

## ***Interactive comment on “Technical Note: A mobile sea-going mesocosm system – new opportunities for ocean change research” by U. Riebesell et al.***

### **Anonymous Referee #2**

Received and published: 19 November 2012

The technical note: A mobile sea-going mesocosm system – new opportunities for ocean change research, by U. Riebesell and co workers presents the status of the world’s only truly seagoing mesocosm system, at the time of use in a large international CO<sub>2</sub> experiment in the Kongsfjord, Svalbard, Norway summer 2010, and shows and discusses some further excellent and thoughtful modifications done to the KOSMOS mesocosms also after this experiment.

Since this MS describes the overall structure and experimental setup this MS is a practical way of summarizing this information in one place, greatly facilitating the effective writing and reading of the pertaining manuscripts, describing the different specific scientific results. As such this MS deserves publication.

However, before I can recommend this MS to be published, I suggest that a number of

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corrections should be done.

#### General comments:

I agree with Reviewer #1 that this MS would be more focused and would be of much greater value if it conveyed more info on the technical side by revising the result and discussion to concentrate only on the technical development and performance of the mesocosms. I were also going to suggest that the technical calculation of volume only referred to in this MS, rather should be fully described here, so that a reader that looks for the technical descriptions, find them all in this MS.

Another general comment is that to my knowledge this project was also substantially supported by a collaboration with the EU project MESOAQUA (see: [http://mesoaqua.eu/kiel\\_kosmos](http://mesoaqua.eu/kiel_kosmos) and <http://mesoaqua.eu/kbml>). If so this should be clearly stated in the Abstract (page 12986, lines 24-25), Acknowledgments (page 13003, lines 6-14), as well as in all pertaining manuscripts and elsewhere.

#### Specific comments:

Page 12988, Lines 5-6: states that a unique advantage of mesocosms are that they can investigate community dynamics of two or more trophic levels. . . Don't the authors mean "three or more", or "more than two"? Many laboratory studies incorporate two trophic levels (or even three occasionally) in plankton at least from virus to mesozooplankton levels.

Similarly I suggest for point 2: "...perform mass balance calculations." To add "...in complex systems". Since many less complex lab systems offer this possibility. I think the unique possibility with mesocosms is the to work with (natural) complex systems.

Page 12990, line 10: How transparent was the plastic for different light? UVA,B,C. . . PAR? Percent transparency? Please specify.

Page 12991, lines 14-17, and section 2.8 "cleaning of the mesocosm wall", and Page 13002, lines 19-21: How do you differ material and aggregates potentially produced

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from cleaning the walls (i.e. artificial “benthic” growth) from actual material produced and sedimented out of the water column? Please describe or reformulate accordingly.

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Interactive comment on Biogeosciences Discuss., 9, 12985, 2012.

**BGD**

9, C5729–C5731, 2012

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