MECHANISMS SUPPORTING IMPROVED MULTI-STAKEHOLDER COORDINATION OF LAUNCH AND RE-ENTRY TRAFFIC INTEGRATION

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Abstract: When designing future spaceport infrastructures, attention must be paid to changing constraints for operation and design. In the future, many spaceports will have to support multiple launcher types that vary in their operational constraints and requirements. On the part of the spaceport operator, this will make cost-effective and efficient use of resources even more challenging. At the same time, a higher launch frequency and therefore an increased air traffic impact must be assumed. This increases the requirements for an efficient and future-proof design of the airspace integration processes as a function of future Launch Range Facilities. DLR has started the development of a Launch Coordination Center (LCC) to provide services for efficient integration of launch and re-entry operations into the air traffic system for spaceports of all kinds. In addition to optimizing planning processes for reconciling the operational requirements of air traffic operations and space missions, the LCC aims at an efficient exchange of information between the stakeholders involved. This applies not only to the planning phase but also to optimal real-time networking between launch and re-entry operators, spaceports, air traffic control facilities, and other authorities in the execution phase. Crucial for this are functions for real-time data exchange in nominal and non-nominal operational situations in order to be able to react quickly and effectively to disruptive events. With the LCC, DLR is not only developing a contribution to safe and efficient operations, but is also creating the basis for future optimized concepts to minimize the impact on air traffic by increased launch and re-entry activities. A Concept of Operations envisaged for the described purposes has already been drafted and is going to be discussed with national and international stakeholders. The implementation concepts and mechanisms of action are presented and an outlook is given on future optimization strategies with which economically sustainable spaceport operations can be ensured against the background of shared use of airspace.