

## ***Interactive comment on “High accuracy coastal flood mapping for Norway using LiDAR data” by Kristian Breili et al.***

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This paper is an effective study of sea-level rise and coastal flooding exposure in Norway based on a high-quality DEM. It exhibits a sound, straightforward approach that uses many of the best practices that have been established for these types of coastal assessments. The paper documents well the data, methods used, and results, and the tables and figures effectively support the material in the text. Overall, the Discussion section is very good, especially the factors affecting uncertainty and the accuracy of the DEM.

The results could be improved by attaching confidence levels to the estimates of impacted area and objects. This would entail not just describing the accuracy of the DEM

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(and the associated datum conversions), but applying that cumulative vertical uncertainty to characterize the confidence of the results (see Gesch, 2013 and Gesch, 2018 for details on how this is done). All the needed information is already available with the comprehensive DEM accuracy assessment that has been done and all the other uncertainty information that is listed in Table 7. I am not saying that this needs to be done for this paper to be accepted, as I believe the results as currently presented are useful, but adding confidence information could be done in future related work (perhaps as the remaining 20% of the country is worked on and national results are revised and added to), and the authors could add this idea of characterizing the confidence of the results to the Discussion/Conclusions sections.

Comment on lines 207-216 (discussion of Smola) in section 3.1, and Figures 13 and 14 that it refers to: The area affected is important, but without knowing the total area of each of the ten municipalities (assuming there's variability in the areas) it's hard to see which ones are affected the most. So you could also show the affected area as a percent of the total area of each municipality as a way to rank the municipalities.

Please see the attached annotated manuscript for a few other comments tied to specific locations in the text. Some are thoughts to consider for possible inclusion, while others are suggested edits or corrections that should be made.

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2019-217/nhess-2019-217-RC2-supplement.pdf>

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