

Interactive comment on “Nitrogen oxides and ozone fluxes following organic and mineral fertilisation of a growing oilseed-rape” by Raffaella M. Vuolo et al.

Anonymous Referee #1

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I thought this was a very well written article, summarising a study which used the eddy covariance method to monitor variation in NO₂+NO (NO_x) and O₃ in a field of oilseed rape. As the authors point out, there have been few papers which have measured NO_x and O₃ in the field using this technique and none which have measured them in an agricultural setting. One initial thought it that the article is fairly long, and the editor may feel that some information, particularly in the methods section, may be trimmed. The results and discussion sections are comprehensive and insightful.

I have a limited number of comments/questions listed below.

Line 30 – NO_x are toxic to humans above a certain critical limit (<http://ec.europa.eu/environment/air/quality/standards.htm>) and are also potentially

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damaging to ecological systems above a critical load (<http://www.apis.ac.uk/indicative-critical-load-values>). There are similar, but lower, vales relevant to ozone. This is worth mentioning in the introduction. I think these discussions would help to put your findings in the context of air quality issues. These could be referred to again in the discussion. What do your findings mean in relation to pushing concentrations towards critical limits?

Mention is made of ‘significant difference’ in the results section but I am unsure of the precise statistical methods used to derive these conclusions. Please add more detail.

This field is surrounded by heavy trafficked roads. To what extent do these roads fall within the flux footprints? Vehicles are prolific producers of NO_x and O₃. The authors have referred to this in part in the ms, but is it possible to use statistics to unpick the contribution of the field and traffic to the different levels? Perhaps by correlation with traffic densities.

Line 460 - Vehicles also emit VOC which also may affect your interpretation here.

Technical/minor corrections Line 10 – ‘7-months’ should be ‘7 month’ or ‘over a period of 7 months’ 104 – ‘sheep’ not ‘sheeps’

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