

Simultaneous observation of auroral ionosphere and emission spectra made by ESR and ASG

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Changes in energy spectrum of precipitating electrons produce variation of auroral emissions as well as variation of auroral ionosphere. Observation of aurora spectra with an aurora spectrograph (ASG), installed at Longyearbyen, Spitzbergen in the arctic, was started in the winter season of 2000/2001. In this optical observation, an auroral spectrum was recorded every 3 minutes along geomagnetic meridian with a field of view of 180-degree, a wavelength resolution of 1.2nm over wavelength region of 450-765nm, and with exposure time of 15 seconds. EISCAT Svalbard radar (ESR) is also installed at Longyearbyen for observation of auroral ionosphere.

We have surveyed concurrent observation periods of the two facilities, and found three cases in which simultaneous data exist. We will discuss the relationship between changes in auroral ionosphere and variation of auroral spectra (absolute intensity of each emission line and the ratio among them), based on the simultaneously obtained data sets.