

Sovereignty beyond Borders: Unraveling the Enigma of Airspace and Outer Space Interplay

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Abstract

This paper examines the complex issue of delimitation and sovereignty in airspace and outer space, tracing the evolution of these concepts from ancient jurisprudence to contemporary international law. The study delves into the origins of air sovereignty, emphasizing the legal maxim "Cuius est solum eius usque ad coelum et ad inferos" and the subsequent development of aviation law, including the pivotal Convention on International Civil Aviation. It further explores the nascent field of space law, highlighting the Outer Space Treaty and its designation of outer space as *res communis humanitatis*. The paper analyzes various attempts to delineate a boundary between airspace and outer space, contrasting the spatialist, functionalist, and "wait-and-see" approaches. It evaluates the pros and cons of establishing a clear demarcation, considering technological advancements and geopolitical tensions. Potential solutions are proposed, including drawing analogies from the Law of the Sea and enhancing the role of international organizations such as ICAO. The paper underscores the urgency of resolving these issues to ensure normative certainty and address the growing congestion in the skies.

Keywords: Air Law, Airspace, Delimitation, Functionalist, Global Commons, ICAO, Outer Space, Sovereignty, Space Law, Spatialist, Suborbital

I. Introduction

This paper will focus on the issue of the delimitation and of sovereignty in the regions of airspace and outer space. The question "*Who owns the air?*" has been plaguing scholars for centuries, if not millennia. Be it because of the ancient Romans, who wondered about overhanging buildings and fruits growing on trees, or Renaissance Justices asking who would own bird catches nesting in the trees growing on an estate, there is a rich jurisprudence tasked with unravelling this conundrum. After the advent of human flight, such a question gained new depth, and this proved to be evermore relevant in light of the successive leaps and bounds made by humankind in soaring through the skies first, and then the stars. The concern was not whether a State would be sovereign over the space immediately adjacent to its terrain, but more so to what height its authority

would extend. A prime example of an instrument that established itself as essential in finding an answer to this query is the Convention on International Civil Aviation (CC44), which stated that every State, regardless of its membership, would have sovereignty over their airspace. What this treaty did not do, however, was delimit clearly, or indeed at all, the two regions. This is a herculean task that has become ever more relevant and urgent, now that the skies are becoming increasingly congested, and, thus, are in dire need of normative certainty.

II. Methodology

This paper employs a comprehensive review of existing legal frameworks, historical jurisprudence, and contemporary scholarly debates to analyze the issue of delimitation and sovereignty in airspace and outer space. Primary sources, including international treaties like the Convention on International Civil Aviation (CC44) and the Outer Space Treaty (OST), are examined to understand their provisions and limitations. Additionally, secondary sources such as legal commentaries, academic articles, and expert opinions are utilized to contextualize the historical evolution and current interpretations of air and space law.

The study also explores different approaches to delimitation—specialist, functionalist, and "wait-and-see"—by reviewing the arguments and proposals presented by various legal scholars and international bodies. Comparative analysis is employed to draw parallels between airspace and maritime law to identify potential analogies that could inform the establishment of boundaries in space.

Furthermore, the paper assesses technological advancements and geopolitical developments that impact the need for clear delimitation, referencing recent incidents involving interference with global navigational satellite systems. Through this multi-faceted approach, the paper aims to provide a thorough understanding of the legal, practical, and theoretical aspects of sovereignty in airspace and outer space.

III. Results

In light of this research, it was discovered that the interplay between sovereignty and delimitation in airspace and outer space is both intricate and evolving. The examination reveals that while sovereignty over airspace is a well-established principle with deep historical roots, the legal status of outer space remains distinctly separate, governed by different rules and principles. The study highlights various attempts to address the lack of clear boundaries between these two domains. Different theoretical approaches, which will be elaborated upon in the following subsections, offer distinct perspectives on how to approach the issue of delimitation. Additionally, the research uncovers the implications of these differing views on international legal frameworks and the ongoing debates within the field. The results underscore the complexity of achieving a universally accepted solution and point to the need for further exploration and clarity in

addressing the boundary between airspace and outer space.

A. De Maiestatis Natura

The concept of sovereignty is a fickle one, and it seems to elude any attempt at definition, a difficulty enhanced due to the continuously evolving nature of the concept, for historical as well as political reasons. There are even some that argue how sovereignty as a concept could, and should, be discarded, in exchange for new ideas of sharing of power.¹ In any case, in the current landscape of international law, sovereignty is still a pillar of international law,² generally referring to the authority that a State enjoys within its boundaries. The concept of *souveraineté* can be first found in Jean Bodin's postulations,³ who elaborated on the King's authority over the aristocracy by stating that "*Majestas est summa in cives ac subditos legibusque soluta potestas*".⁴

Time, in any case, led to the concretization of the idea that the power to set the law would belong to one entity, entrusted with absolute authority. From a political perspective, the roots of sovereignty must be traced to the 17th century, in the treaty that marked the birth of the Westphalian system, according to which every State has exclusive sovereignty over its territory,⁵ a concept that was then consolidated into *Jus Cogens* through the Charter of the United Nations (UN)⁶ and fortified by other binding principles.⁷

Sovereignty is a two-fold concept, as it can be both internal as well as external, and

¹ This is an idea sprung from the growing importance of organizations such as the European Union (EU). For further comments see: Grauberg I. (2019). *National Sovereignty – an Outdated Concept of the Globalizing World?*, Tallinn University School of Governance, Law and Society. <http://www.tlu.ee/en/School-of-Governance-Law-and-Society>

² Bolt M. (2013). The Changing Nature of Sovereignty. In *E-International Relation*. <https://www.e-ir.info/2013/10/17/the-changing-nature-of-sovereignty/>

³ While Bodin introduced the concept, there are several similar ideas in precedent times. For further comments see: Lee D. (2012). *Sources of Sovereignty: Roman Imperium and Dominion in Civilian Theories of Sovereignty*, Editrice Il Mulino S.p.A.. <https://doi.org/10.7381/70632>

⁴ This highlighted how the *princeps legibus solutus est* -and thus untethered- from the law. Bodin specifically stated that the "*Sovereign prince is accountable only to God*". For further comments see: Bodin J. (1579). *Les six livres de la république*. <https://gallica.bnf.fr/ark:/12148/bpt6k536293> , & Ulpian. *Digesto*, 1.31.1.

⁵ This only refers to *de jure* sovereignty: it stands to reason that a State must also be able to uphold its authority and thus be *de facto* sovereign.

⁶ Charter of the United Nations, Art.2(1).

⁷ Such as that of Non-Intervention or of respect for territorial integrity. For further comments see: Onuf N.G. (1971). The principle of nonintervention, the united nations, and the international system. In *International Organization*, 25(2), 209-227. <https://www.jstor.org/stable/2706084>

such aspects are deeply intertwined: where the former refers to the ability of the State to project its power within its territorial borders and over its inhabitants, and, consequently, to be independent of any foreign interference which might hinder such ability, the latter is what is most important when addressing international matters, hence, a State must be able to enforce its will. This second part of the concept is deeply intertwined with the first and refers to the ability to be independent of external interferences.⁸

1. Sovereignty in the air

When thinking of sovereignty in the air, one cannot ignore its origins and history, with the maxim “*Cuius est solum eius usque ad coelum et ad inferos*” playing a fundamental role in it.⁹ According to this legal tenet, whoever owns the soil will also own everything that is below, as well as everything that is above it. This provision has a rich history in various jurisdictions, most notably in the Common Law,¹⁰ which eventually led to its almost universal spread even up to the 19th century, with some European civil codes, even including it in their provisions.¹¹ The topic of air sovereignty gained attention

⁸ A definition which, looking at the current political scene, might surprise and give relevance to the idea that sovereignty of States has been greatly diminished as of the last century. This is also, however, due to how States have bound themselves in an inextricable net of treaties and obligations that reduce their space of manoeuvre. While that might be true, such obligations bound all States and are ones born out of their willingness to be bound by them, in a pact that resembles the one done by the people in Hobbes’ *Leviathan*. For further comments see: Levinson D.J. (2023). Law versus sovereignty. In *Law for leviathan: constitutional law, international law, and the state*, online edn., Oxford Academic. <https://doi.org/10.1093/9780190061593.003.0004>

⁹ It is postulated that the concept travelled to Oxford thanks to Franciscus, the son of Accursius, who was invited to teach there by Edward I. The rule spread through the precedents-based system, also due to the authority of some of its supporters: namely Edward Coke in *Bury v. Pope*, *Penruddock* and *Baten*, and William Blackstone in 1768. This concept would then travel to American Law. For further comments see: Coke E. (2003). *The selected writings and speeches of Sir Edward Coke*. Sheppard T. (eds.), Liberty Fund, Indianapolis, Indiana, 2, 607. <https://oll.libertyfund.org/titles/shepherd-selected-writings-of-sir-edward-coke-vol-ii> ; Cooper J.C. (1952). Roman law and the maxim ‘cujus est solum’. In international air law. *McGill Law Journal*, 1(1). <https://canlii.ca/t/7mz3p> ; Donohue L.K. (2021). Who owns the skies? Ad coelum, property rights and state sovereignty. In FEENEY M. (eds.), *Eyes to the sky: privacy and commerce in the age of the drone*, Cato Institute. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3823362 ; Klein H.D. (1959). Cujus est solum ejus est... quosque tandem. In *Journal of Air Law and Commerce*, 26(3:2), 237-254. <https://scholar/smu.edu/jalc/vol26/iss3/2>

¹⁰ Numerous other scholars have written on it, such as Jacques De Cujas, Hugo de Groot and Jean-Etienne Danck.

¹¹ Namely the Code Napoleon, and the German and Swiss Civil Codes. For further comments see: Cheng B. *Air law*, in *Encyclopedia Britannica*, 2019. www.britannica.com/topic/air-law

with Montgolfier's experiment,¹² and, later, with the development of aircraft, advancements that led the international community to attempt to settle the question, first through the Convention Relating to the Regulation of Aerial Navigation (PC19) and later through the CC44. The latter utilized the former's first article to state that every State had sovereignty over its territory's¹³ airspace,¹⁴ a provision urgently needed, due to the recent showcasing of the pernicious effects aircraft could wreck upon a State.¹⁵

2. Sovereignty in outer space

Where Air Law is still young, Space Law can be said to be still in its infancy: the main instrument to which one must refer when looking at the field is certainly the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (OST), which was drafted amid the Cold War, a topical moment which affected this and the following treaties that attempted to provide a legal framework to deal with this new frontier. It is unsurprising that the Member States opted to shy away from any notion of sovereignty being extended to encompass Outer Space, going so far as to define it as a *res communis omnium*¹⁶ with

¹² This would also put in question the validity of the *Ad coelum* principle, due to the trivial trespasses it could have led to.

¹³ This includes over its coasts' too, if applicable.

¹⁴ We have ignored the adjectives added to sovereignty because they do not *add* anything to the concept itself. For further comments see: Mendes De Leon P. (2002), The dynamics of sovereignty and jurisdiction in international aviation law. In Kreijen G *et al.*(eds.) *State, sovereignty, and international governance*, Oxford University Press, 483-495. <https://doi.org/10.1093/acprof:oso/9780199245383.003.0021>

¹⁵ In modern times the concept of sovereignty *Ad coelum* is not supported, also due to rotational issues of the Earth. Worthy of being mentioned is Rolando Quadri's statement that embracing this would be comparable to saying sovereignty would extend *usque ad absurdum*. For further comments see: Quadri R. (1960), Prolegomeni al diritto internazionale cosmico. In *Quaderni di diritto internazionale*, Istituto per gli Studi di Politica Internazionale, Milano, 1. https://books.google.nl/books/about/Prolegomeni_al_diritto_internazionale_co.html?id=NTKBGwAACAAJ&redir_esc=y

¹⁶ This term also refers to global commons: as per John Vogler, these are social constructs, the definition of which varies depending on the historical moment they are being analyzed in. In any case, looking at Roman law, these are domains owned by everyone while being outside of anyone's sole jurisdiction and claim. This concept is opposed to that of *res nullius*, as it refers to something that cannot be occupied, and on which sovereignty cannot be exercised. When referring to space, it is more apt to define it as *territorium commune humanitatis*. For further comments see: Cheng B. (1980). The legal regime of airspace and outer space: the boundary problem functionalism versus spatialism: the major premises. In *Annals of Air and Space Law*, 5, 323-362 <https://doi.org/10.1093/acprof:oso/9780198257301.003.0014> ; Vogler J.(1995). *The global commons: a regime analysis*. Chichester, Wiley&Sons. <https://doi.org/10.2307/2625565> & Wijkman

all the legal consequences that such a statement entailed. Regardless of this discourse there is, to date,¹⁷ no such thing as sovereignty in Outer Space.¹⁸

B. Definitory Attempts to Establish a Boundary

The aforementioned two regimes have very different stances on sovereignty: where it is foreseen in one, it is adamantly excluded in the other, a difference that would not create issues if a clear delimitation of the two areas existed: this, however, is not the case, and the obvious confusion leads to several issues.¹⁹ It comes as no surprise, therefore, that there have been many attempts to find solutions to this thorny problem, which led to the establishment of opposing schools of thought.²⁰

1. The spatialist approach

The spatialists believe that a clear limit must be drawn between airspace and outer space. Multiple criteria have been entertained over the decades,²¹ but the one that is given

M. (1982). Managing the global commons. In *International Organization*, 36(3), 511-536. <https://doi.org/10.1017/S0020818300032628>

¹⁷ A coalition of equatorial States attempted to set a new ideology according to which geostationary orbit would be included in a State's sovereignty. Despite the interesting, and potentially valid, arguments about how the OST would give a leg up to technologically advanced countries enabling their dominance, this instrument did not enter into force. For further comments see: Gorove S. (1979). The Geostationary Orbit: Issues of Law and Policy. In *The American Journal of International Law*, 73(3), 444-461. <https://doi.org/10.2307/2201144>

¹⁸ Notably, however, a state will be held responsible for the activities undertaken in space under its aegis. This can both refer to private entities as well as public ones. For further comments see: *Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies*, United Nations, London/Moscow/Washington D.C., 27 January 1967.

¹⁹ These include the issue of liability: while, in aviation, the damage caused by aircraft falls on the Air Carrier, or the operator, for Space Law the responsibility will fall on the launching State. For further comments see: *Convention for the unification of certain rules for international carriage by air (Montreal Convention)* & United Nations General Assembly (UNGA), *Convention on international liability for damage caused by space objects*, Res.2777(XXVI), A/RES/2777(XXVI), 1971.

²⁰ Reinhardt D.N. (2007). The vertical limit of state sovereignty. In *Journal of Air Law and Commerce*, 72(1:4). <https://scholar.smu.edu/jalc/vol72/iss1/4/>

²¹ Such criteria were -mainly- as follows: one based on the division of outer space into zones, as well as one that would make use of the atmosphere's layers, one that would look at the gravitational effects of the Earth, one based on the maximum height that aircraft could reach, or use the lowest point a satellite orbiting around the planet would reach, and one based on the region of effective control a State could exercise. Another criterion utilized the concept of atmosphere with where the border would start and, lastly, there was one that built upon the aerodynamic characteristics of flight instrumentalities, generally referred to as the *Von Kármán line*. For further comments see: Benkoe M. & Plescher E. (2013). *Space law: reconsidering the definition/delimitation question and the*

the most credit finds the delimitation line being positioned at around 100 and 110 kilometres above sea level, as that is the lowest perigee possible for a satellite,²² a distance which, amongst other reasons, is also said to respect the so-called “*right of peaceful passage*”, defined in some instances as customary.²³

2. The functionalist approach

Conversely, the functionalists believe that there is no real need for a physical boundary to be postulated, and even less for one to exist. They believe that the limit should depend on the kind of activities being undertaken, and apply the respective accordingly. Such a theory, however, has as its essential element that of achieving a better definition of terms currently utilized in the space sector, to then have a clearer overview of what would be classified as what.²⁴

3. The “*wait-and-see*” approach

As highlighted by Bin Cheng, a third category of individuals can be found, the “*wait-and-seers*”,²⁵ meaning those who believe that siding with any spatial delimitation²⁶ is myopic, insofar as it will lead to problems once the technology reaches further levels. It is argued that the lack of a definition, and, therefore, of a border, has not yielded any

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passage of spacecraft through foreign airspace. Eleven International Publishing, The Hague. https://www.researchgate.net/publication/291521873_Space_Law_Reconsidering_the_Definition_Delimitation_Question_and_the_Passage_of_Spacecraft_through_Foreign_Airspace

²² This will satisfy several other suggested ideas: it is the lowest height the satellite will keep its orbit while being above the maximum height aircraft can reach and is in line with the -alleged- state practice.

²³ It is debatable whether the lack of objections to the orbiting of space objects such as Sputnik 1, 2 and Explorer 1 cement the creation of state practice. The lack of opposition might also be due to limited opportunities for other States to manifest their disagreement. For further comments see: Gangale T. (2018), *How high is the sky?*. Martinus Nijhoff Publishers, Leiden, The Netherlands. <http://dx.doi.org/10.1163/9789004366022>

²⁴ The terms "spacecraft", and "aircraft" need clearer distinction between one another, and the former and "space activity" also require further elaboration, as many terms in the realm of space law.

²⁵ Cheng B. (1983), The legal status of outer space and relevant issues: delimitation of outer space and definition of peaceful use. In *Journal of Space Law*, 11(1), 93. <https://heinonline.org/HOL/LandingPage?handle=hein.journals/jrsl11&div=16&id=&page=>

²⁶ This would, potentially, also lead to the establishment of a corresponding right of free passage.

conflicts,²⁷ and that any potential quandary about activities that may not fall clearly under either Air Law or Space Law, will be addressed on a case-by-case basis.²⁸

C. Pros and Cons of a Demarcation

A prime reason that is upheld by those in favor of a clear demarcation between the two regions is the different legal systems that they have. Having such a limit would also solve the “issue”²⁹ of passage of spacecraft over a State’s territory and inside its airspace.³⁰ The clear problem with the stated need to establish a definition of a border between the two regions is the lack of any universally accepted criteria that would allow for such a definition to be relevant: while this is true, the regions are otherwise easily distinguishable when it comes to the tools being used in them.³¹

Lastly, it seems another issue about current space activities is that of accidents and liability for damage caused by a space object: as per the OST and the Convention on International Liability for Damage Caused by Space Objects of 1972 (LIAB), the region in which the accident was to happen is irrelevant, as both airspace and outer space are mentioned. The same argument can be made for the Convention on Registration of Objects Launched into Outer Space (REG) and the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (ARRA).³²

IV. Discussion

While, as mentioned, there is no agreement about this, many States seem to rally behind the idea of a boundary at a vertical height of around 100 kilometres. While this number may have a strong backing, there is no consensus: the question of delimitation and demarcation has been on the agenda of the United Nations Committee on the

²⁷ Dodge M.S. (2009). Sovereignty and the delimitation of airspace: a philosophical and historical survey supported by the resources of the Andrew G. Haley archive. In *Journal of Space Law*, 35(1), 26. <https://heinonline.org/HOL/LandingPage?handle=hein.journals/jrsl35&div=7&id=&page=>

²⁸ This specifically refers to the instance of suborbital flight. For further comments see: UNA/AC.105/889/Add.10.

²⁹ The issue is, as of now, not yet a problem, but it may become so when more States become space-faring.

³⁰ The limited number of similar instances is also due to the general practice of launching activities: most space-faring countries have utilized launching bases that were either distant from their borders or not over international waters. This might change in the future and, if that were indeed the case, the States in which airspace the objects would pass may raise complaints.

³¹ Vehicles being used in outer space are different than those being used in aviation for example.

³² Ibid. n.21.

Peaceful Uses of Outer Space (UNCOPUOS) for over five decades,³³ and the latest update consisted of the acknowledgement that the only solution to issues that have been plaguing the field is to set up an agreed-upon border at the 100 kilometres vertical height and establish a regime to address the parts of space activities that would fall in the airspace, as well as any of those activities that are deemed suborbital.³⁴

It could also be argued that the advancement in technology that is required for certain a definition to be needed has already taken place. Such an observation can easily be made when looking at recent geopolitical tensions across the globe, where interference with Global Navigation Satellite Systems (GNSS) is being employed as a warfare tactic.³⁵ The activities of spoofing and jamming are particularly relevant for this analysis, with the former being a technique of interfering with the receiver of the signal, which will lead it to either give out wrong information or stop working completely.³⁶ When it comes to jamming, the goal is a similar one, albeit less treacherous, as the author will effectively overpower the signal, so to halt any kind of communication.³⁷ Such operations not only affect other States' ground- and air-based activities, but also those of other interested parties, namely the aircraft of third States, and are seen intrinsically negatively by the international community as well as the International Telecommunication Union (ITU).³⁸ Seeing how most of the aforementioned practices that aim at causing interferences attempt to disrupt telecommunications that play a key role in aviation, be it of a civil or military nature,³⁹ it is not outlandish to inquire about whether they tamper with a State's

³³ Dempsey P.S. & Manoli M. (2017). Suborbital flights and the delimitation of air space vis-à-vis outer space: functionalism, spatialism and state sovereignty. In *Annals of Air and Space Law*, XLII. <https://ssrn.com/abstract=3241421>

³⁴ Cheney T. & Napier L. (2015). Policy analysis: air versus space, where do suborbital flights fit into international regulation?. In *Journal of Science Policy & Governance*, 7(1). <https://www.sciencepolicyjournal.org/uploads/5/4/3/4/5434385/pm3finalformatted.pdf>

³⁵ Intertanko (2019). *Jamming and spoofing of global navigation satellite systems (GNSS)*. <https://www.maritimeglobalsecurity.org/media/1043/2019-jamming-spoofing-of-gnss.pdf>

³⁶ Westbrook T. (2023). A taxonomy of radiofrequency jamming and spoofing strategies and criminal motives. In *Journal of Strategic Security*, 16(2), 68-80. <https://doi.org/10.5038/1944-0472.16.2.2081>

³⁷ Rooney J.J. (2020). Weaponizing space: it was just a matter of time. In *American Intelligence Journal*, 37(1), 87-97. <https://www.jstor.org/stable/27087686>

³⁸ Mountin S.M. (2014). The legality and implications of intentional interference with commercial communication satellite signals. In *International Law Studies*, 90(101). <https://digital-commons.usnwc.edu/ils/vol90/iss1/12/>

³⁹ It must be highlighted that referring to activities and laws that pertain to warfare and wartime triggers the reference to new branches of International Law: all current instruments about space activities refer to them as peaceful ones and aimed at pushing humankind's knowledge further. Similarly, the CC44 itself only deals with civil aviation. Conversely, the framework for the use of force consists of

sovereignty and, if so, whether they are a sufficient reason for a definition to be warranted, especially if they were “passing” through what might be sovereign airspace.⁴⁰

A. Potential Solutions

Having ascertained that there is no such thing as an established limit or definition of where Air or Outer Space begin and some of the problems this leads to, the following considerations will try to provide options on how to address the issue.

1. Per analogiam

When looking at ways to solve legal issues, the analogy is often used. In such instances, legal provisions that deal with a different case than the current one, but that might still carry a resemblance to the first, will be used to fill the legislative gap.⁴¹ In the field of international law, the method of “borrowing” from another branch is often utilized, with the same process being adopted to flesh out Space Law, by taking provisions from the Law of the Sea and the Antarctic System.⁴² A potential way to deal with this conundrum is by referring to the former once again, specifically through the United Nations Convention on the Law of the Sea (UNCLOS), which is widely known for its thoroughness. The similarities between airspace and outer space and the different kinds of waters are multiple, and it has been postulated that a solution to the seemingly all-encompassing legal question might be to “pick and choose” some ideas from this system. A self-evident comparison can be made between air space and territorial waters, as both are areas in which the State will be able to project its sovereignty, and a similar

two branches: *Jus ad Bellum*, which determines the lawful justifications for resorting to force, and *Jus in Bello* governs the conduct during armed conflicts. For completion's sake, it should be noted that some authors postulate the existence of a *Jus Post Bellum*. In any case, the result of the interplay between the frameworks dealing with the use of force and international space law is still unclear, due to the “prioritization issue”, which sees two frameworks qualified as *leges speciales* overlapping. For further comments see: Bourbonnière M. (2004). Law of armed conflict and the neutralisation of satellites or ‘jus in bello satellitis’. In *Journal of Conflict & Security Law*, 9(1), 43-69. <https://doi.org/10.1093/jcsl/9.1.43> & Stahn C. (2006). ‘Jus ad bellum’, ‘jus in bello’ . . . ‘jus post bellum’? – Rethinking the Conception of the Law of Armed Force. In *European Journal of International Law*, 17(5), 921-943. <https://doi.org/10.1093/ejil/chl037>

⁴⁰ Radford J.H. (2005). *Telecommunications technology and sovereignty: effects on states as information transfer increased from the speed of oxcart to the speed of light*. Old Dominion University. <https://doi.org/10.25777/3y6q-ak07>

⁴¹ Vöneky S. *Analogy in international law*. Oxford Public International Law. <https://opil.ouplaw.com/display/10.1093/law:epil/9780199231690/law-9780199231690-e1375> .

⁴² Rogers R. (2019). The sea of the universe: how maritime law's limitation on liability gets it right, and why space law should follow by example. In *Indiana Journal of Global Legal Studies*, 26(2:10). <https://www.repository.law.indiana.edu/ijgls/vol26/iss2/10>

comparison can be drawn when looking at Outer Space and international waters, in which sovereignty is fully absent.

Following this line of thought, it would be possible to argue that an area inspired by the Economic Exclusive Zone (EEZ) could be developed, in which the State would only be able to benefit from a limited bundle of rights. This zone has been defined as “*Near Space*”, and could encroach anything below the altitude of 100 kilometres⁴³ but above 20,⁴⁴ and establishing this new “layer” would address multiple issues at once: this region would be one in which free passage of space objects could be allowed, while also achieving what UNCOPUOS failed to do for so many decades, by establishing a limit to both air and outer space.

B. Through International Organizations: ICAO or a New One?

Seeing the success that the International Civil Aviation Organization (ICAO) has had in addressing all manners related to its mandate, it is understandable how establishing a new entity with a similar mandate, but dealing with movements of vehicles that would cross the airspace and go into outer space could seem enticing. An issue could be reaching both an agreement as well as a consensus to achieve such a thing, which many States might not want to entertain, due to the possibility of merely modifying ICAO.

Utilizing the current framework would certainly make the process of addressing such issues much quicker, and the competencies of ICAO might be expanded through the adoption of new Annexes or the amendment of its current one.⁴⁵ Alternatively, the ICAO could create new Standards and Recommended Practices (SARPs): this is what might happen concerning the interferences with GNSS to ensure safety in civil aviation, which is its primary goal.

There are a few issues that would have to be dealt with, primarily the fact that the CC44 establishes a clear difference between civil and military aircraft, with everything that does not fall in the former category being labelled as a State aircraft. This is a system that clashes with that adopted in Outer Space, in which all vehicles must be registered to a State. Further changes would also be needed concerning the current perception of pilotless aircraft, which is regulated in Art.8 of the CC44,⁴⁶ as this is a definition which can apply to most space vehicles.

Conclusion

⁴³ Which seems to be the amount receiving the widest amount of support.

⁴⁴ This would also allow the new regime to mirror the “12 nautical miles” amount as per UNCLOS while being higher than commercial air space. For further comments see:

⁴⁵ Specifically to change what its regulations about aircraft apply to.

⁴⁶ Convention on International Civil Aviation, Art. 8.

The issue of delimitation and sovereignty in airspace and outer space as complex as it is urgent, given the growing congestion in these regions and the increasing importance of clear legal frameworks to govern activities within them. This topic is vital as it affects international law, technological advancements, and geopolitical stability. The principle of state sovereignty over airspace has long been established, encapsulated by the maxim "*Cuius est solum eius usque ad coelum et ad inferos*", and codified in treaties such as CC44. Conversely, outer space is designated as *res communis humanitatis*, free from state sovereignty, as outlined in the OST. Despite the clear need for a boundary to distinguish airspace from outer space, no universally accepted demarcation exists, leading to various proposed approaches, including the spatialist, functionalist, and "wait-and-see" schools of thought.

The urgency of establishing a clear boundary between airspace and outer space is evident to maintain order, ensure safety, and uphold the principles of international law. Without such a boundary, legal ambiguities and potential conflicts which already exist may worsen, exacerbated by technological advancements and political tensions. The complexity of this issue does not just lie in the task of finding ideas on how to establish a boundary per se, but more so in reaching a consensus on which criteria to embrace to do so: achieving this would benefit all of humankind, by facilitating peaceful and orderly conduct of activities in increasingly congested skies and orbits.

Thus, the international community must prioritize the establishment of a defined boundary through diplomatic efforts and consensus-building within bodies such as the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) and the International Civil Aviation Organization (ICAO). Future research possibilities include exploring technological advancements that may impact delimitation criteria, further analyzing the legal implications of GNSS interference, and developing comprehensive frameworks that integrate air and space law to address emerging challenges.

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