

To be submitted for consideration for presentation at the Geological Society of America Meeting, Salt Lake City Utah, October 20-23, 1997

POSSIBLE 770 M DIAMETER IMPACT CRATER AT 18 DEGREES NORTH 51 DEGREES EAST. YEMEN ARAB REPUBLIC

BLOM, Ronald G., Mail Stop 300-233, Jet Propulsion Laboratory, Pasadena CA 91109, ronald.blom@jpl.nasa.gov; CRIPPEN, Robert E., Mail Stop 300-233, Jet Propulsion Laboratory, Pasadena CA 91109.

During analysis of enhanced Landsat Thematic Mapper satellite images for the Mahra Archaeological Project, a 770 m diameter circular feature was detected in the Yemen Arab Republic at 18 Degrees North by 51 Degrees East. Subsequent study of Shuttle Imaging Radar -C multiwavelength/multipolarization images, and a very brief field reconnaissance in January 1997 indicate, but do not confirm, that the feature may well be an impact crater. On the remote sensing images, the proposed crater appears as a 770 meter diameter circular feature centered on a small wadi (dry river channel). Although sharp on the remote sensing images, the feature is unremarkable in the field. The crater is in a wadi (dry river bed), and so is filled with sediment and evaporites, further mantled with windblown sand. No overturned rims, shatter cones, or meteoritic material were observed. There was also no evidence of volcanic activity. Field evidence is therefore inconclusive at present. Other potential explanations for this circular feature include a sinkhole or volcanic maar crater. Neither seems likely in this case. Although this is a limestone terrane, there are no obvious sinkholes in the region. A single, isolated, circular, 770 meter sinkhole seems unlikely. Also, while there are volcanic landforms in Yemen, there are none anywhere near this feature. With regards to the possible age of the feature the only statement that can be made with some certainty is that is older than about 6000 years as Neolithic material was found inside the crater. Additional field work is planned to determine the nature of this feature.