

PHOENIX LOCATION DETERMINATION USING HIRISE IMAGERY (IPPW-7)

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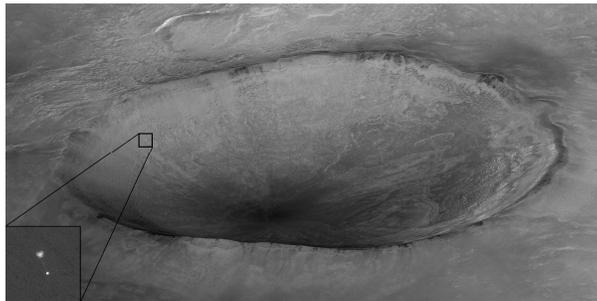
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ABSTRACT

The Phoenix Mars mission, launched on 4 August 2007, was the first mission of NASA's "Scout" program. This investigation looked into determining Phoenix's position using an image (shown below) taken during Phoenix's parachute descent. The image was taken by the University of Arizona's High Resolution Imaging Science Experiment (HiRISE) camera onboard the Mars Reconnaissance Orbiter (MRO). The objective was to test how accurately a position for the lander could be determined during entry, descent, and landing to provide an alternate means of position determination in the event of the spacecraft's on-board inertial measurement unit failing or a communications breakdown that prevented the return of the data.



This investigation placed the Phoenix lander approximately 773 km from MRO and approximately 26 km in front of its apparent position in Heimdal Crater from HiRISE's viewpoint at the time the Phoenix Descent Image was taken. Phoenix's altitude was approximately 10.2 km above the surrounding terrain, and the overland distance from the landing site was approximately 3.8 km. These estimates differed by approximately 5 km from Phoenix's position (at the time of image capture) as determined by navigation data.

References

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