

From the Ocean's Abyss to the Vacuum of Space: Privatization in the Vertical Commons

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From the Ocean's Abyss to the Vacuum of Space: Privatization in the Vertical Commons

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Introduction

In reaction to recent academic calls for scholars to engage with verticality, volumes, and three spatial dimensions of territory (Braun 2000; Elden 2013; Steinberg and Peters 2015; Williams 2013), this paper critically analyzes political, legal and practical engagement with water, air and outer space. From the arcane depths of the seabed to celestial bodies in the sky, each of these unruly expanses differs from land-based materialities (Scott 2010; Ogden 2011), manifesting in distinct strategies of asserting sovereignty within devised jurisdictional zones (Baldacchino 2010). Aspects of these geophysical volumes resist established forms of establishing territorial sovereignty (Elden, 2010). Restrictions of oxygen, temperature, pressure, light, buoyancy, gravity, isolation, and/or immensity make these mediums hostile to human occupation, difficult to fix and regulate borders, and expensive to operate in (Sammler, 2016; Steinberg and Peters, 2015).

Such expanses are regarded as geocommons. They share many aspects of their social and legal constructions based on international treaties, utilizing a “common heritage” designation to integrate these spaces into a framework alongside normalized nation-states. Nonetheless, national and private entities are asserting themselves beyond treaty parameters. This paper analyzes recent sovereignty and resource claims on ocean, ice, airspaces, and outer spaces as well as the blurred boundaries of each.

Background

The naming of a new geologic epoch, the Anthropocene, is recognition that the Earth's *geocommons* – oceans, atmospheres and polar regions, are being overwhelmed by the influences of detrimental anthropogenic activities (Ramirez-Llodra. Et al. 2011; Robbins and Moore 2012). These regions, along with outer space, have been framed as the “common heritage of humanity” by a series of international treaties: The Antarctic Treaty, The Outer Space Treaty, and the U.N. Third Conference on the Law of the Sea (Table 1; Heim 1990). The Convention on International Civil Aviation similarly regulates airspace, but the Sea and the Space Treaty both also have direct relationships with air sovereignty. This paper seeks to examine emerging geographies of territory and sovereignty in these dynamic volumes. Utilizing recent scholarship on the territorializations of vertical spaces (Elden 2013; Sammler 2016; Weizman 2002), this research analyzes recent events of nationalization and privatization at different depths and heights in relation to these international treaties.

Despite the half-century since this era of defining and delineating these volumes, governance regimes have been slow to be implemented at the national and international level. However, improvements in technology, changing resources markets, and melting poles have renewed interests in regulating and utilizing these geocommons.

Methodology

Textual analysis of each treaty has been undertaken utilizing the lens of critical legal studies and with deep understanding and consideration of the physical processes and materiality of these

places. This review is then juxtaposed with recent and ongoing events that represent attempts to control these locations or lay claim to the resources there. Spatial interpretations of treaty rights and responsibilities in both horizontal and vertical planes offer a volumetric legal cartography with which these current events can be understood as observing or disregarding international law (Figure 1; Figure 2). While interrogating such social, legal and economic activities as they continue to expand in these places, this work seeks to advance both political and critical physical geography approaches to inquiry (Glassner 1991).

Discussion

Air and Sea

Many governments are struggling to incorporate their marine holdings within the framework provided by the Law of the Sea treaty, as large ambiguous spaces that represent different rights and responsibilities than their terra firma nation-state proper. There is the temptation to fully territorialize the ocean as an appurtenant extension of the coastal state, and just push the borders out to sea (Oxman 2006). Practical difficulties of operating at sea discourage such action, as well as the legal framework laid out in the Sea Treaty guaranteeing freedom of navigation in the Exclusive Economic Zones (EEZs) and Extended Continental Shelf (ECS) as well as the airspace above.

China's government in particular has pushed their legal claims beyond what the treaty allows in several instances. One example is how they have attempted to close off airspace above their EEZ, claiming an Air Defense Identification Zone (ADIZ) and utilizing fighter jets to deter aircraft (Figure 2). Several other countries have periodically implemented ADIZs over the years, including the United States after Pearl Harbor and again after the 9/11 attacks.

Another example of the Chinese government's over territorialization of air and sea is displayed in the island building in South China Sea disputed zones, well beyond China's EEZ. Adding sand atop sunken atolls not only stakes a rhetorical claim – a metaphorical flag planting via an increase in verticality– at least one of the constructed islands has an airstrip. This could increase the securitization and potential conflict in these disputed air and sea zones.

Space and Ice

The establishment of geopolitical norms in the geocommons is challenged as nations contend with the realities of governing three dimensions while testing jurisdictional boundaries. However, for the vertical extend of air and space, these boundaries have yet to be established at all (Flury and McKnight 1993). Neither legal scholarship nor physical sciences have a rigid boundary for where the earth's atmosphere ends and outer space begins. The gases that constitute earth's air do not simply end like a bounded sphere, but instead the concentrations decay exponentially as molecules escape earth's gravitational pull into space. Such material realities highlight the tightly bound socio-physical nature of law and geopolitics (Williams 2010).

Such distinctions are becoming increasingly important as national and international governance regimes grapple with the privatization of space travel. Even more, companies aspiring to mine resources on asteroids are pressuring national governments to protect their commercial claims. Demands to protect the profits of private enterprises in space directly counters the Outer Space Treaty that designates these resources as the property of all humankind. Yet, even as an original signatory, the United States Congress passed the Space Resource Exploration and Utilization Act of 2015 guaranteeing corporate spoils. Such violations of the original treaty might not seem significant until technology is much closer to making space mining a profitable endeavor, and the inevitability of these ventures is beyond certain. Seabed

mining, for example, has been on the verge of realization for decades, and still not one industrial scale mine is producing ores or profits (Sammler 2016).

Even if space mining might be a governance problem for an unspecified time in the future, initiating a breach on the common heritage principles could lead to consequences down here on earth. Salazer (2015) argues that the Antarctic Treaty could hold the key to regulating outer space resources given decades of success in international cooperation and peace on the ice. Unfortunately, the opposite could also be true, and a disintegration of one treaty could undermine the others. At least many years of activism have generated a corpus of philosophy on environmental ethics which have some legal traction national and internationally. Up till now, only a few NASA scientists have had to consider the ethics of operating in off-earth environments.

Conclusions

Territorializations of geocommones place very interesting questions to political, legal and critical geography (Glassner 1991). These locations deny divisions between of land/sea/air/space, national/international, in their transgressions of Cartesian geometries, borders and thought (Steinberg and Peters 2015). It is apparent that as each of these volumes escapes boundaries and categorizations, the treaties created to define a governance regime also spill over into each other (Peterson 1997). As the implications and implementations of these spaces and treaties are still being determined, engaging in dialogues surrounding economic fairness, environmental justice and resource access to these geocommons are of utmost importance while social and legal framings are still underway.

Figures

Table 1: Main treaties regulating earth’s geocommons.

Treaty Title	Opened for Signature	Entered into Force	Parties to the Treaty
Convention on International Civil Aviation	1944	1947	191
Antarctic Treaty	1959	1961	52
Outer Space Treaty	1967	1967	103
Convention on the Law of the Sea	1973	1994	167

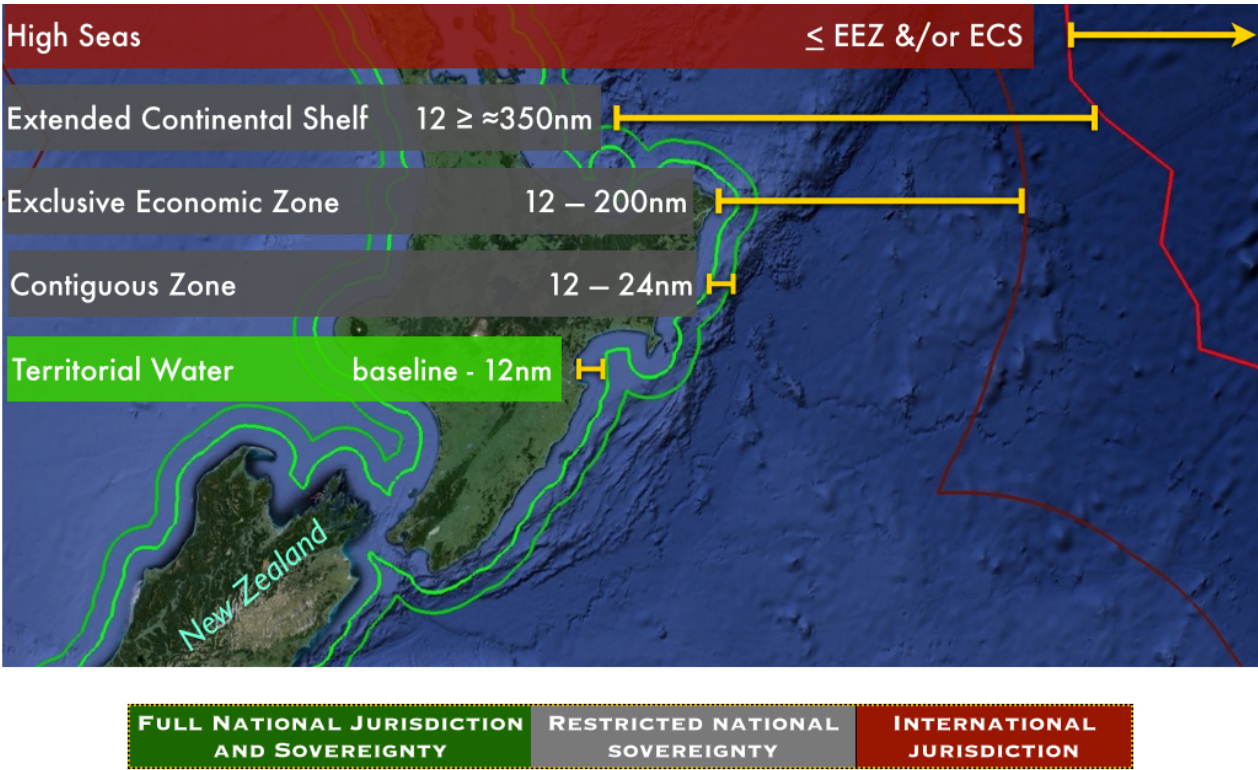


Figure 1: Offshore jurisdictions created by the Law of the Sea Treaty offer an example of a horizontal gradient of sovereignty from shoreline to high seas/international waters. Image by K. Sammler, 2015. Data from United Nations.

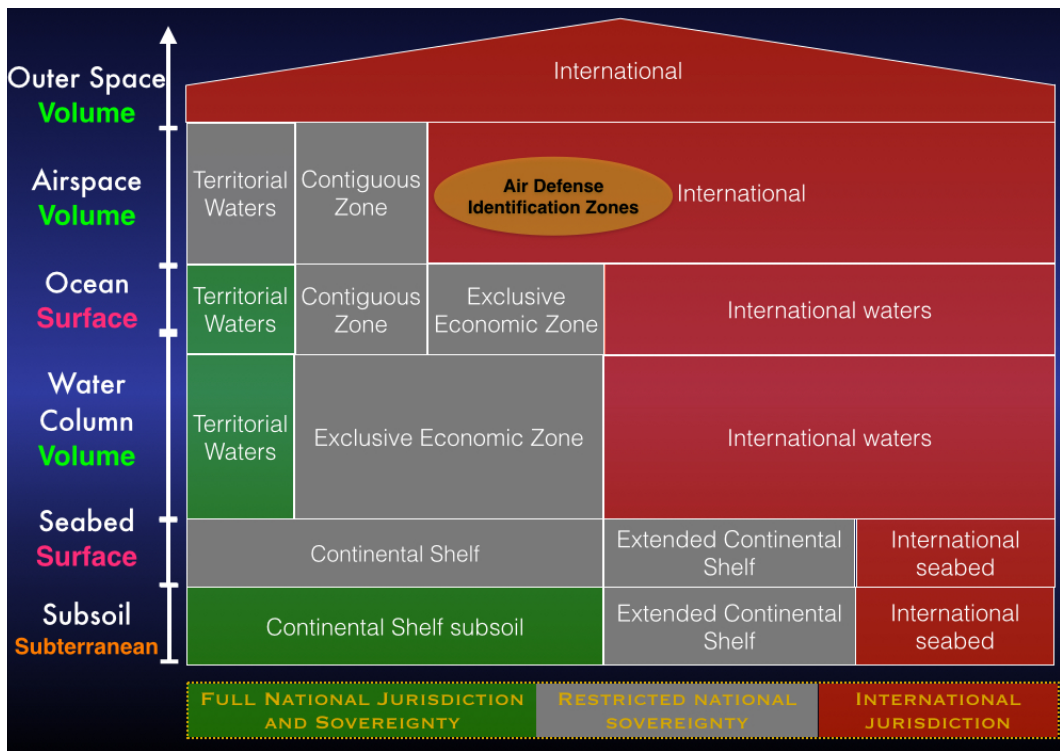


Figure 2: Ocean, Air and Space jurisdictions and associated territorial sovereignty as defined by international treaties. Image by K. Sammler, 2015. Data from United Nations.

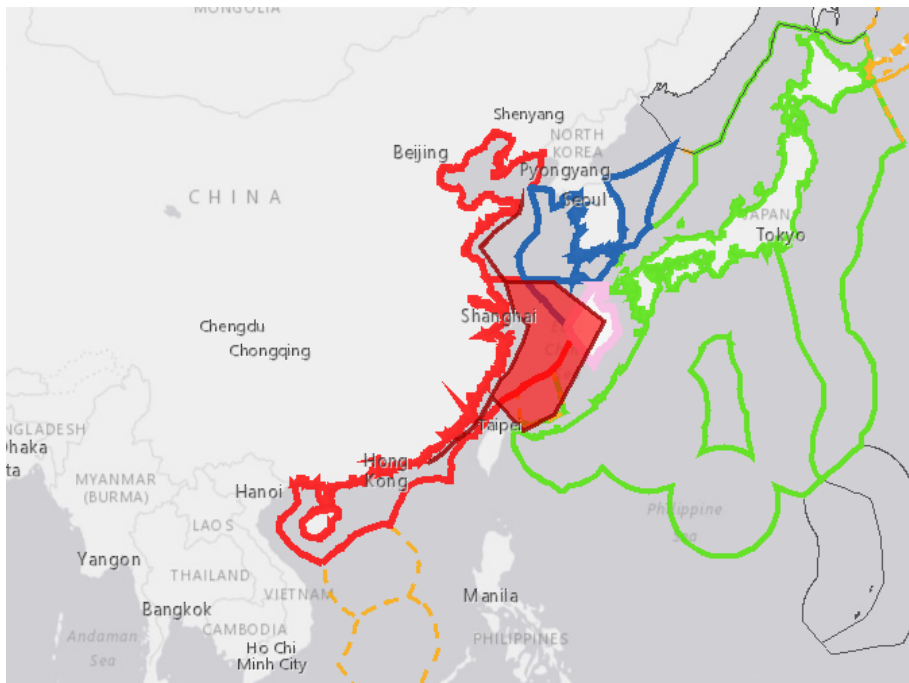


Figure 3: Restricting navigation within the ocean or air space of an EEZ is not allowed by the Law of the Sea, yet several nations have air zones which require an aircraft identify itself (ex: Japan, S. Korea, U.S.). China's Air Defense Identification Zone (ADIZ) is shown in solid red while China's Exclusive Economic Zone is the red outline. It is clear that the ADIZ is beyond their EEZ and aircraft entering this airspace have been deterred by Chinese military aircraft. Japan EEZ – green outline, S. Korea – Blue, Joint Development – pink, Disputed Zones – orange dash.

References

- Antarctic Treaty. (12 UST 794; 402 UNTS 71; 19 ILM 860 (1980)). Washington, DC. Available at http://www.ats.aq/documents/ats/treaty_original.pdf.
- Baldacchino, G. (2010). Island enclaves: offshoring strategies, creative governance, and subnational island jurisdictions. McGill-Queen's University Press, Montreal.
- Braun, B. (2000). Producing vertical territory: Geology and governmentality in late Victorian Canada. *Cultural Geographies*, 7(1):7–46.
- Convention on International Civil Aviation. (Doc 7300). Available at http://www.icao.int/publications/Documents/7300_cons.pdf.
- Elden, S. (2010). Land, terrain, territory. *Progress in Human Geography*, 34(6):799–817.
- Elden, S. (2013). Secure the volume: Vertical geopolitics and the depth of power. *Political Geography*, 34:35–51.
- Flury, W. and McKnight, D. (1993). Space debris: An international policy issue. *Advances in Space Research*, 13(8):299–309.
- Glassner, M. I. (1991). The frontiers of earth - and of political geography: The sea, Antarctica and outer space. *Political Geography Quarterly*, 10(4):422–443.
- Heim, B. E. (1990). Exploring the last frontiers for mineral resources : a comparison of international law regarding the deep seabed, outer space, and Antarctica. *Vanderbilt journal of transnational law*, 29:819–849.
- Ogden, L. A. (2011). *Swamplife: People, Gators, and Mangroves Entangled in the Everglades*. Quadrant Books. University of Minnesota Press, Minneapolis, MN.
- Oxman, B. H. (2006). The territorial temptation: A siren song at sea. *American Journal of International Law*, 100:830–851.
- Peterson, M. J. (1997). The use of analogies in developing outer space law. *International Organization*, 51(2):245–274.
- Ramirez-Llodra, E., Tyler, P. A., Baker, M. C., Bergstad, O. A., Clark, M. R., Escobar, E., Levin, L. A., Menot, L., Rowden, A. A., Smith, C. R., and Dover, C. L. V. (2011). Man and the last great wilderness: Human impact on the deep sea. *PLoS ONE*, 6(8):e22588.
- Robbins, P. and Moore, S. A. (2012). Ecological anxiety disorder: diagnosing the politics of the anthropocene. *cultural geographies*, 20(1):3–19.

Salazar, J. F. (2015). Antarctica may hold the key to regulating mining in space. *The Conversation*, August 9(Available online at: <http://theconversation.com/antarctica-may-hold-the-key-to-regulating-mining-in-space-45702>, Last checked Aug 17, 2015).

Sammler, K. G. (forthcoming 2016). *The Island: Perspectives from Human Geographies*, chapter The Deep Pacific: Island Governance and Seabed Mineral Development. Routledge, New York, NY.

Scott, J. C. (2010). *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia*. Yale Agrarian Studies Series. Yale University Press.

Steinberg, P. E. and Peters, K. (2015). Wet ontologies, fluid spaces: giving depth to volume through oceanic thinking. *Environment and Planning D: Society and Space*, 33.

United Nations Convention on the Law of the Sea. (Doc A/Conf.162/122). New York: United Nations, Available at www.un.org/depts/los/convention_agreements/convention_overview_convention.htm.

United Nations Committee on the Peaceful Uses of Outer Space. (18 UST 2410, 610 UNTS 205, 6 ILM 386 (1967)). New York: United Nations, Available at <http://www.unoosa.org/oosa/SpaceLaw/outerspt.html>.

Weizman, E. (2002). The politics of verticality. *Open Democracy*, May 1, URL(Last accessed: December 2014): <http://www.opendemocracy.net/ecology-politicsverticality/article 801.jsp>.

Williams, A. J. (2010). Beyond the sovereign realm: The geopolitics and power relations in and of outer space. *Geopolitics*, 15(4):785–793.

Williams, A. J. (2013). Re-orienting vertical politics. *Geopolitics*, 18(1):225–246.