

Friday, March 21, 2003
FUTURE MARS AND ASTEROID MISSIONS,
DATA, AND LANDING SITES
8:30 a.m. Salon C

Chairs: B. C. Clark
M. W. Schaefer

Clark B. C. *

Sterilized Sample Return: Breaking Through the Mars Science Barriers [#1797]

Without return of samples from Mars, the progress in understanding this enigmatic planet may be stymied. Innovative approaches, such as in-space sterilization and/or missions such as SCIM and Gulliver, allow affordable and timely sample return.

Wang A. * Kuebler K. E. Jolliff B. L. Haskin L. A.

Fe-Ti-Cr-Oxides in Martian Meteorite EETA79001 Studied by Point-Counting Procedure Using Raman Spectroscopy [#1742]

Although Fe-Ti-Cr-Oxides are weak Raman scatters, their identification, proportions and chemical features in a Martian meteorite are revealed by a Raman point-counting procedure, as a simulation for *in situ* mineral characterization.

Sallé B. * Vors E. Lacour J. L. Rivoallan A. Fichet P. Fabre C. Dubessy J. Maurice S.
 Wiens R. C. Cremers D. A.

Laser Induced Breakdown Spectroscopy on Mars: Elemental Composition Study at Different Distances [#1578]
 MALIS (Mars Elemental Analysis by Laser Induced Breakdown Spectroscopy): elemental composition study at stand-off distances up to several meters.

Stein T. C. Arvidson R. E.

FIDO Analyst's Notebook: An Approach to Integrating Science Data for Rover Mission Playback [#1911]

The FIDO Analyst's Notebook is an online resource that serves as the primary data archive and provides a mechanism for "playing back" FIDO rover field trials held between Oct 1999 and Aug 2002. Science data and documentation are integrated into a standard interface for easy browsing and retrieval.

Bell J. F. III* Squyres S. W. Herkenhoff K. E. Maki J. N. Schwochert M. Dingizian A. Brown D.
 Morris R. V. Arneson H. M. Johnson M. J. Joseph J. Sohl-Dickstein J. N. Science Athena Team

The Panoramic Camera (Pancam) Investigation on the NASA 2003 Mars Exploration Rover Mission [#1980]

The Panoramic Camera System (Pancam) is a stereo, multispectral CCD camera system that is part of the Athena science payload to be launched to Mars in 2003 on NASA's twin Mars Exploration Rover (MER) missions.

Griffiths A. D. * Coates A. J. Josset J.-L. Paar G. Sims M. R.

The Scientific Objectives of the Beagle 2 Stereo Camera System [#1609]

The Stereo Camera System provides the primary imaging capability of the Beagle 2 lander. Sensitive to visible and near IR wavebands (440–1000 nm) it is composed of twin camera/filter wheel units. The science goals and basic design are described.

Helbert J. * Benkhoff J.

Thermal Modeling of the near Surface Layer at the Beagle 2 Landing Site in the Isidis Planitia Region [#1819]

A study of the thermal properties of the surface at the Beagle 2 landing site in the Isidis Planitia basin, using the newly developed Mars Surface Layer Thermal Model (MaSLaTMO). Some implications for the burial depth of possible subsurface ice are discussed.

Ng T. C. * Yung K. L. Yu C. H. Chan C. C.

First Planetary Rock Coring in Our Solar System ESA 2003 Beagle 2 Mars Mission [#1002]

In 2003, ESA will send a lander to Mars for exobiological exploration. There are three kinds of sampling techniques as follows: (1) rock coring, (2) mole subsoil sampling, (3) scooping.

Schaefer M. W. * Dyar M. D. Benison K. C.

Mossbauer Spectroscopy of Mars-Analog Rocks from an Acid Saline Sedimentary Environment [#1690]

Terrestrial acid saline lakes are suggested as Mars analog environments. Such conditions could result from a sulfur-rich lithosphere coming into contact with shallow, evaporating bodies of water. Mossbauer spectroscopy is used to characterize samples from an Australian acid saline lake.

Werner S. C. * van Gasselt S. Neukum G.

The Erosional History of Athabasca Valles, Mars [#1996]

The Athabasca Valles, Mars, has undergone geological active cycles at least over the last billion years, which were dominated by volcanic processes in the end.

Leshin L. A. * Clark B. C. Forney L. Jones S. M. Jurewicz A. J. G. Greeley R. McSween H. Y. Jr.

Richardson M. Sharp T. Thiemens M. Wadhwa M. Wiens R. C. Yen A. Zolensky M.

Scientific Benefit of a Mars Dust Sample Capture and Earth Return with SCIM [#1288]

The Sample Collection for Investigation of Mars (SCIM) mission proposes to return martian dust to Earth for mineralogical, chemical, isotopic, and other studies. Here we discuss science gained from analyzing such a sample in terrestrial laboratories.

Asphaug E. * Colwell J. Dissly R. Kanizay K. Petr V. Scheeres D. J.

Meteoroid Bombardment and Blast Experiments on Asteroids [#1537]

Cohesion and other soil-mechanical characteristics may dominate over gravity or traditional strength effects in the formation of craters on asteroids. We propose asteroid surface blast experiments to be imaged at high frame rate from rendezvous orbit.

Sears D. W. G. * Scheeres D. J. Binzel R. P.

The HERA Multiple Near-Earth Asteroid Sample Return Mission: Selection of the Target Asteroids [#1047]

The HERA mission aims to return samples from three asteroids. Here, we discuss the criteria used to select the asteroid targets, and the criteria to be used to select target areas on the asteroids.