# Are There Olistoliths on the Eperkés Hill? The Paleomagnetic Answer

Pauline CONVERT[1], Emő MÁRTON[2] and János HAAS[3]

[1] Université Strasbourg 1, Ecole et Observatoir des Sciences de la Terre, 5 rue René Descartes, 67084 Strasbourg cedex, France
[2] Eötvös Loránd Geophysical Institute of Hungary, Palaeomagnetic Laboratory, Columbus u. 17-23, H-1145 Budapest, Hungary
[3] Academical Research Group, Department of Geology, Eötvös Loránd University, Pázmány Péter sétány 1/C, H-1117 Budapest, Hungary

Epekés Hill is a classic exposure of the Jurassic-Lower Cretaceous successions in the Transdanubian Range, Hungary. Although the exposures of the Hill have been thoroughly studied during the last 40 years, facies interpretation is still subject of debate. According to some (Fülöp 1964, Konda 1970, Császár 1988a, 1988b) Upper Jurassic beds overlay the eroded surface of the Upper Triassic–lowermost Jurassic carbonates. In contrast, Galácz (1989) suggested that the Upper Triassic–lowermost Jurassic carbonates are large blocks (megabreccias or olistoliths) embedded into the Kimmeridgian through Berriasian limestones.

Recently, the results of new resistivity measurements (Palotai et al., in press) were interpreted as geophysical support for the megabreccia concept, since high resistivity patches (probably platform carbonates) seemed to swim in low resistivity material (probably pelagic limestones).

As the existence or absence of megabreccia is crucial for the interpretation of the structural evolution and paleogeography of the Transdanubian Range at the Jurassic-Cretaceous boundary, we decided to apply an other, independent geophysical method, paleomagnetism, to the same problem.

We collected paleomagnetic samples from two artificial exposures, from a 107 m long trench and from a large unearthed rock surface, both consisting of regular beds of Late Jurassic–Early Cretaceous limesones and of the suspected megabreccia horizon. We drilled several beds below and above the “megabreccia” horizon, respectively, and several points in suspected olistoliths. From every sampled bed and from every point three or more cores were taken so that the consistency of the paleomagnetic signal on site level could be checked. The samples were subjected to standard paleomagnetic laboratory processing (demagnetization was mostly carried out with the thermal method) and evaluation.

We found that magnetic parameters, like NRM intensities and susceptibilities are distinctly different for Upper Jurassic–Aptian beds of “normal” stratigraphic setting, on one hand, and for suspected olistoliths, on the other hand. The first group is characterized by NRM intensities of 2.1–12.5 mA/m and positive susceptibilities, while the same parameters for the second group are 0.04 to 0.43 mA/m and negative values, respectively. The paleomagnetic signal is highly consistent within nearly every site, no matter if they are regular beds or suspected olistoliths. However, there is a great difference in between-site consistency, which is extremely high for regular beds, but is non-existent for the sites of the “megabreccia” horizon. Thus, our results confirm that large blocks of late Triassic-Early Jurassic limestones were moved and re-deposited during the Late Jurassic-Early Cretaceous in the Transdanubian Range, therefore the geodynamic conditions must have been the same as in the Northern Calcareous Alps.

## Acknowledgement

This work was financially supported by the Hungarian Scientific Research Found (OTKA) project no. T049616.

## References

CSÁSZÁR G., 1988a. Bakony, Olaszfalu, Eperkés Hill, Long trench, Section EH-1 Geological Key Sections of Hungary. Máfi, Budapest, Hungary.

CSÁSZÁR G. 1988b. Bakony, Olaszfalu, Eperkés Hill, Large exposure, Section EH-2 Geological Key Sections of Hungary. Máfi, Budapest, Hungary.

FÜLÖP J., 1964. Lower Cretaceous (Berriasian–Aptian) formations of the Bakony Mts. (in Hungarian). Geol. Hung. Ser. Geol. 13. Máfi, Budapest, Hungary.

GALÁCZ A., 1989. Eperkés Hill – Upper Jurassic pelagic sequence with synsedimentary megabreccia and Lower Cretaceous cover. In: CSÁSZÁR (Editor), Excursion Guidebook. IAS Tenth Regional Meeting, Máfi, Budapest, Hungary.

KONDA J., 1970. Sedimentological investigations of the Jurassic formations of the Transdanubian Range. (in Hungarian). *Máfi Évkönyv*, 50: 161-260.

PALOTAI M., CSONTOS L., DÖVÉNYI P. and GALÁCZ A., (in press). Upper Jurassic redeposited sediments on Eperkés Hill. (in Hungarian). *Földtani Közlöny*.