

## ***Interactive comment on “Are BVOC exchanges in agricultural ecosystems overestimated? Insights from fluxes measured in a maize field over a whole growing season” by A. Bachy et al.***

**Anonymous Referee #1**

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General comments: The focus of this paper is to investigate BVOC exchange on a maize field via comprehensive in situ measurements so as to examine previous results and BVOC emission models. The major conclusions from the authors were that BVOC exchange fluxes in the maize field was lower considerably than those measured in other crops. As a result, a BVOC emission model created from standard emission factors seemed to overestimate BVOC emission fluxes and hence such the model should treat BVOC emissions case by case in different crops field. The authors further recommended to incorporate their SEF obtained from this field study in BVOC emission modeling. The evidence from their field study was strong and their arguments in the presentation were also reasonable. I recommend acceptance for publication in ACP

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after clarifying following questions.

Specific Comments: Pg. 3. section 2.1.2 Flux measurements; pg. 5, section 2.3 BVOC flux computation

I would suggest authors to give the expression of BVOC flux equation which should be the product of measured concentration and 'vertical velocity'. I would assume that '3D sonic anemometer' measures turbulent fluctuations of vertical wind, not vertical wind itself?

Pg. 11. 'Given the huge differences in normalized BVOC exchange rates among studies, we conclude... by normalizing T and PPFD'. Can BVOC exchange rate be normalized by solar zenith?

Pg. 6, ' according to a lower  $u^*$  threshold'. What is 'lower  $u^*$  threshold'?

Pg. 10, 'the methanol and acetaldehyde fluxes measured at our site were of the same order of magnitude for bare soil as for fully developed vegetation'; pg. 11, 'the soil was an important BVOC source and sink'. What is net flux of BVOC over bare soil?

Technical corrections: Pg. 1, line 17, 'developped" is 'devloped' Pg. 1, line 22, 'in this in this', delete one 'in this' Pg. 8, line 15, 'where' is 'when'?

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Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2015-1034, 2016.

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