



Timing and stratigraphy of the change from anoxic to oxic oceans during the Turonian

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Studied Upper Cenomanian-Turonian sections of the Alps (Ultrahelvetetic Zone of Austria: Rehkogelgraben, Buchberg) were correlated to the absolutely dated $\delta^{13}\text{C}$ chalk composite curve of Jarvis et al. (2006). The change from OAE 2 black shales to grey and red pelagic marlstones and limestones takes place within a section of about 7 to 10m. The timing and duration of so-called oceanic red beds (CORB) in our section was constrained by correlating carbon isotope excursions to the chalk composite curve and by using Strontium Isotope Stratigraphy. Trace element data (Mn/Sr vs. $\delta^{13}\text{C}$) were used to assess the degree of diagenesis. Sedimentation rates were calculated by comparison with the composite curve of Jarvis et al. (2006). Linear age-depth correlations were also calculated. Stable isotope data and trace element distribution suggest negligible diagenetic alteration. Biostratigraphy employing nannofossils and planktonic foraminifera places the studied profile into the Lower to Middle Turonian. The main part of transition from grey to red sediments was deposited during the total range zone of *H. helvetica*. Within this zone several carbon isotope events were identified thus providing a higher temporal resolution. The isotope events were calibrated based on the absolute timescale provided by Jarvis et al. (2006). The sedimentation rate in our sections varies between 1 and 7 mm/kyrs. This further constrains the duration of oceanic red bed deposition to between 30 and 360 kyrs, whereas periods of grey marl deposition lasted between 70 and 470 kyrs.

Jarvis, I., Gale, A.S., Jekyns, H.C., Pearce, M., 2006. Secular variation in Late Cretaceous carbon isotopes: a new $\delta^{13}\text{C}$ carbonate reference curve for the Cenomanian - Campanian (99.6-70.6 Ma). *Geological Magazine*, 143, 561-608.