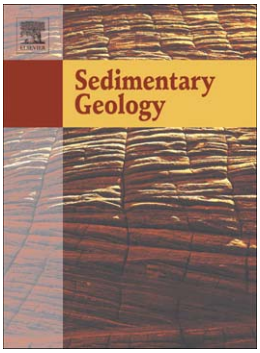

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Provenance of the Miocene Slovenj Gradec Basin sedimentary fill, Western Central Paratethys

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Abstract

The Slovenj Gradec Basin represents one of the marginal western basins of the Neogene Pannonian Basin system. Its sedimentary succession is investigated by combination of field, petrographic and geochemical methods. The succession is at least 540 meters thick and characterised by frequent alternation of conglomerate, sandstone, siltstone and marlstone deposited in terrestrial, brackish and shallow marine environments. Modal composition of the sandstones indicates that they originated from recycled orogen, namely from quartzose sedimentary rocks of the Eastern Alps, and show moderate to absent chemical weathering. The results indicate two different tectonic settings: a collisional, which correlates well with the end-Mesozoic and Cenozoic Alpine collision, resulting in orogeny and thrusting of the Austroalpine nappes, and a passive margin related to the early Neogene lithospheric extension and subsidence as the result of slab retreat in the Carpathian subduction zone, which was responsible for the formation of the Pannonian Basin system.

In this area, where the sediments were subjected to various tectonic events, discriminant function diagrams of Verma and Armstrong Altrin are found to be a good tool for their identification and differentiation.