About the possibility of predicting earthquakes

Strachimir Cht Mavrodiev (1), Lazo Pekevski (2), Emil Botev (3), Ali Pinar (4), and Giorgi Kikuashvili (5)

(1) Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences, Sofia, Bulgaria, (2) University “Sts. Cyril and Methodius”, Faculty of Natural Sciences and Mathematics, Seismological Observatory, Skopje, Macedonia, (3) NIGGG- BAS, Sofia, Bulgaria, (4) Department of Earthquake Engineering, Bogaziçi University, Istanbul, Turkey, (5) Ilya State University, Tbilisi, Georgia

Using the world earthquakes data base (1980- present) for M >= 3.5 and NASA code for Sun- Moon tides is demonstrated that the tides are trigger of the earthquakes.

It is presented an approach for forecasting of the regional imminent seismic activity based on the analysis of the Intermagnet geomagnetic field and NASA code for Sun- Moon tides data. The possibility for prediction of the time period, the magnitude, the depth and coordinates of epicentre of impending earthquake is based on the inverse problem method for analysis the behaviour of different precursors of earthquakes like the geoelectromagnetic field, the level of water in boreholes, the earth- surface concentration of radon, the local heat flow, the ionosphere variables, the low frequency waves in the atmosphere and Earth crust. The conditions for the existence of solvable inverse problem are formulated.

One have to note the use of Dubna method for for definition and solving the inverse problems for discovering the hidden dependences.

The accuracy of predictions will depend from the reliability level of precursors, the values of depth and magnitude, the number of monitoring points, from the geology of the region and as well as from the ill-possed quality of the received overdetermined non- linear algebraic system.

References