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Biostratigraphy, paleoecology and geochemistry of tuffs - an integrated study of three Upper Cretaceous sections in the Western Pontides, NW Turkey

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As complete cyclic successions in the Upper Cretaceous are rare, the aim of this work is to get a continuous cyclostratigraphic record of the Tethyan Campanian and to date paleoenvironmental changes and volcanic events. Alongside the southern Black Sea coast three sections have been examined for geochemistry and mineralogy of tuff beds, as well as biostratigraphy and paleoecology. Cyclic successions of pelagic deposits depicting marl-marly limestone successions with interbedded tuff and turbidite layers were logged.

In this area of the Istanbul zone three formations of Turonian to Campanian age can be distinguished; Dereköy, Unaz and Cambu Formation are reflecting different stages of subduction of the Tethys as well as oceanic spreading in the Western Black Sea basin.

Planktic foraminifera data suggest an age from the upper Turonian *Marginotruncana sigali-Dicarinella primitiva* to middle Campanian *Globotruncanita elevata* Zone.

The three sections investigated in detail exhibit fully pelagic conditions and a depositional environment well above the CCD. The few benthic foraminifera taxa identified indicate a slope-marl assemblage.

Geochemistry of the tuff layers confirms the existence of the Pontide volcanic arc between Turonian and Campanian. Discrimination diagrams using immobile elements classify calc-alkaline magma series and basaltic-andesite and basalt rock types.

The combined study of volcanic events with planktic foraminifera biostratigraphy allows precise dating of changes in paleoenvironment and in the tectonic setting in the Tethyan realm.