Below, we respond (**R**) to the more detailed comments (**C**) of the reviewer.

Comments/Questions

C1: To improve the clarity of the steps included in the methodology section of the paper, I would suggest converting Table 1 to a flow diagram. Examples of such figures are included in Bates et al. 2021 (Figure 1) and Collins et al. 2022 (Figure 1). This modification would provide a visual and concise overview of the models, data, and filtering used within the different stages of the method section.

R1: In the revision, we will construct a diagram based on the papers suggested, as it would indeed improve the presentation of our methodology.

C2: In reading through the methods section of the paper, I had a question in section '2.2.4 Deriving coastal flood footprints' regarding the use of return periods for modeled depths and extents of identified flood events. In this section the text mentions that return periods (2, 5, 10, 20, 30, 50, 100, 200, and 500 years) are used for coastal inundation modeling at each coastal segment using Lisflood-ACC at 30m resolution spanning 200km landwards. Then in Line 162 the text states "Total water level of each segment-level flood event is linked with the water level used to generate flood hazard maps for each segment."

Hypothetically, does this mean that for a coastal segment with an event where the total water level is 15 ft, the depths of water for the flooded area of this event are interpolated between return periods? For example, if the 10-year return period has a water level of 10ft and the 20-year return period has a water level of 20 ft; then the depths associated with an event with a water level of 15 ft at that segment would be the mean depth between the 10-year and 20-year return period maps? Furthermore, are the extents of these hazard maps consistent between return periods? If not, how is the area of inundation interpolated between return periods? These questions aim to clarify how flooded area and depths are interpolated between return periods. I have similar clarification questions regarding interpolation between return period hazard maps for section '2.3.4 Deriving riverine and compound flood footprints.'

R2: In general, the interpolation works as described by the reviewer: water depth is interpolated based on water level of the event and scenarios used to derive the 'lower' and 'upper' hazard map. One thing we forgot to mention in 2.3.4 is that, due to the logarithmic nature of the relationship between river discharge and water level, we used the natural logarithm of discharge as basis of interpolation. The maps different extents, therefore if an area is not flooded in the 'lower' map, the interpolation is between zero depth and water depth of the 'upper' map is made. This might slightly overstate the extent in the interpolated footprint, however the effect should be small as anyway we only consider water depth of at least 0.1 m as flooded area in further processing (as in the original riverine flood maps). We will clarify those details in the revision.

C3: In the results section '3.2.1 Temporal changes in potential flood impacts' there are observed increases in both the number and impact of events across all three event types shown in Table 6. However, the text in this section references percent changes and values that are not present in Table 6. To enhance clarity of results, it would be helpful to reference the values included in Table 6. For example, in Lines 469-270, based on the information provided in Table 6, the sentence should read as follows: "…they are equivalent to at least a 164% increase in potential coastal flood losses in an average year between 1950 and 2020 in the case of fatalities, 852% in the case of economic loss, and 83% in the case of affected population." If the current figures in the text are accurate, clarification on how these values were calculated would be valuable to improve clarity of the magnitude of these trends. Additionally, according to Table 6, the potential impacts for compound events appear to have increased more substantially than riverine and coastal events while the opposite is indicated in Lines 471-472.

R3: Indeed, there is an inconsistency in presenting the data between Table 6 and the text. However, it is because the table uses annual rate of increase, while in the text we converted it into cumulative increase over 1950-2020, i.e. 75% increase in population affected by coastal floods is equivalent to 0.8% annual increase in Table 6. The first paragraph refers to “Annual increase of potential impacts (%)” in the table, and not “Increase in total impacts relative to 1950 exposure”. The former indicates the increase in losses under different exposure scenarios, while the latter indicates only the effect of exposure growth. Therefore, the text should have read: “…they are still equivalent to at least 0.3% annual increase in potential coastal flood losses between 1950 and 2020 in case of fatalities, 0.5% in case of economic loss and 0.8% in case of affected population.” In this context, compound flood risk increases more than coastal or riverine, which should be described as “For riverine floods, the potential impacts have grown even more, while the strongest increase is indicated for compound floods, at a rate of at least 1.9% per year since 1950.” In the revision, we will modify the text to bring it fully in line with Table 6.

Technical Comments

C4: Line 123: For clarity it would be helpful to include the end date of the model run (e.g., the model was run from 1 January 1949 to XXXX, with the first year…)

R4: We will clarify in the text that the model was run until 31 December 2020.

C5: Line 140, Table 2: I suggest adding the temporal resolution of the data as a column of the data in this table (when applicable). Edit width for spatial resolution column.

R5: We will modify the table to clarify the temporal resolution as follows:

Component	Source	Temporal resolution
Storm surge height	Delft3D simulation (this study)	hourly
Tide elevation	FES2014	hourly
Wave run-up	ERA5	hourly
Mean dynamic topography	Global Ocean Mean Dynamic Topography	1993-2012 average
Sea level rise	1950–99: Hourly Coastal water levels with Counterfactual (HCC)	hourly (used as annual average)
	2000–2020: European Seas Gridded L4 Sea Surface Heights*	monthly (used as annual average)
	2000–2020: Global Ocean Gridded L4 Sea Surface Heights*	
Glacial isostatic adjustment	ICE-6G_C	long-term rate of change

C6: Line 189: Same comment as line 123, add full time period of simulation.

R6: We will clarify in the text that the model was run until 31 December 2020.

C7: Line 236: To clarify, what was the total number of events modeled for each type of event? This modeling effort is impressive, and the number of total events modeled (prior to filtering based on impacts) would be helpful to highlight more clearly in the methods but also in the introduction or even abstract.

R7: We will add the information on the number of events by type at the different stages, as shown in the table below:

Event type	Coastal	Riverine	Compound	Total
NUTS3-level events	22,446	213,517	5235	241,198
Spatiotemporarily aggregated events	4208	19,918	1452	25,578
Filtered events by impact	2436	11,205	1058	14,699

C8: Line 302, Table 4: Either in the text or as a column in the table, it would be helpful to explicitly state which classes are included in the final catalogue. If all classes are included in the catalogue that would also be helpful to state in the text. Edit width for class column.

R8: We will clarify that all classes are included in the final catalogue, even false positives, so that users of the dataset can decide whether to use all data or limit it to certain classes.

C9: Line 314: How do these thresholds compare with the thresholds mentioned in Table 3?

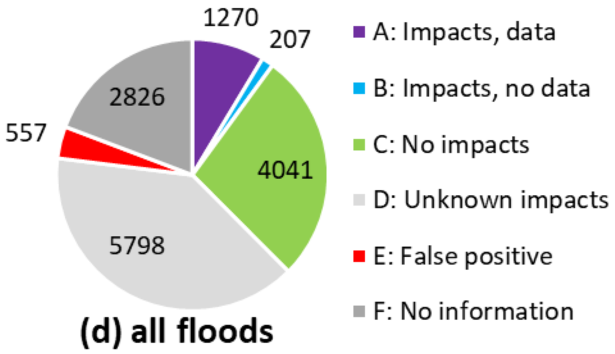
R9: The thresholds were defined in previous research (HANZE v1, Paprotny et al. 2018) based on analysis of reported flood impact data to avoid inclusion of insignificant, highly localized events that would not be reproducible in pan-European flood models. The potential impact thresholds had to be much higher as the potential flood catalogue does not include flood protection, and was devised iteratively to maximize the coverage of historical events without creating too many non-impact events.

C10: Line 386: Text has values 11.7%, 5.4% and 3.7% for each event but it might also be helpful here to give the total number of events by event type. I would suggest including the total number of events modeled by type and then the total number of events included in the final catalogue by event type. These numbers are present throughout the text but highlighting them more explicitly (whether in this section or in introduction) would help demonstrate the scale of modeling efforts completed for this paper.

R10: We will highlight more clearly in the text the absolute number of events by type and class. Again, all classes are included in the published data of 15,000 events, which as highlighted in response to comment 7, was filtered from almost 26,000 events to include only those with significant potential to cause impacts.

C11: Line 388: The values referenced in this line are the addition of pie chart slices in Figure 2. It might be helpful to create a 4th pie chart that has the classification breakdown by all event types.

R11: We will add an additional graph to include all event types:



C12: Table 8: I would suggest changing the ratio of affected population in the 'Reported: Satellite' column to 'Satellite: Reported' to be comparable with the 'Modeled: Reported' column. Edit width of HANZE ID column in table.

R12: We will edit the table as suggested by the reviewer.