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PII: S1367-9120(16)30311-X
DOI: http://dx.doi.org/10.1016/j.jseaes.2016.10.010
Reference: JAES 2832

To appear in: *Journal of Asian Earth Sciences*

Received Date: 3 February 2016
Revised Date: 12 October 2016
Accepted Date: 18 October 2016

Please cite this article as: Chen, L., Steel, R.J., Guo, F., Olariu, C., Gong, C., Alluvial fan facies of the Yongchong Basin: Implications for tectonic and paleoclimatic changes during Late Cretaceous in SE China, *Journal of Asian Earth Sciences* (2016), doi: http://dx.doi.org/10.1016/j.jseaes.2016.10.010

Alluvial fan facies of the Yongchong Basin: Implications for tectonic and paleoclimatic changes during Late Cretaceous in SE China

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ABSTRACT: Late Cretaceous continental redbeds, the Guifeng Group of the Yongchong Basin in SE China have been investigated to document a detailed fan facies description and interpretation. Tectonic activities determined the alluvial fan development along the basin margin, but the alluvial facies was linked with paleoclimate changes. The Guifeng Group is divided into the Hekou, Tangbian and Lianhe formations in ascending order. The Hekou conglomerates are typically polymict, moderately sorted with erosional bases, cut-and-fill features, normal grading and sieve deposits, representing dominant stream-flows on alluvial fans during the initial opening stage of the basin infill. The Tangbian Formation, however, is characterized by structureless fine-grained sediments with dispersed coarse clasts, and couplets of conglomerate and sandstone or siltstone and mudstone, recording a change to a playa and ephemeral lake environments with occasional stream flooding, thus indicating a basin expanding stage. The hallmark of the Lianhe Formation is disorganized, poorly sorted conglomerates lack of erosional bases, and a wide particle-size range from clay to boulders together reflect mud-rich debris-flows

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