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MEGA-CONSTELLATIONS OF SATELLITES AND THEIR IMPACT ON ASTRONOMY:
EXPLORING THE ROLE OF ARTICLE IX OF THE OUTER SPACE TREATY

Abstract

The activity of designing and launching into low earth orbits (LEO) large constellations of satellites (sometimes known as mega-constellations) is posing a number of challenges to the sustainability of outer space. One significant challenge has turned out to be the visual impact that huge numbers of satellites placed in LEO is having on the Earth's night sky. The present paper will analyze this problem from the point of view of Space Law, and more specifically, by exploring the potential role of Article IX of the 1967 Outer Space Treaty (OST). The main question is whether this provision and its corresponding obligations of due regard, preventing harmful interferences, and avoiding contamination of outer space can be applicable also vis-à-vis activities that are not space activities proper (such as ground-based astronomy) yet nonetheless are directly related to and affected by activities carried out in outer space. In order to answer that question, the origin of Article IX is reviewed, particularly considering its direct predecessor, Principle 6 of the Declaration of Principles adopted by the United Nations General Assembly in 1963. Since the origin of Principle 6 (and therefore, of Article IX) can be traced back to the effects on both space and earth of West Ford and other large-scale experiments carried out in LEO in the early 1960s, the conclusion is that Article IX does apply and protects terrestrial activities such as ground-based astronomy that are affected by mega-constellations and other activities conducted in outer space.