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ARTICLE

Space Law as Twenty-First Century International Law

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Space law's current moment reflects international law's current moment. That is, lawmaking processes aimed at updating international space law for the commercial space age reveal three larger themes about international lawmaking in the twenty-first century. These themes are: (a) evolutive lawmaking efforts by states; (b) the parallel development of laws in different fora by different actors; and (c) interpretive entrepreneurship by private actors. The themes are interrelated. They offer one story—but not the only possible story—about how international law develops when multilateral cooperation is out of reach. Together, the themes forecast a more pluralist international legal future, demanding new forms of cooperation among a wider range of law makers and takers.

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INTRODUCTION

Space law’s current moment reflects international law’s current moment. This essay examines international space lawmaking from a process perspective. It is an invited contribution to the University of Pennsylvania Journal of Law and Innovation’s wonderfully conceived symposium on “The Emerging Commercial Space Age.” Indeed, anticipating and facilitating commercial activity is now a central theme of law and policy development in international space law.

The essay claims that processes of developing and shaping space law to meet the demands of the commercial space age reveal three larger themes about international lawmaking in the twenty-first century. These themes are: (a) evolutive lawmaking efforts by states; (b) the parallel development of laws in different fora by different actors; and (c) interpretive entrepreneurship by private actors. The themes are interrelated. They offer one story—but not the only possible story—about how international law can develop in the absence of multilateral cooperation. What happens when states choose not to solve regulatory problems with a paradigmatic twentieth-century mode of cooperation: the binding multilateral treaty? Taken together, these three space law-making themes offer one answer. They forecast a more pluralist international legal future, demanding new forms of cooperation among a wider range of law makers and takers.

I. SPACE LAW IN CONTEXT

The commercial space age is emerging at a specific moment in international law. While twentieth-century international law featured visionary attempts to develop international law through multilateral treaties and international organizations, twenty-first century international law has offered more modest gains, and has so far foregrounded failures in multilateral cooperation.

To briefly sketch this backdrop, the twentieth century saw two major rounds of institution-building after the shocking events of the two world wars. The end of World War II initiated a remarkable flourishing of treaties and organizations such as the United Nations system; a slew of human rights, humanitarian law, and

criminal law instruments and institutions; and post-depression economic instruments including the Bretton Woods Institutions and the General Agreement on Tariffs and Trade. While the Cold War slowed the pace of international lawmaking, some areas nevertheless continued to develop apace, like international environmental law. The end of the Cold War accelerated multilateral governance with the further development of instruments in international trade, environment, human rights, criminal law, and other areas. The story, writ large, is one of ambitious international lawmaking: codification efforts, new conventions, and organizations that aimed for multilateralism, in its sense of “generalized reciprocity, in which states make common undertakings and agree to act cooperatively.”¹

The twenty-first century has ushered in something different. While there have been several major examples of multilateral international treaty-making, such as the 2015 Paris Agreement on Climate Change, on the whole this is an era of retreat from the multilateral aspirations of the post-war era. The retreat has been precipitated by stark failures of the international rules-based order: to prevent illegal acts of armed aggression; to coordinate a sufficient response to a global pandemic; to agree on the values that should regulate global markets; to foster distributional fairness and address the needs of the global south; and to respond to the existential threat of climate change. These failures have prompted waves of populism and isolationism; defections from major multilateral efforts in world trade, international criminal law, and other areas; and dimming prospects for major new multilateral agreements.

Against this backdrop, consider the development of international space law. The space law treaties are products of the twentieth century. The five treaties entered into force in a brief twelve-year period beginning in 1967.² They were negotiated between the key Cold War powers, the United States and the Soviet Union, who were then engaged in a race to space. Principal among these treaties is the first, the Outer Space Treaty, which reflects the concerns of the time. Its chief goals are to (1) preserve “free access” to space and bar claims of sovereignty over outer space resources;³ (2) lay groundwork for cooperation and the responsibility of space-faring

¹ Fen Osler Hampson & Paul Heinbecker, *The ‘New’ Multilateralism of the Twenty-First Century*, 17 GLOB. GOV. 299, 300 (2011).

² Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (entered into force Oct. 10, 1967) [hereinafter Outer Space Treaty]; Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *opened for signature* Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue Agreement]; Convention on the International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention]; Convention on Registration of Objects Launched into Outer Space, Nov. 12, 1974, 1023 U.N.T.S. 15 [hereinafter Registration Convention]; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1363 U.N.T.S. 3 [hereinafter Moon Agreement].

³ Outer Space Treaty, *supra* note 2, arts. I, II.

nations for their activities in space;⁴ and, crucially, (3) prevent the weaponization of space.⁵ The treaty aims to hold the Cold War status quo in place, and prevent the use of outer space to create an advantage for one of the great powers.

The Outer Space Treaty is classic twentieth-century international lawmaking. It was formed through a multilateral process—a committee of the general assembly—commits all parties to general principles, and aims for universal subscription, which it has mostly received, with 112 parties at the time of this writing, including all countries with orbital launch capacities.⁶ Because of these features, the Outer Space Treaty has been called a “constitution” for outer space activity.⁷ What the Outer Space Treaty does well is what many twentieth century framework treaties do well: lay down general rules and principles to guide further multilateral cooperation. What it does not do is what later protocols to those framework conventions tend to do: offer more specific regulatory guidance.

After the brief Cold War-era burst of treaty-making in space law, and after the United States won the race to send crewed missions to the moon, the Cold War powers turned their attention to other topics. Half a century later, a new era in space law has dawned, but without more specific regulatory guidance to settle a growing range of topics of concern.

The new regulatory problems are precipitated by the increase in actors making plans for outer space and the increasing ambition of those plans. For example, commercial capacity has outstripped what many nations can do; more nations have orbital launch capacity or plans and new entrants like China are making more launches; and more nations, private actors, universities, and others are sending up satellites in those launches. These proliferating actors have proliferating plans: national and commercial entities plan exploration and exploitation of the moon, human spaceflight, resource mining, and other activities.

This growth in “newspace” actors and plans has precipitated a corresponding growth of problems to solve. For example, how can humankind ensure protection of the outer space environment from contamination, dangerous orbital space junk, or harmful mining practices? How should nations or other actors resolve the problem that increasing constellations of small satellites can interfere with scientific discovery on earth? How might commercial actors secure rights to outer space resources, secure their mining sites, and obtain the regulatory certainty they need to persuade investors? While the “constitutional”⁸ Outer Space Treaty offers principles—and space lawyers regularly invoke them—this diminutive, half-

⁴ Outer Space Treaty, *supra* note 2, art. III.

⁵ Outer Space Treaty, *supra* note 2, art. IV.

⁶ Outer Space Treaty, *supra* note 2, art. IV.

⁷ Brian Israel, *Space Governance 3.0*, 48 GA. J. INT’L & COMP. L. 715, 718 (2019).

⁸ Brian Israel, *Space Resources in the Evolutionary Course of Space Lawmaking*, 113 AJIL UNBOUND 114, 114 (2019).

century-old document cannot fully meet the moment. It neither anticipated all these commercial plans for space, nor offers specific regulatory regimes to respond to them.

This context—new activity precipitating new regulatory demands—is not unique to space law. Rather, new technological capacities and new environmental and other public goods problems have produced successive demands for law in many areas. What has changed is the international response to those regulatory demands. While the classic, ideal-type twentieth century response would have been to convene a multilateral conference to negotiate a new treaty or to develop a draft text within a General Assembly committee like the Committee on Peaceful Uses of Outer Space (COPUOS), the twenty-first century is witnessing something new. The optimistic periods of twentieth century multilateral institution building have given way to a decline in robust international cooperation. This new, more pessimistic period is marked by the hollowing out of existing commitments, threats of defection, defiance of core norms, and an increasing multi-polarity that serves to render deep and broad cooperation impossible.

Due to these changes in the international context and the fact that the most key space law players are the United States, Russia, and China—countries that currently have diverging interests and simmering tensions in many areas of international cooperation—the consensus view is that the space powers are not likely to convene a major multilateral conference and develop new formal legal agreements to regulate the emerging commercial space age.

II. THREE THEMES

How, then, will states and non-state actors like commercial entities try to obtain the regulatory certainty they need to pursue their interests in space? Juxtaposing the demand for law and the limited prospects for twentieth-century forms of multilateral lawmaking, space law offers a case study in how *else* actors might try to obtain the legal groundwork they seek.

This Essay leaves to the space law specialists the questions of substance—that is, what regulatory elaboration do the relevant actors need to respond to the problems the commercial space age presents? What space activity is consistent with existing law? Rather, the sections that follow take a process perspective: What are states and other interested actors doing to develop international space law? What methods are they using? What scripts are they following? If past is prologue to the future, these may have something to tell us about how international lawmaking is changing and evolving in new twenty-first century circumstances.

Here are three of the emerging themes: (a) evolutive lawmaking (or, at least, attempts at it); (b) parallel lawmaking by different actors in different fora; and (c)

interpretive entrepreneurship by private actors. The themes are interrelated, in that each can prompt or precipitate the others. The following sections explore these.

A. *Theme 1: Evolutive Lawmaking*

“Working with allies and partners, we will develop policies and regulations that enable the burgeoning U.S. commercial space sector to compete internationally.” – U.S. National Security Strategy, October 2022⁹

The first theme is the United States’ remarkable recent attempts to shape international law through an evolutive approach. By an “evolutive” approach, I mean that the United States is trying to develop (a) interpretations of existing treaty law and (b) international law’s uncodified branch: customary international law. In doing so, the United States seeks to force international law’s incremental, practice-based forms of development rather than the legislative form that emerges from multilateral treaty making.

Let me briefly lay out some fundamentals so that this point is intelligible to a broad range of readers. Specifically, international law develops not just through treaties¹⁰—written instruments agreed to by state parties and implemented in some form into domestic law—but also through the unwritten and uncodified practice of nation states. Indeed, black letter international legal rules offer two basic sources of international law: treaties and customary international law.¹¹ Both can develop meaning through “practice.”

Specifically, treaties are to be interpreted not just in light of the “ordinary meaning” of their terms in context and with consideration of the treaty’s object and purpose.¹² Rather, interpreters are also instructed to take into account: “(a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; and (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation.”¹³ Moreover, subsequent practice can be used to resolve an ambiguity or confirm the meaning of a term.¹⁴ This “subsequent practice” can include

⁹ See The White House, *National Security Strategy* 45 (Oct. 2022) [<https://perma.cc/68ES-MX4D>].

¹⁰ Under the United States Constitution, the term “treaty” only includes international agreements approved by the Senate. U.S. CONST. art. 2 § 2. In the international law context, treaties include executive agreements frequently entered into by the presidents without approval from the Senate that are nevertheless binding on the signatories. See *generally About Treaties*, U.S. SENATE [<https://perma.cc/4NKS-DJ3S>] (last accessed Feb. 8, 2023).

¹¹ See Statute of the International Court of Justice art. 38, Apr. 18, 1946, 33 U.N.T.S. 993.

¹² See Vienna Convention on the Law of Treaties art. 31, Jan. 27, 1980, 1155 U.N.T.S. 331.

¹³ *Id.* art. 31 ¶ 3.

¹⁴ *Id.* art. 32; see also International Law Commission, *Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties*, U.N. Doc. A/73/10 (2018).

“executive, legislative, judicial or other functions,”¹⁵ and subsequent agreements “may result in narrowing, widening, or otherwise determining the range of possible interpretations,”¹⁶ so long as the parties “intend to interpret the treaty, not to amend or modify it.”¹⁷

The second basic source of international law, customary international law, develops through relevant acts of nation states—which international lawyers also call “practice”—and *opinio juris*, or evidence that nations believe the relevant practice to be legally required or permitted. The bottom line is that international law can develop not just through treaty conferences but also through relevant activity and statements of governments. Beyond creating new norms, customary international law can also serve to interpret treaties.¹⁸ While customary international law has been a major source of international law for centuries, in the twentieth century, nations turned increasingly to treaties, codifying existing customary norms and elaborating new laws on many topics in multilateral instruments. As space law exemplifies, the twenty-first century may be marking a shift away from this approach.

Consider recent activity by the United States. The United States’ recent actions appear to be aimed at generating relevant *practice* to develop international space law, whether through the subsequent agreements or subsequent practice that can help develop the meaning of a treaty, or the practice and *opinio juris* that can develop customary international law. These activities include, at a minimum, (a) a 2015 piece of legislation, the Commercial Space Launch Competitiveness Act;¹⁹ (b) a 2020 executive order by President Trump entitled “Encouraging International Support for the Recovery and Use of Space Resources”;²⁰ (c) the Artemis Accords, a statement of principles the United States is presenting to other countries for signature as a bilateral non-binding agreement;²¹ and (d) recent offers to purchase from commercial operators materials to be collected from the moon.²²

Let us unpack this. While these U.S. efforts may develop various aspects of

¹⁵ Rep. of the I.L.C., 70th Sess., *Draft conclusions on subsequent agreements and subsequent practice in relation to the interpretation of treaties* at Conclusion 5, ¶ 1, U.N. Doc. A/73/10 (2018).

¹⁶ *Id.* at Conclusion 7, ¶ 1.

¹⁷ *Id.* at Conclusion 7, ¶ 3.

¹⁸ See Rebecca Crootof, *Change Without Consent: How Customary International Law Modifies Treaties*, 41 YALE J. INT’L L. 237, 252 (2016) (explaining that interpretation of a treaty through the lens of state behavior is valid even if the interpretation is not supported by the text itself).

¹⁹ U.S. Commercial Space Launch Competitiveness Act, S. Rep. No. 114-90 (codified in scattered sections of 51 U.S.C.) (amending the Commercial Space Act to promote competitiveness).

²⁰ Exec. Order No. 13914, 85 Fed. Reg. 20,381 (Apr. 6, 2020) (promoting the utilization of resources in space).

²¹ The Artemis Accords: Principles for Cooperation in The Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes, National Aeronautics and Space Agency (Oct. 13, 2020) [hereinafter Artemis Accords].

²² See *infra*, notes 51-53, and accompanying discussion.

international space law, one clear target is the question of whether commercial appropriation of outer space resources is lawful. For simplicity, let us focus on just this question and set others to the side. The debate centers on the meaning of Article II of the Outer Space Treaty, which stipulates that “Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”²³ Article VI clarifies that “national activities” include activities “carried on by governmental [and] non-governmental entities.”²⁴

What do these provisions mean for the burgeoning commercial space industry? After all, many industry plans depend on mining, either for sale of mined resources or for use to facilitate other space activity. One possible interpretation of Article II is that space resources may not be “appropriated” or subject to claims of ownership, whether by governmental or non-governmental entities. This interpretation is bolstered by other Outer Space Treaty provisions, such as the stipulation that the exploration and use of outer space “shall be carried out for the benefit and in the interests of all countries.”²⁵

The Moon Agreement, developed a decade later, might have confirmed this restrictive interpretation, as it specifies that “neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any state . . . or non-governmental entity or of any natural person.”²⁶ However the moon treaty was not widely accepted,²⁷ and so its value as an interpretive instrument is limited, and its rejection by many parties to the Outer Space Treaty may instead suggest that those parties have rejected the restrictive interpretation.

A more permissive interpretation of Article II of the Outer Space Treaty is that the provision merely stipulates that nothing that can be done in outer space will count as “national appropriation.” That is, states cannot claim that their activity in outer space (or the activity of their non-governmental entities) serves to “appropriate” portions of outer space or its bodies. This definition is bolstered by the fact that the Outer Space Treaty does refer to the “use” of outer space, which must mean that parties are permitted to “use” it in some way.

How can this interpretive debate be resolved? One possibility would be for interested states to work within the General Assembly’s Committee on the Peaceful Uses of Outer Space—or to convene a freestanding treaty conference—in order to

²³ Outer Space Treaty, *supra* note 2, art. II, at 13.

²⁴ Outer Space Treaty, *supra* note 2, art. VI, at 14.

²⁵ Outer Space Treaty, *supra* note 2, art. I, at 13.

²⁶ *Moon Agreement*, *supra* note 2, art. 11, ¶ 3, at 7.

²⁷ See Rep. of Legal Subcommittee; 61st Sess., *Status of International Agreements relating to activities in outer space as at 1 January 2022*, Annex C at 5-10 (reporting that eighteen states have ratified or acceded to the treaty and that the United States, the Russian Federation, and the People’s Republic of China have neither signed, acceded to, nor ratified the Treaty).

create a new treaty to govern or prohibit space mining. Because geopolitical realities take that possibility off the horizon,²⁸ another way to develop international law on this topic is through “subsequent agreements” or “subsequent practice.” Viewed through this lens, this is exactly the aim of the United States’ varied activities, as collected above.²⁹

1. Legislative Activity

Consider the U.S. Commercial Space Launch Competitiveness Act, or the “Space Act of 2015,”³⁰ which specified the following:

A United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter *shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell* the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.³¹

The Act constitutes domestic legislation seeking to establish the United States’ interpretation of Article II of the Outer Space Treaty.

What is the international legal significance of this legislation? Recall that according to established legal rules, a state’s domestic legislative activity after the conclusion of a treaty can be relevant “subsequent practice” to “establish” the meaning of a treaty’s provision; it may also help resolve the meaning of an ambiguous term. The obvious implication is that the United States is proactively amassing relevant “practice” to guide interpretation of the Outer Space Treaty. Note that the legislation does not concede that there is any debate over whether commercial “recovery” of space resources could be contrary to international law; such a concession could undercut the U.S. attempt to objectively “establish” the meaning of Article II through relevant practice such as this Act. While the United States was a leader here, three other countries including Luxembourg, the United Arab Emirates, and Japan soon contributed their own similar “practice” by passing parallel legislation.³²

²⁸ See, e.g., Gershon Hasin, *Confronting Space Debris Through the Regime Evolution Approach*, 97 INT’L L. STUD. 1073, 1132 (2021) (noting that in the space law context the “United States and its allies do not currently consider a parliamentary diplomatic arena necessary or desirable”).

²⁹ See also Timiebi Aganaba, *Deriving Meaning Through Treaty Interpretation or Is It Time for New Innovative Space Governance Instruments for Space Resources?*, 85 ALB. L. REV. 405, 409 (2023) (arguing that the United States “has taken an expansive approach using multiple instruments and techniques ... with the objective of ensuring its own certainty about its interpretation of international law and to sell its vision to and influence the international community.”).

³⁰ U.S. Commercial Space Launch Competitiveness Act, Pub. L. 114-90, 129 Stat. 704 (2015).

³¹ 51 U.S.C. § 51303 (2015) (emphasis added).

³² See Scott Akins, *The Commercialisation of Outer Space*, NORTON ROSE FULBRIGHT (May 2022) at 6-7 (reviewing the international securities framework).

2. Executive Activity

The Act was the beginning, not the end, of the U.S. efforts to develop international space law through an evolutive, practice-based method. The Space Act of 2015 specified that the President shall “facilitate commercial exploration for and commercial recovery of space resources by United States citizens;” discourage barriers to the same, and to “promote the right United States citizens to engage in” it.³³ The Executive followed these instructions and launched a number of efforts, culminating with the announcement by President Trump in a 2020 Executive Order that the United States was creating a program with “commercial partners” to “lead the return of humans to the Moon for long-term exploration and utilization,” among other plans.³⁴ Noting that “[u]ncertainty regarding the right to recover and use space resources... has discouraged some commercial entities from participating in this enterprise,” the Order declares that “Americans should have the right to engage in commercial exploration, recovery, and use of resources in outer space.”³⁵ Significantly, the Order specifically disclaims the Moon Agreement, and its more restrictive policy on use of resources, claiming that:

[T]he United States does not consider the Moon Agreement to be an effective or necessary instrument to guide nation states regarding the promotion of commercial participation in the long-term exploration, scientific discovery, and use of the Moon, Mars, or other celestial bodies. Accordingly, the Secretary of State shall object to any attempt by any other state or international organization to treat the Moon Agreement as reflecting or otherwise expressing customary international law.³⁶

What is the significance of this? While the Space Act could constitute relevant “subsequent practice” to help establish the meaning of the Outer Space Treaty’s Article II, opponents could point to contrary “practice” like the Moon Agreement, formed between a number of states just over a decade after the Outer Space Treaty entered into force. Shouldn’t that later treaty also serve as evidence of the intention of state parties to the Outer Space Treaty? The Executive Order anticipates this argument and goes a step further: it also tries to preempt an argument that the Moon Agreement represents the development of a customary international legal rule disallowing commercial use of resources.³⁷

³³ 51 U.S.C. § 51302 (2015).

³⁴ Exec. Order No. 13914 *supra* note 21, § 1, ¶ 1, at 1.

³⁵ Exec. Order No. 13914 *supra* note 21, §1, ¶3, at 2.

³⁶ Exec. Order No. 13914 *supra* note 21, §2, at 2.

³⁷ Exec. Order No. 13914 *supra* note 21, §1, ¶¶ 1-2, at 1.

3. Artemis Accords

The 2020 Executive Order instructs various federal bodies to “take all appropriate actions to encourage international support for the public and private recovery and use of resources in outer space.”³⁸ Indeed, it specifies that the Secretary of State should seek to “negotiate joint statements and bilateral and multilateral arrangements with foreign states” related to the use of space resources.³⁹ Six months later, the United States “adopted” the Artemis Accords, a statement of principles it had drafted “for cooperation in the civil exploration and use of the moon, mars, comets, and asteroids for peaceful purposes.”⁴⁰

In the recitals, the Accords “affirm[] the importance of compliance with” the Outer Space Treaty and express the “desir[e] to *implement* the provisions of the Outer Space Treaty.”⁴¹ Section 1 affirms that the Accords are meant to “provide for the operational *implementation* of important obligations contained in the Outer Space Treaty.”⁴² So, again, the United States is trying to establish that the Accords are *interpretive*, not constitutive. The clear implicit point is that this instrument can therefore be used as a subsequent agreement establishing the intent of the parties as to the meaning of the terms of the Outer Space Treaty.⁴³ To that end, Section 10 paragraph 2 contains a crucial stipulation: “The Signatories affirm that the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty, and that contracts and other legal instruments relating to space resources should be consistent with that treaty.”⁴⁴

While the Artemis Accords are U.S.-conceived and U.S.-drafted, the United States has set about to broaden the reach and effect of this practice by asking other nations to sign the Accords. As of the end of 2022, it had obtained signatures from 22 nations.⁴⁵ In late 2022, the U.S. National Aeronautics and Space Administration (NASA) hosted an event in Paris with the Artemis Accord signatory states, deepening the sense of gravitas and “signal[ing] the increasing significance of the Accords in a new era of international space law.”⁴⁶

³⁸ Exec. Order No. 13914 *supra* note 21, §1, ¶¶ 1-2, at 1.

³⁹ Exec. Order No. 13914 *supra* note 21, §1, ¶¶ 1-2, at 1.

⁴⁰ Artemis Accords, *supra* note 22.

⁴¹ Artemis Accords, *supra* note 22, at 1 (emphasis added).

⁴² Artemis Accords, *supra* note 22, at 2 (emphasis added).

⁴³ *See, e.g.*, Delbert D. Smith & Christopher Stott, *Private Sector Utilization of the Moon: A Right of Use: A Question of Jurisdiction and the Continuing Application of Existing National Regulation on the Moon*, 34 THE AIR & SPACE L. 12, 14 (2022) (arguing that “the Accords . . . are helpful for purposes of reaffirming the existing legal stance of their signatories in relation to the UN Outer Space Treaty” and “serve as an elaboration of its basic tenets”).

⁴⁴ Artemis Accords, *supra* note 22, at § 10, para. 2.

⁴⁵ Artemis Accords, *supra* note 22, at § 10, para. 2.

⁴⁶ *Signatories of the U.S.-Led Artemis Accords Meet in Person for the First Time*, 117 AM. J. INT’L L. 133, 134 (2023) [hereinafter *Signatories*].

United States officials have clearly indicated that they expect the Accords to have a norm-making effect, and they have hinted at their intent to develop customary international law through this instrument. For example, NASA Administrator Jim Bridenstine announced that the Accords “were intended to create norms of behavior [to which] all countries can agree” and that “[b]y embracing our values, along with our partners, we’re creating a track record, a norm of behavior that will influence the entire world to proceed with the transparent, peaceful and safe exploration of space.”⁴⁷ These statements go beyond the textual indications in the Accords that they are intended to implement or interpret the Outer Space Treaty. The statements signal that the United States also intends that the Accords could establish the practice and opinio juris needed to develop new customary international legal norms for space.⁴⁸ The significance of this is that eventually the United States would be able to claim that the Accords bind not just signatory states but all nations,⁴⁹ and establish new norms beyond the four corners of the Outer Space Treaty.

4. Contractual Activity

Timiebi Aganaba would add a fourth source of “practice” to this array of efforts the United States is making to establish the international legal right to buy and sell space resources: contracts. Specifically, NASA is awarding contracts whereby it agrees to purchase lunar soil obtained by commercial landers.⁵⁰ As Aganaba explains:

In September 2020, NASA announced it would buy lunar soil obtained by commercial landers . . . Local and international companies selected for space resources contracts will collect a small amount of lunar soil from any location on the Moon’s surface and ‘provide imagery to NASA of the . . . collected material, along with data that identifies the collection location.’ After NASA receives the

⁴⁷ Christian Davenport, *Seven Nations Join the U.S. in Signing the Artemis Accords, Creating a Legal Framework for Behavior in Space*, WASH. POST (Oct. 13, 2020, 12:45 PM), <https://www.washingtonpost.com/technology/2020/10/13/artemis-moon-mining-agreement-signed/> [<https://perma.cc/3JCP-ND7U>].

⁴⁸ See Walker A. Smith, *Using the Artemis Accords to Build Customary International Law: A Vision for a U.S.-Centric Good Governance Regime in Outer Space*, 86 J. AIR L. & COM. 661, 663-64 (2021) (“By cloaking the Accords with the authority and legitimacy of the Outer Space Treaty, the U.S. seeks to convert the Accords into customary international law, which would bind not only parties but also non-parties in their conduct in outer space.”).

⁴⁹ See, e.g., Scot W. Anderson, Julia LaManna & Corey J. Christensen, *The Development of Natural Resources in Outer Space*, 51 J. ENERGY & NAT. RES. L. 10835, 10842 (2021) (“Significantly, the Artemis Accords do not represent a unilateral action by the United States [and in terms of commercial appropriation] represent[] movement toward solidifying [the U.S.] interpretation as customary international law.”).

⁵⁰ See Aganaba, *supra* note 30, at 424 (stating that “NASA is in contracting and public-private partnership instruments,” and “NASA announced it would buy lunar soil obtained by commercial landers”).

information, the company will ‘conduct an “in-place” transfer of ownership of the lunar regolith’ to the agency The payment is a nominal amount, but the transfer of ownership and the act of selling something collected on the Moon sets a precedent that an in-orbit transaction does not amount to appropriation.⁵¹

This contracting process has already begun, as Aganaba observes, as NASA recently made its first nominal payment to a space startup company on a space resource delivery contract.⁵²

* * *

Taken together, these activities—from the 2015 legislation to the executive statements, international norm-building campaigns, contracting efforts, and the late 2022 Artemis Accords signatory meeting in Paris—demonstrate the United States’ clear efforts to develop international law in its non-codified, practice-based modes. It is a departure from the multilateralism of twentieth-century treaty-making—indeed, a departure from any pretense of multilateral norm-making, and an embrace of something different: unilateral attempts by the United States to develop international law through generating relevant “practice.” Indeed, the United States has resisted multilateral efforts, claiming that its efforts with the Artemis Accords are sufficient.⁵³ While I have focused on space mining because this represents a foundational question which has attracted a variety of forms of practice by the United States, U.S. attempts to shape the law also engage with other pressing questions of the commercial space age, like sustainability and interoperability.⁵⁴

The United States attempts to shape the law through its evolutive, practice-based forms coincide with and relate to two other themes that emerge from contemporary space lawmaking: parallel lawmaking efforts by different groups of states and interpretive entrepreneurship by private actors.

⁵¹ *Id.* at 424-425 (internal citations omitted).

⁵² *Id.* at 425.

⁵³ See *Signatories*, *supra* note 47, at 139 (citing U.S. Mission to International Organizations in Vienna, 2022 COPUOS LSC — U.S. on the Utilization of Space Resources (Mar. 28, 2022), at <https://vienna.usmission.gov/2022-copuos-lsc-u-s-on-space-resources> [<https://perma.cc/H8HQ-5DV7>]) (The head of the U.S. delegation Committee on the Peaceful Uses of Outer Space stated, “Of course, the Outer Space Treaty does not provide a comprehensive international regime for space resource utilization activities. At this stage, the United States sees neither a need nor a practical basis to create such a regime. We do, however, see an urgent need to ensure that all nations engaged in space resource activities share a common set of fundamental beliefs: in the rule of law, in transparency, and in peaceful purposes. The Artemis Accords underscores these critical principles, and forms the starting point for future work on space resources.”).

⁵⁴ See Artemis Accords, *supra* note 22, § 5, § 11, para. 2 (demonstrating that signatories of the Artemis Accords acknowledge the importance of interoperability and long-term sustainability in outer space activities).

B. *Theme 2: Parallel Lawmaking*

The United States is not the only state with an interest in developing space law. This landscape is populated by other groups, notably (a) two other major space powers, Russia and China, and (b) other states not (yet) as active in space who nevertheless have an interest in governing its appropriation and use. Evolutive lawmaking attempts can produce parallel lawmaking attempts: alternate claims about what the law is or should be. These parallel lawmaking attempts might be part of a longer process of legal development, that is, the expected actions and reactions of customary international legal development that eventually produce a single rule. Even so, in the meantime these parallel lawmaking attempts look and feel like something different: fragmentation,⁵⁵ or diverging ideas about what the law is. They also look like might makes right.

Indeed, in critiquing the United States' efforts to develop international law through its practice-based modes, Russia has raised the spectre of "fragmentation of international space law."⁵⁶ The U.S. interpretive and custom-forming project is catalyzing both vigorous protest and responsive efforts by its geopolitical rivals, Russia and China.

In terms of protest, Russia has criticized the Artemis Accords as "too U.S.-centric," particularly in their purported legalization of resource extraction.⁵⁷ In fact, Russia claimed that attempts by the United States or its commercial entities to expropriate outer space resources would be tantamount to an illegal "invasion,"⁵⁸ and thus barred by one of the most fundamental norms of the postwar legal system. China, too, has protested, affirming its view that space exploration should be for the benefit of all countries, and reaffirming the importance of the non-appropriation principle.⁵⁹ China pointedly "likened the Accords to the enclosure movement in eighteenth-century Britain, during which common land was privatized for the benefit of the wealthy."⁶⁰

Both countries have added concerns about process to their protests over the substance of the rules, critiquing as improper the U.S. efforts to solicit signatories to the Artemis accords. China has emphasized the importance of "genuine multilateralism," and Russia has critiqued U.S. attempts to legalize commercial

⁵⁵ See Athar ud Din, *The Artemis Accords: The End of Multilateralism in the Management of Outer Space?*, 20 INT'L J. SPACE POL. & POL'Y 135 (2022) (making this point about fragmentation).

⁵⁶ *Signatories*, *supra* note 47, at 138.

⁵⁷ *Signatories*, *supra* note 47, at 137.

⁵⁸ *Signatories*, *supra* note 47, at 137.

⁵⁹ *Signatories*, *supra* note 47, at 138 ("[T]he Chinese representative . . . pointed out that the [Outer Space Treaty] required that 'the exploration and use of outer space should be for the benefit of all countries' and that 'countries must not appropriate outer space, including the moon and other celestial bodies, for their own.'").

⁶⁰ *Signatories*, *supra* note 47, at 138.

appropriation through domestic law as subverting the “conventional framework.”⁶¹

There are signs that beyond critiquing U.S. interpretations of the Outer Space Treaty, Russia and China are taking steps to create practice to bolster their own view. Recently the two executed their own memorandum of understanding committing to jointly construct a lunar station. In a point of contrast to the Artemis Accords, Russia and China announced that their lunar station was meant to be “open-access,” designed for “experimental and research facilities,” and “with the goal of strengthening research cooperation and promoting the exploration and use of outer space for peaceful purposes in the interests of all mankind.”⁶² There is no mention in these plans of commercial resource extraction. The Russia-China lunar station is widely seen as a competitor to the U.S. Artemis Accords program.⁶³ Other nations, like India, may choose to align themselves with that agreement over the U.S. version.⁶⁴

Finally, while many eyes are on the United States and its geopolitical rivals Russia and China, other states also wish to have a say in space governance.⁶⁵ Some are resisting the bipolar options on the table.⁶⁶ Others are forming unaligned regional and bilateral projects like “ALCE,” the Latin American and Caribbean Space Agency, to be based in Mexico.⁶⁷

What does all of this mean for international lawmaking? In one sense, this is the normal stuff of international legal development. According to black letter legal rules, custom forms through action and reaction, statement and response. It “crystallizes” only when there is substantial agreement. Subsequent practice and subsequent agreements between the parties are only two of the many tools treaty interpreters

⁶¹ *Signatories*, *supra* note 47, at 137-38.

⁶² Jessie Yeung, *China and Russia Agree to Build Joint Lunar Space Station*, CNN (Mar. 10, 2021), <https://www.cnn.com/2021/03/09/asia/russia-china-lunar-station-intl-hnk-scli-scen/index.html> [<https://perma.cc/EB4B-K74N>].

⁶³ *See, e.g.*, *ud Din*, *supra* note 56, at 148 (“Clearly, this effort represents a rival platform to the Artemis program.”).

⁶⁴ *See, e.g.*, *Artemis Accord*, J. OF INDIA (Sept. 14, 2022), <https://journalsofindia.com/artemis-accord-2/> [<https://perma.cc/UW8J-9XCQ>] (noting that India has been wary of cooperation with US on outer space).

⁶⁵ Thanks to Cristian van Eijk for raising this point. *See also* Ajey Lele, *Should India Join China and Russia’s Lunar Research Station?*, SPACE REV. (June 1, 2021), <https://www.thespacereview.com/article/4185/1> [<https://perma.cc/249K-6MGE>] (asserting that India should counter U.S. and Chinese efforts at space hegemony).

⁶⁶ *See, e.g.*, Rahimy Rahim & Martin Carvalho, *Malaysia Has No Intention of Signing NASA-led Artemis Accords Yet, Says Deputy Science Minister*, THE STAR (Dec. 31, 2023), <https://www.thestar.com.my/news/nation/2021/12/13/malaysia-has-no-intention-of-signing-nasa-led-artemis-accords-yet-says-deputy-science-minister> [<https://perma.cc/L99Y-Z8HE>] (“Malaysia does not intend to sign the NASA-led Artemis Accords yet.”).

⁶⁷ *See* Secretaría de Relaciones Exteriores, *Signing of the Convention Establishing ALCE, the Latin American and Caribbean Space Agency*, GOBIERNO DE MÉXICO (Sept. 20, 2021), <https://www.gob.mx/sre/prensa/signing-of-the-convention-establishing-alce-the-latin-american-and-caribbean-space-agency?idiom=en> [<https://perma.cc/RQS5-L7RG>] (listing the 18 signatories to the ALCE).

have at hand to try to assess the meaning of a phrase like “appropriation.” The Russian and Chinese protests over U.S. practice are meaningful in that: (a) they should bar the crystallization of contested norms as customary international law; and (b) they should keep treaty interpreters from placing too much weight on the practice of either side.

Those black letter rules are, however, agnostic about the practical result they produce. In this case, the result could be an entrenched controversy, with nations coalescing around two different lawmaking streams: that of the United States or that of Russia and China. Indeed, commentators have noted that Russia’s increasing turn to China as an ally⁶⁸ may precipitate a further polarization of nations into two camps, with “countries wishing to participate in space forced to pick between a North Atlantic-Japanese bloc lead by the U[nited] S[tates] and a Chinese-Russian bloc led by an increasingly advanced China.”⁶⁹ Another practical result is that this rulemaking process privileges wealthy states with well-staffed foreign ministries, scientifically advanced space capability, and hegemonic aspirations.⁷⁰

Space law’s case study models another result of the turn away from the multilateral cooperation of the rules-based international order. It suggests the possibility of a fragmented, or divergent twenty-first century international lawmaking, with both sides using the classic rules to produce very different substantive results and then competing for the primacy of their own approach.

C. Theme 3: Interpretive Entrepreneurship

The turn to evolutive lawmaking—or producing international law through its practice-based forms—creates new opportunities for private actors to influence the development of international law. According to the classic liberal theory analysis in international relations, private actors help shape preferences domestically, and they influence the bargaining positions states take at international fora.⁷¹ Thus, the theory

⁶⁸ See Henry Olsen, *China and Russia’s Proposed Lunar Research Station Is an Ominous Sign for the West*, WASH. POST (Mar. 12, 2021), <https://www.washingtonpost.com/opinions/2021/03/12/china-russias-proposed-lunar-research-station-is-an-ominous-sign-west/> [<https://perma.cc/6UGX-VL58>] (“Russia and China have been pulling together for most of the past decade in an increasingly tight embrace.”).

⁶⁹ Matthew G. Looper, *International Space Law: How Russia and the U.S. Are at Odds in the Final Frontier*, 18 S. C. J. INT’L L. & BUS. 111, 124 (2022); see also Lele, *supra* note 66 (“Today in the space domain there are two competing blocs. One consists of the US and it[s] allies, and the other is Russia and China. They oppose . . . each other’s every idea.”).

⁷⁰ See, e.g., Lele, *supra* note 66 (forecasting a scenario where “technologically savvy and wealthier states would dominate the process of future rulemaking in the space domain”); ud Din, *supra* note 56, at 149 (arguing that the US has “thwarted the role of multilateralism” by advancing its interpretation of the Outer Space Treaty through the Artemis Accords rather than the “multilateral UN system”).

⁷¹ See, e.g., Andrew Moravcsik, *Taking Preferences Seriously: A Liberal Theory of International Politics*, 51 INT’L ORG. 513, 518 (1997) (noting how in liberal international relations theory, domestic

proposes, to understand international lawmaking and compliance, it is necessary to study domestic interest group pressures.⁷² Twenty-first century lawmaking broadens and complicates this analysis: interest groups exert influence transnationally;⁷³ big business engages in regulatory arbitrage;⁷⁴ and the turn to evolutive lawmaking offers private actors a new range of opportunities to try to shape international law. Specifically, evolutive lawmaking efforts by states coincide with what I have called “interpretive entrepreneurship” by business actors.⁷⁵ The term describes attempts by business groups to shape international law through interpretive contests after a treaty has entered into force. While multilateral treaty-making can attract lobbying at the domestic and international levels before a treaty is finalized,⁷⁶ interpretive entrepreneurship extends this lobbying activity to periods after the treaty enters into force. Evolutive lawmaking, in its interpretive and custom-forming modes, attracts various forms of intervention by interested non-state actors. Lawmaking for the commercial space age exemplifies this and illustrates its modes.

For example, commercial space enterprises engaged in significant efforts to lobby the U.S. Congress to encourage it to pass the Space Act of 2015. The U.S. legislation was the first of its kind worldwide, suggesting that this private lobbying was a significant factor prompting the legislation, rather than that the United States was responding to international pressures or joining a new status quo. As testimony in the U.S. Congress shows, this lobbying continued even after the Space Act was passed, as Congress considered expanding the legislation. One space enterprise representative proposed that the U.S. Senate should “update” the Outer Space Treaty to more clearly permit mining.⁷⁷ A treaty “update” would not be “inconsistent with

constituencies construct state interests); Robert D. Putnam, *Diplomacy and Domestic Politics: The Logic of Two-Level Games*, 42 INT’L ORG. 427, 434 (1988) (theorizing that the negotiating behavior of national leaders reflects the dual and simultaneous pressures of international and domestic political games).

⁷² See Rachel Brewster, *The Domestic Origins of International Agreements*, 44 VA. J. INT’L L. 501, 539 (2004) (noting that governments make international agreements in response to domestic needs).

⁷³ See, e.g., Martha Finnemore & Kathryn Sikkink, *International Norm Dynamics and Political Change*, 52 INT’L ORG. 887, 893 (1998) (describing how advocacy groups can provoke a “norm cascade” through the international system by acting as transnational “norm entrepreneurs”).

⁷⁴ See, e.g., JOHN BRAITHWAITE & PETER DRAHOS, *GLOBAL BUSINESS REGULATION* 5-7 (2000) (describing, for instance, how businesses that are “staring at defeat in one international forum . . . can shift the contest to a more favourable forum”); Walter Mattli & Ngaire Woods, *Introduction*, in *THE POLITICS OF GLOBAL REGULATION*, at ix, x-xii (Walter Mattli & Ngaire Woods eds., 2009) (describing “regulatory standard-setting” in which “firms, states, and nongovernmental organizations act[] together as partners to promulgate norms or voluntary standards”).

⁷⁵ See Melissa J. Durkee, *Interpretive Entrepreneurs*, 107 VA. L. REV. 431 (2021) (proposing that business entities act as “interpretive entrepreneurs” when they try to shape international legal development through interpretation of existing instruments).

⁷⁶ See Brewster, *supra* note 73 (domestic lobbying); see generally Melissa J. Durkee, *International Lobbying Law*, 127 YALE L.J. 1742 (2018) (international lobbying).

⁷⁷ *Reopening the American Frontier: Reducing Regulatory Barriers and Expanding American*

most of the language provided in the [Outer Space] Treaty,” the representative said, but would merely clarify the correct interpretation.⁷⁸ Another commercial space representative recognized that some countries may not agree with the interpretation the space companies were recommending, and urged the U.S. government to take a proactive approach: “I think it’s important from a government perspective that we go out and explain what our interpretation of the treaty is and the framework that we’re establishing and lead by example.”⁷⁹

Beyond explicit lobbying, space companies have nudged the United States toward evolutive lawmaking attempts by putting it within the U.S. national interest to adopt commerce-friendly interpretations of the Outer Space Treaty. Space companies can do this by building businesses on a wager that the preferred interpretation will prevail, and then publicizing those business prospects to government officials and the public. They become, in colloquial terms, “too big to fail.” The carrot these enterprises can offer is a boost in U.S. gross domestic product and soft power if they are successful. The stick is the threat of regulatory arbitrage—that is, the fact that these commercial enterprises could simply move on to a more permissive regulatory environment if their home state does not offer the necessary regulatory framework. Space lawyers worry about the possibility of “flags of convenience”: commercial entities can simply register in jurisdictions that offer a permissive regulatory environment for their plans in space.⁸⁰ The congressional testimony offers evidence of this nudging behavior: commercial space representatives repeatedly offered the business case for commercial space activity, pointed to the significant existing investment in this area, and emphasized the massive potential for growth.⁸¹

Free Enterprise in Space: Hearing Before the Subcomm. on Space, Sci., & Competitiveness of the S. Comm. on Commerce, Sci., & Transp., 115th Cong. 2, 40 (2017) (statement of Hon. Tom Udall, U.S. Sen. from New Mexico; statement of Hon. Ted Cruz, U.S. Sen. from Texas).

⁷⁸ *Id.* at 40-41.

⁷⁹ *Private Sector Lunar Exploration: Hearing Before the Subcomm. on Space of the H. Comm. on Sci., Space, & Tech.*, 115th Cong. 76 (2017).

⁸⁰ See, e.g., Christopher Green, *Watch Where You Launch: Existing Space Laws Complicate Earthly IP Rights*, JDSUPRA (Oct. 6, 2020), <https://www.jdsupra.com/legalnews/watch-where-you-launch-existing-space-46138/> [<https://perma.cc/H66A-VLWB>] (noting the relative ease of circumventing jurisdiction by launching and registering in a different state).

⁸¹ See, e.g., *Reopening the American Frontier: Reducing Regulatory Barriers and Expanding American Free Enterprise in Space: Hearing Before the Subcomm. on Space, Sci., & Competitiveness of the S. Comm. on Commerce, Sci., & Transp.*, 115th Cong. 22 (statement of George Whitesides, CEO, Galactic Ventures) (“[We] are a part of a robust and growing domestic commercial space industry . . . made up of companies with private financial backing working on a myriad of missions . . . [including] asteroid mining The commercial space industry is well underway and poised to continue its growth.”).

III. INTERNATIONAL LAW'S POSSIBLE FUTURES

The argument of this essay is that space law offers one look at modes of lawmaking that can emerge in a context in which states do not think they can accomplish their goals in multilateral lawmaking forums. It offers a glimpse at one of international law's possible futures. Here are some observations about this version of the future.

First, the three modes highlighted in this essay are interrelated. Since evolutive lawmaking efforts are practice-based, these efforts can be countered and blocked by contrary practice. So parallel lawmaking efforts by different states or groups of states are a natural outcome of norm entrepreneurship by one of them. Moreover, this level of contestation over norms gives interest groups many points of entry to try to shape the process of legal development. Evolutive lawmaking also increases those points of entry as lawmaking happens not just at major focal point treaty conferences, but also at many different smaller moments unfolding over time. In sum, with a turn to practice-based lawmaking we are likely also to see a turn to practice-based contestation, and a process that includes a broad array of actors who seek to shape those norms.

Second, the three modes show that even if international actors may have some disillusionment over the feasibility of multilateral treaty cooperation, they still care very much about international law. The three modes offer a snapshot of the “everyday practice” of international law—or how international law is used as a legitimating discourse.⁸² According to formalist international legal doctrines, the practice I have described in this essay may or may not establish sufficient “subsequent practice” or the “subsequent agreement of states” to confirm an interpretation of Outer Space Treaty's Article II. Perhaps there is, or perhaps there is not, sufficient evidence of practice and *opinio juris* to establish that new space law norms in other areas have crystallized as customary international law. The point is that from an international lawyer's perspective, these forms of practice are pieces of evidence that can be used to build a case. This discourse is “quintessentially legal in nature so long as it centers on the authority to make particular governance decisions and places this authority outside the hands of any one player.”⁸³ The public and private actors profiled here all seek to do exactly that: to justify activities of the new commercial space age within international legal terms, rather than dismissing its importance or claiming that might makes right. The reasons may be different—e.g., regulatory certainty for commercial actors and legitimacy for state actors—but the

⁸² See Monica Hakimi, *Making Sense of Customary International Law*, 118 MICH. L. REV. 1487, 1493 (2020) (describing the “process for making [customary international law]” as when “states and other global actors” take positions that “embed assertions about governance authority” which “makes them claims about the law”).

⁸³ *Id.* at 1536.

end result is that all still seek the imprimatur of international legality.

Third, evolutive lawmaking attempts are one kind of response when multilateral treaty-making is off the table, but this is only one stream of activity among many. Unilateral attempts to shape law through practice are developing alongside more cooperative but non-binding efforts. For example, there is a rapidly growing body of “soft law”: codes of conduct and other non-binding guidance documents, issued by COPUOS, private actors, and multi-stakeholder groups.⁸⁴ Elsewhere I have observed a growing resort to global governance by “pledge,” or the practice of establishing a coordinating platform (a treaty or other forum), to gather individual promises by states, sub-national units, non-state actors, or some combination of these.⁸⁵ Pledging has come to space law as well. For example, the Paris Peace Forum—a multi-stakeholder organization founded in 2018 to gather diverse public and private actors to respond to various public governance gaps⁸⁶—has taken on orbital debris as one of its projects. Its “Net Zero Space” initiative asks diverse actors to commit to “concrete, tangible” actions and plans to “contribute to the ‘Net Zero Space’ goal.”⁸⁷ The Forum uses a pledging formula to try to facilitate productive activity.⁸⁸ These multiple coexistent streams of activity can relate to each other (non-binding norms crystalizing into custom, pledges offering evidence of “state practice”). They offer various possible futures, such as fragmentation, pluralism, or coalescence around new norms.

Finally, while the practice-based modes of lawmaking formally rely on the special status of nation-states as lawmakers, the playbook that is emerging reduces the distinctions between state actors and private actors. Brian Israel has suggested that the rules for “Space 3.0”—that is, the rules that regulate the commercial space age—may be as much a product of private agreement and standard-setting as of

⁸⁴ See, e.g., Thomas Cheney et. al., *Planetary Protection in the New Space Era: Science and Governance*, 7 FRONT. ASTRON. SPACE SCI. 1, 2-3 (Nov. 2020) (explaining the Committee of Space Research’s (COSPAR) Planetary Protection Policy (PPP)); *Space Sustainability Rating*, World Econ. Forum, <https://www.weforum.org/projects/space-sustainability-rating> [<https://perma.cc/33JD-8T2D>] (detailing the first sustainability rating for space); *Handbook for New Actors in Space*, SECURE WORLD FOUNDATION (February 2017), <https://swfound.org/handbook/> [<https://perma.cc/HS5K-HMTK>] (explaining the origin of the Handbook for New Actors in Space).

⁸⁵ See Melissa J. Durkee, *The Pledging World Order*, 48 YALE J. INT’L L. 1, 11-12 (2023) (describing “pledging platforms” in international law which “provide[] the ‘call’ for pledges, the definition of the goal to which the pledges should be directed, and any standards by which the adequacy of the pledges will be judged”).

⁸⁶ Missions and Values, Paris Peace Forum, <https://parispeaceforum.org/en/missions-and-values/> [<https://perma.cc/A5SX-Y8DN>] (“We pick up the slack when [inter-state] institutions cannot act or when the solutions proposed are insufficient.”).

⁸⁷ *Our Priorities*, Paris Peace Forum, <https://www.netzerospaceinitiative.org/declaration> [<https://perma.cc/Y5B8-C7DV>].

⁸⁸ *Our Initiatives*, Paris Peace Forum, <https://parispeaceforum.org/en/our-initiatives/> [<https://perma.cc/GR5V-U6VJ>] (displaying the posting and publication of pledges); The Event: 4th Edition of the 11-13 November, Paris Peace Forum, <https://parispeaceforum.org/en/levenement/> [<https://perma.cc/H7VM-QJJ7>] (describing the annual gathering of actors).

national or international law.⁸⁹ States themselves are drawing from private law tools to try to shape law in this area. Two of the United States' activities reflect forms of ordering familiar to commercial entities, which do not require sovereignty or other public governance authority. These are private contracting (forming contracts with commercial entities for the recovery of space materials) and elaborating non-binding standards for subscription by like-minded participants (as the United States is doing with the Artemis Accords). Moreover, while space law currently requires states to regulate and take responsibility for all non-state participants, their control may be slipping as the capacity of nonstate entities to act in outer space rapidly outstrips that of national governments. The space law case study demonstrates the re-calibration of authority and power between public and private entities that is gradually taking hold throughout the international system.

CONCLUSION

Space lawmaking is a case study for international lawmaking. What will international actors do when regulatory demands outstrip the capacity for multilateral treaty-making? Space law's answer is that these actors will find practice-based ways to develop norms. The essay has observed that this is a process that can produce separate lawmaking streams—alternate claims about what the law is—and can offer many opportunities for non-state actors to try to shape the process. At the same time, it offers state actors opportunities to borrow from private law toolboxes, contributing to a larger shift in the relationship between public and private authority on the international stage. Practice-based lawmaking is not the only means of international norm-making, as parallel multilateral efforts are producing codes of conduct and pledging platforms. Perhaps most importantly, space law's ongoing practice-based norm contestation suggests the non-obsolescence of international law itself. In the future space law forecasts, international law maintains its relevance as a legitimizer even when the parties disagree over the substance of the rules.

⁸⁹ Israel, *supra* note 9, at 721 (putting forth a vision of space governance as “inter-operator: private law regimes constructed from contracts between spacecraft operators . . . in which all space actors, public and private, play on a level field”).