### 1NC---T

#### Interp: “appropriation” of outer space must be claims of sovereignty.

#### Ownership of extracted resources is NOT appropriation.

Wrench 19 [John G., J.D. Candidate, Case Western Reserve University School of Law, Cleveland, Ohio, May 2019; B.A., Philosophy & Religious Studies, Pace University, Pleasantville, New York, December 2015. Case Western Journal of International Law; Volume 51, Issue 1, Article 11, “Non-Appropriation, No Problem: The Outer Space Treaty Is Ready for Asteroid Mining” <https://scholarlycommons.law.case.edu/cgi/viewcontent.cgi?article=2546&context=jil>] brett

Secondly, even if nations, businesses, and individuals are equally bound by the non-appropriation principle, the scope of that restriction is not entirely clear from the text of Article II.59 It is unlikely, however, that the non-appropriation principle is an absolute ban on the ownership of resources extracted in outer space.

An interpretation of Article II supporting a blanket ban on resource ownership is unwarranted by the text of the OST and illfounded on account of the international community’s common practices. Scholars have noted that the international community has never questioned whether scientific samples harvested from celestial bodies belong to the extracting nation.60 Furthermore, space-faring members of the international community rejected the Moon Treaty precisely because it prohibited all forms of ownership in resources extracted from celestial bodies.61 The space-faring nations’ support for the OST, coupled with their rejection of an alternative set of rules governing extracted resources, is at the very least an indication of what those nations believe the non-appropriation principle to stand for.

#### Violation: The AFF defends property rights for extracted resources.

#### Negate:

#### 1] Precision: Pre-round prep is centered around DAs against formal sovereignty and case responses to it, their interp means the only basis for predictability becomes the wiki

#### 2] Limits: They blow up the topic to include any resource extraction from outer space, allowing affs to rush to the margins to anything from moon water to mars rocks to any asteroid in outer space, and infinite permutations of these make the case-list too big to engage

#### CI bc reasonability is arbitrary and invites judge intervention

#### DTD to deter future abuse

#### No RVIs: 1] illogical, you shouldn’t win for being topical, 2] good theory debaters will read abusive positions to bait theory and dump on an RVI, 3] trades off with substance since we can’t kick out of T

### 1NC – T

Interp

#### “Appropriation” is a term of art that means ban, not regulate.

Thornburg 19 [Matthew, Associate Editor for the Michigan Journal of International Law; Vol 40; “Are the Non-appropriation Principle and the Current Regulatory Regime Governing Geostationary Orbit Equitable for All of Earth’s States?” <http://www.mjilonline.org/are-the-non-appropriation-principle-and-the-current-regulatory-regime-governing-geostationary-orbit-equitable-for-all-of-earths-states/>] brett

As the law currently stands, geostationary orbit – a constant orbital position above Earth’s equator – is governed by the OST and is therefore subject to the treaty’s attendant ban on national appropriation. Spaces, or slots, in geostationary orbit[2] are desired because they are exceedingly convenient for communicating with earth. They are highly limited and as a consequence, highly valuable. Moreover, these spaces are allotted on a first-come-first-served basis[3] making them virtually unattainable by less scientifically and economically advanced states[4], or those that are just plain late to the game.

The ban on national appropriation is enumerated in the Second Article of the OST, which states: “Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by other means.”[5] The geostationary orbital position is generally agreed upon by experts[6] as part of “outer space” and consequently, forbidden from appropriation.

#### Violation: The AFF restricts not bans

#### Vote neg:

#### 1] Limits: Allowing regulations blows up the topic lit to include any means to regulate asteroids, the moon. Outweighs -- a new aff every week dooms in-depth topic research and ensures an unmanageable caselist for the neg.

#### 2] Makes the topic bidirectional because the AFF can defend private industry good which means the what little prep is left for the neg and they get to delink out of das cuz they restrict not ban

### 1NC – K

#### The Role of the Judge is to decide the virtue of Empire- with Apocalypse on the horizon, the question we must ask was whether it was all worth it.

#### Grove 19

[Jarius, PoliSci at the University of Hawai’i. 2019. “Savage Ecology: War and Geopolitics in the Anthropocene.”] brackets for bad words // pat //rc sosa– ask me for the PDF

Because I wanted this book to inspire curiosity beyond the boundaries of international relations (ir), I considered ignoring the field altogether, removing all mentions of ir or ir theory. However, upon closer reflection, I have decided to keep these references as I think they are relevant for those outside the discipline and for those who, like myself, often feel alienated within its disciplinary boundaries. In the former case, it is important to know that, unlike some more humble fields, ir has always held itself to be a kind of royal science. Scholarship in ir, particularly in the United States, is half research, and half biding time until you have the prince’s ear. The hallowed names in the mainstream of the field are still known because they somehow changed the behavior of their intended clients—those being states, militaries, and international organizations. Therefore, some attention to ir is necessary because it has an all-too-casual relationship with institutional power that directly impacts the lives of real people, and ir is all too often lethal theory. As an American discipline, the political economy of the field is impossible without Department of Defense money, and its semiotic economy would be equally dwarfed without contributory figures like Woodrow Wilson, Henry Kissinger, and Samuel Huntington. The ubiquity of Huntington’s “clash of civilizations” thesis and Kissinger’s particular brand of realpolitik are undeniable throughout the field, as well as the world. Each, in their own way, has saturated the watchwords and nomenclature of geopolitics from an American perspective so thoroughly that both political parties in the United States fight over who gets to claim the heritage of each. Although many other fields such as anthropology and even comparative literature have found themselves in the gravitational pull of geopolitics, international relations is meant to be scholarship as statecraft by other means. That is, ir was meant to improve the global order and ensure the place of its guarantor, the United States of America. Having spent the better part of a decade listening to national security analysts and diplomats from the United States, South Korea, Japan, Europe, China, Brazil, and Russia, as well as military strategists around the planet, I found their vocabulary and worldview strikingly homogeneous.

If this seems too general a claim, one should take a peek at John Mearsheimer’s essay “Benign Hegemony,” which defends the Americanness of the ir field. What is most telling in this essay is not a defense of the U.S. as a benign hegemonic power, which Mearsheimer has done at length elsewhere. Rather, it is his vigorous defense that as a field, ir theory has done well by the world in setting the intellectual agenda for global challenges, and for creating useful theoretical approaches to addressing those problems. For Mearsheimer, the proof that American scholarly hegemony has been benign is that there is nothing important that has been left out. A quick scan of the last ten or twenty International Studies Association conferences would suggest otherwise.

That issues like rape as a weapon of war, postcolonial violence, global racism, and climate change are not squarely in the main of ir demonstrates just how benign American scholarly hegemony is not. As one prominent anthropologist said to me at dinner after touring the isa conference in 2014, “it was surreal, like a tour through the Cold War. People were giving papers and arguing as if nothing had ever changed.” These same provincial scholars aspire and succeed at filling the advisory roles of each successive American presidency. One cannot help but see a connection between the history of the ir field, and the catastrophes of U.S. foreign policy during the twentieth and twenty-first centuries. One could repeat the words of the anthropologist I mentioned to describe the 2016 presidential campaign debates over the future of U.S. foreign policy: it is as if “nothing had ever changed.” And yet these old white men still strut around the halls of America’s “best” institutions as if they saved us from the Cold War, even as the planet crumbles under the weight of their failed imperial dreams.

If international relations was meant to be the science of making the world something other than what it would be if we were all left to our own worst devices, then it has failed monumentally. The United States is once again in fierce nuclear competition with Russia. We are no closer to any significant action on climate change. We have not met any of the Millennium Development Goals determined by the United Nations on eradicating poverty. War and security are the most significant financial, creative, social, cultural, technological, and political investments of almost every nation-state on Earth. The general intellect is a martial intellect.

Despite all this failure, pessimism does not exist in international relations, at least not on paper. The seething doom of our current predicament thrives at the conference bar and in hushed office conversations but not in our research. In public, the darkness disavowed possesses and inflames the petty cynicisms and hatreds that are often turned outward at tired and predictable scapegoats.

After the fury of three decades of critique, most ir scholars still camp out either on the hill of liberal internationalism or in the dark woods of political realism. Neither offers much that is new by way of answers or even explanations, and each dominant school has failed to account for our current apocalyptic condition. One is left wondering what it is exactly that they think they do. Despite the seeming opposition between the two, one idealistic about the future of international order (liberals) and the other self-satisfied with the tragedy of cycles of war and dominance (realists), both positions are optimists of the positivist variety.

For both warring parties, ir optimism is expressed through a romantic empiricism. For all those who toil away looking for the next theory of international politics, order is out there somewhere, and dutifully recording reality will find it—or at least bring us closer to its discovery. For liberal internationalism, this will bring the long-heralded maturity of Immanuel Kant’s perpetual peace. For second-order sociopaths known as offensive realists, crumbs of “useful strategic insight” and the endless details that amplify their epistemophilia for force projection and violence capability represent a potential “advantage,” that is, the possibility to move one step forward on the global political board game of snakes and ladders. Still, the cynicism of ir always creeps back in because the world never quite lives up to the empirical findings it is commanded to obey. Disappointment here is not without reason, but we cynically continue to make the same policy recommendations, catastrophe after catastrophe.

I have an idea about where ir’s recent malaise comes from. I think it is a moment, just before the awareness of the Anthropocene, after the Cold War and before September 11, when the end of everything was only a hypothetical problem for those of a certain coddled and privileged modern form of life. The catastrophe of the human predicament was that there was no catastrophe, no reason, no generation-defining challenge or war. Now the fate of this form of life is actually imperiled, and it is too much to bear. The weird denial of sexism, racism, climate change, the sixth extinction, and loose nukes, all by a field of scholars tasked with studying geopolitics, is more than irrationalism or ignorance. This animosity toward reality is a deep and corrosive nihilism, a denial of the world. Thus ir as a strategic field is demonstrative of a civilization with nothing left to do, nothing left to destroy. All that is left is to make meaning out of being incapable of undoing the world that Euro-American geopolitics created. Emo geopolitics is not pretty, but it is real. The letdown, the failure, the apocalypse-that-was-not finally arrived, and we are too late.

Still, the United States of America continues to follow the advice of “the best and the brightest,” testing the imperial waters, not quite ready to commit out loud to empire but completely unwilling to abandon it. Stuck in between, contemporary geopolitics—as curated by the United States—is in a permanent beta phase. Neuro-torture, algorithmic warfare, drone strikes, and cybernetic nation-building are not means or ends but rather are tests. Can a polis be engineered? Can the human operating system be reformatted? Can violence be modulated until legally invisible while all the more lethal? Each incursion, each new actor or actant, and new terrains from brains to transatlantic cables—all find themselves part of a grand experiment to see if a benign or at least sustainable empire is possible. There is no seeming regard for the fact that each experiment directly competes with Thomas Jefferson’s democratic experiment. One wonders if freedom can even exist anywhere other than temporarily on the fringe of some neglected order. Is this some metaphysical condition of freedom, or is the world so supersaturated with martial orders that the ragged edges between imperial orders are all that we have left? It feels like freedom’s remains persist only in the ruins of everything else. No space is left that can be truly indifferent to the law, security, or economy. Such is the new life of a human in debt. The social contract has been refinanced as what is owed and nothing more: politics without equity. Inequity without equality.

What about the impending collapse of the post–World War II order, the self-destruction of the United States, the rise of China and a new world order? If humanity lasts long enough for China to put its stamp on the human apocalypse, I will write a new introduction. Until then, we live in the death rattle of Pax Americana. While I think the totality of this claim is true, I do not want to rule out that many of us throughout the world still make lives otherwise. Many of us even thrive in spite of it all. And yet, no form of life can be made that escapes the fact that everything can come to a sudden and arbitrary end thanks to the whim of an American drone operator, nuclear catastrophe, or macroeconomic manipulation like sanctions. There are other ways to die and other organized forms of killing outside the control of the United States; however, no other single apparatus can make everyone or anyone die irrespective of citizenship or geographic location. For me, this is the most inescapable philosophical provocation of our moment in time.

The haphazard and seemingly limitless nature of U.S. violence means that even the core principles of the great political realist concepts like order and national interest are being displaced by subterranean violence entrepreneurs that populate transversal battlefields, security corridors, and border zones. Mercenaries, drug lords, chief executive officers, presidents, and sports commissioners are more alike than ever. Doomsayers like Paul Virilio, Lewis Mumford, and Martin Heidegger foretold a kind of terminal and self-annihilating velocity for geopolitics’ technological saturation, but even their lack of imagination appears optimistic. American geopolitics does not know totality or finality; it bleeds, mutates, and reforms. Furthermore, the peril of biopolitics seems now almost romantic. To make life live? Perchance to dream. The care and concern for life’s productivity is increasingly subsumed by plasticity—forming and reforming without regard to the telos of productivity, division, or normative order.

There are, of course, still orders in our geoplastic age, but they are almost unrecognizable as such. When so many citizens and states are directly invested in sabotaging publicly stated strategic ends, then concepts like national interest seem equally quaint. We are witnessing creative and horrifying experiments in the affirmative production of dying, which also deprive those targeted and in some cases whole populations from the relief of death. To follow Rucker, I want to try to see the world for what it is. We can only say that tragedy is no longer a genre of geopolitics. Tragedy redeems. The occluded character of contemporary geopolitics shoehorned into experience produces the feeling that there is no relief, no reason, no victory, no defeats, and no exit within the confines of national security’s constricted world. This is not tragedy: it is horror. We live in an age of horror that, like the victims of gore movies who never quite die so that they can be tortured more, furthers our practice of collective violence and goes on for decades as a kind of sustainable warfare.

Why would I bother with the “night side” of ir theory? In part, I wish to move away from the rationalist fallacy among both defenders and critics of empire. There is a shared belief in the strategic competence of nations like the United States. Even those most vocally critical often see in the covert operations and vast military occupations a kind of purpose or conspiracy. The debate about empire then becomes about its moral virtue rather than the factual question of the strategic competence of imperial states. However, the lives of millions annihilated in Iraq, Yemen, Afghanistan, and now increasngly throughout the continent of Africa do not reflect an amoral strategic competence. The mass murder in pursuit of the war on terrorism and its vision of nation-building is the result of lethal ~~stupidity~~  [silliness].48 In some sense, the investigative journalism of Jeremy Scahill and Glen Greenwald attributes too much reason and order to the catastrophic floundering of the American empire.49 To see even a dark vision of order in the last thirty years of U.S. policy is itself a form of optimism. No one is in control, there is no conspiracy, and yet the killing continues. A pessimistic reading of U.S. empire and the geopolitical history that precedes it is neither tragedy nor farce. It is a catastrophic banality lacking in any and all history, a pile of nonevents so suffocating that we often hope for a conspiracy, punctuating event, or villain worthy of the Introduction—25 scale of violence.50 For those of us who continually rewatch the reruns of The Walking Dead and Jericho on our laptops in bed, we are waiting for relief in our privileged but increasingly fragile bubble. I know I am not the only one who finds respite from the weight of politics’ “cruel optimism” by watching fantasies of cruel pessimism. A pessimistic understanding of global politics helps explain how we could come to a place where there is a sense of relief in watching everything come to an end.5

#### **The 1AC’s focus on space governance is driven by the desire to prevent the collapse of the international- restrictions are self-imposed in an attempt to preserve the system**

Shammas and Holen 19—Victor Shammas and Tomas B Holen, Oslo Metropolitan University, Work Research Institute (AFI), Oslo, Norway and Independent scholar, Oslo, Norway. (“One giant leap for capitalistkind: private enterprise in outer space” Palgrave Communications volume 5, Article number: 10 (2019)) // sosa

The spatial fix of outer space

No longer terra nullius, space is now the new terra firma of capitalistkind: its naturalized terroir, its next necessary terrain. The logic of capitalism dictates that capital should seek to expand outwards into the vastness of space, a point recognized by a recent ethnography of NewSpace actors (Valentine, 2016, p. 1050). The operations of capitalistkind serve to resolve a series of (potential) crises of capitalism, revolving around the slow, steady decline of spatial fixes (see e.g., Harvey, 1985, p. 51–66) as they come crashing up against the quickly vanishing blank spaces remaining on earthly maps and declining (terrestrial) opportunities for profitable investment of surplus capital (Dickens and Ormrod, 2007a, p. 49–78).

A ‘spatial fix' involves the geographic modulation of capital accumulation, consisting in the outward expansion of capital onto new geographic terrains, or into new spaces, with the aim of filling a gap in the home terrains of capital. Jessop (2006, p. 149) notes that spatial fixes may involve a number of strategies, including the creation of new markets within the capitalist world, engaging in trade with non-capitalist economies, and exporting surplus capital to undeveloped or underdeveloped regions. The first two address the problem of insufficient demand and the latter option creates a productive (or valorizing) outlet for excess capital. Capitalism must regularly discover, develop, and appropriate such new spaces because of its inherent tendency to generate surplus capital, i.e., capital bereft of profitable purpose. In Harvey’s (2006, p. xviii) terms, a spatial fix revolves around ‘geographical expansions and restructuring…as a temporary solution to crises understood…in terms of the overaccumulation of capital'. It is a temporary solution because these newly appropriated spaces will in turn become exhausted of profitable potential and are likely to produce their own stocks of surplus capital; while ‘capital surpluses that otherwise stood to be devalued, could be absorbed through geographical expansions and spatio-temporal displacements' (Harvey, 2006, p. xviii), this outwards drive of capitalism is inherently limitless: there is no end point or final destination for capitalism. Instead, capitalism must continuously propel itself onwards in search of pristine sites of renewed capital accumulation. In this way, Harvey writes, society constantly ‘creates fresh productive powers elsewhere to absorb its overaccumulated capital' (Harvey, 1981, p. 8).

Historically, spatial fixes have played an important role in conserving the capitalist system. As Jessop (2006, p. 149) points out, ‘The export of surplus money capital, surplus commodities, and/or surplus labour-power outside the space(s) where they originate enabled capital to avoid, at least for a period, the threat of devaluation'. But these new spaces for capital are not necessarily limited to physical terrains, as with colonial expansion in the nineteenth century; as Greene and Joseph (2015) note, various digital spaces, such as the Internet, can also be considered as spatial fixes: the Web absorbs overaccumulated capital, heightens consumption of virtual and physical goods, and makes inexpensive, flexible sources of labor available to employers. Greene and Joseph offer the example of online high-speed frequency trading as a digital spatial fix that furthers the ‘annihilation of space by time' first noted by Marx in his Grundrisse (see Marx, 1973, p. 524).

Outer space serves at least two purposes in this regard. In the short-to medium-term, it allows for the export of surplus capital into emerging industries, such as satellite imaging and communication. These are significant sites of capital accumulation: global revenues in the worldwide satellite market in 2016 amounted to $260 billion (SIA, 2017, p. 4). Clearly, much of this activity is taking place ‘on the ground'; it is occurring in the ‘terrestrial economy'. But all that capital would have to find some other meaningful or productive outlet were it not for the expansion of capital into space. Second, outer space serves as an arena of technological innovation, which feeds back into the terrestrial economy, helping to avert crisis by pushing capital out of technological stagnation and innovation shortfalls.

In short, outer space serves as a spatial fix. It swallows up surplus capital, promising to deliver valuable resources, technological innovations, and communication services to capitalists back on Earth. This places outer space on the same level as traditional colonization, analyzed in Hegel’s Philosophy of Right, which Hegel thought of as a product of the ‘inner dialectic of civil society', which drives the market to ‘push beyond its own limits and seek markets, and so its necessary means of subsistence, in other lands which are either deficient in the goods it has overproduced, or else generally backward in creative industry, etc.' (Hegel, 2008, p. 222). In this regard, SpaceX and related ventures are not so very different from maritime colonialists and the trader-exploiters of the British East India Company. But there is something new at stake. As the Silicon Valley entrepreneur Peter Diamandis has gleefully noted: ‘There are twenty-trillion-dollar checks up there, waiting to be cashed!' (Seaney and Glendenning, 2016). Capitalistkind consists in the naturalization of capitalist consciousness and practice, the (false) universalization of a particular mode of political economy as inherent to the human condition, followed by the projection of this naturalized universality into space—capitalist humanity as a Fukuyamite ‘end of history', the end-point of (earthly) historical unfolding, but the starting point of humanity’s first serious advances in space.

What role, then, for the state? The frontiersmen of NewSpace tend to think of themselves as libertarians, pioneers beyond the domain of state bureaucracy (see Nelson and Block, 2018). ‘The government should leave the design work and ownership of the product to the private sector', the author of a 2017 report, Capitalism in Space, advocates. ‘The private companies know best how to build their own products to maximize performance while lowering cost' (Zimmerman, 2017, p. 27). One ethnographer notes that ‘politically, right-libertarianism prevails' amongst NewSpace entrepreneurs (Valentine, 2016, p. 1047–1048). Just as Donald Rumsfeld dismissed the opponents to the Iraq War as ‘Old Europe', so too are state entities’ interests in space exploration shrugged off as symptoms of ‘Old Space'. Elon Musk, we are told in a recent biography, unlike the sluggish Big State actors of yore, ‘would apply some of the start-up techniques he’d learned in Silicon Valley to run SpaceX lean and fast…As a private company, SpaceX would also avoid the waste and cost overruns associated with government contractors' (Vance, 2015, p. 114). This libertarianism-in-space has found a willing chorus of academic supporters. The legal scholar Virgiliu Pop introduces the notion of the frontier paradigm (combining laissez-faire economics, market competition, and an individualist ethic) into the domain of space law, claiming that this paradigm has ‘proven its worth on our planet' and will ‘most likely…do so in the extraterrestrial realms' as well (Pop, 2009, p. vi). This frontier paradigm is not entirely new: a ‘Columbus mythology', centering on the ‘noble explorer', was continuously evoked in the United States during the Cold War space race (Dickens and Ormrod, 2016, pp. 79, 162–164).

But the entrepreneurial libertarianism of capitalistkind is undermined by the reliance of the entire NewSpace complex on extensive support from the state, ‘a public-private financing model underpinning long-shot start-ups' that in the case of Musk’s three main companies (SpaceX, SolarCity Corp., and Tesla) has been underpinned by $4.9 billion dollars in government subsidies (Hirsch, 2015). In the nascent field of space tourism, Cohen (2017) argues that what began as an almost entirely private venture quickly ground to a halt in the face of insurmountable technical and financial obstacles, only solved by piggybacking on large state-run projects, such as selling trips to the International Space Station, against the objections of NASA scientists. The business model of NewSpace depends on the taxpayer’s dollar while making pretensions to individual selfreliance. The vast majority of present-day clients of private aerospace corporations are government clients, usually military in origin. Furthermore, the bulk of rocket launches in the United States take place on government property, usually operated by the US Air Force or NASA.13

This inward tension between state dependency and capitalist autonomy is itself a product of neoliberalism’s contradictory demand for a minimal, “slim” state, while simultaneously (and in fact) relying on a state reengineered and retooled for the purposes of capital accumulation (Wacquant, 2012). As Lazzarato writes, ‘To be able to be “laissez-faire”, it is necessary to intervene a great deal' (2017, p. 7). Space libertarianism is libertarian in name only: behind every NewSpace venture looms a thick web of government spending programs, regulatory agencies, public infrastructure, and universities bolstered by research grants from the state. SpaceX would not exist were it not for state-sponsored contracts of satellite launches. Similarly, in 2018, the US Defense Advanced Research Projects Agency (DARPA)—the famed origin of the World Wide Web—announced that it would launch a ‘responsive launch competition', meaning essentially the reuse of launch vehicles, representing an attempt by the state to ‘harness growing commercial capabilities' and place them in the service of the state’s interest in ensuring ‘national security' (Foust, 2018b).

This libertarianism has been steadily growing in the nexus between Silicon Valley, Stanford University, Wall Street, and the Washington political establishment, which tend to place a high value on Randian ‘objectivism' and participate in a long American intellectual heritage of individualistic ‘bootstrapping' and (allegedly) gritty self-reliance. But as Nelson and Block (2018, p. 189–197) recognize, one of the central symbolic operations of capitalistkind resides in concealing its reliance on the state by mobilizing the charm of its entrepreneurial constituents and the spectacle of space. There is a case to be made for the idea that SpaceX and its ilk resemble semi-private corporations like the British East India Company. The latter, “incorporated by royal charter from Her Majesty Queen Elizabeth I in 1600 to trade in silk and spices, and other profitable Indian commodities,” recruited soldiers and built a ‘commercial business [that] quickly became a business of conquest' (Tharoor, 2017). SpaceX, too, is increasingly imbricated with an attempt on the part of a particular state, the United States, to colonize and appropriate resources derived from a particular area, that of outer space; it, too, depends on the infrastructure, contracts, and regulatory environment that thus far only a state seems able to provide. Its private character, like that of the East India Company, is troubled by being deeply embedded in the state. As one commentator has observed of SpaceX, ‘If there’s a consistent charge against Elon Musk and his high-flying companies…it’s that they’re not really examples of independent, innovative market capitalism. Rather, they’re government contractors, dependent on taxpayer money to stay afloat' (cit. Nelson and Block, 2018, p. 189).

Perhaps this should not come as a surprise. As Bourdieu (2005, p. 12) observed, ‘The economic field is, more than any other, inhabited by the state, which contributes at every moment to its existence and persistence, and also to the structure of the relations of force that characterize it'. The state lays out the preconditions for market exchanges. Under neoliberalism, the state is the preeminent facilitator of markets. The neoliberal state is not so much a Minimalstaat, night watchman state, or slim state as it is the prima causa of market society (see, e.g., Wacquant, 2012). Similarly, in the political theory of Deleuze and Guattari, any economic development presupposes the political differentiation caused by the state (Deleuze and Guattari, 2004a, p. 237–238). Even in the global environment of contemporary capitalism, the market cannot operate without the state becoming integrated with capitalism itself, as ‘it is the modern state that gives capitalism its models of realization' (Deleuze and Guattari, 2004b, p. 480). For capitalism to survive in outer space, the state must create a regulatory environment, subsidize infrastructure, and hand down contracts – in short, assemble outer space as a domain made accessible in legal, technical, and economic ways.

#### The framing of satellites being the bastion of deterrence reifies insecurity, reinforcing conformation bias and a global pursuit of violence.

Masco, 12 (Joseph, Prof. of Anthropology @ U. of Chicago, “The End of Ends” *Anthropological Quarterly*, Vol. 85, No. 4 (Fall 2012), pp. 1107-1124) ask for PDF // sosa

In an extreme age, we might well ask: what are the possibilities for a productive shock, an experience or insight that would allow us to rethink the terms of everyday life? In the discipline of biology, the recent discov- ery of microbial extremophiles in deep-sea volcanic vents has fundamen- tally challenged longstanding scientific definitions of life (Helmreich 2008). Living under conditions of extreme heat and pressure, these methane- eating beings have redefined the very limits of life on planet Earth and beyond. What could produce a similar effect in the domain of security? Opportunities for such a critique are ever present, an endless stream of moments in fact, yet constantly **subsumed by the normalizing effects** of a national security culture committed to a **constant state of emergency**. A return to basic questions of how to define profit, loss, and sustainability is a key concern today in the US and this paper asks what kind of analy- sis could begin to redefine the limits of a collective security? What kind of **de-familiarization** and/or **productive shock** might allow insight into the cultural terms of expert judgment today in the US, allowing us to **rethink** the logics and practices that have simultaneously produced a **global war on terror**, a global **financial meltdown**, **and a planetary climate crisis**? How can Americans- extremophiles of the national sort- assess their own his- tory within a national-cultural formation devoted to the **normalization of violence (as war, as boom and bust capitalism, as environmental ruin**) as the basis for everyday life? This short paper does not provide an answer to these questions (would that it could!), but rather seeks to offer a provocation and a meditation on paths constantly not taken in US national security culture. It asks: how can we read against the normalizing processes of the security state to assess **alternative futures,** alternative visions rendered invisible by the complex **logistics of military science, economic rationality**, and **global governance**? To do so is to break from the normalizing force of everyday national security/capitalism, and interrogate the assumed structures of security and risk that support a global American military deployment and permanent war posture. To accomplish this kind of critical maneuver, however, one needs to be able to recognize the **alternative futures rendered void** by the **specific configurations of politics and threat** empowering **military industrial action** at a given moment. An extreme critique requires the ability to assess the alternative costs and benefits that remain suspended within the spaces of an everyday American life constantly rehearsing (via media, political culture, and military action) terror as normality. What follows then is both an examination and a performance of extremity- pushing a critical history and theory well beyond the usual scholarly comfort level. It seeks less to settle and explain than to agitate and provoke. To engage an extreme point of view on crisis, both exterior and ob- jective, let's turn to a spectacular new technology that seemed to offer just such a perspective on US security culture in 1960- that of an exterior gaze on planet Earth. **The first satellite imagery** was not only a techno- logical revolution of profound importance to the military (and ultimately the earth and information sciences), it also **constituted a rare moment of ob- jective critique to** American Cold War fantasies at their most virulent and violent. Covert and extremely fragile, the first Corona satellite was secretly launched into outer space in August of 1 960, offering a new optics on Cold War military technologies and fantasies. Imagine, if you will, a rocket carrying not a warhead but a giant panoramic camera (see Figures 1 and 2), slung into a low orbit over Europe, running a long reel of 70mm film, spe- cially designed by Kodak to function in outer space. The satellite makes a series of orbits exposing its film over designated areas, and then ejects a fire-proof capsule carrying the film, sending it back into Earth's atmosphere (see Figure 3). As the capsule descends via a series of parachutes, it emits a homing signal, allowing a specially equipped plane to detect the signal and swoop in, capturing the now charred film canister in mid-air via a gi- ant hook (see Figure 4). On August 18, 1960 the Corona Project became the first space based reconnaissance system, providing the CIA with the first satellite photographs of Soviet military installations (see Figures 5 and 6; as well as Day, Logsdon, and Latell 1998; and Peebles 1997). Corona provided the most accurate images of Soviet military capabilities to date, offering concrete photographic evidence of Soviet missile capabilities at a time of near hysterical speculation about imminent Soviet attack. Soon US officials knew via photo- graphic documentation of commu- nist military bases that the Soviets did not have a vast and growing ICBM superiority capable of over- whelming US defenses. In fact, the US had something on the order of a ten to one advantage in missiles, and even more in nuclear devices. At this moment in the Cold War, **outer space provided the only clear view of nuclear threat- providing a series of photographs that dramatically changed how US officials viewed the immediacy of nuclear war** (Richelson 2006). Over the next decade, **the race to the moon became the public face of a covert enterprise to extend and expand space surveillance**. Plans for manned photographic studios in space with Hubble telescope- sized lenses pointed toward Earth, soon were enhanced by digital communications that allowed in- stant data transmission (see Willis and Bamford 2007). The Corona cameras evolved quickly, moving from the 40-foot resolution offered in 1960 to five-foot resolution by 1967, a revolution in optics that was soon followed by digital satellite systems capable of three-inch resolution, in- frared imaging, and the near instantaneous transfer of information. These remote sensing technologies have since revolutionized everything from geography, to climate sciences, to the now ubiquitous GPS systems and Google Earth. The Central Intelligence Agency (CIA) has long considered the Corona satellite one of its most im- portant achievements, a pure suc- cess story. As Director of the CIA, Richard Helms held a ceremony in honor of the Corona Program's re- tirement in 1 972 (in favor of the next generation digital satellite system). He presented a documentary film, entitled "A Point in Time" to CIA personnel detailing the crucial his- tory of the top-secret program, its technological achievements, and its central role in Cold War geopolitics. litics. A Corona capsule and an exten- sive photographic display of Corona satellite imagery was then centrally installed at CIA Headquarters in Langley to document its success for all future employees. On display there through the end of the Cold War, com- ponents of this exhibit can now be seen at the Smithsonian Air and Space Museum. The extensive Corona photographic archive became available Corona as a fantastically successful covert spy system and others today value its photographic record for non-military scientific research, a basic lesson of the Corona achievement remains unrecognized: the first satellite system not only offered a new optic on Soviet technology, it also revealed how fantastical American assessments of Soviet capabilities were in the 1 950s. It offered a new remote viewing photography but also new insight into the American national security imaginary. The first Corona images have as much to say about the ferocious US commitment to nuclear weapons and a global nuclear war machine already set on a minute-to-minute trig- ger by 1960, as about Soviet weapons. The first Corona images contra- dicted expert US judgments of Soviet capabilities and desires, providing a powerful counterweight against arguments for a preemptive US attack on the Soviet Union. The slightly blurry satellite photographs thus held the potential for a radical critique of American perceptions of the Soviet Union, showing that US officials were as much at war with their own apocalyptic projections in 1 960 as with Soviet plans for territorial expansion. An anthropology of extremes requires a non-normative reading of cul- ture and history, an effort to push past consensus logics to interrogate what alternative visions, projects, and futures are left unexplored at a given historical moment. The rapidly evolving historical archive provides one op- portunity for this kind of critique: our understanding of the 20th century American security state is changing with each newly declassified program and document, dramatically reshaping what we know about US policy, mil- itary science, and threat assessments since World War II. The Corona pho- tographs are a compelling illustration of the power of the evolving national security archive. As the enormous military state apparatus that constitutes the core of the American political and economic machine is grudgingly opened to new kinds of conceptual interrogation, Americans should seize the opportunity to learn about their own commitments, political processes, and security imaginaries. Indeed, the national security archive is one place where we can formally consider how the 20th century "balance of terror" has been remade in the 21st century as a "war on terror"- following the affective politics, technological fetishisms, and geopolitical ambitions that have come to structure US security culture. The declassified Cold War ar- chive allows us to pursue an extreme reading of US security culture, one committed to pushing past official policy logics at moments of heightened emergency to consider how threat, historical contingency, technological revolution, propaganda, and geopolitical ambition combine in a specific moment of extreme risk. The first Corona images, for example, constitute a moment when administrators of the national security state had their own logics and fears negated in the form of direct photographic evidence, opening a potential conceptual space for radical reassessment of their own ambitions, perceptions, and drives, powerfully revealed in black and white photos as fantasy. We might well ask why the Corona imagery (and any number of similar moments when existential threat has objectively dissolved into mere projection**- most** recently, the missing weapons of mass destruction used to justify the US invasion of Iraq in 2003)- did not pro- duce a radical self-critique **in the US**. The Cold War nuclear standoff installed **existential threat as a core structure of everyday American life**, making nuclear fear the coordinat- ing principle of US geo-policy and a **new psychosocial reality** for citizens increasingly connected via images of their own imminent death. Indeed, few societies have prepared so meticulously for collective death as did Cold War America while simultaneously denying the possibility of an ac- tual ending. From large scale civil defense drills in which the destruction of the nation-state became a kind of public theater, to the articulation of a Cold War militarism that understood all global political events as condi- tioning everyday American life, the height of the Cold War worked in novel ways both to enable and deny the possibility of a collective death (Masco 2008). **The early history of the Corona Satellite System offers a compel- ling story about the technological achievement of a total ending, and the Cold War hysteria of the years 1957-1962 in the US**. This is a moment of maximal danger but also of new perspectives- crucially those derived from outer space- that momentarily opened up multiple contingent and radically different security futures. For an anthropology of extremes, this period of Cold War can be approached as an ur-moment; foundational in terms of the technology, theory, politics, and ambitions supporting the American security state. Interrogating this first period of global nuclear danger via recently declassified materials allows us to ask: how does one end the possibility of a total ending? How does a society pursuing war as a normalized condition of everyday life pause and reflect on its own intel- lectual and psychosocial processes? Within modern political theory the means to an end has been embed- ded within the very concept of rationality, making ends and means syn- onymous with progress, a perpetual engine of improving the infrastruc- tures of everyday life as well as the morality of those living within it. Within this modernity- glossed here as the application of reason to nature as progress- we have few efforts to theorize the reality or implication of con- ceptual blockages or blindnesses within the very notion of security. The assumption that instrumental reason is not only a means to an end but an essential good structures a Euro-American modernity in which supersti- tion is set against the possibility of an unending technological progress (Horkheimer and Adorno 2002:1). Benjamin (1969) offers perhaps the most powerful critique of "progress" by showing how the promise of the "new" can be the vehicle of social mystification and entrenchment. His call to "brush history against the grain" and establish a critical method that can "seize hold of a memory as it flashes up at a moment of danger" is ultimately a call to resist the normalization (and naturalization) of violence in everyday life. But how, and under what terms, can this be accomplished in a national security state that is premised on the total ending of nuclear war? Having built the war machine as a global system, how can a society turn towards an alternative notion of security, one not grounded in the technological possibility of total nuclear war? How, indeed, does thinking about an absolute ending work to install a new set of fantasies and short circuits that prevent reflexive critique? How do rational modes of planning work not to eliminate the possibility of collective death but rather, through self-mystification, to install its pos- sibility ever deeper into an expert state system? Kant (1986) articulated one central area where reason is installed as a compensation for a lack of understanding in his notion of the sublime. Sublime experience, in his view, overwhelms the human sensorium providing that strange mix of pleasure and terror involved in surpassing one's cognitive limit. For Kant, the experi- ence of incomprehensibility is then managed by an act of categorizing- by a naming of the event- rather than through understanding. Compensation rather than comprehension is thus achieved, installing at the very center of his notion of reason an irreducible problem about means, ends, and the ability of human beings in extreme moments to comprehend both. "Terror" has an inherent sublimity, one that has been multiplied across contempo- rary crisis- war, economy, environment- to create a new complex con- figuration of planetary risk that exceeds the power of the national security state (Masco 201 0). Nuclear terror, as a permanent state system, however, is not a momentary experience (as Kant's sublime requires) but is instead a global infrastructure- one that coordinates American military power as well as its domestic politics. This infrastructure requires constant affective as well as technological support, merging complex social and technologi- cal processes that become fused in perceptions of global risk. Put differently, instrumental reason has orchestrated our globalized, economized, technologized modernity but it has also installed a set of compensations for those events, desires, and biological facts that dis- rupt specific calculations of progress/profit. By the mid-20th century, the products of instrumental reason- the very means to an end- produced new forms of war that ultimately challenged the survival of the species. The atomic bomb stands as both a rational technology- produced via the combined work of physicists, engineers, chemists, industrialists, military planners, defense intellectuals, and civilian policy makers- and as a limit case to that instrumental reason (see Edwards 1996, Oakes 1994). In the early days of the nuclear age, some Manhattan Project scientists hoped this new technology would be so terrible that it would simply end the pos- sibility of war (e.g., Federation of American Scientists 1946). Instead, US war planners built a global system for nuclear war that could end life itself within a few minutes of actual conflict. Each new nuclear system- bomb- er, submarine, and missile- was both a technological achievement of the first order and an accelerating progression towards the end of modernity in the form of nuclear war. What these technical experts were attempting to negotiate through engineering is a basic relationship to death, a perverse project of build- ing ever more destructive machines in the name of producing "security." Indeed, **displacing** the threat of **one machine** (the bomb) with another (the bomb) became the basis for **deterrence theory, a way of organizing and containing the thought of death by expanding technological systems**. Freud (1991) saw this contradiction in militarism early on, and in his remarkable 1915 essay "Thoughts for the Times on War and Death" he is definitive that it is impossible to comprehend- to actually believe in- one's own death. Thus, he notes, even as the human organism moves closer to death with each tick of the clock, the ego pursues a program of immortality and works **to relocate the** onrushing **reality of death to exterior locations**- to novels, to foreign populations, to distant wars, **to a radical outside**. Thus, the thought of an "ending" here literally pro- duces a new set of means- fantasies, projections, displacements, and amnesias all mobilized to suture together an idea of an eternal self. In American national-culture, the Cold War performed this task through a series of circuits: the communist threat was simultaneously everywhere and nowhere, and the immanent threat of nuclear war was mitigated by a fetishistic focus on technological detail. Cold War planners managed the threat of nuclear war through constant proliferation- of weapons, deliv- ery systems, images, theories, and calculations. Through this prolifera- tion, Cold War planners pursued a program of intellectual compensation for the confrontation with a new kind of death. They did so by mobilizing all national resources (changing the very temporal horizon of war from days, to hours, to minutes in the process), as well as by pursuing proxy wars and covert actions around the world. In the process, Americans learned how to be committed to total war as a precondition for everyday life while locating death as exterior to the nation, even as the war machine grew ferociously in its technological capacities. This represents a distinc- tive national-cultural achievement: a notion of security that brings collective death ever closer in an attempt to fix its location with ever more precision. By the time of the first Corona photograph, the US nuclear system was on constant and permanent alert, managing a global war machine on a minute-by-minute temporal scale- one that imagined a Soviet nuclear strike coming with less than seven minutes warning (Keeney 201 1 :1 86).

#### Voting negative adopts failed IR for a healthy dose of pessimism – at the end of the world, all we can do is be buried alive together.

Grove ‘19

[Jarius, PoliSci at the University of Hawai’i. 2019. “Savage Ecology: War and Geopolitics in the Anthropocene.”] pat // rc sosa– ask for pdf

Failed ir affirms the power of this kind of negative thinking as an alternative to the endless rehearsing of moralizing insights and strategic foresight. The negative is not “against” or reacting to something. Rather, it is the affirmation of a freedom beyond the limits of life and death. That is, it is making a life by continuing to think about the world, even if that thinking is not recuperative, and even if nothing we think can save us. In the face of it all, one celebrates useless thinking, useless scholarship, and useless forms of life at the very moment we are told to throw them all under the bus in the name of survival at all costs. This is a logic referred to lately as hope and it is as cruel as it is anxiety inducing. Hope is a form of extortion. We are told that it is our obligation to bear the weight of making things better while being chided that the failure of our efforts is the result of not believing in the possibility of real change. In such an environment, pessimism is often treated as a form of treason, as if only neoliberals and moral degenerates give up—or so goes the op-ed’s insisting upon the renewed possibility of redemption.

In response to these exhortations, pessimism offers a historical atheism, both methodologically and morally. The universe does not bend toward justice. Sometimes the universe bends toward the indifference of gravity wells and black holes. Affirming negativity, inspired by Achille Mbembe, is grounds for freedom, even if that freedom or relief is only fleeting and always insecure. I am not arrogant enough to think a book can attain freedom of this sort, but this book is inspired by refusals of critique as redemption in favor of useless critique and critique for its own sake.

That the pursuit of knowledge without immediate application is so thoroughly useless, even profane, is a diagnosis of our current moment. The neoliberal assault on the university is evidence of this condition, as is the current pitch of American politics. Our indifference as intellectuals to maximizing value has not gone unnoticed. We are still dangerous, worthy of vilification, of attack, sabotage, and derision because we fail so decadently. We are parasites according to Scott Walker, Donald Trump, and the rest. So be it. We are and shall remain irascible irritants to a worldwide assault on thinking that is well underway and facing few obstacles in other jurisdictions.

What would failed scholarship do? Learn to die, learn to live, learn to listen, learn to be together, and learn to be generous. These virtues are useless in that they do not prevent or manage things. They do not translate into learning objectives or metrics. Virtues of this order are selfsame, nontransferable experiences. They are meaningful but not useful. These are luxurious virtues. Like grieving or joy, they are ends unto themselves. But how will these ideas seek extramural grants, contribute to an outcomes-based education system, or become a policy recommendation? They will not, and that is part of their virtue.

Even if there is no straight line to where we are and where we ought to be, I think we should get over the idea that somehow the U.S. project of liberal empire is conflicted, or “more right than it is wrong,” or pragmatically preferable to the alternatives. I hope this book can contribute to the urgent necessity to get out of the way by reveling in the catastrophic failure that should inspire humility but instead seems to embolden too many to seek global control yet again. Demolition may be an affirmative act if it means insurgents and others can be better heard. And yet this may fail too. If we can accomplish nothing at all, we can at least, as Ta-Nehisi Coates and other pessimists have said, refuse to suborn the lie of America any longer. Telling the truth, even if it cannot change the outcome of history, is a certain kind of solace. In Coates’s words, there is a kind of rapture “when you can no longer be lied to, when you have rejected the dream.” Saying the truth out loud brings with it the relief that we are not crazy. Things really are as bad as we think.

If there are those of us who want to break from this one-hundred-year-old race to be the next Henry Kissinger, then why do we continue to seek respect in the form of recognizable standards of excellence? I am not sure where the answer finally lies, but I do know that professionalization will not save us. To appear as normal and recognizably rigorous will not be enough to stave off the neoliberal drive to monetize scholarship, or to demand of us strategically useful insights. The least we can do in the face of such a battle is to find comfort in meaningful ideas and the friendships they build rather than try to perform for those we know are the problem. Some will ask, who is this “we” or is that “they”—where is your evidence? More will know exactly what I am talking about.

The virtues I seek are oriented toward an academy of refuge, a place we can still live, no matter how dire the conditions of the university and the classroom. It is not the think tank, boardroom, or command center. We are, those of us who wish to be included, the last of the philosophers, the last of the lovers of knowledge, the deviants who should revel in what Harney and Moten have called the undercommons.

In one of his final lectures, Bataille speaks of the remnants of a different human species, something not quite so doomed, something that wasted its newly discovered consciousness and tool-being on the art that still marks the walls of prehistoric caves. This lingering minor or vestigial heritage is philosophy’s beginning. Philosophy survives war, atrocity, famine, and crusades. Thinking matters in a very unusual way. Thinking is not power or emancipation. Thinking matters for a sense of belonging to the world, and for believing in the fecundity of the world despite evidence to the contrary.

How do you get all this from pessimism, from failure? Because willing failure is a temptation, a lure to think otherwise, to think dangerous thoughts. Pessimism is a threat to indifferentism and nihilism in the sense of the phenomenon of Donald Trump. Pessimism is a provocation and an enemy of skepticism, particularly of the metaphysical variety. It is not redemption from these afflictions, but in pessimism there is solace in the real. To put it another way, to study the world as it is means to care for it.

The exhortation that our care or interest should be contingent on how useful the world is and how much of it conforms to our designs is as much opposed to care as it is to empiricism. We can study airports, poetry, endurance races, borders, bombs, plastic, and warfare, and find them all in the world. To consider the depth of their existence can be an invitation to the world rather than a prelude to another policy report. One cannot make a successful political career out of such pursuits, but you might be able to make a life out of it, a life worth repeating even if nothing else happens.

At the end of Jack Halberstam’s The Queer Art of Failure, we are presented with the Fantastic Mr. Fox’s toast as an exemple of something meaningful in these dark times of ours.

They say all foxes are slightly allergic to linoleum, but it’s cool to the paw—try it. They say my tail needs to be dry cleaned twice a month, but now it’s fully detachable—see? They say our tree may never grow back, but one day, something will. Yes, these crackles are made of synthetic goose and these giblets come from artificial squab and even these apples look fake—but at least they’ve got stars on them. I guess my point is, we’ll eat tonight, and we’ll eat together. And even in this not particularly flattering light, you are without a doubt the five and a half most wonderful wild animals I’ve ever met in my life. So let’s raise our boxes—to our survival.

Halberstam says of this queer moment:

Not quite a credo, something short of a toast, a little less than a speech, but Mr. Fox gives here one of the best and most moving—both emotionally and in stop-motion terms—addresses in the history of cinema. Unlike Coraline, where survival is predicated upon a rejection of the theatrical, the queer, and the improvised, and like Where the Wild Things Are, where the disappointment of deliverance must be leavened with the pragmatism of possibility, Fantastic Mr. Fox is a queerly animated classic in that it teaches us, as Finding Nemo, Chicken Run, and so many other revolting animations before it, to believe in detachable tails, fake apples, eating together, adapting to the lighting, risk, sissy sons, and the sheer importance of survival for all those wild souls that the farmers, the teachers, the preachers, and the politicians would like to bury alive.

Although not as much fun as Halberstam’s monument to low theory, Savage Ecology is for all the other wild animals out there studying global politics. May we be buried alive together.

## Case

### 1NC – Mining

#### Turning mining + debris

#### Loss of satellites will shut down terrestrial mining

Les Johnson 13, Deputy Manager for NASA's Advanced Concepts Office at the Marshall Space Flight Center, Co-Investigator for the JAXA T-Rex Space Tether Experiment and PI of NASA's ProSEDS Experiment, Master's Degree in Physics from Vanderbilt University, Popular Science Writer, and NASA Technologist, Frequent Contributor to the Journal of the British Interplanetary Society and Member of the American Institute of Aeronautics and Astronautics, National Space Society, the World Future Society, and MENSA, Sky Alert!: When Satellites Fail, p. 105

Resource Location

Looking for rare minerals to be mined for our many gadgets, household appliances, and industrial machines? Soil type is often a strong indicator of whether or not underground deposits of metals and minerals are located. By using satellite data to identify promising surface structural features and different soil types, mining companies can better identify promising mining locations, wasting less time and effort in finding the best places to obtain much-needed industrial resources. Without satellite images, the finding and assessment of promising new mines would grind to a halt as the industries retooled back into the days of much slower and labor-intensive field surveys (but without GPS!).

#### Space mining is key to sustain global resources -- otherwise, resource wars.

MacWhorter 16 [Kevin; J.D. Candidate, William & Mary Law School, "Sustainable Mining: Incentivizing Asteroid Mining in the Name of Environmentalism", William & Mary Environmental Law and Policy Review, Vol 40, Issue 2, Article 11, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1653&context=wmelpr>] brett

A. Rare Element Mining on Earth

In the next sixty years, scientists predict that certain elements crucial to modern industry such as platinum, zinc, copper, phosphorous, lead, gold, and indium could be exhausted on Earth. 12 Many of these have no synthetic alternative, unlike chemical elements such as oil or diamonds.13 Liquid-crystal display (LCD) televisions, cellphones, and laptops are among the various consumer technologies that use precious metals.14Further, green technologies including wind turbines, solar panels, and catalytic converters require these rare elements. 15 As demand rises for both types of technologies, and as reserves of rare metals fall, prices skyrocket.16 Demand for nonrenewable resources creates conflict, and consumerism in rich countries results in harsh labor treatment for poorer countries.17

In general, the mining industry is extremely destructive to Earth’s environment.18 In fact, depending on the method employed, mining can destroy entire ecosystems by polluting water sources and contributing to deforestation.19 It is by its nature an unsustainable practice, because it involves the extraction of a finite and non-renewable resource.20 Moreover, by extracting tiny amounts of metals from relatively large quantities of ore, the mining industry contributes the largest portion of solid wastes in the world.21 The Environmental Protection Agency (EPA) describes the industry as the source of more toxic and hazardous waste than any other industrial sector [in the United States], costing billions of dollars to address the public health and environmental threats to communities. 22 Poor regulations and oxymoronic corporate definitions of sustainability, however, make it unclear as to just how much waste the industry actually produces.23

Platinum provides an excellent case study of the issue, because it is an extremely rare and expensive metal—an ore expected to exist in vast quantities in asteroids.24 Further, production of platinum has increased sharply in the past sixty years in order to keep up with growing demand for use in new technologies.25 In fact, despite their high costs, platinum group metals are so useful that [one] of [four] industrial goods on Earth require them in production. 26 Scholars do not expect demand to slow any time soon.27 Among other technologies, industries use platinum in products such as catalytic converters, jewelry production, various catalysts for chemical processing, and hydrogen fuel cells.28 While there is no consensus on how far the Earth’s reserves of platinum will take humanity, many scientists agree that platinum ore reserves will deplete in a relatively short amount of time.29

With the rate of mining at an all-time high,30 it is increasingly clear that historical patterns of mineral resources and development cannot simply be assumed to continue unaltered into the future. 31 The platinum mining industry, however, has a strong incentive to increase its rate of extraction as profits grow with the rate of demand. Without any alternative, this destructive practice will continue into the future.32

So-called platinum-group metal (PGM) ores are mined through underground or open cut techniques.33 Due to these practices, all but a very small fraction of the mined platinum ore is disposed of as solid waste.34 The environmental consequences of platinum production are thus quite significant, but like the mining industry in general, the amount of waste is typically under-reported.35

While this is due to high production levels at the moment, those levels will only increase given the estimated future demand of platinum.36 In spite of the negative consequences, mining continues unabated because it is economically important to many areas.37 The future environmental costs provide a major challenge in creating a sustainable system. Relegating at least some mining companies to near-Earth asteroids would reduce the negative effects of future mining levels on Earth. The economic benefits of mining need not be sacrificed for the sake of the environment.38

#### Terrestrial resource scarcity goes nuclear---we outweigh on timeframe, just the prospect of shortages triggers escalation.

Klare 13 [Michael T., The Nation’s defense correspondent, is professor emeritus of peace and world-security studies at Hampshire College and senior visiting fellow at the Arms Control Association in Washington, D.C. His newest book, All Hell Breaking Loose: The Pentagon’s Perspective on Climate Change, will be published this fall. 2013. “How Resource Scarcity and Climate Change Could Produce a Global Explosion,” <https://www.thenation.com/article/archive/how-resource-scarcity-and-climate-change-could-produce-global-explosion/>] brett

Brace yourself. You may not be able to tell yet, but according to global experts and the US intelligence community, the earth is already shifting under you. Whether you know it or not, you’re on a new planet, a resource-shock world of a sort humanity has never before experienced.

Two nightmare scenarios—a global scarcity of vital resources and the onset of extreme climate change—are already beginning to converge and in the coming decades are likely to produce a tidal wave of unrest, rebellion, competition and conflict. Just what this tsunami of disaster will look like may, as yet, be hard to discern, but experts warn of “water wars” over contested river systems, global food riots sparked by soaring prices for life’s basics, mass migrations of climate refugees (with resulting anti-migrant violence) and the breakdown of social order or the collapse of states. At first, such mayhem is likely to arise largely in Africa, Central Asia and other areas of the underdeveloped South, but in time, all regions of the planet will be affected.

To appreciate the power of this encroaching catastrophe, it’s necessary to examine each of the forces that are combining to produce this future cataclysm.

Resource Shortages and Resource Wars

Start with one simple given: the prospect of future scarcities of vital natural resources, including energy, water, land, food and critical minerals. This in itself would guarantee social unrest, geopolitical friction and war.

It is important to note that absolute scarcity doesn’t have to be on the horizon in any given resource category for this scenario to kick in. A lack of adequate supplies to meet the needs of a growing, ever more urbanized and industrialized global population is enough. Given the wave of extinctions that scientists are recording, some resources—particular species of fish, animals and trees, for example—will become less abundant in the decades to come, and may even disappear altogether. But key materials for modern civilization like oil, uranium and copper will simply prove harder and more costly to acquire, leading to supply bottlenecks and periodic shortages.

Oil—the single most important commodity in the international economy—provides an apt example. Although global oil supplies may actually grow in the coming decades, many experts doubt that they can be expanded sufficiently to meet the needs of a rising global middle class that is, for instance, expected to buy millions of new cars in the near future. In its 2011 World Energy Outlook, the International Energy Agency claimed that an anticipated global oil demand of 104 million barrels per day in 2035 will be satisfied. This, the report suggested, would be thanks in large part to additional supplies of “unconventional oil” (Canadian tar sands, shale oil and so on), as well as 55 million barrels of new oil from fields “yet to be found” and “yet to be developed.”

However, many analysts scoff at this optimistic assessment, arguing that rising production costs (for energy that will be ever more difficult and costly to extract), environmental opposition, warfare, corruption and other impediments will make it extremely difficult to achieve increases of this magnitude. In other words, even if production manages for a time to top the 2010 level of 87 million barrels per day, the goal of 104 million barrels will never be reached and the world’s major consumers will face virtual, if not absolute, scarcity.

Water provides another potent example. On an annual basis, the supply of drinking water provided by natural precipitation remains more or less constant: about 40,000 cubic kilometers. But much of this precipitation lands on Greenland, Antarctica, Siberia and inner Amazonia where there are very few people, so the supply available to major concentrations of humanity is often surprisingly limited. In many regions with high population levels, water supplies are already relatively sparse. This is especially true of North Africa, Central Asia and the Middle East, where the demand for water continues to grow as a result of rising populations, urbanization and the emergence of new water-intensive industries. The result, even when the supply remains constant, is an environment of increasing scarcity.

Wherever you look, the picture is roughly the same: supplies of critical resources may be rising or falling, but rarely do they appear to be outpacing demand, producing a sense of widespread and systemic scarcity. However generated, a perception of scarcity—or imminent scarcity—regularly leads to anxiety, resentment, hostility and contentiousness. This pattern is very well understood, and has been evident throughout human history.

In his book Constant Battles, for example, Steven LeBlanc, director of collections for Harvard’s Peabody Museum of Archaeology and Ethnology, notes that many ancient civilizations experienced higher levels of warfare when faced with resource shortages brought about by population growth, crop failures or persistent drought. Jared Diamond, author of the bestseller Collapse, has detected a similar pattern in Mayan civilization and the Anasazi culture of New Mexico’s Chaco Canyon. More recently, concern over adequate food for the home population was a significant factor in Japan’s invasion of Manchuria in 1931 and Germany’s invasions of Poland in 1939 and the Soviet Union in 1941, according to Lizzie Collingham, author of The Taste of War.

Although the global supply of most basic commodities has grown enormously since the end of World War II, analysts see the persistence of resource-related conflict in areas where materials remain scarce or there is anxiety about the future reliability of supplies. Many experts believe, for example, that the fighting in Darfur and other war-ravaged areas of North Africa has been driven, at least in part, by competition among desert tribes for access to scarce water supplies, exacerbated in some cases by rising population levels.

“In Darfur,” says a 2009 report from the UN Environment Programme on the role of natural resources in the conflict, “recurrent drought, increasing demographic pressures, and political marginalization are among the forces that have pushed the region into a spiral of lawlessness and violence that has led to 300,000 deaths and the displacement of more than two million people since 2003.”

Anxiety over future supplies is often also a factor in conflicts that break out over access to oil or control of contested undersea reserves of oil and natural gas. In 1979, for instance, when the Islamic revolution in Iran overthrew the Shah and the Soviets invaded Afghanistan, Washington began to fear that someday it might be denied access to Persian Gulf oil. At that point, President Jimmy Carter promptly announced what came to be called the Carter Doctrine. In his 1980 State of the Union Address, Carter affirmed that any move to impede the flow of oil from the Gulf would be viewed as a threat to America’s “vital interests” and would be repelled by “any means necessary, including military force.”

In 1990, this principle was invoked by President George H.W. Bush to justify intervention in the first Persian Gulf War, just as his son would use it, in part, to justify the 2003 invasion of Iraq. Today, it remains the basis for US plans to employ force to stop the Iranians from closing the Strait of Hormuz, the strategic waterway connecting the Persian Gulf to the Indian Ocean through which about 35 percent of the world’s seaborne oil commerce passes.

Recently, a set of resource conflicts have been rising toward the boiling point between China and its neighbors in Southeast Asia when it comes to control of offshore oil and gas reserves in the South China Sea. Although the resulting naval clashes have yet to result in a loss of life, a strong possibility of military escalation exists. A similar situation has also arisen in the East China Sea, where China and Japan are jousting for control over similarly valuable undersea reserves. Meanwhile, in the South Atlantic Ocean, Argentina and Britain are once again squabbling over the Falkland Islands (called Las Malvinas by the Argentinians) because oil has been discovered in surrounding waters.

By all accounts, resource-driven potential conflicts like these will only multiply in the years ahead as demand rises, supplies dwindle and more of what remains will be found in disputed areas. In a 2012 study titled Resources Futures, the respected British think-tank Chatham House expressed particular concern about possible resource wars over water, especially in areas like the Nile and Jordan River basins where several groups or countries must share the same river for the majority of their water supplies and few possess the wherewithal to develop alternatives. “Against this backdrop of tight supplies and competition, issues related to water rights, prices, and pollution are becoming contentious,” the report noted. “In areas with limited capacity to govern shared resources, balance competing demands, and mobilize new investments, tensions over water may erupt into more open confrontations.”

### 1NC – Debris

#### Long timeframe -- Kessler says it won’t happen for at least 30 years

Paul Ratner, 18, 8-29-2018, "How the Kessler Syndrome can end all space exploration and destroy modern life", [https://bigthink.com/paul-ratner/how-the-kessler-syndrome-can-end-all-space-exploration-and-destroy-modern-life], AVD

If a chain reaction of exploding space junk did occur, filling the orbital area with such dangerous debris, the space program would indeed be in jeopardy. Travel that goes beyond the LEO, like the planned mission to Mars, would be made more challenging but still conceivably possible. What would, of course, be affected if the Kessler Syndrome’s worst predictions came to pass, are all the services that rely on satellites. Core aspects of our modern life—GPS, television, military and scientific research—all of that would be under threat. NASA experienced a small-scale Kessler Syndrome incident in the 1970s when Delta rockets that were left in orbit started to explode into shrapnel clouds. This inspired Kessler, an astrophysicist, to show that there is a point when the amount of debris in an orbit gets to critical mass. At that point, the collision cascading would start even if no more things are launched into space. And once the chain of explosions begins, it can keep going until the orbital space can no longer be used. In Kessler’s estimate, it would take 30 to 40 years to get to such a threshold.

#### Timeframe is *super long* even if they are right about everything

Ted Muelhaupt, 15, Fall 2015, "Understanding Space Debris Causes, Mitigations, and Issues", Fall 2015 Vol. 16 No. 1, [https://aerospace.org/sites/default/files/2019-04/Crosslink%20Fall%202015%20V16N1%20.pdf], AVD

Short-term debris cascades are impossible. This may seem like a contradiction to the statement above, but one must consider the timescale. The predictions of the Kessler syndrome are quite real and broadly based, but the timescale is in decades and centuries, not hours and days. Therefore, Kessler is right, but the movies are wrong. This is a slowmotion disaster, and the good news is that it can be stopped or slowed with immediate action by the space community.

#### Uncertainty from debris collisions creates restraint not instability.

MacDonald 16, B., et al. "Crisis stability in space: China and other challenges." Foreign Policy Institute. Washington, DC (2016). (senior director of the Nonproliferation and Arms Control Project with the Center for Conflict Analysis and Prevention)//Elmer

In any crisis that threatens to escalate into major power conflict, political and military leaders will face uncertainty about the effectiveness of their plans and decisions. This uncertainty will be compounded when potential conflict extends to the space and cyber domains, where weapon effectiveness is largely untested and uncertain, infrastructure interdependencies are unclear, and damaging an adversary could also harm oneself or one’s allies. Unless the stakes become very high, no country will likely want to gamble its well-being in a “single cosmic throw of the dice,” in Harold Brown’s memorable phrase. 96 The novelty of space and cyber warfare, coupled with risk aversion and worst-case assessments, could lead space adversaries into a situation of what can be called “hysteresis,” where each adversary is restrained by its own uncertainty of success. This is conceptually shown in Figures 1 and 2 for offensive counter-space capabilities, though it applies more generally. 97 These graphs portray the hypothetical differences between perceived and actual performance capabilities of offensive counter-space weapons, on a scale from zero to one hundred percent effectiveness. Where uncertainty and risk aversion are absent for two adversaries, no difference would exist between the likely performance of their offensive counter-space assets and their confidence in the performance of those weapons: a simple, straight-line correlation would exist, as in Figure 1. The more interesting, and more realistic, case is notionally presented in Figure 2, which assumes for simplicity that the offensive capabilities of each adversary are comparable. In stark contrast to the case of Figure 1, uncertainty and risk aversion are present and become important factors. Given the high stakes involved in a possible large-scale attack against adversary space assets, a cautious adversary is more likely to be conservative in estimating the effectiveness of its offensive capabilities, while more generously assessing the capabilities of its adversary. Thus, if both side’s weapons were 50% effective and each side had a similar level of risk aversion, each may conservatively assess its own capabilities to be 30% effective and its adversary’s weapons to be 70% effective. Likewise, if each side’s weapons were 25% effective in reality, each would estimate its own capabilities to be less than 25% effective and its adversary’s to be more than 25% effective, and so on. In Figure 2, this difference appears, in oversimplified fashion, as a gap that represents the realistic worry that a country’s own weapons will under-perform while its adversary’s weapons will over-perform in terms of effectiveness. If both countries face comparable uncertainty and exhibit comparable risk aversion, each may be deterred from initiating an attack by its unwillingness to accept the necessary risks. This gap could represent an “island of stability,” as shown in Figure 2. In essence, given the enormous stakes involved in a major strike against the adversary’s space assets, a potential attacker will likely demonstrate some risk aversion, possessing less confidence in an attack’s effectiveness. It is uncertain how robust this hysteresis may prove to be, but the phenomenon may provide at least some stabilizing influence in a crisis. In the nuclear domain, the immediate, direct consequences of military use, including blast, fire, and direct radiation effects, were appreciated at the outset. Nonetheless, significant uncertainty and under-appreciation persisted with regard to the collateral, indirect, and climatological effects of using such weapons on a large scale. In contrast, the immediate, direct effects of major space conflict are not well understood, and potential indirect and interdependent effects are even less understood. Indirect effects of large-scale space and cyber warfare would be virtually impossible to confidently calculate, as the infrastructures such warfare would affect are constantly changing in design and technology. Added to this is a likely anxiety that if an attack were less successful than planned, a highly aggrieved and powerful adversary could retaliate in unanticipated ways, possibly with highly destructive consequences. As a result, two adversaries facing potential conflict may lack confidence both in the potential effectiveness of their own attacks and in the ineffectiveness of any subsequent retaliation. Such mutual uncertainty would ultimately be stabilizing, though probably not particularly robust. This is reflected in Figure 2, where each side shows more caution than the technical effectiveness of its systems may suggest. Each curve notionally represents one state’s confidence in its offensive counter-space effectiveness relative to their actual effectiveness. Until true space asset resilience becomes a trusted feature of space architectures, deterrence by risk aversion, and cross-domain deterrence, may be the only means for deterrence to function in space.

#### No miscalc from satellite disruptions, but terrestrial conflict turns it

Mazur 12 (Jonathan Mazur, Manager Engineering at Northrop Grumman, writing in Space & Defense, from the Eisenhower Center for Space and Defense Studies. Past U.S. Actions: Redlines in Space. Space & Defense, Volume 6, Number 1, Fall 2012. https://inss.ndu.edu/Portals/97/Space\_and\_Defense\_6\_1.pdf?ver=2018-09-06-135424-147)

U.S. Reactions To Foreign Disruption Of U.S. Capabilities

In the 1970s, it was suspected that a U.S. maritime communications satellite was turned off by the Soviets when it was outside of the range of U.S. tracking stations.25 There does not appear to be any documented U.S. reaction, and I suspect there was none. In the mid-1990s, satellite hackers in Brazil began hijacking U.S. military communication satellite signals to broadcast their own information, though it took until 2009 for Brazil to crack down on the illegal activity with the support of the DoD.26 In 1998, a U.S.-German satellite known as ROSAT was rendered useless after it turned suddenly toward the sun. NASA investigators later determined the accident was possibly linked to a cyber-intrusion by Russia.

The fallout? Though there was an ongoing criminal investigation as of 2008; NASA security officials have seemed determined to publicly minimize the seriousness of the threat.27 In 2003, a signal originating from Cuba—later determined to be coming from Iranian embassy property— was jamming a U.S. communications satellite that was transmitting Voice of America programming over Iran, which was publicly referred to as an “act of war” by a U.S. official. 28 Press reporting indicates the U.S. administration was [frozen]“paralyzed” about how to cope with the jamming that continued for at least a month, even after U.S. diplomatic protests to Cuba.29 In 2005, U.S. diplomats protested to the Libyan government after two international satellites were illegally jammed disrupting American diplomatic, military, and FBI communications.30 In 2006, press reporting indicates that China hit a U.S. spy satellite with a ground-based laser. This action was acknowledged by the then director of the NRO, though the DoD remained tight lipped about the incident.31

“We’re at a point where the technology’s out there, and the capability for people to do things to our satellites is there. I’m focused on it beyond any single event.” – Air Force Space Command Commander, General Chilton, 2006 32

In 2009, a U.S. commercial Iridium communications satellite—extensively used by the DoD—was accidently destroyed by a collision with a dead Russian satellite.33 The U.S. company, Iridium, was able to minimize any loss of service by implementing a network solution within a few days.34 As of early 2011, no legal action had been taken by the company either because it is not clear who was at fault or because it might be politically problematic for the United States, which is trying to enter into bi-lateral transparency and confidence-building measures (TCBM) with Russia regarding space activities.35 Since August of 2010, North Korea has been intermittently using GPS jamming equipment, which reportedly has been interfering with U.S. and South Korean military operations and civilian use south of the North Korean border.36 Reportedly, only South Korea and the United Nations International Telecommunications Union—at the request of South Korea—have issued letters to Pyongyang demanding the cessation of disruptive communications signals in South Korea.37

It appears that the only time the U.S. military has responded with force to a disruption in U.S. space capabilities was in 2003, a few days after the start of the Iraq war.38 According to U.S. officials, Iraq was using multiple GPS jammers—which supposedly did not affect military GPS functionality. However, the U.S. military bombed the jammers anyway after a diplomatic complaint to Russia.39 The use of military force against the GPS jamming threat was possibly because the United States was already intervening in Iraq, and the bombing probably would not have occurred if the United States was not at war.

### Turn – 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.

#### Drone prolif is inevitable and causes global nuclear war

Dr. Michael C. Horowitz 19, Professor of Political Science at University of Pennsylvania, NDT Champion from Emory University, PhD in Government from Harvard University, Adjunct Senior Fellow at the Center for a New American Security, “When Speed Kills: Autonomous Weapon Systems, Deterrence, and Stability”, 5/2/2019, https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3348356

Thus, the reason to deploy autonomous systems would have to be their reliability and effectiveness rather than signaling. And giving up human control to algorithms in a crisis that could end with global nuclear war would require an extremely high level of perceived reliability and effectiveness. Few things are more important to militaries in crisis situations than informational awareness and control over decisions, and there might be fear that autonomous systems are prone to accidents.

This counterfactual illustrates that the development and deployment of lethal autonomous weapon systems by national militaries, if it occurs, is unlikely to have simple, easy, and linear consequences. Instead, human factors, including the psychological desire for control and organizational politics, will strongly shape how militaries think about developing and using LAWS. This will not just influence the potential for arms races in peacetime, but deterrence and wartime stability due to the organizational processes militaries implement for the deployment and use of autonomous systems on the battlefield.

This paper draws on research in strategic studies and examples from military history to assess how LAWS could influence the development and deployment of military systems, including arms races, crisis stability, and wartime stability, especially the risk of escalation. It also discusses the potential for arms control. It focuses on these questions through the lens of key characteristics of LAWS, especially the potential for increased operational speed and, simultaneously, less human control over battlefield choices. One of the primary attractions of autonomous systems, even compared to remotely piloted systems, is the potential to operate at machine speed. Another potential benefit is the possibility of machine-like accuracy in following programming, but that comes with a potential downside: the loss of control and the accompanying risk of accidents, adversarial spoofing, and miscalculation. Even if LAWS malfunction at the same rate as humans in a given scenario, the ability of operators to control the impact of those malfunctions may be lower, which could make LAWS less predictable on the battlefield. The paper then examines how these issues interact with the large uncertainty parameter associated with AI-based military capabilities at present, both in terms of the range of the possible and the opacity of their programming.

The results highlight several critical issues surrounding the development and deployment of LAWS.1 First, the desire to fight at machine speed with autonomous systems, while making a military more effective in a conflict, could increase crisis instability. As countries fear losing conflicts faster, it will generate escalation pressure, including an increased incentive for first strikes. Second, in addition to the actual risk of accidents and miscalculation from LAWS, the fear of accidents and losing control of autonomous systems could limit the willingness of militaries to deploy them, particularly since many militaries are conservative when it comes to emerging technologies and have high standards for system reliability. Third, the dual-use, or even general purpose, character of the basic science underlying many autonomous systems will make the technology hard to control, giving many countries and actors access to basic algorithms, though whether this is described as diffusion, proliferation, or an arms race will depend on political dynamics as much as anything.

Finally, multiple uncertainty parameters concerning lethal autonomous weapon systems could exacerbate security dilemmas. Uncertainty over the range of the possible concerning the programming of lethal autonomous weapon systems will increase fear of those systems in the near term, making restraint less likely for competitive reasons. Moreover, the inherent differences between remotely piloted systems and LAWS at the platform level come from software, not hardware. There is arguably an inherent opacity to lethal autonomous weapon systems. If an arms race over lethal autonomous weapon systems occurs, it will likely be because of worse-case assumptions about capability development by potential adversaries.

What is Autonomy or Artificial Intelligence?

Artificial intelligence is the use of computing power, in the form of algorithms, to conduct tasks that previously required human intelligence.2 Artificial intelligence in this context is best thought of as an umbrella technology or enabler, like the combustion engine or electricity. Military applications of artificial intelligence are potentially broad – from image recognition for surveillance to more efficient logistics to battle management.3 These include both non-kinetic applications, including in the cyber realm, as well as kinetic applications.4 One potential application of artificial intelligence is through armed autonomous systems that could be deployed on the battlefield, or what are most popularly called lethal autonomous weapon systems or lethal autonomous weapon systems. This differs from remotely-piloted systems where a human, though at a distance, still operates a given vehicle or system.

What is a lethal autonomous weapon system? While simple to describe on first glance, and easy to understand in the extreme – an armed humanoid robot with extremely broad programming making decisions about engaging in warfare – drawing the line between a lethal autonomous weapon system and other weapon systems is complex. In Directive 3000.09, published in 2012, the US Department of Defense defines an autonomous weapon as “A weapon system that, once activated, can select and engage targets without further intervention by a human operator.”5 What it means to select and engage a target is not entirely clear, however. For example, homing munitions, which have existed since World War II, select and engage targets, according to a common sense understanding of the terms.6

Exactly what functions are autonomous also matters. A system could have automatic piloting, for example, that flies or drives a platform to a target, but still have complete human control over the use of the weapon. That would be a system with a high level of automation, though not a lethal autonomous weapon system according to most perspectives. Heather Roff measures the level of autonomy in a weapon system based on three subcomponents: self-mobility, self-direction, and self-determination. This helps distinguish systems where there might be autonomy concerning the best way a missile should get to a target, but the target itself is designated by a person fromsystems where an algorithm might be making higher-level engagement decisions.7 There are already some applications of limited machine autonomy in military systems, with the most prominent example being the automatic mode present on many Close-In Weapon Systems (CIWS), such as the Phalanx, used to defend ships and incoming missiles from attack.8

This article will not resolve the definitional debate surrounding lethal autonomous weapon systems, which is still ongoing in meetings of the Group of Governmental Experts focused on lethal autonomous weapon systems in the United Nations Convention on Certain Conventional Weapons. Provisionally, this article adopts the Scharre and Horowitz definition that a lethal autonomous weapon system is “[A] weapon system that, once activated, is intended to select and engage targets where a human has not decided those specific targets are to be engaged.”9 However, moving beyond the close cases (e.g. particular types of missile guidance systems) and considering those weapon systems that clearly use machine intelligence to search for, select, and/or engage targets can help clarify what is at stake in this debate in the first place.10 After all, if most militaries most of the time would not have any need for lethal autonomous weapon systems, or those systems have significant disadvantages relative to remotely-piloted military robotics or soldiers on the battlefield, the stakes are lower. In contrast, if the integration of machine intelligence with military systems could give countries or violent non-state actors a significant advantage in how they employ force, it becomes even more crucial to engage the topic.

It is important to note that this article does not address concerns about existential risk related to artificial general intelligence – the fear that a superintelligence could decide to destroy the human race, either because it decides humans are malign or because humans program it to achieve a goal it can only accomplish by destroying humans.11 The existential risk issue associated with artificial intelligence is not necessarily closely coupled to military applications of artificial intelligence. If a super-intelligent machine learning system has the ability to take over human society in the interest of a goal – any goal – whether autonomous systems at much smaller orders of magnitude already exist in military systems will likely be unimportant. The super-intelligent system would simply create what it needed.

Why Invest in Autonomous Systems?

Militaries are already increasing their investments in remotely-piloted robotic systems. From UAVs such as the MQ-9 Reaper (United States) to uninhabited surface vehicles (USVs) such as the Guardium (Israel) to uninhabited ground vehicles (UGV) such as Platform-M (Russia), militaries around the world are investing in remotely piloted platforms, some of which can carry weapons. In these systems, human control over the use of force is not fundamentally different from the use of force with inhabited systems. In some cases, such as the MQ-9 Reaper, the sensor system a drone pilot uses to launch a weapon might even be the same sensor system a pilot in the cockpit of an inhabited fighter uses. Using remotely piloted systems gives militaries the ability to reduce the risk to their own soldiers while still projecting power in similar ways to how they used force previously.12 The first places militaries are likely to use kinetic lethal autonomous weapon systems include relatively “clear” environments such as air-to-air combat or naval combat, especially in geographic arenas where civilians are extremely unlikely to be present.13

### Turn – 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---try-or die to shut it off

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 – Sats

#### Even if key to environmental monitoring – no wararnt for why it causes action means they don’t access impacts

### 1NC – Multilaterialism

#### Space cooperation will not moderate behavior

Sterner 15 (Eric Sterner, Fellow, George C. Marshall Institute, “China, Talk and Cooperation in Space,” SPACE NEWS, 8—6—15, <https://spacenews.com/op-ed-china-talk-and-cooperation-in-space/>, accessed 5-18-19)

How might cooperation with China benefit the United States? Some hold that cooperation in space helps promote cooperation on Earth. Writing in SpaceNews in 2013, Michael Krepon argued “The more they cooperate in space, the less likely it is that their competition on Earth will result in military confrontation. The reverse is also true.” That sentiment is widespread and flows from the nobility of exploration. If only it were so. Unfortunately, a country’s space behavior appears to have little affect on its terrestrial actions. Russia’s multidecadal human spaceflight partnership with the United States did not prevent it from invading and destabilizing Ukraine when it moved toward a closer relationship with the European Union, many of whose members are Russian partners in the International Space Station. Space cooperation has not, and will not, prevent the continued worsening of the security environment in Europe, which flows from Russian behavior on Earth, not in space. Space cooperation with China is similarly unlikely to moderate its behavior. Tensions in Asia derive from China’s insistence on pressing unlawful territorial claims in the Pacific, most recently by transforming disputed coral reefs into would-be military bases. Ironically, civilian space technology has proved critical in documenting these aggressive moves. To further demonstrate the civil space cooperation does not promote cooperation on Earth, we need look no further than recent history. The NASA administrator’s visit to China in the fall of 2014 nearly coincided with China’s hacking of NOAA, with whom Beijing has a “partnership” in studying climate change. Military confrontation flows from the interaction of hard power in pursuit of competing national interests. Space cooperation falls into the realm of soft power. It has value in strengthening relationships among like-minded states with similar interests. China’s aggressiveness toward its neighbors, its human rights record and its cyberattacks on the United States strongly demonstrate that it and the United States are not of like minds. This is not the result of insufficient space cooperation, but of divergent national interests. The United States is a status quo power; China is not.

#### Space cooperation does not spillover to other areas

**Pollpeter et al 15** (Kevin Pollpeter – research scientist @ CNA China Studies Division, internationally recognized expert on China's space program, M.A. in international policy studies from the Monterey Institute of International Studies. Eric Anderson – one of the leading entrepreneurs in the space industry, co-founder of Space Adventures and current Chairperson, NASA consultant/researcher, B.S. in aerospace engineering from the University of Virginia. Jordan Wilson – MA in International Affairs from the UC San Diego School of Global Policy and Strategy. Policy Analyst @ the U.S.-China Economic and Security Review Commission. Fan Yang – M.Sc. in Space Studies from International Space University, M.Sc. in Mechanical & Aerospace Engineering from the Illinois Institute of Technology, Aerospace Engineer @ NASA. <KEN> “China Dream, Space Dream China’s Progress in Space Technologies and Implications for the United States,” U.S.-China Economic and Security Review Commission. March 2, 2015. DOA: 7/21/19. <https://www.uscc.gov/sites/default/files/Research/China%20Dream%20Space%20Dream_Report.pdf>)

The importance of China’s space diplomacy should not be overstated, however. Relations in space do not drive relations on Earth. International cooperatio)n on space activities usually follows progress in the overall relationship and is more of an indicator of the state of a relationship than a critical component. Although China’s increasing space power does play a role in advancing its diplomatic interests, there is no evidence that it has directly produced tangible political benefits in other areas besides space.632 As its space power increases this may change. China, for example, could have more of a say in international technical organizations such as the International Telecommunications Union over rules governing satellites and satellite frequency issues, but as yet this is unrealized.

**Terrorists won’t use nuclear weapons.**

**Mueller ’18** (John Mueller – PhD in Political Science @ UCLA, Adjunct Professor of Political Science and Woody Hayes Senior Research Scientist at Ohio State University and a Senior Fellow at the Cato Institute, “Nuclear Weapons Don’t Matter,” 15 October 2018, https://www.foreignaffairs.com/articles/2018-10-15/nuclear-weapons-dont-matter?fa\_package=1123220)

As for **nuclear terrorism**, ever since al Qaeda operatives used box cutters so effectively to hijack commercial airplanes, alarmists have warned that radical Islamist terrorists would soon apply equal talents in science and engineering to make and deliver nuclear weapons so as to destroy various so-called infidels. In practice, **however**, terrorist groups have exhibited only a **limited desire** to go nuclear and **even less progress in doing so**. Why? Probably because developing one’s own bomb from scratch requires a **series of risky actions**, **all of which have to go right** for the scheme to work. This includes trusting foreign collaborators and other criminals; acquiring and **transporting** highly guarded fissile material; establishing a sophisticated, professional machine shop; and moving a cumbersome, **untested weapon** into position for detonation. And all of this has to be done while hiding from a **vast global surveillance net** looking for and trying to **disrupt such activities**. Terrorists are **unlikely to get a bomb** from a generous, like-minded nuclear patron, because no country wants to run the risk of being blamed (and punished) for a terrorist’s nuclear crimes. **Nor are they likely to be able to steal one**. Notes Stephen Younger, the former head of nuclear weapons research and development at Los Alamos National Laboratory: “All nuclear nations take the security of their weapons **very seriously**.” The grand mistake of the Cold War was to infer desperate intent from apparent capacity. For the war on terrorism, it has been to **infer desperate capacity from apparent intent**.