

# Analyzing the Obligation to Recover and Return Space Objects upon Controlled Re-Entry under International Space Law

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## Abstract

Countries around the world are developing reusable objects that can be controlled and maneuvered upon re-entry into airspace. Owing to this development, this paper will analyze whether state parties to the Return and Rescue Agreement, 1968 (ARRA) are obligated under the Article 5 to recover and return such objects that have been repurposed by launching state to perform surveillance or other military activities in their airspace, upon controlled re-entry from Outer Space. The paper will also explain how space objects that can be maneuvered in the airspace upon re-entry should be regarded as an aircraft and be excluded from this obligation under ARRA.

## 1. Introduction

Unlike the period when the space treaties such as the Liability Convention,<sup>1</sup> the Outer Space Treaty<sup>2</sup> and The Return and Rescue Agreement.<sup>3</sup> were drafted, the technological advancements today have enabled controlled re-entries of space objects, which are launched or intended to be launched into

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1 Convention on International Liability for Damage Caused by Space Objects, D.S.-Gr. Brit.-U.S.S.R., Mar. 29, 1972, 24 U.S.T. 2389 [hereinafter LIAB].

2 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *entered into force* Oct. 10, 1967, Art. 6, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter OST].

3 Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched Into Outer Space, *entered into force* Dec. 3, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter ARRA].

space. The recent incidents<sup>4</sup> of alleged surveillance balloons, to be spotted in the airspace of another state emphasize on existing laws to catch up with technological changes.

In future, adversaries can perform controlled re-entries of space objects for surveillance over the airspace of a contracting party to gather intelligence or for any other purposes. Such a launching state can demand for its space object to be recovered and returned by the State in whose territory the object may have been found under Art 5 ARRA.

Art. 5, ARRA obligates contracting parties when a space object or its component part has been known or discovered upon return to earth, either under its jurisdiction or on high seas or in any other place:-

- To notify the launching authority and the UN Secretary-General. [Art. 5(1)]
- If practical try to recover the space object in its jurisdiction, upon the request of the launching authority. [Art. 5(2)]
- To return to or hold at the disposal of the launching authority, which shall, upon request, furnish identifying data prior to the return of the object. [Art. 5(3)]

While the ARRA deals with the recovery and return of objects that have reentered from space, it is ambiguous on the obligation of state parties to return space objects that are performing military/surveillance activities, upon controlled reentry. To address this ambiguity, this paper examines the obligation of states under Art. 5 ARRA, when instances of “controlled reentries” are used by another state for surveillance or military activities.

## **2. The Obligation to Recover and Return Space Objects under the Return and Rescue Agreement in Instances of Surveillance upon Controlled Re-Entry**

While Art. 5, ARRA does not expressly state about the conditionality related with the obligation to return space objects that perform surveillance upon re-entry, recourse can be made under Art. 31 of VCLT<sup>5</sup> that lays down the general rule of interpretation of a treaty.

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4 Pentagon Press Secretary Brig. Gen. Pat Ryder Holds an On-Camera Press Briefing, U.S Dept of Defense, (February 3, 2023) *available at* <https://www.defense.gov/News/Transcripts/Transcript/Article/3288141/pentagon-press-secretary-brig-gen-pat-ryder-holds-an-on-camera-press-briefing/>.

5 Vienna Convention on the Law of Treaties, entered into force Jan. 27, 1980, 1155 U.N.T.S.; Art. 31 [hereinafter VCLT].

## 2.1. Object and Purpose

Under Art. 31(1) VCLT “A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose“

The preamble of the treaty can generally offer the reasons for which the treaty was adopted<sup>6</sup> and can be used to derive the object and purpose of a treaty.<sup>7</sup>

Referring to the words in the preamble of ARRA, the agreement was adopted to enable “prompt and safe return of astronauts and the return of space objects” and was prompted by sentiments of humanity.<sup>8</sup>

Notably ARRA was adopted at a time when the world witnessed accidents involving spacecraft and astronauts, including instances where space objects accidentally landed on territories beyond the launching state. For example, in 1962, a component part of Sputnik 4 launched by the USSR accidentally landed in the U.S and was returned by the latter to the USSR Embassy.<sup>9</sup> Further, in 1967 when the U.S Biosatellite II re-entered earth, it was recovered by the help of Australian facilities and returned to the U.S.<sup>10</sup>

The Agreement was also adopted to develop and expand the obligations given under Art. V and Art. VIII, OST and importantly promote international cooperation in the peaceful exploration and use of outer space.

It is clear that obligations of ARRA are driven by the need to respond to situations of emergency, distress faced by the personnel of spacecrafts and unintentional/accidental landings of such spacecrafts or space objects.<sup>11</sup>

Further, interpreting the texts of provisions under ARRA; there is a distinction in the treatment of personnels and space objects, subjecting the former to receive a more immediate obligation to rescue and a prompt return to the Launching authority. This can be reflected in the texts of Art. 1-4 of the ARRA that deals with the rescue and return of personnel of spacecraft.

6 Mark E Villager, Commentary on the 1969 Vienna Convention on the law of Treaties 428 (2009).

7 Rights of Nationals of the United States of America in Morocco (France v. United States of America) (Judgement) [1952] ICJ Rep 176; Report of the of the International Law Commission on the work of its Eighteenth Session, 4 May – 19 July 1966, 21 U.N GAOR Supp No. 9 at 221 UN Doc A/CN.4/191 (1966) available at [https://legal.un.org/ilc/documentation/english/reports/a\\_cn4\\_191.pdf](https://legal.un.org/ilc/documentation/english/reports/a_cn4_191.pdf).

8 Preamble, ARRA.

9 Charles A. Lundquist, *A Sputnik IV saga*, Acta Astronautica 65 1520-36 (2009).

10 Wilson, C. A. (1968). The Biosatellite II Mission. BioScience, 18(6), 549-554; Irmgard Marboe, Julia Neumann and Kai-Uwe Schrogl, Historical Background and Context ARRA in II Cologne Commentary on Space Law 15 (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds. 2012); 2nd Biosatellite to study biology of spaceflight, NASA Release No 67-217 (August 21, 1967) available at <https://ntrs.nasa.gov/api/citations/19670025294/downloads/19670025294.pdf>.

11 Frans G von der Dunk, “A *Sleeping Beauty Awakens: The 1968 Rescue Agreement after Forty Years*” 34 J.S.L. 424 (2008).

Art. 1 to 4, ARRA unlike Art. 5(5) do not specify the obligation of the launching state to bear the cost borne by the contracting party to rescue and return personnels of a spacecraft.

The duality in the treatment of personnel and space objects indicates that while the rescue and return of personnel carries the humanitarian sentiment, the return of space objects upon re-entry is mainly for scientific or other commercial reasons. The rationale to return space objects to the launching authority was mentioned in a statement made by a representative of the U.S during its negotiation, that it was towards shared scientific interest.<sup>12</sup> A return of a space object may enable scientists to examine that object and learn more about space science and engineering.<sup>13</sup> Further the examination of a returned space object can provide clues on what went wrong in case of a miscarried project.<sup>14</sup> This implies that the obligation under Art.5 cannot be considered as absolute in the same humanitarian vein as Art 1 to 4, ARRA. It may be invoked when there are instances of miscarried project and to enable the analysis of the miscarriage and not in acts of surveillance during re-entry. Finally, in order to prioritize the safety and security of the state in whose territory such space objects may be found, Art. 5 ARRA offers exceptions under Art. 5 (4) by enabling state parties to eliminate possible danger of harms associated with space objects that are believed to be of a hazardous or deleterious nature. The Swedish delegate during the negotiation, emphasized that States must have discretion to refuse entry if there are national security considerations such as military or sensitive areas.<sup>15</sup>

Therefore, it can be interpreted that the obligations under Art. 5 ARRA are not unconditional or absolute in all circumstances, especially if they threaten the national security of a state.

Thus, in light of the object and purpose of ARRA, the contracting party may not be unconditionally obliged to recover and return space objects that have performed controlled re-entry to maneuver over a state's airspace for surveillance, thereby threatening their security. They can only be obligated to return when there is an unintentional/accidental re-entry devoid of surveillance or military activities.

## **2.2. Subsequent State Practice**

Under Art. 31(3)(b) VCLT, interpretation can be gathered from “Any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation”.

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12 Summary Records of the 29th to 37th meetings, held at the Palais des Nations, Geneva from 9 to 26 March 1964 UNCOPUOS LSC 3rd Session (Part 1), UN Doc A/AC.105/C.2/SR/29-37 p. 15 (August 24, 1964).

13 Ibid.

14 Ibid.

15 Ibid. p. 56.

State practices towards Art. 5 of ARRA are recorded by UNOOSA.<sup>16</sup> As of 2023, there has been a total of 95 instances of notification offered by contracting parties as per Art.5(1) ARRA to the launching authorities &/or UN secretary general.<sup>17</sup> All these 95 instances involved reporting of space objects and component parts that included metallic parts, launch vehicles, satellites, debris, stages of launchers, payloads. None of them were objects that were indicated to have been used for surveillance over a state's airspace. Further, none of these objects were reported by the contracting parties to have performed maneuver, surveillance over their airspace.

Considering instances of offering assistance to return a space object as per Art. 5(3) ARRA, in 1970 immediately after ARRA became effective, the U.S government returned 4 fragments of space object launched by USSR to its representatives.<sup>18</sup> In 2004, Argentina returned parts of the solid fuel engine of a U.S Delta 2 upon request to the U.S, with the U.S stating that it will bear the cost of recovery and return of components as per Article 5(5) ARRA.<sup>19</sup> Most recently in 2016, the U.S government notified the Chinese government and offered assistance in identifying and recovering the space objects that had reentered in the U.S<sup>20</sup> and the Indonesian Government at the request of SPACE-X from the U.S, returned objects that were part of its Falcon 9 Rocket, found in their area upon re-entry.<sup>21</sup> Notably, in 1978, when the Cosmos 954, believed to be a surveillance satellite, unexpectedly dropped off from its orbit and re-entered into earth, it disintegrated and scattered over Canada.<sup>22</sup> Regardless of it being operated as a surveillance satellite in space

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16 Recovery and Return of Objects Launched into Outer Space, List of Reported Space Objects Discovered by Member States, United Nations Office for Outer Space Affairs accessed (September 11, 2023) available at <https://www.unoosa.org/oosa/en/treatyimplementation/arra-art-v/unlfd.html>.

17 Ibid.

18 Letter dated 14 September 1970 from the Permanent Representative of the United States addressed to the Secretary-General UNCOPUOS, UN Doc A/AC.105/87/add.1 (September 17, 1970).

19 Note verbale dated 23 March 2004 from the Permanent Mission of Argentina to the United Nations (Vienna) addressed to the Director-General of the United Nations Office at Vienna, UN Doc A/AC.105/825 (March 29, 2004).

20 Information furnished in conformity with the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Note verbale dated 6 December 2016 from the Permanent Mission of the United States of America to the United Nations (Vienna) addressed to the Secretary-General UNCOPUOS, UN Doc A/AC.105/1140 (December 19, 2016).

21 Information furnished in conformity with the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space Note verbale dated 27 October 2016 from the Permanent Mission of Indonesia to the United Nations (Vienna) addressed to the Secretary-General UN Doc A/AC.105/1142 (November 3, 2016)

22 The 1972 Convention on International Liability for Damage Caused by Space Objects *in* Bin Cheng, *Studies in International Law* 3 (2012).

or not, Canada as per Art. 5 (1) notified the UN Secretary General as well as the USSR of the objects found in its territory.<sup>23</sup> But Canada did not report this as an instance of a breach of its airspace or surveillance by the Cosmos-954 in its own airspace.

Thus, upon analyzing subsequent state practices, it can be implied that so far Art. 5 of ARRA has been applied only to cases of unintended or accidental reentry of space objects and have so far not applied for recovery and return of space objects that have impacted their territories upon controlled re-entry for surveillance or other military activities. Although it is logical to state that the practices of recovery and return may only begin when there are instances of such re-entry and surveillance in the future, it must be reiterated that any act of interpreting Art. 5(2) and (3), to recover and return such objects must be a series of applications and not a single application, in order to be qualified as subsequent state practices under Art. 31 VCLT.<sup>24</sup> Thus, in absence of subsequent state practices currently to recover and return those space objects that perform surveillance upon controlled re-entry, it can be interpreted that there cannot be an obligation to recover and return such kinds of objects under Art. 5 ARRA.

### **2.3. Travaux préparatoires**

Art. 32 of the VCLT deals with supplementary means of interpretations and involves recourse to the preparatory documents (*travaux préparatoires*).

Considering the rules of interpretation of a treaty, even if the general means of interpretations under Art 31, VCLT is clear, the supplementary means of interpretations under Art. 32 such as *travaux préparatoires* can still be used to establish conformity with such interpretations.<sup>25</sup>

Based on the *travaux préparatoires* of ARRA, it can be considered that the obligation to recover and return the space object to the launching state under Art.5 ARRA is unconditional and absolute.<sup>26</sup>

This can be reflected in the refusal by the United States and others to the USSR's contention of disallowing space objects used for surveillance and intelligence gathering to be returned to the launching state.

During the period of negotiations of ARRA, Art. 7 of the USSR's proposal on rescue of Astronauts and spaceships making emergency landings, stated

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23 Note verbale dated 19 December 1978 from the permanent representative of Canada to the United Nations addressed to the Secretary General, UNCOPUOS, UN Doc A/AC.105/236 (December 22, 1978).

24 Ulf Linderfalk, *On the Interpretation of Treaties: The Modern International Law as Expressed in the 1969 Vienna Convention on the Law of Treaties* 166 (2007).

25 See Ulf Linderfalk, *Is the Hierarchical Structures of Articles 31 and 32 of Vienna convention Real or Not, Interpreting the rules of Interpretation.* 54 *Netherlands Int'l L. Rev.* 133-154 (2008).

26 Paul G. Dembling & Daniel M. Arons, *The Treaty on Rescue and Return of Astronauts and Space Objects*, 9 *Wm. & Mary L. Rev.* 630, 655 (1968).

“Space vehicles aboard which devices have been discovered for the collection of intelligence information in the territory of another state shall not be returned”.<sup>27</sup> This particular clause under Art. 7 was however subsequently removed in the revised USSR draft of the agreement.<sup>28</sup> This removal was due to the concerns of the U.S and other Western states over an absence of an arbitral clause that made them susceptible to endless difficulties in practice of it.<sup>29</sup> It did not however reflect the intention of parties to dilute the security aspects associated with the re-entry of a space object. Another reason why these important substantive considerations were not elaborately discussed or implemented in the draft was because of the fast -tracked nature of adopting ARRA.<sup>30</sup>

Thus, based on the general and supplementary interpretations of Art. 5, ARRA, it can be established that the obligation to return and recover a space object is absolute only when the situation demands a response to an unintentional or accidental landing upon re-entry and not in instances of performing surveillance or other military activities in the airspace of another state during controlled re-entry.

### 3. Space Object: A Definitional Issue

While Art 5 ARRA, obligates contracting parties to recover and return “space objects”, it fails to define it.

The definitional issue pertaining to delimitation of air space and outer space and the term “space object” has continued until today.

Previously, considering that international negotiation to formulate a definitive term was challenging and complex, States agreed upon definition of space object that would not require definitive classification.<sup>31</sup> However, commercial and technological development will be highly benefited by clarity and uniformity of law.

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27 International Agreement on the Rescue of Astronauts and Spaceships making emergency landings (A/AC.105/C.2/L.2) Report of the Legal Sub-committee on the work of its first session (28 May to 20 June 1962).

28 Agreement on the rescue of Astronauts and spaceships in the event of accident or emergency landing, USSR: Revised Draft Agreement UN Doc A/AC.105/19 (March 26, 1964).

29 Bin Cheng, *Studies in International Space Law* 270 (1997); Irmgard Marboe, Julia Neumann and Kai-Uwe Schrogl, *Historical Background and Context ARRA in II Cologne Commentary on Space Law* 14 (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds. 2012).

30 *Ibid.* Bin Cheng at p. 272.

31 Nandasiri Jasentuliyana, *Manual on Space Law* 116-119 (Nandasiri Jasentuliyana ed. Oceana Publ'ns 1979).

The Art 1, LIAB and Art. 1 REG states that the term “space object” includes component parts of a space object as well as its launch vehicles and parts thereof.

This expression is vague and lacks certainty as required in any definition. In International Law, two main approaches are devised to determine a space object: the Spatialist and the Functionalist Approach. While the Spatialist argument advances the point that where the atmosphere legally terminates the outer begins, the functionalist argument rejects a technical or arbitrary delimitation of airspace but delimits legal airspace from outer space by the character or nature of the activity regulation.<sup>32</sup>

Some States have defined this term in their respective national space laws. The Space Activities Act of the Netherlands defines “space object” as any object launched or destined to be launched into outer space.<sup>33</sup> The Australian Launches and Returns Act<sup>34</sup> defines “space object” as (a) a launch vehicle (b) a payload (if any) that the launch vehicle is to carry into or back from an area beyond the distance of 100 km above mean sea level; or any part of such thing, even if: (c) the part is to go only some of the way towards or back from an area beyond the distance of 100 km above mean sea level; or (d) the part results from the separation of a payload or payloads from launch vehicle after launch. The Austrian law defines a “space object as an “object launched or intended to be launched into outer space, including its components”<sup>35</sup>

On examining the definition of the term “space object” under national space laws of various states, the term “space object” tends to be defined in relation to the element of launch and its functional aspects.

Even the definition provided by Bin Cheng as “a space object is a man-made object that is launched or intended to be launched into outer space,”<sup>36</sup> highlights the element of launch.

Although various scholars, jurists and national space laws have undertaken to define the term “space object,” there is yet no consensus on an internationally accepted definition of the same.

### **3.1. Interpreting the Term “Space Object” in the Light of ARRA:**

Although ARRA does not define the term, it mentions “space object” together with the term “its component parts.” While no treaty defines the term “component parts,” Gorove states that the component parts of a space object would include all elements normally regarded as making up the space

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32 Gyula Gal, *Thirty Years of Functionalism*, 40 Proc. Coll. L. Outer Space 125 (1997).

33 Art. 1 (c), The Space Activities Act of the Netherlands.

34 Space (Launches and Returns) Act 2018, Sec 8 <https://www.legislation.gov.au/Details/C2019C00246>.

35 Austrian Federal Law on the Authorisation of Space Activities and the Establishment of a National Registry [Austrian Outer Space Act], Oct. 11, 2011 S. 2(2) (Austria).

36 Bin Cheng, “*International Responsibility and Liability for Launch Activities*” (1995) 20 Air & Space L. 297.



object, including fuel tanks, and even the fuel itself. Thus, any object without which the spacecraft would be regarded as incomplete, maybe taken to be a component part.<sup>37</sup>

Treaties are to be interpreted in good faith and in consonance of its objective and purpose wherein ordinary meaning is to be given to the terms of the treaty. Thus, it is essential to interpret the term “space object” in the context of ARRA as it triggers rights, and obligations concerning recovery and return of space objects and its component parts under Art. 5.

As seen earlier, the definition of “space object” is linked to launch perspectives and focuses on when a space object becomes a space object. Keeping in mind the technological advancements concerning re-entry and potential maneuvering capabilities of space objects in airspace upon their re-entry, the question arises as when does a space object cease to be a space object considering the lack of clarity in the definition in the space treaties?

### **3.2. Aspect of Control or Maneuver in Airspace upon Re-Entry: Ceasing the Space Object as a Space Object**

As stated earlier, the LIAB and REG state that space object includes component parts to the launch but neither the travaux préparatoires nor scholars agree which component parts remain a space object after launch. With the development of controlled re-entries, the space objects soon could be controlled and maneuvered in airspace for some time. If such objects continue to be defined as “space objects,” it would be burdensome on the Contracting State to return such objects if discovered in its territory, irrespective of the fact that such objects might be surveillance or military objects. Additionally, as Art. 1 of the Chicago Convention affirms the pre-existing customary rule of international law that each state enjoys complete and exclusive sovereignty in air space above its territory,<sup>38</sup> such objects maneuvering in air space upon its re-entry breaches such contracting state’s sovereign airspace.

### **3.3. Solution: Redefining Such Space Objects as “Aircrafts” upon their Re-Entry**

When such objects are controlled or maneuvered in airspace upon their re-entry, they utilize the same air space as other commercial aviation and it is thus desirable to apply a unified regime of law to avoid further ambiguity and overlap of laws. In the 36th Session of UNCOPUOS, on a comprehensive analysis of the replies on possible issues with regards to aerospace objects, most States were of the view that both national and international air law were applicable, while few States limited its application only to aerospace

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37 Stephen Gorove, *Studies In Space Law: Its Challenges And Prospects* 105 (1197); H.A. Baker, *Space Debris: Legal And Policy Implications* 63 (1989).

38 International Civil Aviation Organization (ICAO), *Convention on Civil Aviation* 7 December 1944, (1994) 15 U.N.T.S. 295 [Hereinafter Chicago Convention].

objects capable of performing aeronautic maneuvers for reasons of national security and aerial safety.<sup>39</sup> Some also opined that aerospace objects re-entering through air space could be subject to international air-traffic law.

Previously some States, authors and scholars have advanced arguments that objects having hybrid mechanisms, i.e., capable of having characteristics of a space object while in outer space and that of aircrafts in airspace to be termed as “aerospace vehicles.” Though the USSR attempted to define “aerospace object,” this term at that point was not understood well and even today, there is no definition or criteria stipulated to recognize any such object as “aerospace object” nor does any treaty mention the same.

Thus, the authors, taking note of the complexity involved and pressing priority concerning this issue, propose to include such objects under the definition of “Aircrafts” under Annex 2 of the Chicago Convention.

The term Aircraft is defined as “any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the Earth’s surface”.<sup>40</sup>

The current regime of Air Law and Space Law were developed at a time when controlled re-entry mechanisms were not developed. However, the drafters did consider the need for standardizing air navigation procedures; the purpose and objective of the Chicago Convention, as reflected through its articles, is to create a unified and harmonious regime of safety and navigation of airspace. If the operation of such objects, without being subject to Chicago Convention, is permitted in airspace it would undermine the fundamental purpose of the Convention.

In fact, a proposal presented several years ago by the USSR, stated that a foreign space object maneuvered below 100-110 kilometers above mean sea level, should be subject to the permission of the State concerned and should be subject to that State’s laws applicable to its airspace.<sup>41</sup>

The United States has promulgated laws governing commercial space launches, vehicles, crew, and navigation, vesting jurisdiction in its Federal Aviation Administration (FAA), which has comprehensive jurisdiction over aircraft and aviation safety and navigation. In *Reinhardt v. Newport Flying Service Corp.*, Judge Cardozo speaking for a unanimous court held that a hydroplane moored and anchored in navigable waters was a maritime

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39 Comprehensive analysis of the replies to the questionnaire on possible legal issues with regard to aerospace objects, Matters relating to the Definition and Delimitation of Outer Space and to the character and utilization of the Geostationary Orbit, Including consideration of ways and means to ensure that rational and equitable use of Geostationary Orbit without Prejudice to the Role of the International Telecommunication Union, UNCOPUOS, UN Doc A/AC.105/C.2/L.204 (February 18, 1997)

40 Annex 2, Annex 7, Annex 11, Chicago Convention.

41 Report of the Legal Subcommittee on its forty-first session, held in Vienna from 2 to 12 April 2002, UNCOPUOS UN Doc A/AC.105/787 (April 19, 2002).

“vessel” within the admiralty jurisdiction, rather than an aircraft. But he also pointed out that even a hydroplane, while in the air, is not subject to the laws of admiralty. Under the same reasoning, an aerospace vehicle might be considered a spacecraft while in outer space and an aircraft while airspace.<sup>42</sup> Furthermore, the German Aviation Code also specifies that “spacecraft, rockets and similar flying objects” are to be considered as aircraft while in airspace, and thus subject to the prevailing rules and regulations governing aircraft.<sup>43</sup>

#### 4. The Way Ahead

As International Space Law, ever since its development, has been proactive, and observing the current practices of states defining it as “aircrafts,” the authors argue that this practice be adopted before any agreement on controlled reentry regime is enacted to ensure that no State or non-state actor can misuse this current legal lacuna.

As Art 37 of the Chicago Convention confers ICAO the authority to formulate SARP addressing “such other matters concerned with the safety, regularity and efficiency of air navigation as may from time to time appear appropriate, the ICAO may include such objects which can be maneuvered or controlled upon its re-entry in airspace under the definition of “aircrafts”.

Further, to address issues and concerns posed by space-based threats, an Open-ended working group on reducing space threats through norms, rules and principles of responsible behaviors (OEWG) was established in 2022.<sup>44</sup> Renewed for 2 more years, the OEWG can be an important forum to discuss the risk of surveillance or military activities performed by space objects upon controlled re-entries.

States at the OEWG have raised the issue of risks posed by uncontrolled re-entries of space objects and some have argued that lack of transparency on the re-entry of objects into Earth’s atmosphere have posed a threat, calling

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42 Reinhardt v. Newport Flying Service Corp., 133 N.E. 371 (NY, 1921); A Submission by the Space Safety Law & Regulation Committee of the International Association for the Advancement of Space Safety Suborbital flights and the delimitation of air space vis-à-vis outer space: functionalism, spatialism and state sovereignty, UNCOPUOS, UN Doc A/AC.105/C.2/2018/CRP.9 (March 29, 2018).

43 Comments of Germany in UN Doc A/AC.105/635/Add. 11 (26 January 2005) in UNCOPUOS, Compilation of Replies Received from Member States to the Questionnaire on Possible Legal Issues with Regard to Aerospace Objects [Compilation of Replies Received from Member States], online: UNOOSA [http://www.unoosa.org/docs/misc/aero/aero\\_compE.doc](http://www.unoosa.org/docs/misc/aero/aero_compE.doc).

44 Open-ended working group on reducing space threats through norms, rules and principles of responsible behaviors, United Nations, Office for Disarmament Affairs *available at* <https://meetings.unoda.org/meeting/57866>.

for greater transparency, communication and coordination.<sup>45</sup> Further there were recommendations by states to consult, seek consent in advance, and/or coordinate when conducting a re-entry that affects other states.<sup>46</sup> For example, in August 2020, upon application, JAXA received the Authorization of Return of Overseas-Launched Space Object (AROLSO) by the Australian Government<sup>47</sup> for its re-entry of its sample return capsule of Hayabusa2.<sup>48</sup> Best practices like these can be helpful.

Further states must also draft national legislations to govern the re-entry of foreign space objects in their airspace like the Space (Launches and Returns) Act 2018 of the Australian Government that mandates foreign states to receive prior approval before entering the Australian airspace. Thus, developing norms and responsible behavior in phases of controlled re-entry of a space object may facilitate in offering assistance to instances that may genuinely require assistance, recovery and return and may lead to the development of space exploration and realization of its benefits.

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45 See Statement of Philippines, Third Session of the Open-Ended Working Group on Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviours, (February 1, 2023) *available at* [https://docs-library.unoda.org/Open-Ended\\_Working\\_Group\\_on\\_Reducing\\_Space\\_Threats\\_-\\_2022/OEWG3\\_PH\\_Statement\\_Agenda\\_6\(c\),\\_Topic\\_2\(b\)\\_General\\_Exchange\\_of\\_Views\).pdf](https://docs-library.unoda.org/Open-Ended_Working_Group_on_Reducing_Space_Threats_-_2022/OEWG3_PH_Statement_Agenda_6(c),_Topic_2(b)_General_Exchange_of_Views).pdf).

46 Jessica West, The Open-Ended Working Group on Reducing Space Threats SPECIAL REPORT RECAP OF THE THIRD SESSION JANUARY 30 TO FEBRUARY 3, 2023 27 (June 2023).

47 Return Authorisation – Australian Government *available at* <https://ablis.business.gov.au/service/ag/authorisation-of-return-of-overseas-launched-space-objects-arolso-14>.

48 The Hayabusa2 Re-entry Capsule Approved to Land in Australia, JAXA (August 19, 2020) *available at* [https://global.jaxa.jp/press/2020/08/20200819-1\\_e.html](https://global.jaxa.jp/press/2020/08/20200819-1_e.html).