

Foraminiferal event-stratigraphy and paleoenvironments across the K/T boundary sections in the Western Carpathians

JÁN SOTÁK

Earth Science Institute, Slovak Academy of Sciences, Ďumbierska 1, 974 11 Banská Bystrica, Slovakia

K/T boundary has been constrained in the Western Carpathian sections several times (see Salaj et al., 1978, Samuel et al. 1967), but its existence is still uncertain due to erosion connected with the Laramian tectogenesis. The sections promising for K/T boundary has been revised with some constraints, pointing out to the absence of lowermost P-serie biozones (P0-P1). New evidences of the K/T boundary has been gathered from the study of the stratigraphic drillings near Veľké Kršteňany, Žilina-Hradište and Krásno nad Kysucou - Čadca.

K/T boundary is most properly marked in the Kršteňany KRS-3 borehole, and that by LO of *Abathomphalus mayaroensis* and FO of *Parvularugoglobigerina eugubina*. Transitional interval is also well dated by microperforate species like *Globoconusa daubjergensis*, *Eoglobigerina simplicissima*, etc. The section grades upward to the Selandian formation with *Praemurica inconstans* and *Morozovella angulata*, Thanetian formation with predominance of conicate acarininids (*A. wilcoxensis*, *A. coalingensis*, *A. pseudotopilensis*, etc.), Ypresian formation with abundant and diversified morozovellids (*M. formosa*, *M. subbotinae*, *M. aragonensis*, *M. lensiformis*, etc.) and Lutetian formation with *Morozovella gorrondatxensis*, *Turborotalia frontosa*, *Acarinina topilensis*, *Globigerinatheka kugleri*, etc. Considering that, the Kršteňany section provides a most complete stratigraphical record from the K/T boundary up to the Zone E10, that corresponds to the Late Middle Lutetian.

K/T boundary in the ZA-2 borehole near Žilina (Hradisko) is developed in plankton-rich sequence, which allows to obtain a high quality stratigraphic record. The sequence begins with silty marls, which is Maastrichtian in age by presence of globotruncanid and heterohelicid foraminifers like *Contusotruncana*, *Racemiquembelina*, *Ganserina*, etc. This formation passes into dark bioturbated marls with impoverished microfauna, which higher up abruptly changed to *Parasubbotina-* and *Subbotina-rich* associations of the lowermost Paleocene formation. Middle Paleocene sequences is significantly enriched in large-sized foraminifers like angular and discoidal morozovellids (e.g., *M. angulata*, *M. acuta*, *M. conicotruncana*), numerous species of globanonalinids (e.g. *G. pseudomenardi*, *G. compressa*), muricate acareninids (e.g. *A. strabocela*, *A. soldadoensis*), and others. Marly sequence also contains an intercalations of corallal limestone, that remind the so-called Kambühel Limestones.

New indications of K/T boundary has been also found in the Outer Western Carpathians in Kysuce region. Deep-water sequence of the Beloveža (Ráztočka?) formation of the Magura unit contains a rich microfauna of guembelitrids, which indicates

Guembelitria bloom at the K/T boundary. Herein, this stress microfauna is well documented by species *Guembelitria cretacea*, *G. danica* and *Woodbringina hornerstownensis*, which correspond with the P0 biozone of Arenillas et al. (2000). Paleocene sediments above *Guembelitria*-bearing formations differ by appearance of *Parasubbotina* species.

Acknowledgement: The research has been supported by VEGA project 2/0034/16 and by project APVV-14-0118.

References:

- Arenillas, I., Jose, A., Arz, J.A., Molina, E. & Dupuis, C. 2000. The Cretaceous/Paleogene boundary at Ain Settara, Tunisia: sudden catastrophic mass extinction in planktonic foraminifera. *Jour. Foram. Res.*, 30, 202–218.
- Salaj, J., Kysela, J., Gašparíková, V. & Began, A. 1978. Le Danien de la série Manín de l'Quest de Žilina et la question de plissement laramique. *Geol. Práce, Správy* 70, 57–81.
- Samuel, O., Salaj, J., Köhler, E. & Borza, K. 1967. Relation of the Cretaceous to the Paleogene in the Klippen Belt of the Váh Riverside (West Carpathians). *Geologický sborník*, XVIII, 1, 125–132.