

SPACE OPERATIONS SYMPOSIUM (B6)
Human Spaceflight Operations (1)

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ASI PARTICIPATION TO THE INTERNATIONAL SPACE STATION OPERATION SUPPORT FOR
THE MPLM AND PMM SUSTAINING ENGINEERING**Abstract**

Italian Space Agency (ASI) provided to NASA three Multi-Purpose Logistic Modules (MPLM) and the relevant technical and operational support as stated in the Memorandum of Understanding signed in late 1997. In the frame of this agreement NASA and ASI have concurred later, in February 2010, to modify one of three MPLM modules (FM-1 namely Leonardo), for the permanent installation on International Space Station (ISS). This module, called Permanent Multipurpose Module (PMM), docked to ISS on March 2011, has improved station stowage capability.

Since MPLM and PMM were placed in a service on-orbit for short and permanent missions, the need to provide sustaining engineering by ASI, as ISS International Participant, became fundamental to ensure the proper on-orbit functionality of all subsystems.

Advanced Logistics Technology Engineering Center (ALTEC) was delegated by ASI as sustaining engineering center for the support of MPLM/PMM missions and PMM permanent operations.

The experience gathered in several years of ground processing and flight preparation activity gave ALTEC the capability to support the nominal and non-nominal on-orbit operations, anomalies resolution for successful short and permanent missions, being fully compliant with crew safety rules.

This paper, outlining the major activities performed on MPLM/PMM sustaining engineering in which ALTEC played a key role, will describe the relevant aspects of the Italian engineering support to the ISS on-orbit operations and share all the experience learned for future benefit related to the space infrastructures in terms of on-orbit operation support.