A COMPARISON OF THE LATE TRIASSIC TO EARLIEST CRETACEOUS SEDIMENTARY SUCCESSIONS AND THE TECTONOSTRATIGRAPHIC EVOLUTION OF THE INTERNAL ZONES OF THE BETIC CORDILLERA (SPAIN) AND OF THE NORTHERN CALCAREOUS ALPS (AUSTRIA): PALAEOGEOGRAPHIC IMPLICATIONS

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A comparative study of stratigraphy, facies and paleogeography of the Northern Calcareous Alps (Eastern Alps; Austria, Germany) and of the Internal Zones of the Betic Cordillera (Spain) shows that both regions are very similar in facies development, sedimentary and tectonostratigraphic evolution from the Late Triassic to the earliest Cretaceous. We present some characteristic examples of identical sedimentary successions formed under similar geodynamic conditions.

A widespread Late Triassic shallow water carbonate platform development occurred in the Internal Zones of the Betic Cordillera, producing carbonate sediments with facies similar to those of the well known Hauptdolomit-Dachstein carbonate platform of the Northern Calcareous Alps.

The shallow water carbonate production suddenly ended in both regions around the Triassic/Jurassic boundary, and was associated with the onset of hemipelagic carbonate sedimentation in both areas, except in the Malaguide Domain. This drowning event was additionally marked by fault scarp breccia formation in the Internal Zones of the Betic Cordillera, and block tilting in the Northern Calcareous Alps, due to the starting rifting of the future Penninic-Piedmont Ocean.

The occurrence of the first oceanic crust in the Penninic-Piedmont and Nevadofilabride Realms during Late Pliensbachian-Toarcian times was coeval to the formation of continental margins with a horst and graben topography in their southeastern parts, both in the Eastern Alps and in the Internal Domain of the Betic Cordillera. This was contemporaneous with a deepening event and basin starvation that produced reduced and condensed pelagic successions during the late Early to Midde Jurassic in both regions.

A widespread radiolaritic sedimentation during the Bathonian coincides with the final break-up and spreading of oceanic crust in the Penninic-Piedmont Ocean, and was followed by pelagic carbonate and radiolaritic sedimentation up to the earliest Cretaceous.

To conclude, the Internal Domains of the Betic Cordillera represent, during the Late Triassic to Berriasian, a western prolongation of the Austroalpine Domain. Therefore, the Internal Domains of the Betic Cordillera, as well as their Austroalpine counterparts, form the internal southeastern margin of the Penninic-Piedmont Ocean in contrast to its northwestern margin which was formed by the South Iberian Paleomargin, corresponding to the Prebetic and Subbetic external domains of the Betic Cordillera, and by the South European Paleomargin which corresponds to the Helvetic-Ultrahelvetic domains of the Alps.

Both areas were connected from the Triassic until the earliest Cretaceous and were not separated by an oceanic domain, as partly reconstructed.

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