Wednesday, June 13, 2012
HUMAN EXPLORATION AND PRECURSORS:
HUMANS ON OR NEAR MARS
8:00 a.m. Hess Room

Beegle L. W. * Kinnett R. Klien E.
Future Human Precursor Mission Missions and Architectures to Achieve Humans to Mars **[#4365]**
We have studied a series of payload options that are in response to measurements identified by MEPAG as vital to human precursor activity. These payloads have the ability to make a significant dent in the needed measurements to send humans to Mars.

Bar-Cohen Y. * Bao X. Badescu M. Beegle L. Sherrit S. Zacny K.
Construction of Human Habitation Facility on Mars Using Low-Power Low-Mass Autonomous Robotic System **[#4072]**
Critical to humans operation on Mars upon landing is the availability of an established infrastructure. A percussive fabrication system that produces blocks and works authonomously with a rover and its robotic arm would address this need.

Gillotay D. Depiesse C. Daerden F. This N. Muller C. *
UV Climate at Mars Surface: A Proposed Sensor for Both Orbit and Ground Stations **[#4020]**
The UV conditions on the surface of Mars are of paramount importance for the human exploration of Mars. We propose to measure spectrally the solar direct and diffuse UV and visible radiations from both Mars orbit and surface with light instruments.

Calle C. I. * Hogue M. D. Mackey P. J.
An Active Dust Mitigation Technology for Mars Exploration **[#4262]**
Development of an active multilayer coating for the prevention of dust accumulation on surfaces of spacesuits, solar panels, optical systems, thermal radiators, and equipment for Mars exploration.

Santos O. * Benton E. Pinsky L. Ricco A. Hines J. Agasid E. Blake D.
McKay C. Ehrenfreund P.
Radiation Dosimetry from a Nanosat Lander System for Mars **[#4165]**
The abstract describes a compact radiation dosimeter system that can be delivered to the martian surface on a nanosatellite lander system. We propose to demonstrate the nanolander and radiation dosimeter package in 2018.

Valinia A. * Garvin J. B. Vondrak R. Thronson H. Lester D. Schmidt G. Fong T. Wilcox B. Sellers P.
White N.
Low-Latency Telerobotics from Mars Orbit: The Case for Synergy Between Science and Human Exploration **[#4214]**
Initial, science-directed human exploration of Mars will benefit from low-latency, high-bandwidth telerobotics operated by astronauts from Mars orbit. This paper describes the scientific framework and technological requirements to achieve this goal.

Glass B. * McKay C. Stoker C. Zacny K. Hoftun C.
Deep Drilling Teleoperation Ffom Mars Orbit **[#4185]**
Access to Martian volatiles, hydrosphere, and signs of past and extant life will probably require deeper drilling in the 100 m–2 km range. With a human crew in the vicinity of Mars, real-time teleoperation of a deep martian drill rig becomes possible.

Wainwright N. R. * Steele A. Monaco L. A.
Rapid, Point of Use Assay Technology for Crew Health and Mission Science: Experience Gained from Testing on ISS **[#4256]**
We will review our flight experience of LOCAD (Lab on a Chip Application Development) on ISS in the context of lessons learned to be applied to designing a more comprehensive, capable science assay platform to support future flight activities.

PANEL DISCUSSION