

# Sarmatian (Late Serravallian–Early Tortonian) biostratigraphy: A case-study in a marginal sea

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Late Serravallian–Early Tortonian calcareous nannofossil events in northern Croatia were studied. The LCO of *Heli-cosphaera walsberdorfensis*, the prevalence of larger *Reticulofenestra pseudoumbilicus* specimens in the assemblage, and the LRO of *Cyclicargolithus floridanus* indicated Paratethyan Subzone NN6d. This marks the Badenian–Sarmatian boundary and gives an age of 12.8 Ma (Sant et al., 2015), which suggests correlation to Chron C5Ar, as found at low latitudes. The beginning of the Sarmatian was characterised by the acme of *Calcidiscus pataecus*, along with abundant *Coccolithus pelagicus* and *R. pseudoumbilicus*. The base of the Early Sarmatian Subzone NN7a was characterised by the FO of *Discoaster* cf. *D. kugleri*, which coincides closely with the LCO of *C. pataecus*, while the upper part is marked by the LO of *H. walsberdorfensis*, *D. deflandrei* and *Rhabdosphaera poculi*, the disappearance of *Pontosphaera* spp. and *Rhabdosphaera* spp., and the FO of *D. braarudii*. The mid-Sarmatian comprises Subzones NN7b–NN8a. The LO of *D. kugleri* defines the NN7/NN8 boundary. The LAD of *D. cf. D. kugleri* and the FAD of *Catinaster coalitus* mark Subzones NN8a–NN8b (Middle–Late Sarmatian boundary), which occurs at low latitudes at 11.531 Ma (de Kaenel et al., 2017), as in the Paratethys. The Sarmatian–Pannonian boundary is characterised by the FO of endemic *Isolithus semenenko* in the coastal zone and by the FO of short-lived, small, warm-water species of the Ceratolithaceae (*Nicklithus amplificus*, *Amaurolithus tricorniculatus* and *A. primus*) in the deeper basinal region.

## References

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