

General comment

While I think that the work by Andrée et al., may be of interest for the scientific community, in the present form of the manuscript it is difficult to appreciate all the analysis carried out and to understand what motivated the research.

In particular, the Authors should clearly explain why it would make sense to test different boundary conditions for modelling the 1872 storm in the Baltic Sea, and why these can be deemed reasonable (e.g., the combination of winds/water levels etc. can actually occur?).

Besides, it is not clear how the results presented in the paper may help hazard prevention plans that are often based on weather forecasting systems accounting for several environmental forcing (therefore already including compound effects).

Specific comments

Line 4: influence -> influenced

Line 5: since you are speaking of a numerical model, I would replace “antecedent” with “boundary”

Line 8: as far as I understood, the 36 cm was not seen, it was rather simulated. Also, I would replace “Danish capital region” with “Copenhagen region (Denmark)”. Please note that not everybody is familiar with Baltic Sea’s geography, so all the references to cities and places should be supported by figures and/or more detailed descriptions (see also below).

Line 19: why “or”? if the storms impact is enhanced it will in turn affect coastal vulnerability

Lines 21-29: the whole paragraph seems to be useless (please either remove it or shorten it)

Line 35: In contrast -> By contrast

Line 37: said?

Line 39: property -> properties

Line 65: please specify what the filling level is

Line 68: to be roughly equal to a day

Line 82: you usually do not start a sentence with numbers

Lines 87-90: this paragraph is unclear. Please rephrase it

Line 103: during the original experiment, i.e., -> for

Line 108: “bay far” is somewhat unformal for a scientific publication

From line 108 onward: all the cities mentioned should be shown in a figure so that the reader can spot where the different locations are, otherwise, it is very annoying to look them up on e.g., google earth every time

Line 117: why 2 weeks have to be considered?

Line 145: “the first director [...] Institute” is a useless detail. Please remove

Figure 1: please extend the colorbar so that it includes also the left-side panels. Also, please change the marker color of Landsort as it is not easy to see it (green perhaps?). The Figure should be included after it is first referred to, i.e., in Section 2.2.1

Figure 2: I found this figure very difficult to understand

Line 244: remove brackets

Page 10, section 3: Travemunde and the Gulf of Bothnia are mentioned in the text but not shown in any Figure (note that Figure 4 is introduced at a later time)

Line 282: you already specified that water level at Landsort is a sound proxy; also, note that Landsort is misspelled

Lines 285-286: what does it mean that “mean water level” occurs? Actually, the whole paragraph starting at line 280 is rather confusing and it should be better rephrased

Line 292: are these results based on an Empirical Cumulative Distribution Function? If so, please specify

Figure 4: please extend the colorbar through all the panels. Also, the four markers are a bit difficult to spot. Consider changing their colors.

Line 313: Darss Sill?

Figure 6: I do not think that three or even two points are enough to fit a robust linear model

Line 355: how do you detect a physically plausible scenario? See the general comment

Line 380 onward: again, the locations are not shown in figures

Line 393-395: I am very confused. Within two lines, first you say that the events could happen more frequently, next you say there is no indication that these events could occur more frequently?!

Line 421: are becoming more and more of a concern -> are increasingly becoming a concern

Line 437: would it make sense to use forecasts longer than 5 days? Would they be reliable? Please at least discuss this trade-off

Line 447: context of the hazard -> hazard context