

**COLLISION, ROTATION AND POSSIBLE SUBDUCTION REVERSAL OF THE
SOUTH CHINA BLOCK: IMPLICATIONS FOR THE EXHUMATION OF
HIGH PRESSURE (HP) AND ULTRA-HIGH PRESSURE (UHP)
METAMORPHIC ROCKS IN THE DABIE SHAN OROGEN,
CHINA**

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Abstract

Studies of regional plate-scale processes that may influence the exhumation of ultra-high pressure (UHP) metamorphic rocks are few despite their potential importance. Here, I review and summarize available age constraints along the Qinling-Dabie orogen, which separates the North China Block (NCB) from the South China Block (SCB). I find that collision-related events in the west and extension-related events in the east, where the large Dabie Shan UHP terrane is located, were contemporaneous. Paleomagnetic data indicates clockwise rotation of the SCB relative to the NCB during this time. Previous work indicated that the collision propagated from east to west where a major point of indentation of the SCB into the Qinling-Dabie orogen occurred in the Hannan Dome area. Indentation occurred at 167 ± 3 Ma (Middle Jurassic) as constrained by new $^{40}\text{Ar}/^{39}\text{Ar}$ dates on synkinematic sericite in an indentation-related mylonitic shear zone. While this contraction was occurring in the west, exhumation of the Dabie UHP terrane was occurring via middle-upper crustal extensional tectonics in the east. I propose that the collision of the SCB with the NCB occurred not only in a scissor-like fashion, as previously suggested, but also involved a (late) rotation about a pole between the Hannan Dome area and the Dabie Shan orogen. This rotation implies “subduction withdrawal”, extension, and exhumation in the eastern Dabie Shan area while convergence continued in the west. This microcontinent-scale rotation and subduction withdrawal could provide an important component in the exhumation of the largest UHP terrane in the world.