

Cretaceous Unconformities in the Southeastern Mediterranean Basin

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The Cretaceous period in the SE Mediterranean region was characterized by intensive sedimentation along the continental margin and the adjacent continental rise, and by significant tectonic phases during the Neocomian and the Senonian. There is ground to presume that the tectonic phase, that affected the continental slope and rise area in the Senonian, did not lead to subaerial exposure of the sedimentary sequence. Therefore stratigraphic unconformities in the late Cretaceous marine depositional sequence are attributed to changes in seafloor geomorphology and the sedimentary regime, with submarine erosion in places. The Cretaceous seismostratigraphic unconformities thus delineate the contemporaneous structural features with marginal masking of subsequent subaerial erosion.

The continental margin of the SE Mediterranean is located on top of the ancient margin of the southwestern Neo-Tethys. This superposition apparently suggested a tectonic effect of pre-existing Jurassic and early Cretaceous structures on the preceding late Cretaceous and Neogene phases. However, recent findings suggest that although superimposed, structures of the late Cretaceous tectonic phase that affected the SW margin of the Neo-Tethys show only marginal similarity to early Cretaceous structures in that region. The correlation between the structures of the two phases seems erratic, conformable in some places, contrasting in others, and a few structures show no correlation between the early and the late phases. It is suggested that the conspicuous tectonophysical constraints in the southeastern Mediterranean margin region that caused the general geographic recurrence of the folded belts in the region, as well as the stability of the land-sea transition zone during more than 200 Ma, are associated with variations in crustal composition. Therefore the significance of the superpositional structural constraints are secondary to the deformational stress tensor in setting the outlines of regional tectonic development.