Plasma dynamics and field evolution in large-scale magnetic reconnection

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We investigate an evolution of large scale two-dimensional magnetic reconnection by means of a two-dimensional hybrid simulation. In the evolution, the electromagnetic field structures, e.g. Hall magnetic field around the diffusion region, are developed by the local plasma dynamics. Some of these field are considered to be phasestanding field structures and others are propagating away as plasma waves. Therefore histories of the evolution are partly recorded in the local and/or border structures in the whole magnetic reconnection region. We discuss the causal relationship between the plasma dynamics and field evolution in large-scale magnetic reconnection.