
JURISDICTION BEYOND BORDERS: ADDRESSING CRIMINAL ACCOUNTABILITY IN OUTER SPACE

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ABSTRACT

This paper addresses the intricate and ever-changing issue of criminal jurisdiction in the outer space, along with the swift advancement of human space exploration and commercialization. First, it lays out the foundational international legal instruments such as the Outer Space Treaty, the Rescue Agreement, and the Liability Convention, and evaluates their potential application to crimes committed beyond Earth. With the Anne McClain case on the International Space Station and comparisons with similar jurisdictions like Antarctica, the paper presents the conceptual gaps and enforcement woes behind space law. Issues emerging with multinational crews, the private sector, and environmental threats are also critically discussed. The paper proposes solutions to rectify some of these issues, such as a universal criminal code for space, a specialized international tribunal, and improvements to existing intergovernmental treaties, which will serve as the basis of a more resilient, pragmatic, and enforceable legal framework for the support of safe and cooperative human activities in outer space.

INTRODUCTION

Since the mid 20th century, space exploration has been rapidly evolved from a purely scientific endeavor into a complex arena by involving multiple countries, private companies, and international organizations. Starting with the first ever launch of Soviet Union's Sputnik-1 on October 4th, 1957 to Soviet cosmonaut Yuri Gagarin, becoming the first human to orbit the Earth in Vostok-1 and from continuing through the Apollo Moon Landings, the space exploration has expanded humanity's presence beyond Earth's atmosphere. In today's world, humans live and work in the orbit on-board the International Space Station (*Hereinafter referred as "ISS"*) and ambitious plans for the lunar launches and Mars missions are actively underway.

Alongside technological advancements and scientific discoveries, the expansion of the human activity into the outer space raises critical questions about the governance, law and order in a domain that is inherently international and largely unregulated. One of the most critical issues pertaining to this jurisdiction is: Who has the authority to govern and enforce laws beyond Earth? More specifically, when any crimes are being committed in space or beyond the Earth's jurisdiction, whether it maybe in the ISS, or on any future lunar habitat or on any private spacecraft, what are the legal frameworks which applies? Unlike the terrestrial environment, in the outer space there is a lack of clear sovereign boundaries, making the traditional concept of jurisdiction challenging to apply.

The objective of this paper is to explore the jurisdictional complexities of governing crimes that are committed beyond Earth. It also examines the existing international space laws, the legal principal that currently applies, and the challenges that are posed by the multinational crews and commercial ventures. The paper also aims to highlight the gaps in the current governance structure and also propose pathways towards a more robust legal framework to ensure safety, accountability and cooperation in the outer space activities.

Understanding these complexities is essential for preventing and addressing criminal misconduct in space and fostering peaceful and sustainable human presence beyond our planet. As humanity embarks on this chapter, the question of who governs outer space remains central to maintaining law and order in the final frontier.

OVERVIEW OF THE CURRENT INTERNATIONAL SPACE LAW

International space law is the body of legal principles, treaties, and agreements that governs the activities of states and private entities in outer space. Its primary purpose is to regulate the exploration and use of outer space in a way that promotes peaceful cooperation, prevents conflicts, and ensures that space remains a domain for the benefit of all humankind.

The international space law is built on five key United Nation Treaties:

1. The Outer Space Treaty

The Outer Space Treaty was considered by the Legal Subcommittee in 1966 and agreement was reached in the General Assembly in the same year (**Resolution 2222 (XXI)**)¹. The treaty entered into force in the year 1967 and forms the foundational framework of the international space law. Building in the year 1963, the declaration of legal principles, the treaty emphasizes that the exploration and the use of outer space must be conducted for the benefit of all the countries and it shall be the province of all mankind.² It must declare that the outer space is free for exploration by all states and prohibits national appropriation by sovereignty claims or occupation. The treaty bans the placement of nuclear weapons or any other weapons of mass destruction in orbit or on the celestial bodies and mandates that the Moon and the other celestial bodies are to be used exclusively for peaceful purposes. Astronauts are to be regarded as envoys of mankind. States to bear the responsibility for national space activities, whether that are conducted by governmental or non-governmental entities, and are also liable for any damage which are caused by their space objects. Furthermore, the Treaty obliges the States to avoid harmful contamination of space and celestial bodies.³

2. The Rescue Agreement

The Rescue Agreement was reviewed and negotiated by the Legal Subcommittee between 1962 and 1967. In 1967, after its adoption by consensus through resolution

¹Res. 2222 (XXI), General Assembly 21st session, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

²United Nations Office for Outer Space Affairs, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html>, (Last visited 24th July, 2025).

³*Ibid.*

2345 (XXII)⁴ by the General Assembly, it came into force in December 1968. Building on articles 5⁵ and 8⁶ of the Outer Space Treaty, the Agreement obliges States to take all possible measures to rescue astronauts in distress and assist them into safe return to the launching State. Furthermore, in case request thereto, the Agreement obliges States to help recover space objects which have landed outside the territory of the launching State.⁷

3. The Liability Convention

The liability convention was examined and negotiated by the legal subcommittee from the year 1963 to 1972. It was then adopted by the General Assembly in the year 1971 through resolution 2777 (XXVI)⁸ and came into force in September 1972. Based on Article 7⁹ of the Outer Space Treaty, the convention establishes that the launching State holds an absolute liability for any damage to the space objects that is cause on Earth's surface or to the aircraft, and shall bear the liability for damage in space if it is at fault. It also outlines procedures for resolving claims related to such damages.¹⁰

4. The Registration Convention

The Registration Convention was discussed and negotiated by the Legal Subcommittee from 1962. It was adopted by the General Assembly, in resolution 3235 (XXIX)¹¹, in 1974, opened for signature on 14 January 1975, and entered into force on 15 September 1976.¹²

⁴Res. 2345 (XXII), General Assembly 22nd session, Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.

⁵UNOOSA, Article 5.

⁶UNOOSA, Article 8.

⁷United Nations Office for Outer Space Affairs, Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introrescueagreement.html>, (Last visited 24th July, 2025).

⁸Res. 2777 (XXVI), General Assembly 26th session, Convention on International Liability for Damage Caused by Space Objects.

⁹UNOOSA, Article 7.

¹⁰United Nations Office for Outer Space Affairs, Convention on International Liability for Damage Caused by Space Objects, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introliability-convention.html>, (Last visited 24th July, 2025).

¹¹Res. 3235 (XXIX), General Assembly 29th session, Convention on Registration of Objects Launched into Outer Space.

¹²United Nations Office for Outer Space Affairs, Convention on Registration of Objects Launched into Outer Space, <https://www.unoosa.org/oosa/sk/ourwork/spacelaw/treaties/introregistration-convention.html>, (Last visited 24th July, 2025)

In consonance with the States under the Outer Space Treaty, the Rescue Agreement, and the Liability Convention to set up a system for the identification of space objects, the Launching Convention further extended the scope of the United Nations Register of Objects Launched into Outer Space, which had formerly been created by resolution 1721B (XVI)¹³ in December 1961. Thus, it fleshed out the particulars of States Parties' responsibilities in relation to their space objects. The Secretary General was, once again, requested to maintain the Register and ensure full and open access to the information provided by States and international intergovernmental organizations.¹⁴

5. The Moon Agreement

The Moon Agreement was considered and elaborated by the Legal Subcommittee from 1972 to 1979. The Agreement was adopted by the General Assembly in 1979 in resolution 34/68.¹⁵ It was not until June 1984, however, that the fifth country, Austria, ratified the Agreement, allowing it to enter into force in July 1984. The Agreement reaffirms and elaborates on many of the provisions of the Outer Space Treaty as applied to the Moon and other celestial bodies, providing that those bodies should be used exclusively for peaceful purposes, that their environments should not be disrupted, that the United Nations should be informed of the location and purpose of any station established on those bodies. In addition, the Agreement provides that the Moon and its natural resources are the common heritage of mankind and that an international regime should be established to govern the exploitation of such resources when such exploitation is about to become feasible.¹⁶

Under these treaties, the jurisdiction in space is based on the principle of the 'Launching State', hence the country that launches or registers a space object retains the jurisdiction and the control over that object and its personnel. On the multinational areas such as the ISS, the jurisdiction is to be governed by specific intergovernmental agreements that assign authority

¹³Res. 1721 (XVI), General Assembly 16th session, International Co-operation in the Peaceful Uses of Outer Space.

¹⁴United Nations Office for Outer Space Affairs, Convention on Registration of Objects Launched into Outer Space, <https://www.unoosa.org/oosa/sk/ourwork/spacelaw/treaties/introregistration-convention.html>, (Last visited 24th July, 2025).

¹⁵UNOOSA, Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Resolution Adopted by The General Assembly, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/moon-agreement.html>, (Last visited 25th July, 2025).

¹⁶*Ibid.*

based upon the nationality of the individual or the ownership of the module where the particular incident has taken place.

JURISDICTION IN OUTER SPACE

In International law, the term '*jurisdiction*' refers to the State's authority to exercise sovereignty, typically over people, property, or events, based on effectiveness. While sometimes equated with territory, it more often describes the State's legal powers. Jurisdiction has both international and domestic dimensions: international law sets its permissible limits, while internal law dictates its application. Sovereignty is the core basis for jurisdiction, but overlapping claims among States require coordination, often addressed by private international law. A common principle is that a State must have a sufficiently close connection to the subject matter to exercise jurisdiction.

At sea, although the high seas are not under any State's territory, vessels must carry the nationality and flag of one State, making them subject to that State's exclusive jurisdiction. Each State determines its own rules for granting ship nationality and flag, but a genuine link must exist.¹⁷

In airspace, sovereignty applies above national territory, unlike the high seas. Aircraft also have a nationality, determined by registration under a single State as per the 1944 Chicago Convention, and must display relevant markings in international aviation.¹⁸

In outer space, the principle of non-appropriation prohibits sovereignty claims, making space common to all (*res communis omnium*). The 1967 Outer Space Treaty declares space the "province of all mankind" and bars territorial claims. However, States retain jurisdiction and control over their registered space objects and personnel to fulfill treaty obligations, based on a link between the State and the space activity¹⁹.

CRIMES IN OUTER SPACE

Crimes in outer space refer to any unlawful acts that are committed beyond Earth's atmosphere,

¹⁷Prof. Sergio Marchisio, National Jurisdiction for Regulating Space Activities of Governmental and Non-Governmental Entities, pp.2.

¹⁸Prof. Sergio Marchisio, National Jurisdiction for Regulating Space Activities of Governmental and Non-Governmental Entities, pp.2.

¹⁹The University of Mississippi School of Law, Center for Air and Space Law, Vol. 46, 2022, pp.278.

such as aboard spacecrafts, ISS, lunar or planetary bases or other celestial environments by astronauts, space tourist or any other personnel. While the number of space flights has continued to increase to cater to the needs of governments and people alike, the number of astronauts remains low. Examples of potential transgressions include the following, none of which has proceeded to prosecution:

1. Anne McClain Identity Theft Allegation:

NASA's Anne McClain was accused by her estranged spouse of accessing their joint bank account without permission while aboard the International Space Station (ISS), which would be the first-time allegations of crimes having been committed in space. As a U.S. citizen operating through the American segment of ISS, McClain fell under U.S. jurisdiction according to international agreements governing ISS. It turned out after investigation that she was cleared of any wrongdoing. This created an illuminating exercise in the applicability of earthly legal constructs in space and a powerful endorsement of the ISS Intergovernmental Agreement assigning criminal jurisdiction according to nationality.²⁰

2. Assault incident at Bellingshausen Station in Antarctica²¹

A very unfortunate incident was witnessed at Bellingshausen station in Antarctica when in 2018, a Russian scientist stabbed another colleague during overwintering. This event took place under the jurisdiction of the Antarctic Treaty System, much like that of the ISS agreements, in a territorial-neutral international space territory. Thus, since both parties concerned were of Russian nationality, the case remained within the jurisdiction of Russia. The above event acts as an exact real-world parallel to possible analogous crimes in outer space and within isolated, multi-national environments as to how nationality jurisdiction functions.

While no serious or violent crime has yet been reported in outer space, incidents such as the 2019 case of alleged unauthorized access to a bank account from the ISS (the **Anne McClain**

²⁰Anne McClain Cleared in First Alleged Space Crime, <https://www.npr.org/2020/08/03/898491233/nasa-astronaut-anne-mcclain-cleared-in-first-alleged-space-crime>, (Last visited 25th July 2025).

²¹Scott Neuman, Russian Scientist Accused of Attempted Murder in Antarctica, <https://www.npr.org/2018/10/30/662352038/russian-scientist-accused-of-attempted-murder-in-antarctica>, (Last visited (25th July 2025).

case) show that criminal behavior is possible. As missions extend to the Moon and Mars, with crews in isolated, high-stress environments, the probability of interpersonal conflicts or intentional harm increases.

LEGAL FRAMEWORK AND JURISDICTION FOR CRIMES IN OUTER SPACE

With the increasing activity of humans in space, legal mechanisms are being set up for dealing with crimes presumably committed against persons and property outside of Earth. The ISS is a primary example of regulating criminal jurisdiction in outer space. Traditionally, an object is under the jurisdiction of the registering State, along with its crew, as per the Outer Space Treaty and the Registration Convention. In contrast, however, this is not the case with ISS. Each partner country, such as the U.S., Canada, Russia, Japan, and European states, exercises jurisdiction over its own astronauts regardless of where the incident occurred. If the crime affects the crew or property of another country, that country is also entitled to claim jurisdiction in the event that the state to which the perpetrator belongs refuses to act. However, there are no clear procedures for resolving situations involving concurrent claims.²²

The system rests upon international collaboration as per the Intergovernmental Agreement (IGA), which views the ISS uniquely as a condominium in the international arena: the partners exist under a plurality of rules but exercise sole national authority over their contributions. Supporting this is a Code of Conduct that specifies astronaut behavior, the specified line of command, and empowers the ISS Commander to uphold safety, including through reasonable force.²³

While some provisions do exist, they are largely reactive and does not cater to any other factors such as psychological trauma, intercultural elements, or the protection of victims. As for the longer duration missions to faraway spaces become reality, a much stronger preventive and inclusive legal framework will become indispensable.²⁴

EMERGING CHALLENGES

The rapid growth of expanding private space companies and the growing variety of

²²Stacy J. Ratner, "Establishing the Extraterrestrial: Criminal Jurisdiction and the International Space Station" (1999) 22 B.C. Int'l & Comp. L. Rev. 323.

²³Julian Hermida, Crimes in Space, Vol. XXXI, pp. 7.

²⁴*Ibid.*

international participants cause an ever-increasing complex jurisdictional complication in outer space.

1. Multinational Crews and Cross-Border Legal Complexities²⁵

Space missions often involve astronauts and personnel from multiple countries working together on platforms like the International Space Station (ISS). In such scenarios, determining which nation's laws apply in the event of a legal dispute or criminal incident becomes intricate. With judgment on the basis of Article VIII²⁶, the Outer Space Treaty gives the states jurisdiction over their registered space objects and personnel, it is certainly overlapping jurisdictions that would eventually create conflicts, especially when individuals involved are from different nationalities or occur in modules operated by different countries

2. Emergence of Private Space Industry Outlaws and Regulatory Gaps²⁷

Space exploration has gone commercial because of such companies as SpaceX, Blue Origin, and Virgin Galactic.²⁸ However, the present international regime based on treaties framed long back during the Cold War lacks the proper framework to address the activities of private actors in space. They may be treated under the existing Outer Space Treaty, which makes states liable for national activities in space activities of non-governmental entities, but enforcement mechanisms are weak.²⁹ This vague legal status creates questions of liability and accountability and possible extent of state oversight over private companies that operate beyond the Earth surface.

3. Absence of a Global Legal Authority³⁰

There is presently no centralized international authority with the competence to adjudicate disputes and enforce laws of outer space. This void means that disputes of space activity

²⁵ Samsuel Saameera, International Complexity in Space, Volume 11, Issue 9 September 2023 | ISSN: 2320-2882, pp.71.

²⁶ Outer Space Treaty, Article VIII

²⁷ CNBC News, <https://www.cnbc.com/2020/09/26/space-tourism-how-spacex-virgin-galactic-blue-origin-axiom-compete.html>, (Last visited 26th July, 2025)

²⁸ *Ibid.*

²⁹ *Ibid*

³⁰ Wilson center, <https://www.wilsoncenter.org/article/global-legal-landscape-space-who-writes-rules-final-frontier>, (Last visited 27th July, 2025)

legality must be solved, in most instances, through national courts or bilateral treaties, which can hardly be justifiably ready for handling isolated issues related to space law. The inability of a state legal authority impedes the work toward consistent and enforceable regulation and leads to uncertainties and the potential of conflicts between space-faring nations and entities.

4. Environment and Space Debris.³¹

The number of satellites and space missions is also increasing, space debris threatens operational spacecraft and sustainability in space activities. This category is mostly contributed to by private companies with large numbers of satellites. Current treaties contain very limited provisions on debris and an environmental regime in space and will probably not be sufficient to solve these problems. Shall have to be worked into new regulations.

SOLUTION PROPOSED

The jurisdictional problems in outer space require a proper development of legal and institutional frameworks. The idea proposed below is directed to improve the management of space operations:

1. Establishment of an International Space Criminal Code

Some legal experts have proposed the setting up of a universally accepted criminal code applicable in the specific conditions of outer space. Such a code should have definitions for crimes, penalties for their commission, and enforcement mechanisms applicable to all parties with space interests. This task would require international cooperation in law-making so that actions in space could be correctly evaluated under the law and whether they can be attributed to state or private actors³².

2. Creation of an International Space Tribunal

Such a tribunal, with the possible sponsorship of the United Nations, would act as a

³¹NASA, <https://www.nasa.gov/headquarters/library/find/bibliographies/space-debris/>, (Last visited 27th July, 2025).

³²Danielle Ireland-Piper & Steven Freeland, *Star Laws: Criminal Jurisdiction in Outer Space*, Vol 44.4, pp.58-59

centralized judicial body for adjudicating disputes arising from space activities. This tribunal would be charged with the interpretation of space law, resolution of conflicts, and enforcement of decisions. The “Multi-Door Courthouse for Outer Space” proposal, for example, promotes a flexible approach to dispute resolution referring to various legal traditions and categories of disputes³³.

3. Enhancement of Intergovernmental Agreements

Current intergovernmental agreements like the Intergovernmental Agreement (IGA) on the International Space Station could be expanded to include new space nations and private entities. Broadening these agreements’ scope would ensure that the entire international community presents to all actors an equal legal standard and negotiation framework. In a sense, that inclusivity would foster transparency, accountability, and mutual understanding between different actors in space activities³⁴.

Adopting these solutions would solve many of the legal problems we now face, and it would also open up further opportunities for an improved and fair legal regime for outer space. Therefore, as space exploration and commercialization become more vivid, legal precedents must be set early to assure that outer space will be equitably and peacefully used.

FUTURE DIRECTIONS AND RECOMMENDATION

Looking ahead and at recommendations to include into crime governance in outer space, emphasis is on establishing stronger, more adaptable legal systems to satisfy the errors presented by the expanding human presence beyond Earth. Once multinational crews, commercial space stations, and permanent settlements become tangible, existing treaties will have to be supplemented with clear enforcement mechanisms, means of resolving disputes, and universal standards of conduct. Recommendations to be considered include the establishment of a specialized international tribunal for space crimes, strengthening of intergovernmental treaties, incorporation of private sector liability, and promotion of cooperative processes wherein national interests are balanced with a measure of global responsibility. These components are meant to improve considerably legal certainty, safety, and fairness as mankind

³³Danielle Ireland-Piper & Steven Freeland, *Star Laws: Criminal Jurisdiction in Outer Space*, Vol 44.4, pp.59

³⁴Danielle Ireland-Piper & Steven Freeland, *Star Laws: Criminal Jurisdiction in Outer Space*, Vol 44.4, pp.62

enters into a more intricate period of space endeavors.

CONCLUSION

With humanity on the precipice of a new age of space exploration and commercialization, existing legal frameworks prove insufficient to address the myriad of complex crimes and jurisdiction matters arising outside this Earth. While existing treaties provide a foundation, they are outdated and reactive and do not bear in mind modern phenomena such as private sector involvement, multinational missions, or long-term living arrangements off-Earth. The absence of a centralized legal entity, with jurisdictional overlaps and ambiguous executive capabilities, represents an enormous threat to accountability and safety in outer space. Hence, a foremost concern for proactive efforts is drafting an international space criminal code, establishing a specialized tribunal, and expanding intergovernmental agreements to include private parties. If these known lacunae in the legal system are bridged, humanity can be assured of a greatly improved and just, peaceful, and sustainable future for the exploration of outer space.