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# Geocentric Sea-Level Rise on the Estonian Coast Over Last Half Century

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## Abstract

In Estonia, postglacial rebound causes the vertical movement of the earth surface. The velocities of Estonian coastal tide gauges and GNSS permanent stations were calculated in order to estimate regional geocentric sea-level rise. The time series of GNSS stations (2008-2016) and tide gauges (1954-2014) were analysed with different stochastic noise models using software Hector. From the GNSS time series, geocentric vertical velocities and their realistic uncertainties were obtained in ITRF2008 reference frame. The apparent vertical velocities relative to the actual mean sea level and their realistic uncertainties were estimated from the time series of tide gauges. These results were verified using different existing land uplift and glacial isostatic adjustment models. This contribution combines the obtained geocentric vertical velocities of the GNSS stations with the tide gauges' apparent vertical velocities in order to estimate regional geocentric sea-level rise on the Estonian coast. Results suggest that the regional geocentric sea-level rise has been faster on the Estonian coast over last half century than it has been globally as an average.

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