

Abstract Book

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Early and Late Crises of the Long-Lived Mesozoic Adriatic Carbonate Platform

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The earliest peri-Mediterranean Tethyan carbonate deposits in the Croatian Dinarides date back to the Middle Permian, while the youngest were formed during the Eocene. Within this broader context, the Adriatic Carbonate Platform (AdCP) developed as a distinct and isolated palaeogeographic unit within the Western Tethys. The AdCP, a typical shallow-marine carbonate platform - existed for a shorter interval, from the Toarcian to the end of the Cretaceous, spanning approximately 125 million years. During this time, a sedimentary sequence over 5 km thick was deposited, recording multiple environmental crises characterised by platform drowning and periods of emersion. These changes were driven by a combination of global and regional factors, including climate warming, water-column stratification, anoxic and hypoxic conditions, increased organic matter accumulation, ocean acidification, and major disturbances in the global carbon cycle. In this study, we present new results based on an integrated approach that combines lithological, biological, and microfacies analyses with scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy (EDS), total organic carbon (TOC) measurements, and stable isotope data ($\delta^{13}\text{C}$ and $\delta^{18}\text{O}$). Our primary aim is to provide new insights into the nature and impact of global anoxic events on shallow-marine carbonate environments in the Western Tethyan realm. The results show that global Oceanic Anoxic Events (OAEs) significantly affected the AdCP, most notably the Toarcian OAE (T-OAE) in the Early Jurassic and the Cretaceous OAEs (OAE2 and OAE3). These events left distinct geochemical and sedimentary signatures within the platform, interbedded with typical shallow-marine limestones. Crisis-related deposits include calcisphere-rich limestones, bioturbated intervals, carbonate turbidites, slumped beds, organic-rich interlayers, neptunian dykes, tempestites, firmgrounds, and subaerial exposure surfaces. Biotic responses included the extinction of numerous benthic foraminifera species, alongside the diversification and expansion of planktonic foraminifera and calcareous dinoflagellates. The observed paleoenvironmental shifts were driven by both local/regional synsedimentary tectonics and global sea-level fluctuations.