

FIRST PLANETARY ROCK CORING IN OUR SOLAR SYSTEM ESA 2003 BEAGLE 2 MARS MISSION. T.C. Ng, K.L. Yung, C.H. Yu, C.C. Chan, holinser@vol.net, Micro End Effectors Team, The Hong Kong Polytechnic University.

Introduction:

In 2003, ESA will send a lander to Mars for exobiological exploration. There are three kinds of sampling techniques as follows:

Sampling Tools:

1. Rock Coring for retrieving 100 mg of rock powder. It is the smallest and lightest corer ever designed for planetary sampling .Size of a cigarette pack ; weights 370 gm; consume 3 watts of energy ; able to core/ grind / drill ; sample of core or powder .
2. Mole Subsoil Sampling for retrieving 20mg of soil under the surface. The mole sampler is fitted at the tip of the Russian mole; utilizes the existing mechanical energy of the mole to open/close of the sampling jaws.
3. Scooping for retrieving 40 mg of soil on Mars surface. It is an additional sampling device in case the corer and mole do not work.

All tools are able to deliver samples into GCMS for in situ analysis.

Discussion:

After the 76' Viking mission, scientists realized that the secrets of Mars are hidden inside the rocks or soil beneath the surface of Mars. The sampling tools onboard the Beagle lander stand a reasonable chance to unlock the mystery of exobiology on Mars. www.hkmars.net

* The sampling techniques must be explained by ORAL PRESENTATION only.