



TEC variations over the Mediterranean during the seismic activity of 20th October, in the area of eastern Aegean

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It is well known that TEC variations over a particular site sustain variations of different causality, global (earth revolution, earth rotation, earth-tides, variations of the geomagnetic field etc.) or local (atmospheric or underground explosions, earthquakes, volcanoes etc.). A lot of work has been done by a great number of researchers on the characteristics of ionospheric variations according to their causality (wave-length, attenuation and velocity and way of propagation). In order that TEC variations over a particular site be used as earthquake precursory diagnostic a concrete sense of the interrelation of TEC variations over different sites as well as their respond of the geomagnetic field variations would be of great interest. In this paper the TEC data of eight GPS stations of the EUREF network (AUT1, Thessaloniki, TUC2, Crete in Greece, MAT.Matera and LAMP, Lampedusa in Italy, GAIA, in Portugal, RABT, Rabat, EVPA, Evpatoria in Ukrain and TRAB, Trabson in Turkey) were analyzed using wavelet analysis in order to detect any frequency dependence of the correlation of TEC over different stations. In the same time frequency dependence of Dst and TEC variations are searched in order to detect any correlation. The main conclusion of this analysis is that the constituents of TEC variation with periods $<3\text{h}$ are more suitable in searching for earthquake precursors. On the base of this conclusion the analyzed TEC series are searched for possible precursory phenomena. Variation in TEC constituents with periods $<3\text{h}$ over the stations AUT1 and TUC2 occurred ± 10 days of the seismic activity may be attributed to this tectonic activity.