

**THE EXCLUSIVE UTILIZATION SPACE:
A NEW APPROACH TO THE MANAGEMENT AND
UTILIZATION OF THE NEAR SPACE**

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ABSTRACT

Near space operations represent some of the most challenging yet promising future uses of the aerospace. Attracted by their envisioned high profitability, governmental and non-governmental entities have shown a growing interest in placing high-altitude vehicles in the near space to provide various types of services, such as telecommunication and internet access. Despite these possibilities, near space plans are impeded by the uncertain legal status of the near space, which pose regulatory challenges to the development of near space services.

In order to promote the beginning of a near space era, this Article suggests a new categorization of the near space as the Exclusive Utilization Space (EUS). Drawing inspiration from the precedent of the Exclusive Economic Zone (EEZ), the Article proposes a series of basic principles intended to facilitate the management of the near space and to clarify the rights and duties of the entities involved in its utilization.

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TABLE OF CONTENTS

1. Introduction	540
2. The Near Space: A Description.....	546
2.1. <i>The issue of delimitation</i>	546
2.2. <i>Legal regime of the near space</i>	548
3. The Exclusive Economic Zone	555
3.1. <i>Historical evolution</i>	555
3.2. <i>Core elements of the EEZ</i>	557
3.3. <i>The EEZ as a model for the utilization of the near space?</i> ...	560
4. The Exclusive Utilization Space.....	561
4.1. <i>Why the exclusive utilization space?</i>	561
4.2. <i>Main features of the Exclusive Utilization Space</i>	563
4.3. <i>Describing the Exclusive Utilization Space proposal</i>	565
4.3.1. <i>An Exclusive Utilization Space should be set up at an altitude between 18 to 100 km (59,005 to 328,083 feet) above sea level</i>	565
4.3.2. <i>An Exclusive Utilization Space should be established for economic motives</i>	565
4.3.3. <i>An Exclusive Utilization Space should be established by the underlying State</i>	566
4.3.4. <i>The Exclusive Utilization Space should not belong to the territory of the State above which it is established</i>	567
4.3.5. <i>The establishment of an Exclusive Utilization Space shall not undermine the rights of the underlying State over its national airspace</i>	567
4.3.6. <i>The underlying State retains priory rights to use and administer the Exclusive Utilization Space established above its territory</i>	568
4.3.7. <i>The underlying State is entitled to regulate and enforce safety and security matters within the Exclusive Utilization Space established above its territory</i>	568
4.3.8. <i>The underlying State and the operator should agree on the conditions for deployment and operation of high-altitude platforms prior to the commencement of operations</i>	569
4.3.9. <i>The state above which territory an Exclusive Utilization Space is established has the right to deny the deployment of foreign high-altitude</i>	

<i>platforms based on threat to its national security and safety interests.</i>	570
4.3.10. <i>Third-party countries/foreign operators should be entitled to deploy their high-altitude platforms in a foreign Exclusive Utilization Space subject to prior notification and approval by the underlying state.....</i>	570
4.3.11. <i>Third-party countries/foreign operators should enjoy the right to overfly a foreign Exclusive Utilization Space upon prior notification.</i>	571
4.3.12. <i>A license is required to provide services from an EUS established above a foreign territory.....</i>	572
5. <i>Conclusion.....</i>	573

1. INTRODUCTION

Near space operations represent the future of activities in the airspace. Indeed, thanks to technological leaps, the capability to carry out operations at altitudes between 18 and 100 kilometers (from 59,005 to 328,083 feet), the so-called “near space,” to provide communication, navigation, sensing, internet, and other services, is rapidly becoming a reality.¹ The significance of this fact should not be underestimated because, until now, activities have taken place either at lower altitudes (the core of civil aviation operations takes place below 38,000 feet above sea level) or in outer space (namely, beyond the altitude of 100 kilometers).

Already two decades ago, various attempts to perform long-duration high-altitude activities were undertaken in the United States.² These efforts were, however, mostly unsuccessful³ and did not lead to marketable products.⁴ Recently, the near space has once again attracted the attention of investors and several projects,

¹ For a review of these technologies, see generally ALEJANDRO ARAGÓN-ZAVALA, JOSÉ LUIS CUEVAS-RUIZ & JOSÉ ANTONIO DELGADO-PENÍN, *HIGH-ALTITUDE PLATFORMS FOR WIRELESS COMMUNICATIONS* (2008), which provides an overview on high-altitude platforms; Flavio Araripe d’Oliveira, Francisco Cristovão Lourenço de Melo & Tessaleno Campos Devezas, *High-Altitude Platforms – Present Situation and Technology Trends*, 8 J. AEROSP. TECHNOL. MANAG. 249 (2016), which surveys the history of high-altitude platforms and the current trends and challenges; Stylianos Karapantazis & Fotini-Niovi Pavlidou, *Broadband Communications Via High-Altitude Platforms: A Survey*, 7 IEEE COMM. SURVS. & TUTORIALS 2 (2005), which examines communication aspects of High-Altitude Platforms; Toshiaki Tsujii, Masatoshi Harigae & Masashi Harada, *Navigation and Positioning System Using High Altitude Platforms Systems (HAPS)*, 52 J. JAPAN SOC’Y AERONAUTICAL SPACE SCI. 175 (2004); and Emanuela Falletti, Massimiliano Laddomada, Marina Mondin & Fabrizio Sellone, *Integrated Services from High-Altitude Platforms: A Flexible Communication System*, IEEE COMM. MAG., Feb. 2006, which analyzes a flexible communication system for high-altitude-platform-based communication, in particular the delivery of broadband services to high-speed trains.

² See Araripe d’Oliveira et al., *supra* note 1, at 251–56 (describing various research and development projects over the past 20 years).

³ See ARAGÓN-ZAVALA ET AL., *supra* note 1, at 20–25 (reviewing examples of unsuccessful projects such as SkyStation and Halo, the former aimed at placing solar-powered high-altitude platforms at altitudes around 21 kilometers to provide wireless communication services, the latter planned to deploy airplanes at similar altitudes to offer broadband communication).

⁴ See *id.* at 23; Dean N. Reinhardt, *The Vertical Limit of State Sovereignty*, 72 J. AIR L. & COM. 65, 94–100 (2007).

including the development of various kinds of high-altitude platforms, have been launched. Interestingly enough, the media has covered these initiatives with significant interest.⁵ For example, in 2013 the U.S. company Google X (now simply “X”) announced Project Loon, aimed at creating an aerial wireless network through the placement of balloons at altitudes between 18 to 25 kilometers.⁶ Similarly, in 2014, Facebook unveiled the Facebook Internet project which intended to develop a high-altitude network of solar-powered, unmanned aircraft to furnish Internet capability to underserved areas.⁷

Asian-based entities are also actively engaged in near space initiatives. For instance, the Chinese company Kuang-Chi is developing helium-filled balloons and other kinds of lighter-than-air vehicles to furnish aerial surveillance, communication, near space tourism, and wireless Wi-Fi transmission to remote areas.⁸

⁵ See, e.g., Will Oremus, *Not as Loony as it Sounds*, SLATE (Dec. 2, 2014, 1:21 PM), http://www.slate.com/articles/technology/future_tense/2014/12/project_loon_how_google_s_internet_balloons_are_actually_working.html [<https://perma.cc/W442-H6TH>]; Tom Simonite, *Billions of People Could Get Online for the First Time Thanks to Helium Balloons That Google Will Soon Send Over Many Places Cell Towers Don't Reach*, MIT TECH. REV., Mar.-Apr. 2015, <https://www.technologyreview.com/s/534986/project-loon/> [<https://perma.cc/N4B5-QBGH>].

⁶ See LOON, <https://loon.co/> (last visited Jan. 25, 2019) (providing an overview of the company's activities) [<https://perma.cc/YX4S-TUK3>]; David Lumb, *Project Loon Delivers Internet to 100,000 People in Puerto Rico*, ENGADGET (Nov. 9, 2017), <https://www.engadget.com/2017/11/09/project-loon-delivers-internet-100-000-people-puerto-rico/> [<https://perma.cc/MEF5-JMCK>] (noting that in October 2017 the X company was able to provide immediate Long Term Evolution (LTE) coverage to Puerto Rico in the aftermath of Hurricane Maria). Furthermore, X concluded an agreement in 2016 with Sri Lanka to provide full internet coverage using LTE. See Google's Internet Ballons Project Hits Turbulence in Sri Lanka, NATIONAL (Feb. 16, 2017), <https://www.thenational.ae/business/google-s-internet-ballons-project-hits-turbulence-in-sri-lanka-1.638993> [<https://perma.cc/2977-6CXQ>].

⁷ See Jessi Hempel, *Inside Facebook's Ambitious Plan to Connect the Whole World*, WIRED (Jan. 19, 2016), <https://www.wired.com/2016/01/facebook-zuckerberg-internet-org/> [<https://perma.cc/L7UV-M95U>].

⁸ For further information about Kuang-Chi, see KUANG-CHI, <http://www.kuang-chi.com/en/> [<https://perma.cc/3X3D-9HKC>] (last visited Jan. 25, 2019), which details the activities of Kuang-Chi; Press Release, Kuang-Chi, *Traveler Will Be Launched in the Southern Hemisphere* (Mar. 23, 2015), <http://www.kuang-chi.com/en/index.php?ac=article&at=read&did=1003> [<https://perma.cc/R43M-ECTB>], which reveals that on November 21, 2014,

Three factors are contributing to the growing attention toward the near space. First, its use is expected to be profitable. Analysis reveals that the high-altitude platform market should grow at an annual rate of 8.7 percent and reach a value of \$4.77 billion by 2023.⁹ Secondly, the near space offers several opportunities for start-up companies and newcomers.¹⁰ Conversely, traditional areas of operation, such as the airspace and outer space, lack similar conditions, with both environments experiencing growing levels of congestion¹¹ and competition.¹² Thirdly, high-altitude platforms are cheaper to launch and operate than satellites.¹³

Kuang-Chi signed a joint memorandum with Airways New Zealand to enable the launch of a near space commercial platform called Traveler from New Zealand territory; and Press Release, Kuang-Chi, Traveler Launched in New Zealand (June 8, 2015), <http://www.kuang-chi.com/en/index.php?ac=article&at=read&did=1004> [https://perma.cc/7FKU-BW4K], which announces that the Traveler was successfully launched on June 6, 2015. See also Wen-Qin Wang & Dingde Jiang, *Integrated Wireless Sensor Systems via Near Space and Satellite Platforms: A Review*, 14 IEEE SENSORS J. 3903–3914 (providing technical information about the use of wireless sensor systems in the near space).

⁹ See *High Altitude Platforms (Airships, Unmanned Aerial Vehicles (UAV) and Tethered Aerostat Systems), Market-Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2015–2023*, TRANSPARENCY MKT. RES. (Mar. 2016), <https://www.transparencymarketresearch.com/high-altitude-platforms-technologies.html>.

¹⁰ See Ned Allen, *Our Strategic Space Shore: Opportunities in Near Space*, 31 AEROSPACE AM. 45 (2007) (suggesting that the near space presents a strategic opportunity for the United States because it is an “aggressive environment” and it little used by others).

¹¹ Paul Stephen Dempsey & Kevin O’Connor, *Air Traffic Congestion and Infrastructure Development in the Pacific Asia Region*, in *ASIA PACIFIC AIR TRANSPORT: CHALLENGES AND POLICY REFORMS CONFERENCE 23–25* (Christopher Findlay, Chia Lin Sien & Karmjit Singh eds., 1997) (discussing current levels of congestion in Pacific Asia); PAUL STEPHEN DEMPSEY, *PUBLIC INTERNATIONAL AIR LAW* 164–71 (2008); Justin T. Barkowski, *Managing Air Traffic Congestion Through the Next Generation Air Transportation System: Satellite-Based Technology, Trajectories, and – Privatization?*, 37 PEPP. L. REV. 247 (2010) (asking how we can efficiently manage the need for open skies).

¹² See NATIONAL SPACE POLICY OF THE UNITED STATES OF AMERICA (2010), https://obamawhitehouse.archives.gov/sites/default/files/national_space_policy_6-28-10.pdf [https://perma.cc/6BGP-R5ZW] (discussing the increasing importance of and activity in outer space).

¹³ See Araripe d’Oliveira et al., *supra* note 1, at 260; PAUL DEMPSEY & MARIA MANOLI, *SUBORBITAL FLIGHTS AND THE DELIMITATION OF AIR SPACE VIS-A’-VIS OUTER SPACE: FUNCTIONALISM, SPATIALISM AND STATE SOVEREIGNTY*, at 43–44, U.N. Doc. A/AC.105/C.2/2018/CRP.9, U.N. Sales No. V.18-01929(E) (2018),

Despite these positive elements, near space commercial operations are still hampered by technical and legal obstacles. On one side, it is still technically challenging to sustain long-term activities in the near space. Particularly problematic are aspects related to energy storage, the strength of lightweight structures, and the overall reliability of vehicles.¹⁴ On the other side, the legal status of the near space remains uncertain. Due to the fact that no international law specifically regulates it, the legal nature of the near space as well as the rules applicable therein remain doubtful.¹⁵

Importantly, while efforts to solve the technical difficulties impeding operation in the near space are being undertaken,¹⁶ no comprehensive action to clarify its legal regime is being carried out. This Article argues that this state of being is no longer sustainable. Indeed, the present uncertainty harms business plans and innovation because it renders the permissibility of an activity, the modalities of its implementation, and its possible revenues, questionable. The current legal environment is particularly detrimental to near space projects of an international nature,¹⁷

http://www.unoosa.org/res/oosadoc/data/documents/2018/aac_105c_22018crp/aac_105c_22018crp_9_0_html/AC105_C2_2018_CRP09E.pdf [https://perma.cc/96BK-URFV] (discussing the use of high-altitude platforms); see also Leonard David, *Sky Trek to the 'Near Space' Neighborhood*, SPACE (Nov. 9, 2005), <https://www.space.com/1761-sky-trek-space-neighborhood.html> [https://perma.cc/BE8N-CP7N]; How Close are High-Altitude Platforms to Competing with Satellites, SPACENEWS (Oct. 26, 2017) <https://spacenews.com/how-close-are-high-altitude-platforms-to-competing-with-satellites/> [https://perma.cc/DYE6-2Q5J]; *Near Space: The Shore of Our New Ocean*, HOBBYSPACE, <http://www.hobbyspace.com/NearSpace/> [https://perma.cc/Z2LU-558L] (last visited Apr. 1, 2019).

¹⁴ For more information on these technical challenges, see Araripe d'Oliveira et al., *supra* note 1, at 258–60, which details the technological challenges of lightweight structures, thermal management, operation at low altitude, and reliability.

¹⁵ See *infra* Section 2.3.

¹⁶ See Araripe d'Oliveira et al., *supra* note 1, at 260 (citing the investment in high-altitude platform projects and the evolution of new technology); DAVID GRACE & MIHAEL MOHORČIĆ, BROADBAND COMMUNICATIONS VIA HIGH-ALTITUDE PLATFORMS 5 (2011) (“[g]iven the state of maturity of the different HAP vehicles, a step-by-step development approach is now being pursued by organizations, with the aim of generating confidence, develop the technology, and perhaps more importantly provide revenue streams for manufacturers.”).

¹⁷ For examples of these international projects, see Karapantazis & Pavlidou, *supra* note 1, at 5; and Nicholas J. Colella & James N. Martin, *High Speed Internet Access via Stratospheric HALO Aircraft*,

namely those involving the deployment of a system of vehicles, platforms, transmitters, and various links in the near space above foreign territories to offer wireless communication and other services.¹⁸ These ventures are envisioned to generate high profits.¹⁹ Nevertheless, it is precisely in that context that the unclear legal relationship between the states above which the high-altitude vehicles are placed and the operators of those vehicles—together with issues related to sovereignty and security—compromises these ventures.

Thus, it is evident that the implementation of near space plans faces numerous obstacles. In an attempt to ameliorate this situation, this Article suggests a new legal classification of the near

https://www.isoc.org/inet99/proceedings/4d/4d_3.htm [<https://perma.cc/6D25-Q7T6>] (last visited Jan, 25, 2019), which describes the Angel Technologies Corporation's project that intends to provide high-speed internet access via stratospheric HALO aircraft deployed at 51,000 feet. Another kind of project is proposed by companies like Airborne Wireless Network (AWN) that plan to operate a high-speed broadband airborne wireless network by linking commercial aircraft in flight. Essentially, AWN wants to place its broadband transceivers on a critical mass of airborne aircraft and use equipped aircraft as signal repeaters capable of providing wireless signals all over the world. See Woodrow Bellamy III, *This Company Plans to Turn Airplanes into Communications Satellites*, VIA SATELLITE (Feb. 8, 2017), <https://www.satellitetoday.com/telecom/2017/02/08/company-plans-turn-airplanes-communications-satellites/> [<https://perma.cc/3XFD-QQAA>] (describing AWN and its plan called the "Infinitus Super Highway"); AIRBORNE WIRELESS NETWORK, <http://www.airbornewirelessnetwork.com/index.asp> [<https://perma.cc/L8HQ-X7TS>] (last visited Jan, 25, 2019) (explaining more about the company).

¹⁸ For examples of these projects, see Eric C. Cook, *Broad Area Wireless Networking via High Altitude Platforms* (2013) (unpublished master's thesis, Naval Postgraduate School), http://calhoun.nps.edu/bitstream/handle/10945/34648/13Jun_Cook_Eric.pdf?sequence=1 [<https://perma.cc/3MEQ-TV8D>], which discusses developing technologies aiming to provide broad-area wireless networking to support military operations; and Zhe Yang & Abbas Mohammed, *High Altitude Platforms for Wireless Mobile Communication Applications*, in *MOBILE AND WIRELESS COMMUNICATIONS: PHYSICAL LAYER DEVELOPMENT AND IMPLEMENTATION* 47-56 (Salma Ait Fares & Fumiyuki Adachi eds., 2010), which details various international high-altitude platform projects.

¹⁹ Indeed, several states, although not possessing near space technology nor intending to develop it, are still interested in benefiting from near space services and allowing their population to access it. See Araripe d'Oliveira et al., *supra* note 1, at 252-58 (describing various international projects and partnerships); ARAGÓN-ZAVALA ET AL., *supra* note 1, at 23-25 (discussing European high-altitude platform projects).

space as the “Exclusive Utilization Space” (EUS). Accordingly, the legal status of the near space should be distinguished from that of national airspace and outer space. Essentially, under the EUS proposal, the space located approximately between the altitude of 18 to 100 kilometers (between 59,005 to 328,083 feet), now labeled the Exclusive Utilization Space (EUS), should lay outside of national sovereignty and be governed by basic rules intended to maximize its profitable use and orderly management. This approach would: a) stimulate technological development and investments in the near space sector; b) eliminate unnecessary obstacles to the international utilization of the near space; c) put in place a level playing field for operators; d) allow a substantial number of countries and users to benefit from it; e) clarify the legal status of the near space; and f) establish the rights and duties of the states and entities that use it.

The EUS proposal is not intended to undermine the sovereign rights and the security interests of the state above which territory an Exclusive Utilization Space would be located, a state which we can call the “underlying State.” On the contrary, while the EUS would not be part of its territory, such a State would maintain several sovereign prerogatives over it, including the right to: a) choose if and how to establish the EUS; b) use the EUS on a priority basis; c) negotiate the conditions to be complied with by foreign entities; and d) enforce safety and security matters in relation to the operations of domestic and foreign entities. Overall, the EUS idea aims at balancing the sovereign interests of the underlying State with the creation of economic opportunities for domestic and foreign operators.

The EUS proposal draws inspiration from the concept of the Exclusive Economic Zone (EEZ), as provided in the 1982 Law of the Sea Convention. Notwithstanding the differences between the two, there are several characteristics of the EEZ that, if adequately modified, can be used as a model to shape the legal regime of EUS.

The Article will first describe the legal status of the near space and the core elements of the Exclusive Utilization Zone; then, it will elaborate upon the constitutive elements of the Exclusive Utilization proposal.

2. THE NEAR SPACE: A DESCRIPTION

2.1. *The issue of delimitation*

The near space is located between the airspace and outer space.²⁰ Indeed, due to its physical characteristics, it naturally divides these two zones because neither traditional civil aviation activities nor space operations can be carried out therein.²¹ On one hand, commercial passenger aircrafts can safely fly up to the altitude of 12 kilometers (38,000 feet);²² beyond that point the air

²⁰ See generally Ruth Stilwell, *The First 100KM, the Case for Integrated Space and Aviation Policy and Governance*, in *SPACE SAFETY IS NO ACCIDENT* 561-70 (Tommaso Sgobba & Isabelle Rongier eds., 2015) (positing that in addressing policy questions about access and priority of airspace, the international community should try to balance the competing demands of civil aviation and commercial space operators); Joseph N. Pelton, *A New Integrated Global Regulatory Regime for Air and Space: The Needs for Safety Standards for the Protozone* (Second Manfred Lachs International Conference on Global Space Governance, Montreal, May 2014); Matthew T. King, *Sovereignty's Grey Area: The Delimitation of Air and Space in the Context of Aerospace Vehicles and the Use of Force*, 81 J. AIR L. & COM. 377 (2016) (noting that the line between the "disparate legal regimes" of airspace and outer space will be tested by the development of aerospace vehicles that can operate in and transition between the two).

²¹ See, e.g., FRANCIS LYALL & PAUL B. LARSEN, *SPACE LAW: A TREATISE* 163 (2009) (noting the history of the policy arguments for dividing the spaces); Jinyuan Su, *Near Space as a Sui Generis Zone: A Tri-Layer Approach of Delimitation*, 29 *SPACE POL'Y* 90 (2013) ("The lack of a legal boundary between air space and outer space has not given rise to significant difficulties in the determination of applicable law with respect to traditional flight craft - aircraft and space objects - due to their separated sphere of activities."); Joseph N. Pelton, *Urgent Security Concerns in the Protozone*, Presentation at the Fourth Manfred Lachs International Conference on Global Space Governance (May 2016), https://www.mcgill.ca/iasl/files/iasl/mlc4_presentation_j_pelton.pptx [<https://perma.cc/BHE5-VDE8>] (noting the need for space legal experts to formally consider the area above commercial airspace and below the area that can allow satellites to stay in orbit); King, *supra* note 20, at 403 (explaining that the current spacial definition is guided by physical, scientific, or natural attributes, not law or policy).

²² The Federal Aviation Administration (FAA) does not allow commercial aircraft to exceed the altitude of 40,000 feet (MSL) unless the structure is certified to not have any type of decompression. See generally U.S. FED. AVIATION ADMIN., FAA AC No. 61-107B, AIRCRAFT OPERATIONS AT ALTITUDES ABOVE 25,000 FEET MEAN SEA LEVEL OR MACH NUMBERS GREATER THAN .75 (Mar. 29, 2013), https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1020859 [<https://perma.cc/96CC-YF94>].

becomes increasingly less dense until the moment where either the wings cannot generate sufficient lift, or the engines cannot produce enough thrust.²³ Additionally, air navigation services cannot be effectively carried out beyond the altitude of around 18 to 20 kilometers above sea level (between 59,005 to 328,083 feet), the so-called Flight Level (FL) 600. The existing air navigation technologies have not yet been adapted to function in the near space.²⁴ On the other hand, the altitude of 100 kilometers (328,083 feet) represents the unofficial starting point of outer space because at around that altitude the atmosphere becomes too thin to support aeronautical flight and a vehicle needs to travel faster than orbital velocity to derive sufficient aerodynamic lift to sustain itself.²⁵ Significantly, some states have indicated 100 kilometers (328,083 feet) as the point separating the national airspace from outer space. For instance, Australia,²⁶ Kazakhstan,²⁷ and Denmark²⁸ have

²³ See King, *supra* note 20, at 407, 411 (discussing the fundamental aspects, physical and legal, of the space and air domains); Rebecca Maksel, *Who Holds the Altitude Record for an Airplane?*, AIR & SPACE MAG. (May 28, 2009), <https://www.airspacemag.com/need-to-know/who-holds-the-altitude-record-for-an-airplane-141522931/> [<https://perma.cc/N2QM-7ZHM>].

²⁴ For the purpose of air traffic control, domestic airspace is divided into different categories, such as controlled, uncontrolled, special use, and other airspace. See FED. AVIATION ADMIN., FAA-H-8083-25B, PILOT'S HANDBOOK OF AERONAUTICAL KNOWLEDGE 15-1 – 15-12 (2016), https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/17_phak_ch15.pdf [<https://perma.cc/82WV-FXHC>] (describing the categories and subcategories of airspace); *Airspace*, THE LOGBOOK (Aug. 1, 2012, 4:59 PM), <http://herschlogbook.blogspot.com/2012/08/airspace.html> [<https://perma.cc/8MXB-VB7X>] (diagramming the classifications). Generally, domestic regulations apply to a maximum altitude of Flight Level (FL) 600, approximately 60,000 feet (18,000 meters). See, e.g., FED. AVIATION ADMIN., NY/NJ/PHL AIRSPACE REDESIGN FINAL ENVIRONMENTAL IMPACT STATEMENT app. A (July 2007), https://www.faa.gov/air_traffic/nas/nynjphl_redesign/documentation/feis/media/Appendix_A-National_Airspace_System_Overview.pdf [<https://perma.cc/82WV-FXHC>] (identifying airspace classifications and terminology).

²⁵ In practice, Low Earth Orbit satellites (Low Earth Orbit consists of the orbits located between 150 to 2000 kilometers or 6,561,679 feet of altitude) are normally placed at a minimum level of 160 kilometers (524,934 feet) because below that altitude satellites enter a state of orbital decay caused by the atmospheric drag. Low Earth Orbit is an orbit around the Earth with an altitude of 2000 km (524,934 feet). See CLAUDE NICOLLIER & ROGER-MAURICE BONNET, OUTER SPACE ENVIRONMENT, OPPORTUNITIES, STAKES AND DANGERS 4 (2015).

²⁶ See *Space Activities Act 1998*, (Cth) pt 2 (Austl.) (defining “space object” as

enacted national space legislation applicable to activities occurring at an altitude of 100 kilometers or higher.

Overall, even though international law does not set the precise spatial delimitation of the near space, there is a general understanding of where its boundaries lie.

2.2. *Legal regime of the near space*

Legal scholars disagree as to the legal status of the near space. Such a controversy derives from the lack of international treaties regulating it. Thus, one can safely say that the near space represents a grey area in international law.

From a legal perspective, the key issue is whether the near space should be considered as part of the airspace or outer space, or if it should be deemed to have a separate legal status. In the absence of a guidance provided by international legal instruments specifically governing it, the most viable approach seems to be the analysis of air and space law conventions. While these conventions do not specifically regulate the near space, they may provide useful elements to ascertain the legal regime applicable therein.

The 1944 Convention on International Civil Aviation (commonly referred to as the Chicago Convention)²⁹ is the fundamental instrument of the public international air law system. The Convention, which is widely ratified, establishes the pivotal rules regulating international transportation by air.³⁰

“a payload (if any) that the launch vehicle is to carry into or back from an area beyond the distance of 100 km above mean sea level.”).

²⁷ See LAW OF THE REPUBLIC OF KAZAKHSTAN ON SPACE ACTIVITIES ch. 1, art. 1 (2012) (defining “cosmic space” as “the space, extending beyond the air space at a height of more than one hundred kilometers above sea level.”).

²⁸ See DANISH OUTER SPACE ACT pt. II (2016) (defining “outer space” as “Space above the altitude of 100km above sea level.”).

²⁹ Convention on International Civil Aviation art. 43, Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 [hereinafter Chicago Convention].

³⁰ See DEMPSEY, PUBLIC INTERNATIONAL AIR LAW, *supra* note 11, at 41-65 (overviewing the 1944 Chicago Convention); Michael Milde, *The Chicago Convention - After Forty Years*, 9 ANN. AIR & SPACE L. 119 (1984) (calling the Chicago Convention the “cornerstone of legal regulation of international civil aviation for the past forty years”); Ruwantissa Abeyratne, *Convention on International Civil Aviation* (2014) (analyzing the provisions of the treaty).

Article 1 of the Chicago Convention recognizes states' complete and exclusive sovereignty over the airspace above their territory.³¹ It clarifies that a state's sovereignty extends beyond its land and territorial sea to also include the airspace above its territory.³² Based on this premise, such a state is entitled to apply its laws and exercise its jurisdictional powers over the airspace above its territory.³³

The provisions of Article 1 were driven by security concerns³⁴ and were meant to protect the national soil from dangerous activities and foreign attacks.³⁵ Accordingly, the Chicago Convention prohibits aircrafts from entering a foreign national

³¹ This principle was first established in Article 1 of 1919 Paris International Convention on Air Navigation that recognized that "every Power has complete and exclusive sovereignty over the airspace above its territory." Convention on the Regulation of Aerial Navigation art. 1, Oct. 13, 1919, 297 LNTS 173. For an overview of the period between the 1919 Paris Convention to the 1944 Chicago Convention, see Malgorzata Polkowska, *The Development of Air Law: From the Paris Conference of 1910 to the Chicago Convention of 1944*, 33 ANN. AIR & SPACE L. 59 (2008); and P. Dupont, *L'Espace Aérien entre Souveraineté* 220 R.F.D.A.S. 13 (2004).

³² For an analysis of Article 1 of the Chicago Convention and the concept of sovereignty applied to national airspace, see King, *supra* note 20, at 407; DEMPSEY, PUBLIC INTERNATIONAL AIR LAW, *supra* note 11, at 44; Reinhardt, *supra* note 4, at 69–76; John Cobb Cooper, *Roman Law and the Maxi "Cuius est Solum" in International Air Law*, in EXPLORATIONS IN AEROSPACE LAW: SELECTED ESSAYS 54–102 (Ivan A. Vlasic ed., 1968); F. Lyall, *The Maxim "Cuius est Solum" in Scots Law*, 147 JUR. REV. 69 (1978); and Herbert David Klein, *Cuius est Solum, Eius Est... Quousque Tandem?*, 26 J. AIR L. & COM. 237 (1959).

³³ See, e.g., 49 U.S.C. § 40103 (1994) ("The United States Government has exclusive sovereignty of airspace of the United States."); 19 C.F.R. 122.49b(a) (defining the term "Territorial Airspace of the United States" as the airspace over the United States, its territories, and possessions, and the airspace over the territorial waters between the United States coast and 12 nautical miles from the coast").

³⁴ See John C. Cooper, *United States Participation in the Drafting of the Paris Convention*, 18 J. AIR L. & COM. 266, 267 (1951) ("A very considerable part of the work of this Commission was devoted to military problems, particularly the effort to prevent or limit German air rearmament after the conclusion of peace."); D. Goedhuis, *Civil Aviation After the War*, 36 AM. J. INT'L LAW 596 (1942) (asking whether World War I brought about a change in states' relaxed policy toward aviation regulations); D. Goedhuis, *Sovereignty and Freedom in the Airspace*, 41 TRANSACTIONS GROTIUS SOC'Y 137 (1955) (noting historical defenses of the idea of freedom of air).

³⁵ See Abeyratne, *supra* note 30, at 14 (explaining the good governance required for the proper running of a state).

airspace without prior authorization by special agreement.³⁶ Aside from enjoying several rights, states' parties have the obligation to ensure the safety of aircrafts transiting through their national airspace³⁷ and to manage air traffic pursuant to the ICAO Standards and Recommended Practices (SARPs).³⁸

Significantly for our discussion, the Chicago Convention does not establish a vertical limit to state sovereignty. Consequently, what is the upward limit of a state's territory (or quasi-territory), and whether the near space is included in it, remains unanswered. In this regard, two views have been put forward. The first claims that a state's sovereignty extends vertically with no limits until the point where outer space begins. This view originates from the old Latin maxim "*cuius est solum, eius est usque ad coelum*," which means: "Whose is the soil, his it is up to the sky," or in more simple terms: "He who possesses the land possesses also that which is above it." Under this construct, the near space would be part of a state's national airspace and subject to its laws and control. In 1906, Prof. Westlake advocated, "[i]f there exists a limit as to the sovereignty of the State over the oceanic space, none exists for the

³⁶ See Chicago Convention, *supra* note 29, arts. 3, 6. For further restricting measures on access and use of the airspace in the U.S., see FAA, AIRSPACE RESTRICTIONS, https://www.faa.gov/uas/where_to_fly/airspace_restrictions/ [https://perma.cc/RYC5-E9PH].

³⁷ See DEMPSEY, PUBLIC INTERNATIONAL AIR LAW, *supra* note 11, at 164-203; Roxanne Zolin & Ira Lewis, *Air Navigation Services and the United States: A Comparative Case Study*, in MACROTHINK INSTITUTE CASE STUDIES IN BUSINESS AND MANAGEMENT 96 (2014) (comparing air navigation services in Australia and the United States); Performance of Air Navigation Services (International Civil Aviation Organization Working Paper ATConf/6-WP/52, Mar. 18, 2013), https://www.icao.int/Meetings/atconf6/Documents/WorkingPapers/ATConf6-wp052-2_en.pdf?TSPD_101_R0=37676aabab1d818626cd0a0284b62248sf300000000000000073edcf3cfff00000000000000000000000000005936250a0039bd337d [https://perma.cc/K55M-2MFE] (discussing developments in European air navigation services).

³⁸ The term "SARPs" is used by ICAO to refer to the technical specifications adopted by its Council to achieve to achieve "the highest practicable degree of uniformity in regulations, standards, procedures, and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation." Chicago Convention, *supra* note 29, art. 37; see also DEMPSEY, PUBLIC INTERNATIONAL AIR LAW, *supra* note 11, at 61-65.

sovereignty of the State over the air space.”³⁹ The second view proposes a more technical approach based on the ability of a state to effectively provide air navigation services. Accordingly, the national airspace should extend vertically as high as a state can enforce its sovereignty.⁴⁰ For example, Prof. Cooper claimed, “[The Chicago Convention] deals with no areas of space other than those parts of the atmosphere where the gaseous air is sufficiently dense to support balloons and airplanes.”⁴¹ Therefore, under this approach, the near space would not be part of the national airspace, as states cannot sufficiently perform air navigation services therein.

Evidently, international air law does not clarify the legal status of the near space. The picture is not clearer when analysis switches to international space law. First, the space treaties regulate activities occurring in space properly considered. Therefore, their scope goes beyond the area usually referred to as “near space.”⁴² Second, international space law fails to even set the physical lower border of outer space. Hence, it leaves uncertain the question on how to delimitate outer space from the airspace. Notably, since the early days of space activities, states have not managed to agree on a criterion to separate airspace and outer space.⁴³ The sections above the 100 km mark have been referred to as the lower border of outer space. However, such a view is not universally accepted.

³⁹ John C. Cooper, *High Altitude Flight and National Sovereignty*, in *EXPLORATIONS IN AEROSPACE LAW: SELECTED ESSAYS BY JOHN COBB COOPER 1946-1966* 256, 258 (Ivan A. Vlasic ed., 1968) (quoting Westlake).

⁴⁰ See H.B. Jacobini, *Effective Control as Related to the Extension of Sovereignty in Space*, 7 J. PUB. L. 97, 115 (1958) (“[i]n regard to the extension of national sovereignty over territorial space, the upper limits of this jurisdiction will be determined by the extent upward to which the subjacent state can exert effective control . . .”).

⁴¹ John C. Cooper, *Legal Problems of Upper Space*, 50 AM. SOC’Y INT’L L. PROC. 85, 88 (1956).

⁴² International space law regulates the activities of objects launched into outer space, either in Earth orbit or beyond.

⁴³ On the issue of delimitation between airspace and outer space, see LYALL & LARSEN, *supra* note 21, at 153; Thomas Cheney & Lauren Napier, *Policy Analysis: Air versus Space, Where Do Suborbital Flights Fit into International Regulations?*, 7 J. SCI. POL’Y & GOV. 1 (2015) (discussing the regulation of suborbital flight); D.B. Craig, *National Sovereignty at High Altitudes*, 24 J. AIR L. & COM. 384 (1957) (examining national sovereignty in light of technological developments in space exploration); and Cooper, *supra* note 41.

Overall, it is clear that neither international air law nor space law clarify the legal nature of the near space. Under these circumstances, it is reasonable to look elsewhere to find useful elements to address the matter. In this regard the analysis of national initiatives, particularly the adoption of national laws governing activities in the near space, might be useful. Indeed, the existence of similar laws could give room to argue that the near space is part of the national airspace. Regrettably, the study of similar laws does not provide a satisfactory picture. Only one state, New Zealand, has passed legislation specifically regulating near space activities. Other states have only addressed operations occurring below the 20 km altitude mark and have not answered the question of the upward delimitation of their national airspace.

The New Zealand Outer Space and High-Altitude Activities Act was enacted on December, 21, 2017⁴⁴ with the purposes of: a) regulating space activities as well as high-altitude activities; b) facilitating the development of a space industry.⁴⁵ The drafting of the Act was motivated by the advantages of using portions of the largely uninhabited New Zealand territory to test and launch rockets and high-altitude vehicles.

Regrettably, the Act falls short of providing a clear regulation of high-altitude activities. It defines “high altitude” as being above flight level 600 (FL 600) (which is normally located at around 18 km (59,005 feet))⁴⁶ and being above the highest upper limit of controlled airspace (which is usually established at 2.9 km (around 9,500 feet)).⁴⁷ However, as the Act does not set the upper limit of

⁴⁴ Outer Space and High-Altitude Activities Act 2017 (N.Z.), <http://www.legislation.govt.nz/act/public/2017/0029/45.0/DLM6966275.html> [<https://perma.cc/X8X9-JCHE>] (laying out license requirements for launches and high-altitude activities).

⁴⁵ For an analysis of the drafting of the Act, see Gareth Hughes, Outer Space and High-Altitude Activities Bill – Third Reading, GREEN (July 6, 2017, 11:38 AM), <https://www.greens.org.nz/news/speech/gareth-hughes-outer-space-and-high-altitude-activities-bill-third-reading> [<https://perma.cc/6K9P-GGGF>].

⁴⁶ Stephen K. Hunter, Safe Operations Above FL600 (Space Traffic Management Conference, 2015), <https://commons.erau.edu/cgi/viewcontent.cgi?article=1065&context=stm> [<https://perma.cc/C3WS-8GGR>].

⁴⁷ See Outer Space and High-Altitude Activities Act 2017, pt 1, s 4 (“Interpretation”); see also Hunter, *supra* note 46.

the high-altitude areas, the extent to which its high-altitude provisions apply remains doubtful. ,

The Act states that a person: “must not launch a high-altitude vehicle from New Zealand . . . unless the person has a high-altitude license for the launch.”⁴⁸ A launch license is also required to launch objects into outer space.⁴⁹ However, in the absence of a precise delimitation between where outer space begins and the high-altitude area ends, doubts remain as to which of the two licenses should be at stake in any given case. Importantly, a high-altitude license is linked to the use of a “high-altitude vehicle,” which is defined as “an aircraft or any other vehicle that travels, is intended to travel, or is capable of travelling to high altitude.”⁵⁰ This definition still does not clarify when an altitude would be high enough to constitute outer space.

Apart from New Zealand, no other states have specifically regulated near space activities. Instead, their attention has been focused on the implementation of air navigation services above their territory. These services are provided only up to the so-called Flight Level 600 (FL 600). As a large majority of states have not enacted rules applicable beyond FL 600, one can argue that the altitude around 18 km constitutes the upper limit of national airspace. Under this construct, anything located above that point, including the near space, would consequently lay outside of state sovereignty. However, there are also states that, while not having legislated beyond FL 600, have kept this possibility open. For example, in the United States, the Federal Aviation Administration’s authority formally extends up to FL 600. Nevertheless, this does not mean that it ends at FL 600. Federal Aviation Regulations Section 71.71, Class E airspace, describes what FAA authority exists above FL 600 by defining Class E airspace as: “The airspace of the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous states and Alaska, extending upward from 14,500 feet MSL up to, but not including 18,000 feet MSL, and the

⁴⁸ Outer Space and High-Altitude Activities Act 2017, pt 2, s 45 (“Requirement for high-altitude license”).

⁴⁹ Outer Space and High-Altitude Activities Act 2017, pt 2, s 7 (“Launch of launch vehicle from New Zealand requires launch license”).

⁵⁰ Outer Space and High-Altitude Activities Act 2017, pt 1, s 4.

airspace above FL600”⁵¹ Furthermore, 49 U.S. Code § 40103, provides that: “The Administrator of the Federal Aviation Administration shall develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace.”⁵²

Thus, the FAA has the authority to regulate air traffic from over the United States from just above the surface to a point where the atmosphere becomes too thin to support aeronautical flight.⁵³ In short, the United States considers its national airspace to extend beyond FL 600, even though U.S. legislation does not set a precise vertical limit to it.

The uncertain legal nature of the near space is further reinforced by the nature of near space vehicles that cannot be assimilated to either aircraft or spacecraft. While these vehicles are capable of certain flying maneuvers, their maneuverability and performance cannot be assimilated to that of an aircraft.⁵⁴ Further, a space object is specifically designed to be launched and operated in outer space, two characteristics that near space vehicles do not possess. Indeed, they are usually meant to remain stationary at altitudes much lower than outer space.⁵⁵

In sum, the legal status of the near space is highly controversial. One can claim that the near space belongs to a

⁵¹ 14 C.F.R. § 71.71 (2018).

⁵² 49 U.S.C. § 40103 (1994).

⁵³ See generally DEMPSEY & MANOLI, *supra* note 13, at 17 (noting a distance between 80 and 90 km above the surface of the Earth as “the point after which the aircraft functions cannot be maintained, for the density of the atmosphere is not sufficient . . .”).

⁵⁴ Near space vehicles can be divided into free floaters and maneuvering vehicles. Free floaters’ flying speed and direction depend mostly on existing winds, even though they are also capable of limited steering that enables them to float at different altitudes and take advantage of different wind directions and speed. In contrast, maneuvering vehicles can use a variety of propulsion mechanisms to fly or keep stationary over a specific area of interest. For example, high-altitude buoyant lift systems rise only to an altitude where the ambient air density equals the weight-to-volume ratio of the buoyant system. See Su, *supra* note 21, at 91.

⁵⁵ See INT’L TELECOMM. UNION, RADIO REGULATIONS art. 1.66A (2016) (defining a High Altitude Platform Station (HAPS) as “[a] station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth.”).

state's national airspace. In this respect, there is nothing in international law that prevents states from enacting legislation applicable to the near space above their territory. However, it is also arguable that the near space lies outside of the national airspace. This idea is rooted in the technical challenges and the physical characteristics of the near space that complicate a state's ability to enforce its jurisdictional power above a certain altitude. Starting from these considerations, there seems to be sufficient elements to suggest the conferral of a new legal status to the near space and to establish basic rules to govern activities therein.

3. THE EXCLUSIVE ECONOMIC ZONE

3.1. *Historical evolution*

The formulation of the Exclusive Utilization Space (EUS) proposal has been influenced by the precedent of the legal regime applicable to the Exclusive Economic Zone (EEZ).⁵⁶ Although there are evident differences between the near space and the EEZ, several EEZ rules, with proper modification, provide a useful precedent to regulate activities in the near space.

Part V of the 1982 Law of the Sea Convention (LOS) defines the EEZ as "an area beyond and adjacent to the territorial sea, subject

⁵⁶ The literature on the EEZ is extensive. See, e.g., R. CHURCHILL & V. LOVE, *THE LAW OF THE SEA* 133–152 (1999); DAVID J. ATTARD, *THE EXCLUSIVE ECONOMIC ZONE IN INTERNATIONAL LAW* (1987); BARBARA KWIATKOWSKA, *THE 200 MILES EXCLUSIVE ECONOMIC ZONE IN THE NEW LAW OF THE SEA* (1989); Gemma Andreone, *The Exclusive Economic Zone*, in *THE OXFORD HANDBOOK OF THE LAW OF THE SEA* 159–180 (Donald Rothwell, Alex Odue Elferink, Karen Scott & Tim Stephens eds., 2015) (examining the evolution of the EEZ, its juridical nature, and which legal regimes are applicable); BUDISLAV VUKAS, *The Los Convention and Sea Boundary Delimitation*, in *THE LAW OF THE SEA: SELECTED WRITINGS* 83–111 (2004) (discussing the delimitation of maritime zones and the LOS Convention); DONALD R. ROTHWELL & TIM STEPHENS, *THE INTERNATIONAL LAW OF THE SEA* 82–97 (2010) (discussing the EEZ, its relation to other maritime zones, and the rights and duties of coastal and other states); Francis Rigaldies, *La Zone Économique Exclusive dans la Pratique des États'*, 35 *CAN. Y.B. INT'L L.* 3 (1997) (discussing types of economic zones and the degree to which states adhere to their jurisdiction); A SEA CHANGE: *THE EXCLUSIVE ZONE AND GOVERNANCE INSTITUTION FOR LIVING MARINE RESOURCES* (Syma A. Ebbin, Alf Håkon Hoel & Are K. Sydnes eds., 2005) (discussing the EEZ and living marine resources).

to the specific legal regime established in this Part, under which the rights and jurisdiction⁵⁷ of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of the Convention".⁵⁸ A coastal state enjoys sovereign rights to manage and exploit the living and non-living resources located within its EEZ. These rights are, however, not exclusive in the sense that other states also benefit from certain limited rights and freedoms.⁵⁹

From a legal perspective, the EEZ is often viewed as a *sui generis* zone⁶⁰ because it combines elements of the regimes relevant to territorial waters and the high seas.

Historically, the concept of the EEZ derived from the initiatives of coastal states to expand their sovereign and jurisdictional rights beyond the 12 nautical miles borderline of territorial waters.⁶¹ A milestone in this process were the 1945 President Truman's

⁵⁷ Robin R. Churchill, *The Impact of State Practice on the Jurisdictional Framework Contained in the LOS Convention*, in STABILITY AND CHANGE IN THE LAW OF THE SEA: THE ROLE OF THE LOS CONVENTION 91, 126 (2005).

⁵⁸ United Nations Convention on the Law of the Sea art. 55, Dec. 10, 1982, 1834 U.N.T.S. 3 [hereinafter UNCLOS].

⁵⁹ See Francisco Orrego Vicuña, *La Zone Économique Exclusive: Régime et Nature Juridique dans le Droit International*, in 199 COLLECTED COURSES OF THE HAGUE ACADEMY OF INTERNATIONAL LAW 9-79 (1986) (discussing interpretations of the EEZ in light of the 1982 UN Convention on The Law of the Sea); Moira L. McConnell, *Observations on the Law Applicable on the Continental Shelf and in the Exclusive Economic Zone: A Comparative View*, 25 OCEAN Y.B. 221 (2011) (discussing varying approaches to the EEZ).

⁶⁰ See ROTHWELL & STEPHENS, *supra* note 56, at 84; Gemma Andreone & Giuseppe Cataldi, *Sui Generis Zones*, in THE IMLI MANUAL ON INTERNATIONAL MARITIME LAW: THE LAW OF THE SEA 217-238 (David Joseph Attard, Malgosia Fitzmaurice & Norman A. Martínez Gutiérrez eds., 2014) (discussing aspects of *sui generis* zones in international doctrine and practice); FRANCISCO ORREGO VICUÑA, THE EXCLUSIVE ECONOMIC ZONE: REGIME AND LEGAL NATURE UNDER INTERNATIONAL LAW 44 (1989) (explaining that the EEZ is considered *sui generis*); KWIATKOWSKA, *supra* note 56, at 5.

⁶¹ See McConnell, *supra* note 59, at 225; WINSTON C. EXTAVOUR, A STUDY OF THE EVOLUTION AND PROGRESSIVE DEVELOPMENT OF THE INTERNATIONAL LAW OF THE SEA (1979). The territorial waters are a belt of coastal waters extending at most 12 nautical miles (22.2 km) from the baseline of a coastal state. The territorial sea is considered as territory of the coastal state. See Convention on the Territorial Sea and Contiguous Zone art. 1, Apr. 29, 1958, 15 U.S.T. 1606, 516 U.N.T.S. 205; UNCLOS, *supra* note 58, arts. 2-3. Under the 1958 Convention on the High Seas, the water column beyond territorial waters is considered as part of the high seas. See Convention on the High Seas art. 1, Apr. 29, 1958, 13 U.S.T. 2312, 450 U.N.T.S. 82.

Proclamations, in particular the Proclamation on Coastal Fisheries in Certain Areas of the High Seas, that argued the need to set up conservation zones, under the control of the United States, in those areas of the high seas contiguous to the coast of the U.S., where fishing activities had been, or could be, developed and maintained on a large scale.⁶² Another Proclamation, namely the Proclamation in Respect of the Continental Shelf, declared that the resources of the subsoil and the sea-bed of the continental shelf beneath the high seas but contiguous to the coast of the U.S. belonged to the U.S. and had to be subject to its jurisdiction and control.⁶³

Other countries soon followed the U.S. precedent,⁶⁴ and, thus, through the years the breadth of their territorial sea and the maritime areas in which states claimed exclusive jurisdiction on fishing and exploitation of living resources were expanded up to 200 miles. It is against this background that the negotiations on the EEZ started in 1972 and led to the adoption of Part V of the Law of the Sea Convention in 1982.

3.2. Core elements of the EEZ

Articles 55 to 75 of Part V of the Law of the Sea Convention outline the characteristics of the EEZ. Accordingly, the EEZ is as a claimable maritime zone that extends up to “200 nautical miles from the baselines from which the breadth of the territorial sea is measured.”⁶⁵ Over 130 states have claimed an EEZ, and many

⁶² See Proclamation No. 2668, 10 Fed. Reg. 12,304 (Sept. 18, 1945) (“Policy of the United States with Respect to Coastal Fisheries in Certain Areas of the High Seas”). For commentary on the Proclamation, see DOUGLAS M. JOHNSTON, *THE INTERNATIONAL LAW OF FISHERIES* 333–38 (1965) (discussing diverging interpretations of the Proclamation); and Jean-Pierre Quéneudec, *La Remise en Cause du Droit de la Mer*, in *COLLOQUE DE MONTPELLIER DE LA SOCIÉTÉ FRANÇAISE POUR LE DROIT INTERNATIONAL* 34–35 (1973).

⁶³ See Proclamation No. 2667, 10 Fed. Reg. 12,305 (Sept. 28, 1945) (“Policy of the United States with respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf”).

⁶⁴ See ROBERT W. SMITH, *EXCLUSIVE ECONOMIC ZONE CLAIMS: AN ANALYSIS AND PRIMARY DOCUMENTS* (1986); JOSÉ A. DE YTURRIAGA, *THE INTERNATIONAL REGIME OF FISHERIES: FROM UNCLOS 1982 TO THE PRESENTIAL SEA* 5–10 (1997) (discussing the adaptation of the United States’ interpretation of the Proclamation).

⁶⁵ See UNCLOS, *supra* note 58, art. 57.

have passed legislation applicable to them.⁶⁶ Importantly, the EEZ does not belong to the coastal state that has claimed it, even though such a state enjoys extensive rights to use and manage it.

Part V distinguishes between: a) coastal states; b) other states.⁶⁷ Coastal states enjoy two types of rights: 1) sovereign rights; 2) jurisdictional rights. Sovereign rights apply to both living and non-living resources. First, coastal states have the right to explore, exploit, conserve, and manage those resources located in the water column, seabed and subsoil of their EEZ.⁶⁸ This means that coastal states are conferred nearly exclusive sovereign rights to undertake and regulate⁶⁹ fishing in their EEZ.⁷⁰ Coastal states are also given the power to set allowable catches, the duty to preserve fisheries and achieve their optimal utilization⁷¹ as well as the right to enforce their laws and regulations.⁷²

In principle, a coastal state shall, through agreements, enable other states to have access to the surplus of its allowable catch; in doing so, it shall give special consideration to landlocked, geographically disadvantaged, and least developed states.⁷³ In practice, this provision has remained largely unattended as, except for few marginal cases, no such agreements have been concluded.⁷⁴

⁶⁶ In principle, states are free to claim an EEZ of lesser breadth than 200 nautical miles and to assert less than the full arrays of rights granted by the EEZ regime.

⁶⁷ For an analysis of the rights given to coastal states and other states in the EEZ, see Andreone, *supra* note 56, at 165–180; and Robert Beckham & Tara Davenport, *The EEZ Regime: Reflections After Thirty Years*, in *SECURING THE OCEAN FOR THE NEXT GENERATION: PAPERS FROM THE LAW OF THE SEA INSTITUTE-KOREA INSTITUTE OF OCEAN SCIENCE AND TECHNOLOGY CONFERENCE* (Harry N. Scheiber & Moon Sang Kwon eds., 2012), <https://www.law.berkeley.edu/files/Beckman-Davenport-final.pdf> [<https://perma.cc/22AF-K3NJ>] (analyzing the rights given to coastal states and other states in the EEZ).

⁶⁸ See UNCLOS, *supra* note 58, art. 56.

⁶⁹ See UNCLOS, *supra* note 58, art. 62 (enumerating a list of areas in relation to which laws and regulation can be promulgated).

⁷⁰ On the distribution of fishing rights, see Tore Henriksen & Alf Hakon Hoel, *Determining Allocation: From Paper to Practice in the Distribution of Fishing Rights Between Countries*, 42 OCEAN DEV. & INT'L L. 66 (2011).

⁷¹ See UNCLOS, *supra* note 58, arts. 61–62, 64, 68.

⁷² See UNCLOS, *supra* note 58, art. 73.

⁷³ See UNCLOS, *supra* note 58, arts. 62, 69–70.

⁷⁴ See Andreone, *supra* note 56, at 165–66; Ivan Shearer, *Ocean Management Challenges for the Law of the Sea in the First Decade of the 21st Century*, in *OCEAN*

It is also true that other states have limited capability to enforce it because the coastal state decisions determining the allowable catch, the extent of its harvesting ability and the allocation of surpluses fall outside of the compulsory dispute settlement system set out in Part XV of the Convention.⁷⁵

As far as non-living resources are concerned, such as hydrocarbons and minerals, coastal states benefit from unrestricted rights of exploration and exploitation, without any specific obligation of conservation or judicious use.⁷⁶ These rights are exclusive because coastal states have no requirement to share access to those resources.

Under Article 56 of the Law of the Sea Convention, coastal states are also conferred three kinds of jurisdictional rights concerning: a) the establishment and use of artificial islands, installations, and structures; b) marine scientific research; c) the protection and preservation of the marine environment. The first right is particularly relevant for our Article as it entails the coastal state's exclusive jurisdiction to construct and operate artificial islands, installations, and structures for economic purposes.⁷⁷ Due notice shall be given when constructing an artificial island or installations and the coastal state may, where necessary, establish safety zones around them.⁷⁸ Furthermore, in relation to such islands and installations, coastal states have exclusive jurisdiction to enact custom, fiscal, health, safety, and immigration laws and regulations.⁷⁹

Pursuant to Article 58 of the Law of the Sea Convention, other states enjoy the freedom of navigation and overflight, two rights

MANAGEMENT IN THE 21ST CENTURY: INSTITUTIONAL FRAMEWORKS AND RESPONSES 10 (Alex G. Oude Elferink & Donald R. Rothwell eds., 2004).

⁷⁵ See ROTHWELL & STEPHENS, *supra* note 56, at 88. On the dispute settlement mechanism of the Law of the Sea Convention, see Alan E. Boyle, *Dispute Settlement and the Law of the Sea: Problems of Fragmentation and Jurisdiction*, 46 INT'L & COMP. L.Q. 37 (1997).

⁷⁶ On the management and utilization of non-living resources, see David M. Ong, *Towards an International Law for Conservation of Offshore Hydrocarbon Resources Within the Continental Shelf*, in THE LAW OF THE SEA: PROGRESS AND PROSPECTS 93 (David Freestone, Richard Barnes & David M. Ong eds., 2006).

⁷⁷ See UNCLOS, *supra* note 58, art. 60.

⁷⁸ See UNCLOS, *supra* note 58, art. 60(3)-(4).

⁷⁹ See UNCLOS, *supra* note 58, art. 60(2).

typical of the high seas.⁸⁰ However, these rights are less extensive than those exercisable on the high seas.⁸¹ Indeed, within the EEZ other states shall pay due regard to the rights of the coastal state and shall comply with the laws and regulations that such a state has adopted pursuant to the Convention.⁸² Furthermore, a coastal state can take measures to ensure compliance by foreign vessels of such laws.

3.3. *The EEZ as a model for the utilization of the near space?*

Notwithstanding the differences between the EEZ and the near space, for instance the fact that the former deals with the management and utilization of living and non-living resources, while the latter does not contain resources per se, it is undeniable that there are similarities between the two. First, the near space and the sea adjacent to the territorial sea, as regulated prior to the entry into force of the 1982 Law of the Sea Convention, share two characteristics: a) they arguably lay beyond national boundaries; and b) they lack an internationally recognized legal status. Secondly, activities in both areas face technological and economic challenges. Long-term and sustainable operations require constant technological advancements. This element complicates business plans and renders the profitability of an envisioned activity questionable. Third, the use of the near space and the EEZ creates safety and security concerns, particularly when foreign entities are involved. Thus, it is of utmost importance to set up a system to manage operations so as to preserve national security interests and ensure the prevention of interference with pre-existing activities. Fourth, due to their peculiar physical characteristics, both environments naturally prefer the internationalization of their activities and services. Indeed, due to the fact that several countries may lack the ability to undertake operation on their own,

⁸⁰ See UNCLOS, *supra* note 58, arts. 58(1), 87 (explaining that generally all states in the Exclusive Economic Zone are able to use the high seas for several purposes). See generally UNCLOS, *supra* note 58, pt. VII ("High Seas").

⁸¹ ROTHWELL & STEPHENS, *supra* note 56, at 93.

⁸² UNCLOS, *supra* note 58, art. 58(3).

these countries may decide to open up the market to foreign entities.

Thus, taking into account that states have successfully managed to agree on rules regulating the utilization of the EEZ, it seems plausible to consider those rules as valuable precedent for formulating a framework to manage the utilization of the near space. Accordingly, the following elements of the EEZ regime are of particular significance: a) the use of the EEZ area for exclusively economic purposes; b) the promotion of the optimal use of resources; c) the sovereign right of the coastal state to manage and use its EEZ on a priority basis combined with the limited rights of other countries to participate in activities therein; d) the right of the coastal state to pass and enforce laws relating to activities occurring within its EEZ; and e) the preservation of safety, security, and order within an EEZ. These elements constitute the core of the Exclusive Utilization Space (EUS) proposal.

4. THE EXCLUSIVE UTILIZATION SPACE

4.1. Why the exclusive utilization space?

As described in the previous Sections, companies across the world are developing several vehicles capable of providing various services from the near space. These vehicles are meant to be deployed both in the near space above their national territories as well as above the territory of foreign countries.

Importantly, while the technology to carry out near space operations is making important leaps forward, the same cannot be said of the legal framework intended to regulate them, which remains uncertain. The root of the problem is that no international treaty clearly defines and regulates the near space and its legal status. As a matter of fact, several key questions remain unanswered, for example: What are the conditions to access and operate in the near space? What kind of services may be provided therein? How long may a foreign platform be placed over a foreign territory? What kinds of measures may an underlying state take to preserve its national security interests?

This uncertainty generates an unpredictable legal framework that negatively affects near space plans and discourages investors. Its detrimental impact is particularly noticeable in relation to

international activities. Indeed, the placement of vehicles in the near space above foreign territories raises significantly higher safety and security concerns if compared with the placement of the same vehicles above national territory. These concerns may eventually result in barriers to entering and conducting operations in a foreign near space.

Overall, the present situation not only seems to discourage innovation, but it also does not create conditions that favor wide accessibility of services or the profitability of the planned activities. In an attempt to improve this state of being, one shall consider all available options. The first option would be to leave the matter entirely in states' hands without undertaking any international effort to ameliorate the uncertain status quo of the near space. Accordingly, each state would be entitled to independently regulate the use of the near space above its territory, including the activities undertaken by foreign entities, without setting up any internationally agreed rule. While it is reasonable to envision that certain uses of the near space would be regulated domestically, this approach runs the risk of resulting in: a) a fragmented legal framework governing near space activities; b) different conditions applicable to the same activity in different countries; c) market access restrictions; d) a somewhat unpredictable regulatory environment; e) inconsistent safety and security requirements applicable in different jurisdictions; and f) barriers to access near space services. From a long-term perspective, this situation discourages investors and harms both domestic and international entities. Indeed, for countries that do not possess near space technology, the presence of foreign near space vehicles above their territory might be the only way to benefit from near space services.

An alternative option would be to deal with the legal regime of the near space at international level. Ideally, this would result in the attribution of a new legal status for the near space: creating the Exclusive Utilization Space (EUS) and setting up basic rules governing activities therein. Under this proposal, the near space would not be part of the national airspace, and it would be, at least in principle, accessible to domestic and foreign entities. However, the state above which territory an EUS is placed would enjoy priority rights of utilization and the right to manage safety/security matters therein. The EUS idea is inspired by the precedent of the exclusive economic zone (EEZ). As explained in Section 3.2, the EEZ is an area of the sea adjacent to territorial waters that does not belong to the coastal state that declares it but

where such a state exercises sovereign rights of utilization and management. Third-party countries benefit from several rights in another country's EEZ, including the rights of overflight and access to the surplus of resources. Similarly, under the concept of the EUS, the choice to establish an EUS would be of the underlying state. If such a state decides to do so—while not being able to extend its sovereignty therein—it would enjoy special rights to administer, supervise, and manage the area, as well as the right to use it on a priority basis. However, upon meeting certain conditions, foreign parties would be entitled to access and carry out activities in the near space.

Notably, other scholars have recommended to confer a new status to the near space. For instance, a scholar proposed to view the area extending from 21 to 160 km as the “protozone” to better regulate safety and security matters therein.⁸³ Another proposal suggested to apply the legal regime of the high seas to the near space so as to enable innocent passage by all.⁸⁴ The differences between these proposals and the EUS are that: 1) the EUS focuses on the economic aspects of the utilization of the near space; 2) it uses the EEZ as a precedent; and 3) it attempts to find a balance between the interests of the underlying state and foreign entities as far as the use of a certain near space is concerned. It is the opinion of the present authors that endorsing the EUS idea would contribute to: a) enabling the broadest utilization of the near space; b) clarifying the rights and duties of the actors involved in its use; c) favoring its predictable and orderly management; d) stimulating industry growth; and e) favoring accessibility to near space services.

4.2. Main features of the Exclusive Utilization Space

This Section introduces the main elements of the Exclusive Utilization Space proposal. A much more detailed description is given in the next Section.

⁸³ See Pelton, *supra* note 21, at 3.

⁸⁴ See DEMPSEY & MANOLI, *supra* note 13, at 44 (discussing the prospect of treating the near space as an intermediate region akin to the region between territorial seas and high seas under UNCLOS).

The main principles of the EUS proposal are the following:

1. An Exclusive Utilization Space should be set up at an altitude between 18 to 100 km (59,005 to 328,083 feet) above sea level.
2. An Exclusive Utilization Space should be established for economic motives.
3. An Exclusive Utilization Space should be established by the underlying state.
4. An Exclusive Utilization Space should not belong to the territory of the state above which it is established.
5. The rights of the underlying state over its national airspace shall not be undermined by the establishment of the Exclusive Utilization Space.
6. The underlying state retains priority rights to use and manage the Exclusive Utilization Space established above its territory.
7. The underlying state can enforce safety and security matters within the Exclusive Utilization Space established above its territory.
8. The underlying state and the operator should agree on the conditions for deployment and operation of high-altitude platforms within an Exclusive Utilization Space prior to the commencement of operation.
9. The state above which territory an Exclusive Utilization Space is established has the right to deny the deployment of foreign high-altitude platforms based on threats to its national security and safety interests.
10. Third-party countries/foreign operators should be entitled to deploy their high-altitude platforms in a foreign Exclusive Utilization Space subject to prior notification and approval by the underlying state.
11. Third-party countries/foreign operators are entitled to overfly a foreign Exclusive Utilization Space upon prior notification.
12. A license is required to provide services from an Exclusive Utilization Space established above a foreign territory.

4.3. *Describing the Exclusive Utilization Space proposal*

4.3.1. *An Exclusive Utilization Space should be set up at an altitude between 18 to 100 km (59,005 to 328,083 feet) above sea level*

An Exclusive Utilization Space should be established at around the altitude between 18 to 100 km (59,005 to 328,083 feet) above sea level. This spatial delimitation derives from the fact that the area represents an intermediate zone between the airspace and outer space. On one side, commercial passenger aircrafts fly well below the 18 km mark (59,005 feet); also, air navigation services cannot be adequately provided beyond that point. On the other side, the 100 km (328,083 feet) level separates the airspace from outer space because above that altitude aerodynamic operations are no longer possible and space activities officially begin (even though satellites must be placed at a minimum altitude of 160 km or 524,934 feet). Although the area between the altitude of 18 to 100 km has remained largely un-utilized, several operators have ambitious plans to deploy their high-altitude platforms in that region. Hence, it seems reasonable to reserve that area for the establishment of Exclusive Utilization Spaces.

4.3.2. *An Exclusive Utilization Space should be established for economic motives*

The Exclusive Utilization Space proposal is intended to favor the use of the near space by domestic and foreign entities. Until now, legal uncertainty, technological barriers, and limited economic incentives have slowed down progress in the near space. The goal of the EUS idea is to invert this trend by enabling legal certainty and favorable conditions for business plans. Importantly, the focus of the proposal is to enable the economic use of the near space: a use aimed at providing commercial (paying) services to customers. Other kinds of activities, such as scientific and military uses, are not included in the proposal.

4.3.3. *An Exclusive Utilization Space should be established by the underlying State*

The underlying state shall have the sole authority to establish an Exclusive Utilization Space above its territory. This principle, which is of crucial relevance in the context of the EUS proposal, is the result of two considerations: 1) the need to preserve the national interests of the underlying state; 2) the sovereign and equal rights of states under international law. First, even if we assume that the national airspace only extends up to an altitude of 20 km, it goes without doubt that the presence of vehicles at altitudes beyond that level, especially when operated by foreign entities, poses potential risks to the fundamental rights of the underlying state. Therefore, it seems intuitive to grant to that state the exclusive right to enable operations in the near space above its territory through the setting up of an EUS. Second, two of the fundamental rights of states under international law are sovereignty⁸⁵ and equality.⁸⁶ Hence, no state can be forced to act in

⁸⁵ "Sovereignty in the relations between States signifies independence" and "independence in regard to a portion of the globe is the right to exercise therein, to the exclusion of any other State, the functions of a State." *Island of Palmas (U.S. v. Neth.)*, 2 R.I.A.A. 829 (Perm. Ct. Arb. 1928). On the concept of sovereignty, see generally Sergio M. Carbone & Lorenzo Schiano di Pepe, *States, Fundamental Rights and Duties*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (2009), Oxford Public International Law MPEPIL (discussing the ideas and philosophies behind basic concepts of sovereignty); Janice E. Thomson, *State Sovereignty in International Relations: Bridging the Gap between Theory and Empirical Research*, 39 INT'L STUD. Q. 213 (1995) (reviewing current research and discussing issues with empirical research on sovereignty); ANTONIO CASSESE, *INTERNATIONAL LAW* 71-97 (2d ed. 2005).

⁸⁶ According to the right to equality (or equal treatment), all states occupy the same position within the international community, have the same legal capacity, and bear equal rights and duties regardless of their size or power. See generally G.A. Res. 2625 (XXV), Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations (Oct. 24, 1970) (declaring equality of sovereigns in the international community); Charter of the Organization of African Unity art. 3, May 25, 1963, 479 U.N.T.S. 39 (asserting the equality of all member sovereigns); Constitutive Act of the African Union art. 4, July 11, 2000, 2158 U.N.T.S. 3 (declaring the AU's accord with sovereign equality). On the concept of equality, see James Crawford, *The Criteria for Statehood in International Law*, 48 BRIT. Y.B. INT'L L. 93 (1977) (discussing equality of sovereigns in the international legal community).

a manner contrary to its sovereign interests or that puts it in a disadvantageous position with respect to other countries, especially when security considerations are at stake. Consequently, no state can be obliged to set up an EUS above its territory if it does not choose to do so.

4.3.4. The Exclusive Utilization Space should not belong to the territory of the State above which it is established

Similarly to the Exclusive Economic Zone, which does not belong to the coastal state that has established it, the Exclusive Utilization Space should not be included in the territory of the underlying state that has declared it. Thus, although the portion of the airspace going from ground level up to an altitude of 18 km could be viewed as part of the national airspace of the underlying state, the same could not be said of the area ranging from 18 to 100 km (59,005 to 328,083 feet), namely the EUS, which should not be considered part of a state's territory, even though the underlying state should enjoy extensive rights to manage and use it. This proposal is intended to mitigate the obstacles posed by sovereignty to the use of the near space, especially the barriers that foreign entities may face to access and provide services from a near space located above a foreign territory. Indeed, even though these entities would have to comply with the operational conditions imposed by the underlying state, the absence of sovereignty-related considerations is more likely to favor a balance between the preservation of national interests and the (foreign) utilization of the near space.

4.3.5. The establishment of an Exclusive Utilization Space shall not undermine the rights of the underlying State over its national airspace

The Exclusive Utilization Space's proposal is not meant in any way to harm the sovereignty and the rights of a state within its national airspace. Indeed, even if a state decides to set up an Exclusive Utilization Space above its territory, its authority to legislate over, administer, and control the activities taking place in the airspace up to an altitude of 18 km would remain untouched.

The underlying State will always have the ultimate power to suspend, modify, or terminate a near space operation that endangers its safety and security interests.

4.3.6. The underlying State retains priority rights to use and administer the Exclusive Utilization Space established above its territory

The underlying state should enjoy sovereign rights to use and manage the Exclusive Utilization Space established above its territory on a priority basis; this means that, even if a state decides to set up an Exclusive Utilization Space, its ability to utilize that Space before any other subject should not be compromised. This right can be either exclusive or inclusive. In the first case, the underlying state does not allow other entities, either domestic or foreign, to operate therein, a decision which may derive from their inability to comply with safety and security requirements. In the second case, the underlying state allows other states or entities to operate therein. However, even in this situation, it should retain the right to supervise their activities and to ensure compliance with the contractual conditions agreed prior to the commencement of operations.

4.3.7. The underlying State is entitled to regulate and enforce safety and security matters within the Exclusive Utilization Space established above its territory

The placement and operation of high-altitude vehicles, particularly those controlled by foreign entities, undoubtedly raises security and safety concerns for the underlying state.

From a security perspective, the mostly stationary nature of these vehicles is troublesome because, in principle, they might be used to spy on sensitive facilities and areas such as governmental buildings and military bases. High-altitude vehicles might also be used to coordinate and support operations detrimental to the sovereignty of the underlying state via communication links. There are also privacy issues to consider.

From a safety perspective, the main concern is to ensure that near space activities do not interfere with pre-existing operations

and services. First, the deployment and recovery of high-altitude vehicles shall be organized in a manner that poses no risk to air traffic or to the eventual launch of a space object. Second, as high-altitude vehicles are mostly meant to provide communication and internet services, it is crucial to make sure that these vehicles do not cause any harmful interference to pre-existing services.

Based on these considerations, the underlying state shall have the right to set the safety and security requirements that an operator shall be able to comply with in order to be allowed to operate in the near space above its territory and to enforce them upon domestic and foreign entities. Failure to comply with such requirements might result in temporary suspension, revision or termination of the activities.

4.3.8. The underlying State and the operator should agree on the conditions for deployment and operation of high-altitude platforms prior to the commencement of operations

Any foreign or domestic entity willing to provide services from an Exclusive Utilization Space shall agree with the underlying state about the conditions to operate therein before the activities begin. The underlying state must evaluate the potential negative impact of the proposed operations on national security and safety interests as well as on the rights of its citizens. To do so, the operator should submit a plan detailing the nature, duration and purpose of its planned activities. Only after a thorough review of the plan and an assessment of the technical and financial soundness of the applicant might the underlying state authorize commencement of the operations. Such an authorization might take the form of a license. However, it is entirely up to each state to determine how to structure the authorization process. The bottom line is that high-altitude vehicles, especially when owned by foreign entities, cannot be deployed in an Exclusive Utilization Space without obtaining prior authorization from the underlying state.

4.3.9. *The state above which territory an Exclusive Utilization Space is established has the right to deny the deployment of foreign high-altitude platforms based on threat to its national security and safety interests.*

When near space services are undertaken by foreign entities, preserving national security interests, avoiding harmful interferences and other safety hazards is of paramount importance. Indeed, safety and security concerns may lead the underlying state to reject the foreign entity's plan to provide services from the near space located above its territory. In the most likely scenario, the underlying state might make this decision after deeming the operator incapable of satisfying safety and security requirements. The underlying state should, however, notify the entity of the reasons for the denial and give the opportunity to address them.

4.3.10. *Third-party countries/foreign operators should be entitled to deploy their high-altitude platforms in a foreign Exclusive Utilization Space subject to prior notification and approval by the underlying state.*

When a foreign entity intends to provide services from an Exclusive Utilization Space located above another country's territory, it shall notify its intention to do so to the underlying state and submit an operational plan. A violation of this rule, especially the unannounced deployment of high-altitude vehicles, would constitute a breach of the underlying state's rights and a threat to its national security interests. In this event, the underlying state would have the right to take all necessary measures to react to this behavior. However, if the foreign entity/state has acted according to the above principles, it should be entitled to deploy its vehicles and provide the proposed services, unless provable and serious motives exist, such as financial issues or safety and security concerns. The advantageous position attributed to foreign entities is justifiable under the following grounds: First, the goal of Exclusive Utilization Space's proposal is to promote the broadest use of the near space, particularly in countries which lack the capability to do so. Consequently, the advantage conferred to (foreign) entities is meant to encourage them to enter the near space business and to offer services to any interested customer

worldwide. Second, it is likely that prior to the commencement of operations, the underlying state and the foreign entity have discussed the possibility of the latter providing near space services to the former. Based on these discussions, the foreign entity might have invested technological and financial resources to develop the necessary capabilities to undertake those services. Thus, once the capabilities are mature, if the review of the operational plan is positive, there seems to be little reason for that entity to be refused the right to deploy its vehicles in a foreign Exclusive Utilization Space. Importantly, even when the plan is approved, the foreign entity should always comply with the operational conditions and licensing requirements set out by the underlying state. Thirdly, the establishment of an Exclusive Utilization Space is a clear indication of the underlying state's willingness to promote the use of the near space above its territory and to attract all interested entities, including the foreign ones.

The possibility to deploy high-altitude platforms assumes particular relevance in relation to projects aimed at building communication networks across several countries. In this context, an entity from State A might be willing to place broadband transceivers in the near space above State B to provide services to States C and D. The deployment of these kinds of transceivers raises limited security and safety concerns from the perspective of State B, the underlying state. Therefore, in these cases, it seems limiting the ground for that state to oppose these projects is warranted, especially if the entity has notified the state of its plan and demonstrated technical reliability.

4.3.11. Third-party countries/foreign operators should enjoy the right to overfly a foreign Exclusive Utilization Space upon prior notification.

Despite their mostly stationary nature, some high-altitude vehicles possess a certain degree of maneuverability. Foreign entities should then be entitled to transit their high-altitude vehicles through a foreign Exclusive Utilization Space provided that the underlying state is notified in advance.

4.3.12. *A license is required to provide services from an EUS established above a foreign territory*

When considering near space activities, two types of licenses can be envisioned: 1) a license to launch and operate a high-altitude vehicle; and 2) a license to provide near space services. The first one will be issued by the state in which the entity is registered which we may label State A. The state responsible to issue the second license is the one where the services are provided. If the services are expected to be offered within State A, State A would be in charge of issuing both licenses. Instead, if the entity intends to provide services to a third country, for instance State B, it would be the responsibility of State B to grant a service license. Obviously, State B would issue such a license if it deems the proposed activity not detrimental to its national security interests. The license would then include a series of requirements to prevent harmful interferences with pre-existing services as well as the modalities to supervise the licensed operations. Furthermore, the licensing authority would be entitled to demand an annual fee from the licensee. This kind of licensing system is not uncommon. For example, in the context of the licensing of a mega-constellation of satellites, the Federal Communications Commission has recently granted OneWeb access to the U.S. communication market.⁸⁷ Since OneWeb is a U.K.-based company, the launch of its satellites must be authorized by the United Kingdom.⁸⁸ However, in order to

⁸⁷ See *WorldVu Satellites Limited*, 32 FCC Rcd. 5366 (2017) (granting a declaratory ruling regarding the conditions under which WorldVu will be allowed to enter the U.S. market); see also Press Release, Fed. Comm. Comm'n, FCC Grants OneWeb U.S. Access for Broadband Satellite Constellation (2017), <https://docs.fcc.gov/public/attachments/DOC-345467A1.pdf> [<https://perma.cc/3TR9-XFN2>] (announcing the grant of U.S. access to WorldVu).

⁸⁸ According to Article VI of the 1967 Outer Space Treaty, a non-governmental entity willing to undertake space activities must be authorized and continuously supervised by an appropriate state. See *Treaty on Principles Governing the Activities of States in the Exploration and Uses of Outer Space, Including the Moon and Other Celestial Bodies* art. VI, Apr. 22, 1968, 18 U.S.T. 2410, 610 U.N.T.S. 205 (establishing the criteria for permitting NGOs to undertake space activities); see also F.G. von der Dunk, *The Origins of Authorization: Article VI of the Outer Space Treaty and International Space Law*, in 6 *STUDIES IN SPACE LAW* 3-28 (F.G. von der Dunk ed., 2011) (discussing Article VI).

provide broadband services using satellite technologies in the United States, it requires a license to do so by the competent U.S. authority.

5. CONCLUSION

Near space activities are the future of aerospace operations. Considering that these activities are envisioned to be profitable, several non-governmental entities have entered the near space business with the goal of offering services on a domestic and international basis.

Despite these positive factors, the uncertain legal status of the near space still slows down the realization of near space activities on a large scale. This uncertainty particularly harms international activities involving vehicles placed above a foreign near space. This situation may not only lead some entities to renounce their near space ambitions, but may also affect customers, who could be deprived of otherwise unavailable services.

In order to overcome these obstacles and to enable accessibility of services, this Article has suggested a new classification of the near space as the Exclusive Utilization Space. At its core, the EUS proposal attempts to balance the rights of the state above which territory an EUS is established—the underlying state—and the interests of the entities willing to provide near space services. On one hand, while the EUS should not belong to the underlying state, such a state should retain sovereign and priority rights of utilization and management therein. On the other hand, domestic and especially foreign entities, upon meeting safety and security requirements, should have the opportunity to deploy their vehicles and to provide services. The EUS proposal is not meant to undermine the legal position of the underlying state, which has the exclusive authority to set up an EUS above its land as well as the right to lay down the operation conditions to be complied with by operators.

The Authors of this Article are aware of the controversial and still embryonic nature of the EUS proposal. Furthermore, this proposal might need some refinement and a greater level of specificity before being applied in practice. Nonetheless, the ultimate goal of this Article is to draw attention to the legal issues surrounding the near space and to encourage the international community to engage in discussions about developing a regulatory

framework to govern activities therein. In this respect, a possible forum for this discussion could be the ICAO, which has already showed interest in addressing and possibly regulating aerospace matters, as demonstrated by the recent establishment of the ICAO Space Learning Group.

We conclude with the hope that the near space era will bring benefits to the broadest number of users, especially civilians, and will contribute to broader access to services and better conditions across the globe.