

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

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SCIENTIFIC PAYLOAD IMPLEMENTATION ONBOARD THE INTERNATIONAL SPACE STATION

Abstract

There are hundreds of scientific payloads currently onboard the International Space Station (ISS). Each one has been developed, integrated, launched, and installed into this unique free-falling orbiting laboratory by one or more of the partner agencies from Europe, Japan, Canada, Russia and the United States. These development and preparation activities can begin several years before flight and may include announcements of opportunity, proposals, development and ground experiments, and selection for flight on the ISS. This paper focuses on the nine month period beginning approximately three months before flight and extends through a six month flight during a designated Research Increment. About two months before an Increment, an On-Orbit Operations Summary (OOS) is built using activity/time models for required operations and key events, such as crew rotation, cargo arrival, and EVA's, to anchor the schedule. The OOS building exercise produces a day-by-day schedule for the six month duration. The OOS is then used as a starting point to condense to a more manageable set of requirements, including prioritization of scientific payloads. This more manageable set is then continually maintained throughout the execution phase so that at any time it is quite easy to quantify and characterize the remaining requirements and respond to program questions regarding impacts to unexpected onboard developments or failures. This paper will also include lessons learned and recommendations for future ISS Research Increments.