Sedimentary History of the Northeastern Mediterranean Continental Shelf

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Approximately 1500 line-kilometers of continuous seismic reflection profiles were obtained with O.R.E. 3.5 KHz transducer system and 40 cu-in PAR airgun system in the Cilicia and İskenderun Basins. The data were collected from the research vessel "K. Piri Reis" of the Institute of Marine Sciences and Technology (İzmir, Turkey) on cruise NE-AK 88. Fig. 1 and 2 show the present day neotectonic framework of the Northeastern Mediterranean and "Study Area", seismic profiles and selected offshore exploration wells, respectively.

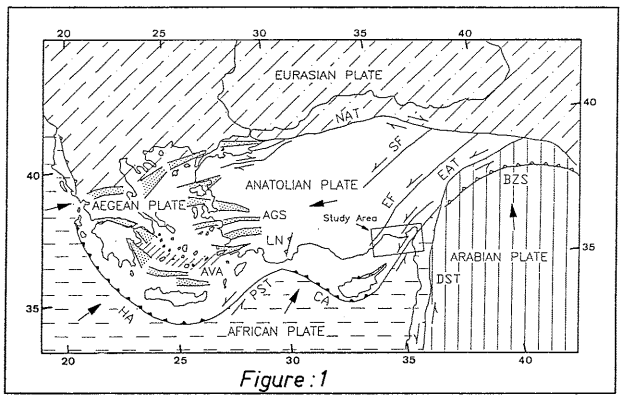

Figure :1

Detailed interpretation of the single channel airgun and 3.5 KHz data from the Northeastern Mediterranean Sea revealed that there are 7 correlatable depositional sequences within the upper ca 750 m (Fig. 3a) and show that the continental shelf is formed by superimposed deltaic successions (depositional sequences), separated by major erosional unconformities. Each depositional sequence is composed of a sigmoid prograding package overlain by an oblique prograding package and represents the delta progradation phases during an interglacial and subsequent glacial isotopic stages, respectively (Fig. 3b). During the glacio-eustatic low stands of sea-level deltas prograded seaward. The present-day shelf break denotes the topset to foreset transition at maximum progradation during the last glacial period. During the post-glacial transgressions deltas initially lost

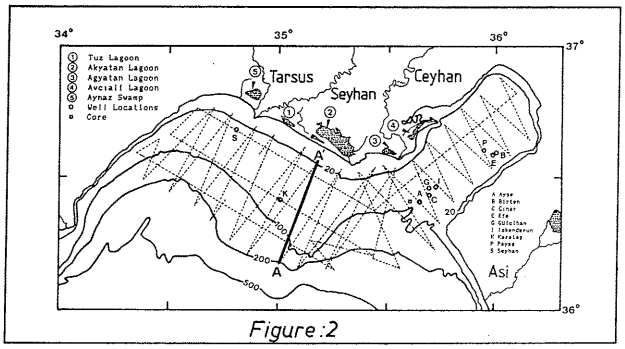

Figure :2

their dynamic equilibrium with the environment and rapidly retrograded landward, leading to the deposition of a thin veneer of sediments originating from reworking of formerly coastal sediments. With the maximum transgression the deltas were re-established in the ancestral Adana Bay and foreset progradation started.

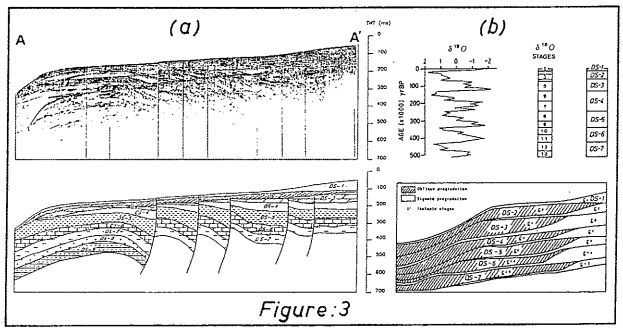

Figure :3

The data suggest that the Cilicia and İskenderun Basins are subsiding at rates of 0.39 m 1000 yr^{-1} and 0.34 m 1000 yr^{-1}, respectively. Seismic reflection profiling have shown that the delta architecture in the Adana, Cilicia and İskenderun Basins in mainly controlled by the glacio-eustatic sea-level fluctuations and continuous basin subsidence. The evolution of the Pliocene-Pleistocene depocentres in the study area is largely controlled by the major tectonic elements of the collison of the African and Eurasian plates.

Distribution of Macrobenthic Plants and Recent sediments on the Sea-Floor of the Anamur Bay (Turkey), NE-Mediterranean, mapped with Side-Scan Sonar

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A side-scan sonar system was used to obtain continuous acoustic pictures in the sea-floor along 14 lines in the Anamur Bay, in 1984-1986 (Figure 1). Additionally, a total of 94 surface sediment samples including benthic organisms were collected in the study area.

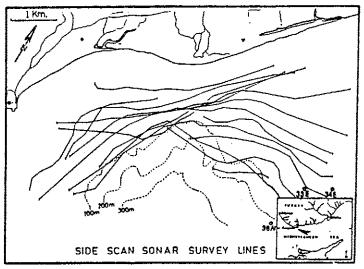

Figure 1. Side-Scan sonar survey lines.

Sediments overlying the sea-floor consisted of mixtures varying in gravel-, sand-, and mud-sized components. These sediments were partly infilling the Anamur submarine canyon, which is believed to have onshore-offshore extend. Three major zones can be distinquished on the basis of the grain-size distribution of the surficial sediments. These are the coastal zone, which is covered mainly with gravel; a large part of the shelf covered with sand, and the slopes and valleys/channels of the canyon covered with mud (Figure.2).

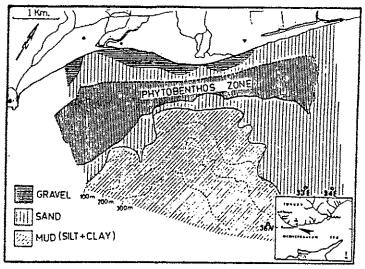

Figure 2. Map showing distribution of surface sediments and other features on the sea-floor based on sonographs.

Of course, the most prominent features on the sonographs were the presence of marine plants (Figure 3).

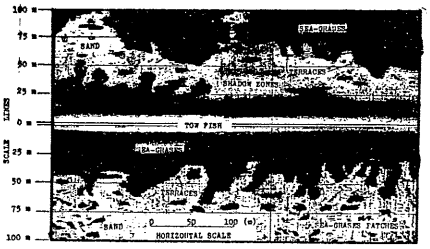

Figure 3. Side-scan sonar image showing the distribution patterns of the sea-grases, some small terraces, and sand areas.

These were the Hydrocharitaceae and Potomogetonaceae. These include the species, Zostera nana, Zostera marina, Cymodocea nodosa, Udotea petiolata, and Posidonia oceanica, which were restricted between 10 and 40 m countour lines.