

Investigation on Remote Sense Surface Latent Heat Temperature Associated with Pre-Seismic Activities in Indian Region

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Abstract : The formation process of seismic activities because of abrupt slip on faults, tectonic plate moments due to accumulated stress in the Earth's crust. The prediction of seismic activity is a very challenging task. We have studied the changes in surface latent heat temperatures which are observed prior to significant earthquakes have been investigated and could be considered for short term earthquake prediction. We analyzed the surface latent heat temperature (SLHT) variation for inland earthquakes occurred in Chamba, Himachal Pradesh (32.5 N, 76.1E, M-4.5, depth-5km) nearby the main boundary fault region, the data of SLHT have been taken from National Center for Environmental Prediction (NCEP). In this analysis, we have calculated daily variations with surface latent heat temperature (°C) in the range area $1^{\circ}\times 1^{\circ}$ (~120/KM²) with the pixel covering epicenter of earthquake at the center for a three months period prior to and after the seismic activities. The mean value during that period has been considered in order to take account of the seasonal effect. The monthly mean has been subtracted from daily value to study anomalous behavior (Δ SLHT) of SLHT during the earthquakes. The results found that the SLHTs adjacent the epicenters all are anomalous high value 3-5 days before the seismic activities. The abundant surface water and groundwater in the epicenter and its adjacent region can provide the necessary condition for the change of SLHT. To further confirm the reliability of SLHT anomaly, it is necessary to explore its physical mechanism in depth by more earthquakes cases.

Keywords : surface latent heat temperature, satellite data, earthquake, magnetic storm

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