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Atmospheric Measurement Techniques Discussions

Interactive comment on "The "Lung": a software-controlled air accumulator for quasi-continuous multi-point measurement of agricultural greenhouse gases" *by* R. J. Martin et al.

Anonymous Referee #1

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General comments: The paper describes an extension of a well-known measurement technique (gas chromatographic (GC) analyzer) to detect concentrations of the greenhouse gas N2O. This instrumentation enables continuous measurements at several sampling points with a single GC. The application for concentration gradient or micrometeorological flux as well as chamber measurements is shown. Further applications with more sampling points are possible. The scientific topics of this paper are relevant and within the scope of AMT. The sampling of multiple points with one instrument is an important task. The measurement results from this technique are compared with

another independent measurement technique (tunable diode laser absorption spectrometry) to detect concentration gradients. The paper is well written, the results are sufficiently described and the conclusions are clear. The related work is well cited.

Specific comments: Page 1943, line 18: "...with only a few percent difference between the two methods" – what does it mean: How much percents? Comparison of the difference value to accuracy, detection limit etc. of both measurement methods? Page 1946, line 17: "...is shown in Fig. 4. The GC/ECD and TDL measurements show excellent agreement." This conclusion is too early here. In the following sentences it is quantified. After this discussion such a conclusion makes sense. Page 1947, line 4: "There is excellent agreement between the two instruments,...". But there are differences in the beginning and at the end of the measurement period. Discuss this please. Page 1949, line 6: "...has been shown to be a simple, non-intrusive way of measuring greenhouse gas fluxes continuously...". How you can measure non-intrusive if you use tubes and bags?

Technical corrections: no

Interactive comment on Atmos. Meas. Tech. Discuss., 4, 1935, 2011.