



Electromagnetic Precursors of the Earthquakes

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Short time earth quake prediction is the only mitigation to the earthquake disaster. The electromagnetic method emerges as potential tool for short time earthquake predictions. The EM methods utilizes radio remote sensing techniques to search pre-earth quake signals in the ionosphere and mostly relies on the anomalies associated with radio time series signals. In the present work, we are presenting analysis of two EQs (Indonesia EQ M7) and Assam EQ M6) using terminator time method. Very low frequency (3-30kHz) navigational transmitter signals are used to remotely sense the pre-earthquake signal generated anomalies in the lower ionosphere. For first EQ (Indonesia M7) we have used JJI transmitter signal located in Japan and recorded at Adelaide Australia. For second EQ (Tezpur M6), again JJI signal recorded at Doon University campus, Dehradun is used.

For first EQ, terminator time (TT) analysis showed anomalous Morning time (MT) shift 3 days before the EQ while in the evening terminator (ET) one day before the EQ. For the second EQ, the TT method both MT and ET showed anomalous change two days before the EQ. We have applied further statistical analysis to the TT data and estimated fluctuation parameter by taking difference of mean of 9 days ET with each day ET values. The fluctuations parameter shows anomalous increase one day and two days before the first and second EQs respectively. Thus, the result indicates the presence of EQ related signals in the ionosphere few days before the EQ. A suitable lithosphere-ionosphere coupling mechanism is required to explain the propagation of these signals in the ionosphere.