

FACIES DISTRIBUTION ON A CARBONATE RAMP CONTROLLED BY UNDERGROUND RELIEF AND SUBSIDENCE (EASTERN ALPINE FORELAND BASIN; LATE EOCENE)

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Late Eocene sediments of the eastern Alpine Foreland Basin (Austria and Bavaria) were part of the northern Tethys shelf. The Late Eocene transgression was caused by subduction of the European Plate under the Adriatic Plate. In terms of subsidence patterns in Foreland Basins, the Late Eocene Alpine Foreland Basin represents the initial stage of asymmetrical flexural loading; this affected the formation of a carbonate ramp. Late Eocene sediments transgressed on a tectonically dissected and deeply eroded underground composed of Mesozoic sediments. The reconstruction of tectonical throws shows several basin-parallel troughs and swells, which influenced the distribution of Late Eocene sediments. Inner to middle ramp deposits are characterised by basal terrigenous sediments, which start to fill up the underground relief and develop into coralline red algal sediments. The latter are partially terrigenously influenced and formed submarine dunes in higher energy areas. Coral biostromes and rhodolith accumulations are formed in protected troughs. Due to the ongoing subsidence, peyssonneliacean limestones with high amounts of micrite are deposited in the troughs; crustose coralline algal buildups develop on the swells. Basal terrigenous sediments of the middle ramp grade into nummulite sandstones; in contrast to the inner ramp, high terrigenous input does not allow the development of coralline red algal sediments. Owing to the ongoing subsidence, nummulite sandstones grade upsection into discocylinid marls. The latter represent the outer ramp deposits. Sedimentation rate in the outer ramp is too low to keep up with subsidence. Therefore, Bryozoa marls were deposited below the photic zone.