

## Micro-scale structures and dynamics of auroral arcs with a narrow-FOV high speed auroral imager

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Micro-scale structures and dynamics of discrete auroral arcs are expected to contain the most elementary and essential information relevant to the generation mechanism of auroral particles in the coupling region of the ionosphere-magnetosphere. In order to clarify the characteristics of the micro-scale structures and dynamics of elementary auroral arcs quantitatively, we have carried out campaign-based observations in Sondrestrom (Inv. Lat.=74.5) , Greenland and Syowa Station (Inv. Lat.=66.0), Antarctica using a narrow-FOV high sensitive auroral imager with an extremely fine spatial resolution (~11m) nearly equivalent to the gyro-radius of precipitating electrons at 100km altitude in the ionosphere. It has been confirmed from these observations that the width of auroral arcs which form into curl structures is almost very thin (~100m), thus the generation mechanism for these thin arcs in the ionosphere-magnetosphere is still open question as originally indicated by Borovsky(1993). In this paper, we present an observational summary of the micro-scale structures, fast drift motions and fluctuations of discrete arcs.