G-IV20

Facies distribution patterns inshore the Mersin Bay (Turkey) mapped with side-scan sonar

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Sampling of a total of 56 surface sediments as well as bathymetric and side-scan sonar surveys were carried out onboard the R/V "Lamas" inshore the Mersin Bay, Turkey (Fig. 1).

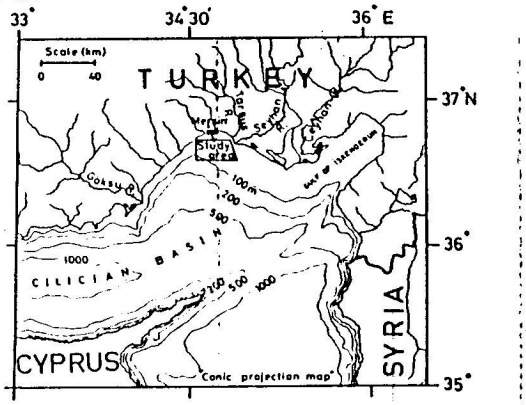


Figure 1. Study area, Mersin Bay, TURKEY.

The main purpose of the study was to investigate recent sedimentary processes and related deposits in areas with depths less than 15 m. Grain size and side-scan sonar data along 29 cruise lines showed irregularities on the sea floor (Fig. 2).

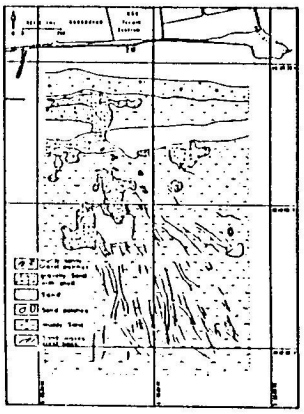
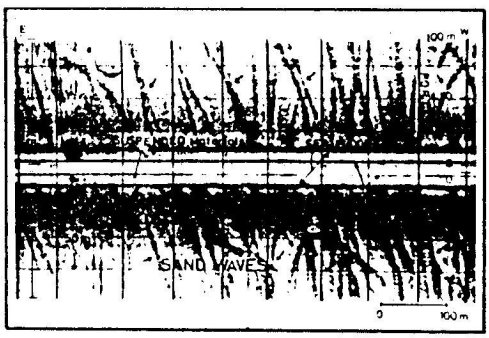


Figure 2. Distribution of sedimentary facies on the sea floor based largely on sonographs.

Surface sediments ranged usually from mud to sand and to gravel in size with varying percentages. The presence of the gravel fractions is related mostly with the occurrences of rock exposures and shell fragments. Gravelly and shelly sediments showed a spotty pattern due to acoustic shadows. Sandy areas appeared with a darker tone while muddy sediments were generally poor reflectors and appeared with light tones on sonographs. Rocky areas showed strong reflections and shadows.



(water depth = 10 m) inshore the Mersin Bay.

The most important features found in this area were a series of bifurcating sand waves (Fig. 3) up to 100 m and more in lengths.
These asymmetrical sand waves which are believed to be more local and transitory reflected prevelance of coastal near-bottom currents oriented in NW-SE direction.

G-IV21

Neogene grabens in the Aegean : regional or secondary extension ?

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New and older data reveal that local spreading is responsible for the formation of two major, representative Neogene grabens in the Aegean; consequently, these grabens do not testify to an extreme post-Miocene regional stretching of the lithosphere in this area, as has been previously suggested. More explicitely:

North Aegean Trough: (i) This graben is of Miocene origin, and consequently predates the postulated Plio-Quaternary extension. (ii) The uniform stretching model predicts that islands bordering this graben result from thermal uplift, dying away from its axis, but geomorphological data show exactly the other way around. (iii) Uplift of both shoulders of the graben is observed, and not uplift of only one of them, as the stretching model presumes (footwall uplift of the main fault). (iv) Fault plane solutions and seismic data showing strike slip deformation, bathymetry, showing deep elongated troughs, geometry of a master and of a secondary fault and folds oblique to the axis of the trough suggest that the latter is of transtensional origin.

Gulf of Corinth: Normal faulting dominates, but stratigraphic and geomorphological data, as well as the pattern of recent vertical motions reveal that this area resembles to two adjacent, homoaxial fold-type flexures, an anticlinoid to the south, and a synclinoid to the north, corresponding to the uplifted area of North Peloponnesus (1800 m of uplift in Quaternary) and to the depression of the gulf, respectively; the eastern end of these flexures is the Isthmus, deformed as by torsion. This suggests that the twin flexures are large folds, and that normal faulting reflects just secondary or gravity spreading. Efforts at explaining the observed morphology as due to a fault with a variable throw, and consequantly with variable footwall uplift, taking their max values in the middle of the fault (gulf) are not satisfactory, for they require seismic energy to be concentrated in the middle of the gulf, something completely contradictory to evidence. Besides that, the footwall theory predicts unrealistically large amounts of throw, or uplifts ten times larger than what is observed.