

Dear Stefania,

Thank you help for handing the peer-review of this work. Your comments, our response and the revision are listed below:

Comments: *When you calculate the survival probability (SP), you are implicitly assuming that the increment of N_{50-200} and N_{70-200} are not affected by the boundary layer height (in Fig S2 the N increment overlaps with the decreasing boundary layer height). I would suggest to the authors to comment this point and specify if the SP calculated using such increment is actually an upper bound.*

Response: In the revision, page 5, lines 24-30, we added “With increasing of the height of planetary boundary layer (PBL, Fig. S2d), the stable minimum $N_{50-200 \text{ nm}}$ or $N_{70-200 \text{ nm}}$ can be clearly identified approximately 2-3 hours after the NPF event to be observed. The minimum $N_{50-200 \text{ nm}}$ ($N_{70-200 \text{ nm}}$) remained constant for approximately two (four) hours, even though the height of PBL increased continuously. The new particle signal likely mixed well within the whole PBL. The stable maximum $N_{50-200 \text{ nm}}$ or $N_{70-200 \text{ nm}}$ can be also clearly identified approximately 11-13 hours later, when the height of PBL has been lowered down a lot from the maximum. The change in height of PBL had no detectable influence on the maximum $N_{50-200 \text{ nm}}$ or $N_{70-200 \text{ nm}}$ because the growth of $>30 \text{ nm}$ new particles to a larger size probably occurred within the PBL.”

In addition, in Supporting Information, “The height of planetary boundary layer at the nearby site was obtained from the ECMWF reanalysis data, which was downloaded from <https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=overview>.” has been added in Fig. S2d.

We hope that the revision can help the readers.

Best Regards,

Xiaohong

Prof. Xiaohong Yao (Ph.D)
Ocean University of China