### 1NC blood and soil k

#### Analytic of settler colonialism demonizes migration and mobility. Their paradigm repeats the blood and soil logic of colonial nationalism and sovereignty.

Sharma, PhD Sociology, 15

(Nandita, Social Sciences @Hawaii, *Strategic Anti-Essentialism: Decolonizing Decolonization* in Sylvia Wynter: Being Human as Praxis, ed McKittrick )

Subjected: Autochthony and Its Others The very real possibility of thinking and acting outside the limits of any specific culture’s self- understanding by expanding people’s sense of nos is evident in countless attempts over the past five hundred years to broaden the circle of those with whom we hold affective ties. Significantly, this is a process that has been engaged in both by dominant groups and by those they rule over. To use an example given by Wynter, while the Aztecs in the early sixteenth century were unable to imagine others living in what is now “Mexico” as their co- specifics—and thereby enabling Hernán Cortés to successfully ally himself with other groups to destroy the Aztecs—there now exists a subjective understanding of being “indigenous.” Emerging in the post–World War II era, indigeneity is a relatively recent mode of representation, one that encompasses very diverse people across the Americas, indeed across the world, often under a single, shared subjective understanding of being the “first” to live in any particular place.22 Being indigenous is a form of co- identification among people who previously did not see any connection with one another. It is also a way of laying claim to particular lands (or, more accurately, territories) on the basis of having (or having once had) specialized knowledge of that place. Yet, this mode of representation, however new or potentially expansive, remains particularistic. Indigeneity is a form of subjectivity that emerged because of the devastation wrought in the aftermath of 1492. Moreover, it is a form of subjectivity that interpellates people into efforts to gain national sovereignty within the global system of national states. Indigenous, then, as a mode of representation includes the often unacknowledged elision between native as a colonial state category of subjugation and indigenous as a category of resistance. Indigenous conceptualized as such retains two interrelated problems that ensure that the kinds of unequal relationships organized in the aftermath of 1492 are reproduced. First, by denying the social constitution of the category of indigenous, it disavows people’s now- long history of connectivity across (and sometimes against) this category. Because this connectivity challenges the particularistic nature of indigeneity, recognition of interrelationality is itself represented as a threat. Second, by continuing to limit the criteria of membership of each nos, each is unable to accept as co- specifics those who are rendered as always- already oppositional others. Indeed, in making any particularistic nos, the significance of omitting certain others cannot be underestimated. The category of indigenous, thus, does a sort of political work. It produces a particular nos (and thus a particular Other- to- indigenous nos).23 For some (though certainly not all) of those currently constituted as indigenous, it seems that one of the consequences of the enormously uneven Columbian exchange is the denunciation of the process of exchange itself. Today, the movement of life, plants, humans, and other animals is often cited as the cause for the devastation wrought on their native equivalent.24 Rather than focus on the hierarchical and exploitative relations of the Columbian exchange, some assume that the cause of the problem was / is mobility itself. Within such a worldview, that which moves is consequently denounced as inherently polluting, and, in an idiom that is gaining in popularity, movement and migration are posited as inherently colonizing. An understanding of mobility as always colonizing is evident in the expansion of the term “settler colonist” to include all those deemed nonnative in any given space. Recently, within both indigenous studies and social movements for indigenous rights, the historical distinctions between the voyages of Columbus (and other colonizers) and those of slaves who survived the Middle Passage, indentured workers recruited in the wake of slavery’s abolition, and present- day migrants captured in a variety of state categories ranging from illegal to immigrant, have been collapsed. All, it is claimed, are agents of colonialism. It seems, then, that as there has been an expansion in the subjective understanding of people as indigenous, there has been a subsequent expansion in their other. Put differently, within some indigenous systems of belonging, all past and present people constituted as migrants are situated as colonizers. In our present “great age” of migration, how did “colonizer” become a meaningful way to describe people who move across space?25 Indeed, how did “colonizer” come to be an increasingly dominant mode of representing indigenous people’s others, others who were once understood as cocolonized people or, at least, not as an oppositional other? Is there a relationship between these particularistic modes of representation and the false separation and hierarchical ranking of different but related experiences of colonization, such as the processes of expropriation and people’s displacement across space? The answers to these questions lie within the logics of autochthonous systems of representation and the ways in which claims to indigeneity bring to life discourses of alienness or foreignness. Jean Comaroff and John Comaroff argue, by “elevating to a first- principle the ineffable interests and connections, at once material and moral, that flow from ‘native’ rootedness, and special rights, in a place of birth,” autochthonous discourses place those constituted as natives at the top of a hierarchy of the exploited, oppressed, and colonized and insist on the centrality of the claims of natives for the realization of either decolonization or justice.26 Within the negative duality of natives and nonnatives that such discourses put into play, origins (and, in some contexts, claims of original, versus later, human discovery or inhabitation) become the key determinant of who belongs in any given space today—and who does not. The quintessential alien or foreigner within autochthonous discourses is the figure of the migrant. This is because the hegemonic understanding of what it means to be a migrant in today’s world is one where migration is seen as movement away from one’s native land. Thus, migrants come to stand as the ultimate nonnative. Such a move works to shift the focus from a dialectics of colonialism—where the key historical dynamic is one of expropriation and exploitation, and the key relationship is one between the colonizers and the colonized—to one where the dichotomy between native and nonnative becomes central to both analysis and politics. Patrick Wolfe, a historian of Australia, captures this perspective well in his claim that “the fundamental social divide is not the color line. It is not ethnicity, minority status, or even class. The primary line is the one distinguishing Natives from settlers—that is, from everyone else. Only the Native is not a settler. Only the Native is truly local. Only the Native will free the Native. One is either native or not.”27 From such an autochthonous perspective, being native is both spatially and temporally dependent. Temporally, migrants may be identified as natives at some point in time and in some given space, but once having moved away from the spaces where such representations may be claimed, they become nonnatives. Spatially, migrants remain native but only to the places they no longer live in. Thus, some argue that migrants can continue to claim native rights to places they have moved from if they are able to show genealogical descendance from those with native status in that space.28 Candace Fujikane, in dismissing Asian claims to belong in the United States, puts it this way: “Indigenous people are differentiated from settlers by their genealogical, familial relationship with specific land bases that are ancestors to them. One is either indigenous to a particular land base or one is not. Asian Americans are undeniably settlers in the United States because we cannot claim any genealogy to the land we occupy, no matter how many lifetimes Asian settlers work on the land, or how many Asian immigrants have been killed through racist persecution and hate crimes, or how brutal the political or colonial regimes that occasioned Asians’ exodus from their homelands.”29 In this logic, indigeneity is racialized / ethnicized, and in the process, land—or more accurately, territory—is as well. Natives, it is assumed, belong in “their” native land and only there. Further, who can be recognized as native is dependent upon ancestry, thereby adding blood to the discourse of soil. Descent becomes of further importance in this distinction, for many indigenous people are, of course, also Asian (and European and African and so on) as well as vice versa. It is one’s ability to claim some indigenous ancestor that can allow one to be seen as indigenous today. While such claims can be social and not biological, many indigenous groups, following from certain governments’ own categorical recognition of indigeneity, rely on some form of blood quantum rule that requires a minimal indigenous lineage. Not surprisingly, such criteria for belonging (and for the rights and entitlements of membership) have not always worked for those subordinated through other axes of oppression and exploitation. Thus, many women have found that their claims to native status are often the first to be discounted.30 In this, there is an ironic historical continuity of autochthonous ideas and practices of belonging and the underlying logics of the colonial (and, in some places, postcolonial) state. Indeed, the meaning of native was one that was used to distinguish the colonized from the colonizer so that the natives could be represented as less human and, therefore, as legitimately colonized. Being native, then, was a signifier of being colonized and the ultimate signifier of abjectness. Nativeness as a mode of representation, then, was designed to institutionalize the new racist orders implemented by different colonial empires. Importantly, all colonized people were variously identified as “the” natives in order to signal their lack of membership in the propter nos of the colonizers.31 (170-4)

#### Anti-migrant frames produce a global apartheid against labor. Demonization of migrants mobilizes national populations for war and repressive immigration control.

Sharma, PhD Sociology, 05

(Nandita, Anti-Trafficking Rhetoric and the Making of a Global Apartheid *NWSA Journal* 17.3)

In contemporary discourses of national security, it is the eradication of the "dangerous foreigner" that is paramount to notions of protecting the "homeland." This demands of "us," the nation's subjects, that "we" be vigilant against "outsiders" seeking increasingly clever ways to circumvent national border controls and thereby usurp the authority and integrity of the nation-state. Such rhetoric is, of course, readily apparent in the post-September 11 war on terror with its widespread practice of nationalized, racialized, and gendered profiling of security threats. Yet, it is important to remind ourselves that such national security agendas have long been in place. Remembering this may allow us to better understand how legitimation for this latest war is organized. In this paper I investigate how national and international governance regimes together shape the experiences of migrants exiting, moving in between, and resettling into various nationalized societies, and how increasingly these regimes rely on the trope of "homeland security" to police the bodies of the majority of the world's migrants (Balibar 1991, 90). Such an investigation is crucial in light of the global system of apartheid that is firmly in place-a system that celebrates the mobility of capital and some bodies, while the bodies of others face ever-growing restrictions and criminalization. Today's system of global apartheid has been put together in part through the United Nations (UN), which increasingly regulates the global mobilities of (some) people, as well as through the universally legitimate ideological practice of nationalism. The underlying principle of "national sovereignty" embedded within the original U N mandate enables nation-states to legally, and with little, if any, outcry discriminate against those who can be cast as the nation's "others." This article examines one increasingly important, and increasingly obfuscated aspect of the national and international security agenda-that of anti-trafficking campaigns directed, in particular, at controlling the migration of women and children. I argue that anti-trafficking practices operate as a moral panic that simultaneously obscure the vulnerability of migrant women in the nexus of state and capitalist practices while representing them as victims solely of traffickers. This moral panic serves to legitimize increasingly regressive state practices of immigration control. These controls, in turn, form the basis for the construction and maintenance of a global apartheid whereby differential legal regimes are organized within nationalized space: one for "citizens" and another far more regressive one for those, such as people categorized as "illegal," who are denied a permanent legal status within the nation space. The ideological frame of anti-trafficking minimizes and often makes migrants as displaced people completely invisible. The ideology of antitrafficking does not recognize that migrants have been displaced by practices that have resulted in the loss of their land and/or livelihoods through international trade liberalization policies, mega-development projects, the loss of employment in capitalist labor markets, or war. Not only does the frame of anti-trafficking lead to a suspicion of women's (and children's) migrations so that it is only ever seen as crisis-producing instead of life-saving, it further renders as unseeable the reasons why migrants are forced to make clandestine movements, usually with the help of people who know how to get them across national borders undetected.(88-90)

#### Territorial belonging emerged as a counter-revolutionary discourse. An ontology that recognizes humanity as a *process* of storytelling instead of a biological noun provides a new species basis for solidarity across settler-native divides.

Nandita **SHARMA** Social Sciences @ York ‘**15** “Strategic Anti- Essentialism: Decolonizing Decolonization” in *Sylvia Wynter: Being Human as Praxis* p. 178

Sharma, PhD Sociology, 15

(Nandita, Social Sciences @Hawaii, *Strategic Anti-Essentialism: Decolonizing Decolonization* in Sylvia Wynter: Being Human as Praxis, ed McKittrick )

The New World, then, was forged through processes that people across space and time would be able to recognize. Marcus Rediker calls these processes the “four violences”: the expropriation of the commons both in Europe and in the Americas; African slavery and the Middle Passage; the exploitation and the institution of wage labor; and the repression organized through prisons and the criminal justice system.40 Silvia Federici adds to our understanding of these shared experiences by showing that the persecution of women and the containment of their liberty (especially during various and ongoing hunts for witches) were crucial elements in the Columbian exchange.41 People’s shared experience of the terror of expropriation, exploitation, and oppression led to their shared resistance, something, unfortunately, left unexamined within Wynter’s oeuvre.42 Neither the ruling- class version of colonization- as- progress nor the autochthonous view that colonization was caused by “foreigners” entering native spaces tells us this story. Recent work by social historians, such as Peter Linebaugh and Marcus Rediker, or political theorists such as Michael Hardt and Antonio Negri, however, show that there was indeed a serious struggle over the terms of what is now (too ahistorically and uniformly) often called “modernity.”43 That capitalists were victorious in this struggle should not blind us to the fact that they did not instigate the revolution (or the “root expansion in thought” that Sylvia Wynter discusses in relation to Columbus’s challenging of medieval European notions of space). The bourgeoisie, instead, were part of the counterrevolution against those actively challenging extant forms of ruling in Europe, including challenges to the medieval idea of transcendent power of all sorts (church, God, king / queen). The actual revolutionaries were derisively called the multitude or the motley crew and were composed of the rural commoners, urban rioters, fishers, market women, weavers, and many others who mobilized countless rebellions to realize their immanent demand that producers fully realize the fruits of their labor, and do so on earth.44 As the spread of ruling relations moved across the planet, so too did communities committed to revolution. When the imperial elites in Europe expanded their territorial claims—and processes of expropriation and exploitation to the Caribbean, the Americas, and the rest of the planet—new communities of resistance across these spaces were formed on the basis of radical solidarities. Revolutionaries from spaces now imagined separately as Europe, Africa, the Caribbean, the Americas, Asia, and the Pacific encountered one another and, in many cases, saw in each other’s experiences a desire for their own common emancipation. The motley crew, then, was very much a cluster of new world formations—new world because they stretched across the entire global field of power of expanding imperial states. They explicitly challenged emergent discourses of their innate noncommensurability, be it racialized, nationalized, or gendered lines of difference. As a result, as Linebaugh and Rediker uncover, these solidarities were considered as the greatest threat against the aspirations of the newly emerging elites—the traders, ship owners, slave owners, plantation owners, and leaders of imperial states. Significantly, it was ideas—and subjective identifications—of nation, race, and gender that severely weakened this “many- headed hydra” and set back its revolution. It is precisely this revolution, this “root expansion in thought,” that Sylvia Wynter ignites with her call for a human species–wide sense of conspecificity. In her essay “1492: A New World View,” Sylvia Wynter creates an imaginative space for a new and expansive subjective understanding of who “we” are so that we can undo the continued exclusionary, uneven, and purposefully divisive legacy of 1492. While those who shamelessly celebrate the aftermath of 1492 continue to believe that they can act unilaterally and with impunity against groups they have identified as native and migrants with no consequence to their own lives, and while some native nationalists believe that the nos of natives is a liberatory one that will lead to a postcolonial state of their own, Wynter’s “new world view” allows us to see that both partial perspectives are ideological. Neither reflects the lived experiences of people the world over, which are organized through both shared experience and tangible connection. As a result, neither is able to seize the revolutionary promise of an expansion in our empathic and affective ties with those with whom we live our lives. Wynter, by defining humanness as a social, historical, and discursive coproduction rather than merely a biological one, urges us to become cognitive revolutionaries, to see our potential to forge social relationships with one another—relationships that recognize not only the massive changes wrought by the events following Columbus’s voyage of 1492 but also the possibility of what we can do with these changes. The New World produced new social formations, and it is within these social formations that struggles for decolonization have taken place and continue to and need to take place. This does not mean that we must make a choice between the celebrants’ universality, which is little but a parochial concern of elites, or the alternative of dissidents that romanticizes an essentialized “community” set in battle against its others. Rather, we can, if we choose, reject both views and reorient ourselves—and respatialize ourselves—with one afforded to us by the world that we have inherited, a world wrought with strife and inequality but a single world, nonetheless. This project is and always has been, by necessity, a shared one. Indeed, the making of new social bodies is not an epistemological problem but an ontological one. It is in the ontological unity of our human intra- actions that we can come into being what we already are: a species of humans, one, no less, that is intimately involved with all other life on our shared planet. (178)

T FW

#### Violation: They don’t meet if they don’t defend topical action

#### B. Fairness –

#### 1. Debate is a game – tournament results and ballot prove. Other impacts like political activism or education can be pursued in other arenas. Fairness is unique to debate, that makes it the most important impact.

#### 2. Not defending the topic is unfair –

#### a) Predictability –

#### Altering the topic gives the aff a huge edge, they can prepare for half a year on an issue that catches us by surprise. Preparation is better than thinking on your feet – research demonstrates pedagogical humility and research skills are the only portable debate training.

#### b) Limits –

#### There are a finite amount of government restrictions, but an infinite number of non topical affs. Consider this our “library disad”- not debating the topic allows someone to specialize in one area of the library for 4 years giving them a huge edge over people who switch research focus ever 2 months.

#### c) Causality –

#### Debating the resolution forces the affirmative to defend a cause and effect relationship, the state doing x results in y. Non topical affs establish their own barometer “I think x is good for me” that aren’t negateable. Only the neg promotes switch side debate.

#### d) Exclusionary rule –

#### You can’t vote on the case outweighs T because lack of preparation prevents rigorous testing of the AC claims and inflates the credence of their arguments. If we win fairness we don’t have to “outweigh” other impacts

#### C. Engagement –

#### Aff’s interp destroys engagement – predictable stasis point research accessibility and neg ground. Even if public policy isn’t the best focus for activism, it’s crucial for dialogue because it’s grounded in consistent reporting and academic work.

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#### Two impacts –

#### a) Changing the topic post facto structurally favors the aff by manipulating balance of prep – vote neg because debate is a competitive game that’s meaningless without substantive constraints.

#### b) Their model creates a structural disincentive to substantial research. Failure to defend the actor and mechanism of the resolution allows them to shift their advocacy to the terms most favorable to them – causes dogmatism and forces the neg into generics at the margins of the literature – destroys good scholarship.

#### Drop the debater on T – their model ensures that the round is skewed from the beginning because their advocacy prevents me from generating 1NC offense.

### Space Colonization – Generic

#### Space colonization is an insurance policy which guarantees human survival and avoids nearly every single extinction threat

Worrall 18 [Simon Worrall has written for publications all over the world, including The Smithsonian, The London Sunday Times, The Guardian, Paris Review, Conde Nast Traveler and The New Yorker. Since 1997, he has been a regular contributor to National Geographic Magazine, with assignments to London, Wales, Patagonia and China, and now curates a weekly column on the NG website called Book Talk. Michio Kaku is an American theoretical physicist, futurist, and popularizer of science. He is a professor of theoretical physics in the City College of New York and CUNY Graduate Center. “There’s Only One Way For Humanity to Survive. Go To Mars.” National Geographic. March 2, 2018. <https://www.nationalgeographic.com/science/article/there-s-only-one-way-for-humanity-to-survive--go-to-mars->] HW AL

Right at the beginning of the book, you make the shocking prediction: “**Either we must leave the Earth or we will perish.**” Are humanity’s prospects really that dire? And doesn’t this play into the nihilistic feeling that there is nothing we can do to save this planet? If you take a look at evolution on Earth, 99.9 percent of all life forms have gone extinct. When things change, either you adapt or die. That’s the law of Mother Nature. We face various hazards. First of all, we have self-inflicted problems like global warming, nuclear proliferation and bio-engineered germ warfare. Plus, Mother Nature has hurled at the Earth a number of extinction cycles. The dinosaurs, for example, didn’t have a space program. And **that’s why the dinosaurs are not here today.** On the other hand, we shouldn’t use this as an excuse to pollute the Earth, or let global warming run amok. We should cure these problems without having to leave for Mars or another planet, because it’s impossible to remove the entire population of Earth to Mars. **We’re talking about an insurance policy—a backup plan in case something does happen to the Earth.** I once talked to Carl Sagan about this, who said, “We live in the middle of a shooting gallery with thousands of asteroids in our path that we haven’t even discovered yet. So, let’s be at least a two-planet species, as a backup plan.” One of the beautiful images you conjure is of ballet dancing on Mars. Explain why this may one day be less fanciful than it seems. We have the Olympics, where we have athletes that understand the laws of gravity on Earth, but once we’re on the moon and Mars, we have a totally different set of physical constraints. Here, ice skaters can’t do anything more than a quad; four rotations in the air and that’s it! No one has ever done a quint. However, on Mars the gravity is only 30 percent of Earth, so one day we may have an Olympics on Mars where people could do four, five, six, seven rotations in the air, and ballet, or acrobatics, and gymnastics. A whole new set of athletes could be formed because they are adapted to a new environment where the gravity and air pressure is lower. The astronaut Alan Shepard was the first one to golf—golf—on the moon! He snuck on a pair of golf irons. NASA was horrified, yet in the Smithsonian Museum now, you can see a replica of the golf clubs he used, to prove that interstellar sports could become a real possibility. You use the phrase “the fourth wave of science.” Explain what this means and how it could one day make it possible to terraform Mars. We’ve had three waves of scientific innovation. The first wave, the Industrial Revolution, gave us the steam engine, the locomotive, and factories. The second wave was electricity and magnetism, whereby we had TV, internal combustion cars, a beginning of the space program. The third revolution is high tech: computers, lasers, the Internet. Now we have the fourth wave of innovation: artificial intelligence, biotech, and nanotech. That’s going to change the way we view Mars. Many people say Mars is cold and desolate, and there’s nothing to grow there. We can genetically modify plants and algae to thrive in the Martian atmosphere. But who’s going to do the heavy lifting? We all would like to see futuristic cities on Mars, but robots are going to become much more adapted to working in these harsh environments by the end of this century, so we expect to see robotic construction workers building the fantastic domed cities you see in science fiction novels.

#### Space exploration serves many roles, it’s benefits humanity in many ways and is necessary for us in order to have a future

**Goldsmith and Rees 20** (Donald Goldsmith is an astronomer and science writer in Berkeley, California. Martin Rees is an astrophysicist who has been the U.K.'s Astronomer Royal since 1995. He has served as master of Trinity College, Cambridge, and president of the Royal Society. Rees is author of nine books, including *On the Future: Prospects for Humanity* (Princeton University Press, 2018) <https://blogs.scientificamerican.com/observations/do-we-really-need-to-send-humans-into-space/>) //HWLND

Uplifting the human spirit. Sending humans into space adds glory to our lives. Overcoming the manifold challenges to long-term spaceflight inspires and delights us. Almost everyone naturally responds to heroic accomplishments, and many of us would regard a human landing on Mars as a paramount achievement of our species. But to many scientists, and to some among the public, such potent reactions fail to justify the costs and dangers of these missions. We should note that several other motivations lie behind the push for astronaut expeditions to our celestial neighbors. These include the desire to outdo our rivals, the belief that space offers an eventual refuge from a debilitated Earth and an eagerness to exploit raw materials in the nearby solar system. Each of these arguments, in our opinion, favor expeditions not with humans but with our ever improved spacecraft and robot explorers—at least until the habitats for the refuge of a chosen population are ready. National pride. The cold war argument that the Russians could “seize the high ground” by establishing a lunar base never made sense, because any nation seeking to use space to launch weapons would attempt to do so close to Earth, not from a quarter-million miles away. There remains the pride that a nation may feel from sending the first humans to other worlds, as when President Donald Trump exalts a future “when American astronauts will plant our beautiful Stars and Stripes on the surface of Mars,” adding the pride of ownership to the thrill of human achievement. Human survival. Shortly before his death in 2018, Stephen Hawking stated that “spreading out may be the only thing that saves us from ourselves. I am convinced that humans need to leave Earth.” More recently, Bezos has said that humans need space travel because “we are in the process of destroying this planet.” Among other outcomes, he envisions giant space colonies that would each allow millions of people to live in space. To their enthusiasts, giant space colonies and human habitats on Mars offer not only sites to develop a better society but also places where we may modify humans themselves, partly for adaptation to the lower gravity on Mars or, in many scenarios, to the artificial gravitational force produced within the enormous rotating wheel of a million-person “posthuman environment,” where genetic engineering could attempt to reduce diseases and prolong human life. Such future plans appeal to those who see Earth’s future as deeply uncertain or even hopeless. A moment’s thought, however, tends to reveal that (a) the notion that we can learn from our errors on Earth in order to survive in space involves pie-in-the-sky optimism and (b) the billions of people to be left behind deserve greater consideration. If we can’t solve humanity’s problem on our home planet, we seem highly unlikely to be able to do so by establishing ourselves in space. Raw materials. Although less cited in the wider world, a great incentive for reaching nearby solar system objects springs from an old-fashioned, solid desire: the quest for raw materials for profit. One of the asserted justifications for sending humans back to the moon focuses on their potential for harvesting helium-3, a rare isotope of helium. Unlike those of helium-4, the far more common stable isotope of the element, helium-3 nuclei will fuse readily once they reach a sufficiently high temperature. Because this fusion releases large amounts of energy but no radioactive by-products, helium-3 nuclei could provide an almost ideal nuclear fuel. On Earth, helium-3 nuclei furnish only about one one-millionth of already scarce helium nuclei, but their relative abundance in lunar soil rises 100 times higher. Visionaries propose a future society that runs on helium-3 nuclei from the moon, which contains enough of these nuclei to provide many centuries of the world’s current power consumption. The asteroids likewise offer a road to wealth. Although most asteroids have a composition that resembles Earth’s, a few of them consist largely of metals such as iron, nickel and cobalt—together with a much smaller amount of silver, gold and platinum. A metal-rich asteroid that is only the size of a house would contain a million pounds of metal, including 100 pounds of platinum, gold and other rare metals. We can imagine future space missions that use the more abundant minerals for the construction of mining colonies but that draw the bulk of their profits from the return of the most valuable metals to Earth.

#### Space exploration is what’s necessary to have any hope of solving global challenges

International Space Exploration Coordination Group 13 (Benefits Stemming from Space Exploration, International Space Exploration Coordination Group, September 2013 <https://www.nasa.gov/sites/default/files/files/Benefits-Stemming-from-Space-Exploration-2013-TAGGED.pdf> ISECG is a voluntary, non-binding coordination forum of space agencies which: Exchange information regarding interests, plans and activities in space exploration Work together to strengthen both individual exploration programmes and the collective effort)//HWLND

New Means to Address Global Challenges. Partnerships and capabilities developed through space exploration create new opportunities for addressing global challenges. Space exploration is a global endeavour contributing to trust and diplomacy between nations. Enhanced global partnerships and exploration capabilities may help advance international preparedness for protecting the Earth from catastrophic events such as some asteroid strikes, advancing collaborative research on space weather and protecting spacecraft by developing new means for space debris removal. Knowledge derived from space exploration may also contribute to implementing policies for environmentally sustainable development. In summary, space scientists and engineers who overcame past challenges could not have predicted all the ways in which their innovations are now being used on Earth. Though the precise nature of future benefits from space exploration is unpredictable, current trends suggest that significant benefits may be generated in areas such as new materials, health and medicine, transportation, and computer technology. New opportunities for job creation and economic growth are being created by private enterprises that are increasingly investing in space exploration and seeking ways to make space exploration more affordable and reliable, and thus, more sustainable and profitable. There is no activity on Earth that matches the unique challenges of space exploration. The first fifty years of space activity have generated benefits for people around the globe. This past record gives strong reason for confidence that renewed investments in space exploration will have similarly positive impacts for future generations.

### Climate

#### Technology developed from space exploration is K2 solving climate DiCicco ‘21

{Mike DiCicco, April 21, 2021, DiCicco is a senior science write at NASA, “NASA Technologies Spin off to Fight Climate Change”, <https://climate.nasa.gov/ask-nasa-climate/3075/nasa-technologies-spin-off-to-fight-climate-change/>, //NL}

Trapping Greenhouse Gases Carbon dioxide, a greenhouse gas, is the most prominent driver of climate change on Earth. On Mars, however, where most of the atmosphere is CO2, the gas could come in handy. Under **NASA** contracts, one **engineer helped develop technology to capture Martian carbon dioxide** and break it into carbon and oxygen **for** other uses, from **life support** to fuel for a journey home. Although it never flew, Perseverance will test out a similar idea, using an experimental system called MOXIE (Mars Oxygen In-Situ Resource Utilization Experiment). Meanwhile, **the** earlier **tech**nology **led to a system that now captures natural gases at oil wells, instead of wastefully burning them off and dumping the resulting CO2 into the atmosphere.** And another version of the system helps beer breweries go “greener” by capturing carbon dioxide from the brewing process, rather than venting it, and using it for carbonation instead of buying more. Conserving Energy Conserving energy is a crucial consideration for space travel, and many innovations NASA has come up with in that arena are now widespread in improving energy efficiency on Earth. For example**, NASA helped create** a type of **reflective insulation** to efficiently maintain a comfortable temperature within spacecraft and spacesuits. In the decades since, this insulation has been **adapted and used in homes and buildings** around the world. **Another material** pioneered **to insulate cryogenic rocket fuel** against the balmy weather around the launch pad at Cape Canaveral, Florida, **now saves energy by preserving temperatures at industrial facilities.** And a coating invented to protect spacecraft during the extreme heat of atmospheric entry **improves the efficiency of incinerators, boilers, and refractories, ovens, and more.** Shrinking Air Travel’s Carbon Footprint Air travel is a major contributor to human-made greenhouse gases. **Designing aircraft to fly more efficiently reduces** the amount of fuel they burn, and in turn, their resulting **emissions.** And many of the improvements that make modern aircraft more efficient come straight from NASA. In fact, some of the agency’s most significant contributions to aeronautic fuel efficiency can be traced back to the work of a single NASA engineer in the 1960s and ’70s. Richard Whitcomb designed and tested an entirely new wing shape – the supercritical wing – that significantly increased efficiency at high speeds and eliminated weight. He then designed upturned wingtips that make use of air vortices that would otherwise create drag. Now incorporated into nearly all commercial planes**, these advances combined save billions of dollars’ worth of fuel, along with associated CO2 emissions, every year.** In the decades since, NASA has continued to work with industry partners to improve airplane efficiency, and the agency is now supporting the cutting edge of all-electric flight. Advancing Renewable Energy Because there are no fossil fuels on Mars, **NASA** became interested in wind energy to power future Martian operations. So, the space agency **helped** a company **develop a wind turbine that could operate in** a similarly **harsh environment – the South Pole**. Rugged and designed for easy maintenance and efficiency at extremely low temperatures**, more than 800 of the resulting turbines are now generating power on Earth.** Unexpectedly, software NASA supported for **improved aircraft** design and maintenance has **also led to more efficient, long-lasting wind turbines.** And several solar panel manufacturers have benefited from the agency’s long reliance on the sun for energy.

#### Space exploration is k2 ending climate change

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Space developments in the last two decades have greatly contributed to our understanding of our planet’s climate. Satellite imaging, space exploration, and new technologies give us an idea of the big picture and how we can adapt to address climate change. For example, satellites in space have played a critical role in our understanding of the causes of global warming by providing us with a large body of data to examine the variations in the Earth’s orbit. Data from these capabilities were essential inputs into the Intergovernmental Panel on Climate Change’s (IPCC) recent report that focused on how the physical science of climate change informs likely impacts under five different emissions scenarios. The report also found that climate change is happening quicker than we thought, making the need to reduce emissions imminent. To address this, space infrastructure such as positioning, navigation, and timing (PNT) can help identify efficient transportation routes and sources of emissions, ultimately aiding mitigation efforts.