

The frequency properties of the quasiperiodic variations of midlatitude Es layer traces amplitude

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Abstract

In the present work we report about long-term measurement of echoes from Es-layer performed using Kazan ionosonde with 1 minute period of ionogram registration. Deep quasiperiodic variations resembling interference beats at certain frequency range in amplitude of echoes from Es-layer were observed. A new form of data presentation is introduced, which allows not only to display clearly the critical frequencies of ionospheric layers, but also to demonstrate the fine structure of ionospheric layers. Interference beatings appear at 4 MHz in the afternoon and at 2 MHz at night, and have extent in the frequency range of ~0.5-2.5 MHz. With increasing sounding frequency, the distance between minima increase from 40 to 700 kHz. Es-layer occurrence probabilities depending on structural features of the reflection are determined. © 2011 IEEE.

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