

# **Air Traffic Management and Space Transportation - System Wide Information Management and the Integration in European Airspace**

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Space Travel becomes an international business and requires landing opportunities all over the world. The integration of space vehicles in airspace therefore is an increasingly important topic to be considered on an international scale. With the Single European Sky ATM Research Programme (SESAR) preparing the implementation of a new ATM system in Europe, requirements have been defined for Shared and Reference Business Trajectories as well as System Wide Information Management (SWIM).

The submission of Mishap Investigation Plans (MIP) is an important element for a safe and efficient integration of space vehicle operations. A MIP contains responding and reporting procedures referring to possible reentry or launch incidents or accidents. It leads to the submission of an Emergency Response Plan (ERP), addressing information procedures about a planned Reusable Launch Vehicle (RLV) mission of the airspace alerting and emergency services in the areas of Emergency Detection and Response Organization

With the implementation of remote tower operations in air traffic control, new options are becoming available and can be further enhanced for commercial space operations. For commercial space vehicles providing horizontal landing capabilities, landing operations can make use of modern remote tower installations, which will especially facilitate landing on remote sites or sites located away from operation centers and the related customers.

This paper describes the integration of the above mentioned services in the Air Traffic Management (ATM) information exchange concept of SWIM and explains how remote tower services can benefit landing operations for commercial space flights. Furthermore it elaborates on additional requirements necessary to be considered for a safe and efficient integration of space- and air traffic operations.