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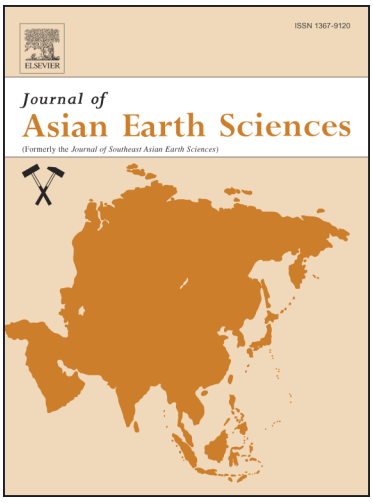

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Seismically imaged shallow and deep crustal structure and potential field anomalies across the Eastern Dharwar Craton, south Indian shield: possible geodynamical implications

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A B S T R A C T

The time-bound crustal evolution and subsequent deformation of the Cuddapah basin, Nellore Schist Belt and Eastern Ghats terrain of Eastern Dharwar Craton, which have undergone sustained geodynamic upheavals since almost 2.0 billion years, remain enigmatic. An attempt is made here to integrate newly available potential field data and other geophysical anomalies with deep seismic structure, to examine the generative mechanism of major crustal features, associated with this sector. Our study indicates that the initial extent of the Cuddapah basin sedimentation may have been much larger, extending by almost 50 to 60 km west of Tadipatri during Paleoproterozoic period, which subsequently shrank due to massive erosion following thermal uplift, caused by SW Cuddapah mantle plume. Below, this region, crust is still quite warm with Moho temperatures exceeding 500 ºC. Similarly, Nallamalai Fold Belt rocks, bounded by two major faults and extremely low gravity, may have occupied a large terrain in western Cuddapah basin also, before their abrasion. No geophysical signatures of thrusting are presently seen below this region, and thus it could not be an alien terrain either. In