



Preserved record of initial rifting stages in the Betic collisional orogen (Spain). Palaeogeographic implications for the western Neo-Tethyan domain

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The rifting process that led to continental break-up of the Pangea continent has been well characterised in the Jurassic successions, as the main extension occurred during this time span. However, data from the initial Triassic rifting phases are scarce and based on indirect evidence.

Here, we report on a wide range of features preserved in the Internal Zones of the Betic Cordillera collisional orogen (SE Spain): syn-sedimentary normal faults overstepped by younger strata, angular unconformities, slumps, intraformational breccias, pronounced thickness variations of lithological units, mafic igneous intrusions and Mississippi Valley-type ore deposits. Our biostratigraphical data (mainly based on foraminifers, algae and bivalves) allowed us to attribute most of the above-said features to the Ladinian-Carnian transition. We interpret these features as a direct record of the initial Triassic phase of continental rifting, preserved in the stratigraphic record because they were not reactivated during the Alpine orogeny.

From a tectonic standpoint the features recorded in the study area appear to point to an active extension context for the Western Mediterranean sector during the Ladinian, as opposed to a sinistral transform proposed in some palaeotectonic models. This extensional area could connect the intracontinental rifts of eastern North America with the western Neo-Tethyan marine domain.