Biogeosciences Discuss., 11, C58–C59, 2014
www.biogeosciences-discuss.net/11/C58/2014/

Biogeosciences
Discussions
Open Access

Interactive comment on "High temperature decreases the PIC / POC ratio and increases phosphorus requirements in *Coccolithus pelagicus* (Haptophyta)" *by* A. C. Gerecht et al.

Anonymous Referee #2

Received and published: 12 February 2014

There are several issues regarding experimental design, data quality and interpretation.

I am a bit concerned about the relatively unconstrained carbonate system. There is a considerable and most importantly differerent drift between initial and final conditions and between treatments. Although pCO2 and pH are relatively stable, there is a big difference in HCO3 concentrations, a known substrate for calcification. This might be a confounding factor as the authors consider temperature and P concentration as the sole drivers of their observations.

Also in this respect, I was surprised that initial TA and pH measurements were in some

cases quite different (almost 100 micromol/kg and 0.1 pH units) and with relatively high standard deviations (again of up to 100 micromol/kg and 0.2 pH units). Considering that the same aged seawater medium was used for all treatments, this is questioning sampling/ measurement procedures and adds considerable amount of uncertainty.

Furthermore, it has to be noted that biomass (POC or PIC) within the treatments are not only a function of initial P availability but also of the time in stationary phase before sampling as cells will initially continue to calcify and photosynthesise, also when P is exhausted. Thus, running cells into limitation with relatively unconstrained knowledge if the amount spent in stationary phase is similar between treatments, adds another factor of uncertainty.

Interactive comment on Biogeosciences Discuss., 11, 1021, 2014.