

Polarization characteristics of Pc1 pearl structure observed at Kawatabi, Osaki, Miyagi prefecture

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Pc1 geomagnetic pulsations are often found in the ELF magnetic field data obtained by two sets of induction magnetometers EL-12 constructed by Tierra Technica Co. Ltd, placed in North-South and East-West directions at Kawatabi, Osaki, Miyagi prefecture Japan. The magnetic latitude of the observation site is N30 and the L value is about 1.3.

Although the data coverage was not very good, we have found 7 examples of pearl structures, within the frequency range of 1 to 5 Hz. They showed temporal variation of bandwidth such as 0.3 to 1.2Hz, or 0.9 to 1.8 Hz, forming pearl structures in dynamic spectra. The frequency itself also varied with time: they rose in 3 cases found in pre-midnight, and fall in 4 cases in the pre-midnight region.

Polarization of the magnetic variation was examined by using Fourier components of N-S and E-W magnetic field components. We have 4 events for which E-W and N-S observations were available. The polarization was steady and right-handed for one event, but for the rest, it was variable. One event showed left-handed polarization at higher frequency and right-handed in the lower. Other two events showed alternative polarizations pearl to pearl.

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