



## Calcareous nannofossil fluctuation related to the Messinian Salinity Crisis

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In the Mediterranean, the latest Miocene was characterized by an exceptional event caused by the severe drop of the sea-level, leading to the Messinian Salinity Crisis (MSC). This event is characterized throughout the whole Mediterranean by the occurrence of thick evaporites in its deep basins and huge fluvial canyons within its margins (i.e., Cita et al., 1978; Cornée et al., 2006; Clauzon et al., 2008). This significant event triggered important faunas and floras modifications from the Mediterranean region and the surrounding basins, affecting the assemblage diversity, abundance, and composition. One of the most sensitive marine planktonic organisms, the calcareous nannoplankton, is well reflecting the palaeoenvironmental setting of the Messinian-Zanclean boundary interval.

This study presents the fluctuation pattern before, during and after the MSC, as identified in several studied successions of the Western and Eastern Mediterranean regions. Below the MSC, the calcareous nannofossil assemblages are characterized by high diversity and abundance, with dominance of the warm-water taxa, such as the discoasterids. At the beginning of the MSC, brackish environment dominated the late Messinian, which is barren of nannofossils, but some marine influxes are to be assumed, as in some Mediterranean areas the salinity was high enough to allow the nannoplankton survival. Calcareous nannoplankton assemblages recorded in the Messinian deposits (NN11b nannofossil subzone) are dominated by long-ranging and diagenetical resistant taxa (i.e., *Reticulofenestra* spp., *Sphenolithus moriformis*, and *Coccolithus pelagicus*). In most investigated sections, during the MSC, almost monospecific assemblages containing *Braarudosphaera bigelowii*, indicating strong salinity variations, were observed. Around the base and the top of the above-mentioned intervals, blooms of the calcareous dinoflagellate genus *Thoracosphaera* (suggesting unstable palaeosetting) were also identified. A marine environment is restored within the base of the Pliocene (early Zanclean), being most probably related to the important transgressive event, linked to the reconnection of Mediterranean with the open-ocean. The earliest Pliocene nannofossil assemblages of the NN12 zone are dominated by *Discoaster* and *Sphenolithus* taxa, indicative for warm-surface waters and an open-marine environment.

### References

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