

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 Iskenderun Basins. The data were collected from the research vessel "K. Piri Reis" of the Institute of Marine Sciences and Technology (Izmir, 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.

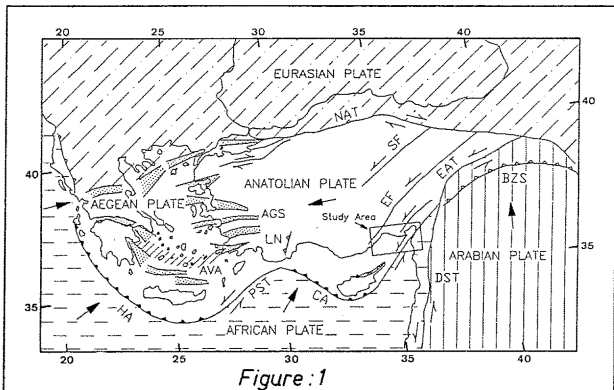


Figure:1

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

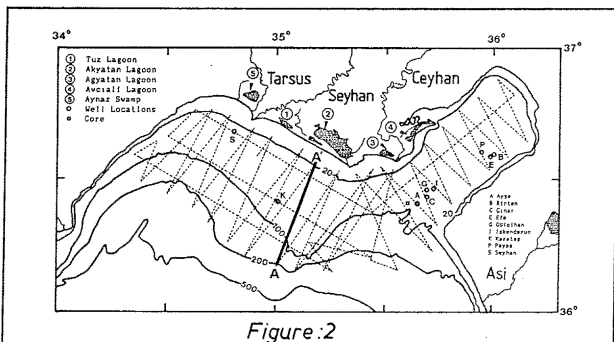


Figure:2

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.

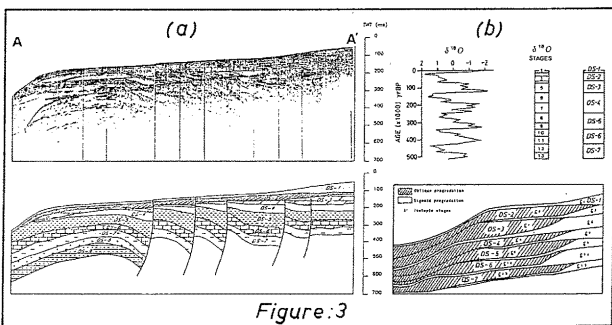


Figure:3

The data suggest that the Cilicia and Iskenderun Basins are subsiding at rates of $0.39 \text{ m } 1000 \text{ yr}^{-1}$ and $0.34 \text{ m } 1000 \text{ yr}^{-1}$, respectively. Seismic reflection profiling has shown that the delta architecture in the Adana, Cilicia and Iskenderun Basins is 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 collision of the African and Eurasian plates.