



New paleomagnetic and magnetic fabric results from hematite-bearing Lower Triassic redbeds of the Central Western Carpathians

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The progressive collision of the Alcapa and Tisza-Dacia microplates with the European Platform resulted in the formation of the Carpathian orogen. With the objective of better constraining the regional paleogeographic evolution, we carried out paleomagnetic studies within the Central Western Carpathians, representing a fragment of the Alcapa microplate. Our investigations were focused on Lower Triassic red sandstones from the autochthonous cover overlying the crystalline basement. This study is a continuation of our earlier works performed in the Tatra Mts. Here we present results from the nearby mountain massifs of Low Tatra, Velka Fatra and Strazovske Vrchy.

Petromagnetic studies reveal that the dominant ferromagnetic carrier in the studied red sandstones is hematite, whereas magnetic susceptibility and magnetic fabric are mostly governed by paramagnetic minerals (phyllosilicates). AMS studies document the occurrence of a distinct magnetic foliation compatible with the bedding plane, and of a magnetic lineation of tectonic origin. Such a lineation lies in the bedding plane, but it is not exactly parallel to the strike of the bedding. The orientation of the lineation most probably reflects the multi-stage character of the deformation – folding and thrusting were followed by uplift and/or block faulting which affected the present day bedding attitude. The hematite carrier records a characteristic component characterized by maximum unblocking temperatures of 680°C. This component displays both normal (dominant) and reversed polarity, as well as shallow to moderate inclinations, i.e. similar to those expected from reference paleomagnetic data from the European Platform. Declination values are rather uniform for all four studied mountain massifs and indicate moderate counterclockwise rotations of the Central Western Carpathians.

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