

Assessing the storm surge model performance: What error indicators can measure the skill?

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SUPPLEMENTARY MATERIAL

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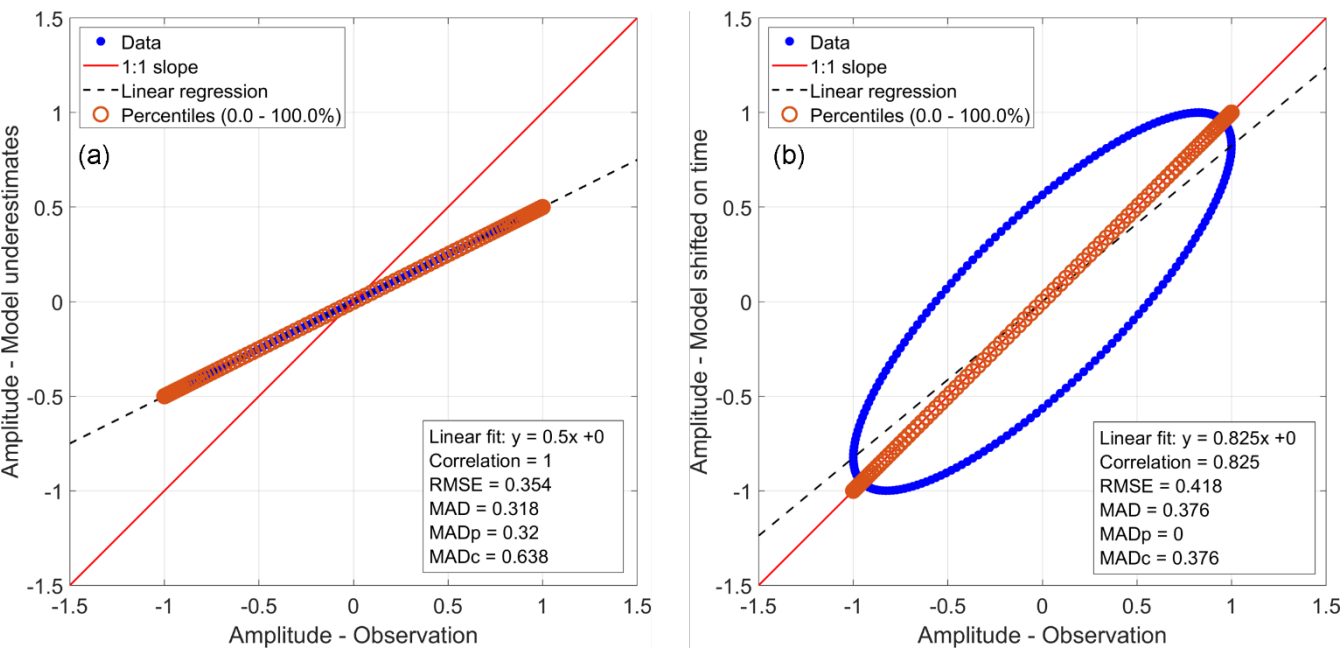


Figure 1S: Scatter plots and metrics for the validation of the proposed metrics, MADp and MADc. (a) Observation vs model with half amplitude and same phase; (b) Observation vs model with same amplitude and phase shifted.

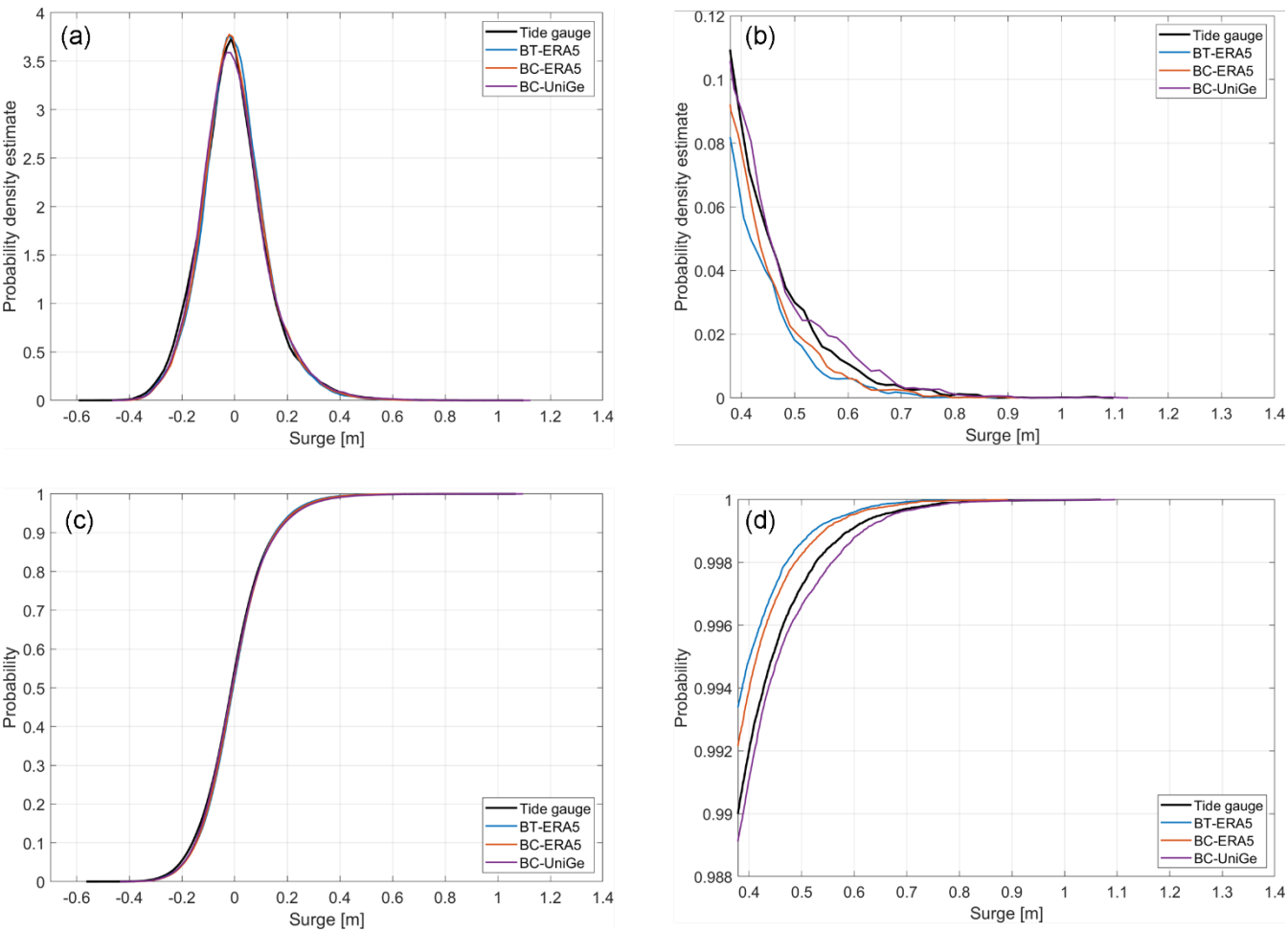


Figure 2S: Probability Density Estimates (PDE) and Empirical Cumulative Distribution Function (ECDF), CNR platform. (a) PDE for the total amount of data; (b) PDE for values above 99th percentile of the observed data; (c) ECDF for the total amount of data; (d) ECDF for values above the 99th percentile of the observed data.

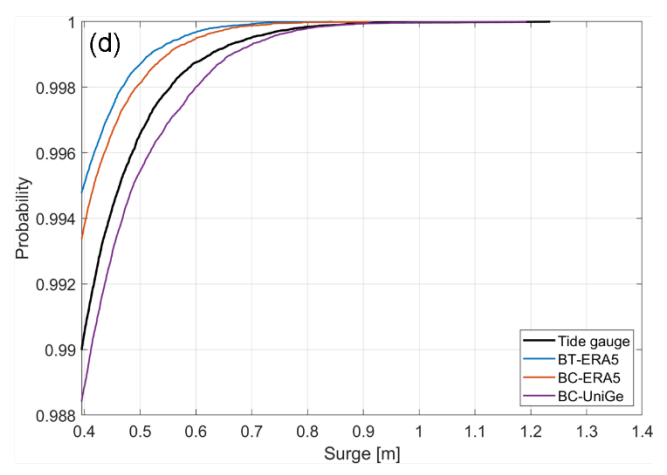
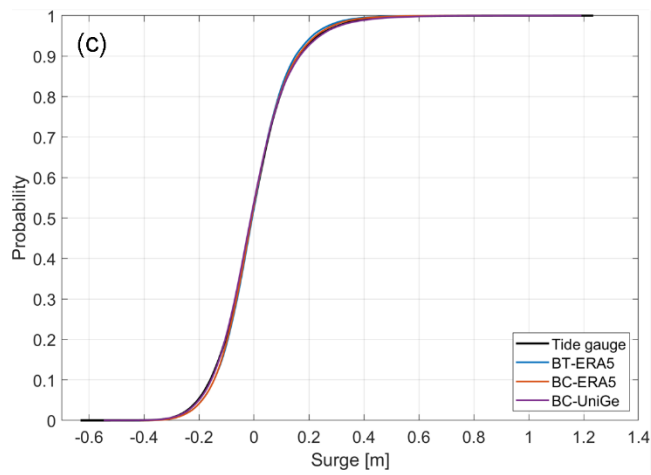
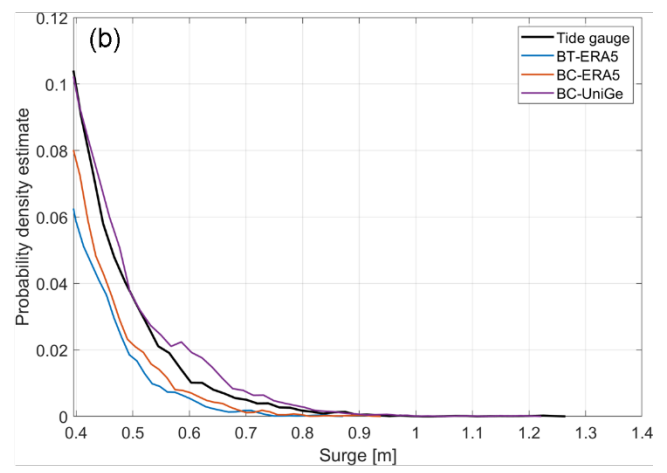
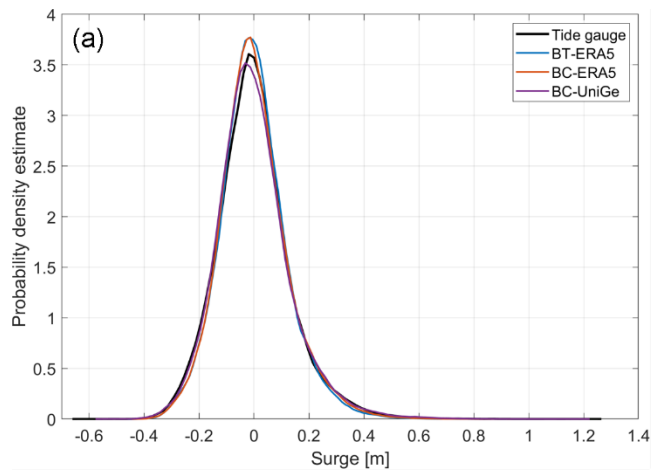


Figure 3S: Probability Density Estimates (PDE) and Empirical Cumulative Distribution Function (ECDF), Punta della Salute. (a) PDE for the total amount of data; (b) PDE for values above 99th percentile of the observed data; (c) ECDF for the total amount of data; (d) ECDF for values above the 99th percentile of the observed data.

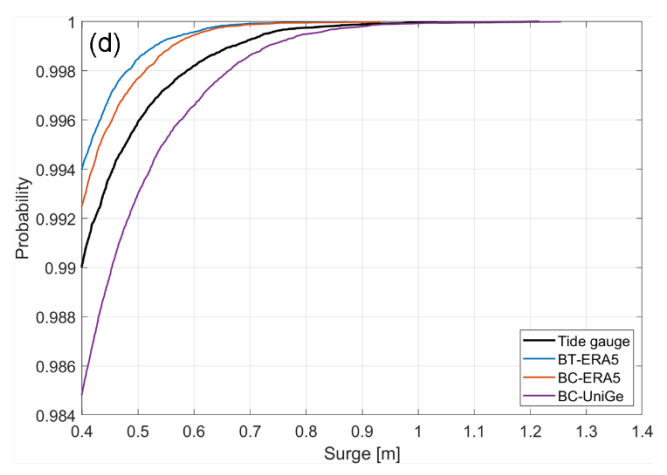
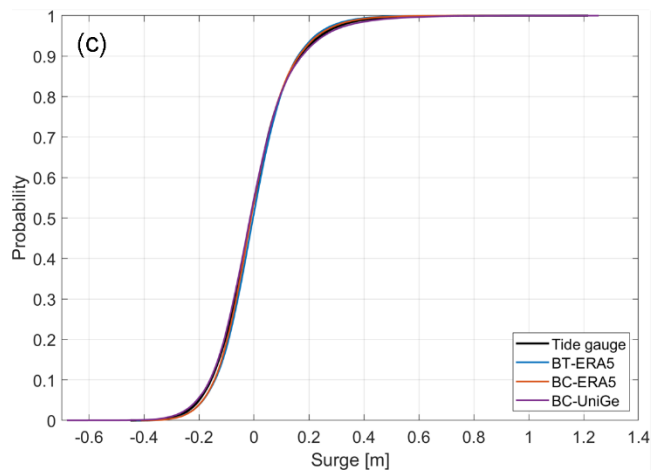
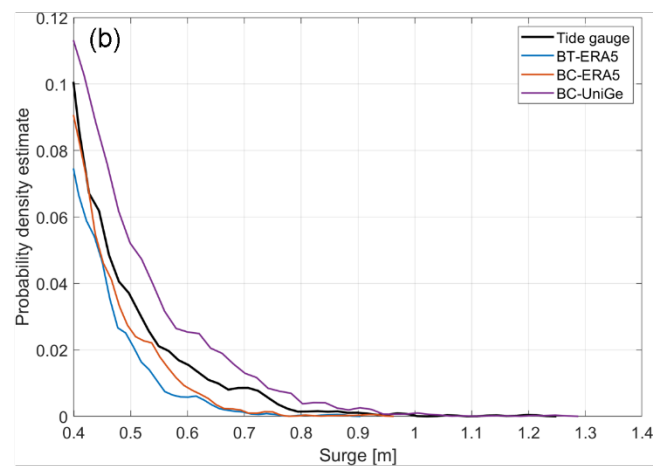
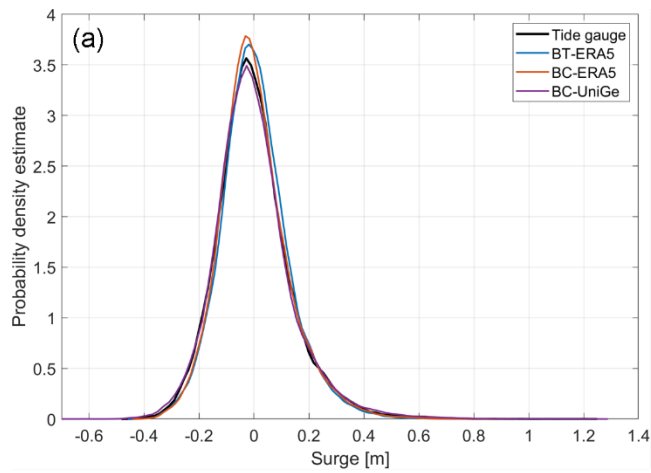


Figure 4S: Probability Density Estimates (PDE) and Empirical Cumulative Distribution Function (ECDF), Caorle. (a) PDE for the total amount of data; (b) PDE for values above 99th percentile of the observed data; (c) ECDF for the total amount of data; (d) ECDF for values above the 99th percentile of the observed data.

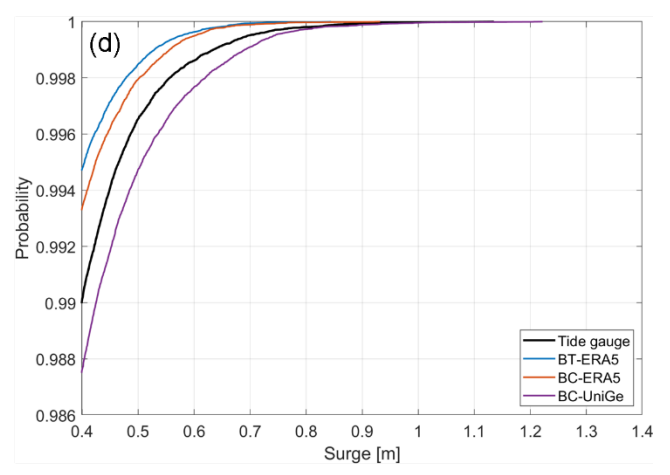
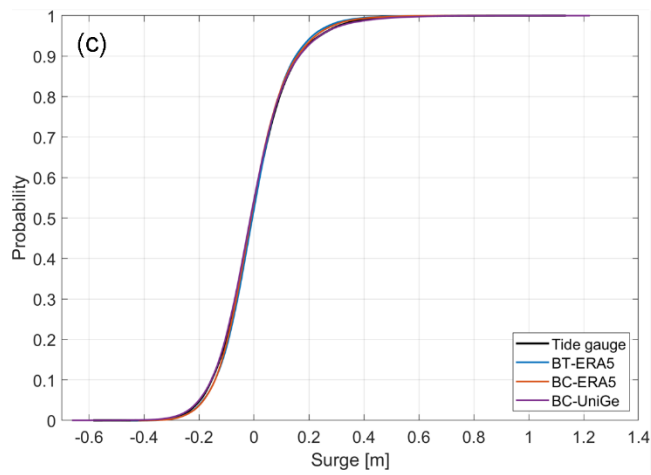
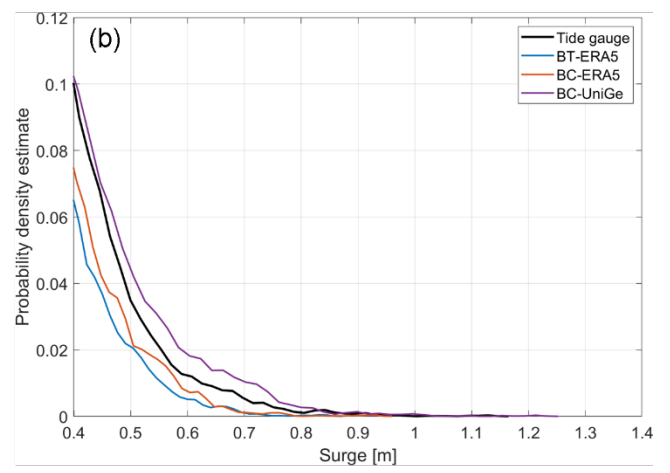
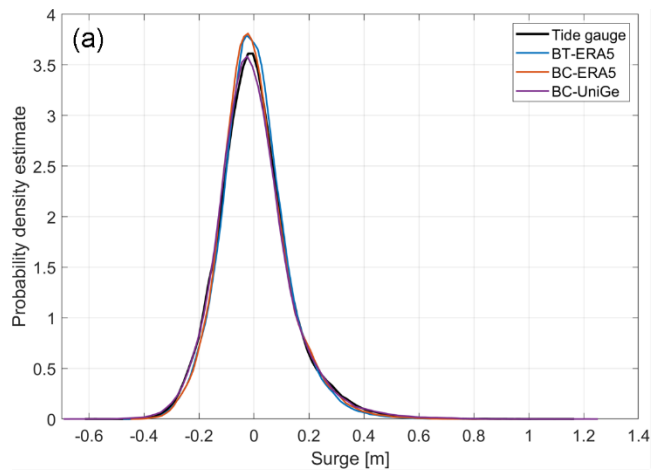


Figure 5S: Probability Density Estimates (PDE) and Empirical Cumulative Distribution Function (ECDF), Grado. (a) PDE for the total amount of data; (b) PDE for values above 99th percentile of the observed data; (c) ECDF for the total amount of data; (d) ECDF for values above the 99th percentile of the observed data.

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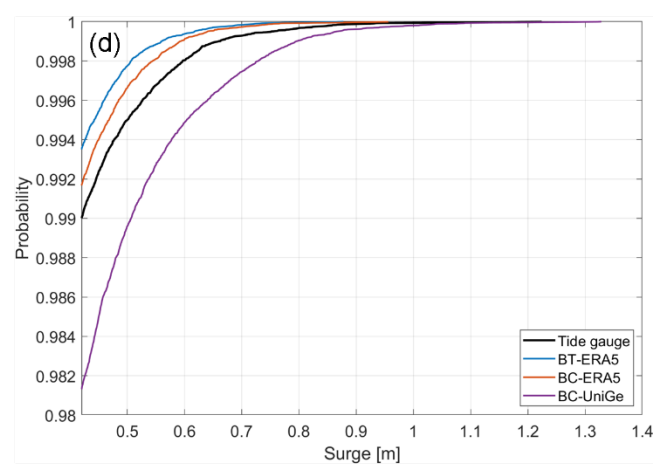
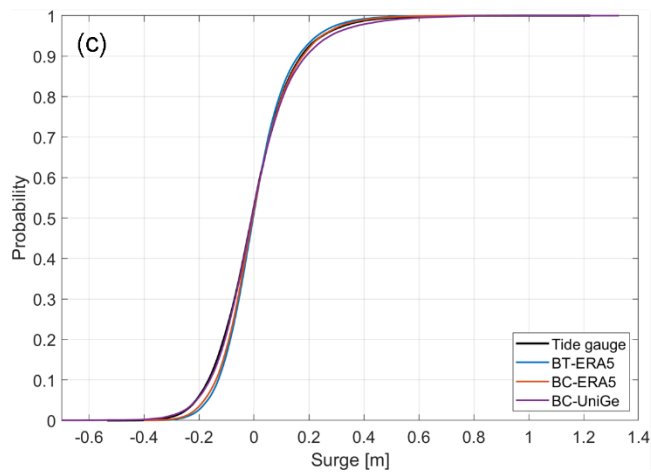
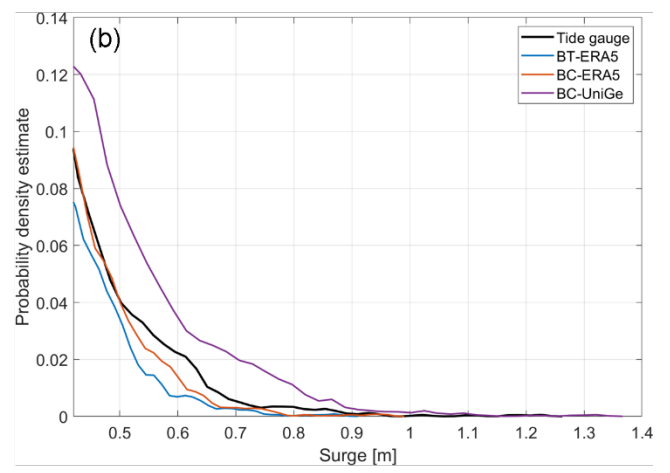
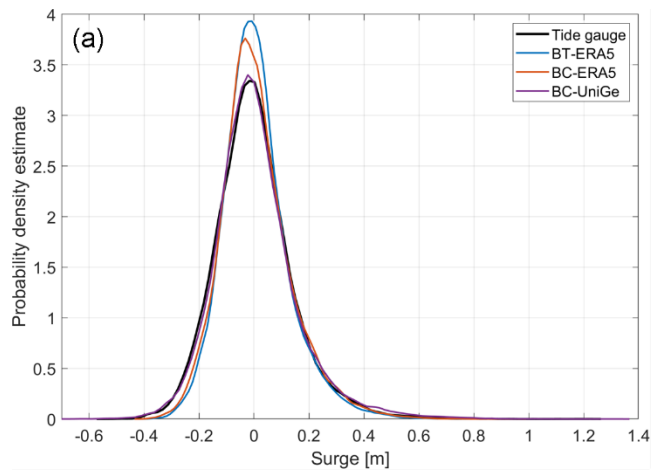


Figure 6S: Probability Density Estimates (PDE) and Empirical Cumulative Distribution Function (ECDF), Monfalcone. (a) PDE for the total amount of data; (b) PDE for values above 99th percentile of the observed data; (c) ECDF for the total amount of data; (d) ECDF for values above the 99th percentile of the observed data.

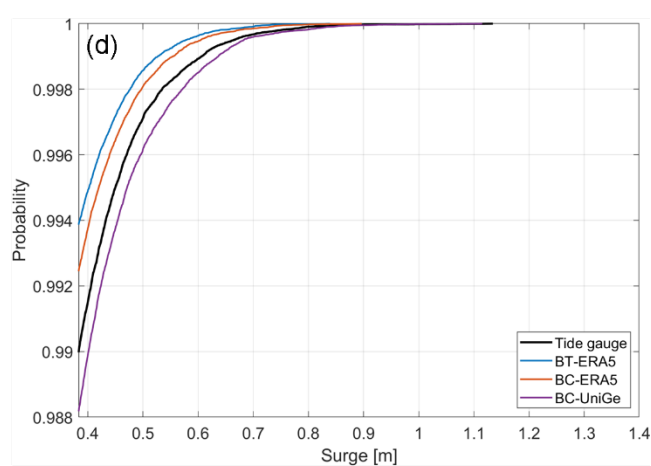
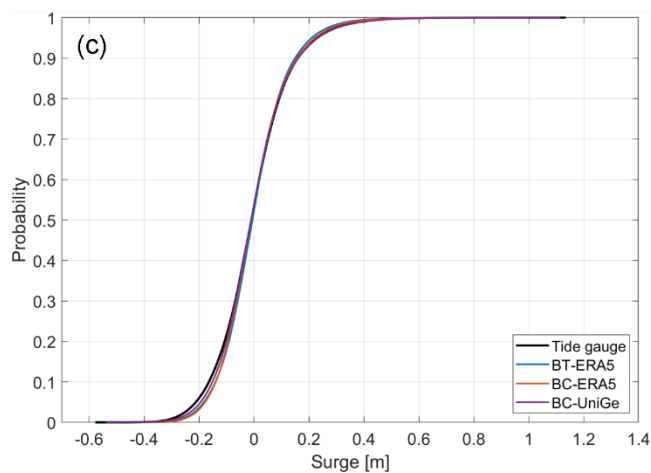
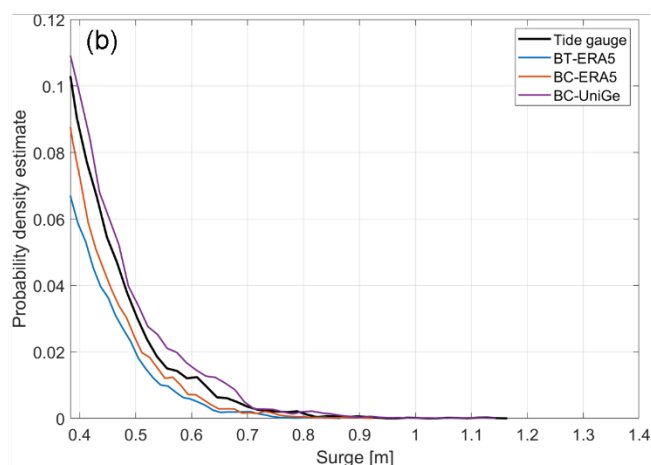
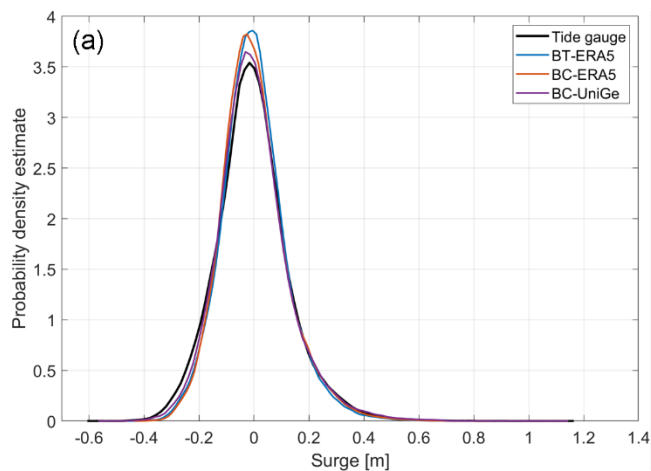


Figure 7S: Probability Density Estimates (PDE) and Empirical Cumulative Distribution Function (ECDF), Trieste. (a) PDE for the total amount of data; (b) PDE for values above 99th percentile of the observed data; (c) ECDF for the total amount of data; (d) ECDF for values above the 99th percentile of the observed data.