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The Linkage between Lagoonal Interior, Reefal Margin and Slope of an Isolated, Mid-Triassic Atoll: the Latemar, Dolomites, Italy

Owing to its excellent outcrops and preservation of primary lithofacies, the Latemar (Western Dolomites) provides insight into facies distribution and stacking patterns at different stages of platform development. This enables studies of fossil platform to basin transects below seismic resolution and detailed facies analysis of the in-situ reefal margin. Investigations of the Latemar platform slope prove the local development of synsedimentary escarpments where spectacular breccias onlap directly against the lagoonal succession. At the eastern margin of the atoll a clear change in the character of the slope has been observed, developing from depositional to erosional in time. The well bedded sediments of the lagoon usually pass to upper slope sediments within a few tens of metres. This reef belt consists of major bind- and bafflestones and minor framestones. Our results reveal a complex palaeogeography of the platform margin and slope. Data indicate that sedimentary processes on the slope are characterised by strong variations regionally and in time. Accordingly, the reef geometry and biocoenoses vary strongly with time. These variations are caused by extrinsic factors like regional tectonics and palaeocurrent and -wind direction but also by biological evolution. The platform margin and slope reflect the influence of these factors more clearly than the protected lagoonal succession. Hence, changes in accommodation as inferred by the cyclostratigraphic arrangement of the platform interior are not necessarily reflected by progradational, aggradational or retrogradational patterns of the platform slope and its margin.