

Resolved: The appropriation of outer space by private entities is unjust.

1AC

The standard is maximizing pleasure and minimizing pain.

1] Capitalist overconsumption causes extinction.

Nafeez **Ahmed**, Dr. Ahmed is a bestselling author, investigative journalist, international security scholar, policy expert, film-maker, strategy & communications consultant, and change activist, June 24, **2020** “Capitalism is Destroying ‘Safe Operating Space’ for Humanity, Warn Scientists”, <https://www.resilience.org/stories/2020-06-24/capitalism-is-destroying-safe-operating-space-for-humanity-warn-scientists/> (accessed: 07/08/21) // crosini

A landmark study in the journal Nature Communications, “Scientists’ warning on affluence” — by scientists in Australia, Switzerland and the UK — **concludes that the most fundamental driver of environmental destruction is the overconsumption of the super-rich.** This factor lies over and above other factors like fossil fuel consumption, industrial agriculture and deforestation: because it is overconsumption by the super-rich which is the chief driver of these other factors breaching key planetary boundaries. The paper notes that **the richest 10 percent of people are responsible for up to 43 percent of destructive global environmental impacts. In contrast, the poorest 10 percent in the world are responsible just around 5 percent of these environmental impacts:** The new paper is authored by Thomas Wiedmann of UNSW Sydney’s School of Civil and Environmental Engineering, Manfred Lenzen of the University of Sydney’s School of Physics, Lorenz T. Keyser of ETH Zürich’s Department of Environmental Systems Science, and Julia K. Steinberger of Leeds University’s School of Earth and Environment. **It confirm[ing]s that global structural inequalities in the distribution of wealth are intimately related to an escalating environmental crisis threatening the very existence of human societies.**

2] Space capitalism uses the guise of humanitarian tropes to further wealth inequality.

Victor L. **Shammas & Tomas B. Holen**, Shammas is a professor of Criminology and Sociology of Law at the University of Oslo and Holen is an Independent Scholar, **2019**, “One giant leap for capitalist kind: private enterprise in outer space”, <https://www.nature.com/articles/s41599-019-0218-9> (accessed: 07/08/21) // crosini

Outer space is becoming a space for capitalism. We are entering a new era of the commercialization of space, geared towards generating profits from satellite launches, space tourism, asteroid mining, and related ventures. This era, driven by private corporations such as Elon Musk’s SpaceX and Jeff Bezos’s Blue Origins, has been labeled by industry insiders as ‘NewSpace’—in contrast to ‘Old Space’, a Cold War-era mode of space relations when (allegedly) slow-moving, sluggish states dominated outer space. NewSpace marks the arrival of capitalism in space. While challenging the libertarian rhetoric of its proponents—space enterprises remain enmeshed in the state, relying on funding, physical infrastructure, technology transfers, regulatory frameworks, and symbolic support—NewSpace nevertheless heralds a novel form of human activity in space. **Despite its humanistic, universalizing pretensions, however, NewSpace does not benefit humankind as such but rather a specific set of wealthy entrepreneurs,** many of them originating in Silicon Valley, **who strategically deploy humanist**

tropes to engender enthusiasm for their activities. We describe this complex as 'capitalist kind'. Moreover, the arrival of capitalism in space is fueled by the expansionary logic of capital accumulation. Outer space serves as a spatial fix, allow[ing] capital to transcend its inherent terrestrial limitations. In this way, the ultimate spatial fix is perhaps (outer) space itself.

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My value is the **quality of life**, defined as a life's nature in terms of health, comfort, capabilities, and the ability to enjoy something according to [Britannica](#).

My criterion is **hedonistic utilitarianism**, a theory that explains that the right action is one that creates or has the highest possibility of creating the largest quantity of happiness for all concerned with the action according to [Internet Encyclopedia of Philosophy](#).

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Hedonistic utilitarianism measures the quality of life in terms of the standard of this case, maximizing pleasure and minimizing pain. Through using the right action to promote the most happiness, we are maximizing pleasure and minimizing pain. As a result of this, we are improving the quality of one's life. In terms of the resolution, we can maximize pleasure by stopping private entities from appropriating outer space.

Hence, the Plan: Private entities should not appropriate outer space.

1] Private actors have lower safety standards and do not cooperate with others.

Yuan 21 [Alda Yuan, Public Health Analyst U.S. Department of Health and Human Services and visiting attorney at the Environmental Law Institute with a JD from Yale, 2021, "FILLING THE VACUUM: ADAPTING INTERNATIONAL SPACE LAW TO MEET THE PRESSURES CREATED BY PRIVATE SPACE ENTERPRISES," Hein Online, <https://heinonline.org/HOL/P?h=hein.journals/denilp49&i=27>]/Kanke // crosini

c. Non-state Actors Introduce Practical Challenges that Endanger the Future of Space Travel If companies are permitted to access space without a proper legal framework or sufficient coordination, the practical risks may doom the project of humanity in outer space for the near future. The opening anecdote dramatized the risks, but the fact that a chain of cascading destruction might preclude the use of whole bands of outer space or make launches impossible is not farfetched. 99 Indeed, it is already happening.0 Because space missions always create debris and there is a correlation between the number of objects orbiting earth and the chances of collision, which thereby creates more debris, even no further activity in space will eventually result in a belt of debris encircling the earth.10 1 This cascade effect, called the Kessler Syndrome, 102 has the potential to speed up astronomically if activities in outer space expand without contingent regulation and mitigation measures.1 1 3 At current rates and in the absence of a catastrophic event, lower earth orbit, in particular, might reach a tipping point within the

next ten to fifty years.¹⁴ If the space debris problem is permitted to reach this tipping point, access to space may well be cut off for the near future because it will be impossible to launch satellites.¹⁵ Given that we do not have the technology to clean up debris yet, space travel faces an existential threat. In light of this, most space-faring states cooperate, working together to develop guidelines and pool resources to track the debris already orbiting the earth to minimize the chances of a collision.¹⁰⁶ Given the high speeds the debris travels at, approximately 10 km/second,¹⁰⁷ and the amount of damage even tiny pieces can do,¹⁰⁸ the existing tracking systems are not an absolute fix. At these speeds, a piece of debris weighing a mere two grams can produce an impact force equivalent to a kilogram of TNT.¹⁰⁹ More than three hundred thousand pieces of debris greater than one cm in diameter," and therefore capable of causing enormous damage, orbit the earth while the US Space Surveillance Network (SSN) system can only track objects over five cm in diameter." There are millions of fragments smaller than one cm, which are impossible to track and yet can still cause significant damage.¹¹² Still, the tracking system is important. In the last twenty years, the International Space Station has carried out several avoidance maneuvers to avoid potential collision with pieces of space debris being tracked by the SSN system.¹¹³ Between April of 2011 and April of 2012, the ISS performed four evasive maneuvers." ⁴ On two additional occasions, the crew fell back to the Soyuz since there was no time to set up an evasive maneuver." ⁵ This sort of cooperation works given the limited number of actors involved and the aligned interests of the nation-state parties. Commercial space companies do not have the same incentives to cooperate to share data and new technologies. This is why many have called for the creation of a new convention on managing orbital debris. ¹⁶ However, escalation of the Kessler Syndrome is not the only problem that might arise by failing to accommodate for the rise of the commercial corporations, so such a convention would not eliminate the threat. For instance, many satellites use nuclear power sources (NPS), which can break up upon reentry." As early as 1978, the Cosmos-954 incident scattered radioactive debris over Canada.¹¹⁸ Other accidents of this type could raise fallout concerns, especially if they occur over more densely populated regions. In an attempt to alleviate this risk and decrease the chances of collisions, various nations have cooperated to design and standardize methods of decommissioning satellites. ¹¹⁹ One strategy is to supply spacecraft with additional fuel and nudge it out of orbit so it will burn up in the atmosphere over the ocean. ¹²⁰ Another is to push the ailing satellite into a graveyard orbit. ¹²¹ These methods require additional research and design and incur additional costs. ¹²² Private companies may not spontaneously take the steps necessary to comport with the common practices of space-faring nations. Thus, the rise of private corporations, while opening up new possibilities, may also threaten space travel itself and the international legal order in which coordination currently occurs. The coordination necessary to prevent and manage the unique problems that arise in space requires a more pragmatic framework. Directly binding private non-state actors benefits the international community because it prevents abusive practices and permits the coordination of efforts that make space safer. However, it will also benefit the private sector by providing companies with a background legal structure, neutral dispute resolution, and common guidelines to even the playing field. More importantly, if companies not subject to regulation and oversight are permitted to operate in outer space, disasters cannot be effectively prevented. In that case, space exploration and the benefits stemming from it might be closed off for all. III. SPACE IS A GLOBAL COMMONS UNDER CUSTOMARY INTERNATIONAL LAW

2] Private companies overpopulate space, causing debris cascades.

Impey 21 [Chris Impey, professor of astronomy at the University of Arizona, 10-8-2021, "Is conflict in space inevitable?," TheHill, <https://thehill.com/opinion/international/575903-is-conflict-in-space-inevitable?rl=1>]/Kanke // crosini

The treaty prohibits weapons of mass destruction, but it says nothing about conventional weapons. Ownership is addressed by the U.N. Moon Treaty of 1979. It declares the Moon to be part of the common heritage of mankind and says lunar and other off-Earth resources are "not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." Unfortunately, the treaty is moot since none of the major space-faring powers signed it. Lawlessness and lack of regulation are showing an effect in the dramatic increase in space junk — the detritus of our activity in space. Chunks of metal that no longer serve a useful purpose include non-functional spacecraft, abandoned launch vehicles, cast-off materials from space missions and fragmentation debris. There are 23,000 pieces of debris larger than a softball orbiting the Earth, tracked by the Defense Department's space surveillance network. Estimates of smaller sizes are half a million the size of a marble or larger and 100 million a millimeter or larger. The problem is that they are all moving at extremely high speeds, up to 17,500 mph — and even a tiny fleck of paint can damage a spacecraft at that

speed. The situation is getting worse. As more satellites and spacecraft are launched and more obsolete hardware accumulates in orbit, the odds of collisions increase. Commercial space companies like SpaceX are planning to launch tens of thousands of satellites in the next decade to facilitate wireless Internet in parts of the world that currently have no coverage. Even before these plans, it was predicted that large collisions could cause cascading collisions, exponentially increasing the number and density of small pieces, and potentially rendering low Earth orbit completely unusable. This dire scenario is called the **Kessler syndrome**. The problem has an ominous overtone because world powers are arming themselves to take out each other's satellites, offensively or defensively. It is going to get increasingly difficult for a country to tell why their satellite went down or fell silent. Was it a collision with debris, space "weather," or a hostile action? No international treaty governs space debris. Mitigation strategies exist, but governments have been dragging their feet. Earth orbit is a new "tragedy of the commons," where we ruin something because we profit by exploiting it and cannot exclude others from doing the same. Space junk is a headache, but space weapons are a nightmare. China is a rapidly rising space power, with ambitious plans for a space station, a Moon base and a Mars base. Unlike the United States, where NASA is a civilian agency with plans available for scrutiny, China's space program is blended with its military and operates under a veil of secrecy. A recent report from the Office of the Director of National Intelligence said China is working on an array of capabilities to weaponize space, and it plans to "match or exceed U.S. capabilities in space to gain the military, economic, and prestige benefits that Washington has accrued from space leadership."

3] Reentry of satellites causes ozone depletion and climate change.

Organski et al. 21 [Lee Organski, graduate Aerospace Engineering student at Purdue University, Cayman Barber, Shawn Barkfelt, Madison Hobbs, Roy Nakagawa, Dr. Martin Ross, Dr. William Ailor, 2021, "Environmental Impacts of Satellites from Launch to Deorbit and the Green New Deal for the Space Enterprise," Aerospace Corporation, <https://aas.org/sites/default/files/2021-03/Viasat%20Ex%20Parte.pdf.pdf>]/Kanee // crosini

***GG: gigagram, 1000 grams or 1 metric ton

Conclusion There is substantial research and analysis focused on what may remain upon reentry and survive to reach the surface, but there is ostensibly no research into what happens to the remainder. Due to proposed mega constellations, we estimate the future annual mass flux of satellites to reenter the atmosphere to be 0.8 to 3.2 Gg, plus up to 1.0 Gg per year of launch vehicle mass needed to maintain these constellations, bringing a worst-case estimate to 4.2 Gg per year. It is concluded that the marked increase in these pollutants calls for the close tracking of mass flux, further research on the particulate distribution and radiative forcing, general research into reentry physics, and a study of possible solutions to mitigate the issue. With the potential for broad environmental policy in coming years, it is important to consider how such policy would extend to regulate and quantify the environmental impacts of the space enterprise. Mass Flux from Deorbit The max flux of future reentries is an order-of-magnitude issue, even when compared to peak reentry flux over the entire course of human spaceflight. An estimated 60% of rocket bodies and 60-90% of satellite mass is expected to burn up upon reentry, with aluminum likely making up much of the burnt-off mass (Ailor et al., 2019). As upper stratospheric pressures range below 100 Pa, the boiling point of aluminum could be around 1330 deg C, well within range of reentry temperatures (Li et al. 2019) such that aluminum could be vaporized or ignited to form aluminum oxides during reentry. Radiative Forcing and Ozone For a four-year residency time of reentry particulate, global residencies of alumina could reach up to 10 Gg at the steady state of mass satellite constellations. In this case, radiative forcing caused by reentering satellite particulate has the capability to warm Earth's atmosphere, but without precise modeling, the exact extent is unknown. Reentering space debris' ability to deplete ozone also poses a global threat because as it increases, so does ozone depletion from launch. The aircraft industry, despite having about the same relative impact on radiative forcing as rockets have on ozone depletion, is under policy pressure in the form of carbon taxes in an effort to reduce its impact (Ross et al. 2009). Satellite Reentry Distribution With the substantial burden of sub-micron particles entering the atmosphere, it is also possibly of importance to understand the distribution of the reentries of satellites with respect to the latitude. While stratospheric circulation will likely redistribute particles in a

difficult-to-predict manner, the initial loading latitudes may play a significant role in how heat is displaced. It is recommended to further investigate the impact of latitudinal distributions of reentries on a larger climate model. Top 10 Upcoming LEO Constellations

- Specific to private entities, these companies should no longer send additional satellites to space because the satellites currently in space sustain humanity's life.

4] Space debris can lead to extinction.

Freeland, 21 (Steven Freeland, Emeritus Professor Emeritus Professor, Western Sydney University; Professorial Fellow, Bond University; Co-Principal, specialised space law firm Azimuth Advisory; Director, International Institute of Space Law; Member, Space Law Committee of the International Law Association; Member, Space Law and War Crimes Committees of the International Bar Association; and Member, Australian Space Agency Advisory Board. He was recently appointed by the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) as Vice-Chair of a 5-year Working Group addressing issues related to space resources., 7-12-2021, accessed on 1-7-2022, ilareporter.org, "Space Debris: A Major Challenge for the Future of Humanity – Steven Freeland – ILA Reporter",

<https://ilareporter.org.au/2021/07/space-debris-a-major-challenge-for-the-future-of-humanity-steven-freeland/>) // crosini

Increasing Space Debris The 'spacescape' is evolving rapidly, **present[ing]** a much broader range of space 'actors' with opportunities, but also **significant challenges**. Most notably, **space debris has emerged as a pressing global threat**, warranting an urgent coordinated multilateral response. **The European Space Agency has estimated that there are, in the Earth's orbit, more than 128 million pieces of debris smaller than 1 cm, about 900,000 pieces of debris 1–10 cm in length, and around 34,000 of pieces larger than 10 cm.** Yet, with current technology, we are only capable of 'tracking' the latter category. Given the high orbital velocity of objects in space, **any collision – either with debris or a 'live' satellite – could create thousands more pieces of debris.** These could in turn **result in more collisions and yet more debris**, potentially **triggering an exponential increase in debris known as the 'Kessler Effect', which suggest[ing]s that we could eventually see a 'debris belt' around the Earth, making space less accessible, navigable and sustainable.**

What Constitutes Space Debris? Space debris principally comprises those space objects (satellites) that have reached their end of life, various launch stages (for example, rocket bodies, upper stages of launch vehicles) and the remnants of space objects from explosions, collisions or deliberate destruction, but also includes other items that are deliberately or accidentally released during a space mission. Although the volume of space debris orbiting the Earth has given rise to significant concern and debate at the international level, there is no globally agreed and legally binding definition of orbital space debris. However, UNCOPUOS considers space debris, incorporating debris both in Earth orbit but also in the process of 'de-orbiting', as: 'all man-made objects including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional'. Risks in Outer Space ... In recent times, we have seen collisions and 'near collisions' in space. In 2009, for example, an operational American commercial satellite (Iridium 33) and an inactive Russian communications satellite (Kosmos 2251) collided approximately 790 km above the Earth, resulting in the total destruction of both. In late January 2020, we all watched helplessly as two large 'dead' satellites – IRAS and GGSE-4 – passed within metres of each other. NASA has at various times been forced to move the International Space Station (ISS) when it calculates a higher-than-normal risk of collision with debris.

... as well as in Airtspace and on Earth **Space debris can also plummet back to Earth. In 2007, pieces of debris from a Russian satellite narrowly missed a Chilean passenger plane flying between Santiago and Auckland. In 1979, the 77-tonne US space station Skylab disintegrated over Western Australia, peppering the area around the southern coastal town of Esperance with fragments. Only a few months ago, we witnessed the uncontrolled re-entry of large pieces of debris from a Chinese Long March 5B rocket that landed in the ocean off the coast of the Maldives. Although there have been no recorded deaths or serious injuries from people being hit by space debris, there are clear risks. Just one year before Skylab's demise, a Soviet remote sensing satellite, Cosmos 954, plummeted into a barren region of Canada's Northwest**

Territories, spreading radioactive debris over several hundred square kilometres. It was just a quirk of fate that Cosmos 954 did not land on Toronto or Quebec City, where the radioactive fallout would have necessitated a large-scale evacuation.

It gets even more complicated Adding to the complexities, in 2007 and 2008 respectively, both China and the United States demonstrated their ability to deliberately destroy their own satellites in space. More recently, in March 2019, India kinetically destroyed one of its own satellites, which gave rise to significant political debate within the Legal Subcommittee of UNCOPUOS, which met only four days later. Moreover, the problem of space debris has taken on an even greater urgency as more large commercial constellations of small satellites are launched. Indeed, if the well-publicised plans of just a few large corporations come to fruition, the number of objects launched into space over the coming 5-10 years will dwarf by a factor of up to ten times the total number launched over the more than six decades since the first human-made object (Sputnik 1) was sent into orbit in 1957. Clearly, the more 'crowded' space becomes, particularly in 'popular' orbits, the greater the possibility/probability of collision. How Does Space Law Apply? Space is an area beyond national jurisdiction. Like the high seas, it is governed through international law. Two of the UN space treaties, the OST and the 1972 Liability Convention, establish a compensation regime that would apply in many circumstances of damage caused by space debris falling to Earth, as well as when satellites collide in space. This legal regime imposes liability on 'launching States' for damage caused by their space objects, which includes an absolute liability regime when they crash to Earth as debris, or on a fault basis when two space objects collide. This liability under international space law is therefore imposed on countries, even where the space object/debris that causes the damage is privately owned and/or operated. The Liability Convention has only been previously invoked once (for the Cosmos 954 incident) and therefore may not be regarded as a powerful disincentive. However, it is likely to increasingly come into play in the future in a more crowded space environment, and with more uncontrolled re-entries. Of course, this legal framework applies only after the damage occurs. In addition, there are other relevant non-binding 'rules of the road' dealing with space governance that have been agreed through UNCOPUOS, including practical guidelines for debris mitigation and the long-term sustainability of space activities. 'Non-Legal' Considerations Beyond the legal requirements, **the challenges posed by space**

debris raise complex questions of a policy, geopolitical, economic, and societal nature, some of which bear

similarities to the discussions regarding the causes and effects of climate change. For example, who bears responsibility for the increasing proliferation of space debris, both past, present and future? Is there an obligation to remove debris, recognising how technically challenging (and hazardous) this might be? Who should pay for past, present and future pollution? What rights do non-spacefaring nations have in discussions, given that they are also dependent on access to space technology (through their relationships with other countries/organisations)? And if a State or private enterprise develops the capability to, for example, remove or deflect space debris – and many companies are currently developing and testing such technologies – some countries worry that this technology could also be used as a means to remove or deflect 'live' satellites upon which they are dependent. A Path Forward? The future of humanity is inextricably tied to our ability to ensure a viable long-term future for space activities. Space debris represents one of the greatest challenges for the ongoing sustainability of space activities. A 'business-as-usual' approach will not be feasible going forward. Significant issues must be addressed, which will require a change of mindset (how to determine what will be an 'appropriate' space activity?), multilateral cooperation (notwithstanding existing terrestrial geopolitical tensions and differences), the development of a globally coordinated space traffic management system, and a recognition that, in the end, all countries have a common interest in not crossing certain red lines that would irreversibly compromise the stability, safety and sustainability of space for current and future generations.

5] Private launches increase warming.

Heilweil, 21 (Rebecca Heilweil, reporter covering emerging technologies, 7-25-2021, accessed on 1-5-2022, Vox, "How bad is private space travel for the environment and other key questions, answered",

<https://www.vox.com/recode/22589197/space-travel-tourism-bezos-branson-rockets-blue-origin-virgin-galactic-spacex>) // crosini

For many, the rise of commercial space tourism is a vulgar display of wealth and power. Amid several global crises, including climate change and a pandemic, billionaires are spending their cash on launching themselves into space for fun. When Amazon founder Jeff Bezos told reporters after his first space tourism trip on Tuesday that Amazon customers and employees had "paid" for his flight, that only intensified that criticism. But critics won't deter Bezos and the other superrich. Space tourism is now a reality for the people who can afford it — and it will have repercussions for everyone on Earth. In fact, all signs indicate that the market for these trips is already big enough that they'll keep happening. Jeff Bezos's spaceflight company Blue Origin already has two more trips scheduled later this year, while Virgin Galactic, the space firm founded by billionaire Richard Branson, has at least 600 people who have already paid around \$250,000 each for future tickets on its spaceplane. Now, as the commercial space tourism market (literally) gets off the ground, there are big questions facing future space travelers — and everyone else on the planet. Here are answers to the six biggest ones. 1. What will people actually be able to see and experience on a space trip? The biggest perk of traveling to space is the view. Just past the boundary between space and Earth, passengers can catch a stunning glimpse of our planet juxtaposed against the wide unknown of space. If a passenger is riding on a Virgin Galactic flight, they will get about 53 miles above sea level. Blue Origin riders will get a little bit higher, about 62 miles above sea level and past the Kármán line, the internationally recognized boundary between Earth and space. Overall, the experience on both flights is pretty similar. The view is meant to be awe-inducing, and the experience even has its own name: the Overview Effect. "When you see Earth from that high up, it changes your perspective on things and how interconnected we are and how we squander that here on Earth," Wendy Whitman Cobb, a professor at the US Air Force's School of Advanced Air and Space Studies, told Recode. Another perk of these trips is that space tourists will feel a few minutes of microgravity, which is when gravity feels extremely weak. That will give them the chance to bounce around a spacecraft weightlessly before heading back to Earth. But Blue Origin's and Virgin Galactic's flights are relatively brief — about 10 and 90 minutes long, respectively. Other space tourism flights from SpaceX, the space company founded by Elon Musk, will have more to offer. This fall, billionaire Jared Isaacman, who founded the company Shift4 Payments, will pilot SpaceX's first all-civilian flight, the Inspiration4, which will spend several days in orbit around Earth. In the coming years, the company has also planned private missions to the International Space Station, as well as a trip around the moon. These trips are meant to be enjoyed by space nerds who longed to be astronauts. But there's another reason rich people want to go to space: demonstrating exclusivity and conspicuous consumption. More than a few people can afford a trip to Venice or the Maldives. But how many people are privileged enough to take a trip to space? "What a nice way of showing off these days than to post a picture on Instagram from space," Sridhar Tayur, a Carnegie Mellon business professor, told Recode. 2. Does commercial space travel have any scientific goals, or is it really just a joyride? Right now, space tourism flights from Virgin Galactic and Blue Origin have only reached suborbital space, which means that flights enter space but do not enter orbit around Earth. Scientifically, that's not a new frontier. Though these current flights use new technology, suborbital flight with humans aboard was accomplished by NASA back in the early 1960s, Matthew Hersch, a historian of technology at Harvard, told Recode. Right now, it's not clear these trips will offer scientists major new insights, but they might provide information that could be used in the future for space exploration. In fact, these trips are also being marketed as potential opportunities for scientific experiments. For instance, the most recent Virgin Galactic flight

carried plants and tested how they responded to microgravity. These private companies primarily see opportunities in their commercial vehicles that can be reused at scale, which will allow the same rockets (or in Virgin Galactic's case, spaceplanes) to go to space again and again, which lowers the overall cost of space tourism. Billionaires and their private space companies also see the development of these rockets as an opportunity to prepare for flights that will do even more, and go even farther, into space. Bezos, for instance, has argued that New Shepard's suborbital flights will help prepare the company's future missions, including its New Glenn rocket, which is meant for orbital space. "The fact of the matter is, the architecture and the technology we have chosen is complete overkill for a suborbital tourism mission," Bezos said at Tuesday's post-launch briefing. "We have chosen the vertical landing architecture. Why did we do that? Because it scales." Beyond potential scientific advancements in the future, suborbital spaceflight might also create new ways to travel from one place on earth to another. SpaceX, for instance, has advertised that long-haul flights could be shortened to just 30 minutes by traveling through space. 3. Is it safe? Right now, it's not entirely clear just how risky space tourism is. One way space tourism companies are trying to keep travelers safe is by requiring training so that the people who are taking a brief sojourn off Earth are as prepared as possible. On the flight, people can experience intense altitude and G-forces. "This is sustained G-forces on your body, upwards of what can be 6 G in one direction — which is six times your body weight for upwards of 20 or 30 seconds," Glenn King, the chief operating officer of the Nastar Center — the aerospace physiology training center that prepared Richard Branson for his flights — told Recode. "That's a long time when you have six people, or your weight, pressing down on you." There's also the chance that space tourists will be exposed to radiation, though that risk depends on how long you're in space. "It's a risk, especially more for the orbital flight than sub-orbital," explains Whitman Cobb. "Going up in an airplane exposes you to a higher amount of radiation than you would get here on the ground." She also warns that some tourists will likely barf on the ride. There doesn't seem to be an age limit on who can travel, though. The most recent Blue Origin flight included both the youngest person to ever travel to space, an 18-year-old Dutch teenager, as well as the oldest: 82-year-old pilot Wally Funk. 4. How much will tickets cost? The leaders in commercial space tourism already claim they have a market to support the industry. While Bezos hinted on Tuesday the price would eventually come down — as eventually happened with the high prices of the nascent airline industry — for now, ticket prices are in the low hundreds of thousands, at least for Virgin Galactic. That price point would keep spaceflight out of reach for most of humanity, but there are enough interested rich people that space tourism seems to be economically feasible. "If you bring it down to \$250,000, the wait times [to buy a ticket] will be very long," Tayur, of Carnegie Mellon, told Recode. 5. What impact will commercial space travel have on the environment? **The emissions of a flight to space can be worse than those of a typical airplane flight because just a few people hop aboard one of these flights, so the emissions per passenger are much higher. That pollution could become much worse if space tourism becomes more popular. Virgin Galactic alone eventually aims to launch 400 of these flights annually. "The carbon footprint of launching yourself into space in one of these rockets is incredibly high, close to about 100 times higher than if you took a long-haul flight," Eloise Marais, a physical geography professor at the University College London, told Recode. "It's incredibly problematic if we want to be environmentally conscious and consider our carbon footprint."** These flights' effects on the environment will differ depending on factors like the fuel they use, the energy required to

manufacture that fuel, and where they're headed — and all these factors make it difficult to model their environmental impact. For instance, Jeff Bezos has argued that the liquid hydrogen and oxygen fuel Blue Origin uses is less damaging to the environment than the other space competitors (technically, his flight didn't release carbon dioxide), but experts told Recode it could still have significant environmental effects. **There are also other risks we need to keep studying, including the release of soot that could hurt the stratosphere and the ozone. A study from 2010 found that the soot released by 1,000 space tourism flights could warm Antarctica by nearly 1 degree Celsius.** "There are

some risks that are unknown," Paul Peeters, a tourism sustainability professor at the Breda University of Applied Sciences, told Recode. "We should do much more work to assess those risks and make sure that they do not occur or to alleviate them somehow — before you start this space tourism business."

Overall, he **thinks the environmental costs are reason enough not to take such a trip.** 6. Who is regulating commercial space travel? Right now, the Federal Aviation Administration (FAA) has generally been given the job of overseeing the commercial space industry. But regulation of space is still relatively meager. One of the biggest areas of concern is licensing launches and making sure that space flights don't end up hitting all the other flying vehicles humans launch into the sky, like planes and drones. Just this June, a SpaceX flight was held up after a helicopter flew into the zone of the launch. There's a lot that still needs to be worked out, especially as there are more of these launches. On Thursday, the Senate hosted a hearing with leaders of the commercial space industry focused on overseeing the growing amount of civil space traffic. At the same time, the FAA is also overseeing a surging number of spaceports — essentially airports for spaceflight — and making sure there's enough space for them to safely set up their launches. But there are other areas where the government could step in. "I think the cybersecurity aspect will also play a very vital role, so that people don't get hacked," Tayur said. The FAA told Recode that the agency has participated in developing national principles for space cybersecurity, but Congress hasn't given it a specific role in looking at the cybersecurity of space. At some point, the government might also step in to regulate the environmental impact of these flights, too, but that's not something the FAA currently has jurisdiction over. In the meantime, no government agency is currently vetting these companies when it comes to the safety of the human passengers aboard. An FAA official confirmed with Recode that while the agency is awarding licenses to companies to carry humans to space, they're not actually confirming that these trips are safe. That's jurisdiction Congress won't give the agency until 2023. There doesn't seem to be an abundance of travelers' insurance policies for space. "Passengers basically sign that they're waiving all their rights," Whitman Cobb said. "You're acknowledging that risk and doing it yourself right now." So fair warning, if you decide to shell out hundreds of thousands of dollars for a joyride to space: You'd likely have to accept all responsibility if you get hurt.

6] Global warming/climate change may cause human extinction by 2050.

Pascus, 19 (Brian Pascus, CBS News reporter, 6-4-2019, accessed on 1-7-2022, No Publication Found, "Climate change report: Human civilization at risk by 2050, according to new Australian climate change analysis", <https://www.cbsnews.com/news/new-climate-change-report-human-civilization-at-risk-extinction-by-2050-new-australian-climate/>) // crosini

A new report by Australian climate experts warns that "climate change now represents a near- to mid-term existential threat" to human civilization. In this grim forecast — which was endorsed by the former chief of the Australian Defense Force — human civilization could end by 2050 due to the destabilizing societal and environmental factors caused by a rapidly warming planet. The report, entitled "Existential climate-related security risk: A scenario approach," lays out a future where society could collapse due to instability set off by migration patterns of billions of people affected by drought, rising sea levels, and environmental destruction. "Climate-change impacts on food and water systems, declining crop yields and rising food prices driven by drought, wildfire and harvest failures have already become catalysts for social breakdown and conflict across the Middle East, the Maghreb and the Sahel, contributing to the European migration crisis," the report said. The report was written by David Spratt, research director for Breakthrough National Centre for Climate Restoration in Melbourne, and Ian T. Dunlop, formerly an international oil, gas and coal industry executive and chair of the Australian Coal Association. Retired Admiral Chris Barrie, former defense forces chief of Australia, endorsed the report and wrote a forward to it. "After nuclear war, human induced global warming is the greatest threat to human life on the planet," Barrie wrote. Using a worst-case scenario existential risk analysis, Spratt and Dunlop depict humanity falling into ruin under an additional 2 degrees Celsius of warming — a threshold scientists say the world is heading towards if current trends continue. In their scenario, "tipping points" occur when humanity fails to institute carbon emission reforms in the 2020s and 2030s. This creates a "hothouse" effect on Earth, leading to rapidly rising sea levels set off by melting of the Greenland Ice Sheet and "widespread permafrost loss and large-scale Amazon drought and dieback." In this scenario, the "hothouse Earth" effect causes "35 percent of the global land area, and 55 percent of the global population, (to be) subject to more than 20 days a year of lethal heat conditions, beyond the threshold of human survivability." Ecosystems collapse, including coral reef systems, the Amazon rainforest and the Arctic, along with a massive die-off of the insect population. As a result, the authors say, some of the world's most populated cities — Mumbai, Jakarta, Guangzhou, Tianjin, Hong Kong, Ho Chi Minh City, Shanghai, Lagos, Bangkok and Manila — would have to be abandoned due to their location in the tropical zone. The assessment ends with a harrowing conclusion: "More than a billion people may need to be relocated and in high-end scenarios, the scale of destruction is beyond our capacity to model, with a high likelihood of human civilization coming to an end." The report also paints a grim picture in terms of national security, with extreme climate conditions and the disruption of huge populations placing "the internal cohesion of nations ... under great stress." "The flooding of coastal communities around the world, especially in the Netherlands, the United States, South Asia, and China, has the potential to challenge regional and even national identities," the report warns. "Armed conflict between nations over resources, such as the Nile and its tributaries, is likely and nuclear war is possible. The social consequences range from increased religious fervor to outright chaos." Spratt and Dunlop do offer some solutions. They point to the national security sectors of the world's major powers and argue they could play a unique role in mobilizing society, similar in scale to the emergency response World War II required of people and governments in the 1940s. "To reduce such risks and to sustain human civilization, it is essential to build a zero emissions industrial system very quickly. This requires the global mobilization of resources on an emergency basis, akin to a wartime level of response," the report reads. "The national security sector has unrivaled experience and capacity in such mobilization, and can play a unique role in its development and implementation, as well as educating policymakers of the existential security risks in failing to do so."

7] Capitalist expansion into space cannot solve extinction.

Paris **Marx**, Marx is a socialist writer and host of the Tech Won't Save Us podcast, June 08, **2020**, “Yes to Space Exploration. No to Space Capitalism.”,
<https://jacobinmag.com/2020/06/spacex-elon-musk-jeff-bezos-capitalism> (accessed: 07/08/21) // crosini

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!”

8] The appropriation of space by private entities is led by billionaires that have made their wealth through the exploitation of the masses.

Paris **Marx**, Marx is a socialist writer and host of the Tech Won't Save Us podcast, June 08, **2020**, “Yes to Space Exploration. No to Space Capitalism.”,
<https://jacobinmag.com/2020/06/spacex-elon-musk-jeff-bezos-capitalism> (accessed: 07/08/21) // crosini

On May 30, SpaceX finally launched astronauts into space more than two years behind schedule. President Donald Trump was on hand for the launch. After pushing for the militarization of space with the formation of the US Space Force, Trump fused his own vision with that of SpaceX founder Elon Musk, declaring, “We'll soon be landing on Mars and we'll soon have the greatest weapons ever imagined in history.” Early in Trump's presidency, Musk faced criticism for being part of the administration's advisory council and refusing to step down even as Trump signed his signature Muslim ban. It was believed Musk was hoping to benefit from greater public subsidies, on top of the billions NASA gave to SpaceX, and he's set to do so as part of Trump's plan to get astronauts back on the moon by 2024. More recently, the two have found themselves of the same mind on the pandemic as they shared misleading health information and Musk echoed Trump's calls to “open the economy” and give people their “freedom” back. The May 30 launch symbolized both Trump's desire to project an image of revived American greatness and Musk's need not only to bolster the myth that makes his wealth possible, but to set the foundations for a privatized space industry. 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.

9] Capitalism is ineffective, unsustainable, and unjust.

George **Monbiot**, Monbiot is a Guardian columnist and the author of *Feral*, *The Age of Consent* and *Out of the Wreckage: a New Politics for an Age of Crisis*, April 25, **2019**, “Dare to declare capitalism dead – before it takes us all down with it”,
<https://www.theguardian.com/commentisfree/2019/apr/25/capitalism-economic-system-survival-earth>
(accessed: 07/08/21) // crosini

But as I’ve grown older, I’ve come to recognise two things. First, that it is the system, rather than any variant of the system, that drives us inexorably towards disaster. Second, that you do not have to produce a definitive alternative to say that capitalism is failing. The statement stands in its own right. But it also demands another, and different, effort to develop a new system. Capitalism’s failures arise from two of its defining elements. The first is perpetual growth. Economic growth is the aggregate effect of the quest to accumulate capital and extract profit. Capitalism collapses without growth, yet perpetual growth on a finite planet [which] leads inexorably to environmental calamity. Those who defend capitalism argue that, as consumption switches from goods to services, economic growth can be decoupled from the use of material resources.

Last week a paper in the journal *New Political Economy*, by Jason Hickel and Giorgos Kallis, examined this premise. They found that while some relative decoupling took place in the 20th century (material resource consumption grew, but not as quickly as economic growth), in the 21st century there has been a recoupling: rising resource consumption has so far matched or exceeded the rate of economic growth. The absolute decoupling needed to avert environmental catastrophe (a reduction in material resource use) has never been achieved, and appears impossible while economic growth continues. Green growth is an illusion. A system based on perpetual growth cannot function without peripheries and externalities. There must always be an extraction zone – from which materials are taken without full payment – and a disposal zone, where costs are dumped in the form of waste and pollution. As the scale of economic activity increases until capitalism affects everything, from the atmosphere to the deep ocean floor, the entire planet becomes a sacrifice zone: we all inhabit the periphery of the profit-making machine. This drives us towards cataclysm on such a scale that most people have no means of imagining it. The threatened collapse of our life-support systems is bigger by far than war, famine, pestilence or economic crisis, though it is likely to incorporate all four. Societies can recover from these

apocalyptic events, but not from the loss of soil, an abundant biosphere and a habitable climate. The second defining element is [and] the bizarre assumption that a person is entitled to as great a share of the world’s natural wealth as their money can buy. Th[e]is seizure of common goods causes three further dislocations. First, the scramble for exclusive control of non-reproducible assets, which implies either violence or legislative truncations of other people’s rights. Second, the immiseration of other people by an economy based on looting across both space and time. Third, the translation of economic power into political power, as control over essential resources leads to control over the social relations that surround them.

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- 1] No private entities in space solves overpopulation.
- 2] Many would be harmed with space commercialization.
- 3] Satellite reentry is dangerous.
- 4] Only the incredibly wealthy are benefiting from capitalism and cannot prevent extinction.

Therefore, you must affirm the resolution.