

Interactive comment on “Reassessment of long-period constituents for tidal predictions along the German North Sea coast and its tidally influenced rivers” by Andreas Boesch and Sylvain Müller-Navarra

Anonymous Referee #3

Received and published: 3 August 2019

General comments

This work deals with reassessment and its processes of long-period constituents for improving tidal prediction accuracy from a conventional tidal analysis and prediction method, the Harmonic Representation of Inequalities (HRoI). I think that it is worth publishing in Ocean Science in terms of preserving a conventional tidal method after revising some weakness.

They asserted the slight improvement using the new set of constituents through just

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one year (2016) verification. I recommend that the authors should conduct additional two year (2017-2018) comparison between prediction and observation to clearly show the improvement.

As the authors mentioned, the HRoI is not widely used in comparison with a ‘standard harmonic analysis and prediction (HAP)’ method even if it has the better computational efficiency. Is it because that the HRoI is not open to the public or inconvenient to use? Additionally, I wonder if tidal prediction accuracy for the HRoI is better than that of the HAP. Can it predict tides at any time interval like the HAP? I think that the authors need to explain the additional reason why the HRoI is still used at BSH but most of countries have not used it. What are the advantages of using this method?

Some specific comments follow to help the authors address their manuscript’s weakness: 1. On p. 2 line 4: 44 angular velocities -> 45 angular velocities (Need to check it)

2. In Table 3 and Table 4, angular velocity (ω) should be expressed more than seven decimal places.

3. On p. 6 line 21: The authors need to explain how to determine the criteria of 60% of high and low waters in more details. It seems to me that the value is low. As shown in Table A1, there are a lot of data sets with more than 90% completeness.

4. On p. 7 line 12: What is ‘tidal events’?

5. On p. 19 lines 1 and 2: in the residua -> in the residual (?); the two residua -> the two residual (?)

6. In Figure 7: The authors need to explain how to determine a bin width for time and height differences.

7. The authors need to use the subscript in expressing name of tidal constituents throughout the manuscript. That is, Sa -> S_a (subscript a)

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