

Interactive comment on “Net loss of CaCO₃ from coral reef communities due to human induced seawater acidification” by A. J. Andersson et al.

A. Andersson

andreas.andersson@bios.edu

Received and published: 14 May 2009

We appreciate and are very grateful for the constructive comments provided by both referees that will significantly contribute to improving the original manuscript. In general, the majority of the comments and suggestions are in our opinion minor and not of an overly technical nature, and we agree to implement most of these in the revised manuscript. One of the major suggestions of both referees was to compare the present short-term net calcification/dissolution rates with the longer-term calcification rates derived from the buoyant weight technique for the forty colonies of *Montipora capitata* present in each mesocosm. This is an excellent suggestion and we are excited about adding this ‘missing link’ to the analysis of these data and the manuscript. Likewise the suggestion by referee #2 to add a correlation plot of seawater aragonite saturation

C417

state and NEC will be a most interesting and valuable addition to the manuscript.

The one comment we disagree with is that of referee #2 that the main dataset has been recycled from two previous publications and that the manuscript is at the “smallest publishable unit.” The referee refers to the experimental chemical conditions experienced in the mesocosms shown in panels A and B of figure 4 that also appear in Kuffner et al., 2008 and Jokiel et al., 2008. The main dataset of the present manuscript is the NEC rates, not the chemical data, which simply are the experimental conditions under which these results were achieved. Because the objective of the present study was to investigate the effect of ocean acidification (i.e., changes in the seawater dissolved inorganic carbon system parameters anticipated from human activities) on NEC, and the NEC results are a direct function of the different chemical conditions, we believe it is crucial to include these data in the manuscript. An analogue to not including these data would be to publish an article on the effects of temperature on coral bleaching but not include any temperature data! For the same reasons, these chemical data were included in the two publications previously mentioned to demonstrate the variability in seawater inorganic carbon chemistry on diurnal time-scales despite the fact that these experiments were looking at effects on longer time-scales, i.e., ~50 days and 8 months, respectively.

Interactive comment on Biogeosciences Discuss., 6, 2163, 2009.

C418