

PEM031-P07

Room:Convention Hall

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## Coordinated ground and multi-satellite observations of eastward drifting auroral forms in the post-midnight sector

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We present eastward drifting auroral forms in the post-midnight sector on 21 September 2009 and the associated in-situ signatures in the near-Earth tail. All-sky cameras (ASC) at the Iceland-Syowa geomagnetic conjugate stations observed successive eastward passage of optical auroral forms similar to omega bands. The auroral forms had dimensions of 100-200 km in longitude and less than 100 km in latitude, and an eastward propagation speed of  $\sim 1.5$  km/s. The ground magnetometer measured magnetic field fluctuation with period of  $\sim 2$  minutes and amplitude of  $\sim 10$ -20 nT, which were generated by the passage of brighter auroral forms. During this interval, the Cluster satellites were located in the central near-Earth tail ( $X = -11 \sim -14$  Re) conjugate to the ground-based ASCs. The Cluster 2 and 4, which were longitudinally separated by  $\sim 7700$  km in  $Y_{gsm}$  (Cluster 2 was closer to the midnight), detected similar local magnetic field variations with a time delay comparable to the eastward propagation time of the observed auroral forms. The in-situ magnetic field variations are probably attributed to a series of oppositely directed field-aligned currents responsible for the auroral forms. In addition to the above-mentioned features, we will discuss more detailed relationship between the eastward drifting auroral forms and the counterparts in the near-Earth tail.

Keywords: aurora, ground-satellite observations, magnetotail configuration