High-time Resolution Source Apportionment of PM$_{2.5}$ in Beijing with Multiple Models

Yue Liu [1], Mei Zheng [1, *], Mingyuan Yu [1], Xuhui Cai [1], Huiyun Du [2,3], Jie Li [2], Tian Zhou [1], Caiqing Yan [1], Xuesong Wang [1], Zongbo Shi [4,5], Roy M. Harrison [4,6], Qiang Zhang [7], Kebin He [7]

[1] SKL-ESPC and BIC-ESAT, College of Environmental Sciences and Engineering, Peking University, Beijing 100871, China

[2] State Key Laboratory of Atmospheric Boundary Layer Physics and Atmospheric Chemistry, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China

[3] Center for Excellence in Urban Atmospheric Environment, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen, China

[4] Division of Environmental Health and Risk Management, School of Geography, Earth and Environmental Sciences, University of Birmingham, Edgbaston, Birmingham, B15 2TT, UK

[5] Institute of Surface Earth System Science, Tianjin University, Tianjin, 300072, China

[6] Department of Environmental Sciences / Center of Excellence in Environmental Studies, King Abdulaziz University, PO Box 80203, Jeddah, 21589, Saudi Arabia

[7] State Key Joint Laboratory of Environment Simulation and Pollution Control, School of Environment, Tsinghua University, Beijing 100084, China

*Corresponding author

Mei Zheng, Ph.D

Tel: +86-10-62751285

Email: mzheng@pku.edu.cn

Table S1 Average local contribution in four types of footprint

Types of footprint	Average local contribution
Local	0.85 ± 0.14
South	0.68 ± 0.11
North	0.63 ± 0.13
East	0.66 ± 0.13
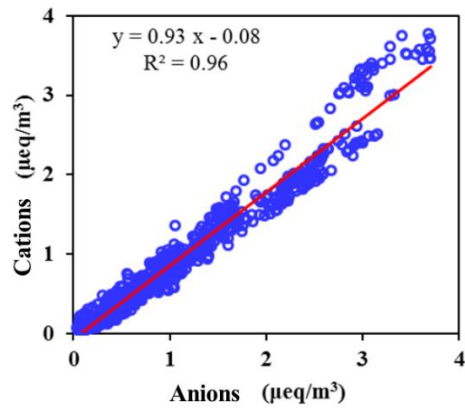
Figure S1. Anion-cation balance of IGAC during the sampling period
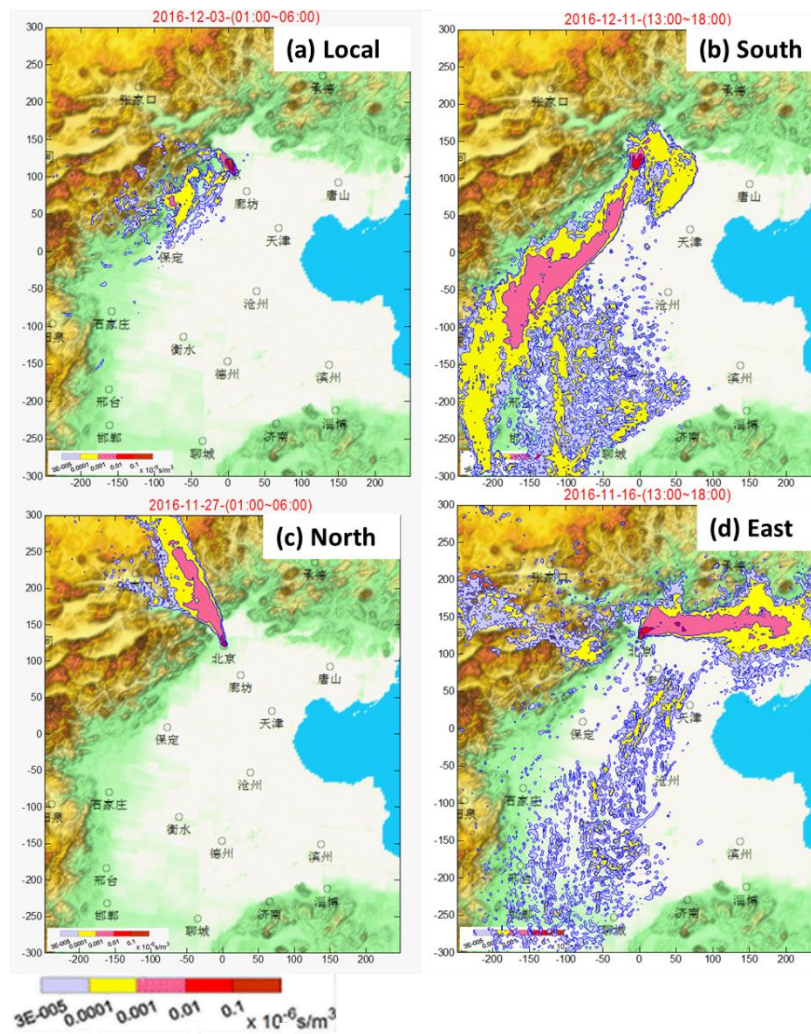
Figure S2. Typical example of different types of footprint (N represents for number of cases. Local: N=79; South: N=45; North: N=51; East: N=30)
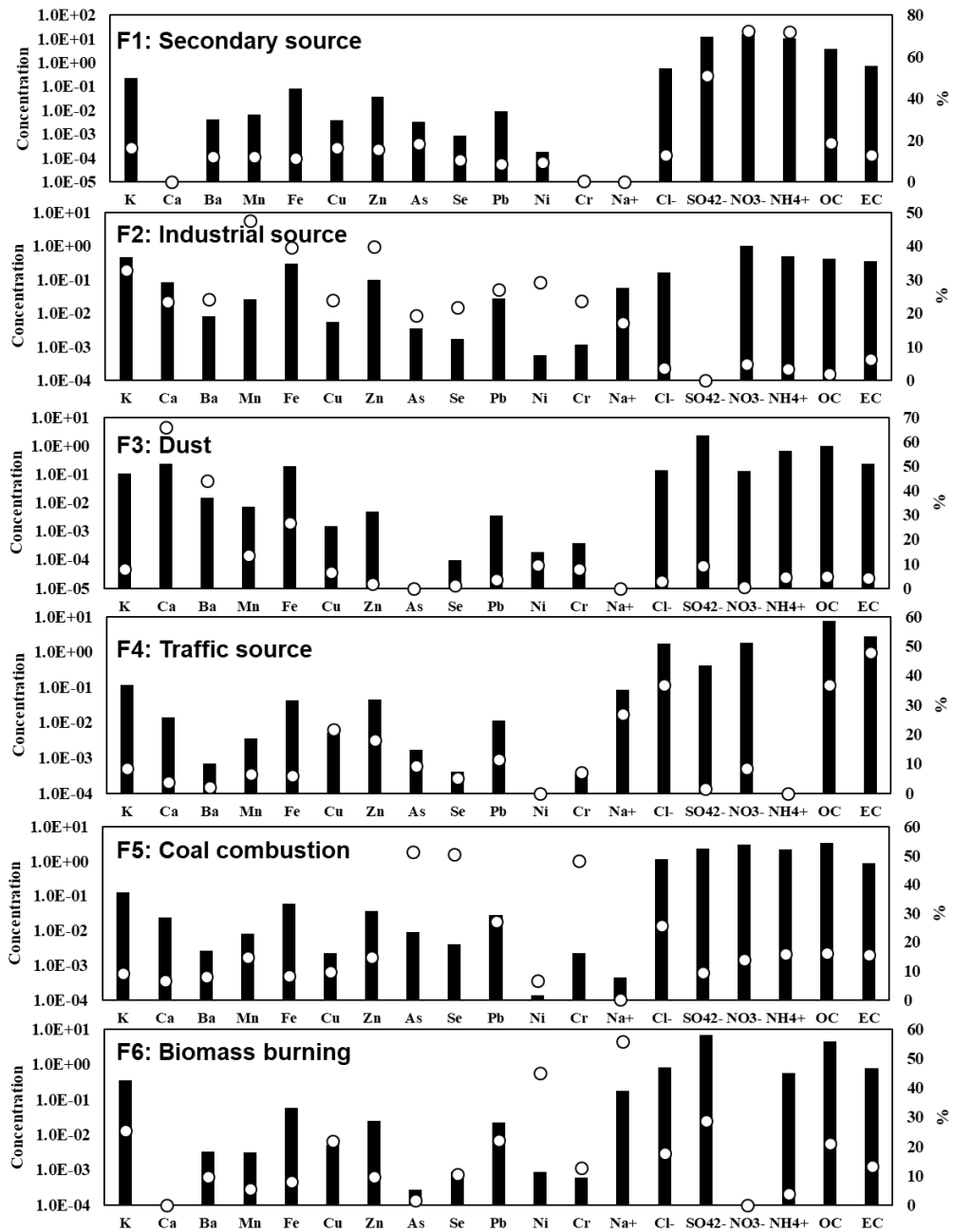
Fig S3. Source profiles of six factors by PMF
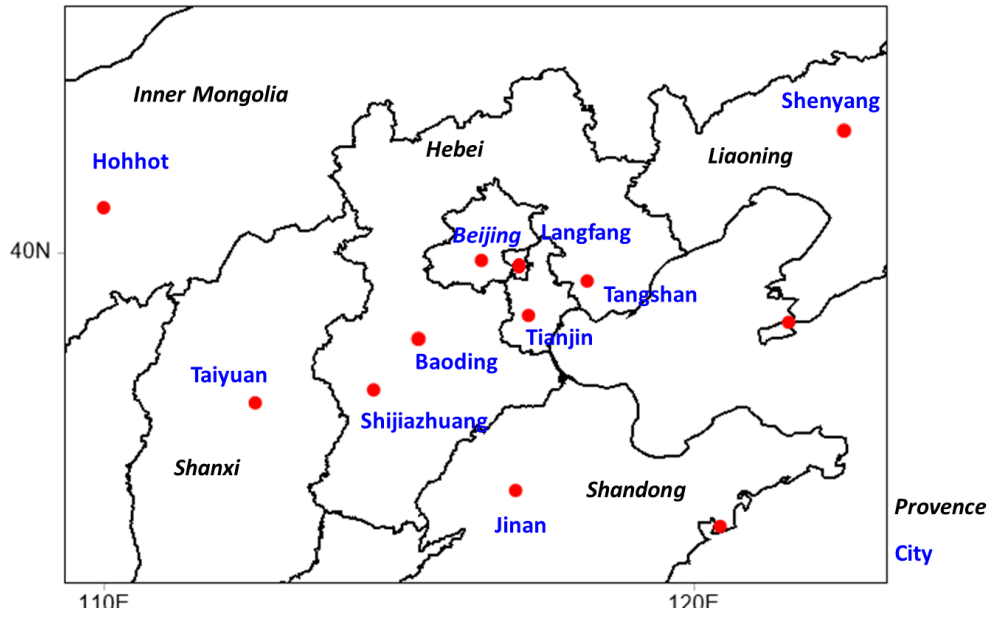
Fig S4. Surrounding provinces and cities of Beijing