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**Committee on the Peaceful
Uses of Outer Space**
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**Matters relating to the definition and delimitation of outer space:
replies of the International Institute of Space Law (IISL)**

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Matters relating to the definition and delimitation of outer space and the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union

In accordance with the recommendations of the Working Group of the Legal Subcommittee on the Definition and Delimitation of Outer Space (A/AC.105/1113, Annex II, para. 20), permanent observers of the Committee are invited to submit the following:

(a) Concrete and detailed proposals regarding the need to define and delimit outer space, or justifying the absence of such a need, or to provide the Working Group with specific cases of a practical nature relating to the definition and delimitation of outer space and the safety of aerospace operations. Such structured, consistent and grounded contributions would be considered by the Working Group at its future meetings.

The need for a definition and delimitation of outer space has been the subject of recurrent discussions within UNCOPUOS over the past decades. So far no agreement has been reached due to the opposing positions of member States. The spatial approach, which promotes the establishment of a fixed boundary between airspace and outer space either based on scientific and technological criteria, or defined by agreement among states, has the advantage of providing greater legal certainty for actors. However, ongoing technological progress makes it difficult to determine reliable physical and technological criteria for the establishment of a fixed boundary between airspace and outer space. In addition, there is a lack of political will to negotiate and agree on a boundary at the international level.

At the national level, several States decided to adopt the spatial approach and defined outer space as the area above an altitude above 100 km. Examples include Australia (1998), Kazakhstan (2012), and, most recently, Denmark (2016). Most States, however, did not define outer space. Some of them excluded the application of the national space law to flights not completing an Earth orbit, regardless of their altitude (Belgium 2005, as amended in 2014).



The functional approach, which distinguishes between aeronautical and astronautical activities based on the objective and purpose of the activity rather than on the location, has the advantage that air and space activities are governed by a single regime irrespective of the altitude at which they are conducted. However, activities that are carried out partly in airspace and partly in outer space (such as so-called suborbital flights) may not easily be defined as space activities or aviation activities. This raises uncertainties with regard to the applicable legal rules, and *ad hoc* solutions have thus far been utilized such as with respect to commercial flights being developed in the United States. This highlights the need for a discussion at the international level concerning the characterisation of such activities and the law applicable to them in order to avoid a divergence of rules established at the national level, as well as to prevent international disputes. These discussions should be aimed at the agreement on a common definition and the formulation of specific legal rules for such activities.

(b) A response to the following questions:

(i) Is there a relationship between suborbital flights for scientific missions and/or for human transportation and the definition and delimitation of outer space?

The so-called suborbital flights are flights conducted at very high altitudes that can reach outer space but do not achieve the velocity necessary to reach and stay in an orbit around the Earth. The question that arises with regard to these activities is which legal rules are applicable. Due to the different technical and operational specificities (e.g. vehicle used, maximum height reached etc.) of suborbital flights, the establishment of a definition and delimitation of outer space does not seem to solve this question. Rather, an international agreement on a definition, as well as on legal rules applicable to these activities, could bring clarity.

(ii) Will the legal definition of suborbital flights for scientific missions and/or for human transportation be practically useful for States and other actors with regard to space activities?

An internationally agreed legal definition of suborbital flights for scientific missions and/or for human transportation could be useful to spark a discussion on the applicable legal rules, as well as to initiate the elaboration of a specific legal regime for such activities at the international level. This would set a common international standard – and avoid the need of *ad hoc* solutions - which would be beneficial for States in the elaboration of rules regarding these activities at the national level. It would also provide private actors with enhanced legal certainty.

(iii) How could suborbital flights for scientific missions and/or for human transportation be defined?

To date, no legal definition of suborbital flight has internationally been agreed. However, two main characteristics can be identified:

1. Suborbital flights can reach very high altitudes; and
2. They do not achieve the velocity necessary to complete one or more orbits around the Earth.

These are the most important elements to characterise such activities. The question arises whether the term “suborbital flight” itself is the most suitable to describe this type of activity, because it instigates the picture of an activity that is carried out below Low Earth Orbit, which is not the case. An explanation or perhaps an even better description of such an activity could be “non-orbital space flight”.

(iv) Which legislation applies or could be applied to suborbital flights for scientific missions and/or for human transportation?

In addition to customary international law and national laws, international space law as well as international air law could be applied. Due to the different characteristics of international air law and space law, it is crucial to determine which rules are

applicable to the suborbital flights for scientific missions and/or for human transportation. In particular, issues of authorisation, registration, rescue, liability and insurance need to be clarified.

As to authorisation, in international space law compliance with the obligation to authorise and supervise national space activities according to Article VI of the Outer Space Treaty is left to the discretion of States. This raises the question whether some standards should be set at the international level in order to avoid diverging rules and standards at the national level. On the other hand, it should also be discussed whether the detailed standards and requirements for the airworthiness of aircraft set out in Annex 8 of the Chicago Convention on International Civil Aviation are or should be applicable.

With regard to registration, the question arises whether Article II of the Registration Convention applies, as it ties the registration requirement to the launching of a space object “into Earth orbit or beyond”. On the other hand, a comprehensive international registration system does not exist in international air law; rather, the registration of aircraft is left to single States according to the Chicago Convention on International Civil Aviation (Chapter III). This leads to the question whether an international registration system that allows for comprehensive safety management, as well as for efficient coordination with air and space flight management, should be established.

As regards the issue of liability, questions arise in particular with regard to human space transportation. In international space law, the Liability Convention covers damage caused by space objects in airspace, in outer space and on the surface of the Earth; it does not, however, apply to nationals of the launching state and to participants in the flight. This leads to the question whether the Liability Convention is suitable, as human transportation would be left out of its scope. On the other hand, it also needs to be discussed whether the very detailed rules existing in international air law under the Warsaw and Montreal Conventions can and should be applied.

Regarding the rescue of humans participating in suborbital flights, the 1968 Rescue Agreement could be of relevance. As this Agreement currently relates to the rescue and return of “personnel of a spacecraft” (Article 1, 2,3 and 4 of the Rescue Agreement), it is not certain to what extent it applies to the crew and to the passengers of suborbital flights. More discussion and clarity is needed to identify whether and to what extent the Agreement is or should be applicable. While humanitarian considerations speak in favour of upholding the duties of rescue and assistance, other obligations are open or less obvious, such as the question of cost sharing and that of prompt return.

Since neither space law nor air law seem to provide a comprehensive and suitable solution with regard to registration, authorisation and liability, a discussion at the international level is needed with a view to developing a proper legal regime which would take account of the specificities of suborbital flights for scientific missions and/or for human transportation.

(v) How will the legal definition of suborbital flights for scientific missions and/or for human transportation impact the progressive development of space law?

A legal definition could trigger a discussion on the applicable rules at the international level. At the same time, it could lead to enhanced law-making activity to regulate suborbital flights at the national level.

(vi) Please propose other questions to be considered in the framework of the legal definition of suborbital flights for scientific missions and/or for human transportation.

- Should new rules or a new legal framework be developed to address the specificities of suborbital flights for scientific missions and/or for human transportation at the international level?
 - If yes, who should develop such rules ideally? Which international forum would be most appropriate?
 - Which International Organisation would/should be responsible for the management of such a regime? Does this require the amendment of the mandate of an existing International Organisation, or the establishment of a new one with a specific mandate to address this area?
 - How should questions of authorisation, registration, rescue, liability and insurance, as well as the legal status of passengers of suborbital flights, be regulated?
 - How can the framework be designed to permit the necessary flexibility to adapt to future technological progress?
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