## 1AC -Palm Classic

governments must make choices under degrees of uncertainty, they must act according to utilitarianism.

**Goodin 95** [Robert E. Utilitarianism as a public philosophy. Cambridge University Press, 1995.]

My larger argument turns on the proposition that there is something special about the situation of public officials that makes utilitarianism more probable for them than private individuals. Before proceeding with the large argument, I must therefore say what it is that makes it so special about public officials and their situations that make it both more necessary and more desirable for them to adopt a more credible form of utilitarianism. Consider, first, the argument from necessity. **Public officials** are obliged to **make** their **choices under uncertainty**, and uncertainty **of a** very **special sort** at that. All choices – public and private alike – are made under some degree of uncertainty, of course. But in the nature of things, **private individuals** will usually **have more** complete **information on** the peculiarities of their own circumstances and on **the ramifications** that alternative possible **choices might have** for them. **Public officials**, in contrast, are relatively poorly informed as to the effects that their choices will have on individuals, one by one. What they typically do **know** are generalities: **averages and aggregates. They know what will happen most often to most people** as a result of their various possible choices, but that is all. **That** is enough to **allow** public **policy-makers to use** the **util**itarian **calculus** – assuming they want to.

### Mining---1AC

#### Private entities are increasing mining now – US is key

Robert Garcia 18, currently an LLM Candidate in Cornell Law School's Law, Entrepreneurship & Technology program at Cornell Tech in NYC., “Regulating International Space Mining, an Enormous Industry,” Pacific Council on International Policy, 10-23-2018, https://www.pacificcouncil.org/newsroom/regulating-international-space-mining-enormous-industry

In 2015, the United States passed the U.S. Commercial Space Launch Competitiveness Act. The law’s passage has caused some consternation in the international space exploration community, as it specifically contemplates U.S. citizens performing commercial recovery in what would be a clear appropriation of asteroid and space resources. The law in pertinent part states that such U.S. citizens: shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States (emphasis added). Luxembourg was quick to follow suit, and it passed its own national space mining law styled the Law of 20 July 2017 on the Exploration and Use of Space Resources. This law seeks to parallel U.S. law. However, according to a spokesman for the Luxembourg Ministry of Economy, there is one significant expansion over U.S. law, in that "in the U.S. law, a majority of a company's stakeholders must be in the United States, while the Luxembourg law places no restrictions on stakeholder locations." Critics state that the controlling international law is to be found in the United Nations treaties on space exploration. There are five major space treaties, but two specifically address exploitation of outer space resources. The first is the "Outer Space Treaty" (OST). One hundred nations, including the major spacefaring nations-the United States, China, Japan, and the Russian Federation-have ratified it. A subsequent treaty-the Moon Agreement-provides in a relevant part in Article 11, Paragraph 2, that "[t]he moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means." As of January 2018, relatively few states (18 total) had ratified the Moon Agreement and four additional states had signed but not ratified the agreement. However, of these 22 states, perhaps only Australia, France, and India have the capability to launch space vehicles. The Moon Agreement could have provided some guidance on exploitation of space resources, as it ostensibly prohibits claiming lunar natural resources for private ownership. However, the United States and Luxembourg are not parties to the Moon Agreement, and in consequence the treaty has no "governing effect." Nonetheless, some legal scholars contend that the United States would be in breach of its international obligations if it were to "unilaterally pretend" that its citizens may exercise ownership over extracted space resources, given the absence of recognition of such rights under international law. Clearly it is the stated aim of both the United States and Luxembourg to promote the commercial exploitation of space resources. The two nations’ respective pieces of legislation attempt to provide a legal basis for private citizens to engage in such activities, which some critics would characterize as prohibited "appropriation" under international law. The international community would be well-served by resolving the issue conclusively with an appropriate body of rules. As the technologies advance, we are inexorably headed toward space mining becoming a reality. Whether it will lead to increased resources, providing a net benefit for all people on earth, or serve to increase economic inequality by disproportionately favoring the spacefaring nations remains to be seen.

#### It causes dangerous space mining and deregulation globally

Edd Gent 20, freelance science and technology writer, “Space Mining Should Be a Global Project—But It's Not Starting Off That Way,” Singularity Hub, 10-12-2020, https://singularityhub.com/2020/10/12/the-us-is-trying-to-hijack-space-mining-and-there-could-be-disastrous-consequences/

Exploiting the resources of outer space might be key to the future expansion of the human species. But researchers argue that the US is trying to skew the game in its favor, with potentially disastrous consequences. The enormous cost of lifting material into space means that any serious effort to colonize the solar system will require us to rely on resources beyond our atmosphere. Water will be the new gold thanks to its crucial role in sustaining life, as well as the fact it can be split into hydrogen fuel and oxygen for breathing. Regolith found on the surface of rocky bodies like the moon and Mars will be a crucial building material, while some companies think it will eventually be profitable to extract precious metals and rare earth elements from asteroids and return them to Earth. But so far, there’s little in the way of regulation designed to govern how these activities should be managed. Now two Canadian researchers argue in a paper in Science that recent policy moves by the US are part of a concerted effort to refocus international space cooperation towards short-term commercial interests, which could precipitate a “race to the bottom” that sabotages efforts to safely manage the development of space. Aaron Boley and Michael Byers at the University of British Columbia trace back the start of this push to the 2015 Commercial Space Launch Competitiveness Act, which gave US citizens and companies the right to own and sell space resources under US law. In April this year, President Trump doubled down with an executive order affirming the right to commercial space mining and explicitly rejecting the idea that space is a “global commons,” flying in the face of established international norms. Since then, NASA has announced that any countries wishing to partner on its forthcoming Artemis missions designed to establish a permanent human presence on the moon will have to sign bilateral agreements known as Artemis Accords. These agreements will enshrine the idea that commercial space mining will be governed by national laws rather than international ones, the authors write, and that companies can declare “safety zones” around their operations to exclude others. Speaking to Space.com Mike Gold, the acting associate administrator for NASA’s Office of International and Interagency Relations, disputes the authors’ characterization of the accords and says they are based on the internationally-recognized Outer Space Treaty. He says they don’t include agreement on national regulation of mining or companies’ rights to establish safety zones, though they do assert the right to extract and use space resources. But given that they’ve yet to be released or even finalized, it’s not clear how far these rights extend or how they are enshrined in the agreements. And the authors point out that the fact that they are being negotiated bilaterally means the US will be able to use its dominant position to push its interpretation of international law and its overtly commercial goals for space development. Space policy designed around the exploitation of resources holds many dangers, say the paper authors. For a start, loosely-regulated space mining could result in the destruction of deposits that could hold invaluable scientific information. It could also kick up dangerous amounts of lunar dust that can cause serious damage to space vehicles, increase the amount of space debris, or in a worst-case scenario, create meteorites that could threaten satellites or even impact Earth. By eschewing a multilateral approach to setting space policy, the US also opens the door to a free-for-all where every country makes up its own rules. Russia is highly critical of the Artemis Accords process and China appears to be frozen out of it, suggesting that two major space powers will not be bound by the new rules. That potentially sets the scene for a race to the bottom, where countries compete to set the laxest rules for space mining to attract investment. The authors call on other nations to speak up and attempt to set rules through the UN Committee on the Peaceful Uses of Outer Space. Writing in The Conversation, Scott Shackelford from Indiana University suggests a good model could be the 1959 Antarctic Treaty, which froze territorial claims and reserved the continent for “peaceful purposes” and “scientific investigation.” But the momentum behind the US’ push might be difficult to overcome. Last month, the agency announced it would pay companies to excavate small amounts of regolith on the moon. Boley and Byers admit that if this went ahead and was not protested by other nations, it could set a precedent in international law that would be hard to overcome. For better or worse, it seems that US dominance in space exploration means it’s in the driver’s seat when it comes to setting the rules. As they say, to the victor go the spoils.

#### Dangerous mining greatly increases the risk of space debris.

Sarah Scoles 15, “Dust from asteroid mining spells danger for satellites,” New Scientist, 5-27-2015, https://www.newscientist.com/article/mg22630235-100-dust-from-asteroid-mining-spells-danger-for-satellites/

But an asteroid’s gravity is so weak that it’s not hard for surface particles to escape into space. Now a new model warns that debris shed by such transplanted rocks could intrude where many defence and communication satellites live – in geosynchronous orbit. According to Casey Handmer of the California Institute of Technology in Pasadena and Javier Roa of the Technical University of Madrid in Spain, 5 per cent of the escaped debris will end up in regions traversed by satellites. Over 10 years, it would cross geosynchronous orbit 63 times on average. A satellite in the wrong spot at the wrong time will suffer a damaging high-speed collision with that dust. The study also looks at the “catastrophic disruption” of an asteroid 5 metres across or bigger. Its total break-up into a pile of rubble would increase the risk to satellites by more than 30 per cent (arxiv.org/abs/1505.03800). That may not have immediate consequences. But as Earth orbits get more crowded with spent rocket stages and satellites, we will have to worry about cascades of collisions like the one depicted in the movie Gravity. Handmer and Roa want to point out the problem now so that we can find a solution before any satellites get dinged. “It is possible to quantify and manage the risk,” says Handmer. “A few basic precautions will prevent harm due to stray asteroid material.”

#### Clustering makes the risk of collisions uniquely high and the risk is understated

Dr. Darren McKnight 17, Ph.D., Technical Director for Integrity Applications, Previously Senior Vice President and Director of Science and Technology Strategy at Science Applications International Corporation, “Proposed Series of Orbital Debris Remediation Activities,” 3rd International Conference and Exhibition on Satellite & Space Missions, 5/13/2017, https://iaaweb.org/iaa/Scientific%20Activity/debrisminutes03166.pdf [graphics omitted]

Secondly, while protecting operational satellites from the trackable population via collision warnings provides a quantifiable risk mitigation mission, the primary threat to operational spacecraft comes from the lethal nontrackable (LNT) environment that will produce the vast majority of the anomalies and failures examined by the activity just outlined. LNT debris ranges from about 5mm to 10cm; these are fragments that are large enough to disrupt and terminate a satellite’s mission upon impact but are too small to be cataloged. There is an estimated 500,000-700,000 LNT in LEO currently. Therefore, the cataloged population (~18,000 in LEO) that is evaded through active maneuvering is less than 5% of the lethal population. In the future, this population will be added to primarily from collisions between large objects in orbit as the number of LNT produced is proportional to the mass involved in a collision (or explosion).2 Cataloged debris produced from a catastrophic collision will be liberated at about 1-3 fragments per kilogram of mass involved while LNT production is around 10-40 fragments per kilogram of mass involved. The Iridium/Cosmos collision involved a total mass of 2,000kg and produced over 3,000 trackable fragments and likely 10,000-15,0003 LNT debris. The Feng-Yun purposeful collision yielded over 2,200 trackable fragments and likely over 30,000 LNT from only ~850kg of mass involved. While it is important to prevent these types of events from occurring in the future, the consequence of a collision (based on number of LNT produced) will be proportional to the mass involved in the collision. The term “mass involved” implies a good coupling of the impactor mass with the target mass. For a large fragment (e.g., several kilograms) striking a typical payload (that is densely built) in its main satellite body (vice striking a solar array or other appendage) at hypervelocity speeds (i.e., above 6km/s) will result in all the mass being “involved” in the debris. However, a large fragment striking a derelict rocket body, due to the way that the mass is concentrated at the ends of a rocket body, will likely not result in all of the mass being “involved” in the liberated debris. However, it is likely that when two large derelicts, either rocket bodies or payloads, collide with each other, then all of the mass will be involved due to the likely direct physical interaction between the mass. The table below summarizes the mass involvement scenarios which highlight why the massive-on-massive collisions are the focus of our analyses. Therefore, it is best to prevent the collision of the most massive objects with each other (higher consequence) and the ones that are the most likely (higher probability) since risk is probability multiplied by consequence. Our ability to model and predict the rate of collisions is based empirically upon only one catastrophic accidental collision event and a model developed on the kinetic theory of gases (KTG). However, clusters of massive objects that have identical inclinations plus similar and overlapping apogees/perigees may indeed have a greater probability of collision than predicted by the KTG-based algorithms as they are not randomly distributed and their orbital element evolution (e.g., change in right ascension of ascending node and argument of perigee) is also similar. It is hypothesized that these similarities could result in resonances of collision dynamics that may lead to larger probability of collision values than predicted with current algorithms. The not well-known fact is that many of the most massive objects are in tightly clumped clusters that will likely produce greater probability of collision than estimated by the KTG approach (see attached paper) and with the much larger consequence (i.e., creation of catalogued LNT fragments). The attached paper that studied this possibility shows some initial indications that this may indeed be true but much more analysis is needed to provide this conclusively. This table of clusters represents well over 50% of the total derelict mass in LEO. However, no one is currently monitoring these potential events. It is proposed that it would be a prudent risk management approach for space flight safety to monitor and characterize this inter-cluster collision risk. The Massive Collision Monitoring Activity (MCMA) is proposed whereby the encounters between members of these clusters are constantly monitored and close encounter information collected, plotted, analyzed, and shared. This would provide a rich research base for scientists and a predictive service for spacefaring countries. I am currently executing a subset of this proposed activity in an ad hoc fashion in conjunction with JSpOC. I have been monitoring the interaction dynamics between the SL-16 population in the 820- 865km altitude region for the

#### Debris cascades cause global nuke war

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Whatever the initial cause, the result may be the same. A satellite destroyed in orbit will break apart into thousands of pieces, each traveling at over 8 km/sec. This virtual shotgun blast, with pellets traveling 20 times faster than a bullet, will quickly spread out, with each pellet now following its own orbit around the Earth. With over 300,000 other pieces of junk already there, the tipping point is crossed and a runaway series of collisions begins. A few orbits later, two of the new debris pieces strike other satellites, causing them to explode into thousands more pieces of debris. The rate of collisions increases, now with more spacecraft being destroyed. Called the "Kessler Effect", after the NASA scientist who first warned of its dangers, these debris objects, now numbering in the millions, cascade around the Earth, destroying every satellite in low Earth orbit. Without an atmosphere to slow them down, thus allowing debris pieces to bum up, most debris (perhaps numbering in the millions) will remain in space for hundreds or thousands of years. Any new satellite will be threatened by destruction as soon as it enters space, effectively rendering many Earth orbits unusable. But what about us on the ground? How will this affect us? Imagine a world that suddenly loses all of its space technology. If you are like most people, then you would probably have a few fleeting thoughts about the Apollo-era missions to the Moon, perhaps a vision of the Space Shuttle launching astronauts into space for a visit to the International Space Station (ISS), or you might fondly recall the "wow" images taken by the orbiting Hubble Space Telescope. In short, you would know that things important to science would be lost, but you would likely not assume that their loss would have any impact on your daily life. Now imagine a world that suddenly loses network and cable television, accurate weather forecasts, Global Positioning System (GPS) navigation, some cellular phone networks, on-time delivery of food and medical supplies via truck and train to stores and hospitals in virtually every community in America, as well as science useful in monitoring such things as climate change and agricultural sustainability. Add to this the [destruction] ~~crippling~~ of the US military who now depend upon spy satellites, space-based communications systems, and GPS to know where their troops and supplies are located at all times and anywhere in the world. The result is a nightmarish world, one step away from nuclear war, economic disaster, and potential mass starvation. This is the world in which we are now perilously close to living. Space satellites now touch our lives in many ways. And, unfortunately, these satellites are extremely vulnerable to risks arising from a half-century of carelessness regarding protecting the space environment around the Earth as well as from potential adversaries such as China, North Korea, and Iran. No government policy has put us at risk. It has not been the result of a conspiracy. No, we are dependent upon them simply because they offer capabilities that are simply unavailable any other way. Individuals, corporations, and governments found ways to use the unique environment of space to provide services, make money, and better defend the country. In fact, only a few space visionaries and futurists could have foreseen where the advent of rocketry and space technology would take us a mere 50 years since those first satellites orbited the Earth. It was the slow progression of capability followed by dependence that puts us at risk. The exploration and use of space began in 1957 with the launch of Sputnik 1 by the Soviet Union. The United States soon followed with Explorer 1. Since then, the nations of the world have launched over 8,000 spacecraft. Of these, several hundred are still providing information and services to the global economy and the world's governments. Over time, nations, corporations, and individuals have grown accustomed to the services these spacecraft provide and many are dependent upon them. Commercial aviation, shipping, emergency services, vehicle fleet tracking, financial transactions, and agriculture are areas of the economy that are increasingly reliant on space. Telestar 1, launched into space in the year of my birth, 1962, relayed the world's first live transatlantic news feed and showed that space satellites can be used to relay television signals, telephone calls, and data. The modern telecommunications age was born. We've come a long way since Telstar; most television networks now distribute most, if not ali, of their programming via satellite. Cable television signals are received by local providers from satellite relays before being sent to our homes and businesses using cables. With 65% of US households relying on cable television and a growing percentage using satellite dishes to receive signals from direct-to-home satellite television providers, a large number of people would be cut off from vital information in an emergency should these satellites be destroyed. And communications satellites relay more than television signals. They serve as hosts to corporate video conferences and convey business, banking, and other commercial information to and from all areas of the planet. The first successful weather satellite was TIROS. Launched in 1960, TIROS operated for only 78 days but it served as the precursor for today's much more long-lived weather satellites, which provide continuous monitoring of weather conditions around the world. Without them, providing accurate weather forecasts for virtually any place on the globe more than a day in advance would be nearly impossible. Figure !.1 shows a satellite image of Hurricane Ivan approaching the Alabama Gulf coast in 2004. Without this type of information, evacuation warnings would have to be given more generally, resulting in needless evacuations and lost economic activity (from areas that avoid landfall) and potentially increasing loss of life in areas that may be unexpectedly hit. The formerly top-secret Corona spy satellites began operation in 1959 and provided critical information about the Soviet Union's military and industrial capabilities to a nervous West in a time of unprecedented paranoia and nuclear risk. With these satellites, US military planners were able to understand and assess the real military threat posed by the Soviet Union. They used information provided by spy satellites to help avert potential military confrontations on numerous occasions. Conversely, the Soviet Union's spy satellites were able to observe the United States and its allies, with similar results. It is nearly impossible to move an army and hide it from multiple eyes in the sky. Satellite information is critical to all aspects of US intelligence and military planning. Spy satellites are used to monitor compliance with international arms treaties and to assess the military activities of countries such as China, Russia, Iran, and North Korea. Figure 1.2 shows the capability of modem unclassified space-based imaging. The capability of the classified systems is presumed to be significantly better, providing much more detail. Losing these satellites would place global militaries on high alert and have them operating, literally, in the blind. Our military would suddenly become vulnerable in other areas as well. GPS, a network of 24-32 satellites in medium-Earth orbit, was developed to provide precise position information to the military, and it is now in common use by individuals and industry. The network, which became fully operational in 1993, allows our armed forces to know their exact locations anywhere in the world. It is used to guide bombs to their targets with unprecedented accuracy, requiring that only one bomb be used to destroy a target that would have previously required perhaps hundreds of bombs to destroy in the pre-GPS world (which, incidentally, has resulted in us reducing our stockpile of non-GPS-guided munitions dramatically). It allows soldiers to navigate in the dark or in adverse weather or sandstorms. Without GPS, our military advantage over potential adversaries would be dramatically reduced or eliminated.

#### Satellite destruction causes econ crash: GPS is the lynchpin of the US economy

Paul Tullis 18, contributing writer for The New York Times, July 25th, 2018, “The World Economy Runs on GPS. It Needs a Backup Plan,” https://www.bloomberg.com/news/features/2018-07-25/the-world-economy-runs-on-gps-it-needs-a-backup-plan

It’s tough to overstate how GPS-dependent the world economy has become since the U.S. Department of Defense started giving the service away to the public in 2000. There are 2 billion GPS receivers in use around the world, a number that Europe’s satellite navigation agency estimates will hit 7 billion by 2022. Along with the telecommunications industry, banks, airlines, electric utilities, cloud computing businesses, and TV broadcasters require constantly precise GPS timing. Emergency services do, too, as do military forces. The U.S. Department of Homeland Security has designated 16 sectors of infrastructure as “critical,” and 14 of them depend on GPS. Most critical services, and financial markets, have backups—their own atomic clocks, perhaps, or connections to slightly less precise tools. But some of those backups depend on GPS timing, and might last only a few minutes. “GPS is the single point of failure for the entire modern economy,” says Representative John Garamendi, a California Democrat who’s been warning about the hazards for years as a member of the House committees on armed services and on transportation and infrastructure. “No cellphone, no ATM machine will work.” The 11-hour run of intermittent chaos that ruined Buckner’s breakfast was just a hint of what’s possible. That was an innocent mistake, after all, not a concerted attack on the GPS network. Yet U.S. politicians have done little to safeguard the system since then.

#### Economic crisis guarantees *global conflict*

William Pesek 18, former columnist for Barron’s and Bloomberg, quoting former Treasury Secretary Lawrence Summers and Eurasia Group President Ian Bremmer, 1/12/18, “Why a 2018 crisis would be particularly devastating,” http://www.livemint.com/Opinion/iLkHAL2cCCxfOqYvRzFAsL/Why-a-2018-crisis-would-be-particularly-devastating.html

Twenty years ago, Lawrence Summers came up with a particularly graphic analogy for market crises: airplane crashes. ¶ Jets, the former US treasury secretary explained, make travel faster, more efficient and safer, although the odd accident is far more stunning and deadly than one that befalls other forms of transport. “In the same way,” Summers said, “modern global financial markets carry with them enormous potential for benefit, even if some of the accidents are that much more spectacular.” ¶ This comparison leaps to mind as Summers sounds the alarm about 2018. Summers’s core policy belief is this: even when the periphery of the global economy (emerging markets) plunges, the centre (developed ones) is solid enough to hold capitalism together. Increasingly, Summers believes that centre might crack in the event of new turmoil—even within the 12 months ahead. ¶ Stock markets, as Summers points out in recent speeches and op-eds, are going gangbusters. That’s despite the US being in the hands of a leader threatening trade wars, redistributing wealth to the top 1%, taunting nuclear states via Twitter, spouting untruths, attacking the media, flouting international laws, trampling on democratic values and cozying up to autocrats Washington used to abhor. ¶ China, Russia, Turkey and Saudi Arabia, Summers argues, are “more authoritarian, more nationalist and more truculent on the world stage than they were a year ago.” North Korea is growing more belligerent, more erratic and more nuclear year after year. Europe, meanwhile, remains traumatized by Britain’s exit from the European Union (EU) and faces myriad populist and far-right insurgencies. ¶ All this begs the question: why, oh why, are equity markets surging as if investors haven’t a care? Why are bond yields so impossibly low from Washington to Tokyo as leaders borrow with abandon? Perhaps Bitcoin’s bewildering bull run is more a symptom of the extent to which markets have lost all sense of reality than an anomaly. ¶ Trouble is, the global economy’s surface looks infinitely better than the foundations beneath it. “Yes, markets are soaring and the economy isn’t bad, but citizens are divided,” says Ian Bremmer, president of Eurasia Group. “Governments aren’t doing much governing. And the global order is unraveling.” ¶ What happens if there is some kind of reckoning? Say if Wall Street hit a 2008-like wall, China’s debt meltdown arrived or Washington started a trade war. A major terrorist attack, conflict on the Korean peninsula, confrontation in the South China Sea or troubles in Iran or Pakistan could slam markets. ¶ At the same moment, “the scale of the world’s political challenges is daunting”, Bremmer says. “Liberal democracies have less legitimacy than at any time since World War II, and most of their structural problems don’t appear fixable. Today’s strongest leaders show little interest in civil society or common values.” Looking at the past two decades, if his team “had to pick one year for a big unexpected crisis—the geopolitical equivalent of the 2008 financial meltdown—it feels like 2018,” Bremmer says. ¶ Summers worries geopolitics and economics will collide. “Financial markets are widely cited, including by US President Donald Trump, as providing comfort in the current moment,” he says. “But a relapse into financial crisis would likely have catastrophic political consequences, sweeping into power even more toxic populist nationalists.” ¶ My objective here isn’t to give readers sleepless nights, but to call out the gaping disconnect between jubilant markets and the chaos that may lie ahead. ¶ Asia learned a great deal from its 1997-98 meltdown. Banks were strengthened, currencies became more flexible, central banks amassed ample currency reserves and governments increased transparency. After that 2013 “taper tantrum,” India, for example, worked to stabilize the rupee, tame inflation and address bad loans in the banking system. The West learned far less from the 2008 Lehman Brothers crash, throwing money at the problem, but demurring on painful reforms. Banks are re-leveraging as we speak. ¶ Market meltdowns tend to happen sooner and faster than punters expect. In 2008, the US responded by cutting short-term rates 500 basis points (one basis point is 0.01 percentage point), while peers in Europe and Japan followed suit. Such a response isn’t available in 2018. Nor is aggressive fiscal loosening. The Trump White House already engineered a $1.5 trillion tax cut the economy didn’t need. ¶ That, Summers says, means the next recession will be “protracted and deep, with severe global consequences.” In 2009, after Wall Street cracked, then-US President Barack Obama cobbled together a global response with Group of 20 nations. Trump has gone the other way, alienating most of the allies Obama worked with to restore global calm.

#### Satellites are key to environmental monitoring – debris collapses it and causes climate extinciton

Ben Biggs 18, PhD Researcher in Computer Vision and Deep Learning at the University of Cambridge, “How Satellites Can Protect Planet Earth From Disaster”, HowItWorks Daily, 12/22/2018, https://www.howitworksdaily.com/how-satellites-can-protect-planet-earth-from-disaster/

It might not look it, but our planet is a fragile place. A delicate balance of pressure, temperature and gases keeps us alive, as our atmosphere lets in enough heat for us to thrive – but not too much that we get too toasty. For many years our planet has looked after itself with ease. Now, with humans on the scene, things are changing more than ever, from climate change to mass deforestation. If our planet is going to survive long into the future it’s going to need our help. Fortunately, we’ve got plenty of missions that are working for the benefit of our world already. Using observation satellites in orbit, scientists have been monitoring Earth for decades, watching how the planet pulsates and changes over time. From orbit we can watch how species migrate, identify and predict environmental changes and even fix problems. A great example of this was the global effort to repair a hole in the ozone above the Antarctic back in 1987. Two years prior, scientists had discovered that chemicals known as chlorofluorocarbons (CFCs) – produced by fridges and aerosols, among other things – were causing the hole to grow. As a result countries around the world agreed to phase out the use of CFC as part of the Montreal Protocol. In early 2018, NASA announced that its Aura satellite had watched the hole successfully close, with it expected to fully repair as early as 2060. It was proof that we could work together to change the planet for the better. Aura is part of a broader NASA project called the Earth Observing System (EOS). This programme, which began in 1997, has seen NASA launch missions and instruments into orbit. This has included the groundbreaking Landsat series of satellites, which have provided surface images of the whole globe. Then there’s the Terra mission that launched in 2009 and studies clouds, sea ice and more from orbit. Most of these satellites are in polar orbits, which means they orbit the planet from top to bottom so that it rotates underneath and gives them a global view. Planning for the EOS began back in the 1980s, with NASA keen to regularly fly instruments for at least 15 years. “Human activity has altered the condition of the Earth by reconfiguring the landscape, by changing the composition of the global atmosphere, and by stressing the biosphere in countless ways,” they noted in a handbook in 1993. “There are strong indications that natural change is being accelerated by human intervention.” More than two dozen missions have been launched as part of the EOS to date. Among the programme’s many accomplishments, scientists watched as an ice shelf collapsed on the Antarctic Peninsula in 2002 using the Terra satellite. The same satellite, along with the Aqua satellite launched in 2002, has provided a global view of how the vegetation cycle changes over the course of a year and the effect the climate has on it. Those same two satellites have also allowed us to see how summer sea ice in the Arctic is decreasing, which means that more of the Sun’s light is being absorbed rather than being reflected, raising global temperatures. The EOS has helped in other ways too, such as enabling scientists to keep a close eye on the levels of toxic gases like carbon monoxide being emitted from massive fires in the atmosphere. This allows people on the ground to be alerted to these dangers, and they can in turn be advised to limit their outdoor activity to protect their health. The EOS is even helping to track and monitor rare animals, such as chameleons in Madagascar. Here, scientists have been able to use satellite imagery, combined with known habitats of the animals, to map out where they are likely to be living. It would take survey teams on the ground thousands of years to replicate this information without satellites. It’s not just NASA that has been keeping a close eye on the planet. The European Space Agency (ESA) runs the Copernicus project, billed as the world’s largest single Earth observation campaign. Previously known as the Global Monitoring for Environment and Security (GMES) programme, it began with the launch of the Sentinel-1A satellite in April 2014. This radar imaging satellite provides images both day and night and during all weather conditions, and these are being used to map sea ice, track oil spills and more. This has been followed by half a dozen more missions, with the latest – Sentinel-3B – launching on 25 April 2018. This mission is focusing on monitoring the behaviour and health of the oceans, but it has a wide range of abilities. It flies in formation with its predecessor, Sentinel-3A, and together the two of them can provide global data for Earth across an entire day. The satellites can measure the temperature over oceans, as well as the colour and height of the sea. They can also monitor wildfires from space, check the health of vegetation and map the way that land is being used around the world. And there are more Sentinel satellites on the way. In the coming years we’ll see the Sentinel-4 and Sentinel-5 missions launch, studying the composition of our planet’s atmosphere, while Sentinel-6 will measure global sea surface height for ocean and climate studies. “Copernicus will help shape the future of our planet for the benefit of all,” said the ESA, also noting that it isthe “most ambitious Earth observation programme to date,” one that will provide accurate and timely data on the environment, climate change and more. All of this data is vital for directing climate policy and other human activities on Earth. By observing our planet around the clock from space we can see the direct effect that humans are having on it. These are not the only climate-monitoring missions run by NASA and the ESA. The former has a number of other missions, including the Deep Space Climate Observatory, which observes the sunlit side of Earth. The latter has eight missions on the books in its Earth Explorer programme, including a mission to study how Earth’s gravity field varies over the surface of the planet, called the Gravity field and steady-state Ocean Circulation Explorer (GOCE), which ended in 2013. In 2016, countries of the world came together to sign the Paris Climate Agreement, a global effort to reduce carbon emissions to prevent the global average temperature rising by two degrees Celsius above pre-industrial levels. While the US later infamously reneged from this agreement, it was proof that with enough level-headed minds, minds that can see the data from missions showing how the planet is changing, we can take action. Humans continue to have a major effect on the planet, for better or worse, and monitoring that change is vital to our planet’s survival.

#### Independently, unregulated mining causes space war

Fengna Xu 20, Law School, Xi’an Jiaotong University, “The approach to sustainable space mining: issues, challenges, and solutions,” Fengna Xu 2020 IOP Conf. Ser.: Mater. Sci. Eng. 738 012014

3.1. Conflicts between multiple States Space resources, as res communis [3], can be appropriated to some extent on the basis of freedom of exploration and use of the outer space. However, it is likely to follow a ‘first come, first served’ approach to space resources activities. In fact, the ‘first come, first served’ approach drove early and rapid development of oil industry of the US in the 19th century, although a frenetic race among surface owners followed and led to an extraordinary waste of oil and gas. Given that so far there are no agreement or property rights on space resources, they are essentially in a ‘state of nature’. Allocation by the ‘first come, first served’ approach is simple and requires very little government involvement to deter another one (called a ‘junior’) from displacing the rightful first comer (called a ‘senior’). However, overprotecting the senior by priority rights could run the risk of disorder, waste, inequality, and even monopoly. The Outer Space Treaty, requires State parties to conduct all their activities in outer space ‘with due regard to the corresponding interests of all other States Parties’. Without specific coordinating rules, conflicts between multiple States are likely to happen. Private entities may choose to arm themselves to safeguard their own interests. In extreme cases, States may also protect them by placing weapons of mass destruction in outer space if necessary [4]. As a result, priority rights should not be absolute but subjected to some arrangements. 7

#### That goes nuclear – the domain is fragile and offense dominant, so even small incidents escalate

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Why space is a particular problem for crisis stability

For a number of reasons, space poses particular challenges in preventing a crisis from starting or from being managed well. Some of these are to do with the physical nature of space, such as the short timelines and difficulty of attribution inherent in space operations. Some are due to the way space is used, such as the entanglement of strategic and tactical missions and the prevalence of dual-use technologies. Some are due to the history of space, such the absence of a shared understanding of appropriate behaviors and consequences, and a dearth of stabilizing personal and institutional relationships. While some of these have terrestrial equivalents, taken together, they present a special challenge.

The vulnerability of satellites and first strike incentives

Satellites are inherently fragile and difficult to protect; in the language of strategic planners, space is an “offense-dominant” regime. This can lead to a number of pressures to strike first that don‘t exist for other, better-protected domains. Satellites travel on predictable orbits, and many pass repeatedly over all of the earth‘s nations. Low-earth orbiting satellites are reachable by missiles much less capable than those needed to launch satellites into orbit, as well as by directed energy which can interfere with sensors or with communications channels. Because launch mass is at a premium, satellite armor is impractical. Maneuvers on orbit need costly amounts of fuel, which has to be brought along on launch, limiting satellites‘ ability to move away from threats. And so, these very valuable satellites are also inherently vulnerable and may present as attractive targets.

Thus, an actor with substantial dependence on space has an incentive to strike first if hostilities look probable, to ensure these valuable assets are not lost. Even if both (or all) sides in a conflict prefer not to engage in war, this weakness may provide an incentive to approach it closely anyway.

A RAND Corporation monograph commissioned by the Air Force15 described the issue this way:

First-strike stability is a concept that Glenn Kent and David Thaler developed in 1989 to examine the structural dynamics of mutual deterrence between two or more nuclear states.16 It is similar to crisis stability, which Charles Glaser described as ―a measure of the countries‘ incentives not to preempt in a crisis, that is, not to attack first in order to beat the attack of the enemy,‖17 except that it does not delve into the psychological factors present in specific crises. Rather, first strike stability focuses on each side‘s force posture and the balance of capabilities and vulnerabilities that could make a crisis unstable should a confrontation occur.

For example, in the case of the United States, the fact that conventional weapons are so heavily dependent on vulnerable satellites may create incentives for the US to strike first terrestrially in the lead up to a confrontation, before its space-derived advantages are eroded by anti-satellite attacks.18 Indeed, any actor for which satellites or space-based weapons are an important part of its military posture, whether for support missions or on-orbit weapons, will feel “use it or lose it” pressure because of the inherent vulnerability of satellites.

Short timelines and difficulty of attribution

The compressed timelines characteristic of crises combine with these “use it or lose it” pressures to shrink timelines. This dynamic couples dangerously with the inherent difficulty of determining the causes of satellite degradation, whether malicious or from natural causes, in a timely way.

Space is a difficult environment in which to operate. Satellites orbit amidst increasing amounts of debris. A collision with a debris object the size of a marble could be catastrophic for a satellite, but objects of that size cannot be reliably tracked. So a failure due to a collision with a small piece of untracked debris may be left open to other interpretations. Satellite electronics are also subject to high levels of damaging radiation. Because of their remoteness, satellites as a rule cannot be repaired or maintained. While on-board diagnostics and space surveillance can help the user understand what went wrong, it is difficult to have a complete picture on short timescales. Satellite failure on-orbit is a regular occurrence19 (indeed, many satellites are kept in service long past their intended lifetimes).

In the past, when fewer actors had access to satellite-disrupting technologies, satellite failures were usually ascribed to “natural” causes. But increasingly, even during times of peace operators may assume malicious intent. More to the point, in a crisis when the costs of inaction may be perceived to be costly, there is an incentive to choose the worst-case interpretation of events even if the information is incomplete or inconclusive.

Entanglement of strategic and tactical missions

During the Cold War, nuclear and conventional arms were well separated, and escalation pathways were relatively clear. While space-based assets performed critical strategic missions, including early warning of ballistic missile launch and secure communications in a crisis, there was a relatively clear sense that these targets were off limits, as attacks could undermine nuclear deterrence. In the Strategic Arms Limitation Treaty, the US and Soviet Union pledged not to interfere with each other‘s ―national technical means‖ of verifying compliance with the agreement, yet another recognition that attacking strategically important satellites could be destabilizing.20 There was also restraint in building the hardware that could hold these assets at risk.

However, where the lines between strategic satellite missions and other missions are blurred, these norms can be weakened. For example, the satellites that provide early warning of ballistic missile launch are associated with nuclear deterrent posture, but also are critical sensors for missile defenses. Strategic surveillance and missile warning satellites also support efforts to locate and destroy mobile conventional missile launchers. Interfering with an early warning sensor satellite might be intended to dissuade an adversary from using nuclear weapons first by degrading their missile defenses and thus hindering their first-strike posture. However, for a state that uses early warning satellites to enable a “hair trigger” or launch-on-attack posture, the interference with such a satellite might instead be interpreted as a precursor to a nuclear attack. It may accelerate the use of nuclear weapons rather than inhibit it.

Misperception and dual-use technologies

Some space technologies and activities can be used both for relatively benign purposes but also for hostile ones. It may be difficult for an actor to understand the intent behind the development, testing, use, and stockpiling of these technologies, and see threats where there are none. (Or miss a threat until it is too late.) This may start a cycle of action and reaction based on misperception. For example, relatively low-mass satellites can now maneuver autonomously and closely approach other satellites without their cooperation; this may be for peaceful purposes such as satellite maintenance or the building of complex space structures, or for more controversial reasons such as intelligence-gathering or anti-satellite attacks.

Ground-based lasers can be used to dazzle the sensors of an adversary‘s remote sensing satellites, and with sufficient power, they may damage those sensors. The power needed to dazzle a satellite is low, achievable with commercially available lasers coupled to a mirror which can track the satellite. Laser ranging networks use low-powered lasers to track satellites and to monitor precisely the Earth‘s shape and gravitational field, and use similar technologies. 21

Higher-powered lasers coupled with satellite-tracking optics have fewer legitimate uses. Because midcourse missile defense systems are intended to destroy long-range ballistic missile warheads, which travel at speeds and altitudes comparable to those of satellites, such defense systems also have inherent ASAT capabilities. In fact, while the technologies being developed for long-range missile defenses might not prove very effective against ballistic missiles—for example, because of the countermeasure problems associated with midcourse missile defense— they could be far more effective against satellites. This capacity is not just theoretical. In 2007, China demonstrated a direct-ascent anti-satellite capability which could be used both in an ASAT and missile defense role, and in 2009, the United States used a ship-based missile defense interceptor to destroy a satellite, as well. US plans indicated a projected inventory of missile defense interceptors with capability to reach all low earth orbiting satellites in the dozens in the 2020s, and in the hundreds by 2030.22

Discrimination

The consequences of interfering with a satellite may be vastly different depending on who is affected and how, and whether the satellite represents a legitimate military objective.

However, it will not always be clear who the owners and operators of a satellite are, and users of a satellite‘s services may be numerous and not public. Registration of satellites is incomplete23 and current ownership is not necessarily updated in a readily available repository. The identification of a satellite as military or civilian may be deliberately obscured. Or its value as a military asset may change over time; for example, the share of capacity of a commercial satellite used by military customers may wax and wane. A potential adversary‘s satellite may have different or additional missions that are more vital to that adversary than an outsider may perceive. An ASAT attack that creates persistent debris could result in significant collateral damage to a wide range of other actors; unlike terrestrial attacks, these consequences are not limited geographically, and could harm other users unpredictably.

In 2015, the Pentagon‘s annual wargame, or simulated conflict, involving space assets focused on a future regional conflict. The official report out24 warned that it was hard to keep the conflict contained geographically when using anti-satellite weapons:

As the wargame unfolded, a regional crisis quickly escalated, partly because of the interconnectedness of a multi-domain fight involving a capable adversary. The wargame participants emphasized the challenges in containing horizontal escalation once space control capabilities are employed to achieve limited national objectives.

Lack of shared understanding of consequences/proportionality

States have fairly similar understandings of the implications of military actions on the ground, in the air, and at sea, built over decades of experience. The United States and the Soviet Union/Russia have built some shared understanding of each other‘s strategic thinking on nuclear weapons, though this is less true for other states with nuclear weapons. But in the context of nuclear weapons, there is an arguable understanding about the crisis escalation based on the type of weapon (strategic or tactical) and the target (counterforce—against other nuclear targets, or countervalue—against civilian targets).

Because of a lack of experience in hostilities that target space-based capabilities, it is not entirely clear what the proper response to a space activity is and where the escalation thresholds or “red lines” lie. Exacerbating this is the asymmetry in space investments; not all actors will assign the same value to a given target or same escalatory nature to different weapons.

#### Satellites solve pandemics

Dr. Timothy E. Ford 9, PhD in Aquatic Microbiology from the University College of North Wales, Bangor, department head of Microbiology at Montana State University. “Satellite Imagery in Predicting Infectious Disease Outbreaks.” https://wwwnc.cdc.gov/eid/article/15/9/08-1334\_article

The scientific community has a relative consensus that epidemic and pandemic disease risks will be exacerbated by environmental changes that destabilize weather patterns, change distribution of vectors, and increase transport and transmission risk. Predictive modeling may lead to improved understanding and potentially prevent future epidemic and pandemic disease. Many respiratory infections are well known as highly climate dependent or seasonal. Although we are not yet able to predict their incidence with great precision, we may well be able to do this in the future. Meningococcal meningitis (caused by Neisseria meningitidis) in Africa is probably the best known example. In the disease-endemic so-called meningitis belt (an area running across sub-Saharan Africa from Senegal to Ethiopia), this is classically a dry season disease, which ceases with the beginning of the rainy season, likely as a result of changes in host susceptibility (19). Many other infectious diseases show strong seasonality or association with climatic conditions (20). Perhaps one of the most interesting is influenza, which is thought of as a wintertime disease in temperate climates but shows both winter and summer peaks in subtropical and tropical regions (21). Although the reasons for seasonality are often poorly understood, the close dependence of such diseases on climatic conditions suggests that these, too, are likely to be amenable to prediction by modeling and remote sensing (22). When we consider influenza, it is hard not to think about the future risks from pandemic influenza. Public health agencies in the United States and around the world are focusing on influenza preparedness, notably concerning influenza virus A subtype H5N1, which has captured attention because it causes severe disease and death in humans but as yet has demonstrated only very limited and inefficient human-to-human transmission. The severity of the disease raises images of the 1918 influenza epidemic on an unimaginably vast scale if the virus were to adapt to more efficient human-to-human transmission. Can predictive modeling using satellite or other imaging of environmental variables help in prediction of future influenza pandemics? Xiangming Xiao at the University of New Hampshire was funded in 2006 by the National Institutes for Health to lead a multidisciplinary and multi-institutional team to use remote satellite imaging to track avian flu. Xiao et al. have used satellite image–derived vegetation indices to map paddy rice agriculture in southern Asia (23). They believe that a similar approach can be used in conjunction with the more traditional approach of analyzing bird migration patterns and poultry production (24,25) to map potential hot spots of virus transmission (26). An interesting question is why did we not see disease epidemics in Indonesia, following the devastating tsunami disaster of December 2004? Could rapid public health intervention be credited with minimizing spread of disease? In the case of Aceh Province, many communities reported diarrhea as the main cause of illness (in 85% of children <5 years of age), but no increases in deaths were reported, and no outbreaks of cholera or other potentially epidemic diseases occurred (27). Given the massive scale of the disaster, was this likely? In some towns, more than two thirds of the population died at the time of impact, almost 100% of homes were destroyed, and 100% of the population lacked access to clean water and sanitation (27). To a large extent, the Australian army and other groups are to be credited with rapidly deploying environmental health teams to swiftly implement public health measures, including provision of safe drinking water, proper sanitary facilities, and mosquito control measures (28). Widespread fecal pollution of the surface waters was shown, yet the saltiness of the potable water supply after the disaster made much of the water unpalatable. Wells were vulnerable, perhaps to other etiologic agents of fecal origin including viruses and Shigella spp., with greater probability of infection than Vibrio spp., thus leading to the widespread diarrhea. The most important lesson from the Asian tsunami is that disease epidemics can be prevented by public health intervention. Unfortunately, most flooding events, and other conditions that promote infectious disease epidemics, do not receive the same global media attention. A tsunami captures the imagination of the world in a way that weeks of rainfall in the Sudan or a rise in sea surface temperature cannot. However, if climatologic data can be used to predict future disease outbreaks, public health interventions can be mobilized in a more timely and proactive manner. A continuing concern is the conditions that result in newly emergent virulent strains of pathogens. Faruque et al. have provided molecular evidence that V. cholerae O139 strains are derived from O1 strains through genetic modification (29). In addition, Chakraborty et al. in Kolkata have seen the presence and expression of virulence genes in several environmental strains of V. cholerae cultured from surface waters (30). Recently, E. coli O157 has been isolated from the Ganges River in India for the first time (31). Indications are that it is metabolically different from E. coli O157 isolated from other parts of the world, but the conditions that have led to these differences are as yet unclear. From the above studies, risk for transmission of virulence genes is likely to be high, but studies of conditions promoting transmission and approaches to modeling resultant disease risks are in their infancy. New epidemic strains could potentially occur through mutation of existing epidemic strains or through gene transfer. Environmental stressors such as chemical contaminants are thought to accelerate both mutation rates and gene transfer (32). Thus, the degree of chemical pollution may need to be a component of disease models (in addition to other stressors). The scientific community is a long way from incorporating environment-gene interactions into predictive models and clarifying the risks posed to human society from emerging diseases. However, investigation of these parts of the pathogen's ecology should remain on the national research agenda as we move forward with developing predictive models of disease outbreaks. Current modeling of infectious diseases is by necessity retrospective. Environmental parameters measured by remote satellite imaging show the greatest promise for providing global coverage of changing environmental conditions. With current imaging technologies, we can measure sea surface temperature, sea surface height, chlorophyll A levels, and a variety of vegetation and soil indices, in addition to many other physical, biologic, and chemical parameters of the earth's surface and atmosphere. A variety of these parameters can be incorporated in complex mathematical models, together with biotic and ecologic variables of the pathogen and host life cycles, to correlate environment with outbreaks of disease (Figure 2). However, we are still far from being able to accurately predict future disease events on the basis of existing environmental conditions. Successful predictive modeling of disease and the establishment of early warning systems have reached a critical junction in development. As we improve our understanding of the biology and ecology of the pathogen, vectors, and hosts, our ability to accurately link environmental variables, particularly those related to climate change, will improve. What has become clear over the past few years is that satellite imaging can play a critical role in disease prediction and, therefore, inform our response to future outbreaks. We conclude that infectious disease events may be closely linked to environmental and global change. Satellite imaging may be critical for effective disease prediction and thus future mitigation of epidemic and pandemic diseases. We cannot stress too strongly our belief that a strong global satellite program is essential for future disease prediction.

#### Disease causes extinction

Dennis **Pamlin 15** & Stuart Armstrong. Pamlin, Executive Project Manager Global Risks, Global Challenges Foundation; Stuart Armstrong, James Martin Research Fellow, Future of Humanity Institute, Oxford Martin School, University of Oxford. February 2015. “Global Challenges: 12 Risks that threaten human civilization: The case for a new risk category.” Global Challenges Foundation. https://api.globalchallenges.org/static/wp-content/uploads/12-Risks-with-infinite-impact.pdf

Here only worldwide events are included. A widespread endemic disease that is stable in terms of how many people become sick from it is not a pandemic. 260 3.1.4.1 Expected impact Infectious diseases have been one of the greatest causes of mortality in history. Unlike many other global challenges pandemics have happened recently, as we can see where reasonably good data exist. Plotting historic epidemic fatalities on a log scale reveals that these tend to follow a power law with a small exponent: many plagues have been found to follow a power law with exponent 0.26.261 These kinds of power laws are heavy-tailed262 to a significant degree.263 In consequence most of the fatalities are accounted for by the top few events.264 If this law holds for future pandemics as well,265 then the majority of people who will die from epidemics will likely die from the single largest pandemic. Most epidemic fatalities follow a power law, with some extreme events – such as the Black Death and Spanish Flu – being even more deadly.267 There are other grounds for suspecting that such a high impact epidemic will have a greater probability than usually assumed. All the features of an extremely devastating disease already exist in nature: essentially incurable (Ebola268), nearly always fatal (rabies269), extremely infectious (common cold270), and long incubation periods (HIV271). If a pathogen were to emerge that somehow combined these features (and influenza has demonstrated antigenic shift, the ability to combine features from different viruses272), its death toll would be extreme. Many relevant features of the world have changed considerably, making past comparisons problematic. The modern world has better sanitation and medical research, as well as national and supra-national institutions dedicated to combating diseases. Private insurers are also interested in modelling pandemic risks.273 Set against this is the fact that modern transport and dense human population allow infections to spread much more rapidly274, and there is the potential for urban slums to serve as breeding grounds for disease.275 Unlike events such as nuclear wars, pandemics would not damage the world’s infrastructure, and initial survivors would likely be resistant to the infection. And there would probably be survivors, if only in isolated locations. Hence the risk of a civilisation collapse would come from the ripple effect of the fatalities and the policy responses. These would include political and agricultural disruption as well as economic dislocation and damage to the world’s trade network (including the food trade). Extinction risk is only possible if the aftermath of the epidemic fragments and diminishes human society to the extent that recovery becomes impossible277 before humanity succumbs to other risks (such as climate change or further pandemics).

#### Plan: Space faring nations should restrict asteroid mining done by private entities.

#### Perceived non-compliance triggers a domino effect of territorial grabs and nukes the U.S. image---implodes norm setting and leadership

Dr. Jim Vedda 18, Senior Policy Analyst, PhD in Political Science at the University of Florida, M.A. in Science, Technology, and Public Policy at the George Washington University, “The Outer Space Treaty: Assessing its Relevance at the 50-Year Mark” https://aerospace.org/sites/default/files/2018-05/OuterSpaceTreaty.pdf

From the commercial development perspective, this action increases risk by removing current protections without enabling commensurate benefits. If the United States tried to claim sovereignty over extraterrestrial real estate, other spacefaring nations—all of which are treaty signatories— could refuse to recognize the claim. Alternatively, there could be a domino effect as other countries withdrew and started a free-for-all of sovereignty claims—precisely what the treaty was designed to prevent.

If the United States issued licenses to industry to conduct space salvage without regard for the treaty’s ownership provisions, other spacefarers could object and try to stop the practice. In retaliation, they may declare U.S. space systems to be fair game for salvage, causing grave concerns for U.S. national interests. In general, withdrawal from the treaty is unlikely to improve the ability of the U.S. to deal with space debris unilaterally since the nature of the problem requires that it be addressed multilaterally.

If the aim is to remove obstacles to commercial space development, withdrawal from the treaty is unlikely. It is difficult to identify any significant, enduring benefits from unilateral withdrawal from the treaty… 6 to have much (if any) positive effect. It will do nothing to overcome the technical and economic challenges of cutting-edge space business ventures; however, the negative effects could be dramatic for all sectors of space activity.

The United States could be perceived—and portrayed— as a violator of established norms of behavior. Even if commercial development is the stated justification for withdrawal, many might suspect other motives. The global community might question whether the United States wanted to deploy weapons of mass destruction or other militarily aggressive systems in space, interfere with other nations’ space systems, claim sovereignty over the moon or other celestial bodies, or abdicate its obligations under other treaties, especially those related to space. This could affect a broad array of collaborative international relationships across the civil, commercial, and national security space communities. It could also undermine U.S. influence in future discussions regarding acceptable behavior in space.