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Interactive comment on “Estimating the storage of anthropogenic carbon in the subtropical Indian Ocean: a comparison of five different approaches”

by M. Álvarez et al.

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Referee #2 Thanks for the positive review and the helpful comments to improve the manuscript.

Major comment: Regarding the major comment about the Vazquez-Rodriguez et al. (VR hereinafter) paper in BGD (accepted for BG), we agree somehow but not totally. VR deals with the whole Atlantic Ocean from the Nordic Seas to the Southern Ocean. Common results on VR and our manuscript (MA hereinafter) were found in the Southern Oc. and this fact is already highlighted in MA. However a more detailed discussion comparing MA results'; with those in VR would be very difficult as for example the details of some back-calculation methods (for example the preformed equations in the

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DC* method differ for the Indian and the Atlantic) and additionally, this comparison would make MA much longer.

BGD

6, S409–S410, 2009

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As far as I understand the referee's comment, VR should be cited in the conclusions regarding the common conclusion about a significant CANT concentration in deep waters formed in the Antarctica. This conclusion was also achieved in several other works, for example McNeil et al., JGR, 2001; Sandrini et al., Antarctic Science, 2007; Lo Monaco et al., JGR, 2005; Murata et al., JGR 2008, why not cite them all?. Along with VR all these works are already cited in the text, we see no reason to particularly cite VR in the conclusion section.

Minor comments:

Number 1, 2, 5 and 7 have been corrected accordingly.

3. The phrase has been reworded, hopefully clarified. New text: In deep layers below 27.7, no CANT is expected according to CFC-12 levels (Fig. 5a), here the DC* method is used to calculate DCTdis, and CANTSAB99 values are practically null, 0+-3 umol kg⁻¹, within the limit of detection of the method. However, according to CCl4 levels CANT is expected in this layer. In this sense, CANT IPSL and TrOCA estimates range from 0 to 10 umol kg⁻¹, with slightly lower values estimated by the TTD method and values below 5 umol kg⁻¹ simulated by OCCAM.

4. Instead of nucleus we will use core.

6. Instead of curiously we use now interestingly.

8. We use the DC* method as a reference because it has been widely accepted and used. The whole ocean inventory in Sabine et al. (Science, 2004) was based on this method. So we chose it to be the most suitable to be compared with.

Interactive comment on Biogeosciences Discuss., 6, 729, 2009.

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