

## ***Interactive comment on “WRF-Chem simulations in the Amazon region during wet and dry season transitions: evaluation of methane models and wetland inundation maps” by V. Beck et al.***

### **Anonymous Referee #2**

Received and published: 31 October 2012

#### General comments:

Manuscript presents a study comparing methane simulations by regional transport model with airborne observations over Amazon basin. Several emission model options were implemented and evaluated by comparing to the observations. Range of the possible methane emission over whole area was estimated. The manuscript is of interest to wide scientific audience working on greenhouse gases transport and flux estimations over Amazonia. It is well written, and conclusions are clear and justified. It can be published with minor corrections.

Specific comments.

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Application of the seasonal cycle in the wetland inundation area (sect. 2.5.3) to changes in the emissions is done without discussion on possible mechanism of the variation in the emissions. Reader is left to guess that some area changes from dry-land to wetland and back. Presumably, anaerobic methanogens also are assumed to survive aerobic conditions. If such mechanism is included in models by Walter and Kaplan a reference would be sufficient, if not – a discussion is recommended

Technical comments:

Page 22837, line 16 Suggest replacing the reference to "the wetland inundation map with inundated area changing in time" by more definitive description such as (for example): " wetland inundation map based on microwave remote sensing data"

Page 22837, line 24 Suggest to add definition to what area the mean emission corresponds, like: Amazon basin mean, or mean for wetlands in Amazon basin

Page 22841, line 27 "1 km LANDSAT data" sounds unusual for those who expect 30 m resolution when LANDSAT is cited, a reference to the dataset or a description is missing from the text, while notice in the corresponding Table is short and not informative.

Page 22846, Section title and text refers to "Kaplan wetland inventory", while in Line 10 on the same page it is referred as "model", please consider renaming the "inventory" to "emission model" if that is more accurate.

Page 22869, Line 3 States "current generation transport models inadequately represent. . .", is better to limit the statement to the models used in the simulations.

Suggested corrections to references:

Page 22871, Line 9 Bousquet, P., et al. – need to expand authors list

Page 22873, line 25 Emissions -> emissions

Page 22874, line 1 receptororiented -> receptor-oriented

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Page 22876, line 12 Honicke -> Thonicke

Comments on figures

Fig. 2, 5, 6 are low resolution, some characters on axis titles are blurred, so higher resolution should be provided.

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Interactive comment on Atmos. Chem. Phys. Discuss., 12, 22835, 2012.

ACPD

12, C8853–C8855, 2012

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