



Paleontological and Stratigraphical Evidence for the Late Cretaceous-Early Tertiary Post-Collisional Tectonism along the Intra-Pontide Suture Zone, Northwestern Turkey

kenan akbayram (1), aral okay (1,2), and ercan ozcan (2)

(1) Istanbul Technical University, Eurasia Institute of Earth Sciences, Istanbul, TURKEY (kenanakbayram@yahoo.com; okay@itu.edu.tr), (2) Istanbul Technical University, Faculty of Mines, Department of Geology, Istanbul, TURKEY (ozcanerc@itu.edu.tr)

Here we present new paleontological and stratigraphical data on post-collisional tectonism along the Intra-Pontide suture zone. Our paleontological data come from planktonic and benthic foraminifera, which give a high resolution on the events during Late Cretaceous-Early Eocene. The study area is located south of the Sapanca Lake between the Istanbul and Sakarya zones in northwest Turkey. In this area, the Upper Cretaceous and Lower Eocene sediments unconformably overlie the mélanges of the Intra-Pontide suture zone. The sedimentary sequence can be divided into four sub-units and most of these comprise either debris flows orolistromal units. The lowest sub-unit is a shallow marine thick sandstone-conglomerate-limestone unit with some debris flow intercalations and is of Campanian-Maastrichtian age (with *Orbitoides* sp. and *Siderolites* sp.). This is overlain by a debris flow unit with clasts of metabasite, chert, quartzite, phyllite, amphibolite, neritic and pelagic limestone. Pelagic limestone clasts include Late Maastrichtian and Paleocene planktonic foraminifera (*Globotruncana* sp., *Morozovella* sp. etc.) and suggest a Late Paleocene age for the unit. The debris flow passes up into a carbonate debris flow unit (third unit), which has a Late Paleocene (P2-P4 planktonic zone)-Earliest Eocene pelagic marl matrix and exotic blocks of Upper Cretaceous calcarenite and neritic limestone. The carbonate debris flows pass laterally and vertically to the fourth unit which is a Lower Eocene flysch sequence with olistostromes. The flysch has a rich and diverse assemblage of orthophragmopes (Discocyclina, Orbitoclypeus, Nemkovella) and nummulitids of Ypresian age [shallow benthic zones (SBZ) 5/6, 8/9, 10]. In the olistostromal part of the flysch, olistoliths of marble, pelagic limestone, and rare granite, amphibolite, ophiolitic blocks (chert, serpentinite, metabasite, phyllite) are observed. In the pelagic limestone olistoliths Cenomanian-Late Maastrichtian planktonic foraminifera assemblages are defined.

These data together show that between Maastrichtian and Early Eocene there was major uplift south of Sapanca Lake in northwest Turkey. Previous studies show that the collision of the Intra-Pontide Ocean was at Early Cretaceous (Akbayram et al, 2009) and the first regional transgression also show that the Intra-Pontide Ocean must be closed before Campanian (Özgörüş et al, 2009). So the closure of the Intra-Pontide Ocean can not be the responsible mechanism for this tectonism. The Late Cretaceous-Paleocene collision of Pontides and Taurides in the south (Okay and Tüysüz, 1999) generated a major relief, which formed the source for the debris flows and olistostromes in the Sapanca region.

References

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