

Evolution of fast plasma flows during magnetic

reconnection

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We study magnetic reconnection in the Earth's magnetotail using 3-D hybrid simulations (ion particle, charge neutralizing massless electron fluid). Magnetic reconnection is initiated by a localized anomalous resistivity in the plasma sheet and generates a pair of plasma flows in the Earth-tail direction. The plasma flows show an asymmetric feature in the dawn-dusk direction because they consist of the ions exhibiting non-adiabatic motions. When the resistive region is large in the dawn-dusk direction, the plasma flows are accelerated up to the lobe Alfvén speed the same as the previous 2-D results. However, they are not when the resistive region is small. We will discuss a dependence of the fast plasma flow generation on the magnitude and shape of the anomalous resistivity.