

Interactive comment on “Ammonia emissions from a grazed field estimated by miniDOAS measurements and inverse dispersion modelling” by Michael Bell et al.

Michael Bell et al.

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We thank the reviewer for the constructive and helpful comments. We are pleased that they believe that the paper is well-structured and written, recommending publication after minor revisions. In the following we address the comments and suggestions point-by-point.

Chapter 2.2: Ammonia measurements. The authors could give some numbers regarding the quality of the measurements of the paper of Sintermann et al. 2016, e.g. for the calibration procedure and the comparison of the 3 miniDOAS systems.

-> authors: We have now stated the random uncertainty of the NH₃ measurements

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(1.4% of the concentration levels). The comparison of the three miniDOAS systems gave a coefficient of variation of 3.4%, this is also shown in Chapter 2.2

Page 8, Line 252: Give standard deviation of Rc value, as the individual points show large variability in the figure.

-> authors: Done, the standard deviations have been added.

Line 446: unpublished data could be shown in the supplements

-> authors: The data we are referring to here is the 1 minute miniDOAS measurement intercomparison period where the three systems were run in parallel. Sintermann et al. (2016) present these data, however the S1 sensor was omitted because it did not have the same "Swiss miniDOAS" technical specification as the S2 and S3 sensors which were presented in that paper. In our study we use the data from all three miniDOAS systems, thus with this small difference we do not believe it is necessary to publish the same data twice, as Sintermann et al. (2016) paper analyses the inter-comparison period in detail. We present an updated coefficient of variation value to reflect the intercomparison of all 3 systems (3.4%). We have added a sentence to this section to clarify the inter-comparison data published by Sintermann et al.

Line 498: Replace QS5 by QS3 (also in Figure 4 and 6) -> authors: Done

Figure 4: Add cattle presence (like figure 6) and change QS5 to QS3

-> authors: QS5 has now been changed to QS3, we have added a statement in the figure caption stating that the cattle were present for the entire time period shown.

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