

Title: The magnetic field around Mars

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Abstract:

Mars does not have a magnetic field of its own to protect it, but particles from the sun come with the solar wind and hit Mars, the IMF (interplanetary magnetic field) in those particles drape around the planet and form a magnetic field. The research done this summer was to plot a graph and a map to look at the magnetic field draped around Mars in different solar wind intensities. The data used was from a NASA space craft called MAVEN, with using the position of the spacecraft and the magnetic data collected. A 3d plot was done for one orbit around Mars with the direction of the magnetic field around that orbit in both MSO (Mars Solar Orbital) and MSE (Mars Solar Electric) coordinates for comparison given that the MSE is the more accurate result. And a time series plot of the space craft position and the magnetic field for purpose of comparison to other days with different solar wind intensity and to the 3D plot. Finally, a map of the magnetic field around Mars in different solar wind intensity, which showed how the draping of the IMF around the planet changes in regard to different solar wind intensities.