

Main comments:

This manuscript studies the difference in circulation and nutrient transports off the Northwest African Continent between autumn 2002 and spring 2003. The results indicate that due to circulation changes between the two seasons, the studied area works as a nutrient sink (source) in autumn (spring). I think this is an interesting work and the revised manuscript shows improvement, but it still fails to address a key issue that is also raised by both referees in the first round of review. That is the usage of the GLORYS model outputs. It is absolutely true that observational data are very valuable and scarce, but that does not justify the authors' argument that the observational nature of the data is the only important aspect of this work.

First of all, SiO₂, NO₃, PO₄ were so sparsely sampled during both cruises that the authors used the GLORYS outputs to perform the nutrient transport calculation. This highlights the importance of the assimilation model. Secondly, it is a perfect opportunity to show how well the model compares to the observations in terms of circulation and nutrient transports, which provides reference for other studies using the model. This would also potentially be a key strength for this work. Finally, I totally agree with one of the referees in the first round, who wrote: *"...the maximum mass, nutrients and DOC lateral transports occur mainly during upwelling seasons summer and winter respectively north and south of Cap blanc where the system is highly dynamic! ... having hydrographic data covering the whole seasonal cycle is very difficult, but fortunately we have the outputs of the bio-geochemical models..."*.

Other comments:

1. The authors should consider to provide a sensitivity experiment on how robust the inverse solutions are with respect to the initial conditions, e.g., reference level, reference velocity, and Ekman transport.
2. Line 18, please indicate what the CINECA program is.
3. Line 85, please indicate what temperature it is, in situ or potential temperature.

4. Line 140, my understanding on this paragraph is that it is about the horizontal difference in salinity among the profiles instead of temporal variability.
5. Line 169-170, here we have a very good example to explain my main point: High values of nutrients are discovered in GLORYS-BIO, and it is attributed to long-lived eddies. Despite the fact that this can be easily verified by showing the GLORYS circulation field and compare with the observations, it is not done.
6. Line 253-255, 10^8 m s^{-1} is a extremely large number, please check the preciseness.
7. Line 285, what do you mean by vertically shortened? I understand that the water occupied less density range, but in depth space the water is not necessarily thinner in spring than in fall.
8. Line 299, the total mass is not necessarily balanced, because the water column below 2000 m is neglected.