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Geomorphological analyses of the Lavanttal Fault, Austria

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The inneralpine Lavanttal Basin is one of the Miocene basins, which formed during eastward extrusion due to north-south shortening (1). It formed along a releasing bend of one of the major fault-system in the Eastern Alps – the active dextral Lavanttal Fault System and is delimited by the Koralm and Saualm Massifs in the East and West of the basin, respectively.

The comparison in nature between both mountain fronts shows marked differences of morphological features like the shallower slope, meandering and long streams of the Saualm Massif, which contrast from the Koralm Massif with its steeper slope, relatively straight and short streams and numerous broad submontane triangular facets. The previously computed geomorphological indices (3) like stream-length ratio (2), mountain front sinuosity (2) and the valley-floor-width-to-height-ratio (2), indicate distinct uplift rates of both Massifs. Data, however, also show that erosion counteracts uplift effectually over time.

Results of additional geomorphological indices like asymmetric indices (2), hypsometric integral (4) and the asymmetry of topography and basin (4) within the Wolfsberg part of the basin shall approve that the asymmetric depression of the Lavanttal Basin and the asymmetry of topography caused by tectonic influence of the Lavanttal Fault System.

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