

Carrying out physiology experiments

MEDES supports the teams at CADMOS (the centre for the development of microgravity applications and space operations) in the preparation of experiments concerning physiology and medicine that require a microgravity environment.



What are CADMOS's objectives ?



Preparing and performing microgravity experiments

A wide range of experiments in physiology, biology, neurosciences, fluid physics, materials sciences and technology are performed on board the International Space Station (ISS) or in unattended capsules.

Cadmos, the centre for the development of microgravity applications and space operations, was formed by CNES in 1993. This centre is responsible on the ground for planning, organizing and monitoring microgravity missions.

Cadmos's chief mission is to help the scientific community prepare experiments. To this end, it takes part in the experiment selection process, aids feasibility studies, writes operational procedures and handles mission planning.

Once experiments are aloft in space, Cadmos monitors science operations. For crewed spaceflights, it serves as the point of contact between astronauts and the science and engineering specialists keeping track of experiments in real time.

Once the mission is over, Cadmos is responsible for collecting and archiving science data and disseminating them to users.

Cadmos not only implements experiments developed by CNES, it has also been selected by Esa as one of 9 USOCs to provide back-up to users conducting experiments on board the ISS.

Cadmos tests and validates procedures on ground models of flight equipment and can also train crews. As a USOC, it also controls flight model operations, uplinking of commands and data reception.

How MEDES works with CADMOS ?



MEDES provides CADMOS with its competence in physiology and biomedical engineering. Eight MEDES specialists have been seconded to CADMOS and are currently working on the European Physiology Model (EPM) for the Columbus laboratory.

The EPM is a multidisciplinary research tool that offers scientists the possibility of studying human physiology in microgravity conditions.

It can support experimental protocols in the following fields:

- * the cardiovascular system,
- * the neurosciences,
- * the muscles,
- * bone metabolism,
- * muscular physiology (muscular atrophy),
- * endocrinology.

What MEDES engineers do at CADMOS

The mission of CADMOS is to define, develop and carry out experiments in **microgravity**.

For these experiments, the MEDES team at CADMOS is responsible for:

- * overseeing development of the equipment,
- * conducting pre- and post-flight examinations of the astronauts, with the CADMOS scientists,
- * astronaut training (going through the experiment's "flight procedure"),
- * real-time operations at the CADMOS control centre.

CADMOS recently launched a brand-new Web site, relating the history of CADMOS, its role, the nature of its work, the experiments it carries out, etc.

For a fuller description of CADMOS and its activities, visit its website: [http://!\[\]\(e474458956c9a37fbf9586ddb60a7fa1_img.jpg\)cadmos.cnes.fr](http://cadmos.cnes.fr)