ABOUT THE POSSIBLE MECHANISM OF FORMATION OF EARTHQUAKE IONOSPHERIC PRECURSORS IN WENCHUAN

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The hot discussions about the existence of the seismo-ionospheric precursors are carried out now. These discussions can be resolved only by the detailed analysis of experimental data of behavior of various ionospheric parameters before earthquakes. To consider the seismo-ionospheric effects it is necessary to take into account a 27-day's cycle, effects of terminator, meteorological conditions, the solar flares, geomagnetic and solar activity, etc., that is why the analysis of experimental data for these events is a very complicated task. In the given work it was done the attempt to compare several ways of the experimental data analysis before strong earthquakes. The problems of physical explanation and possible mechanisms of the seismo-ionospheric effects formation are under discussion. There are proposed different mechanisms of such effects, for example, large- and small-scale internal gravity waves, atmospheric electric field, electromagnetic fields and emissions. However, the appearance of local large-scale seismo-ionospheric anomalies in Total Electron Content (TEC) is possible to explain only by two of the mechanisms mentioned: an atmospheric electric field and/or small-scale internal gravity waves. In this paper the results of numerical calculations of the seismo-ionospheric effects related with strong Wenchuan earthquake are presented. The small-scale internal gravity waves are considered as the formation mechanism. It was done the comparison of calculation results with experimental data of TEC and critical frequency of the ionospheric F2-layer at various stations located close to the earthquake epicenter. The obtained results confirm the proposed mechanism of seismo-ionospheric effects formation by small-scale internal gravity waves, but do not reject the penetration of the seismogenic electric field from the atmosphere into the ionosphere as such mechanism.

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