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Alluvial Sequence Stratigraphy of the Triassic Basins in Algeria: A Tectonic and Climate Control

Sequence stratigraphy of alluvial series is directly related to the variations of the base-level, which are due to a combination of local and instantaneous phenomena (floods, avulsions...) and more global causes. Amongst them, the tectonic deformation of the drainage area and the variation of the water fluxes in relation with climate changes play a major role in the evolution of the fluvial styles and of their preservation in the sedimentary series.

We will illustrate how tectonic and climate interacted during the sedimentation of the Upper Triassic series in Algeria, from outcrop observations, core descriptions and regional subsurface transects. The Triassic sediments first overlapped southwards the Hercynian Unconformity, which corresponded to a major by-pass surface. During Upper Carnian times, the premises of the Atlantic opening induced the reactivation of old panafrikan faults. Two sub-basins bounded by structural highs were initiated, then subsidence rate progressively increased during Norian times. The alluvial sedimentation was first controlled by the tectonic sagging of the basins then by major syn-sedimentary normal faults which guided the main sediment pathways. Norian times were also characterised by a global climatic change and clastics were progressively replaced by evaporites as the transport capacity of the rivers decreased with the global drying.

Depositional sequences were identified and correlated at the scale of the basin. They show a contrasted architecture depending on the transport capacity of the stream, which itself results from climate and slope variations.