

Lunar Exploration (2)
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VIRTUAL REALITY TECHNOLOGIES FOR HUMAN LUNAR MISSIONS PREPARATION

Abstract

According to the strategic documents on space activities of the Russian Federation, the main direction of manned missions after 2030 is the Moon, including the lunar base deployment. At the current stage of medium-term planning of space activities, design of human mission operations on the Moon become more complicated by a large number of different factors, which are difficult to take into account. In addition, there are various approaches and opinions of the expert community that require further clarification and agreement. The objectively determined incompleteness and uncertainty of expert knowledge about space missions to the Moon and planets of the Solar System add difficulty into the traditional system of professional training of cosmonauts in the scope of the methods and instruments of training cosmonauts that are adequate and appropriate to the current goal. It seems relevant to search for new approaches and technologies that will take into account qualitatively different conditions of EVA and new types of crew operations in the Moon exploration in comparison with low-earth orbital missions. It is important to pay attention to the requirements for the human lunar mission scenarios design, including safe utilization of complex space technologies and spacecraft, in order to provide wider opportunities for the upcoming lunar exploration projects. Since there are objective difficulties in placing a person in a real physical environment, which has all the required properties of effects on the human psyche and the human body, as noted above, we can resort to immersive technologies in a virtual environment.