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Middle Jurassic accretion of an exotic microcontinental fragment along the southeast China continental margin

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Structural, stratigraphic and geochronologic studies coupled with detrital zircon U-Pb and Hf isotope data from late Palaeozoic to middle Mesozoic sedimentary rocks from Hong Kong show an exotic microcontinental fragment accreted to continental southeast China along a Palaeo-Pacific convergent margin during the Late-Middle Jurassic.

Detrital zircon provenance of Early to Middle Jurassic rocks from the accreted terrane has little in common with the pre-Middle Jurassic rocks from southeast China. Instead, the zircon age spectra of the accreted terrane show close affinities to sources along the northern margin of east Gondwanaland.

Timing of collision, accompanied by thrusting, folding and metamorphism is constrained by high precision U-Pb zircon ages from Middle to Late Jurassic volcanic and granitic rocks to between 164 and 161 Ma.

The suture zone is largely masked by subsequent intrusions belonging to the late Mesozoic southeast China magmatic belt. However, it is reflected by isotopic heterogeneities and geophysical anomalies in the crustal basement, and is fortuitously exposed in Hong Kong. These data provide indisputable evidence for Mesozoic terrane accretion along the southeast China continental margin. Collision of the exotic terrane, accompanied by subduction roll-back, is considered to have hastened foundering of the postulated flat-slab beneath southeast China leading to a widespread igneous flare-up event at 160 Ma.

