Supplement of

Wave height return periods from combined measurement–model data: a Baltic Sea case study

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**S1 Additional figures of fits to data**

These Figures (Fig. S1–S6) are as Fig. 7 in the manuscript, but for different thresholds for the POT data and using WAM (instead of SWAN) as the primary wave hindcast. For an explanation of the different data sets (SWAN-$\chi^2$, WAM-filtered etc.), please see Table 1 in the manuscript.

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**Figure S1:** Fits to annual maxima and POT values (threshold $u = 4.0$ m) of the SWAN data. The top panels are fits to the original observations and model values with an added synthetic $\chi^2$-variability. The bottom panels are fits to the original model data and low-pass filtered observations. In the top panels this single realisation of added $\chi^2$-variability has purposefully been chosen to closely match the ensemble averages in Table 3 of the manuscript.
Figure S2: As for Figure S1 but with a threshold of $u = 4.5$ m. This figure is identical to Fig. 7 in the manuscript.
Figure S3: As for Figure S1 but with a threshold of $u = 5.0$ m.
Figure S4: As for Figure S1 but for WAM data.
Figure S5: As for Figure S1 but for WAM data and with a threshold of \( u = 4.5 \) m.
Figure S6: As for Figure S1 but for WAM data and with a threshold of $u = 5.0$ m.