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Late Neogene cooling and the disappearance of tropical ostracod taxa in the Mediterranean-Atlantic Region

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The late Neogene was a time of climate transition in North-African waters, as shown by early Messinian ostracod assemblages recorded both in the Southern Mediterranean (Gulf of Gabès, Tunisia) and in Atlantic (Northwestern Morocco) sites. A cooling trend since the Burdigalian-Langhian Miocene Climate Optimum culminated in the late Miocene, approximately coinciding with the progressive closure of the connections between Atlantic and Proto-Mediterranean that induced the Messinian Salinity Crisis. During this event all the marine taxa disappeared from the Mediterranean. Some late Miocene ostracods, presently living in shallow tropical western African waters, and not occurring in modern temperate-subtropical environments, re-entered from the Atlantic in the early Pliocene, when the Mediterranean returned to be a fully marine sea. In this number are included the genera *Carinivalva* and *Ruggieria*, that became extinct in the Mediterranean during the late Pliocene or in the Pleistocene, possibly coinciding with major cooling phases. Conversely, the genus *Chrysocythere* was not able to recolonize the Mediterranean waters, probably due to the Pliocene shallow water subtropical-temperate temperatures in the area of the Strait of Gibraltar. Several Miocene endemic Proto-Mediterranean tropical species and a number genera, (e.g.: *Syrtica*, *Okadaleberis*, *Dallonella*), went completely extinct due to the Messinian Salinity Crisis.