

R009-06

A 会場 : 11/24 PM1 (13:45-15:45)

15:00~15:15:00

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Dependence of proton and magnetic field structures in Mercury's magnetotail on upstream IMF directions

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Mercury has a small magnetosphere owing to its weak intrinsic magnetic field and interactions with the solar wind. However, the dependence of global distributions of ions and magnetic fields in Mercury's magnetotail on upstream interplanetary magnetic field (IMF) directions remains unclear. A recent study has reported that proton number density sometimes shows a clear north – south asymmetry controlled by the IMF Bx component (Zhong et al., 2024). In this study, we used MESSENGER observations of magnetotail protons and interplanetary magnetic field directions, thereby analyzing the dependence of spatial distributions of magnetotail protons and magnetic fields on the IMF directions. As a result, we identified a dependence of cross-tail current sheet thickness on the IMF Bz component and a possible dependence of dawn-dusk asymmetry of proton distributions on the IMF By component in MSO coordinates. Based on these results, we discuss transport and energization processes of Mercury's magnetotail protons.