



IONOSPHERIC ANOMALIES ASSOCIATED WITH EARTHQUAKES

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ABSTRACT

The objective of this research is to identify the occurrence of ionospheric irregularities before earthquakes occurring using total electron content (TEC) data obtained with global satellite navigation systems (GNSS). Anomalies of TEC have been observed several days before earthquakes, when it can present a value higher or lower than the values obtained under normal conditions. In addition, gravity waves associated with seismic activity have also been observed in TEC measurements. Here we will present the one-month investigations of TEC data and gravity waves prior to the August 24, 2011 earthquake, which was of intensity 6 on the Richter scale, and which occurred in Peru almost on the border with Acre in Brazil. The objective of this study is to identify possible ionospheric precursors of this earthquake. The preliminary analysis of the TEC data suggests positive and negative anomalies occurring 20 to 5 days before the date of the earthquake, which suggest a good correlation with previously reported evidence from ionospheric observations made using VLF technique (propagation of radio waves from low frequency).