

Upper Cretaceous planktonic stratigraphy of the Göynük composite section, western Tethys (Bolu province, Turkey)

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A composite geological record from the Upper Santonian to Maastrichtian is evident from the Mudurnu Göynük basin (Bolu Province, Northwestern Anatolia, Turkey). These deposits were originally located on the Sakarya continent in the western Tethyan realm with a palaeolatitude of a bit less than 30°.

Grey shales and clayey marls are exposed in close vicinity and in the town of Göynük. We find frequent volcanic intercalations in the older subsections while the uppermost layers seem to depict a more complete open marine record. Rich low latitude planktonic foraminifera and calcareous nannoplankton assemblages were recorded. Microfossil indicators point towards a distal slope setting at the Göynük section. Predominantly well preserved biostratigraphic markers (calcareous nannoplankton and planktonic as well as some benthic foraminifera) were assessed to establish a biozonation.

The three sections sampled for this study reveal a composite record from the Campanian *Contusotruncana plummerae* planktonic foraminifera Zone to the Maastrichtian *Racemiguembelina fructicosa* planktonic foraminifera Zone. The oldest sub section (“GK-section”) yields the “mid” Campanian *Contusotruncana plummerae* or *Globotruncana ventricosa* Zones and is followed by the “GC-section”. The latter records the *Globotruncanita havanensis* as well as the *Globotruncana aegyptiaca* Zone and are overlain by the youngest section examined in this study (“GS -section”). Due to absence of the nominative taxon, the *Radotruncana calcarata* Zone could not be identified. In the “GS-section”, we recognize the *G. aegyptiaca* Zone in the lowermost part, the upper Campanian/lower Maastrichtian *Gansserina gansseri* Zone, and the Maastrichtian *Racemiguembelina fructicosa* Zone. Nannofossil standard zones UC15b to UC18 are recorded within the composite section.

The planktonic foraminiferal assemblages assessed in the Göynük area feature a diverse, well preserved plankton record that can be correlated to other western Tethyan sections from the Upper Cretaceous. Especially the Austrian Alpine sections (i.e. Northern Calcareous Alps and Ultrahelvetics) show similar palaeoenvironmental and palaeo-latitudinal traits and present a well established biostratigraphic and cyclostratigraphic record. Comparing the multi-proxy record assessed in these sections to the biostratigraphic data from the Göynük region provides useful insights into planktonic foraminiferal palaeoecology and the multistratigraphic high-resolution correlation in the Upper Cretaceous Tethyan realm.