

Interactive comment on “Near-infrared remote sensing of Los Angeles trace gas distributions from a mountaintop site” by D. Fu et al.

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Thank you for your comments suggesting revisions to our manuscript. We made changes to the text as suggested by you.

The reviewers' suggestions are in *italic*. All of the revisions, which were made by following the suggestions from reviewers, are in **bold**.

Reviewer's suggestions: *The paper describes a novel method to measure near-IR absorbing trace gases (XCO₂, XCH₄, XCO) from a mountain top site using (a) a home-built Fourier Transform Spectrometer in a (b) to date not tested observation geometry (i.e. using ground reflected skylight from dedicated objects). While the instrument and the employed method to infer the targeted trace gas concentrations are rather robust*

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and are carefully described, which is a clear strength of the study, readers may wonder why not more measurements including some validation exercises are provided in the manuscript. Providing the latter could be rather useful for the readership to assess the high quality and to emphasize better the novelty of the study.

Re: We added a new paragraph in the end of **Page 8830 line 27** for the discussion on this topic. **“Direct validation measurements of the CLARS-FTS retrievals by independent method(s) would usefully complement the assessments of data precision and accuracy given in Tables 2 and 3. Wunch et al. (2010) used in situ aircraft measurements from the surface to high altitude along the line of sight to calibrate the measurements from four TCCON stations against WMO standards. A similar approach could be applied, in principle, to the CLARS-FTS measurements, but the additional optical path from the surface to the measurement site complicates this approach. Thus far, independent measurements that would meet the accuracy requirements of CLARS-FTS validation/calibration are not currently available but are planned for the future.”**

Minor comments: In the manuscript, I found (a) a couple of typos (b) at some place an unmotivated and disturbing changes of terms (i.e. change from simple presence to simple past, or future and vs) for example in ‘section 4.4’ (‘will be shown’ instead of ‘are’), or in the section ‘conclusions’, (c) as well as incorrect units i.e. units which do not fit to the considered physical quantity such as for example in section 2.2.2 ‘an active area of 2 mm). So a careful proof-reading of the manuscript appears necessary.

Re: **Page 8814 line 24:** change “an active area of 2 mm” to **“an active area of 3.14 mm²”**.

Page 8826 line 23: change “will be shown” to **“are presented”**.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 8807, 2013.