

56th IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (E7)
Joint IAF/IISL Session on Legal Framework for Cooperative Space (7-B3.8)

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RESPONSIBLE SPACE EXPLORATION AND USE: BALANCING STAKEHOLDER INTERESTS

Abstract

Despite the worldwide economic downturn, many space-faring nations are planning space missions and architectures to explore the Moon, near-Earth asteroids (NEAs) and Mars in the coming decade. Most of these plans are focused on robotic exploration, but some also include roadmaps that prepare for human exploration and endeavors that extend beyond the ISS and Low Earth Orbit (LEO). Looking ahead, the space exploration arena is clearly changing. In the not too distant future, space activities are likely to include a significant increase in numbers of nations, partnerships, commercial and private ventures planning missions that go beyond traditional exploration. Already space entrepreneurs have announced plans for ambitious endeavours such as roving and mining on the Moon; ‘harvesting’ resources on NEAs; and preparing for human outposts on the Moon and Mars. This raises questions of how to ensure that exploration and exploitation is done in responsible and balanced ways. There is an increasing necessity to establish more comprehensive international law governing these activities. In this paper we discuss the physical, institutional and ethical concerns raised by various stakeholders concerning increased science and commercial space exploration and compare the main international treaties that govern Antarctica, the oceans and celestial bodies. We analyze how the environmental management of Antarctica can be used as a model for the responsible science exploration of the Moon and Mars, review what we can learn from the United Nations Convention on the Law of the Sea (UNCLOS) and highlight the shortcomings in existing treaties (such as the OST) to deal with commercial ventures that target the use of celestial bodies. Recommendations are given how to achieve a flexible approach that balances the interests of multiple stakeholders with regulations that are respected and adhered to by many nations.