

MORFOLOGY OF THE IONOSPHERIC DISTURBANCES OVER NORTH- EASTERN REGION OF RUSSIA

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This paper presents results of investigation of the subauroral, mid-latitude ionosphere variations within the latitude-longitude sector (20–70°N, 90–160°E) obtained in the 22-23 cycles of solar activity. There are used the data from network of vertical and oblique-incidence sounding ionosondes, Irkutsk incoherent scatter radar and of total electron content (TEC) measurements at the network of GPS ground-based receivers. The analysis of the ionospheric responses to magnetic storms was carried out during both high and low levels of solar activity. There were revealed four groups of anomalous ionospheric disturbances observed during the low solar activity: falls of electron density in the evening hour connected with the formation of equatorial wall of MIT, large-scale ionospheric disturbances, wavelike disturbances within the periods from two till seven days, and sharp short-term variations in the electron density more intensive at the middle latitudes during the storm main phase. Observed disturbances can be induced by the joint action of a few factors: the increase in electric field of magnetospheric convection, the generation of AGWs in the auroral zone and their propagation southwestward, and the disturbed neutral winds generated by the large-scale storm-induced thermospheric circulation in addition to TADs associated with winds. The reason for occurrence of the wavelike disturbance within the periods from two till seven days can be the planetary atmospheric waves. This work was supported by the Program of Fundamental Studies of the Presidium of RAS no. 16 and by the Program no. 9 of Branch Geology, Geophysics, Geochemistry and Mining Sciences of RAS.

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