Mars Crustal Magnetization Data (Quicklook Version 0.1/02/00 - WEB distribution 02/18/00)

Data from the Mars Global Surveyor Magnetic Field Investigation obtained during the two aerobraking phases of the mission (AB1, 1997-255 through 1998-086 and AB-2,1998-267 through 1999-035) have been binned and averaged in a 3-dimensional grid of 1 degree by 1 degree by 10 Km in longitude, latitude and altitude respectively. The altitude range is 80 to 200 Km and is defined with respect to a spherical Mars with a mean equatorial radius of 3393.5 Km for simplicity. Longitude is defined positive eastward of the prime meridian and latitude is defined positive northward from the equator. The altitude label represents the bottom altitude of a 10 Km thick bin. Hence, for example, "100 Km" denotes data obtained in the altitude interval 100 Km <= alt. < 110 Km. The longitude and latitude labels refer to the edge of the bin. Hence “51 degrees” means the bin between 51 and 52 degrees.

The magnetic field data, (b_r, b_theta, b_phi) are given in a traditional spherical polar coordinate system defined at the spacecraft location with b_r defined positive outward, b_theta positive southward and b_phi positive eastward.

The magnetic field spatial variability over the scale covered by each 3-dimensional bin is significant in regions of high crustal magnetization. Hence the standard deviation associated with each bin average where 3 or more measurements are included is provided for information. If less than 3 data points are used in the average, the standard deviation is assumed to be zero. The number of points in a given bin is also dependent on the spacecraft telemetry rate. At high data rates several points may be collected along the same orbital trajectory within a given bin.

The data are presented as a 10 column table defined as follows:

1	2	3	4	5	6	7	8	9	10
longitude (deg)	latitude (deg)	altitude (km)	b_r (nT)	b_theta (nT)	b_phi (nT)	number of data points	sigma_r (nT)	sigma_theta (nT)	sigma_phi (nT)

The data format is standard ASCII text which has been compressed (ZIP) for ease of distribution.

For information or assistance with the preliminary Mars Magnetization Quicklook Dataset (MMQD) please contact Dr. Mario H. Acuña at <mario.acuna@gsfc.nasa.gov>. Comments about the format, utility and use of this data set are most welcome.

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