

## ***Interactive comment on “Measurements of methane emissions from natural gas gathering facilities and processing plants: measurement methods” by J. R. Roscioli et al.***

**Anonymous Referee #2**

Received and published: 8 January 2015

General Comments:

The paper by Roscioli et al. describes the varied tracer measurement methods that were used to quantify methane emissions from 130 gathering and processing (G&P) natural gas facilities across 20 natural gas basins in 13 states over a 5 month period in the USA. The manuscript is well written and presents the complications and caveats associated with the methods clearly. The efforts of the authors are laudable. The work is very interesting as it builds on innovative approaches to determine emissions from point sources with cleverly planned in-situ experiments employing measurements of suitable gaseous tracers. I recommend publication in AMT after the following com-

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ments have been addressed.

Major Comment

To me the only major shortcoming in the current MS is the complete lack of the actual flux data. While I understand that the measured fluxes will be reported in other papers that are either submitted (Mitchell et al.) or still in preparation (Subramaniam et al.), I do think that out of the 130 facilities the authors sampled, flux data from a few (4-5) would be of great value. For example, the authors could consider adding the flux data from the case studies used for illustrating the different methods (e.g. in Figures 2 to 5).

Minor /Technical comments:

Page 12359; Lines 1-2: Please add the quantitative range of emission assessments e.g. xx-yy

Section 2.2: Top down approaches: What about inverse modeling?

Section 2.4 Page 12366 Line 1: “..stability classes A, B, C..” It would be good to add a few lines describing the stability classes A, B, C

Section 2.4 Line21: typo “..end” instead of “and”

Page 12360; Line 13: Using bar for pressure would convey the compression factor more easily than psi

Page 12368, Line 25: “of” is not required

Page 12369, line 20: “true” wind speed should be explained to readers

Page 12370, lines 23-28: please add the dynamic range of the calibrations and linearity of the instrumental response. By what magnitude might drift in instrumental response between calibrations affect the data and analyses?

Page 12376, line 28: “e” missing in spelling of “measurement”

Page 12377, line 8: What caused the GC data to be unreliable?

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Figure 3: The figure caption states that the lower left panel displays lack of correlation but the  $r^2 = 0.95$ ! Is there a mistake?

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Interactive comment on Atmos. Meas. Tech. Discuss., 7, 12357, 2014.

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