

Near Space Activities – The Search for a New Legal Regime

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Abstract

Even though much innovation was occurring in outer space in the ‘space age’, it is only recently that activities in the stratosphere and mesosphere have caught the fantasy of business. Sub-orbital flights and high-altitudinal platforms (HAPs) are some of the ways in which the region’s capabilities are being sought to be exploited. The area is also environmentally very sensitive because of the presence of the ozone layer. Legally however it is an indistinct area, where it is not clear whether the activities that take place are airspace or outer space activities. Referred to by different names by different authors, this area is being designated as Near Space for the purpose of this paper. Extending from approximately 18km – 160km above sea level this is a region where most aviation activities come to an end but the atmosphere is too dense to support space activities. Given the current debates, there is a high likelihood of the area being demarcated simply as airspace or outer space, without much consideration being given to its unique scientific, technical and economic capacities. This paper argues that it is the underlying State that has the greatest interest in preserving the Near Space above its territory, and that similar to the EEZ a specific legal regime for Near Space is needed. The example of EEZ will be used to show how national laws (even in absence of an international regime) can benefit both the underlying States as well as preserve what is right now a global commons.

1. Introduction

Sovereignty of a State extends to its national airspace.¹ Does that mean there is no limit to how far the sovereignty extends? Or, does it imply that

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1 Article 1, *Convention on International Civil Aviation*, 1944 also known as the *Chicago Convention*.

sovereignty only extends to the point a State can control its airspace?² Termed the issue of definition and delimitation of outer space, the question of where airspace ends and outer space begins has been a permanent agenda item of Legal Sub-committee (LSC) of United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) since 1967.³ Where or how the demarcation is made will have important implications not only on emerging technologies but also on overflight and re-entry of space objects. Many theories have been proposed over the years, however, no consensus on how to distinguish airspace from outer space has been achieved.

One of the proposed solutions has been the provision of an intermediate zone between airspace and outer space similar to the Exclusive Economic Zone (EEZ) in law of the sea. Unlike national airspace, this area would limit sovereign rights of the State and provide for a different legal regime than both airspace and outer space. Proposals for an intermediate zone for innocent passage have been made in the past but there is no consensus as to the legal and regulatory parameters of such a zone. For the purposes of this paper Near Space is the proposed denomination for a hypothetical region between airspace and outer space, extending between an altitude of 18km to 160km. In 2019 the International Association for the Advancement of Space Safety (IAASS) convened a study to draft a proposed international Convention on the Regulation of Near Space. This paper will document the rationale for a Near Space regime and also provide a glimpse into the proposed draft Convention.

The paper is divided into six sections, with the main sections being section 2 to 5. Section 2 deals with the emerging technologies, regulations relating to which are a matter of concern for this paper. Section 3 provides an account of the issue of definition and delimitation of outer space and discusses the main theories of delimitation. Section 4 provides details of Near Space as a solution to the problem and offers a description of the main provisions of the

2 Hao Liu & Fabio Tronchetti, “Regulating Near-Space Activities: Using the Precedent of the Exclusive Economic Zone as a Model?”, (2019) 50(2-3) *Ocean Development & International Law* 91, p.95.

3 “Letter from the Chairman of the Committee on the Peaceful Uses of Outer Space addressed to the Chairman of the Scientific and Legal Sub-Committee”, (July 1967) *COPUOS Scientific and Legal Sub-Committee*, 5th Session, A/AC.105/C.1/L, https://www.unoosa.org/pdf/limited/c1/AC105_C1_L022E.pdf. In order to understand the different positions of countries on the issue, NASA recommends delimitation at 56 km, “Hearings before the Committee on Aeronautical and Space Sciences, United States Senate, Eighty-ninth Congress”, (1967) *NASA Authorization for Fiscal Year*, [https://babel.hathitrust.org/cgi/pt?id=uc1.\\$b642827&view=1up&seq=7](https://babel.hathitrust.org/cgi/pt?id=uc1.$b642827&view=1up&seq=7), while a former Soviet Union submission before the UN COPUOS was 110 km, “Compromise Proposal on the Question Related to the Definition and Delimitation of Outer Space – Working Paper submitted by Union of Soviet Socialist Republic”, (June 1987) *COPUOS*, 13th Session, A/AC.105/L.168, https://www.unoosa.org/pdf/limited//AC105_L168E.pdf.

proposed draft Convention. Section 5 elaborates on the EEZ analogy before proceeding with the conclusion.

The paper is derived from the unpublished Master's thesis of the first author on the same topic, readers can refer to an updated draft Convention and commentary on the same in the thesis manuscript.⁴ The complete study draft Convention submitted to the IAASS along with an introduction is available as an IAASS document.⁵ For creating the draft Convention existing international treaties on aviation and space law were studied in depth and a reference taken from the law of the sea. Certain international investment agreements were referred to for drafting of the proposed Convention.⁶

2. Emerging Technologies

This section will briefly discuss emerging technologies which are difficult to classify as air or space activities because of their design features. While a lot of these technologies are in the development stage, rapid progress is raising concerns for future legal issues.

2.1. Sub-Orbital Vehicles

The most discussed technology in the delimitation debates is sub-orbital vehicles, which have been the focus of several questions in the LSC of UN COPUOS as well.⁷ Suborbital vehicles go to a very high altitude without sending the vehicle into orbit like a space object. US Title 49,⁸ defines suborbital trajectory as “the intentional flight path of a launch vehicle, re-entry vehicle, or any portion thereof, whose vacuum instantaneous impact point does not leave the surface of the Earth.”⁹ Thus trajectory of the vehicle is given importance in terms of definition.

4 Mini Gupta, “Foundations of a New Legal Regime for Near Space”, (August 2020) *Leiden University* (Unpublished Master's Thesis).

5 See, “Near Space – The Quest for a New Legal Frontier”, IAASS, IAASSSR26032020, https://www.mcgill.ca/iasl/files/iasl/near_space_-_the_quest_for_a_new_legal_frontier_0.pdf.

6 “International Investment Agreements Navigator”, *UNCTAD Investment Policy Hub*, <https://investmentpolicy.unctad.org/international-investment-agreements>. A detailed review of the literature can also be found in the bibliography and references, Mini Gupta, *supra* n.4.

7 “Questions on Suborbital Flights for Scientific Missions and/or for Human Transportation”, (2013-2020) *UN COPUOS*, A/AC.105/1039, <https://www.unoosa.org/oosa/en/ourwork/copuos/lsc/ddos/index.html>.

8 *US Code of Federal Regulations*: Title 49, Transportation, 49 USCS § 70102 (20), 2006.

9 “Concept of Suborbital Flights: Information from the International Civil Aviation Organisation”, (March 2010) *COPUOS Legal Sub-Committee*, 49th Session, A/AC.105/C.2/2010/CRP.9, https://www.unoosa.org/pdf/limited/c2/AC105_C2_2010_CRP09E.pdf.

Under international law however, it is difficult to classify them as aircraft or space object. This is because the design of the vehicle may combine parts of both aircraft and space object to perform the flight. The winner of the AnsariX prize of 2004 SpaceShipOne,¹⁰ uses a carrier aircraft that takes the vehicle carrying the payload to an altitude of 15km, the vehicle is then released by the aircraft and a rocket motor is used to take it to outer space altitude of around 110km. On return the vehicle glides for 15 to 20 minutes before using its aircraft feature to make a safe return landing. The vehicle can be reused within a week of landing.¹¹ Sub-orbital vehicles are also being tested to carry humans on their flights thus giving rise to concerns of space tourism.¹²

2.2. High-Altitudinal Platforms

High altitudinal platforms (HAPs) or high altitudinal pseudo-satellites,¹³ are objects placed in the stratosphere that appear like aircraft but perform the functions of a satellite like, remote sensing and telecommunication. They are usually stationary or hover over a point in reference to the Earth. Since the year 2000, most experiments of HAPs have been unmanned. Being closer to the ground, they provide significant advantage over satellites as can be deployed in a shorter time, have less transmission delays and offer better image resolution than remote sensing.¹⁴

3. Definition and Delimitation

As mentioned in the introduction, definition and delimitation of airspace and outer space has been a permanent agenda item of the LSC of the UNCOPUOS since 1967. Sovereignty of a State extends to national airspace over the its territory and territorial sea.¹⁵ In outer space there is complete freedom of exploration and use by all States, and hence outer space does not belong to any one State in particular.¹⁶ Delimitation is important because

10 Ansari X prize 2004, <https://www.xprize.org/prizes/ansari>.

11 "Concept of Sub-Orbital Flights", (December 2015) ICAO *Secretariat Working Paper*, C-WP/12436, <https://www.icao.int/Meetings/LC36/Working%20Papers/LC%2036%20-%20WP%203-2.en.pdf>. Peter Van Fenema, "Suborbital flights & ICAO", (Nov. 2005) 30(6) *Air & Space Law* 396, p.400.

12 UN COPUOS, A/AC.105/1039, *supra* n.7.

13 Simon Johnson & Taro Kuusiholma, "Pseudo-Satellites and Their Use in Near Space – COPUOS Scientific and Technical Subcommittee, 57th Session", (February 2017) IAASS, <https://www.unoosa.org/documents/pdf/copuos/stsc/2017/tech-47E.pdf>.

14 Flavio Araripe d'Oliveira, Francisco Cristovão Lourenço de Melo & Tessaleno Campos Devezas, "High-Altitude Platforms – Present Situation and Technology Trends", (2016) 8(3) *Journal of Aerospace Technology Management* 249.

15 Article 1, *Chicago Convention*.

16 Article I, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, 1967 also known as the *Outer Space Treaty*.

apart from sovereignty, the international legal regimes of aviation and space law determine State or operator liability, registration, safety standards and environmental standards.¹⁷ A Working Group was established in 2002 to resolve the issue on a priority basis, however there has been no conclusion till date. The Chair of the Working Group revealed the multitude of proposals that have been made before the LSC, including in his words, "...demarcations based on the establishment of the upper limit of national sovereignty...division of the atmosphere into layers...maximum altitude of aircraft flight (the theory of navigable airspace), based in turn on the aerodynamic characteristics of flight instrumentalities (the von Kármán line)...the lowest perigee of an orbiting satellite...Earth's gravitational effects...effective control and on the division of space into zones."¹⁸ Some of these theories will be elaborated in the sub-sections below.

3.1. The Spatialist Approach

As per the spatialist approach, the demarcation between airspace and outer space should be determined by specifying an altitude in outer space. Activities occurring predominantly below the said demarcation will then be airspace activities, while those above will be outer space activities. Liability would also be determined based on which altitude the activity was intended to operate.¹⁹ The Von Karman line at an altitude of 100 km has been the most popular altitude for consensus.²⁰ Although *prima facie* a spatialist approach provides legal clarity, in case of sub-orbital vehicles, which operate at an

17 Paul Stephen Dempsey & Maria Manoli, "Sub-Orbital Flights and the Delimitation of Airspace vis-a-vis Outer Space", (2017) 12 *Annals of Air & Space Law* 197 submitted before UN Office of Outer Space Affairs, (December 2017), CU 2017/351(D)/OOSA/CPLA, p.205.

18 "Promoting the Discussion of the Matters relating to the Definition and Delimitation of Outer Space with a view to Elaborating a Common Position of States Members of the COPUOS: Working paper prepared by the Chair of the Working Group on the Definition and Delimitation of Outer Space of the Legal Subcommittee", (May 2017) COPUOS LSC, 57th Session, A/AC.105/C.2/L.302, https://www.unoosa.org/res/oosadoc/data/documents/2017/aac_105c_2l/aac_105c_2l_302_0_html/AC105_C2_L302E.pdf, p.3.

19 For a detailed discussion of the spatialist approach, refer Paul Stephen Dempsey & Maria Manoli, *supra* n.17.

20 Gbenga Oduntan, *Sovereignty and Jurisdiction in Airspace and Outer Space: Legal Criteria for Spatial Demarcation* (Routledge, 2012), p.299 and "Promoting the Discussion of the Matters relating to the Definition and Delimitation of Outer Space with a view to Elaborating a Common Position of States Members of the COPUOS: Working paper prepared by the Chair of the Working Group on the Definition and Delimitation of Outer Space of the Legal Subcommittee", (May 2017) COPUOS LSC, 57th Session, A/AC.105/C.2/L.302, https://www.unoosa.org/res/oosadoc/data/documents/2017/aac_105c_2l/aac_105c_2l_302_0_html/AC105_C2_L302E.pdf.

altitude of 80-120 km,²¹ it is not certain how disputes will be resolved if the Von Karman line is accepted. Further this approach will also unnecessarily subject HAPs, built to operate at an altitude of 20-50 km, to an international air law regime.²²

3.2. The Functionalist Approach

National security concerns were responsible for the development of the functionalist approach. Activities threatening national security were classified as aviation activities while all the rest were space activities.²³ Eventually in the 1970s this approach was converted to a solution for delimitation of outer space. Under the functionalist approach the purpose of the activity is the primary determinant of whether air law or space law will apply. The purpose of a vehicle can be determined by the intention with which the vehicle was built (whether it is intended to operate in air or space), the activity it performs, main destination (Earth to space or Earth to Earth), technical properties, design and aerodynamics.²⁴ However while the functionalist approach maybe successful to some extent where it is easier to classify as air or space activities, the classification of emerging technologies poses the most difficulty. For example, HAPs are built like airplanes but purpose is similar to a satellite. Sub-orbital vehicles may operate similar to an aircraft in part of their journey while as space craft in other segments of the flights.²⁵

3.3. Aerodynamic Lift Theory

Under the annexes to the Chicago Convention an aircraft is ‘any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface’.²⁶ Thus aerodynamic lift is the most important criteria for defining what an aircraft is. Based on this criterion it has been postulated that aerodynamic lift is essential for

21 Marti Sarigul-Klijn & Nesrin Sarigul-Klijn, “Flight Mechanics of Manned Sub-Orbital Reusable Launch Vehicles with Recommendations for Launch and Recovery”, (January 2003) *American Institute of Aeronautics and Astronautics* 1 and “Questions on Suborbital Flights for Scientific Missions and/or for Human Transportation – Note by the Secretariat”, (November 2013) *UN COPUOS*, A/AC.105/1039/Add.2, <https://undocs.org/A/AC.105/1039/Add.2>.

22 Definition provided under ITU RR Section 1.66A, Partial Amendment to Radio Regulations, *Final Acts of World Radio Conference*, 1997, <http://search.itu.int/history/HistoryDigitalCollectionDocLibrary/4.125.43.en.100.pdf>.

23 Thomas Gangale, *How High is the Sky? The Definition and Delimitation of Outer Space and Territorial Airspace in International Law* (Brill Nijhoff, 2018), p.209.

24 Paul Stephen Dempsey & Maria Manoli, *supra* n.17, p.207.

25 C-WP/12436, and Peter van Fenema, *supra* n.11.

26 Annex 7, *Chicago Convention*.

determining where airspace ends, approximately 40 km. John Hogan²⁷ and Pittman Potter²⁸ were some of the prominent proponents of this theory. Von Karman also suggested the end of aerodynamic lift at around 85 km, which prompted Andrew Haley to suggest this as the delimitation for national airspace.²⁹ However this theory does not account for upcoming technologies which include aircraft that are able to transcend altitudes within reach at present, independent of aerodynamic lift.³⁰

3.4. The Lowest Point of Orbital Flight Theory

This theory seeks to determine the lowest threshold where outer space begins. This point according to the lowest point of orbital flight theory is the lowest point below which there is no orbital traffic. As per the proponents of this theory like Arnold McNair, J. F. McMahon and Nicholas Grief,³¹ below a certain threshold a space object would be destroyed by friction and not be able to operate. In addition, Outer Space Treaty and Registration Convention speak of objects in ‘orbit around the Earth’³² or in ‘Earth orbit or beyond’³³ respectively. This according to its proponents is supposed to imply that space activities are supposed to be those that occur in Earth orbit. There is however no consensus of where the limits of such lowest point should be.³⁴

4. The Near Space Solution

Each of the above theories seek to demarcate airspace and outer space without being able to provide a satisfactory solution for regulation of upcoming technologies. The differences between aircraft and space objects did not create many legal problems in the past as it was simpler to classify technologies as such, thus easier to determine which legal regime would be applicable to the activity. Airspace and outer space, geographically, also have been two distinct realms of operation, again providing an easier clarification as to which activity is aviation and which belongs to outer space. If the von

27 John C. Hogan, “Legal Terminology for the Upper Regions of the Atmosphere and Space beyond the Atmosphere”, 51 (1957) *American Journal of International Law* 362 as cited in Gbenga Oduntan, *supra* n.20, p.298.

28 Pitman B. Potter, “International Law of Outer Space”, 52 (1958) *American Journal of International Law*, 305 as cited in Gbenga Oduntan, *supra* n.20, p.298.

29 Gbenga Oduntan, *supra* n.20, p.298.

30 Gbenga Oduntan, *supra* n.20, p.299.

31 Arnold McNair, *The Law of the Air* (Stevens & Sons, 1964); J.F. McMahon, “Legal Aspects of Outer Space”, 38 (1992) *British Yearbook of International Law* 339, p.343 and Nicholas Grief, *Public International Law in the Airspace of the High Seas* (Martinus Nijhoff, 1994), p.45 as cited in Gbenga Oduntan, *supra* n.20, p.307.

32 Article IV, *Outer Space Treaty*.

33 Article II, *Registration Convention*.

34 L. Perek, “Scientific Criteria for the Delimitation of Outer Space”, 5 (1987) *Journal of Space Law* 111, as cited in Gbenga Oduntan, *supra* n.20, p.307.

Karman line is accepted as a solution, then extending national sovereignty till 100km, would mean that re-entering rockets and overflight of space systems would also be subject to national airspace legislation. Further, High Altitudinal Platforms (HAPs) will be subject to national aviation regulations and standards even though they perform the function of satellites. Sub-orbital flights on the other hand, which operate at an altitude of 80-120km will be subject to both air and space regimes.

Instead, an intermediate zone with its separate legal regime maybe able to account for the differences emerging technologies between airspace and outer space could take into consideration the different nature of the activities taking place in that region. An intermediate zone, similar to the Exclusive Economic Zone of the UN Convention on Law of the Sea can be created which would provide the right of overflight for space systems and take into consideration the economic rights of the underlying State. A Near Space regime is thus suggested as a possible solution to the definition and delimitation problem.

4.1. Proposed Draft Convention

In 2018, the IAASS, submitted the proposal for such an intermediate zone before the LSC of UN COPUOS.³⁵ The submission revealed the limitations of the functionalist and spatialist approaches, to delimitation of outer space, in adequately accounting for the legal regulation of upcoming aero-space technologies. In 2019 the IAASS convened another study to propose a draft Convention on Near Space, to be presented before the UN COPUOS Legal Sub-Committee (LSC) for the Agenda item 'Definition and Delimitation of Outer Space'. The proposed draft Convention is an attempt to initiate greater discussion on the possibility of an intermediate zone between airspace and outer space.

An intermediate or neutral zone of innocent passage was recommended by Manfred Lachs in 1972.³⁶ The right to overflight of space objects in the intermediate region does not threaten the national security of the State, and is essential for traversing space objects. Other more recent proposals for an intermediate zone have been Joseph Pelton (protozone),³⁷ Ram Jakhu,³⁸ Hao Liu and Fabio Tronchetti (exclusive economic utilisation zone),³⁹ Thomas Gangale (mesospace)⁴⁰ and Stephen Hobe (mesospace).⁴¹ Despite a

35 Paul Stephen Dempsey & Maria Manoli, *supra* n.17.

36 Manfred Lachs, *The Law of Outer Space* (1972) p.61.

37 Joseph Pelton, *Space 2.0 – Revolutionary Advances in Space Industry* (Springer, 2019), p.71.

38 Ram Jakhu & Joseph Pelton (eds.), *Global Space Governance: An International Study* (Springer, 2017), p.243.

39 Hao Liu & Fabio Tronchetti, *supra* n.2.

40 Thomas Gangale, *supra* n.23.

41 Stephan Hobe, *Space Law* (Beck Hart Nomos, 2019).

conceptual similarity there is no agreement about the legal parameters of such a region. This is why a study was convened by IAASS to ensure that important factors relating to establishment of an intermediate zone or Near Space be considered. Some of the important provisions of the draft Convention are being discussed below. References to the draft Convention articles are the same as in the document IAASSR26032020.⁴²

4.1.1. Delimitation of Near Space

The proposed draft Convention only covers civil and commercial activities in Near Space and does not regulate military activities (Art. 1). The draft Convention defines Near Space as a region ‘above and adjacent’ to national airspace, thus where airspace ends Near Space begins (Art. 3). The vertical limits of Near Space are provided at an altitude of 18km as the lower limit and 160km as the upper limit (Art. 4). The area above Near Space would be considered outer space. 18km has been chosen as the lower limit, because even though at present there is no limit to national sovereignty above 18km, effectively the monitoring capabilities of most countries extend only up to Flight level 600 (FL600) or 18km. Most civilian air traffic operates much below FL600.⁴³ An upper limit of 160km was chosen as it is the lowest perigee of a satellite in circular orbit,⁴⁴ thus there is limited space activity below that altitude.

4.1.2. Important Definitions

Essential terms have been characterized in the definitions section (Art. 2). An ‘aerospace object’ has been defined as any object created for operation in Near Space including a sub-orbital vehicle. Thus objects created predominantly for operation in Near Space would be subject to a separate legal regime than airspace or outer space. Additionally, sub-orbital vehicles have been defined separately as ‘a rocket-powered flight up to any altitude during which the vehicle does not reach orbital velocity’. Thus velocity rather than altitude is the defining criteria. The velocity of a aircraft is usually around 925 km/hour, while orbital velocity is above 28,000 km/hour.⁴⁵

42 *Supra* n.5.

43 Hao Liu & Fabio Tronchetti, *supra* n.1. New Zealand has also enacted The Outer Space and High-Altitude Activities Act, 2017 which defines high-altitude as flight level 600.

44 160 km is the limit proposed by IAASS. Ram Jakhu, Tommaso Sgobba & Paul Stephen Dempsey (eds.), *The Need for an Integrated Regulatory Regime for Aviation and Space – ICAO for Space?* (Springer Wien, 2011), p.49. IAASS 2018 submission to UNCOPUOS LSC puts the limits of Near Space at 120 – 160 km, Paul Stephen Dempsey & Maria Manoli, *supra* n.17, p.236; Hao Liu & Fabio Tronchetti, *id* demarcate their variation of Near Space at 100 km.

45 Adam Mann, “What’s the difference between orbital and suborbital spaceflight?”, (February 2020) *Space.com*, <https://www.space.com/suborbital-orbital-flight.html#:~:>

Suborbital vehicles, like SpaceShipTwo and New Shepard, can traverse around the speed of 4000 km/hour.⁴⁶ Thus there is a noteworthy distinction that can be made using velocity rather than a focus on altitude. Lastly, an Underlying State has been defined as the State above whose territory the Near Space is being referred to.

4.1.3. Powers of the Underlying State

The draft Convention further specifies that Near Space is not part of national airspace neither part of outer space, thus the legal regimes relating to either will not be applicable to Near Space (Art. 7 and 8). Also similar to the EEZ, Near Space is specified to not be part of the territory of a State (Art. 6). This ensures that only in the matters specified does the sovereignty of a State extend to Near Space. This also ensures a right of overflight or innocent passage of foreign space objects, as complete sovereign rights do not exist in Near Space. The underlying State however has a right to deny permission for the deployment of foreign aerospace objects in case of a perceived threat to national safety or security (Art. 21).

Specific rights are given to the Underlying State with regards the activities that occur in the Near Space above their territory. The main right the Underlying State has been given is, the right to use and administer the Near Space above its territory to the exclusion of other States parties to the Convention (Art. 14). However all States Parties to the Convention will have a right to innocent passage civil or commercial activities, given safety standards to be agreed internationally are adhered to (Art. 15). Underlying State also has the right to grant permission to the deployment of stationary or hovering aerospace objects in the Near Space above its territory (Art. 16). This takes into consideration the issue of HAP clusters being deployed without the permission of the Underlying State.⁴⁷

As a matter of principle, the draft Convention provides that private activities in Near Space are encouraged (Art. 17), subject to the Underlying State providing regulations for it (Art. 17). Licensing and registration requirements for national Near Space activities and terms of deployment of foreign objects in its Near Space are also to be provided (Art. 18 and 19). States parties in all cases are to be governed by the basic principles of extent feasible universal access, highest degree of safety and security, uniformity of standards and international cooperation in the activities relating to their respective Near Space (Art. 23).

text=The%20main%20difference%20between%20orbital,at%20a%20speed%20below%20that.

46 V. Pletser, "The Suborbital Research Association: Using Suborbital Platforms for Scientific and Student Experiments", (2016) 28 *Microgravity Science and Technology* 529.

47 David Grace and Mihael Mohorcic, *Broadband Communications via High Altitude Platforms* (John Wiley and Sons, 2011), p.167.

The draft Convention thus tries to take into consideration the important issues that maybe foreseen if Near Space is to be considered as a separate legal regime.

5. The EEZ Analogy

The Near Space regime is based on the Law of the Sea model, especially the EEZ.⁴⁸ The oceans were divided among territorial waters and high seas, since 17th century. However post second World War unilateral actions were taken by several coastal States claiming jurisdiction over resources in what is now known as the EEZ. Ecuador, Chile and Peru were among the first States to claim rights over the sea extending up to 200 nautical miles from their coasts.⁴⁹ This created international concern leading to the first and second Law of the Sea Conferences in 1958 and 1960. Consensus however was only started building during the third law of the sea conference in 1973 wherein security and economic issues were delinked and it was agreed to continue traditional high seas rights relating to maritime transport and naval activities.⁵⁰ Designating the region as EEZ has brought significant portions of the oceans within the jurisdiction of national governments.⁵¹ Similar to the EEZ and CZ the region being designated as Near Space is either open to use by all or where States have claimed sovereign rights over the region, national laws have been enacted. The UK Space Industry Act, 2018 and NZ High Altitudinal Activities Act, 2017 are examples of such national laws.

A similar regime is being suggested with the proposed draft Convention. Firstly security concerns are limited in Near Space compared to national airspace, in furtherance of which the draft Convention only deals with civil activities and does not affect military activities. Secondly economic rights of the underlying State in the Near Space above its territory is recognised and the underlying State is thus given a priority right to use and administer the Near Space above its territory.

It has been found that the creation of EEZ changed traditional notions of sovereignty and affected management and conservation of the living resources. Increasing the jurisdiction of States to the EEZ increased economic benefits of many coastal States. In the case of Norway, for example, the

48 Paul Stephen Dempsey & Maria Manoli, *supra* n.17.

49 “UNCLOS – A Historical Perspective”, (1998) *Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations*, https://www.un.org/depts/los/convention_agreements/convention_historical_perspective.htm.

50 Alf Hakon Hoel & ors., “Ocean Governance and Institutional Change” in Syma A. Ebbin, Alf Håkon Hoela & Are K. Sydnes (eds.), *A Sea Change: The Exclusive Economic Zone and Governance Institutions for Living Marine Resources* (Springer, 2005), p.5.

51 Alf Hakon Hoel & ors., *supra* n.50, p.4.

jurisdiction increased to a region six times the size of the national territory. Petroleum and fisheries also added to 66% of Norway's GDP. The regime is also based on conservation of the EEZ and its resources, even though many a times the pollution does not even originate within the Norwegian EEZ.⁵² Several countries like Australia, Canada, the US, New Zealand etc. have published national policies on integrated oceans management.⁵³ Asia-Pacific Economic Cooperation an organisation of 21 countries surrounding the Pacific Ocean have also cooperated on the issue of conservation and utilisation of the EEZ.⁵⁴ Thus apart from economic benefits the specific integration of EEZ with a coastal State's jurisdiction has promoted the conservation as well. Economic exploitation as well as conservation of Near Space can be expected if more countries take action to regulate the Near Space above their territories.

6. Conclusion

Continued discussions before UN COPUOS reveal the need for a solution to the delimitation problem. However, existing solutions are unable to account for the regulation problems of emerging technologies. In the 2019 Report of the LSC various States acknowledged that grey areas exist in delimitation specially for the matters relating to suborbital flights which need a new regime and regulations. A desire was also expressed to have this issue be resolved internationally rather than numerous differing national legislation.⁵⁵ Near Space is an innovative and possible solution for the issue and the proposed draft Convention can be an important start of a discussion.

52 Alf Hakon Hoel & ors., *supra* n.50, p.41.

53 Alf Hakon Hoel & ors., *supra* n.50, p.64.

54 Alf Hakon Hoel & ors., *supra* n.50, p.100.

55 "Report of the Legal Subcommittee on its fifty-eighth session, held in Vienna from 1 to 12 April 2019", (June 2019) COPUOS, 62nd Session, A/AC.105/1203, p. 16, https://www.unoosa.org/oosa/oosadoc/data/documents/2019/aac.105/aac.1051203_0.html.