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E-USOC AND THE GEOFLOW EXPERIMENT OPERATIONS

**Abstract**

E-USOC is the Spanish User Support and Operations Centre, one of the ten similar centres distributed at different locations in Europe. These centres perform the operations of experiments on board the Columbus Module, the main contribution from the European Space Agency (ESA) to the International Space Station (ISS).

The first mission for E-USOC on the Columbus laboratory consists of executing the GeoFlow experiment, inside the Fluid Science Laboratory (FSL). This experiment studies the movement and behaviour of a fluid contained in between two concentric spheres, representing the geophysical fluid inside the Earth. Interferometry images of the processes in the fluid are taken to be studied afterwards.

The GeoFlow Experiment Container was launched on Space Shuttle Atlantis with the Columbus Module and will be installed inside the FSL by a member of the ISS crew. Once placed in the facility, E-USOC operators will use telepresence to operate the experiment from their control room: Telecommands will be sent to control the different GeoFlow subsystems, and telemetry and scientific images from the experiment will be received.

Achieving successful results from the experiment is a challenging mission, starting in March 2008 and continuing until October 2008, when the GeoFlow Experiment Container will be removed from the FSL rack and stowed for its return to ground.

The paper will present a general description of the project, address the preparation and execution of such a complex mission and provide an overview of the activities and responsibilities of E-USOC. Furthermore, it will describe the cooperation between the international partners and present the lessons learned from this project.