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THE MARINE TERRACES CORRELATION ON THE SEA OF MARMARA COASTS (TURKEY)

ABSTRACT: ERTEK T.A., YILDIRIM C., GÜNEYSU A.C., SAKINÇ M., YALTIRAK C., *The marine terraces correlation on the Sea of Marmara coasts (Turkey)*. (IT ISSN 1724-4757, 2003).

164 marine terraces were recorded at 97 different levels around the Sea of Marmara. The terraces are grouped into five major geomorphological units. Some of the marine terraces are not located at their original levels. The Sea of Marmara and surroundings have been affected by many positive and negative impacts of the tectonic activity.

KEY WORDS: Marine terraces, Tectonics, Sea of Marmara.

The Sea of Marmara has been established at northwestern part of Turkey. This area is very sensitive to the tectonic activities and the seismic movements.

Between 1904 and 2000, based on published studies, marine terraces were discovered 164 localities and at 97 different levels around the Sea of Marmara coasts. Although it is possible that they are divided into 5 or 6 levels, there are too many terrace levels. The original levels of Mediterranean marine terraces are lied down 2-5 m, 7-8 m, 15-18 m, 35-40 m, 60-70 m and 80-110 meters. These terraces are divided into five major geomorphological units; between Şarköy and Tekirdağ, northern Marmara (Tekirdağ-Darıca), around the Gulf of Izmit, southern Marmara (Mudanya-Çardak) and Çanakkale Strait (Dardanelles).

164 marine terraces were recorded by many researhers according to their altitute, age, fossils and marine materials (figs.1 and 2). Neotectonic activities are very common on the Marmara Region. Regional neotectonic activities are so complex and complicate that marine terraces are located at so many variety levels. Along the north and south coasts lines of the Sea of Marmara, there are harmonous among the terraces such as Hoşköy at north and Hamamlı at the south on Kapıdağ Peninsula at 110 meters, while there are mostly discordants among other the terraces according to age, stage and fossils. This situation indicates that local tectonic became affective on the region. Chauda series located at 180-190 meters at southwest Karamürsel such as Kılıçlar terraces was given age between 520.000-550.000 BP (Bargu, 1993; 1994), whereas Chauda series are located at 1-2 meters at Çanakkale Strait such as Sarıyarlar terrace (Erol & Çetin, 1995). Originally, Chauda series are located at 95-110 meters. However, the first place (locality: 83) must have been risen up to 80 meters, also second one (locality:132) indicates a subsidence of 93 and 94 meters. Locality 90 is another example of this situation. This locality is placed at the eastern part of the Sea of Marmara. Its level is found between 50 and 60 meters height, age was determined between 120.000-130.000 years BP (Palluska & *alii*, 1989; Bargu 1997). But the original level of this terrace must be between 15 and 18 meters height. At the same area , an another terrace level is 80-90 meters height, with age 260.000 years BP (Palluska & *alii*, 1989; Bargu, 1997). But this terrace must be between 35 and 40 meters height. Finally these two terraces might have been risen to 40 meters.

The Sea of Marmara and surroundings have been affected by so many positive and negative impacts of the tectonic activities. Some of the marine terraces generally aren't located at their original levels. We had seen this situation at the last 1999 Kocaeli Earthquake (Ms=7.2) in sunken area of Gölcük and Kavaklı.

Thus,we believe that neotectonic activities on the Marmara Region and their relations to geomorphological features will be explained by forthcoming detailed studies. It should be indicated that absolute age determinations (^{14}C, U/Th, TL) must be done for all of these terraces.

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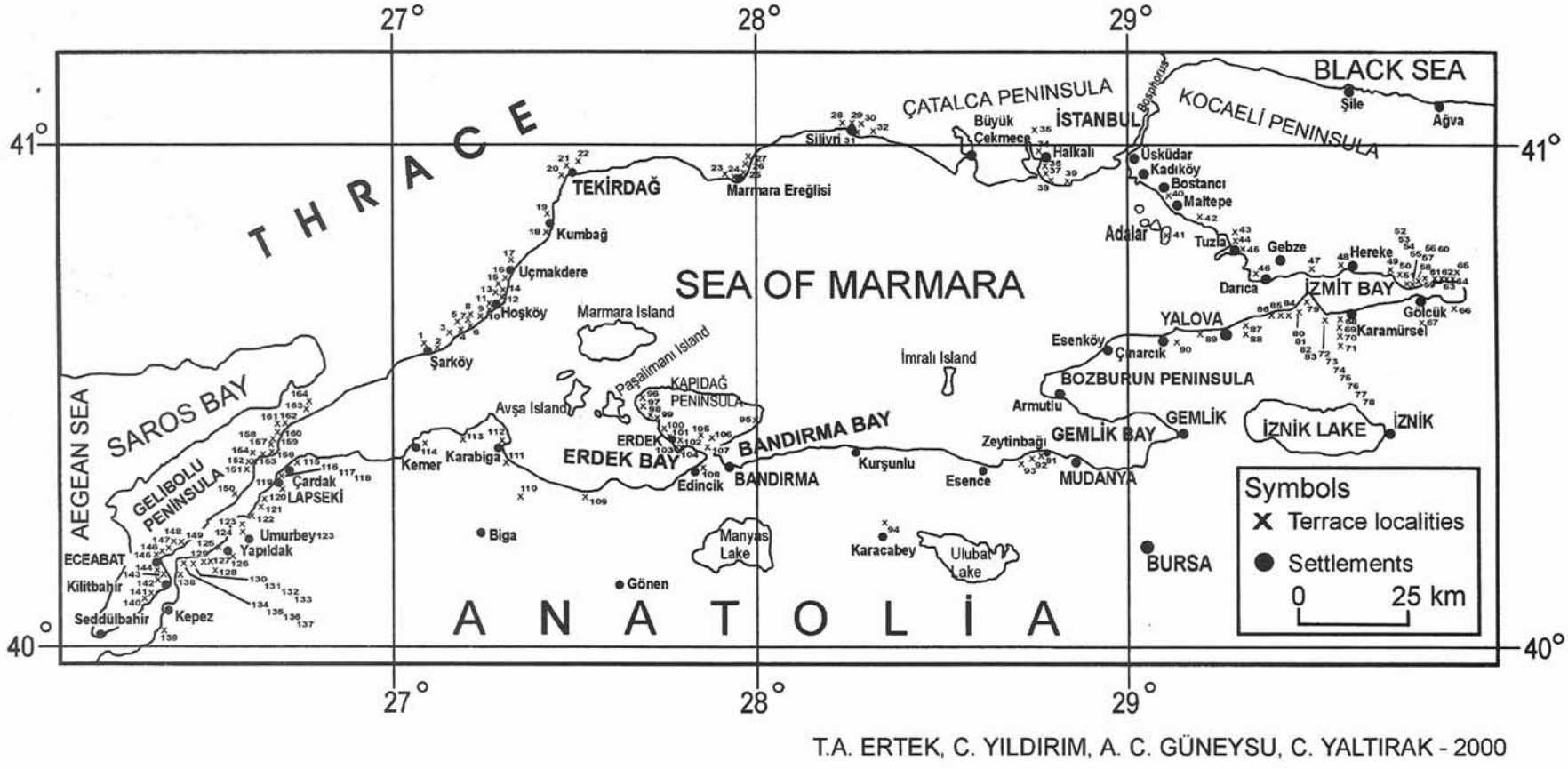

FIG. 1 - The marine terraces map on the Sea of Marmara coasts (According to Ertek & *alii* 2000, from Erinç 2001).

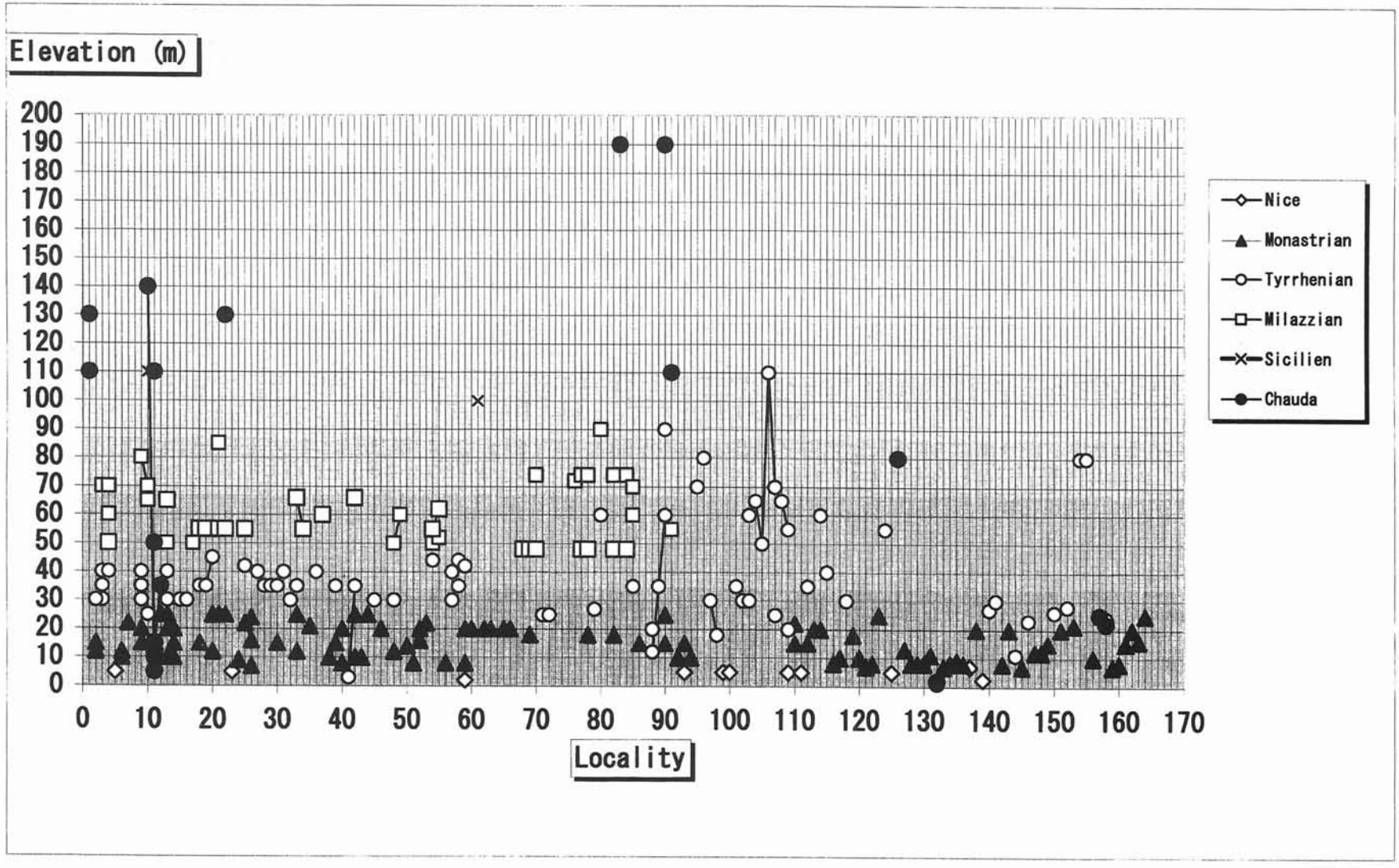

FIG. 2 - The marine terraces correlation graph on the Sea of Marmara coasts.

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