

Interactive comment on “The SPARC Data Initiative: comparisons of CFC-11, CFC-12, HF and SF₆ climatologies from international satellite limb sounders” by S. Tegtmeier et al.

Anonymous Referee #1

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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 SF₆). 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

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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.