

Interactive
Comment

Interactive comment on “Autotrophic and heterotrophic metabolism of microbial planktonic communities in an oligotrophic coastal marine ecosystem: seasonal dynamics and episodic events” by O. Bonilla-Findji et al.

O. Bonilla-Findji et al.

wein@obs-vlfr.fr

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P. Williams (Referee)

As the authors correctly note, there has been a lively debate over the past decade concerning the balance of metabolism in marine systems. It has proven to be a much more intractable problem than most of us imagined and we have tended to select physically isolated offshore locations for study to simplify the problem. The authors have really grasped the nettle and gone for a complex inshore location and much to their credit

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achieved more than a fair degree of success – for which they are to be congratulated. The present paper makes a valuable contribution to the debate and I would recommend its publication – few changes are needed.

ANSWER: We thank Prof. Williams for the kind words.

1) I believe there are two papers that relevant and should be considered in the discussion: Serret et al (1999) Seasonal compensation of microbial production and respiration. MEPS 187 43-57 and Moncoiffel et al (2000) Seasonal and short-time-scale dynamics of microplankton community production and respiration in an inshore upwelling system. MEPS 196 111-128,

ANSWER: Citations added

2) There is a form of analysis – limit cycle - which I have always felt might provide insights in studies like this; it is to plot the properties against one another, connecting the points up in time sequence– it’s used for Lotka-Volterra type studies, which has affinities with the resp/production balance problem. It’s dead easy to do and worth giving a try

ANSWER: This type of analysis has not been performed very often in biology. None of the scientists we have contacted for help on this topic has even heard about it (not to speak about knowing how to do that). As we completely lack expertise with this analysis and could find no one, who could help us here, we have decided not to try to do that for the current manuscript. We appreciate, however, this idea and will try for future studies to seek expertise on limit cycle analysis.

3) Minor points now: p. 2040, l. 20: “westerly and the deposition”. Also “ash/ashes” is a funny one in English – I can think of no hard rule but you empty the ashes of your fire but we have Icelandic volcanic ash causing mayhem over the UK at the present. So, I think it should be “ash” in this case not ashes.

ANSWER: Corrected

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p. 2042, l. 9 I'm pretty certain the units should be milli-mol/m² d not micro-mol/m² d, please check

ANSWER: Data are volumetric

p. 2042, l. 16: I think Fig 7b should be 7a, please check

ANSWER: Corrected

p.2043, l. 1: I think Fig 5a should be 8b, please check

ANSWER: Corrected

p. 2061, Fig 5 I think the units 5c should be micro-mol, not milli-mol/l please check. Note graphs are not lettered 5a, 5b etc

ANSWER: Corrected

p. 2063 Fig 7a – I cannot find a clear statement in the Figure whether the GPP:R ratio is volumetric or areal rates– the former is my guess please make clear in the figure caption. Again lettering missing

ANSWER: Data are volumetric.

Interactive comment on Biogeosciences Discuss., 7, 2033, 2010.

BGD

7, C2652–C2654, 2010

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