Interactive comment on “Hydrological changes in the Ligurian Sea (NW Mediterranean, DYFAMED site) during 1995–2007 and biogeochemical consequences” by J. C. Marty and J. Chiavérini

Anonymous Referee #1

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The manuscript describes hydrological – and subsequent bio-geochemical - changes in the Ligurian Sea over period 1995-2007 based on the DYFAMED station data. The paper is rather straightforward, well presented and written. I recommend publication after minor revision.

Minor comment:
- The paper presents a thorough analysis of hydrography data and precipitation data but falls somewhat short on advection issues and atmospheric fluxes. The role of air-sea fluxes (e.g. from NCEP) could be investigated further to better support the conclusions of the paper by evidencing the relative role of T and S. Section 3.4 will require some update. I believe there are other moorings in the Ligurian (CNR ODAS buoy and Southern Ligurian next to the Corsican channel). Some comparison e.g. on meteorological and hydrographic data could be useful.
- By any chance, is there any impact on Redfield ratios following these major hydrodynamic changes?
- These changes could have an impact on the steric level. A rapid estimate (e.g. 1995-2005 against 006) could be a nice ‘added value’ and lead to subsequent useful update work (e.g. cf Tsimplis et al JGR, 2004; Tsimplis & Rixen, GRL 2002).

Editorials
- Abstract: ‘deriving towards’: I am not familiar with this expression
- 1379, line ~20: what about temperature?
- 1379, line 23: ‘convergence’: please define
- 1380, line 1: ‘…is the principal…’
- 1381, line 7: maybe ‘…a rosette fitted with a CTD … and 12 bottles…’
- 1381, line 24: consistency of ‘T-S diagram’ notation in manuscript and caption
- 1382, line 10: ‘extreme surface’: rephrase
- 1382, line 18-19: I am not sure I understand
- 1384, line 11: ‘during THE February…’
- 1385, line 20: ‘But in THE last three…’
- 1386, line 6: remove ‘as’
- 1386, line 11: ‘To illustrate’
- 1386, line 12 & 20 and figs/captions: replace ‘rain amounts’ by ‘precipitation’
- 1387, line 1-3: what years are you referring to?
- Table 1: S tendency for Rixen et al should be 7x10^-4 I believe
- Fig 2a: 'left corner'?
- Fig 2a: why not add a red line for the 2006 data?
- Fig 4: is very small
- Fig 6b: why is 2006 missing?
- References: o Tsimplis in Table 1 is not cited

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