

Atmos. Meas. Tech. Discuss., referee comment RC1
<https://doi.org/10.5194/amt-2022-260-RC1>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on amt-2022-260

Chris Boone (Referee)

Referee comment on "Michelson Interferometer for Passive Atmospheric Sounding Institute of Meteorology and Climate Research/Instituto de Astrofísica de Andalucía version 8 retrieval of nitric oxide and lower-thermospheric temperature" by Bernd Funke et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2022-260-RC1>, 2022

This paper describes a new combined data product of NO and thermospheric temperature retrieved from MIPAS measurements. The analysis procedure and error assessment are described. Comparisons are made to previous processing versions.

Overall, nice work. I have no real changes to suggest.

I will point out that this article makes heavy use of acronyms that are not defined. To name some: GRANADA, SAMONA, SMR, NOEM, SNOE, NRLMSIS, ECMWF, ERA, JPL, HITRAN, EUV. While most people reading the article will likely be familiar with these acronyms, it makes it somewhat jargon heavy. Perhaps the greatest concern might be the fact that seasonal acronyms (MAM, JJA, SON) are not defined.

In a retrieval paper, it would have made me happy to see a figure showing observed and calculated spectra, to see how well things fit. However, this is just personal preference, the spectroscopist in me.

Minor items:

> Lines 233 and 450: peroxyacyl nitrate

I believe peroxyacyl nitrate is a class of molecules. Why do you not call it peroxyacetyl nitrate?

> Caption to Figure 2: ...2006–2012 period

I can't tell if the averages excluded 2005 for some unspecified reason or this was a typo.

> Figure 5: NO error budget for FR (a, c, e) and RR (b, d, f)

No 'a, b, c, d, e, and f' labels in the figure.

> Line 571: Northern hemispheric

Northern Hemispheric

> Line 701: In the mesosphere, biases of the version 5 NO data in comparison with correlative measurements, found at 65–100 km, seem to have been considerably reduced or even removed in the new version. The new NO data is likely also in better agreement with NO observations from other satellite instruments in the upper mesosphere, where the MIPAS NO from version 5 was low-biased,

What is the difference between "correlative measurements in the mesosphere" and "observations from other satellite measurements in the upper mesosphere?"