

Interactive comment on “Enhancement of photosynthetic carbon assimilation efficiency of phytoplankton assemblage in the future coastal ocean” by J.-H. Kim et al.

J.-H. Kim et al.

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We would like to thank to J.-P. Gattuso and his valuable comments. Find the detail responses to comments in below.

Comment 1) There is a high level of novelty in this perturbation experiment. To my knowledge, it is the first time that temperature is manipulated together with CO₂ in a pelagic mesocosm. More information is needed on the technique used to elevate temperature: material of the tubing, temperature and flow rate of the heated water, mixing and homogeneity of temperature in the mesocosms.

Response 1) We will add more information about manipulating high temperature on
C1801

pelagic mesocosm system in Materials and Methods.

Comment 2) The correct unit for pCO₂ in seawater is μatm rather than ppmv

Response 2) The unit for pCO₂ was changed from ppmv to μatm .

Comment 3) 14C fixation measure something that is between net and gross community production. As the duration of the incubations was relatively short in this experiment, it is likely closer to GCP than to NCP. However, it is misleading to refer to 14C fixation as "gross photosynthesis".

Response 3) 14C short-term incubation is generally used as gross community productivity, but we used this result as gross photosynthesis with P-I curves. This result is very helpful in interpreting physiological responses; therefore results were represented as gross photosynthesis instead of gross community production.

Comment 4) Biogeosciences strongly promotes the full availability of the data sets reported in the papers that it publishes in order to facilitate future data comparison and compilation as well as meta-analysis. This can be achieved by uploading the data sets in an existing database and providing the link(s) in the paper. Alternatively, the data sets can be published, for free, alongside the paper as supplementary information. The ascii (or text) format is preferred for data and any format can be handled for movies, animations etc... Therefore, I would like to suggest to the authors to consider providing a link to the data or submitting the data sets.

Response 4) We will open dataset of this manuscript after publication in BG. Photosynthetic results (PAM, 14C incorporation) and primary production data, but chl a and other results could not be opened because those data are owned by the collaboration team.

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