DESTINATION MARS: A PLANETARIUM PROGRAM AND EXHIBIT PREPARED IN COLLABORATION BY HOUSTON MUSEUM OF NATURAL SCIENCE AND JOHNSON SPACE CENTER.

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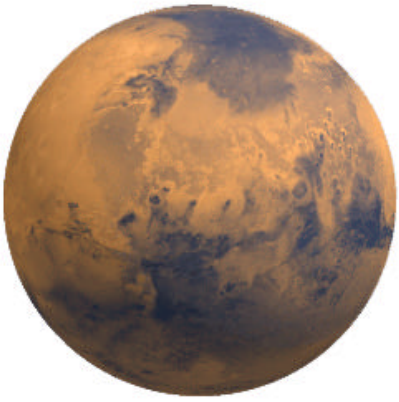
Science museums and planetariums throughout the country form the forefront in disseminating planetary science information to the public. They host millions of visitors per year including thousands of classroom field trips. Museum and planetarium staff are experts at translating complex technical results into simple language for public consumption. Collaboration between museum staff and working scientists is an excellent way to make current scientific results available to the public.

DESTINATION MARS is a planetarium program and exhibit developed as a collaboration between planetary scientists and staff at Johnson Space Center (JSC) and astronomers and staff at the Houston Museum of Natural Science (HMNS). The program is a future documentary which depicts the first human mission to Mars in 2018 and allows the public to share the excitement of exploring Mars. The program is based on the Mars reference mission prepared by the NASA exploration office [1]. It illustrates a 2.5 year mission from takeoff, through its 6 month journey to landing on Mars and continues with 1.5 years of Mars exploration until takeoff for home. The astronaut narrators present the programs as journals describing their work, concerns, and hopes for the mission. These are illustrated by a combination of NASA videos, animations, still photos, and paintings.

The program, however, is not all astronauts and engineering. It covers a wide range of science from astronomy and geology to chemistry, physics and biology. It explains that our goals for the mission are to understand the geologic evolution of the planet Mars and learn about life in our solar system. It presents the major tasks that NASA must complete between now and 2018 to ensure the success of the mission: 1) Use Surveyor robotic missions to map Mars in detail [2] and select the ideal site for human exploration. 2) Develop closed ecological life support systems [3] to grow food and recycle wastes. 3) Develop in-situ resource utilization [4] to enable the crew to live off the land by producing oxygen from Mars' atmosphere. 4) Improve the physiological response to long space flights [5] through research on astronaut health on space station.



The show depicts an actual trajectory from Earth to Mars. It describes the geology of Mars and why scientists think that this currently cold, dry planet was once a good site for life to develop [6]. The astronauts search for evidence of life in Dao Vallis, one of the prime landing sites chosen by NASA's exobiology program. The search is presented in human terms as they demonstrate their hopes, frustrations, and thrill of discovery.

The accompanying exhibit includes two large format prints of paintings showing future human exploration, two display cases with spacecraft models on simulated lunar and martian surfaces, several light boxes of photos and text about Mars' geology, and a touchstone made from a martian meteorite. Another fist-sized martian meteorite was on display at the exhibit for three months.

The process of developing DESTINATION MARS was, perhaps, as important as the product itself because it was a first step in such a collaboration. HMNS, JSC and the Lunar and Planetary Institute (LPI) spent several meetings getting to know each other and their resources before choosing a project. The topic was chosen to illustrate science in the context of the human exploration of space. Most of the work was done in-house and almost no money was exchanged. JSC and HMNS staff worked together on the script, both groups learning from the other's background. JSC provided the reference mission, background information, and most of the graphics. They prepared a videotape with stills, animations, and videos recorded with the astronaut narration and music. HMNS built the exhibit cases and programmed the JSC tape, slides, and special effects into a multimedia planetarium program. LPI created a realistic landing sequence from Viking photos of Mars. The only major external purchases were a large (6 x 12 ft) photo mural, one new painting of Mars exploration, and a short animation of existing CAD models of future vehicles and habitats. The best part about developing the program was working together and seeing the viewer reactions.

The DESTINATION MARS show opened the week of July 20, 1996 as part of a Viking 20th anniversary celebration. It was in operation on August 7 when NASA scientists announced evidence of possible fossil life in a Mars meteorite. The museum was poised to take advantage of this unscheduled event and become a public forum for discussion of life on Mars and future human exploration. The JSC-HMNS team is currently developing a revised version for national distribution. The museum has located a planetarium vendor who will produce the show at cost in several versions for planetariums with low, medium, and high-end equipment. The team also collaborated with teachers to prepare classroom activities on Mars and exploration to accompany the program [7]. It is hoped that the DESTINATION MARS planetarium program and activities will be available around the country by the time of the Pathfinder landing this summer.

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