

The Definition and Delimitation of Outer Space: The Present Need to Determine Where “Space Activities” Begin

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the International Association for the Advancement of Space
Safety (IAASS)

By

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Outline

- The Present Need for Definition or Delimitation of Outer Space
- Implications for International Space Law
- Implications for International Air Law
- Implications for National Space Law and compliance with International Law
- Political and Ethical considerations

The Present Need for Definition or Delimitation of Outer Space

- The question of definition of outer space or delimitation of the boundary between airspace and outer space has been discussed since the beginning of the space age.
- However, to date, conventional and customary rules of international law do not define where airspace ends and outer space begins
- In 1972, Judge Manfred Lachs of the International Court of Justice asked the following questions which are still relevant today:
 - (1) where are the frontiers of outer space; and
 - (2) given that said frontiers are not yet established, is there any real dilemma in their absence?
- Given the accelerated development of emerging aerospace activities and technologies, the time has come to find an agreeable solution to the question of the inner frontier of outer space, and the outer frontier of airspace

The Present Need for Definition or Delimitation of Outer Space

- Issues of climate change and the global environment, questions of public safety with regard to emerging aerospace activities, national security, military and strategic needs, and the benefits of a predictable and consistent global regulatory regime are all key factors pointing to a present need for demarcation
- Further, the uncertainty as to where airspace ends and outer space begins creates a potential regulatory void in safety and navigation which, in turn, creates a risk of collision with aircraft. Regulatory uncertainty inherently chills private sector investment. The present need for delimitation therefore signifies a desire to foster continued commercial development of space
- The regulation of high altitude ballooning as an air or space activity has brought a renewed sense of urgency to this question. Such activities, which will take place in the 21-45 kilometer range, implicate a much lower zone of near space than traditional suborbital aerospace activities.

The Present Need for Definition or Delimitation of Outer Space

The Functionalist - Spatialist Debate

- There have been two primary schools of thought with regard to the delimitation issue:
 - (1) the *functionalist approach*, which maintains that the nature of the activity rather than the location of the activity should be the determinant; and
 - (2) the *spatialist approach*, which proposes setting a measurable physical boundary between airspace and outer space
- Emerging technologies and aerospace activities pose new challenges to the functionalist approach. Many of such activities are likely to take place in the airspace (i.e., between 20 and 100 kilometers) yet they are intended to function as space activities
- Spatialists argue that outer space begins from the vertical point beyond which States cannot maintain effective control over the airspace above their territories. Most States, however, do not possess the technology, expertise

Implications for International Space Law

- Freedom of Access and Use, and Non-discrimination:
 - A boundary limitation test that relies on “effective control” would deprive less technologically advanced States of their rights to use and explore outer space, in contravention of the Outer Space Treaty’s non-discrimination clause.
 - Setting the boundary too low would raise significant national security concerns given the imputed freedom of use that would then apply at altitudes as low as 21 kilometers.
- Cooperation vs. Harmful Interference
- International Registration requirements and Liability provisions

Implications for International Air Law

- There is no right of innocent passage (overflight) through sovereign airspace for foreign aircraft and such a right of innocent passage cannot be presumed for foreign space objects
- If emerging aerospace technologies and activities are considered (primarily) as aircraft when engaged in international air navigation (following the functionalist approach) consequences would follow under the 1944 Chicago Convention, mainly in terms of registration, airworthiness certification, rules of the air, pilot licensing and operational requirements (unless they are otherwise classified as State aircraft under Article 3 of the Convention)
- States would have to enter into formal bilateral or multilateral agreements to exchange air traffic rights in the event that such activities may traverse the airspace above a State's territory

Implications for National Space Law

- The US
- The EU
- Australia's 100 kilometer limit
- Other (particularly non spacefaring) nations
 - Given the wide divergence in the practices of state, if States continue the practice of unilaterally determining the location of the boundary between their sovereign air space and outer space, this will lead to confusion and complexity, which will be detrimental to the interests of both the aviation industry and space operations.
 - A well settled international definition of the boundary will facilitate compliance with international law and reduce the inconsistencies in state practice.

Political and Ethical Considerations

- Would a right of innocent passage for space objects through sovereign airspace help resolve the boundary dilemma or get rid of the need to establish such a definition?
- If outer space is truly a common pool resource (similar or comparable to the High Seas or Antarctica), would the definition or demarcation of its boundaries enhance its governance and management at the international level?

Thank you for your kind attention