Up-to-dating of genetic codes of seismo-electromagnetic data related to the prediction of the earthquakes at North Anatolian Fault with cavity model: natural regularizations and seismo-electromagnetical resonance effects on the future Marmara Sea earthquakes

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1 Abstract

The electromagnetic radiation mechanisms guiding the seismic activity in closed regions are modelled as suitable network of cavities and waveguides connected with natural boundary layers, physically [1]-[6]. The non-smooth, non-uniform, and sharp changes of electric charges have stochastic influences on seismic activity. The spatial and temporal characteristics of these influences create the equivalent seismo-electromagnetic source of the activity. These equivalent seismo-electromagnetic sources threshold a suitable mechanism, which trigger the earthquake zones.

The geological structures; i.e., faults, cracks, material differences, etc. work as circuit components fed with above said electromagnetic activity. These circuit components are modelled with the use of cavity, waveguide, and antenna structures [3], [6]. These structures create an interconnected electromagnetic network, when a specific closure is definable for a region involving possible seismic activities. The specific closure may involve either dependent zones or independent zones. The relationships between threshold-triggering mechanisms and electromagnetic radiation give the possibilities of transferring the seismic activity among non-connected zones, if some specific conditions are satisfied. These transfer mechanisms may work among different zones by
the creation of suitable boundary layers even if the zones are not related. The induced electric currents on the boundary layers generate these transfer mechanisms. The detailed analyses give some seismo-electromagnetical resonance effects.

The above said trends give very clear explanations for the irregularities and non-uniformities occurring in some phenomena of electromagnetic spectrum before, during, and after the earthquake phenomena.

The Marmara Sea is very suitable considering like a cavity with suitable closure involving several components working as above said interconnected electromagnetic network.

The data [2], [4] collected from 1999 to December 2006 related with Marmara Sea seismic region according to the above mentioned electromagnetically equivalent modelling of earthquake mechanism [1]-[2] are processed with the approach of genetic algorithms by using the earthquake prediction genetics [5]. The time domain variations of the cavity resonance processes fit to the previously observed data and provide natural regularizations on the future Marmara Sea earthquakes. The results observed from the method presented in this paper fit with the facts related on the periodical non-linearity explained in [7], too.

2 References


