

Ionosphere of Mars as seen by Mars Express. Effect of crustal fields

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Abstract

The Martian ionosphere is studied using the local electron number densities and total electron content (TEC) derived from the observations onboard Mars Express. The data are complemented by the ASPERA-3 observations which provide us with the information about upward/downward velocity of the low-energy ions and electron precipitation. We consider 5 years of Mars Express observations at different solar cycle intervals. Different factors which influence the ionosphere dynamics are analyzed. The focus is made on a role of the crustal magnetic field on the Martian ionosphere.