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Leviathan in the exploration and sustainability of the outer space

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Abstract
In a state where there are no strong rules or laws that guides the conduct of people, it might turn out to be bloody which in effect can enter into the state of anarchy. In international relations theory, the concept of anarchy is the idea that the world lacks any supreme authority or sovereignty. In an anarchic state, there is no hierarchically superior, coercive power that can resolve disputes, enforce law, or order the system of international politics. In this same regard, if the outer space is devoid of such superior and strong authority and policy to enforce laws, combats, the use of powerful weapons such as the antisatellite weapons and power struggle and the increase in space debris become inevitable regardless of the existing treaty or agreement which is less difficult to violate. There are many voids in space law, and methods to effectively govern different aspects of space activities are not directly addressed in most national and international regulations. Therefore, this article suggests that the effectiveness, the sustainability of the exploration of the outer space will need a strong entity or cooperation like a leviathan to ensure the enforcement and enactments of effective policies of the International space law in the outer space.

Keywords: Leviathan, space governance, international space law space exploration, sustainability

Introduction

This article emphasizes the role of a strong entity or collaboration whose laws will be enforceable and complied by in the outer space without too many restraints from other states and even private actors. The word Leviathan is borrowed from Thomas Hobbes's idea of a strong entity.

A leviathan and what its represents

Famous in mythology and theology, the Leviathan is a sea snake. Numerous Hebrew Bible writings make mention to it, including the Psalms, the Book of Job, the Book of Isaiah, and the pseudoepigraphical Book of Enoch in particular. Thomas Hobbes (1588-1679) wrote a book known as Leviathan, or The Matter, Forme and Power of a Commonwealth Ecclesiastical and Civil. It was first published in 1651 (with a revised Latin edition issued in 1668). The text is considered to be one of the first and most significant examples of social contract theory, and it addresses the structure of society and legitimate government [1]. It was written during the English Civil War (1642–1651) and makes the case for absolute sovereign control and a social compact.

According to Hobbes, only a powerful, unified government could prevent civil conflict and the harsh conditions of a state of nature, sometimes known as "the war of all against all."

One of the most well-known political theories of the ancient Greek philosopher Aristotle (384–322 BCE) is rejected by Hobbes in Leviathan. This theory holds that people are predisposed to live in polises (city-states) and do not completely realize their potential as citizens. Hobbes disputes Aristotle's assertion, stating that people are inherently unfit for political life [2].

They think far more highly of themselves than of other people, are easily influenced by the language of ambitious individuals, and instinctively disparage and compete with one another. To put it briefly, their passions make their own interests—especially those that they can pursue immediately—more important than they otherwise would. On the other hand, most people lack the ability to outperform rivals when pursuing their own objectives.

Furthermore, they are unable to make an argument based on some inherent, widely accepted code of conduct that everyone will feel compelled to follow. Even among humans with moderate desires, there is no inherent self-control because there are a few vicious and bloodthirsty people who can drive even the moderate to resort to violent preemptive measures in order to protect their livelihood. Therefore, even moderate people's self-control can readily degenerate into hostility. Put another way, no human being is immune to hostility and the ensuing anarchy or disorder.

War comes more naturally to human beings than political order, according to Hobbes. Indeed, political order is possible only when human beings abandon their natural condition of judging and pursuing what seems best to each and delegate this judgment to someone else. This delegation is effected when the many contract together to submit to a sovereign in return for physical safety and a modicum of well-being. This goes to states and other private actors that have or are willing to explore the outer space for their own gain by competing with each other in order to gain a tremendous political influence and power in the outer space voyage [3].

1. The state of nature according to thomas hobbes

In ethics, political philosophy, social contract theory, religion, and international law, the term state of nature represents the hypothetical way of life that existed before humans organised themselves into societies or civilizations [4]. The English philosopher Thomas Hobbes (17th century) characterised "the natural condition of mankind" as the pure state of nature in Leviathan and his earlier book De Cive [5]. As a result, Hobbes argued, "during the time men live without a common power to keep them all in awe, they are in that condition which is called war; and such a war as is of every man against every man" (Leviathan, Chapters XIII–XIV).

Hobbes described this natural condition with the Latin phrase "bellum omnium contra omnes," meaning "war of all against all." Thus, everyone must live in constant fear of loss or violence. There is no such thing as personal property or injustice in the state of nature because there are only a few natural precepts that reason has discovered, or "laws of nature"; these include the following: "that every man ought to endeavour peace, as far as he has hope of obtaining it" (Leviathan, Ch. XIV); "that a man be willing, when others are so too, as far forward as for peace and defence of himself he shall think it necessary, to lay down this right to all things; and be content with so much liberty against other men as he would allow other men against himself"(*loc. cit.*).
Hobbes thought that a powerful political force, which he dubbed Leviathan, was necessary because of humanity's vicious self-interest. From this point on, Hobbes created the path from the natural condition into a political society based on agreements between people.
Hobbes holds that the natural state of autonomous nations, over which no laws exist other than those same natural precepts or laws, existing at all times (Leviathan, Chapters XIII, XXX end). His understanding of the natural world provided a foundation for theories pertaining to international law, relations, and even some domestic relations theories [6].

2. The nature of states

"Space politics" has been a part of all politics, in one way or another. Allowing a central authority to exercise its influence over a dispersed, typically growing population is the common role of political power. In general, the difficulty of performing this increases with the distances involved [7].
Space exploration is a part of a historical continuum that spans human history from the dawn of humanity to the present. When we consider space travel from this angle, we discover things about human nature as well as human history. Stated differently, one of the main advantages, both theoretical and practical, of mapping out new spheres in space is the creation of new legal, political, military, economic, or intellectual - is that it helps us comprehend the terrestrial conditions that form the foundation of human society better. These factors were previously overlooked since they seemed to be constant aspects of our life. But these unquestionable elements—terrestrial gravity, for instance—have shaped the nature of humanity over time. Man is inevitably a political animal that goes too far. Bold leaders like Napoleon Bonaparte, Henry the Navigator, and Alexander the Great have historically acted on a range of impulses and went beyond the boundaries that were assigned to them.
They occasionally moved for tactical purposes, like as outflanking adversaries or avoiding being outflanked themselves. There were occasions when profit—the desire for wealth or trade—was the driving force. For example, Columbus sought to circumvent the Portugese, who by the end of the fifteenth century had come to control the passage around the Cape of Good Hope, by finding a "short," transoceanic path to the Orient and the riches of Cathay.
Science has been moving forward at an ever-increasing rate, which has not only made physical flight possible but also encouraged human imagination. This has allowed man to expand his activities throughout space. “This is a new ocean, and I believe the United States must sail upon it,” said John F. Kennedy, announcing the promise of the fledgling American space program. Kennedy didn't use the word "ocean" casually. The message was meant to convey that the American space program was basically the same as earlier American incursions into uncharted territory [8]. During their process of growth, governments have frequently attempted to impose legal and political structures that, for the most part, originated in narrow geographic areas.

The power struggle in outer space

Since the launch of the first artificial satellite, Sputnik, by the Soviet Union in 1957, outer space activities have increased significantly. Having space capabilities is no longer a mere luxury for states but is becoming an increasingly important national development and security tool even for developing states [9]. Moreover, in contrast with the early years of space flight that were dominated by the political priorities and military concerns of the two superpowers, the United States of America (USA) and the then Soviet Union [10], a new space era has dawned where not only states are involved as serious actors in the space arena but also private companies [11].
Their activities include deploying communication satellites, providing launch services, transporting goods and astronauts to the International Space Station [12] and developing technologies for space tourism [13] and outer space settlements. In recent years the economic value of space resources on celestial bodies has become the particular impetus for "the current space race among numerous nations and private enterprises" [14]. Because of the significant increase in the number of space actors, outer space is becoming a congested and competitive environment.
It is self-evident that the significant increase in private and state-sponsored space ventures has serious implications for the protection and sustainability of the outer space environment [15]. Specifically, the proliferation of space debris and the current lack of protection of vulnerable scientific, historical, and cultural sites on celestial bodies are issues of concern. Several measures to balance the seemingly competing interests of space exploration and the sustainability of the space environment have been suggested.

1. Using space as a military terrain

The United States acknowledged that its enemies have transformed space into a theater of warfighting when it released its first National Space Strategy in 2018. Beginning with the October 1957 Sputnik Crisis, military use of space [16], it set off the space race between the US and the USSR. In recent times, an increasing number of nations have been exploring space for military purposes. Iran launched its first military satellite in April 2019, and India tested anti-satellite missiles in March of the same year.
The Chinese PLA reorganized in 2015 and created the Strategic Support Force, which is responsible for space, cyberspace, and the electromagnetic spectrum. In the same year, Russia established its own separate Space Force. France formed the Space Command in September 2019 and the United States formed the Space Force in December in reaction to these moves.
The post-Cold War era saw the development of space as a domain for warfare when China conducted an antisatellite destruction test in January 2007 using antisatellite weapons (ASAT). China had to develop asymmetrical capabilities in

cyberspace and space [17] as a response to an expected contingency in the Taiwan Strait.

This test created a large amount of space debris and was met with intense international criticism [18]. During the Cold War, both the United States and the Soviet Union avoided conducting these kinds of tests despite the fact that space was used militarily for many years. This was because heedless physical attacks may have a disastrous effect on all space operations. But now that China has entered this "sanctuary" and is waging asymmetric warfare, it has compelled the US to acknowledge the weakness of its space program.

The possibility of space war

The word "spacewar" refers to the projection of photographs of conflicts waged from space platforms against targets in space or within Earth's atmosphere, including ships, airplanes, and ground targets. From the beginning, space has been constructed and arranged as a military area [19]. For this reason, space can also be employed to position military hardware in the years following Sputnik in 1957.The type of weapons that can be used include nuclear, directed, and kinetic weapons. Although still under development, directed energy weapons are getting closer to becoming operational. Despite this, there has been some buzz about these new weapons, like directed-energy and electromagnetic rail guns [20].

Ballistic missiles, which are different from space launchers, have an intermediate space stage, as evidenced by their appearance after the V-2. This clarifies why space law does not apply to them. Even the 1967 Outer Space Treaty, which restricts the permitted uses of space, also known as "peaceful" uses, recognizes this essential point. Although the Moon and other celestial bodies are demilitarized, the only express prohibition in the treaty pertaining to Earth's orbit is the placement of weapons of mass destruction.

There are numerous possible threats, including in-space robotic "snugglers" and ground-based anti-satellite missiles [21]. Space Weapons of great variety were explored in the Cold War, especially during the Strategic Defense Initiative (SDI) time period [22], after which, in the 'unipolar moment' [23] strategic thinking about space weapons atrophied, and the United States treated space as a sanctuary. But it was evident to all that space was crucial to US conventional military might. Nations with different perspectives on the world system than the United States, like as China and Russia, saw that space was an exposed frontier for the United States and hence started working on anti-satellite missiles. A number of public threat assessments have described both the general state of affairs [24] as well as specific adversarial threats [25].

1. The failure of the outer space treaty

The first area where the Outer Space Treaty has failed is in the development of anti-satellite (ASAT) weaponry capabilities. The goal of ASAT weapons, whether they are conventional or nuclear in nature, is the same: to destroy or deactivate a satellite that is currently in orbit around the globe. Space-based platforms are capable of launching ASAT weapons [26]. Currently, the United States, China, and Russia are the three nations with the most advanced capabilities in this area; other nations, most notably India, have shown a desire to develop it as well [27].

Allowing all states and peoples that desire to explore space for peaceful reasons the chance to do so is the fundamental idea behind Article 1 of the Treaty. The development of ASAT weaponry raises concerns about how free nations are to explore space if they do not own these weapons. Satellite owners are concerned about the existence of these weapons that can destroy satellites, regardless of the reason for which the satellites are launched into orbit around the planet. Some states may contend that not all space exploration will be carried out for peaceful reasons, and as a result, this ASAT capability must be ready to oppose satellite deployments that are not made for peaceful purposes. Still, this demonstrates the treaty's shortcomings on its own.(Roberds, 2014)

The weaponization of outer space is the next topic that has to be reviewed. The weaponization of space shall be defined for the purposes of this argument as weapons that are based in space and either on a man-made platform or a celestial body. ASAT weapons, which do not have a constant presence in space, and weapons that traverse space to reach their targets will not be taken into consideration. Ensuring unfettered US space activities was one of President Bush's main concerns, and in 2006, he signed a new National Space Policy rejecting any future restrictions that might prevent the US from deploying space weapons [28].

The United States has spearheaded global efforts to weaponize space exploration since Secretary Rumsfeld's second tour at the Pentagon. Being the "Masters of Space" is one of the main objectives of US Space Command's "Long Range Plan." This objective is supported by the two pillars of US Space Command's "Vision for 2020," which are "dominating the space medium and integrating space power throughout military operations [29].

The United States' persistent desire to control space may ultimately result in "a costly and dangerous arms race in outer space," despite the fact that China and Russia currently seem to be opposed to the weaponization of space [30]. However, it should be noted that currently the US is the only country with the capability in the foreseeable future to actually be in a position to deploy space weapons [31].

The final and probably most significant area in which the 1967 treaty has failed is in the regulating and control of space junk by nations that adds to the amount of debris in orbit around the earth. It is understood that these categories are made up of manmade particles and natural particles that are uncontrolled [32]. The number of satellites put into orbit around the planet is thought to exceed 5000. Two thirds of these are thought to be "dead" satellites, meaning they cannot be moved or repositioned, while the remaining 950 are thought to be in operational status [33].

While more than 50 countries own satellites, not all countries have the capability to launch a vehicle into outer space and this makes the job of recovery much more difficult. Where this can become an issue is what do you do with "dead" satellites? It becomes a very expensive task for non-launch capable nations to recover the dead satellite and the preferred option appears to be just 7 leaving the junk in space. While the cost appears to be prohibited for the recovery, is the alternative any better? (Roberds, 2014)

A call for strong governance- a leviathan

In Thomas Hobbes's idea of a leviathan that postulate the existence of a government to eradicate the system of anarchy, but cannot be applied directly in outer space

because no entity nor institution can claim a sole authority in the outer space. Following the general ideals of the space treaties, many diplomats, lawyers, and government officials have often referred to outer space as a global commons. This means that space is a place where no state can declare sovereignty [34], and where, akin to the high seas, freedom of access and passage as well as the exploration and use of resources by all is open to all nations and peoples [35]. But instead there can be a strong form of governance in regulating the activities in the outer space.

Given the limited 'law' in outer space, and especially its limited authority, control, and endurance, it is more appropriate to approach the regulation of activities in outer space from the perspective of space governance. (Hasin, 2023)

There are two ways in which space governance and space law differ. Firstly, it tackles incidents, policy queries, or the formulation of regimes by solving problems by concentrating on the parties involved, their bases of power, the situations in which interactions take place, and the likely and desired results of those interactions, rather than viewing them through the prism of applicable law or the rule-based approach. Second, it takes a wide approach to regulating space activities, considering laws pertaining to other areas of human endeavor like trade, investment, human rights, and environmental preservation, among others [36].

There are currently more countries competing for the best orbits in space than there are spots to station those satellites, with the Geostationary Earth Orbit being one of the most desirable regions in space. Satellites need to use the spectrum for communications, which means they can be extremely near to one another. Now, in order to prevent mishaps and inadvertent interference, a system for assigning satellite locations as well as the usage of designated spectral bands is important [37].

This process is managed by an international body called the International Telecommunications Union, which does so through a network of international conferences, agreements, and discussions. This is a prime illustration of limited property rights being granted in the context of space operations when operational requirements, private profit, and government use overlap. It follows that human activity in space is collectively directed when necessity demands it. Nonetheless, the enforcement of agreements' infractions is still a sensitive and frequently challenging issue between nations [38].

However, it can also be argued that the interests of the most powerful countries operating in space dominate the system and create a space legal environment that combines political, security, and economic issues into a domain that defies stability and compromise because space law depends on national legislation to carry out treaty agreements. There has been no progress in the recent international attempts to negotiate even soft law remedies to these problems. Examples include a set of rules for long-term space sustainability led by UNCOPUOS, a code of conduct led by Europe, and proposals made by some countries to the United Nations Conference on Disarmament regarding a treaty to prohibit weapons in space [39].

The 2007 UN Guidelines on Debris Mitigation are one instance of this [40]. These regulations—which are being included into national laws—are intended to reduce future space debris and, in turn, the likelihood of objects made by humans colliding in space. It has still to be seen how effective they will be and how they may be applied globally. The establishment of state accountability, culpability for harm to land, and maintaining peaceful and non-WMD use of space were the main issues facing the drafters of the treaties, it is vital to remember this. Since the only organizations with the technology to enter space were governments (at first, just the US and the USSR), the main clauses in the treaties concentrated on launches and orbital positions. The contemporary concerns regarding private sector involvement and operations in space, together with activities necessitating maneuverability in orbit, were purely theoretical and mainly disregarded by the treaty regime [41].

Second, space is regarded as land devoid of defined borders and state sovereignty. It is to be used for the good of all nations and for scientific research. Some have put this into more straightforward terms, referring to space as a "global commons." The concept of space as a commons, however, does not apply to it. There is no clearly defined boundary demarcating the start of outer space [42].

1. Strengthning space governance

a. The International Space Station Agreement

This agreement, which was signed in January 1998, outlines the construction and management of the space station by 15 partners [43]. It is made up of several multilateral agreements that have been continually renegotiated in response to evolving technology, unique needs, and other problems. It is an illustration of how a bottom-up, self-governing framework for a cooperative international space program might be implemented effectively. The ISS crew is subject to a distinct code of conduct created by NASA, which is a US guideline that all crew members pledge to comply by. Its contents are completely compliant with the UN space treaties [44].

b. Lunar Heritage Sites

Over time there has been repeated discussion about protecting historical sites on the Moon such as the Apollo landing sites. In July 2011 NASA issued a document that has a number of mainly technical recommendations for achieving this purpose [45]. Since the US government's equipment on the moon is regarded as US property, the US is legally able to defend that property against any other country. Of course, it is expensive, challenging, and nearly impossible to prevent other countries or private enterprises from damaging this technology. However, since a nation is forever accountable for its space property, the notion that such property has to be safeguarded is legitimate.

It is imperative that international organizations that address space-related matters, including UNCOPUOS, persist in their discussions and negotiations on these same and related subjects. Guidelines for debris mitigation and a future agreement on the more general subject of the Long Term Sustainability (LTS) of space exploration have advanced in recent years.

Nations have reached consensus on a sufficient number of matters concerning Antarctica, aviation, and the high seas to permit trade and the peaceful utilization of ungoverned and non-sovereign regions [46].

These contracts are not often easy to enforce and are not always comprehensive. There is, however, no strong case to be made for the idea that one organization or one agreement is sufficient to handle all problems in all domains.

Situational awareness, debris reduction, commercial operations, property rights, and other space-related concerns will probably be settled ad hoc through a series of accords signed by those most immediately affected or threatened by international disputes in the future.

Conclusion

Outer space might experience legal, commercial, and security issues by space faring nations in the future, this article suggests a need for a leviathan not in a form of government but strong governance in regulating outer space behavior where sovereignty is prohibited and no current overall system of governance exists.

References

1. "Hobbes's Moral and Political Philosophy". Stanford Encyclopedia of Philosophy. Metaphysics Research Lab, Stanford University, 2018. (Retrieved 11 March 2009)
2. Ibid
3. Ibid
4. Hobbes Thomas, Leviathan. Edwin Curley (Ed.) 1994. Hackett Publishing, 1651.
5. Yurdusev A Nuri. "Thomas Hobbes and international relations: from realism to rationalism" (PDF). Australian Journal of International Affairs,2006:60(2):305. doi:10.1080/10357710600696191. S2CID 214613777. Retrieved 2 February 2016.
6. Donelson Raff. "Blacks, Cops, and the State of Nature". Ohio State Journal of Criminal Law,2017:15(1):183–192. SSRN 2941467.
7. Nigel Calder. Spaceships of the Mind, New York: The Viking Press, "Spheres of Influence," especially,1978:9:106-107.
8. Cf Norman. Mailer of a Fire on the Moon, New York: Signet,1971:338:339.
9. See further in this regard Ferreira-Snyman CILSA 19-51; Ferreira-Snyman 2018 CILSA 141-170; Ferreira-Snyman "Environmental Responsibility for Space Debris", 2013, 391-427.
10. Venet "The Political Dimension" 73-74.
11. Chrysaki Space Policy, 2020, 1.
12. For example, the involvement of private companies such as SpaceX in the launching of satellites and the transporting of goods and astronauts to the International Space Station. See SpaceX spaceflight/iss/index.html.
13. Revfine Date unknown https://www.revfine.com/space-tourism/. On the legal challenges related to space tourism, see Abul Failat and Ferreira-Snyman "Regulation of the Space Tourism Sector"; Ferreira-Snyman PELJ,2014:2(50):301-346.
14. Babcock. Syracuse L Rev 196. Babcock points out that "[s]pace exploration is heating up. Governments and private interests are on a fast track to develop technologies to send people and equipment to celestial bodies, like the moon and asteroids, to extract their untapped resources" (Babcock 2019 Syracuse L Rev 191), 2019.
15. See Kramer. Space Policy for examples of these ventures, 2014, 215-216.
16. Benjamin Bahney, Jonathan Pearl. "Why Creating a Space Force Changes Nothing Space Has Been Militarized from the Start," Foreign Affairs, 2007, 215-216
17. Bates Gill, Martin Kleiber. "China's Space Odyssey: What the Antisatellite Test Reveals About Decision-Making in Beijing," Foreign Affairs, 2007.
18. Bates Gill, Martin Kleiber. "China's Space Odyssey: What the Antisatellite Test Reveals About Decision-Making in Beijing," Foreign Affairs, 2007.
19. WA Mc Dougall. The Heavens and the Earth. A Political History of the Space Age. Baltimore, Johns Hopkins University Press, 1985, and P. B. Stares, The militarization of space. U.S. Policy, New York, Cornell University Press, 1985, 1945-84.
20. David Ignatius. "American Is No Longer Guaranteed Victory, These Could Change That," Washington Post, 2016. www.washingtonpost.com/opinions/global-opinions/america-is-no-longer-guaranteed-military victory-these-weapons-could-change-that/2016/08/16/004af43e-63d2-11e6-be4e-23fc4d4d12b4_story.html?utm_ term=.ae8254c36048 (accessed August 18, 2016).
21. Brian G Chow. "Stalkers in Space: Defeating the Threat," Strategic Studies Quarterly, Summer, 2017. accessed June 30, 2020, https://www.airuniversity.af.edu/Portals/10/SSQ/documents/Volume-11_Issue-2/Chow.pdf
22. See for example, Collins John M. Military Space Forces: the next 50 years. Vol. 4. Brassey's Incorporated, 1989. available online at: https://www.spacefaringamerica.com/wpcontent/uploads/2020/05/military_space_forces_collins_1989_csr_report.pdf; Robert Preston, Dana J. Johnson, Sean JA Edwards, Michael D. Miller, and Calvin Shipbaugh. Space Weapons Earth Wars. RAND Corporation, 2002.
23. Charles Krauthammer. "The Unipolar Moment: America and the World 1990," Foreign Affairs, 1990, accessed June 30, 2020, https://www.foreignaffairs.com/articles/1990-01-01/unipolarmoment#:~:text=The%20unipolar%20moment%20means%20that,now%20in%20the%20Persian%20Gulf
24. Todd Harrison, Kaitlyn Johnson, Thomas G Roberts, Tyler Way, Makena Young. Space Threat Assessment 2020. accessed June 30, 2020, https://csis-website-prod.s3.amazonaws.com/s3fspublic/publication/200330_SpaceThreatAssessment20_WEB_FINAL1.pdf
25. Nasic. Competing in Space, 2018. accessed June 30, 2020, https://media.defense.gov/2019/Jan/16/2002080386/-1/-1/1/190115-F-NV711-0002.PDF
26. Although Asat weapons could be based in space, we will cover that more in-depth during the next argument on the weaponization of space.
27. Laura Grego. "A History of Anti-Satellite Programs," Union of Concerned Scientists, 2012, 2.
28. Alex B Englehart. "Common Ground in the Sky: Extending The 1967 Outer Space Treaty to Reconcile US and Chinese Security Interests," Pacific Rim Law & Policy Journal,2008:17(1):137.
29. Jonathan Granoff, Craig Eisendrath. "United States – Master of Space? The US Space Command's Vision for 2020," Global Security Institute, 2005, 14.
30. Jonathan Granoff, Craig Eisendrath. "United States – Master of Space? The US Space Command's Vision for 2020," Global Security Institute, 2005, 4.

31. Alex B Englehart. “Common Ground in the Sky: Extending The 1967 Outer Space Treaty to Reconcile US and Chinese Security Interests,” Pacific Rim Law & Policy Journal,2008:1(17):138.
32. Leonard David. “Space Junk Menace: how to deal with orbital debris,” Space Insider, 2015. last accessed 29 Jun 2015, http://www.space.com/19445-space-junk-threat-orbital-debris cleanup.html
33. Laura Grego. “A History of Anti-Satellite Programs,” Union of Concerned Scientists, 2012, 1.
34. Article II of the Outer Space Treaty
35. Article I of the Outer Space Treaty
36. This is not to say that such norms should be transplanted, mutatis mutandis, to govern a specific space activity but rather that such norms de facto shape space activities by affecting the policy choices of participants.
37. Hertzfeld HR, Weeden B, Johnson CD. Outer Space: Ungoverned or Lacking Effective Governance? New Approaches to Managing Human Activities in Space. The SAIS Review of International Affairs,2016:36(2):15–28. https://www.jstor.org/stable/27001431
38. Ibid
39. Ibid
40. United Nations General Assembly Resolution 62/217 of 22 December 2007, Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space. These are voluntary guidelines for the mitigation of space debris and reflect the existing practices as developed by a number of national and international organizations.
41. Hertzfeld HR, Weeden B, Johnson CD. Outer Space: Ungoverned or Lacking Effective Governance? New Approaches to Managing Human Activities in Space. The SAIS Review of International Affairs,2016:36(2):15–28. https://www.jstor.org/stable/27001431
42. After 50 years of debate in the Uncopuos and numerous technical studies, a clear threshold as to what is the edge of the Earth’s atmosphere and where outer space begins is still without a precise definition. It is generally agreed that space begins at an altitude of between 90 and 110 kilometer above the Earth creating a legally grey area without a border.
43. Agreement among the government of canada, governments of the member states of the european space agency, the government of japan, the government of the russian federation, and the government of the united states of america concerning cooperation on the civil inter national space station, nasa, Office of the General Counsel, 1998. accessed September 14, 2016, ftp://ftp.hq.nasa.gov/pub/pao/reports/1998/IGA.html
44. “Rules and Regulations,” Federal Register 65, no 246, 2000, 80302–8030.
45. Nasa Recommendations to Space-Faring Entities: How to Protect and Preserve the Historic and Scientific Value of U.S. Government Lunar Artifacts, 2011.
46. Hertzfeld HR, Weeden B, Johnson CD. Outer Space: Ungoverned or Lacking Effective Governance? New Approaches to Managing Human Activities in Space. The SAIS Review of International Affairs,2016:36(2):15–28. https://www.jstor.org/stable/27001431