

LOW-LATITUDE OXFORDIAN POSITION OF THE ORAVIC CRUSTAL SEGMENT (PIENINY KLIPPEN BELT, WESTERN CARPATHIANS): WAS IT A SLOW DRIFT OR A BIG JUMP?

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Bajocian and Oxfordian - Kimmeridgian limestones and Bathonian- Callovian neptunian dykes which cut the limestones from the Pieniny Klippen Belt (PKB) were samples for rock magnetic and paleomagnetic study. The samples were measured in the Paleomagnetic Laboratory in the Institute of Geophysics, Slovak Academy of Sciences in Bratislava and in the Paleomagnetic Laboratory of the Institute of Geophysics, Polish Academy of Sciences in Warsaw. SIRM(T) curves show that limestone and dykes from Mestecko contain hematite with blocking temperature about 650–670 °C. Babina limestone and dykes contain magnetite with T_b between 470 and 570 °C, usually accompanied by small hematite tail. Sometimes goethite with T_b about 80–100 °C is seen. Dykes and limestone from Vrsatec contain magnetite with T_b 570 °C or hematite with unblocking temperature of 670 °C. After cleaning of recent soft component by temperature of 200 °C and a field of 10–20 mT, hard component was revealed. After tilt correction mean directions found in Bajocian and Oxfordian - Kimmeridgian limestones have scattered declination but similar reversed inclination between 35° and 49°. Exceptions is mean direction for Bajocian limestone from Boleslav which have normal polarity. Mean directions for Bathonian- Callovian dykes are scattered in situ and after tilt correction. Fold test for inclination only showed pre-folding inclination for Bajocian and Oxfordian-Kimmeridgian limestone and scattered inclination for in situ and tilt corrected directions for dykes. Mean paleoinclination calculated for Bajocian and Oxfordian-Kimmeridgian limestone are 38.5° and 42.5°, respectively, which corresponds to 22°N and 25°N of paleolatitude. This is about 10°–15° lower than the value of inclination expected for that age for Pieniny Klippen Belt from Jurassic poles for Stable Europe. As positive fold test prove pre-folding age of isolating directions other possibility – flattening of inclination should be considered. Anisotropy of magnetic susceptibility (AMS) and magnetic remanence (AARM) can be used to evaluation of origin and deviation of NRM in sedimentary rocks. Axes of AMS are scattered for all localities. The degree of anisotropy is weak. Shape parameter T shows equal distribution of oblate and prolate fabric. On the contrary, ARM maximum axes are well clustered, especially for Mestecko and Vrsatec. Maximum axes are distributed in a vertical plane for Mestecko and in horizontal plane for Babina and Vrsatec. This evidences that the AAMR fabric is not related to the sedimentation and compaction processes but it was controlled by magnetization process and ambient field direction. However, anisotropy axes are not close to NRM directions. For Mestecko they are steeper. This exclude an effect of shallowing of NRM. On this basis we can assume that more southern paleolatitude of the Pieniny Klippen Belt than expected is demonstration of paleogeography and tectonics and points to the close vicinity of PKB to African plate in Jurassic.

Western Carpathians, Jurassic paleogeography, Pieniny Klippen Belt, paleomagnetic analysis

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