

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Astronaut Training, Accommodation, and Operations in Space (5)

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DEVELOPMENT OF THE COSMONAUT REMOTE TRAINING TECHNOLOGY USING LIMITED
COMMUNICATION FACILITIES WITH THE SIMULATION OF WORK IN LONG-DURATION
INTERPLANETARY FLIGHTS

Abstract

The paper presents the results of the “SIRIUS 21” experimental human research involving the specialists of FSBI “Yu.A. Gagarin RT CTC”. The “SIRIUS” international scientific project is designed to conduct critical studies, related to further human space exploration, for developing the preventive measures and technologies to protect cosmonauts/astronauts health in long-duration space missions. The project organizers are the SSC of the RF – IMBP of the RAS and NASA’s Human Research Program. The purpose for the Gagarin CTC’s specialists to participate in the “SIRIUS 21” experimental human research was the development of cosmonaut remote training technology using limited communication facilities with the simulation of work in a long-duration interplanetary flight and assessment of quality of works performed. For the research, cosmonauts’ activities typical for long-duration missions were selected, they are: dynamic modes of controlling the MSV; robotic support of a cosmonaut’s activity; implementation of the research program; maintenance and repair of the onboard systems. The studies conducted provide new knowledge and experimental results that demonstrate the efficiency of operator training using cosmonaut remote training technology to carry out key flight operations under simulated extreme space flight conditions. It is concluded that the use and further maturing cosmonaut remote training technology are quite reasonable. It is shown that obtained results can be used for improving cosmonaut training for

long-duration space missions. The studies were conducted at the SSC of the RF – IMBP of the RAS, Moscow.