Monitoring the ionosphere during the earthquake

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The problem of stability estimation of physical state of an atmosphere attracts a rapt attention of the world community, but it is still far from being solved. A lot of global atmospheric processes which have direct influence upon all forms of the earth life have been detected. The comprehension of cause effect relations, stipulating their origin and development, is possible only on the basis of long-term sequences of observations data of time-space variations of the atmosphere characteristics, which should be received on a global scale and in the interval of altitudes as brand as possible. Such data can be obtained only with application satellite systems.

The latest researches have shown that the satellite systems can be successfully used for global and continuous monitoring ionosphere of the Earth. In turn the ionosphere can serve a reliable indicator of different kinds of effects on an environment both of natural and anthropogenic origin. Nowadays the problem of the short-term forecast of earthquakes has achieved a new level of understanding. There have been revealed indisputable factors which show that the ionosphere anomalies observed during the preparation of seismic events, contain the information allowing to detect and to interpret them as earthquake precursors.

The partial decision of the forecast problem of earthquakes on ionospheric variations requires the processing data received simultaneously from extensive territories. Such requirements can be met only on the basis of ground-space system of ionosphere monitoring. The navigating systems GPS and Glonass despite the complexity of detecting ionospheric variations caused by seismic effects, can be adapted in the best way to the realization of the ionosphere monitoring, as it allow to control the environment state above the territories removed from the observation site for up to 1000 km. The task of the earthquake forecast on a basis of ionospheric perturbation is reduced to the following: it is necessary to find and to investigate such changes in the ionosphere, which would allow detect the most essential development stages of the processes preparing the earthquake.

The method of radio-translucence of the ionosphere enables us to carry out long-term monitoring of the ionosphere above seismically hazardous regions of our planet. The results show that changes in the state of the ionosphere during periods preceding the earthquakes can be detected using GPS observations.

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