

Uplift of the southern margin of the Central Anatolian Plateau (CAP): age constraints from the youngest marine deposits capping the central Tauride Units in the Gülnar district (Mersin, southern Turkey)

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In the Gülnar district (Mersin, southern Turkey), Neogene marine deposits unconformably overlie the basement units of the Central Taurides. The age of these marine deposits was classically used to constrain the uplift of the CAP southern margin and, according to the age of the marine deposits cropping out in the Ermene Basin (Başayyla section), a post-Tortonian age was recently suggested for this event. Indeed, the stratigraphy of the subsiding Adana-Cilicia Basin, to the south of the uplifted CAP southern margin, provides evidence of even younger age (end of the Messinian, ca. 5.45 Ma). Moreover, the stratigraphical architecture of the marine deposits capping the CAP southern margin, which shows an unconformity surface within the late Neogene marine succession, was recently used for defining a multi-phased uplift of the CAP southern margin, with a second uplift phase in the early Calabrian (ca. 1.6 Ma).

In the Gülnar area, we sampled the highest marine deposits of the upper Neogene succession that unconformably overlie the basement units of the Central Taurides (Gülnar E section). Biostratigraphical investigations carried out on calcareous nannofossils, benthic and planktonic foraminifera, and ostracods reveal that the Gülnar E section represents the youngest marine deposits, as far known, preserved on top of the uplifted CAP southern margin. These deposits, which unconformably overlie the shallow-water limestones of the Mut Formation (middle-late Miocene), consist mainly of clays and calcareous beds showing a shallowing-upward trend. Five sapropel layers characterize the grey clays of the lowermost part of the section, with an additional possible anoxic event between the second and third sapropel. A spectacular thick slumped-horizon qualifies the uppermost portion of the study section.

The Calabrian age of the Gülnar E section is well constrained by the occurrence of different marker species from both calcareous nannofossils and foraminifera. The concomitant occurrence of *Globorotalia crassaformis* and *Neogloboquadrina pachyderma* (left coiling) since the base of the section points to consider these marine deposits younger than 1.76 Ma. Among the calcareous nannofossils, the first common occurrence of medium *Gephyrocapsa* from samples below the first sapropel allows to constrain this anoxic event to an age younger than 1.73 Ma. In addition, the occurrence of large *Gephyrocapsa* within the fifth sapropel points to consider this anoxic event younger than 1.617 Ma. The presence of the planktonic foraminifera *Globigerinoides tenellus* and *Tenuitellinata iota* and of the benthic foraminifer *Bulimina marginata* are in agreement with a Calabrian age for the lower and middle part of the Gülnar E section. Moreover, for the occurrence of *Globigerinella calida*, the upper portion of the section is well constrained to the latest Calabrian, close to the Brunhes/Matuyama transition (0.781 Ma).

The presence of shallow-water carbonates at the top of the study section, which points to a maximum paleodepth of 200 m, reveals an average uplift rate of 1.5 mm/yr, higher than previously estimated values based on an early Calabrian age (1.6 Ma) for the youngest marine deposits of the CAP southern margin.