

1 Response: We thank the editor for the decision to publish subject to technical corrections. Below we
2 provide responses to the editor notes and suggestions in blue font. All changes to the manuscript can be
3 identified in the version submitted using Track Changes.

4 Editor Decision: Publish subject to technical corrections (review by editor) (19 Feb 2021)

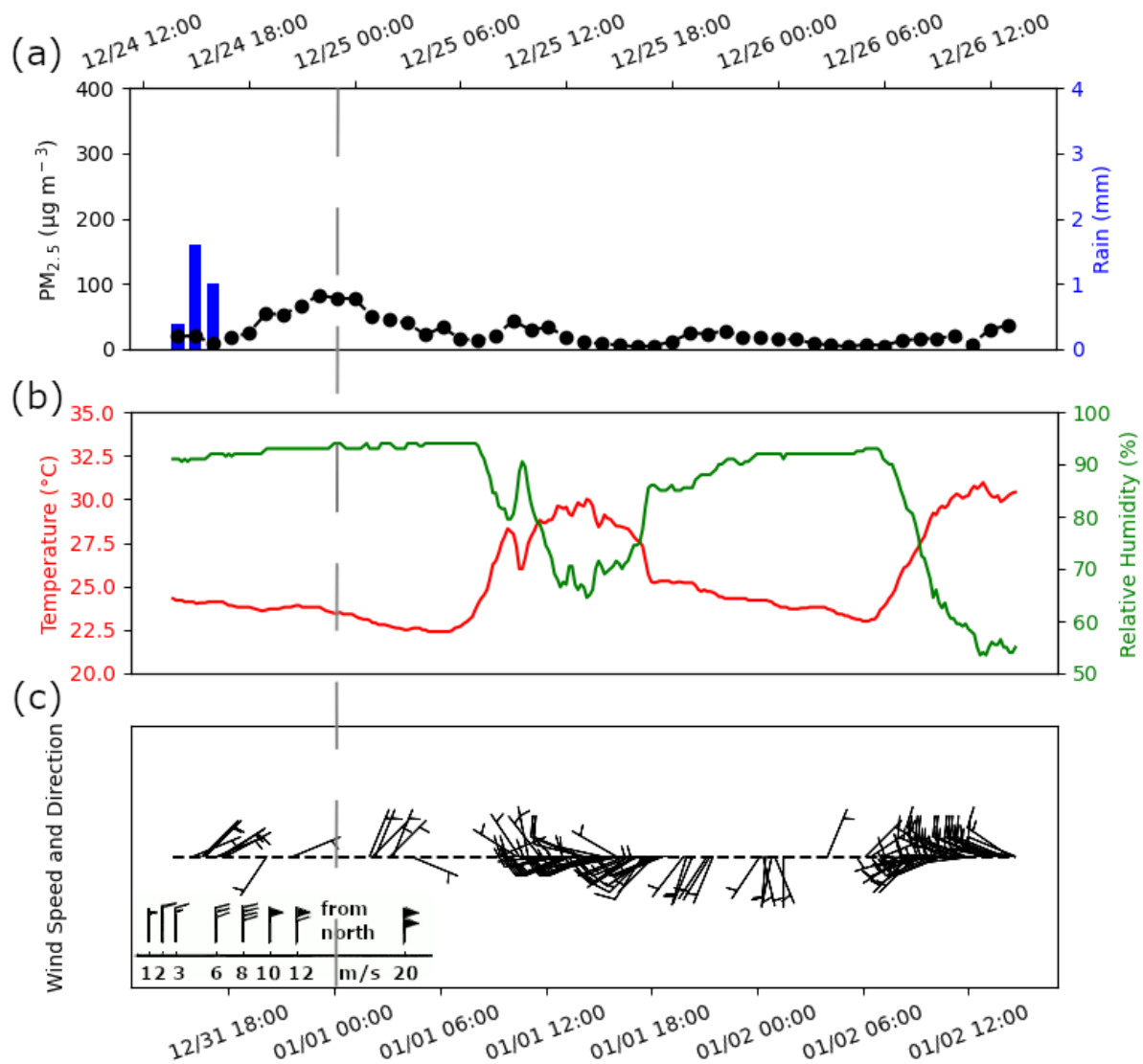
5 Comments to the Author:

6 Dear authors,

7 For some reason I still observe a light green background in Figures 1, 2, 4, and 8.

8 We ensured a white background in the imaging software (GIMP), and resaved as *.png before inserting in
9 the word document. The figures are below. Multiple co-authors have checked and didn't see the problem.
10 We also tried to view the file as *.pdf to check as well. Hopefully this something that can be addressed by
11 the journal office during copy-editing.

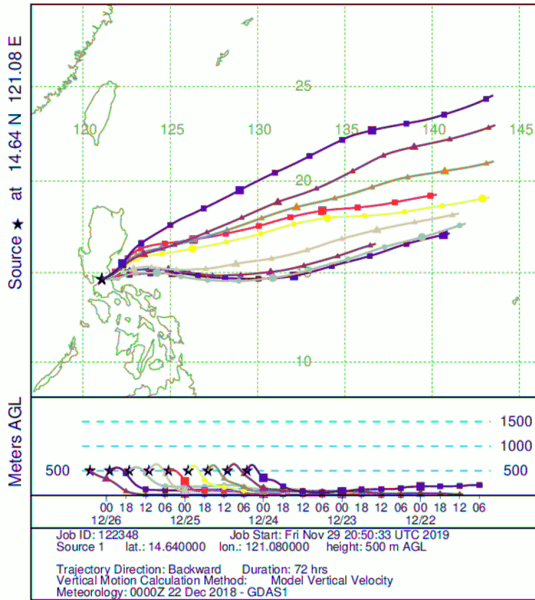
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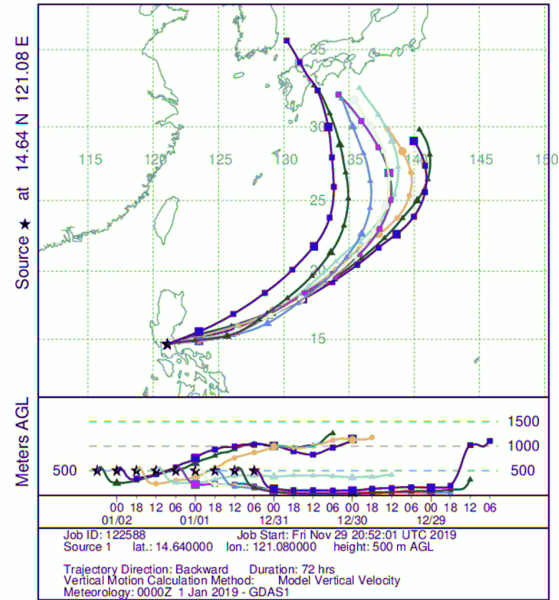
14

15 **Figure 1:** (a) $PM_{2.5}$ mass concentrations and rain accumulation at hourly resolution (local time, dashed
 16 vertical line indicates midnight) as measured from the Manila Observatory main building third floor
 17 rooftop (~88 m.a.s.l.) at the same period as the MOUDI size-specified samples during the firework event.
 18 Ten-minute averaged values of (b) temperature and relative humidity, in addition to (c) wind speed and
 19 direction. The wind barb legend in (c) shows how flags are added to the staff with increasing wind speed
 20 and in the direction where the wind comes from. Figures S2 and S3 show the hourly $PM_{2.5}$ mass
 21 concentrations and ten-minute meteorological data before and after the firework event, respectively.

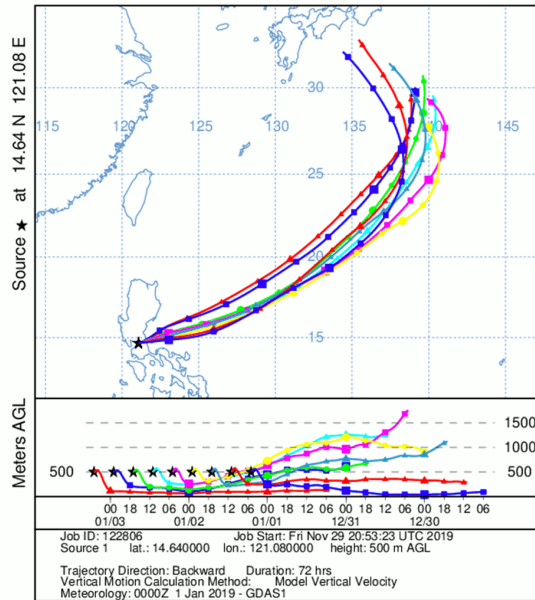
(a) NOAA HYSPLIT MODEL
Backward trajectories ending at 0500 UTC 26 Dec 18
GDAS Meteorological Data



(b) NOAA HYSPLIT MODEL
Backward trajectories ending at 0600 UTC 02 Jan 19
GDAS Meteorological Data

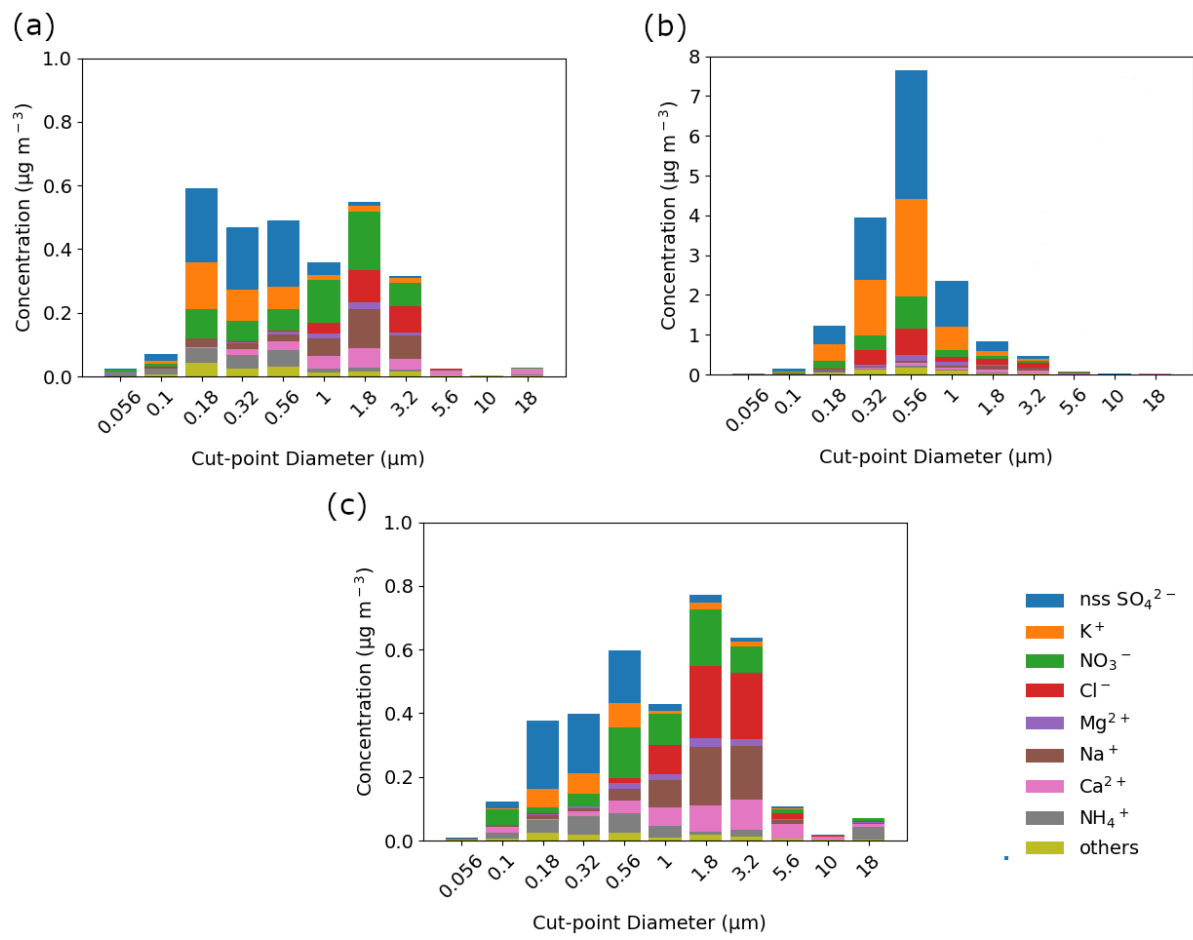


(c) NOAA HYSPLIT MODEL
Backward trajectories ending at 0500 UTC 03 Jan 19
GDAS Meteorological Data



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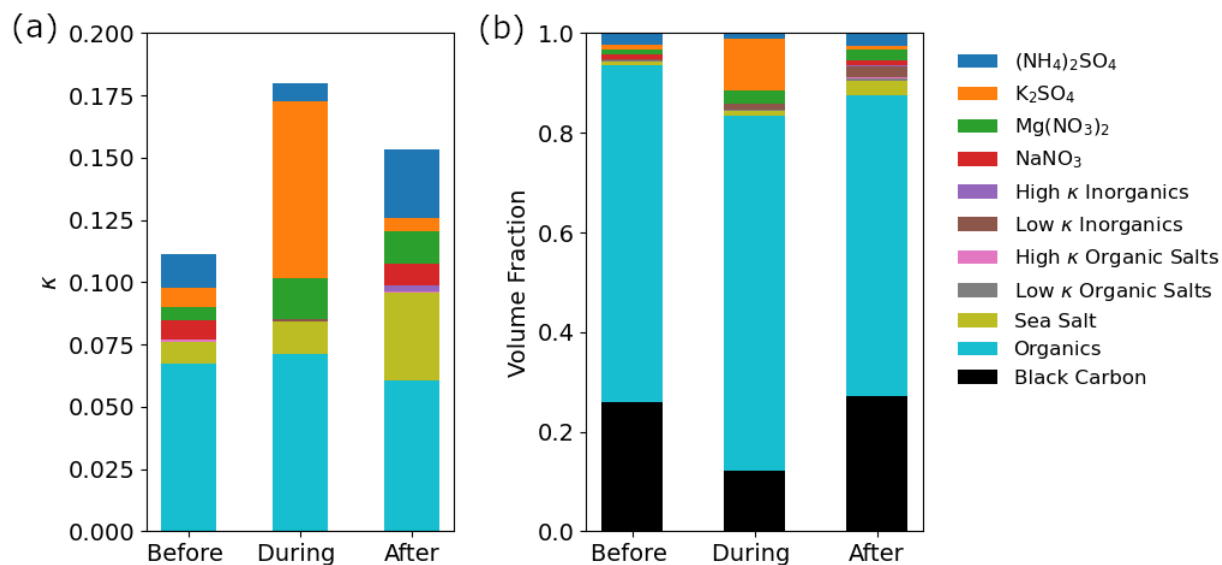
23 **Figure 2:** Three-day back trajectories with 6-h resolution for the periods (a) before, (b) during, and (c)
24 after the firework event, ending at the point of the Manila Observatory at 500 m.



25
 26 **Figure 4:** Speciated mass size distributions of the major aerosol constituents measured (a) before, (b)
 27 during, and (c) after the firework event. Table 1 lists the bulk ($\geq 0.056 \mu\text{m}$) mass concentrations of these
 28 ions and elements, including those labeled here as “others” (Ba, oxalate, Cu, Al, Sr, Zn, succinate, Pb,
 29 phthalate, adipate, maleate, Fe, MSA, Mn, Rb, Cr, As, Ni, Ti, V, Mo, Cd, Co, Cs, Ag, Tl, Zr, Sn, Y, Nb,
 30 Hf, Hg, and Se).

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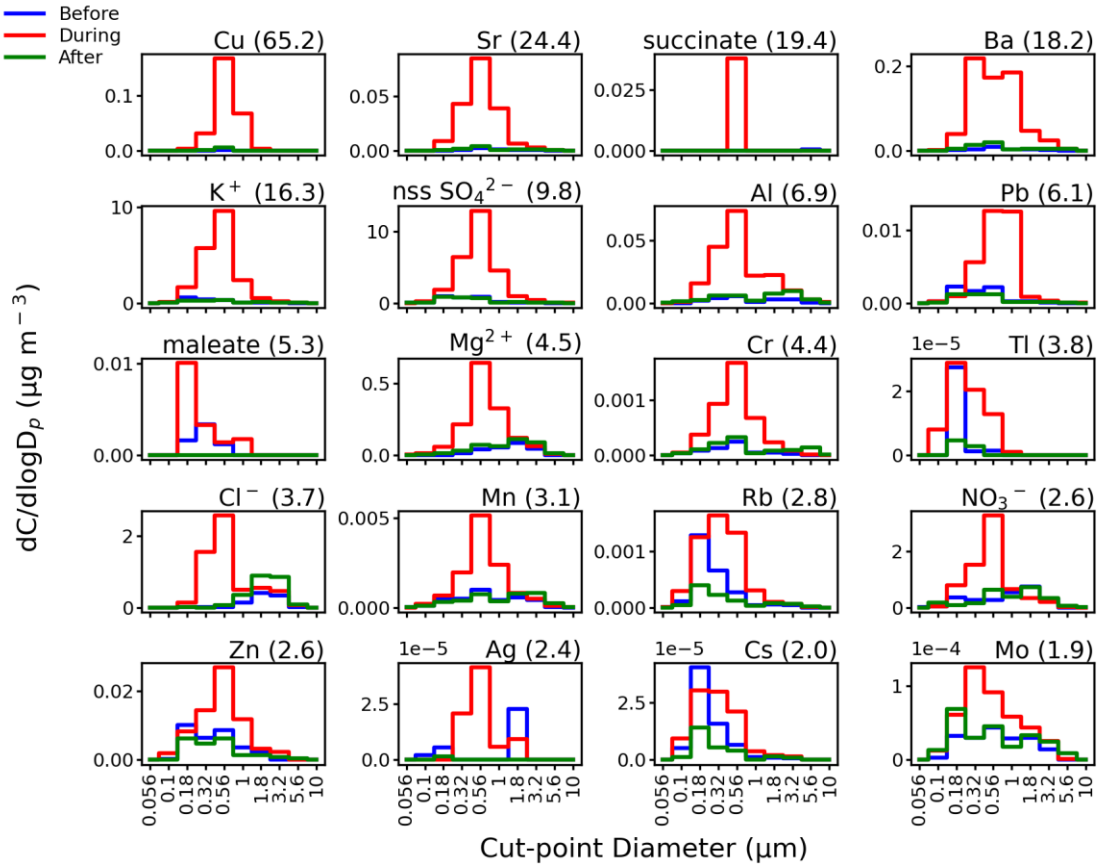


33

34 **Figure 8:** (a) Kappa (κ) values for the aerosol fraction between 0.056 – 3.2 μm before, during, and after
35 the firework event. The speciated contributions to the overall κ values (represented by the colors) are
36 categorized based on the classes of compounds in the legend following past work (AzadiAghdam et al.,
37 2019). Ammonium sulfate, K_2SO_4 , $\text{Mg}(\text{NO}_3)_2$, and NaNO_3 are high κ inorganics but are plotted separately
38 because of their large contributions. The speciated contributions were calculated by multiplying the (b)
39 volume fraction of each compound class by its intrinsic κ value (Table S4).

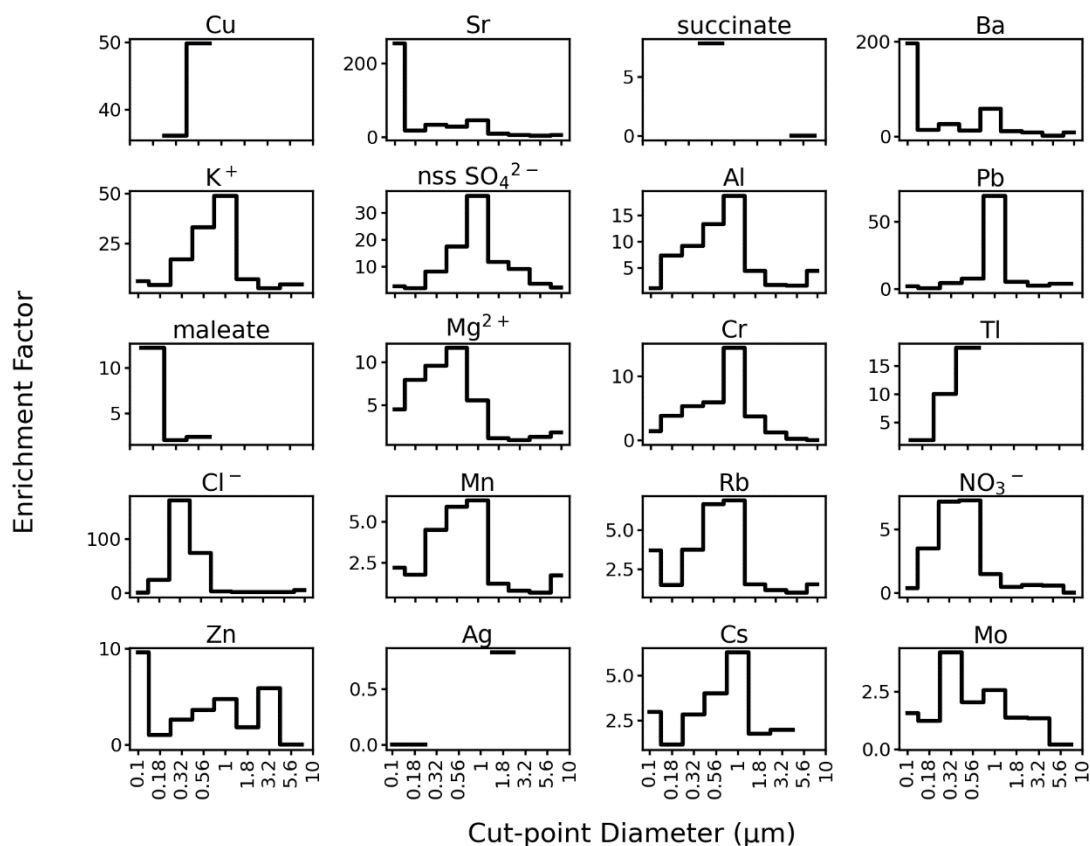
40 The resolution is poor in Figures 5 and 6.

41 We have increased the resolution of Figures 5 and 6. The improved figures are found below.



42

43 **Figure 5:** Speciated mass size distributions before (blue line), during (red line), and after (green
 44 line) the fireworks event. Next to species labels are bulk ($\geq 0.056 \mu\text{m}$) mass concentration
 45 enrichment values due to the fireworks event; species are shown with enrichments ≥ 1.9 . Figure
 46 S5 shows similar results for all other species.
 47



48
 49 **Figure 6:** Size-resolved enrichments for individual firework tracer species in order of decreasing
 50 total bulk mass concentration enrichment (species from Fig. 5). Cut-point diameters with no
 51 valid data are left blank. The y-axis of Sr and Ba are truncated to more easily show enrichments
 52 in the larger size fractions. Figure S6 shows similar results for all other species.