Interactive comment on “The SPARC Data Initiative: comparisons of CFC-11, CFC-12, HF and SF$_6$ climatologies from international satellite limb sounders” by S. Tegtmeier et al.

Anonymous Referee #1

Received and published: 2 November 2015

1 Summary

This paper compares climatologies (seasonal, annual mean, monthly mean) of four tracers measured by four satellite instruments as a function of latitudes (zonal means). This activity was part of the SPARC Data Initiative (SPARC-DI) that compared many more constituents. The comparison of each tracer is limited to rather short periods of common overlap between instruments (maximum of five years for SF$_6$). Another issue is that out of four instruments, two are occultation instruments which have a rather very low data sampling that impacts the interpretation of the results when looking at zonal mean data. Overall I think the paper is very well written and the salient points made. I have no major comments and recommend publication of the paper as is with only some very minor modifications as proposed below.

2 Minor issues

p.767, l.15 ... except for ACE-FTS where individual measurements are vertically binned using the mid-points between the pressure levels (in log pressure) to define the bins. Please explain why the binning procedure for ACE-FTS is different than for the other instruments.

p.768,l.4: change "aims to analyze" to "aims at analyzing".

p.774,l.23: change "therefore" to "therefore," (add commas)

p.777,l.13: change "At the high latitudes" to "At high latitudes"

p.778,l.18: change "with a good agreement" to "with good agreement" 

p.780,l.18: In the mid-latitude LS, the seasonal cycle is the strongest signal and both time series agree on its overall shape with maximum values in the winter. This is only true for the NH, in the SH it is less clear, if I look at Fig. 9.

p.781,l.11: ... ACE-FTS isopleths, in particular the ones at 4.5 and 5 pptv, are less steep than the corresponding MIPAS isopleths.. At 5 pptv this is not so much evident, for 4.5 pptv and below this seems correct. Maybe, one can mention here the influence of the low maximum retrieval altitude for ACE-FTS.

p. 781,l.25: change “a very good agreement” to “very good agreement” (omit “a”).

p.783,l.16: change "result" to "results".

p.784,l.8: change “At the high latitudes” to “At high latitudes”.

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p.784,l.10: change "which, if a general feature " to "which, if assumed to be a general ...".

p. 784,l.18: change "at the high latitudes" to "at high latitudes".

p. 784,l.23: change "a good agreement" to "good agreement" (omit "a").

p. 785,l.10: change "related to the data sampling density" to "related to the low data sampling".

p.785,l.11: change "show the steeper gradients" to "show steeper gradients".

Interactive comment on Earth Syst. Sci. Data Discuss., 8, 759, 2015.