

## ***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 #2**

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The paper describes the evolution of the Iberia-Biscay-Ireland Ocean Operational System (IBIROOS) from the early version flagged as V0 to the most recent, developed in the framework of the ECOOP project, V2. Although the description of the systems includes regional and sub-regional models, the actual focus is on the regional model only. The paper is organized with a clear logical flux: first the overview of the evolution of the system (Sections 2, 3 and 4), then an intercomparison and validation of the two most recent versions (V1 and V2) of the regional model (Section 5). The overview provides relevant info, although some details regarding numerics, physics and methods

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are not always accompanied with proper references. The validation is a little bit limited however it provides a first useful guess of the performance of the systems. This draft certainly fits the special issue devoted to ECOOP but the quality of the draft could and should be improved.

General comments:

English is poor. There are several grammar errors. Some statements don't make sense. Some work on this is mandatory.

Tons of local geographical names are used, but not shown anywhere in the figures. This is a problem for readers not familiar with the region. Please try to include most of them in your figures.

Labels in the figures are generally too small and hard to read.

The validation using the PELGAS09 dataset would benefit from additional analysis, e.g. the RMSE along vertical profiles, in support to the assessment/improvements of the vertical mixing.

In my opinion, you should discuss, at least briefly, what is the impact of the different vertical resolution (6 m V1 vs. 1 m V2) on the assessment involving summertime SST.

Specific comments:

Check carefully the references. For example, Griffies and Pacanowski (2001) is not listed. Canuto 2001 is maybe Canuto et al. 2001? Gaspar 90 should be Gaspar et al 1990. Chanut et al, 2008 is missing. Jones and Launde 1972, Burchard et al., 1988, Leonard 1991 from table 3 are not listed in the reference list. I have the feeling also that some references listed are not actually cited in the paper.

Intro, l23: Iberia-Irish-Ireland?

Something is wrong with figure 1 y-axis label. The Med Sea is not at 24 Latitude N, nor the Gulf of Mexico is south of 12 Latitude N. Should this be because you have a

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rotated domain or something, at least state it clearly in the figure caption. The same holds for figures 2 and 5.

Reference missing for several datasets used (e.g., MEDATLAS, Reynaud Climatology, ODYSSEA, WOA05).

If available, provide a reference for the OI data assimilation method used in V1. Spell out and add reference for the SEEK filter for V2. SLA is an acronym and it should be spelled out the first time is used (as well as GFO). Assimilated T/S vertical profiles from which network?

Figure 1 vs. Section 2 first para: in figure 1 is reported MANGA by IFREMER, not GDGE by PREVIMER. Figure 2 vs. Section 3 first para: now is written MANGA by PREVIMER but in figure 2 is MANGA by IFREMER. The same in figure 5.

pg1942, l7: what is an ORCA grid?

pg1944, l10. Craig-Banner should read Craig and Banner.

pg 1945 last para: In the text you use D0 while in figure 6 you use J0

para 5.1.1 what is IBI-V2? IBI36? Can you come up with a clear naming? sometimes IBI means the whole system IBIROOS (several models), sometimes only the Regional Mercator (PSY2Vx), and now you introduced IBI36 but then you use IBI-V2. And later you use IBI without '-Vx' nor '36'... Sometimes PSY2V3 and sometimes IBI-V1... This is confusing.

5.1.2, first para. which climatology? Please specify WOA 2005 (even if cited in the figure caption), spell out the acronym and add a reference.

p1949, last para. The discussion of the Navidad current seems to jump in the paper suddenly from nowhere. Try introducing it a little bit better.

5.2, first para: between Iceland and the Faroe Islands?!? these are outside the domain of fig.15

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5.2, second para: when listing the moorings locations, point the reader to Fig.7

Conclusion sections:

p1951, l25: It sounds reasonable, but you didn't show that using k-epsilon improved the vertical mixing, since you are comparing a version (V1) without tides and another (V2) with tides. Your statement is therefore unjustified.

p1952, l2. You didn't show that the model (thanks to the resolution), was able to resolve the submesoscale. Unjustified statement.

p1952, l14: to me, the depth of the Med water, according to fig11, is not 'right', while shallower.

p1952, l20: do you know now the actual runoff of the rivers in that period? can you guess how close was the true runoff compared to the climatology. How the model takes rivers into account is not detailed. Maybe add a reference if available or provide more details?

p1953, l7: 'wave components'? what do you exactly mean? unclear

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

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