ReadMe File for Data Included in the KU Repository

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Alteration of magnetic field strength in the strong crustal field region at Mars by currents induced by the solar wind interaction

CITATION PLACEHOLDER

The KU archive contains the excel data file used for the statistical discussion and figures of the magnetic field calculations discussed in this paper.

The first two rows describe the data. The third row has units of the data (if applicable

The columns of the file (Renzaglia22MarsMagnetic) are as follows:

A) ***Date***. Date of the orbit/measurements.
B) ***Orbit #***. Number of MAVEN orbit.
C) ***Day/Night***. Indicates whether the orbit is day or night.
D) ***SZA Range***. Range of SZA (Solar Zenith Angle) values for the MAG data used in calculations. Units of degrees.
E) ***MSO Lat Range***. Range of Latitude values for the MAG data used in calculations (in MSO coordinates). Units of degrees.
F) ***MSO |B| RMS***. RMS value of total magnitude of the magnetic field (in MSO coordinates). Compares MAG data to M14 model data. Units of nanotesla (nT).
G) ***GEO-Cartesian Lat Range***. Range of Latitude values for the MAG data used in calculations (in GEO-Cartesian coordinates). Units of degrees.
H) ***GEO-Cartesian |B| RMS***. RMS value of total magnitude of the magnetic field (in GEO-Cartesian coordinates). Compares MAG data to M14 model data. Units of nT
I) ***Magnetic Barrier Field Strength***. Measured strength of the magnetic barrier field at Mars in GEO-spherical coordinates). Only done for dayside orbits. Units of nT.
J) ***Barrier SZA***. SZA value for which the Magnetic Barrier Field Strength was calculated. Only done for dayside orbits. Units of degrees.
K) ***Barrier Altitude***. Altitude value for which the Magnetic Barrier Field Strength was calculated. Only done for dayside orbits. Units of kilometers (km).
L) ***GEO-Spherical |B| RMS***. RMS value of total magnitude of the magnetic field (in GEO-Spherical coordinates). Compares MAG data to M14 model data. Units of nT.
M) ***GEO-Spherical B_rho RMS***. RMS value of rho component of the magnetic field (in GEO-Spherical coordinates). Compares MAG data to M14 model data. Only done for day/night orbit pairs. Units of nT.
N) ***GEO-Spherical B_theta RMS***. RMS value of theta component of the magnetic field (in GEO-Spherical coordinates). Compares MAG data to M14 model data. Only done for day/night orbit pairs. Units of nT.
O) ***GEO-Spherical B_phi RMS***. RMS value of phi component of the magnetic field (in GEO-Spherical coordinates). Compares MAG data to M14 model data. Only done for day/night orbit pairs. Units of nT.
P) ***Dayside Pair***. Lists the corresponding dayside orbit that this orbit pairs with (if applicable).

Q) ***Nightside Pair***. Lists the corresponding nightside orbit that this orbit pairs with (if applicable).

Some Definitions

MSO Coordinates. Mars Solar Orbital coordinates. X towards the Sun, Y backwards along axis of orbit, Z towards Ecliptic north.

GEO-cartesian Coordinates. Geographic cartesian coordinates. Z out of north pole. X and Y out of equator, with right angles to each other.

GEO-spherical Coordinates. Geographic spherical coordinates. Rho is radial component, Theta is polar component, Phi is azimuthal component.