

Changing Depositional Conditions of the Cretaceous-Paleocene Sediments in the Southern Sakarya Zone and Implications for Tectonic Evolution

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Study area is located between Göynük (Bolu) and Nallıhan (Ankara), NW Anatolia, to the north of the Neotethyan (Izmir-Ankara-Erzincan) Suture Zone. It comprises units ranging from the Jurassic to Miocene ages. Middle Jurassic-Lower Cretaceous age pelagic limestones of the Soğukçam Formation is the oldest rock, overlain by the Upper Cretaceous Gölpazarı Group. The Gölpazarı Group includes the Cenomanian-Campanian age turbiditic Yenipazar Formation and the Maastrichtian age Taraklı Formation. Over the Taraklı Formation lies conformably the Kızılcay Group, and it exhibits varying facies from north to south of the study area. In the north, there occurs the coral-bearing Lower Paleocene Selvipınar Formation. In the south, instead, there are clastics of the Kızılcay Group overthrust by the Soğukçam Formation. Clastics and bituminous shales of the Kızılcay Group indicate a terrestrial setting of the study area during the Lower Paleocene-Eocene.

The Soğukçam and Yenipazar Formations represent deep marine conditions, while the Taraklı Formation a shallow one. This indicates the region underwent a rapid uplift due possibly to initial collision and overthrusting. In the post-Maastrichtian age units, the occurrence and lateral transitions of shallow marine and terrestrial sediments suggest a progress of uplift, but at different rates at different locations; at a relatively fast rate in the south and a slow rate in the north. The presence of tectonic features such as E-W oriented folds, overturned folds and faults are related to shortening during a collisional stage that affected the whole region.