



Constraining vertical land motion of tide gauges (IAG JWG 3.2): aims and scope

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Interannual to secular vertical motion of the Earth's crust at the tide gauge locations has a substantial impact on the assessment of climate change-driven sea-level variations and for the validation of satellite altimetry missions.

When a postglacial rebound model is used to correct the secular vertical motion of the tide gauges, errors in the model and the omission of other sources of land motion makes the corrections uncertain. The alternative is using land motion estimates from geodetic observations. However, not all the tide gauges are monitored and estimates of vertical land motion from geodetic observations are severely limited in time, especially when considering multi-decadal tide gauge records. Consideration of non-linear deformation and reference frame stability is therefore crucial for extrapolating the vertical motion estimates beyond the observed period.

The Joint Working Group 3.2 of the International Association of Geodesy focuses on providing contrasted vertical land motion at tide gauges from a multi-technique perspective. Tide gauges commonly used for long-term sea-level change (e.g., sea-level reconstructions) and for calibration/validation of satellite altimeters are the main target.