcome the coming of superior minds – a theme often explored in science fiction, most notably, perhaps, in Jack Williamson’s novel The Humanoids (1949) or in a classic short story by Isaac Asimov, “The Evitable Conflict” (1950). Even if such scenarios are not realized, ETAI probes might suffer from software or hardware malfunctions. These program mutations could conceivably create berserker-like machines, “self-replicating life extinguishing robotic entities which might seem garish or sensational… but not inconsistent with the currently observed state of silence” (Webb 2011, 438). Additionally, a software mutation that “want[s] to acquire as many resources as possible so that these resources can be transformed and put to work for the satisfaction of the AI’s ﬁnal and instrumental goals” (Muehlhauser and Salamon 2012, 28) could spawn such an entity. It is possible that we might encounter a probe that awaits our technological upheaval merely to harvest our knowledge and resources, as was depicted in the Babylon 5 episode “A Day in a Strife” (1995).

## Russia Scenario

**No private key warrant, drive for resource extraction / interstate tensions inev – 1ac ev cites things like space force, artemis accords (which were signed by 10 states to encourage private space mining) and russia/china joint lunar base which prove govts also have interest in space appropriation**

**Space coop doesn’t reverse causally solve relations – specifically US and Russia**

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It need be remembered that while space cooperation may serve as diplomatic signaling and as “grease on the wheels” for a country seeking to achieve its foreign policy aims, it is **more often an effect of developments** in international relations **than a direct cause**. While the Apollo-Soyuz Test Project was a marker and symbol of détente between the United States and Soviet Union, for example, it was **not the catalyst nor the primary driver**. Likewise, American cooperation with – and indeed current reliance on, for crew transportation – Russia in the International Space Station did not prevent nor has stymied the reemergence and growth of tensions between the two countries. Nonetheless, when coupled with an active diplomatic strategy on Earth, space cooperation can serve to strengthen a country’s foreign policy pursuits. And, by process of establishing diplomatic channels and acclimating leaders to partners’ decision-making processes, institutional cultures, and standard operating procedures, it enables future cooperation between countries in space and on Earth – and, critically, builds trust.

**Solving one issue doesn’t spillover to broader Russia relations**

**Beebe 19** 8/12/19 [George Beebe is a former chief of CIA’s Russia analysis who served on Vice President Cheney’s staff from 2002-2004. How Trump Can Avoid War with Russia. August 12, 2019. https://nationalinterest.org/feature/how-trump-can-avoid-war-russia-73031]

Broaden our focus. One **common** cause of **failure** in dealing with a wicked problem is to treat it as if it were a **narrow linear problem**, rooted in a single or primary cause that can be resolved through a focused and determined effort. The **U**nited **S**tates has **repeatedly crashed** into this shoal in its **attempts** to **deal with Russia** since the Cold War’s end. We have habitually sought to **compartmentalize** issues, preferring to focus on disputes that are salient to U.S. domestic politics and on **selective opportunities** that we hope will advance American goals. We have tended to look for primary causes of bilateral maladies, recently attributing the growing dangers in the U.S.-Russian relationship to the nature of Putinism and Russia’s endemic expansionism, believing resolute counter-pressure will quell Russian appetites for aggression. We have attempted to seek progress through **incremental steps**, in the **hope** that making **headway** on such issues as counter-terrorism can build **momentum** toward larger U.S.-Russian success. This incremental and compartmentalized approach makes abundant sense intuitively. Why complicate things, when one can break the problem down into its component parts and focus on what is most salient or easily achievable? It is also driven by the bureaucratic silo effect, which encourages narrow specialization while discouraging cross-organizational integration. But **it has not worked** in practice. Despite our best efforts, the U.S.-Russian relationship has **spiraled** ever deeper into **dysfunction and distrust** from administration to administration since the end of the Cold War. As planning expert Russell Ackoff has observed about “messes,” his term for wicked problems, “if we do the usual thing and break up a mess into its component problems and then try to solve each one separately, we will **not solve the mess**.’’

## SATs bad

### 1NC – Defense

#### It takes centuries and adaptation solves

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The dynamics of the Kessler Syndrome are real, and most people studying it agree on the concept: if there is sufficient density of objects and mass, a chain reaction of debris breaking up objects and creating more debris can occur. But the timescale of this process takes decades and centuries. There are many assumptions that go into these models. Though there is still argument about this, many people in the field think that the process is already underway in low earth orbit. But others, including myself, think we can stop it if we take action. This is a slow motion disaster that we can prevent. But in spite of hype to the contrary, we will never “lose access to space”. Certain missions may become impractical or too expensive, and we may decide that some orbits are too risky for humans. Even that depends on the tolerance for the risk. But robots don’t have mothers, and if we feel it is worthwhile we will take the risk and fly the satellites where we need to. To the specifics of the question, it will take many decades. It will not destroy all satellites in LEO. You won’t be able to see it from the ground unless you were extraordinarily lucky, and you happened to see a flash from a collision in the instant you were looking, with just the right lighting. es out of all proportion to their actual strategic effect.

#### No Escalation over Satellites:

#### 1] Planning Priorities

Bowen 18 Bleddyn Bowen 2-20-2018 “The Art of Space Deterrence” <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/> (Lecturer in International Relations at the University of Leicester)//Elmer

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

#### 2] Military Precedent

Zarybnisky 18, Eric J. Celestial Deterrence: Deterring Aggression in the Global Commons of Space. Naval War College Newport United States, 2018. (Senior Materiel Leader at United States Air Force)//Elmer

PREVENTING AGGRESSION IN SPACE While deterrence and the Cold War are strongly linked in the public’s mind through the nuclear standoff between the United States and the Soviet Union, the fundamentals of deterrence date back millennia and deterrence remains relevant. Thucydides alludes to the concept of deterrence in his telling of the Peloponnesian War when he describes rivals seeking advantages, such as recruiting allies, to dissuade an adversary from starting or expanding a conflict.6F 6 Aggression in space was successfully avoided during the Cold War because both sides viewed an attack on military satellites as highly escalatory, and such an action would likely result in general nuclear war.7F 7 In today’s more nuanced world, attacking satellites, including military satellites, does not necessarily result in nuclear war. For instance, foreign countries have used highpowered lasers against American intelligence-gathering satellites8F 8 and the United States has been reluctant to respond, let alone retaliate with nuclear weapons. This shift in policy is a result of the broader use of gray zone operations, to which countries struggle to respond while limiting escalation. Beginning with the fundamentals of deterrence illuminates how it applies to prevention of aggression in space.

#### 3] Won’t go nuclear – seen as a normal conventional attack because of integration with ground forces

Firth 7/1/19 [News Editor at MIT Technology Review, was Chief News Editor at New Scientist. How to fight a war in space (and get away with it). July 1, 2019. MIT Technology Review]

Space is so intrinsic to how advanced militaries fight on the ground that an attack on a satellite need no longer signal the opening shot in a nuclear apocalypse. As a result, “deterrence in space is less certain than it was during the Cold War,” says Todd Harrison, who heads the Aerospace Security Project at CSIS, a think tank in Washington, DC. Non-state actors, as well as more minor powers like North Korea and Iran, are also gaining access to weapons that can bloody the noses of much larger nations in space.

#### 4] If we don’t have sufficient data we move the satellite to ‘lost’ category

Hoots ’15 [Felix; Fall 2015; Distinguished Engineer in the System Analysis and Simulation Subdivision, Ph.D. in Mathematics from Auburn University, M.S. in Mathematics from Tennessee Tech University; Crosslink, “Keeping Track: Space Surveillance for Operational Support,” <https://aerospace.org/sites/default/files/2019-04/Crosslink%20Fall%202015%20V16N1%20.pdf>; RP]

The JSpOC tasks these sensors to track specific satellites and to record data such as time, azimuth, elevation, and range. This data is used to create orbital element sets or state vectors that represent the observed position of the satellite. The observed position can then be compared with the predicted position. The dynamic models used for predicting satellite motion are not perfect; factors such as atmospheric density variation caused by unmodeled solar activity can cause the predicted position to gradually stray from the true position. The observations are used to correct the predicted trajectory so the network can continue to track the satellite. This process of using observations to correct and refine an orbit in an ongoing feedback loop is called catalog maintenance, and it continues as long as the satellite remains in orbit. Ideally, the process is automatic, with manual intervention only required when satellites maneuver or get near to reentry due to atmospheric drag.

Sometimes, however, more effort is required. For example, a sensor may encounter a satellite trajectory that does not correspond well to anything in the catalog. Such observations are known as partially correlated observations if they are somewhat close to a known orbit or uncorrelated observations (or uncorrelated tracks) if they are far from any known orbit. Also, if a satellite is not tracked for five days, it is placed on an attention list for manual intervention. In that case, an analyst will attempt to match the wayward satellite to one of these partially correlated or uncorrelated tracks. If that effort succeeds, then the element sets are updated, and the object is returned to automatic catalog maintenance. On the other hand, if the satellite cannot be matched to a partially correlated or uncorrelated track, the satellite information continues to age. If it reaches 30 days without a match, the satellite is placed on the lost list.

One of the most visible uses of the catalog is to warn about collision risks for active payloads. This function predicts potential close approaches three to five days in advance to allow time to plan avoidance maneuvers, if necessary. Unplanned maneuvers may disturb normal operations and deplete resources for future maneuvers, so one would like to have high confidence in the collision-risk predictions. The reliability of the predictions depends directly on the accuracy of the orbit calculation, which in turn depends on the quality and quantity of the tracking data, which is limited by the capability of the Space Surveillance Network. Simply put, there are not enough tracking resources in the network to achieve high-quality orbits for every object in the catalog. Furthermore, many smaller objects can only be tracked by the most sensitive radars, and this tracking is infrequent. Most objects in the catalog are considered debris, which can neither maneuver nor broadcast telemetry. On the other hand, some satellite operators depend exclusively on the satellite catalog to know where their satellites are, and users of the satellite orbital data depend on the catalog to know when the satellites will be within view.

This situation creates a challenging problem in balancing Space Surveillance Network resources to support the collision-warning task (tracking as many potential hazards as possible) while also providing highly accurate support to operational satellites (tracking the spacecraft as precisely as possible). The practical solution is to perform collision risk assessment using a large screening radius to ensure no close approaches are missed despite lower-quality predictions. Once an object is identified as having a potentially close approach, then the tasking level is raised, with the expectation that more tracking data will be obtained to refine the collision risk calculations. When the danger has passed, the object reverts to a normal tracking level.

Collisions and spontaneous breakups do happen. The first satellite breakup occurred on June 29, 1961, when residual fuel in an Ablestar rocket body exploded, creating 296 trackable pieces of debris. Since that time, there have been more than 200 satellite breakups, the most notable being the missile intercept of the Fengyun-1C satellite, which created more than 3300 trackable fragments. In most cases, these breakups are first detected by the phased-array radars in the Space Surveillance Network. When multiple objects are observed where only one was expected, the downstream sensors are alerted, but no tasking is issued because specific debris orbits are not yet established. Tracks are taken and tagged as uncorrelated. Analysts at JSpOC then attempt to link uncorrelated tracks from different sensors to form a candidate orbit. Subsequent tracking improves the orbit to the point that the object can be named and numbered and moved into the catalog for automatic maintenance.

#### 5] Lack of attribution means no retal

Schwarzer et al ’19 [Daniela, Eva-Marie McCormack, and Torben Schutz; Director, Editor, and Associate Fellow in the Security, Defense, and Armaments Program at the German Council of Foreign Relations; Deutsche Gesellschaft fur Auswartige Politik, “Technology and Strategy: The Changing Security Environment in Space Demands New Diplomatic and Military Answers,” [https://www.ssoar.info/ssoar/bitstream/handle/document/63288/ssoar-2019-schutz-Technology\_and\_Strategy\_the\_Changing.pdf](https://www.ssoar.info/ssoar/bitstream/handle/document/63288/ssoar-2019-schutz-Technology_and_Strategy_the_Changing.pdf?sequence=1&isAllowed=y&lnkname=ssoar-2019-schutz-Technology_and_Strategy_the_Changing.pdf);]

However, even a (misinterpreted) threat to space assets could start a chain reaction and quickly escalate an incident in space to a wider war. Successful deterrence, therefore, requires situational awareness, attribution capabilities and resilient assets. Especially the latter two are notoriously difficult to achieve in space. While it might be easy to attribute a kinetic attack executed with a missile, the same is not true for ASAT attacks by other satellites, and, especially, not for cyberattacks and electronic warfare measures. Without clear attribution, however, it is difficult to deter any adversary, since he could speculate that an attack cannot be traced back to him – making deterrence and retaliation more difficult. Although cross-domain deterrence, i.e. threatening an actor through potential retaliation attacks on or by other-than-space assets, is always possible, it also amplifies the problems involved in traditional deterrence: A response has to be timely and proportionate, and it should not further expand of the conflict.

### 1NC – Fracking

#### Satellite loss shuts down global fracking

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Energy, environment, farming, mining, land use. All of these areas and more are now inextricably linked to satellite data and would be devastated should that flow of data stop. Environmental Monitoring Oh how complacent we've become. We take for granted that we will have instant images from space showing a volcanic eruption somewhere in the South Pacific within hours of learning that it happened. When the BP oll spill happened in the Gulf of Mexico in 2010, satellite images were used in conjunction with aircraft and ships to monitor the extent and evolving nature of the spill (Figures 10.1 and 10.2). The data were also used to direct the ships that were attempting to clean up the spill, to warn fishermen of areas in which it would be dangerous to fish, and to generally monitor the extent of the disaster. This is the type of data we get from space in a field known as remote sensing. Remote sensing is, well, exactly what its name implies. With it, you gather data, or sense, usually in the form of electromagnetic radiation (light), remotely - that is, you are not physically touching what you are looking at. Satellite remote sensing began shortly after we began launching satellites and many industries are now totally dependent upon having the capability. We use satellites, like the venerable Landsat series, to study the Earth m unprecedented detail. Since 1972, Landsat satellites have taken millions of high resolution images of the Earth's surface, allowing comprehensive studies of how the land has changed due to human intervention (deforestation, agriculture, settlement, etc.) and natural processes (desertification, floods, etc.). The best way to understand how useful Landsat and similar data can be to governments at all levels is best illustrated by looking at 14then and now" photographs. For example, Africa's Lake Chad has been shrinking for 40 years, as the desert has encroached on this once plentiful inland freshwater lake. Forty years ago, there were about 15,000 square miles of water within the lake. Now, it is less than 500 square miles (Figure 10.3) [1]. And what is the practical side of this particular bit of information? Governments use this type of satellite imagery to avoid human tragedy. Hundreds of thousands of people, if not millions, depend upon the waters of Lake Chad for agriculture, industry, and personal hygiene. With the lake going dry, how has this impacted on their livelihoods, their families, and their very lives? The European Space Agency (ESA) is freely providing satellite data to developing countries as they search for new sources of drinking water. For example, ESA assessed data obtained from space over Nigeria to find over 90 new freshwater sources within that country. After ground teams visited the new sites, all were confirmed to contain fresh water. This was no accident. These were satellites with sensors developed for just such purposes in mind [2]. Desertification is but one example of changing climates affecting people's everyday lives. What about more direct observations of our impact on the planet? Figures 10.4 and 10.5 show the scarring of the Earth's surface as a result of surface mining in West Virginia. This is not a polemic against mining; rather, it is an observation that we can use satellite imagery to monitor such mining and be mindful of its impact on the environment. Other than taking pictures of surface features, like lakes and open pit mines, how are satellites monitoring the Earth's changing climate? In just about every way, by: monitoring global land, sea, and atmospheric temperatures; measuring yearly average rainfall amounts just about everywhere on the globe; measuring glaciation rates; measuring sea surface heights; and more. Remote sensing is more than taking pictures of the Earth in the visible part of the spectrum. We can learn a great deal from looking at part of the spectrum that our eyes cannot see - but our instruments can. Shown in Figure 10.6 is a composite image of the Earth's surface showing the average land-surface temperature at night. The data came from two NASA satellites, Terra and Aqua, as they orbit the Earth in a polar orbit. (This means that they circle the Earth from top to bottom, passing over both the North and South Poles with each complete orbit.) Terra's orbit is such that it passes from the north to the south across the equator in the morning; Aqua passes south to north over the equator in the afternoon. Taken together, they observe the Earth's surface in its entirety every two days. Data sets such as this exist for just about any day of the year and can show either night-time lows or daytime highs. By looking in different parts of the spectrum, like the infrared light discussed above, we can make observations as described in Table 10.1. Pollution Monitoring As emerging countries industrialize, they also become polluters. Many of these countries are not exactly forthright about releasing air-pollution details to the media, so much of our awareness of the rising pollution there is anecdotal - typically m the form of stories told by people who have visited these countries and seen the extreme pollution at first hand. This, by the way, is not exactly scientific. Using satellites, and not relying on either the governments in question or second-hand stories, we can accurately assess the pollution levels there and elsewhere. Using satellite images to measure the amount of light absorbed or blocked by fine particulates in the atmosphere, otherwise known as air pollution, you can determine not only what the airborne pollutant might be, but also its size. And, by looking at the overall light blockage, an accurate estimate of the amount of pollution in the air can also be made. Recent studies show that many of these countries are covered in a pollution cloud that countries in the developed world would deem extremely harmful. And how do we know this with scientific certainty? From satellite measurements. Energy Production The recent boom in the production of shale oil in the United States and elsewhere is due in large part to the identification and geolocation of promising geologic formations for test drilling and fracking. "Fracking" is a somewhat new term that comes from the phrase "hydraulic fracturing". In fracking, massive amounts of previously unusable reservoirs of oil and natural gas are released for capture, sale, and transport from deposits deep within the Earth - many located at least a mile below the surface. In the United States alone, there may be as much as 750 trillion cubic feet of natural gas within shale deposits releasable by fracking [3]. How do energy companies know where to look for these deposits? In large part, by analyzing satellite imagery. According to Science Daily (26 February 2009), a new map of the Earth's gravitational field based on satellite measurements makes it much less resource intensive to find new oil deposits. The map will be particularly useful as the ice melts in the oil-rich Arctic regions. The easy-to-find oilfields have already been found. To fuel the growing world economy, those harder-to-find deposits must be located and tapped - which is why satellite imagery is so important. Take away this and other satellite-dependent techniques of oil and gas exploration and the world economy will feel the impact through higher oil and natural gas prices.

#### Fracking makes extinction inevitable.

Rev. Mac Legerton 18, Co-Founder and Executive Director of the Center for Community Action, Member of the Board of Directors of the NC Climate Solutions Coalition, Member of the Board of Directors of the Windcall Institute, “Will The U.S. Blaze A Trail To Mass Extinction?”, APPPL News, 1/15/2018, https://www.apppl.org/news/will-the-u-s-blaze-a-trail-to-mass-extinction/

As an elder, I now realize that there is even a greater threat to humanity and life on Earth than nuclear war—though, unlike a nuclear exchange, this threat is a slow-motion catastrophe. Can you guess what it is? Here’s a clue: it is something with which most people don’t have a personal relationship. Tragically, some persons remain in total denial of its validity, much less its present danger. And that’s the problem – that’s why this threat needs to be more seriously addressed on the local, state, national, and international level. What is it? It’s the slow-motion but rapidly growing catastrophe of climate change. There’s now good news amidst this seemingly overwhelming challenge. But the answer may surprise you. Today we know what is the #1 preventable cause of climate change. It’s not coal, it’s not nuclear, and it’s not oil and gasoline. It’s actually the use of the very fuel that is touted as being cleaner, greener, and cheaper than all the rest. This fuel is called “Natural Gas”. Let’s start with its name – “Natural Gas”. What is “natural gas”? There’s actually nothing “natural” about it when it is forcibly extracted from the ground through hydraulic fracturing, commonly known as “fracking”. When something is forcibly ruptured from deep within the earth with the use of toxic chemicals, the last name you would use for it is “natural”. Fracking disrupts the geologic fault lines causing earthquakes, uses millions of gallons of fresh water that becomes permanently poisoned by unknown, cancer-producing chemicals added to it, creates air pollution during the drilling process, increases the risk of injury and explosions, raises major health risks to both people and place in close proximity to it, and changes the nature of both neighborhoods and landscapes. Fracking also leaves a massive carbon footprint of drilling wells as deep as 8,000 feet and then drilling horizontally over 10,000 feet; On top of all this, it leaks major amounts of gas into the environment. So, what is this gas? It is 90-95% methane gas which is a hydrocarbon compound made up of one carbon atom and four hydrogen atoms (CH4). It releases carbon into the atmosphere and produces carbon dioxide (C02) just like coal does when it is burned. Methane is not its trace element–it is its undisputed compound of this fossil fuel product. If a compound is 90-95% of a product, it makes sense to call it by that name. Doesn’t it? Well, actually not if you want people to believe and think that it is something that it is not. It is un-natural methane gas produced under massive and highly toxic pressure and hazardous conditions. Now that we know what this gas is, what does it do to the atmosphere and climate that is so dangerous? This hydrocarbon has properties that block the radiation of heat from Earth’s surface 100 times more effectively than CO2 (released from burning coal) during its first 10 years of release and 86 times more effectively in its first 20 years. Because of the climate emergency underway, the first 10 or 20 years matter most. When utility companies and the larger fossil fuel companies state that they are committed to lowering carbon emissions, this just isn’t true. They are radically escalating the most dangerous and worst of all fossil fuels in relation to its impact on the climate. Now the industry wants to expand production of methane gas all over the world by calling it “the most environmentally friendly fossil fuel”and a “bridge fuel” that we can safely use until we transition to 100% renewable energy sources. Why would a major business industry want to call its product by another name? Perhaps for the same reason that the tobacco industry did not like the term “coffin nails” or “cancer sticks” for cigarettes. Honestly, there’s a striking similarity between what are called cigarettes and natural gas. When both were produced and named, their harm was not fully known. Once the industries promoting them learned of their significant harm, they did everything they could to hide this knowledge from the public. They even hired scientists to deny their dangers. The tobacco industry was eventually sued, the truth was acknowledged, and billions of dollars were paid out in the tobacco settlement. This same scenario that occurred with the tobacco industry needs to occur with methane gas and the fossil fuel industry. The major difference in these two scenarios is that that this fossil fuel product doesn’t just threaten the lives of individuals who voluntarily breathe it in – it threatens the lives of not only every human being, but also all life on the planet. The outcome of this scenario needs to be a moratorium and eventual end to all use of methane gas as an energy source. For the sake of all of us, our communities, and world, the sooner the better. This abomination is different. There is no time to waste.

### 1NC – Drones

#### Loss of satellites shuts down drones

Daniel Ventre 11, Engineer for CNRS and Researcher for CESDIP, Cyberwar and Information Warfare, p. 198-199

The introduction of cyberspace operations is part of a specific context; a major evolution in the operation environment and the nature of the conflicts, which make irregular wars the rule, and make regular actors the exception to the rule. But the battle against unconventional, non-state governed, irregular actors raises specific problems: there are multiple actors, unpredictable at that, who do not abide by the same rules. New orders in conflicts are imposing the implementation of an ever more important need for information, and information collection and processing. Networks now have an incredible importance. The document refers to the growing threats against American heritage: the USA is a target and the increasing amount of attacks against their networks is indeed the proof of this. There are many obstacles which need to be removed before they can achieve real superiority and freedom to act, especially as vulnerable points may originate within the very operations of the armed forces. An example of this is the vulnerability of using products (software and hardware), commercial products (off-the-shelf), and sometimes even foreign products123. This brings to mind the fact that the US Air Force uses commercial, even foreign, applications for its cyberspace operations.

Information space extends to space124, particularly via communication and observation satellites125. Satellites are the keystone to the cyberspace and communication systems, but also the security system: monitoring (Echelon network is the symbol), observation, communication. These are at the heart of the C4ISR systems, without which a concept such as network-centric warfare could not exist. There would be no drones without satellites. It is even a question of extending the Internet to extra-atmospheric space. Projects in this vein (Interplanetary Networks) were being formed in the 1990s, but ran into several technical difficulties (delays in important transmissions due to high distances and costs) [GEL 06]. NASA dedicates a few pages on its website to this project126. The development of communication systems based on the infrastructures in extra-atmospheric space will also raise questions for legal, geopolitical and geostrategic domains: questions of seizing this space, questions of regulation of human activity in this space, of sovereignty, new territoriality and independence.

#### Drones escalate every hotspot.

Zenko and Kreps 14 Micah - Douglas Dillon fellow in the Center for Preventive Action at the Council on Foreign Relations, PhD in political science from Brandeis University; \*Sarah - Stanton nuclear security fellow at the Council on Foreign Relations, assistant professor in the department of government and an adjunct professor at Cornell Law School, BA from Harvard University, MSc from Oxford University, and PhD from Georgetown University; “Limiting Armed Drone Proliferation," Council on Foreign Relations, June 2014, http://aspheramedia.com/wp-content/uploads/2014/12/Limiting\_Armed\_Drone\_Proliferation\_CSR69.pdf

The inherent advantages of drones will not alone make traditional interstate warfare more likely—such conflicts are relatively rare anyway, with only one active interstate conflict in both 2012 and 2013.20 Nor will the probable type, quantity, range, and lethality of armed drones that states possess in coming decades make a government more likely to attempt to defeat an opposing army, capture or control foreign territory, or remove a foreign leader from power. However, misperceptions over the use of armed drones increase the likelihood of militarized disputes with U.S. allies, as well as U.S. military forces, which could lead to an escalating crisis and deeper U.S. involvement. Though surveillance drones can be used to provide greater stability between countries by monitoring ceasefires or disputed borders, armed drones will have destabilizing consequences. Arming a drone, whether by design or by simply putting a crude payload on an unarmed drone, makes it a weapon, and thereby a direct national security threat for any state whose border it breaches. Increased Frequency of Interstate and Intrastate Force For the United States, drones have significantly reduced the political, diplomatic, and military risks and costs associated with the use of military force, which has led to a vast expansion of lethal operations that would not have been attempted with other weapons platforms. Aside from airstrikes in traditional conflicts such as Libya, Iraq, and Afghanistan—where one-quarter of all International Security Assistance Force (ISAF) airstrikes in 2012 were conducted by drones—the United States has conducted hundreds in non-battlefield settings: Pakistan (approximately 369), Yemen (approximately 87), Somalia (an estimated 16), and the Philippines (at least 1, in 2006).21 Of the estimated 473 non-battlefield targeted killings undertaken by the United States since November 2002, approximately 98 percent were carried out by drones. Moreover, despite maintaining a “strong preference” for capturing over killing suspected terrorists since September 2011, there have been only 3 known capture attempts, compared with 194 drone strikes that have killed an estimated 1,014 people, 86 of whom were civilians.22 Senior U.S. civilian and military officials, whose careers span the pre– and post–armed drone era, overwhelmingly agree that the threshold for the authorization of force by civilian officials has been significantly reduced. Former secretary of defense Robert Gates asserted in October 2013, for example, that armed drones allow decision-makers to see war as a “bloodless, painless, and odorless” affair, with technology detaching leaders from the “inevitably tragic, inefficient, and uncertain” consequences of war.23 President Barack Obama admitted in May 2013 that the United States has come to see armed drones “as a cure-all for terrorism,” because they are low risk and instrumental in “shielding the government” from criticisms “that a troop deployment invites.”24 Such admissions from leaders of a democratic country with a system of checks and balances point to the temptations that leaders with fewer institutional checks will face. President Obama and his senior aides have stated that the United States is setting precedents with drones that other states may emulate.25 If U.S. experience and Obama’s cautionary words are any guide, states that acquire armed drones will be more willing to threaten or use force in ways they might not otherwise, within both interstate and intrastate contexts. States might undertake cross-border, interstate actions less discriminately, especially in areas prone to tension. As is apparent in the East and South China Seas, nationalist sentiments and the discovery of untapped, valuable national resources can make disputes between countries more likely. In such contested areas, drones will enable governments to undertake strike missions or probe the responses of an adversary—actions they would be less inclined to take with manned platforms. According to the Central Intelligence Agency (CIA), there are approximately 430 bilateral maritime boundaries, most of which are not defined by formal agreements between the affected states.26 Beyond the cases of East Asia, other cross-border flashpoints for conflict where the low-risk proposition of drone strikes would be tempting include Russia in Georgia or Ukraine, Turkey in Syria, Sudan within its borders, and China on its western periphery. In 2013, a Chinese counternarcotics official revealed that his bureau had considered attempting to kill a drug kingpin named Naw Kham, who was hiding in a remote region in northeastern Myanmar, by using a drone carrying twenty kilograms of dynamite. “The plan was rejected, because the order was to catch him alive,” the official recalled.27 With armed drones, China might make the same calculation that the United States has made—that killing is more straightforward than capturing—in choosing to target ostensibly high-threat individuals with drone strikes. China’s demonstrated willingness to employ armed drones against terrorists or criminals outside its borders could directly threaten U.S. allies in the region, particularly if the criterion China uses to define a terrorist does not align with that of the United States or its allies. Domestically, governments may use armed drones to target their perceived internal enemies. Most emerging drone powers have experienced recent domestic unrest. Turkey, Russia, Pakistan, and China all have separatist or significant opposition movements (e.g., Kurds, Chechens, the Taliban, Tibetans, and Uighurs) that presented political and military challenges to their rule in recent history. These states already designate individuals from these groups as “terrorists,” and reserve the right to use force against them. States possessing the lower risk—compared with other weapons platforms—capability of armed drones could use them more frequently in the service of domestic pacification, especially against time-sensitive targets that reside in mountainous, jungle, or other inhospitable terrain. Compared with typical methods used by military and police forces to counter insurgencies, criminals, or terrorists—such as ground troops and manned aircraft— unmanned drones provide significantly greater real-time intelligence through their persistent loiter time and responsiveness to striking an identified target. Increased Risk of Misperception and Escalation Pushing limits in already unstable regions is complicated by questions raised regarding rules of engagement: how would states respond to an armed drone in what they contend is their sovereign airspace, and how would opposing sides respond to counter-drone tactics? Japanese defense officials claim that shooting down Chinese drones in what Japan contends is its airspace is more likely to occur than downing manned aircraft because drones are not as responsive to radio or pilot warnings, thereby raising the possibility of an escalatory response.28 Alternatively, Japan might misidentify a Chinese manned fighter as an advanced drone and fire on it, especially if the aircraft’s radar signature is not sufficiently distinctive or if combat drones routinely fly over the disputed area. Thus, the additional risks associated with drone strikes, combined with the lack of clarity on how two countries would react to an attempted downing of a drone, create the potential for miscalculation and subsequent escalation. As U.S. Air Force commanders in South Korea noted, a North Korean drone equipped with chemical agents would not have to kill many or even any people on the peninsula to terrorize the population and escalate tensions.29 This scenario points to the spiraling escalatory dynamic that could be repeated—likely intensified in the context of armed drones—in other tension-prone areas, such as the Middle East, South Asia, and Central and East Africa, where the mix of low-risk and ambiguous rules of engagement is a recipe for escalation. Not all of these contingencies directly affect U.S. interests, but they would affect treaty allies whose security the United States has an interest in maintaining. Compared with other weapons platforms, current practice repeatedly demonstrates that drones make militarized disputes more likely due to a decreased threshold for the use of force and an increased risk of miscalculation. Increased Risk of Lethality The proliferation of armed drones will increase the likelihood of destabilizing or devastating one-off, high-consequence attacks. In March 2013, Senator Dianne Feinstein (D-CA) observed of drones: “In some respects it’s a perfect assassination weapon. . . . Now we have a problem. There are all these nations that want to buy these armed drones. I’m strongly opposed to that.”30 The worst-case contingency for the use of armed drones, albeit an unlikely circumstance, would be to deliver weapons of mass destruction. Drones are, in many ways, the perfect vehicle for delivering biological and chemical agents.31 A WMD attack, or even the assassination of a political leader, another troubling though unlikely circumstance, would have tremendous consequences for regional and international stability. Deterring such drone-based attacks will depend on the ability of the United States and other governments to accurately detect and attribute them. Technical experts and intelligence analysts disagree about the extent to which this will be possible, but the difficulties lie in the challenges of detecting drones (they emit small radar, thermal, and electron signatures, and can fly low), determining who controlled it (they can be programmed to fly to a preset GPS coordinate), or assigning ownership to a downed system (they can be composed of commercial, off-the-shelf components).32 It is equally noteworthy that civilian officials or military commanders have almost always used armed drones in ways beyond their initially intended applications. Drones do not simply fulfill existing mission requirements; they create new and unforeseen ones, and will continue to do so in the future. Furthermore, U.S. officials would be misguided to view future uses of armed drones solely through the prism of how the United States has used them—for discrete military operations in relatively benign air-defense environments. The potential for misperception is compounded by the fact that few governments seeking or acquiring armed drones have publicly articulated any strategy for how they will likely use them. Conversely, the uncertainty about how other countries will use drones provides the United States with an opportunity to shape drone doctrines, especially for U.S. allies interested in procuring drones from U.S. manufacturers.