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Rhaetian extensional tectonics in the Slovenian Basin (Southern Alps): Preliminary results of an outcrop study

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A Late Triassic palaeogeographic position of the Slovenian Basin on the passive continental margin of the Neotethys Ocean to the East and later the Alpine Tethys to the West, implements that its evolution intimately depended on the events in these two areas of extension. Recent research of the "Bača dolomite", the typical Norian-Rhaetian lithologic unit of the Slovenian Basin, resulted in recognition of four extensional tectonic events (Gale et al., this volume). The Lower and Middle Norian tectonic pulses can be recognized throughout the basin. A weakened tectonic activity was recognized in the Rhaetian, followed by more pronounced, but spatially restricted tectonics at the Triassic-Jurassic boundary. Extensional tectonics was attributed to the diminishing rifting in the Neotethys area and to the incipient opening of the Alpine Tethys (Gale et al., this volume).

The ongoing fieldwork in the vicinity of Škofja Loka (central Slovenia) resulted in the discovery of palaeofaults in the small-sized quarry that directly evidences the Late Triassic extensional tectonics. Based on superposition, the observed section of the "Bača dolomite" is of the Rhaetian age. The discovery is particularly important because it represents the first direct documentation of the Late Triassic down-faulting in the region.

The lowest strata exposed consist of highly bituminous bedded dolostones with scour structures and several meters of mud-supported dolo-breccias. Breccias were downthrown along a normal fault and the created accommodation space filled with bedded dolostone. After complete leveling of topography, another differentiation took place, during which a new normal fault originated, whereas the pre-existing fault was reactivated in an antithetic sense. Thin-bedded dolostones were deposited during slowly abiding movements. The final cessation of tectonics is marked by a uniform deposition of massive dolostone, entirely overlying the fault-dissected sediments.