

Interactive  
Comment

## ***Interactive comment on* “Preformed and regenerated phosphate in ocean general circulation models: can right total concentrations be wrong?” by O. Duteil et al.**

**Anonymous Referee #2**

Received and published: 3 February 2012

This paper proposes new metric, preformed phosphorus, to evaluate the performance of numerical ocean circulation and carbon cycle model and analyze outputs from several simulations using state-of-the-art ocean general circulation models.

The major finding of this paper is that models tend to disagree more in terms of preformed and regenerated nutrient even though the representation of total nutrient is largely in agreement with observation and among models. Figure 3 shows striking difference between the models. Furthermore, preformed nutrient, not total nutrient, is the appropriate measure of the biological pump efficiency as it relates to the control of atmospheric CO<sub>2</sub>.

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I strongly support the prompt publication with revisions suggested by the previous review comment. The paper is overall well written. The conclusion of this paper will cast significant challenge to the marine biogeochemical modeling community that existing and future simulation to be tested and constrained in terms of preformed and regenerated quantities.

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Interactive comment on Biogeosciences Discuss., 8, 12423, 2011.

**BGD**

8, C5592–C5593, 2012

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