

PRIMITIVE BODY SAMPLE RETURN MISSIONS

T. Duxbury (JPL, Pasadena, CA 91 109)

A. Galeev, V. Moroz and A. Zakharov (IKI, Moscow, Russia 117810) R. Kremnev, B. Martynov and O. Papkov (Babakin Center, Himki, Russia 1414000), Yu. Surkov and A. Basilevsky (GEOHI, Moscow Russia 117975), E. Akim and M. Marov (IAM, Moscow, Russia 125047)

Opportunities exist to launch a PHOBOS spacecraft using a PROTON launch vehicle to go to an asteroid, comet or small satellite such as Phobos or Deimos and bring back a sample from the surface. Such a Sample Return Mission is not only of the highest scientific importance for the return of a sample from a primitive body but provides an early testbed for the technology development needed to support a Mars Sample Return Mission and Mars Human Exploration. The primitive body missions can be flown earlier and easier because the small bodies have neither a significant gravity nor an atmosphere as Mars to contend with for landing and departure. The analyses of a sample returned to earth, expected to be about 0.5 kg, can under-go the most complex and widely varying laboratory investigations which would be unlimited as compared to what can be done in-situ, as was the case for the Lunar samples. A significant complex of remote sensing and in-situ scientific instruments can be accommodated using the PROTON / PHOBOS spacecraft combination. The mission and scientific objectives, a strawman list of scientific remote sensing and in-situ instruments and opportunities for international cooperation are described.

CORRESPONDENCE:

Thomas C. Duxbury
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109, USA
Phone: (818) 354-4301
Telefax: (818) 354-0966
Email: TDuxbury@naif.jpl.nasa.gov
B1.5-S: Future Space Missions to
Primitive Bodies
MSO: G. Schwehn (FRG)
SPECIAL EQUIPMENT: None
PRESENTATION: Oral