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Reconstruction of Micro-continental Collision Tectonics in Northern Thailand: Relation to Closure of Paleo-Tethys

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Micro-continental collision between the Sibumasu block and the Indochina block was caused the closure of the Paleo-Tethyan ocean in the Late Triassic time. Triassic collision tectonics in the Paleo-Tethys region has been constructed by structural analysis from deformation structure observed in outcrop. Recently, Ueno and Hisada (2001) proposed new tectonic framework of collision tectonics in Northern Thailand, based on micro-biostratigraphy, paleo-biogeography and character of chromian spinels from clastic rocks. According to Ueno and Hisada (2001), the Inthanon and the Sukhothai zones are recognized between the Sibumasu and the Indochina blocks. The Inthanon zone is interpreted as thrusted zone of Paleo-Thethyan sedimentary rocks over the Sibumasu block, whereas the Shukhothai zone is the Late Paleozoic to Mesozoic volcanic arc. The main Paleo-Tethyan suture corresponds to the Mae Yuam Fault between Sibumasu block and the Inthanon zone around Mae Hong Son area in Northern Thailand. In the Sibumasu block, slaty cleavages are developed in slate with folded structure. Attitude of cleavages strike N10-40˚E and dip 50-60˚E, and is suggested the point maximum pattern plotted on equal area projection. In the Inthanon zone, shear deformations are observed in melange, low-angle thrust and high-angle reverse fault. Melanges are composed of sandstone and chert lens with shaly matrix, and occasionally show S-C fabrics. Shear direction of S-C fabrics is not concentrated in melange. Several thrusts concerning with lithologic boundary present shear direction of top to E-W. Reverse faults are latest deformation in this area, and its attitude of shear directions suggests slightly concentration of top to S-N. As a result of micro-continental collision, the Sibumasu block and the Inthanon zone are recognized in different phenomena associated with shorting of strata. Cleavages developed in the Sibumasu block present compaction of strata in the direction of NNE-SSW. On the other hand, the Inthanon zone is interpreted as thrusted zone occurred the stacking of strata through E-W. It is suggested that stress field with the closure of the Paleo-Tethyan ocean in the Late Triassic time was released by fold in the Sibumasu block, and by thrust in the Intanon zone.

Keywords: Sibumasu block; Indochina block; Inthanon zone; Paleo-Tethyan suture; shear deformation; slaty cleavage; Mae Hong Son

Reference

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