Atmos. Chem. Phys. Discuss.,
https://doi.org/10.5194/acp-2019-1161-RC1, 2020

Atmospheric Chemistry and Physics Discussions

Interactive comment on "PTR-TOF-MS eddy covariance measurements of isoprene and monoterpene fluxes from an Eastern Amazonian rainforest" *by* Chinmoy Sarkar et al.

Anonymous Referee #1

Received and published: 10 March 2020

This study reports BVOC concentrations and fluxes measured at an eastern Amazon rainforest in the Tapajós National Forest during wet to dry transition period, and compare the observations with the BVOC fluxes estimated with the MEGAN 2.1 model. The comparison between the measured and the modeled isoprene and monoterpene fluxes are discussed and the importance of site-specific parameters for BVOC flux estimation is highlighted. In addition, the measured BVOC fluxes were compared with previously reported measurements from the Amazon rainforest. The results demonstrate the importance of site-specific vegetation emission factors for accurately simulating BVOC fluxes in regional and global BVOC emission models. In general, all measured BVOC concentrations and emission fluxes are very valuable for accurate understanding of

BVOCs and their chemistry and photochemistry, BVOC model simulations at regional and global scales. Some minor comments and suggestions are as follows.

Line 100, "The total uncertainty for isoprene and monoterpenes were estimated to be < 20% for this study", Please explain what is the total uncertainty for isoprene and monoterpenes, including the measurements, e.g., sample collection, pump, etc.?

Line 141, what is the EC flux error estimation? Please explain it.

Line151, "Solar radiation and air temperature data obtained from MERAA-2 were used as an input. . .", Please explain these data are half hour or hourly data.

3.1 "BVOC mixing ratios and flux", . . .and fluxes?

3.3 Comparison of measured BVOC fluxes with MEGAN2.1, the emission unit is mg compound m^{-2} h^{-1} for isoprene and total monoterpenes. It is mg C m^{-2} h^{-1}? If not, it is suggested to use the unified unit in the full text.

Lines 251-253, "measured isoprene and monoterpenes emission activity factors showed slightly different pattern during midday (isoprene is relatively constant from 11:00 to 14:00", please explain why the emission activity factor of isoprene is relatively constant, while monoterpenes is a peak around 11:00 to 12:00).

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2019-1161, 2020.