

## Response to comments

**Editor Alison Downie**

Comments:

Notification to the authors:

Dear Alison Downie,

We sincerely thank you for these careful reminders and for giving us the opportunity to address them. We have revised the manuscript accordingly and respond to each point below.

1. As per a previous request, please provide a new list of referees that reflect geographical diversity. ACP requires referees from a minimum of three countries.

We thank you for this reminder. The online submission system no longer provides a dedicated field for suggesting referees at this revision stage. We therefore provide the requested list here, in accordance with the Copernicus guidelines for ACP (minimum of three countries):

Referee 1: Ralf Zimmermann, Universität Rostock, Germany,  
ralf.zimmermann@uni-rostock.de

Referee 2: Cassandra J. Gaston, University of Miami, United States,  
cgaston@miami.edu

Referee 3: Junke Zhang, Southwest Jiaotong University, China,  
zhangjunke@home.swjtu.edu.cn

2. Please move the figures to where they are mentioned in the text.

We thank you for pointing this out. All figures and tables have been relocated in the revised manuscript so that each now appears near the location of its first mention in the text, following the Copernicus manuscript preparation guidelines. We also confirm that figures and tables are no longer appended at the end of the manuscript.

3. The Supplement is not specifically mentioned in the paper – can this be added?

We thank you for this reminder. We have added an explicit reference to the Supplement in the main text. This is the first place in the manuscript where the Supplement is cited. Specifically, in the sentence reporting the correlation between total detected particle counts and PM<sub>2.5</sub> mass concentrations, the citation now reads " $r = 0.682\text{--}0.767$ ,  $p < 0.01$ ; Fig. S1 in the Supplement)". Please refer to Line **109** of the revised manuscript.

4. Please include a reason in the paper for why the data are available only on request. Please see our submission guidelines ("Data sets" at [https://publications.copernicus.org/for\\_authors/manuscript\\_preparation.html#assets](https://publications.copernicus.org/for_authors/manuscript_preparation.html#assets)).

We thank you for this reminder. We have revised the "Data availability" section to clarify the reason for restricted access to some of the observational data, as well as our plan for sharing the SPAMS data. The revised section now reads:

"The data related to SPAMS will be deposited in the Zenodo repository and made publicly available upon acceptance of this manuscript, and the dataset will be assigned a DOI. Other observational data, including meteorological parameters, cannot be deposited in a public repository because their disclosure is restricted by data-sharing agreements with our collaborators. These data may be obtained from the corresponding author upon reasonable request and subject to permission from the relevant data providers ([limei@jnu.edu.cn](mailto:limei@jnu.edu.cn))."

Please refer to Lines **391–395** of the revised manuscript.

## Reviewer 2

### Comments:

We are grateful to the reviewer again for the careful reading and for the constructive technical comments, which have helped us further refine the manuscript and the supplement. We have addressed each comment carefully, and our point-by-point responses are given below.

#### Technical comments:

1. Section 2.5, p.5 l. 130-145: Symbols for physical quantities should be in italics. The two sentences added to l. 132-134 "As no inhalation ... bioavailability." should be moved after the first appearance of RfC and RfD; i.e. to the end of the subsection.

We thank the reviewer for these careful observations. We have made the following corrections:

All symbols for physical quantities in Section 2.5 have been set in italics, including  $D_{inh}$ ,  $C$ ,  $InhR$ ,  $EF$ ,  $ED$ ,  $BW$ ,  $AT$ ,  $HQ$ ,  $RfD$ , and  $RfC$ , as you suggested. We have also checked the entire manuscript and the supplement for similar issues and have made the corresponding corrections where necessary, so that the use of italics for physical quantity symbols is consistent throughout.

The two sentences originally placed at l.132–134 ("As no inhalation ... bioavailability.") have been moved to the end of the subsection, i.e., after the first appearance and definition of RfC and RfD, so that the logical flow is improved. Please refer to Lines **152–153** of the revised manuscript.

2. Supplement section 1, p.2 l.20-24: Symbols should be checked and revised, now appear as question-marks "?" in the PDF file.

We thank the reviewer for pointing this out. We have checked the symbols in Supplement Section 1 (p.2, l.20–24) and revised them where necessary. This issue may be related to font embedding during PDF generation, which can cause differences among PDF viewers and browsers. We have therefore enabled font

embedding when exporting the PDF and verified the file in several local PDF readers, where all symbols now display correctly. We hope the revised PDF will display properly across different browsers and viewers.

3. Supplement, Fig.S8: Physical quantity and unit of measure is missing from the scale bars at the left-hand side of the panels, it should be "Wind speed (m/s)".

We thank the reviewer for pointing out this error. Following the reviewer's suggestion, and to be consistent with the unit format used throughout the manuscript, we have added the label "Wind speed (m s<sup>-1</sup>)" to the scale bars on the left-hand side of the panels in Figure S8.

The revised Figure S8 and its caption are as follows:

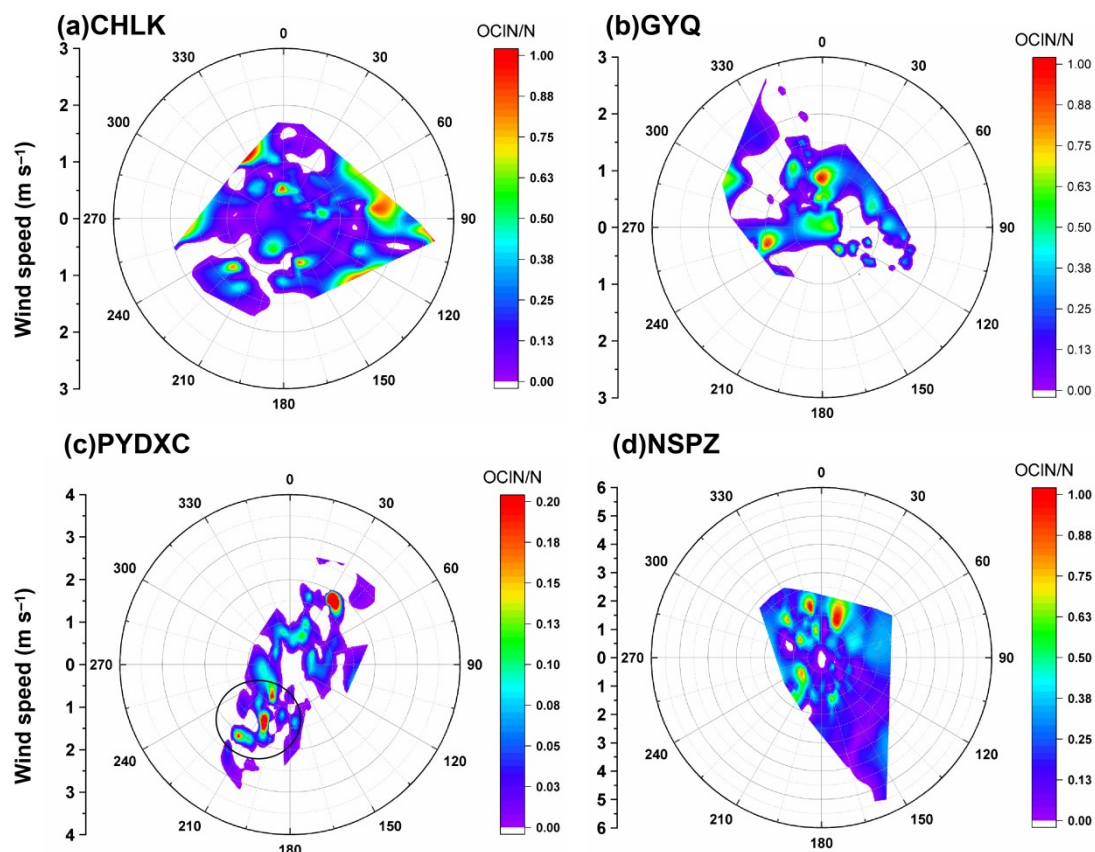


Figure S8. Wind-direction dependence of OCIN/N particle number ratios at the four sites during FI. Colors indicate OCIN/N ratio values (see legend). Higher OCIN/N ratios indicate a larger proportion of early-aged OCIN particles. The dashed circle in panel (c) highlights the direction corresponding to the Shiqi Town area, a designated restricted firework zone in Panyu.