The Phoenix Mars Scout Mission

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Introduction:

The Phoenix Mars Scout Mission will launch in August, 2007 and land in the north polar region of Mars in late-May, 2008. This mission is the first selection of the small, competed Mars "Scout" class missions and is led by Mr. Peter Smith as principal investigator, of the University of Arizona.

The primary goals of the Phoenix mission are to study the history of water in all its phases and to evaluate the landing site for its habitability potential. It will land between 65-72N, where water is known to be within 10's of cm of the surface [1], allowing access to both ice and the overlying soil that has interacted with the ice and water vapor. The spacecraft will land about L_s=80 and will have a primary mission lifetime of 90 sols. If the spacecraft is healthy after 90 sols and funding is available, it will be possible to continue observations until the sun sets on the spacecraft for the winter.

Phoenix, as its name implies, is the rebirth of two previous spacecraft, the Mars Polar Lander and the Mars Surveyor Program '01 (MSP'01) spacecraft. It uses the lander body from MSP'01, and instruments from both previous spacecraft, along with a few additions. The instrument suite comprises a Robotic Arm to collect soil and ice samples and delivery them to two analytical laboratory instruments, the Thermal and Evolved Gas Analyzer and the Microscopy, Electrochemistry and Conductivity Analyzer. It further comprises 3 cameras, the Mars Descent Imager, the Surface Stereo Imager, and the German Robotic Arm Camera and a Canadian contributed Meteorology station containing an upward-looking LIDAR, 3 temperature sensors on a mast, and a Pressure sensor from Finland.

An overview of the mission, its science goals, instrumentation, and landing site selection activities will be discussed.

References: [1] Boynton, W.V., et al., *Science* **297**, 2002