

Localtime Dependence of the Ground Magnetic Variations at Low and Middle Latitude of the Sawtooth Event on April 18, 2002

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During recovery phase of a magnetic storm which occurred on 18 April, 2002, quasi periodic variations of the low-energy electron flux are observed by the LANL satellites at the geosynchronous orbit, which is named 'Sawtooth event'. On the other hand, on the ground, magnetic bays and Pi2 pulsations appeared corresponding to the variations of the particle flux, and they are usually typical magnetic variations during substorms. However, any northward-turnings of the IMF-Bz corresponding to the sawtooth event were not observed by the ACE satellite. In this study, we have used the ground magnetic data from the middle and low latitude stations, which widely spread in the longitudinal direction, selected from the CPMN (Circum-Pan Pacific Magnetometer Network) and INTERMAGNET stations, and compared the magnetic variations during the sawtooth event with that of the typical substorm (Lester et al., 1984). As a result, local time distribution of the polarization axis of the Pi 2 pulsations show a good agreement with that of typical substorm. However, the magnetic variations of the magnetic bay did not show a tendency typical to usual substorms. From the above, it is suggested that the current wedge was formed during this sawtooth event, and generated the Pi 2 pulsations on the ground; however, the other current system (ex. partial ring current) may have been superposed on the current wedge, and made unclear the DC-component (magnetic bay) of the substorm-associated magnetic variations on the ground.