

Interactive comment on “The Arctic Ocean marine carbon cycle: evaluation of air-sea CO₂ exchanges, ocean acidification impacts and potential feedbacks” by N. R. Bates and J. T. Mathis

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Bates and Mathis paper is a fine synthesis and generally well written. It summarizes both recent and previous findings and many relevant references are included. However, in the section where the authors address pCO₂/fCO₂ they should also refer to the recently published paper Fransson, Chierici and Nojiri, New insights into the spatial variability of surface water CO₂ in varying sea ice conditions in the Arctic Ocean, CSR, 29 (10), 1317-1328, doi:10.1016/j.csr.2009.03.008 In this paper some of the 1st high-frequency fCO₂ underway measurements that has been performed in the ice covered

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parts of the Arctic Ocean. They can find directly measured fCO₂ as opposed to the calculated from AT and DIC that is used in the current version of the manuscript. The Fransson et al., 2009 paper will also strengthen some of the findings and statements made by Bates and Mathis.

best regards, Dr. Melissa Chierici, University of Gothenburg, Sweden

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