

## Long link of Cathaysia Block of South China with East Gondwana

JIN-HAI YU<sup>1,2\*</sup>, LIJUAN WANG<sup>1,2</sup>, S.Y. O'REILLY<sup>2</sup>,  
W.L. GRIFFIN<sup>2</sup> AND QIAN LIU<sup>1</sup>

<sup>1</sup>State Key Laboratory for Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing, 210093, China

(\*correspondence: jhyu@nju.edu.cn)

<sup>2</sup>GEMOC/CCFS ARC National Key Centre, Department of Earth and Planetary Sciences, Macquarie University, Sydney, 2109, Australia (sue.oreilly@mq.edu.au)

It has been documented that there are several supercontinent cycles in the earth evolution history, Paleoproterozoic Columbia, late Mesoproterozoic to early Neoproterozoic Rodinia, late Neoproterozoic to early Paleozoic Gondwana and late Paleozoic Pangea ones.

South China Block consists of Cathaysia and Yangtze blocks. Two blocks have different Precambrian crust components and amalgamate to an united continent in early Neoproterozoic (900-800Ma). New dating results indicate that the Cathaysia block underwent multi-phases of tectonothermal events, which are related with assembly and breakup of supercontinents.

The 1.90-1.88 Ga high-grade metamorphic rocks and S-type granites and 1.87-1.85 Ga A-type granites in WS Zhejiang suggest a Paleoproterozoic orogeny occurring in the East Cathaysia and related with the supercontinent Columbia. Petrologic, chemical and Nd-Hf isotopic comparisons suggest the Cathaysia is most likely to link with South Korea and Lesser Himalaya, North India in the Columbia cycle.

Detailed zircon U-Pb dating results show abundant ~2.5 Ga and ~1.0 Ga clastic materials with minor 3.3-3.0 Ga and ~3.8 Ga ones in the basement rocks in the Nanling area, implying that the southern Cathaysia had or was close to a Grenvillian orogen developing on an old basement. Much similar age spectrum to those in East India and East Antarctica suggest affinitive link of the southern Cathaysia with them in supercontinent Rodinia cycle.

A early Paleozoic sedimentary rock in East Cathaysia contains 39% Pan-African-age, 22% Grenville-age, 13% Mesoproterozoic and 11% late Paleoproterozoic detritus. Abundant Pan-African ages suggest that East Cathaysia was closely connected with the Gondwanaland in early Paleozoic. These data demonstrate that the Cathaysia has maintained long link with East Gondwanaland from Paleoproterozoic to early Paleozoic times for about 1400 Myr.

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