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#### Settler colonialism is the permeating structure of the nation-state which requires the elimination of indigenous life and land via the occupation of settlers. The appropriation of land turns Natives into ghosts and chattel slaves into excess labor.

Tuck and Yang 12, (Eve Tuck, Unangax, State University of New York at New Paltz K. Wayne Yang University of California, San Diego, Decolonization is not a metaphor, Decolonization: Indigeneity, Education & Society Vol. 1, No. 1, 2012, pp. 1-40, JKS)

Our intention in this descriptive exercise is not be exhaustive, or even inarguable; instead, we wish to emphasize that (a) decolonization will take a different shape in each of these contexts - though they can overlap - and that (b) neither external nor internal colonialism adequately describe the form of colonialism which operates in the United States or other nation-states in which the colonizer comes to stay. Settler colonialism operates through internal/external colonial modes simultaneously because there is no spatial separation between metropole and colony. For example, in the United States, many Indigenous peoples have been forcibly removed from their homelands onto reservations, indentured, and abducted into state custody, signaling the form of colonization as simultaneously internal (via boarding schools and other biopolitical modes of control) and external (via uranium mining on Indigenous land in the US Southwest and oil extraction on Indigenous land in Alaska) with a frontier (the US military still nicknames all enemy territory “Indian Country”). The horizons of the settler colonial nation-state are total and require a mode of total appropriation of Indigenous life and land, rather than the selective expropriation of profit-producing fragments. Settler colonialism is different from other forms of colonialism in that settlers come with the intention of making a new home on the land, a homemaking that insists on settler sovereignty over all things in their new domain. Thus, relying solely on postcolonial literatures or theories of coloniality that ignore settler colonialism will not help to envision the shape that decolonization must take in settler colonial contexts. Within settler colonialism, the most important concern is land/water/air/subterranean earth (land, for shorthand, in this article.) Land is what is most valuable, contested, required. This is both because the settlers make Indigenous land their new home and source of capital, and also because the disruption of Indigenous relationships to land represents a profound epistemic, ontological, cosmological violence. This violence is not temporally contained in the arrival of the settler but is reasserted each day of occupation. This is why Patrick Wolfe (1999) emphasizes that settler colonialism is a structure and not an event. In the process of settler colonialism, land is remade into property and human relationships to land are restricted to the relationship of the owner to his property. Epistemological, ontological, and cosmological relationships to land are interred, indeed made pre-modern and backward. Made savage. In order for the settlers to make a place their home, they must destroy and disappear the Indigenous peoples that live there. Indigenous peoples are those who have creation stories, not colonization stories, about how we/they came to be in a particular place - indeed how we/they came to be a place. Our/their relationships to land comprise our/their epistemologies, ontologies, and cosmologies. For the settlers, Indigenous peoples are in the way and, in the destruction of Indigenous peoples, Indigenous communities, and over time and through law and policy, Indigenous peoples’ claims to land under settler regimes, land is recast as property and as a resource. Indigenous peoples must be erased, must be made into ghosts (Tuck and Ree, forthcoming). At the same time, settler colonialism involves the subjugation and forced labor of chattel slaves, whose bodies and lives become the property, and who are kept landless. Slavery in settler colonial contexts is distinct from other forms of indenture whereby excess labor is extracted from persons. First, chattels are commodities of labor and therefore it is the slave’s person that is the excess. Second, unlike workers who may aspire to own land, the slave’s very presence on the land is already an excess that must be dis-located. Thus, the slave is a desirable commodity but the person underneath is imprisonable, punishable, and murderable. The violence of keeping/killing the chattel slave makes them deathlike monsters in the settler imagination; they are reconfigured/disfigured as the threat, the razor’s edge of safety and terror. The settler, if known by his actions and how he justifies them, sees himself as holding dominion over the earth and its flora and fauna, as the anthropocentric normal, and as more developed, more human, more deserving than other groups or species. The settler is making a new "home" and that home is rooted in a homesteading worldview where the wild land and wild people were made for his benefit. He can only make his identity as a settler by making the land produce, and produce excessively, because "civilization" is defined as production in excess of the "natural" world (i.e. in excess of the sustainable production already present in the Indigenous world). In order for excess production, he needs excess labor, which he cannot provide himself. The chattel slave serves as that excess labor, labor that can never be paid because payment would have to be in the form of property (land). The settler's wealth is land, or a fungible version of it, and so payment for labor is impossible.6 The settler positions himself as both superior and normal; the settler is natural, whereas the Indigenous inhabitant and the chattel slave are unnatural, even supernatural. Settlers are not immigrants. Immigrants are beholden to the Indigenous laws and epistemologies of the lands they migrate to. Settlers become the law, supplanting Indigenous laws and epistemologies. Therefore, settler nations are not immigrant nations (See also A.J. Barker, 2009). Not unique, the United States, as a settler colonial nation-state, also operates as an empire - utilizing external forms and internal forms of colonization simultaneous to the settler colonial project. This means, and this is perplexing to some, that dispossessed people are brought onto seized Indigenous land through other colonial projects. Other colonial projects include enslavement, as discussed, but also military recruitment, low-wage and high-wage labor recruitment (such as agricultural workers and overseas-trained engineers), and displacement/migration (such as the coerced immigration from nations torn by U.S. wars or devastated by U.S. economic policy). In this set of settler colonial relations, colonial subjects who are displaced by external colonialism, as well as racialized and minoritized by internal colonialism, still occupy and settle stolen Indigenous land. Settlers are diverse, not just of white European descent, and include people of color, even from other colonial contexts. This tightly wound set of conditions and racialized, globalized relations exponentially complicates what is meant by decolonization, and by solidarity, against settler colonial forces. Decolonization in exploitative colonial situations could involve the seizing of imperial wealth by the postcolonial subject. In settler colonial situations, seizing imperial wealth is inextricably tied to settlement and re-invasion. Likewise, the promise of integration and civil rights is predicated on securing a share of a settler-appropriated wealth (as well as expropriated ‘third-world’ wealth). Decolonization in a settler context is fraught because empire, settlement, and internal colony have no spatial separation. Each of these features of settler colonialism in the US context - empire, settlement, and internal colony - make it a site of contradictory decolonial desires7. Decolonization as metaphor allows people to equivocate these contradictory decolonial desires because it turns decolonization into an empty signifier to be filled by any track towards liberation. In reality, the tracks walk all over land/people in settler contexts. Though the details are not fixed or agreed upon, in our view, decolonization in the settler colonial context must involve the repatriation of land simultaneous to the recognition of how land and relations to land have always already been differently understood and enacted; that is, all of the land, and not just symbolically. This is precisely why decolonization is necessarily unsettling, especially across lines of solidarity. “Decolonization never takes place unnoticed” (Fanon, 1963, p. 36). Settler colonialism and its decolonization implicates and unsettles everyone.

#### The 1ac’s representations and discourses surrounding space appropriation perpetuates colonial violence through Western settler myths of terra nullius and prioritization of science over Indigenous epistemologies

These satellites are a crucial element of US ballistic missile defense, capable of [detecting missiles](https://www.globalsecurity.org/space/world/japan/warning.htm) immediately after launch and tracking their paths.

Smiles 20, Deondre Smiles, 10-26-2020, "The Settler Logics of (Outer) Space," Society + Space, <https://www.societyandspace.org/articles/the-settler-logics-of-outer-space> [Dondre Smiles is an Indigenous geographer whose research interests lie at the intersection of several fields, including critical Indigenous geographies, human-environment interactions, political ecology, tribal cultural resource preservation, and science and technology studies. Their current academic position is as an Assistant Professor in the Department of Geography at the University of Victoria, in B.C., Canada.] //tanya

To most scholars, and certainly to the virtual majority of Indigenous peoples on Turtle Island, it is no secret that the country we call the United States of America was built upon the brutal subjugation of Indigenous people and Indigenous lands. Fueled by the American settler myths of terra nullius (no man’s land) and Manifest Destiny, the American settler state proceeded upon a project of cultural and physical genocide, with lasting effects that endure to the present day. The ‘settler myth’ permeates American culture. Words such as ‘pioneer’, the ‘West’, ‘Manifest Destiny’ grab the imagination as connected to the growth of the country in its early history. America sprang forth from a vast open ‘wilderness’. Of course, for Indigenous people, we know differently—these lands had complex cultural frameworks and political entities long before colonization. Words like ‘pioneer’ and ‘Manifest Destiny’, have deep meanings for us too, as they are indicative of the very real damage dealt against our cultures and nations, damage that we have had to work very hard to undo. Trump’s address raises key insights into the continuing logics of settler colonialism, as well as questions of its future trajectories. Trump’s invocation of ideas such as the ‘frontier’ and ‘taming the wilderness’ draws attention to the brutal violence that accompanied the building of the American state. Scholars such as Greg Grandin (2019) make the case that the frontier is part of what America is—whether it is the ‘Wild West’, or the U.S.-Mexican border, America is always contending with a frontier that must be defined.  Language surrounding ‘frontier’ is troubling because it perpetuates the rationale of why the American settler state even exists—it could make better use of the land than Native people would, after all, they lived in wilderness. This myth tells us that what we know as the modern world was built through the hard work of European settlers; Indigenous people had nothing to offer or contribute. For someone like Mr. Trump, whose misgivings and hostility towards Native people have been historically documented, this myth fits well with his narrative as President—he is building a ‘new’ America, one that will return to its place of power and influence. The fact that similar language is being used around the potential of American power being extended to space could reasonably be expected, given the economic and military potential that comes from such a move. Space represents yet another ‘unknown’ to be conquered and bent to America’s will. However, such interplanetary conquest does not exist solely in outer space. I wish to situate the very real colonial legacies and violence associated with the desire to explore space, tracing the ways that they are perpetuated and reified through their destructive engagements with Indigenous peoples. I argue that a scientific venture such as space exploration does not exist in a vacuum, but instead draws from settler colonialism and feeds back into it through the prioritization of ‘science’ over Indigenous epistemologies. I begin by exploring the ways that space exploration by the American settler state is situated within questions of hegemony, imperialism, and terra nullius, including a brief synopsis of the controversy surrounding the planned construction of the Thirty Meter Telescope on Mauna Kea. I conclude by exploring Indigenous engagement with ‘space’ in both its Earthbound and beyond-earth forms as it relates to outer space, and what implications this might have for the ways we think about our engagement with space as the American settler state begins to turn its gaze skyward once again. I position this essay alongside a growing body of academic work, as well as journalistic endeavors (Haskins, 2020; Koren, 2020) that demands that the American settler colonial state exercise self-reflexivity as to why it engages with outer space, and who is advantaged and disadvantaged here on Earth as a result of this engagement. Settler colonialism is commonly understood to be a form of colonialism that is based upon the permanent presence of colonists upon land. This is a distinction from forms of colonialism based upon resource extraction (Wolfe, 2006; Veracini, 2013). What this means is that the settler colony is intimately tied with the space within which it exists—it cannot exist or sustain itself without settler control over land and space. This permanent presence upon land by ‘settlers’ is usually at the expense of the Indigenous, or original people, in a given space or territory. To reiterate: control over space is paramount. As Wolfe states, “Land is life—or at least, land is necessary for life. Thus, contests for land can be—indeed, often are—contests for life” (2006: 387).  Without land, the settler state ‘dies’; conversely, deprivation of land from the indigenous population means that in settler logic, indigeneity dies (Povinelli, 2002; Wolfe, 2006.) Because of this overarching goal of space, there is an inherent anxiety in settler colonies about space, and how it can be occupied and subsequently rewritten to remove Indigenous presence. In Anglo settler colonies, this often takes place within a lens of conservation. Scholars such as Banivanua Mar (2010), Lannoy (2012), Wright (2014) and Tristan Ahtone (2019) have written extensively on the ways that settler reinscription of space can be extremely damaging to Indigenous people from a lens of ‘conservation’. However, dispossession of Indigenous space in favor of settler uses can also be tied to some of the most destructive forces of our time. For example, Aboriginal land in the Australian Outback was viewed as ‘empty’ land that was turned into weapons ranges where the British military tested nuclear weapons in the 1950s, which directly led to negative health effects upon Aboriginal communities downwind from the testing sites (Vincent, 2010). Indigenous nations in the United States have struggled with environmental damage related to military-industrial exploitation as well. But, what does this all look like in regard to outer space? In order to really understand the potential (settler) colonial logics of space exploration, we must go back and explore the ways in which space exploration became inextricably tied with questions of state hegemony and geopolitics during the Cold War. US and Soviet space programs were born partially out of military utility, and propaganda value—the ability to send a nuclear warhead across a great distance to strike the enemy via a ICBM and the accompanying geopolitical respect that came with such a capability was something that greatly appealed to the superpowers, and when the Soviets took an early lead in the ‘Space Race’ with Sputnik and their Luna probes, the United States poured money and resources into making up ground (Werth, 2004). The fear of not only falling behind the Soviets militarily as well as a perceived loss of prestige in the court of world opinion spurred the US onto a course of space exploration that led to the Apollo moon landings in the late 1960s and the early 70s (Werth, 2004; Cornish, 2019). I argue that this fits neatly into the American settler creation myth referenced by Trump—after ‘conquering’ a continent and bringing it under American dominion, why would the United States stop solely at ‘space’ on Earth? To return to Grandin (2019), space represented yet another frontier to be conquered and known by the settler colonial state; if not explicitly for the possibility of further settlement, then for the preservation of its existing spatial extent on Earth. However, scholars such as Alan Marshall (1995) have cautioned that newer logics of space exploration such as potential resource extraction tie in with existing military logics in a way that creates a new way of thinking about the ‘openness’ of outer space to the logics of empire, in what Marshall calls res nullius (1995: 51)[i]. But we cannot forget the concept of terra nullius and how our exploration of the stars has real effects on Indigenous landscapes here on Earth. We also cannot forget about forms of space exploration that may not be explicitly tied to military means. Doing so deprives us of another lens through which to view the tensions between settler and Indigenous views of space and to which end is useful. Indeed, even reinscribing of Indigenous space towards ‘peaceful’ settler space exploration have very real consequences for Indigenous sovereignty and Indigenous spaces. Perhaps the most prominent example of the fractures between settler space exploration and Indigenous peoples is the on-going controversy surrounding the construction of the Thirty Meter Telescope on Mauna Kea, on the island of Hawaii. While an extremely detailed description of the processes of construction on the TMT and the opposition presented to it by Native Hawai’ians and their allies is beyond the scope of this essay, and in fact is already expertly done by a number of scholars[ii], the controversy surrounding TMT is a prime example of the logics presented towards ‘space’ in both Earth-bound and beyond-Earth contexts by the settler colonial state as well as the violence that these logics place upon Indigenous spaces, such as Mauna Kea, which in particular already plays host to a number of telescopes and observatories (Witze, 2020). In particular, astronomers such as Chanda Prescod-Weinstein, Lucianne Walkowicz, and others have taken decisive action to push back against the idea that settler scientific advancement via space exploration should take precedence over Indigenous sovereignty in Earth-space. Prescod-Weinstein and Walkowicz, alongside Sarah Tuttle, Brian Nord and Hilding Neilson (2020) make clear that settler scientific pursuits such as building the TMT are simply new footnotes in a long history of colonial disrespect of Indigenous people and Indigenous spaces in the name of science, and that astronomy is not innocent of this disrespect. In fact, Native Hawai’ian scholars such as Iokepa Casumbal-Salazar strike at the heart of the professed neutrality of sciences like astronomy:  One scientist told me that astronomy is [as] a “benign science” because it is based on observation, and that it is universally beneficial because it offers “basic human knowledge” that everyone should know “like human anatomy.” Such a statement underscores the cultural bias within conventional notions of what constitutes the “human” and “knowledge.” In the absence of a critical self-reflection on this inherent ethnocentrism, the tacit claim to universal truth reproduces the cultural supremacy of Western science as self-evident. Here, the needs of astronomers for tall peaks in remote locations supplant the needs of Indigenous communities on whose ancestral territories these observatories are built (2017: 8). As Casumbal-Salazar and other scholars who have written about the TMT and the violence that has been done to Native Hawai’ians (such as police actions designed to dislodge blockades that prevented construction) as well as the potential violence to come such as the construction of the telescope have skillfully said, when it comes to the infringement upon Indigenous space by settler scientific endeavors tied to space exploration, there is no neutrality to be had—dispossession and violence are dispossession and violence, no matter the potential ‘good for humanity’ that might come about through these things. Such contestations over outer space and ethical engagement with previously unknown spaces will continue to happen. Outer space is not the first ‘final frontier’ (apologies to Gene Roddenberry) that has been discussed in settler logics and academic spaces. In terms of settler colonialism, scholars have written about how Antarctica was initially thought of as the ‘perfect’ settler colony—land that could be had without the messy business of pushing Indigenous people off of it (see Howkins 2010). Of course, we know now that engagement with Antarctica should be constrained by ecological concern—who is to say that these concerns will be heeded in ‘unpopulated’ space? What can be done to push back against these settler logics? I want to now turn our attention towards the possibilities that exist regarding Indigenous engagement with outer space.  After all, the timing could not be more urgent to do so—we are now at a point where after generations and generations of building the myth that America was built out of nothing, we are now ready to resume the project of extending the reach of American military and economic might in space. To be fair, there are plenty of advances that can be made scientifically with a renewed focus on space exploration. However, history shows us that space exploration has been historically tied to military hegemony, and there is nothing in Mr. Trump’s temperament or attitude towards a re-engagement with space that suggest that his push toward the stars will be anything different. A sustained conversation needs to be had—will this exploration be ethical and beneficial to all Americans?

#### **Their descriptions of space as a site to preserve heg and astronomy replicate the settler gaze that fetishizes the extraction of outer space and extends the subject-object relationship now and into the future**

Sammler and Lynch 19, Katherine G Sammler, Casey R Lynch, California State University Maritime, University Of Nevada, USA, 9-2-2021, "Apparatuses of observation and occupation: Settler colonialism and space science in Hawai'i," SAGE Journals, <https://journals.sagepub.com/doi/full/10.1177/02637758211042374> //tanya

While other imaginaries are possible (Sammler and Lynch, 2019), this paper demonstrates how Western space science projects are inextricably entangled in the imaginaries and practices of settler colonialism (Prescod-Weinstein, 2020; Smiles, 2020). We refer to offworld colonies not to reproduce this imaginary but to recognize that this is the project being carried out by both traditional public space agencies like NASA and emerging private space industries. The paper examines HI-SEAS and TMT to consider the complex imbrications between historical, ongoing, and projected future settler colonialism and ideologies 946 EPD: Society and Space 39(5) and practices of Western space science. HI-SEAS and TMT seemingly represent very different projects. While TMT defenders describe the telescope as a passive and innocuous piece of infrastructure used to produce “universal” knowledge, HI-SEAS presents a more active form of exploration towards offworld colonization. Yet, examining the two projects in relation, we show how both rely on logics of colonial totality (Matson and Nunn, 2017), the existing material relations of the colony, and the erasure of lived Native peoples and places (Hobart, 2019), while enacting distinct yet co-dependent subject positions key to the projection of settler colonialism across space and time. TMT and HI-SEAS, respectively, enact the disembodied god’s-eye-view of Enlightenment science and the idealized Enlightenment subject-body of the colonizer. While we are not the first to recognize the co-constitution of observation and occupation, by highlighting this relationship in TMT and HI-SEAS, we set up a critical dialog between Indigenous and anti-colonial critiques and interdisciplinary literature on social studies of outer space (SSOS). SSOS literature explores how socio-technical projects of visualization produce astronomical knowledge (Vertesi, 2015); how space agencies simulate Moon and Mars with earthly analogs (Olson, 2018) superimposing spaces onto one another (Messeri, 2016); and how offplanet activities reshape geopolitics, environmental politics, and resource economies (Dunnett et al., 2019; Klinger, 2021). Others examine space science infrastructures as projects of state-building, displacement, and development in colonial contexts (Mitchell, 2018;Redfield, 2002). While many of these authors recognize that offworld activities are within colonial imaginaries and practices, anti-colonial critiques are not often made explicit, focusing instead on the perspectives and actions of scientists and engineers (Messeri, 2016). In contrast, Indigenous and allied critical scholars offer analyses of spatial and temporal logics of settler colonialism as manifested through space science infrastructures and their related imaginaries (Maile, 2015; Matson and Nunn, 2017; Smiles, 2020). For TMT, scholars examine the multiple practices, logics, and institutions of Western space science that have worked to lay claim to Native Hawai’ian lands. Hobart (2019: 42), for instance, examines how TMT has been justified through narratives that reframe Maunakea within imaginaries of scientific progress in which the site “transcend[s] international politics in the name of the greater good of humanity” as part of a longer historical trajectory of discursively emptying or “deanimating” landscapes. Goodyear-Ka‘opua argues that settler tem- porality reserves modernity and futurity for colonial projects and relegates Indigeneity to a premodern past, but that TMT activists “enact Indigenous futurities and open space to transform present settler colonial conditions” (2017: 185). Casumbal-Salazar makes clear that TMT controversies cannot be understood without explicitly questioning settler colonialism, writing: How are we to understand the controversy over Mauna a Wakea and the TMT if we fail to identify or accept the context in which this battle is being waged; if we fail to critically analyze settler-colonization under U.S. occupation? (2017: 24) Unseating the purported universality and objectivity of space science projects requires categorical anti-colonial analyses. We argue that Barad’s (2007) theorization of the apparatus is useful for bridging SSOS and anti-colonial scholarship because it traces techno-scientific production as part of broader apparatuses extending spatially and temporally from what is traditionally understood as the sites and moments of scientific practice. Through the apparatus, we show how projects of scientific observation and colonial occupation are co-constituted through the Sammler and Lynch 947 production and maintenance of space science infrastructures on colonized lands. In turn, we consider how these infrastructures reproduce the subject–object relations key to settler colonial projects – the view-from-nowhere (or Archimedean point) and embodied colonizer subjectivities. Observation is never a passive enterprise; rather, observation-occupation is active and employs apparatuses to iteratively enact differences between subject and object, colonizer and colonized. Since Cook’s expeditions, the West has subjected the constellation of Pacific Islands to a multitude of science experiments (DeLoughrey, 2012; Farbotko, 2010). Salmond (2003: ix) explains how “[a]s the edges of the known world were pushed out, wild nature – including the ‘savages’ and ‘barbarians’ at the margins of humanity - was brought under the calm, controlling gaze of Enlightenment science, long before colonial domination was attempted.” 948 EPD: Society and Space 39(5) There is a long history of the liveliness of islands being abstracted by colonial powers and scientists alike, from seemingly innocuous use of the Gala´pagos as discrete microcosms for theorizing evolution (Matsuda, 2006); to the United States’ devastating testing of nuclear weapons on the Marshall Islands; to botany’s role in the colonization of Hawai’i and its extension into contemporary experiments with genetically-modified organisms replacing native plant species (Goldberg-Hiller and Silva, 2015). As with other landscapes, specific imaginaries of place play a unique role in colonial practices on islands. Continental views of islands align with Enlightenment scientific desire for blank slates, perfect laboratories (Greenhough, 2006; Matsuda, 2007). Mobilizing imaginaries of frontier and isolation, representations of islands within a continental and colonial gaze are, as Matsuda explains, “distant, isolated, uninhabited, and abstract spaces” (2007: 230). The purported distance of the island colony enacts a separation between colonizer and colonized landscape that allows for specific relations and forms of observation. Islands become simplified models of a complex world, acting as “quintessential sites for experimentation” (Baldacchino, 2007: 165) based on fetishized assumptions about island spatiality. Scientists use islands to isolate variables and substitute space for time to construct linear timestreams. Islandness functions as stand-in for a computational time-step within an experimental design. These purported blank slates endow the initial time-step essential to modelling. Islands and their peoples have been employed to examine theories of geological, biological, human, and socio-cultural evolution. DeLoughrey describes how island spatiality is considered bound by “the theme of isolation, a model that had been deployed in the 19th century to propose the theory of evolution, and which re-energized the longstanding colonial understanding of the island as a laboratory” (2012: 168). The expansion of U.S. empire specifically enrolled island colonies from Puerto Rico to the Philippines as sites for grisly experimentations, from weapons to biomedical research on non-white bodies who were seen as relics of earlier stages of evolution (Immerwahr, 2019). Just as islands and their peoples have been used to model past evolutions, they are also established as models for specific futures. Baldacchino describes islands as sites of novelty; they tend toward clairvoyance; they are disposed to act as advance indicators or extreme reproductions of what is present or future elsewhere ... with fallacious simplicity, [they] can be conceived as a convenient platform for any whim or fancy. (2007: 165) Islands have emplaced visions of future climate dystopias (Farbotko, 2010) and imagined libertarian capitalist utopias (Lynch, 2017). The continuation of these projects of empire and white supremacy are shaping plans for human colonization of Moon and Mars. Such projects re-articulate debates around questions of race, ability, eugenics, reproduction, and human psychology in journals like Futures – including a 2019 special issue on ethics in offworld colonization. Through these projects, islands and peoples are erased and overwritten by the totality of the model world they represent. As DeLoughrey explains, “Western colonizers had long configured tropical islands into the contained spaces of a laboratory, which is to say a suppression of island history and Indigenous presence” (2012: 172). An affective landscape of history, more-than-human relationality (Watts, 2013), and lived social place gets transformed into independent, sterile variables instrumentalized in the projection of specific futures. Such discourses intersect with space science imaginaries of exploration, exoticism, and otherworldliness. Allen examines how U.S. empire depends upon three notions of time: a romanticized historical time recounting myth of the nation’s founding, the geological time of natural history, and the mechanized time of the clock and apparatuses of measurement. The organization and control over these three temporalities constitutes a colonial totality (Matson and Nunn, 2017) that works to settle time as much as space in the projection of settler futures. In dominant discourses, Indigenous time is linked to the past, with the present constituted on assimilation and the future on complete erasure (Rifkin, 2017). The existence of contemporary Indigenous peoples poses a challenge to ongoing settler colonial hegemony. Goodyear-Ka‘opua explains how “settler state officials cast the kia ʻi [land protectors, caretakers] as impediments on the road to ‘progress’ (aka settler futurity) ... (mis)representing us as fixed in place, pinned in a remote time” (2017: 191–192). Enlightenment notions of universality erase difference and thus Indigenous claims to prior rights or sovereignty. While these conceptions of time have long been critiqued, they continue to shape the central logics of contemporary Western science, including space science. While notions of linear, progressive time are used to justify settler colonial projects, the relative and contingent relationships among space, time, and matter complicate claims to universality. Time, like space, is subject to practices of organization and control that produce subject–object relations key to the Western colonial project. For instance, geologic time, or what Allen refers to as “vertical time,” is the spatial-temporal imaginary of geologic strata. He describes that, while “history often depicted time advancing horizontally across space, the geological revolution made it possible to imagine time extending perpendicularly into the territory beneath the nation” (Allen, 2008: 165). The deep time of geology historicizes Western civilization as the top layer, the apex of natural history, and thus stands to justify colonialism and its civilizational projects. The exploration of cosmological time in the space sciences extends the colonial project further into the far expanses of the future and the totality of the universe. In Barad’s deconstructive reading of Enlightenment science, linear time and evacuated space are both the product of active material processes through which a purportedly universal “Man” continually enacts a separation between himself and the universe. It is this supposed separation from the rest of existence that constitutes “Man” as the subject of a masculinist science and the remainder of the universe as the object of his will. Practices of scientific observation and colonial occupation work in tandem to re-enact and reinforce this fundamental subject–object relationship. Critical scholars of science have long argued against the purported passivity of observation, from critiques of the Archimedean point (Yaqoob, 2014) to feminist theories of the embodied and situated nature of knowledge production (Haraway, 1988). Yet, beyond simply noting the ontological impossibility of Man’s separation from the universe, Barad theorizes an emergent and contingent form of separability – what she calls agential separability – that is (re)produced through the material practices of apparatuses. Barad explains that “apparatuses enact agential cuts that produce determinate boundaries and properties of entities within phenomena” (2007: 148). Apparatuses determine what comes to matter and how, thus producing differences between Sammler and Lynch 951 subject and object, which are not stable positions but rather enacted and contingent forms of relationality. We employ the apparatus to explore how subject–object relations of Western colonial science are not universal and absolute, but rather enacted through material practices that selectively produce the privileged subject positions on which settler colonialism and space science both depend. Ontologically, apparatuses produce spatial, temporal, and material relations that constitute projects of Western colonial science. This approach helps elaborate arguments like those of Matson and Nunn that “even the most futuristic space telescopes have embedded within them a lineage of Euro-western cultural supremacy” (2017: n.p.). This is not to simply claim that telescopes are in some way symbolic of settler colonial relations, but to recognize how space science apparatuses actively orient relations of observation and materialize settler colonial relations. Both TMT and HI-SEAS constitute apparatuses that extend spatially well beyond the infrastructural footprint on these mountains, to the island and surrounding ocean, into the atmosphere, to Moon, Mars, and cosmos. As part of these apparatuses, mountain environments of Hawaii become both a gateway to the cosmos and simulation of an alien landscape. Temporally, the apparatus stretches beyond contemporary scientific practices, drawing on longstanding histories of European imperialism, Western law, and settler colonial logics, and projecting these ideologies into offworld futures. Materially, these projects enroll technological, logistical, and physical systems, including roads, mirrors and lenses, sensors and surveillance devices, electromagnetic waves and domes, the geology of the Hawaiian landscape, and bodies of observer and observed.

#### The 1AC’s move to secure US military satellites from emerging threats is grounded in the logics of settler empire that generates a perpetual state of warfare to justify the limitless violence necessary that sustains it – imperial aggression is predicated on the expansion and protection of settler sovereignty.

**Inwood & Bonds ’16** (Joshua Inwood & Anne Bonds, 17 March 2016, Confronting White Supremacy and a Militaristic Pedagogy in the U.S. Settler Colonial State, Annals of the American Association of Geographers, DOI: 10.1080/24694452.2016.1145510) //cut-NR

The analytic of militarism requires first a focus on the United States as produced through settler colonialism (Morgensen 2011; Smith 2012; Hixson 2013; Veracini 2013). A. Bonds and Inwood (2015) explained settler colonialism as a continuously unfolding project of empire that is enabled by and through specific racial configurations that are tied to geographies of white supremacy. In a U.S. context, settler colonialism begins with the removal of first peoples from the land and the creation of racialized and gendered labor systems that make the land productive for the colonizers. This includes the removal of Native peoples and geographies of indentured servitude, slavery, sharecropping, and, more contemporarily, urban abandonment and practices of mass imprisonment. Settler colonialism, therefore, emphasizes the ongoing processes of racialized capital accumulation and displacement necessary to sustain the permanent occupation of a territory. In this sense, it is an enduring structure—an interrelated political, social, and economic process that continuously unfolds—requiring continued reconfigurations and interventions by the state (Wolfe 2006). Because of the constant reworking of social and political economic hierarchies necessary to sustain settler relations, this sociospatial dialectic is central to understanding how particular place-based configurations of race, class, ethnicity, and gender come to predominate in the United States (for a broader discussion see S. Hall 1996; Gilmore 1999; A. Bonds and Inwood 2015). According to Smith (2012), settler colonialism is sustained by three primary logics that enshrine white supremacy. The first of these logics is that of slavery, which is usually premised on the enslavement of black people, the devaluation of black life, and the racialized political economy established through this system. Rather than being located in the past, the logic of slavery mutates and mobilizes across time and space, systematized through various structures of social control that dispossess and retain black bodies as permanent property of the state. This logic connects slavery, sharecropping, welfare programs, and mass imprisonment (Smith 2012). The logic of slavery rationalizes racial exploitation and is the cornerstone for the very notion of private property. As Harris (1993) argued, “The origins of property rights in the United States are rooted in racial domination” (1734) that is connected to slavery and gives rise to a very specific form of U.S.-style political economy built on and through the subordination of persons of color. Thus, slavery introduces into the life of the nation the routine and naturalized “statesanctioned or extralegal production and exploitation of group-differentiated vulnerability to premature death” that is the heart of U.S.-style racism (Gilmore 2007, 28). The associated practices and systems not only justify death as the “collateral consequences” of U.S. development, but they undergird the social and premature death of structural racism (Gilmore 2007). A second and interconnected logic is genocide, premised on the ongoing disappearance of indigenous peoples in support of the appropriation and privatization of indigenous lands (Smith 2012). Genocide sustains a spatial politics of erasure and exclusion, institutionalized by state practices that justify indigenous removal and settler land claims. The practices of genocide are animated by and through logics of private property that connect geographies of indigenous disappearance with labor systems meant to make the land productive. Finally, a third pillar is orientalism, grounded in the belief of the inferiority and threatening menace of non-Western nations and peoples (Smith 2012).1 This introduces into the United States a state of permanent warfare in which the nation is consistently besieged by enemies (externally and internally); as a consequence, there is a constant need to protect “the well-being of empire” (Smith 2012, 69). The foundational rationales of slavery, genocide, and orientalism contour the white supremacist settler state: The founding moments of US nationalism [meaning the social and cultural identity of the nation] are foundational to both state and culture. The US was conceived in slavery and christened by genocide. These early practices established high expectations of state aggression against enemies of the national purpose and that valorized armed men in uniform as the nation’s true sacrificial subjects. (Gilmore 2002, 20) These logics are reformulated and continue to take shape in an era of ostensible color-blindness predominated by official discourses and government commitments to racial equality. Even as overt racism is eschewed, taken for granted socioeconomic hierarchies, racial exploitation, and the redistribution of wealth reproduce and sustain white supremacy. The U.S. settler state internalizes a “righteous violence” predicated on an expanding “quest for total security” that has come to characterize domestic and foreign policy (Hixson 2013, 198). Although there are myriad ways to explore the interrelations between state-sanctioned violence and militarism, we find the connections between domestic policing and the U.S. military-industrial complex to be particularly illustrative. Kraska and Cubellis (1997) noted that there is a long history of collusion between the military and police departments in the United States and the military paradigm is an important organizing principle within the development of modern policing practices, organization, and tactics (e.g., Bittner 1970; Manning 1977; Enloe 1980; A. Hall and Coyne 2012). These practices took on added significance during the latter half of the twentieth century as U.S. cities faced increased pressure to “get tough on crime” and as local police departments developed specially trained tactical teams, commonly referred to as Special Weapons and Tactics (SWAT) teams (Kraska and Cubellis 1997). The interactions between the military and domestic police practices intensified yet again during the “war on drugs” and in a post–11 September 2001 world where domestic terror concerns have fueled the explosive growth of military and police cooperation (A. Hall and Coyne 2012). Although ostensibly unconnected to questions of race and economic inequality, militarism is fundamentally linked to structural violences of poverty and social difference (Loyd 2009, 2014), and the pursuit of total security connects settler state militarism across scales, legitimating the expansion and protection of the nation-state, the policing of its borders and communities, and internal and external monitoring and surveillance in the name of defense. Securing the white supremacist settler state relies on racial, gender, and class hierarchies that enable the coherence of an imagined nation with clearly marked inclusions and exclusions. That is, the targeted and widespread violence that characterizes the U.S. settler state—seen in everything from the genocide directed toward Native peoples to the criminalization of communities of color—depends on and reinforces discursive constructions that demonize those who stand in the way of the settler state and, more often than not, culminates in national campaigns against those beyond the scope of U.S. settler state justice. The indiscriminate killing associated with this kind of violence is easily dismissed as an unfortunate consequence of war (Hixson 2013). U.S. interventionism relies on a “defensive solidarity ... built on the institution of slavery and the racialization of Blackness” that reaffirms white supremacist cultural identity by managing both internal and external threats (Loyd 2009, 406). These practices continue even after the settler state has displaced and “removed” native peoples who had previously occupied the land, creating political landscapes with an aggressive propensity for violence (Veracini 2010). This understanding of the United States as a settler state is significant for theorizing militarism, we argue, because it situates the persistent violences of genocide and slavery as enduring structures shaping social and political economic relations. Rather than being projects of the past, settler practices are central to the continued development and futurity of the United States. A settler colonial perspective disrupts the spatial imaginaries of war by emphasizing the ongoing racialized violence necessary to secure contested, although taken for granted, homelands in settler nations. Moreover, it connects the indiscriminate violence stretching from U.S. settler colonial history to contemporary military engagements (Hixson 2013). As Blackhawk and Apache helicopters swoop and attack and Tomahawk cruise missiles explode, and as U.S. Special Forces head into “Indian country” to search and destroy the enemy, the ramifications and taken for granted sensibilities of settler geographies become all too clear (Hixson 2013, 198). Hixson (2013) further clarified, “American settler colonialism is a winnertakes-all proposition that demanded the removal of indigenous peoples and the destruction of their cultures,” and these geographies have “profound consequences for national identity and subsequent foreign policy” (197). The settler state is premised on permanent war, inscribing militarism and violence into everyday geographies and naturalizing racialized power hierarchies and the dispossession and erasure of racialized bodies

#### The alternative is to refuse the research project of the affirmative – this is a generative event that creates space for alternative modalities of knowing around outer space and insists upon the interrogation of the epistemological underpinnings of the 1ac.

Tuck and Yang 14 – associate professor of critical race and indigenous studies at the Ontario Institute for Studies in Education at the University of Toronto and director of ethnic studies at UC San Diego Eve Tuck and Wayne C Yang, “R-Words: Refusing Research,” Humanizing research: Decolonizing qualitative inquiry with youth and communities, vol 223 pp 239 – 243 [https://townsendgroups.berkeley.edu/sites/default/files/tuckandyangrwords\_refusingresearch.pdf //](https://townsendgroups.berkeley.edu/sites/default/files/tuckandyangrwords_refusingresearch.pdf%20//) sam

For the purposes of our discussion, the most important insight to draw from Simpson’s article is her emphasis that refusals are not subtractive, but are theoretically generative (p. 78), expansive. Refusal is not just a “no,” but a redirection to ideas otherwise unacknowledged or unquestioned. Unlike a settler colonial configuration of knowledge that is petulantly exasperated and resentful of limits, a methodology of refusal regards limits on knowledge as productive, as indeed a good thing. To explore how refusal and the installation of limits on settler colonial knowledge might be productive, we make a brief detour to the Erased Lynching series (2002–2011) by Los Angeles–based artist Ken Gonzales-Day (see Figure 12.1). Gonzales-Day researched lynching in California and the Southwest and found that the majority of lynch victims were Latinos, American Indians, and Asians. Like lynchings in the South, lynchings in California were events of public spectacle, often attended by hundreds, sometimes thousands of festive onlookers. At the lynchings, professional photographers took hours to set up portable studios similar to those used at carnivals; they sold their images frequently as postcards, mementos of public torture and execution to be circulated by U.S. post through- out the nation and the world. Lynching, we must be reminded, was extralegal, yet nearly always required the complicity of law enforcement—either by marshals or sheriffs in the act itself, or by judges and courts in not bothering to prosecute the lynch mob afterward. The photographs immortalize the murder beyond the time and place of the lynching, and in their proliferation, expand a single murder to the general murderability of the non-White body. In this respect, the image of the hanged, mutilated body itself serves a critical function in the maintenance of White supremacy and the spread of racial terror beyond the lynching. The spectacle of the lynching is the medium of terror. Gonzales-Day’s Erased Lynching series reintroduces the photographs of lynching to a contemporary audience, with one critical intervention: The ropes and the lynch victim have been removed from the images. Per Gonzales-Day’s website (n.d.), the series enacted a conceptual gesture intended to direct the viewer’s attention, not upon the lifeless body of the lynch victim, but upon the mechanisms of lynching themselves: the crowd, the spectacle, the photographer, and even consider the impact of flash photography upon this dismal past. The perpetrators, if present, remain fully visible, jeering, laughing, or pulling at the air in a deadly pantomime. As such, this series strives to make the invisible visible. The Erased Lynching series yields another context in which we might consider what a social scientist’s refusal stance might comprise. Though indeed centering on the erasure of the former object, refusal need not be thought of as a subtractive methodology. Refusal prompts analysis of the festive spectators regularly backgrounded in favor of wounded bodies, strange fruit, interesting scars. Refusal shifts the gaze from the violated body to the violating instruments—in this case, the lynch mob, which does not disappear when the lynching is over, but continues to live, accumulating land and wealth through the extermination and subordination of the Other. Thus, refusal helps move us from thinking of violence as an event and toward an analysis of it as a structure. Gonzales-Day might have decided to reproduce and redistribute the images as postcards, which, by way of showing up in mundane spaces, might have effectively inspired reflection on the spectacle of violence and media of terror. However, in removing the body and the ropes, he installed limits on what the audience can access, and redirected our gaze to the bodies of those who were there to see a murder take place, and to the empty space beneath the branches. Gonzales-Day introduced a new representational territory, one that refuses to play by the rules of the settler colonial gaze, and one that refuses to satisfy the morbid curiosity derived from settler colonialism’s preoccupation with pain. Refusals are needed for narratives and images arising in social science research that rehumiliate when circulated, but also when, in Simpson’s words, “the representation would bite all of us and compromise the representational territory that we have gained for ourselves in the past 100 years” (p. 78). As researcher-narrator, Simpson tells us, “I reached my own limit when the data would not contribute to our sovereignty or complicate the deeply simplified, atrophied representations of Iroquois and other Indigenous peoples that they have been mired within anthropologically” (p. 78). Here Simpson makes clear the ways in which research is not the intervention that is needed—that is, the interventions of furthering sovereignty or countering misrepresentations of Native people as anthropological objects. Considering Erased Lynchings dialogically with On Ethnographic Refusal, we can see how refusal is not a prohibition but a generative form. First, refusal turns the gaze back upon power, specifically the colonial modalities of knowing persons as bodies to be differentially counted, violated, saved, and put to work. It makes transparent the metanarrative of knowledge production—its spectatorship for pain and its preoccupation for documenting and ruling over racial difference. Thus, refusal to be made meaningful first and foremost is grounded in a critique of settler colonialism, its construction of Whiteness, and its regimes of representation. Second, refusal generates, expands, champions representational territories that colonial knowledge endeavors to settle, enclose, domesticate. Simpson complicates the portrayals of Iroquois, without resorting to portrayals of anthropo- logical Indians. Gonzales-Day portrays the violations without reportraying the victimizations. Third, refusal is a critical intervention into research and its circular self-defining ethics. The ethical justification for research is defensive and self-encircling—its apparent self-criticism serves to expand its own rights to know, and to defend its violations in the name of “good science.” Refusal challenges the individualizing discourse of IRB consent and “good science” by high- lighting the problems of collective harm, of representational harm, and of knowledge colonization. Fourth, refusal itself could be developed into both method and theory. Simpson presents refusal on the part of the researcher as a type of calculus ethnography. Gonzales-Day deploys refusal as a mode of representation. Simpson theorizes refusal by the Kahnawake Nation as anticolonial, and rooted in the desire for possibilities outside of colonial logics, not as a reactive stance. This final point about refusal connects our conversation back to desire as a counterlogic to settler colonial knowledge.

#### The role of the ballot is to center indigenous scholarship and resistance-- Any ethical commitment requires that the aff place themselves in the center of Native scholarship and demands.

Carlson 16 (Elizabeth Carlson, PhD, is an Aamitigoozhi, Wemistigosi, and Wasicu (settler Canadian and American), whose Swedish, Saami, German, Scots-Irish, and English ancestors have settled on lands of the Anishinaabe and Omaha Nations which were unethically obtained by the US government. Elizabeth lives on Treaty 1 territory, the traditional lands of the Anishinaabe, Nehiyawak, Dakota, Nakota, and Red River Metis peoples currently occupied by the city of Winnipeg, the province of Manitoba, (2016): Anti-colonial methodologies and practices for settler colonial studies, Settler Colonial Studies, DOI: 10.1080/2201473X.2016.1241213, JKS(rcut AHS ZA)

Arlo Kempf says that ‘where anticolonialism is a tool used to invoke resistance for the colonized, it is a tool used to invoke accountability for the colonizer’.42 Relational accountability should be a cornerstone of settler colonial studies. I believe settler colonial studies and scholars should ethically and overtly place themselves in relationship to the centuries of Indigenous oral, and later academic scholarship that conceptualizes and resists settler colonialism without necessarily using the term: SCT may be revelatory to many settler scholars, but Indigenous people have been speaking for a long time about colonial continuities based on their lived experiences. Some SCTs have sought to connect with these discussions and to foreground Indigenous resistance, survival and agency. Others, however, seem to use SCT as a pathway to explain the colonial encounter without engaging with Indigenous people and experiences – either on the grounds that this structural analysis already conceptually explains Indigenous experience, or because Indigenous resistance is rendered invisible.43 Ethical settler colonial theory (SCT) would recognize the foundational role Indigenous scholarship has in critiques of settler colonialism. It would acknowledge the limitations of settler scholars in articulating settler colonialism without dialogue with Indigenous peoples, and take as its norm making this dialogue evident. In my view, it is critical that we not view settler colonial studies as a new or unique field being established, which would enact a discovery narrative and contribute to Indigenous erasure, but rather take a longer and broader view. Indigenous oral and academic scholars are indeed the originators of this work. This space is not empty. Of course, powerful forces of socialization and discipline impact scholars in the academy. There is much pressure to claim unique space, to establish a name for ourselves, and to make academic discoveries. I am suggesting that settler colonial studies and anti-colonial scholars resist these hegemonic pressures and maintain a higher anti-colonial ethic. As has been argued, ‘the theory itself places ethical demands on us as settlers, including the demand that we actively refuse its potential to re-empower our own academic voices and to marginalize Indigenous resistance’.44 As settler scholars, we can reposition our work relationally and contextually with humi- lity and accountability. We can centre Indigenous resistance, knowledges, and scholarship in our work, and contextualize our work in Indigenous sovereignty. We can view oral Indigenous scholarship as legitimate scholarly sources. We can acknowledge explicitly and often the Indigenous traditions of resistance and scholarship that have taught us and pro- vided the foundations for our work. If our work has no foundation of Indigenous scholarship and mentorship, I believe our contributions to settler colonial studies are even more deeply problematic.

# Case

## Framing

#### Fear of extinction is a settler paradox where settler colonialism continues to imagine its end in order to sustain itself and live on the edge of death- this symbolically redeems the settler and preserves their value at the expense of indigenous genocide.

Dalley, 18—Assistant Professor of English at Daemen College (Hamish, “The deaths of settler colonialism: extinction as a metaphor of decolonization in contemporary settler literature,” Settler Colonial Studies, 8:1, 30-46, dml)

In this way, these settler-colonial narratives of extinction begin as a contemplation of endings and end as a way for settlers to persist. As in the classical solution to the settler-colonial paradox of origins, the native must be invoked and disavowed, and ultimately absorbed into the settler-colonial body as a means of accessing true belonging and the possibility of an authentic future in place. Veracini’s description of the settler-colonial historical imagination thus applies, in modified but no less appropriate form, to visions of futurity haunted by the possibility of death: Settler colonial themes include the perception of an impending catastrophe that prompts permanent displacement, the tension between tradition and adaptation and between sedentarism and nomadism, the transformative permanent shift to a new locale, the prospect of a safe ‘new land’, and the familial reproductive unit that moves as one and finally settles an arcadia that is conveniently empty.67 And yet that parallel means that it is not entirely true to say that settlers cannot contemplate a future without themselves, or that they lack the metaphorical resources to imagine their own demise. It is in fact characteristic of settler consciousness to continually imagine the end. But it does so through a paradox that echoes the ambivalence of Freud’s death drive: it is a fantasy of extinction that tips over into its opposite and becomes a method of symbolic preservation, a technique for delaying the end, for living on in the contemplation of death.68 The settler desire for death conceals that wish – the hope that, between the thought of the end and the act, someone will intervene, something will happen to show that it is not really necessary, that the settlers can stay, that they have value and can go on living. In this way, they make their own redemption, an extinction that is an act of self-preservation, deferring the hard reckoning we know we lack the courage to face, and avoid making the real changes – material, political, constitutional, practical – that might alter our condition of being and set us on the path to a real home in the world. We dream instead of ends, imagining worlds without us, thinking of what it would be like not to be. But at every moment we know that that the dream is nothing but a dream; we know we will awake and still be here, unchanged, unchanging, living on, forever. Thus settlers persist even beyond the moment of extinction they thought they wanted to arrive.

Hurley – what social justice? They literally cant give you one, its also ab environmental disasters which they don’t tlak about

The preempts –

Reps come first in debate – the argument isn’t that policymakers should have to defend their reps at every turn but rather that debaters in an academic activity should be epistemically responsible for the scholarhsip they forward, we aren’t actually going to make progress whether or not you vote for the plan

## debris

#### Alt causes and resiliency checks

Swinhoe 21, Dan Swinhoe, 5-7-2021, "Just how resilient are satellites?," No Publication, https://www.datacenterdynamics.com/en/analysis/just-how-resilient-are-satellites/

But what about satellites? GPS has become integral to daily life, weather and observation satellites provide a number of information services to commercial companies, and now we’re beginning to see a number of commercial companies provide broadband and 5G connectivity from orbit. Are the satellites we depend on as robust as we need them to be? The costs to build and launch large satellites runs into the tens, if not hundreds of millions of dollars per launch and can take months to prepare, and so the multi-ton satellites flown to Geostationary Earth Orbit (GEO) 35,786 kilometers (22,236 miles) above the Earth are routinely built with multiple layers of redundancy on key systems and payloads and rigorously tested. “Satellites are reliable in the sense that they get strapped into a rocket and blasted into space through several Gs of acceleration and a ton of heat noise and vibration, and then operate in a vacuum with significant temperature shifts as they go from sunlight into the shadow back into sunlight, and radiation,” says Dr. Brian Weeden, director of program planning, Secure World Foundation. “In that sense, they are pretty durable.” Assuming a satellite survives the launch and calls home without any troubles, it faces a constant battle for survival out in the harshness of space. Even Earth satellites in low orbits can see temperature swings of minus 50°C (-58°F) to plus 50°C (122°F) every 90 minutes, which can have a big effect on the equipment onboard, as can the lack of air. Space weather is another major contributor to satellite failures. Many of these bus-sized, multi-ton satellites are out in GEO, thousands of miles from Earth where there is little atmospheric protection from extreme conditions and large amounts of radiation. And the void can be surprisingly active and unpredictable when it comes to weather. X-rays, ultraviolet rays, radiation, and geomagnetic storms can all wreak havoc on-board; components can be damaged by the high current that discharges into the satellite or damaged by high-energy particles that penetrate the satellite.  Sun Outages, where the satellite passes in front of the Sun, don't harm the satellite. However, the sun's interference swamps the signal from the satellite, causing a loss of data. These outages affect the signals from geostationary satellites, and can last for around ten minutes a day during the Equinox - but they are predictable. The University of Reading recently recorded the first ‘space hurricane’ which it described as a ‘1,000km-wide swirling mass of plasma raining electrons several hundred kilometers above the North Pole.’ To better predict coronal ejections from the sun and provide more notice about potential space weather events, the ESA has planned a mission called Lagrange, where spacecraft will be positioned at "Lagrange points", where the gravity of the Earth and Sun balance providing stable locations to observe the sun’s activity a few days ahead of the Earth’s position. Before satellites launch, they go through a rigorous testing regime that can see them placed into climate chambers to simulate the super cold and hot vacuum of space, as well as vibration and shock tests to see how machines cope with the rigors of launch and booster separation en-route to orbit.

#### No debris cascades—This ev answers all aff warrants

Fange 2017 (Daniel Von Fange, Web Application Engineer, Founder and Owner of LeanCoder, Full Stack, Polyglot Web Developer, “Kessler Syndrome is Over Hyped”, 5/21/2017, http://braino.org/essays/kessler\_syndrome\_is\_over\_hyped/)

Kessler Syndrome is overhyped. A chorus of online commenters great any news of upcoming low earth orbit satellites with worry that humanity will to lose access to space. I now think they are wrong. What is Kessler Syndrome? Here’s the popular view on Kessler Syndrome. Every once in a while, a piece of junk in space hits a satellite. This single impact destroys the satellite, and breaks off several thousand additional pieces. These new pieces now fly around space looking for other satellites to hit, and so exponentially multiply themselves over time, like a nuclear reaction, until a sphere of man-made debris surrounds the earth, and humanity no longer has access to space nor the benefits of satellites. It is a dark picture. Is Kessler Syndrome likely to happen? I had to stop everything and spend an afternoon doing back-of-the-napkin math to know how big the threat is. To estimate, we need to know where the stuff in space is, how much mass is there, and how long it would take to deorbit. The orbital area around earth can be broken down into four regions. Low LEO - Up to about 400km. Things that orbit here burn up in the earth’s atmosphere quickly - between a few months to two years. The space station operates at the high end of this range. It loses about a kilometer of altitude a month and if not pushed higher every few months, would soon burn up. For all practical purposes, Low LEO doesn’t matter for Kessler Syndrome. If Low LEO was ever full of space junk, we’d just wait a year and a half, and the problem would be over. High LEO - 400km to 2000km. This where most heavy satellites and most space junk orbits. The air is thin enough here that satellites only go down slowly, and they have a much farther distance to fall. It can take 50 years for stuff here to get down. This is where Kessler Syndrome could be an issue. Mid Orbit - GPS satellites and other navigation satellites travel here in lonely, long lives. The volume of space is so huge, and the number of satellites so few, that we don’t need to worry about Kessler here. GEO - If you put a satellite far enough out from earth, the speed that the satellite travels around the earth will match the speed of the surface of the earth rotating under it. From the ground, the satellite will appear to hang motionless. Usually the geostationary orbit is used by big weather satellites and big TV broadcasting satellites. (This apparent motionlessness is why satellite TV dishes can be mounted pointing in a fixed direction. You can find approximate south just by looking around at the dishes in your northern hemisphere neighborhood.) For Kessler purposes, GEO orbit is roughly a ring 384,400 km around. However, all the satellites here are moving the same direction at the same speed - debris doesn’t get free velocity from the speed of the satellites. Also, it’s quite expensive to get a satellite here, and so there aren’t many, only about one satellite per 1000km of the ring. Kessler is not a problem here. How bad could Kessler Syndrome in High LEO be?Let’s imagine a worst case scenario. An evil alien intelligence chops up everything in High LEO, turning it into 1cm cubes of death orbiting at 1000km, spread as evenly across the surface of this sphere as orbital mechanics would allow. Is humanity cut off from space? I’m guessing the world has launched about 10,000 tons of satellites total. For guessing purposes, I’ll assume 2,500 tons of satellites and junk currently in High LEO. If satellites are made of aluminum, with a density of 2.70 g/cm3, then that’s 839,985,870 1cm cubes. A sphere for an orbit of 1,000km has a surface area of 682,752,000 square KM. So there would be one cube of junk per .81 square KM. If a rocket traveled through that, its odds of hitting that cube are tiny - less than 1 in 10,000. So even in the worst case, we don’t lose access to space. Now though you can travel through the debris, you couldn’t keep a satellite alive for long in this orbit of death. Kessler Syndrome at its worst just prevents us from putting satellites in certain orbits. In real life, there’s a lot of factors that make Kessler syndrome even less of a problem than our worst case though experiment. Debris would be spread over a volume of space, not a single orbital surface, making collisions orders of magnitudes less likely.Most impact debris will have a slower orbital velocity than either of its original pieces - this makes it deorbit much sooner.Any collision will create large and small objects. Small objects are much more affected by atmospheric drag and deorbit faster, even in a few months from high LEO. Larger objects can be tracked by earth based radar and avoided. The planned big new constellations are not in High LEO, but in Low LEO for faster communications with the earth. They aren’t an issue for Kessler. Most importantly, all new satellite launches since the 1990’s are required to include a plan to get rid of the satellite at the end of its useful life (usually by deorbiting) So the realistic worst case is that insurance premiums on satellites go up a bit. Given the current trend toward much smaller, cheaper micro satellites, this wouldn’t even have a huge effect. I’m removing Kessler Syndrome from my list of things to worry about.

#### No impact to hacking – this evidence lists past examples from 2008 and 2018 that didn’t escalate and states like Iran have tried and failed which prove it is difficult and unlikely – also massively increases the severity of the hacking they need to win happens – no brightline in the 1ac which means that u don’t solve

#### Megaconstellations protect against cyberattacks

Hallex and Cottom 20 [Matthew A. Hallex is a Research Staff Member at the Institute for Defense Analyses. Travis S. Cottom is a Research Associate at the Institute for Defense Analyses. “Proliferated Commercial Satellite Constellations: Implications for National Security.” 2020. https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-97/jfq-97\_20-29\_Hallex-Cottom.pdf?ver=2020-03-31-130614-940]

While potentially threatening the sustainability of safe orbital operations, new proliferated constellations also offer opportunities for the United States to increase the resilience of its national security space architectures. Increasing the resilience of U.S. national security space architectures has strategic implications beyond the space domain. Adversaries such as China and Russia see U.S. dependence on space as a key vulnerability to exploit during a conflict. Resilient, proliferated satellite constellations support deterrence by denying adversaries the space superiority they believe is necessary to initiate and win a war against the United States.28 Should deterrence fail, these constellations could provide assured space support to U.S. forces in the face of adversary counterspace threats while imposing costs on competitors by rendering their investments in counterspace systems irrelevant. Proliferated constellations can support these goals in four main ways. First, the extreme degree of disaggregation inherent in government and commercial proliferated constellations could make them more resilient to attacks by many adversary counterspace systems.

#### Early warning’s in GEO – debris doesn’t matter there

#### **no war – hotlines check miscalc**

Lan 16, Chen Lan 16, an independent analyst and founder of the 'Go Taikonauts!', “Chinese Space Quarterly Report”, January 2016, http://www.go-taikonauts.com/images/newsletters\_PDF/GoTaikonauts18.pdf

During the IAC 2015, China re-iterated the wish for international participation and cooperation in its space station project including extending the station by modules provided by international partners. Twitter messages posted by a European journalist from the Congress, that is still to be confirmed, however, showed a different view from ESA. ESA’s new Director General JohannDietrich Wörner said he had told China that the world does not need two space stations and will likely persuade China to drop its space station in favour of joining the ISS. On the other side, during the traditional “Heads of Space Agencies Panel” in IAC 2015, NASA Administrator Charles Bolden expressed his belief that the current exclusion of China from the ISS will not last forever. Though Sino-U.S. cooperation on human spaceflight is still uncertain, a positive move between the two countries has been made, that is the establishment of a space hotline. Western media reported in November that the hotline has been setup between Washington and Beijing to allow easy sharing of technical information about their space operations, hopefully avoiding any misunderstandings or accidents. Russia’s space agency Roscosmos on 17 December signed a cooperation agreement with the China National Space Administration (CNSA). The document was signed at the 20th regular meeting of Russian and Chinese Heads of Government, during Russian Prime Minister Dmitry Medvedev’s three-day visit to Beijing. The two sides agreed to promote the use of “GLONASS” and “Beidou” and their augmentations in their own countries and around the world, expanding the market of navigation services provided by these systems. The two space agencies signed another agreement on the same day on cooperation in the field of space electronics. It was reported earlier that the two countries were discussing a barter deal that Russia will import Chinese space electronic components and will export rocket engines, presumably the RD-180, to China. However, an official statement about the agreement did not mention the engine. Also on the same day, Russian state-owned nanotechnology company RUSNANO and the China Aerospace Science and Industry Corporation (CASIC) signed a strategic partnership agreement. CNSA also signed an agreement with the Netherlands on 26 October, and a memorandum of understanding with the UAE (United Arab Emirates) on 15 December, on exploration and peaceful use of outer space

## astronomy

#### Space science is bad – that’s sammler 19 and smiles 20 – tmt proves

#### Newest research from NASA proves any threat is at least a thousand years away

Mack 19 (Eric, “NASA says city-smashing asteroids aren't so common,” 6-27, <https://www.cnet.com/news/nasa-says-city-smashing-asteroids-arent-so-common/>)

Asteroids are all around us, but we shouldn't be losing sleep over the big buggers. A small space rock was spotted just before slamming into the atmosphere last weekend, and over 20,000 near-earth asteroids have been cataloged, but new research from NASA finds impacts that could do serious damage aren't very frequent. Perhaps the last time an asteroid large enough to inflict serious hurt on a limited part of the Earth's surface (we're not talking about an extinction-level space rock like the one that ended the dinosaurs) came knocking was in 1908. In June of that year, the so-called Tunguska Event impacted an unpopulated part of Siberia and was witnessed by only a handful of people, but it flattened 500,000 acres of forest, scorched the Earth and knocked people out of their chairs 40 miles away (64 km). It's easy and terrifying to imagine what the result might have been had chance dictated the impact occurred over a major metropolitan area instead. "Tunguska is the largest cosmic impact witnessed by modern humans," David Morrison, a planetary science researcher at NASA's Ames Research Center in Silicon Valley, said in a release. "It also is characteristic of the sort of impact we are likely to have to protect against in the future." But when researchers revisited the Tunguska Event with the help of computer models and tooked into account the latest data on the population of asteroids in our neighborhood, they found that such major impacts are exceedingly rare. The results, published in the journal Icarus, find that such a powerful impact should only be expected roughly every thousand years or longer rather than once every century or so, as was previously thought. While this is certainly good news for all earthly life forms, the threat of an asteroid impact is still very real and worth preparing for, as the 2013 bolide explosion over Russia reminded us. "A lot of uncertainty remains about how large asteroids break up in the atmosphere and how much damage they could cause on the ground," said NASA researcher and co-author Lorien Wheeler. "However, recent advancements in computational models, along with analyses of the Chelyabinsk and other meteor events, are helping to improve our understanding of these factors so that we can better evaluate potential asteroid threats in the future."