



National Aeronautics
and Space
Administration

NASA

MUNUC 38

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CHAIR LETTER

Dear Delegates,

My name is Nora Levy and I will serve as your chair of the Specialized Agency committee, National Aeronautics and Space Administration (NASA). I am a third year majoring in Business Economics and Cinema & Media Studies. I chaired the African Union (Regional Body) at MUNUC 37. Outside of MUNUC I am the President of UChicago's women's Ultimate Frisbee team, enjoy playing pickup sports and cards, and work for a feature film production company.

This committee will focus on the Artemis Program, a new space exploration program at NASA focused on our return to the moon. As we begin our journey back to the moon there are many considerations critical to safe, ethical, and beneficial missions and flights. With a goal of building infrastructure on the moon, international relations and diplomacy are key.

While discussing potentially contentious issues, it is important to note that maintaining respect is expected from each delegate. Racist, misogynistic, sexist, homophobic, transphobic, islamophobia, and anti-semitic rhetoric will not be tolerated. Violation of this policy will result in discipline outlined by MUNUC's conference policies. When in doubt, ask the dais whether the content of your idea violates these policies.

Learning and enjoying yourself are the top priorities throughout this committee, and I will do my best to allow you to learn about the Artemis Program and all of the nuances that come with it in a fun and welcoming environment. We aim to help teach new negotiation and speaking

skills that you can use throughout your MUN careers and beyond in whatever profession you choose.

Sincerely,

Nora Levy

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HISTORY OF THE COMMITTEE

The National Aeronautics and Space Administration (NASA) was established on July 29, 1958, through the National Aeronautics and Space Act, signed by President Dwight D. Eisenhower. NASA's creation was a direct response to the Soviet Union's launch of Sputnik 1 in October 1957, which marked the beginning of the **Space Race** and demonstrated the urgent need for American leadership in space exploration. NASA absorbed the National Advisory Committee for Aeronautics (NACA), along with its 8,000 employees, an annual budget of \$100 million, and three major research laboratories. The agency also incorporated several military space programs, including the Army Ballistic Missile Agency under Wernher von Braun, bringing crucial rocket technology and expertise under civilian control.¹

From its inception, NASA recognized that space exploration would benefit from international collaboration. The Space Act of 1958 specifically directed NASA to “provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof.” This mandate laid the foundation for NASA's role as both a national agency and an international partner. The agency's first major international agreement came in 1962 with the United Kingdom for the Ariel satellite program. This was followed by partnerships with Canada, France, Germany, and other nations throughout the 1960s. The Apollo-Soyuz Test Project in 1975 marked a significant milestone, demonstrating that former adversaries could work together in space despite **Cold War** tensions.²

¹ Rosholt, Robert L. *An Administrative History of NASA, 1958-1963*. NASA SP-4101. Washington, D.C.: NASA, 1966, pp. 51-67.

² Ezell, Edward Clinton, and Linda Neuman Ezell. *The Partnership: A History of the Apollo-Soyuz Test Project*. NASA SP-4209. Washington, D.C.: NASA, 1978.

The 1980s saw NASA's evolution into a truly international collaborative body with the inception of the **International Space Station (ISS)** program. Initially proposed by President Ronald Reagan in 1984 as "Space Station Freedom," the project required unprecedented international cooperation. By 1988, NASA had signed agreements with the **European Space Agency (ESA)**, Japan, and Canada to jointly develop and operate the space station. Following the end of the Cold War, Russia joined the partnership in 1993, transforming the program into the International Space Station we know today.³ This expansion required NASA to coordinate not only scientific and technical aspects but also complex diplomatic, legal, and financial arrangements among partner nations.

The ISS partnership, formalized through a series of intergovernmental agreements beginning in 1998, established NASA's current operational framework as a coordinator of international space activities. The agency now regularly facilitates multilateral discussions on space policy, technology sharing, and joint mission planning among the five major space-faring partners: the United States, Russia, Europe, Japan, and Canada. NASA's role has expanded beyond traditional partnerships to include emerging space nations. The agency has developed cooperation agreements with countries including India, South Korea, and various Latin American and African nations, often through capacity-building programs and scientific collaboration initiatives.⁴

Today, NASA operates in an increasingly complex international environment. The agency must balance national security concerns with scientific openness, manage relationships with both traditional allies and emerging space powers, and address new challenges such as

³ Harland, David M. *The Story of Space Station Mir*. New York: Springer-Praxis, 2005, pp. 234-267.

⁴ Moltz, James Clay. *The Politics of Space Security: Strategic Restraint and the Pursuit of National Interests*. 3rd ed. Stanford: Stanford University Press, 2019.

space debris, commercial space activities, and the militarization of space. The **Artemis Accords**, launched in 2020, represent NASA's latest effort to establish international norms for **lunar exploration** and beyond.⁵ These **bilateral agreements** with partner nations outline principles for peaceful lunar exploration, resource utilization, and sustainable space activities, positioning NASA as a convener of international **space governance** discussions.

⁵ NASA. "The Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, and Other Celestial Bodies for Peaceful Purposes." October 2020.

ARTEMIS PROGRAM AND SUSTAINABLE LUNAR PRESENCE

Statement of the Problem

Since the end of the Cold War, manned lunar exploration has remained largely dormant. During this time, attention has shifted to other destinations such as Mars, with robotic probes and landers assuming the leading role in advancing space exploration across the solar system. However, this period is coming to an end. More than fifty years after the **Apollo program**, a new wave of planned lunar missions signals that sovereign states and private companies alike view the Moon as a site of immense strategic, scientific, and economic potential.

The Space Race of the 20th century was a scientific and cultural competition between the two global superpowers of the United States and the Soviet Union. Each nation brought its human capital, political ideology, and cultural values to successfully land a man on the Moon. Though the political backdrop was complex, the race to the Moon itself was relatively simple – there were only two participants and victory was defined solely by getting to Earth’s largest satellite.

The 21st century, by contrast, promises to be multifaceted. As Earth turns its attention back to the firmament, the Moon has become strategically invaluable both as a potential **extraterrestrial habitat** and a gateway to worlds beyond. From government space agencies to commercial interests to hybrid programs, many stakeholders are interested in building a sustainable lunar presence for the long term.

Renewed Global Interest in Returning to the Moon

NASA's **Artemis program** aims to establish a long-term presence at the **lunar south pole** through a series of crewed and robotic missions, in cooperation with partner countries that have signed the Artemis Accords.⁶



Countries (and their flags) participating in NASA's Artemis Accords for peaceful and cooperative space exploration.⁷

China and Russia have announced their intention to develop a joint **International Lunar Research Station** in the 2030s.⁸ India has achieved significant milestones with **Chandrayaan missions**, including the successful landing of Chandrayaan-3 in 2023.⁹ Japan and the European Space Agency are investing in commercial technology and infrastructure to support exploration

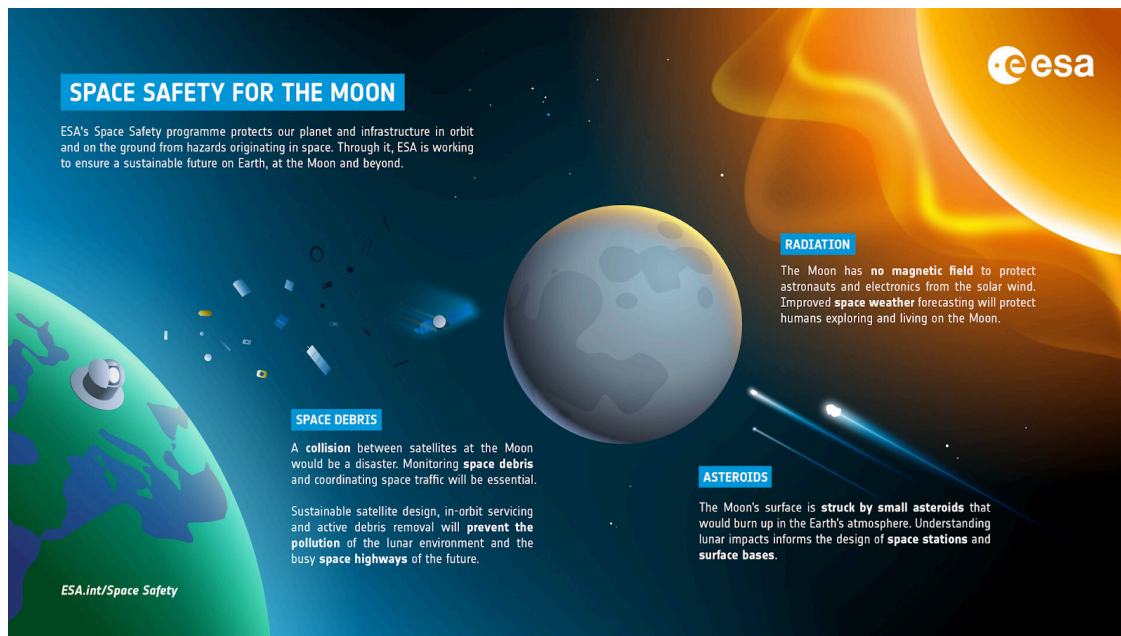
⁶ NASA. Artemis Accords. Updated April 2024. <https://www.nasa.gov/artemis-accords/>

⁷ Ibid.

⁸ China National Space Administration (CNSA) & Roscosmos. Joint Declaration on the International Lunar Research Station. March 2021. <http://www.cnsa.gov.cn/english/n6465652/n6465653/c6812150/content.html>

⁹ Indian Space Research Organisation (ISRO). Announcement of Opportunity (AO) for utilizing Chandrayaan-3 Lander and Rover payloads data for scientific analysis. 2025. https://www.isro.gov.in/Ch3_Data_Utilisation_AO.html

and long-term habitability.¹⁰ Though nominally aligned in protecting space for all nations, coalitions formed around international alliances and interests underpin ambitious space plans. Managing this tension between international cooperation and conflict will be key to protecting peace and cooperation on the Moon.



The European Space Agency's Space Safety Programme addresses lunar hazards such as radiation, space debris, and asteroid impacts to ensure safe and sustainable human presence on the Moon.¹¹

Alongside national agencies are commercial sector interests, including companies such as **SpaceX**, **Blue Origin**, and **Rocket Lab**, seeking to build launch and rocket infrastructure, **resource extraction** capabilities, and habitable environments for long-term human stay on the lunar surface. Private companies are key partners to national space agencies aiming to lower

¹⁰ European Space Agency (ESA). Space Safety for the Moon. 2024.
https://www.esa.int/ESA_Multimedia/Images/2024/11/Space_Safety_for_the_Moon

¹¹ Ibid.

costs and increase the frequency of lunar trips. Under existing law, states bear responsibility for national activities in outer space, whether carried out by governmental or private actors. The emergence of a **lunar economy** therefore places the onus on states to clarify state and private norms that balance space innovation and responsibility.

Unresolved Questions on Space Governance

This renewed attention also highlights still unresolved questions around space governance. Though the Space Race of the 20th century saw the United States and the Soviet Union plant symbolic flags on the Moon, the **1967 Outer Space Treaty** prohibits claims of sovereignty over the Moon and all outer space.¹² The following **1979 Moon Agreement** sought to explicitly restrict sovereign and commercial exploitation of the lunar surface.¹³ More recently, the 2020 Artemis Accords, led by the United States, aim to challenge previous agreements, arguing in favor of explicit commercial interests and new norms of international law in space.¹⁴

Though the Artemis Accords are grounded in the 1967 Outer Space Treaty and retain key wording in advancing peaceful activities and shared scientific exploration, the Accords are a direct challenge to the sovereign neutrality of previous agreements. Notably, **United Nations Security Council** permanent members China and Russia are not signatories to the Artemis Accords, opting to work together on the International Lunar Research Station as an alternative. The lack of international consensus on defined norms and laws for cooperation in space and further disagreement in the international sphere underscore the difficulty of building a

¹² United Nations Office for Outer Space Affairs (UNOOSA). Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. 1967. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

¹³ United Nations Office for Outer Space Affairs (UNOOSA). Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. 1979. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html>

¹⁴ NASA. Artemis Accords. Updated April 2024. <https://www.nasa.gov/artemis-accords/>

sustainable lunar presence. It is clear that in the face of rising sovereign and commercial interests, there is a growing tension for maintaining long-standing principles of outer space as an **international commons**.

Tensions Between National Interests, Commercial Actors, and International Cooperation

These dynamics show the competing interests of national ambition, corporate enterprise, and international corporations. Leading space powers seek to demonstrate technological prowess and secure strategic influence through their lunar programs. Commercial actors seek predictable legal frameworks to justify investment in extraction technologies and infrastructure. Developing states, many of which lack the capacity to launch missions on their own, emphasize equitable access and worry that they will be excluded from the benefits of exploration, echoing historical concerns about resource distribution on Earth. Civil society organizations and academics have warned against a “colonial” approach to the Moon and have advocated for stewardship models, such as recognizing the Moon’s cultural and scientific value as heritage of all humankind.¹⁵ Though interests are currently aligned, fragmented existing international law and tensions between nations will lead to the inevitable fracturing of space cooperation unless a comprehensive and cohesive framework for understanding space norms can be established.

¹⁵ United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). Report of the Committee on the Peaceful Uses of Outer Space. 2024.
https://www.unoosa.org/res/oosadoc/data/documents/2024/a/a7920_0_html/A_79_020E.pdf

History of the Problem

The Space Race

The Moon is a mainstay of human culture, but the mid-20th century made the lunar surface the centerpiece of the Space Race. Advances in rocket science during the Second World War provided the foundation for the first artificial satellites and lunar probes as the Space Race intensified during the peak of the Cold War.¹⁶ This era was defined by the Soviet Union's early dominance in the Space Race.¹⁷ In 1959, Luna 2 became the first human-made object to reach the Moon. Just two years later in 1961, cosmonaut Yuri Gagarin's historic flight made him the first human in space.¹⁸ In the wake of these milestones achieved by a rival superpower, the stage was set for the United States to pursue its own lunar program.

U.S. President John F. Kennedy announced in 1961 that the United States would land a man on the Moon before the end of the decade.¹⁹ In his famous address to Congress, Kennedy framed the endeavor as both a scientific mission and political contest with the Soviet Union. He argued that winning this contest would be key to the world's perception of the United States' continued ideological success and lobbied Congress to allocate funds to create what would become the Apollo program. Employing almost half a million workers and leveraging a hundred billion dollars (adjusted for inflation in 2008) in federal funding, the Apollo missions would succeed in landing a man on the Moon in 1969 during Apollo 11.²⁰

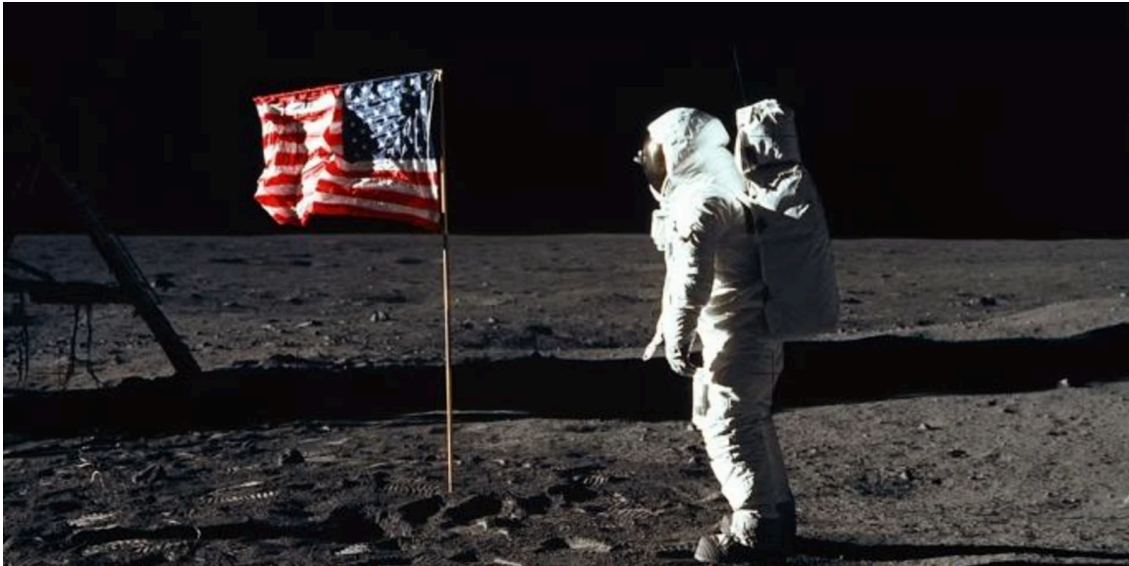
¹⁶ Roger D. Launius. "Apollo: A Retrospective Analysis." NASA History Office (SP-2004-4503). <https://www.nasa.gov/wp-content/uploads/2023/04/sp-4503-apollo.pdf>

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ History.com. "10 Things You May Not Know About the Apollo Program." May 24, 2016. <https://www.history.com/articles/10-things-you-may-not-know-about-the-apollo-program>



An Apollo astronaut stands beside the United States flag on the lunar surface during the Apollo program, marking humanity's first crewed missions to the Moon.²¹

Six Apollo missions landed astronauts on the Moon between 1969 and 1972.²² Crews deployed small-scale experiments, operated rovers, and returned lunar samples. Though unprecedented, the vast majority of Apollo mission hardware and infrastructure were built for discrete missions rather than long-term sustainability as the Apollo missions were designed to win the Space Race, not to establish permanence. The United States had won the Space Race, but the conclusion of the Apollo program left no long-term framework for a continued lunar presence.

During this time period, the Soviet Union sought to send cosmonauts to the Moon but never succeeded in landing a man on the lunar surface. After the Soviet space program's flagship N1 rocket failed in four separate test launches between 1969 and 1972, the program was ended

²¹ Ibid.

²² Ibid.

by the Politburo.²³ Once the United States had achieved its Apollo triumph, the Soviet Union viewed further competition as a waste of further manpower and resources. With the Space Race over, the political momentum that had driven the first era of lunar exploration faded and with it, the drive to create permanent lunar settlements.

Post-Apollo Lunar Stagnation

After the Space Race, no astronauts would return to the lunar surface for over fifty years. Instead, the United States diverted resources to low orbit, satellite, and robotics in space exploration. The Space Shuttle, for instance, was a project that came out of this era. The shuttle allowed scientists to easily operate new satellites in low Earth orbit and allowed for the construction of the International Space Station.²⁴



NASA's Space Shuttle on the launch pad which supported missions such as satellite deployment and the construction of the International Space Station (ISS).²⁵

²³ Lunar and Planetary Institute. "The Soviet Reach for the Moon." <https://web.archive.org/web/20210216223026/https://www.lpi.usra.edu/publications/books/sovietReach/index.pdf>

²⁴ NASA. "The Space Shuttle." <https://www.nasa.gov/reference/the-space-shuttle/>

²⁵ Ibid.

The Soviet Union (and its successor state Russia) also focused on building low-earth orbital stations and satellites. The orbiting research lab Mir operated as the first modular long-duration space station, serving as the predecessor to the ISS.²⁶ But because the USSR and the United States did not prioritize a return to the Moon, no such missions were planned. By the late 1980s, the economic and political crisis in the Soviet Union ended any prospect of Soviet lunar ambitions.

Robotic exploration of the Solar System also expanded during this period. The Viking landers on Mars, Voyager missions, Galileo spacecraft, and Cassini probe heavily advanced human understanding of the Solar System.²⁷ These missions were largely computer-led and often did not require astronaut involvement. At the same time, countries such as Japan, India, and China began to develop their own space programs, but their early efforts were largely limited to orbiters or small-scale landers.²⁸

This long hiatus on manned missions (especially to the Moon) weakened political interest and public momentum. It also meant that legal and governance questions on space exploration and the lunar surface raised during the 1960s-1970s remained unresolved, waiting for renewed activity to make them pressing once again.

²⁶ NASA. “35 Years Ago: Launch of Mir Space Station’s First Module.”
<https://www.nasa.gov/history/35-years-ago-launch-of-mir-space-stations-first-module/>

²⁷ Encyclopedia.com. “The Unmanned Exploration of the Solar System.”
<https://www.encyclopedia.com/science/encyclopedias-almanacs-transcripts-and-maps/unmanned-exploration-solar-system-mariner-viking-pioneer-and-voyager>

²⁸ Science Direct. December 22, 2024. “History of the space industry in Asia: A concert in three movements.”
<https://www.sciencedirect.com/science/article/pii/S0094576525003716>

Legal Foundations of Lunar Exploration

Even as missions slowed, international law began to shape expectations for outer space. The first international consensus culminated in the 1967 Outer Space Treaty.²⁹ Negotiated during the Cold War, it established that outer space, including the Moon, was the “province of all mankind.”³⁰ Under the treaty, no nation could claim sovereignty over any extraterrestrial territory, and any activities were strictly restricted to peaceful purposes. The treaty also made states responsible for all national activities conducted by government agencies or private actors.

The Outer Space Treaty succeeded in preventing national appropriation and space militarization, but it also left many issues unresolved. The treaty did not clarify whether resources extracted from celestial bodies could be owned, nor did it establish mechanisms for enforcement. However, this obscurity was deliberate. Without ambiguous writing, there would be no broad adoption during a period of intense rivalry between the two global superpowers.

The Moon Agreement of 1979 sought to close these gaps. It declared lunar resources the “common heritage of mankind” and proposed an international regime to manage their exploitation.³¹ Spacefaring nations largely rejected this second treaty, arguing that it limited their freedom and reduced incentives for commercial investment. The United States, the Soviet Union, and China did not sign, and only a small number of states (mostly without active space programs) ratified the treaty. Without participation from leading space powers, the treaty held little practical force at inception and has been mostly superseded in importance by more recent treaties.

²⁹ United Nations Office for Outer Space Affairs (UNOOSA). Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. 1967. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

³⁰ Ibid.

³¹ United Nations Office for Outer Space Affairs (UNOOSA). Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. 1979. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html>

Together, the Outer Space Treaty and Moon Agreement created a paradox. The first provided universal principles but little detail, while the second attempted detail without universality. As long as lunar exploration was dormant, this contradiction was manageable. As interest in lunar missions returns, the legal foundations of lunar and space exploration are due for renewal.

Emergence of Commercial Spaceflight

Although government-funded space agencies led the early years of space activity, commercial involvement drastically increased since the Cold War. Satellite communications and navigation became profitable industries, and private companies began to build spacecraft under government contracts. Companies such as SpaceX and Blue Origin pioneered reusable launch vehicles, drastically reducing the cost of access to orbit.

These developments opened new opportunities for lunar exploration. Firms such as Astrobotic, Intuitive Machines, and iSpace began planning commercial landers and payload services. As development rationale shifted from prestige to profitability, including concepts such as mining lunar **water ice** for rocket fuel and supporting eventual human bases.

This commercial expansion forced states to reconsider legal frameworks. The United States passed the **Commercial Space Launch Competitiveness Act in 2015**, explicitly allowing private ownership of extracted resources by U.S. citizens.³² Japan, Luxembourg, and the United Arab Emirates adopted similar laws.³³ These national measures effectively bypassed international

³² U.S. Commercial Space Launch Competitiveness Act, 2015 (Pub.L. 114–90).
<https://www.congress.gov/114/plaws/publ90/PLAW-114publ90.pdf>

³³ Chicago Journal of International Law. “Who Dares, Wins.” How Property Rights in Space Could be Dictated by the Countries Willing to Make the First Move
<https://cjil.uchicago.edu/online-archive/who-dares-wins-how-property-rights-space-could-be-dictated-countries-willing-make>

ambiguity and indicated that some states were prepared to move ahead independently, at least on behalf of their private citizens, rather than wait for global consensus.

The Artemis Accords

In 2020, the United States introduced the Artemis Accords alongside its Artemis program, which aims to return astronauts to the Moon and establish a long-term lunar presence.³⁴ The Accords are a series of **multilateral agreements** that set out principles for responsible behavior in space. They reaffirm commitments from the 1967 Outer Space Treaty, including peaceful use, transparency, and interoperability, while recognizing resource extraction as legitimate under international law – an interpretation not previously accepted by consensus.

Another distinctive feature of the Artemis Accords is the concept of “**safety zones**.”³⁵ These are areas around lunar operations where states agree to avoid interference. Designed to reduce conflict and protect both personnel and infrastructure, safety zones would serve as areas of collaboration between states. The Accords also emphasize open sharing of scientific data, emergency assistance between parties, and commitments to protect heritage sites such as the Apollo landing locations.

Over thirty countries have signed the agreement, primarily including key U.S. allies in Europe, Asia, and Latin America.³⁶ However, major powers Russia and China have refused to join because they view the Accords as a U.S.-led initiative outside the United Nations framework. Instead, Russia and China are promoting their own cooperative project, the International Lunar Research Station.³⁷

³⁴ NASA. Artemis Accords. Updated April 2024. <https://www.nasa.gov/artemis-accords/>

³⁵ Ibid.

³⁶ Ibid.

³⁷ China National Space Administration (CNSA) & Roscosmos. Joint Declaration on the International Lunar Research Station. March 2021. <http://www.cnsa.gov.cn/english/n6465652/n6465653/c6812150/content.html>

The Artemis Accords represent the most significant development in lunar governance since the Moon Agreement. Unlike multilateral treaties negotiated through the United Nations, the Accords are built through coalitions of willing states. This approach has generated an increased momentum but risks international fragmentation over unclear international rules. Even as Artemis signatories agree to one set of rules, non-signatories seek to create their own norms.

Past Actions

Foundational Space Law Treaties

The foundation of international space law is the 1967 Outer Space Treaty.³⁸ Negotiated during the Cold War, it remains the most widely adopted legal framework for space exploration. Several key tenets were decided against the backdrop of Cold War-era tensions. First, outer space is the “province of all mankind, and no sovereign state can claim ownership of any celestial body, including the Moon. Furthermore, any activities in space must be conducted for peaceful purposes, with the placement of weapons of mass destruction on the Moon prohibited. Finally, states are responsible for the actions of governmental or non-government organizations and likewise liable for any damage caused.

The Outer Space Treaty was ratified by more than 110 countries, including all of the major spacefaring powers, making it the most influential pre-2000s document governing activities in outer space.³⁹ Despite the treaty’s universality, the general language of the document leaves many important questions unanswered, specifically regarding property rights and the commercial use of extraterrestrial resources.

The Moon Agreement of 1979 aimed to address these specifics.⁴⁰ Key tenets of this treaty include the declaration of the Moon and its resources to be the “common heritage of mankind” and proposed the creation of an international regime to govern fair resource exploitation. It also forbade states and private entities from owning lunar resources. Unlike the Outer Space Treaty,

³⁸ United Nations Office for Outer Space Affairs (UNOOSA). Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. 1967. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

³⁹ Ibid.

⁴⁰ United Nations Office for Outer Space Affairs (UNOOSA). Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. 1979. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html>

the Moon Agreement did not succeed in gaining traction in the international community or among the major spacefaring powers. Most countries viewed the document as too limiting, and fewer than 20 states eventually ratified the treaty.⁴¹

Bilateral and Multilateral Cooperative Agreements

After the Space Race, space exploration and associated lunar activity remained dormant for decades. As a result, states relied less on sweeping new treaties and more on bilateral or multilateral agreements to facilitate cooperation. In recent years, as interest in returning to space has picked up, these agreements have focused on interoperability, scientific research, and resource governance.

Key space agreements in the post-2000s include the 2020 Artemis Accords.⁴² Introduced by the United States, the Accords affirm many principles of Outer Space Treaty such as the peaceful use and open sharing of scientific data, but recognize resource extraction as lawful. The agreements also introduce the concept of lunar safety zones to avoid inter-state conflict on the Moon. By 2024, more than thirty countries signed, including several key spacefaring powers and US allies. This represents the most significant cooperative framework for lunar activity since the Moon Agreement, though Russia and China have rejected it.

⁴¹ Ibid.

⁴² NASA. Artemis Accords. Updated April 2024. <https://www.nasa.gov/artemis-accords/>



Member states convene at an Artemis Accords signing ceremony, reinforcing collaboration in lunar and deep-space activities.⁴³

Russia and China signed a joint declaration in 2021 to develop the International Lunar Research Station.⁴⁴ Their framework emphasizes multilateral scientific, political, and resource governance collaboration outside the US-led Artemis coalition. These competing models illustrate the multi-polar geopolitical divides that are shaping global consensus around lunar governance today.

Precedents from the International Space Station

Although not directly related to the Moon, the International Space Station (ISS) provides important precedent for joint governance in space.⁴⁵ Launched in 1998, the ISS is a multinational

⁴³ Ibid.

⁴⁴ China National Space Administration (CNSA) & Roscosmos. Joint Declaration on the International Lunar Research Station. March 2021. <http://www.cnsa.gov.cn/english/n6465652/n6465653/c6812150/content.html>

⁴⁵ NASA. "International Space Station." <https://www.nasa.gov/international-space-station/>

partnership involving the United States, Russia, Europe, Japan, and Canada. Its governing framework is based on intergovernmental agreements that divide responsibilities, assign jurisdiction, and establish rules for operations.



The International Space Station, jointly operated by the U.S., Russia, Europe, Japan, and Canada.⁴⁶

The ISS demonstrates that complex cooperative projects in space are possible. It has operated for more than two decades with contributions from multiple states, even during times of terrestrial political tension.

The ISS model, however, has limitations when applied to the Moon. The station is located in low Earth orbit, under continuous resupply and within clear communication range. The Moon presents greater logistical challenges. Furthermore, the ISS is a single cooperative

⁴⁶ Ibid.

project. Lunar activity is likely to involve multiple parallel projects and a wider range of actors, including private companies. Nonetheless, the ISS provides a proven model of international partnership that can inform future governance frameworks for lunar activity.

Possible Solutions

Establishment of International Frameworks for Lunar Operations

The creation of clear and universally recognized frameworks for activities on the Moon is of paramount importance. Current treaties provide high-level principles, but they do not address practical issues such as how safety zones should function, how resource extraction should be regulated, or how disputes between actors should be resolved. Without agreed rules, the risk of conflict or overlapping claims increases as more missions are planned.

A new framework could take several forms. States could negotiate a comprehensive treaty under United Nations auspices, building on the Outer Space Treaty. Alternatively, a series of protocols or implementing agreements could provide guidance on specific issues such as environmental protection, heritage site preservation, or safety coordination. Another approach could be incremental, where states codify norms of behavior through practice and customary law, similar to the development of maritime law.

Creation of Neutral Multilateral Governing Bodies

The creation of neutral institutions is also a possible solution to manage lunar activity. The Outer Space Treaty places responsibility on individual states, but as the number of actors grows, a centralized body may be necessary to coordinate operations and prevent disputes. Such a body could resemble the **International Seabed Authority**, which regulates deep-sea mining in areas beyond national jurisdiction.⁴⁷ It could grant licenses, monitor activities, and ensure that benefits are shared equitably. Alternatively, it could take the form of a registry and coordination center, where actors notify others of planned activities and negotiate safety zones.

⁴⁷ International Seabed Authority. “About ISA.” <https://www.isa.org.jm/about-isa/>

A multilateral governing body would also provide a forum for dispute resolution. Current mechanisms rely on diplomatic negotiation or recourse to the International Court of Justice, but a specialized institution with expertise in space activities could provide faster and more practical solutions.⁴⁸ Creating such a body would face resistance from states wary of ceding authority. However, without shared governance structures, overlapping operations on the lunar surface may lead to conflict. Establishing even a limited coordinating mechanism would represent progress toward sustainable exploration.

Coordination of Resource Use

The third solution is developing systems to manage the extraction and use of lunar resources. The discovery of water ice in permanently shadowed regions of the lunar poles has intensified interest in resource exploitation. Water can be converted into rocket fuel, providing a logistical advantage for deep space missions. Other potential resources include **helium-3**, which has been discussed as a possible fuel for nuclear fusion, and rare earth elements.⁴⁹

Without coordination, resource-rich regions could become the subject of competition and exclusion. States or companies may attempt to monopolize access, and clear rules on how resources can be claimed, extracted, and shared will be necessary to prevent disputes.

Possible mechanisms include licensing regimes managed by an international body, quotas to ensure equitable access, or agreements to share benefits derived from resource exploitation. Transparency measures, such as mandatory reporting of extraction activities, could also build trust. These systems would mirror practices in other domains of international law, such as the regulation of fisheries or seabed mining.

⁴⁸International Court of Justice. “How the Court Works.” <https://www.icj-cij.org/how-the-court-works>

⁴⁹NASA. Lunar Helium-3 and Fusion Power. <https://ntrs.nasa.gov/api/citations/19890005471/downloads/19890005471.pdf>

Bloc Positions

Countries with Advanced Space Programs Seeking Leadership Roles

The countries with the most advanced space programs view the Moon as both a strategic and scientific priority. The United States leads this group, driven by NASA's Artemis program and the Artemis Accords.⁵⁰ Washington frames lunar exploration as a cooperative project and seeks to shape the norms of lunar governance. By promoting multilateral agreements instead of UN treaties, the US has established a coalition of over thirty signatories that share its interpretation of international law, particularly in resource extraction and operational safety zones.

Other states in this bloc include members of the European Space Agency, Japan, Canada, and Australia. These countries partner closely with the United States on Artemis missions, contributing technology, infrastructure, and astronauts. This alignment reflects both shared strategic interests and a desire to set the rules for long-term lunar activity.

China also belongs in this bloc, though it pursues an alternative vision to the US-led coalition. Its lunar program has grown rapidly, with the Chang'e robotic missions achieving major milestones such as sample return and landing on the lunar far side.⁵¹ In partnership with Russia, China is developing the International Lunar Research Station.⁵² This initiative is designed as a rival framework to Artemis, offering states outside the US-led coalition a different model of cooperation. China's approach highlights its ambition to become a central power in space governance and its rejection of US-centered frameworks.

⁵⁰ NASA. Artemis Accords. Updated April 2024. <https://www.nasa.gov/artemis-accords/>

⁵¹ Katrina Miller. "China Becomes First Country to Retrieve Rocks From the Moon's Far Side." New York Times. <https://www.nytimes.com/2024/06/25/science/change-6-china-earth-moon.html>

⁵² China National Space Administration (CNSA) & Roscosmos. Joint Declaration on the International Lunar Research Station. March 2021. <http://www.cnsa.gov.cn/english/n6465652/n6465653/c6812150/content.html>

Russia's role is shaped by its collaboration with China, as its economic and technological constraints limit its independent capabilities. By aligning with Beijing, Moscow can influence the future of lunar governance and ensure that an alternative exists to the Artemis Accords.

States Advocating for Equal Access and Collective Benefit

A second bloc consists of states that lack advanced space programs but emphasize equal access and shared benefits. Many of these states, particularly in the Global South, reference the language of the Outer Space Treaty and the Moon Agreement, which describe outer space as the “province of all mankind” and lunar resources as the “common heritage of mankind.”^{53,54}

These states are concerned that coalitions like Artemis or the ILRS may divide access along political or economic lines. They argue that all countries should benefit from the use of space, even if they lack the capacity to launch their own missions. For these states, equitable access can mean benefit-sharing mechanisms, technology transfer, or international licensing systems that prevent monopolization.

The Non-Aligned Movement has historically supported stronger multilateralism in space law. Countries in Africa, Latin America, and South Asia often view the Moon Agreement favorably, even though major spacefaring nations have rejected it.⁵⁵ These states emphasize that the exploitation of lunar resources should not repeat the patterns of terrestrial inequality where wealthier countries dominate access to critical resources.

⁵³ United Nations Office for Outer Space Affairs (UNOOSA). Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. 1967. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

⁵⁴ United Nations Office for Outer Space Affairs (UNOOSA). Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. 1979. <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html>

⁵⁵ Wikipedia contributors. "Non-Aligned Movement." Wikipedia, The Free Encyclopedia. https://en.wikipedia.org/wiki/Non-Aligned_Movement

For these countries, the United Nations remains the preferred forum for negotiation. They advocate for reinforcing the role of the **Committee on the Peaceful Uses of Outer Space (COPUOS)** and for expanding its mandate to address new questions raised by commercial activity.⁵⁶ This bloc prioritizes universal frameworks over coalitions led by a single power.

Nations Concerned about Commercialization and Militarization of the Moon

A third bloc emphasizes the risks of commercialization and militarization. This group overlaps with both advanced and developing states but is united by concern over current trends that threaten the peaceful character of outer space.

On commercialization, these states worry that national laws allowing private ownership of extracted resources undermine the principle of non-appropriation in the Outer Space Treaty. They argue that without multilateral regulation, private companies may exploit lunar resources in ways that favor only their host states. European countries in particular have debated how to balance participation in Artemis with concerns about commercial dominance.

On militarization, concerns focus on the potential for dual-use technologies and the creation of safety zones that resemble territorial claims. Russia and China frame the Artemis Accords as an attempt to extend US influence under the cover of cooperation. Developing states warn that security competition could destabilize the lunar environment before governance structures are in place.

⁵⁶ United Nations Office for Outer Space Affairs (UNOOSA). Committee on the Peaceful Uses of Outer Space. <https://www.unoosa.org/oosa/en/ourwork/copuos/index.html>

Glossary

Apollo Program – A US NASA program (1961–1972) that successfully landed humans on the Moon, marking the first and only crewed lunar missions to date.

Artemis Accords – A set of US-led agreements establishing norms for responsible lunar exploration, including resource use, transparency, and safety zones.

Bilateral Agreement – A cooperative arrangement between two states.

Blue Origin – A U.S. private space company working on reusable launch vehicles and lunar landers, emphasizing commercial spaceflight and resource use.

Chandrayaan Missions – India’s lunar exploration program, notable for the Chandrayaan-3 mission (2023), which successfully landed on the lunar south pole.

Cold War – A period of geopolitical rivalry (1947–1991) between the United States and the Soviet Union, marked by ideological, military, and technological competition, including the Space Race.

Commercial Space Launch Competitiveness Act (2015) – A U.S. law granting citizens the right to own resources extracted from space, encouraging private investment.

Commercial Spaceflight – Space missions conducted by private companies rather than state agencies, often in partnership with governments.

Committee on the Peaceful Uses of Outer Space (COPUOS) – A UN body responsible for developing international cooperation and legal frameworks for space activities.

European Space Agency (ESA) – A multinational European organization conducting space exploration projects, including collaborations on lunar infrastructure.

Extraterrestrial Habitat – A constructed living environment outside Earth, designed to support human life, such as proposed lunar bases or Martian colonies.

Helium-3 – An isotope rare on Earth but abundant on the Moon, theorized as a potential fuel for nuclear fusion energy.

International Commons – Areas beyond national jurisdiction, such as outer space, the high seas, or Antarctica, shared by all nations under international law.

International Lunar Research Station (ILRS) – A proposed joint China-Russia initiative to develop a long-term lunar base in the 2030s as an alternative to Artemis.

International Seabed Authority – A multilateral organization regulating mining of deep-sea resources beyond national jurisdiction.

International Space Station (ISS) – A cooperative orbital research station launched in 1998, serving as a precedent for multinational governance in space.

Lunar Economy – The emerging system of commercial and state-driven activities focused on lunar exploration, infrastructure, and resource utilization.

Lunar Exploration – Scientific, technological, and exploratory activities conducted on or around the Moon, through robotic missions, probes, or human landings.

Lunar South Pole – A region of the Moon of strategic importance due to its permanently shadowed craters, believed to contain water ice useful for fuel and habitation.

Moon Agreement (1979) – A treaty declaring the Moon and its resources the “common heritage of mankind” and proposing restrictions on commercial exploitation.

Multilateral Agreement – An accord signed by multiple states to regulate cooperation.

NASA Artemis Program – A US-led initiative to return humans to the Moon, focusing on sustainable exploration, resource use, and preparation for future Mars missions.

Outer Space Treaty (1967) – The foundational international agreement on space law, prohibiting sovereignty claims and restricting space activities to peaceful purposes.

Resource Extraction – The process of mining or harvesting natural materials from celestial bodies, such as lunar water ice or helium-3.

Rocket Lab – A private aerospace company developing small and medium-sized launch vehicles, expanding toward lunar missions and infrastructure support.

Safety Zones – Designated operational areas on the lunar surface intended to prevent interference between actors and reduce conflict, introduced in the Artemis Accords.

Space Governance – The legal and political frameworks that regulate activities in space, including treaties, agreements, and customary practices.

Space Race – The mid-20th century competition between the U.S. and the USSR to achieve superiority in space exploration, culminating in the Apollo 11 Moon landing in 1969.

SpaceX – A private U.S. aerospace company developing reusable rockets and lunar-capable systems, partnering with NASA and other actors in lunar exploration.

United Nations Security Council (UNSC) – The UN’s primary body for maintaining peace and security.

Water Ice – Frozen water located in permanently shadowed lunar craters, considered crucial for producing rocket fuel and sustaining human settlements.

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