

Dear Professor Tetiana Kalinichenko,

Thank you very much. The suggestions you gave me for my article are very good and I have benefited a lot from them. I'm very glad to answer the questions you raised. The answers to each question are as follows:

1. What unit of "aerosol density of dust" was used in your calculations? Please check 119-120 rows. I just inspected reference (Li et al., 2021) and didn't find it.

Answer: I'm very sorry. Due to my negligence, I wrote the unit as $\mu\text{m}/\text{m}^3$ and the references provided were also inappropriate, which caused you a misunderstanding. The unit of the **density** of dust aerosol in my article is g/cm^3 , which has been verified in the following two references. I will cite these two references. In both of these two literatures, the unit of dust aerosol **density** is used as g/cm^3 .

Reference1: Veselovskii, I., Barchunov, B., et al.: Retrieval and analysis of the composition of an aerosol mixture through Mie–Raman–fluorescence lidar observations, *Atmospheric Measurement Techniques*, 17: 4137-4152, doi: 10.5194/amt-17-4137-2024, 2024.

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Reference2: Ansmann, A., Seifert, P., Tesche, M., Wandinger, U.: Profiling of fine and coarse particle mass: case studies of Saharan dust and Eyjafjallajökull/Grimsvotn volcanic plumes, *Atmos. Chem. Phys.*, 12: 9399-9415, <https://doi.org/10.5194/acp-12-9399-2012>, 2012.

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https://www.researchgate.net/publication/258564791_Profiling_of_fine_and_coarse_particle_mass_case_studies_of_Saharan_dust_and_EyjafjallajokullGrimsvotn_volcanic_plumes

2. Am I correct in understanding that the dust mass concentration is expressed in mg/m^3 ? Many environmental and health-related studies commonly use $\mu\text{g}/\text{m}^3$, so I would appreciate confirmation to ensure accurate interpretation and comparison with other data sources.

Answer: Thank you for your very good suggestion. Your understanding is correct. In this article, the mass concentration of dust is expressed in mg/m^3 . This paper studied the mass concentration of dust aerosol during a strong dust storm in March 2021 in Yinchuan. Therefore, the mass concentration was relatively high this time, and thus the unit of mass concentration, mg/m^3 , was used. You're right. The commonly used unit for aerosol mass concentration is $\mu\text{g}/\text{m}^3$. In this paper, mg/m^3 is used. This shows that during a sandstorm, the mass concentration of dust aerosols in the atmosphere is many times higher than usual.

3. I didn't find Equation 9.

Answer: Thank you for your very good suggestion. I carefully checked the paper. It was my mistake. It should be Formula 8 (200 rows).

Sincerely,

Hu Zhao