

IAC-25-E5.5.9

Who Governs Space Museums? Legal and Policy Challenges in the New Space Era)

Ayako Kurono^{a*}, Haruto Kurono^b, Taichi Yamazaki^c

^a 1-9-5 Ninomiya, Tsukuba City, Ibaraki Prefecture, Japan, ajisuke@gmail.com

^b Kadokawa Dwango Gakuen S High School, Tsukuba City, Ibaraki Prefecture, Japan

^c CEO and Astronaut, ASTRAX, Inc., 2-23-17 Komachi, Kamakura, Kanagawa, 248-0006, Japan,
taichi.yamazaki@astrax.space

Abstract

In the 2022 IAC, a space museum was defined as "a facility located more than 100 km above Earth. Space museums are not just a futuristic concept but have the potential to preserve the achievements of humanity's great space exploration, promote education and research, and support the growth of space tourism. The previous study in Japan showed that a space museum could meet many of the needs of growing space tourism.

On the other hand, while the Outer Space Treaty (1967) prohibits states from possessing space, there are no clear provisions regarding the management and operation of facilities such as museums. This study addresses these legal issues and examines the legal framework for the establishment of a space museum. Specifically, this study will evaluate whether a space museum should be under the jurisdiction of a state, an international organization, or a private entity, and will examine the possibility of applying the UNESCO Convention for the Protection of Cultural Heritage to space and the possibility of international cooperative museum management by introducing a "right of use" model rather than ownership. The need for an international management organization is emphasized, and a framework for a multilateral agreement based on the cooperation model of the International Space Station (ISS) is proposed to explore ways to realize the operation of space museums under international cooperation. Through this study, we aim to provide a solid legal basis for the establishment of space museums as important educational and cultural centers, and to contribute to the sustainable development of space tourism and space exploration.

Keywords: (Space Museum, Space Tourism, Outer Space Treaty, International Cooperation, Right of Use)

1. Introduction

The concept of a space museum—a facility located beyond Earth's atmosphere to preserve and display artifacts of space exploration—is transitioning from fiction to a realistic prospect in the new space era. At IAC 2022, it was operationally defined as a facility situated at or above 100 km altitude [1], though no legally binding definition of the boundary between airspace and outer space exists. Such museums could serve as cultural and educational centers, safeguard the achievements of past and future missions, and meet emerging demands in the expanding space tourism sector [2].

However, establishing and operating a permanent facility in outer space raises unresolved legal and policy challenges. The cornerstone of international space law, the Outer Space Treaty (OST, 1967), prohibits sovereignty claims over outer space or celestial bodies (Art. II) but provides no explicit framework for facilities such as museums [3]. This creates uncertainty for states, international organizations, and private entities considering such projects. The purpose of this paper is to evaluate these challenges, review existing frameworks, and propose a multilateral governance

model based on use-rights, not ownership, supported by an international management body and public-private partnerships.

2. Legal Foundations

2.1 Non-appropriation principle

OST Article II prohibits national appropriation of outer space by sovereignty, use, occupation, or any other means [3]. This establishes space as *res communis omnium*—open to exploration and use by all but not subject to sovereignty. The prohibition applies not only to states but also, by interpretation, to private entities whose activities must be authorized and supervised by their states (Art. VI).

2.2 Jurisdiction and registration

OST Article VIII provides that a launching (or registering) state retains jurisdiction and control over its space objects and personnel [3]. Thus, a space museum would be legally a "space object," subject to the jurisdiction of its state of registry. Ownership of the facility itself is possible, but the surrounding orbital or celestial space remains non-appropriable. The 1975 Registration Convention obliges states to register space objects and is essential for establishing jurisdiction [4].

In addition, the 1968 Rescue Agreement imposes duties of rescue and return for astronauts and space objects [5].

2.3 Long-term sustainability (LTS) guidelines

The 2019 UNCOPUOS Guidelines for the Long-term Sustainability of Outer Space Activities emphasize collision avoidance, debris mitigation, and coordination [6]. Any permanent museum facility must incorporate such practices, ensuring deconfliction with other operators.

3. Governance Options for a Space Museum

3.1 State governance

A single state could operate a museum under its national jurisdiction. However, this risks perceptions of de facto appropriation and raises questions of inclusivity.

3.2 International organization

Management under an intergovernmental body, possibly linked to the UN, could ensure neutrality and broad legitimacy, but establishing such institutions is politically complex.

3.3 Private governance under state supervision

Private companies may build and operate facilities, but under OST Article VI must be authorized and continually supervised by states. The growth of commercial space stations highlights regulatory gaps, prompting new national frameworks, such as recent U.S. legislative proposals to regulate private stations [7].

4. Cultural Heritage Protection

Space museums would also function to safeguard cultural and historical sites. The Apollo 11 landing site is of unique value but cannot be listed under the UNESCO World Heritage Convention (1972), which applies only to sites within national territory. The Artemis Accords (2020, Sec. 9) recognize the principle of preserving outer space heritage, encouraging non-interference and coordination [8]. However, unilateral establishment of exclusion zones risks violating non-appropriation [9].

Proposals include:

- creating a UN-backed international register of heritage sites,

- adapting the World Heritage Convention or the 2001 Underwater Cultural Heritage Convention,

- or negotiating a new treaty modeled on the Antarctic Treaty System [10].

5. Lessons from the International Space Station (ISS)

5.1 Three-tier framework

The 1998 Intergovernmental Agreement (IGA) established a three-level legal structure: IGA (governmental treaty), MOUs between space agencies,

and Implementing Arrangements [11]. This flexible framework enabled 20+ years of multinational operation.

5.2 Jurisdiction and criminal law

IGA Article 5 allocates jurisdiction by registered elements, while Article 22 defines rules for criminal jurisdiction [11]. Each module is subject to the laws of its registering state, with provisions for cross-national incidents.

5.3 Liability and cross-waiver

IGA Article 16 introduces a cross-waiver of liability, ensuring partners do not sue each other for damages, even in cases of negligence [11]. This mechanism is crucial for legal certainty in multilateral projects.

6. Proposed Multilateral “Use-Rights” Model

We propose a multilateral agreement specific to space museums, drawing on ISS experience:

Use-rights allocation: Participants obtain rights of use, not ownership, proportional to contributions (e.g., module provision, funding).

International management body: An intergovernmental agency to oversee operations, safety standards, budgets, and education programs.

Public-private partnerships (PPP): Transparent selection of private operators, clear IP rules, and balanced risk/reward sharing.

Safety & liability: Adoption of international standards for visitor safety; liability managed through mandatory insurance and cross-waiver clauses.

Dispute resolution: Tiered process—technical committee, governing council, and arbitration (e.g., PCA Optional Rules for Space Disputes).

7. Safety and Responsibility

The U.S. has applied a “learning period” for commercial human spaceflight safety, requiring participants to accept risk through informed consent. This moratorium on new safety regulations has been extended to January 1, 2028 [12]. For large-scale, permanent facilities like museums, international safety standards and emergency response protocols will be necessary, exceeding current minimal requirements. The Liability Convention (1972) ensures states bear international liability for damages, but private operators must also maintain comprehensive insurance.

8. Conclusion

The establishment of a space museum could symbolize a new chapter in humanity’s exploration of space—serving as an educational and cultural hub while supporting sustainable space development. To realize this vision, governance must balance the non-appropriation principle with the practical need for jurisdiction and management. Building on the ISS

model, a multilateral use-rights agreement, supervised by an international management body and integrating PPP, can provide the necessary legal certainty. Early international dialogue is essential to ensure these museums serve all humankind, aligned with peace, sustainability, and cultural preservation.

of ... concerning Cooperation on the Civil International Space Station (IGA), 1998, U.S. Department of State,

[12] Congressional Research Service, Commercial Human Spaceflight Safety Regulations, IF12508, 2025; and Regulation of Commercial Human Spaceflight Safety, R48050, 2025, <https://crsreports.congress.gov> (accessed 11.09.25).

References

[1] United Nations, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty), 1967, UNOOSA,

[2] ASTRAX, Exploring the Concept and Potential of Space Museums for Preservation, Education and Tourism, IAC-22-E5.5.1, 73rd International Astronautical Congress, Paris, France, 2022, 18–22 September.

[3] J. Frakes, “The Common Heritage of Mankind Principle and the Deep Seabed, Outer Space, and Antarctica: Will Developed and Developing Nations Reach a Compromise?”, *Wisconsin Int. Law J.*, 21 (2003) 409–433.

[4] United Nations, Convention on Registration of Objects Launched into Outer Space, 1975, UNOOSA,

[5] United Nations, Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 1968, UNOOSA,

[6] UN COPUOS, Guidelines for the Long-term Sustainability of Outer Space Activities, adopted 2019, UNOOSA,

[7] White House National Space Council, Framework for Regulating New Commercial Space Infrastructure, 2023, <https://www.space.com/white-house-private-space-stations-regulations> (accessed 11.09.25).

[8] NASA, The Artemis Accords, 2020, Section 9: Preserving Outer Space Heritage,

[9] F. G. von der Dunk, “The Moon’s Dark Side: The Status of Lunar Heritage Sites”, *Proc. Int. Inst. Space Law*, 2006, 346–357.

[10] H. L. D. Recht, “Commentary: Let’s Treat Extraterrestrial Heritage Sites with Respect”, *Physics Today*, 26 October 2018.

[11] United States, Russia, Japan, Canada, and ESA Member States, Agreement Among the Government