

Interactive comment on “Global CO₂ fluxes estimated from GOSAT retrievals of total column CO₂” by S. Basu et al.

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Thanks for the questions. Indeed, the prior uncertainty in fossil fuel emissions is much smaller than the prior uncertainty in the terrestrial biosphere flux. See for example Table 7.1 in the IPCC AR4 (http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch7s7-3-1-3.html#table-7-1), fifth column ('AR4'). The fossil fuel emission estimate has an uncertainty of 4.2%, compared to the 67% uncertainty in the net land-atmosphere flux. The uncertainties are similar in more recent years, which can be seen, for example, in the prior flux estimates of CarbonTracker 2011 (<http://www.esrl.noaa.gov/gmd/ccgg/carbontracker/fluxtimeseries.php?region=Global#imageable>, "First guess").

Due to this large difference in uncertainties, and the fact that the observed CO₂ signal

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is only sensitive to the sum of all fluxes and not to individual categories, currently our method cannot be used to verify anthropogenic emission estimates such as EDGAR.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 4535, 2013.

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