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Local validation of EU-DEM using Least Squares Collocation

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In the present study we are dealing with the evaluation of the European Digital Elevation Model (EU-DEM) in a limited area, covering few kilometers. We compare EU-DEM derived vertical information against orthometric heights obtained by classical trigonometric leveling for an area located in Northern Greece. We apply several statistical tests and we initially fit a surface model, in order to quantify the existing biases and outliers. Finally, we implement a methodology for orthometric heights prognosis, using the Least Squares Collocation for the remaining residuals of the first step (after the fitted surface application). Our results, taking into account cross validation points, reveal a local consistency between EU-DEM and official heights, which is better than 1.4 meters.