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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Evaluation of various observing systems for the global monitoring of CO_2 surface fluxes" *by* K. Hungershoefer et al.

Anonymous Referee #3

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The authors have done an excellent job in writing a clear comprehensive manuscript comparing various exisiting and future CO2 observing systems. In my opinion the comparison is fair and most caveats of the used methodology have been carefully explained as well. I therefore fully recommend publication of the manuscript. I have only a few minor items that need clarification.

* It would be nice to get a better idea of the geographical placement of the hypothetical surface networks. Is it possible to construct a plot showing this? * I was left wondering how the MODIS cloud field was used for the A-SCOPE simulation. The active systems have very small footprints (ca. 100 by 100 meter), but need some averaging to get enough signal-to-noise for a good retrieval. This means that in clear skies you would get an effective field-of-view of say 100 meter by 50 km. In partially cloudy skies there

are less clear footprints and therefore the effective field-of-view would be extended to say 100 meter by 100 km. Is this taken into account, both the change in effective field-of-view and the capability to still provide a measurement in partial cloudy fields? * What is the rationale for using a different error model for GOSAT with respect to OCO and SCIA? For a study like this, it might not be the best choice to purely rely on the estimate given by the satellite mission temas.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 18561, 2010.