

The HydroGeoDeformation (HGD) Field of the Earth During Strong Earthquakes and Short-Term Seismic Prediction

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The discovered (1982) specific type of geophysical field - ***HydroGeoDeformation (HGD) field of the Earth*** is distinguished by a very high sensitivity to variations in the stress-strain state of large lithospheric blocks.

The globally spread HGD-field evolves in real time and intensively changes its parameters prior to strong earthquakes (tested on the earthquakes of Spitak, Loma Prieta, Rudbar-Tarom, Racha-Djava, Shikotan, Hokkaido, Kobe, Neftegorsk).

Taking into consideration the HGD-field monitoring data obtained and in order to evaluate the geodynamic activation of large lithospheric blocks and, thus, to predict earthquakes, a special monitoring system **REPS (Regional Earthquake Prediction System)** was elaborated. The System is easily feasible, inexpensive and operates on the basis of information received from a regional network of observation wells.

The reprognosis of seismic events has been done for the above-mentioned earthquakes, showing the ability of the System to predict earthquakes 3 to 15 days prior to happening. The report includes the factual data illustrating this statement.

On the basis of the HGD-field monitoring and in conjunction with other geophysical observations it is suggested to create an **International Geodynamic Monitoring System** in such seismically hazardous regions of the world as the Pacific Rim, seismic belt of Europe and others.