

MAGNETIC MAPPING OF MARS BY THE MGS SPACECRAFT

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The evolutionary history of Mars is recorded in the crustal magnetization, which produces a huge magnetic field now well mapped by the Mars Global Surveyor spacecraft. We present global vector magnetic field maps obtained at 400 km altitude, which reveal crustal magnetization with far greater fidelity than that available for earth (e.g., MAGSAT). The global distribution of crustal magnetization is related to the dichotomy boundary which separates the young northern lowlands from the heavily cratered southern highlands. Magnetic lineations, first seen in low altitude (100 km) aerobraking observations, are also seen in the higher altitude mapping observations (suitably continued), along with a number of intriguing circular features without visible counterparts. With MGS nearing the end of the second Mars year in mapping orbit, we turn our attention to characterization of the external field, to further improve the accuracy of crustal magnetic field maps.