

Interactive comment on “A global wetland methane emissions and uncertainty dataset for atmospheric chemical transport models” by A. Anthony Bloom et al.

Anonymous Referee #2

Received and published: 4 October 2016

This study describes and evaluates a new global dataset of CH₄ emissions from natural wetlands. The method follows an ensemble approach, which has the advantage that the computation of uncertainties, including spatio-temporal covariances, is straightforward. The dataset is meant to serve as a first guess in inverse modeling for which the uncertainty quantification has a clear advantage over other methods. It is not entirely clear what the evaluation using the GEOS-CHEM model brings, other than the notion that this dataset is in reasonable agreement with datasets that were used in the past. Obviously, flux measurements are better suited to test the performance of a methane emission model, although scale dependencies complicate that approach also. Since this holds for the other datasets as well, it would nevertheless provide additional infor-

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mation. Otherwise I was missing the dimension of inter-annual variability, which brings a clear advantage for the EE dataset - although it remains unclear what that variation looks like and how realistic it is. Otherwise I have only a list of technical corrections, which should be relatively easy to tackle.

page 4, line 9: 'based top down'

page 5, eq. 20: Mention that there are 6 scenarios for EE (which helps the reader to make sure he/she understands table 1 correctly)

eq 2: what is done when $w(x)$ is not covered by $h(x)$ and vice versa?

eq 3: how is this done for the EE time series, every year 175Tg/yr or just the mean over the whole period? In the latter case: how do the global emissions compare for 2009-2010? It would also be useful to know how much of a correction is needed to get to 175 Tg/yr.

page 7, line 26: 'uncertainty. The derivation' i.o. 'uncertainty; the derivation'

page 8, line 11: 'been in a'

page 8, line 15: 'Commission' i.o. 'Comission'

page 8, line 17: ') .The non-wetland' i.o. ') .The non-wetland'

page 9, line 23: 'significantly lower (with' i.o. 'significantly (with' and remove 'lower' in the next line.

page 10, line 20: 'estimated' i.o. 'estimate'

page 10, line 25: 'by carbon' i.o. 'carbon'

page 11, line 15 - bottom: This part is hard to read due to all the numbers. It would be better to put the numbers in a Table.

page 13-14: How much emissions are derived from rivers/lakes using the current approach?

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page 28: 'Contribution' i.o. 'Contri- bution'

figure 1: bottom panels: how can the units be compared?

figure 3: the legend title misses a unit area.

Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-224, 2016.

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