

テミス衛星群と地上オーロラビデオとによる2008年3月のサブストーム同時観測

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Video observations of auroras at Fort Smith for the THEMIS major conjunctions on March 1 and 5, 2008

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We took white-light all-sky videos (sampling rate: 30 Hz) of auroras at Fort Smith (67 MLAT, 23 MLT at 0720 UT), Canada when the THEMIS satellites were aligned on the pre-midnight on March 1 and 5, 2008. Variety of auroras was observed on these nights. Below we concentrate on a pseudo-breakup at 0647 UT on March 1. We also plan to show other events on March 1 and 5 in the meeting. On March 1, 2008, an auroral arc, moving equatorward, disappeared around 0640 UT in the south. Six minutes later, faint patches were first recognized around 0646:28 UT near the latitude where the previous arc dimmed in the south sky. Co-located with the patches, a weak arc showed up and gradually intensified, and a pseudo-breakup occurred there at 0647:27 UT, presumably inside the field of view of the camera. The pseudo-breakup dimmed around 0648 UT. At the same time, other patches showed up and were followed by some breakups. Corresponding THEMIS satellite observations include a southward turning in the magnetic field with a slow but spiky tailward flow (~100 km/s) observed by THEMIS-B (GSM-X,Y,Z = -20,4,-2 Re) at 0645 UT, 2 minutes before the pseudo-breakup. Followed are slow earthward flows at 0646 UT in THEMIS-E (200km/s, -11,4,-2 Re) and in THEMIS-D (50 km/s, -11,3,-2 Re). A sharp dipolarization of 10 nT was also observed at 0646 UT in THEMIS-A (-7,5,-2 Re). THEMIS-C (-16,4,-3 Re) did not observe flows but observed a peak in the total pressure at 0646 UT. A comparison of these timings suggests that this particular pseudo-breakup was caused by a reconnection inside 20 Re ~2 min before the pseudo-breakup.