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Variation of the Earth tide-seismicity compliance parameter the last 50 years for the seismic area of Evoikos, Greece

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The results of the analysis of the last 50 years earthquakes series in seismic active areas of Greece, i.e. the areas (a) of the Mygdonian Basin(Contadakis et al. 2007), (b) of the Ionian Islands (Contadakis et al. 2012) and (c) of the Hellenic Arc (Vergos et al. 2012), indicate that the monthly variation of the frequencies of earthquake occurrence is in accordance with the period of the tidal lunar monthly and semi-monthly (Mm and Mf) variations. The same happens with the corresponding daily variations of the frequencies of earthquake occurrence with the diurnal luni-solar (K1, O1) and semidiurnal lunar (M2) and solar (S2) tidal variations. In addition the confidence level for the identification of such period accordance between earthquakes occurrence frequency and tidal periods varies with seismic activity, i.e. the higher confidence level corresponds to periods with stronger seismic activity. These results are in favor of a tidal triggering process on earthquakes when the stress in the focal area is near the critical level. Based on these results, we consider the confidence level of earthquake frequency of occurrence - tidal period accordance, p, as an index of tectonic stress criticality for earthquake occurrence. A test on posterior of this idea, (i.e. the value of the confidence level index, p, indicate the fault matureness) in the case of the recent seismic activity at Fthiotida, was positive (Contadakis et al 2014). In this paper we present the results of a second test by the occasion of the recent seismic activity of Central Evoikos. The results also are positive. We suggest that this compliance parameter may be used as an additional element for the seismic risk assessment.

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