Carbon isotope record on the Triassic-Jurassic boundary

OTÍLIA LINTNEROVÁ[1], JOZEF MICHALÍK[2], TETSUJI ONOUE[3], RASTISLAV MILOVSKÝ[4] and JÁN SOTÁK[4]

1 – Department of Economic Geology, Faculty of Natural Sciences, Comenius University in Bratislava, Mlynská dolina, Ilkovičova 6, SK-842 15 Bratislava, Slovakia; e-mail: lintnerova@fns.uniba.sk

2 – Earth Science Institute, Slovak Academy of Science, Dúbravská cesta 9, P.O.BOX 106, 840 05 Bratislava, Slovakia; e-mail: geolmich@savba.sk

3 – Department of Earth & Environmental Sciences, Kumamoto University, 2-39-1 Kurokami, 860-8555 Kumamoto, Japan

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

Measurement of carbon isotope composition is widely applied to provide information on the carbonate deposition and/or on global C cycle perturbation.The uppermost Triassic is marked by a pronounced negative excursion near the system boundary that is linked to significant biotic turnover. Causes of the δ13C excursions at the Triassic-Jurassic (T/J) systems boundary remain under investigation. Outgassing during volcanic activity, changes in productivity, greenhouse climate and ocean anoxia, and seafloor methane releases – all have been suggested as mechanisms explaining perturbed global C cycle and accelerated biotic extinction. Negative excursions in the C isotope curves in the Veľká Furkaska and the Kardolina sections in the Tatra Mts (Michalík et al., 2007, 2010, 2013, Lintnerová et al., 2013) were documented and used to spatial correlation. All data - carbon isotope ($\delta^{13}C_{carb}$, $\delta^{13}C_{org}$), oxygen ($\delta^{18}O_{carb}$) and strontium isotope ($\delta^{87}Sr_{carb}$) ratios, total organic carbon (C_{org}) and other geochemical and mineralogical results from sections studied have been revised. Accumulation of C_{org} (0.5 to 3 %) and high negative $\delta^{13}C$ excursions ($\delta^{13}C_{org}$ in interval from -20 to -30 ‰VPDB) locate T/J boundary interval and enable correlation with the Kuhjoch stratotype section (Ruhl et al., 2010). The Kardolina section, where integrated stratigraphic data collected in the last decade suggest tight correlation of benthic biota extinction with the C- cycle perturbation, could be of a special importance. Lithology of both the Kardolina and the Veľká Furkaska sections (mainly stop of carbonate sedimentation on the T/J boundary) indicates decrease in carbonate production due to high CO_2 saturation and acidity rise in the water column. Greenhouse monsoonal climate accelerated weathering of the emerged land rocks, transport of terrigeneous matter and carbonate production demise in adjacent marine basins. The terrigenous input to the basin also suggested character of the $^{87}Sr/^{86}Sr$ curve (data), palynological data and documented the (enriched) kaolinite weathering crust in the High Tatra Mts area (Lintnerová et al., 2013).

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