

SURVEY OF MARS CRATER TOPOGRAPHY FROM MOLA DATA. Michael G. G., European Space Agency, Research and Scientific Support Department, ESA/ESTEC, Noordwijk, The Netherlands, greg.michael@esa.int

An algorithm for autonomous identification of crater centres from topography data has been improved in accuracy since [1,2] by taking account of the slope direction on the interior of the crater rim. A crater is identified by maximizing a function which integrates the inwardly directed component of the slope around a ring of given radius for all points over the surface under investigation.

The algorithm has been applied to remeasure the coordinates of 19,000 craters from the Viking-based SAI Mars crater catalogue [3] within the MGS MOLA topography data [4].

This being done, a series of radial profiles are extracted for each crater (Fig. 1) and used to attempt to produce a generalized profile for the crater (an average, excluding extreme values). A number of parameters can be derived from the generalized profiles describing the crater depth, rim, floor, and ejecta blanket, and the variation of these parameters examined over the population.

References: [1] Michael G. G. (2002) *Vernadsky-Brown* 36, abs. [2] Michael G. G. (2003) *Planetary and Space Science* 51, 563-568 [3] Rodionova J. F. et al., (2000) Morphological catalogue of the craters of Mars, ESA-ESTEC [4] Smith, D.E. and 22 others, (2001) *J. Geophys. Res.*, 106, 23, 689-23, 722

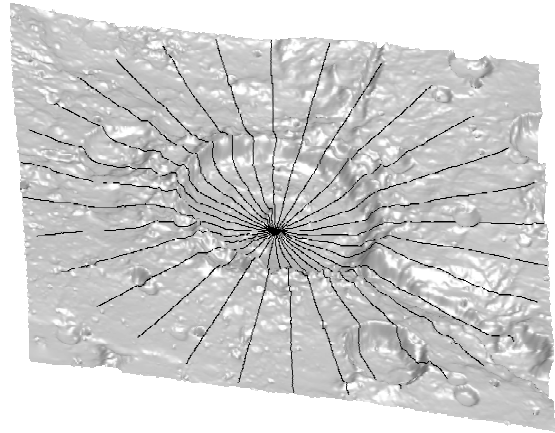


Figure 1. Series of radial profiles.