

Ground-Based Preparatory Activities (11)
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CNES EXPLORATION CONTRIBUTIONS AND ITS FOCSE FACILITY TO SUPPORT
OPERATIONS AND INNOVATION

Abstract

In 2017, CNES has enforced its visibility and ambitions in Scientific exploration programs by creating the FOCSE (French Operations Centre for Science and Exploration) center. FOCSE groups all the Science Operations activities, including ground segment development, operations and data valorization for the domains involved in the Scientific exploration including Astrophysics Fundamental Physics, Planets, Small bodies Solar Physics and Human Spaceflight (Nutrition, Healthcare, Life Science, ...). This gives an advantage increasing synergy and commonalities between the different missions and allowing operational people to focus only on what makes each mission original and specific.

FOCSE integrates the CADMOS Centre created in 1993, the COMS (Planets Mission centers), Astronomy Solar systems mission in order to implement a synergetic merge of science in astronomy, solar systems, microgravity and space exploration (robotic and manned). As an example of synergy, we will present the FOCSE Moons small bodies facility that will be set up for Cubesats activities within the frame of ESA's planetary defense HERA mission and also in support to JAXA's MMX mission. This effort will capitalize on our expertise based on our contributions to Rosetta/Philae and Hayabusa2/Mascot on Mission Analysis and visualizing tools to support Scientific activities. We will also present the Spaceship project that has started in coordination with ESA to contribute to the development of technologies for exploration.

More recently, CNES proposes to set up a new innovation Lab facility, based on an immersive and open facility for innovation on exploration technologies. Technologies of interests have been identified and will be developed with our partners and also with new actors, in order to allow dynamic spin in and spin off approaches for Exploration technologies. Thanks to this new facility, CNES will provide technical means to create new, innovative, disruptive systems, gather assets from Research, Universities and Industries (from startup to large industrial group) into the same melting-pot, foster collaboration between partners and CNES experts in all space sciences/technologies and operations and join international network of spaceships.

The CNES roadmap on Science is defined, the Technological part of this roadmap will be expanded with new Technological opportunities. The proposed paper will present an overview of the CNES strategy and how we implement it on a kind of "DevOps" approach to accelerate and innovate as much as possible, including also a digital factory platform, with the main idea to federate to the network of French

Exploration actors (means and expertise) to enforce synergies with ESA and international partners in order to contribute to future Exploration missions.