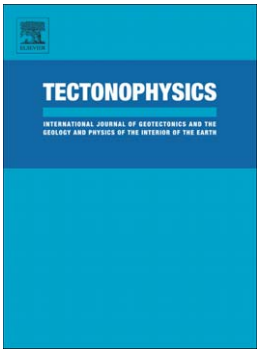

An accreted micro-continent in the north of the Dabie Orogen, East China: Evidence from detrital zircon dating

Guang Zhu, Yongsheng Wang, Wei Wang, Shuai Zhang, Cheng Liu, Chengchuan Gu, Yunjian Li

PII: S0040-1951(17)30006-9
DOI: doi:10.1016/j.tecto.2017.01.004
Reference: TECTO 127376

To appear in: *Tectonophysics*

Received date: 17 August 2016
Revised date: 8 December 2016
Accepted date: 7 January 2017

Please cite this article as: Zhu, Guang, Wang, Yongsheng, Wang, Wei, Zhang, Shuai, Liu, Cheng, Gu, Chengchuan, Li, Yunjian, An accreted micro-continent in the north of the Dabie Orogen, East China: Evidence from detrital zircon dating, *Tectonophysics* (2017), doi:10.1016/j.tecto.2017.01.004

An accreted micro-continent in the north of the Dabie Orogen, East China: Evidence from detrital zircon dating

Guang Zhu*, Yongsheng Wang, Wei Wang, Shuai Zhang, Cheng Liu, Chengchuan Gu, Yunjian Li

School of Resource and Environmental Engineering, Hefei University of Technology, Hefei, China

* Corresponding author at: School of Resource and Environmental Engineering, Hefei University of Technology, Hefei, China. Tel.:+ 86 551 62901531.

E-mail addresses: zhuguang59@hotmail.com (G. Zhu), yshw9007@126.com (Y. S. Wang), 1358082331@qq.com (W. Wang), szhang@mail.hfut.edu.cn (S. Zhang), liu4686382@163.com (C. Liu), guchengchuan15@163.com (C. C. Gu), yunjianfei_hfut@126.com (Y. J. Li)

Abstract

Continent–continent collision between the North China Block (NCB) and South China Block (SCB) took place along the Qinling–Tongbai–Hong'an–Dabie orogens during the Triassic. A micro-continent with Paleozoic arc magmatism has been recognized in the northern Qinling–Tongbai orogens; however, it remains unclear whether the micro-continent extended to the Dabie Orogen to form a ribbon-shaped micro-continent, due to later burial by the Hefei Basin in the north. To solve this problem, we conducted LA–ICP–MS U–Pb dating of zircons from Silurian to Cretaceous sandstones and volcanic rocks from the southern margin of the basin. The age spectra of detrital zircons suggest that the Dabie Orogen and later basin cover were the sources of the analyzed sandstones. The detrital and inherited zircons indicate Neoproterozoic, early and late Paleozoic magmatism in the Beihuaiyang unit in the north of the Dabie Orogen. The zircon and previous geophysical data show that a micro-continent bounded by the Feizhong Suture in the north and the Xiaotian–Mozitang Suture in the south existed between the NCB and the Triassic Dabie Orogen, and its northern half is buried by the Jurassic–Paleogene Hefei Basin. The Beihuaiyang micro-continent experienced early Paleozoic arc magmatism caused by southward subduction of the Erlangping oceanic crust and late Paleozoic magmatism related to northward subduction of the Paleotethyan oceanic crust. The micro-continent was accreted to the southern edge of the NCB at the end of the Early Devonian (ca. 400 Ma) via arc–continent collision. Similarly to the Qinling–Tongbai orogens, the Dabie Orogen contains a