Tuesday, June 12, 2012
TECHNOLOGY AND ENABLING CAPABILITIES:
FIXED LANDERS AND COMMUNICATION
10:00 a.m. Lecture Hall

Warwick R. W. * McGee M. S. Smith N. G.
Lockheed Martin Mars Exploration Spacecraft Capabilities **[#4339]**
Lockheed Martin has a long history of developing Mars spacecraft, as well as a wide array of mission concepts, including sample return. Many of these systems and technologies could have direct application in the next Mars opportunities.

Calvin W. M. * Kahn C. L.
Mars Polar Rover and Ice Sampling Excursion **[#4298]**
I discuss the science value for a Polar Rover and Ice Sampling mission and how technological developments for this mission could advance a number of identified challenge areas and is on the path to sample return and future human exploration.

McKay C. P. * Stoker C. R. Glass B. J. Dave A. I. Davila A. F. Heldmann J. L. Marinova M. M. Fairen A. G. Quinn R. C. Zacny K. A. Paulsen G. Smith P. H. Parro V. Andersen D. T. Hecht M. H. Lacelle D. Pollard W. H. Warwick R.
The Icebreaker Life Mission to Mars: A Search for Biochemical Evidence for Life **[#4091]**
We propose a mission concept to drill into ice-cemented ground on Mars to search for biomarker evidence of life. This has relevance to science as well as being an important precursor for human exploration.

Stoker C. Davilla A. Davis S. Glass B. Gonzales A. Heldmann J. Karcz J. * Lemke L. Sanders G.
Ice Dragon: A Mission to Address Science and Human Exploration Objectives on Mars **[#4176]**
We present a mission concept where a SpaceX Dragon capsule lands a payload on Mars that samples ground ice to search for evidence of life, assess hazards to future human missions, and demonstrate use of Martian resources.

Grover M. R. * Sklyanskiy E. Stelzner A. D. Sherwood B.
Red Dragon-MSL Hybrid Landing Architecture for 2018 **[#4216]**
Hybridizing modern developments at SpaceX and JPL could enable landing 1 metric ton-class payloads on Mars for of order $250M, beginning in 2018. Near term, OCT could perform Earth-based flight demonstration of supersonic retropropulsion.

Schulze-Makuch D. Fink W. * Head J. N. Houtkooper J. M. Knoblauch M. Furfaro R. Fairen A. G. Vali H. Sears S. K. Daly M. Deamer D. Schmidt H. Hawkins A. R. Sun H. J. Lim D. S. S. Dohm J. Irwin L. N. Davila A. F. Mendez A. Andersen D.
The Biological Oxidant and Life Detection (BOLD) Mission: A Proposal for a Mission to Mars **[#4190]**
The BOLD mission comprises 6 identical mini-landers with orbiter support and will characterize the habitability of the martian surface. It will search for autotrophic microorganisms and detect a variety of biomarkers and understand their environment.

Nuding D. L. *
Mars Student Climate Lander **[#4045]**
The Mars Student Climate Lander (MSCL) is a student designed mission which will provide a low mass, low volume, self-sufficient payload with a suite of instruments capable of meeting aggressive science goals to characterize the surface of Mars.

Hemmati H. * Farr W. Biswas A. Townes S.
Sub-Gb/s Laser Communications Downlink from Mars **[#4089]**
The technology is now mature to deliver for Mars'18, downlink data-rates of at least 0.25Gb/s from the short distance to Mars with less mass and power consumption than the current Ka-band system on MRO spacecraft, capable of 6 Mb/s downlink.

PANEL DISCUSSION