

No collision between Western and Eastern Gondwana at their northern extent

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Upper Neoproterozoic to lower Paleozoic sedimentary successions in northwest India are thought to record collision between the continental fragments of Western and Eastern Gondwana, and contain detritus derived from the East African Orogen. However, paleocurrent analysis, together with U-Pb age distribution and Hf isotopic signatures of detrital zircons from these successions indicate derivation from proximal sources within Eastern Gondwana. Time equivalent successions from the Qiangtang terrane and the northern margin of Neoproterozoic India show a similar provenance record, along with additional input of late Mesoproterozoic and Neoproterozoic detritus from East Antarctic-East India and West Australia. Detritus from the rising East African Orogen are abundant in deposits in northern Africa, which constitutes part of Western Gondwana, but absent from equivalent successions in Indian Eastern Gondwana. The consistency in sedimentary provenance of the late Neoproterozoic to early Palaeozoic strata in NW India, combined with the lack of evidence for deformation/metamorphism since at least ca. 760 Ma, argue against collision between the eastern and western segments of Gondwana in this northern region. These regions remained as passive continental margins separated by a large scale embayment of the proto-Tethys ocean, until late Paleozoic fragmentation of the continental blocks.