## HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3) ISS Operations and Utilization (3)

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## THE IMPLEMENTATION OF TWO YEARS OF ESA UTILISATION OF THE ISS

## Abstract

The ESA Columbus module has recently celebrated its second year in orbit and will reach its full laboratory configuration this year. After its commissioning, the laboratory became operational with the performance of the first experiments in the Fluid Science and Biology domains and now it is an operational multi-disciplinary research facility and technology test bed including ESA and NASA facilities.

Several experiences were gained in these first two years of operations; both at a European level and in the field of international cooperation.

This paper represents a summary of accomplishments with lessons learned and experiences gained since Columbus started to operate. The paper is not limited to Columbus utilization, but encompasses joint scientific operations activities performed both with NASA, ROSCOSMOS, CSA and, soon, with JAXA.

In conclusions, some considerations on the extension of ISS utilization operations beyond 2015 and Shuttle retirement will be reported.