

(B,V)パラダイムで俯瞰する磁気圏電離圏結合

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[1] なし

(B,V) paradigm of Magnetosphere-Ionosphere Coupling

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Global magnetosphere-ionosphere (M-I) coupling dynamics has been studied in the context how (B,V) paradigm magnetospheric dynamics interacts to the (J,E) paradigm ionospheric electrodynamics. In this scheme, the ionosphere is often treated as an electrostatic and/or incompressible medium hence the ionosphere instantaneously responds to the magnetospheric disturbances not only at the interface region where shear of geomagnetic field is directly mapping from the magnetosphere (e.g., polar ionosphere) but also at the region far from the M-I interface region (e.g., equatorial ionosphere). This means that causality and physics for vertical and horizontal propagation mechanism of ionospheric dynamics are neglected from the M-I coupling scheme. In this study we reconsider the M-I coupling process described by the (B,V) paradigm of ionospheric dynamics in the context of Hall-MHD. We will demonstrate about how dynamical process of Cowling channel formation and “transmission process of electric field” can be explained by the (B,V) paradigm.