

尾部リコネクションのエネルギー散逸に対する波動の寄与の評価 Contribution of wave activity observed around the X-line to the reconnection energy dissipation

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In JpGU 2012, we have reported plasma wave activity observed in one of the best event on May 15, 2003 of the near Earth magnetotail reconnection. Our conclusion was that the Geotail observation is consistent with the collisionless reconnection model as shown in recent kinetic simulation results. Recently, Zenitani et al. (2012) successfully estimated the energy dissipation rate of the same reconnection event. Their result is also consistent with our interpretation that the observed wave activity cannot be a major player of the reconnection dissipation. To confirm our present conclusion more, we have examined plasma wave activity observed in some more reconnection events where Geotail possibly encountered with the electron diffusion. As a result, we commonly found that the wave intensity right in the center of the electron current layer, that is a possible X-line, is much weaker than that in its surrounding region. These Geotail observations suggest that the magnetic diffusion region of the near Earth magnetotail reconnection site is mainly controlled by the physics of the collisionless reconnection process, rather than the anomalous resistivity due to turbulence.

キーワード: 磁気リコネクション, エネルギー散逸
Keywords: magnetic reconnection, energy dissipation