

Nat. Hazards Earth Syst. Sci. Discuss., author comment AC2
<https://doi.org/10.5194/nhess-2021-75-AC2>, 2021
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Reply on RC2

Xin Liu et al.

Author comment on "Still normal? Near-real-time evaluation of storm surge events in the context of climate change" by Xin Liu et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-75-AC2>, 2021

We appreciate the constructive comments of the reviewer. They helped us to clarify and improve our manuscript. In the following, we show how we will address the points raised by the reviewer in the revised manuscript.

The reviewer makes the following specific comments (in bold) that we will address as follows (in italic).

"Depending on the temporal resolution of the data, not all graphs (duration and intensity) can be shown. This is mentioned in the manuscript but I couldn't find it in the Monitor."

We will add a corresponding statement to the Monitor.

"Chapter 3 describes five stations ... in detail. While this is in general interesting, it occurs a bit lengthy and redundant, especially where information/comparison to other stations is given but not shown. I wonder if some information could also be summarized in a table (e.g. trends) which would make the description a bit more compact. Instead, I would like to see some emphasis on different evolutions and signals!"

We will shorten this description and focus on the main evolutions and signals following also a similar suggestion by reviewer #1. We will also summarize the results as suggested here by reviewer #2.

"On page 16, line 407-409 the authors discuss the occurrences of events at stations Helgoland, Cuxhaven, Norderney (fewer) and more frequently at Husum, Hamburg and Bremen. I wonder, why Cuxhaven has fewer events while located at the estuarine tip between Weser and Elbe?"

There are primarily two reasons. First, the specific configuration of the coastline and bathymetry makes a tide-gauge more/less susceptible to storm surges. Also, the wind direction that most effectively generates storm surges differs between the tide gauges. Second, the Monitor uses a common threshold for all tide-gauges that is used by the Federal Maritime Agency (BSH) to issue storm surge warnings. In other statistics, local thresholds are used that are defined according to the DIN 4049. This will lead to differences in the number of detected surges. The issue is taken up and described in the

FAQ section of the monitor. To address this comment, we will also discuss this more clearly in the revised manuscript. Taking feedbacks from stakeholders into account, we plan to include both statistics in the next version of the Monitor.

“I was wondering, if the authors have assessed the demand and need for such a Monitor and if they got into contact with key stakeholders to discuss the usefulness, the design, and demand for the Monitor and the provided information? In times of modern knowledge exchange, we do know how important co-design of such processes is and the early involvement of potential users and stakeholders. A short additional paragraph on this aspect would be worthy for the readers and other scientists who plan similar services.”

The Monitor was developed in close contact with representatives of authorities responsible for coastal protection. We constantly receive feedback (see the reply on the comment above) and plan to include such feedback in new releases. Presently a survey is performed among stakeholders in the region the feedback of which will be evaluated and taken up to improve the Monitor. As suggested by the reviewer we will add a paragraph briefly discussing these issues.

“The title of the manuscript is really long? Is this really needed or could it be shortened to make it handier?”

We agree with the reviewer and we will replace the title with a shorter more suited one.

The reviewer further suggests several technical corrections that we will address as follows:

- Lines 94, 121: The typos will be corrected.
- Figure 2, Line 223: We agree that the choice is somewhat arbitrary. We checked and found that no events occurred for which this de-clustering had an effect. We will remove this part from the text and the analysis.
- Table 2: Explanation will be added.
- Figure 3b: Explanation will be added.
- Lines 420-427, 490-500, 591-599: We will unify as suggested.
- Lines 460-461: Will be modified as suggested.
- Line 739: The typo will be corrected.
- Figure captions will be revised taking also the comments from reviewer #1 into account.
- References will be checked and corrected.