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Comment

## ***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**

Received and published: 1 March 2010

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

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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'

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- 1387, line 1-3: what years are you referring to?
- Table 1: S tendency for Rixen et al should be  $7 \times 10^{-4}$  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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**BGD**

7, C138–C140, 2010

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