



Seismic Signatures observed on the Ionospheric F2 layer.

A wavelet based analysis

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The method used in this work, was based on dfoF2 (normalized quarter of an hour daily critical F2-layer critical frequency values) and seismic data correlation obtained from the Athens ionosonde and the Seismological Station of Aristotle University of Thessaloniki. Three main seismic events were studied; namely Leukada (14th August 2003, 6.3), Zakynthos (11th April 2006, 5.7) and Psara (10th June 2001, 5.6). The pro-seismic and meta-seismic activity was also studied; the lowest seismic power considered was 4R. The dfoF2 waveforms present a number of characteristic variation patterns, several days before each seismic event. These events could be considered as seismic signatures on the local ionosphere. All patterns, although unique for each earthquake and location, present several general characteristics. They all appear within 5 days before the main seismic event. The pattern duration varies from 4 to 9 hours. They may be either positive or negative. These signatures were processed using a wavelet method. It has been shown that the characteristics of each pattern differ significantly.

Of course these observations highly depend on the specific characteristics of each seismic event i.e. on its depth and its magnitude, and certainly on the season of the year since it is more difficult to come to concrete conclusions in summer than in winter. It is obvious that strong earthquakes have significant effects in the ionosphere and in particular in the critical frequency foF2.