

Magnetic Fields generated in the Interaction between the Solar Wind and the Crustal Field at Mars.

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The combined effect of direct interaction between the solar wind and the atmosphere and the formation of mini-magnetospheres around the strong crustal anomalies at Mars is unique in the solar system and so far largely unexplored. The most extensive set of magnetic field observations near Mars comes from more than six years of operation of the Mars Global Surveyor MAG/ER measurements in its mapping phase orbit at approximately 400 km altitude. These measurements reveal significant magnetic perturbations close to the crustal anomalies at the day-side of the planet, most likely associated with a direct interaction between the solar wind and the crustal field. A possible interpretation is that these anomalies are due to the Martian equivalent to the magnetopause currents at the Earth.