

Micro-scale structures and dynamics of flickering aurora with a narrow-FOV auroral imager

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

In this paper, fine structures and fast fluctuation of auroral intensity in flickering auroras are focused and discussed in detail, comparing to the current proposed models of a flickering aurora during an auroral breakup.