

Palaeomagnetic Results of Cretaceous/Tertiary Sediments from the Zanskar Range

TALK

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Palaeomagnetic investigations have been carried out on Tethyan sediments from the NW Zanskar Range. A total of 470 oriented core samples from 52 sites were taken from five stratigraphic units of Middle Cretaceous to Lower Eocene age (Shillakong Fm, Marpo Lms, Stumpata Qz, Dibling/Lingshet Lms, Kong Fm).

A characteristic remanence (ChRM) could be isolated for most sites through detailed thermal and alternating field demagnetization and multi-component analysis. All ChRM directions are similar, independent from the geological age. Negative fold tests for the different units indicate that the ChRM represents a post folding remanence. Isothermal remanence (IRM) acquisition and thermal demagnetization of a saturation IRM identify pyrrhotite as the dominating ferrimagnetic mineral and carrier of the ChRM. The pyrrhotite remanence is probably a thermoremanent magnetization which was blocked when low-grade metamorphism decreased below a temperature of about 300°C.

The coinciding ChRM directions suggest that the age of remanence acquisition is identical for all stratigraphic units. According to a negative conglomerate test from the Kong Fm, the remanence must be younger than Lower Eocene. The ChRM inclination suggests that the remanence was acquired at about 20°N. However, crustal shortening between the Zanskar Range and stable India does not allow to estimate the remanence age from the apparent polar wander path of India.

The ChRM declination shows a counterclockwise rotation of 26.5° since remanence acquisition. Dependent on the remanence age, no rotation or a slight counterclockwise rotation relative to the stable India can be concluded. This does not fit to the general pattern of palaeomagnetic results from neighbouring areas within the western syntaxis of the Himalaya, from which a clockwise rotation relative to stable India is expected for the Zanskar Range.

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