#REF1

Minor comment:

1. Abstract line 21: add be ‘can be served’

The sentence was changed accordingly.

2. ‘mineral dust being predominant’. Give a number percentage to ‘predominant’

The sentence was rephrased: “…with mineral dust being present in nearly 75% of the days”

3. Usually dust is coarse…how can it serve as a key point for the entire size distribution?

It serves as a key point because it determines the shape of nearly half of the Volume Particle Size Distribution (VPSD) curve. As different size-related features are presented for the two dust types, Saharan and Arabian dust exhibit distinct VPSD shapes.

4. This line is redundant “ Saharan dust exhibited smaller and less absorbing particles than Arabian dust.” Given you already mentioned their angstrom coefficient.

The reviewer is right, we have rephrased the sentence: “According to the columnar records, Saharan dust also exhibited less absorbing particles than Arabian dust.”.

5. Introduction line 16: “ Larger and less absorbing particles are expected in Asian dust. “ previously you said Saharan dust are smaller and less absorbing. So shouldn’t Asian dust be larger and more absorbing? (give references)

We have rephrased this section to avoid confusion between Asian and Arabian dust. The comparison made by Su and Toon (2011) was between Asian and Saharan dust. The Taklimakan and Gobi deserts are the major dust sources in Asia. The new sentence is: Su and Toon (2011) found differences in the shape of particle size distribution between Asian (Taklimakan and Gobi deserts) and African dust.

6. Section 3: “ Predominance of fine particles is observed in 18% of total instantaneous data with AE > 1.4, meanwhile aerosol mixtures occur in almost half of the database with AE values between 0.6 and 1.4. “ give reference

We have rephrased the sentence to improve the clarity: “Fine particles (AE > 1.4) predominate in 18% of the measurements, whereas aerosol mixtures (AE between 0.6 and 1.4) account for nearly half of the dataset.”

7. Section 3 lie 19 “All the days showing instantaneous values higher than 0.2…” are you talking about AOD? At what wavelength? Why this specific wavelength

We have added information about this issue: AOD at 440nm. This is the most common channel typically used in sun-photometry studies, since it is the smallest wavelength in original version of CIMEL sun photometers.

8. Figure 1: what does different wavelength say? Is it just because the instrument measured at these many wavelengths or is there any rationale behind using all?

The instrument measures at nine channels. For clarity, we have simplified the figure and focused only on two pairs: shorter wavelengths (380–440 nm) and near-infrared channels (1020–1600 nm). The latter are used to derive AE_{NIR}.

9. Does Figure 2 have data from both the sites? Make it clear

We have added two sentences on this topic. Throughout the manuscript, data from CUT-TEPAK and Pafos are jointly used in the analysis of aerosol characterization. The sentences added at the beginning of Section 4.1 are: 'The data from the two sites presented in Figure 1 are analysed together. As aerosol properties will be discussed by type in the following sections, both sites are considered equivalent for this purpose.'

10. Can you please describe in methods section how you derived volume distribution used in Figure 3? How does the volume distribution of F look like? Include that

That description was provided by Dubovik et al. (2000). We have rephrased the sentence introducing aerosol inversion products in AERONET. The shape of the fine mode can be observed in the curves for MO and MH types.

In Section 2, we have rephrased a paragraph on this topic: "Sky radiances at four wavelengths (440, 675, 870, and 1020 nm), combined with AOD, are employed to retrieve a set of aerosol optical and microphysical properties via inversion methods (Dubovik et al., 2000; 2006). These properties include particle size distribution, complex refractive index, single scattering albedo (SSA), phase function, absorption AOD, among others ..."

11. Can you also propose some clustering techniques given your criteria to automatically classify the dust type instead of meticulous human review? And compare to your classification

The reviewer is correct: clustering or a more automated method is indeed required and even preferable to the more meticulous manual review technique. However, for this campaign, we opted to obtain a more reliable inventory that can serve as a benchmark for testing automatic procedures. Clustering techniques will be addressed in the review paper of the campaign, which is currently in preparation and will be submitted soon. In addition, the classification of aerosol types using only sun/lunar photometry is necessary to enable comparisons with other studies conducted in different regions. One of the most important results of this study is the verification of the columnar efficiency factor obtained for Saharan dust in Spain and Cyprus, making this variable a very useful proxy in aerosol studies.