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The Middle Miocene Badenian Leitha Limestone of the Central Paratethys—Not a Climate Controversy

Composition of carbonate rocks is frequently used to reconstruct climatic conditions. The Middle Miocene Leitha Limestone, widespread in the Central Paratethys, was generally interpreted to reflect tropical/subtropical conditions. More recently, however, an assignment to cool-water conditions was proposed based on a microfacies study (Randazzo et al., 1999, Journal of Sedimentary Research). Evaluating some biota of these limestones the following inventory is considered to be climatically important: zooxanthellate corals (>10 genera), coralline algae (including *Sporolithon*), larger foraminifera (7 genera, including *Borelis*, *Amphistegina* and *Planostegina*). Corals and coralline algae formed bioconstructions in shallow-water environments. Many of the biota are exclusively known from extant tropical/subtropical areas and represent therefore the only critical organisms for climate reconstructions. In many places, however, coralline algae are the dominating rock forming biota of the Leitha Limestone. The main reasons for this prevalence are the generally very high terrigenous input during this time and a paleotopography not providing adequate shallow water areas for reef growth. The mentioned re-interpretation for the Leitha Limestone as a cool-water deposit has several reasons: one is the study of facies types not having formed in very shallow water or which are strongly terrigenously influenced, another reason is that biota were identified only very generally and interpretation was only negatively supported by absence of tropical elements. This makes clear how dangerous it is to rely on undifferentiated microfacies data alone for climate interpretations, particularly when only negative evidence can be cited and the taxonomic background for these interpretations is not adequate.