Extreme storm surge events and associated dynamics in the North Atlantic

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Introduction

The Supporting Information presented here are for provided in order to reproduce the data processing that have been done. The Figure S1 shows the weight that was applied to the least square minimization. Then, three large tables are presented here and available in separated files. The Table S1 lists all the suspicious measurements and periods where the sea levels might be incorrect as explained in the main manuscript (file named 2023JC020772-sup-0001-Table SI-S01.txt). The table S2 provide the temporality of the typical event, associated uncertainity and fit for each tide gauges (file named 2023JC020772-sup-0002-Table SI-S02.csv). The Table S3 provide the 13 characteristic

parameters estimated with the fit of the typical event (file named 2023JC020772-sup-0003-Table SI-S03.csv).

Figures

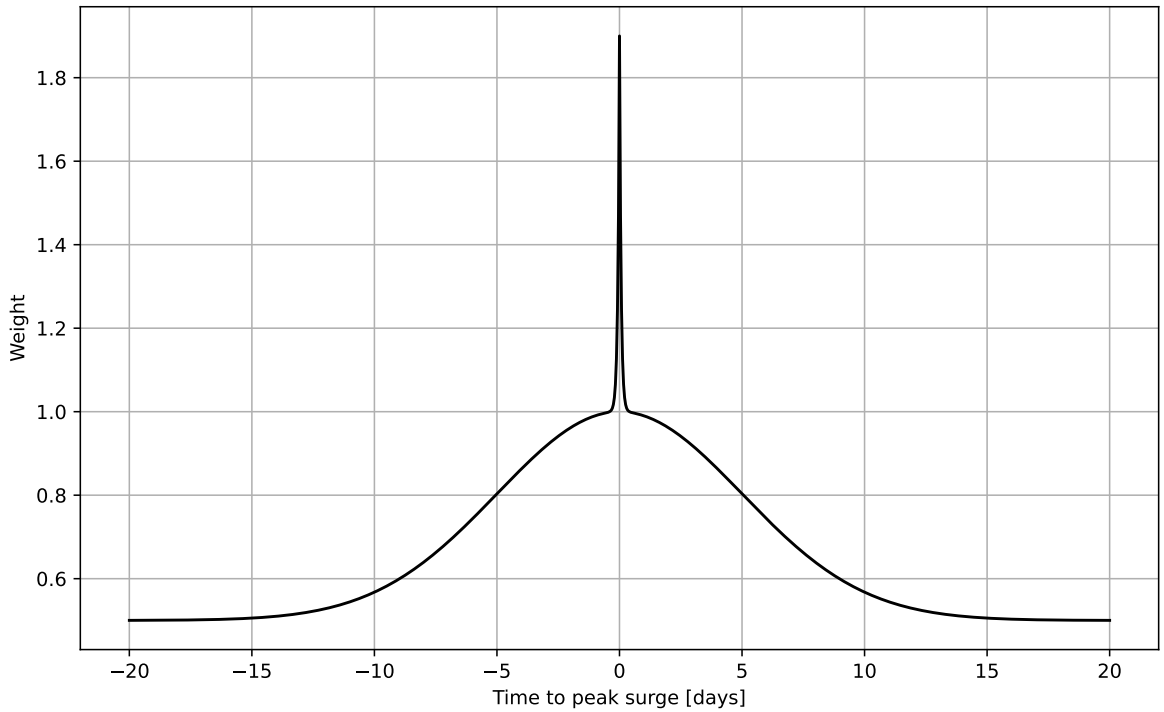

Figure S1. Weight applied to the least square minimisation of the ECHAR fit. The formula is: $W = 0.5 + 0.5\,exp(t/25) + 0.9\,exp(-\sqrt{2}|t|/0.09)$.

Large tables

Table S1. Suspicious data that have been excluded from each tide gauge time series. Dates without an end date are pointing to a single suspicous value. Available ASCII file named 2023JC020772-sup-0001-Table SI-S01.txt .

Table S2. Typical storm surge event, uncertainity (std) and fit based on ECHAR methods for five events per winter until 2021. Available ASCII file named 2023JC020772-sup-0002-Table SI-S02.csv .

Table S3. Characteristic parameters of the typical storm surge event fit based on ECHAR methods for five events per winter until 2021. Available ASCII file named 2023JC020772-sup-0003-Table SI-S03.csv .