Ocean Sci. Discuss., 9, C282–C284, 2012
www.ocean-sci-discuss.net/9/C282/2012/

Ocean Science
Discussions

Interactive comment on "Modelling temperature and salinity in Liverpool Bay and the Irish Sea: sensitivity to model type and surface forcing" *by* C. K. O'Neill et al.

Anonymous Referee #2

Received and published: 8 May 2012

General comments:

The treatment of the observational data concerning the removal of the influence of tides is not described adequately. For the CEFAS buoy the authors explain that a Doodson filter was used. For the CTD and Ferrybox data the treatment remains unclear, so it cannot be judged for which reason the differences between the CTD observations and the Ferrybox measurements displayed for example in figure 11 for the salinity gradients are occurring and whether the tidal influence is excluded or not. That makes it difficult to evaluate the paper.

Generally, very little attention is paid by the authors on the fact that NEMO is underesti-

mating the strong variability that is typical for the ROFI regions. In contrast POLCOMS is overestimating. However, in the conclusions the authors come to the statement that the models perform well in predicting surface temperature when measured by objective metrics. It remains so questionable whether the right measures were used.

The overall impression of the paper is that the authors didn't investigate enough or at least didn't explained enough the possible explanations that can cause differences between the predictions itself and between model and observations on the other hand. The manuscript is mostly written in form of a technical report and lacks a deeper discussion of the factors impacting the results

The figure captions should be written that the reader understands what is displayed in the figure without reading the whole text.

Specific comments:

On page 655, line 13: It took time to realize, that here the authors describing the POLCOMS 12 km resolution AND the NEMO model. An explanatory sentence would be helpful

On page 657, line 10: A ten minute sub sample resulting in $\sim$7 km resolution (20 knots ferry velocity) may be too coarse within the areas of large salinity or temperature gradients.

On page 657, line 11. Exemplary for several occurrences in the text and Figures. The unit PSU is not longer used for Salinity and should be removed

On page 659 and 661: Numbering of the paragraphs dealing with the results for t and s should be consistent with the previous chapters. (2.4.1 for T and 2.4.2 for S)

On page 662, lines 20-23: The authors make a general statement of the validity of the temperature and salinity prediction of the models applied in the study. It is desirable to include a wider view of the state of the art within the modeling community whether that is a common challenge or dedicated to the area of investigation.

On page 664, line 18: How can a ‘tidal variability’ cost function be defined when the tidal influence is filtered out?

Table 3: The use of an overall cost function (in my understanding integrated over the whole water column, in contrast to the surface temperature cost function from page 663, lines 3-4) for the Ferrybox comparison remains in my view meaningless, since the observations are limited to the surface.

Figure 6 The figure captions should be written that the reader understands what is displayed in the figure without reading the whole text. That is difficult here.

Figure 8: The same range should be used for x- and y-axes

Interactive comment on Ocean Sci. Discuss., 9, 649, 2012.