

Interactive comment on “Atlantic and Arctic sea-air CO₂ fluxes, 1990–2009” by U. Schuster et al.

Anonymous Referee #1

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Review of "Atlantic and Arctic sea-air CO₂ fluxes, 1990-2009", by Schuster, McKinley, et al.

The authors present a synthesis/overview of the Atlantic and Arctic carbon cycle over the last two decades. The authors are to be commended for their analyses and their presentation. They have gone beyond the call of duty in not only presenting but also interpreting what is known and what is not known, and as a consequence this study is likely to be of great benefit to the community. My recommendation is to accept with only one minor revision.

My only reservation with the paper is semantic, and this concern is focused on the wording "best estimate". This really needs to be removed from the text, because it not reflecting state-of-the-art thinking about what constitutes a "best estimate". By

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any reasonable objective standard, a more appropriate wording would be, "This study is intended to be a step towards a best estimate of carbon fluxes over the North Atlantic and Arctic. Appropriate construction of a best estimate, following the spirit of the skill-weighting considered in the studies of Mikaloff Fletcher and Gruber et al., is an important goal of carbon research. However, as we do not address here the quantitative/statistical issues that a best-estimate would require, we choose instead to conform to the protocols or etiquette of model inter comparison studies and define a model-median flux"

I am assuming that the word choice "best estimate" does not reflect any shortcoming on the part of the authors of this study, but rather that it was imposed. The authors themselves are again to be complimented for their excellent presentation, which is informed by mechanistic insight and nuanced thinking. The bottom line is that including the words "best estimate" weakens the scientific content of the presentation, and I think that the paper is strengthened if this non-quantitatively anchored terminology is dropped.

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