

Siliciclastic Continental Deposits in the Karnian (Late Triassic of the SE and S Iberian Peninsula: Tectonic, Climatic, and Eustatic Controls

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The classic Keuper Facies of SE and S Iberian Peninsula contain a siliciclastic intercalation denominated K-2 Unit or Manuel Sandstone Formation. The Keuper Facies lie conformably on the well dated (Ladinian, Middle Triassic) marine carbonates of the Muschelkalk Facies. The studied siliciclastic deposits can be subdivided into three minor, superimposed coarsening-upwards cycles that show a lateral change from inter- supratidal hypersaline coastal sebkha environments to the East to fluvial-alluvial plain continental environments to the West. Some palynological assemblages found near the base of the Manuel Formation have been dated as Early Karnian (Late Triassic), but the age of the basal conglomerates of this formation is still unknown.

The deposition of these siliciclastic deposits was controlled simultaneously by a syn-sedimentary extensional tectonics, expressed in NE-SW normal faults that subdivided the basin in parallel contrasting areas of slow and rapid subsidence, a climatic control expressed in short lived, extensive flood events followed by long periods of inactivity of the fluvial systems and pedogenic processes and an eustatic control, expressed in a LST organization of the sedimentary sequences among two major transgressive pulses.

This siliciclastic unit can be traced from the Spanish Mediterranean Coastline to southern Portugal (Grès de Silves Formation) and can be identified in some oil wells in the Guadalquivir Basin to the South. It can be also correlated with similar deposits elsewhere in Europe, such as the Grès à Roseaux in NE France, the Grès de Donnemarie in the Paris Basin, the Schilfsandstein in the German Basin or the Attret Formation in Belgium. All of them should be related to a common major tectonic event related to the southwards propagation of the North Atlantic Sea in this period of time.