

Supplementary Material

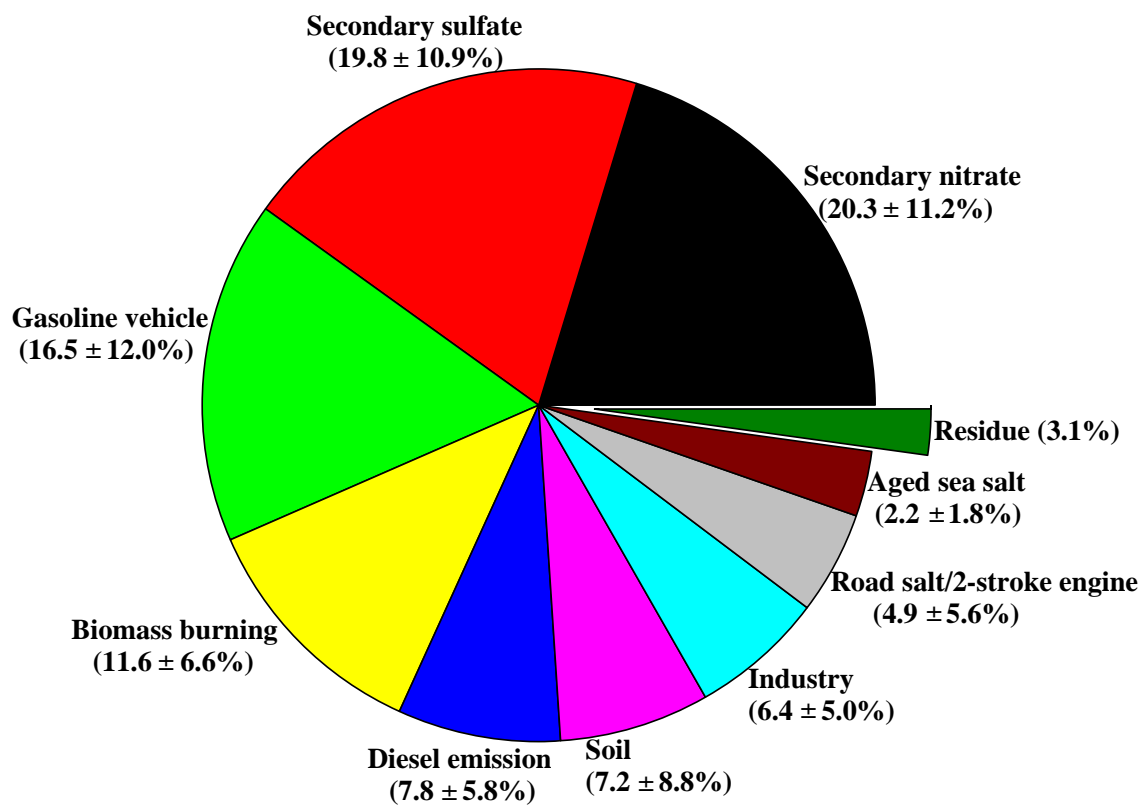


Fig. S1. The average source contributions resolved from PMF (average \pm standard deviation).

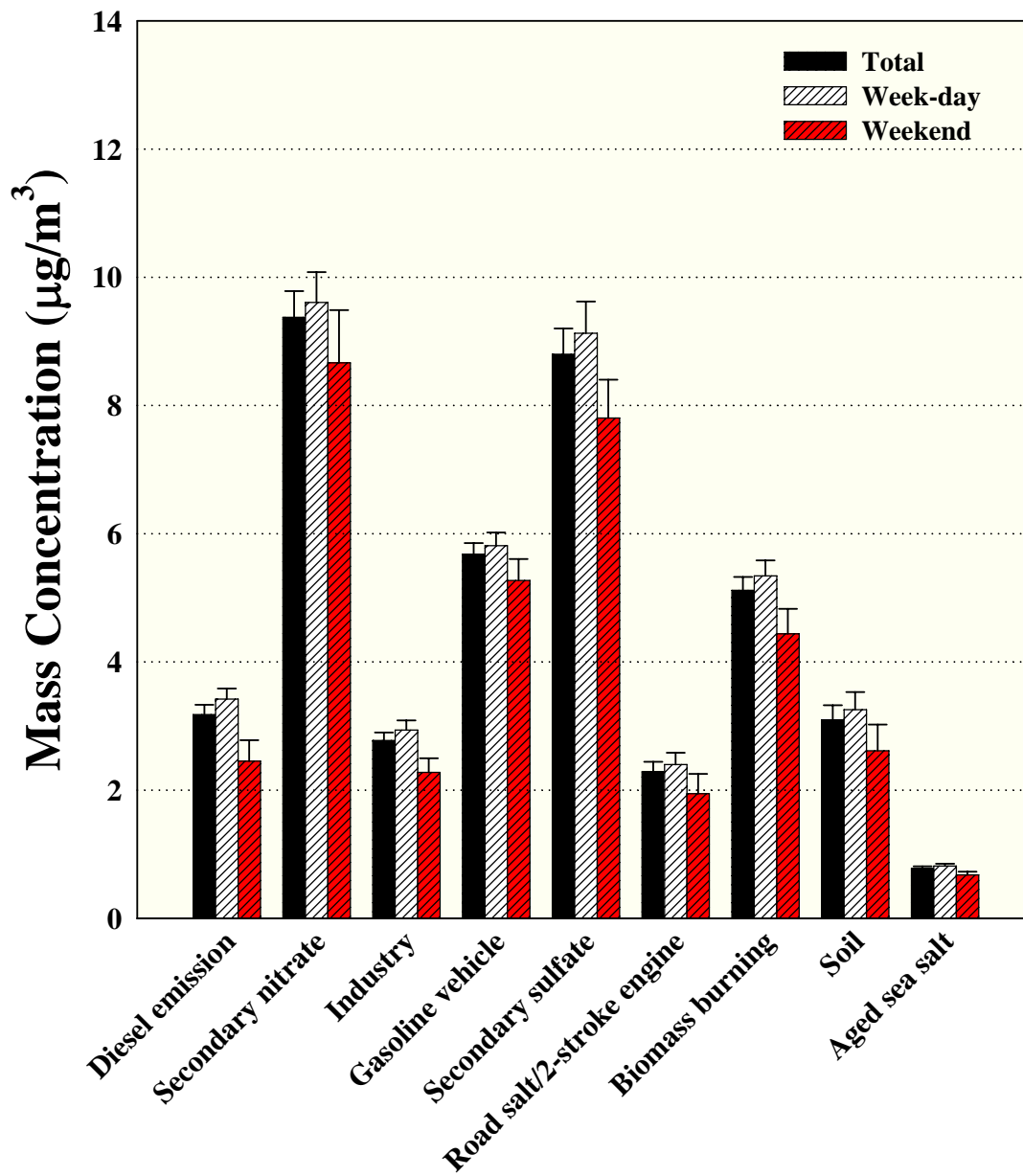


Fig. S2. The average source contributions for weekdays and weekend days in sampling site.

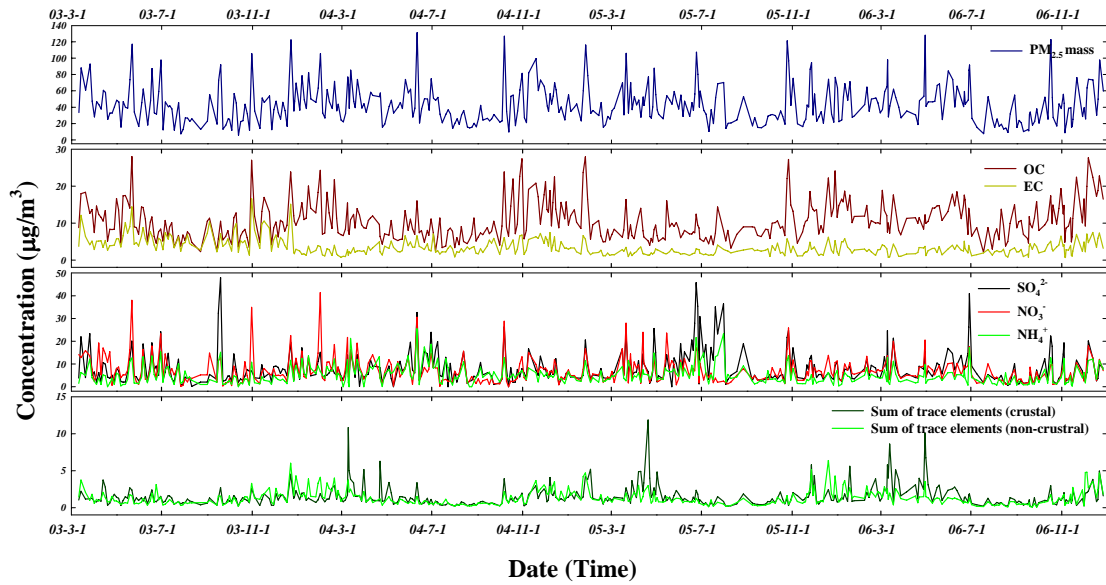


Fig. S3. Time series plot of $\text{PM}_{2.5}$ speciation data in Seoul, Korea over the study period (Sum of trace elements – crustal: Al + Si + Ca + Fe + Ti, Sum of trace elements – non crustal: Na + Mg + Cl + K + Mn + Ni + Cu + Zn + Br + Pb).

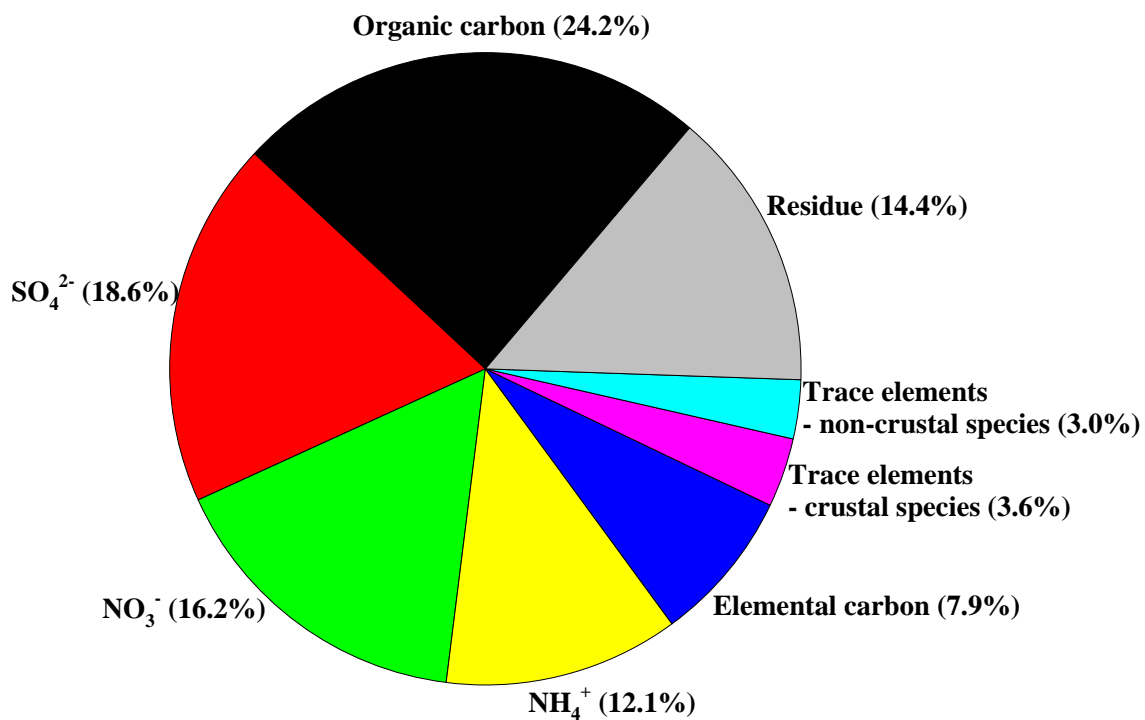


Fig. S4. Average $\text{PM}_{2.5}$ species composition contribution in Seoul, Korea over the study period (Sum of trace elements – crustal: Al + Si + Ca + Fe + Ti, Sum of trace elements – non crustal: Na + Mg + Cl + K + Mn + Ni + Cu + Zn + Br + Pb).