

Dependence of Jovian Magnetopause Location on Solar Wind Dynamic Pressure

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Past observations revealed that the probability density distribution of Jovian magnetopause stand-off distance has double-peak. The probability between two peaks is very low. Thus the stand-off distance of Jovian magnetopause changes from the peak distance to the other peak by solar wind dynamic pressure. However, the scatter plot of stand-off distance versus solar wind dynamic pressure was nearly on one line. But the solar wind dynamic pressure was considered by magnetic pressure in the Jovian magnetosphere, due to the absence of the solar wind monitor at the Jovian orbit. We approached the double-peaked distribution by using the calculated solar wind parameters via MHD equations whose input parameters are based on the observation at Earth's orbit. Referring the propagated solar wind parameters, we investigated the location of Jovian magnetopause observed by the Galileo spacecraft. We found that the peaks of the distribution seem to be a result of probability density distribution of solar wind dynamic pressure. The very low probability stand-off distance between the peaks seemed to be caused by unusual distribution of solar wind dynamic pressure.

Keywords: Jovian Magnetopause, Solar Wind Dynamic Pressure