

Mars Cartography using MOLA Control.

T. Duxbury, Jet Propulsion Laboratory, California Institute of Technology, MS 264-379, 4800 Oak Grove Dr., Pasadena, CA 91109-8099, tduxbury@jpl.nasa.gov.

The stereo photogrammetric observable equations are presented relating control point image location to camera distortions, camera pointing, spacecraft position, Mars-fixed areocentric control point location, and Mars parameters such as spin axis direction, spin rate and prime meridian location. The use of these equations in a minimum variance, least squares, block adjustment process are describes to add both horizontal and vertical control to the image data using Mars Global Surveyor (MGS) Mars Orbiter Laser Altimetry data. An example is presented locating Viking Lander 1 (VL-1) on the surface of Mars in Mars-fixed coordinates using overlapping, stereo Viking Orbiter images and MOLA data surrounding the VL-1 site.

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