

Interactive comment on “Spectrometric monitoring of atmospheric carbon tetrafluoride (CF₄) above the Jungfraujoch station since 1989: evidence of continued increase but at a slowing rate” by E. Mahieu et al.

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General Comments

This is an important long-term trend paper which merits publication in AMT with only minor revisions. It provides a clear and detailed description of the use of state of the art FTIR instrumentation and spectral analysis methods for the quantification of CF₄ above the Jungfraujoch station over 1989 - 2012. Detailed comparisons of the findings are presented with the wide range of results available from other advanced systems,

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using both remote sensing and in situ sampling methods. The text sections about the instrumentation, data obtained and analysis are very well written, along with clear background and conclusions sections and are supported by an extensive set of references for all issues discussed. The sophisticated methodology of the spectral micro windows optimal estimation profile retrieval formalism is applied well to the observed solar spectra and is clearly presented.

Specific Comments

For the use of the formal Hitran 2004, combined with the preliminary online Hitran 2006 update as reported in the paper (correctly excluding the cf₄ line parameters of Boudon et al.), it will be useful to verify that this is equivalent to using the formal Hitran 2008.

Furthermore, it will be useful to check the formal Hitran 2012, available since June 2013, which shows some changes in the line parameters of

of H₂O and CO₂ in the spectral interval used (1284.73 - 1285.15 cm⁻¹).

In addition to the detailed numerical values reporting of CF₄ column increases, it will be useful to provide the actual equations of the solid lines in Fig. 2, as well as of the two linear fits shown in boxes inside the Fig.

Technical Corrections

The text is mostly free from typos and language errors, but there are still a few that can be corrected. For example: p. 7541, parag. 3, line 1, the "consists in" can be "consists of". p. 7541, parag. 4, line 9, need a space before the nu³. p. 7543, line 4 below the section 2.2 header, we see Miller et al. (2010), but in the references list this is given as 2008, which is the correct one.