

# **Mesozoic-Cenozoic paleotopographic reconstruction of Huangling Massif in the Middle Yangze Block, central China, from fission track and (U-Th)/He thermochronology**

MINGCHENG SUI<sup>1</sup>, XIANG GE<sup>2</sup> AND CHUANBO SHEN<sup>2</sup>

<sup>1</sup>Graduate School, China University of Geosciences, Wuhan, 430074, China

<sup>2</sup>Key Laboratory of Tectonics and Petroleum Resources, China University of Geosciences, Ministry of Education, Wuhan, 430074, China

The palaeotopography reconstruction has been worth on understanding tectonic evolution, stratigraphic distribution and petroleum exploration. The low-temperature thermochronology, such as fission track and (U-Th)/He dating, has highlight the potential for quantitative constraining on exhumation and palaeotopography reconstruction. The Huangling massif, with the ancient metamorphic layer exposed in its core and sedimentary layer around the core, is a key area to reveal the tectonic evolution of South China. Integrating fission-track and (U-Th)/He data, the exhumation and paleotopograph evolution of the Huangling massif since Mesozoic were revealed. Exhumation rate shows a fluctuation feature. It experienced two rapid exhumation stages and two relatively stable stages. Based on current topography, exhumation thickness, balanced effectand paleo-sea level, palaeotopographies in Huangling massif on late Triassic, early Cretaceous, late Cretaceous and Oligocene were reconstructed. The results show the average elevation decline from ~2100 m in late Triassic to ~650 m at present, including two dramatic uplift stages. The first rapid uplift and erosion during cretaceous (~140-80Ma) have much relationship with the extruding between the Qinling-Dabie orogeny and middle Yangtze Block. The second rapid uplift and exhumation since Oligocene (40~30-0Ma) was a remote response of the Himalayan movement and controlled by the collision between Indian and Eurasia plate.