

HUMAN EXPLORATION OF THE MOON AND MARS SYMPOSIUM (A5)
Going Beyond the Earth-Moon system: Human Missions to Mars, Libration points, and NEO's (4)

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A CHEAPER PROGRAM OF MARS EXPLORATION

Abstract

Mars exploration program is the focus of human exploration of deep space at present. This paper describes an independent program of Mars exploration based on the technologies of Mars satellite "Yinghuo-1". The probe consists of orbiter, propulsion stage and two hard-Lander, with the key scientific objectives of researching the detailed distribution of subsurface water-ice, the signs of life and the evolution of atmosphere on Mars. It will be launched directly into the escape orbit by rocket. The trajectory correction during cruise segment and the braking near Mars will be carried out by propulsion stage. When the probe flies around Mars on the science orbit, the hard-Lander will be separated one by one, with a fifteen days interval and the Lander data will be relayed to Earth by the orbiter. After the end of Lander' life, the orbiter, separated with propulsion stage, will complete all the science targets within two years. The telemetry nets of the entire flight are made up of the near-Earth networks, Deep Space Tracking networks and VLBI networks. This exploration program has some advantages of multi-task, adaptable, cheaper and so on.