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Atmospheric Measurement Techniques Discussions

Interactive comment on "Measurement of gas-phase ammonia and amines in air by collection onto an ion exchange resin and analysis by ion chromatography" *by* M. L. Dawson et al.

Anonymous Referee #3

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The authors describe a new technique for measuring atmospheric ammonia and amines involving uptake on to a weak cation resin and offline analysis by ion chromatography. It is important to be able to monitor trace constituents such as ammonia and amines, and worth exploring simple low cost methods such as presented here, and I would encourage publication (properly reviewed, of course). I have only a few comments, that I would like to see addressed.

Referee #2 already raises the important issue, which I would also like to see addressed, of phase partitioning of ammonia and ammonium. As the referee discusses this in detail, I will not dwell further on it, other than to suggest that the authors add a discussion

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of it in their revised manuscript.

Page 1575, lines 6 – 18: The authors note that agriculture is the largest contributor to atmospheric ammonia, and make mention of a few other sources. There are, in fact, many sources of ammonia, particularly in urban centres, where it may be more important in terms of human health and visibility (see, e.g. Sutton et al (2000) Atmos Environ, 34, 855; Perrino et al (2002) Atmos Environ, 36, 5385; Li et al (2006) JGR, doi:10.1029/2005JD006275; Whitehead et al (2007) Water, Air, Soil Poll., 183, 317). There should be at least a mention of these sources, suitably referenced, if the authors are going to list sources.

Page 1576, lines 4 – 12: As well as listing a few measurement techniques, it is worth referencing some of the inter-comparison studies that have been conducted (e.g. von Bobrutzki et al (2010) Atmos Meas Tech, 3, 91; Norman et al (2009) ACP, 9, 2635; and references therein).

In section 2.1, are the authors certain that no uptake was observed on other materials?

Section 2.5: What were the flow rates and sample times in the field measurements? Were they the same as described in the previous section? A fuller explanation of the setup may be appropriate. How were the cartridges mounted, and at what height? Are there photographs or diagrams available?

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 1573, 2014.