

THE SPECTRAL STRUCTURE OF PC3 PULSATIONS

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We analyse the spectral structure of Pc3 pulsations observed at low and mid-latitude stations in order to probe the ULF wave modes in the magnetosphere. The data were recorded at the MM100 stations in Europe and at approximately conjugate stations in South Africa. Fourier cross-spectral analysis, maximum entropy spectral analysis, and wavelet techniques are used. The results of our analysis suggest that at least three mechanisms play a role in the generation of the Pc3 pulsations. We demonstrate that a typical pulsation consists of a field line resonance (FLR) component, with latitude dependent frequency, and an upstream wave (UW) component, with frequency proportional to the IMF intensity (B_{IMF}). In addition, the pulsations exhibit frequency components which are independent of latitude and B_{IMF} . We suggest that cavity mode resonances may play a role.

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