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Cryogenic delivery and studies of lunar polar regolith on board of Lander

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Analysis of technical aspects of installation and operation the Cryogenic Drilling Complex onboard of Lunar Lander provides. Goal of Complex is regolith sampling from the depth of more than 2 meter below the surface.
Such Complex will take samples of soil not contaminated by products of combustion of propellant from Lander' engines and with maximum possible preservation of its structure, composition and temperature.
Comparison of domestic and foreign experience of development of such devices is presented, the appropriate technical and design limitations overall size, mass and functional characteristics of the drilling complex for Russian lunar mission «Luna-Resource» are proposed.
Methods and instruments for the study of composition of the samples and volatiles content in regolith are described, including screening devices onboard Lunar Polar Sample Return mission for selecting a samples for delivery to the Earth and investigations “in situ” in the earth's laboratories.