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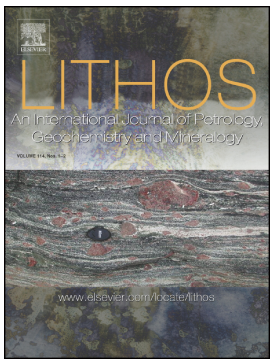

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A source-depleted Early Jurassic granitic pluton from South China: Implication to the Mesozoic juvenile accretion of the South China crust

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Abstract: Source-depleted granites were rarely reported in South China. Hereby we identified such a granitic pluton, the Tiandong pluton, at Northeastern Guangdong province in Southeastern (SE) China. Whole-rock Sr-Nd and zircon Hf isotopes of the Tiandong granites both revealed obviously depleted source signatures, with initial isotopic values of initial $^{87}Sr/^{86}Sr$ = 0.7032-0.7040, $\varepsilon_{Nd}(t)$ = 1.1-1.5, and $\varepsilon_{Hf}(t)$ = 6-13, respectively. Zircon U-Pb dating implied the granite was intruded in Early Jurassic (188 Ma). The dominant minerals of the Tiandong granite consist of K-feldspar, plagioclase, quartz and biotite, with accessory mineral assemblage of apatite + zircon + magnetite. Based on the mineralogy and the depleted isotopic signature, the granites chemically show I-type affinity such as low Zr+Nb+Ce+Y (131.6 to 212.2), 10^4×Ga/Al