Geophysical Research Abstracts
Vol. 14, EGU2012-9072, 2012
EGU General Assembly 2012

Patterns of conodont extinction selectivity during Ireviken event (Lower Silurian), example from Eastern Baltic basin

A. Spiridonov (1) and A. Brazauskas (2)

(1) Vilnius University, Faculty of Natural Sciences, Department of Geology and Mineralogy, Vilnius, Lithuania (s.andrej@gmail.com), (2) Vilnius University, Faculty of Natural Sciences, Department of Geology and Mineralogy, Vilnius, Lithuania (Antanas.Brazauskas@gf.vu.lt)

Ireviken event (Early Silurian) is one of the most prominent early paleozoic species turnovers identified by now. Earlier investigations showed that during considered biotic crisis large number of conodont species became extinct. Just twelwe out of sixty globally known species survived (Calner, 2008). A lot of attention concerning Irreviken event have been addressed toward description of timing of species extinctions and environmental factors that probably caused them. Here we suggest another point of view. We analized how conodont species level aggregate and emmergent traits (sensu Jablonski, 2008) influenced their extinction risk. Our analysis was confound to conodont spiecies from South Eastern part of Silurian Baltic Basin (Lithuania). Extinction probability influecing factors were evaluated using generalized linear modeling (GLM) methodology. The species were categorized into two types: those who lived before event and eventualy went extinct reaching it and those (and/or their conjectured descendants) who originated before event and survived it. Analysis of extinction risk revealed some unexpected results. Best predictor of conodont species survivorship during Ireviken event was level of variation of local abundances of individuals of given species (irrespective how we measure it - as standard deviation or coefficient of variation). Second important factor which determined extinction risk was geographic ranges of genuses to which analized species belonged. Higher variace of population size and larger geographical areas occupied by genera to which species belonged - the higher probability of survival during extinction event. Factors such as mean local population size and mean conodont species richness in samples from stratigraphic ranges of analized species are statistically insignificant as descriptors of extinction risk.

References:
Calner, M. 2008. Silurian global events – at the tipping point of climate change. In: Ashraf M.T. Elewa (ed.): Mass extinctions, pp. 21-58. Springer-Verlag. Berlin and Heidelberg.
Jablonski, D. 2008. Species selection: Theory and data. Annu. Rev. Ecol. Evol. Syst. 39: pp. 501-524.