

Three-dimensional electrical structure of the Gaoligong shear zone

*Qinghua Huang¹, Tao Ye¹, Xiaobin Chen², Huiqian Zhang¹, John Chen¹

1. Peking University, 2. Institute of Geology, CEA

The Gaoligong shear zone is located at the southwest margin of the Eastern Himalayan Syntaxis, and it acts as the west tectonic boundary of extrusive Indochina block in western Yunnan. Influenced by the extrusion of Tibetan blocks and Indo-Burmese collision, the region is associated with active seismicity and Quaternary volcanoes. We have performed magnetotelluric survey with 78 broad-band magnetotelluric stations covering the Gaoligong shear zone. After various data processing and 3D inversion test, we obtained the first 3D crustal resistivity model in this region. One large resistive body was imaged at the mid-lower crust beneath the Gaoligong shear zone which could block the previously proposed crustal channel flow along this intra-continental block boundary to the east of Tibetan Plateau. However, our 3D model indicates the crustal channel flow could take place to the east of the Gaoligong shear zone as proposed by previous studies. We also investigate the possible relationship between the seismicity and the electrical structure in the Gaoligong region.

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