

Space Science Support in Moscow State University of Geodesy and Cartography (MIIGAiK). M. Semenov¹, J. Oberst^{1,2,3}, V. Malinnikov¹, K. Shingareva¹, A. Konopikhin¹, A. Grechishchev¹, I. Karachevtseva¹, F. Shkurov¹.
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Introduction: On April 2010 the Government of Russian Federation issued a proposal call to attract leading international scientist to Russia who would develop and support research capabilities of national educational institutions. Following this competition (more than 500 proposals submitted and 40 selected) Moscow State University of Geodesy and Cartography (MIIGAiK) and invited scientist Prof. Dr. Jürgen Oberst were awarded a grant to establish a capable research facility concerned with “Planetary Geodesy, Cartography and Future Exploration”.

Objectives: The goals of the project are to build laboratory infrastructure, and suitable capability for MIIGAiK to participate in the planning, execution and analyses of data from future Russian planetary missions. Other important tasks are to develop an attractive work place and job opportunities for planetary geodesy and cartography. Young scientists and students should obtain practical training on computer operating system, programming language and relevant software applications. For this purpose was organized new MIIGAiK Extraterrestrial Laboratory (MExLab). We involved professors, researchers, PhD students in to the projects of Moon and planets exploration for the new level of Russian Space Science development.

Main results: MExLab team took part for mapping of the landing sites of the Phobos-Grunt mission (Fig.1) and prepared data for upcoming Russian space missions, such as LUNA-GLOB and LUNA-RESOURSE.

We also carry out science analyses of data from current international space missions (Mars Express, Cassini, and Lunar Reconnaissance Orbiter). We established cooperation with Russian and international partners (IKI, ESA, DLR, and foreign Universities) and actively participated in international conferences and workshops. Also on the base of the MExLab in 2011 we make a Europlanet Workshop on Planetary Geodesy and Ephemerides. Our team worked on the new Phobos control point network, carried out compare the USSR and USA coordinate systems of the Moon, had preparing data for the new maps of Io and Enceladus.

Future works: For the future science development we investigated the old Soviet Archives and received the access to the telemetry data of the Moon rovers Lunokhod-1 and Lunokhod-2. That data will be used in education purposes and could be the perfect base for the analysis, development and support in new Russian and international missions and especially Moon exploration projects. MExLab is open to cooperate and make the consortiums for science projects for the Moon and planets exploration.

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References:

- [1] <http://www.miigaik.ru/eng/>;
 [2] <http://europlanet.miigaik.ru/en/>

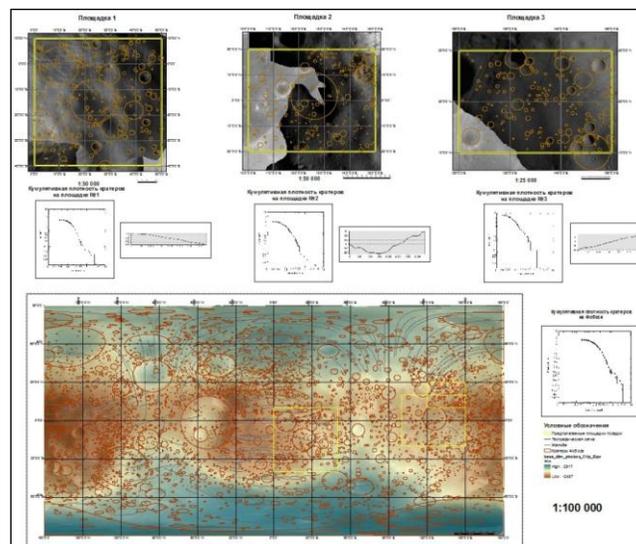


Figure 1. Map of candidate landing sites prepared in MExLab by MIIGAiK high school students for cartography support of Phobos-Grunt mission