

Pc5 enhancement of auroral arc and modulation of diffuse/pulsating aurora

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There are two types of auroral luminosity pulsations. The first type is a short-period pulsation with the main period of a few to a few tens of seconds, which is called pulsating aurora (PsA). The second type is a longer period pulsation in the Pc5 (150–600 s) period range, which is called long-period auroral pulsation. The long-period auroral pulsations have two categories: one is arc aurora luminosity pulsation and other is a patch aurora luminosity modulation. We examined the two different types of long period auroral pulsations, which occurred in association with the Pc5 magnetic pulsations. To understand the generation mechanism of the long period auroral pulsation we focused on events in which the arc pulsation and the patch intensity modulation were observed simultaneously. In general an arc aurora appears just on the poleward side of patch aurora including pulsating aurora. In this study, we examined the temporal and spatial signatures of the two types of long period auroral pulsations using the data obtained by the ground and the geostationary GOES satellite coordinated observations.