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# *Interactive comment on* "Evaluation of Peaks-Over-Threshold Method" *by* Soheil Saeed Far and Ahmad Khairi Abd. Wahab

**Anonymous Referee #1**

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The manuscript *Evaluation of Peaks-over-Threshold Method*, by Soheil Saeed Far and Ahmad Khairi Abd. Wahab, describes two extreme wave analysis models, namely Peaks-over-Threshold (POT) and Generalized Parete Distribution (GPD).

I am sorry that I have to recommend the editor the ***rejection*** of this manuscript, for the following reasons:

- The common nomenclature in extreme value theory is that there are two approaches: block maxima, or peak over thresholds. The block maxima are fitted to the GEV (Generalized EXtreme value) model, the peak over threshold values are fitted to the GPD (Generalized Pareto Distribution) model. It seems that this manuscript mixes up these words, and describes two models as POT and GPD, which - in my opinion - belong to each other: In the POT approach, the GPD is

fitted.

- The choice for one of those two models is completely based on a single dataset. The option that another dataset could possibly result in another conclusion, is not discussed.

- The Gumbel (FT-1) model is applied to peak-over-threshold values, which is wrong. The same holds for the FT-2 and Weibull models, which should be applied to block maxima.

- the manuscript lacks a good description of the wave data. There seem to be too many observations around 2.25m, 3.25 and 4.25 meter (see e.g. Figure 8). Especially the many observations around 4.25 m are suspect: one wouldn't expect so many values just below the maximum value. And if it were true, this points to a (physical) upper limit of the maxima.

- the choice of the Weibull shape parameter to be either 0.75, 1, 1.4 or 2 is rather arbitrary. The same holds for the FT-II distribution (fixed to 2.5, 3.33,5 or 10). The fixation of this shape parameter strongly influence the goodness-of-fit, and it also reduces the uncertainty range considerably. It would have been much more logical that the GEV (or GPD) distribution would have been fitted, in which also the shape parameters is estimated from the dataset, and its uncertainty influences the confidence bands. This is correctly done in section 3.1, but I don't understand what section 3.2 (the so-called POT method) adds to section 3.1.