On One Aspect of Earthquake Electromagnetic Precursor: Electromagnetic Tides

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The paper is dedicated to the study of Earth's crust beckground electromagnetic emission generation process and long-scale time variation regime. The data consists of observational time series obtained during the period 1984 – 2010 at the territory of Abastumani Astrophysical Observatory, and demonstrates time variations corresponding to the tidal deformations of the crust. The diurnal variation signal significantly changes before observed earthquakes and returns after them to the regular "tidal" regime characteristic to this region.

The discovery of tidal properties of electromagnetic emission is principal for the general approach, concerning earthquakes as a relaxators which are sensitive to external factor and may be synchronized by it.

The modern representation identifies earthquakes and seismic process as selforganized criticality and in principle excludes the possibility to predict events. The introduction of synchronization phenomenon in a cluster of systems with indications of selforganized criticality, removes this restriction for it, but demands the evidences that criticality state is really physically sensitive to external synchronizing influence. The well-known in electronics object – synchronized relaxator, corresponds to very helpful model for this cluster and may be applied to earthquakes and to the variety of different natural phenomena study. The presence of such sensitivity and physical impact of external factor should be discovered and demonstrated for them by observations and experiments. Represented sensitivity evidences for Caucasus seismic region support the further investigation of earthquake prediction as events clustering in time in accordance with the phase of luni-solar tides.