# 1AC

### UV

#### 1] Permissibility affirms

#### A] Both-sidesing DA – not taking a stance on anything is the logic of centrism that justifies not condemning atrocities

#### B] Otherwise we’d have to have a proactive justification for things like drinking water

#### C] By the double negation of “not unjust,” the neg has to prove the space mining is just

#### 2] Presumption affirms

#### A] Presuming statements false is impossible since we can’t operate in a world where we don’t trust anything.

#### B] Self-defeating – if you presume statements false, then you presume that “permissibility and presumption flow neg” is false.

#### 3] Interpretation: The aff may not defend implementation.

#### “Is” is defined as:

Merriam Webster, No Date, "Definition of IS," Merriam Webster, https://www.merriam-webster.com/dictionary/is

present tense third-person singular of BE

#### Merriam-Webster ND

#### “Be” is defined as:

Merriam Webster, No Date, "Definition of BE," Merriam Webster, https://www.merriam-webster.com/dictionary/be

to have a specified qualification or characterization

#### Merriam-Webster ND

#### Is-ought fallacy – “is” is descriptive, not prescriptive. Cohon 18

Rachel Cohon (Her fields of interest are ethics, the philosophy of action, and the history of ethics. She is the author of Hume's Morality: Feeling and Fabrication (Oxford University Press, 2008), a book reinterpreting Hume's meta-ethics and virtue ethics. She has also written a number of articles on Hume's moral and political philosophy and theory of the passions, and on systematic topics related to normative reasons for action. She edited a volume of articles on Hume's ethics, Hume: Moral and Political Philosophy (2001), and wrote the entry on Hume's moral and political philosophy in the Stanford Encyclopedia of Philosophy. She is also interested in applied ethics and wrote the article on ethical issues pertaining to disability for the Encyclopedia of Bioethics (2003). She teaches graduate courses in moral theory, including such topics as consequentialism vs. deontology vs. virtue ethics, moral realism, the normativity of ethics, and eighteenth century moral philosophy), 8-20-2018, "Hume's Moral Philosophy (Stanford Encyclopedia of Philosophy/Fall 2018 Edition)," Stanford Encyclopedia of Philosphy, <https://plato.stanford.edu/archives/fall2018/entries/hume-moral/>, //hzheng

Hume famously closes the section of the Treatise that argues against moral rationalism by observing that other systems of moral philosophy, proceeding in the ordinary way of reasoning, at some point make an unremarked transition from premises whose parts are linked only by “is” to conclusions whose parts are linked by “ought” (expressing a new relation) — a deduction that seems to Hume “altogether inconceivable” (T3.1.1.27). Attention to this transition would “subvert all the vulgar systems of morality, and let us see, that the distinction of vice and virtue is not founded merely on the relations of objects, nor is perceiv’d by reason” (ibid.). Few passages in Hume’s work have generated more interpretive controversy. According to the dominant twentieth-century interpretation, Hume says here that no ought-judgment may be correctly inferred from a set of premises expressed only in terms of ‘is,’ and the vulgar systems of morality commit this logical fallacy. This is usually thought to mean something much more general: that no ethical or indeed evaluative conclusion whatsoever may be validly inferred from any set of purely factual premises. A number of present-day philosophers, including R. M. Hare, endorse this putative thesis of logic, calling it “Hume’s Law.” (As Francis Snare observes, on this reading Hume must simply assume that no purely factual propositions are themselves evaluative, as he does not argue for this.) Some interpreters think Hume commits himself here to a non-propositional or noncognitivist view of moral judgment — the view that moral judgments do not state facts and are not truth-evaluable. (If Hume has already used the famous argument about the motivational influence of morals to establish noncognitivism, then the is/ought paragraph may merely draw out a trivial consequence of it. If moral evaluations are merely expressions of feeling without propositional content, then of course they cannot be inferred from any propositional premises.) Some see the paragraph as denying ethical realism, excluding values from the domain of facts. Other interpreters — the more cognitivist ones — see the paragraph about ‘is’ and ‘ought’ as doing none of the above. Some read it as simply providing further support for Hume’s extensive argument that moral properties are not discernible by demonstrative reason, leaving open whether ethical evaluations may be conclusions of cogent probable arguments. Others interpret it as making a point about the original discovery of virtue and vice, which must involve the use of sentiment. On this view, one cannot make the initial discovery of moral properties by inference from nonmoral premises using reason alone; rather, one requires some input from sentiment. It is not simply by reasoning from the abstract and causal relations one has discovered that one comes to have the ideas of virtue and vice; one must respond to such information with feelings of approval and disapproval. Note that on this reading it is compatible with the is/ought paragraph that once a person has the moral concepts as the result of prior experience of the moral sentiments, he or she may reach some particular moral conclusions by inference from causal, factual premises (stated in terms of ‘is’) about the effects of character traits on the sentiments of observers. They point out that Hume himself makes such inferences frequently in his writings.

#### Standards:

#### 1] Phil Ed – not defending implementation forces us to study abstract relations of justice rather than only util which outweighs because it’s the only type of education we get specifically from LD which o/ws on specifity

#### 2] Strategy – forces the 1NC to adapt and read non-LARP arguments – thinking on your feet is good because it forces argument generation which is more adaptable and portable than reciting facts

#### Semantics are a voter

#### A] Truth claims have lexical priority – it doesn’t matter if something is more fair or educational if it’s not the debate we’re supposed to be having

#### B] We hijack fairness first – semantics determine stable ground for the res which means it’s the most predictable

#### C] Performativity – rejecting semantics requires using semantical speech

### Framing

#### The meta-ethic is moral constructivism:

#### 1] Strangeness—moral facts can’t be located. We only have knowledge of physical facts that can be falsified through observation. It follows that morals can only be facts about agreement or belief, since those are observable.

#### 2] Bindingness—only constructed facts bind, since we commit ourselves to them through the acceptance of agreement or identities. If morals existed outside of us, we could rationally reject them.

#### 3] Perspectivism – people have different views, there’s no way to know if ours is the correct one or not.

#### And, any moral theory must account for the constitutive equality of subjects:

#### 1] Equality is a prereq to moral evaluations – anything else justifies moral exclusion – psychology proves. Winter and Leighton 99

Deborah DuNann Winter and Dana C. Leighton. Winter [Psychologist that specializes in Social Psych, Counseling Psych, Historical and Contemporary Issues, Peace Psychology. Leighton: PhD graduate student in the Psychology Department at the University of Arkansas. Knowledgable in the fields of social psychology, peace psychology, and Justice and intergroup responses to transgressions of justice] “Peace, conflict, and violence: Peace psychology in the 21st century.” Pg 4-5

Finally, to recognize the operation of structural violence forces us to ask questions about how and why we tolerate it, Those outside our group lie outside our scope of justice. Injustice that would be instantaneously confronted if it occurred to someone we love or know is barely noticed if it occurs to strangers or those who are invisible or irrelevant. We do not seem to be able to open our minds and our hearts to everyone, so we draw conceptual lines between those who are in and out of our moral circle. Those who fall outside are morally excluded, and become either invisible, or demeaned in some way so that we do not have to acknowledge the injustice they suffer. Moral exclusion is a human failing, but Opotow argues convincingly that it is an outcome of everyday social cognition. To reduce its nefarious effects, we must be vigilant in noticing and listening to oppressed, invisible, outsiders. Inclusionary thinking can be fostered by relationships, communication, and appreciation of diversity. Like Opotow, all the authors in this section point out that structural violence is not inevitable if we become aware of its operation, and build systematic ways to mitigate its effects. Learning about structural violence may be discouraging, overwhelming, or maddening, but these papers encourage us to step beyond guilt and anger, and begin to think about how to reduce structural violence. All the authors in this section note that the same structures (such as global communication and normal social cognition) which feed structural violence, can also be used to empower citizens to reduce it. In the long run, reducing structural violence by reclaiming neighborhoods, demanding social justice and living wages, providing prenatal care, alleviating sexism, and celebrating local cultures, will be our most surefooted path to building lasting peace.

#### 2] Equality is an intrinsic good – because we’re all rational subjects, we all have equal rationality, which implies that we must be equal – rejecting this is a contradiction because you want to reject someone else’s rationality but not yours

#### 3] Absent equality, egoism is true because we don’t have to consider anybody else which collapses to skep

#### The veil of ignorance solves constructivism by incorporating all equally rational perspectives and overcoming bias. Richardson ND

Henry S. Richardson (Georgetown University), xx-xx-xxxx, "Rawls, John," Internet Encyclopedia of Philosophy, <https://iep.utm.edu/rawls/>, //hzheng

Recognizing that social institutions distort our views (by sometimes generating envy, resentment, alienation, or false consciousness) and bias matters in their own favor (by indoctrinating and habituating those who grow up under them), Rawls saw the need for a justificatory device that would give us critical distance from them. The original position (OP) is his “Archimedean Point,” the fulcrum he uses to obtain critical leverage. TJ at 230-32. The OP is a thought experiment that asks: what principles of social justice would be chosen by parties thoroughly knowledgeable about human affairs in general but wholly deprived—by the “veil of ignorance”—of information about the particular person or persons they represent?

#### The veil of ignorance best solves for equality:

#### Arbitrariness – absent the veil of ignorance, arbitrary factors like your concurrent wealth will influence your decisions which fails to respect constitutive equality – Jeff Bezos wants different things from a homeless person.

#### And, the veil of ignorance implies justice as fairness which has two principles:

#### 1] All people have a right to equal opportunity – either people are selfish and want to make sure they can access resources no matter who they are, or they’re unselfish and would want everyone to access materials anyway.

#### 2] All actions must benefit the worst off – either people are selfish and want help knowing they could be in poor positions, or they’re altruistic and want to help the worst off for the sake of helping the worst off.

#### Thus, the standard is consistency with principles chosen from the Original Position.

#### Additionally prefer:

#### 1] Performativity – arguing against fairness is a contradiction because it assumes your arguments are evaluated fairly

#### Ideal theory is good:

#### 1] Corruption – if you’re born in the 1800s, you’re more likely to think slavery is okay – only a divorce from material influences solves 2] Perfcon – arguing ideal theory bad requires an ideal theory of what theory ought to look like 3] Oppression – we can’t combat oppression if we have a sliding ruler

#### I affirm, Resolved:

### Offense

#### 1] Capitalism is bad – Rawlsian ethics condemns it, we don’t like private entities doing anything. Quish 18

Ed Quish (is a doctoral student in political theory at Cornell University), 8-22-2018, "John Rawls, Socialist?," Jacobin, <https://jacobinmag.com/2018/08/john-rawls-reticent-socialist-review-theory-of-justice/>, //hzheng

When Rawls wrote A Theory of Justice, after the legislative achievements of the Civil Rights Movement and toward the tail end of the postwar boom, he was hopeful that liberal democracy was progressing on a basically just, egalitarian path. But by the mid 1990s, he worried that liberal democracy was in decline. Edmundson quotes one of Rawls’s former students, the philosopher Joshua Cohen: “[Rawls’s] hopefulness has been shaken by the world. His feelings have soured.” While other liberals celebrated the end of history, Rawls was troubled by how private funding of elections allowed organized wealth to dominate the political process. Political liberties — like running for office, using free speech and association to affect legislation, and voting in fair elections — might be formally granted to all, but if the power of wealth superseded the power of ordinary people in determining political outcomes, these rights would not have “fair value” for all citizens. In Edmundson’s telling, the imperative to ensure fair value for all citizens’ political liberties was the central issue that drove him toward socialism. In the Restatement Rawls emphasized a longstanding aspect of his general theory, now called its “central organizing idea”: the notion of society as a fair system of social cooperation. While Milton Friedman viewed society as “akin to a game or lottery which everyone agrees to enter with the anticipation of winning a jackpot prize,” Rawls viewed society as a cooperative endeavor that should benefit everyone. For Rawls, social cooperation operates in tandem with a just legal order, itself upheld by a democratic state that all citizens have a fair chance to influence. But if the wealthy dominate the political system, the result is class domination rather than popular sovereignty — submission to commands rather than cooperation according to rules. A few decades earlier, Rawls had thought that welfare-state capitalism could approximate his ideal of a just society. After the damage wrought by the Reagan Revolution, he concluded that it could not. In his mature writings, Rawls argued that welfare-state capitalism’s central flaw is that it “permits a small class to have a near monopoly of the means of production.” This kind of control allows the few to “enact a system of law and property ensuring their dominant position, not only in politics, but throughout the economy.” While welfare-state capitalism’s commitment to redistribution implied “some concern” for equality of opportunity, the fact that it permits concentrations of power that corrode democracy not only means that it fails to protect political liberty: it “rejects the fair value of political liberties.” At the end of his career, Edmundson argues, Rawls was a socialist.

#### 2] Private exploration of space perpetuates inequities – exacerbates climate change and Musk has admitted he wants indentured servitude. Marx 20

Paris Marx (is a freelance writer, host of left-wing tech podcast Tech Won't Save Us, and editor of Radical Urbanist), 6-8-2020, "Yes to Space Exploration. No to Space Capitalism," Jacobin, <https://jacobinmag.com/2020/06/spacex-elon-musk-jeff-bezos-capitalism>, //hzheng

The space billionaires — Musk and Amazon CEO Jeff Bezos foremost among them — have little stake in the well-being of the majority of the population. Their space visions are designed for wealthy people like themselves, with little mention of where the working class would fit in. They’ve built their wealth on exploitation, and their visions of the future are little more than an extension of their present actions. The business practices of Musk and Bezos are increasingly well known and have been on clear display during the pandemic. Musk tried to claim Tesla’s Fremont, California factory was “essential” until authorities forced him to close it; then he reopened it in defiance of health orders. As Tesla CEO, Musk has a long history of opposing the unionization of workers, presiding over a high rate of worker injuries (which the company tried to cover up), and even having a former worker hacked and harassed after he became a whistleblower. Meanwhile, Bezos has a similar history of abusing Amazon workers. Amazon’s warehouses are known for having higher injury rates than the industry average, the company has fought unionization, and the stories of the terrible conditions experienced by workers are legendary. During the pandemic, that has continued, with the company failing to enforce social distancing or provide adequate protective equipment until workers began walking out, refusing to be open about infection information, and firing workers who dared criticize the company, all while Bezos’s wealth has increased by more than $30 billion. But it goes beyond that, because the worldviews of these billionaires began to be formed long before they started the empires they currently lord over. Musk did not have a regular childhood, but rather a wealthy upbringing in apartheid South Africa. His father was an engineer and owned part of an emerald mine in Zambia, telling Business Insider, “We were very wealthy. We had so much money at times we couldn’t even close our safe.” In Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future, Ashlee Vance describes how Musk got money from his father when he was starting one of his original ventures. He also had a particular admiration for his grandfather, who moved to apartheid South Africa from Canada after rallying “against government interference in the lives of individuals.” Bezos has a not dissimilar story. His father was a well-off oil engineer in Cuba while Fulgencio Batista was in power. In Bit Tyrants, Rob Larson explains that Bezos’s father left the island after the Cuban Revolution and passed his libertarian views down to his son. Bezos’s parents invested nearly $250,000 in Amazon in 1995 as it was getting started. These space barons made their billions through the exploitation of their workers and came from well-off backgrounds made possible from resource extraction. When digging into their visions for a future in space, it’s clear that they seek to extend these conditions into the cosmos, not challenge them in favor of space exploration for the benefit of all. Musk and Bezos are the leading drivers of the modern push to privatize and colonize space through their respective companies, SpaceX and Blue Origin. Their visions differ slightly, with Musk preferring to colonize Mars, while Bezos has more interest in building space colonies in orbit. In 2016, Musk claimed he would begin sending rockets to Mars in 2018. That never happened, but it hasn’t ended his obsession. Musk is determined to make humans a multi-planetary species, framing our choice as either space colonization or the risk of extinction. Bezos says that Earth is the best planet in our solar system, but if we don’t colonize space we doom ourselves to “stasis and rationing.” These framings serve the interests of these billionaires, and make it seem like colonizing space is an obvious and necessary choice when it isn’t. It ignores their personal culpability and the role of the capitalist system they seek to reproduce in causing the problems they say we need to flee in the first place. Billionaires have a much greater carbon footprint than ordinary people, with Musk flying his private jet all around the world as he claims to be an environmental champion. Amazon, meanwhile, is courting oil and gas companies with cloud services to make their business more efficient, and Tesla is selling a false vision of sustainability that purposely serves people like Musk, all while capitalism continues to drive the climate system toward the cliff edge. Colonizing space will not save us from billionaire-fueled climate dystopia. But these billionaires do not hide who would be served by their futures. Musk has given many figures for the cost of a ticket to Mars, but they’re never cheap. He told Vance the tickets would cost $500,000 to $1 million, a price at which he thinks “it’s highly likely that there will be a self-sustaining Martian colony.” However, the workers for such a colony clearly won’t be able to buy their own way. Rather, Musk tweeted a plan for Martian indentured servitude where workers would take on loans to pay for their tickets and pay them off later because “There will be a lot of jobs on Mars!” Bezos is even more open about how the workforce will have to expand to serve his vision, but has little to say about what they’ll be doing. His plan to maintain economic “growth and dynamism” requires the human population to grow to a trillion people. He claims this would create “a thousand Mozarts and a thousand Einsteins” who would live in space colonies that are supposed to house a million people each, with the surface of Earth being mainly for tourism. Meanwhile, industrial and mining work would move into orbit so as not to pollute the planet, and while he doesn’t explicitly acknowledge it, it’s likely that’s where you’ll find many of those trillion workers toiling for their space overlord and his descendants. In 1978, Murray Bookchin skewered a certain brand of futurism that sought to “extend the present into the future” and desired “multinational corporations to become multi-cosmic corporations.” Much of this future thinking obsesses about possible changes to technology, but seeks to preserve the existing social and economic relations — “the present as it exists today, projected, one hundred years from now,” as Bookchin put it. That’s at the core of the space billionaires’ vision for the future.

### Advantage

#### This isn’t offense under our framework but here’s a fun scenario:

#### New investments coming and companies are launching – economic incentives make it alluring. Tosar 20

Tosar 20 [(Borja Tosar, reporter) “Asteroid Mining: A New Space Race,” OpenMind BBVA, May 18, 2020, <https://www.bbvaopenmind.com/en/science/physics/asteroid-mining-a-new-space-race/>] TDI

This is not science fiction. There are now space mining companies, such as [Planetary Resources,](https://www.consensys.space/pr) which has already launched several mini-satellites to test several of its patents. Other companies like [Asteroid Mining Corporation](https://asteroidminingcorporation.co.uk/) or [Trans Astronautica Corporation,](https://www.transastracorp.com/) although still far from their goal, are already attracting millions of dollars of private investment interested in being on the front line of a possible future space business. Is asteroid mining possible? This new space race already began back when the Hayabusa missions successfully returned a few grams of an asteroid’s regolith, so the technology to harvest asteroid material exists, we just have to change the scale. It is no longer a technological problem. Is it economically viable? We are increasingly dependent on rare elements (such as those in the palladium group), which are expensive to exploit on Earth and come with a high environmental cost, so the sum of these two factors could make it profitable to travel to the asteroids to extract these raw materials. Astrophysicist Neil deGrasse argues that [the planet’s first trillionaire will undoubtedly be a space miner.](https://www.cnbc.com/2015/05/01/build-the-economy-here-on-earth-by-exploring-space-tyson.html)

#### Asteroid mining spikes the risk of satellite-dust collisions. Scoles 15

Scoles 15 [(Sarah Scoles, freelance science writer, contributor at Wired and Popular Science, author of the books Making Contact and They Are Already Here) “Dust from asteroid mining spells danger for satellites,” New Scientist, May 27, 2015, <https://www.newscientist.com/article/mg22630235-100-dust-from-asteroid-mining-spells-danger-for-satellites/>] TDI

* Study this is citing – Javier Roa, Space Dynamic Group, Applied Physics Department, Technical University of Madrid. Casey J Handmer, Theoretical Astrophysics, California Institute of Technology. Both PhD Candidates. “Quantifying hazards: asteroid disruption in lunar distant retrograde orbits,” arXiv, Cornell University, May 14, 2015, <https://arxiv.org/pdf/1505.03800.pdf>

NASA chose the second option for its [Asteroid Redirect Mission](http://www.nasa.gov/content/what-is-nasa-s-asteroid-redirect-mission/), which aims to [pluck a boulder from an asteroid’s surface](https://www.newscientist.com/article/dn27243-rock-grab-from-asteroid-will-aid-human-mission-to-mars) and relocate it to a stable orbit around the moon. But an asteroid’s gravity is so weak that it’s not hard for surface particles to escape into space. Now a new model warns that debris shed by such transplanted rocks could intrude where many defence and communication satellites live – in geosynchronous orbit. According to [Casey Handmer](http://www.caseyhandmer.com/) of the California Institute of Technology in Pasadena and Javier Roa of the Technical University of Madrid in Spain, 5 per cent of the escaped debris will end up in regions traversed by satellites. Over 10 years, it would cross geosynchronous orbit 63 times on average. A satellite in the wrong spot at the wrong time will suffer a damaging high-speed collision with that dust. The study also looks at the “catastrophic disruption” of an asteroid 5 metres across or bigger. Its total break-up into a pile of rubble would increase the risk to satellites by more than 30 per cent ([arxiv.org/abs/1505.03800](http://arxiv.org/abs/1505.03800)).

#### Space dust wrecks satellites and debris exponentially spirals. Intagliata 17

Intagliata 17 [(Christopher Intagliata, MA Journalism from NYU, Editor for NPRs All Things Considered, Reporter/Host for Scientific American’s 60 Second Science) “The Sneaky Danger of Space Dust,” Scientific American, May 11, 2017, <https://www.scientificamerican.com/podcast/episode/the-sneaky-danger-of-space-dust/>] TDI

When tiny particles of space debris slam into satellites, the collision could cause the emission of hardware-frying radiation, Christopher Intagliata reports. Aside from all the satellites, and the space station orbiting the Earth, there's a lot of trash circling the planet, too. Twenty-one thousand [baseball-sized chunks](https://www.scientificamerican.com/article/orbital-debris-space-fence/) of debris, [according to NASA](https://www.orbitaldebris.jsc.nasa.gov/faq.html). But that number's dwarfed by the number of small particles. There's hundreds of millions of those. "And those smaller particles tend to be going fast. Think of picking up a grain of sand at the beach, and that would be on the large side. But they're going 60 kilometers per second." Sigrid Close, an applied physicist and astronautical engineer at Stanford University. Close says that whereas mechanical damage—like punctures—is the worry with the bigger chunks, the dust-sized stuff might leave more insidious, invisible marks on satellites—by causing electrical damage. "We also think this phenomenon can be attributed to some of the failures and anomalies we see on orbit, that right now are basically tagged as 'unknown cause.'" Close and her colleague Alex Fletcher modeled this phenomenon mathematically, based on plasma physics behavior. And here's what they think happens. First, the dust slams into the spacecraft. Incredibly fast. It vaporizes and ionizes a bit of the ship—and itself. Which generates a cloud of ions and electrons, traveling at different speeds. And then: "It's like a spring action, the electrons are pulled back to the ions, ions are being pushed ahead a little bit. And then the electrons overshoot the ions, so they oscillate, and then they go back out again.” That movement of electrons creates a pulse of electromagnetic radiation, which Close says could be the culprit for some of that electrical damage to satellites. The study is in the journal Physics of Plasmas. [Alex C. Fletcher and Sigrid Close, [Particle-in-cell simulations of an RF emission mechanism associated with hypervelocity impact plasmas](http://aip.scitation.org/doi/full/10.1063/1.4980833)]

#### Earth observation satellites key to warming adaptation. Alonso 18

Alonso 18 [(Elisa Jiménez Alonso, communications consultant with Acclimatise, climate resilience organization) “Earth Observation of Increasing Importance for Climate Change Adaptation,” Acclimatise, May 2, 2018, <https://www.acclimatise.uk.com/2018/05/02/earth-observation-of-increasing-importance-for-climate-change-adaptation/>] TDI

Earth observation (EO) satellites are playing an increasingly important role in assessing climate change. By providing a constant and consistent stream of data about the state of the climate, EO is not just improving scientific outcomes but can also inform climate policy. Managing climate-related risks effectively requires accurate, robust, sustained, and wide-ranging climate information. Reliable observational climate data can help scientists test the accuracy of their models and improve the science of attributing certain events to climate change. Information based on projections from models and historic data can help decision makers plan and implement adaptation actions. Providing information in data-sparse regions Ground-based weather and climate monitoring systems only cover about 30% of the Earth’s surface. In many parts of the world such data is incomplete and patchy due to poorly maintained weather stations and a general lack of such facilities. EO satellites and rapidly improving satellite technology, especially data from open access programmes, offer a valuable source information for such data-sparse regions. This is especially important since countries and regions with a lack of climate data are often particularly vulnerable to climate change impacts. International efforts for systematic observation The importance of satellite-based observations is also recognised by the international community. Following the recommendations of the World Meteorological Organization’s (WMO) Global Climate Observing System (GCOS) programme, the UNFCCC strongly encourages countries that support space agencies with EO programmes to get involved in GCOS and support the programme’s implementation. The Paris Agreement highlights the need for and importance of effective and progressive responses to the threat of climate change based on the best available scientific knowledge. This implies that climate knowledge needs to be strengthened, which includes continuously improving systematic observations of the Earth’s climate. To meet the need of such systematic climate observations, GCOS developed the concept of the Essential Climate Variable, or ECV. According to WMO, an ECV “is a physical, chemical or biological variable or a group of linked variables that critically contributes to the characterization of Earth’ s climate.” In 2010, 50 ECVs which would help the work of the UNFCCC and IPCC were defined by GCOS. The ECVs, which can be seen below, were identified due to their relevance for characterising the climate system and its changes, the technical feasibility of observing or deriving them on a global scale, and their cost effectiveness. The 50 Essential Climate Variables as defined by GCOS. One effort supporting the systemic observation of the climate is the European Space Agency’s (ESA) Climate Change Initiative (CCI). The programme taps into its own and its member countries’ EO archives that have been established in the last three decades in order to provide a timely and adequate contribution to the ECV databases required by the UNFCCC. Robust evidence supporting climate risk management Earth observation satellites can observe the entire Earth on a daily basis (polar orbiting satellites) or continuously monitor the disk of Earth below them (geostationary satellites) maintaining a constant watch of the entire globe. Sensors can target any point on Earth even the most remote and inhospitable areas which helps monitor deforestation in vast tropical forests and the melting of the ice caps. Without insights offered by EO satellites there would not be enough evidence for decision makers to base their climate policies on, increasing the risk of maladaptation. Robust EO data is an invaluable resource for collecting climate information that can inform climate risk management and make it more effective.

#### Warming causes extinction and it’s try or die. Spratt 19

* Conventional models for warming assume that humans are the only polluters, but carbon that gets trapped underground or emitted and recycled by plants as part of their respiration pushes this to an immediate existential risk that would destroy all ecosystems, causing extinction absent an immediate reduction.

David Spratt, Research Director for Breakthrough National Centre for Climate Restoration, Ian Dunlop, member of the Club of Rome, formerly an international oil, gas and coal industry executive, chairman of the Australian Coal Association, May 2019, “Existential climate-related security risk: A scenario approach,” <https://docs.wixstatic.com/ugd/148cb0_b2c0c79dc4344b279bcf2365336ff23b.pdf>, //recut hzheng

An existential risk to civilisation is one posing permanent large negative consequences to humanity which may never be undone, either annihilating intelligent life or permanently and drastically curtailing its potential. With the commitments by nations to the 2015 Paris Agreement, the current path of warming is 3°C or more by 2100. But this figure does not include “long-term” carbon-cycle feedbacks, which are materially relevant now and in the near future due to the unprecedented rate at which human activity is perturbing the climate system. Taking these into account, the Paris path would lead to around 5°C of warming by 2100. Scientists warn that warming of 4°C is incompatible with an organised global community, is devastating to the majority of ecosystems, and has a high probability of not being stable. The World Bank says it may be “beyond adaptation”. But an existential threat may also exist for many peoples and regions at a significantly lower level of warming. In 2017, 3°C of warming was categorised as “catastrophic” with a warning that, on a path of unchecked emissions, low-probability, high-impact warming could be catastrophic by 2050. The Emeritus Director of the Potsdam Institute, Prof. Hans Joachim Schellnhuber, warns that “climate change is now reaching the end-game, where very soon humanity must choose between taking unprecedented action, or accepting that it has been left too late and bear the consequences.” He says that if we continue down the present path “there is a very big risk that we will just end our civilisation. The human species will survive somehow but we will destroy almost everything we have built up over the last two thousand years.”11 Unfortunately, conventional risk and probability analysis becomes useless in these circumstances because it excludes the full implications of outlier events and possibilities lurking at the fringes.12 Prudent risk-management means a tough, objective look at the real risks to which we are exposed, especially at those “fat-tail” events, which may have consequences that are damaging beyond quantification, and threaten the survival of human civilisation. Global warming projections display a “fat-tailed” distribution with a greater likelihood of warming that is well in excess of the average amount of warming predicted by climate models, and are of a higher probability than would be expected under typical statistical assumptions. More importantly, the risk lies disproportionately in the “fat-tail” outcomes, as illustrated in Figure 1.