



Detrital Zircons U-Pb Geochronology of Bayan Obo Group, the North Margin of North China Craton: New Implications for the Position of NCC in Rodinia

LI Changhai, LIU Zhenghong*, XU Zhongyuan, DONG Xiaojie, LI Pengchuan and WANG Shijie

College of Earth Sciences, Jilin University, Changchun, Jilin 130001, China

Citation: Li et al., 2019. Detrital Zircons U-Pb Geochronology of Bayan Obo Group, the North Margin of North China Craton: New Implications for the Position of NCC in Rodinia. *Acta Geologica Sinica* (English Edition), 93(supp.2): 185–186.

Abstract: The collision, assembly and break-up of continents represent special and critical periods in the evolving history of Earth. The configuration of supercontinents and dynamic background for supercontinent assembly have been hot topic among geologists in the past few decades. Furthermore, whether and how NCC was involved in the evolution of Rodinia are still unclear enough. In this paper, detrital zircons from Baiyinbaolage and Hujiertu formation yield age peaks of 1580Ma, 1300Ma and 1180Ma, while the magmatism with the same age do not exist in NCC, which implies that these detrital zircons may come from outside of NCC. However, magmatism of 1.78–1.55Ga, 1.50–1.30Ga, 1.25–1.10Ga developed in Amozonia, making it the potential provenance for the upper part of Bayan Obo Group. Based on the paleomagnetic studies, this paper came to the conclusion that NCC was proximate to Amozonia when Baiyinbaolage and Hujiertu formation deposited from 1200 to 900Ma. NCC and Amozonia were near neighbours in Rodinia.

Key words: North China Craton, Bayan Obo Group, Detrital zircons, Rodinia

Acknowledgements: This research is financially supported by the National Natural Science Foundation of China (Grant No.41872203), China Geological Survey (Grant No.1212011120709) and Doctoral Candidate Inter Discipline Fund of Jilin University (Grant No. 10183201837).

References

- Bettencourt, J.S., Leite, W.B., Ruiz, A.S., Matos, R., Payolla, B.L., and Tosdal, R.M., 2010. The Rondonian-San Ignacio Province in the SW Amazonian Craton: An overview. *Journal of South American Earth Sciences*, 29: 28–46.
- Cawood, P.A., and Pisarevsky, S.A., 2017. Laurentia-Baltica-Amazonia relations during Rodinia assembly. *Precambrian Research*, 292: 386–397.
- Dalziel, I.W.D., 1991. Pacific margins of Laurentia and East Antarctica-Australia as a conjugate rift pair: Evidence and implications for an Eocambrian supercontinent. *Geology*, 19: 598–601.
- Hoffman, P.F., 1991. Did the breakout of Laurentia turn Gondwanaland inside-out? *Science*, 252: 1409–1412.
- Johansson, Å., 2009. Baltica, Amazonia and the SAMBA connection—1000 million years of neighbourhood during the Proterozoic? *Precambrian Research*, 175: 221–234.

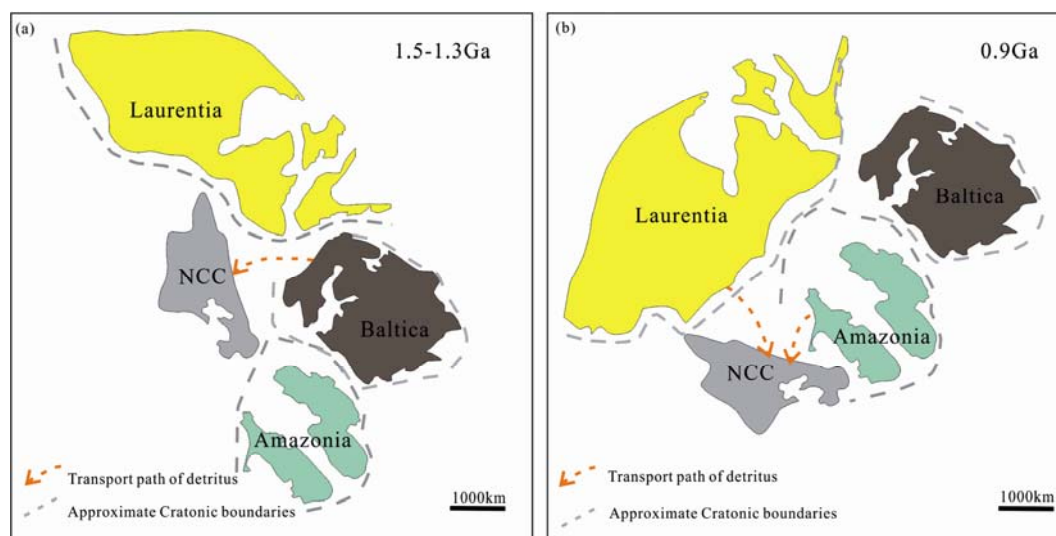


Fig. 1. The provisional connection among NCC, Baltica, Amazonia and Laurentia during 1.5–1.3Ga (a) and 0.9Ga (b) based on the SAMBA hypothesis (Johansson, 2009).

* Corresponding author. E-mail: liuzh@jlu.edu.cn

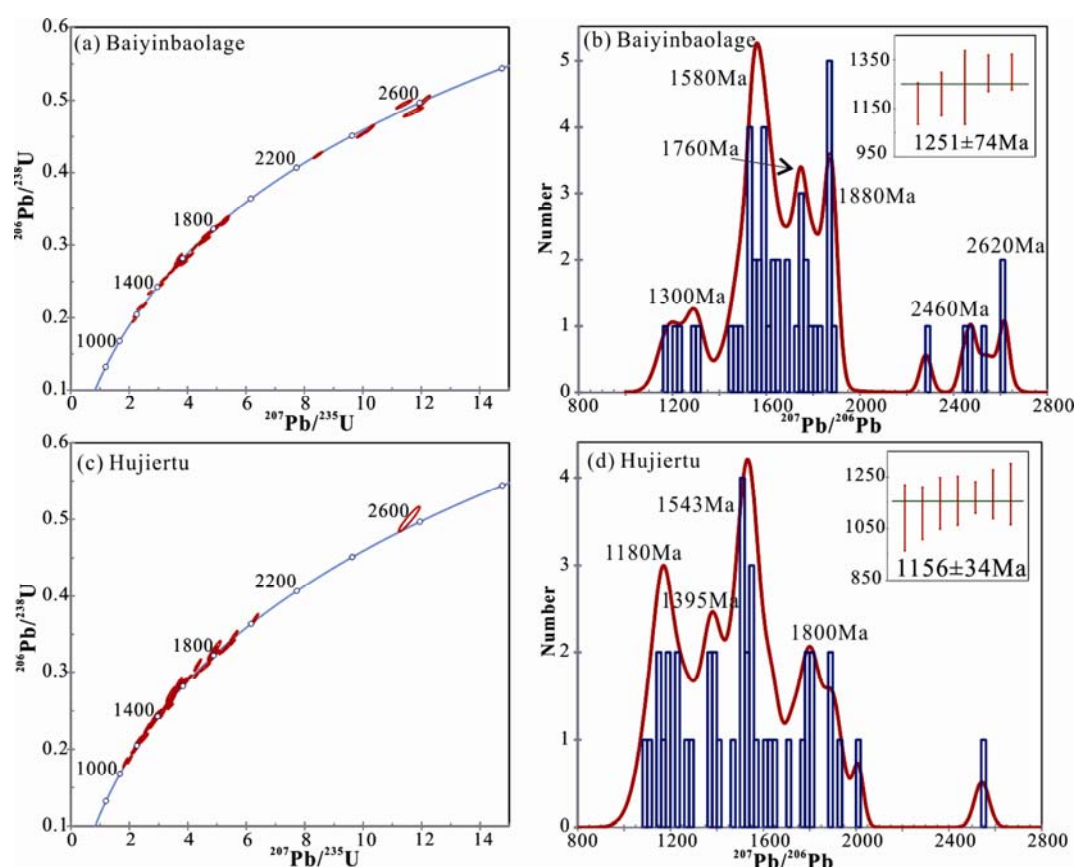


Fig. 2. Concordia diagram, weighted average age and binned frequency histograms of zircon ages for Baiyinbaolage (a, b) and Hujiertu Formation (c, d)

About the first author

LI Changhai, Male, born in 1993 in Dongying City, Shandong Province; a master student in College of Earth Sciences, JiLin University, my research interests mainly lie in precambrian geology and supercontinent reconstruction, Email: changhai0912@163.com, Tel: 13144315168

About the corresponding author

LIU Zhenghong, Male, born in 1960 in Dandong City, Liaoning Province; a professor in College of Earth Sciences, JiLin University, he is now interested in the study of structural analysis, Email: liuzh@jlu.edu.cn, Tel: 18686680810