



Consistent and contrasting responses to the OAE2 in the reference Bottaccione section (Umbria-Marche Apennines) and an equivalent section in NW Sicily, Italy

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The latest Cenomanian Bonarelli Level is a well-known organic carbon-rich black shale horizon considered to be the sedimentary expression of a short-term global Oceanic Anoxic Event (OAE2). It is interpreted as a high-productivity event driven by increasingly warm and humid climatic conditions promoting an accelerated hydrological cycle. A geochemical comparison between two Italian Bonarelli Levels - from the reference Bottaccione section (central Italy) and the coeval Calabianca section (north-western Sicily) - allowed us to highlight variable palaeoceanographic conditions in the Tethyan realm at the time of C_{org} -rich sediment deposition. Stronger euxinic conditions in southern Tethys, as testified by the enrichment factors of peculiar trace metals (Zn, Cd, Pb, Sb, Mo, U), were a consequence of relatively more enhanced surface productivity due to more efficient coastal upwelling affecting the African margin and were favoured by shallower bathymetric depositional setting with respect to that of the Umbrian section. In the Sicilian section intensive sulphate reduction reactions occurring at the expenses of organic matter outcompete the use of Ba as palaeoproductivity tracer.

Consistent variations inside the trends of principal geochemical proxies (Rb, D*, V, Ni, Cr, Si) from the two sections give evidence for periodic fluctuations in the palaeoceanographic conditions during the C_{org} -rich sediment deposition and reveal within the Bonarelli Event a strong orbital-climatic forcing. The recognition of four main intervals in C_{org} -rich sediments from both sections addresses towards a new pathway

to assess correlations for spatial comparisons among coeval sections, overall in the compulsory absence of the carbonate $\delta^{13}\text{C}$ record.