

Review: Variability of distributions of wave set-up heights along a shoreline with complicated geometry

Referee #

General comments

The Authors made a considerable effort in strengthening the statistical analysis in the study by using several techniques, among which the Kolmogorov-Smirnov test, thereby reinforcing the core message of the study, which is: it is found that in the complicated coastline considered, 75% of the points have wave set-up whose statistical distribution can be described by an exponential function, and 25% of the points have set-up elevations whose statistical distribution can be described by an inverse exponential function.

This is still, in my opinion, the principal problem of the study. All results are obtained by processing input data coming from a wave model which is not phase resolved, so not particularly useful in coastal applications. Acknowledging the high scientific moral stand of the Authors, who present the results as they are, it is important to consider also that the physical knowledge gained reading the manuscript, which is 27 pages long, plus 6 pages of bibliography and 13 figures, is quite limited. There are coastal points in which the distribution of the wave set-ups is exponential and points in which is inverse Gaussian. The points are mixed together and there is no way to separate them. Moreover the two descriptions are irreducible. The Authors did not find any possible physical reason or way to classify the points, in order to highlight oceanographical or hydrographic processes which may be of any concern to an oceanographer. And this is also due to the fact that no direct measure of wave set-up is presented, not from field campaigns, not from physical models in the laboratory, so there is no way to properly investigate the dynamics of the process which lie at the heart of the problem. It is clear that, as it is, the study would be of fairly limited use to any coastal engineer. But then, what would be the scientific interest for readers coming from the more universal, and physically oriented, field of oceanography?