Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2021-252

Chris McLinden (Referee)

Referee comment on "Assessment of the quality of ACE-FTS stratospheric ozone data" by Patrick E. Sheese et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-252-RC2, 2021

Assessment of the quality of ACE-FTS stratospheric ozone data by Sheese et al. evaluates the latest stratospheric ozone data product from the Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS) instrument on the SCISAT satellite through comparisons with several other satellite. It is a brief but well written paper, more of an update using longer data records and improved algorithms in the form of a technical note. The focus is on quantifying bias and long-term drift. The approach taken is reasonable and the results satisfactory. This paper is suitable for AMT. I recommend publication once the following points are addressed.

General comments:

- While I appreciate a short-and-to-the-point paper as much as anyone, I felt this paper could have used a little more elaboration in places. I have outlined some specific examples below, but there are likely other places that would benefit.
- The title indicates an assessment of quality, but quality also covers precision which really isn't discussed. With relatively little extra effort an approach along the lines of Bourassa et al. (2012) section 3.2 would have been a very nice addition.
- In light of this, a better title would be "Assessment of the accuracy …" or even something like "Assessment of the absolutely quality …" Something to consider…

Page 7, line 30: So was 5% chosen so that it would be smaller than the observed % difference, which would imply that the instrument difference is the dominant contributor (assuming they would be added in quadrature) ? Please be more explicit about the motivation for using 5%.

Line 13" "… likely due to using too short a time…" Does this imply a significant drift would have been detected had the time series been long enough.

Equation (2): comment briefly on why this definition was chosen

Page 7, line 6: "… is then *performed* …"

Page 8, line 5/6: "The increase is due to the improved instrument line shape modelling." – is this in the Boone et al. (2020) paper? Please elaborate a little; also line 3: add some more about "ACE-FTS altitude registration" in the ACE-FTS data description section.