Fractal analysis of the magnetic fluctuations near local dipolarization at 5-7 Re

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The satellite observations show that the substorm onsets are accompanied by specific behaviors of the particle fluxes and fields. The short-time pseudo-periodic fluctuations are observed by CRRES satellite in the night side of the Earth's magnetosphere near the moment of the local magnetic field dipolarizations at the 5-7 Re. The period and amplitude of these fluctuations are varying, so the usual Fourier analysis can not be used. Earlier the same substorm associated fluctuations at 7-9 Re have been studied by [Ohtani et al., JGR, 1995,1998] by using the fractal analysis. Here we have made the same analysis of the CRRES observation data. The results of the fractal analysis we use in discussion of the dynamical features of the particle fluxes, magnetic field components and equivalent disturbance currents.
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