



Ionospheric TEC anomalies as precursors of January 8, 2006 earthquake

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The measurements of GPS (Global Positioning System) satellite signals were used to analyze the ionospheric total electron content (TEC) variations before Southern Greece earthquake of January 8, 2006 (M6.8). For this purpose we used both the TEC data of nearest to the epicenter Euref-IGS stations and TEC maps over Europe with high temporal resolution. The favorable circumstance for this investigation was the quiet geomagnetic situation during the period previous to the earthquake moment. One day prior to earthquake the characteristic anomaly was found out as the significant increase of TEC level at the nearest stations up to the value of 50% relative to the background condition. To estimate the spatial dimensions of seismo-ionospheric anomaly the differential mapping method was used. The ionosphere modification as the cupola-shaped increase of electron concentration situated in the immediate vicinity from the forthcoming earthquake epicenter was revealed. The amplitude of modification reached the value of 50% relative to the non-disturbed condition. The area of significant TEC enhancement had the sizes of about 4000 km in longitude and 1500 km in latitude. The revealed anomaly may be associated with precursors of the seismic event amenably to its peculiarities (its locality, affinity with the epicenter, cupola-shaped zone of manifestation, characteristic time of existence).