

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 3 (2C)

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POTENTIAL RUSSIAN LUNAR ROBOTIC MISSIONS USAGE SCENARIOS TO SUPPORT FUTURE
MANNED MISSIONS TO THE MOON

Abstract

Within the framework of the Russian Federal Space Program, starting from 2019 there are planned a number of automatic missions to the Moon, that are to begin a new stage of Moon study and exploration. Robotic spacecrafts (RS) "Luna-Glob", "Luna-Resurs-1 (Orbiter)", "Luna-Resurs-1 (Lander)" (main and backup), "Luna-Grunt" launches are planned for this stage. These RSs will not only solve scientific problems, but will also help to develop a number of necessary systems and subsystems. Their platforms will serve as a prototype for new RSs, which will be used not only to prepare for future manned missions, but also to support them. Based on the planned "Luna-Resurs-1 (Orbiter)" and "Luna-Grunt" RSs, orbital and reusable unmanned landing systems can be constructed, that will enhance the effectiveness of manned missions. International cislunar space station Deep Space Gateway (DSG), that is to become a gateway between the Earth, the Moon and the Mars, may be used as an interface between manned and automatic missions on the first stage. In presented report potential lunar robotic and manned missions interaction scenarios are considered with the aim of increasing the scientific efficiency of the tasks being solved, including scenarios of applied and scientific activity on the lunar surface. The program of Moon study and exploration by robotic spacecrafts plays a significant role at this stage.