

Interactive comment on “Hydrogeological effects of dredging navigable canals through lagoon shallows. A case study in Venice” by Pietro Teatini et al.

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We are grateful to Reviewer #2 for the positive evaluation of our work. To improve the quality of this manuscript, we carefully revised the text by incorporating the comments one by one. The detailed revisions are presented in the responses to each comment.

Comment 1: Table 5, I think is not necessary to show so many elements. You can show several typical elements and the potential changes due to the dredging.

Response: The reason why we decided to analyze and present the concentration of 12 ions is because these are the elements for which the current EU law in the field of

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water policy (directive 2013/39/eu) requires a specific analysis. This has been explicitly reported in section 2.3. For this reason we think that it is preferable to keep all the information in the paper.

Comment 2: Fig.1, "the small black dots indicate the positions of hydro-stratigraphic previous investigations." If no data is shown with these points, they should be removed for a better illustration.

Response: We agree with the reviewer suggestion. We have removed the majority of the "black dots" and kept only those located in the surroundings of the seismic survey and used to drive the inversion of the geophysical acquisitions. The position of a few of them are also reported in Fig. 2a (black thin lines).

Comment 3: Fig.4, a description on the vessel is necessary, but not with the photo. what are the red points? why not also show the computed results together with the measured one since you can.

Response: the photo has been removed. The red dots represent the times (level conditions) at which the model outcomes are presented. The figure caption has been updated to make it clearer. We prefer to show only the level profiles directly used as boundary conditions in the hydrogeological models (i.e. the measurements in the channel and the result of the hydrodynamic modeling approach in the tidal flat). The paper is not focused on hydrodynamic modeling and an example of how the ship-wakes evolve in space is already provided in Figure 6.

Comment 4: I don't think 4.4 model should be in the section of "results". A section of discussion may be better.

Response: Done. The section has been moved to the new Discussion section

The manuscript revised according with recommendations by Referees #1 and #2 is provided in the supplement.

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Please also note the supplement to this comment:
<https://www.hydrol-earth-syst-sci-discuss.net/hess-2017-317/hess-2017-317-AC2-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-317>, 2017.