

SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)

Enabling safe commercial spaceflight: vehicles and spaceports (3)

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PORTUGAL SPACEPORT: AN ANALYSIS ON A FUTURE COMMERCIAL SPACEPORT IN
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Abstract

The market for small satellites is currently in a great expansion. As the price of production continues to decrease, more universities, companies and non space-faring nations can afford to develop and launch a satellite. This leads to an increase of the number of launches needed, simultaneously generating new demand within the launcher industry. Small satellites can be launched from a medium to heavy rocket class by piggy-backing on flight opportunities, or even launch from external platforms on the ISS. However, satellite operators are then at the behest of the pre-determined inclination and orbit of the primary payload. Therefore, the increase of launch requests, and the need for the scientific and operations teams to acquire orbits to support their mission requirements, opens an opportunity in the launchers market. All around the globe startup companies have appeared with innovative and brilliant solutions to compete for a slice of the growing small launchers market. Proposed solutions can be Vertical Takeoff and Landing, Vertical Takeoff and Horizontal Landing or Horizontal Takeoff and Landing. Each of them has different requirements on how spaceports must accommodate each launcher to support their client's solutions. More countries have recognized this potential market as well as the added value of developing new spaceports for different purposes - an intriguing trend on which this analysis is based. Portugal, a member state of the European Space Agency, has great potential to create a spaceport to support the small launchers market. In the middle of the Atlantic Ocean lay a set of islands called the Azores. Primarily due to geography, pre-existing support infrastructure available in the different islands, and the recent interest of different stakeholders, the Azores islands are naturally best suited to develop a spaceport to provide a new European gateway to space. This paper intends to define a set of requirements and approaches to be taken into account for the development of a spaceport in Azores. It addresses stakeholders, environmental issues, safety and regulatory requirements, ground infrastructure availability, and the island's infrastructure to support the spaceport (medical facilities, universities, transportation needs etc). This paper captures how a spaceport will influence the regional economy. This analysis will also evaluate the different requirements needed to support alternate emerging small launchers including (with an emphasis in the European launchers). The analysis concludes with suggested recommendations as well as a evaluation tool to help identify the main issues of consideration for its development.