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Interactive comment on “Modelled interannual variability of vertical organic matter export related to phytoplankton bloom dynamics – a case-study for the NW Mediterranean Sea” by R. Bernardello et al.

Anonymous Referee #2

Received and published: 10 September 2012

Review of Bernardello et al. ‘Modelled interannual variability of vertical organic matter export related to phytoplankton bloom dynamics – a case study for the NW Mediterranean Sea’

This manuscript uses a 3-d model to investigate how interannual variability in physical forcing alters the character of the spring bloom and subsequent effect on carbon export in the NW Med. I enjoyed reading this manuscript, which was well-written, interesting and topical. I recommend publication after a few minor revisions.

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Page 9098, Line 2-3: Briefly describe which specific processes are modified.

Page 9098, Line 15: 'bottom depth is higher than' – do you mean deeper or shallower than 200m?

Page 9102: comparison of modelled and Argo MLD. Please provide some statistics to confirm the model reproduces the data, e.g. correlation coefficient.

Page 9103: similarly, please include some statistics for model vs data chlorophyll

Page 9104, Lines 1-5: Would including a criteria for persistence help here? E.g. chl must be higher than the threshold for at least 2 time steps

Page 9104, lines 6-17: Would this be better represented graphically? E.g. present a scatter plot of MLD vs EF, HF vs EF, HF vs PP etc.

Page 9104, line 17: what are the percentages quoted here?

Page 9106, lines 21-24: Can the authors show model results that demonstrate that a marked drop in turbulent diffusion accompanies the start of the bloom? It would make an interesting comparison to a recent paper Taylor and Ferrari (2011), Limnology & Oceanography which looked at bloom timing in comparison to decrease in turbulent diffusion.

Interactive comment on Biogeosciences Discuss., 9, 9091, 2012.

BGD

9, C3868–C3869, 2012

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