

## 昼間側レッドオーロラとF層プラズマパラメタの経度プロファイル：全天イメージャーとESR equi-MLAT mode 観測

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### Longitudinal profiles of the dayside aurora and F-region plasma parameters: Observations by all-sky imager and ESR equi-MLAT mode

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A high-sensitivity all-sky imager, which was set up at Longyearbyen, Svalbard in October 2011, has uncovered dynamic features of the dayside red aurora. The red aurora is produced by soft electron precipitation that is typical of the cusp, and various dynamic plasma phenomena, including cusp flow bursts, sharp increases in electron/ion temperature, or modest enhancements in the F region electron density, are thought to occur concurrently with the brightening of the dayside red aurora. In this study, we obtain longitudinal profiles of these close relations as a snapshot by using data from the all-sky imager and 2D images obtained from the EISCAT Svalbard radar. For the EISCAT 2D image, we have designed an experiment capable of obtaining the longitudinal profiles of the F region plasma parameters along the equi-magnetic latitude, i.e., equi-MLAT mode. By changing both elevation and azimuthal angles over time, this mode can have a wider FOV along the equi-magnetic latitude than the common mode in which the radar was pointing north at a fixed elevation. The FOV is about 2 MLT in wide, which is typical of the convection throat region; this mode can obtain a snapshot view of the convection throat region. We carried out the equi-MLAT mode experiment during about 30 hours in December 2011. We present detailed results from observations during several hours on 21 December 2011 when IMF was southward.