Appendix: Supplementary material to "Spatial variability of Saharan dust deposition revealed through a citizen science campaign"

Supplementary Figures
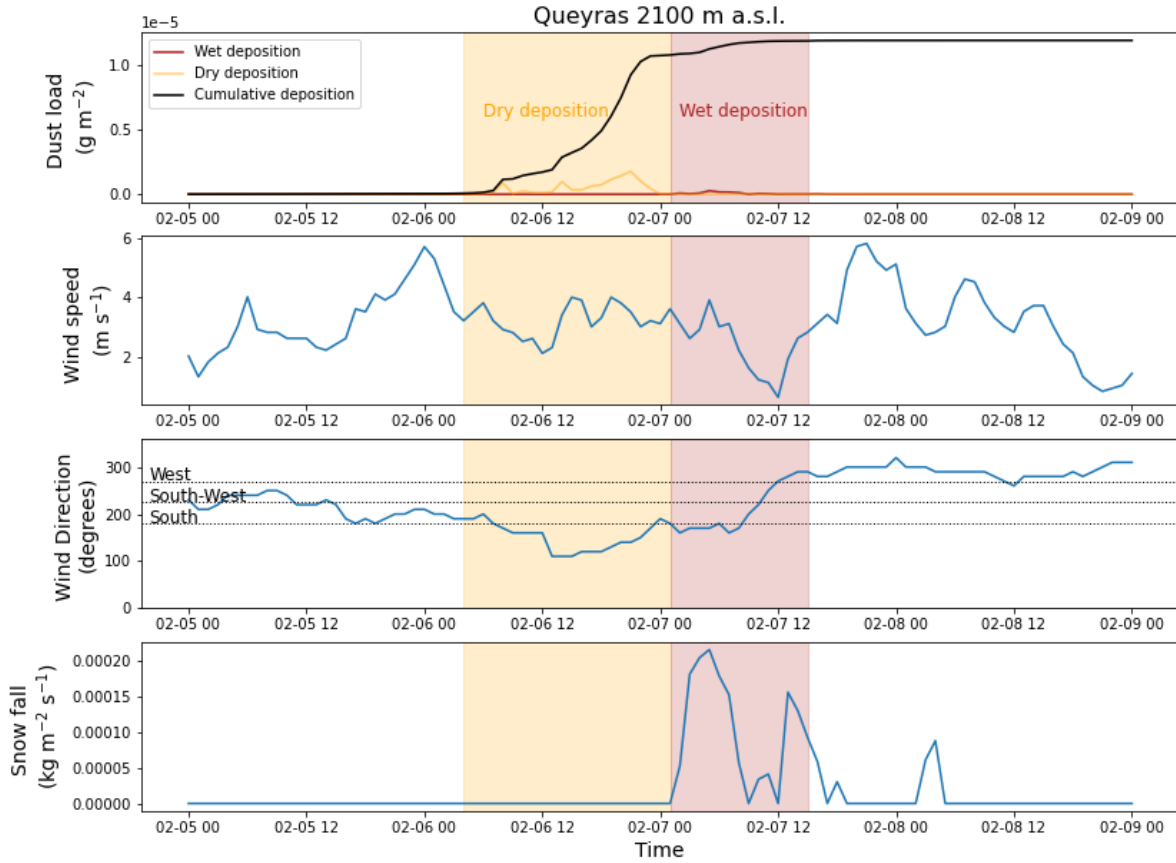
Figure S1. (A) Temporal evolution of the hourly dry (yellow) and wet (red) dust loads during the event at 2100 m a.s.l. in the Queyras Massif. The total cumulative mass deposition is shown by the black line. Depositions are computed based on MOCAGE outputs and corrected according to the observations. The dry vs. wet deposition is determined based on SAFRAN precipitation data (see section 2.2). Temporal evolution of the hourly wind speed (B) and direction (C) and the hourly precipitation (D) from SAFRAN reanalysis data. The yellow (red) shaded area represents the dry (wet) deposition of the event, according to SAFRAN precipitation.
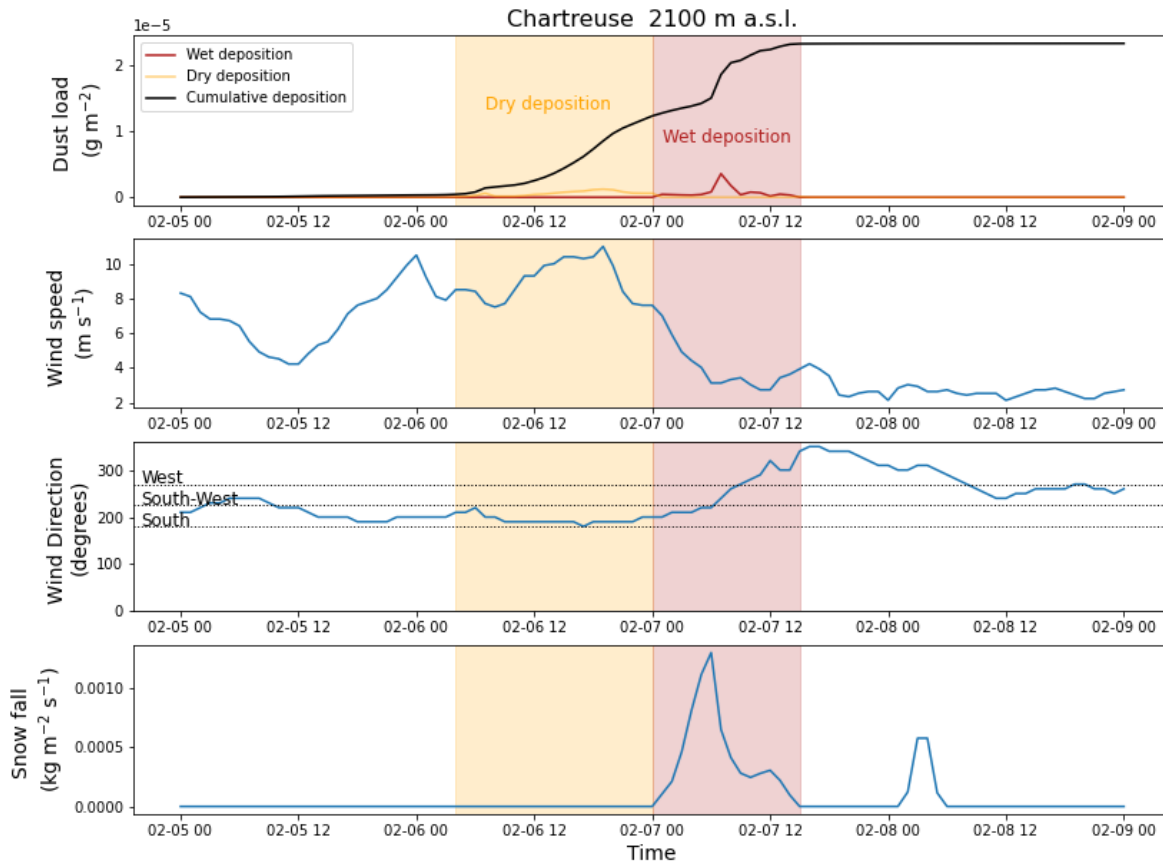
Figure S2. (A) Temporal evolution of the hourly dry (yellow) and wet (red) dust loads during the event at 2100 m a.s.l. in the Chartreuse Massif. The total cumulative mass deposition is shown by the black line. Depositions are computed based on MOCAGE outputs and corrected according to the observations. The dry vs. wet deposition is determined based on SAFRAN precipitation data (see section 2.2). Temporal evolution of the hourly wind speed (B) and direction (C) and the hourly precipitation (D) from SAFRAN reanalysis data. The yellow (red) shaded area represents the dry (wet) deposition of the event, according to SAFRAN precipitation.
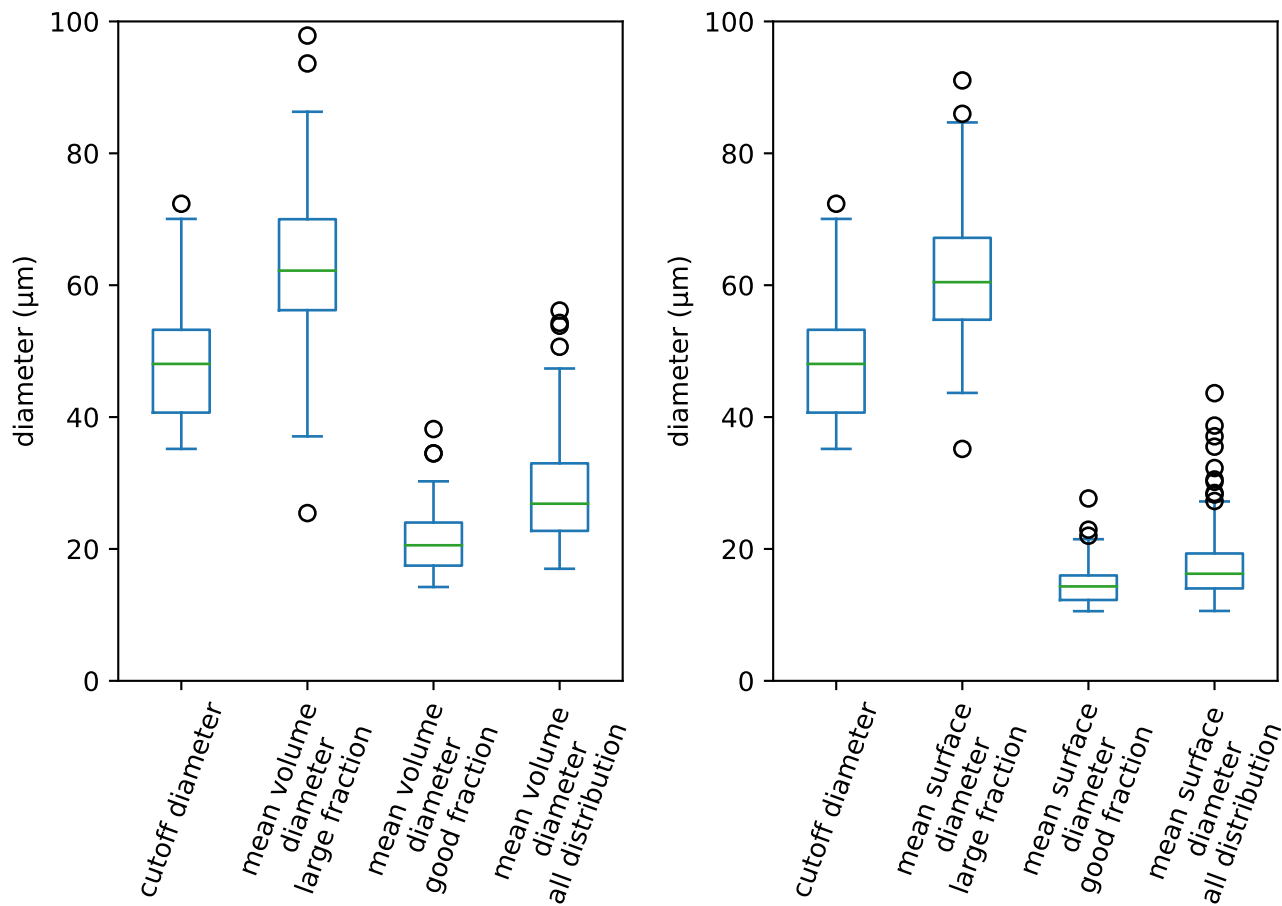
Figure S3. Statistical description of surface (left) and volume (right) average diameters and how these depend on the cut diameter for the particles with robust statistics. The boxes show the quartiles of the distribution including all samples. Minimum/maximum ranges (excluding outliers) are indicated by the whiskers. Outliers are shown by the circles. The median is shown by the green line.
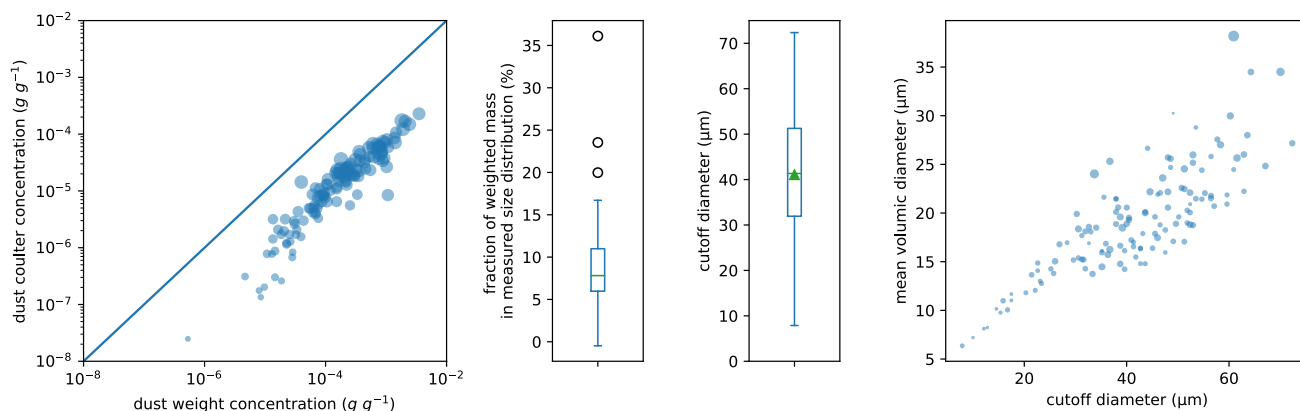
Figure S4. The left panel compares the masses measured on filters and the masses evaluated from the measured size distributions. The middle panels display the distribution of the fraction of the total masses retrieved in the size distribution measurements. The boxes show the quartiles of the distribution including all samples. Minimum/maximum ranges (excluding outliers) are indicated by the whiskers. Outliers are shown by the circles. The median is shown by the green line and the green star. The right panel shows how this fraction depends on both the average diameter of particles and the maximum diameter for statistically robust particle counts. The circle size represents the fraction of weighted mass in measured size distribution
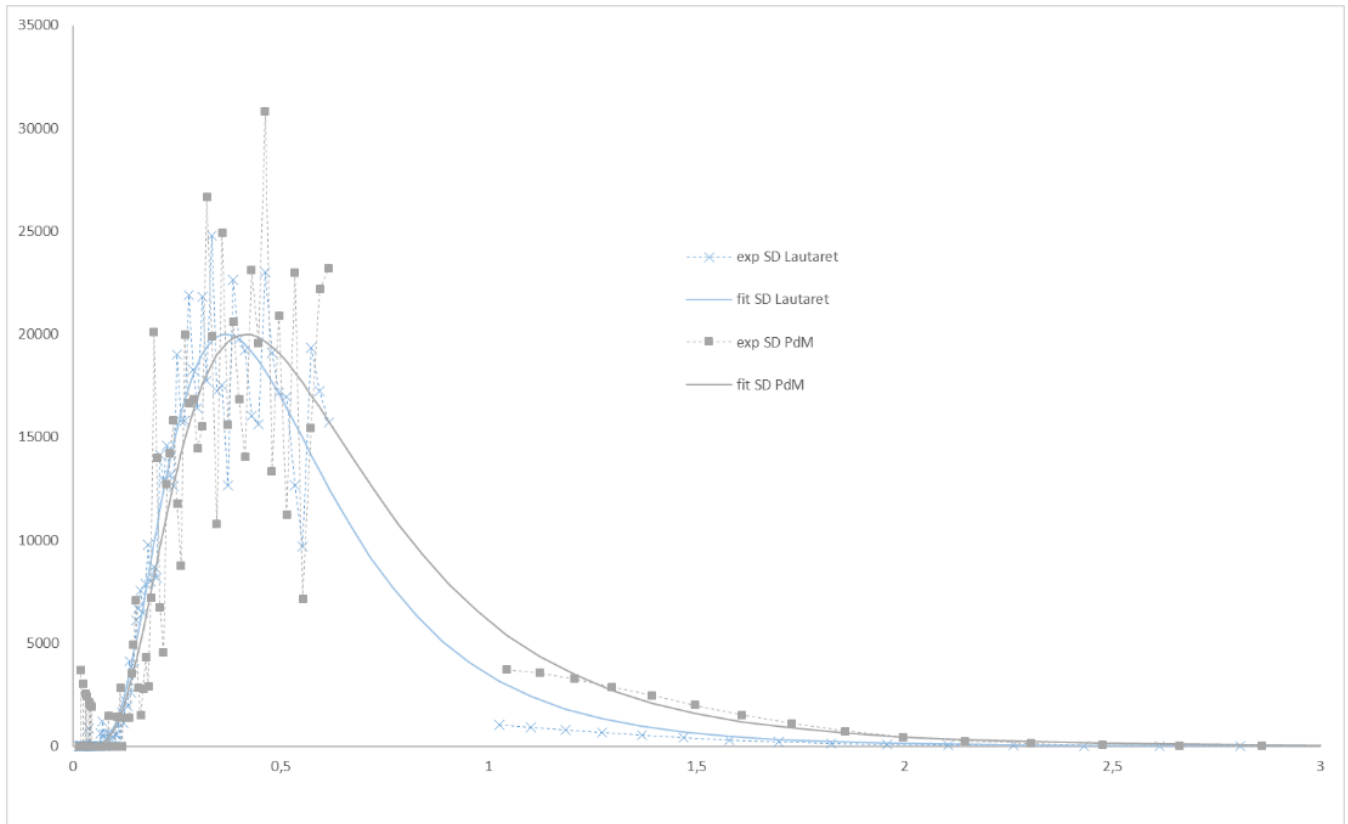
Figure S5. Normalised size distributions of particles from Lautaret (blue) and Pic du Midi (grey), dots : SMPS (0,014—0.6 μm) and the APS (1–20 μm) measurement, full line : Lognormal law.
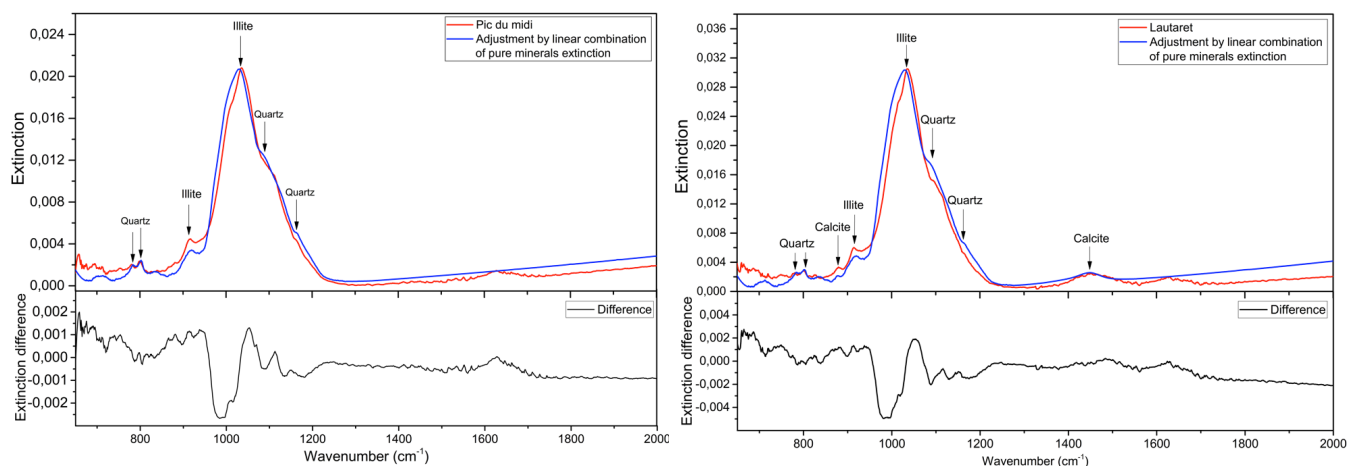
Figure S6. Extinction spectra (red: experimental, blue: simulated using Eq. 2). Left panel: Pic du Midi sample ($C_q = 0.02$, $C_i l = 0.27$, $C_c = 0.007$), right panel: Lautaret sample ($C_q = 0.03$, $C_i l = 0.53$).
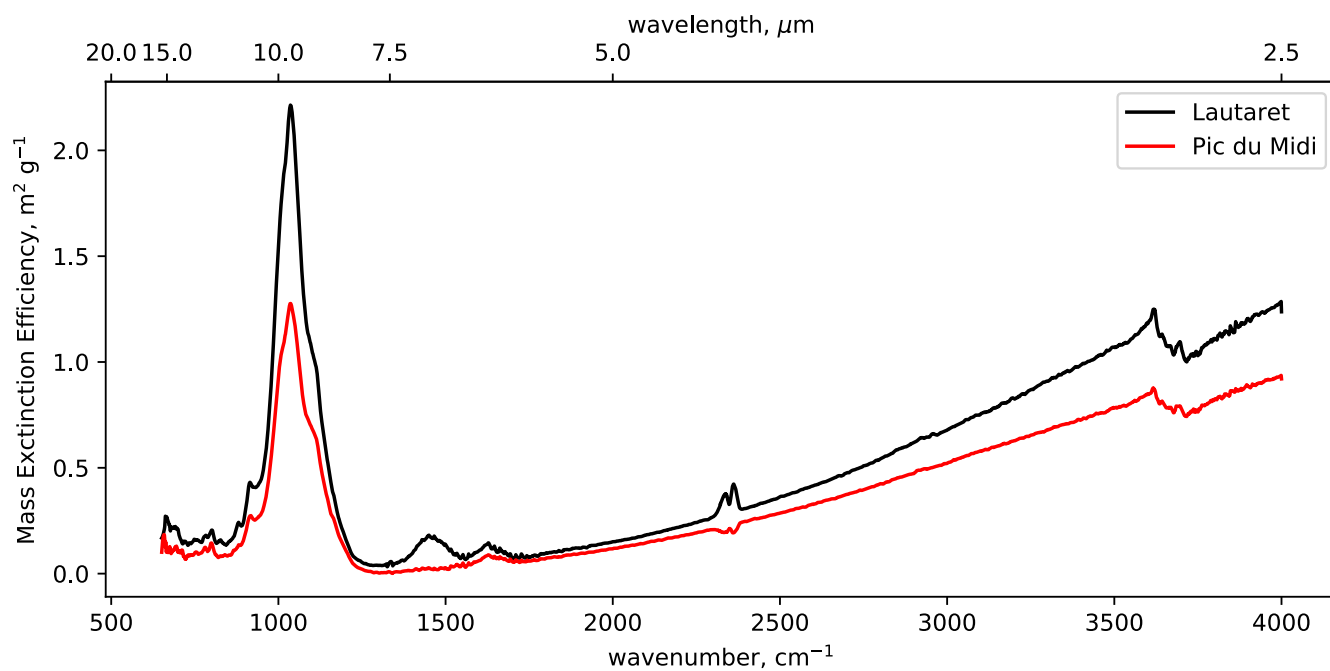
Figure S7. Mass extinction efficiency in $m^2\ g^{-1}$ for Lautaret et Pic du Midi samples.