

PALEOMAGNETIC EVIDENCE FOR SOUTHWARD DISPLACEMENT OF THE CHUAN DIAN FRAGMENT OF THE YANGTZE BLOCK

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Cretaceous red sandstones of the Feitianshan Formation and the Xiaoba Formation were sampled at 33 sites from the Dadeli and Mishi synclines of Xichang (27.9N, 102.3E). The study area is a part of the Chuan Dian fragment bounded by the Xianshuihe-Xiaojiang and the Red River fault systems, which in turn constitutes of the southwestern part of the Yangtze block. Almost all the samples give a characteristic paleomagnetic direction with unblocking temperatures of 680C. The primary nature of magnetization is ascertained by positive fold test with a 99 % confidence level for the Dadeli syncline.

The tilt corrected overall mean direction of the 33 sites is $D=3.7$ degrees, $I=41.5$ degrees ($a95=3.4$ degrees), with a corresponding paleopole at 85.2N, 241.7E ($A95=3.5$ degrees). This pole occupies the near-sided position with respect to the Cretaceous pole of the Sichuan Basin, indicating that the Xichang area experienced a significant southward displacement. Combined with earlier reported paleomagnetic data from the Chuan Dian fragment, a southward displacement of 6.7 ± 3.5 degrees is evaluated for the whole fragment with respect to the Sichuan Basin since the Late Cretaceous. Declination data indicate that the southern part of the Chuan Dian fragment was subjected to clockwise rotation up to 45 degrees rotational deformation in clockwise sense. This significantly large tectonic rotation probably occurred during squeezing of this fragment from the Tibetan plateau.