

Paleomagnetic indication for possible CCW rotation of the Bohemian Massif with respect of the rest of stable Europe during Miocene

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The paper presents paleomagnetic results from the Bohemian Cretaceous basin (four localities, 48 independently oriented samples), from the Austrian part of the Molasse-Zone (Eggenburg area: six localities, 71 independently oriented samples), from the North Bohemian basin (Bilina open pit, 44, Bogatynia, 34 independently oriented samples) and the South Bohemian basin (one locality, eight independently oriented samples). The studied rocks from the first group are of Turonian-age, from the second and third of Early Miocene age, from the last, of Badenian age. Except one locality in the Eggenburg area, the samples are coming from clastic sediments, deposited in different environments (fully marine in the Turonian and fluviatile, deltaic, shallow lake during Miocene). We obtained the best results for the Turonian sediments, which exhibit an about 26° CCW rotation with respect to the expected stable European declination for this age. From the Eggenburg area four localities yielded statistically good paleomagnetic directions, but one of them is not acceptable for tectonic interpretation, since it was collected from a slump. The overall mean direction for

the three localities exhibits CCW rotation, but the direction is poorly constrained statistically.

Of the several horizons sampled from the huge open pits of Bilina and Bogatynia, only eight had statistically well-defined paleomagnetic directions. The declination of the combined result from the two pits departs from the expected stable European declination by about 17° in the CCW sense. The single Badenian locality from the South Bohemian basin also shows westerly declination.

As the expected paleomagnetic direction in a stable European co-ordinate system for the Bohemian massif has practically the same inclination and similar declinations for the time represented by the above localities, an overall paleomagnetic direction was calculated for the whole data set, based on 18 locality/site mean directions. This has practically the same declination/inclination before and after applying corrections for local bedding tilts and the declination departs about 25° to the west from the European reference direction.

The above results will be discussed in the light of previous paleomagnetic data from the Bohemian Massif.