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Author: Dr. Michail Chatzipanagiotis  
University of Cyprus, Cyprus, mchatz07@ucy.ac.cy

BEWARE OF THE HYBRIDS: LEGAL ISSUES OF AIR LAUNCHES

**Abstract**

This paper addresses key legal challenges as to the legal regime applicable to air launches of space objects. Air launches appear attractive to some providers of launch services and manned spaceflights. They can have two forms: (a) a system composed of a mothership that operates as an aircraft and carries a rocket-propelled vehicle, which is released at a specific altitude and activates its own engines to reach outer space; (b) a vehicle carrying both air-breathing and rocket engines activates the latter after reaching a certain altitude. From a legal perspective, it is unclear if these systems/vehicles should be treated as aircraft or space objects before separation/activation of rocket propulsion, and, in case of composite systems, after releasing the vehicle carried. The question is of great importance, because it determines the applicable legal regime in a variety of issues, such as safety, licensing, certification, air traffic control, crew qualification, liability etc. In all these areas, will air law or space law apply? The former is complex and extensive, and its application to the private space industry may be inappropriate. The latter may be too vague to provide adequate legal solutions. This paper examines how national and international air law is likely to apply to air launches and highlights some relevant legal ramifications. At the same time, it underscores some of the drawbacks of the current space law regime. It is noted that even if special national rules that cover certain aspects of such launches are enacted, qualification of a vehicle as an aircraft might cause the complementary application of aviation rules. Moreover, distinguishing between vehicles according to their flight specifications risks hampering innovation. The paper argues that comprehensive, yet flexible, legal rules on private spaceflights are needed, regardless the specifications of the vehicles used. It also makes suggestions on the development and content of such rules.