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ASI SCIENCE ON ISS - THE 2017 VITA MISSION

Abstract

Within the frame of a Memorandum of Understanding with NASA for the scientific utilization of the International Space Station (ISS), since 2001 ASI has some exploitation rights. Thanks to this agreement, ASI carried out a number of experiments on board the ISS, mostly in the field of the Life Sciences. In the same memorandum, ASI got the right for flight opportunities for Italian Astronauts, consisting in three STS missions and a long duration ISS missions each five year from the date of first MPLM delivery, with a minimum assured of three. Within the frame above and after the VOLARE mission with ESA astronaut and ITAF Major Luca Parmitano, the FUTURA mission with ESA astronaut and ITAF Captain Samantha Cristoforetti, the forthcoming VITA mission with the ESA astronaut Paolo Nespoli is the third ASI long duration mission on ISS. Paolo Nespoli is a spaceflight veteran; this will be his third flight to the ISS and the second long term duration flight. He will be member of the Expedition 52 and 53 with the role of Flight Engineer. Under the coordination of the Italian Space Agency and with the industrial support services provided by Kayser Italia, a pool of scientists, academic researchers and industries leaders in innovative technological fields are working into the design and implementation of payloads, experiments and scientific protocols in the fields of human physiology, cell biology, countermeasures, physical sciences and technological demonstrations. Following a call for research opportunities, as well as promoting public / private partnership, for this 2017 mission, ASI has selected a total of 11 investigations, involving more

than 15 different institutions and about 30 investigators. In particular, four experiments on cell biology have been selected. Other four experiments are in the field of technological demonstration, one is for Earth observation, one is a human physiology experiment and one is an educational activity involving a university and a high school. The paper briefly presents the investigations relevant to the VITA mission, describing the flight hardware and the services provided in support to the mission integration, ground processing and on orbit operations.