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Parameters of Pc3-4 Pulsations on the Ground and in the Ionosphere

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Cross-Spectral parameters of Pc3-4 and Pi2 pulsations, measured at middle latitudes on the ground surface at the MM100 meridional chain and onboard (CHAMP satellite) are analyzed to discriminate pulsations of different physical nature. High coherence between pulsations on the ground and above the ionospheric E-layer corresponds, most probably, to FMS waves with big azimuthal scale. For them no ionospheric rotation, for Alfven waves. However, this have never been directly checked on the simultaneously measured ground and low-orbiting satellite data. In the present work we compare amplitude, spectral coherence and phase relations for ground and ionospheric Pc3-4 and Pi2 to clarify the existence of dependencies of phase and coherence relations on frequency and ionospheric conductivity.

The Pc3 events with pronounced latitude-frequency dependence due to FLR are selected on the ground, and the pulsation behavior above the ionosphere is analyzed for them. For FLR cases amplitude and phase cross-spectra are calculated. It is found, that phase relations in zones of high coherence are not identical to big-scale pulsations, probably due to influence of local resonance effects.