



## **Investigation of sea-level changes and shelf break prograding sequences during the Late Quaternary offshore of Kusadasi (West Anatolia) and surroundings by high resolution seismic methods**

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High Resolution multi-channel seismic reflection and Chirp data were collected by K. Piri Reis, research vessel of Dokuz Eylul University, in the central Aegean coast of the West Anatolia by research cruises carried out in 2005 and 2008, respectively. Submarine stratigraphic and structural features of Sığacık Gulf, Kuşadası Gulf and surroundings were investigated under this survey. The data were processed and interpreted in SeisLab, D.E.U. Marine Sciences and Technology seismic laboratory.

Thirteen distinct unconformities can be traced below the study area that separate thirteen progradational stacked paleo-delta sequences (Lob1-Lob13) on seismic profiles following and cutting each other. As a result of comparison with the oxygen isotopic stages ( $\delta^{18}$ ), these deltas (Lob1-L13) were interpreted that they have been deposited during the sea-level lowstands within Pleistocene glacial stages.

In the study area the basement surface which observed as the lowest unconformity surface of the seismic sections was called 'Acoustic Basement'. This basement which traced approximately all of the seismic sections has generally quite wavy surface and underlain the upper seismic units. It was observed that these seismic units which terminated their formation in Pleistocene (Lob1-Lob13) and Holocene period were cut and uplifted by acoustic basement, like an intrusion. These type deformations were interpreted as a result of magmatic intrusion into these upper seismic units occurred in Late Pleistocene and Holocene period.

Tectonic and structural interpretation was carried out to constitute the submarine active tectonic map of the study area by correlated active faults identified on seismic sections. Submarine active tectonic map and, basement topography and sediment thickness map were correlated together to present the relationship between tectonic deformation and stratigraphy.