

Interactive comment on “Evaluation of various observing systems for the global monitoring of CO₂ surface fluxes” by K. Hungershoefer et al.

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We would like to thank the referee for the review and the useful comments that will help us improve our paper. Our answers to her/his comments are the following:

1. p.18565 line 6: add “target precision” Reply: Done.
2. p.18569 line 3: Not fully clear what “total uncertainty” means in time - does it refer to the yearly flux sum? We have changed the text to precise the exact meaning of “total uncertainty” by “we obtain a global annual land/ocean flux uncertainty of 4.4/0.6 gtC/yr”
3. p.18570 lines 20-21: formulation a bit misleading, as continuously measuring stations also exist outside Europe and North America Reply: We changed the sentence to: “but there is a growing number of continuously measuring stations around the globe

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primarily in Europe and North America.”

4. p.18572 line 23: Maybe more clear: “... simplicity, the same weighting function is used for all shots of a given instrument.” Reply: Suggestion applied.

5. p.18575 lines 20-21: The two sentences appear to contradict each other (maybe use “even though” if that’s what you mean). Reply: The text was changed as follows:

Old text: Transport model errors are not considered for the satellite observing systems here. A recent study of Houweling et al. (2010) shows that these model errors are an important factor limiting the accuracy of the determination of CO₂ fluxes.

New text: Transport model errors are not considered for the satellite observing systems here. The issue of transport errors is discussed separately in the companion paper by Houweling et al. (2010).

6. p.18579 line 18: you say “probably”, but couldn’t this be easily checked? Reply: Regarding the sampling of ASCOPE and OCO, the answer is already (at least partly, i.e. for northern hemisphere winter, given in Figure 2). So we removed the word ‘probably’.

7. Fig 2 caption: which satellite is shown in (d)? Reply: AIRS is shown. The bullets were moved in front of the explanations to avoid misunderstandings.

8. Typos: p.18573 line 26 “become”, p.18586 line 26 “seem” Reply: Applied.

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