

Hybrid simulation of ion beam injection from an electric propulsion engine into the magnetosphere

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Electric propulsion engines have been studied as one of the means to transport huge amount of supplies in space. An artificial heavy ion beam injected from an electric propulsion engine affects plasmas in the plasmasphere and the magnetosphere. Theoretical studies of this problem were performed by Chiu et al.[1980] and Curtis et al.[1980] assuming an electrical propulsion engine with 40m in diameter, which will be used to transport supplies for building Solar Power Station in space. In the present study we study interaction between the heavy ion beam injected into the magnetosphere by performing two-dimensional hybrid simulations. In this paper, preliminary results of the hybrid simulation will be reported.