



## **Conjugate and non-conjugate auroras observed with TV cameras on the ground**

**N. Sato** (1), A. Kadokura (1), Y. Ebihara (1), H. Deguchi (1), T. Saemundsson (2)

(1) National Institute of Polar Research, Tokyo, Japan, (2) Science Institute, University of Iceland, Iceland (nsato@nipr.ac.jp)

Interhemispheric conjugate auroras provide a unique opportunity to examine how and where the geomagnetic field lines connect the two hemispheres. Measurements of conjugate auroral displacements as well as auroral dynamics should provide useful information for understanding the magnetosphere-ionosphere coupling and solar wind-magnetosphere reconnection processes, and also should help to improve the accuracy of global magnetic models. We report on highly similar auroras that were simultaneously acquired with all-sky TV cameras situated at two geomagnetically conjugate points, at Tjornes in Iceland and at Syowa Station in Antarctica. During this event, meso-scale discrete auroras, including both east-west and north-south directed auroral forms, showed excellent similarity in terms of shapes, movements and luminosity variations at both observatories. Using these data we were able to trace the temporal movements and displacement of auroras in the Northern and Southern Hemispheres with a high spatial-temporal resolution. Our results indicate that the geomagnetic conjugate point of one station moved  $\sim 200$  km in longitude and  $\sim 50$  km in latitude in one hour due to changes in topology of the geomagnetic field. Furthermore, similar and dissimilar auroras appeared simultaneously in adjoining areas of sky in both hemispheres. This feature suggests that both symmetric and asymmetric acceleration processes occur simultaneously at two locations under almost identical ionospheric conditions.