

Nighttime and Daytime Equatorial Pi 2 Pulsations Observed at the MAGDAS/CPMN Stations

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At the onset of magnetospheric substorms, impulsive hydromagnetic oscillations with periods of 40-150 sec, so called Pi 2 magnetic pulsations, occur globally in the magnetosphere.

In the previous study, we analyzed H-component magnetic data obtained from MAGDAS/CPMN stations, AAB, LKW, CEB, DAV, ANC, EUS and YAP, which are located near the dip equator. We found that enhancement of H-component wave amplitude of Pi 2 pulsations are occurred within each interval of 8-16 local-time. Furthermore, by comparing the data obtained from CEB, DAV and YAP, we found that as the observation site is nearer to the dip equator, the Pi 2 amplitudes tended to become larger. This amplitude enhancement of Pi 2 pulsations was seen not only in daytime but also in nighttime. We can explain the enhancement in daytime as effect of equatorial electrojet, but it is difficult to explain the enhancement in nighttime.

In the present study, we analyze H, D and Z-component wave amplitudes of equatorial Pi 2 pulsations obtained from CEB, DAV and ANC stations for the period of January 1-31, March 1-31 and Jun 1-30 2005. The following analyzed results are obtained;

(1) Amplitude ratio of H-component of equatorial Pi 2s at DAV (Dip Lat =-0.65) to CEB (2.73) is found to be almost 1.5 in night time, while that in day time to show equatorial enhancement and monthly dependence.

(2) Amplitude ratio of D-component of equatorial Pi 2 to H-component are found to be almost 0.3, in particularly to enhance to 0.5 at near local sunrise and sunset time, while H-component equatorial Pi 2 amplitude decrease at sunrise and sunset time.

(3) Amplitude ratio of Z-component of equatorial Pi 2 to H-component are found to be 0.3 at CEB and ANC, and 0.1 at DAV respectively.

At the meeting we will discuss why the amplitude ratio of H-component Pi 2s at DAV to CEB is found to be almost 1.5 constantly in night time and what is the mechanism of enhancement of the ratio of H-component and D-component of Pi 2 pulsations at around sunrise and sunset.