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CADMOS, THE FRENCH USOC: AN OUTLOOK ON NEW PROSPECTS AFTER A QUARTER  
CENTURY HISTORY.

**Abstract**

It was 1993 when the Centre National d'Etudes Spatiales (CNES) created CADMOS, the French acronym for Centre d'Aide au Développement des Activités en Micropesanteur et des Opérations Spatiales. It was created as a CNES department to perform and promote all the activities linked to human spaceflight and microgravity science. CADMOS activities started with three nominal flights on-board of the Russian Space Station MIR and continued on-board of the US space shuttle.

When in 2001 ESA started looking at the future organisation for the incoming European human spaceflight and microgravity operations, CADMOS was selected as one of 9, at that time, European USOCs (User Support Operations Centre). CADMOS was recognised for its specialisation in human physiology and as responsible either for the European Physiology Module (to be uploaded on-board of the ISS) and almost all the related operations.

In the last fifteen years, CADMOS has promoted a growing expertise in the human physiology applications, has established and successfully operated new bilateral collaborations, has seen new payloads assigned and the starting of a new developing field in fundamental physics within ACES operations. CADMOS was also assigned with new payloads operations in the frame of fundamental and material science for the long-lasting Plasma-Kristall experiment reaching the version 4.

In occasion of the roll out of the PROXIMA mission in 2014, associated with the French Astronaut Thomas Pesquet, CADMOS took the initiative of preparing several payloads and experiments to be operated during the 6-month flight. To prepare PROXIMA mission, CNES/CADMOS conceived and carried out 7 experiments with associated payloads, ranging from human physiology to life support and fluid mechanics. This development was accomplished by using a highly integrated environment with an agile approach.

The PROXIMA mission results showed that this strategy allowed to reach a very high pay-off in terms of return on investment and achievement of the targetted goals. Furthermore, these results give an outlook on possible ways for approaching future activities.

This paper provides a complete and clear view of the lessons learnt during the first 25 years of CADMOS. It synthesises all the underpinning processes which have been put in place to successfully accomplish the operations. All this within a largely evolving world as the human spaceflight and ISS are.

Finally, it provides an exhaustive view on the evolution scenarios which are now under discussion to increase the scope of CADMOS within the European contribution to human spaceflight