

JOINT ASTRONOMY/ EPS COLLOQUIUM

February 19, 2009

3:30pm Tea in 661 Campbell Hall

4:00pm colloquium in 1 Le Conte

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Phoenix in Wonderland

Abstract: On May 25, 2008, the Phoenix team began operation of a robotic laboratory on the northern plains of Mars. Inside the arctic circle at 68 degrees, the undulated terrain driven by the ice underneath formed polygons. The robotic arm quickly dug a trench 5 cm deep and exposed the underlying ice table; samples of soil and ice were retrieved and analyzed in 3 instruments. The results of those instruments reveal an alkaline environment buffered by Ca-carbonate with nutrients and potential chemical energy sources. This may be a habitable environment for microbes if liquid water is periodically available. The Phoenix weather station monitored atmospheric conditions as the sky turned from dusty to cloudy with ice snowing onto the surface. We are investigating conditions in previous epochs to determine if water could wet the soil at times when the obliquity exceeds 30 degrees.