Hydrol. Earth Syst. Sci. Discuss.,
doi:10.5194/hess-2016-389-RC2, 2016

Hydrology and Earth System Sciences
Discussions

Interactive comment on "An approach for data-driven characterization of tide and current fluxes in coastal basins" *by* Elvira Armenio et al.

Anonymous Referee #2

Received and published: 16 October 2016

The manuscript of the article "An approach for data-driven characterization of tide and current fluxes in coastal basins" by Armenio et al., presents an interesting approach for the characterization of tide and current dynamics in semi-enclosed coastal basins through analysis of high-resolution field measurement datasets. Although applied to a specific case study for such a basin in the Gulf of Taranto (S. Italy), the proposed methodological framework does apply by extension to relevant attempts and sets the bases for a comprehensive analysis of tidal/current dynamics that would certainly be of interest for numerical modelling applications as well.

The content of this work falls within the scopes of the Journal. The manuscript is well-structured and the use of English is at a good level. Materials and methods are adequately presented; results are comprehensible and clearly laid out; discussion and conclusions are coherent to the presented results.

My recommendation is to accept the manuscript for publication in NHESS pending a few minor revisions, as noted in the following comments.

[Content]

- The authors could elaborate a bit more on the approximation of a uniform flow along the transversal axis of the channel (Page 5 / Lines: 15-16) and its effect (if any).

- The authors could also elaborate on why the trend of Figure 9 was considered representative for the entire studied period (Page 8 / Line: 16).

- Elaboration is also needed on the calculation of the tidal asymmetry factor (Page 9 / Lines: 3-6); some details on the assumed "graded depth", for example, would be beneficial for the comprehensibility of this factor's importance in this work.

[Presentation]

- The scale/size of the embedded figure in Fig.1 (top left) could be improved in order to make it more legible, especially regarding the characteristics of the navigable channel (this, judging by the Discussions manuscript and not being sure about the final production size of the specific figure).

- Fig.2 should be redrawn and its caption revised in order to include a legend and reference, respectively, regarding the blue/cyan line in it, even though it is deduced that it represents longitudinal current velocities.

- The manuscript would benefit by a slight revision in the use of English. Although - as noted in the previous - the overall level is good throughout the paper, there are certain points at which grammatical/syntactical errors could be corrected in order to further polish the manuscript. Some examples are listed in the following; a general remark would be to limit the use of connecting words in consecutive sentences.

- Page 2 / Line: 3: "in general" instead of "generally" seems more proper; consider revising.

- Page 2 / Line: 4: “furthermore” instead of “further” seems more proper; consider revising.

- Page 2 / Line: 12: “also allows” instead of “allows also”; revision needed.

- Page 2 / Line: 24: “restricted coastal settings” instead of “coastal restricted settings” is syntactically correct; revision needed.

- Page 2 / Line: 26: “accompanying” maybe(?); consider revising.

- Page 3 / Line: 19: “on a local scale”; revision needed.

- Page 3 / Line: 31: “have been acquired” or “were being acquired” are grammatically correct (depending on the intended meaning); revision needed.

- Page 4 / Line: 1: the use of “also” here is redundant.

- Page 5 / Lines: 1-3: “also” is not positioned correctly within the sentence; if its structure was to remain intact, it could be moved after “were”.

- Page 6 / Line: 2: “confirmation” instead of “confirm”.

On a personal - non revision-related - note, I would also expect (as do the authors mention at some point) temperature and salinity variations between the connected water bodies and along the water column to explain much of the difference in top- / bottom-layer dynamics at the artificial channel. It would be very interesting to see a follow-up of this work examining this aspect as well.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-389, 2016.