

# Micro-scale structures and dynamics of aurora: Curls and Flickering auroras

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Micro-scale structures and dynamics of aurora are expected to contain essential information relevant to the generation mechanisms of auroral particles in the coupling region of the topside polar ionosphere and the magnetosphere. On this perspective, we have made quantitative and comprehensive analyses on the characteristics of the micro-scale structures and dynamics of aurora which have been collected through our past campaign-based observations in Sondrestrom, Greenland (Inv. Lat.=74.2) and Syowa Station, Antarctica (Inv. Lat.=66.0) using a narrow-FOV (4.0degx2.7deg) auroral imager viewing at the local magnetic zenith with an extremely fine spatial resolution (~11m).

It has been confirmed from previous studies that the thickness of elementary auroral arcs which evolve into curl structures is very thin (~100m) in many cases, so the generation mechanism for these thin arcs in the ionosphere seems still open question as originally pointed out by Borovsky(1993). In this paper, we will present an observational summary of the micro-scale structures, fast drift motions and fluctuations of curls and flickering auroras during auroral breakup.