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Author: Dr. Ruth Stilwell
Space Policy Institute, George Washington University, United States

Dr. Diane Howard
International Institute of Space Law (IISL), United States

Mr. Sven Kaltenhaeuser
DLR, German Aerospace Center, Germany

OVERCOMING SOVEREIGNTY FOR SPACE TRAFFIC MANAGEMENT

Abstract

The question of sovereignty, or authority over the space domain had created a barrier to development of space traffic management regimes, particularly those seeking to use air traffic control or air traffic management as an operational model. States exercise control over sovereign airspace as the airspace over a state and its territorial waters is recognized as within its authority. States provide air traffic services over high seas airspace that is delegated to them by the Council of the International Civil Aviation Organization under the provisions of the Chicago Convention. This concept of air traffic management is built on a foundational understanding that a single authority is responsible for each defined volume of airspace. In the space domain, there is no specific delegation of volumes of space to specified authorities. The Outer Space treaty clearly reflects that no claim of sovereignty is to be made.

Without the authority to exercise sovereign control over the domain, is space traffic management possible? Consider that space activities are launched from sovereign territory, transit through sovereign airspace, progress through high altitude/near space regions where sovereignty is ambiguous, and operate in orbits where no sovereignty exists; is too much emphasis placed on the sovereignty question? If we make a clear distinction between regulation and control, can we eliminate the sovereignty barrier? To apply the model of air traffic management to a space traffic management concept that is applicable from the on orbit regime down to the near space transition to regulated airspace, a comprehensive understanding of the elements of ATM is needed to identify relevant tools that can be exported to STM. The concept of air traffic control over instrument flight rules (IFR) flights is less relevant to STM than other regulatory and advisory elements of ATM including flight services, traffic information services, and safety alerts. Similarly, dividing STM into its component parts allows for comparisons to elements of ATM that may provide operational models for the provision of a safety service that does not depend on sovereign authority or exclusive control over a volume of space.

This paper will examine the legal, policy and technical barriers to the implementation of a space traffic management regime and specifically how the sovereignty barriers can be overcome to construct and implement a global safety service in space.