

## ***Interactive comment on “Growth and specific P-uptake rates of bacterial and phytoplanktonic communities in the Southeast Pacific (BIOSOPE cruise)” by S. Duhamel et al.***

### **Anonymous Referee #2**

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This manuscript concerns the use of P-based uptake rate and biomass estimates to calculate specific growth rates ( $\mu$ ) for phytoplankton and bacteria.

As recognized by the authors, the idea is not new. However, it has not been used much in the literature, and data are given for a very different environment than investigated in the original work. I therefore think the work would be of interest to the readers of Biogeosciences.

Using P-based estimates in this manner has a series of potential complications including: - Separating phyto- and bacterioplankton P from particulate-P contained in grazers and in detritus - Variable stoichiometry over time, species and environments - Potential

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diel cycles - The need to use SRP as an estimate for bioavailable orthophosphate, making the method useless in most P-limited areas where SRP probably grossly overestimates the bioavailable pool. - The lack of knowledge on direct uptake of P from DOP. - The potential leakage of P from cells as shown in freshwater in systems and in cultures.

The P-based method however also has some clear advantages like using the same technique for phytoplankton and heterotrophic bacteria.

In my opinion the authors have presented a detailed discussion of the problems. The C-based estimates also have a long series of methodological problems and if these should seem less serious it may be because these methods have been more commonly used, than because the problems for C are smaller than for P.

I think it is important to gather estimates for specific growth rate using such alternative techniques to the traditional C-based approach and recommend publication.

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Interactive comment on Biogeosciences Discuss., 4, 2027, 2007.

**BGD**

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