

PEM031-02

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## Magnetospheric Substorm Observed by QZS, ETS-VIII and MAGDAS on October 25, 2010 - Preliminary result-

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In this study, we analyzed magnetic field variations observed by the quasi-zenith satellite QZS [Matsumoto et al., 2011] and the geostationary satellite ETS-VIII [Koga and Obara, 2008] during magnetospheric substorms. The field configuration quickly changes from tail-like to dipole-like after expansion phase of magnetospheric substorms. The magnetic data from MAGDAS (MAGnetic Data Acquisition System) [Yumoto et al., 2006] low-latitude station were used to identify the onset of magnetospheric substorms. At the onset of the magnetospheric substorms, Pi 2 magnetic pulsations occur globally in the magnetosphere. We focus on the October 25, 2010 substorm event. On the day, the isolated substorm occurred around 13:30UT. The azimuthal distance between QZS and ETS-VIII is about 2Re. They moved eastward at the speed of about 1.7Re/hour.

The following results are obtained;

(1) X-component (azimuthal) variation observed by QZS and ETS-VIII changed from negative to positive (Westward is positive sense) within 10 minutes. It means the QZS and ETS-VIII crossed the very thin plasma sheet.

(2) Y-component (compressional) variation observed by QZS changed from positive to negative (Northward is positive sense) after substorm onset. It means that QZS was located inside Substorm Current Wedge (SCW) at 13:33-13:38UT and then QZS moved outside SCW.

On the other hand, Y-component variation observed by ETS-VIII increased except 13:38-13:43UT period. ETS-VIII was located outside SCW in this period due to traveling of ETS-VIII. After that ETS-VIII was located inside SCW again. It indicates that SCW expanded eastward.

The difference of Y-component variation between QZS and ETS-VIII indicates that a transition region of the SCW is about 0.3 Re.