

Interactive comment on “Tracking down global NH₃ point sources with wind-adjusted superresolution” by Lieven Clarisse et al.

Anonymous Referee #1

Received and published: 18 June 2019

This paper describes a new method to obtain high resolution NH₃ columns from satellite by combining oversampling with wind-rotation. A global inventory of point sources is then developed by considering changes in columns for upwind and downwind locations. The science seems sound, the method is novel and the product will be very useful to researchers. Furthermore, the paper was very well written and a pleasure to read. I am happy to recommend it for publication.

In terms of references, I would suggest adding the following 2 citations: Page 3: The following is one of the early applications of oversampling: Russell, Ashley R., Lukas C. Valin, Eric J. Bucsela, Mark O. Wenig, and Ronald C. Cohen. "Space-based Constraints on Spatial and Temporal Patterns of NO_x Emissions in California, 2005–2008." *Environmental science & technology* 44, no. 9 (2010): 3608-3615.

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Page 8, Line 1: As far as I am aware, the following introduced rotation first: Valin, L. C., A. R. Russell, and R. C. Cohen. "Variations of OH radical in an urban plume inferred from NO₂ column measurements." *Geophysical Research Letters* 40, no. 9 (2013): 1856-1860.

My only other comments are minor proof-reading comments. Page 1, Line 1: is one *of* the primary, or is *a* primary Page 1, Line 6: do not use "allows to ..." in English (see also line 15 and page 10, line 5). Allows needs a subject (allows you to) – which you probably don't want here. Maybe "enables the"? I'm not much of a fan of "so-called" – but that may be just personal preference. Page 1, Line 20: what about: "diffuse background with higher concentrations" or something like that?

Fig 1 Caption: "measurements" not "measured" Page 10, Line 19: town *of* Lanigan Page 10, Line 25: maxima not maximums, *the* location Page 10, Line 34: fix "with with" Page 11, Line 14: *by* varying Page 14, Line 1: This sentence seemed a bit hyperbolic Page 14, Line 27: "and that allows" needs fixing. "go-to" sounds a bit clumsy.

Interactive comment on *Atmos. Meas. Tech. Discuss.*, doi:10.5194/amt-2019-99, 2019.

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