

Determination of reconnected flux via remote sensing

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Magnetic reconnection is the one of the most fundamental processes in the magnetosphere. Here we present a simple method to determine the essential parameters of reconnection such as the reconnected flux and the location of the reconnection site out of single spacecraft data via remote sensing. On the basis of a time-dependent reconnection model the dependence of the reconnected flux on the magnetic field z-component B_z is shown. The integral of B_z over time is proportional to the reconnected flux and depends on the distance between the reconnection scene and the actual position where B_z is measured. This distance can be estimated from analysis of magnetic field B_x and B_z data. We apply our method to Cluster measurements in the Earth's magnetotail.