

Post-Jurassic Tectonics of the Southeast Asia inferred from Paleomagnetism

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Post-Jurassic tectonics of differential rotation between the Indochina and South Sundaland blocks in Southeast Asia remained an issue to be properly investigated. Because the Sibumasu Terrane is located between the clockwise rotated Indochina Block and counter-clockwise rotated South Sundaland Block, its tectonics is a clue to understanding deformation feature of the Southeast Asia. For this purpose, we focus our paleo magnetic study on the lower to middle Jurassic red sandstones in the Sibumasu Terrane. The Umphang Group is collected at 33 sites from the North Trang Syncline (7.6N, 99.6E) in the Peninsular Thailand and at 21 sites around Ratchaburi area (13.6E, 99.6E) in its root. After a stepwise thermal demagnetization a pre-folding characteristic remanent magnetization is identified. Easterly deflection in declination ($D = 31.1$, $I = 12.2$, $a95 = 13.9$) appears at the Trang area in a mean direction of this component at 100% unfolding, whereas westerly deflection in declination ($D=348.5$, $I=24.7$, $a95=10.5$) is observed around Ratchaburi area. Combining of two directions with those reported from other areas, Umphang Group rocks (Kalaw, Mae Sot, Ratchaburi and North Trang Syncline) reveal variable declinations (between 348.5 and 44.7) for the Sibumasu Terrane. Variable declinations are ascribed to differential deformation in the Sibumasu Terrane, as reflected from sinusoidal shaped features in the Carboniferous-Permian strata and the Cretaceous-Paleogene granites. Observation of such features in the granitic rocks links the occurrences of deformational activities after their intrusion, which took place in a period between 130 Ma and 51 Ma. The Sibumasu Terrane behaved as an independent fragment at a time when the Indochina Block was undergoing through a clockwise rotation and southward displacement as a result of extrusion tectonics after the gigantic India-Asia collision.