



## **Quantifying the different sources of uncertainty in Mediterranean storm surge projections**

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Quantifying the uncertainty of the changes in different parameters inferred from climate model projections is just as important as quantifying the changes themselves. In this presentation we aim to estimate the uncertainty budget of Mediterranean storm surge projections for the 21st century. The projections are obtained with a barotropic ocean model forced with high-frequency atmospheric pressure and wind fields from different regional climate models (RCMs) which in turn are nested into different global climate models (GCMs).

Here we quantify the percentage of the total uncertainty related to different sources: the RCM, the GCM (its sensitivity and initial conditions), the chosen scenario and the internal climate variability. We also present maps showing the differences between five combinations of simulations, from which we infer the regions where the uncertainties are more relevant. The first combination consists of a set of simulations run under three climate scenarios but using the same RCM and GCM. Next, we compare 5 GCM's (and 3 OGCM's with different sensitivity and initial conditions), all them for the same scenario. Finally we compare four simulations run with the same GCM but with different RCM's, all them for the same climate scenario. In all cases, the regions where the differences between the simulations are smaller than the internal climate variability are masked in the maps.