

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1
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Comment on nhess-2021-161

Anonymous Referee #1

Referee comment on "Development of damage curves for buildings near La Rochelle during storm Xynthia based on insurance claims and hydrodynamic simulations" by Manuel Andres Diaz Loaiza et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-161-RC1>, 2021

Dear authors,

This is an interesting research on damage curves development based upon insurance damage data and hydrodynamic model results. The methods are clearly presented in the paper. The validation results of hydrodynamic models seems reasonable. The only concern of myself is the proposed standard normal distribution of damage curves because the results of all the damage curves developed in this paper is based on this hypothesis. I was wondering how to validate these damage curves? How will the insurance company utilize the damage curves for further risk analysis?

Other comments:

- a thorough discussion of literature review is missing in the 'Introduction'. what is the common way of developing damage functions? what do the previous researchers have done? what are the main conclusions of their works? what is the current research gap? what is the scientific contribution of this research? please also explicitly explain the significance of this work.
- Line 49-55 could be moved to the section of 'Introduction'. These literatures are the damage functions developed by other data and researchers.
- Line 56: 'In' à 'in'
- Line 60: I suggest add the units of these parameters. e.g. Hsig is the significant wave height [m];
- Line 65: Figure 23àFigure 3
- Caption of Table 1 could be 'Description of three scenarios of topography and bathymetry data used in the model : low resolution (a), high resolution (b), high resolution + structures (c)'.
- I suggest zoom in the study area of Ille du Re and La Rochelle to show the water depth and Hsig. Otherwise the readers cannot get useful information from Figure 6. This

figure currently didn't convey clear information on water depth and wave height.

- Both figure 7 and Table 2 show that the damage curves for water depth and total water depth have good and very similar fitting curves for coarse (GEBCO) and fine (IGN+structure) data. It seems that damage curve is not that sensitive to the topography data for the variable of water depth. I recommend to discuss it in the section of 'Discussion'.
- I suggest reorganize the conclusion section. The paragraph of uncertainty analysis should be moved to the section of 'Discussion'.