

Miocene Central Paratethys Stratigraphy – Current Status and Future Directions

Werner E. PILLER, Mathias HARZHAUSER & Oleg MANDIC

The complex geodynamic history of the Paratethys fostered from time to time the evolution of a highly endemic biota with only limited exchange with the neighbouring Mediterranean and Indo-Pacific provinces. The resulting very peculiar fossil assemblages forced the introduction of a regional chronostratigraphic subdivision for the Western/Central and Eastern Paratethys respectively.

For the Central Paratethys we present a summarized and updated database for the individual stages, and we review the current status for correlation with the Mediterranean stratigraphic framework.

The Miocene Central Paratethys stages were defined on exclusively palaeontological criteria in type sections (holostratotypes and faciostratotypes). They are all bounded by either sedimentary hiatuses or distinct facies changes, inferred to mark lowstands in sea level, and not a single boundary stratotype has been defined. Some correlating tie-points to the Mediterranean succession are based on calcareous nannoplankton and planktonic foraminifers; magnetostratigraphic correlation is very limited. All stages can be assigned to the putatively third-order sea level cycles, with the Eggenburgian, Badenian and Pannonian Stages each spanning three cycles and the Ottnangian, Karpatian, and Sarmatian one each.

The Karpatian/Badenian boundary correlates with the Burdigalian/Langhian (Early/Middle Miocene) boundary, and the Sarmatian/Pannonian boundary correlates with the Serravallian/Tortonian (Middle/Late Miocene) boundary. The correlation to third-order cycles and the detection of astronomical signals suggest that not only a regional but also a strong global signal is present in the rock record of the Central Paratethys.

Since the current definition of a stage includes its global spread, formally defined regional stages are redundant and therefore also not necessary for the Central Paratethys. However, if stages are essentially regional, then a regional scale as for Central Paratethys would be much more appropriate.

Authors address:
Werner E. Piller
University of Graz
Institute for Earth Sciences
Geology and Palaeontology
Heinrichstraße 26
A-8010 Graz
werner.piller@uni-graz.at

Mathias Harzhauser & Oleg Mandic
Natural History Museum Vienna
Geological-Palaeontological Department
Burgring 7
A-1010 Vienna