MOLA: THE FUTURE OF MARS GLOBAL CARTOGRAPHY. T. C. Duxbury, D. E. Smith, M. T. Zuber, H. V. Frey, J. B. Garvin, J. W. Head, D. O. Muhleman, G. H. Pettengill, R. J. Phillips, S. C. Solomon, H. J. Zwally, W. B. Banerdt.

The MGS Orbiter is carrying the high-precision Mars Orbiter Laser Altimeter (MOLA) which, when combined with precision reconstructed orbital data and telemetered attitude data, provides a tie between inertial space and Mars-fixed coordinates to an accuracy of 100 m in latitude / longitude and 10 m in radius (1 sigma), orders of magnitude more accurate than previous global geodetic/ cartographic control data. Over the 2 year MGS mission lifetime, it is expected that over 30,000 MOLA Global Cartographic Control Points will be produced to form the basis for new and re-derived map and geodetic products, key to the analysis of existing and evolving MGS data as well as future Mars exploration.