

A $\delta^{13}\text{C}$ spike/excursion as a potential marker for the Middle/Upper Turonian (Late Cretaceous) boundary?

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In the past, $\delta^{13}\text{C}$ curves have repeatedly and successfully been used for regional carbon isotope stratigraphy, especially in the Cenomanian to Lower Coniacian. In fact, there are some very distinct spikes or excursions that are of use for long range correlation (e.g. in the C/T boundary interval). $\delta^{13}\text{C}$ curves from Turonian to Lower Coniacian successions in England, northern Germany and northern Spain show great overall similarities, thus yielding good correlation potential between these areas.

In the Middle/Upper Turonian boundary interval, a distinct sequence of $\delta^{13}\text{C}$ spikes and excursions occur that have very good potential for long-range interbasinal correlation. Specifically significant is a positive spike in the late Middle Turonian, the "Pewsey Event". It occurs in northern Germany, southern England and northern Spain, in different environments with different lithologies.

At the moment, additional sections from Germany and Spain are under investigation. To involve successions from the Tethys into the $\delta^{13}\text{C}$ framework, samples from Tunisia will be measured.

If the Pewsey Event turns out to be present even in southern areas, it should be considered to use this unequivocally isochronous marker as a potential Middle/Upper Turonian boundary marker. This permits safe correlation between widely spaced areas, which previously has been hindered by palaeobiogeographic barriers. Beside pure stratigraphic purposes, additional potential for i) dating faunal migration/dispersion. ii) dating sequence boundaries. iii)