Dynamics of medium–deep seismicity parameters before large earthquakes in South Asian seismic focal zones

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Abstract The study was continued to reveal the spatio-temporal relationship between strong crustal shocks and the moderate, medium-deep seismicity that precedes them. In the area of preparation of these shocks, the following regularities were revealed: in space — the presence of a high creepex gradient (in particular, the boundary transition between its positive and negative anomalies), in time — a direct correlation of the graphs MS(t) and Cr(t), indicating the creation in the period of preparation of the source under the conditions of a strictly determined influence of the source-size on creepex. Since the proportional dependence of the creepex on the geometric size of the source is usually associated with an increased heterogeneity of the medium in the source, it can be assumed that the processes of brittle fracture of blocks of the undercutting crust coexist here with the processes of inflow of deep mantle material, which ensures the heterogeneity of the properties of the medium in the area of preparation of large earthquakes in the South Asian subduction zones. This conclusion is confirmed on the average creepex anomaly maps by the presence of their increased gradient in the deep region of the preparation of these events.

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