

Auroral particles at substorm initial brightening: DMSP and ground-camera measurements

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Substorm is a fundamental disturbance in the polar ionosphere and the magnetosphere. Auroral initial brightening and Pi2 magnetic pulsation are observed at the onset of a substorm. However, precipitating particles that cause the initial brightening have not been investigated in detail, because of the difficulty of simultaneous measurements of these two phenomena. In this study, we investigate the auroral particles associated with the initial brightening, by using high-time resolution (1-4 s) all-sky auroral images obtained in Canada, Alaska, and Siberia during and after the STEP period (1990-1997) and auroral particle and ion drift data obtained by the DMSP satellites. In the presentation we show results from a preliminary analysis of an initial brightening and Pi2 pulsation event observed at 04:10 UT on December 30, 1994, at Fort Smith, Canada (60N, 248E, MLAT=68N), during which the DMSP F15 satellite traversed above the ground station.