

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

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ISSUES AND SOLUTION KNOWLEDGE FROM ISS/KIBO LIFE SCIENCE EXPERIMENT
OPERATIONS

Abstract

The life science experiments operations conducted in Japan Experiment Module (JEM) 'KIBO' so far are outlined briefly. 'KIBO', which means 'hope' in Japanese, is the largest science module in the ISS, and has been providing great opportunities to perform long duration life science experiments in space. In 2009, cell incubation, plant cultivation, and animalcule growth experiment were held in SAIBO rack which contains Cell Biology Experiment Facility (CBEF) and Clean Bench (CB).

Operations life cycle of the life science experiments in KIBO will be presented. Life science experiments in KIBO are led by the payload's flight controller teams; JEM-Payload, JPOC and 'BIO' from Tsukuba Space Center (TKSC).

Issues of the life science experiments operations and some solution examples are described. It is desired that the solution methods could help to propose new ideas for some malfunctions. Clearly-stated operations rules, enough training, carefully written and checked procedures and scheduling must be needed for mission success. BIO often required expeditious and accurate judgments in real-time operations because living samples have a critical time limit if they were exposed to inappropriate environments. Some unique solution methods using common stuffs are advanced by BIO for problems.

Life science experiments in the ISS will generate great contribution to the progress of manned space programs. All operational knowledge should be shared among international parties.