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Methodology of choice of installation sites for monitoring system sensors at natural hazards prediction task

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The choice of platforms for sensors of geophysical geodynamic processes monitoring system carries out both by results of complex geophysical researches of upper part of section and velocity's characteristics of the Earth' crust in area of probable detection of earthquake focus and/or other dangerous geological processes. Velocity's characteristics of section of the Earth crust' allow in regional plan to choose the areas with maximal seismic energy output of microearthquakes and foreshocks that connected with researching earthquake focus. Furthermore, the seismic and other monitoring system sensors should be installed in limits of these areas. These areas allow choosing the best sites for sensors installation.

The waveguides, screen geological layers, lenses and objects with abnormal properties (conductivity, velocity, magnetic permeability etc.) could be detected by results of geophysical researches. The structures of resonance type are detected. Complex interpretation of these data allows detecting of channels with weak anomalies - forerunners of geodynamic processes. The microfocal earthquakes and other sources' energy could be propagated on large distances practically without loosing by these channels. The registration of dangerous geological processes forerunners is fulfilled with minimal noises and/or these forerunners have other easily and reliably determined properties.

In task of geodynamic processes prediction including short- term earthquake prediction, the choice of sites for installation of complex geophysical seismoobservatory sensors (for example, sensors of Mobile Observatory especially developed in FSUE "VNIIOkeangeologia") is based on modeling of elastic, electromagnetic and other waves' propagation in the Earth' crust, in the atmosphere and hydrosphere. The chosen sites for monitoring system sensors installation are checked by daily synchronous

observations in these and nearest (non optimal) points for confirmation of choice reliability and estimation of most informative time period of observation within day from point of view of the 'signal/noise' relation.

When the channels (waveguides and other formations) connected the observer to the dangerous geological process' focus will be detected, on the basis of a reciprocity principle on the surface of the Earth we can determine the sites of disturbance' source installation (explosions, vibrators etc.) for rocking of energy in earthquake focus with the purpose of its activization and/or partial discharging.

The methodology of choice of installation sites for monitoring system sensors is based on carrying out of square (in last resort - profile) observations, with the purpose of upper part of section mapping, tectonic faults' detection and other waveguide zones, that presumably can serve the waveguide channels connecting the observer to the earthquake focus in limits of detected area of deep-seated fault, diapirs and others. The offered methodology can use to carry out reliability monitoring on special points. This monitoring is based on synchronous observations of sesmoacoustic and other geophysical fields by identical sensors allocated both along geological layers and/or faults and across them. In FSUE 'VNIIOkeangeologia' developed some geophysical systems contented different sensors for this methodology realizing.