

Biosphere 2 Opens Phoenix Mars Lander Exhibit

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Biosphere 2 visitors can view this full-size model of the Phoenix Mars Lander until May 2010, when the mock spacecraft heads to the Smithsonian. (Photo: Joe Martinez, UA)

(PhysOrg.com) -- A full-size model Phoenix Lander has landed at Biosphere 2 before it heads, ultimately, to the Smithsonian Institution in Washington, D.C

"When we send Viking to [Mars](#), or Voyager outside the solar system, they are envoys of our biosphere," Jayne Poynter wrote in her 2006 book "the Human Experiment," the intriguing tale of her 1991-93 experience sealed within Biosphere 2, the 3.15-acre, man-made, materially-closed ecological system near Oracle, Ariz.

Spacecraft are part of a technosphere that is not separate from, but a continuum of biosphere 1, the ecosystem comprising the entire Earth

and the living organisms that inhabit it, Poynter wrote. Spacecraft are "sensory organs reaching out into the universe and sending back information about the cosmos as if they were our own eyes on a long tether of [radio waves](#)."

Thought of as an envoy of our biosphere to Mars, the Phoenix Lander robot that operated from the University of Arizona after landing on Mars on May 25, 2008, was not only our eyes, but our digging hand and arm, our nose that sniffed and our tongue that tasted some of what Mars is like.

Now buried in Martian dry ice in the planet's northern plains, the real [Phoenix Mars Lander](#) was commanded for five months from Tucson by international scientists led by Peter Smith of the UA's Lunar and Planetary Laboratory.

The UA, through its College of Science, began managing Biosphere 2 in June 2007, two months before Phoenix Lander launched.

So it seems especially fitting that a full-size replica of the real Phoenix Lander has landed at Biosphere 2 before it heads, ultimately, to the Smithsonian Institution in Washington, D.C., in May 2010.

"We are thrilled to host an educational exhibit that showcases world class science done from the University of Arizona," Biosphere 2 director Travis Huxman said.

"Biosphere 2 research focuses on understanding the fate of water in our world, Earth, and that connects with Phoenix's mission to discover the fate of water on another world, Mars," Biosphere 2 education and outreach coordinator Matt Adamson said.

"Both are modern 'big science' research projects that are massively

collaborative and interdisciplinary," he added. "And both engage the public in science, because research at Biosphere 2 and at Mars missions run from the Lunar and Planetary Laboratory are in the public eye."

The Phoenix's laboratory was open for all to see through the mission's Web site, which posted images as soon as they were beamed to Earth from Mars. Scientists and the public saw them at the same time.

Phoenix Lander Worked Like a Champion

The Phoenix Mars Lander surpassed its original three-month mission, lasting five months after landing.

Phoenix's goal was to determine whether the northern polar region of Mars could support life.

The instruments aboard the tiny craft - anchored on a platform about the size of a breakfast table - analyzed soil samples by sniffing and tasting to determine if that place on the planet could ever have supported life.

On July 30, 2008, the science team announced they discovered water ice. That is, of NASA's six lander missions to Mars, Phoenix found the most habitable zone on the Red Planet.

Phoenix returned more than 30,000 images. It took 29,799 images that provided panoramic views of the landing site and weather information with its Surface Stereo Imager. It took 2,322 images with its Robotic Arm Camera. Phoenix even took views down to the atomic level with the first atomic force microscope ever used beyond Earth.

Phoenix's Robotic Arm was critical to the mission. It executed 53 dig sequences and dug in 12 different areas, scooping soil at one place more than 7 inches deep.

The arm successfully delivered soil into six of eight tiny ovens in the TEGA, or the Thermal and Evolved-Gas Analyzer, which heated soil samples to 1,800 degrees Fahrenheit. The arm delivered seven samples to the optical microscope instrument and four samples to the lander's wet chemistry lab.

The lander was to have lasted 90 Martian solar days, or sols. Remarkably, it performed science during 149 sols of its total 152-sol lifetime. Temperatures ranged from a high of minus 3.28 degrees Fahrenheit to a low of minus 143.86 degrees Fahrenheit.

Biosphere 2 is located on Oracle Road (Highway 77) at Mile Post 96.5. Tours are available seven days a week during visiting hours, 9 a.m. to 4 p.m. Some areas of the Biosphere 2 tour are occasionally closed because of ongoing research.

There is an admission charge. For more information, call 520-838-6137 or visit the [Biosphere 2 Web site](#).

A world-renowned engineering marvel, the 7.2-million-cubic-foot Biosphere 2 glass-and-steel dome is famous as the artificial world where eight humans lived for two years, sealed off from Earth, in a privately funded self-sufficiency experiment in the early 1990s. The structure contains recreations of Earth's savanna, desert, ocean and tropical rainforest wilderness.

The UA assumed management of Biosphere 2 in June 2007 when it was awarded a \$30 million grant to lease the 34.5-acre Biosphere 2 campus.

Educators have since focused on expanding public education programs and exhibits at the major regional attraction. Scientists have focused on using the vast glass-enclosed laboratory to more quickly answer critical, complex questions related to global climate change, water, energy and

other environmental challenges.

Provided by University of Arizona ([news](#) : [web](#))

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