

## **Prograde, peak, and retrograde P-T-t path of the High- temperature Ultrahigh-pressure terrane in the Dabie orogen, China**

DENG LIANGPENG<sup>1\*</sup>, LIU YICAN<sup>1</sup>, GROPPO  
CHIARA<sup>2,3</sup>, ROLFO FRANCO<sup>2,3</sup> AND GU  
XIAOFENG<sup>1</sup>

<sup>1</sup>CAS Key Laboratory of Crust-Mantle Materials and Environments, School of Earth and Space Sciences, University of Science and Technology of China, 230026, Hefei, China (\*correspondence: denglp@mail.ustc.edu.cn)

<sup>2</sup>Department of Earth Sciences, University of Torino, Via Valperga Caluso 35, 1-10125, Torino, Italy

<sup>3</sup>C.N.R. – I.G.G., Section of Torino, Via Valperga Caluso 35, 1-10125, Torino, Italy

The North Dabie Complex Zone (NDZ) in the Dabie orogen, China is a high-T ultrahigh-pressure (UHP) metamorphic terrane. The UHP rocks in the NDZ underwent a multistage evolution involved in prograde, UHP and HP eclogite-facies, and subsequent granulite-facies overprinting and amphibolite-facies retrogression during the Mesozoic continental subduction and exhumation [1, 2].

Groppo *et al.* [3] obtained a P-T range from ~650 °C/1.2 GPa up to > 750 °C/> 2.0 GPa for the prograde stage, using phase equilibrium modeling. Peak P-T conditions were estimated to be 881–1080 °C and 5–7 GPa [1, 4]. Quartz eclogite-facies metamorphism occurred under 901–1028 °C, according to Ti-in-zircon and Zr-in-rutile thermometers, assuming the pressure to be 2.0 GPa [4]. This study define another four P-T ranges by phase equilibrium modeling. The results are 1.6–1.98 GPa/899–987 °C, 1.1–1.3 GPa/850–890 °C, 0.8–1.0 GPa/850–930 °C and 0.7–0.8 GPa/720–770 °C. These P-T ranges correspond to three stages of granulite-facies overprinting plus one stage of high amphibolites-facies retrogression, which are indicated by mineral paragenesis.

Therefore, combing the above P-T results with published zircon U-Pb ages [1, 2] and related mineral Sr-Nd isotope dating, a complete prograde, peak and retrograde P-T-t path involved in eight metamorphic stages was for the first time precisely constrained for the NDZ.

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[1] Liu *et al.* (2007) *JMG* **25**, 975-989. [2] Liu *et al.* (2011) *Lithos* **122**, 107-121. [3] Groppo *et al.* (2015) *Lithos* **226**, 183-200. [4] Liu *et al.* (2015) *Gondwana Res* **27**, 410-423.