Review of “Retrieval of stratospheric aerosol extinction coefficients from OMPS-LP measurements” by Rozanov et al. (2024) to be published in AMT

The stratospheric aerosol layer plays a critical role in the Earth’s climate system through its impact on radiation, chemistry and the hydrological cycle. Impacted by large volcanic eruptions, its composition and loading can also reflect the influences of sulfur precursor emissions (SO_2, OCS, DMS), extreme wildfires through Pyro-convection and the Asian Summer Monsoon transport pathways. The stratospheric aerosol layer has been studied since more than 4 decades through satellite-based solar occultation techniques, ground-based lidar and balloon-borne observations. More recently, limb observations have shown its ability to study stratospheric aerosol despite some limitations on calibration procedures, resolving complex radiation influence from scattering and absorbing and underlying assumptions on aerosol size distribution. Rozanov et al. (2024) utilizes the Ozone Mapping Profiler Suite- Limb Scatter instrument to study stratospheric aerosol extinction quasi-globally since 2012. Improvements of the retrieval algorithms are discussed in this paper and the results are compared with SAGE III/ISS and OSIRIS satellite observations. Overall, the strengths and limitations of the new algorithm are well exposed and convincing. This is a well-written, logically-structured and organized paper which merits to be published in AMT after some minor corrections can be applied and additional explanations could be provided.

1) L15P1: Solomon et al. 2011 do not report the presence of large amount of aerosols but rather an increase of stratospheric aerosols from moderate but frequent volcanic eruptions as reported by Vernier et al. (2011). I would recommend correcting this sentence.
2) L25-26P2: Evan et al. 2023 report ozone loss soon after the HTHH eruption with limited explanations about the causes. Zhu et al. (2023) found that enhanced chlorine from marine sources was likely responsible of the ozone loss more than a week after the eruption rather than dynamical processes. The same study evokes a different ozone loss mechanism than traditional volcanic eruptions. I believe that some nuances could be made here.
3) P2L29: This statement should be nuanced and is not fully correct. SAGE has provided quasi-global observations since 1979 but at rather low spatial sampling (30 profiles per day)
4) P2L35: While describing SAGE data, some information regarding the fact that the spectra are self-calibrated through exo-atmospheric measurements might be of interest for the reader.
5) P3L62: I do not believe that this paragraph justifies well why CALIPSO is not used. As a matter of fact, I would recommend using the new stratospheric aerosol product level 3 developed recently (asdc….). It could be used to understand the performance of OMPS algorithm when other datasets are not available (e.g. SAGE III/ISS in the polar winter regions Or near the tropopause where the variability of aerosol might be important and the influence of cirrus clouds in the tropics significant). In addition, I could not find how OMPS and other measurements were collocated with OSIRIS and SAGE III/ISS. Could you please clarify this >
6) P4L107: This is extremely difficult to make sense of this for non-specialist. I recommend to use some references but also to provide additional information by trying to avoid employing too many technical terms. Maybe a schematic describing the different steps of the

algorithm could be useful here. Additional effort should be made here to further explain the different steps of the algorithm.