Tuesday, March 14, 2000
POSTER SESSION I
7:00 p.m.  UHCL

Missions:  Mars

Saunders R. S.
_The Mars Surveyor Program — Planned Orbiter and Lander for 2001_ [#1776]
Rreplanning could affect the 2001 mission. The orbiter will arrive at Mars on Oct. 20, 2001, carrying the
Gamma Ray Spectrometer (GRS) and the Thermal Emission Imaging System (THEMIS). The Lander is
scheduled to land on Mars on January 22, 2002.

Chicarro A. F.
_Mars Express Mission Status_ [#1243]
The current status of ESA’s Mars Express mission to be launched in 2003, including its scientific
objectives and instrumentation for both the orbiter spacecraft and the Beagle-2 lander, will be presented,
together with its mission scenario.

Ferguson D. C.    Hillard G. B.
_MEEC, an MSP 2001 Rover Experiment to Measure Electrostatic Charging in the Martian Atmosphere_ [#1848]
The Mars Experiment on Electrostatic Charging (MEEC), to be flown on the MSP 2001 Marie Curie Rover, is
described. It will measure absolute and relative levels of charging in the Martian atmosphere due to
traverses and dust-laden winds.

Hillard G. B.    Kolecki J. C.    Marshall J. R.
_The Distributed Electrometer Chain (DCE) on the Mars 2003 Lander_ [#1151]
The Distributed Electrometer Chain (DCE) for the Mars 2003 Lander is described.

Thompson T. W.    Plaut J. J.    Arvidson R. E.    Paillou P.
_Orbital Synthetic Aperture Radar (SAR) for Mars Post Sample Return Exploration_ [#1161]
A Mars orbital radar mission would use two frequencies to map the planet at 50 m resolution, penetrating
5-10 m. Some areas will be imaged at 5-m resolution. A 50-m resolution topographic map will be
acquired, and surface changes detected.

Ozorovich Y. R    Linkin V. M.    Smythe W. D.    Stoker C.    Lee P.    Zoubkov B.    Babkin F.
_MARS Electromagnetic Sounding Experiment — MARSES: Comparative Field Exploration on Devon Island
and Other Regions_ [#1253]
MARSES is the sounding instrument developed for searching subsurface water, water-ice or permafrost
layers. Preliminary results for field investigation has been gained during Devon Island expedition which
surface structure is close to Martian conditions.

Williams K. K.    Greeley R.
_Radar Imaging of Subsurface Geology Through Sand: Analysis of Penetration Depth Variables with
Implications for Mars Exploration_ [#1023]
Laboratory measurements of radar transmission through sand are used to calculate penetration depth as a
function of radar frequency and sand moisture. Results are then discussed in relation to considerations
for an imaging radar mission to Mars.

Soderblom L. A.
_New Short Wavelength Infrared Spectra of Mars from the Miniature Integrated Camera Spectrometer
on DS1_ [#2087]
The purpose of this paper is to report new integrated disk observations of Mars acquired with the MICAS
SWIR channel from the DS1 S/C.
Wiens R. C.  Cremers D. A.  Ferris M.  Nordholt J. E.  Blacic J. D.  Lucey P.  Sharma S. K.
Development of a Prototype Laser-Induced Breakdown Spectroscopy (LIBS) Instrument with Stand-Off Raman Capabilities as Part of the Mars Instrument Development Program [#1468]
LIBS can determine elemental compositions at distances > 20 m with detection limits of tens of hundreds of ppm, and can profile through dust or weathering layers. The LIBS prototype also has some Raman spectroscopy capabilities at typical LIBS distances.

Wang A.  Kuebler K. E.  Jolliff B. L.
Mineral Features of EETA79001 Martian Meteorite Revealed by Point-Counting Raman Measurements as Anticipated for in Situ Exploration on Planetary Surfaces [#1887]
The distribution of pyroxenes of different Mg’ and olivines of different Fo in lithologies A & B were obtained. Three types of olivine formed at different stages of rock formation were found by point counting Raman measurements along linear traverses.

Moersch J. E.  Roush T. L.  Farmer J.
Hyperspectral Imaging Experiments in Preparation for Upcoming Mars Missions [#1839]
We present several infrared hyperspectral images acquired from the perspective of a rover or lander, similar to those that will be acquired from the Mars Surveyor 2001, 2003, and 2005 missions. Super-resolution techniques are used to enhance detail in the scenes observed.

Glenar D. A.  Bjoraker G.  Blaney D.  Hillman J.
AIMS: A Prototype Visible and Near-IR Imaging Spectrometer for Mars Surface Science [#1954]
A compact acousto-optic imaging spectrometer (AIMS) is being developed as a prototype instrument for a Mars lander, tunable from 0.5 to 2.3 microns. We describe the design of AIMS and its spectral imaging capabilities.

Differential Scanning Calorimetry and Evolved Gas Analysis at Mars Ambient Conditions Using the Thermal Evolved Gas Analyser (TEGA) [#2044]
We are conducting DSC/EGA experiments at Mars ambient temperature and pressure using the TEGA engineering model. These tests illustrate the outstanding capabilities of a TEGA-like instrument on the surface of Mars.

Bell J. F. III  Cloutis E. A.  Klassen D. R.  Clark R. N.
Spectroscopic Evidence for Diaspore (α-AlOOH) on Mars [#1227]
We have analyzed near-IR telescopic spectra of Mars and have found a match between 3000-4000 nm absorption features detected in Syrtis Major and other dark regions and the Aluminum hydroxide mineral diaspore. Here we present our evidence and discuss the implications.

Cloutis E. A.  Bell J. F. III  Mueller T.
Pyroxene + Palagonite Mixture Spectra: Effects of Palagonite on Deriving Pyroxene Compositional Information [#1114]
The presence of palagonite intimately or areally associated with pyroxene has no discernible effect on pyroxene absorption band wavelength positions. Consequently band positions can be used to derive pyroxene composition.

Urquhart M. L.  Smrekar S. E.
Estimation of Soil Thermal Conductivity from a Mars Microprobe-type Penetrator [#1781]
We will present laboratory data and model results which show that a Mars Microprobe-type thermal conductivity experiment can be useful on future planetary missions.

The Beagle 2 Environment Sensors: Instrument Measurements and Capabilities [#1028]
One of the instruments on board the Martian Beagle 2 lander is a suite of sensors for monitoring the local environment, and hence help determine if biological processes could, or still can, exist there.
Bridges J. C. Sims M. R. Donegan S. J. Pillinger C. T. Rothery D. A. Grady M. M.

The Beagle 2 Mission and Landing Site Selection [#1586]
The Beagle 2 Mars Lander mission of 2003/4 is described. Its principal aim is to detect traces of any life. Areas around Maja Valles and Tritonis Lacus are being considered for potential landing sites.

Kminek G. Bada J. L. Bott O. Glavin D. P. Grunthaner F. J. LaBaw C. C. Serviss O. E.

MOD — An In-Situ Organic Detector for the MSR 2003 Mission [#1775]
Looking for organic compounds that are essential for biochemistry or indicative of extraterrestrial organic influx is the primary goal of MOD. MOD can also quantify adsorbed and chemisorbed water and evolved carbon dioxide.


Mars Scout: An Astrobiology Micromission to Investigate Martian Environments [#1508]
The Mars Scout Mission Concept explores the possibility of sending a series of small, simple, and cheap stations at the surface of Mars which will provide the critical information about environments that are missing today.

Beegle L. W. Noren C. Kanik I.

A High-Pressure Hollow Cathode Discharge Source for Ion Mobility Spectrometers for In-Situ Detection of Organic Molecules on Mars [#2040]
We have designed, constructed and begun testing of a new high-pressure (5-10 Torr) hol-low cathode discharge source (HCDS) that can be utilized as an ionizer for ion mobility spectrometers as well as in a wide variety of mass analyzers.

Inada A. Yokota Y. Noda H. Nakamura A. M. Mukai T.

Absolute Sensitivity of Mars Imaging Camera (MIC) Onboard NOZOMI: Inflight Calibration by the Moon Images [WITHDRAWN]
Mars Imaging Camera (MIC) is a CCD camera on the spacecraft NOZOMI, which was launched on July 3, 1998. We present the preliminary results of the absolute calibration by comparing the lunar images taken by MIC and those by Clementine UVVIS camera.


Imaging Goals and Capabilities of the HRSC Camera Experiment Onboard Mars Express [#1906]
The HRSC experiment onboard Mars Express will make a major contribution to imaging Mars in reply to the urgent need to complete the Mars reconnaissance at medium and high spatial as well as vertical scales.

Gulick V. C. Morris R. L. Bandari E. B. Roush T. L.

Maximizing Science Return from Future Mars Missions with Onboard Image Analyses [#1855]
We have developed two new techniques to enhance science return and to decrease returned data volume for near-term Mars missions: 1) multi-spectral image compression and 2) autonomous identification and fusion of in-focus regions in an image series.

Golombek M. Crisp J. Adler M. Manning R.

Preliminary Evaluation of Engineering Constraints of Mars Sample Return Landing Sites [#1292]
This abstract reports on preliminary evaluation of engineering constraints on potential landing sites for the Mars Sample Return missions.

Arvidson R. E. Squyres S. W. Baumgartner E. T. Blaney D. L. Haldemann A. F. Klingelhöfer G.

FIDO Rover Trials, Silver Lake, California, in Preparation for the Mars Sample Return Mission [#1085]
During field trials in the Mojave Desert, the Mars Sample Return (MSR) prototype rover, FIDO, simulated sampling and exploration activities with a science payload similar to what will be on the MSR rover, validating the mission operations approach.
Lussier J. D.  Skiba T.  Ziemlewski J. I.  McNamara K. M.  Stansbery E. K.  Agee C. B.  

*Curation and Handling for a Mars Sample Return Mission [1245]*

A prototype handling system to provide control of biological contamination of Earth by returned Mars samples while maintaining the chemical and biological integrity of those samples was designed, constructed and tested.

Neal C. R.  

*CAPTEM Recommended Guidelines for Preserving the Integrity of Samples Collected on Mars and Returned to Earth for Analysis [1953]*

Preservation of Martian signatures in returned samples from the red planet is paramount in maximizing the scientific return of the mission(s). CAPTEM has made recommendations on how to best preserve the pristinity of Mars samples within mission constraints.

Flynn G. J.  Rivers M.  Sutton S. R.  Eng P.  Klock W.  

*X-Ray Computed Microtomography (CMT): A Non-invasive Screening Tool for Characterization of Returned Rock Cores from Mars and Other Solar System Bodies [1893]*

X-ray Computed MicroTomography (CMT) images of meteorites demonstrate the value of CMT as a non-invasive, non-destructive screening tool for rock cores returned from Mars and other solar system bodies.