

Phoenix Mars Lander Explores Site by Trenching

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NASA's Phoenix Mars Lander scientists and engineers are continuing to dig into the area around the lander with the spacecraft's robotic arm, looking for new materials to analyze and examining the soil and ice subsurface structure.

New trenches opened recently include the "Burn Alive 3" trench in the "Wonderland" digging area in the eastern portion of the arm's reachable workspace. Researchers choose such names informally to aid discussion.

The team is excavating one side of Burn Alive 3 down to the ice layer and plans to leave about 1 centimeter (0.4 inch) of soil above the ice on the other side. This intermediate depth, located a couple centimeters (0.8 inch) above the Martian ice-soil boundary, gives the science team the vertical profile desired for a sample dubbed "Burning Coals," intended to be the next material delivered to Phoenix's Thermal and Evolved Gas Analyzer (TEGA).

The surface of the ground throughout the arctic plain where Phoenix landed is patterned in polygon shapes like those of permafrost areas on Earth, where the ground goes through cycles of swelling and shrinking. Some of the recent and planned digging by Phoenix takes advantage of landing within arm's reach both of the centers of polygons and the troughs between polygons. For example, the "Stone Soup" trench has been dug in a trough in the "Cupboard" excavation area, near the western end of the arm's workspace. The team plans to dig in this zone as deep as possible to study properties of the soil and ice deep in a polygon trough.

A sample from the Cupboard area may be delivered to the lander's wet chemistry lab, part of the Microscopy, Electrochemistry and Conductivity Analyzer (MECA). The location for obtaining a sample would depend on results from further digging in "Upper Cupboard," and use of the thermal and electrical conductivity probe on the arm, inserted into icy soil within Upper Cupboard to test for the presence of salts.

Source: NASA

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