



Martian Magnetic Pileup Boundary Statistics from MGS MAG data

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The Mars Global Surveyor (MGS) Magnetometer (MAG) has provided almost a decade worth of data since its arrival at Mars in 1997. We present an empirical model of the location and strength of the Magnetic Pileup Boundary (MPB) based on these measurements. The MPB is identified as a more or less sharp increase in the magnetic field strength combined with a decrease in the magnetic field fluctuations and separates the heated solar wind plasma in the magnetosheath from the magnetic pileup region where the magnetic field is built up as it drapes around the planet. We use magnetic field data from the early elliptical orbits when the MGS spacecraft continuously crossed the MPB to identify about one thousand crossings. The data from the crossings are binned together to get an estimate of the strength of the magnetic field at the location of the boundary.