

## **Generation and fate of the Earth's oldest continental crust: new evidence from Singhbhum craton, eastern India**

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The formation and evolution of the Earth's first continental crust is a subject of fundamental scientific interest. Detrital zircons form the only direct record of the Earth's Hadean (>4 Ga) crust. Even the Eoarchean (4.0–3.6 Ga) rock record is highly fragmentary. Therefore, the source, composition, origin and fate of the Earth's earliest crust are not well constrained. In this contribution, we present U-Pb age, trace element and Hf isotope data on detrital zircons from quartz-rich mature Archaean sandstones from the Singhbhum craton, eastern India. Our data imply Hadean (~4.2 Ga) separation of continental crust from a depleted mantle ( $\epsilon_{\text{Hf}} \sim +3.0$ ) which evolved with continuous reworking up to 3.9Ga. The signature of this very early crust vanished from the younger zircon record with flare-up of juvenile magmatism and continuous extraction of crust from highly depleted mantle ( $\epsilon_{\text{Hf}}$ ) during 3.8 to 3.3 Ga. Similar trends exist for some other cratons and such magmatic flare-ups mark a distinct geodynamic event possibly related to Earth's early mantle overturns responsible for the destruction of the Earth's earliest crust.