

Accepted Manuscript

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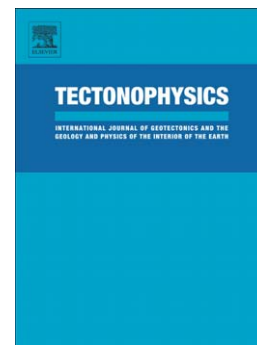
PII: S0040-1951(17)30009-4
DOI: doi:[10.1016/j.tecto.2017.01.009](https://doi.org/10.1016/j.tecto.2017.01.009)
Reference: TECTO 127381

To appear in: *Tectonophysics*

Received date: 19 June 2016
Revised date: 10 January 2017
Accepted date: 12 January 2017

Please cite this article as: Mandal, Prantik, Lithospheric thinning in the Eastern Indian Craton: Evidence for lithospheric delamination below the Archean Singhbhum Craton?, *Tectonophysics* (2017), doi:[10.1016/j.tecto.2017.01.009](https://doi.org/10.1016/j.tecto.2017.01.009)

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Lithospheric thinning in the Eastern Indian Craton: Evidence for lithospheric delamination below the Archean Singhbhum craton?

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ABSTRACT

We herein present shear velocity structure extending down to 300 km depth below the Archean Singhbhum-Odisha Craton (SOC) and Proterozoic Chotangpur granitic-gneissic terrain (CGGT), which has been obtained through the inversion modelling of P-receiver functions. We use three-component broadband recordings of 200 teleseismic earthquakes ($30^{\circ} \leq \Delta \leq 90^{\circ}$) from a 15 station seismic network that has been operational in the eastern Indian shield since February 2013. We obtain the thinnest crust of 35 km overlying a thin lithosphere of 78 km, below the region near South Singhbhum Shear Zone, which could be attributed to the 1.6 Ga plume activity associated with Dalma volcanic. However, the thickest crust of 47 km overlying a thin lithosphere of 81 km is noticed below the region near the Singhbhum granite of 3.6 Ga. This thinning of lithosphere could be attributed to the delamination of lithospheric root due to the Himalayan orogeny with a shortening rate of 2 cm/year. This delamination model in SOC gets further support

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