

Miocene coral framestone switch-on and switch-off sequences – indicators for thermal instability in a peripheral Paratethyan ocean basin (Eisenstadt Basin, Austria)

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In the Miocene (Badenian) Leitha limestone, a Paratethys deposit, coral rich strata show sequences of coral frame- and float/rudstones, alternating with bryozoan and coralline calcarenites and bivalve beds. 10 coral levels can be grouped into 2 framebuilding types (high framework, low bushy framework), four non-framework types and one bivalve/coral community. We found no indication for depth-cycles or marked change in water depth at deposition. In comparison with Recent systems (Bahamas, Arabian Gulf), we interpreted the coral facies as having been deposited in similar water depths and that repeated framework switch-off may be linked to periods of higher temperature variability and extremes. The Miocene framestones show no signs of erosion and have a horizontal upper surface, corals are bored and encrusted by coralline and platy corals indicating relative constancy in depositional environment (water depth, sedimentation regime) during and after the switch-off. Similar calcarenites over- and underlie the framestones. This suggests that coral frameworks experienced catastrophic die-off and regeneration was not possible, likely due to unfavorable thermal conditions. Framestone switch-ons and -offs could be used as indicators for thermal variability in subtropical paleoclimates.