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

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AN APPROACH TO DEVELOPMENT OF THE LIST OF BASELINE SPACECRAFT TO PROVIDE SUSTAINABILITY OF THE LUNAR EXPLORATION PROGRAM TAKING INTO ACCOUNT CHANGING SCIENTIFIC PRIORITIES

Abstract

Currently all the leading world space powers have declared their intentions to implement missions to the lunar orbit and to the surface of the Moon. The in-depth exploration of the lunar territories is expected to become the main task of the global cosmonautics of the 21st century, addressing this challenge will not only give a boost to growth of space exploration technologies, but will also stimulate a significant science development. The implementation of a comprehensive scientific lunar and deep space exploration program requires development of new spacecraft, both robotic and manned, and new transport infrastructure.

Considering time and cost required for advanced spacecraft development and construction, it is necessary to develop a list of baseline spacecraft which would provide flexibility and sustainability of the lunar research and exploration program; in other words it would allow for effectively solving scientific and technological problems taking into account priorities changing over time.

This paper presents a methodological approach to development of the list of baseline spacecraft of the Russian lunar exploration program, taking into consideration the Earth-Moon transport system – both the existing system and the system under development. The presented approach provides a rationale for a sequence of spacecraft development and enables to set preliminary requirements for them.