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Comment

## ***Interactive comment on “Spectrometric monitoring of atmospheric carbon tetrafluoride (CF<sub>4</sub>) above the Jungfraujoch station since 1989: evidence of continued increase but at a slowing rate” by E. Mahieu et al.***

### **Anonymous Referee #1**

Received and published: 3 September 2013

The paper describes long-term retrievals and trends of atmospheric CF<sub>4</sub> over the Jungfraujoch station. Science and analyses in this paper are competent, detailed and the results are worthy for publication. They are commendably careful and complete about the precision and accuracy of their observations. However, the paper is too wordy. It could be considerably shortened as the authors have often given too much detail and have written paragraphs for things that could better be put into a table. I recommend publication after the authors shorten and simplify their writing.

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Pg 7538, line 16: “(e.g. Zander et al., 1992, . . .)” As “e.g.” means “for example,” a comma should be placed after the “e.g.” so it reads “(e.g., Zander et al., 1992, . . .)”.

Line 27: Same as above. Should be “(e.g., Rinsland . . .”

Pg 7539, line 4: Please provide a reference regarding emission factors for Chinese smelters.

Pg 7541, line 18: Suggest changing “badly” to “strongly.”

Pg 7541, line 15 – Pg 7542, line 9: I don’t think this long explication of why they used a “split” bandpass is necessary, and should be considerably shorter. I suggest just writing that using the entire bandpass from 1283.73 to 1285.15 was impractical because of H<sub>2</sub>O and HDO interference, so it was split into two windows and reference Figure 1. The interference is obvious from the residuals, and the long discussion of Run 1 vs Run 2 is not needed.

Pg 7542, line 18-20. The line “As a result of the poor information content . . .” could be more simply stated as “As there is poor vertical discrimination in the spectra, the constant a priori profile was scaled for fitting.”

Pg 7542, line 27. Suggest replacing “adopted within the frame” by “used in.”

Pg 7546, line 7-10: Suggest a graph or table instead of writing in all those numbers.

Pg 7546, line 23: Suggest replacing “combined with the assumption” with “assuming.”

Pg 7546, line 23 – Pg 7548, line 15: This is a long, wordy comparison of this work with previous measurements. I think that some elements of the comparison might be better put into a table, and other elements into the caption of Figure 3.

Pg 7548, line 19: “21st millennium” should be “21st century.”

Pg 7550, line 3 “. . .one should keep in mind that. . .” The meaning of this phrase may not be obvious to some that are not fluent in English. Suggest replacing this with “note

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that”.

Pg 7550, lines 9-13. “Since the 1980’s . . .regulation.” This has already been covered in the introduction, and does need to be repeated.

Pg 7552, line 4: “it is worth mentioning that” is a cliché that better used in conversation rather than writing.

Figure 1: For clarity, suggest colorizing the chemical formulae on the upper right as well as the lines connecting them. For example, “HNO<sub>3</sub>” could be in green writing, “CO<sub>2</sub>” in pink writing., etc.

Figure 2: It’s confusing to include the linear fit information. It would be more illustrative to include the fitting function and derived coefficients, and having a second graph in the Figure showing the rate of CF<sub>4</sub> increase as a function of time.

Figure 3: “It is important to note that . . .” is a cliché. Just write “Data sets can be . . .”

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