

Radio emission in the Hermean bow shock and reconnection region

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The aim of this study is to quantify the radio emission from the Hermean magnetosphere. We use the MHD code PLUTO in spherical coordinates with an asymmetric multipolar expansion for the Hermean magnetic field, to analyze the effect of the interplanetary magnetic field (IMF) orientation and strength, as well as the hydro parameters of solar wind (velocity, density and temperature), on the net power dissipated from the Hermean bow shock and the reconnection region on the planet night side. We apply the formalist defined in Zarka P. 2001 and 2007 to correlates the net power dissipated with the radio emission. We perform a set of simulations with different hydro parameters of the solar wind, IMF orientation and strength, to calculate the dissipated power distribution and hot spot of radio emission on the bow shock, as well as the integrated radio emission of the Hermean magnetosphere. The radio emission and the distribution of dissipated power obtained are strongly dependent of the IMF and solar wind configuration. The total radio emission obtained is in agreement with Zarka P. 2001, 106 W.