

Interactive comment on “Sensitivity Analysis of a Coupled Hydrodynamic-Vegetation Model Using the Effectively Subsampled Quadratures Method” by Tarandeep S. Kalra et al.

Anonymous Referee #1

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Sensitivity Analysis of a Coupled Hydrodynamic-Vegetation Model Using the Effectively Subsampled Quadratures Method

Kalra et al

This paper details a sensitivity analysis of aquatic vegetation in the COAWST model using a novel Effective Quadratures method. The model uses a three-dimensional drag term and generates TKE in the presence of vegetation. The paper does not detail the implementation details of the vegetation module (though equations are given in Table 1), but evaluates the sensitivity of the model via novel Effective Quadratures method. The outcome of this paper is guidance on setting parameters in similar vegetation

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modules.

Major corrections _____

The paper is not focused in its current state. The details of the EQ methods are not given and neither are details of the vegetation model. In order to properly judge the conclusions more details on the EQ methodology are required. The paper therefore lacks a clear aim: is it detailing the EQ method (no - this is cited as Seshadri et al, 2017b, although as a paper in JOSS it lacks detail), the coupling of vegetation to COAWST (no - this is Beudin et al 2017). The paper should therefore be refocused along the lines of: "new methods for assessment of models, including work on developing new metrics for assessing model performance and novel ways of comparing model results with observational data" as to my knowledge EQ has not been used in a coastal model and as such this would represent an advance. More details of the implementation would greatly improve the paper.

Minor corrections _____

Title: Change as requested by Editor

Line 4 - extra) after parameters

Line 15 40 CPU hours. Is that 40 hours * 24 cores? Or 40/24 hours? Not clear.

Figures 4 to 7: Colour scheme is not suitable for colour-blind readers and also has the potential to produce artificial "highlights" due to the luminosity changes. For a continuous scales as used in all plots a continuous colour scheme should be used. See <https://matplotlib.org/users/colormaps.html> and <https://bids.github.io/colormap/> for examples

Figure 8: Difficult to differentiate the lines, especially those with pale colours (e.g. sim 13). Can the lines have a label placed on them (or nearby) to aid the reader?

Code availability: <https://coawstmodel-trac.sourcerepo.com/> gave an In

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