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The state of upper mantle beneath Dharwar craton

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We applied the receiver function modeling approach to study the crust and mantle structure beneath Dharwar craton and adjoining region. Earthquake waveform data were recorded by the seismic network that operated 1998-2001. Arrival times converted phases from major discontinuities like Moho, 410 and 660 are used to map their respective depths. While Moho depth varies from 33-48 Km, the time conversion from 410 is around ~42.5 ±0.5 sec in the most of the region except in the early Archean belt , where it is less than 42 sec indicating a cold mantle state. Converting these travel time to velocity, we observe a 1% faster mantle velocity beneath most of the Dharwar craton and ~6% faster velocity beneath the keel.