

Paleomagnetic results of Jurassic sediments in the Central Western Carpathians (Slovakia)

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Abstract:

Jurassic period was characterized by breakup of the Pangea supercontinent. In our Tethyan territory, a new Ligurian-Piemont-Penninic ocean started to form. It was an offspur of the newly-formed Central Atlantic which is usually drawn very narrow in paleogeographic reconstructions (see Stampfli & Borel, 1998). Some years ago, paleomagnetic evidence appeared, showing that due to the ocean spreading some crustal segments were shifted to low latitudes, close to North Africa. The evidence came so far only from the Pieniny Klippen Belt (for example: Lewandowski et al., 2004) and Spain (Osete et al., 2001). But the Tethyan realm was not large enough that the south-vergent shift could affect only a part of the crustal segments. It should be true also for all the segments separated from the North-European Plate. Therefore, also in Carpathian realm, attention has been focused to the Central Western Carpathians which represented a different microplate than the Pieniny Klippen Belt.

The aim of the research is paleomagnetic analysis of the mainly Middle- to Upper Jurassic sediments from selected sections of the West Carpathian Cretaceous nappe system (Fatric, Hronic and Silicic units) and to verify this hypothesis by paleomagnetic methods applied on the these Carpathian segments.

Up to now, five independent localities have been investigated: Hrušové and Košeca (Hronicum) in the Middle Váh river region (Western Slovakia), Zázrivá and Párnica (Fatricum) in northern Slovakia and the last one - B. Prameň in southern Slovakia (Silicicum). At each of sampling site, three to seven block samples were collected. The measurements were carried out using AGICO KLY-2 kappabridge and JR-5 spinner magnetometer. Thermal demagnetization in zero magnetic field revealed that natural remanent magnetization (NRM) had multi-component structure.

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Keywords: Western Carpathians, Slovakia, Paleomagnetism, Jurassic

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