

Dear Alex,

I have a number of editorial comments on your revised manuscript.

p.1, column 2, para 1 of Introduction: instead of Keeling *et al.*, 1976, I suggest Keeling, Tellus, 1960 is a more appropriate reference, the first paper documenting the establishment of the Mauna Loa CO₂ record. Full citation is:

Keeling, C. D., The concentration and isotopic abundance of carbon dioxide in the atmosphere, *Tellus*, 12, 200-203, 1960.

p.2, col. 1, para 2: Dlugokencky is spelt incorrectly.

p.2, col. 2, para 3 of section 2.1: suggest to modify last sentence to: "...very stable on short-term (diurnal) time scales, due TO its location..."

p.6, col 1, para 1, last sentence: "aboutd" = typo

p.6, col 1, para 2 of section 3.1.2: 7.587 ppb and 1.764 ppb - these should say ppm. (If the Dutch do as the Germans, reversing the comma and decimal point compared to English, this may have been a simple translation error).

p.6, col. 2, para 1: Dlugokencky is spelt incorrectly.

p.8 Fig 3: as shown, it appears that unselected lines from the tower inlets are not flushed. Is this correct? If *not*, please state this in caption.

p.8, col. 2, para 1: "Ni plated" – typo.

p. 8, col. 2, para 1 of section 3.3.2: flowrate of 150 mL/min, however, on p.7 stated a flow of 400 mL/min – something seems inconsistent.

p.8, col.2, para 2 of section 3.3.2: "by adjusting the sample flow rate, using a differential pressure controller" – in fact, in Figure 4a, it is the **reference** flowrate which the MKS is controlling.

p. 9, col. 2, para 3 of section 3.3.3: "which converts CO₂ in CH₄" – typo: change "in" to "into"; and I believe you mean to say "CO", not "CO₂", since this must be methanised before it can be analysed at the FID.

p. 11, col 2, para 1: "Fig. 8f however" – should be 8e; and "as shown in Fig. 8e" – should be 8f.

p. 11, col 2, para 1: "first week of October 2009" – but this is not shown!! Figure starts only on 12 October.

p. 11, col 2, para 1: "for CO in February and March of 2008" – also not shown!! Figure ends ~2 days at start of Feb.

p. 11, col. 2, para 3 of section 3.4, and p. 12: the intercomparison values with respect to Max Planck are similar to, but slightly different from those published in our CarboEurope final

report document. Possibly you have included additional data since this report was published. However, you may like to change to the report values, and then cite this report – I leave it to your own decision. Full citation for the report, if you choose to use it is:

Manning, A. C., A. Jordan, I. Levin, M. Schmidt, R. E. M. Neubert, A. Etchells, B. Steinberg, P. Ciais, T. Aalto, F. Apadula, W. A. Brand, M. Delmotte, A. Giorgio di Sarra, B. Hall, L. Haszpra, L. Huang, D. Kitzis, S. van der Laan, R. L. Langenfelds, M. Leuenberger, A. Lindroth, T. Machida, F. Meinhardt, J. Moncrieff, J. A. Morgu , J. Necki, M. Patecki, E. Popa, L. Ries, K. Rozanski, R. Santaguida, L. P. Steele, J. Strom, Y. Tohjima, R. L. Thompson, A. T. Vermeulen, F. Vogel, and D. E. Worthy, Final report on CarboEurope ‘Cucumber’ intercomparison programme, http://cucumbers.uea.ac.uk/documents/CucumberFinalReport_Final.pdf, 2009.

p. 14: Fig 9 caption: “light grey area” – this exists only in Fig 9b, not 9a – perhaps could clarify.

p. 16, col. 2: “that is characterised as Omega block, the normal...” (add comma as shown)

p. 16: like two of the reviewers, I had never heard of “Omega block” – I appreciate that this is a common meteorological term as stated in the response to reviewers, but I wonder if you can find a suitable reference to cite here? (since most of your readership are not meteorology experts).

p. 17, Fig 11 caption: suggest to add: “Colours as in Figure 10.”

p. 18, Fig 12 caption: suggest to add: “Colours as in Figure 10.”

p. 19, Figure 13: why are the colours for each height in this figure mismatched compared to Figures 10, 11, 12? Particularly because the same 4 colours have been used, this is very confusing (although “red” really is red now!).

p. 20. col 1, para 3 of section 4.5: “the use of fitted trends using this data can be justified” – change “this” to “these”

p. 20, col. 2, para 4, beginning: “The trends detected...” states: the choice of method strongly affects the ‘a’ parameter of Eq. 2, and also states that the trends detected depend only very weakly on the choice of method. This appears to be a contradiction, since as defined on p. 18, ‘a’ **is** the trend term. Please clarify.

p. 21 Fig 14 caption: “for the period 2005-2009”, however, 3 of the 5 plots extend to 2010.

Bergamaschi, in press, 2010 is now published. Please check all other in press, in prep, submitted, etc. For those still not published, year should be changed to 2011.

Figure colours: there is a problem with some of the colours on several of the figures. This is true both on my screen and my printout, so it needs to be addressed. Perhaps it is a conversion problem when generating figures for AMT, in which case please discuss with the AMT editorial staff. Some examples:

Fig 2: text states “red to light blue colours”, however, the legend is orange, not red.

Fig 2: caption states “next thick grey”, but it’s actually green.

Fig 9: caption states “dark grey crosses” – in 9a they are light grey, and in 9b they are approximately sea green. Please use the same colour in a and b, with caption description matching.

Fig 10: 60 m line, data are pink, not red as stated. Same for Figs 11 and 12.

Fig 10, 200 m line: I suppose this is green as stated, but a very odd-looking green.

Kind regards,
Andrew Manning