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Chuansong He, M. Santosh, Qiong-Yan Yang

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Metallogeny linked to mantle dynamics in the Sanjiang Tethys region as inferred from P-wave teleseismic tomographic study

Chuansong He[1*], M. Santosh[2, 3], Qiong-Yan Yang[3]

[1]*Institute of Geophysics, China Earthquake Administration, Beijing 100081, China*

[2] *Centre for Tectonics, Exploration and Resources, Department of Earth Sciences, University of Adelaide, SA 5005, Australia*

[3]*School of Earth Sciences and Resources, China University of Geosciences Beijing, 29 Xueyuan Road, Beijing 100083, China*

Abstract: The Sanjiang Tethys tectonic domain is one of the major metallogenic belts in China. The magmatism and metallogeny in this region have been variously attributed to break-off of the subducted slab, delamination of the lower crust or lithosphere, and mantle plume upwelling. Previous seismic studies have identified prominent heterogeneity of velocity structure in the crust and mantle in this region. Here we synthesize teleseismic data recorded by China seismic networks and mobile seismic stations to generate tomographic images at various depth sections in the Sanjiang Tethys region. Our results clearly indicate zones of low velocity perturbation associated with mantle upwelling, which might suggest extensive crust-mantle interaction which possibly acted as the trigger for magmatism and metallogeny in this region.

* Corresponding author. Tel.: 86-10-68729303; Fax: 86-10-83534760.
Email address: hechuansong@aliyun.com