Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11201, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11201
EGU General Assembly 2008

The terrestrial Albian/Cenomanian boundary carbon-isotope excursion, Moose River Basin, Canada

D. R. Gröcke (1), T. Gray (2)

(1) Department of Earth Sciences, Durham University, Science Laboratories, Durham, DH1 3LE England (d.r.grocke@durham.ac.uk), (2) School of Geography of Earth Sciences, McMaster University, Hamilton, L8S 4K1 Canada

The application of carbon-isotope stratigraphy in terrestrial sequences as a tool for correlation is well developed. Recently, Gröcke et al. (2006) produced a terrestrial carbon-isotope record across the Albian/Cenomanian boundary in a near-shore setting, but noted that the positive segment of the excursion was missing due to the global D2 sequence boundary (regression). In order to determine if this affected more terrestrial basin-settings, a continuous coal-lignite sequence from the Moose River Basin, Ontario has been investigated carbon-isotope stratigraphy. While several cores have been investigated, the Onakawana B (∼55 m) and the ONEX 82-14 cores (∼36 m) have provided a complete terrestrial record of the Albian/Cenomanian boundary. The carbon-isotope record of the Onakawana core shows a rapid negative excursion of ∼2 permil followed by a broad positive excursion of ∼3 permil beyond background values. The ONEX core shows a similar trend with a negative excursion of ∼1.5 permil followed by a positive excursion of ∼3 permil. The correlation of these two cores indicates that a similar trend can be seen basin-wide. Since the complete isotopic excursion was shown in both of the cores, it is plausible to suggest that the terrestrial record is not biased by regressive sequence boundaries in deeper protected basins. This study highlights the ability of terrestrial isotope stratigraphy to constrain biostratigraphic boundaries, and thus useful for investigating perturbations in the global carbon cycle.

Gröcke, D.R., Ludvigson, G.A., Witzke, B.L., Robinson, S.L., Joeckel, R.M., Ufnar, D.F., Ravn, R.L. 2006. Recognizing the Albian-Cenomanian (OAE1d) sequence boundary using plant carbon isotopes: Dakota

Formation, Western Interior Basin, USA. Geology 34: 193-196.