Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
https://doi.org/10.5194/nhess-2021-186-RC2, 2021

Comment on nhess-2021-186

Anonymous Referee #2

Referee comment on "Exploring the partial use of the Mo.S.E. system as effective adaptation to rising flood frequency of Venice" by Riccardo A. Mel, Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-186-RC2, 2021

##########
GENERAL COMMENTS
##########

This is a very pleasant and informative study. It sets a clear objective and exposes its results in a way that leaves little room for debate.

+++++
FORM
+++++

A few typos and language imprecisions to be edited before final publication. I note a few (definitely not all) in the line-by-line comments, but overall the manuscript is a pleasant read.
Some sentences could be divided in two for clarity.

++++++++
ABSTRACT
++++++++

I feel like the abstract is slightly out of balance: strong focus on the rationale but vary succinct on the methods and results. In that sense it almost feels more like an introduction. Maybe shift the focus toward more methods/results.

++++++++++++
INTRODUCTION
++++++++++++

Very well referenced and structured.

++++++++++++
METHODS

++++++++++++
Not much to say, this is clearly explained and based on a sound reasoning. The base model is also tried and tested.

In run (b): do you re-open the gates at any point during the ebb tide? If so it needs to be mentioned otherwise its seems like the tide is left to flow out of only the Malamocco and Chioggia inlet

In run (d): you do mean that each gate is opened separately on the condition that the water level difference is 0?

My only question would be: how does the timing of gate closure affect your results? Probably not within the scope of this paper, but worth mentioning for further contributions.

++++++++++++
RESULTS
++++++++++++

Very clearly presented. The results fit the objectives determined in the introduction.

##########################
FIGURE COMMENTS
##########################

Fig1: a rough indication of the delimitations of the sub-basins would add interesting information without adding too much clutter to the figure. Not a necessary modification though as these delimitations are seen in figure 6. I missed the legend for the control sections 1-3, since their description comes quite a bit later in the text.

Fig3:
(d) The effect of the tidal semi-period is not immediately visible. While it is visible that it is represented by the filled polygons, some text to indicate the effect of the shorter period vs. the longer one could help the reader.

Fig4:
This is a very nice and clear figure, it is immediately comprehensible.

Fig5:
idem

##########################
LINE-BY-LINE SUGGESTIONS
##########################
l9. Detail a bit more for readers (impact of sea level rise and subsidence)

l12. "sediment flushing"

l15: with respect => compared to

l21. does the population do the adapting or is it the flood management system?

l33. delete either "prevented" or "fixed"

l48. You do not mention changes in storm regimes. I'm aware the change in storm regime is debated but a mention of publications on the subject could address a reader's questions on the subject.

l71. "rose" => "raised".

l174. I wonder if is worth mentioning that the bathymetry inside the lagoon (not at the inlets) predates 2012.

l230. "contribute"=>"contribution"

l278. "(a)=>"(i)"

l290. Even though events involving more than 1 tidal cycle are rare, a discussion on the effect of these rare events would be interesting in this case: what would be the decision criteria to close the gate for long periods?