Norhern/southern asymmetry of Pc 3-5 powers observed at the 210MM high- and low-latitude conjugate stations

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In order to daignose the magnetospheric plasma distribution and the ionospheric conductivities by means of ULF wave parameters, we analyzed magnetic field data at magnetic conjugate station pairs along the 210 deg. magnetic meridian. The frequency-time diagrams of ULF wave power spectra observed at high- and low-latitude conjugate pairs at Kotzebue in Alaska and Macquarie island in Australia and at Moshiri in Japan and Birdsville in Australia are calculated, and then the power ratios of ULF waves, havig higher coherence than 0.7 between the conjugate pairs are examined with respect to the season and the latitudes of stations.

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The peculiarities of standing feild-line oscillations at the conjugate pairs can be summarized as follows; (1) At low latitudes(L=1.6), Pc 3 powers at MSR are larger than BSV in all seasons, while Pc 4-5 & Pi powers are larger in the summer hemisphere than in the winter hemisphere.(2) At high latitudes (L=5.4), Pc 4-5 powers at KOT are larger than at MQC in all seasons, while Pc 3 powers are larger in the winter hemisphere than in the summer hemisphere.

The Pc 3 at L=1.6 and Pc 5 at L=5.4 are the fundamental standing field-line oscillations, and then the nothern/southern asymmetry of wave powers can be explained by the asymmetry of ambient magnetic field intensity at the conjugate stations. The Pc 4-5 & Pi pulsations at the low latitudes are an evanescent mode, therefore amplitudes of these waves must be closely propotional to the intensity of the ionospheric conductivities. The Pc 3 pulsations at the high latitudes are a higher harmonic standing oscillation, and then the screening effect of the divergent Hall conductivity (Yoshikawa and Itonaga, 1999) should be much severe in the summer ionosphere than in the winnter ionosphere.