

# Internal deformation of the Shan-Thai Terrane inferred from the Paleomagnetism of the Jurassic red beds in Northern Thailand

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Paleomagnetic samples of red sandstones were collected at 16 sites from the Lower to Upper Jurassic Phu Kradung formation and the Upper Jurassic Phra Wihan formations around the Nan city (19.2deg. N, 101.0deg. E) in the Shan-Thai terrane. After stepwise thermal demagnetization, a high-temperature component with unblocking temperature of about 680 deg. C is isolated from 11 sites. The primary nature of this magnetization is ascertained through positive fold test at 99 % confidence level. Tilt-corrected mean paleomagnetic direction from 11 sites is  $D=32.3\text{deg.}$ ,  $I=33.3\text{deg.}$ ,  $a95=12.2\text{deg.}$ ,  $k=15.0$ , which gives a paleomagnetic pole for Nan area at 60.1deg. N, 186.5deg. E with  $A95=11.7\text{deg.}$  The Jurassic paleomagnetic results from the Nan area together with those previously reported from the Shan-Thai terrane and Indochina block yield southward displacement by 16.7deg.  $\pm$  7.7deg. of the Indochina peninsula with respect to the stable part of the Yangtze block, as suggested by Cretaceous paleomagnetic results. Declination data from the Nan and other areas in the Shan-Thai terrane show a clockwise rotation of about 20deg. for the whole block whereas the narrow zone extending from Luxi to Mengla in this terrane underwent a large local-scale rotation of more than 60deg., which superimposed on the whole block rotation. Localized tectonic deformation accompanied with clockwise rotation of the Shan-Thai terrane is contemporaneous tectonic phenomenon with its southward displacement during the last 35 Ma. The internal deformation of the Shan-Thai terrane partly absorbed the stress on the Asian continent due to indentation of India as well as southward displacement of the terrane.