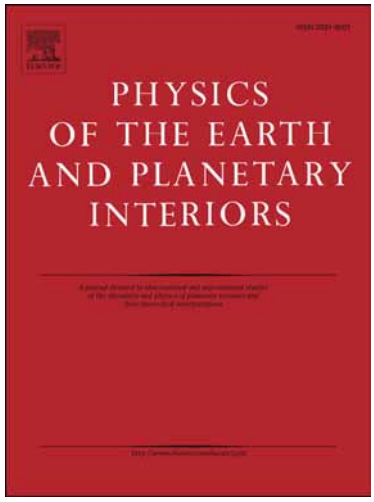

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The implications of regional microseismic activities: a lesson from 2008 Ms 8.0 Wenchuan earthquake

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Abstract

The Ms 8.0 Wenchuan earthquake has greatly perturbed the crustal stress in Longmenshan fault zone (LFZ) and its neighboring regions, and hence significantly changed the regional seismicity pattern. Convectional coulomb stress change model based on half-space dislocation source of layered elastic or viscoelastic crust can only provide brief reference to estimate the after-shock sequences roughly. In this study, we apply the Z-test statistical method to examine the earthquake catalogue five years before and after this event to detect the changes of regional seismicity intensity and their statistical significance in LFZ and its neighboring regions. We analyze changes of the Z values with respect to time and seismic magnitude in each region. Our results reveal that, after the Wenchuan earthquake, seismicity intensity has significantly increased in Eastern Kunlun fault, southern Longmenshan fault, Longquanshan