

# Relation of the IMF $B_y$ to Plasmoid Ejection at Jovian Magnetotail

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Jupiter has the marked character such as rapid rotation and strong magnetic field. Therefore, the Jovian magnetosphere is remarkably different from the Earth's magnetosphere. So far 7 spacecraft have observed the Jovian magnetosphere and we obtained a lot of basic and interesting observational results than other outer solar system planets. However it has not been explained how Jovian magnetosphere behaves to variation of the solar wind.

We have done Jovian simulations with several conditions. We have obtained the results of Jovian MHD simulation that plasmoids have been ejected periodically in the magnetotail. These ejections occurred under the condition that the IMF was northward. The period and appearance are dependent on the solar wind conditions. For example, the solar wind dynamic pressure decreased then the ejection period became shorter. It is thought that these plasmoid ejections are related to the plasma circulation around Jupiter starting from tail reconnections. Now, we have simulated the Jovian magnetosphere including IMF  $B_y$  to study how occurrence of reconnection depends on the IMF.

First we added the IMF  $B_y$  (0.42nT) to the simulation model and ran until it was the steady state. Then we applied the northward IMF that was the same magnitude of IMF  $B_y$  and continued the calculation. In that case we acquired the interesting configuration of the Jovian magnetosphere that formation of streamer-type islands perturbations for plasma sheet. Moreover the plasmoid ejection did not occur. Successively the solar wind dynamic pressure was decreased to expand the magnetosphere, then again the plasmoid was not ejected.

The preceding state of the previous simulation that the plasmoid ejection occurred for northward IMF, was the closed and dipole-like magnetosphere by the effect of southward IMF or no IMF. Therefore the amount of plasma that the Jovian magnetosphere maintained originally may affect the plasmoid ejection. In this presentation we will show the simulation results that the IMF turned southward to northward including IMF  $y$ -component.