

Electron flux characteristics observed by THEMIS and DMSP spacecraft associated with Pc 5 auroral arc pulsations

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Pc 5 auroral arc pulsations observed on the ground exhibit east-west-aligned auroral arcs elongated ~ 1000-3000 km and behave poleward moving form with the recurrence period of ~ 2-10 minutes (Pc 5 range). Ground-based magnetic field variations (Pc 5 magnetic pulsations) are associated with the luminosity pulsations. Previous study reported that this type of Pc 5 magnetic pulsations could be generated by the field-line resonances (FLRs). We examined the ground-space coordinated observations with the THEMIS spacecraft whose footprint traversed near the region of Pc 5 auroral arc pulsations observed on the ground. Field and particle characteristics observed by the spacecraft are as follows: 1) Electric field variations and plasma velocity modulations show one to one correlation with the Pc 5 auroral luminosity pulsations, 2) Magnetic field variations also show the same periods but the wave form is not so clear as that of electric field and plasma velocity variations, 3) Occasionally electron flux shows the same modulation as the electric field variations. In this study we focus on the characteristics of electron flux variations in association with the Pc 5 auroral arc pulsations observed onboard the THEMIS and DMSP spacecraft. The THEMIS satellites were located near the equatorial plane in the magnetosphere and the DMSP satellites traversed in the ionosphere and crossed over the field of view of all-sky imager at Syowa Station.