

Interactive comment on “Introduction to the special issue “Venice flooding and sea level: past evolution, present issues and future projections”” by Piero Lionello et al.

Anonymous Referee #2

Received and published: 11 March 2021

I generally would like to follow Referee #1 and thus do not need to repeat the summary or the overall intention of the paper by Lionello et al.; as Referee #1, I also do not have major comments but would like to provide some more specific comments/questions as follows:

Line 49: It would be nice to get more information on the average number of flooding events nowadays against a selected period from the past.

After reading the entire paper, one could also just point to the following sections (and/or to Fig 4, which then becomes Fig 1...) where this is discussed/presented.

Line 55: In my understanding, the event of 1966 should be described as storm surge,

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“reaching the highest ever recorded extreme sea levels (ESL)”; the term RSL refers to just one component of the entire ESL, consisting of tide, surge, RSL. I often find it difficult to read papers on storm surges, ESL or MSL changes as the terms used to describe these phenomena differ from author to author. I like the using the terminology proposed by Gregory et al. (2019).

Gregory, J.M., Griffies, S.M., Hughes, C.W. et al. Concepts and Terminology for Sea Level: Mean, Variability and Change, Both Local and Global. *Surv Geophys* 40, 1251–1289 (2019). <https://doi.org/10.1007/s10712-019-09525-z>

Line 62: Following the suggestion above, I would use ESL instead of sea levels; if considered relevant, more adjustments are needed throughout the manuscript but these are no longer highlighted here

Line 105: Comma after Century

Line 132: Mixed tidal-regime, semi- or diurnal? Would be nice to know, especially as you refer to the diurnal frequency of tides hereafter.

Line 159: “...of the compound event that led to the exceptional sea level maximum”. Compound events (and a specific one) have not been discussed before, somehow confusing the reader. Maybe write “a compound event (discussed in/see XXXX)” and maybe also give some short explanation as e.g. “the joint occurrence of two or more individual hazards...”.

Line 231: Still difficult to assess, as all scenarios develop side by side. Based on the article of Hausfather and Peters (2020) I would add “...the world seems heading...”.

Fig. 2: Nice, but really small and thus difficult to read. Maybe put the aerial above the two sea level graphs and extend all slightly

Interactive comment on *Nat. Hazards Earth Syst. Sci. Discuss.*, <https://doi.org/10.5194/nhess-2020-367, 2020>.

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