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Geoscientific Model Development Discussions

Interactive comment on "AMM15: A new high resolution NEMO configuration for operational simulation of the European North West Shelf" *by* Jennifer A. Graham et al.

Anonymous Referee #3

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This paper describes the development of the new UK operational forecast model for North West European shelf seas (AMM15). This model will be preplacing the current operational model (AMM7). The predominate change is the horizontal grid resolution, increasing to 1.5 km from 7 km, enabling finer scale processes (such as mesoscale eddies) to be resolved. The paper is very well written but could benefit from some clarifications (listed below). I did struggle with a number of the figures when using a print out. Going back to the PDF and zooming in was helpful and enabled the grey to be distinguished from the white background. Whist this isn't critical – i.e. it's an online journal – some thought could be given to making the figures clearer. The model is described as being the next generation ocean forecast model. Some introduction as to what this

means exactly would be useful, e.g., is the model run weekly/daily and how long a forecast is simulated? The model must also be more computationally demanding that its predecessor, AMM7, and there must be computational considerations when operationalising it. Further to this, the paper describes a set of hind cast simulations. Would operationalizing the model involve using different forcing data? A short discussion on this would be interesting.

P. 5 lines 20-26: I assume that a time series of freshwater flux/discharge was specified for each river? This could be made clearer. In addition, was river temperature and salinity time series used, or if not what values were used or assumptions made? Were daily/monthly averages used and/or what temporal resolution was used?

P. 6 line 24: RMSE is not defined.

Figure 2: The co-tidal charts are quite hard to read, especially on paper/print out. The amplitude is OK, and having a discrete colour scale is helpful, but the phases (white to black) do not seem to equate to the colour scale (grey to white). It's also hard to see the black phase lines on the blue background. In the lower panels (c – f) There is a lot of overlapping observational data points which makes these hard to read. It's hard to know how exactly to make this clearer apart from making the figure larger. This figure could be split (a, b) and (c – f) allowing them all to be larger/clearer.

P. 7: The text says that the amplitude of the M2 tide has reduced errors off the west coast of Scotland. Where exactly do you mean, i.e. out beyond the Outer Hebrides or at the coast (Mull of Kintyre)?

P. 9 line 10: It would be helpful if how the SST anomalies were calculated was explained in the text.

Figure 3 and supporting article text: DJF, MAM, JJA and SON should probably be defined (probably in the text as this is where these abbreviations are used and maybe simply as what season they are). Also, the text refers to season by name in many

cases (e.g. P. 10 line 21) and whist everyone knows by spring you mean MAM, this should also be defined. This could all be done early on by saying seasonal means were calculated for winter (DJF), spring (MAM), and so on. . .

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