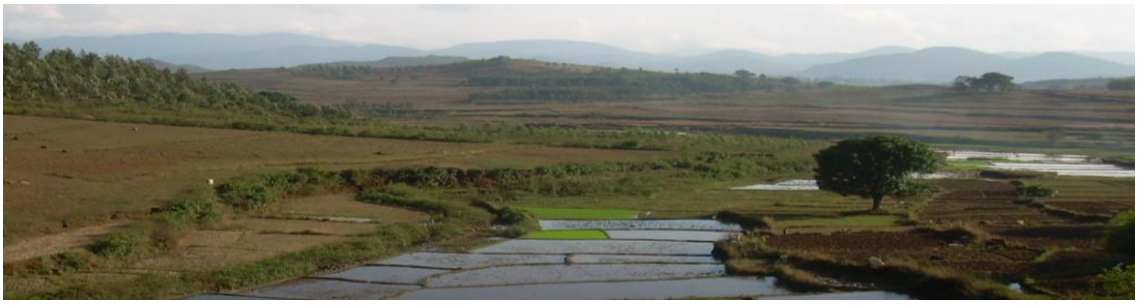
# Structural, geochronological and tectonic evolution of the central Eastern Ghats Province, India: Araku-Anantagiri-Visakhapatnam

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## Abstract

The central Eastern Ghats Province is part of a series of terranes that collectively form the Eastern Ghats in India. The Eastern Ghats is a Mesoproterozoic to early Neoproterozoic orogen associated with the formation of the supercontinent Rodinia, c. 1.1 to 0.95 Ga. The central Eastern Ghats Province consists of metaquartzites and metapelites (khondalites) that are intruded by granitoids. The location of proto-India within Rodinia is disputed because of recently presented palaeomagnetic data. This has generated confusion about whether the protoliths to the Eastern Ghats Province metasedimentary rocks were deposited adjacent to proto-India or as an exotic terrane later accreted to India. U-Pb geochronology, in conjunction with Hf isotopes of zircons, constrain the maximum depositional age, determine provenance and identify the location of deposition. A maximum depositional age of 1.14 Ga on the protoliths to the khondalites has been determined from U-Pb zircon geochronology. The short period of time between deposition and the orogenesis related thermal event indicates that the sediments were deposited adjacent to the Bastar Craton. Provenance work identifies a number of sources within India and east Antarctica lending support to the theory that these continents were contiguous prior to the Eastern Ghats Orogeny. Structural transects and mapping reveals that shortening associated with the collision of east Antarctica and proto-India occurred along a NE-SW trending axis.