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Natural electromagnetic disturbances in 5-20 Hz frequency range in the F-layer and on the ground

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The quasi-periodical disturbances of natural geomagnetic field in the frequency range 5-20 Hz registered at CHAMP satellite are analyzed and compared with ground data. Occurrence rates of coherent signals in the ionosphere and at the ground at different frequencies are studied and a maximum near the first Schumann resonance frequency is found. However, no relation of observed 8 Hz signal in the F-layer with thunderstorm activity is seen andthe latitude distribution demonstrates a clear polar maximum. Different mechanisms for excitation of several Hz disturbances in the F-layer are discussed.