

A comparison of two global datasets of extreme sea levels and resulting flood exposure

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Contents of this file

Figures S1 to S4

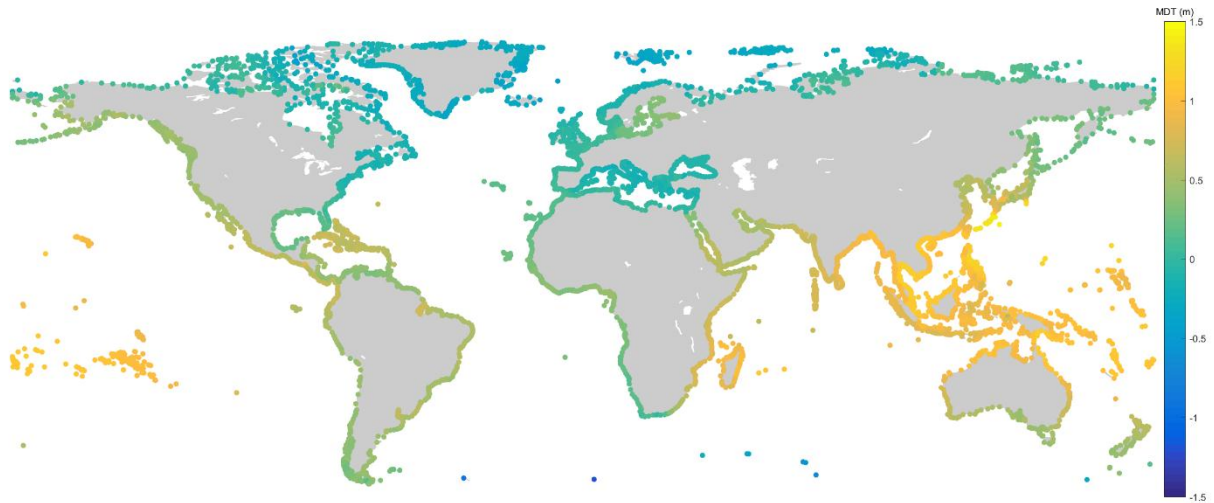


Figure S1: Map showing the Mean Dynamic Topography (MDT), which is the mean sea surface height above the EGM96 geoid, for the centroid of each DIVA segment. The mean sea surface has been computed using a 15-year of TOPEX/POSEIDON, ERS-2, GFO, JASON-1, ENVISAT mean profile and the 2 168-day non repeat cycle data of the ERS-1 geodetic phase by Schaeffer et al. (2012) and is distributed online by Aviso (<http://www.aviso.altimetry.fr/>). The MDT has been used to convert the vertical reference level of the GTSR extreme sea-from mean sea level to the EGM96 geoid, which is the vertical reference level of SRTM elevation.

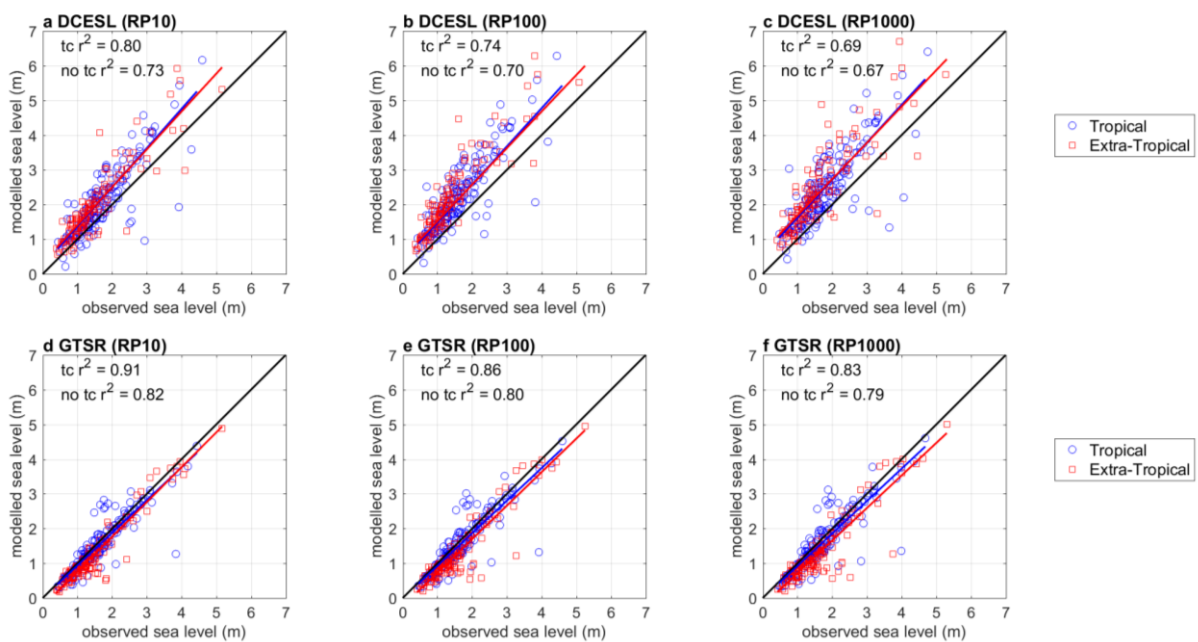


Figure S2: Scatter plots for the **a**, **b** and **c** the DCESL sea levels with a return period of respectively 10, 100 and 1000 years, and **d**, **e**, and **f** the GTSR sea levels with a return period of respectively 10, 100 and 1000 years. The observation stations are separated based on their location in extra-tropical and tropical regions (i.e. prone to tropical cyclones). The coloured lines show the least-squares line for tropical and extra-tropical locations in respectively blue and red. The black line is the perfect-fit line. The classification into extra-tropical and tropical is based on Supplementary Note 2 and Supplementary Fig. 3 in Muis et al. [2016].

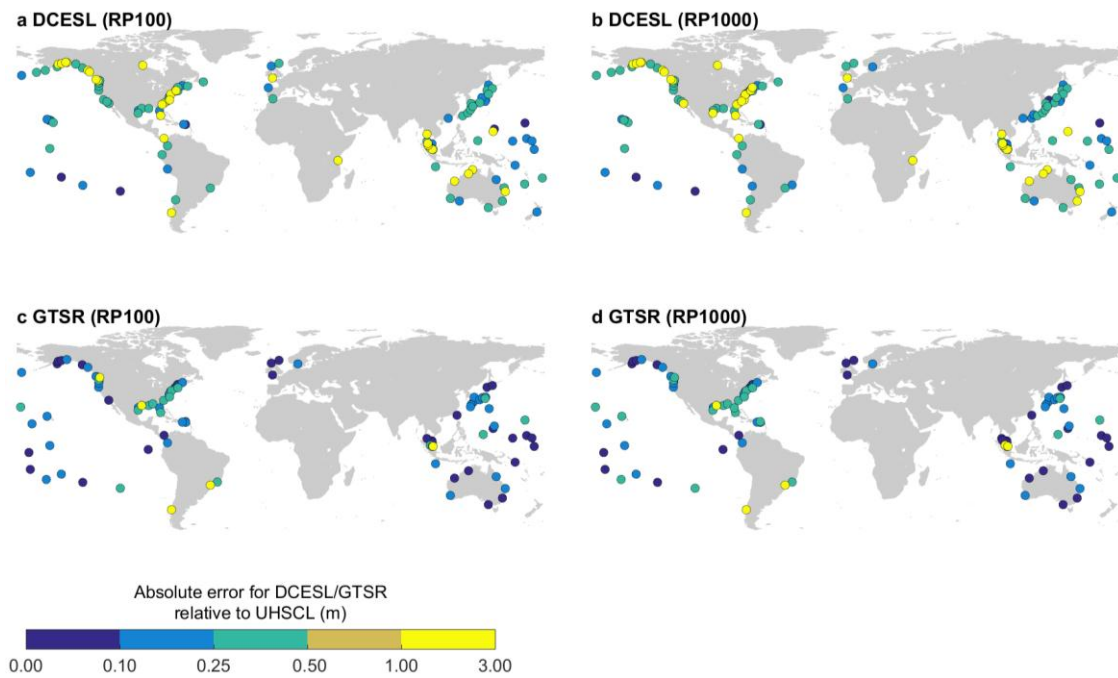


Figure S3: Maps showing the performance of DCESL and GTSR as the absolute error (m) between modelled and observed extreme sea levels. We show: **a**, the performance of DCESL levels with a return period of 100; and **b**, 1000 years; and **c**, the performance of GTSR with a return period of 100; and **d**, 1000 years. We use the 141 out of the 472 UHSLC stations that have > 25 year of data.

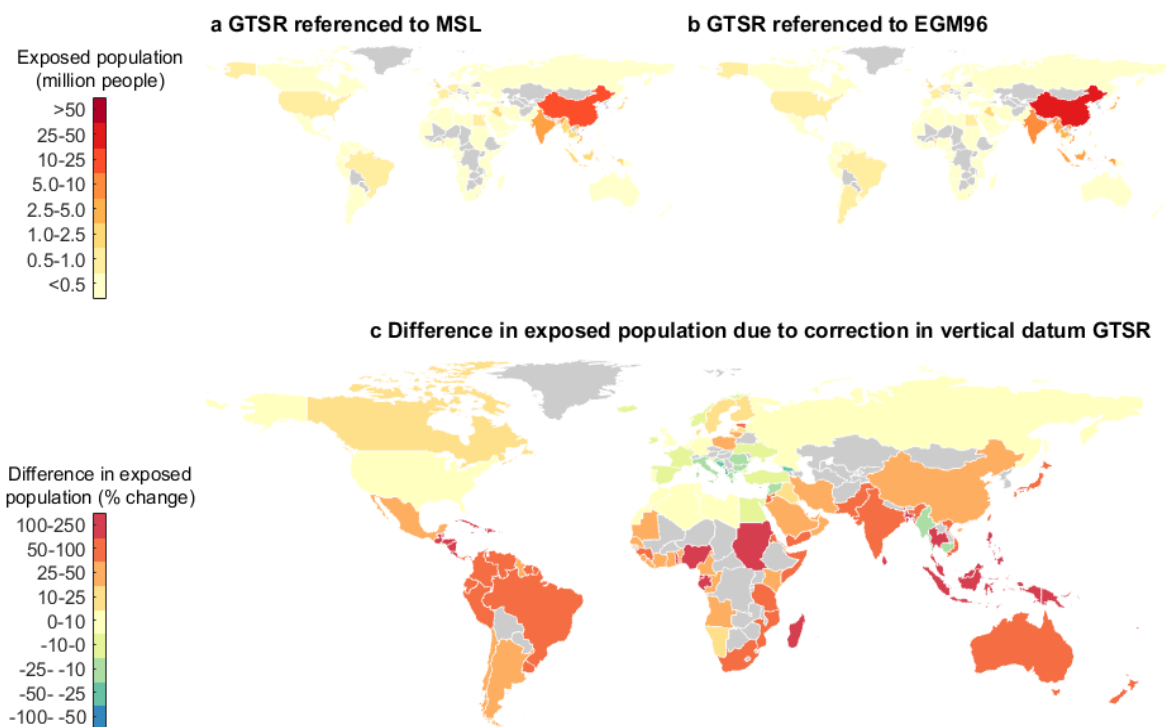


Figure S4: Comparison of people exposure to 1 in 100-year sea levels on a country-scale when based on, **a** GTSR reference to mean sea level, and **b**, GTSR referenced to EGM96, and **c**, the effect of the correction for vertical datum expressed as the relative change compared to GTSR referenced to mean sea level.