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Research from UF Undergraduates Onboard Phoenix Mars Lander Will Reveal Planet's True Colors

GAINESVILLE, May 22, 2008 -- When NASA's Phoenix lander lands on Mars Sunday, it will carry special tools to give scientists their best look at the Red Planet's true colors.

The color-calibration targets are about the size of hockey pucks and were jointly developed by the University of Florida and the University of Central Florida. When Phoenix's camera takes pictures of the terrain, it will also capture the calibration targets, allowing scientists to compare the colors in each photo and determine the actual hues.

Knowing the actual colors allows scientists across the US and around the world to determine what makes up the planet's terrain. The colors are one reason NASA says that liquid water once existed on Mars, and they help geologists analyze layers of rock deposited over thousands of years.

"Mars has a harsh climate," said Randy Duran, a Chemistry professor at Florida who helped optimize the calibration targets. Day and night temperature variations are far greater than Earth and the radiation is also a problem. Also, over time dust covered the previous targets, making it difficult to decipher accurate hues. The Mars surface is actually yellowish-brown and not red.

So, for the first time, these calibration targets on Phoenix have built-in magnets to repel the dust, designed by scientists from the University of Copenhagen in Denmark. Each magnet is about 100 times stronger than a refrigerator magnet and should keep the targets "clean" while the lander samples soils in the Martian arctic region. Also new on several of the Phoenix lander's color targets is a special metal coating to help keep away the dust.

The lander is expected to reach its destination this weekend, after a 422-million mile trip since its launching last August. Besides the targets and a camera, Phoenix has a robotic arm that scientists hope will scoop up water ice thought to be just under Mars' surface.

The team started creating the targets for Phoenix about three years ago. Made of rubbery silicon and paint pigments, they were tested under extreme conditions -- intense ultraviolet light and depressurization -- before they left Earth last year.

This team includes UF professors Duran and Andrew Schuerger, UCF Physics Professor Dan Britt, Danish scientists, and graduate students at UF and UCF. The team also encompassed three undergraduate students from UF and Duran notes how much fun science is when our undergraduates can say things like "Hi mom, I just helped send something to another planet".

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