We would like to express appreciation to the reviewers for their insights and detailed review. We have taken them all into serious consideration. Our responses (in blue) for each comment (in black) and updates to the paper (in *italics*) are provided below.

Authors' response to RC2

In this study, Kim et al compared aerosol layer heights products from several satellite instruments such as GEMS, EPIC and TROPOMI using retrieval algorithms all based on oxygen absorption bands. O2-A and B bands are used for TROPOMI and EPIC, O2-O2 band is used for GEMS. To have consistent comparisons, the aerosol layer heights are converted with a similar definition. Cases studies including dust and smoke over several regions in Asia are also discussed. Discrepancies between the products of the three instruments may reveal limitations in assumed aerosol and surface models and shed new lights to improve ALH retrievals. In general, this work fits the scope of AMT, and provide detailed and thorough analysis with useful results. I have several suggestive comments which may help improve the clarity of this work.

General comments:

1. There are many acronyms, and many of them are not defined when mentioned the first time. For example: UVAI (the ultraviolet aerosol index), AEH (aerosol effective height) have been used several times, but only defined in Page 5, Line 146 and 156. I would recommend having a table defining those acronyms.

   Thank you for pointing this out. We included a list of acronyms at the end of the paper (included as appendix) and verified all acronyms when introduced for the first time in the paper.

2. Most conclusions are made by comparing with AERONET and inter-comparisons. However, each product also has uncertainties which relate to the measurement uncertainties and retrieval algorithms. I didn't find discussions on the accuracy of the measurements from these instruments, and corresponding ALH uncertainties. In principle, the ALH uncertainty from each instrument can be validated using the AERONET data too.

   We included measurement and retrieval uncertainties investigated in the level 1 calibration and the algorithm papers of each sensor and product. Then, we compared these theoretical findings with our actual validation results with CALIOP.

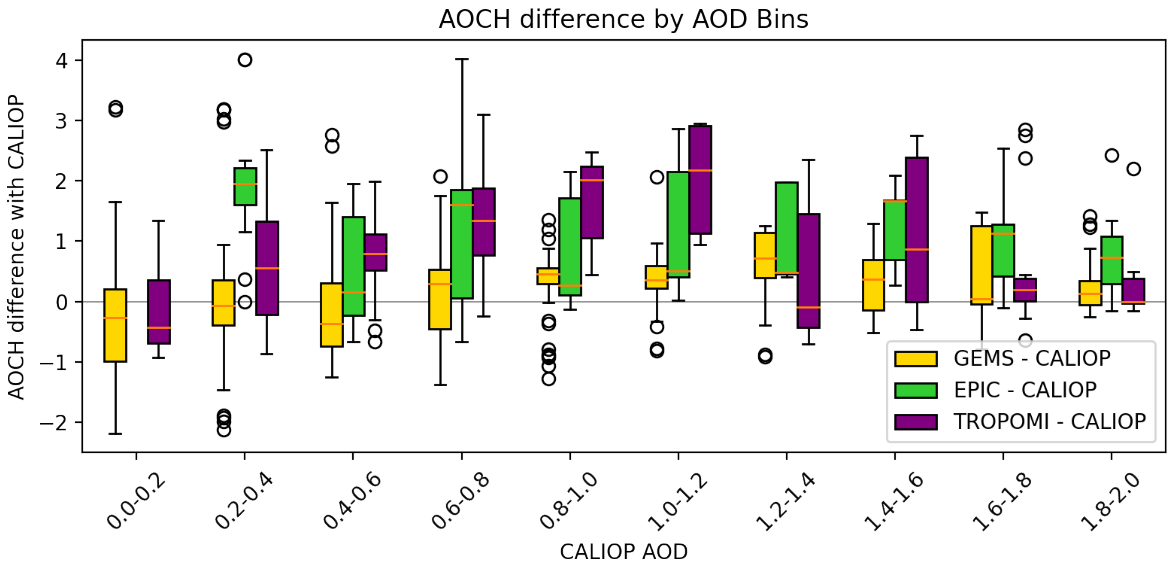
   Based on a 2% measurement uncertainty for the EPIC DOAS ratios (Geogdzhayev and Marshak, 2018), the theoretical AOCH retrieval error is shown to remain below 1.25 km for vegetated surface when AOCH exceeds 1 km (Xu et al., 2019). Our analysis shows that the RMSE from all error sources, including measurement and retrieval uncertainties, evaluated between EPIC and CALIOP is approximately 1.25 km, which aligns with the retrieval error.

   The TROPOMI AOCH algorithm builds upon the framework established by the EPIC algorithm (Xu et al., 2019), with some adjustments for TROPOMI. Measurement uncertainty for TROPOMI is estimated to be 1 – 2 % (Kleipool et al., 2018). In addition to instrument errors, TROPOMI AOCH algorithm incorporates the convolution of TROPOMI spectral data, introducing potential additional uncertainty. Our study indicates an RMSE of TROPOMI ALH as 1.31 km. Assuming retrieval error similar to EPIC, this uncertainty appears reasonable.

   The GEMS AEH algorithm originates from Park et al. (2016), who performed an error analysis for OMI. The instrument error was indicated to be less than 10 m, stemming from a spectral wavelength error of 0.02 nm, with the total error ranging from 739 to 1276 m depending on aerosol types. Meanwhile GEMS has a spectral calibration accuracy of 0.002 nm (Kang et al., *2020). Our study demonstrates an RMSE of GEMS ALH at 0.75 km, falling within the theoretical retrieval error.*

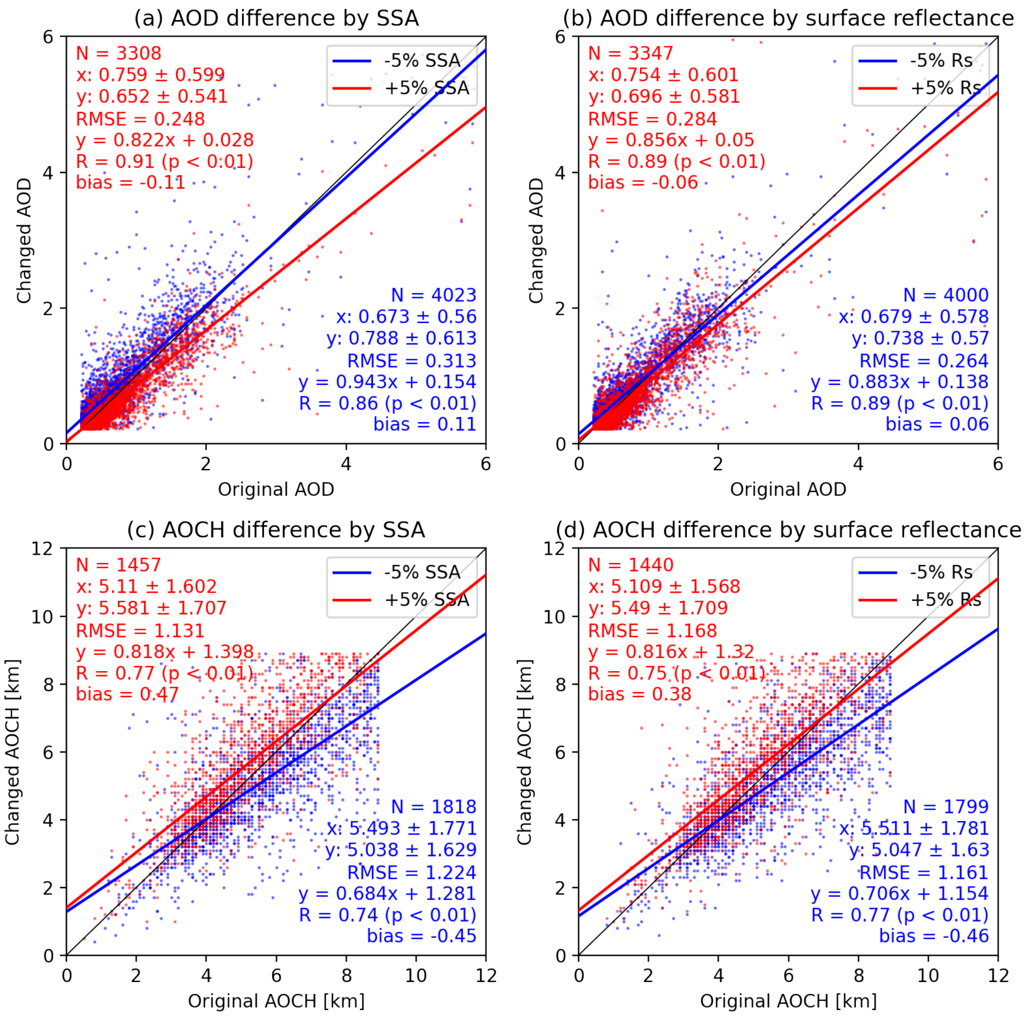
3. Due to the information content, the ALH uncertainty should have strong dependency with the aerosol loading (or AOD). I don't have a clear understanding on what the AOD range is used in the discussion of ALH from this study, and how that impact the conclusion.

Thank you for your insightful comment. As AOD increases, the sensitivity of the reflectance ratio in the O2 A and B bands to AOCH also increases, as illustrated in Figure 1c-d from Xu et al. (2017). To further understand the AOD dependency of ALH uncertainty in the observational perspective, we analyzed the ALH difference between CALIOP and passive products, according to AOD bins of 0.2. The average difference between CALIOP AOCH and GEMS AOCH within each AOD bin only reaches 0.4 km. For TROPOMI, AOCH difference increase as increasing AOD, at AOD less than 1.2, with TROPOMI consistently overestimating, which resonates in Fig. 6. EPIC AOCH exhibits a linear increase in bias relative to AOD until AOD surpasses 1.2. This trend may stem from the AOD dependency within the aerosol model. We included this figure in the supplementary.



4. The authors suggested that the aerosol and surface model used in the ALH retrievals may cause the discrepancy between different products. It would be useful to add more discussion on how such models impact the ALH retrievals, and how the authors would recommend to improve based on the results from this study.

We conducted a sensitivity test by modifying two key parameters: single scattering albedo (SSA) as a representative of the aerosol model, and surface reflectance as a representative of the surface model. Specifically, we increased and decreased both SSA and surface reflectance by 5% to evaluate their impact on ALH and AOD for one day of EPIC retrieval. This result in Figure below where increasing SSA and surface reflectance leads to lower AOD, but higher ALH, which is consistent with theoretical expectations. However, the complexity of the relationship between these parameters is evident, as not all data points show trends in the same direction. ALH retrieval becomes more complex due to the direct influence of SSA on ALH estimation, compounded by the indirect impact of SSA on AOD, which also affects ALH retrieval. This underscores the complexity inherent in the relationship within each parameter, making it challenging to quantify their individual contributions.



Page 1, line 24 "In comparison with CALIOP ALH, both EPIC and TROPOMI ALH display a high correlation coefficient (R) higher than 0.7 and an overestimation by ~ 0.8 km, whereas GEMS ALH exhibits minimal bias (0.1 km) but a slightly lower correlation with R of 0.64."

Why there is larger bias with higher correlation? Does this indicate limitation to use correlation as a metric?

Using both correlation and bias as metric provides a more comprehensive evaluation of agreement between products, capturing both the strength of the relationship and the magnitude of differences. While GEMS has lower bias, EPIC and TROPOMI show higher correlation, indicating there may be a systematic bias that could be easily adjusted from their retrieval processes.

Page 1, line 25: UVAI not defined, what is its meaning?

Thank you for pointing this out. UVAI means ultraviolet aerosol index. We included a list of acronyms at the end of the paper (included as appendix) and verified all acronyms when introduced for the first time in the paper.

Page 2, Line 63: "…the degrees of freedom for signal (DOFS) increase from 2.1 to 2.8, which becomes sufficient for three parameter retrievals (AOD, aerosol peak height, and aerosol layer thickness)…"

How do you know that the three parameters are the right set of parameters, not other ones, such as SSA, aerosol size, etc?

This is a study from Choi et al. (2021) that focused on aerosol profiling capability. This information shows the impact of measurement factors, such as spectral resolution and coverage, SNR, radiance, and polarization on aerosol profile retrievals. The three key aerosol parameters needed to retrieve aerosol profiles are optical depth, peak height, layer thickness. While information content of other retrieval parameters including surface BRDF, aerosol microphysical properties (i.e., particle size distribution and refractive indices parameters) were also considered in their study, we focused on these three parameters that directly relate to aerosol distribution, which is the main focus of our study and Choi et al.'s work.

Choi et al. (2021) found that the degrees of freedom for signal (DOFS) for a single California Laboratory for Atmospheric Remote Sensing Fourier Transform Spectrometer (CLARS-FTS) measurement becomes sufficient to retrieve three key aerosol parameters—AOD, aerosol peak height, and aerosol layer thickness in the planetary boundary layer (PBL)—when adding a high spectral resolution (with a full-width half-maximum of 3 cm^{-1} or better), polarimetric measurements with SNR of at least 212, and radiance measurements with SNR of 300 for both oxygen (O_2) A and $^1\Delta$ bands.

Page 4. Line 115, although O2-A, O2-B and O2-O2 bands all have sensitivities, I didn't find any discussion on the measurement uncertainties from the three sensors using those bands?

As mentioned above, we included measurement and retrieval uncertainties and compared these theoretical findings with our validation results using CALIOP.

Page 4, line 125, “Accurate retrieval of ALH requires reliable retrieval of AOD, and past studies have shown that ALH and UVAI relationship can change with AOD (Xu et al., 2017).”

Can you elaborate how the relationship will change? And how did that apply to this study?

Thank you for your insightful questions. Since UVAI depends on ALH, AOD, and SSA, its correlation with ALH changes with AOD. From Figure 12 from Xu et al. (2019), the relationship between UVAI and ALH, as well as their correlation, strengthens with increasing AOD. However, our study focuses on comparing UVAI products to select thresholds for each AOCH product that has similar spatial coverage of absorbing aerosols, as well as establishing criteria (e.g., UVAI > 3 in Figure 6,7, and 8) for comparing different AOCH products.*Accurate retrieval of ALH requires reliable retrieval of AOD since the retrieval sensitivity is strongly dependent. Furthermore, ALH algorithms use UVAI to focus on absorbing aerosols or classify aerosol types. Since different sensors have their own UVAI products, we compare these products to select appropriate thresholds for comparing AOCH.*

Page 5, Line 135, “all algorithms assume quasi-Gaussian distribution described by two parameters including centroid height and half width (fixed at 1 km) at half maxima”

It would be useful to show the formula, which can help explain what is a quasi-Gaussian distribution, and half width at half maxima. I feel FWHM (full width at half maximum) is more commonly used. (I saw the formula in later section, you may need to add a reference).

We removed terms “quasi-Gaussian distribution” and “half width” since this part is just an introduction for upcoming sections. Instead, a more detailed explanation has been included in section 2.2.

Page 5, Line 156, “aerosol types are classified by the ultraviolet aerosol index (UVAI) and visible aerosol index derived from GEMS observations”

How UVAI is used to classify aerosol types?

UVAI and VisAI are calculated using the following equation:

$$\mathrm{AI} = -100\left[log\left(\frac{N_{\lambda_1}}{N_{\lambda_2}}\right)_{meas} - log\left(\frac{N_{\lambda_1}(LER_{\lambda_1})}{N_{\lambda_2}(LER_{\lambda_2})}\right)_{calc}\right]$$

In this equation, N_{λ_1} and N_{λ_2} represent the normalized radiances at the wavelength pairs 354/388 (477/490) nm for UVAI and VisAI, respectively. The subscripts "*meas*" and "*calc*" indicate the measured and calculated normalized radiances, respectively (Cho et al., 2024). We added the definition and meaning of UVAI in the introduction when it was first mentioned.

Three aerosol types were classified using UVAI and the Visible Aerosol Index (VisAI), which, similar to UVAI but with visible channels, categorizes aerosols into highly absorbing fine (HAF), dust, and non-absorbing (NA) aerosols. NA aerosols are selected when UVAI yields a negative value, the dust type is determined when both UVAI and VisAI are positive, and HAF is selected when UVAI is positive but VisAI is negative (Cho et al., 2023).

Page 5, Line 159. "For LUT generation, aerosols are assumed to be spherical and their particle size distribution, refractive index and fine mode fraction for each aerosol types are derived from global AERONET inversion climatology."

Can you confirm that whether AERONET aerosol inversion already considered non-spherical aerosols? I believe there are products used non-spherical aerosol model.

AERONET's aerosol inversion provides sphericity factor, but GEMS uses Mie theory for its LUT calculation. This limitation is because GEMS uses a computationally intensive spectral binning method, as noted by Cho et al. (2023). While spectral binning enhances stability by averaging across wavelengths and improves observation reliability by reducing random errors, it requires significant computational resources. To manage this, GEMS calculations use the Mie theory, which simplifies by ignoring the non-sphericity of dust.

For LUT generation, aerosols are assumed to be spherical due the computationally intensive spectral binning method, as noted by Cho et al. (2023). In addition, the particle size distribution, refractive index and fine mode fraction for each aerosol type are derived from global AERONET inversion climatology.

Page 6, Line 172, what O2AB-UI algorithm stands for?

The O2AB-UI algorithm was initially used to indicate EPIC and TROPOMI's AOCH algorithm. However, we realized use throughout the paper might lead to confusion, prompting us to remove this term entirely.

Page 6, Line 180, UVAI is defined in previous page.

Thank you for pointing this out. We defined all acronyms when introduced for the first time in the paper.

Page 6, Line 183, "only those pixels covered by lofted layer of absorbing aerosols with UVAI larger than 1.5 and AOD larger than 0.2 (at 680 nm) are analysed."

Is this the case for all following analysis? Fig 3, seems include AOD as small as 0.1 for all sensors.

This sentence applies for EPIC retrievals, and in Fig 3 (d) EPIC AOD does not have data below 0.2.

Page 6, Line 191, "However, the hyperspectral measurements from TROPOMI, unlike the EPIC measurement in narrow channels, prevent us to applying the EPIC AOCH algorithm in TROPOMI L1B data directly"

So what is the band width for TROPOMI?

TROPOMI consists of a high-resolution spectrometer system functioning across a range from ultraviolet to shortwave infrared. It incorporates seven distinct spectral bands: UV-1 (270-300nm), UV-2 (300-370nm), VIS (370-500nm), NIR-1 (685-710nm), NIR-2 (745-773nm), SWIR-1 (1590-1675nm), and SWIR-3 (2305-2385nm). However, we removed this sentence as it was unnecessary.

Page 7, Line 210, Eq (1), what is the reason not choosing a Gaussian distribution but choose the current form? If a Gaussian distribution is used, FWHM or half width at half maximum can be easily expressed by the standard deviation.

Does the choice of 1km as half width at half maximum impact the ALH results?

Thank you for a valuable comment on the quasi-Gaussian distribution. As mentioned in a previous comment, while the full width at half maximum (FWHM) is more commonly used for Gaussian distribution, in the context of our study, half width is more often used as we are following the quasi-Gaussian distribution defined by Spurr and Christi (2014). Quasi-Gaussian distribution is a generalized distribution function (GDF) profile that offers easier integration in a simple closed form without requiring error functions.

The assumption of a 1 km half width is based on typical Lidar observations for dust and smoke aerosols, as noted by Reid et al. (2003). This same value has also been employed in the derivation of Aerosol Optical Depth (AOD) from ultraviolet (UV) observations by both TOMS (Total Ozone Mapping Spectrometer) and OMI (Ozone Monitoring Instrument), as highlighted in the work by Torres et al. (1998). Now, it is a commonly used parameter value as seen in products from EPIC, TROPOMI, and GEMS aerosol layer height retrievals.

Xu et al. (2019) illustrated the sensitivity of the DOAS ratio (ρ) to the half-width parameter (σH) in the Figure A1, showing that while the DOAS ratios exhibit a negative sensitivity to σH for aerosols at higher altitudes, the sensitivity becomes positive for ALH values below 1.5 km, and an error of 0.5 km in σH could result in a retrieval error of up to 0.3 km for ALH.

Page 8, Line 265 "Hence, the accuracy of each AOD product also influences corresponding ALH retrieval, which will be validated here by the ground-based Aerosol Robotic Network (AERONET) inversions as well."

Similar to a few previous comments, the aerosol loading itself also impacts ALH retrieval. One example can be found from polarimetric retrievals, such as Gao et al 2023, (https://doi.org/10.5194/amt-16-5863-2023). It would be useful to make it clear how AOD impacts the conclusion in this study.

We acknowledge that we should give more information on how AOD influences ALH retrieval. We included information about retrieval sensitivity of ALH to AOD as mentioned in a previous answer.

Page 8, Line 274 "Since TROPOMI and EPIC AOD products are retrieved at the wavelength of 680 nm whereas GEMS AOD products are retrieved at 354, 443, and, 550 nm,…"

Is there any estimation of the AOD accuracy derived from these bands? Which one is more accurate?

GEMS AOD is retrieved at 443 nm, with AOD at 380 nm and 550 nm subsequently calculated as part of their products. Consequently, there may be error propagation for GEMS AOD at 380 nm and 550 nm if the Angstrom exponent of aerosol types used to calculate AOD at different wavelengths is inaccurate. In contrast, TROPOMI and EPIC AOD products are retrieved at 680 nm. We clarified that the GEMS AOD is retrieved at 443 nm.

Since TROPOMI and EPIC AOD products are retrieved at the wavelength of 680 nm whereas GEMS AOD products are retrieved at 443 nm, we estimated GEMS AOD at 680 nm from its AOD at 443nm …

Page 8, Line 290 "The observed underestimation of GEMS AOD at 680 nm can be in part due to an overestimation of the Angstrom Exponent (AE), which can be affected from inaccurate particle size or refractive index in the wavelength-dependent aerosol model."

What aerosol model is used?

Details regarding the aerosol models employed in each algorithm are provided in Table S1 of the supplementary document

Table S1. Aerosol model comparison used in AOD/ALH retrievals for GEMS and TROPOMI/EPIC

		HAF	Dust
mr		1.46	0.00428 ln τ + 1.55 (675 nm)
mi		0.02044	0.00197 ln τ + 0.00268 (675 nm)
Reff	Fine mode Coarse mode	0.0854 1.4115	0.0152τ+0.122 -
Veff	Fine mode Coarse mode	1.5421 1.7630	0.156τ+0.227 -
fmf		0.99994	-0.0696 ln τ + 0.37
SSA			Coarse mode: 0.0214 ln τ + 0.949 (675 nm)
Phase function		Mie	Fine: Mie Coarse: Dynamic AERONET climatology

τ is the AOD at 680 nm.

Page 11, Line 302, what is the surface model used here?

The surface estimations are included in the data section (2.1) as well as here.

(2.1 Satellite data) The surface reflectance data used for TROPOMI/EPIC ALH retrievals involves two sources: Land surface reflectance is obtained from the MODIS surface bi-directional reflectance climatology, while water surface reflectance is derived from the GOME-2 surface Lambert-equivalent reflectivity (LER) database.

For TROPOMI and EPIC retrievals over land, climatological surface reflectance data from MODIS is employed. Additionally, unlike GEMS AEH retrieval algorithm that uses GEMS level 2 surface reflectance data, Cho et al. (2023) developed a new method for GEMS AOD retrieval, employing a novel hourly surface reflectance database generated through the minimum reflectance method, which integrates climatological minimum reflectance values for each pixel within a ±15-day window over a two-year period, along with monthly background AOD data. This novel surface reflectance estimation from GEMS AOD retrieval is shown effective.

Page 12, Fig 3. "Satellite data points only with a standard deviation less than 0.3 are shown for spatial consistency."

How is the standard deviation derived?

This is because we average satellite retrievals to collocate with AERONET data. In this process of averaging for a fixed radius around AERONET sites (here we use 0.2º) we might incorrectly average spatially inconsistent satellite retrievals. Also, data points with a standard deviation exceeding 0.3 constitute approximately 3% of the total data points; consequently, we regarded them as anomalies and removed them.

Page 13 Line 318, how the dust and smoke cases are separated?

Distinguishing between dust and smoke cases is based on the predominant aerosol type observed in the CALIOP lidar data.

(https://www-calipso.larc.nasa.gov/products/lidar/browse_images/std_v451_index.php)

Page 13, Line 321, what dust aerosol model is used, in terms of size, refractive index etc?

Aerosol models are presented in Table S1 of the supplementary document.

Page 14, Fig 4, it seems GEMS AOD has a boundary constraint which make its less than 0.5 most of the time, at least for dust? But it seems smoke case don't have such constraint.

The AERONET validation in Fig.3 provides a more comprehensive understanding of the apparent disparity for dust cases between GEMS and EPIC/TROPOMI. Specifically, when AERONET AOD is above one, GEMS AOD tends to be lower, whereas for AERONET AOD below 1, there are many instances where GEMS AOD exceeds the one-to-one line. This indicates that a higher disparity with EPIC/TROPOMI can be expected for higher GEMS AOD values, which may appear like a boundary constraint.

Page 16, 374-375, UVAI are used to categorize GEMS aerosol retrievals. What is the meaning for UVAI? Does different category relate to different aerosol types?

UVAI computes the difference between measured and calculated (as in purely molecular atmosphere) near-UV spectral dependence (Torres et al., 1998). UVAI values approaching zero occur when the atmosphere is devoid of aerosols, or when significant non-absorbing aerosol particles and clouds are present. Aerosols capable of absorbing UV radiation, such as carbonaceous aerosols, volcanic ash, and desert dust, are the main factors leading to positive UVAI values (Torres et al., 2007). As mentioned previously, GEMS use UVAI and VisAI to classify aerosol types. TROPOMI and EPIC ALH focus solely on retrieving UV absorbing aerosols by setting a UVAI threshold, ensuring retrieval only occurs for pixels surpassing this threshold.

Page 19, Line 425, how the boundary layer height relates to the ALH? Is there any quantitative relationship?

Although we don't have results to show quantitative relationship with the boundary layer and ALH, here are some previous studies that showed the diurnal variation of aerosol layer height.

Xu et al. (2017) found that higher aerosol layer heights (ALH) were observed in the afternoon, possibly indicating a relationship with the diurnal evolution of tropospheric convection. Lee et al. (2019) observed that aerosol heights tend to rise in the afternoon and early evening, likely due to the development of the boundary layer's mixed layer. Lu et al. (2023) conjecture that the diurnal cycle of Saharan dust plume height is a consequence of the diurnal variation in solar heating, which leads to thermal buoyancy lifting the dust layer, combined with the diurnal evolution of the boundary layer.

Page 19, Line 443, are these UTC time? Can you also provide local time?

The time shown here is similar to local time, but constructed with the relative solar local noon times, which marks the moment when the solar zenith angle reaches its minimum value at a specific location. Using these times as the central reference point, GEMS and EPIC products for the day are adjusted to relative solar local time accordingly. This adjustment was considered necessary due to the wide geographical area covered by our study and the selected cases spanning from March to August. These months exhibit seasonal variations, resulting in notable changes in the sun's position.

Page 20, Fig 9, can you provide local time too?

Yes, we added local time for Beijing (UTC + 8) to the x-axis.

Page 25, Line 513, "…This suggests that EPIC and TROPOMI ALH retrievals exhibit a systematic positive bias for aerosols over Southeast Asia, indicating the potential need for tuning in the related smoke model, including surface reflectance and aerosol properties."

Can you elaborate what can be tuned in the smoke model?

"…This suggests that EPIC and TROPOMI ALH retrievals exhibit a systematic positive bias for aerosols over Southeast Asia, indicating the potential need for tuning in the related smoke model, including aerosol properties like size distribution, refractive index, single scattering albedo, and phase function."

Page 27, Line 554, "Both EPIC and TROPOMI consistently overestimates ALH in comparison to CALIOP, with an approximate bias of 0.8 km."

At what AOD range this conclusion is made?

All retrieved AOD from EPIC, and TROPOMI are considered. However, it is noted that EPIC and TROPOMI only retrieves AOD and ALH when AOD is higher than 0.2.

Reference

Cho, Y., Kim, J., Go, S., Kim, M., Lee, S., Kim, M., Chong, H., Lee, W. J., Lee, D. W., Torres, O., and Park, S. S.: First Atmospheric Aerosol Monitoring Results from Geostationary Environment Monitoring Spectrometer (GEMS) over Asia[preprint], https://doi.org/10.5194/amt-2023-221, 23 October 2023.

Choi, M., Sander, S. P., Spurr, R. J. D., Pongetti, T. J., van Harten, G., Drouin, B. J., Diner, D. J., Crisp, D., Eldering, A., Kalashnikova, O. V., Jiang, J. H., Hyon, J. J., and Fu, D. J.: Aerosol profiling using radiometric and polarimetric spectral measurements in the O₂ near infrared bands: Estimation of information content and measurement uncertainties, Remote Sensing of Environment, 253, 20, https://doi.org/10.1016/j.rse.2020.112179, 2021.

Geogdzhayev, I. V. and Marshak, A.: Calibration of the DSCOVR EPIC visible and NIR channels using MODIS Terra and Aqua data and EPIC lunar observations, Atmos. Meas. Tech., 11, 359-368, https://doi.org/10.5194/amt-11-359-2018, 2018.

Kang, M., Ahn, M.-H., Liu, X., Jeong, U., and Kim, J.: Spectral Calibration Algorithm for the Geostationary Environment Monitoring Spectrometer (GEMS), Remote Sens-Basel, 12, 2846, 2020.

Kleipool, Q., Ludewig, A., Babić, L., Bartstra, R., Braak, R., Dierssen, W., Dewitte, P. J., Kenter, P., Landzaat, R., Leloux, J., Loots, E., Meijering, P., van der Plas, E., Rozemeijer, N., Schepers, D., Schiavini, D., Smeets, J., Vacanti, G., Vonk, F., and Veefkind, P.: Pre-launch calibration results of the TROPOMI payload on-board the Sentinel-5 Precursor satellite, Atmos. Meas. Tech., 11, 6439-6479, https://doi.org/10.5194/amt-11-6439-2018, 2018.

Lee, L., Zhang, J., Reid, J. S., and Yorks, J. E.: Investigation of CATS aerosol products and application toward global diurnal variation of aerosols, Atmos. Chem. Phys., 19, 12687-12707, https://doi.org/10.5194/acp-19-12687-2019, 2019.

Lu, Z. D., Wang, J., Chen, X., Zeng, J., Wang, Y., Xu, X. G., Christian, K. E., Yorks, J. E., Nowottnick, E. P., Reid, J. S., and Xian, P.: First Mapping of Monthly and Diurnal Climatology of Saharan Dust Layer Height Over the Atlantic Ocean From EPIC/DSCOVR in Deep Space, Geophys Res Lett, 50, 10, https://doi.org/10.1029/2022gl102552, 2023.

Park, S. S., Kim, J., Lee, H., Torres, O., Lee, K. M., and Lee, S. D.: Utilization of O-4 slant column density to derive aerosol layer height from a space-borne UV-visible hyperspectral sensor: sensitivity and case study, Atmos Chem Phys, 16, 1987-2006, https://doi.org/10.5194/acp-16-1987-2016, 2016.

Reid, J. S., Kinney, J. E., Westphal, D. L., Holben, B. N., Welton, E. J., Tsay, S.-C., Eleuterio, D. P., Campbell, J. R., Christopher, S. A., Colarco, P. R., Jonsson, H. H., Livingston, J. M., Maring, H. B., Meier, M. L., Pilewskie, P., Prospero, J. M., Reid, E. A., Remer, L. A., Russell, P. B., Savoie, D. L., Smirnov, A., and Tanré, D.: Analysis of measurements of Saharan dust by airborne and ground-based remote sensing methods during the Puerto Rico Dust Experiment (PRIDE), Journal of Geophysical Research: Atmospheres, 108, https://doi.org/https://doi.org/10.1029/2002JD002493, 2003.

Torres, O., Bhartia, P. K., Herman, J. R., Ahmad, Z., and Gleason, J.: Derivation of aerosol properties from satellite measurements of backscattered ultraviolet radiation: Theoretical basis, J Geophys Res-Atmos, 103, 17099-17110, https://doi.org/10.1029/98jd00900, 1998.

Torres, O., Tanskanen, A., Veihelmann, B., Ahn, C., Braak, R., Bhartia, P. K., Veefkind, P., and Levelt, P.: Aerosols and surface UV products from Ozone Monitoring Instrument observations: An overview, J Geophys Res-Atmos, 112, https://doi.org/10.1029/2007jd008809, 2007.

Xu, X. G., Wang, J., Wang, Y., Zeng, J., Torres, O., Reid, J. S., Miller, S. D., Martins, J. V., and Remer, L. A.: Detecting layer height of smoke aerosols over vegetated land and water surfaces via oxygen absorption bands: hourly results from EPIC/DSCOVR in deep space, Atmos Meas Tech, 12, 3269-3288, https://doi.org/10.5194/amt-12-3269-2019, 2019.

Xu, X. G., Wang, J., Wang, Y., Zeng, J., Torres, O., Yang, Y. K., Marshak, A., Reid, J., and Miller, S.: Passive remote sensing of altitude and optical depth of dust plumes using the oxygen A and B bands: First results from EPIC/DSCOVR at Lagrange-1 point, Geophys Res Lett, 44, 7544-7554, https://doi.org/10.1002/2017gl073939, 2017.