

SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 2 (2B)

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A LUNAR MOBILE PAYLOAD ELEMENT AND OTHER DEVELOPMENTS FOR MOON
EXPLORATION**Abstract**

The new German Space Strategy, which was released in December 2010, puts a clear emphasize on robotic space exploration activities. DLR's Space Administration is reflecting these strategic aims in its actual programmatic orientation, continuing its space exploration efforts with a focus on the Moon. This is implemented via the German participation in ESA-programmes and the National Space Program which also provides for the means for bi- or multilateral cooperation.

The ESA Lunar Lander (LL) activities are continuously and strongly supported as they are fully in line with the national strategic approach. Complementary to the German support for the ESA LL Mission, DLR initiated a feasibility Study for a lunar Mobile Payload Element (MPE) which might become a national contribution payload to the ESA mission or other potential international cooperation. This MPE will be a small robotic technology platform to demonstrate e.g. its autonomous capabilities for navigation, communication and operations like soil sample collection and delivery to the Lander Module. In addition a minimum subset of scientific instrumentation, e.g. to support sample selection, is required.

Besides the ESA LL Mission and the MPE, Germany, respectively DLR, supports a wider scale of lunar and general exploration technology preparations within a variety of grants and contracts e.g. for bi-regenerative life-support systems, regenerative fuel cell and energy systems, in-situ resource utilisation, including the combined utilisation of advanced technologies for the purpose of habitation. Some exploration instrument developments/contributions for potential cooperation in context with international exploration missions have been further developed. Several automation and robotics studies have been continued or newly initiated throughout the last year, improving the availability of critical technologies and their technology readiness level.

DLR continued its active role within the International Space Exploration Coordination Group. The membership to the International Lunar Network has been complemented by a bilateral framework agreement with NASA and the membership to the NASA Lunar Science Institute.

The paper will provide the actual status and results of the ongoing studies for lunar exploration and technology developments. The programmatic orientation with respect to Moon exploration of the ongoing DLR Space Administration's exploration activities within the new strategic framework from government will be explained.