# 1NC v Mimou

### 1

#### Interpretation: The affirmative may not fiat the actions of private actors

#### Violation: Their plan is that private entities simply don’t appropriate, they do not advocate any legal changes to stop appropriation.

Prefer-

1. Object fiat – Private actor fiat allows the aff to fiat the object of the plan. They can wish away their harms by fiating that the agents causing them simply stop. This guts neg ground by robbing our ability to generate solvency deficits, CPs, or offense generated from the unanticipated consequences of the plan.
2. No logical decision maker – No actor could be faced with the choice of whether or not to do the plan, since it’s done by an indefinably large set of actors who share no institutional means for shared decision making. Destroys topic and real-world education by side stepping the relevant discussion of how organizations with the actual power to solve the issue ought to respond.
3. Drop the debater to preserve fairness and education – use competing interps – reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation. No RVIs – they don’t get to win for following the rules.

### 2

#### Cosmobiopolitics constitutes the governance of Outer Space as a shared resource mean to be used to further Human Progress. The Aff’s managerial at “saving” space merely sustains space as a common good for “joint usage” to further exploitation.

Damjanov 15, Katarina. "The matter of media in outer space: Technologies of cosmobiopolitics." Environment and Planning D: Society and Space 33.5 (2015): 889-906. (Faculty of Arts, University of Western Australia)//Elmer

Long before the beginning of the Space Age, humans used the regions above the globe to facilitate mediation practices; electromagnetic waves, for example, were emitted across airspace and into the atmosphere to enable radio communication decades before the first artificial satellite confirmed its arrival in the planet’s orbit on 4 October 1957. With its possible roots in early societies’ use of the celestial bodies visible from the earth’s surface for temporal and spatial orientation, the ‘media history’ of the human use of outer space reaches a watershed moment with the launch of Sputnik. This basketball-sized metal sphere, equipped with radio transmitter and four external antennas, was the first solid object, the first functional media artefact that humans had placed outside their own world. This is not to say that Sputnik marks the event in which human mediation practices begun to materially impact outer space, erasing its original, ‘natural’ state – the radio signals that penetrated the layers of the troposphere and ionosphere, although intangible, left their own material traces, environmental alterations comparable with the material results of atmospheric pollution triggered by industrial progress. These early uses of space have entangled it in a gamut of processes of techno-mediation, initiating the extraterrestrial unfolding of a historical trajectory which Jussi Parikka (2011: 3) terms ‘medianature’ – they have extended this ‘continuum between mediatic apparatuses and their material contexts in the exploitation of nature’ into outer space. However, Sputnik’s orbital presence does represent a steppingstone in the extraterrestrial progression of human medianature: it indicates the species’ acquired ability to purposefully introduce an object of technical media into outer space. As such, Sputnik epitomises a shift in the use of non-terrestrial spaces; no longer were they incidental and remote to human media exploits, they were instead made central and essential. What the first signal that Sputnik sent to its ground control announced was that humanity’s techno-logic aspirations to transform the material world and advance its productive capacity through the logic of acquisition, investment and destruction – an intrinsic human impulse described by Karl Marx (1964) as our essence of species-being – are no longer earth-bound. Sputnik and all media devices that followed it have been gradually converting outer space into a living milieu, reinforcing it as a material–social setting of human circumstances and relations. The concept of ‘milieu’ is important for understanding the complexities involved in the cosmobiopolitical transformation of outer space. In Foucault’s work and in other influential texts such as those of his mentor Georges Canguilhem (2008) and Simondon (1980) and Stiegler (1998), although employed in different contexts, the term ‘milieu’ essentially designates a site which simultaneously conditions and is itself conditioned by the productive forces of human life – whether biological, social or technical. Courses of medianature in outer space sharpen such perspectives on mutually transforming relations between humans and their milieu, providing biopolitical focus to Simondon’s and Stiegler’s perspectives on technology as fundamental in constituting human life. Stiegler’s view of progress as human technological evolution frames technical objects as a prosthesis in whose creation humans embed their ‘interiors’ and through which they further exteriorise and mould their living milieu, a process which has been changing the idea of what it is to be human (Stiegler, 1998: 17). In the Stieglerian sense, the human ‘exteriorisation’ in technical media that are sent into space not only imbues the earth’s exterior with a reflection of the human, but itself reconstitutes the human and reconfigures human ways of life. These technologies thus radically enhance the capacity for species-being, becoming a vital part of our biopolitical capital: while altering our apparently otherwise lifeless planetary exterior into a malleable and thus governable locus of life, their mediatic operations assist humans to overcome their biological and geographical limitations and proceed as a collective towards becoming more-than-human. Our medianature has been continuously adjusting to its extraterrestrial conditions and the acceleration of our technological ‘exteriorisation’ in space has necessitated the development of an attendant governmental framework. The landmark attempt to arrange the increasing multiplicity of human relationships with outer space was to define them through the rule of law – a juridical prefiguration which, as Foucault and Giorgio Agamben (1998) suggest, is a prerequisite for governing life. In 1967, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (United Nations, 2002), or, The Outer Space Treaty (OST) entered into force. In lieu of the pending human landing on the Moon, this international legal agreement established outer space as the shared domain of a global commons, which is to be explored and used by all nation-states, but which itself is to stay outside the vagaries of territorial claims and property rights. A pre-emptive gesture aimed at securing politico-economic codification of the extraterrestrial milieu before human arrival, the OST did not specify where the administrative borders of outer space are – the border between terrestrial and extraterrestrial space has been unofficially assigned to the Ka´rma´n line, a region about 100 km above the planetary surface, where objects sent into space do not fall back but remain in orbit. Nevertheless, the Treaty designates its inhuman expanses as the precinct of human governance, and behind such legal coding stood the same politico-economic rationalities which Foucault identified as pivotal for the institution of the doctrine of the ‘Freedom of the Seas’ as a foundation of international maritime law in the seventeenth century. This legal principle that identified the ocean’s strategic importance as a jointly used resource and set it free from territorial claims, symptomatically announced two interrelated entrances onto the world stage – the rise of global capitalism and the birth of biopolitics, while its replication in the OST marked the next phase in their development. In one of his lectures at the Colle`ge de France, Foucault (2008: 51–73) provided a brief account of how the history of international law echoed the emergence of modern approaches to governance, where the primary emphasis upon territory becomes augmented with the objective to secure the vitality of the shared market. He described how the Treaty of Westphalia’s reinforcement of borders around sovereign states in 1598, which strengthened their inner autonomy yet limited their external reach, instituted each of them as a part of a collective of states gathered around the common interest of progress. This territorial reform aimed to end devastating wars between the states and ensure their political and economic stability, but it imposed the need for new domains of competition in which each of them could independently acquire and prosper, and all them could together be in a ‘state of permanent collective enrichment’ (Foucault, 2008: 55). These spaces, Foucault suggested, were inaugurated with the ‘Freedom of the Seas’ in 1609, which opened the ocean as a space which all states could use to advance through economic competition rather than rivalry over territory. While specifically related to the agenda of European colonial expansions, the establishment of the seas as shared commons was indicative of the awareness that the unlimited accumulation of wealth requires the infinitely free space of the global market. Freedom of the seas was, as Foucault (2008: 56) described, born out of this ‘new form of global rationality... a new calculation on the scale of the world’ and it marked the start of economic globalisation. The interplay between the finite room of territories and infinite possibilities for circulation and accumulation of capital was sustained indefinitely by asserting the global freedom, the commonality of the seas. Through the commons of the seas, capitalism assumed its global latitudes; while the historical enclosure of wastelands that were shared as ‘commons’ enabled the initial, ‘primitive’ accumulation of capital, the creation of the ocean’s commons enabled capitalism to articulate its processes at a global scale. This legal manoeuvre to defend territory by rethinking the spaces of the market institutes the idea of shared commonality as an Archimedean point for the governance of human societies, preparing the terrain for a biopolitical system of governance based upon its abstraction into a method of subsuming ‘life itself’ to the massifying logic of averages and estimates. The institution of the OST and its associated Agreements and Conventions2 from the mid-twentieth century was an outcome of yet another spatial crisis; it was an attempt to negotiate the many tensions that the arrival of the Space Age stirred within global affairs. It was at the time of Cold War and states’ political polarisation, in a world where rapid industrialisation and massive population increases were coupled with anxieties about limits to economic growth, that outer space was identified as a potential site of military conflicts, competing claims of sovereignty and a rapacious race for resources. The looming possibility of still deeper crisis necessitated another repositioning of states and markets around their vital assets, and a restoring of the global equilibrium of powers. Here the OST drew upon the juridical principle of a ‘common heritage’ of humankind – a concept previously employed in the Antarctic Treaty in 1959 for comparable arrangements of international regimes of governance – and took the idea of the commons outside the globe. The treaty expanded the conceptual borders of ‘the scale of the world’ into extraterrestrial space, prescribing that its exploration ‘shall be carried out for the benefit and in the interests of all countries’ and that it ‘shall be the province of all mankind’ (OST, article 1). Once again, international law established a space of commons whose exploration and exploitation would proceed as a joint enterprise through which all states could freely advance and prosper both individually and as a part of collective. Just as the ‘Freedom of the Seas’ opened routes for ships sailing in the name of nations, the OST unlocked flightpaths for spaceships and other technologies, stimulating states’ techno-scientific interests and competition and ensuring that the emerging mode of ‘high-tech’ capitalism had from its beginnings an extra-planetary, infinite prospect. This trans-national legal netting codified an idea of global commonality and framed the inhuman regions of outer space as the ‘province of all mankind’, drawing them into its global system of governance. The OST thus provided the juridical platform from which to articulate a cosmobiopolitical order; it offered a governmental framework for enacting a vision of the human race as a species-power, which will, through the techno-mediated exploration of space, direct its own cosmic progress. Almost a half century after the OST, media technologies remain crucial to the transformation of outer space into a human province. The voracious neoliberal drive of the state-industry nexus that conditions global biopolitics is so dependent upon them, that they become a target of the same systems of governance they catalyse. Their construction, launches and distribution are the subject of careful calculation, meticulous planning and complex logistics, their condition and movements are continuously being monitored, assessed and managed, and this transfer of governmental rationalities from living humans to inanimate objects changes the biopolitical approach to human species-being. If biopower emerged as concerned with bodies of human individuals and populations, and pressing environmental concerns about the ‘global body of the Earth’ augmented its application ‘from human to planetary bodies’ (Bryld and Lykee, 2000: 92–94), then space-based media technologies mark a subsequent phase in the development of its architecture. They trigger the transposition of life management onto the bodies and populations of media technologies and it is this shift which inaugurates the object-centred coordinates of the cosmobiopolitical: the governance of the human without actual humans. The legal basis of cosmobiopolitics, the OST respectively preserves the status of outer space as a globally shared domain and permits its occupation by technical media that are the legal province of particular terrestrial entities, thus accommodating the contradictory tenets of their governance. However, these governmental rationalities are defined by codes of law and ‘the law’ as Foucault (2007: 47) notes ‘works at the level of the imaginary’, and it can only imagine things which can and cannot be done; like the 0s and 1s of digital code, it only prescribes a state of presence or absence of things. It is the very presence of media technologies in outer space (and the absence of humans) which contradictorily makes possible and disturbs the cosmobiopolitical imaginary. Their remote position situates them beyond the reach of juridical rule and the policing-power of states, literally placing them outside of the ‘global grid’ of governance. While they are used as apparatus through which to enable human terrestrial enterprises, these objects themselves carry the essence of terra and of the absent presence of the human beyond the globe. The media technologies in outer space do not only reduce the incompatibility between the human and the extraterrestrial, but also introduce frictions within their exchanges. This disturbance suggests that their material realities disrupt the imaginaries implied by law and instead assert their own force, reinforcing these objects somewhat absurdly as the non-governable markers of extraterritoriality in the commons, as the non-human emissaries of humanity, and as a non-living population of objects which are managed as if they were alive. In outer space, the matter of media itself becomes code through which to define what can be propertied and what remains commons, what can be governed and what poses itself as ungovernable, where the human ends and the non-human begins, where the boundaries that distinguish governance of the living from the non-living lie and when biopolitics transmutes into a cosmobiopolitics. The media apparatus that support the metamorphosis of biopolitics in outer space are varied, and the milieus in which they function require a range of different performances. The following sections of this paper consider a number of the varying ways specific media technologies perform this extra-planetary extension of the impulse to govern life by focusing on satellites and their debris, and on the prospects of an interplanetary Internet. None of these specimens provides a complete picture of the ways in which media technologies inspire the advent of a cosmobiopolitics. Rather, each offers a different angle from which to consider the shifts in material and social arrangements that are demanded by forays beyond the earth, signs that herald a radical shift in the way humanity conceives of life and articulates its governance. What follows is a series of initial steps, the first paces in a far larger survey that aims to chart the natality of the emergent cosmic traits of biopolitics. I offer here a series of sketches, an outline of tentative trajectories suggested by contemporary mediatic excursions into outer space. By exploring how we manage an over-population of functional and defunct media objects in orbital space and imagine the utilities of interplanetary Internet networks, I suggest that human extraterrestrial medianatures necessitates a profound alteration in our relationship with the technologies, and the reframing of governmental obsessions with discourses of territory, security, and population.

#### The Affirmative obfuscates the intricate connection between the “Public” sector and “Militarism” – the Aff is merely a smokescreen to hide military development of outer space in new forms.

Sheehan 7, Michael. The international politics of space. Routledge, 2007. (Nancy and Peter Meinig Family Investigator in the Life Sciences, Assistant Professor)//Elmer

The 1958 Space Act declared that the United States was keen to explore space for ‘peaceful purposes for the benefit of mankind’, and allowed for ‘cooperation by the United States with other nations and groups of nations’.30 This declaration had a dual purpose. The first statement was designed to deflect attention away from the military dimension of US space research and reduce foreign concerns that the United States was seeking to militarize outer space. The second statement’s purpose was to promote the image of the United States as a scientific leader that was willing to share the development of space with other nations, and which therefore clearly had no hidden agenda beyond space exploration for the general benefit of humanity. In this regard, it fitted in with other US policy initiatives designed to promote the image of the United States as a country eager to cooperate internationally in an open and transparent manner. The Marshall Plan, Atoms-for-Peace and the Peace Corps were all part of this general image-building approach, though all had other motivations as well, as did the space policy. The apparent separation of civilian and military activities allowed the United States considerable flexibility. By having a largely transparent civilian-dominated programme, American public insecurity was alleviated, yet at the same time the US was able to continue its military programmes away from the glare of national and international scrutiny, and often successfully camouflaged behind actual or fictitious civilian space projects. In fact, unknown to the American public, there were three, not two space programmes, white, blue and black. The white programme was the high profile civilian programme led by NASA. The blue programme was the classified military programme run by the Department of Defense. In addition, there was the ‘black programme’, the reconnaissance programme run by the intelligence agencies. The apparent separation of the elements of the US space programme made it easier for the vast majority of the American political establishment to rally behind a substantial and energetic space programme. Liberals could support it as an alternative form of competition with the Soviet Union in an era when the dangers of nuclear war were very real, while conservatives saw the programme as developing military hardware and providing capabilities that would in the long run enhance the effectiveness of US armed forces.31

#### Outer space policy has always been of militarization – debates between civilian and military use are two sides of the same coin that affectively polices society, culminating in total war.

Craven 19 [Brackets Original. Matt Craven (Professor of International Law, SOAS University of London, United Kingdom). “‘Other Spaces’: Constructing the Legal Architecture of a Cold War Commons and the Scientific-Technical Imaginary of Outer Space”. European Journal of International Law, Volume 30, Issue 2, May 2019, Pages 547–572, Accessed 1/12/22. <https://academic.oup.com/ejil/article/30/2/547/5536739> //Xu]

There was little doubt to any of the observers of the launch of Sputniks I and II in 1957 that, despite their overtly ‘scientific’ purposes, the arms race had taken a decisive new turn. The exploration of outer space clearly offered a range of potential benefits; alongside the possibility of research into the physics of the atmosphere, it also would facilitate the collection of a host of meteorological, geophysical and cartographic data, enable enhanced capacity for radio communication and television broadcasting, facilitate safe navigation and, finally, open up the possibility of experimental flights to the moon and beyond. No one, however, was blind to the military implications.60 Within the USA, in particular, there was a widespread belief that command over outer space was an imperative that could not be missed: ‘[W]hoever controls outer space’, it was often said, ‘controls the world’.61 In the wilder speculations, thus, it was imagined that a nuclear power might be in a position to launch guided missiles from a space platform to any point on earth with barely any possibility of response, that outer space would be filled with ‘orbiting bombers’ or that the moon would become the site of military rocket installations. ‘Control’ of outer space, thus, was immediately conceived as being vital as a matter of security. Such concerns seemed to place a premium upon ensuring that the ‘use’ of outer space was exclusively peaceful – a view that seemed to be affirmed not merely by the establishment of COPUOS and successive proposals put to the UN by both the USA and Soviet Union. It was also recognized in the US National Aeronautics and Space Act of 1958, which created a civilian space agency (NASA) and declared, in the process, that ‘it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind’.62 This theme was carried through into the code for outer space – UN General Assembly Resolution 1962 recognizing ‘the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes’ and the Outer Space Treaty that added in Article 4 that states should not place nuclear weapons or weapons of mass destruction in orbit and that the moon and other celestial bodies shall be used by all states parties ‘exclusively for peaceful purposes’ (military bases and fortifications, in particular, being prohibited). Indeed, President Lyndon B. Johnson described the Outer Space Treaty as ‘the most important arms-control development since the limited test-ban treaty of 1963’.63 In an immediate sense, then, outer space was configured as a space radically distinct from atmospheric space and was placed at once beyond the field of both sovereignty and of war. These, however, were by no means co-terminous. The preferred analogy when discussing the status of outer space was often that of the high seas – like the seas, outer space should be marked by the principle of freedom of access and movement, a res communis incapable of being ‘enclosed’. In fact, this was the analogy used by the USA when defending its use of satellites for reconnaissance purposes; ‘reconnaissance’ from space, it was argued, was the functional equivalent of surveillance from the high seas.64 It is clear, however, that this analogy was problematic precisely because the high seas themselves were not immune from being brought within the field of military conflict.65 And, with that in mind, alternative modes of analysis were often proffered to ensure that the ‘commons’ was not to be equated with a potential field of battle.66 Nevertheless, there was always a certain equivocation running through discussions within the UN and elsewhere as to whether the military/non-military distinction was one that could be effectively held in place. Not only were the Declaration on Outer Space and Outer Space Treaty silent on certain vital matters – on the equipping of satellites, for example, with conventional weaponry or the militarization of the ‘extracelestial void’ – but the inclusion of Article 3, which instructed states to ‘carry on activities’ in accordance with international law and the UN Charter ‘in the interest of maintaining international peace and security’, gave expression to the idea, vaunted at various moments, that outer space may nevertheless be the site of military action in self-defence.67 ‘Peaceful’ use, on such a measure, was not to be calibrated by reference to the equipment or personnel put into space – whether military or civilian – but, rather, by reference to the ends or motivation of the actors in question.68 In the case of the USA, this was to resolve itself in the idea that ‘peaceful use’ should not be equated with ‘non-military use’ but, instead, with ‘non-aggressive’ use. As Senator Albert Gore was to put it, when speaking before the UN First Committee in 1962: [i]t is the view of the United States that outer space should be used only for peaceful – that is, non-aggressive and beneficial – purposes. The question of military activities in space cannot be divorced from the question of military activities on earth. To banish these activities in both environments we must continue our efforts for general and complete disarmament with adequate safeguards. Until this is achieved, the test of any space activities must not be whether it is military or non-military, but whether or not it is consistent with the United Nations Charter and other obligations of law.69 The same general tenor was maintained in the discussion over Article 4 of the Outer Space Treaty concerning the demilitarization of the moon and celestial bodies. In this treaty, it was admitted that the use of military personnel ‘for scientific research or other peaceful purposes shall not be prohibited’, largely in recognition of the fact that for both space powers it was the military, not civilian agencies, who were responsible for developing rocket and other outer space capabilities. What one might see in this is a straightforward determination, on the part of both space powers, to continue the practice of exploiting outer space for purposes of defence whilst holding on, at the same time, to the general idea that outer space was a space of peaceful endeavour. Defensive militarization, here, was to be conceptualized as the functional equivalent of total demilitarization. Yet ‘defence’ was also an unstable category in circumstances of a bipolar military standoff that depended upon a balance of forces. For not only might an effective defence depend upon first strike capability (as the doctrine of ‘mutually assured destruction’ was to suggest),70 but also, as was later to become evident following the announcement of the US Strategic Defense Initiative in 1983,71 even the construction of an overtly ‘defensive’ system could assume an offensive cast if only one party possessed that capacity.72 There was, however, also a much deeper problematic at work here, which related to the persistence of a governmental rationality that was held over from the earlier decades of the 20th century, that understood the necessity of bringing all social resources – economic, technical, scientific and human – to bear in defence of the state against an existential threat. This was articulated in the interwar years in the theories of total war developed by the likes of Erich Ludendorff73 and Ernst Jünger,74 but was carried forward, well into the aftermath of World War II.75 Even if, at Nuremberg, the tribunal had associated the practice of total war with the pathologies of National Socialism,76 as the likes of Georg Schwarzenberger and Josef Kunz were to observe, it was a method of waging war that was only, in small part, to be associated with the problem of totalitarianism. For both, the phenomenon of total warfare was a much more general one – associated with technological developments in arms, indiscriminate modes of warfare and the mobilization of the civilian population – and was as much in play in the 1950s as it had been in earlier decades.77 If the prospect of nuclear annihilation meant that no element of society would be spared, so also, it seemed to follow, no element of society should be excluded from preparations to ward off that eventuality. Whilst, in the case of the Soviet Union, the ethos of centralized planning and a party bureaucracy equipped with an ideology of collective ownership and class warfare naturally dissolved any operative distinctions between the civil and the military establishment,78 the same was also apparent in the USA where, as was recognized as early as 1945, the ongoing development of new technologies of offence and defence, in conditions of competition, would require ‘the participation of every element of the civilian population’ and, in particular, the enlistment of the countries research capabilities.79 Alongside the development of what Dwight Eisenhower later described as a ‘military-industrial complex’, guided by a ‘scientific-technological elite’,80 the rationalities of the Cold War were to envelop US society in a much more profound way – from the mobilization of the media in defence of free thought, the enlistment of corporations, unions and research establishments in defence of national security and the co-option of cultural institutions (from Hollywood to the universities81) in the affective management and policing of public life.82 The significance of this in the context of outer space was the almost total loss of any way to distinguish effectively between military and civilian activities. Just as the requirements of resourcing a technologically dependent military armature increasingly depended upon a civilian infrastructure of research, industry and economic management,83 so also was it clear that prospective civilian and scientific activities in space (such as meteorology, remote sensing, navigation systems and telecommunications) all had military dimensions. If, for example, developments in meteorological knowledge and environmental science seemed to open up the possibility of weather control for the purposes of combating drought, improving agriculture or the avoidance of natural disasters, so also could that same science assist in the development of military communications and ballistic missile capability (which depended upon information about the lower and upper atmosphere, ionospheric behaviour, geodesy and geomagnetism).84 Such knowledge also opened up new possibilities for manipulating weather systems in order to procure military advantage (such as the manipulation of thunderstorms to disable communication systems or the creation of fog or cloud).85 But it was not just about scientific knowledge enabling new avenues of military innovation; it was also about the purposes to which the same technology might be put. Thus, for example, the camera-equipped satellite programmes (Tiros, CORONA), with the auxiliary systems of information recovery and reproduction, were virtually identical (give or take a few degrees of resolution) whether they were used for the purposes of geodetic measurement and weather prediction or military reconnaissance. In some cases, furthermore – such as the US Galactic Radiation Background satellite – intelligence-gathering electronics was incorporated within the same instrument used for the measurement of solar radiation.86

#### Militarism necessitates a sovereign subject of mastery and individualization that creates international necro-zones of racialized sacrific.

Agathangelou 11 [Anna M. Agathangelou (political scientist from York University in Toronto. She is the co-director of Global Change Institute, Cyprus and was a visiting fellow in the Program of Science, Technology and Society at John F. Kennedy School of Government, Harvard). “Bodies to the Slaughter: Global Racial Reconstructions, Fanon's Combat Breath, and Wrestling for Life”. Somatechnics, March 2011, vo. 1, No. 1 : pp. 209-248. Accessed 1/22/22. <https://www.euppublishing.com/doi/full/10.3366/soma.2011.0014> //recut Xu]

Fanon scales colonisation to the level of the slave and colonised body. He illustrates the incommensurability of the intimate encounter of black flesh with the body of the coloniser and focuses on the structuring processes required to make it possible. He begins his critique with the normative imperial order of slavery and colonisation and those humanist interventions claiming to protect the sovereign subject. He tells us that the constitution of this sovereign subject depends on an asymmetrical segregated-order: This world divided into compartments, this world cut in two is inhabited by two different species ... When you examine at close quarters the colonial context, it is evident that what parcels out the world is to begin with the fact of belonging to a given race, a given species ... The cause is the consequence; you are rich because you are white, you are white because you are rich. (Fanon 1967d: 39–40, emphasis in original) Fanon points out that this order’s constitution depends on direct violence that turns a species into slaves, black, and colonised. This violence makes it possible for zones to become ‘civil’ spaces of ‘generalized trust’ and security for the sovereigns; the species occupying them possess ‘generalized trust’ and are racially white. This relation ends up being taken for granted: belonging to a given race of property relations is the precondition for any ‘civil’ encounter. Indeed, as Wilderson argues, ‘Fanon makes clear how some are zoned, a priori, beyond the borders of generalized trust’ (Wilderson 2010: 33). The establishment of gratuitous violence zones, positions and constitutes simultaneously the species and the colonised. Further, ‘the condition of possibility upon which subjectivity’ (Fanon 1967d: 39–40) is based must be recognised and theorised. The creation of colonised zones, the interstate state system, racialised whiteness, and property relations require theorising if we are to disrupt those relations which unify and entify a normative ‘ethical order’. Fanon, of course, is clear: without the vertical existence of breath, that is, giving one’s breath as nourishment for blackness, slavery, and colonisation, there is no such order. This order, even when it claims inclusion, segregates subjects of recognition from ‘species’. Subjects are positioned into the interstate structure of worlds with sovereign protection, able to take by force and accumulate anything, from things to life itself. Fanon seems to have anticipated Foucault who argues: ‘Power is employed and exercised through a net-like organisation. And not only do individuals circulate between its threads; they are always in the position of simultaneously undergoing and exercising power ... The individual ... is not the vis-a`-vis of power; it is I believe, one of its prime effects’ (Foucault 1980: 98). However, Fanon does not begin with this prime effect of power, as he wants us to learn to read social relations, racism, and economies of violence as if experiencing our own gratuitous violence, in an attempt to think the impossible place of the slave, the black body, and the colonised – in other words, the living being whose existence is already assumed as structurally impossible and, hence, as breath which can never be synonymous with life. The basis of the (inter) state structure, Fanon recognises, is already the juristic sovereign person whose essence, or what Goodrich calls the sovereign that the state has a right to kill, is already secured from the threat of mutilation. On the one hand, Foucault (1990: 138) asks this about state power: ‘How could power exercise its highest prerogative by putting people to death, when its main role was to ensure, sustain, and multiply life, to put this life in order?’ On the other hand, Fanon makes explicit the matrix of violence which requires and makes sure that species are zoned as black and colonised: ‘Individualism is the first to disappear ... the colonialist bourgeoisie had hammered into the native’s mind the idea of a society of individuals where each person shuts himself up in his own subjectivity, and whose only wealth is individual’ (Fanon 1967d: 47): Their first encounter was marked by violence and their existence together – that is to say the exploitation of the native by the settler – was carried on by a dint of a great array of bayonets and cannons. The settler and the native are old acquaintances. In fact, the settler is right when he speaks of knowing ‘them’ well. For it is the settler who has brought the native into existence and who perpetuates his existence. The settler owes the fact of his very existence, that is to say, his property, to the colonial system. (Fanon 1967d: 36) But why such insistence? What tension does Fanon want to foreground? Fanon actually has a different ‘locus of enunciation’ and insists on a long trajectory of the effects of the imperial, colonial, and slave order and vertical relations of what he calls ‘combat breath’ (Fanon 1967c: 65). By drawing out Fanon’s idea of ‘combat breath’ and articulating it as struggles that disrupt the practices of violence and the final destruction of countries and people, we see that enforcing the right to life of the radical individual (the propertied man of a structure of white supremacy which depends on slavery and colonisation) will authorise thanatopolitics and necroeconomics, not by suspending a right to life but rather by enforcing a right to that ‘liberal’ life. But this minimalist right to life could preclude crucial relations in the everyday continuum-spaces of the human and the non- human, including ecologies and it does by deploying practices of disfigurement and destruction. Fanon exposes the imperial European re-assemblage of power and demonstrates that state power shifts are connected to the emergence of an ‘international’ order and apparatuses that make possible a particular sovereign-master-colonising subject. In his view, colonial power says: ‘Since you want independence, take it and starve ... A regime of austerity is imposed on these starving men; a disproportionate amount of work is required for their atrophied muscles’ (Fanon 1967d: 96). Fanon notes the prevalence of suffocation and starvation in world politics, the devouring of the flesh and the subsequent redistribution of its existential vital energy that is turned into wealth. Amelioration requires more than changing working conditions and setting up less exploitative structures (such as socialism and communism). Rather, it requires ‘regime[s] which [are] completely oriented toward the people as a whole’ which prioritise the principle ‘that man is the most precious of all possessions’.8 Such a locus will preclude ‘that caricature of society where all economic and political power is held in the hands of the few who regard the nation as whole with scorn and contempt’ (Fanon 1967d: 98).

#### Their managerial approach to space within a rational cost-benefit nation-state framework leads to environmental destruction and racial violence – their decision to focus on large-scale geopolitical impacts to critique a particular aspect of space exploitation reproduces otherized sites as exploitable and fungible.

Klinger 19, Julie Michelle. "Environmental geopolitics and outer space." Geopolitics 26.3 (2021): 666-703. (PhD, specializes in development, environment, and security politics in Latin America and China in comparative and global perspective)//Elmer

On Earth, the environmental geopolitics of outer space are inseparable from questions of environmental justice. Environmental (in)justice unfolds across multiple scales through concrete processes: localized and stratospheric emissions from space launches (Carlsen, Kenesova, and Batyrbekova 2007; Jones, Bekki, and Pyle 1995), the placement of outer space related infrastructure in national and global peripheries (Gorman 2007; Mitchell 2017; Redfield 2001), and the use of such infrastructure to advance or thwart environmental destruction (Da Costa 2001; Guzmán 2013; Parks 2012). Human engagement with outer space enlists industrial economies, global networks of infrastructure and expertise, and the generation and control of 11 information. All of these activities take place in specific sites and are subject to ongoing transformations in territorial governance practices. By locating infrastructures that are securitized, dangerous, and environmentally toxic in remote areas, the state or empire accomplishes two things. It consolidates power in far-flung territories while mitigating against liabilities and security threats that might arise from placing launch infrastructures closer to the metropole. In order to reduce environmental impacts, adequate resources, personnel, and expertise need to be assigned to the task of monitoring and mitigating the regional fallout of rocket launches (Hall et al. 2014). This may not be the case if the site in question has been deemed sacrificable by those with territorial control. Launches and Their Infrastructures Reaching outer space requires Earthly infrastructure, which means that space launches have concrete footprints that change according to developments in launch technologies. The placement of outer space related infrastructure on Earth is a question of environmental (in)justice. Which sites are chosen, who is expropriated, and which environments are impacted is subject to strategic geopolitical calculations, which, more often than not, employ classical geopolitical reasoning (Hickman and Dolman 2002; Ingold 2006; Meira Filho, Guimarães Fortes, and Barcelos 2014; NDRI 2006). Launch sites are tightly controlled to reduce the risk of interference or failure, therefore situating launch sites in remote areas is often explained in terms of safety and security (Zapata and Murray 2008). No doubt this is important: rockets are composed of many tonnes of material and combustive fuel, so they must be launched in places where damage from routine as well as potentially catastrophic explosions can be contained. For humans to reach “the final frontier,” they must first find a frontier space on Earth that can be made into an empty space in which controlled explosions can be routine. Frontiers are seldom as empty as those aiming to conquer them would claim. Where they are not populated by people, they are filled with other sorts of meanings and life forms (Klinger 2017; Tsing 2005). Potential launch sites and testing ranges deemed by government authorities to be simultaneously remote, safe, and suitable to contain the risks of rocket launch must first be made empty of people, with prior land use regimes or territorial claims pushed beyond designated buffer zones (Gorman 2007; Mitchell 2017). Hence the placement of space infrastructure follows colonial geographies of extraction, sacrifice, and risk (Mitchell 2017; Redfield 2001). As Gorman (2007) put it: “because of their distance from the metropole, these places lend themselves to hosting prisons, detention camps, military installations, nuclear weapons, and nuclear waste. All of these establishments, including rocket ranges, have inspired reactions of protest.” These so-called ‘peripheral’ spaces are nevertheless central to their inhabitants and their neighbors, who question the logic of extraglobal conquest in the face of unresolved Earthly injustices. Consider, for example, the case of the launch site in Alcântara, Brazil, which has been well documented by Araújo and Filho (2006) and Mitchell (2017). Through a close examination of local, national, and international politics, these authors document how the government’s racialized approach to the subsistence communities displaced by space infrastructure deepened structural inequalities. Grassroots opposition to the launch site grew not out of an a priori ideological opposition of poor people to national progress in outer space, as some officials alleged, but rather resulted from the failure to account for the food insecurity generated by state resettlement projects. The resettlement schemes were themselves misinformed by impoverished notions of local livelihoods. Local claims against the deprivations caused by statesponsored space practices have deepened schisms between the military and civilian space programs at the federal government level. Through the lens of classical geopolitics, these structural inequalities scarcely register, with the result that the ‘crawling’ progress of Brazil’s space program is pathologized as poor management practices symptomatic of an inadequately implemented national development vision (Amaral 2010). Critical geopolitics helps deconstruct the nationalist performativity of such endeavors by considering the political and economic value placed on the spectacle of spaceflight (Boczkowska 2017; Macdonald 2008, 2010; Sage 2016). Feminist geopolitics draws our attention to the racialized and gendered dispossession advanced by the state, through the construction of space infrastructure and exercised through access to land. The fact that environmental and public health impacts were only considered by the authorities after years of mobilization by Black social movements, religious communities, and scholars highlights the ways in which inattention to the local in the pursuit of space power perpetuates environmental injustice, which in turn interrupts national plans for space progress. Rocket launches affect local and global environments through the construction of infrastructure, the exposure of local environments to toxic residues, and the dispersal of pollutants in land, air, and sea. Rockets are the only source of direct anthropogenic emissions sources in the stratosphere. Ozone-depleting substances (ODS) such as nitrous oxide, hydrogen chlorine, and aluminum oxide are emitted by rockets, and can destroy 105 ozone molecules before degrading (Voigt et al. 2013). The ozone layer prevents cancer and cataract-causing ultraviolet-b waves from reaching the Earth. As of 2013, rocket launches accounted for less than 1% of ODS emissions. As other ODS are phased out under the Montreal Protocol and the frequency of lower cost space launches increases, the proportion and quantity is likely to increase (Durrieu and Nelson 2013; Ross et al. 2009). Although affluent economies in the northern hemisphere are responsible for most ODS emissions (Polvani 2011; Rousseaux et al. 1999), the geography of exposure disproportionately affects an overall higher population in remote regions and in the southern hemisphere (Norval et al. 2011; Robinson and Erickson 2015; Thompson et al. 2011) because ozone depletion is most serious in regions where high altitude stratospheric clouds are most likely to form: above the polar regions and major mountain ranges (Carslaw et al. 1998; Perlwitz et al. 2008). This is an example of environmental injustice on a global scale, where the global south bears the environmental burden of actions predominately taken in the global north, rocket launches included. In the process, global power relations are reinscribed through the uneven distribution of harm to peripheral and southern bodies, mediated in this case through the redistribution of gases in the stratosphere that increase exposure to solar radiation. Coming closer to Earth, environmental geopolitics of outer space are manifest in the dispersal of particulate matter into ecosystems surrounding active launch sites. This is more than a strictly local environmental concern, because which spaces are subject to the hazards of launch sites involves careful calculations weighing financial cost, state power, and multifarious territorial interests. With each launch, surrounding areas are showered with toxins, heavy metals, and acids over a distance that varies widely with wind, weather, and precipitation patterns at the moment of lift-off.3 The most researched of these pollutants are hydrogen chloride, aluminum oxide, and various aerosolized heavy metals. Release of these pollutants from rocket launches results in localized regional acid rain (Madsen 1981), plant death, fish kills, and failed seed germination of native plants in launch sites (Marion, Black, and Zedler 1989; Schmalzer et al. 1992). These effects, and research on them, are mostly concentrated within one kilometer of the launch site. But they have been recorded several kilometers away under certain weather conditions (Schmalzer et al. 1998). Recent studies on the concentration of trace elements in wildlife in areas near NASA launch activities in Florida, USA, found that more than half of the adults and juvenile alligators had “greater than toxic levels” of trace elements in their liver (Horai et al. 2014). Both the subject, and the vague statement of findings, highlights the lack of research into the impacts on downstream human and non-human communities. In contrast to the precautions taken to protect workers in buildings adjacent to facilities where these technologies are developed (Bolch et al. 1990; Chrostowski, Gan, and Campbell 2010), much less consideration is given to communities within the dynamic pollutant shadow of rocket launches. In Kazakhstan, Russia, and China, researchers have begun examining the effects of the highly toxic liquid propellant, unsymmetrical dimethylhydrazine 1which has been in use since the dawn of the space age. It has noted carcinogenic, mutagenic, convulsant, teratogenic, and embryotoxic effects (Carlsen, Kenesova, and Batyrbekova 2007), and it has been found to cause DNA damage and chromosomal aberrations in rodents living near the Baikonur cosmodrome in Kazakhstan (Kolumbayeva et al. 2014). Despite these known hazards, methods to detect UDMH at the trace concentrations at which toxic effects begin to manifest in humans do not yet exist (Kenessov, Bakaikina, and Ormanbekovna 2015), meaning that there is no knowledge of how this circulates in the environment, bioaccumulates up the food chain, or could potentially be sequestered through soil or plant filtration. The lack of technology or methodology to adequately track the dispersal of hazardous pollutants that have been used for decades in the surrounding environment illustrates another aspect of environmental injustice: the preference on the part of political and economic elites to create spaces of waste rather than allocate adequate resources to maintain safe and non-toxic environments.4 The hyper-local politics of basic livelihood security shape long-term access to outer space and space geopolitics at multiple scales. Attending to the local matters is important, not just because it sheds light on broader geopolitical processes, but because failing to do so leaves the substantive matters of human engagement with outer space entirely overlooked, at best. At worst, ignoring local environmental conditions recasts them as places to be “left behind,” casualties in a Darwinian race to the cosmos in which the poor have no place. Attending to the environmental geopolitics of outer space on Earth shows the co-production of Earth and space. Earthly environments and social relations are remade in our evolving relationship with outer space and reconceived alongside evolving deliberations on the prospects for human survival.

#### The Impact is unending war and environmental catastrophe.

Craven 19 [Matt Craven (Professor of International Law, SOAS University of London, United Kingdom). “‘Other Spaces’: Constructing the Legal Architecture of a Cold War Commons and the Scientific-Technical Imaginary of Outer Space”. European Journal of International Law, Volume 30, Issue 2, May 2019, Pages 547–572, Accessed 1/12/22. <https://academic.oup.com/ejil/article/30/2/547/5536739> //Xu]

Even in the aftermath of the pronounced ‘closure’ of the Cold War, the residue of the formation that was brought into play in space remains very much with us today. On the one hand, outer space has been progressively enveloped within the technological infrastructure of warfare and policing actions – the first Gulf War of 1990 ushering in a new era of ‘smart’ weaponry and GPS-configured surgical violence139 – anticipating, in the process, the ‘remote’ operations of the drone and cyber warfare of the contemporary era. The blurring of the demarcation between the (outer space) technologies of war and peace finds its contemporary parallels in the collapse of a range of other operative distinctions – between the virtual and the real, the combatant and the civilian, the battlefield and the battle space, the interstate and the intra-state. The juridical formations on which these depend, furthermore, have themselves become enveloped within the same strategic operations – ‘lawfare’ becoming the adjunct to a new form of totalized warfare stripped of any spatial determinacy. On the other side, outer space has increasingly become the terrain of speculative capitalism, which, following the growth of space tourism (pioneered by the Russian space administration in the 1990s140), has seen the active development of a range of commercial projects from the construction of sub-orbital ‘space planes’ to asteroid and lunar mining undertaken by both public and private agencies. The imaginative resources for such projects have come from various directions, but a common theme is that impending resource depletion on earth will soon bring such resources within commercial and technological reach, and that outer space will therefore provide a ‘spatial fix’ for a system of global capitalism that might otherwise run into the ground.141 There is, as Katarina Damjanov has noted,142 a deep parallelism here between the juridical opening of the seas (mare liberum), which served to stabilize the system of sovereignty within Europe in the 17th century by extroverting the site of conflict and competition,143 and the opening of outer space three centuries later as another prophylactic measure, even if, in this case, that which was to be guarded against was a planetary-wide, environmental catastrophe. Perhaps the deepest irony, here, is that the mode of salvation on offer is precisely the same as that which is the extant cause of crisis, which one may take to be a remorseless instrumentalization of nature.

#### The alternative is *Worldism* – the refusal of international relations and specialization as dictated by militarism in favor of epistemological interventions into the exercise of Space as a carceral apparatus.

Agathangelou and Ling 09 Anna M. Agathangelou is an Associate Professor in the Departments of Political Science and Women’s Studies at York University, Canada and co-director of the Global Change Institute, Nicosia, Cyprus, L.H.M. Ling is an Associate Professor in the Graduate Program in Inter- national Affairs at The New School, New York, USA., Transforming World Politics: From empire to multiple worlds, The New International Relations Series, 2009.

MAIN ASPECTS Worldism presents world politics as a site of multiple worlds. These refer to the various and contending ways of being, knowing, and relating that have been passed onto us from previous generations. Histories, languages, myths, and memories institutionalize and embody multiple worlds through simple daily acts like cooking and eating, singing and dancing, joking and playing but also through larger events like trade, development, conflict, and war. Worldism registers not only the “difference” that comes from multiple worlds (see Inayatullah and Blaney 2004) but also their entwinements. Selves and others reverberate,2 producing multi- and trans-subjectivities that leave us legacies of reinforcement and conflict, reconstruction and critique, reconciliation and resistance. Such syncretic engagements belie seeming oppositions and contradictions among multiple worlds to reveal their underlying connections despite hegemony’s violent erasures. On this basis, communities have opportunities to heal and recuperate so they can build for another day, for another generation. Worldism as everyday life enacts self–other reverberations and syncretic engagements, especially by communities at the margins. Worldism as an analytical framework theorizes about them. Both types of worldist activity expose the problematic of empire in practice and logics. Building on the postcolonial notion that all parties make history, albeit with unequal access to power, worldism leads to an undeniable conclusion: our mutual embeddedness makes us mutually accountable. One cannot escape from the other. Mutual accountability brings with it duties and responsibilities, to be sure, but also possibilities: that is, (a) an internal dialectic of constant questioning to check and problematize hegemony, so that (b) we can expand our visions, strategies, and approaches beyond the narrow, hegemonic confines of realism/liberal internationalism, in order to (c) arrive at a more inclusive, conciliatory, and democratic world politics. In brief, worldism consists of two simultaneous processes: descriptive and analytical. Worldism-as-description features the following: (a) multi- and trans-subjectivities that institutionalize the social and structural reverberations between selves and others; (b) the agency of all parties, despite inequities and injustices, to create, build, and articulate multiple worlds; (c) syncretic engagements that consolidate the entwinements of multiple worlds into concrete strategies for change, adjustment, adaptation, refor- mulation, and transformation; and (d) community-building that integrates and accretes these syncretic engagements despite denials of such efforts from hegemonic elites and their ideologies. Worldism-as-analysis draws on the struggles and learning undertaken in worldist daily life to emphasize: (a) accountability as a hallmark of worldist inquiry that ensures (b) an internal criticality to question, contest, and challenge hegemony, so that we may (c) arrive at emancipatory construction even as we critique and resist. The critical reader may interject: Couldn’t “agency” and “accountabil- ity” in worldism be taken as a fancy way of blaming the victim? Are Jews, for example, responsible for the Holocaust; slaves for their enslavement; or any oppressed people for their oppression? Worldism as a politics of multiple relations subsumes this liberal, individualist understanding of responsibility. Multiple relations produce a web of effects and consequences to any kind of decisions and/or set of practices. Accountability in worldism asks: Who’s involved, under what conditions, and through which processes can we redress or transform the violence? What kinds of understanding are generated to account for these relations and/or to make them invisible? Without the painful concession that all of us, “abusers,” “victims,” and “innocent bystanders” alike, contribute to the production of hegemonic violence, whether it results in domestic abuse (see Adler and Ling 1995) or state violence (see Ling 1994), we may never realize how violence is conceived, generated, and sustained. By extension, we will never understand ways to end it. Instead, in our injuries and (self ) alienation, we may reproduce time and again the same conditions of violence or hegemony that afflicted us in the past and which seems the only option for the present. Suspended political ideals, in this case, could also block us from action and change. Worldist agency and accountability compel us to face the complicities (including our own) that sustain violence in the making of history, so that we may, as Marx exhorted, change it. Where do these ideas come from?, our reader may ask. Let us delineate the intellectual precedents to worldism. INTELLECTUAL PRECEDENTS Worldism draws on constructivism and postmodernism but also differs from them. Worldism shares with constructivism its emphasis on intersubject- ivity, and with postmodernism its insights on asymmetrical difference: that is, the norms, institutions, practices, and behaviors that set up certain subjects and subjectivities as more privileged and protected than others. Power, then, cannot be reduced to an objectified, reified condition of who’s “on top” or who “has more” but instead results from agents contributing to macro-political structures like ideology, organization, and capitalist relations. Power redefined in these terms stems from an intersubjective consensus within a context of material conditions and relations. The crux here lies in the framing. Since narration as a process is never complete, the story can always change.3 However, worldism departs from constructivism by asking: What kinds of intersubjectivity are constructed, by whom, and for what purpose, and how do theories of subjectivity restructure the world “otherwise”? And is this how we want the world to be? Not probing into the social relations of intersubjectivity, according to worldism, effectively erases the power politics of meaning, including the political economy behind such constructions. And unlike postmodernism, worldism distinguishes power from the resistance it induces. Contra Foucault (1994), we differentiate between the colonizer and colonized in their experiences of colonial power (see Stoler 2002) and the entwinements that follow, both reinforcing and conflicting complicity (see Ling 2002b). Not doing so implicitly reinforces the imperialist assertion that “this is the way the world is”: that is, it is not open to alternative concepts, discourses, strategies, or ways of being. These gaps in constructivism and postmodernism return us to the conventional treatment of power as domination, pure and simple. Ronen Palan (2000), for instance, finds a strain of conservative realism in Alexander Wendt’s “naturalist” version of constructivism, primarily because he claims to offer a method only, and not an interpretation, of politics. Wendt (2005) himself admits as much. For similar reasons, Samir Amin (2004) calls postmodernism an “ideological accessory” to elite, bourgeois interests just as Aijaz Ahmad (1992) considers post-structuralist theories serve as alibis for imperialism. Both post- modernism and poststructuralism value critique and deconstruction over political action, thereby keeping de facto power intact. We note that although critical theories like postmodernism and con- structivism open up spaces to think about shifting power politics, they fall short of transforming the very asymmetries they critique. Inattention to structural, material interest and lack of integrating the Other analytically – that is, as a substantive maker of the world – undermines their claims of emancipatory social theory. Ultimately, the Other becomes a repository of raw materials for hegemonic actors and sites in the North to process. Worldism acknowledges a deep intellectual debt to postcolonial studies. Here, race, gender, sexuality, class, and nationality serve as analytics and substance in examinations of power relations. Postcolonial studies demystify empire’s boast, like Kipling’s “White Man’s Burden,” that the imperial Self makes the world for all Others. And that world is unidimensional (top- down state power), unilateral (center dominates periphery), and unilinear (past–present–future). Postcolonial studies record a more nuanced and multiple history by problematizing the ways colonial power is imposed on the colonized. That is, colonization involves more than a unilateral and mechanical domination of the subjugated by colonizers and their states. As documented by postcolonial studies, tensions and contradictions emerge from these relations (Said 1979; Spivak 1999), leading to adaptations and integrations between hegemonic selves and subaltern others. From this inter- action, “colonizers” and “colonized” produced something together over the course of time that neither anticipated nor perhaps desired but which all learned to live with, and eventually called their own. Divides along lines of property, race, class, language, religion, and ideology did not disappear. They fused, rather, into hybrid, creole, or mélange cultures that, nonethe- less, contested these categories constantly (Ashcroft, Griffiths, and Tiffin 1995; Lewis and Mills 2003). In recognizing that colonizer and colonized mutually construct their sub- jectivities, postcolonial studies attribute to both the legacies of power that we face today. Note, for example, Britain’s principal instrument of colonial and imperial power: the East India Company. Sudipta Sen (1998) shows that, contrary to claims that the British brought capitalism to India, the East India Company had to adjust to pre-existing market structures and political relations to gain access to the thriving trade already in place in northern India.4 Only through this kind of entry could the East India Company later redirect the trade to its favor. L.H.M. Ling (2002b) traces how institutional elites in East Asia learned syncretically and “interstitially” between two world orders – the agrarian-based, cosmo-moral universe of Confucian governance and the Westphalian inter-state system of commerce and trade – to cumulate into what we know as Asian capitalism today. Walter Mignolo (2000) highlights the “gnosis” of thought and action, Self and Other, that comes from centuries of transgressing and reformulating the colonial boundaries that comprise Latin America. Of course, those subjected to hegemony must accommodate others more than those who perpetrate it. Yet hegemony’s very asymmetry highlights the resilience and creativity of the marginalized. Ordinary people can journey across subjectivities to engage syncretically with others, even under conditions of poverty and inequality, to rebuild, reconstruct, and reorganize communities. Cherrie Moraga and Gloria Anzaldua (1983) characterize their straddling of multiple worlds as life on the “borderlands.” Typically, they point out, women of color from the South must bear the biggest burden of negotiating the multiple worlds of language, culture, class, and gender to survive white- majority society in the North despite systemic discrimination and obstacles. Still, they are able to exercise internal reserves of freedom, thought, and action to sort through hegemony, not simply surrender to it. Similarly, the indigenous populations of the Americas, Australia, and New Zealand have entered into treaties with their white majorities to retain aspects of indigenous ontologies by formalizing them in Western institutions (Shilliam 2008).

### **3**

#### Interp – the affirmative must specify their epistemology of approaching outer space within a delineated text in the 1AC.

#### Epistemology is flexible – squo debates further dogma by smokescreening ideological differences.

Schwartz and Milligan summarize in 21 [Dr. James S.J. Schwartz (Assistant Professor of Philosophy at Wichita State University and author of The Value of Science in Space Exploration) and Dr. Tony Milligan (Senior Researcher in the Cosmic Visionaries Project, a member of the Department of Theology and Religious Studies at King’s College London). ‘“Space ethics” according to space ethicists’. The Space Review. February 1, 2021. Accessed 1/23/2022. <https://www.thespacereview.com/article/4117/1> //Xu]

3. Not only does space ethics help us figure out what is worth doing in space, it also helps us figure out the best way to do those things. Suppose, for example, we have agreed that there is an ethical obligation to exploit the water ice deposits in the permanently shadowed regions on the Moon. At that point we would face an entirely new set of ethical questions: How should this exploitation be conducted? What is a tolerable extraction efficiency level? Who should be permitted to conduct the exploitation? And so on. However, just because we agree on an outcome doesn’t mean we have figured out how to actually secure or bring about that outcome. If the legitimate goal of space resource exploitation is to improve human well-being, then not every mechanism or mining regime will be equally likely to accomplish this. If there are multiple legitimate goals, then how do we reach a consensus when they clash? Can either the state or an unfettered free market be trusted to produce reasonably just outcomes? Is the whole “market-versus-state” discourse the kind of thing that we want to be taking into space in the first place? Space ethics reminds us that dogmatic adherence to preferred economic and political systems will not help us resolve these kinds of disputes, one way or the other. Enthusiasm is no substitute for analysis, especially when lives and billions of dollars of public money are at stake.

#### Violation – they didn’t

#### Prefer –

#### 1] Stable Advocacy – they can shift out in the 1AR to reclarify their orientation on things like state-based policies, IR relations, or space control good which kills high-quality engagement, but we force them to defend the entirety of the 1AC instead of just a six second plan text – triggers presumption since their epistemology influences effective policy and is a prior question to the passing of the plan.

#### 2] Real World – policy makers aren’t born from the judge’s referendum on a hypothetical plan, but real-world movements are influenced by the subjectivity and scholarship introduced in debate.

#### ESpec isn’t regressive – its core topic lit for implementation, and you had infinite prep to choose your epistemology.

## Case

### Framework

Value to Life outweighs

1] durability; aff offense assumes life can exist within spaces that are open to subjugated bodies but those impacts are Eurocentric and will always reinforce the militarized order which means addressing the alternative is aprioiri

2] winning a link argument is a solvency deficit to the aff, if we win that their discourse is undergirded by a white washed militaristc world order then their politics will always fail bc it continues an endless humanistic push to better the world that can never address the root of problems

3] discourse comes first, it shapes our understanding of arguments within debate, voting aff doesn’t make private entities stop appropriating lunar heritage sites but understanding the ways in which these discussions are racialized has real world tangible impacts within academia

4] conceptions of pleasure and pain are racialized too, i.e. pleasure for who? The notions of the international order are dominated by European nations to create the sovereign vs the subject where the sovereign can impede in whatever way it sees fit

### Solvency

#### no unified mechanism guts enforcement

Maggie **Koerth-Baker, 15** [Maggie Koerth-Baker, (Maggie Koerth, formerly known as Maggie Koerth-Baker, is an American science journalist. She is a senior science editor at FiveThirtyEight and was previously a science editor at Boing Boing and a monthly columnist for The New York Times Magazine.)]. "Who Makes the Rules for Outer Space?." No Publication, 10-30-2005, Accessed 12-13-2021. https://www.pbs.org/wgbh/nova/article/space-law/ // duongie

But while the rules of empire are pretty neatly spelled out in the treaty—no nukes, no planting a flag and claiming anything in space as your country’s territory—the rules of commerce aren’t quite as clear-cut. Now, almost 50 years later, with a private space race underway in the United States, lawyers and politicians are starting to really hash out what it means for a government to be responsible for a corporation and what the fair use of space should look like. With President Barack Obama’s signing of the U.S. Commercial Space Law and Competitiveness Act, it’s a discussion that’s likely to grow more heated. Basics of Space Law A fundamental tenet of space law—the concept of governments being responsible for the work of non-governmental actors—has few, if any, precedents. There are places on Earth that are governed by laws similar to those that govern space—the sea, for instance. But no country is inherently responsible for whatever its citizens do when they’re out in international waters, says Joanne Gabrynowicz, professor of space law at the University of Mississippi and editor-in-chief of the Journal of Space Law . If that were the case, every pirate would technically be a privateer—their buckles swashed with official state approval. But you don’t need anything as exotic as the specter of space privateering to see why government responsibility can be a problem. As it currently stands, two private companies operating in space couldn’t even sue each other without the prior approval of their governments, says Michael Listner, an attorney and the principal of Space Law and Policy Solutions, a legal think tank. Currently, this is an issue that primarily affects the U.S. There are lots of countries with commercial, but not necessarily private, operations in space—Russia, China, Canada, Japan. Commercial entities launch rockets and manage satellites all the time. But in most of those cases, “commercial” basically means “revenue generating,” not “private enterprise,” Gabrynowicz says. Some of the corporations operating in space are government-owned, while others are technically private but operate with levels of government control and government money that would be unfamiliar to Americans, says Fabio Tronchetti, associate professor of law at China’s Harbin Institute of Technology. Government Minders The U.S. has the largest and most important private sector operating in space, from launching people and supplies for NASA to more speculative companies dedicated to space tourism and asteroid mining. Many of those companies would prefer there be less government involvement in their business. For instance, Bigelow Aerospace is a company that designs and builds inflatable pods that humans can live in in orbit—one of their pods will be attached to the International Space Station next year—or on a surface like the moon. For many years, Bigelow had to treat its products, legally, as though it were dealing in arms, wrangling with export controls meant to prevent guns, bombs, and valuable military secrets from being sold to the wrong people, stolen, or accidentally exposed. Even the most innocuous, non-weaponizable parts of their system fell under these controls. At one point, the company was forced to have two government officials watching two guards who were protecting a coffee-table-shaped kickstand for their pod. When the company had technical interchange meetings with partners in Moscow, it had to pay to bring along government minders. “If you dropped an alien in the room and said ‘point to the free country,’ they would have pointed to the Russians because we had two government monitors monitoring our every word,” says Mike Gold, Bigelow’s director of operations and business growth. “We spent hundreds of thousands of dollars on that. I would joke that KGB would spy on you, but at least they had the courtesy to do it for free.” That problem was solved by changes to U.S. export control rules in 2013, but cutting back on regulations still remains a popular mantra in the industry. Among several features of the U.S. Commercial Space Law and Competitiveness Act is the extension of a moratorium on regulation for human spaceflight safety requirements. The bill also leaves open a regulatory hole, wherein the Federal Aviation Administration licenses and monitors launches and re-entries, but there is no federal authority in charge of activities that happen in orbit. Gabrynowicz thinks this is problematic because the U.S. government also has a risk-sharing regime with these companies where it indemnifies them beyond their insurance coverage. The bill extends that, as well. So, she says, the government is responsible for the companies by authority of international law, the government will pay for any particularly large financial damages incurred by the companies, and the government is reducing or not establishing regulations on those companies. To Gabrynowicz, that looks like a moral hazard. Privatizing the Space Race The Outer Space Treaty of 1967 did a good job of keeping the space race between the U.S. and the Soviet Union from devolving into something out of a James Bond movie. But it didn’t do a very good job of planning for future races to claim resources found in space. Article II of the treaty is just 30 words long. It says, “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 any other means.” Today, space lawyers are spending an awful lot of time debating what, exactly, that means. Lawyers are split pretty evenly on whether you can mine an asteroid and profit from it. The debate has been spurred by the handful of companies that have announced an interest in mining asteroids or the moon for minerals and other resources. None of these plans are likely to become reality in the next 20 years. In fact, it’s still debatable whether mining an asteroid is technically feasible or would make financial sense at all. But the companies interested in this business plan—including Planetary Resources and Deep Space Industries—want some kind of assurance that, if they do succeed, they will get to profit off what they dig up. That’s a reasonable request…but it’s assurance that the Outer Space Treaty can’t unequivocally offer. “There’s a spurious argument that, well, the State can’t appropriate, but I can!” Johnson says. “But that’s easily refuted. Property exists as a relationship between citizen and sovereign. You only get property rights based on the State.” We buy and sell property with the help of legal contracts. Those contracts are only real in so much as a state exists to enforce them. At best, say Johnson, Listner, Gabrynowicz, and Tronchetti, you can say that the Outer Space Treaty neither affirms nor denies the right of a private company to mine an asteroid, keep what it mines, and sell those resources for profit. Lawyers, Listner says, are split pretty evenly on whether that means you can do it or you can’t. Which is where the U.S. Commercial Space Law Competitiveness Act comes in, again. One of the most important things the bill does is say, explicitly, that U.S. companies can own and sell resources they mine. But the new law could become a problem, space lawyers say. Essentially, it’s the U.S. trying to unilaterally settle an open question. “It’s really an ideological and intellectual battle,” Listner says. Even more troubling, from the perspective of Gabrynowicz and Tronchetti is the fact that the Space Resource and Utilization Act doesn’t set up any system for licensing those mining activities. Given that the Outer Space Treaty obliges countries to maintain control over companies operating in space, that could be seen as the U.S. refusing to follow international law, Gabrynowicz says. Uncharted Territory Space lawyers can point out many other potential problems with the U.S. Commercial Space Law and Competitiveness Act, but the repercussions depend on what other countries decide to do. Historically, ever since the Outer Space Treaty was signed, countries have worked out their differences off the books, in bilateral negotiations. That happened in 1978, when a Soviet Kosmos satellite, powered by an onboard nuclear reactor, crashed in western Canada. That country initially billed the Soviet Union more than $6 million to cover the costs of cleanup and containment. Ultimately, the two countries came to an agreement where the Soviets paid half that amount and never formally had to acknowledge liability. “More recently, you had a piece of Chinese debris that crashed into a Russian satellite,” Tronchetti says. “Essentially, they just let that go.” So what happens if the United States decides companies can own minerals mined on an asteroid and another country, China say, decides they can’t? “That’s the problem, isn’t it?” Tronchetti says. “Nobody knows. But we should think about international consequences.” Gabrynowicz, for instance, worries that making unilateral decisions about space law could affect efforts to negotiate the rules that manage disputed places here on Earth, like the Arctic, where Russia, the U.S., and other countries are currently jockeying for access to oil and other resources. The geopolitical climate isn’t amenable to a new space treaty. In theory, a new treaty would solve all of these problems. But nobody thinks it would work. The Outer Space Treaty succeeded, Johnson says, because there were really only two parties at the table back then—the U.S. and the Soviet Union. “They just said, ‘Let’s come up with compromise text and then take it to the rest of the world and tell them we’ve agreed. We’re the most important people doing anything in space and everyone else will just go along,’ ” he says. Needless to say, that’s not how things work today. Even just a few years after the passage of the Outer Space Treaty, in 1979, an expanded document known as the Moon Treaty failed to draw any interest from the U.S. or the Soviets. That treaty would have clarified some of the issues the Outer Space Treaty left vague, including banning commercial sale and use of extraterrestrial resources. Only 16 countries are part of the treaty—none of them a major spacefaring nation. The geopolitical climate isn’t amenable to a new space treaty, Johnson says. There are too many stakeholders now and their goals don’t align enough. “The era of treaty making has really been over since the 1980s,” Johnson says. Now, the future of space is in the hands of the diplomats and lawyers who will hash out bespoke compromises in backrooms and boardrooms all over the world.

#### 1AC Fessl is an alt cause – they highlighted the line for us and we made it red – it says a tourist’s hand brushing the dust is enough to sweep stuff away – if they have any solvency deficit to the PIC, then they definitively can’t solve the aff

Fessl 19 Sophie Fessl 7-10-2019 “Should the Moon Landing Site Be a National Historic Landmark?” <https://daily.jstor.org/should-the-moon-landing-site-be-a-national-historic-landmark/> (PhD King’s College London, BA Oxford)//Elmer

When Neil Armstrong set foot on the moon on July 20, 1969, the pictures sent to Earth captured a historical moment: It was the first time that any human set foot on another body in our solar system. Fifty years later, experts are debating how to preserve humankind’s first steps beyond Earth. Could a National Park on the moon be the solution to saving Armstrong’s bootprints for future archaeologists? Flags, rovers, laser-reflecting mirrors, footprint—these are just a few of the dozens of artifacts and features that bear witness to our exploration of the moon. Archaeologists argue that these objects are a record to trace the development of humans in space. “Surely, those footprints are as important as those left by hominids at Laetoli, Tanzania, in the story of human development,” the anthropologist P.J. Capelotti wrote in Archaeology. While the oldest then known examples of hominins walking on two feet were cemented in ash 3.6 million years ago, “those at Tranquility Base could be swept away with a casual brush of a space tourist’s hand.” Fragile Traces Just how fragile humankind’s lunar traces are was seen already during Apollo 12. On November 19, 1969, Charles “Pete” Conrad and Alan Bean manually landed their lunar module in the moon’s Ocean of Storms, 200 meters from the unmanned probe Surveyor 3, which was left sitting on the moon’s surface two years earlier, in 1967. The next day, Conrad and Bean hopped to Surveyor 3. As they approached the spacecraft, they were surprised: The spacecraft, originally bright white, had turned light brown. It was covered in a fine layer of moon dust, likely kicked up by their landing. Harsh ultraviolet light has likely bleached the U.S. flag bright white. Without Apollo 12 upsetting the moon dust, Surveyor 3 would likely have remained stark white. Unlike Earth, the moon has no wind that carries away the dust, no rain to corrode materials, and no plate tectonic activity to pull sites on the surface back into the moon. But the moon’s thin atmosphere also means that solar wind particles bombard the lunar surface, and harsh ultraviolet light has likely bleached the U.S. flag bright white. The astronauts’ first bootprints will likely be on the moon for a long time, and will almost certainly still be there when humans next visit—unless, by tragic coincidence, a meteorite hits them first. Had LunaCorp not abandoned the idea in the early 2000s, the company’s plan to send a robot to visit the most famous sites of moon exploration could have done a lot of damage. And with Jeff Bezos’ recent unveiling of a mock-up of the lunar lander Blue Moon, it is only a matter of time before corporate adventurers and space tourists reach the moon. Historians and archaeologists are keen to avoid lunar looting. Roger Launius, senior curator of space history at the National Air and Space Museum in Washington, D.C., warned: “What we don’t want to happen is what happened in Antarctica at Scott’s hut. People took souvenirs, and nothing was done to try to preserve those until fairly late in the game.” On the other hand, there is a legitimate scientific interest in investigating how the equipment that’s on the moon was affected by a decades-long stay there.

#### Tourism isn’t appropriation – they don’t solve

Trapp 13, Timothy Justin. "Taking up Space by Any Other Means: Coming to Terms with Nonappropriation Article of the Outer Space Treaty." U. Ill. L. Rev. (2013): 1681. (JD Candidate at UIUC Law School)//Re-cut by Elmer

The issues presented in relation to the nonappropriation article of the Outer Space Treaty should be clear.214 The ITU has, quite blatantly, created something akin to “property interests in outer space.”215 It allows nations to exclude others from their orbital slots, even when the nation is not currently using that slot.216 This is directly in line with at least one definition of outer-space appropriation.217

[\*\*Start Footnote 217\*\*Id. at 236 (“Appropriation of outer space, therefore, is ‘the exercise of exclusive control or exclusive use’ with a sense of permanence, which limits other nations’ access to it.”) (quoting Milton L. Smith, The Role of the ITU in the Development of Space Law, 17 ANNALS AIR & SPACE L. 157, 165 (1992)). \*\*End Footnote 217\*\*]

The ITU even allows nations with unused slots to devise them to other entities, creating a market for the property rights set up by this regulation.218 In some aspects, this seems to effect exactly what those signatory nations of the Bogotá Declaration were try3ing to accomplish, albeit through different means.219

#### It’s travel over a short duration – neither permanent nor limit other uses by other actors of a particular region of space

Henderson and Tsui 19 Henderson, I. L., and W. H. K. Tsui. "The role of niche aviation operations as tourist attractions." Air transport: A tourism perspective (2019): 233-244. (Massey University School of Aviation, Palmerston North, New Zealand)//Elmer

17.5 Space Tourism Space tourism is another niche segment of the aviation industry that seeks to give tourists the ability to become astronauts and experience space travel for recreational, leisure, or business purposes. Since space tourism is extremely expensive, it is a case of a very small segment of consumers that are able and willing to purchase a space experience. There are several options for space tourists. For example, Crouch et al. (2009) investigate the choice behaviour between four types of space tourism: high altitude jet fighter flights, atmospheric zero-gravity flights, short-duration suborbital flights, and longer duration orbital trips into space. Reddy et al. (2012) find the following motivational factors behind space tourism (in order of importance): vision of earth from space, weightlessness, high speed experience, unusual experience, and scientific contribution. Currently, only high-altitude jet fighter flights and atmospheric zero-gravity flights are commercially available to tourists in the space tourism sector. Accordingly, this section provides an example of each, whilst the potential for suborbital and longer duration orbital trips into space are discussed later in this chapter. Case Study 17.3 Examples of Space Tourism MiG-29 Edge of Space Flight One current option for space tourists is to be taken up into the stratosphere in a supersonic fighter jet (see MiGFlug, 2017a). MiGFlug acts as a sales agent for this unique space tourism activity, which usually involves reaching an altitude of 20–22 km. At such an altitude, the curvature of the earth can be seen, the sky is dark, and it is possible to see into space. As part of this space travel experience, tourists are also given an opportunity to control the aircraft and there are a number of aerobatic manoeuvres that are performed by an experienced pilot. This operation is based out of Russia. The Mikoyan MiG-29 Fulcrum is a Russian military fighter jet that allows for rates of climb of 330 m/s and a top speed of Mach 2.25 (2390 km/h). MiGFlug sells three different services in this aircraft. For €12,500 a passenger can enjoy a 25-min flight featuring a number of aerobatic manoeuvres but without supersonic flight. For €14,500 a passenger can enjoy a 45-min flight that includes higher aerobatics and supersonic flight. The ‘Edge of Space’ flight includes aerobatics, supersonic flight, and the experience of being taken up into the stratosphere and is sold for €17,500.

### Aquaculture

#### No overfishing impact – fishies are vibing

Mossler 20 [Max Mossler (Max studied environmental perception & policy in grad school. He thinks a lot about how other people think about the planet. He is the managing editor at Sustainable Fisheries UW.), 1-13-2020, "Fish populations around the world are improving," Sustainable Fisheries UW, https://sustainablefisheries-uw.org/fish-populations-are-improving/ || belle]

Let’s enjoy some unequivocal, inarguable good news: a paper published today in PNAS, Hilborn et al. 2020, shows that on average, scientifically-assessed fish populations around the world are healthy or improving. And, for fish populations that are not doing well, there is a clear roadmap to sustainability. With Australia on fire and scares of World War III, the start of 2020 and the new decade has been awful; hopefully Hilborn et al. 2020 can kickstart a decade of ocean optimism.

Hilborn et al. 2020 counters the perception that fish populations around the world are declining and the only solution is closing vast swaths of ocean to fishing. Instead, Hilborn et al. 2020 argues that increasing scientific, management, and enforcement capacity will lead to more abundant and sustainable oceans. The major takeaway of the paper is that fishery management works—when fisheries are managed, they are sustained. The key is following the science-to-management blueprint. Scientific data collection and fishery assessment comes first, then fishing regulation and enforcement of fishing policies. With the blueprint in place, most fisheries around the world are sustainable or improving.

The paper uses updates to the RAM Legacy Stock Assessment Database, a decades-long project to assemble data on fish populations that are scientifically assessed. As of 2019, the database contains data on 882 marine fish populations, representing about half of reported wild-caught seafood. In 2009, the database contained data on only 166, representing a much smaller proportion of global seafood. Researchers have spent the last 10 years adding to the database, and with today’s publication, update the global status of fish stocks. They found that, on average, fish populations are above target levels. Not every stock is doing well, but on average, things are much better than they were 2 decades ago. How nice: an environmental story where things are better now than they were in the past!

The paper describes the global status of fish stocks, but it also tells the story of fishery sustainability from the past 50 years.

A brief history of commercial fishing and fishery science

A very general history of industrial fishing goes like this: before the 1950s, commercial fishing was a niche industry supplying a small proportion of the world’s protein. Then, starting in the 1950s, a global effort to increase food security led governments to invest heavily in fishing—often too heavily. Over the next few decades, it became clear that many fisheries were overcapitalized, meaning there were too many boats, too many fishermen, or some combination of the two. Put simply: fishing pressure was too high and eventually led to unsustainable, depleted fish stocks. In the 1990s, the collapse of several prominent fisheries and many high-profile media stories and scientific publications pressured governments to start taking action to protect their fish stocks. The U.S. in 1996 and the EU in 2002 began mandating their fishery policies to be based on fishery science. Take a look at the last 50 years of fish stocks:

You can see a big increase in fishing pressure and declining abundance through the mid-1990s, then a decrease in fishing pressure and recovery of abundance to the present day.

RAM Database: From Worm et al. 2009 to Hilborn et al. 2020

In 2009, Worm et al. was published. It was the first paper to put together and present global fish abundance data over time. It is now one of the most important and highly-cited fisheries paper in history. The data from that paper eventually became the RAM Legacy Stock Assessment database, where anyone could access information about specific stock assessments from around the world. When the paper was published, it showed a general trend of stabilization in the 166 fish populations it reported on. However, it was criticized for mainly including stocks from North America, Europe, and Oceania, painting a global picture with data from only a few regions. Hilborn et al. 2020 updates that work to 882 populations including a much broader global scope. The added decade of data also shows a more positive, upward trend: 78% of fisheries considered overfished in Worm et al. 2009 are improved in Hilborn et al. 2020.

#### Marine ecosystems are resilient to everything

Nield 17 [David Nield, freelance journalist who has been writing about technology, science, apps, gadgets and the web since 2002. Extensively citing "Impact of the Late Triassic mass extinction on functional diversity and composition of marine ecosystems," written by Alexander M. Dunhill, William J. Foster, James Sciberras, and Richard J. Twitchett. Marine Ecosystems Can Survive The Worst Mass Extinction Events, Study Shows. October 23, 2017. <https://www.sciencealert.com/marine-ecosystems-cling-on-to-life-through-some-of-the-worst-mass-extinction-events>]

Researchers have studied fossil records from the Late Triassic mass extinction, which happened around 201.3 million years ago, and found that marine life did not fundamentally change, even though the vast proportion of species were killed off.

The international team of researchers says that while marine species were still badly affected by the event, enough life survived underwater to keep the ecosystems functioning. The findings could help us understand more about how the changing climate of today could affect the planet.

"While the Late Triassic mass extinction had a big impact on the overall number of marine species, there was still enough diversity among the remaining species that the marine ecosystem was able to function in the same way it had before," says lead researcher Alex Dunhill from the University of Leeds in the UK.

It's thought that huge volcanic eruptions, and the subsequent warming of the planet caused by the greenhouse gases produced, was behind the Late Triassic extinction event.

At least half the species on Earth at that time were wiped out by the rise in temperatures, and in the event's aftermath, dinosaurs came to dominate life on our planet.

The researchers analysed fossils dated between the Middle Triassic to the Middle Jurassic periods, a time span of around 70 million years, covering life before and after the mass extinction event.

Ocean-dwelling animals were classified by how they moved, where they lived, and how they fed, and the study showed that none of these categories of life completely disappeared after the extinction event.

That said, there were major impacts on different regions and the environment as a whole, and some specific marine ecosystems were badly damaged.

"We're not saying nothing happened," says one of the researchers, palaeontologist William Foster from the University of Texas at Austin. "Rather, global oceans in the extinction's aftermath were a bit like a ship manned by a skeleton crew – all stations were operational, but manned by relatively few species."

The idea of a skeleton crew of lifeforms keeping the lights on in an ecosystem was first raised by Foster and his colleague Richard J. Twitchett in 2014, after another study focussed on the Late Permian mass extinction event about 252 million years ago.

The current study found one of the hardest-hit underwater organisms were corals, and the fossil record shows it took some 20 million years before tropical reef ecosystems recovered from the Late Triassic extinction, even though the ecosystem as a whole carried on functioning.

With corals again under threat from rising temperatures in the modern day, the new research could provide a blueprint for the potential damage we're going to see – and perhaps give us some clues for how to prevent it.

On a more positive note, it shows life underwater is incredibly resilient, and capable of surviving through even the worst times of environmental upheaval on our planet.

#### Missing internal link between tech for space aquacultures being developed and that tech being modified, used, and implemented on a large scale to revamp global food supply – ev says quote “tech would be applicable to earth”, not that it would be applied

#### Same applies to neutrionis, they don’t have an explanation for why a base being developed leads to political leaders implementing solutions for neutrino detection

#### They cant solve, All lunar activity causes damage to heritage sites. So, double bind: either the aff doesn’t solve or the entire moon is off limits

Greenfieldboyce 19 [Nell Greenfieldboyce, “How Do You Preserve History On The Moon?,” NPR, 2/21/19. <https://www.npr.org/2019/02/21/696129505/how-do-you-preserve-history-on-the-moon>. Accessed 2/14/22] CT

Since no one has tried to protect any cultural artifacts on the moon before, it's unclear exactly how to preserve them.

But some thinking has already gone into this, because a group formed by NASA made recommendations that "space faring entities" could voluntarily follow if they ventured to the moon. The recommendations set out areas around the fragile sites that should not be entered with rovers, for example, and warn against touching any hardware without prior permission from NASA.

These recommendations were created in response to the Google Lunar X Prize, a competition that began in 2007 and offered a cash prize to the first privately funded effort that successfully landed a robotic spacecraft on the moon. It offered a huge bonus if the spacecraft could beam back images or video of one of the multiple Apollo project landing sites, which alarmed some experts because of the possibility of inadvertent destruction.

"I was contacted by some of the companies that were competing for the Google Lunar X Prize," recalls Philip Metzger, a planetary scientist now at the University of Central Florida. At the time, Metzger was at NASA studying the blast effects from the Apollo lunar landings, and he and his colleagues found that the landings created surprisingly violent blasts of grit and dust. "[The companies] wanted to go visit the Apollo sites during those missions, and they didn't want to sandblast and ruin the Apollo sites."

Metzger knew it was a real danger. In 1969, the Apollo 12 astronauts landed 160 meters away from the Surveyor III spacecraft that had been on the moon for a couple of years. The astronauts walked over and removed some pieces of the craft to bring them home for analysis to see how the lunar environment affected equipment. "Well, the main thing we discovered was that it was sandblasted like crazy from the landing of the Apollo lunar module," Metzger says.

That was a shock, since NASA thought it had landed far enough away for the robotic spacecraft to be safe. But Surveyor III suffered so much damage that it changed color, going from white to brown, as tiny bits of lunar soil got blasted onto its surface. And Surveyor III was even spared the worst of the damage because it was in a crater and protected from the main spray of debris.

Since then, Metzger says, they've analyzed videos showing that the Apollo landings could eject gravel and even fist-sized rocks at high velocity. "If you landed within 100 meters of something sensitive, you could definitely have a bad day by hitting it with a rock at 50 miles an hour," he says.

In fact, computer modeling shows that it's impossible to have a major landing on the moon without causing some degree of damage from all the dust and rock that gets stirred up — and that made it difficult for the NASA group to come up with recommendations about how future missions should go forward without unduly damaging the Apollo treasures. "Every time you land on the moon within 100 kilometers, you're going to cause a little bit of damage," says Metzger, "and so we were faced with this impossible question: How far away is OK to land your rocket on the moon?"

The group eventually settled on a recommendation to keep landings about 2 kilometers away from the Apollo sites. "The boundary has nothing to do with real science," Metzger notes. "It's just a number we made up because we couldn't do any better at the time."

He says it's important to retain access to the Apollo sites, for science and cultural reasons, while protecting them from excessive damage. "We would love to have people visit those sites and send back imagery. Not only for the scientific value, but for the cultural value, so that people can see again that we have visited the moon and it will inspire people to want to go back," Metzger says.

#### Their own authors prove no solvency. If there is a problem, appropriation is not it, the OSTs principle of free use is the sticking point. Only the CP solves since it actually regulates the use of space.

Hertzfeld and Pace 13 RECUT [Henry R. Hertzfeld and Scott N. Pace ,“International Cooperation on Human Lunar Heritage,” SCIENCE VOL 342 29 NOVEMBER 2013. <https://cpb-us-e1.wpmucdn.com/blogs.gwu.edu/dist/7/314/files/2018/10/Hertzfeld-and-Pace-International-Cooperation-on-Human-Lunar-Heritage-t984sx.pdf>] CT

Less than 2 years before the first footsteps on the lunar surface on 20 July 1969 (see the image) , the United Nations Outer Space Treaty (OST) was drafted, ratified, and came into force ( 1). Article II of the OST reinforced and formalized the international standard that outer space, the Moon, and other celestial bodies would not be subject to claims of sovereignty from any nation by any means, including appropriation. The OST prohibits ownership of territory or its appropriation by any state party to the treaty, which includes the United States, Russia, and 126 other nations. It does not prohibit the use of the Moon and its resources. In fact, the treaty emphasizes the importance of freedom of access to space for any nation and the importance of international cooperation in space exploration. These principles of the space treaties have enabled gains in science and technology and have contributed to international stability in space. New attention is being focused on the lunar surface. China has an active Moon exploration program and is considering sending astronauts (taikonauts) to the Moon. Private fi rms are contemplating robotic missions that could land in the vicinity of the historical sites of Apollo and other missions. Although we might assume the best of intentions for such missions, they could irreparably disturb the traces of the fi rst human visits to another world. NASA has taken steps to protect the lunar landing sites and equipment and to initiate a process to create recognized norms of behavior. In July 2011, guidelines were issued for private companies competing in the Google Lunar X Prize that established detailed requirements for avoiding damage to U.S. government property on the Moon ( 2). H.R. 2617, The Apollo Lunar Landing Legacy Act, was introduced into the U.S. Congress on 8 July 2013 ( 3). In essence, it proposes to designate the Apollo landing sites and U.S. equipment on the Moon as a U.S. National Park with jurisdiction under the auspices of the U.S. Department of the Interior. Although the bill acknowledges treaty obligations of the United States, it would create, in effect, a unilateral U.S. action to control parts of the Moon. This would create a direct confl ict with international law and could be viewed as a violation of U.S. commitments under the OST. It would be an ineffective way of protecting historical U.S. sites, and it fails to address interests of other states that have visited and will likely visit the Moon. It is legally fl awed, unenforceable, and contradictory to our national space policy and our international relations in space ( 4).

#### 1AC Lee cites Goldblum– San Mateo Reads Green

Lee 20 Thomas Lee "Can tiny, invisible particles help stop the spread of nuclear weapons?" <https://engineering.berkeley.edu/news/2020/03/can-tiny-invisible-particles-help-stop-the-spread-of-nuclear-weapons/> (Associate Adjunct Professor, Research Scientist Operations & IT Management.)//Elmer

The key to preventing nuclear proliferation may depend on a little bit of ghost hunting. Scientists have long been interested in a device that can detect neutrinos, ghost-like particles that have no electric charge and nearly no mass — and therefore can pass through matter. Now, researchers are closer than ever to deploying technology that can spot those elusive subatomic particles and, in doing so, alert international authorities to the illicit production of plutonium, a key fuel for nuclear bombs. The technology may provide a “way to monitor the plutonium content in a nuclear reactor in real time that we just don’t have right now,” said Bethany Goldblum (M.S.’05, Ph.D.’07 NE), a top researcher with UC Berkeley’s Department of Nuclear Engineering. Goldblum, the executive director of the Berkeley-based Nuclear Science and Security Consortium, co-wrote a study published this week in the Review of Modern Physics that examines the feasibility of neutrino detectors in nuclear nonproliferation efforts. The study’s co-authors include Adam Bernstein and Nathaniel Bowden from Lawrence Livermore National Laboratory, Patrick Huber from Virginia Tech, Igor Jovanovic from the University of Michigan and John Mattingly from North Carolina State University. The study ultimately concludes that such technology deployed outside nuclear reactors could prove effective in ensuring that countries are not making weapons-related material under the guise of peaceful civilian energy production. The report also advances the idea that researchers could one day use the technology to discover or exclude the presence of reactors at distances of a few hundred kilometers. “Over several decades, physicists have conceived many ideas for using ﬁssion neutrinos in nuclear security,” the study says. “Some ideas remain in the realm of pen and paper, constrained by basic physical and practical considerations. For other concepts, demonstrated technology is catching up with real opportunities.” The ghost particle Neutrinos are the most abundant particles in the universe, having been formed by large nuclear explosions like the Big Bang, supernovas and the fusion process that happens inside the sun. They travel near the speed of light, have little mass and carry no electric charge. Because of these attributes, neutrinos can pass through matter and are incredibly difficult to detect, which is why scientists often refer to them as “ghost particles.” For example, if 10 trillion neutrinos struck the Earth, all but one would pass through the planet without having interacted with anything at all. In 1956, Clyde Cowen and Frederick Reins, two scientists at the Los Alamos National Laboratory in New Mexico, confirmed the neutrino’s existence, work that eventually earned the Nobel Prize in Physics. The duo placed two large water tanks near a nuclear reactor, which produces electron antineutrinos in huge quantities, as part of the fission process. As it turns out, neutrinos can collide with protons in the water and produce a neutron and a positron through a process called inverse beta decay. When the positron moves through the water, it produces a flash of light that special sensors can detect. Up to this point, scientists were primarily interested in finding neutrinos because the particles might offer clues to the universe’s origin and the formation of stars and galaxies. But starting around the turn of the 21st century, the idea that neutrino detectors could be used in nuclear nonproliferation efforts started to gain real traction. In 2000, Adam Bernstein, then a postdoctoral fellow at the Sandia National Laboratory in Livermore, California, wrote a paper exploring the idea of using detectors filled with purified water to spot neutrinos produced from nuclear explosions. In many ways, water is a great medium to detect neutrinos because it is easy to purify, cheap and is transparent to light produced by neutrinos colliding with water molecules. The key would be to build detectors big enough to hold enough water to see the neutrino signal above background radiation. However, finding neutrinos in water is still pretty hard. Bernstein found that adding small amounts of gadolinium — a rare earth metal with unusual nuclear properties — to the water could significantly boost the detector’s chances of spotting neutrinos. In gadolinium-doped water, neutrino interactions produce a much stronger signal than neutrinos in water alone. Bernstein eventually abandoned the idea to monitor explosions because the cost and size of such neutrino detectors would make the technology impractical, especially compared to existing, cheaper technologies like seismic detectors, he said. Instead, Bernstein turned his attention to using the gadolinium-doped technology to catch neutrinos from nuclear reactors. “Since we’re still mostly using water, it is possible to build large detectors, up to 100 kilotons in size or more, to spot these reactor neutrinos,” said Bernstein, now a staff physicist at the Lawrence Livermore National Laboratory (LLNL) and director of the lab’s Rare Event Detection group in the Nuclear and Chemical Sciences division. “The neutrino signature would stand out much more readily above background radiation even in a big detector,” he said. LLNL is the lead laboratory for a proposed United States/United Kingdom experiment, called WATCHMAN, to demonstrate remote monitoring of nuclear reactors using a kiloton-scale antineutrino detector. This experiment has already “exceeded my expectations,” Bernstein said. “The idea that the nonproliferation community might one day be able to use this technology that until now has been the exclusive province of fundamental science is an exciting motivation for this work.” Halting the spread of nukes Since 1970, nearly 200 nations signed the landmark Treaty of the Non-Proliferation of Nuclear Weapons (NPT), which seeks to limit the spread of nuclear weapons. Through a combination of remote monitoring and on–the–ground inspections, containment and surveillance, the International Atomic Energy Agency (IAEA) commands plenty of tools to figure out if countries are using nuclear energy for peaceful purposes, Goldblum said. But what happens if the line between civilian and military use of nuclear energy is not so clear? For example, the United States has long accused Iran of trying to make nuclear weapons, but Iran says it wants to develop nuclear capabilities for civilian power generation. The knowledge to construct a nuclear bomb is actually pretty well known. The hard part is getting enough materials — either enriched uranium or plutonium — to fuel the weapon. A country can reprocess the spent fuel from a civilian nuclear reactor and extract plutonium for a weapon. And a nuclear bomb only requires about 10 kilograms of plutonium. The so-called “dual-use” capabilities of nuclear reactors presents a significant challenge to the IAEA. “None of the countries now embarking on civil nuclear power programs say they are planning to acquire reprocessing capabilities,” according to a 2017 report by the Brookings Institute think tank. “But many of them are unwilling to forswear what they consider to be their ‘right’ eventually to have dual-use capabilities.” The neutrino detection technology could offer a solution. In addition to the large systems like WATCHMAN, scientists have constructed much smaller detectors that can be deployed close to reactor cores — provided operators allow such access. Optimizing reactor power levels to produce plutonium, a telltale sign that a country is trying to build a bomb, will change the rate and energy spectrum of antineutrinos that a device parked outside of the reactor can detect. And since these particles can pass through matter, the operator can’t shield the reactor’s release of antineutrinos the same way lead blocks X-rays. So if a country wants to operate a civilian nuclear power program, an antineutrino detector could provide an effective tool to continuously verify the reactor is only producing energy for peaceful purposes. For now, a detector must stay within tens of meters of the reactor to be effective. But in the future, could such technology spot antineutrinos from longer distances and even across borders? For distances 100 kilometers or beyond, the Review of Modern Physics study shows detectors would need to be 10 to 100 times bigger than WATCHMAN. But researchers hope WATCHMAN will demonstrate the basic technology and provide a platform for study of a range of possible enhancements to improve standoff and overall sensitivity. And in any case, the mere knowledge that such technology has become a reality could prove to be a powerful deterrent to nuclear proliferation in itself.

#### This is the original authors of your study.

Huber et al 20 [1AC Lee 20 summarizes Bethany Goldblum’s research with Huber, which is the study Huber summarizes in the card above. Adam Bernstein, Nathaniel Bowden, Bethany L. Goldblum, Patrick Huber, Igor Jovanovic, and John Mattingly. “Colloquium: Neutrino detectors as tools for nuclear security”. Rev. Mod. Phys. 92, 011003 – Published 12 March 2020. Accessed 1/29/2022. <https://journals.aps.org/rmp/abstract/10.1103/RevModPhys.92.011003> //Xu]

Colloquium: Neutrino detectors as tools for nuclear security

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#### Doublebind – either prolif risks are ramping down because of international cooperation, which is a neg ballot because of a non-inherent advantage, or neutrinos are thumped.

Huber 20 [Patrick Huber (Director of the Center for Neutrino Physics, Roger Moore and Mojdeh Khatam-Moore Faculty Fellow, Virginia Tech). “Neutrinos for peace”. CERN Courier. 10 November 2020. Accessed 1/29/2022. <https://cerncourier.com/a/neutrinos-for-peace/> //Xu]

In 2019 the US Department of Energy chartered and funded a study (which I co-chair) with the goal of determining the utility of the unique capabilities offered by neutrino detectors for nuclear security and energy applications. This study includes investigators from US national laboratories and academia more broadly, and will engage and interview nuclear security and policy experts within the Department of Energy, the State Department, NGOs, academia, and international agencies such as the IAEA. The results are expected early in 2021. They should provide a good understanding of where neutrinos can play a role in current and future monitoring and verification agreements, and may help to guide neutrino detectors towards their first real-world applications. The idea of using neutrinos to monitor reactors has been around for about 40 years. Only very recently, however, as a result of a surge of interest in sterile neutrinos, has detector technology become available that would be practical in real-world scenarios such as the JCPOA or a new North Korean nuclear agreement. The most likely initial application will be near-field reactor monitoring with detectors inside the fence of the monitored facility as part of a regional nuclear deal. Such detectors will not be a panacea to all verification and monitoring needs, and can only be effective if there is a sincere political will on both sides, but they do offer more room for creative diplomacy, and a technology that is robust against the kinds of political failures which have derailed past agreements.

#### Huber did a study – it fails – scientific consensus.

Huber et al 20 [Haghighat, Alireza and Huber, Patrick and Li, Shengchao and Link, Jonathan M. and Mariani, Camillo and Park, Jaewon and Subedi, Tulasi "Observation of Reactor Antineutrinos with a Rapidly Deployable Surface-Level Detector" Physical Review Applied , v.13 , 2020 <https://www.nsf.gov/awardsearch/showAward?AWD_ID=1924433&HistoricalAwards=false> //Xu]

Our I-Corps Team, titled Neutrino Technologies, is based on our reactor neutrino detector technology, invented at Virginia Tech. Neutrinos are produced in large numbers as a by-product of nuclear fission. When a massive nucleus, like uranium fissions, it splits into two lighter nuclei, which have too many neutrons to be stable, neutrinos are produced when these neutron-rich nuclei decay to more stable forms, converting neutrons to protons. Neutrinos are subatomic particles that can easily pass through the reactor shielding material, carrying information about the reactions that produced them in the core of a reactor. Their highly penetrating nature also makes them very difficult to detect, but there are so many that detecting even a tiny fraction cam convey detailed information about reactions in the core that may otherwise be inaccessible. Our group has developed a new reactor neutrino detector technology that is designed to be highly efficient, to work in the high background environment above ground, and to be robust and mobile for deployment at nuclear reactors without a significant impact on site operations. The purpose of our I-Corps study was to identify possible applications of this technology of interest to the commercial nuclear industry. It has been shown that neutrino detectors can be used to remotely measure reactor power. In addition, a careful measurement of the energy spectrum of reactor neutrinos can be used to determine the composition of fissionable isotopes in the core. This includes tracking the production of plutonium isotopes that may be used to build nuclear weapons. Our I-Corps team was interested to determine if these capabilities of neutrino detectors might be commercially viable. For example, the Nuclear Non-proliferation Treaty obligates signatory nations to prevent the proliferation of nuclear weapons. Verification of this treaty subjects nuclear facilities around the world to onerous inspections and tracking of the nuclear fuel cycle to ensure that plutonium produced in an active core is not diverted for use in weapons. Is it possible to use neutrinos to reduce the intrusive impacts of inspections on commercial nuclear facilities, while maintaining their effectiveness? During our seven-week I-Corps cohort we spoke with 129 individuals from 26 different organizations which included companies, national labs, industry trade groups, regulators and universities. We covered 12,045 miles by land and air, visited 11 US states, the District of Columbia and one Canadian Province. The data we collected highlights significant commercial potential, which we are pursuing, it also very clearly shows that to bring new nuclear technology to market requires years, perhaps decades, to penetrate the conservative utilities market, and run the regulatory gauntlet. We identified our most promising opportunity to be as instrumentation for advanced reactors, which must come to market themselves to create a viable market for our technology. Thus, we can estimate our time to market by tracking the historical progress and prospects of these companies, and we have concluded that the best path forward is to remain in an academia for now. We will engage with funding agencies focused on engineering and commercialization and pursue partnerships with existing companies who may be end users, or who have an interest in bringing it to market. We found I-Corps to be an invaluable tool to assess the needs of the nuclear industry and to determine where our best opportunities lay. Going into the I-Corps, we embraced the notion that failure was an option. As much as we may have wished, it was by no means certain that neutrino detectors would add value as nuclear instrumentation. Along the way we invalidated many of our initial hypotheses. Through our discussions with industry insiders, we identified new opportunities. We articulated and tested hypotheses around these opportunities. For the opportunities that have thus far survived this scrutiny, the next step is clear: we must to go back into the laboratory to determine the ultimate performance of our technology, so that can then be compared to the required specifications of each potential application.