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Pc1 propagation in the ionospheric duct: wave vector determination

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Pc1 geomagnetic pulsations (Pc1) are believed to propagate as fast mode waves in the ionospheric duct. Previous studies tried to locate the Pc1 source region with different methods using the characteristics of the ionospheric duct propagation (e.g., polarization method and amplitude distributions). However, no observational study of the wave vectors and the dispersion relations in the Pc1 source region has been compared with the results estimated from model calculations of the Pc1 ionospheic duct propagation.
We have investigated propagation directions of Pc1 pulsations in the ionospheric duct with the 2D Wave Telescope technique. For our study, we used ground-based measurements of Pc1 pulsations from 27 May 2011, observed at 17 different stations of the Canadian magnetometer network CARISMA (www.carisma.ca). These multi-point measurements allow to derive detailed information directly on the wave propagation directions. We also show the dispersion relation of the Pc1 pulsations in the ionospheric duct.