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Zanclean/Piacenzian transition on Cyprus (SE Mediterranean): calcareous nannofossil and Sea Surface Temperatures evidence of sapropel formation

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Quantitative analyses of calcareous nannofossils in the sediments of Pissouri South section on the island of Cyprus have produced a paleoceanographic record reflecting the paleoclimatic conditions during Zanclean/Piacenzian transition. According to the performed calcareous nannofossil biostratigraphy the studied section is correlated with MNN14/15 and MNN16 calcareous nannofossil biozones and is astronomically dated between 4.065 and 3.217 Ma. Intervals of increased organic carbon content along with the positive values of Florisphaera profunda, Helicosphaera sellii, Discoaster spp. and the subsequent increase of stratification S-index correspond to the sapropel deposition during periods of wetter climate and intense continental runoff especially from the river Nile. These layers are alternating with grey marly intervals, featured by the increased values of small placoliths of Reticulofenestra and Gephyrocapsa species, which are indicative of eutrophic conditions during intense surface waters mixing. Pissouri South section comprises a SSTs sequence using alkenone unsaturation index (Uk 37) providing with the first continuous record from SE Mediterranean covering the Zanclean/Piacenzian (Pliocene) transition ($\sim$ 4.1-3.2 Ma). Correlation of the total alkenone concentration to the calcareous nannofossil assemblage and especially representatives among Noelaerhabdaceae family revealed that Pseudoemiliania lacunosa probably had similar temperature sensitivity to that of Emiliania huxleyi, currently producing alkenones in present day oceans.Our data support the prevalence of a generally warm phase characterized by the absence of high-frequency climate variations in the southeastern Mediterranean during the Zanclean/Piacenzian (Early/Late Pliocene) transition.