

Atmos. Meas. Tech. Discuss., community comment CC1
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Comment on amt-2021-61

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Community comment on "Total ozone column from Ozone Mapping and Profiler Suite Nadir Mapper (OMPS-NM) measurements using the broadband weighting function fitting approach (WFFA)" by Andrea Orfanoz-Cheuquelaf et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-61-CC1>, 2021

Concerning Section 4, the paragraph starting on line 118:

I am totally confused as to what OMPS data were used and what data were not used. Basically, what does the following mean: "In addition, only the odd-numbered detector readouts are used in the retrieval, using a one-based index." Does "detector readouts" mean odd-numbered wavelengths? Does it mean something else? It's hard for me to decipher. I'm also not sure what the nature of the problem is. Are the authors suggesting that, by using all of the OMPS data, the retrieval is inconsistent between adjacent fields-of-view (FOVs) across a given measurement swath?

But irrespective of what the authors mean, it's hard to understand how the authors can justify eliminating half of the OMPS data set because their retrievals only look good if the other half is used.

At least two papers specifically concerning OMPS nadir mapper calibration show no inconsistency in the OMPS nadir mapper data (Seftor, C. J., G. Jaross, M. Kowitt, M. Haken, J. Li, and L. E. Flynn (2014), Postlaunch performance of the Suomi National Polar-orbiting Partnership Ozone Mapping and Profiler Suite (OMPS) nadir sensors, *J. Geophys. Res. Atmos.*, 119, 4413–4428, doi:10.1002/2013JD020472; and Juseon Bak, Xiong Li, Jae-Hwan Kim, David P. Haffner, Kelly Chance, Kai Yang, and Kang Sun, Characterization and correction of OMPS nadir mapper measurements for ozone profile retrievals, *Atmos. Meas. Tech.*, 10, 4373–4388, 2017, <https://doi.org/10.5194/amt-10-4373-2017>).

At least 3 different retrieval papers use hyperspectral measurements in wavelength ranges that overlap with the work done here without encountering any such problems either (A. Vasilkov, J. Joiner, C. Seftor, First results from a rotational Raman scattering cloud algorithm applied to the Suomi National Polar-orbiting Partnership (NPP) Ozone Mapping and Profiler Suite (OMPS) Nadir Mapper, *Atmos. Meas. Tech.*, 7, 2897–2906, 2014 www.atmos-meas-tech.net/7/2897/2014/doi:10.5194/amt-7-2897-2014; Gonzalo González Abad, Alexander Vasilkov, Colin Seftor, Xiong Liu, Kelly Chance, Smithsonian Astrophysical Observatory Ozone Mapping and Profiler Suite (SAO OMPS) formaldehyde retrieval, *Atmos. Meas. Tech.*, 9, 2797–2812, 2016 www.atmos-meas-tech.net/9/2797/2016/doi:10.5194/amt-9-2797-2016; and Can Li, Nickolay A. Krotkov, Simon Carn, Yan Zhang, Robert J. D. Spurr, and Joanna Joiner, New-generation NASA Aura Ozone Monitoring Instrument (OMI) volcanic SO₂ dataset: algorithm description,

initial results, and continuation with the Suomi-NPP Ozone Mapping and Profiler Suite (OMPS), Atmos. Meas. Tech., 10, 445–458, 2017, www.atmos-meas-tech.net/10/445/2017/doi:10.5194/amt-10-445-2017).

Given the above references, if every other "detector readout" (whatever the authors intend that to mean) does indeed have something wrong with it, why has nobody else encountered the problem? And if the authors have made no attempt to understand why their retrieval is encountering a problem nobody else has yet run across, why should I (the reader) trust their retrieval and the results from it utilizing the rest of the data they deem as being good?

Concerning Section 4, line 153:

"The aerosol effect is largely accounted for with the effective scene albedo." This is simply incorrect. Aerosols have a very definite wavelength dependence in the region the authors are utilizing, and using only one effective scene albedo will not effectively account for them.