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Estimating Mid-Pliocene sea-surface temperature and salinity variations in the orbitally-controlled deposits from Punta Piccola section (South Sicily) : A combined approach using coccolith δ^{18}O and alkenone records.

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Although calcareous nannofossils are major producers of carbonates and alkenones in the ocean, the use of coccoliths as a recorder of seawater δ^{18}O has been limited by the difficulty of isolating them from the bulk carbonates. Here, we present temperature and δ^{18}O reconstructions over three precession cycles (insolation cycles i-288 to i-282) from the mid-Pliocene Punta Piccola section (South Sicily). δ^{18}O data were obtained from mono-specific *P. lacunosa* coccolith fine fractions isolated using the granulometric separation technique developed by *Minoletti et al*., (2001; 2005). Alkenone-derived SSTs were determined in the same samples and combined to the δ^{18}O values of *P. lacunosa* coccoliths to evaluate past sea-surface salinity.

While paleoceanographic reconstructions are usually based on the δ^{18}O values of planktonic foraminifera and the $U^{k'}_{37}$ index generated by coccolithophorids, the use of the same recorder allow a precise reconstruction of environmental conditions prevailing in the upper photic zone during the deposition of these sedimentary layers. This approach represents a step forward in the use of calcareous nannoplankton for paleo-environmental reconstructions.

Our data provide evidence that sapropelic marl formation occurred during wetter climate compared to the deposition of the marly limestones layers. Moreover, these re-

sults emphasize that salinity is not always the controlling factor in the formation of these cycles as usually thought. The impact of the thermal effect as compared to that of salinity can be more (or as) important, depending on the cycle considered.