

Earth Syst. Sci. Data Discuss., referee comment RC2  
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## **Comment on essd-2021-316**

Anonymous Referee #2

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Referee comment on "Topo-bathymetric and oceanographic datasets for coastal flooding risk assessment: French Flooding Prevention Action Program of Saint-Malo" by Léo Seyfried et al., Earth Syst. Sci. Data Discuss.,  
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## **Comments to "Topo-bathymetric and oceanographic datasets for coastal flooding risk assessment: French Flooding Prevention Action Program of Saint-Malo"**

**by Seyfried et al.**

### **General comments:**

The main theme of the paper is to present spatial data required for the assessment of flood risk. This risk assessment is required when the French Flood Prevention Action Programme is implemented. In addition to the description of high-resolution topo-bathymetric data sets, multisensory uses of oceanographic data were demonstrated. Firstly, a background work on similar subjects was presented. Then the field of research and data sources for the test were described as well as their evaluation. The advantages of the article are that the data are available and that the author clearly shows access to them.

My first impression and concern about understanding the article refer to the methods of measurement used in the experiment. The abstract refers to the existing topo-bathymetric measurements and new multibeam bathymetry data. It is crucial to identify the period of origin of specific data and how measurements were conducted in order to estimate the difference between these methods. Usually, the data from topo bathymetry scanners and the multibeam bathymetric data are recorded on the same day or within a few days. In addition, I did not understand the dynamics of the changes in the coastal regions in order to understand the time aspects of the measurement process. Geomorphological structures

have an especially important role in extreme events. Thus, I found no connection between the methods in the article and direct flood risk assessment. The data modelling process and evaluation when such an event occurs are key to understanding the need for such an experiment.

In summary, I think that the correlation between spatial data collected and numerical modelling during floods is not well marked. The second aspect is uncertainty about the relevance of the data set and coastal dynamics (in order to evaluate their effects and usefulness on the model). The third aspect is the proper conduct of the discussion. It is unclear how the methodology proposed can help understand physical phenomena. In my opinion, using existing flood risk assessment models (such as the national model) could be helpful.

A more detailed list of comments follows.

- Abstract: What periods are the data from ? How accurate are they ? How does this accuracy affect the model validation ? How was the evaluation of such a solution proposed and what results were obtained ? In my opinion, Abstract should be the quintessence of the Authors' message.
- Lines 15-20. Please provide references. In climate change, apart from the increase in sea level itself, extreme event frequency plays a very important role.
- Line 20. Would it be possible to insert a reference to this institution?
- Line 37. What does "many other marine environmental issues" mean?
- Line 41-46. A number of risk analysis variables are mentioned. What goals have been set in relation to them? What were the expected results? What was the empirical test that was validated like? In my opinion, this must end with paragraph.
- Line 53. Is the range correct?
- Paragraph 1.2 is not clear on the hydrodynamics. Maybe it could be presented more clearly ? For example, referring to the variables mentioned in the background that affect the quality of the analysis.
- In what time frame was the data obtained? What was their validation like? What is their quality in relation to the variables that appeared earlier in the article? Line 87. The Authors indicated that the data is being processed by a qualified hydrographer. What does it mean ? What does such a process look like?
- Paragraph 2.1.2 What parameters have been used to obtain the DTM ?
- Paragraph 2.1.3 What data are related spatially and temporally ?
- Line 160. This assessment is not clear. Is it possible to present it in a statistical / quantitative form?
- What percentage of the total are artifacts? What does this matter when determining the final result?
- Paragraph 3.1.1 Can evidence of sensor calibration be provided?

Minor Comments:

It is necessary to improve the readability of drawings