



Some new empirical relations in the regime of crustal and deep earthquakes and their interpretation

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Joint analysis of hypocenters and seismic moment parameters give possibility to widen the set of parameters characterizing an earthquake source. Some new constrains on the duration of earthquake process, the size of the focus area, and the relative involvement of higher and lower modes of vibration in the earthquake process can be revealed this way. The Harvard catalog was used to examine the tendencies in change of parameters of seismicity with the change in pressure and temperature in the crust and the upper mantle. A few new empirical relations were derived and their interpretation is discussed. The inferred results testify for the close relation of process of seismicity with the deep fluid regime and solid-state transformations in the crust and the upper mantle.