

INTEGRATION OF COMMERCIAL SPACEFLIGHT INTO THE AIR TRANSPORT SYSTEM

Interoperable data exchange for safe and efficient launch and re-entry operations

Brief description

The FAA Office of Commercial Space Transportation and DLR are seeking to identify the data that may need to be exchanged between United States and European Air Navigation Service Providers (ANSPs) prior to, during and after a space launch or re-entry operation that is initiated in one country and traverses the airspace of another country. This data exchange should facilitate improved situational awareness, allowing US and European ANSPs to respond as necessary in the event of a vehicle failure.

Aims

Develop and conduct collaborative demonstrations of the exchange of key data between ANSPs. This will facilitate the safe and efficient management of global airspace during launch and re-entry operations. The demonstration of simulated real-world scenarios will result in the identification of key parameters for exchange in reaction to time-critical non-nominal events.

Applications

- Improved situational awareness for ANSPs during launch and re-entry operations
- Improved ability to respond to non-nominal scenarios in a manner that addresses the potential hazards to public safety

Outlook

- Improve situational awareness and safety
- Enable efficient operation of an increasing number of commercial launch and re-entry operations
- Develop interoperability of global air and space traffic management systems
- Develop the digitalisation/automation of spaceflight planning and monitoring processes



Parties involved

DLR Institute of Flight Guidance
FAA Office of Commercial Space Transportation

Facts and figures

- The number and type of commercial space launches and re-entry operations is continuously increasing at a global level
- Initial attempt by the FAA and DLR to share their unique capabilities using the Commercial Space Integration Lab and Air Traffic Validation Center, located in the USA and Germany respectively
- Leverage existing international data standards and infrastructure by using a data exchange approach based on System Wide Information Management (SWIM)

COMMERCIAL SPACE INTEGRATION INTO THE AIR TRAFFIC SYSTEM

Interoperable data exchange for safe and efficient launch
and reentry operations

The FAA and DLR are cooperating on a demonstration that will exchange launch and re-entry data to determine the usability of the exchange process within the global airspace environment. This joint activity is aimed at facilitating improved situational awareness, allowing ANSPs to respond as necessary in the event of a launch or re-entry failure. Through a series of operational scenarios, the exchange of launch and re-entry vehicle data will be demonstrated and the effectiveness of the exchanged data will be assessed for non-nominal events during a launch to orbit or re-entry from orbital operations. The demonstration's technical solution will utilise System Wide Information Management (SWIM) core services. The key data parameters will enable information sharing among the various users and stakeholders in the air transport system, allowing for improved accuracy and availability of flight information updates, consistency of flight planning in different Air Traffic Management (ATM) system domains, and safer transition of flights between the affected domains.