

## The mode structure of the Pi2 pulsations simultaneously observed by AMPTE/CCE, DE-1, and ground stations

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The plasmaspheric cavity mode resonance, established by a fast mode wave, is a possible source for low- and mid-latitude Pi2 pulsations. In previous studies, the equatorial AMPTE/CCE satellite (apogee: 8.8 Re geocentric; perigee: 1100 km altitude) detected geomagnetic field oscillations predominantly in the compressional component and in the radial component at the low-L values. Meanwhile, the polar orbiting DE-1 satellite (apogee: 4.6 Re geocentric; perigee: 500 km altitude) observed many compressional Pi2 pulsations exhibiting high coherence with the low-latitude ground H component, in the region outside the plasmasphere even within the polar cap. However, there are no previous simultaneous ground satellite observations of Pi2 pulsations in the near-Earth magnetosphere including the polar cap. In the present study, we compare the characteristics of Pi2 pulsations observed simultaneously by the DE-1 and AMPTE/CCE satellites with those detected at low- and high-latitude ground stations (Kakioka, Hermanus, Port Aux Francais, and Syowa station). At substorm onsets, we found three events in which Pi2 pulsations occurred over wide latitude on the ground. DE-1 was located within 3.7 Re and AMPTE/CCE located below  $L \sim 6$ . The two satellites detected Pi2 pulsations in the compressional component at the same time. These magnetic field variations were similar to those observed by low-latitude ground stations. In addition, AMPTE/CCE had geomagnetic disturbance not only in the compressional component but also in the azimuthal component when the satellite was located at L greater than 4 in two of the three events. The Pi2 pulsations in the azimuthal component had high coherence with that of a mid-latitude ground station. We discuss the mode structure of the near-Earth magnetic field disturbance for the Pi2 events.