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Interactive comment on “Retrieval of tropospheric column-averaged CH₄ mole fraction by solar absorption FTIR-spectrometry using N₂O as a proxy” by Z. Wang et al.

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Received and published: 7 May 2014

Response to Referee 1

We thank the reviewer for carefully reading the manuscript and for providing constructive comments. We address the comments below.

1) Technical comment: The wording of the paper seems often clumsy to me. Because the lead author is not a native speaker, I do not intend to blame him for that. However, I herewith urge the native speakers among the coauthors to carefully proofread the paper and apply corrections.

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Done

2) Contents: In the comparison of the CH₄ and N₂O approaches, essentially only time series are presented. For an adequate quantification of the systematic differences between the two approaches, it would be highly desirable to include a discussion of the annual cycle of e.g. the discrepancies, the dependence on H₂O column, the dependence on solar elevation and the dependence on station latitude.

We have added an annual cycle plot for results using HF and N₂O at all sites. We also plotted the dependence of results with respect to H₂O column, but there is not obvious trend. This might be because the influence of H₂O on HF method results in an increase in uncertainty and scatter, but no definite dependence, while the influence on N₂O is weak. The dependence on station latitude is not additionally plotted because there are only four sites being used in this work, and the latitude dependence of the results can be seen from the seasonal cycle plot.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 1457, 2014.

AMTD

7, C844–C845, 2014

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