

Columbus Completes Development

The Mission Manager's Perspective

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Introduction

Europe's key research contribution to the ISS is the Columbus laboratory module, planned for launch with its payload aboard Shuttle assembly Flight 1E in late 2006. Getting ready for 1E involves preparing four major elements:

- the Flight Segment of the module and its payloads;
- the Ground Segment of the Columbus Control Centre (COL-CC) and the User Support Operations Centres (USOCs);
- the operations procedures and products;
- the crew training.

The tragic loss of Shuttle *Columbia* in February 2003 caused shockwaves throughout the Shuttle and Station schedules, and Columbus has been severely affected.

Readiness of the Flight 1E Elements

The Columbus module, under the prime contractorship of EADS-ST in Bremen (D), has passed its Qualification Review 1 (QR1) and is now finishing its test campaign to support the Final Qualification Review in September-October. At launch, Columbus will be carrying four research rack facilities inside: Biolab, the European Physiology Modules (EPM), the Fluid Science Laboratory (FSL) and the European Drawer Rack (EDR); plus two external payloads: the European Technology Exposure Facility (EuTEF) and the SOLAR observatory. The

Shuttle will carry the last two in its cargo bay for installation by EVA on Columbus once at the Station.

The Columbus Control Centre, being built under DLR prime contractorship in Oberpfaffenhofen, has passed its System Design Review 2, and the Qualification Review is planned for September.

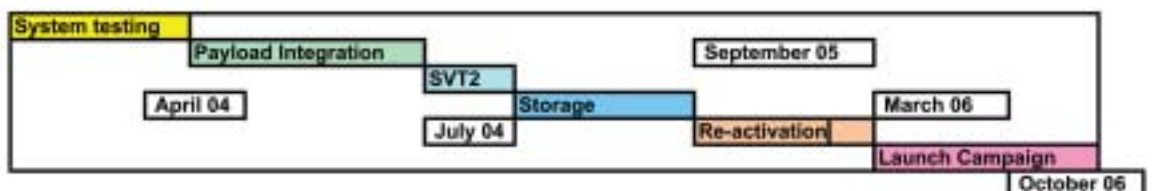
The USOCs are a set of decentralised centres that will each operate an individual rack in Columbus. The initial four will grow to five when Columbus is fully operational. Their development recently began under ESA contracts with the host national agencies.

Preparing for 1E flight operations is the responsibility of DLR at Oberpfaffenhofen, including control procedures, displays, handbook flight rules, training operators and conducting simulations.

Columbus crew training is led by the European Astronaut Centre in Cologne (D), in conjunction with prime contractor EADS-ST (Bremen). The work

For the first time, all the elements of Columbus are together for combined testing ...

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The latest Columbus schedule.

