

**TOUCHING WATER ICE ON MARS: PHOENIX LANDER HANDS-ON ACTIVITIES:** C. Bitter<sup>1</sup>, S. Hammond<sup>1</sup>, S. R. Buxner<sup>1</sup>. <sup>1</sup>Lunar and Planetary Laboratory (Univ. Arizona, Tucson, AZ 85705, carla@lpl.arizona.edu, shammond@lpl.arizona.edu, sanlyn@lpl.arizona.edu)

**Introduction:** The Phoenix Mars Lander is the first of NASA's Scout missions to Mars and will land on the northern high latitude region of Mars on May 25, 2008. Continuing NASA's tradition of "Following the Water" in our solar system, Phoenix will be the first spacecraft to explore the Martian arctic while delivering the most sophisticated payload of scientific instruments to date to the surface of Mars. Our E/PO team will be presenting a suite of exciting and interactive programs to promote understanding of Mars exploration and encourage students interest in STEM areas.

**Hands-On Activities:**

*Mars Match Game.* Visitors play the role of planetary scientists as they match images of Mars with terrestrial analogs. This activity is effective for all ages and has been used as a formal classroom activity, as a museum floor activity, and for family science events.

*Dirty Ice Snow Cones.* Visitors engage with the idea of water ice on Mars detected by the 2001 Mars Odyssey Gamma Ray Spectrometer Suite through an edible demonstration of "dirty ice". This activity has been used in summer camps, science festivals and family science events as a fun way to talk to people about the exploration of water ice on Mars.

*Robotic Arm Challenge.* Using a low cost commercially available set of robotic arms to challenge visitors to maneuver a set of objects helps facilitate the discussion of robotic challenges related to the mission. This activity has been used during open houses, science festivals and non-traditional events including an art show to talk about the mission.

*Landing Site Activity:* Visitors use THEMIS and HiRISE images of four potential landing sites that were chosen for the Phoenix Lander by the Science Team and analyze each for science objectives and engineering and safety constraints. This activity has been used in formal classrooms, summer camps, and public science events.

**MarsBots Activities:** Why robots? Using our mission curriculum, lessons 1-8 focus on comparing physical characteristics of Earth and Mars. Lessons 9-16 teach students the fundamental principles of robotics and how these principles are applied to design, construct, and test robotic explorers. Lessons begin by introducing students to simple machines and finish with students designing their own robotic lander. These lessons have been used in both formal classrooms and as summer camp curriculum.

**PSIP (Phoenix Student Intern Program):** PSIP high school interns will share the benefits of this formal education program with visitors, and demonstrate their current mission project and research.

All of these hands-on activities will be demonstrated and available on CD where applicable.

**Additional Information:** Individuals interested in Phoenix outreach products are encouraged to contact the E/PO team at the following address:

Carla Bitter <Carla@lpl.arizona.edu>. Educational products and information about the Phoenix Mars Lander can be found on our website at: <http://phoenix.lpl.arizona.edu>.