

MICROGRAVITY SCIENCES AND PROCESSES (A2)
Microgravity Processes onboard the International Space Station and Beyond (7)

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UTILIZATION OF THE COLUMBUS FACILITIES BIOLAB, EMCS, PCDF, CARDIOLAB, FSL & MSL

Abstract

The launch of Columbus in February 2008 to the International Space Station marked the beginning of a new European area in the utilization of the permanently available low gravity environment of the ISS.

During a period of transition from the timely limited access to microgravity, ranging from days to a few weeks during Spacelab Missions and with free flying capsules, ESA prepared already for this new phase with the installation of the Material Science Glovebox MSG, the Minus Eight Degree Freezer MELFI and the European Modular Cultivation System EMCS inside NASA's DESTINY module. With these 3 European build facilities in orbit from July 2006 onwards, a complete laboratory for material science and gravitational biology was available. Operations were performed in close cooperation with NASA.

After the arrival of COLUMBUS with the automated Biology Laboratory BIOLAB, the Protein Crystallization Diagnostics Facility PCDF, the European Physiology Modules Facility EPM with the Cardiolab Instruments, and the Fluid Science Laboratory FSL, Europe moved on to a next phase of autonomous operations of their microgravity facilities.

Astrium contributed to all of the above mentioned facilities as well as to the later added Material Science Laboratory MSL and is via the Industrial Operator Team IOT also responsible for the operational planning, implementation and execution of the related experimentation.

The presentation will focus on the status of the facilities and the gained experiences and results after the execution of the first experiments.