



Comparison between NW European and Tethyan realms during the Toarcian Oceanic Anoxic Event

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The Early Toarcian (Early Jurassic) records a major Oceanic Anoxic Event (the so-called *Posidonienschiefer* event). This paleoceanographical setting is mainly related to i) the eustatic trend which corresponds to a second-order maximum flooding of epicontinental basins in the NW European realm and ii) fertilization of the seawater caused by an enhanced continental leaching (Os-isotopes profile and atmospheric pCO₂ reconstructions). During this interval, carbonates record particularly high C-isotopes values ($\sim +3\%$).

A major negative excursion of the $\delta^{13}\text{C}$ curve ($\sim -6\%$) disrupts the positive trend within the lower part of the Falciferum zone, which also corresponds to the onset of the OAE. This isotopic anomaly is recorded in all carbon sedimentary reservoirs (carbonates, phytoplanktonic organic matter and wood). However, the interpretation of this worldwide and synchronous isotopic event has been recently challenged because this negative shift is not recognized neither in some marine sections nor in belemnite calcite.

We present the comparison of the sedimentological and geochemical records of Early Toarcian strata from Boreal and Tethyan realms (epicontinental basins vs. open marine environments). Given their distinct paleoceanographical settings (bathymetry, currents, redox state), the expression of the OAE is unbalanced between these two domains. This critical interval is investigated for the differences of C-isotopes records of carbonates. For that, we present the evolution of calcareous particles assemblages (coccoliths, *Schizosphaerella*, diagenetic particles) and their specific geochemical signatures (stable isotopes and trace elements). The C-isotopes negative excursions

are eventually discussed with respect to paleoenvironmental and geochemical rapid changes.