On the possibility for Balkan- Black Sea region earthquake precursors research and prediction NETWORK

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The impressive development of the Earth sciences on the basis of new precise Crust condition parameters measurements permits to estimates the probabilities for earthquakes risk for different time scales. But the prediction the time, epicentre and Magnitude of incoming earthquake is not a solved problem. The solution and creating its theory need the efforts of wide interdisciplinary science group, the application of temporary almost real time GIS for data acquisition, visualization, archiving and analysis, the new possibilities for solving step by step the nonlinear inverse problems for testing the reliability of predictions and the adequateness of physical models.

The attempt of short summary of today earthquake prediction results is presented. The reliability of the precursor (or the group of precursors) can be tested with the building the distribution of the difference between predicted parameter and the parameter of occurred earthquake: predicted time – time of occurred earthquake, the distance difference between predicted and occurred coordinates, Magnitude's difference and the difference between predicted and occurred Intensity.

The reliability of the geomagnetic quake as an imminent precursor on the basis of 3 years Sofia (one projection of the geomagnetic vector) and 1 year Skopje (variometer vector mode) monitoring is presented. The imminent prediction for the time window of incoming earthquake or earthquakes with magnitude grater than 2.7 in the region 500- 700 km is based on the correlation between the geomagnetic quake, the next

extremum of the Gravitational tidal potential and the occurrence of the earthquake (or earthquakes). The distribution of the difference between predicted time and the time of occurred earthquakes is going to be like Gaussian with the increasing of the statistics.

The possible way from "when" to "when, where" and to "when, where and how" is described shortly.

The Proposal for creating of Short Time Earthquake precursor's research and prediction NETWORK for Balkan- Black region on the basis of wide set of precursors includes:

-Vector geomagnetic field, Earth surface two- dimensional electric vector, and electric potential distribution, methods of ultra-low frequency (ULF) magnetic field and electric field variations, ULF monitoring of the ground medium;

-Radio wave monitoring of the atmosphere above future earthquake epicentres: from VLF to VHF transmitter signals;

-Hydrochemical monitoring of water sources, including Radon and Helium;

-Seismic and Crust condition data, including foreshock activity, HF seismicity and independent daily and season Crust temperature;

-Monitoring of Hydrogeodeformation field;

-Variations of atmospheric density and temperature effects;

-Ionosphere and magnetosphere perturbations revealed from combined satellite and ground recordings (Lithosphere-Atmosphere-Ionosphere Coupling);

-Biological precursors.

The different precursor's reliability research has to estimate the different time scales and usefulness of statistical variables (K- index, standard deviation and so on) for short time and imminent predictions.

The important advantage of the Proposed EQ Research and Prediction NETWORK is that the geophysical seismic, geomagnetic, atmosphere and near space monitoring exists and the research needs more software than hardware for testing the approach and applying it in the practice. The joint of the efforts and of the data bases of all international institutions which have a monitoring of different Earth parameters seems important condition for the successful starting of the "when, where and how" earthquake prediction problem.

The one consequence of anthropogenic global warming, because of the polar ice decreasing, leads to changes of quasistationary daily Earth movement's equilibrium,

which will catalyze the increasing of the seismic activity. The number of the World earthquake with magnitude grater than 4 increased in 2004 to 11336. The good news is that this changes are not so big to change the stochastic character of the big earthquake and to activate the increasing the number of earthquakes with magnitude grater than 7. In 2004 they were 16. So, our Civilization has some time to solve the global warming and earthquake's "when, where and how" prediction problem.

The main trouble is not only the skepticism of the part of science community but also the governments and municipalities authority's problems with practical using from Civil defense systems of the predictions for improving the preventing of the hazards consequences and the faster and science based restoration of the environment.