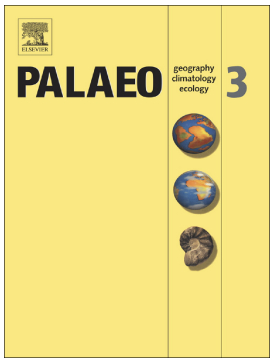


# High-resolution chemostratigraphy of a Miocene wedge-top carbonate shelf (San Marino Fm., northern Apennines, Italy): The major role of the Monterey global fertility event

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# High-resolution chemostratigraphy of a Miocene wedge-top carbonate shelf (San Marino Fm., Northern Apennines, Italy): the major role of the Monterey global fertility event.

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## Abstract

The evolution of the San Marino carbonate succession, developed on a wedge-top basin of the northern Apennines during the Middle Miocene (Torriana outcrop, Marecchia Valley), was studied through a high-resolution stable isotope analysis on different carbonate components. A marked positive carbon isotopic excursion is identified at ca. 16 Ma. The excellent correlation of the San Marino $\delta^{13}C$ carbonates with the global $\delta^{13}C$ reference curve from Zachos et al. (2008) allows to link the marked positive $\delta^{13}C$ present in the San Marino section with the global carbon isotope maximum of the Monterey event. Subordinate long-eccentricity-driven $\delta^{13}C$ cycles (~405 kyr) as recorded by Holbourn et al. (2007) were also identified. The correlation with carbon signatures of coeval successions of the Mediterranean region shows that this main carbon isotopic excursion at the Burdigalian–Langhian boundary is widely recorded and predates the crisis of these heterozoan shelves. The demise of the San Marino shelf resulted from a combination of global and regional factors that controlled the nutrient budget, the detrital input and the subsidence of the basin. The high-resolution chemostratigraphy of San Marino succession shows that even though the shelf evolved in the complex setting of a wedge-top basin, which should be largely influenced by local factors (i.e. tectonic subsidence and detrital input), it records the Monterey event and its eccentricity paced