

PHOBOS SAMPLE RETURN MISSION. A. Zakharov and Project Science-Design Team, Space Research Institute, Profsoyuznaya 84/32, Moscow, 117997 Russia, zaharov@iki.rssi.ru

The Phobos Sample Return mission (Phobos-Soil) is under development now by the Russian Academy of Sciences and the Russian Space Agency. One of the main goal of the mission is the delivery of the Phobos surface material to the Earth for laboratory studies of its chemical, isotopic, mineral composition, age, etc. Besides, the spacecraft payload includes an extended set of scientific instruments: panoramic camera, gamma and neutron spectrometers, gas chromatograph, mass spectrometers, IR spectrometer, seismometer, dust sensor, stars and solar tracker, plasma package for “in situ” studies of Phobos (regolith, internal structure), and investigations of the Martian environment (dust, plasma, fields).

The drive for Phobos investigation is strongly supported by the need to understand the basic scientific issues related to the Martian moons both as the representatives of the family of the small bodies in the Solar system and as principal components of the Martian environment: primordial matter of the Solar system (what many believe they are). We want to study the characteristics of the Martian satellites, peculiarity of the proper and orbital motion, and understand their origin what may give a clue to the formation of satellite systems of the other planets.

Scientific problems of the Phobos studies, goals of the mission, as well as its mission scenario are described in the paper.