

IAF SPACE OPERATIONS SYMPOSIUM (B6)
Mission Operations, Validation, Simulation and Training (3)

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THE CDO : AN INNOVATIVE, FLEXIBLE AND MODERN OPERATIONS CONTROL CENTRE FOR
EUROPE'S SPACEPORT, FRENCH GUIANA : GROUND SYSTEM ARCHITECTURE, RESILIENCE
& OPERATIONAL EXCELLENCE

Abstract

The CSG, Europe's Spaceport in French Guiana was granted major financing from ESA and CNES at the ESA's Council Ministerial Level in 2019 in order to implement crucial largescale renovations and modernization of the launch base. With the arrival of ARIANE-6 VEGA but also new launchers such as CALLISTO SPACERIDER, the core launch range must be renewed to be capable of offering game-changing flexible and attractive services. The financed program is called "Core Launch Range Renewal" (CLRR).

The CLRR has 6 components, including the new Launcher Tracking Flight Safety Operations Control Centre (known as the CDO). The CDO, will group all of the CNES operators involved in the ground operations, within a dedicated state of the art 4 story building, including 12 operations centres and two dedicated datacenters. The ground segment system has been completely redesigned, allowing flexibility within operations, by introducing automation of configuration and validation operator tasks.

The CDO-BLA (ground software segment) brings with it a state of the art ground system architecture and an innovative Simulator called STONES (Simulator Training Operational Numerical Environment System).

The ground system architecture of the CDO BLA introduces technical solutions providing high-scale flexibility for campaign operations intrinsic resilience of the ground segment. The simulator digitally emulates complex external equipment such as the launcher, radars telemetry antennas, providing operators with a life-like launch environment. For each campaign, operators will be able to perform training but more importantly qualify the CDO configuration ready for a launch, carry out maintenance all of which in parallel to different operations, without having to connect to external interfaces. The aim is to be able to reconfigure le CDO, between 2 launches, within 2 working days whilst aiming for operational excellence !

Final paper content

This paper presents the new Operations Centre being developed at Europe's Spaceport in French Guiana, a game changer for providing a flexible and open spaceport for existing and upcoming launchers. The article will illustrate the concepts, the organisation in the new dedicated building, state-of-the-art ground system architecture and its innovative simulator "STONES". These concepts provide continuous interactive operator training, ensuring operating capacities to perform reliable, timely and resilient operations with a high-level of operator experience.