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Interactive comment on “Production, partitioning and stoichiometry of organic matter under variable nutrient supply during mesocosm experiments in the tropical Pacific and Atlantic Ocean” by J. M. S. Franz et al.

Anonymous Referee #1

Received and published: 16 July 2012

This is a set of mesocosm experiments performed with similar design, but with water from different upwelling regions. The main result is probably the flexibility in the stoichiometry of mineral nutrient consumption, demonstrating how both DIN and DIP are consumed over a large range of DIN:DIP, as opposed to the prediction of a simplistic fixed stoichiometry model with consumed N:P=16 independent of ratio added. This is neither surprising nor very new, but the data are nice and the comparison of different water masses as opposed to many mesocosm experienced that generalize conclusions from one experiment (one initial condition) only adds newness value to

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this investigation. The discussion part has weaknesses, however, the main one being the language is used in several places assuming implicitly that particulate matter equals phytoplankton biomass. The samples were prefiltered so presumably the mesozooplankton biomass was low, but there is no data or discussion demonstrating that the contribution to particulate matter from bacteria, microzooplankton or detrital POP was negligible. Neither that bacterial uptake of DIN or DIP was negligible. The M&M only describes DON, DOP, PON and POP measurements, but the discussion indicates that some more microscopic information on population composition is available. The problem can, however, probably also be solved satisfactorily by adjusting the terminology to e.g. “microbial biomass” instead of “phytoplankton biomass”.

Interactive comment on Biogeosciences Discuss., 9, 5755, 2012.

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