



## **Lowest Triassic anachronistic facies in the Cili region of South China and its palaeoenvironmental implications**

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Anachronistic facies refers to unusual sedimentary deposits that are restricted to earlier history of the Earth but emerge again in the later periods. Various types of anachronistic facies developed immediately after the end-Permian mass extinction in shallow platforms of South China, and their depositional succession exhibits peculiar regularity. Microalites are often the first anachronistic sediments that formed above the mass extinction boundary, and are subsequently followed by oolites and oncolites, which are sometimes intercalated with vermicular limestones. Because different types of anachronistic facies represent different depositional environments, this succession pattern records the evolution of marine environments following the end-Permian mass extinction. Based on the sedimentological analysis of Yangjiawan section in Cili County of South China, this study suggests that the transition from microbialite to oolitic limestone was associated with earliest Triassic transgression and increasing of hydrodynamic energy. With continuous rise of sea level, the hydrodynamic became weaker, resulting in the shift from oolite to oncolite. The occurrence of vermicular limestone is considered to be the product of an ephemeral, restricted environment. Stratigraphic correlation between the Yangjiawan section and the GSSP Meishan reveals a much higher sedimentation rate in shallow platform than that in deeper setting. We suggest that the great thickness of anachronistic limestone in shallow platforms should have resulted from the high supersaturated marine conditions with respect to calcium carbonate as well as the world-wide transgression during Early Triassic which provides the necessary accommodation space for the rapid precipitation of anachronistic limestone.