

Phoenix to Bake Ice-Rich Sample Next Week

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Image credit: NASA/JPL-Caltech/University of Arizona/Max Planck Institute

The next sample delivered to NASA's Phoenix Mars Lander's Thermal and Evolved-Gas Analyzer (TEGA) will be ice-rich.

A team of engineers and scientists assembled to assess TEGA after a short circuit was discovered in the instrument has concluded that another short circuit could occur when the oven is used again.

"Since there is no way to assess the probability of another short circuit occurring, we are taking the most conservative approach and treating the next sample to TEGA as possibly our last," said Peter Smith, Phoenix's principal investigator.

A sample taken from the trench informally named "Snow White" that was in Phoenix's robotic arm's scoop earlier this week likely has dried

out, so the soil particles are to be delivered to the lander's optical microscope on Thursday, and if material remains in the scoop, the rest will be deposited in the Wet Chemistry Laboratory, possibly early on Sunday.

The mission teams will mark the Independence Day holiday with a planned "stand down" from Thursday morning, July 3, to Saturday evening, July 5. A skeleton crew at the University of Arizona in Tucson, at NASA's Jet Propulsion Laboratory in Pasadena, Calif., and Lockheed Martin Space Systems in Denver, Colo., will continue to monitor the spacecraft and its instruments over the holiday period.

"The stand down is a chance for our team to rest, but Phoenix won't get a holiday," Smith said. The spacecraft will be operating from pre-programmed science commands, taking atmospheric readings and panoramas and other images.

Once the sample is delivered to the chemistry experiment, Smith said the highest priority will be obtaining the ice-rich sample and delivering it to TEGA's oven number zero.

In a few days the Phoenix team will conduct tests so the instruments can deliver the icy sample quickly, so no materials sublime, or change from a solid to a vapor, during the delivery process.

The short circuit was believed to have been caused when TEGA's oven number four was vibrated repeatedly over the course of several days to break up clumpy soil delivered to oven number 4. Delivery to any TEGA oven involves a vibration action, and turning on the vibrator in any oven will cause oven number 4 to vibrate as well.

Source: NASA

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