Plasma and magnetic field variations associated with an auroral brightening at the synchronous orbit

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We examined magnetic field variations at the synchronous orbit in the midnight sector with an auroral pseudobreakup event which was recorded at the period of GADC (Shamattawa: 0500 UT - 0520 UT; January 17, 1986), using auroral images and magnetic field variations observed at ground and at geosynchronous satellites, GOES -5 and -6. The results indicated that the magnetic field variations were driven by a plasma cloud appearing between both satellites.

This time, we examine an auroral breakup event from 0623 UT to 0723 UT of January 17, 1986, using same data sets. Furthermore, we examine a spatial and temporal distribution and a motion of plasma near the synchronous orbit using energetic particle data recorded by LANL satellite at the post-midnght sector.

Nishitani and Oguti [1988] and Saka et al. [2000] reported that the magnitude of the total magnetic field tends to decrease at auroral breakup onset and at Pi2 onset. This indicates that plasma cloud appears near the synchronous orbit at such time.

To demonstrate this, we examined magnetic field variations at the synchronous orbit in the midnight sector with an auroral pseudobreakup event which was recorded at the period of GADC (January 17, 1986: 0500 UT - 0520 UT; Shamattawa), using auroral images and magnetic field variations at ground and at geosynchronous satellites, GOES -5 and -6 (L = 6.6 Re). The results indicated that the magnetic field variations were driven by a plasma cloud appearing between both satellites and perturbation of the D component oscillated eastward (westward) in the pre-midnight (post-midnight).

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