

Interactive comment on “The interaction of ocean acidification and carbonate chemistry on coral reef calcification: evaluating the carbonate chemistry Coral Reef Ecosystem Feedback (CREF) hypothesis on the Bermuda coral reef” by N. R. Bates et al.

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Received and published: 29 July 2009

Dear authors I would like to point out a few inaccuracies regarding your citation of Silverman et al. P. 7653, L.:3-6 - "Due to the seasonality of carbonate chemistry on the Bermuda coral reef, the critical thresholds for initiation of coral decalcification are not sharp transitions as 5 suggested by Silverman et al. (2009), but relatively extended transitions that potentially extend over a period of many years". Silverman et al. used

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model output of monthly averages over an annual cycle at each pCO₂ stabilization level to calculate the monthly average gross calcification rates of each coral reef. The "decalcification" of the the coral reef was then considered to occur when the annual average gross calcification was equal to or less than 20% of the Pre Industrial calcification rate. This transition level was defined by the percentage of PIR gross calcification offset by dissolution of CaCO₃ in the reef. Hence, while individual corals may continue to calcify albeit at a very slow rate the reef frame work would be losing CaCO₃ due to related or perhaps unrelated dissolution processes (inorganic or biogenic dissolution). In addition I thought that the reduction in coral growth rate that you measured between 1959 and 1999 (33%) is similar to the calculated reduction using the relations of Silverman et al. (2009). You could use these measurements to verify the relation between gross calcification, temperature and Omega(arag) proposed by Silverman et al. (2009).

Interactive comment on Biogeosciences Discuss., 6, 7627, 2009.

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