



Simultaneous observations of reconnection pulses at Cluster and their effects on the cusp aurora seen at Chinese Yellow River Station

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While the Cluster spacecraft were located near the high-latitude magnetopause, between 10:10 and 10:40 UT on 16 January 2004, three typical flux transfer event (FTE) signatures were observed. During this interval, simultaneous and conjugated all-sky camera measurements, recorded at Yellow River Station, Svalbard, Arctic, are available at 630.0 and 557.7nm that show poleward-moving auroral forms (PMAFs) consistent with magnetic reconnection at dayside magnetopause. Simultaneous FTEs seen at the magnetopause mainly move northward, but having duskward (eastward) and tailward velocity components, roughly consistent with the observed direction of motion of the PMAFs in all-sky images. Between the PMAFs in the meridional keograms extracted from the all-sky images are intervals of lower intensity aurora which migrate equatorward just before the PMAFs intensify: strong evidence for the equatorward eroding and poleward moving open-closed boundary (OCB) during a variable reconnection rate under variable IMF conditions. From the durations of the PMAFs we infer that the evolution time of FTEs is 5 -11 minutes from its origin on magnetopause to its addition to the polar cap.