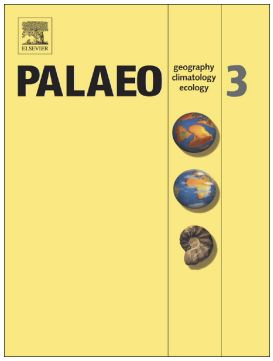


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# A new high-resolution carbon-isotope stratigraphy for the Campanian (Bottaccione section): Its implications for global correlation, ocean circulation, and astrochronology

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## ABSTRACT

A high-resolution carbon isotope record is presented for Campanian strata of the Bottaccione section (Umbria-Marche Basin), through an interval that constitutes the standard reference section for the geomagnetic polarity time scale. The identification of prominent $\delta^{13}C$ excursions and high frequency variations allows the establishment of robust stratigraphic markers to link this new Tethyan $\delta^{13}C$ record with the Boreal realm (Lägerdorf-Kronsmoor section, Northwest Germany and the Trunch borehole, Norfolk, UK). A decoupling of baseline $\delta^{13}C$ values between the Boreal and the Tethyan realm is observed during the mid-Campanian, reflecting a plausible change in intermediate/deep-water mass-exchange due to a more restricted Tethyan gateway; this is hypothesized to be a consequence of northward movements of Africa associated with opening of the South Atlantic Ocean. Statistical evaluation of a segment of the $\delta^{13}C$ dataset with the TimeOpt