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Ocean Science
Discussions

Interactive comment on "Towards a regional ocean forecasting system for the IBI (Iberia-Biscay-Ireland area): developments and improvements within the ECOOP project framework" *by* S. Cailleau et al.

Anonymous Referee #1

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general comments

The paper provides useful insights into the development of an operational system of nested models.

The assessment of the system is OK, but does not go as far as many model validation studies go and so leaves the reader with a sense that the system is only partially explained.

The structure of the paper is not bad, but the writing could in places be improved

both for grammatical purposes and for readability. Some proof-reading of the text and rewriting in places would be beneficial.

The figures are not of publication standard and should be reproduced using fonts and lines that are readable at publication resolutions.

It is not clear from the paper whether the ECOOP system is the regional model and the coastal models or just the Mercator regional model; the phrase seems to be used interchangeably to mean either in the paper.

specific comments

The abstract is particularly poorly written and should be updated to improve the readability. Similarly, the conclusions read as though they were written very quickly and would benefit from some improvements in wording and structure.

When referring to the spinup period, and comments on Fig8, the 2 week period is stated as being the best compromise between the spinup degrading the intialised fields and the improved model physics having an impact. However Fig 8 doesn't show the week 2 spinup spatial patterns so it is not clear how the improvement to the Ushant Front and the loss of the initialised state counterbalance each other. Additionally, Fig 8 is of very poor quality and should be improved.

The discussion on surface minus bed temperature/salinity does not give any profile comparisons, so misses the opportunity to look at specific issues with watermasses. Given the number of profiles a model bias profile of T and/or S against the PELGAS data would give useful insight into the formation of stratified watermasses in the model and any errors in the mixed layer depth. It should also be noted that extent to which the system is stratified will evolve through the summer season, and a useful indicator of the seasonal stratification is the timing of the onset/breakdown of stratification. It is a shame that there is no evidence from other periods in the year to see how well the system responds to surface heating/cooling. The prescription of river runoff is a

key source of errors in haline stratification in ROFI rivers. The use of climatological vs real-time river data, inclusion of vertical structure in the river plume and the inclusion of salinty/temperature vs volume flows at the river mouths are all important in determining if the adjacent coastal waters are well simulated. A brief description of how the rivers are prescribed and the influence this may have on some of the coastal stratfication deficits should be included.

The first paragraph in 5.2 Technical validation is confusing to understand and is not helped that it refers to regions of the model not showing in Fig 15. The analysis of currents is useful, but it should be noted that the stations are close to the coast (how many grid points - is this a fair test of the model?) and it would be useful to know how well the total (incl tidal) currents do in the V2 system as this is what most users would be interested in.

technical corrections

When referring to the operational cycle (and Fig 6) the term D0 is used, presumably to denote day 0, whereas Fig 6 labels things relative to J0 (jour?). This should be corrected to be consistent.

line 8, p1950: The enhancement is net on the Amorican .. makes little sense

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Interactive comment on Ocean Sci. Discuss., 8, 1937, 2011.