

COMPARISON OF MODEL CALCULATION RESULTS AND DATA OBSERVATION OF IONOSPHERIC PRECURSORS OF STRONG EARTHQUAKE IN VANIMO ON JULY, 16, 1980

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The researches of ionospheric precursors of earthquakes have started to be spent more 40 years ago. Before strong near-equatorial earthquakes their precursors are the deepening and expansion of the minimum of electron concentration above geomagnetic equator in the afternoon and displacement of crests of equatorial anomaly. One of possible physical mechanisms of formation of ionospheric precursors of earthquakes is seismogenic electric field with amplitude from units up to tens mV/m in near-epicentral area. In favor of this hypothesis there is the magnetic conjugation of ionospheric precursors of earthquakes. With use of the global self-consistent models GSM TIP and UAM the numerical calculations of ionospheric precursors of strong earthquakes with setting the additional zonal electric fields seismogenic origin have been lead. The calculation results in TEC are well agreed with data observations. Now we have two problems facing the researchers. The first problem consists in an explanation of occurrence of zonal electric fields in near-epicentral area of the ionosphere some days prior to earthquakes. The second problem consists in the further comparison of calculation results to experimental data various ionospheric parameters. It can lead to more complete understanding of processes occurring in the Earth's ionosphere some days prior to earthquakes. This study is devoted to the decision of the second problem. We present the detailed comparison of calculation results of the ionospheric parameters obtained at the setting of additional eastward electric field in the vicinity of Vanimo, with the experimental data obtained before strong earthquake of July, 16, 1980 in New Guinea Island. It is shown, that calculation results are in well enough agreement with observations. It once again confirms a hypothesis about zonal electric fields in the Earth's ionosphere, appearing in near-epicentral area some days prior to strong earthquakes.

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