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Interactive comment on “Intercomparison of the Charnock and CORE bulk wind stress formulations for coastal ocean modelling” by J. M. Brown et al.

Anonymous Referee #1

Received and published: 29 April 2013

The paper gives a nice comparison of quality of and differences between the two wind stress formulations for the southern part of Liverpool Bay.

A major problem, however, seems to be that in the considered period there was hardly any wind from NW and N as Figures 2-4 show. As this would mean a considerable longer fetch, results and conclusions might very well be different than those presented in the manuscript. The best would be to add data from a period with N-NW winds, even if only for Sites A and B, and see if the results are robust.

Comments in detail:

One wind stress formulation is consistently referred to as CORE (Common Ocean

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Reference Experiment), with reference to Fairall et al., 2003. But they describe the COARE (Coupled Ocean–Atmosphere Response Experiment) algorithm. Explain the difference.

p524l12, "... period 12 February – 9 March 2008, which defines ...": Figures 2–4 already start at 6 February 2008, although in Figure 4 there are no data up to about 200 hours later, which is 14 February. This is not very consistent. What is the analysis really based on?

p524l20, "The limited period (2 months of data)": the period mentioned throughout the manuscript is 12 February – 9 March 2008, which is even less than ONE month!

p526l14, "similar accuracy": Figure 4 also suggests similar accuracy for Hilbre Channel (maybe not surge), although the accuracy for both is worse than in Site B.

Table 1 and 2: combine into 1 table to ease the comparison of both experiments. Two digits in the numbers is (more than) enough: the rest is just noise.

Figures: In general, the figures are not very clear, and need improvement.

Figure 1: The real area of interest is far too small, and the black-and white bathymetry makes it even more unclear. I would propose to use the second panel only for the Liverpool Bay model and leave the Irish Sea model to the left panel (as it is already). Make the Liverpool Bay panel at least as large as the Atlantic panel. Use contourlines or colours for the bathymetry, and also clearly indicate the Dee Estuary. Non-English readers will not know where that is (I thought of the river which flows through Dundee at the Westcoast of Scotland).

Figures 2–4: Wind vectors are not very clear, often blurring into a black blob. Maybe it would be better to show two time series of wind speed and wind direction instead. Teksts and numbers are too small. It would help if the horizontal axes had dates instead of hours since ...

Text quality: Apart from inconsistencies indicated above, there are more inaccura-

cies like singular/plural mistakes (e.g. p524l21, p528l2-3) and other (e.g. p521l19, p522l25). Hence, the whole text needs a thorough review.

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