

渦乱流によるプラズマ輸送：テミス衛星観測 THEMIS observations of plasma transport induced by eddy turbulence

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We provide an event study of THEMIS observations of the low-latitude boundary layer in the noon-dawn sector of the magnetosphere on 2008-12-05. Simultaneous multipoint observations show that the magnetosheath-like plasma is transferred earthward from the magnetopause. This earthward transport is accompanied by decrease in the density and fluctuating bulk flow, indicating that the transport is not due to convection. We calculate the eddy diffusion coefficients from the observed velocity data and found that the numbers are in good quantitative agreement with the spatial and time scales of the observed earthward transport signatures. Our study suggests that the observed transport is due to diffusive transport via turbulent eddy motions as is the case of an ordinary (Navier-Stokes) fluid.

キーワード: プラズマ輸送, 拡散, 乱流, テミス
Keywords: plasma transport, diffusion, turbulence, THEMIS