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COMMERCIAL OPERATION AND TRAINING: PREPARATION AND EXECUTION OF THE MICROALGAE LIFE SCIENCE EXPERIMENT ON ISS

Abstract

The commercialization of human activities in LEO has increased with the increasing occurrence of commercial flights of astronauts, whether private individuals or astronauts from new space faring nations. In the recent Axiom-3 mission, Space Applications Services and its ICE Cubes Service supported Axiom Space with the development of the Microalgae Life Science, an experiment sponsored by the Turkish Space Agency. Additionally, the ICE Cubes Mission Control Team was in charge of the crew training and operational execution of this experiment. This paper focuses on the aspects of operations preparation and training within this commercial context with and its challenging integration if schedule. It will show how the agile process that was implemented and how personalized design solutions based on Human Factors paradigms were developed, to allow for a more efficient preparation and execution of the operations. While the basic framework of training and operation for commercial crew missions remains consistent, creative solutions have been constantly evaluated, case by case, keeping into consideration the requirements from all partners and organizations involved. The paper will also draw considerations about the way of working in operations and training, that are changing in the era of commercial space, where multiple commercial actors and agencies are collaborating and setting up new processes.