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Using the Artemis Accords to Build Customary International Law: A Vision for a U.S.-Centric Good Governance Regime in Outer Space

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**USING THE ARTEMIS ACCORDS TO BUILD CUSTOMARY
INTERNATIONAL LAW: A VISION FOR A U.S.-CENTRIC
GOOD GOVERNANCE REGIME IN OUTER SPACE**

WALKER A. SMITH*

ABSTRACT

International space law is a relatively undeveloped field primarily occupied by the 1967 Outer Space Treaty (Treaty). This Treaty, while long on general principles, is short on details. With the United States’ recent push to return to the Moon by 2024 and send humans to Mars as soon as practicable after that, the time has come to fill in the gaps of the Outer Space Treaty out of necessity. The U.S. seeks to do this through the Artemis Accords (the Accords).

This Comment argues that the U.S. should use the Accords to develop a U.S.-centric legal and good governance regime in outer space. It does so by identifying how the U.S. can use the existing United Nations treaties on outer space—specifically the Outer Space Treaty—to provide legitimacy to the Accords and ultimately create state practice and *opinio juris* around the Accords, creating binding customary international law. This is the best path forward to secure U.S. interests in outer space and promote peace and stability in the final frontier.

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I. INTRODUCTION

A NEW ERA IN SPACE exploration has begun. Through its new Artemis Program, the U.S. seeks to send the first woman and the next man to the Moon by 2024, returning human beings to the lunar surface for the first time since 1972.¹ The goal is to establish a sustainable human presence by the late 2020s, ultimately using the scientific and engineering knowledge gained on the Moon to launch the first crewed mission to Mars, some 140 million miles away.² With the private space industry in the U.S. booming and tensions with China at an all-time high, outer space is set to play a huge role in geopolitics over the coming decades.³

This new space age will require a robust and comprehensive legal framework to provide safety, stability, and predictability to public and private actors in outer space. International space law is a relatively nascent field that rests almost entirely on the Outer Space Treaty of 1967 (the Treaty), which has been ratified by 110 countries, including the U.S., China, and Russia.⁴ While the Outer Space Treaty serves as a sort of constitution for international space law, it speaks more to general principles and

¹ NASA, ARTEMIS PLAN: NASA'S LUNAR EXPLORATION PROGRAM OVERVIEW 13, 22 (2020) [hereinafter ARTEMIS PLAN], https://www.nasa.gov/sites/default/files/atoms/files/artemis_plan-20200921.pdf [https://perma.cc/2JYE-ZSHM].

² *Id.* at 9.

³ Neel V. Patel, *China's Surging Private Space Industry is out to Challenge the US*, MIT TECH. REV. (Jan. 21, 2021), <https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/> [https://perma.cc/62PE-HQYX].

⁴ U.N. Off. for Outer Space Affs., Status of Int'l Agreements Relating to Activities in Outer Space as at 1 Jan. 2020, 6, 8–10, U.N. Doc. A/AC.105/C.2/2020/CRP.10 (Jan. 1, 2020) [hereinafter Treaty Database], <https://www.unoosa.org/documents/pdf/spacelaw/treatystatus/TreatiesStatus-2020E.pdf> [https://perma.cc/JVR4-DFQ7].

less to specific rules and requirements, leaving much open to interpretation.⁵

To implement the Artemis Program, the U.S. chose to execute a series of bilateral agreements called the Artemis Accords (the Accords).⁶ The Accords establish standards of conduct to which the United States' international partners—both private and public—must adhere if they are going to collaborate with the U.S. in this new and exciting age of space exploration.⁷ On the one hand, the Accords serve an authentic and practical purpose: holding the United States' partners to a high standard of conduct and providing the specific, mission-level guidance needed to actually implement the Artemis Program and send humans back to the Moon.⁸ On the other hand, the Accords play a much more subtle, important, and powerful role: allowing the U.S. to establish a U.S.-centric legal regime and system of good governance in outer space.

From the outset, the U.S. has characterized the Accords as simply an outgrowth of the Outer Space Treaty—a way to operationalize and fill in the gaps of some of the Treaty's more ambiguous and high-level provisions.⁹ Far from establishing new rules, standards, or principles, the U.S. maintains that the Accords are to be read in harmony with the Outer Space Treaty and derive all of their legitimacy therefrom.¹⁰ 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

⁵ See generally Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 206 [hereinafter Outer Space Treaty] (outlining space practices like national responsibility and peaceful purposes).

⁶ NASA, THE ARTEMIS ACCORDS: PRINCIPLES FOR COOPERATION IN THE CIVIL EXPLORATION AND USE OF THE MOON, MARS, COMETS, AND ASTEROIDS FOR PEACEFUL PURPOSES (2020) [hereinafter ARTEMIS ACCORDS], <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf> [https://perma.cc/9RM7-EFAE].

⁷ *Id.*; 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), <https://www.washingtonpost.com/technology/2020/10/13/artemis-moon-mining-agreement-signed/> [https://perma.cc/QK9H-C5C4].

⁸ Davenport, *supra* note 7.

⁹ See *id.*

¹⁰ *Id.* (“There is nothing in the Artemis Accords that isn’t enshrined in the Outer Space Treaty. . . . It’s a forcing function to get nations to comply with the Outer Space Treaty.”).

conduct in outer space.¹¹ The U.S. is uniquely positioned as the first-mover in this context to begin building state practice and *opinio juris* around the Accords, advancing the United States' interpretation of the Outer Space Treaty, and ultimately establishing a U.S.-centric legal and governance regime in outer space. This is the preferred course of action, as allowing China or Russia to decide these important questions could have wide-sweeping, negative implications and is essential if the U.S. will dominate this next space age.

Part II of this Comment provides historical background on space exploration and governance. Part III outlines the current state of space law, focusing on the five United Nations (U.N.) treaties on outer space and recent developments in U.S. domestic space law. Parts IV and V discuss the Artemis Program and the Accords. Part VI analyzes how the U.S. can use the Accords to build customary international law on resource extraction and deconfliction of activities. Finally, Part VII discusses international reactions to the Accords.

II. HISTORICAL BACKGROUND

The Space Age began on October 4, 1957, when the Soviet Union launched the world's first artificial satellite, *Sputnik 1*.¹² *Sputnik 1* orbited Earth once every ninety-six minutes and transmitted radio signals for twenty-one days before burning up in the atmosphere.¹³ The *Sputnik 1* launch caught the U.S. by surprise and set off alarm bells within both government and society, as fears began to percolate that the Soviet Union had achieved technological superiority over the U.S.¹⁴ Less than a year later, in direct response to the Soviets, the U.S. Congress passed the National Aeronautics and Space Act creating the National Aeronautics and Space Administration (NASA), which was signed

¹¹ *Id.* ("Precedent is important. . . . By 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 transparent, peaceful and safe exploration of space.").

¹² Mark Garcia, *60 Years Ago, the Space Age Began*, NASA (Oct. 5, 2017), <https://www.nasa.gov/feature/60-years-ago-the-space-age-began> [https://perma.cc/KE4C-RXEN].

¹³ *The Space Race*, DIGITAL HISTORY (2016) https://www.digitalhistory.uh.edu/disp_textbook.cfm?smtid=2&psid=3426 [https://perma.cc/75LW-MGNU].

¹⁴ Michelle Getchell, *The Start of the Space Race*, KHAN ACADEMY, <https://www.khanacademy.org/humanities/us-history/postwarera/1950s-america/a/the-start-of-the-space-race> [https://perma.cc/N7G4-N9N9].

into law by President Eisenhower on July 29, 1958.¹⁵ “[NASA’s] first task became the development of a human space exploration program, Project Mercury,” and remarkably, within twelve years, the American astronaut Neil Armstrong became the first person to set foot on the Moon.¹⁶

The launch of *Sputnik 1* and the creation of NASA spurred the international community to action. In late 1958, the U.N. General Assembly (General Assembly) established the Committee on the Peaceful Uses of Outer Space (COPUOS), with eighteen member states, to promote the peaceful use of outer space and facilitate international cooperation around issues relating to space law and policy.¹⁷ The General Assembly formally established COPUOS as a permanent committee the following year, and since then, COPUOS has served as a:

focal point for international cooperation in the peaceful exploration and use of outer space, maintaining close contacts with governmental and non-governmental organizations concerned with outer space activities, providing for exchange of information relating to outer space activities and assisting in the study of measures for the promotion of international cooperation.¹⁸

COPUOS has two subcommittees, the Scientific and Technical Subcommittee and the Legal Subcommittee.¹⁹ The Committee meets annually to consider important issues and submit reports and recommendations to the General Assembly.²⁰ Today, COPUOS has ninety-five member states, making it one of the largest committees in the U.N.²¹ The U.N.’s space policies are implemented through the U.N. Office for Outer Space Affairs (UNOOSA), and most multilateral space agreements have been negotiated through COPUOS and adopted by the General Assembly.²² Thus, COPUOS is the preeminent forum for the nego-

¹⁵ ROGER D. LAUNIUS, REACHING FOR THE MOON: A SHORT HISTORY OF THE SPACE RACE 35–36 (2019).

¹⁶ *Id.*; see *The Space Race*, *supra* note 13.

¹⁷ *COPUOS History*, U.N. OFF. FOR OUTER SPACE AFFS., <https://www.unoosa.org/oosa/en/ourwork/copuos/history.html> [<https://perma.cc/S5MV-SEU9>].

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *See id.*

²¹ *Members of the Committee on the Peaceful Uses of Outer Space*, U.N. OFF. FOR OUTER SPACE AFFS., <https://www.unoosa.org/oosa/en/members/index.html> [<https://perma.cc/6GHT-DUAT>].

²² *Space Law Treaties and Principles*, UN OFF. FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html> [<https://perma.cc/2P53-6A52>].

tiation and promulgation of international space law.²³ COPUOS concluded five international treaties on space law, “commonly referred to as the five U.N. treaties on outer space,” which form the backbone of international space law as it exists today.²⁴ These five treaties are the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Registration Convention, and the Moon Agreement.²⁵ As an overview and introduction to the current state of the law, this Comment will consider them in turn.

III. CURRENT STATE OF THE LAW

The five U.N. treaties on outer space dominate international space law. Additionally, the U.S. has recently begun constructing a domestic legal framework to benefit its private space industry. Understanding this legal landscape is critical for identifying how the Accords draw on, change, and add to the existing space law superstructure.

A. THE OUTER SPACE TREATY

The Outer Space Treaty (formally the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies)²⁶ is the cornerstone of international space law and “has been called a constitution for outer space.”²⁷ Primarily negotiated by the U.S. and the Soviet Union as the dominant spacefaring nations, the Outer Space Treaty entered into force on October 10, 1967, and is primarily concerned with international peace and security and lessening the threat of armed conflict in space.²⁸ The Outer Space Treaty has been ratified by 110 countries, including Russia and China, and has been signed but not yet ratified by an additional 23 countries.²⁹ Instead of laying out specific, granular rules, the Outer Space Treaty establishes a set of broad principles to govern human activity and international

²³ *See id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ Outer Space Treaty, *supra* note 5, at 2410.

²⁷ Brian Wessel, *The Rule of Law in Outer Space: The Effects of Treaties and Nonbinding Agreements on International Space Law*, 35 HASTINGS INT’L & COMP. L. REV. 289, 292 (2012).

²⁸ Christopher Johnson, *The Outer Space Treaty at 50*, SPACE REV. (Jan. 23, 2017), <https://thespacereview.com/article/3155/1> [<https://perma.cc/L2L3-J3JK>].

²⁹ Treaty Database, *supra* note 4, at 1, 6, 8, 10.

relations in outer space.³⁰ These broad principles are reflected by the fact that the Outer Space Treaty contains only seventeen articles,³¹ in contrast to a more comprehensive agreement like the U.N. Convention on the Law of the Sea, which “comprises 320 articles and nine annexes.”³² The Outer Space Treaty’s universal, high-level nature has no doubt contributed to its widespread acceptance and continuing hegemony in the sphere of international space law.

Article I of the Outer Space Treaty establishes that outer space is the “province of all mankind,” and as such there “shall be free access to all areas of celestial bodies” and the exploration and use of such “shall be carried out for the benefit and in the interests of all countries.”³³ Article II provides that outer space—which includes the Moon and other celestial bodies—is not subject to national appropriation,” meaning that although the American flag is planted on the Moon, neither the U.S. nor any other country can claim the Moon or any other celestial body as sovereign territory.³⁴ Article IV reserves the use of outer space “exclusively for peaceful purposes” and prohibits weapons of mass destruction (e.g., nuclear weapons) from being placed in outer space.³⁵ Article V requires states to render “all possible assistance” to astronauts of other countries, both in space and after landing back on Earth, especially “in the event of accident, distress, or emergency landing.”³⁶ Article VI provides that states must assume responsibility for national activities in outer space, including those undertaken by the private sector (e.g., the U.S. is ultimately liable for what Space X does in outer space).³⁷ Article IX requires states to conduct their activities in outer space “with due regard to the corresponding interests of all other State Parties to the Treaty,” and imposes upon states whose activities may cause “harmful interference” with another state’s space activities a duty to “undertake appropriate international consultations before proceeding with any such activity.”³⁸ Article XII reinforces Article I’s free access theme and requires that all ce-

³⁰ See Outer Space Treaty, *supra* note 5, at 2410–21.

³¹ *Id.*

³² United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.

³³ Outer Space Treaty, *supra* note 5, at 2412–13.

³⁴ *Id.* at 2413.

³⁵ *Id.* at 2413–14.

³⁶ *Id.* at 2414.

³⁷ *Id.* at 2415.

³⁸ *Id.* at 2416–17.

restrial installations be open to representatives of other states “on a basis of reciprocity.”³⁹

Thus, the main themes of the Outer Space Treaty are free access and use, no national appropriation, peaceful purposes only, due regard, and avoidance of harmful interference. These principles have generated relatively little debate over the past fifty-four years. The Outer Space Treaty is notably silent, however, on the issue of resource exploitation, and different countries have interpreted this silence differently.⁴⁰ These fundamental principles of the Outer Space Treaty are well established and respected, and many experts in international law believe they exist “as an entirely different set of legal rules, outside of the textual treaty, as ‘customary’ international law. And, as customary international law, the Outer Space Treaty reflects rules that bind even those states who are not formal parties to the treaty itself.”⁴¹ It is safe to say that the Outer Space Treaty is the touchstone and source of legitimacy for all other international space law.

B. THE RESCUE AGREEMENT

Although Article V of the Outer Space Treaty requires states to render “all possible assistance” to astronauts in distress,⁴² some COPUOS member states (specifically the U.S. and the Soviet Union), immediately after the Outer Space Treaty was completed, “realized their interests in protecting astronauts and recovering space objects demanded further elaboration and refinement, and took further steps to achieve them.”⁴³ This gave rise to the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, colloquially known as the Rescue Agreement, which entered into force on December 3, 1968.⁴⁴ At present, ninety-eight countries have ratified the Agreement, twenty-three countries have signed it but have yet to ratify, and three international intergovernmental organizations (the European Space Agency,

³⁹ *Id.* at 2418.

⁴⁰ See *infra* Sections III.E, III.F.

⁴¹ Johnson, *supra* note 28.

⁴² Outer Space Treaty, *supra* note 5, at 2414.

⁴³ Frans G. von der Dunk, *A Sleeping Beauty Awakens: The 1968 Rescue Agreement After Forty Years*, 34 J. SPACE L. 411, 415–18 (2008).

⁴⁴ *Id.* at 418; 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].

the Intersputnik International Organization of Space Communications, and the European Organization for the Exploitation of Meteorological Satellites) have declared their acceptance of the rights and obligations conferred by the Agreement.⁴⁵

The Rescue Agreement begins by acknowledging that it seeks to “develop and give further concrete expression to [the] duties” laid out in the Outer Space Treaty, drawing a direct link between the two treaties.⁴⁶ Article 1 requires states to notify both the Secretary-General of the U.N. and the launching source (if identifiable) where the states learned that “the personnel of a spacecraft have suffered an accident or are experiencing conditions of distress or have made an emergency or unintended landing.”⁴⁷ Article 2 requires states to “take all possible steps” to rescue the personnel of a spacecraft that lands in their territory due to distress or accident.⁴⁸ Article 3 extends this rescue requirement to the high seas, requiring those states that are in a position to render aid to do so.⁴⁹ Article 4 elaborates by requiring that rescued personnel be returned “safely and promptly” to “representatives of the launching authority.”⁵⁰ Article 5 requires that states help recover and return any “space object or its component parts” found within its jurisdiction, thus extending the duty to rescue and return to equipment and parts as well.⁵¹ Importantly, Article 5 also provides that “expenses incurred in fulfilling obligations to recover and return a space object or its component parts . . . shall be borne by the launching authority.”⁵²

While the Rescue Agreement is intended to clarify and elaborate on the Outer Space Treaty, it differs in a few respects and contains some ambiguity of its own. Whereas Article V of the Outer Space Treaty imposes a requirement to render “all possible assistance,” it applies only to “astronauts.”⁵³ The language of the Rescue Agreement refers to “personnel of a spacecraft.”⁵⁴ “[P]ersonnel of a spacecraft” appears to be a more inclusive definition, but it is still unclear who exactly qualifies. For example,

⁴⁵ Treaty Database, *supra* note 4, at 1, 10.

⁴⁶ Rescue Agreement, *supra* note 44, at 7572.

⁴⁷ *Id.* at 7573.

⁴⁸ *Id.*

⁴⁹ *Id.* at 7574.

⁵⁰ *Id.* at 7575.

⁵¹ *Id.*

⁵² *Id.*

⁵³ Outer Space Treaty, *supra* note 5, at 2414.

⁵⁴ Rescue Agreement, *supra* note 44, at 7573.

would a space tourist be covered by the Rescue Agreement, or only the crew (who fit more neatly within the traditional conception of “personnel”)? Article 5 of the Rescue Agreement also adds to the Outer Space Treaty, specifically providing that the launching state must compensate the state that recovers and returns the launching state’s space object or its parts that land in the other state’s territory.⁵⁵ While this too is a positive innovation, the Rescue Agreement is silent on who bears the cost burden of rescuing and returning astronauts or “personnel of a spacecraft,” which could lead to future conflict between states if the Rescue Agreement is invoked in such a scenario.⁵⁶ The Rescue Agreement is an important, albeit underutilized treaty, that goes out of its way to highlight its connection to the Outer Space Treaty—the cornerstone of international space law—even though the Rescue Agreement was only passed a year after the Outer Space Treaty.

C. THE LIABILITY CONVENTION

The next treaty to come out of the U.N. COPUOS was the Convention on International Liability for Damage Caused by Space Objects (the Liability Convention).⁵⁷ The Liability Convention entered into force on September 1, 1972, and ninety-eight states have ratified it, nineteen states have signed but not yet ratified, and four international intergovernmental organizations (the European Space Agency, the Intersputnik International Organization of Space Communications, the European Organization for the Exploitation of Meteorological Satellites, and the European Telecommunications Satellite Organization) have accepted the rights and obligations thereunder.⁵⁸

Not surprisingly, the Liability Convention opens by acknowledging its outgrowth from the Outer Space Treaty and its purpose: to elaborate on Article VII of the Treaty.⁵⁹ Article II provides that launching states are “absolutely liable” for damage caused by their space objects on the surface of the Earth or to aircraft flight.⁶⁰ Article III explains that in the slightly different

⁵⁵ *Id.*

⁵⁶ *See id.*

⁵⁷ Convention on 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*].

⁵⁸ Treaty Database, *supra* note 4, at 1, 10.

⁵⁹ Liability Convention, *supra* note 57, at 2391.

⁶⁰ *Id.* at 2392.

case of damage caused to a space object or its contents by a space object of another launching state, the launching state shall be liable “only if the damage is due to its fault,” essentially a negligence standard.⁶¹ Articles IV and V state that if two states combine to injure a third state, each of the two states is jointly and severally liable under the same standards as above.⁶² Article VI releases a state from liability if it can show that “the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State.”⁶³

The Liability Convention has been invoked only one time: in 1978, when the Soviet satellite *Cosmos 954* crash-landed in uninhabited Canadian territory.⁶⁴ However, during subsequent negotiations between the Canadians and the Soviets, the Liability Convention only played a background role, causing some commentators to question its effectiveness.⁶⁵ The Liability Convention has also come under fire for creating a regime where, essentially, “a state’s responsibility to pay for damage is not linked to proximate causation or its own actions, but instead to mere ownership or assistance in launching the object.”⁶⁶ Now that outer space is a much more crowded and complex domain than in the 1970s, it is perhaps time to update the liability regime that currently governs outer space. This would be a worthwhile project for the U.S. and its partners to pursue through COPUOS.

D. THE REGISTRATION CONVENTION

Three years after the Liability Convention came the related Convention on Registration of Objects Launched into Outer Space (the Registration Convention).⁶⁷ The Registration Convention is an outgrowth of the Outer Space Treaty (specifically Article VIII), the Rescue Agreement, and the Liability Convention, and provides states with a means to assist in identifying

⁶¹ *Id.*

⁶² *Id.* at 2393

⁶³ *Id.* at 2394.

⁶⁴ Trevor Kehrer, *Closing the Liability Loophole: The Liability Convention and the Future of Conflict in Space*, 20 CHL. J. INT’L L. 178, 185 (2019).

⁶⁵ *Id.* at 185–86.

⁶⁶ *Id.* at 178.

⁶⁷ Convention on Registration of Objects Launched into Outer Space, *opened for signature* Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

space objects.⁶⁸ Sixty-nine states have ratified the Registration Convention, three have signed it but have yet to ratify it, and the four main international intergovernmental organizations (listed in the Section above) have accepted the rights and obligations thereunder.⁶⁹ While fewer states have ratified the Registration Convention as compared to the previous three treaties, its signatories do include all the major space powers, and this makes sense because the Registration Convention is “directly relevant especially for those states actually launching objects into outer space,” which is still a minority of states.⁷⁰

Article II of the Registration Convention requires states to maintain their own registries of objects they launch into space, and Article III requires the Secretary-General to maintain another such registry.⁷¹ Article IV requires states to submit the following information to the Secretary-General: (1) “[n]ame of launching State or States,” (2) “[a]n appropriate designator of the space object or its registration number,” (3) the date and location of launch, (4) “[b]asic orbital parameters of the object,” and (5) “[g]eneral function of the space object.”⁷² Article VI provides that if a state cannot identify a space object that has caused it damage, other states must assist in identifying the object.⁷³

The Registration Convention thus helps implement the Outer Space Treaty, the Rescue Agreement, and the Liability Convention by providing a mechanism through which space objects can be readily identified—either for purposes of rescue and return or to facilitate claims for damages if a space object lands in another state’s territory.⁷⁴ The Registration Convention has been criticized for not providing enough incentive for states without launching capabilities to ratify, which would increase its effectiveness and coverage.⁷⁵ The Registration Convention imposes a duty to assist other states in identifying space objects (Article VI)

⁶⁸ *Convention on Registration of Objects Launched into Outer Space*, U.N. OFF. FOR OUTER SPACE AFFS., <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introregistration-convention.html> [<https://perma.cc/L8PL-GYBN>].

⁶⁹ Treaty Database, *supra* note 4, at 2, 10.

⁷⁰ *See id.*; Frans G. von der Dunk, *The Registration Convention: Background and Historical Context*, 32 SPACE, CYBER, AND TELECOMMS. L. PROGRAM FAC. PUBL’NS 450, 450 (2003).

⁷¹ Registration Convention, *supra* note 67, at 698–99.

⁷² *Id.* at 699–700.

⁷³ *Id.* at 700–01.

⁷⁴ *See id.* at 698–701.

⁷⁵ *See* von der Dunk, *supra* note 70, at 451.

without providing any real benefit to non-spacefaring nations in return.⁷⁶ Reforming the Registration Convention substantively to provide more benefits to non-spacefaring nations would be a worthwhile undertaking to increase the level of ratification, which would benefit the entire scheme.

E. THE MOON AGREEMENT

The last of the five U.N. treaties on outer space is the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the Moon Agreement), which entered into force on July 11, 1984.⁷⁷ The Moon Agreement is by far the weakest of the U.N. treaties, with only eighteen states having ratified it, and another four states having signed but not yet ratified it.⁷⁸ Importantly, none of the three major spacefaring nations (U.S., Russia, and China) have signed, acceded, or ratified the Moon Agreement, causing many experts to conclude “that it is a failure from the standpoint of international law.”⁷⁹ Furthermore, unless more states decide to ratify the Moon Agreement, it is unlikely to generate any customary international law. However, because it is an official U.N. treaty, it is unwise for countries to ignore the Moon Agreement entirely.

Article 1 states that the Moon Agreement applies to the Moon and other celestial bodies, excluding Earth.⁸⁰ Article 3 establishes that the Moon shall be used “exclusively for peaceful purposes” and prohibits nuclear weapons and military installations and activities on the Moon and other celestial bodies.⁸¹ Article 4 states that the “exploration and use of the [M]oon shall be the province of all mankind,” and Article 5 requires states to inform the Secretary-General and the public about any planned activities on the Moon or other celestial bodies.⁸² Article 11 is the most contentious section of the Moon Agreement, which is probably why most major countries have declined to accede to

⁷⁶ Registration Convention, *supra* note 67, at 700–01.

⁷⁷ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *opened for signature* Dec. 18, 1979, 1363 U.N.T.S. 3 [hereinafter Moon Agreement].

⁷⁸ Treaty Database, *supra* note 4, at 2, 10.

⁷⁹ *Id.* at 6, 8–10; Michael Listner, *The Moon Treaty: Failed International Law or Waiting in the Shadows?*, SPACE REV. (Oct. 24, 2011), <https://www.thespacereview.com/article/1954/1> [<https://perma.cc/D7XD-NXTD>].

⁸⁰ Moon Agreement, *supra* note 77, at 22.

⁸¹ *Id.* at 23.

⁸² *Id.*

its terms.⁸³ Article 11 states that “the Moon and its natural resources are the common heritage of mankind”; that “the [M]oon is not subject to national appropriation”; and that exploitation of the Moon’s natural resources is prohibited except through an international regime set up “to govern the exploitation of natural resources” on the Moon, which has yet to be established.⁸⁴ The other provisions incorporate some of the more benign parts of the Outer Space Treaty, including free use and movement and state responsibility for national activities on the Moon.⁸⁵

While the Outer Space Treaty itself is silent on the issue of exploitation of lunar resources, leading to the inference that resource exploitation could be allowed under the Outer Space Treaty, the Moon Agreement specifically prohibits lunar natural resource exploitation except through an international regime that has yet to be established.⁸⁶ Because lunar resource exploitation is so critical and potentially lucrative, it has generated much controversy. As such, superpowers like the U.S. and China are wary of binding themselves to any commitments that may hinder their ability to gain an advantage in this sphere.⁸⁷ It is also important to note that Australia is the only country that is a party to both the Moon Agreement and the Accords, and it is unclear to what degree the Moon Agreement and the Accords can coexist.⁸⁸

F. U.S. DOMESTIC SPACE LAW

It is also helpful to understand recent developments in U.S. domestic space law. Of particular importance considering the five treaties just discussed is the U.S. Commercial Space Launch Competitiveness Act, signed into law by President Barack Obama on November 25, 2015.⁸⁹ One of the most publicized contributions of this law is that it establishes a statutory basis for

⁸³ See Listner, *supra* note 79.

⁸⁴ Moon Agreement, *supra* note 77, at 25.

⁸⁵ See *id.* at 26, 28.

⁸⁶ *Id.* at 25; see generally Outer Space Treaty, *supra* note 5.

⁸⁷ See Sarah Coffey, Note, *Establishing a Legal Framework for Property Rights to Natural Resources in Outer Space*, 41 CASE W. RESV. J. INT’L L. 119, 121, 123, 128 (2009).

⁸⁸ Jack Wright Nelson, *The Artemis Accords and the Future of International Space Law*, 24 AM. SOC’Y INT’L L. 31, 4 (Dec. 10, 2020), <https://www.asil.org/insights/volume/24/issue/31/artemis-accords-and-future-international-space-law> [<https://perma.cc/B5VG-8QNV>].

⁸⁹ Pub. L. No. 114-90, 129 Stat. 704 (2015).

private space resource exploitation.⁹⁰ The critical paragraph in the title concerning space resources states:

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.⁹¹

Thus, with the passage of the Commercial Space Launch Competitiveness Act, the U.S. has clarified its position on space resource exploitation: all systems go. The United States' position is that for-profit resource extraction on the Moon and other celestial bodies does not violate Article II of the Outer Space Treaty's non-appropriation provision, which is certainly far from settled under current international space law.⁹² The bill was met with almost unanimous praise from the United States' private space sector.⁹³ Rick Tumlinson, chairman of Deep Space Industries, said, "We are pleased to see the beginnings of legal clarity in the field of space resource utilization."⁹⁴ Chris Lewicki, president of Planetary Resources, stated that the bill "fuels a new economy that will open many avenues for the continual growth and prosperity of humanity."⁹⁵ The issue of space resource exploitation is one of the most contentious in all of space law and one that the U.S. confronts head-on in the Accords.

An Executive Order issued by President Donald Trump also reinforces the United States' position on space resources. The Executive Order, entitled "Encouraging International Support for the Recovery and Use of Space Resources," was issued on April 6, 2020, and affirms support for the public and private use of space resources.⁹⁶ The Executive Order acknowledges that as the U.S. looks toward establishing a long-term presence on the Moon and ultimately going to Mars, it will require partnership

⁹⁰ Cody Knipfer, *Congress and Commerce in the Final Frontier (Part 2)*, SPACE REV. (Dec. 17, 2018), <https://www.thespacereview.com/article/3625/1> [https://perma.cc/W9RR-N3CW].

⁹¹ U.S. Commercial Space Launch Competitiveness Act § 51303.

⁹² See ARTEMIS ACCORDS, *supra* note 6, at 4.

⁹³ Jeff Foust, *U.S. Senate Passes Compromise Commercial Space Bill*, SPACE NEWS (Nov. 11, 2015), <https://spacenews.com/u-s-senate-passes-compromise-commercial-space-bill/> [https://perma.cc/NK4H-SCZQ].

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ Exec. Order No. 13,914, 85 Fed. Reg. 20,381 (Apr. 6, 2020).

with private companies to extract resources necessary for astronauts to live off the land.⁹⁷ It notes that the Moon Agreement creates uncertainty in this area, and the Moon Agreement's interaction with the Outer Space Treaty only deepens this confusion.⁹⁸ The Executive Order goes on to state quite emphatically that "the United States does not view [space] as a global commons. Accordingly, it shall be the policy of the United States to encourage international support for the public and private recovery and use of resources in outer space, consistent with applicable law."⁹⁹ Section 2 reflects the United States' rejection of the Moon Agreement and directs the Secretary of State to "object to any attempt . . . to treat the Moon Agreement as reflecting or otherwise expressing customary international law."¹⁰⁰ As one commercial space law practitioner observed, "The executive order is best viewed as maintaining and strengthening a position that the United States has held for decades."¹⁰¹

With a new administration in office as of January 20, 2021, the future of U.S. space policy is less certain. Still, experts agree that the Biden administration is unlikely to depart significantly from the policies and positions of its predecessor regarding outer space.¹⁰² Dr. Bleddyn Bowen, a scholar on space policy, predicts that "[r]hetoric will likely soften, but the substance of military and economic self-interest of the US in space will continue unabated."¹⁰³ One area where change may occur is in the United States' environmental policy in outer space.¹⁰⁴ The Biden administration is likely to place a greater emphasis on the environmental protection of outer space and celestial bodies, mirroring its domestic priorities on such issues (signaled by the administration's rejoining of The Paris Agreement), which could pro-

⁹⁷ *Id.*

⁹⁸ *See id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ Paul Stimers, *The President's Space Resources Executive Order: A Step in the Right Direction*, SPACE REV. (Apr. 20, 2020), <https://www.thespacereview.com/article/3925/1> [<https://perma.cc/3LUT-JB7F>].

¹⁰² Bleddyn Bowen, *Biden-Harris Space Policy: Building on the Space Force and Artemis*, SPACEWATCH.GLOB. (Jan. 20, 2021), <https://spacewatch.global/2021/01/spacewatchgl-column-biden-harris-space-policy-building-on-the-space-force-and-artemis/> [<https://perma.cc/QSL2-QX9B>].

¹⁰³ *Id.*

¹⁰⁴ Jeffrey Kluger, *The Biden Presidency Could Fundamentally Change the U.S. Space Program*, TIME (Jan. 29, 2021, 8:00 AM), <https://time.com/5933447/biden-space-nasa/> [<https://perma.cc/Y68N-DSLPL>].

vide further opportunities for collaboration with partner nations going forward.¹⁰⁵

IV. THE ARTEMIS PROGRAM

This Section discusses the phases and components of the Artemis Program, which is NASA's bold new vision to return humans to the Moon, and eventually to Mars. Phase One is to return human beings to the Moon by 2024.¹⁰⁶ This 2024 deadline has recently been put in doubt due to many factors, including the COVID-19 pandemic and the change in U.S. administration.¹⁰⁷ It is unlikely that the new administration will abandon the Artemis Program even though it has former-President Trump's fingerprints all over it—the Program enjoys widespread support in Congress, and too much diplomatic and political capital has been expended getting it off the ground.¹⁰⁸ If anything, the timeline on the Artemis Program is likely to be extended.

Phase Two of the Artemis Program involves establishing a long-term human presence on the Moon, with a target date of the late 2020s to early 2030s.¹⁰⁹ Critical to this goal will be the Lunar Gateway, a small space station that orbits the Moon and serves as a base for the astronauts when they are exploring the lunar surface—similar to the International Space Station, but not permanently crewed.¹¹⁰ Additionally, accessing the water ice at the Moon's south pole is critical to establishing a sustainable human presence on the Moon.¹¹¹ There was debate over whether resources should be expended on voyages to the Moon or Mars for a long time.¹¹² The conventional wisdom was that

¹⁰⁵ Bowen, *supra* note 102.

¹⁰⁶ ARTEMIS PLAN, *supra* note 1, at 13.

¹⁰⁷ Kristin Fisher & Ashley Strickland, *NASA Watchdog Says Return of Astronauts to Moon by 2024 'Not Feasible' Due to Spacesuit Delays*, CNN, <https://www.cnn.com/2021/08/10/world/nasa-artemis-moon-landing-delay-scni/index.html> [https://perma.cc/35VJ-AJLW] (Aug. 10, 2021, 3:37 PM); Bowen, *supra* note 102.

¹⁰⁸ Kluger, *supra* note 104.

¹⁰⁹ See ARTEMIS PLAN, *supra* note 1, at 53.

¹¹⁰ Trevor English, *The Lunar Gateway is NASA's Stepping Stone to Lunar Habitation*, INTERESTING ENGINEERING (Nov. 10, 2020), <https://interestingengineering.com/the-lunar-gateway-is-nasas-stepping-stone-to-lunar-habitation> [https://perma.cc/FGL8-ZNXA].

¹¹¹ *VIPER Mission Overview*, NASA, <https://www.nasa.gov/viper/overview> [https://perma.cc/34L7-FWJ5].

¹¹² See Greg Autry, *Oh No, Not Again: The Moon vs. Mars*, FORBES (Jan. 26, 2021, 12:44 PM), <https://www.forbes.com/sites/gregautry/2021/01/26/oh-no-not-again-the-moon-vs-mars/?sh=2e6f7a957e56> [https://perma.cc/9PL5-AMDA].

every dollar spent on the Moon was a dollar not spent on Mars, and vice versa.¹¹³ However, this thinking has evolved, and now many experts recognize that, for humans to travel to Mars, lessons must first be learned by establishing a sustainable human presence on the Moon.¹¹⁴ Thus, the main goal of long-term presence on the Moon is to gain the scientific and engineering expertise necessary to get humans to Mars and to sustain them when they get there.¹¹⁵

Phase Three is sending the first crew to Mars, which is 140 million miles away from Earth (compared to the Moon's distance of 250,000 miles).¹¹⁶ This is an extremely ambitious and challenging undertaking, so no timeline has been set.¹¹⁷ Much remains unknown about what it will take to accomplish this goal, which is why the immediate focus is on returning to the Moon and establishing a sustainable long-term presence there so that astronauts, scientists, and engineers can learn what it will take to land on Mars.¹¹⁸ Such an endeavor will undoubtedly require the U.S. to marshal the resources of all of our international and private sector partners.

The Artemis Program thus represents the boldest U.S. space exploration plan in recent history, with tremendous potential to develop scientific and engineering expertise and the U.S. domestic private space industry. To achieve this bold vision, the U.S. will need to partner with our allies across the globe and do so through the Accords.

V. THE ARTEMIS ACCORDS

On October 13, 2020, the U.S. unveiled the Accords, aiming to establish a common set of principles to govern the civil exploration and use of outer space.¹¹⁹ The Accords represent NASA's vision "to create a safe and transparent environment which facilitates exploration, science, and commercial activities for all of

¹¹³ Space Ct. Found., *Artemis Accords | Volume II | The Future of Space Governance | SCFVideo 4*, YOUTUBE, at 22:46 (Jan.15, 2021), <https://www.youtube.com/watch?v=STdrBjrqrk> [<https://perma.cc/95Y8-KU6G>].

¹¹⁴ *See id.* at 8:44–58.

¹¹⁵ ARTEMIS PLAN, *supra* note 1, at 26, 30–31.

¹¹⁶ *Id.* at 9, 26.

¹¹⁷ *See id.* at 31.

¹¹⁸ *Id.* at 28–31.

¹¹⁹ ARTEMIS ACCORDS, *supra* note 6, at 7.

humanity to enjoy.”¹²⁰ Originally negotiated among the U.S. and seven of its international partners, the Accords serve as a roadmap for implementing the Artemis Program.¹²¹ While more specific, mission-level details will be spelled out in individual bilateral agreements that NASA will execute with its partner agencies, the Accords seek to reaffirm several principles enunciated in the five U.N. treaties on outer space and a few principles not explicitly mentioned in those treaties but perhaps found in the penumbra of the Agreement.¹²² The original parties to the Accords are the U.S., United Kingdom, Australia, Canada, Japan, Luxembourg, the United Arab Emirates, and Italy.¹²³ Ukraine has joined since the original signing, and Brazil has signed a letter of intent to join.¹²⁴ This is a diverse group of countries, from Japan—which has long been a partner on the International Space Station—to countries like Australia and the United Arab Emirates, with relatively new space programs.¹²⁵ The Accords set out ten principles for space exploration, which this Comment will examine in turn.

The first principle of the Accords is that all activities conducted under them “should be exclusively for peaceful purposes and in accordance with relevant international law.”¹²⁶ This principle serves two purposes. First, it incorporates and reaffirms Article IV of the Outer Space Treaty’s mandate that outer space shall be used “exclusively for peaceful purposes,” a relatively noncontroversial baseline principle.¹²⁷ Second, it provides a general assurance that nothing in the Accords intends to replace or be in derogation of existing international law.¹²⁸ This section uses the permissive “should” language instead of the mandatory “shall” or “must” language, which is something that

¹²⁰ *Principles for a Safe, Peaceful, and Prosperous Future*, NASA, <https://www.nasa.gov/specials/artemis-accords/index.html> [<https://perma.cc/RVS5-9QA7>].

¹²¹ Davenport, *supra* note 7.

¹²² ARTEMIS ACCORDS, *supra* note 6, at 1–2.

¹²³ Davenport, *supra* note 7.

¹²⁴ *Ukraine Ninth Country to Sign Artemis Accords*, SPACEWATCH.GLOB. (Nov. 15, 2020), <https://spacewatch.global/2020/11/ukraine-ninth-country-to-sign-artemis-accords/> [<https://perma.cc/6SPR-6Q5R>]; *NASA Administrator Signs Statement of Intent with Brazil on Artemis Cooperation*, NASA, <https://www.nasa.gov/feature/nasa-administrator-signs-statement-of-intent-with-brazil-on-artemis-cooperation> [<https://perma.cc/MEJ6-GFFR>] (Dec. 14, 2020).

¹²⁵ Davenport, *supra* note 7.

¹²⁶ ARTEMIS ACCORDS, *supra* note 6, at 3.

¹²⁷ Outer Space Treaty, *supra* note 5, at 2413–14.

¹²⁸ See ARTEMIS ACCORDS, *supra* note 6, at 3.

critics may hone in on to ascribe nefarious intent to NASA and the Accords.¹²⁹

The second principle is transparency.¹³⁰ This section requires that states publicly release information about their space policies and plans and any scientific data gathered from their activities.¹³¹ This accords with Article XI of the Outer Space Treaty, which imposes an obligation on states to inform “the public and the international scientific community . . . of the nature, conduct, locations and results of such activities.”¹³² Mike Gold, Associate Administrator for Space Policy and Partnerships at NASA and one of the main architects of the Accords, noted that “transparency is so important to avoiding conflict that so many of our terrestrial conflicts are based on misperceptions, lack of communication, and confusion, which is why we’re asking any country who joins the Artemis Accords to just be public about what their plans are, what their policies are.”¹³³ While this may seem non-controversial, transparency has very different meanings depending on where one is in the world; NASA’s making transparency an explicit requirement of the Accords is a good step towards holding countries to a high standard. Requiring the United Arab Emirates, for example, to be transparent in its space policies and programs could have spillover effects and begin to build a culture of transparency within the government, which the U.S. should strive to promote.

The third principle of the Accords is interoperability.¹³⁴ This principle is born of a recognition that interoperability and compatibility of systems and hardware will “enhance space-based exploration, scientific discovery, and commercial utilization,” ultimately promoting harmony and creating a fertile environment for investment and development.¹³⁵ Signatories to the Accords commit to using “reasonable efforts” to utilize and develop interoperability standards for space-based infrastructure.¹³⁶ The Outer Space Treaty does not mention interoperability. It remains to be seen how successful the U.S. will be in arguing that interoperability is within the spirit of the Outer

¹²⁹ *See id.*

¹³⁰ *Id.*

¹³¹ *Id.*

¹³² Outer Space Treaty, *supra* note 5, at 2418.

¹³³ Space Ct. Found., *supra* note 113, at 10:20.

¹³⁴ ARTEMIS ACCORDS, *supra* note 6, at 3.

¹³⁵ *Id.*

¹³⁶ *Id.*

Space Treaty, which would lend more weight to the practice as customary international law. It could also be argued that interoperability helps implement the Rescue Agreement, as it would allow for safer, more expeditious and effective provision of aid in distress situations.

Dovetailing neatly with interoperability is the fourth principle of the Accords: emergency assistance.¹³⁷ This section commits the signatories to taking “all reasonable efforts to render necessary assistance to personnel in outer space who are in distress,” and explicitly acknowledges the obligations imposed by the Rescue Agreement.¹³⁸ This section is a hybrid of the Rescue Agreement and Article V of the Outer Space Treaty. It uses slightly different language than the Rescue Agreement, which refers to “personnel of a spacecraft”¹³⁹ instead of “personnel in outer space”¹⁴⁰ (both are more expansive than the Outer Space Treaty’s “astronauts”).¹⁴¹ As discussed above, there is some uncertainty regarding who exactly qualifies as “personnel of a spacecraft” under the Rescue Agreement, and NASA seems to have perpetuated this uncertainty by using the term *personnel*, leaving unclear whether these provisions cover space tourists.

The fifth principle of the Accords is the registration of space objects.¹⁴² This provision reinforces the importance of the Registration Convention, providing another link between the Accords and existing treaty law.¹⁴³ As Mike Gold noted, “Registration is the foundation that everything else is built upon. We can’t get to issues of liability, we can’t deconflict activities properly if we’re not following registration.”¹⁴⁴ He framed the Accords as a way to enforce compliance with the Registration Convention and said that NASA is urging partners that are not a party to that Treaty to “become a member with alacrity.”¹⁴⁵

Principle six is the release of scientific data.¹⁴⁶ This section commits the signatories to “the open sharing of scientific data,” with appropriate protections for proprietary and export-controlled information, and exempts private sector operations from

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ Rescue Agreement, *supra* note 44, at 7573.

¹⁴⁰ ARTEMIS ACCORDS, *supra* note 6, at 3.

¹⁴¹ Outer Space Treaty, *supra* note 5, at 2414.

¹⁴² ARTEMIS ACCORDS, *supra* note 6, at 3.

¹⁴³ *See id.*; *see generally* Registration Convention, *supra* note 67.

¹⁴⁴ Space Ct. Found., *supra* note 113, at 13:08.

¹⁴⁵ *Id.* at 13:35.

¹⁴⁶ ARTEMIS ACCORDS, *supra* note 6, at 4

this requirement.¹⁴⁷ Since the beginning, the release of scientific data has been a practice at NASA, and the Accords seek to promote widespread adherence to this practice as a norm of international space law.¹⁴⁸ Release of scientific data is not explicitly in the Outer Space Treaty, but in casting the release of scientific data as an obligation under that Treaty, NASA has emphasized its belief that it is “very much in the spirit of the [Outer Space Treaty].”¹⁴⁹ Again, it remains to be seen how successful NASA will be in enshrining principles of the Accords in international law that are not explicitly rooted in the Outer Space Treaty.

The seventh principle is “preserving outer space heritage.”¹⁵⁰ This section defines outer space heritage as “historically significant human or robotic landing sites, artifacts, spacecraft, and other evidence of activity on celestial bodies.”¹⁵¹ This is another idea that is not included in the Outer Space Treaty.¹⁵² NASA has stated that “we want to try and protect our heritage just like we do here on Earth, where we honor our historic sites or historic artifacts. We need to do the same on the [M]oon.”¹⁵³ The seventh principle is a relatively noncontroversial and somewhat secondary principle of the Accords. Still, it could be perceived as a Trojan horse for limited national appropriation, especially because most heritage sites on the Moon relate to the United States’ history of lunar exploration.

The eighth, and by far the most controversial, principle outlined in the Accords relates to exploiting space resources.¹⁵⁴ The Accords provide that “the extraction and utilization of space resources . . . should be executed in a manner that complies with the Outer Space Treaty and in support of safe and sustainable space activities.”¹⁵⁵ They also explicitly affirm “that the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty”¹⁵⁶ This is a controversial contention because a large

¹⁴⁷ *Id.*

¹⁴⁸ See National Aeronautics and Space Act of 1958, Pub. L. No. 85-568, 72 Stat. 426.

¹⁴⁹ Space Ct. Found., *supra* note 113, at 13:47.

¹⁵⁰ ARTEMIS ACCORDS, *supra* note 6, at 4.

¹⁵¹ *Id.*

¹⁵² See generally Outer Space Treaty, *supra* note 5.

¹⁵³ Space Ct. Found., *supra* note 113, at 15:19.

¹⁵⁴ See ARTEMIS ACCORDS, *supra* note 6, at 4.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

contingent of nations do not believe that space resource exploitation can be consistent with the Outer Space Treaty.¹⁵⁷ As such, this section is a clear example of the U.S. using the Accords to advance its interpretation of the Outer Space Treaty under international law. Of particular relevance are Articles II, VI, and XI of the Outer Space Treaty, which prohibit national appropriation, assign international responsibility for national activities, and require the disclosure of information surrounding activities in outer space.¹⁵⁸

The reality of any expedition or exploration, in outer space or otherwise, requires living off the land. Space resource extraction will be necessary if human beings are to establish a sustainable long-term presence on the lunar surface and, ultimately, make the voyage to Mars. Other countries cannot seriously contest this practical reality, but they can contest that the U.S. seems to be using the Accords to unilaterally decide how to conduct space resource extraction and what it will look like. The success of the United States' advanced private space industry rests heavily upon a legal framework established to regulate resource extraction in outer space.

Another area of contention is resource extraction vis-à-vis the Moon Agreement. The Moon Agreement allows the exploitation of the Moon's natural resources only through an international regime set up by the states to govern the exploitation of natural resources on the Moon, which has yet to be established.¹⁵⁹ Recall that the Moon Agreement is regarded by many as a failed treaty (with only eighteen states having ratified it).¹⁶⁰ The U.S. has specifically repudiated that the Moon Agreement reflects customary international law.¹⁶¹ On their face, the Accords seem to conflict directly with the Moon Agreement. However, Australia is a signatory of both the Moon Agreement and the Accords, which means there may be room for an interpretation of the two without conflict.¹⁶² Indeed, Mike Gold stated that “[e]ven for the Moon Agreement nations like Australia, I also don’t see any conflict there between the Moon Agreement and what’s stated in the Accords in terms of legal principle: that the Moon Agree-

¹⁵⁷ Rossana Deplano, *The Artemis Accords: Evolution or Revolution in International Space Law?*, 70 INT’L & COMPAR. L. Q. 799, 807–08 (2021).

¹⁵⁸ Outer Space Treaty, *supra* note 5, at 2413, 2415, 2418.

¹⁵⁹ Moon Agreement, *supra* note 77, at 25.

¹⁶⁰ See *supra* Section III.E.

¹⁶¹ Exec. Order No. 13,914, 85 Fed. Reg. 20,381 (Apr. 6, 2020).

¹⁶² Nelson, *supra* note 88, at 4.

ment anticipates the extraction and utilization of resources.”¹⁶³ He went on, however, to note that “[w]here there would be a difference is relative to what the regulatory regime should look like and what a sharing regime might look like for those resources, and we couldn’t establish common ground around those topics”¹⁶⁴ In a way, having Australia as a partner in the Artemis Program helps the U.S. advance its ideas regarding resource extraction in outer space because Australia’s participation in the Moon Agreement bolsters the notion that nothing in the Accords conflicts with existing treaties.

The ninth principle of the Accords relates to the deconfliction of activities in outer space.¹⁶⁵ This section immediately references the Outer Space Treaty’s “provisions relat[ed] to due regard and harmful interference” and states that signatories commit to using due regard in outer space and avoid harmful interference with other nations.¹⁶⁶ It also provides that signatories should coordinate with one another if they have reason to believe their activities will cause harmful interference or if they believe the activities of another state will cause harmful interference.¹⁶⁷ The most important contribution of this section is the idea of a safety zone—“[t]he area wherein this notification and coordination will be implemented to avoid harmful interference.”¹⁶⁸ The Accords state that a safety zone’s size, scope, and duration should be tailored to the specific activity taking place and that states must notify each other and the Secretary-General of the U.N. of the “establishment, alteration, or end of any safety zone, consistent with Article XI of the Outer Space Treaty.”¹⁶⁹ The Accords also note that “[t]he Signatories commit to respect the principle of free access to all areas of celestial bodies and all other provisions of the Outer Space Treaty in their use of safety zones.”¹⁷⁰ Mike Gold also emphasized this point, stating that “it’s very important to understand what the Accords aren’t, which is in any way, shape, or form a stay-out zone or an exclusionary zone or anything that would hamper the free access on a celes-

¹⁶³ Space Ct. Found., *supra* note 113, at 1:00:44.

¹⁶⁴ *Id.* at 1:01:00.

¹⁶⁵ ARTEMIS ACCORDS, *supra* note 6, at 5.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.* at 6.

¹⁷⁰ *Id.*

tial body, which is required by the Outer Space Treaty.”¹⁷¹ He went on to state that “[i]t’s simply a requirement to notify and again to coordinate to avoid harmful interference, which are existing obligations underneath the Outer Space Treaty.”¹⁷²

Deconfliction of activities is a prime example of an area where the U.S. uses the Accords to operationalize the Outer Space Treaty. Article IX of the Outer Space Treaty requires states to use “due regard” and avoid “harmful interference” in their activities in outer space, but what that means exactly is unclear.¹⁷³ The Accords seek to fill in those gaps and establish the concept of safety zones in due regard.¹⁷⁴ Safety zones are not something NASA came up with on its own, but rather the Accords borrow heavily from The Hague International Space Resources Governance Working Group’s 2019 Building Blocks for the Development of an International Framework on Space Resource Activities.¹⁷⁵ Section 11.3 of that framework provides:

Taking into account the principle of non-appropriation under Article II [of the Outer Space Treaty], the international framework should permit States and international organizations responsible for space resource activities to establish a safety zone, or other area-based safety measure, around an area identified for a space resource activity as necessary to assure safety and to avoid any harmful interference with that space resource activity. Such safety measure shall not impede the free access, in accordance with international law, to any area of outer space by personnel, vehicles and equipment of another operator. In accordance with the area-based safety measure, a State or international organization may restrict access for a limited period of time, provided that timely public notice has been given setting out the reasons for such restriction.¹⁷⁶

An analogous concept exists in maritime law, where the U.N. Convention on the Law of the Sea provides for a 500-meter

¹⁷¹ Space Ct. Found., *supra* note 113, at 20:31.

¹⁷² *Id.* at 21:06.

¹⁷³ See Outer Space Treaty, *supra* note 5, at 2416–17.

¹⁷⁴ ARTEMIS ACCORDS, *supra* note 6, at 5.

¹⁷⁵ The Hague Int’l Space Res. Governance Working Grp., *Building Blocks for the Development of an International Framework on Space Resource Activities* 4 (Nov. 2019), <https://www.universiteitleiden.nl/binaries/content/assets/rechtsgeleerdheid/instituut-voor-publiekrecht/lucht—en-ruimterecht/space-resources/bb-thissrwg—cover.pdf> [<https://perma.cc/M4NF-NCT3>].

¹⁷⁶ *Id.*

safety zone around offshore oil and gas facilities.¹⁷⁷ As the U.S. draws perhaps the strongest connection between the Accords and the Outer Space Treaty and makes explicit that the U.S. seeks to establish a recognition of safety zones not just as an obligation of the Accords, but as an obligation that all parties to the Outer Space Treaty must recognize as part of Article IX's mandate to use due regard and avoid harmful interference.¹⁷⁸ Concerns certainly exist about safety zones turning into de facto areas of national appropriation or influence, which is a perception that NASA will have to be intentional about addressing.

Another small but important way that the U.S. seeks to use the Accords' provisions on deconfliction of activities to incorporate and build on the Outer Space Treaty is that, technically, the Outer Space Treaty *does not* impose an obligation to avoid harmful interference on states.¹⁷⁹ Article IX of the Outer Space Treaty strictly requires states to consult with one another if they think their activities may cause harmful interference.¹⁸⁰ It says nothing about actually avoiding harmful interference. Yet, one can imagine a situation in which parties consult about harmful interference but are unable to reach an agreement, and thus harmful interference occurs even though the Outer Space Treaty's technical obligations have been satisfied. The Accords go a step further and explicitly require signatories "to seek to refrain from any intentional actions that may create harmful interference with each other's use of outer space."¹⁸¹ While this is a minor change, it is an important one that could have serious implications for international relations and governance in space.

The tenth and final principle enshrined in the Accords relates to orbital debris.¹⁸² This section simply states that nations that partner in the Artemis Program must "commit to plan for the mitigation of orbital debris," and to "limit, to the extent practicable, the generation of new, long-lived harmful debris."¹⁸³ While there is no direct analog in any of the outer space treaties,

¹⁷⁷ Mikhail Kashubsky & Anthony Morrison, *Security of Offshore Oil and Gas Facilities: Exclusion Zones and Ships' Routeing*, 5 AUSTL. J. MAR. & OCEAN AFFS. 1, 2 (2013).

¹⁷⁸ ARTEMIS ACCORDS, *supra* note 6, at 5–6.

¹⁷⁹ See Outer Space Treaty, *supra* note 5, at 2416–17.

¹⁸⁰ *Id.*

¹⁸¹ ARTEMIS ACCORDS, *supra* note 6, at 6.

¹⁸² *Id.*

¹⁸³ *Id.*

Article IX of the Outer Space Treaty discusses avoiding the “harmful contamination” of outer space, which mitigating orbital debris certainly seeks to accomplish.¹⁸⁴ NASA has noted its aspiration to “do better in space than we have on Earth” when it comes to debris management.¹⁸⁵ This section encourages NASA and its partners to be mindful of orbital debris and the environment when conducting activities in outer space.¹⁸⁶ Although a relatively benign provision, it could serve to put the squeeze on nations like China and India that, at least here on Earth, have less-than-stellar track records when it comes to respecting the environment.¹⁸⁷

The Accords thus represent the United States’ attempt to lay down, under the auspices of the Outer Space Treaty and the other U.N. treaties on outer space, general principles for the civil exploration and use of outer space. These principles vary in the degree of connection they share to the Outer Space Treaty. However, the U.S. consistently and forcefully maintains that the Accords are simply an outgrowth of the Outer Space Treaty, a way to operationalize and enforce compliance with the Outer Space Treaty, and are in no way significant or to be interpreted apart from the Outer Space Treaty.¹⁸⁸ This reveals the United States’ true intent with the Accords: to establish a U.S.-centric legal framework and system of good governance in outer space that is binding on all nations.

VI. USING THE ARTEMIS ACCORDS TO BUILD CUSTOMARY INTERNATIONAL LAW

By cloaking the Accords with the authority and legitimacy of the Outer Space Treaty, the U.S. seeks to use the Accords to build customary international law, which would bind not only parties to the Accords but also non-parties in their use and exploration of outer space. The U.S. has this unique opportunity because (1) the Outer Space Treaty speaks only to general principles and is thus ripe for elaboration and operationalization, and (2) the U.S. is the first-mover in this space, launching the

¹⁸⁴ Outer Space Treaty, *supra* note 5, at 2416.

¹⁸⁵ Space Ct. Found., *supra* note 113, at 21:27.

¹⁸⁶ ARTEMIS ACCORDS, *supra* note 6, at 6.

¹⁸⁷ See Leeza Mangaldas, *India and China Both Struggle with Deadly Pollution—But Only One Fights It*, FORBES (Oct. 27, 2017, 1:15 PM), forbes.com/sites/leezaman-galdas/2017/10/25/india-and-china-both-struggle-with-deadly-pollution-but-only-one-is-fighting-it/?sh=70949c85707a [<https://perma.cc/25W4-ZE9Z>].

¹⁸⁸ See ARTEMIS ACCORDS, *supra* note 6, at 2.

first mission to return humans to the Moon since 1972.¹⁸⁹ The U.S. must capitalize on the opportunity to build a new legal regime and system of good governance in outer space, specifically working to build recognition and consensus around disclosure of scientific data, space resource extraction, and deconfliction of activities.

Custom plays an important role in the international legal system. Indeed, Article 38 of the Statute of the International Court of Justice formally recognizes custom as a source of international law, including “international custom, as evidence of a general practice accepted as law” among its list of the sources of international law.¹⁹⁰ Customary international law “describes the body of rules that nations in the international community ‘universally abide by, or accede to, out of a sense of legal obligation and mutual concern.’”¹⁹¹ Customary international law consists of two components:

First, there must be a general and consistent practice of states. This does not mean that the practice must be universally followed; rather it should reflect wide acceptance among the states particularly involved in the relevant activity. Second, there must be a sense of legal obligation, or *opinio juris sive necessitatis*. In other words, a practice that is generally followed but which states feel legally free to disregard does not contribute to customary law; rather, there must be a sense of legal obligation. States must follow the practice because they believe it is required by international law, not merely because that they think it is a good idea, or politically useful, or otherwise desirable.¹⁹²

Thus, the two elements necessary to create customary international law are state practice and *opinio juris*. State practice is developed by “the states particularly involved in the relevant activity” acting in a certain way over some time, establishing a normal course of conduct.¹⁹³ That element will undoubtedly be met through the Accords—the U.S. and its partners will develop state practice around the Accords by acting underneath and consistent with the obligations of the Accords when conducting their activities in outer space. The broader, more extensive, and

¹⁸⁹ See ARTEMIS PLAN, *supra* note 1, at 22.

¹⁹⁰ Statute of the International Court of Justice art. 38, ¶ 1(b), June 26, 1945, 59 Stat. 1055, 33 U.N.T.S. 933.

¹⁹¹ Viet. Ass’n for Victims of Agent Orange v. Dow Chem. Co., 517 F.3d 104, 116 (2d Cir. 2008) (quoting Flores v. S. Peru Copper Corp., 414 F.3d 233, 248 (2d Cir. 2003)).

¹⁹² United States v. Bellaizac-Hurtado, 700 F.3d 1245, 1252 (11th Cir. 2012).

¹⁹³ *Id.*

more diverse a coalition the U.S. can assemble under the Accords, the stronger the state practice element becomes.

The concept of *opinio juris* is a bit more elusive, but it is essentially “the conviction of states that a particular practice is obligatory or accepted as law.”¹⁹⁴ The U.S. approach of continually discussing the Accords as an outgrowth or extension of the Outer Space Treaty becomes relevant here for purposes of international law. The U.S. could have pursued the Accords separate and independent from any of the five U.N. treaties on outer space. It could have emphasized that the Accords were simply agreements between the U.S. and its partners working on the Artemis Program—nothing more, nothing less. While this would contribute to state practice, it would not trigger any *opinio juris*. States would be acting in a given way because the Accords demanded it, not because they thought they had to act that way consistent with their obligations under international law. However, the United States’ repeated overtures to the Outer Space Treaty in the Accords provide the missing link that helps create *opinio juris* around the Accords. Now, partners in the Artemis Program will be acting in a certain way not only because the Accords require them to but also out of a sense that the Outer Space Treaty also requires them to act that way. For example, states will respect and honor safety zones because they believe that is the only way to be consistent with their obligations under Article IX of the Outer Space Treaty to use due regard and avoid harmful interference.¹⁹⁵ It is in this way that the U.S. will be able to use the Accords to begin building a U.S.-centric regime of laws and good governance in outer space through customary international law.

One area where the U.S. should seek to use the Accords to establish legally binding customs is scientific data disclosure. While the Outer Space Treaty does not explicitly mention this, NASA has emphasized that it is “very much in the spirit of the treaty.”¹⁹⁶ Disclosure of scientific data is something that NASA has always done,¹⁹⁷ and incentivizing countries—including China and Russia—to disclose scientific data related to their activities in outer space would not only spur innovation and promote the sharing of ideas, but it would also lead to more

¹⁹⁴ Jo Lynn Slama, Note, *Opinio Juris in Customary International Law*, 15 OKLA. CITY UNIV. L. REV. 603, 605 (1990).

¹⁹⁵ See ARTEMIS ACCORDS, *supra* note 6, at 5.

¹⁹⁶ Space Ct. Found., *supra* note 113, at 13:47.

¹⁹⁷ *Id.* at 13:49.

transparency, accountability, safety, and stability in outer space. These are values that the U.S. should seek to promote. However, because the Outer Space Treaty is silent on this principle, the U.S. and its partners will have to argue that the penumbra requires disclosure of scientific data of the Outer Space Treaty. It remains to be seen how effective this will be in establishing *opinio juris*. Still, extensive state practice surrounding scientific data disclosure will lay the foundation for that principle to become legally binding. It can generate enormous peer pressure to coerce states into compliance.

Another area where the U.S. should seek to build customary international law is resource extraction. As discussed in the previous Section, the jury is still out internationally on whether the Outer Space Treaty permits the extraction and use of space resources.¹⁹⁸ The U.S. is not waiting for an international consensus to form but rather is forming that consensus itself. On the one hand, this reflects a sort of common-sense realization that to establish a sustainable long-term presence on the Moon, astronauts will need to live off the land. The south pole of the Moon contains vast quantities of water ice that will need to be harvested and utilized to sustain human operations. It was not that long ago that scientists thought the Moon was bone-dry; there are undoubtedly many more mysteries that the Moon will reveal as we begin to explore it more thoroughly, and we must be able to take advantage of those potential opportunities.

The U.S. push for resource extraction in outer space also reflects that the United States' domestic private space industry is by far the most dominant on Earth. Jeff Bezos and Elon Musk are just two names pouring billions of dollars into private space exploration.¹⁹⁹ Space resource extraction must be accepted under international space law and must take place under a stable and conducive legal regime to ultimately monetize and realize the full potential of this industry. The U.S. has every incentive to use the Accords to begin crafting that regime, being careful and intentional about portraying the source of that regime as the Outer Space Treaty and not the Accords themselves. Even without identifying a positive source for the regime in the Outer Space Treaty, this can be accomplished by simply rein-

¹⁹⁸ See *supra* Part V.

¹⁹⁹ Kara Swisher, *Why Are Elon Musk and Jeff Bezos So Interested in Space?*, N.Y. TIMES (Feb. 26, 2021), <https://www.nytimes.com/2021/02/26/opinion/mars-nasa-musk.html> [<https://perma.cc/8U3A-6UMD>].

forcing that the U.S.-crafted regime respects the Outer Space Treaty and does not run afoul of any of its provisions. The U.S. would prefer to avoid negotiations about this issue with China or Russia, who will undoubtedly be looking for ways to hamstring the U.S. domestic space industry. Thus, forging ahead with the Artemis Program and the Accords allows the U.S. to build accepted practice around space resource extraction and then leverage that emerging custom if and when the time comes to have these conversations in a multilateral forum.

A final area where the U.S. should focus on building customary international law through the Accords is the deconfliction of activities. This is an area of great opportunity for the U.S. because the Accords' section on deconfliction of activities is directly rooted in Article IX of the Outer Space Treaty, which admonishes its signatories to conduct their activities in outer space with "due regard to the corresponding interests of all other States" and to avoid causing "harmful interference with activities of other States."²⁰⁰ Due regard and harmful interference are very amorphous concepts. The U.S. has the opportunity with the Accords to operationalize Article IX and establish conclusively for international space law what it means to use due regard and avoid harmful interference.

The way the U.S. has set out to do this is through safety zones.²⁰¹ The exact parameters of a given safety zone will have to be determined by reference to the particular activity being conducted, leveraging generally accepted engineering and scientific principles.²⁰² As a general matter, however, safety zones will be the area around a given activity (be it mining, drilling, or something else) in which harmful interference could occur.²⁰³ Safety zones can exist either on the surface of celestial bodies or in cislunar space.²⁰⁴ Safety zones will notify all other nations that a sensitive activity is taking place and establish a per se rule that any intrusion into the safety zone will cause harmful interference with the activity being conducted.²⁰⁵ This idea is based heavily on The Hague International Space Resources Govern-

²⁰⁰ Outer Space Treaty, *supra* note 5, at 2416–17.

²⁰¹ See ARTEMIS ACCORDS, *supra* note 6, at 5.

²⁰² *Id.* at 5–6.

²⁰³ *Id.* at 5.

²⁰⁴ *Id.* at 5.

²⁰⁵ Leonard David, *NASA Proposes New Rules for Moon-Focused Space Race*, SCI. AM. (May 21, 2020), <https://www.scientificamerican.com/article/nasa-proposes-new-rules-for-moon-focused-space-race/> [<https://perma.cc/3FAL-DUHZ>].

ance Working Group; specifically, their 2019 report entitled “Building Blocks for the Development of an International Framework on Space Resource Activities,” mentioned above.²⁰⁶ Safety zones are also a component of international maritime law under the U.N. Convention on the Law of the Sea, which provides for a 500-meter safety zone around offshore oil and gas platforms to avoid harmful interference.²⁰⁷ Under the Accords, states must notify each other and the Secretary-General of the U.N. of any safety zone, coordinate with other nations, and modify and curtail the scope of the safety zone as the nature of the operation being conducted changes.²⁰⁸

Safety zones will need to be utilized in a way that does not conflict with Article II of the Outer Space Treaty’s prohibition on national appropriation or Article I’s requirement that “free access to all areas of celestial bodies” be protected.²⁰⁹ It is in the United States’ interest that the regime that develops around safety zones respects both of these principles. Perception in this regard is just as—if not more—important than reality. First, if countries perceive that safety zones are really just zones of national influence, they will be less likely to sign on to the Accords and more likely to view them as simply a unilateral effort by the U.S. to advance its own interests in outer space. Second, if safety zones turn into *de facto* zones of appropriation, this will severely weaken the United States’ ability to credibly claim that the Accords are simply an outgrowth of the Outer Space Treaty, as the principles of Article I and Article II are so well enshrined in the Treaty and in international space law that violating those principles would show that the U.S. is fundamentally unserious about creating a new regime of good governance consistent with the Outer Space Treaty. Third, the potential for abuse of safety zones as areas of national appropriation by bad actors in outer space far outweighs any potential benefit that would accrue to the U.S. under such a scheme.

Safety zones represent the United States’ best opportunity to operationalize Article IX of the Outer Space Treaty’s provisions on due regard and harmful interference and begin creating customary international law around deconfliction of activities. Creating such a regime is critical to the peaceful, stable, and

²⁰⁶ The Hague Int’l Space Res. Governance Working Grp., *supra* note 175, at 4.

²⁰⁷ Kashubsky & Morrison, *supra* note 124, at 2.

²⁰⁸ ARTEMIS ACCORDS, *supra* note 4, at 6.

²⁰⁹ Outer Space Treaty, *supra* note 5, at 2413.

predictable exploration of outer space going forward. First, widespread recognition of and respect for safety zones as a requirement of Article IX of the Outer Space Treaty will severely limit the ability of bad actors to cause problems in outer space. Instead of having to decipher on an ad hoc basis what the intentions of a given nation might be in outer space, safety zones create a *per se* rule that any intrusion into them constitutes harmful interference in violation of the Outer Space Treaty.²¹⁰ Second, the United States' private domestic space industry is dominant compared to other nations. For this industry to realize its full potential from both economic and power-projection perspectives, there must be a stable regime in place to protect these U.S. interests. Creation and recognition of safety zones must be a central piece of the U.S.-centric good governance regime in outer space that the Accords seek to establish.

Establishing a governance regime around safety zones through the Accords also has implications for the Accords' ability to create customary international law generally. The Accords' provisions on deconfliction of activities contain the most overlap with the Outer Space Treaty. The Outer Space Treaty's Article IX requirements that states use "due regard" and avoid "harmful interference" are vague and are, therefore, ripe for interpretation and operationalization.²¹¹ Because of this vagueness, the U.S. can claim with perhaps more credibility than in other areas that Section 11 of the Accords is entirely consistent with and a logical outgrowth of the Outer Space Treaty. In sum, the deep connection between Section 11 of the Accords and Article IX of the Outer Space Treaty will strengthen across the United States' claims that the Accords derive their legitimacy from the Outer Space Treaty, which will facilitate and strengthen the development of customary international law under the Accords, specifically the *opinio juris* component.

The U.S. must take advantage of its status as the first mover in this space to use the Accords to begin building customary international law surrounding important issues like disclosure of scientific data, resource extraction, and deconfliction of activities. The U.S. cannot wait for an international consensus around these issues but must instead form that consensus itself. Using the Accords to build a U.S.-centric regime of good governance in outer space is the best way to ensure a stable, peaceful, and

²¹⁰ See ARTEMIS ACCORDS, *supra* note 6, at 5–6.

²¹¹ See Outer Space Treaty, *supra* note 5 at 2416–17.

prosperous future that benefits not only the U.S. and its interests but humanity at large.

VII. INTERNATIONAL RESPONSES

The Accords are unlikely to create new geopolitical rifts but can deepen existing tensions between states. On the other hand, the Accords provide a great opportunity for nations with fledgling space programs to become serious players in outer space going forward. Additionally, the broader the coalition that the U.S. can assemble under the Accords, the more likely that the Accords will allow the U.S. to establish a binding regime of U.S.-centric good governance in outer space and advance its interpretation of the Outer Space Treaty on the international stage.

The two nations with the biggest incentives to oppose the Accords are China and Russia. The United States' rivalry with China on the international stage is not new, and its competition with Russia, specifically in outer space, goes back even further.²¹² Both nations have already spoken publicly about their opposition to the Accords. Ma Zhanyuan, a professor at the Chinese University of Law and Political Science, "acknowledged the need for an international framework governing extraction of space resources," but said that attempts by the U.S. to "formulate its own laws to allow the extraction of space resources . . . will harm the interests of other countries."²¹³ Chinese observers called the Accords an "unembellished and 'preposterous attempt'" to unilaterally set ground rules for lunar resource extraction.²¹⁴ Another Chinese military and aerospace commentator, Song Zhongping, went even further, saying, "[t]he US is developing a new space version of an 'Enclosure Movement,' in pursuit of colonization and claiming sovereignty over the [M]oon," referring to the privatization of common land in 18th-century Britain, and criticizing the United States' "'Cold War' mentality."²¹⁵ Notably, any attempt at cooperation between the U.S. and China on outer space may be preempted

²¹² See *infra* Part II.

²¹³ Elliot Ji, Michael B. Cerny, & Raphael J. Piliero, *What Does China Think About NASA's Artemis Accords?*, DIPLOMAT (Sept. 17, 2020), <https://thediplomat.com/2020/09/what-does-china-think-about-nasas-artemis-accords/> [<https://perma.cc/U9YJ-4ZUJ>].

²¹⁴ *Id.*

²¹⁵ Deng Xiaoci, *Trump Administration's 'Artemis Accords' Expose Political Agenda of Moon Colonization, Show Cold War Mentality Against Space Rivals: Observers*, GLOB.

by the Wolf Amendment, which Congress passed in 2011 restricting NASA's ability to cooperate with Chinese state agencies.²¹⁶

The Russian government has largely echoed its Chinese counterpart on the Accords. The head of Russia's space agency, director general of Roscosmos, Dmitry Rogozin, has criticized the Accords as being too "U.S.-centric" for the Russians to participate in.²¹⁷ Roscosmos said in another statement that "'attempts to expropriate outer space and aggressive plans to actually take over other planets' deter international cooperation" in outer space.²¹⁸ Sergei Savelyev, deputy head in charge of international cooperation at Roscosmos, stated that "[t]here have already been examples in history when one country decided to start seizing territories in its own interests and everyone remembers how that turned out,"²¹⁹ an interesting statement given that his own country is still under crippling international sanctions after its illegal annexation of Crimea in 2014.²²⁰ Director General Rogozin laid it bare in a Twitter post, saying that "[t]he principle of invasion is the same, whether it be the Moon or Iraq. The creation of a 'coalition of the willing' is initiated Only Iraq

TIMES (May 7, 2020), <https://www.globaltimes.cn/content/1187654.shtml> [<https://perma.cc/3VLS-B663>]; Ji et al., *supra* note 213.

²¹⁶ Department of Defense and Full-Year Continuing Appropriations Act, 2011, Pub. L. No. 112-10, § 1340(a), 125 Stat. 38, <https://www.congress.gov/112/plaws/publ10/PLAW-112publ10.pdf>. [<https://perma.cc/3SR5-CNSZ>]. Section 1340(a) provides that:

None of the funds made available by this division may be used for the National Aeronautics and Space Administration or the Office of Science and Technology Policy to develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China or any Chinese-owned company unless such activities are specifically authorized by a law enacted after the date of enactment of this division.

²¹⁷ Jeff Foust, *Russia Skeptical About Participating in Lunar Gateway*, SPACE NEWS (Oct. 12, 2020), <https://spacenews.com/russia-skeptical-about-participating-in-lunar-gateway/#:%7E:text=WASHINGTON%20-%20The%20head%20of%20Russia's,existing%20International%20Space%20Station%20partnership> [<https://perma.cc/5G5U-NF8Z>].

²¹⁸ Bob Daemmrich, *Russia Compares Trump's Space Mining Order to Colonialism*, MOSCOW TIMES (Apr. 7, 2020), <https://www.themoscowtimes.com/2020/04/07/russia-compares-trumps-space-mining-order-to-colonialism-a69901> [<https://perma.cc/MCE5-FMXS>].

²¹⁹ *Id.*

²²⁰ Michael Peel & Javier Espinoza, *EU Pushes Ahead with New Russia Sanctions*, FIN. TIMES (Feb. 22, 2021), <https://www.ft.com/content/226a0a03-719e-4a61-a88c-0e4f983119c9> [<https://perma.cc/92YS-DSBG>].

or Afghanistan will come out of this.”²²¹ Needless to say, the Russians do not seem thrilled with the United States’ maneuvering under the Accords.

Chinese and Russian opposition to the Accords flows from three main areas of concern. First, China and Russia criticize the Accords for not being negotiated in a true multilateral fashion.²²² The text of the Accords was negotiated among the U.S. and the seven initial partners it invited to participate, and each subsequent signatory will have to accede to that language as it is.²²³ China and Russia are likely to use COPUOS as a forum to raise these concerns about multilateralism and may try to initiate the development of a different legal regime in that forum or come up with legal regimes of their own to try and counter the Accords. The U.S. needs to be prepared for one potentiality if China and/or Russia join the Moon Agreement. Recall that the Moon Agreement is largely considered to be a failed exercise given that only eighteen states have ratified it.²²⁴ The Moon Agreement also seems, by its terms, to preclude resource extraction in outer space of the kind authorized by the Accords.²²⁵ However, because the Moon Agreement was negotiated at the U.N. and thus has the veneer of multilateral legitimacy, China or Russia joining the Moon Agreement could pressure the U.S. vis-à-vis advancing its interpretation of the Outer Space Treaty allowing resource extraction.²²⁶ This would likely be a last-ditch effort by China or Russia, however, as both of these nations realize the importance of space resource extraction going forward and would prefer not to hamstring themselves by acceding to the Moon Agreement in an attempt to hinder the U.S. However, if either nation feels as though it is unable to effectively counter the United States’ resource extraction regime in other ways and

²²¹ Joey Roulette, ‘*Star Trek, Not Star Wars: NASA Releases Basic Principles for Moon Exploration Pact*,’ REUTERS (May 15, 2020), <https://www.reuters.com/article/us-space-exploration-artemis/star-trek-not-star-wars-nasa-releases-basic-principles-for-moon-exploration-pact-idUSKBN22R2Z9> [https://perma.cc/7X6W-SAN7].

²²² Christopher Newman, *Artemis Accords: Why Many Countries are Refusing to Sign Moon Exploration Agreement*, CONVERSATION (Oct. 19, 2020, 7:45 AM), <https://theconversation.com/artemis-accords-why-many-countries-are-refusing-to-sign-moon-exploration-agreement-148134> [https://perma.cc/W48P-3DK4].

²²³ See Davenport, *supra* note 7.

²²⁴ Listner, *supra* note 79.

²²⁵ *Id.*

²²⁶ *Id.*

feels threatened enough by that regime, they may decide that the Moon Agreement is worth signing.

Second, “international willingness to participate in the [A]ccords reaffirms the U.S.’s dominance of the space geopolitical sphere.”²²⁷ This is particularly so because, as discussed above, the Accords were not negotiated in a multilateral forum but instead by the U.S. and a few of its close partners. As Cassandra Steer, Mission Specialist with the Australian National University Institute for Space pointed out, it was largely the failure to involve the international community in the drafting process that caused the European Union’s 2008 Draft International Code of Conduct for Outer Space Activities to fail to launch.²²⁸ That attempt to establish norms of behavior in outer space, like the Accords, was unveiled to the international community only after the text had been drafted internally by European Union member states.²²⁹ The fact that the Accords have received such a high level of traction even though they were not negotiated in a true multilateral fashion “highlights the extraordinary pull the United States has when it comes to space exploration, thus confirming China’s and Russia’s fears: The U.S. continues to be the leader in space geopolitics.”²³⁰ This fact provides every incentive for Russia and China to try to undercut the Accords at every turn.

Finally, the Accords divide the international community between those who agree with the United States’ interpretation of the Outer Space Treaty as allowing resource extraction and those who do not.²³¹ As discussed earlier, if a consensus forms around the U.S. interpretation, it could be sufficient to create binding customary international law, which would benefit the U.S. at the expense of Russia and China, given how dominant the United States’ private domestic space sector is. Russia and China will seek to oppose this interpretation and may offer their visions for resource extraction in outer space or may even sign the Moon Agreement in an attempt to thwart the U.S. For many of these same reasons, Russia and China will also be concerned

²²⁷ Almudena Azcárate Ortega, *Artemis Accords: A Step Toward International Cooperation or Further Competition?*, LAWFARE (Dec. 15, 2020, 10:25 AM), <https://www.lawfareblog.com/artemis-accords-step-toward-international-cooperation-or-further-competition> [<https://perma.cc/N3CA-8CRL>].

²²⁸ Space Ct. Found., *supra* note 113, at 53:35.

²²⁹ *See id.*

²³⁰ Ortega, *supra* note 227.

²³¹ *Id.*

about the U.S. advancing its concept of safety zones as due regard under Article IX of the Outer Space Treaty. While competition in outer space between Russia, China, and the U.S. is nothing new, the Accords may trigger a new round of more overt conflict and certainly add an urgency and imminency element to the geopolitical tensions between the nations.

The Accords also present an opportunity for nations with fledgling space programs to become more influential players in outer space in the future. Countries have significant economic and political incentives to join the U.S. coalition. This is especially true for nascent space programs regarding the Accords' commitment to sharing scientific data, which would allow these new space programs to develop much more quickly than if they had to start from scratch.²³² For example, Luxembourg enacted a law in 2017 that allows for space mining, and joining the Accords will certainly jumpstart its space mining efforts.²³³ The United Arab Emirates' founded its space program in 2014, and the Accords represent an opportunity for it to develop its space program while deepening international ties quickly.²³⁴ Likewise, Australia's space program is only three years old, but by joining the Accords, Australia will have a clear opportunity to gain relevance as a spacefaring power.²³⁵ Thus, while some critics allege that the Accords represent an exclusive club that overlooks the interests of non-spacefaring nations, the Accords can be an opportunity for states with nascent space programs to gain operational capacity and relevance on the global stage quickly.

Finally, the U.S. will need to build as broad and diverse a coalition under the Accords as possible to use the Accords to build customary international law. Immediate targets for the U.S. should be the European Space Agency (ESA) and the Indian Space Research Organisation. The European Space Agency is a natural partner for the U.S., and indeed many ESA member states are already party to the Accords.²³⁶ Unsurprisingly, the ESA has not yet signed on to the Accords, as "[t]he ambitious US deadline for the project will clash with the lengthy consultation of the 17 member states required for the ESA to sign on as a whole."²³⁷ Getting the ESA on board will certainly go a long

²³² *Id.*

²³³ *Id.*

²³⁴ *Id.*

²³⁵ *Id.*

²³⁶ Newman, *supra* note 222.

²³⁷ *Id.*

way to bolstering the legitimacy and force of the Accords. Similarly, India would be an excellent partner for the U.S. in the Accords. As the world's largest democracy with a relatively established space program, India would add a different layer of legitimacy to the Accords that bringing other European nations on board would not. India's warmer relationships with Russia and China would also benefit the U.S. From a diversity perspective, the U.S. needs to continue courting South American nations. Securing a partnership with an African nation would also round out the Accords and add further legitimacy to the U.S.'s efforts.

In sum, the Accords are likely to increase tensions with China and Russia in the short term, as each of those nations has strong incentives to oppose the U.S.-led governance regime that the Accords seek to create. At the same time, the Accords present a great opportunity for nations with fledgling space programs to quickly operationalize and gain relevance, especially concerning disclosure of scientific data. The U.S. will also need to continue to aggressively seek to expand its coalition under the Accords if it will be successful in using the Accords as a vehicle for establishing binding customary international law.

VIII. CONCLUSION

With the announcement of its Artemis Program, the U.S. has kicked off a new era in space exploration. The ambitious project seeks to put the first woman on the Moon and send humans to Mars for the first time. These exciting opportunities necessitate a strong legal and good governance regime to manage the peaceful conduct of activities in outer space. To implement the Program, the U.S. will execute a series of bilateral agreements with its partners called the Accords, which represent the United States' vision for a code of conduct in outer space. By casting the Accords as an outgrowth of the Outer Space Treaty and incorporating provisions from the other U.N. treaties on outer space, the U.S. seeks to use the Accords to build customary international law through state practice and *opinio juris* in essential areas like disclosure of scientific data, resource extraction, and deconfliction of activities. The United States' success will primarily be a function of how broad and diverse a coalition it can assemble under the Accords and how it can manage adversarial responses from nations like China and Russia. Using the Accords to build customary international law through the Outer Space Treaty represents the best path forward for the U.S., as constructing a strong, U.S.-centric legal and good governance

regime in outer space is the best way to protect the United States' interests in the future and to secure peace and stability in the final frontier.