

Interactive comment on “Diurnal cycle and multi-decadal trend of formaldehyde in the remote atmosphere near 46 N” by B. Franco et al.

Anonymous Referee #2

Received and published: 14 January 2016

This is an excellent and thorough analysis of total column formaldehyde over the Jungfraujoch. The 27 year record provides a valuable insight to changing atmospheric composition in northern mid-latitudes. The trends follow the changing CH₄ in the atmosphere.

This work also allows for an understanding of diurnal variability in the remote tropospheric background H₂CO from CH₄ oxidation, which is both useful in itself and will allow for better source apportionment at other sites more influenced by biogenic VOC emissions closer to the ground. As stated by the authors the parametric modelling of diurnal variability will improve intercomparisons with both satellite-based sensors and models.

This is an interesting paper and highly suitable for publication in Atmospheric Chemistry
C11528

and Physics after some minor comments are addressed:

1. A pedantic one, but trends exist whether they are measured or not, so the very first sentence of Abstract should be re-written – as “Only very few long-term records of formaldehyde exist” – or perhaps “Only very few long-term records of formaldehyde exist that are suitable for trend analysis” or whatever alternative the authors prefer.
2. Page 31295, 1st paragraph: Is the QA/QC cut-off of DOFS of 0.35 arbitrary or based on some specific factor. An arbitrary basis is fine – but should be identified as such.
3. Figure 1: It is unclear why the different months have been split in the way they have been into 4 plots. Are the months chosen just to give the best separation on the y-axis? If so, then this should be stated somewhere for clarity.
4. Section 5: Please clarify whether the spectra recorded on the same days represent actual coincident spectra or whether they are recorded at different times of day and corrected via the parametric model to the equivalent 9am values.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 31287, 2015.