Geophysical Research Abstracts
Vol. 19, EGU2017-12036, 2017
EGU General Assembly 2017


# Preliminary Results from Acoustic Survey Offshore Kefken, Southwestern Black Sea Margin

Derman Dondurur, Onur Karaca, and Aslıhan Nasıf
Dokuz Eylul University, Institute of Marine Sciences and Technology Haydar Aliyev Street, No:100, Inciralti-Izmir/Turkey

In March 2016, different marine acoustic datasets were collected aboard of R/V K. Piri Reis research vessel of Dokuz Eylül University within the scope of Turkish Research Council (Tübitak) Project (115Y218) to reveal submarine morphology and seismo-acoustical structure of the continental shelf and upper slope of Şile-Kefken region in the southwest of the Black Sea. A total of 1564 km high resolution seismic, multibeam bathymetry and Chirp sub-bottom profiler data were collected. Seismic data was collected using a 1500 m long digital streamer with 240 active channels. Group and shot intervals were 6.25 m and 25 m, respectively.
Collected data were analyzed by means of (i) stratigraphic and (ii) structural components, and (iii) the structure of upper slope and shelf break. The stratigraphic elements in the region indicate the existence of Eocene and younger units. A distinctive acoustical basement in the seismic data observed throughout the shelf which is interpreted as uplifted Cretaceous basement of the Black Sea, that is Akveren or Yemişliçay Formation. The basement also outcrops around the Kefken Island. Chirp data is used to map the shallow stratigraphy of the shelf including the Holocene sediment distribution which exists on a very restricted area on the shelf. To the east, there is a large outcrop zone offshore Kefken where no Holocene sediments are observed. Initial evaluation of the collected data indicates that there is no present day delta formation in the area due to a few weak streams observed in the study area. The penetration of Chirp data in the western and the southern parts of the shelf area is very limited while it increases towards to upper continental slope to the North, and east of Kefken Cape.
The acoustic data suggests that the study area is under the influence of the Pontide overthrust. Possible existence of reverse faults of Pontide overthrust is evident on the seismic data from southwestern shelf. In addition to the reverse faults to the SW, the whole shelf is highly affected by a northwards trending strike slip fault system with a significant vertical slip.
Canyon heads and shelf break is deformed by numerous near vertical normal faults. Multibeam bathymetric data indicate that the upper slope is formed by highly steep canyon heads with several small scale gullies connecting to the thalweg at low angles.