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Book of Abstracts
Part II

ORGANIC MATTER AS POSSIBLE CLIMATIC PROXY TO RECONSTRUCT THE KIMMERIDGIAN CLIMATIC CHANGES IN THE N-E OF THE PARIS BASIN (FRANCE)

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The availability of Kimmeridgian sediments recently drilled in the northeastern part of the Paris Basin (France) by ANDRA, and isolated from the atmosphere immediately after drilling, offers us the opportunity to study samples unaffected by natural oxidation. Multidisciplinary study based on macropaleontology, (brachiopods, bivalves, ammonoids, ichnofossils) palynology, C and O isotope records of calcitic shells, and clay minerals shows an overall warming climate at the Cymodoce-Mutabilis boundary (top of Calcaires rocailleux Formation). The coolest period is mainly characterized by high relative abundance of Callialasporites sporomorphs, decreasing in $\delta^{18}O$, and a slight change in the kaolinite/illite ratio. Variations in $\delta^{13}C$ of shells, which depend on organic matter production, show significant changes at the top of Calcaires rocailleux Formation (CRF). Bivalve communities show a net shift from Trichites to Gervillella occurrences in assemblages, and variations in abundance and shape of the oyster genus Nanogyra is observed.

Molecular study reveals major changes in organic parameters at the top of CRF. The molecular signatures and chromatographic parameters deduced from GC-MS analysis of saturated hydrocarbon fractions (for instances Ph/n-C_{17}, Pr/Ph, 20S/(20S+20R) C_{29} sterane, and moretanes/ hopanes ratios) highlight terrestrial organic matter input and are rather indicative of oxic depositional environment for CFR. Late Kimmeridgian is marked by a more marine organic matter contribution, and deposited in a reducing environment.

Such an integrated study may provide some insight on possible relations between organic signals and climatic proxies.

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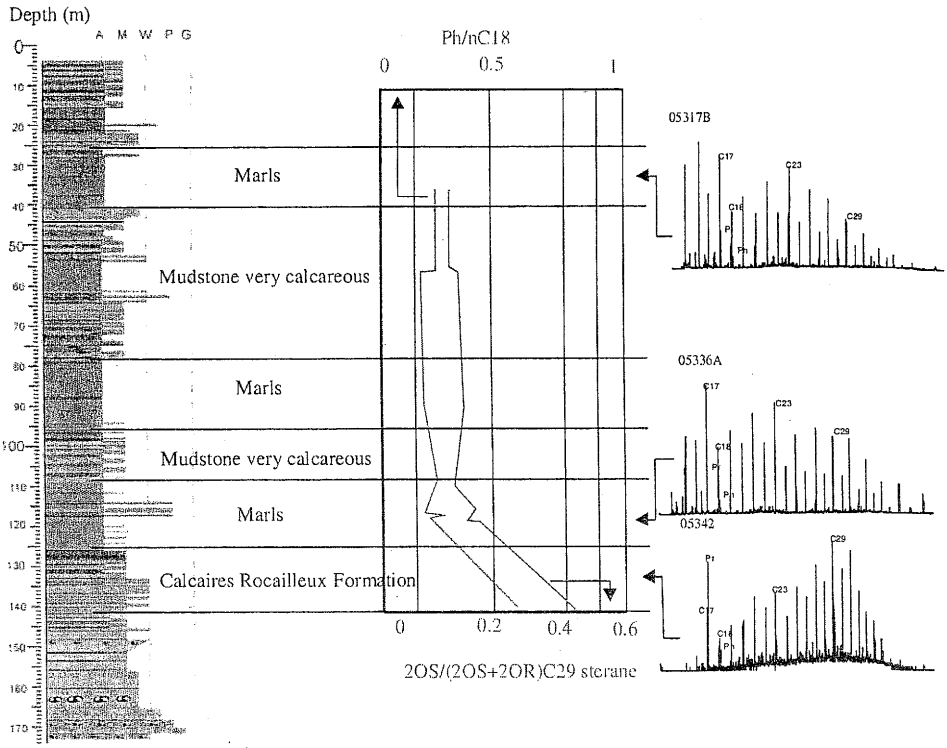

Figure 1. Changes in n-alkanes distribution, Ph/n-C_{18} and 20S/(20S+20R) C_{29} sterane ratios