

Ground-satellite observations of high-frequency EMIC waves beyond the Pc1 range

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Several high frequency geomagnetic pulsations beyond the Pc1 frequency range were observed by mid-latitude ground-based induction magnetometer at Moshiri, Japan. We found that Van Allen Probe B observed magneto sonic wave (MSW) and electromagnetic ion cyclotron (EMIC) waves during the inbound orbit from L=4 to 2 simultaneously with one of ground high-frequency Pc1 events on September 11, 2015. Appearances of MSW preceded to EMIC waves. This conjugate observations indicate that mid-latitude high-frequency Pc1 pulsations beyond the range result from propagations of EMIC waves existing deeply inside the inner magnetosphere, and the source of EMIC wave is probably MSW. In the presentation, we show the details of analyzed results both ground and satellite data including these wave polarizations. In addition, we show statistical characteristics of occurrence time, duration, magnetic local time, spectral type, and relation to geomagnetic storm of high-frequency Pc1 at mid latitudes in 2015.