A study of the horizontal fine-structure in the arc-associated current system using data from the IS radar and REIMEI satellite

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An important aspect of the coupled magnetosphere-ionosphere system at high latitudes is to know the arc-associated current system. While much is already known about the average characteristics of the system in this field, the subject has not yet been adequately investigated, in particular, the horizontal fine structure. We conducted simultaneous observations with the REIMEI satellite and the Sondrestrom Incoherent-Scatter (IS) radar at Greenland in order to measure the ionospheric plasma velocity around the auroral arc. A simultaneous observation on 3 October 2007 provided a good event, which showed an auroral arc taken with the camera on the REIMEI satellite together with ion-velocity enhancements measured with the IS radar around the arc. The paper will present the result on 3 October 2007 along with other IS-radar results.