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HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
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MOONWALK – PROTOTYPING THE SPACESUIT HUMAN-MACHINE INTERFACES OF THE
FUTURE FOR TEST IN WATER IMMERSION PARTIAL GRAVITY SIMULATIONS

Abstract

Within the MOONWALK Project, a Human Machine Interface (HMI) prototype is being developed, with the objective of improving the exchange of information of an Astronaut with Mission Control during EVAs, and the situational awareness and autonomy of the Extravehicular Crew. It features procedure

viewing, media transfer, telemetry display, video and audio streaming, voice loop system, robot control through push buttons and gestures, and communications during emergencies. The HMI will also assume 3 possible configurations: a wrist display, a chest display and a heads-up display-, which are implemented for a comparability study. The HMI ought to be fully operational in natural Water Immersion Partial Gravity conditions, i.e. at water depths up to -20 meters, and be operable under the constraints of an exoskeleton spacesuit and gloves mockup. A Mission Control Centre is also being created in Brussels, Belgium, to test the HMI and to support EVA simulations.