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Effects of planetary waves in parameters of the midlatitude sporadic E layer

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Abstract

The spatial structure of the planetary waves in the frequency parameters of the sporadic E layer have been studied based on an analysis of the 30-year series of the ionospheric data for the midlatitude region of the Northern Hemisphere, which made it possible to observe the planetary waves with zonal wavenumbers 1, 2, and 3. The characteristic periods of existence have been revealed for these waves, and the seasonal distributions of these periods have been constructed. These waves can be considered among quasistationary formations according to their character; i.e., these waves are stationary or slowly move during long time intervals but can abruptly change the initial phase during 1-2 days. Two clearly defined zones between 30°-60° E and 210°-240° E have been detected as a result of an analysis of the longitudinal belts where an abrupt change in the initial phases of these waves is most frequent. © Pleiades Publishing, Ltd. 2009.

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