

# Analysis Begins on Deepest Martian Soil Sample

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Clouds scoot across the Martian sky in a movie clip consisting of 10 frames taken by the Surface Stereo Imager on NASA's Phoenix Mars Lander. Image credit: NASA/JPL-Caltech/University of Arizona/Texas A&M University

(PhysOrg.com) -- Scientists have begun to analyze a sample of soil delivered to NASA's Phoenix Mars Lander's wet chemistry experiment from the deepest trench dug so far in the Martian arctic plains. Phoenix has also been observing movement of clouds overhead.

The lander's robotic arm on Sunday sprinkled a small fraction of the estimated 50 cubic centimeters of soil that had been scooped up from the informally named "Stone Soup" trench on Saturday, the 95th day of

the mission. The Stone Soup trench, in the left portion of the lander's active workspace, is approximately 18 centimeters (7 inches) deep.

"This is pretty exciting stuff and we are anxious to find out what makes this deeper soil cloddier than the other samples," said Doug Ming, a Phoenix science team member from NASA's Johnson Space Center, Houston.

The surface of the vast arctic plain where Phoenix landed on May 25 bears a pattern of polygon-shaped small hummocks, similar to some permafrost terrain on Earth. Scientists are particularly interested in the new sample because it is the first delivered to an analytical instrument from a trench on the margin between two of the polygons, where different material may collect than what has been analyzed from near the center of a polygon. Seen inside Phoenix's scoop Sunday, the sample material from the bottom of the trench displayed clumping characteristics somewhat different from other cloddy soil samples that have been collected and examined.

A series of images of fresh soil dug and discarded from Stone Soup trench have given some clues to the composition of the sample. While spectral observations have not produced any sign of water-ice, bigger clumps of soil have shown a texture that could be consistent with elevated concentration of salts in the soil from deep in the trench. The lander's wet chemistry laboratory can identify soluble salts in the soil.

The science team has also been studying a movie created from still pictures of the nearby Martian sky showing dramatic water ice clouds moving over the landing site during a 10-minute period on Sol 94 (Aug. 29).

"The images were taken as part of a campaign to see clouds and track wind. These are clearly ice clouds," said Mark Lemmon, the lead

scientist for the lander's surface stereo imager, from Texas A&M University.

Provided by NASA

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