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Atmospheric Measurement Techniques Discussions

Interactive comment on "PTR-QMS vs. PTR-TOF comparison in a region with oil and natural gas extraction industry in the Uintah Basin in 2013" *by* C. Warneke et al.

Anonymous Referee #2

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This manuscript compares two commercially available proton transfer reaction – mass spectrometer instruments, one employing a quadrupole mass spectrometer (PTR-QMS), and the other a time of flight mass spectrometer (PTR-TOF). The instruments both employed ion reaction regions of similar design and were operated under similar conditions such that a comparison was mainly between the detection sensitivities of the quadrupole versus the time of flight mass spectrometer.

Results showed good agreement between the two instruments with the sensitivity of the quadrupole dropping as the number of measured masses increased. At 10-35 measured masses, the sensitivity of the time of flight becomes greater due to its ability to

record the entire mass spectrum every measurement. The results also demonstrated how the superior resolution could be utilized to separate certain isobaric ions into individual peaks. Overall these features (mass spec acquisition and resolution) make the PTF-TOF the superior instrument to use for most field applications.

This manuscript expands on the comparison work of Kaser et al., 2013 and Park et al.,2013. In the study described there, the PTR-TOF suffered from signal stability. The work described here uses higher quality data which allows for better quantification of the instrumental differences. Overall, the paper is well written and the subject matter appropriate for AMT. While the other referee finds there to be redundant portions, I find in most cases, the repeated information is useful. I do agree with the other comments and modifications. I recommend for publication.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 6565, 2014.