



The gravity field of the Inn valley (Eastern Alps) as image of an over-deepened basement structure

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The formation, depth and filling of large Alpine valleys are one of the most interesting geological problems of the Eastern Alps. Those valleys often follow the strike of the Alpine mountain belt, are partially seismically active and are over deepened with the bedrock. One important example is the valley of the Inn River, where several hundred meter thick sediments overlay the bedrock surface.

The gravity field does not directly reflect the over deepened structures because the density contrast between sedimentary filling and bedrock decreases with depth. Additionally, the gravity field is influenced by other sources within the crust and may also be disturbed by near surface sources, which the usual mass correction applying constant density does not correctly account for.

Based on the new gravity map of Austria, the gravity field of the Inn valley and its surroundings is analyzed by applying different stripping steps. The latter are focused on the density model for the upper crust obtained within the TRANSALP section (Ebbing 2004), the crust-mantle boundary and the near surface rock density model.