

Paleomagnetic results from the Upper Jurassic redbeds of the western part of the Sichuan basin, Sichuan province, China

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Upper Jurassic red sandstones and red siltstones were collected at 29 sites in the Penglaizhen Formation around Jiangyang city (30.4N, 104.5E). Jiangyang is located in the western part of the Sichuan basin which belongs to the northern part of the Yangtze craton. Thermal demagnetization isolated a high temperature magnetic component with the maximum unblocking temperature of about 690°C. Characteristic direction of the high temperature magnetic component is isolated from 19 sites, and pass the fold test at 95% confidence level. This suggests that the characteristic directions of all 19 sites are pre-fold origin. The tilt-corrected mean direction of the 19 sites is $D=26.2$, $I=27.6$ with $a_{95}=8.7$, corresponding to a Late Jurassic paleomagnetic pole at 63.4N / 227.7E with $A_{95}=5.0$.

Upper Jurassic red sandstones and red siltstones were collected at 29 sites in the Penglaizhen Formation around Jiangyang city (30.4N, 104.5E). Jiangyang city is located in the western part of the Sichuan basin which belongs to the northern part of the Yangtze craton. At the northwest of Jiangyang, the Penglaizhen Formation forms an anticline with the northeast trending axis. Eleven in 29 sites (Area 1) are distributed on the both limbs of the anticline. The other 18 sites (Area 2) are on a monocline with dipping angle less than 10° at the south of Jiangyang. Thermal demagnetization isolated a high temperature magnetic component with the maximum unblocking temperature of about 690°C. Characteristic direction of the high temperature magnetic component is isolated from 9 sites of Area 1 and 10 sites of Area 2, and shows normal or reversed polarity. The characteristic directions of Area 1 pass the fold test at 95% confidence level, and a mean characteristic direction of Area 1 is consistent with that of Area 2 after tilt correction. This indicates that the characteristic directions of 19 sites are pre-fold origin. The characteristic directions of 19 sites pass the reversal test at 95% confidence level, suggesting that the tilt-corrected mean direction of 19 sites represents a Late Jurassic paleomagnetic direction. The tilt-corrected mean direction of the 19 sites is $D=26.2$, $I=27.6$ with $a_{95}=8.7$, corresponding to a Late Jurassic paleomagnetic pole at 63.4N / 227.7E with $A_{95}=5.0$. This pole position agrees with other two Late Jurassic poles from the northern part of the Sichuan basin. A pole (65.2N, 232.3E with $A_{95}=3.8$) is calculated from the three poles as a characteristic Late Jurassic pole for the northern part of the Yangtze craton.