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Comment

Interactive comment on “Quality assessment of ozone total column amounts as monitored by ground-based solar absorption spectrometry in the near infrared ($> 3000\text{ cm}^{-1}$)” by O. E. García et al.

Anonymous Referee #2

Received and published: 23 June 2014

The paper entitled “Quality assessment of ozone total column amounts as monitored by ground-based solar absorption spectrometry in the near infrared ($> 3000\text{ cm}^{-1}$)” by García et al. presents the results of the detail inter-comparison among the ozone total column amounts (OTC) retrieved from the spectra taken at the different three wavelength (1000, 3040 and 4030 cm^{-1}) regions with the two methods (NDACC and TCCON) by using the ground-based FTIR at the Izaña Observatory. In this paper, from theoretical and empirical assessment of the errors, the authors revealed that the OTC retrieved from NDACC FTIR spectra at 3040 and 4030 cm^{-1} regions show consistent

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variations with that at 1000 cm⁻¹ region. In addition, the authors examined the long-term stability of the OTC retrievals, and found that the two Near-IR datasets can monitor the OTC evolution in long term in consistency to the 1000 cm⁻¹ dataset. These results guarantee the measurement quality of the OTCs with the ground-based NDACC FTIR by using the Mid-IR and Near-IR spectrum, being important for the research community. The paper is written with a standard of English usage, and described the methods and results. However the authors mentioned in Section 1 about importance on the quality assessment of the OTC retrieved from the TCCON spectrum, its description is not in detail in the main body. For these reasons, this paper is suitable for publication in AMT after consideration about the specific comments shown below.

(1)About the quality assessment and empirical validation of the OTC retrieved from the TCCON spectrum In Appendix B, the authors presented the results of the inter-comparison between the OTCs retrieved from the NDACC 1000 cm⁻¹ and TCCON 4030 cm⁻¹ spectrum by using a same manner in Section 4. As mentioned above, this is one of the key issues of the paper and I recommend to include in the main body (for example, in Section 4.2), because a contribution of TCCON FTIRs to the global ozone dataset is highly desirable and the quality assessment of the TCCON OTC dataset presented in this paper is valuable for the research community.

(2)About the long-term stability The authors discussed about a discontinuity of the OTC time series in December 2009 by using a robust method, and explained that this was likely due to the increase of the spectral noise level after modifications on the instrument. However, as seen in Figure2, large scattering of the phase error also seems to appear since December 2009. Does it affect to the OTC time series? Did you adopt the measured ILS parameters in OTC retrieval?

(3)Other comments (minor)

Page 2075, Line 10: Does “the average number of FTIR measurement days” include both the NDACC and TCCON measurements?

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Page 2075, Line 18: What does “official” mean? Are they defined or authorized in some documents of NDACC (or sub-groups)?

Page 2077, Line 4: “LINEFT” may be “LINEFIT”.

Page 2077, Line 5: “(Hase, 2012)” may be “Hase (2012)”.

Page 2077, Line 12: Please define “b” in the text.

Finally, I apologize for the late reviewing.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 2071, 2014.

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