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Investigation of the effects of several earthquakes on the sub-ionospheric VLF-LF transmitted signal propagation

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The precursory effects from several earthquakes upon the two subionospheric transmitted signals one 19.8 kHz from North West Cape, Australia (lat: 21.82° S; long: 114.16° E) and the other 40 kHz from Fukushima, Japan (lat: 37.37° N; long: 140.85° E) are studied from the recorded data at Kolkata (lat: 22.56° N, long: 88.5° E). Some spiky transients are observed, whose height and intensity are dependent on the depth of epicenter, distance of the epicenter from the propagation path and also from the observing station. The earthquakes occurred during the period from March 20, 2010 to May 31, 2010. Among 22 earthquakes, the analyses are made for only 13 earthquakes all having M>6. The time-series observations of the spikes due to occurrence of earthquakes along with their analyses have been presented in this paper. Attempts are made to determine the possible statistical link between M/D ratio and spike height. The ratio has been used to examine sensitivity of the signals from different earthquakes.

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