Paper ID: 45893
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21st IAA SYMPOSIUM ON HUMAN EXPLORATION OF THE SOLAR SYSTEM (A5)
Human Exploration of the Moon and Cislunar Space (1)

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ORBITAL SPACEPORT – A NEW PROFESSION FOR THE EARTH-ORBIT SPACE STATIONS

Abstract

The success of the near-Earth manned space stations projects and first of all the International Space Station became an incentive for the further development of space exploration. Destinations beyond the Low Earth Orbit such as Moon, Mars and asteroids became the objectives of human spaceflights. Cis-lunar stations are considered as a transportation hub for the deep space missions. Planning to have Deep Space Gateway on the Near Rectilinear Halo Orbit is the subject of much discussion. Manned spacecraft Orion and Federatsiya are under development. They will be launched by heavy launch vehicles from the Earth-based spaceports. They are supposed to be the main transportation systems for the deep space flights.

Studies of the possible ways to reduce the requirements for the launch vehicle mass capacity and to improve the transportation systems efficiency lead to the utilization of a transportation transfer hub on the Low Earth Orbit. The aspects of orbital stations utilization, in particular the ISS, in order to support transportation system which enables transfers between Earth-orbit and cis-lunar orbital stations are reviewed in the paper.