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Quality and safety, a challenge for traditional and new space (1)

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THE MAIN STAKES OF THE CNES'S SAFETY POLICY FOR SPACE OPERATIONS

Abstract

CNES, the French space agency, is involved in the development and exploitation of orbital systems, launch systems, balloons and launch range in French Guyana (CSG). Safety is at the heart of CNES's concerns and safety is a strong value shared among its staff which is embedded in all actions and missions. Furthermore, CNES is entitled by the French government to control the application of the French Space Operations Act which one of the main objectives is to ensure the protection of people, assets and environment for the space operations conducted from the French territory (launch or spacecraft operations) or by the French space operators. In order to fulfill the safety objectives, rules have been issued which are the core of the order of the technical regulation and the order regulating the operations at CSG facilities. However, the CNES commitments, the code of conduct of the staff and the main adopted principles for the operational procedures in order to keep the safety of space operations as a paramount value are the topics of the CNES's Safety Policy

The Safety policy principles which are applied to secure the launches at CSG, the spacecraft operations in orbit and the balloon releases, are shortly described in this paper. Examples are given showing the success of this policy since no injuries or damages on assets and environment have been recorded for more than 50 years of operational experience, even for the critical flight ARIANE 5 VA241. This success is the results of sustained adaptation of this policy taking into account the experience gained in managing tough operations and improving the safety. If this policy is satisfying for the present space activities that CNES is managing, new stakes are to be considered, induced by new space practices or new actors, that could have an impact on the safety policy and the rulings, as, for examples, the flight back of launchers stages for reusable launchers, small launchers by private operators at CSG, the management of constellations, the use of nuclear loads in spacecraft, the operations of High Altitude Pseudo Satellites (HAPS). This paper presents the progress of the thinking in CNES on the safety principles that could be adopted.