



## **Pliocene to Recent Tectonic Activity of the Reşadiye Peninsula and the Relationship Between the Recent Earthquakes Occurred in the Gulf of Gökova: Preliminary Results.**

Burcu Kahraman (1), Erman Özsayın (2), Serkan Üner (3), and Kadir Dirik (4)

(1) Hacettepe University, Department of Geological Engineering, Ankara, Turkey (bkahraman@hacettepe.edu.tr), (2) Hacettepe University, Department of Geological Engineering, Ankara, Turkey (eozsayin@hacettepe.edu.tr), (3) Yüzüncü Yıl University, Department of Geological Engineering, Van, Turkey (suner@yyu.edu.tr), (4) Hacettepe University, Department of Geological Engineering, Ankara, Turkey (kdirik@hacettepe.edu.tr)

The E–W trending Reşadiye peninsula located at the southwestern part of the Anatolian Plate is an important horst developed between Gökova and Hisarönü Grabens. NW-trending the Datça Graben is the prominent structure comprising on the Reşadiye peninsula and records the significant fingerprints of palaeogeographical and kinematical characteristics from Pliocene to recent.

The Datça Graben is controlled by NW-trending the Karaköy fault in the south and E–W trending the Kızlan fault in the north. Basement rocks of the graben are composed of ophiolitic rocks of the Lycian Nappes and Jurassic marine carbonates. The basinfill initiates with Early Pliocene Kızılıağac formation consisting conglomerates and continues with transgressive sequence (Yıldırımlı formation) composed of conglomerates, sandstones and marls with ignimbrite intercalations. Late Pliocene age was attributed to this formation based on the gastropoda and pelecypoda fauna according to previous studies. These units are unconformably overlain by Quaternary Karaköy formation consisting red blocky conglomerates. Pyroclastics of Quaternary age (161 ka) cover the older units. Alluvium, alluvial fan deposits and terrace deposits are the youngest units of the study area.

To state the tectonic evolution of the Datça Graben, bedding planes and palaeostress analysis of the fault-slip data were used. The palaeostress analyses of the Kızlan fault clearly represent N–S tensional stress regime with pure normal fault characteristics. Due to the thick colluvium and alluvial fans, any fault-slip data were collected from the Karaköy fault. Considering the same stress regime is viable for the southwestern margin of the graben, fault planes ought to have normal fault characteristics with minor strike-slip component.

SW-dipping bedding planes and SW-bearing palaeocurrent measurements show that Karaköy fault occurred before the Kızlan fault and the basin was first formed as a half-graben during Early Pliocene and continued till Late Pliocene. As the Kızlan fault juxtaposes the Kızılıağac and Yıldırımlı formations, Late Pliocene age is attributed to the fault.

Focal mechanism solutions of recent earthquakes occurred in the Gökova Bay show N–S extension which is compatible with the palaeostress analyses of the Kızlan fault. This situation represents the ongoing activity along the northern margin of the Datça Graben.