

Integrated Stratigraphy of the Jurassic-Cretaceous Marine Sequences: Contribution to Global Boundary Definition

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Abstract

The definition of the Jurassic-Cretaceous (J-K) boundary is still not fully established and the boundary is the last system boundary without a GSSP. Conclusions on the calibration of calpionellids, magnetostratigraphy, ammonites and nannofossils are to define a stage base using *C. alpina* in the middle of M19n.2n (Wimbledon 2014). Recently we have been able to compare paleomagnetic polarity zones of several studied sections and demonstrate, using high-resolution magnetostratigraphy, that the J-K boundary sections in the sub-Boreal Realm can be correlated with the Tethyan ones. Currently, we conduct detailed study of the following localities: Štramberk and Kurovice (Czech Republic); Swanage, Chief Beef, Peveril Point, Portland, Jordans, Bowers, Fresh Water Bay (England); and Le Chouet, St Bertrand's Spring (Elbra *et al.* 2017), Charens, Belvedere and Tre Maroua (France). The data are correlated with well-recognized deep-water sections (Brodno) as well as shallow water sections (Le Chouet and Tatric succession) with poorly developed chronostratigraphy.

The new Kurovice section belongs to the Magura Group of Nappes within Carpathian Flysch Belt. The results (Elbra *et al.* 2018) of studied samples reveal very low remanent magnetization and susceptibility. Acquisition of remanent magnetization suggests presence of low (magnetite) and high (goethite and/or hematite) coercivity fractions. The span of the studied sections is from M21r to M17r. Increased abundance of spherical species of *Calpionella alpina* Lorenz was observed along the J/K boundary interval, which helped to interpret the magnetostratigraphic column and correlated it with the magnetozone M19n.2n. The characteristic remanent component holds dual polarity. The mean direction, after tectonic correction, for normal polarity component is $D = 208.2^\circ$, $I = 39.2^\circ$, $\alpha_{95} = 4.2^\circ$, and for reverse polarity is $D = 18.7^\circ$, $I = -50.3^\circ$, $\alpha_{95} = 6.9^\circ$. The value of the virtual geomagnetic pole calculated for tilt corrected data is $Plat = 13.2^\circ N$, $Plon = 7.4^\circ W$ (Elbra *et al.* 2018). This primary Tithonian/Berriasian direction of Kurovice section implies a counter-clockwise rotation and obtained paleolatitude of ca. $24^\circ N$. Latter is in good agreement with data given by other authors for nearby localities.

Keywords: Tethyan Realm, Outer Western Carpathians, rock magnetism, magnetostratigraphy, Jurassic-Cretaceous.

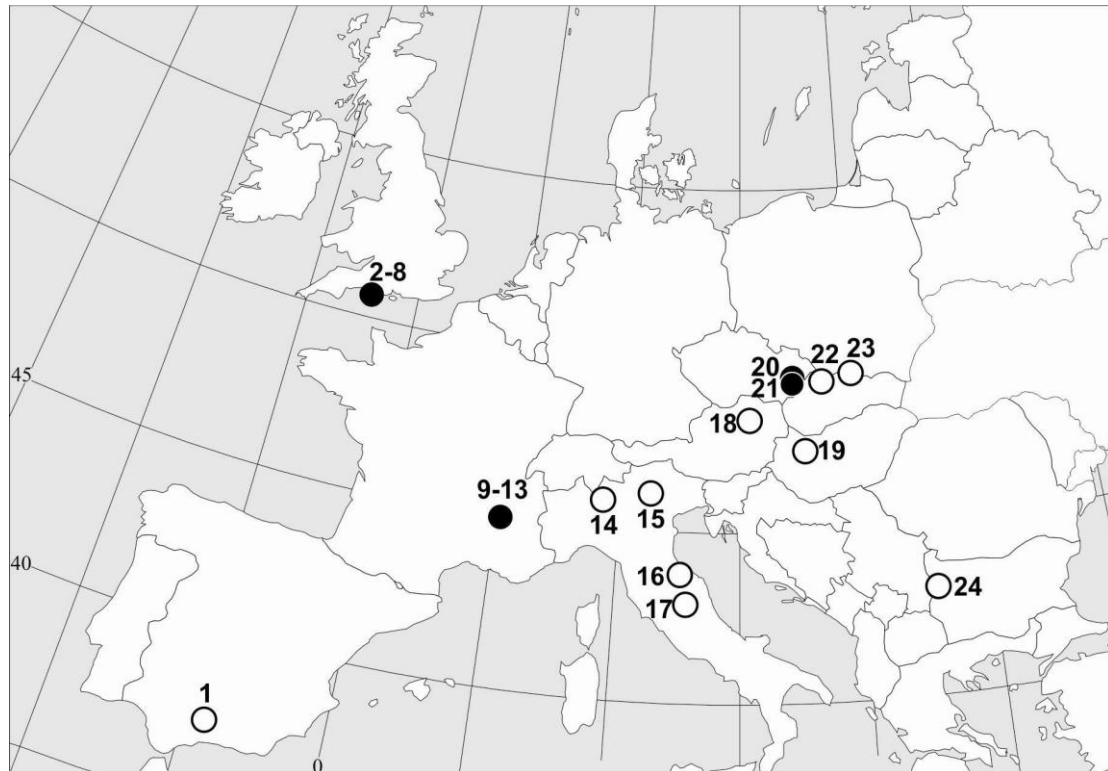


Fig. 1. Schematic map of our ongoing study sites (black), and selection of European J-K comparison sections (white). 1 – Puerto Escano; 2 – 8 Swanage, Cheif Beef, Peveril Point, Portland, Jordans, Bowers, Fresh Water Bay; 9 – 13 Le Chouet, St Bertrand’s Spring, Tre Maroua, Belvedere, Charens; 14 – Torre de Busi; 15 – Foza; 16 – Bosso; 17 – Salto del Cieco; 18 – Nuzhof; 19 – Lókút; 20 – Kurovice; 21 – Štramperk; 22 – Brodno; 23 – Western Tatra; 24 – Barlya.

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