

R006-60

Zoom meeting B : 11/4 PM2 (15:45-18:15)

16:00~16:15

Temporal variations of enhanced low-energy electron fluxes associated with the auroral arc near the nightside polar cap boundary

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Near the nightside polar cap boundary there often occur broadband precipitating electrons, in which the fluxes of the low-energy electrons are strongly enhanced. These electrons can produce a tall red aurora. Previous satellite observations have clarified the energy profiles and spatial characteristics of the broadband electron precipitation, but we still do not understand how the broadband electron precipitation grows or decays near the nightside polar cap boundary. In this study, to understand the temporal variations of the broadband electron precipitation, we have developed an automated method for estimating the temporal variations of the distribution of the 630-nm auroral volume emission rate, and of the energy flux of the precipitating electrons by analyzing auroral image data obtained by an all-sky imager (located at Longyearbyen, Svalbard), and comparing the auroral distribution with predicted 630-nm emissions calculated by the Global Airglow model. The results show that the energy fluxes of the low-energy electron precipitation are enhanced intermittently, and that the horizontal width of the electron precipitation region tends to become narrow when the enhanced low-energy electron precipitation occurs. We discuss these relationships in terms of the motion of the aurora.