

MGS measurements of the Martian solar wind interaction

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The arrival of Mars Global Surevyor (MGS) at Mars in September 1997 was a watershed event in the history of Martian solar wind interaction measurements. First, MGS carried a magnetometer and electron reflectometer eight times closer to the surface than any previous spacecraft. This allowed a more precise determination of the nature of the Martian obstacle to the solar wind and the discovery of strong crustal magnetic fields. Second, MGS remained in a precessing elliptical aerobraking orbit until mid-1999. This orbit resulted in far more extensive coverage of the interaction region than previous missions achieved. Third, continued measurements through the present from a mapping altitude of 400 km cover a small slice of the interaction region. These mapping data provide an opportunity to determine variability in the interaction on many timescales (hourly, interannually and over the course of a solar cycle) and with a variety of external conditions. This presentation will review MGS results relevant to our evolving understanding of the solar wind interaction and highlight new questions and research frontiers made clear by these results.