

## Cluster-MAGDAS/CPMN conjunction study of Pi2 wave characteristics in the inner magnetosphere

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In this paper we study Pi2 events simultaneously monitored by the Cluster spacecraft and ground magnetometers that belong to MAGDAS/CPMN (MAGnetometer Data Acquisition System/Circum-pan Pacific Magnetometer Network). In particular, we focus on cases in which Cluster was located in the inner magnetosphere.

So that Cluster and MAGDAS/CPMN are located close in longitude, we have selected Pi2 events for which Cluster was located within the magnetic-longitude range of 180-240 deg, because the distribution of MAGDAS/CPMN magnetometers is dense around the 210 deg magnetic meridian. We have also required that Cluster was located in the nightside inner magnetosphere.

Among thus selected Pi2's, we have so far found four Pi2's for which a few of the Cluster satellites were located within the plasmasphere while the rest were located outside the plasmasphere. Features of the four Pi2's have been studied, with the ground Pi2 signal as a key reference, by using the coherence analysis and the independent component analysis. The results include the following. Just outside the plasmopause, the Pi2 signal was identified with amplitudes comparable to that on the ground. Just inside the plasmopause, the Pi2 signal was identified, but its amplitude was a few times smaller than that on the ground for three out of the four events. The Pi2 amplitude outside the plasmasphere increased with increasing latitude, both in space (Cluster) and on the ground (MAGDAS/CPMN).