

R006-01

A 会場 : 9/25 PM1 (13:45-15:30)

13:45~14:00

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Spatiotemporal variation of 3D distribution of discrete auroral arcs

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We have analyzed the three-dimensional (3D) distribution of the discrete auroral arcs observed in Northern Europe on March 14, 2015, by using Aurora Computed Tomography (ACT), which is a method for reconstructing 3D distribution of auroral optical emission from monochromatic images taken at multi-point imager network. We compared the obtained height profiles of optical emission at 427.8nm wavelength with those of the electron density observed by the EISCAT UHF radar and found that they were very similar each other. On the other hand, the electron density estimated by the ACT analysis was smaller than that observed with the radar by a factor of about 2 and it was not clear what made the difference.

We recently improved the ACT method mainly with respect to the following points; (1) the determination of the relative sensitivity between imagers, (2) the reconstruction using multi-wavelength monochromatic images, (3) the reconstruction considering the temporal variation of electron density, and (4) the validation of the reconstruction result by simulation under realistic conditions. In this study, we present reanalysis results of the discrete arcs by using the improved ACT method. We compare the electron density estimated by ACT with the EISCAT radar observation and further discuss the spatiotemporal variation of the 3D distribution of the discrete arcs.