Response to referee Dr. Ferrarin

The authors improved significantly this revised version of the manuscript, addressing adequately and carefully the reviewers concerns. I particularly enjoyed reading the paper, which is clear, to the point and most interesting.

I've only some minor comments:

- In the Abstract (and also in other sections, eg. Pag. 17) the authors states that "SAMPA appeared to better reproduce the reversal events detected with HFR estimations, demonstrating the added value of imposing accurate meteorologically-driven barotropic velocities in the open boundaries (imported from NIVMAR storm surge model) to take into account the remote effect of the atmospheric forcing over the entire Mediterranean basin, which was not included in IBI and GLOBAL systems". I think the last part of the sentence is not entirely correct since the GLOBAL model represents the Mediterranean Sea and at least considers the barotropic effect of the wind forcing (not clear if it also considers the air pressure effect). IBI also considers the daily barotropic atmospheric forcing driven by the wind, being nested in GLOBAL, and partially the inverse barometric effect over the (Western) Mediterranean. Please consider reformulating the mentioned statements.
Since we fully agree with this comment, we have accordingly modified both the abstract and the main body of the manuscript (page 17).

Abstract: "which was only partially included in IBI and GLOBAL systems"

Page 17, a new paragraph has been added:

"Since the atmospheric pressure forcing is missing in the GLOBAL sea level outputs, this system only considers the barotropic response to wind forcing. In the case of IBI system, both atmospheric forcings are taken into account but the inverted barometer approximation is solely imposed over the Western Mediterranean (not over the entire basin). Therefore, only a portion of the subtidal variability of the flow through the Strait of Gibraltar can be adequately explained (García-Lafuente et al., 2002)."

- Page 7: I suggest to specifically mention that the lateral boundaries of the IBI model are both the Atlantic Ocean and the Mediterranean Sea.

Done!

- Page 8, line 27: In the two lateral open boundaries (west - the Atlantic Ocean, east - the Western Mediterranean Sea) ...

Done!

- Page 21. line 37: This coastal ...

Done!

- Page 24, line 9: I suggest to include the web address of the mentioned Inmerse H2020 project.

Done! In addition, the acronym IMMERSE has been described.
- Figure 2: Remove "Spectral nudging on" and "Spectral nudging off" from panels b and d since the GLOBAL model does not have nudging.

Done!

- Figure 12: For better readability, consider using lines instead of points in panel b.

Since the other referee (Dr. Macias) asked for the opposite modification (from lines to points) during the first revision, we consider that Figure 12 should be kept as it is right now.