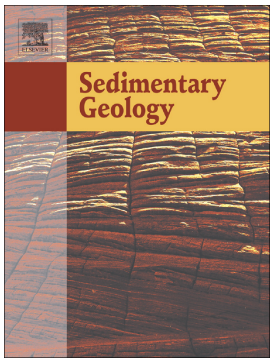

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Sedimentary architecture, depositional facies and diagenetic response to intracratonic deformation and climate change inferred from outcrops for a pivotal period (Jurassic/Cretaceous boundary, Paris Basin, France)

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Abstract

The aim of this study is to decipher the respective influences of geodynamic and climate disturbances at the Jurassic/Cretaceous boundary on sedimentary facies and carbonate diagenesis in a stable intracratonic basin using isotopic geochemistry and subsidence quantification. Fourteen lithofacies were deposited in a (1) carbonate platform and (2) a delta plain environment. Climate change from cool and wet to warm and semi-arid conditions during the early Tithonian influenced the syn-sedimentary dolomitization process within the carbonate platform during the mid Tithonian. Architecture and facies reconstructions well-constrained the Jurassic-Cretaceous Unconformity (JCU), which was an important local structural episode marked by (1) an 80 m uplift in the eastern Paris Basin and by (2) the formation of a NW–SE low wavelength 15 km-wide and 30 km-long flexure. This first tectonic event tended to maintain brine ponds and supratidal marsh environments in the platform during the late Tithonian and early Berriasian, forming Purbeckian facies and associated dolomitic facies. A major depositional change