

Supporting Information (SI) of Characteristics, Source Contributions, and Source-Specific Health Risks of PM_{2.5}-Bound Polycyclic Aromatic Hydrocarbons for Senior Citizens during the Heating Season in Tianjin, China

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Table S1 General information of participants

Table S1 gave the general information of 101 participants

Table S1. General information of participants (N=101)

| Characteristic | | N | % | Time of daily activity (h) | | | |
|----------------|--------|----|------|----------------------------|-----|-----|-----|
| | | | | Mean | SD | Min | Max |
| Sex | Male | 41 | 40.6 | / | / | / | / |
| | Female | 60 | 59.4 | / | / | / | / |
| Smoking | Yes | 15 | 14.9 | 0.6 | 0.4 | 0.1 | 1.7 |
| | No | 86 | 85.1 | / | / | / | / |
| ETS exposed | Yes | 29 | 28.7 | 0.6 | 0.4 | 0.1 | 1.7 |
| | No | 72 | 71.3 | / | / | / | / |
| Cooking | Yes | 72 | 71.3 | 1.5 | 0.9 | 2 | 4 |
| | No | 29 | 28.7 | / | / | / | / |

ETS: environmental tobacco smoking; SD: standard deviation

Text S1 PAHs analysis procedure and quality assurance and quality control

PAHs were analyzed using gas chromatography coupled with mass spectrometry method (GC/MS, trace 2000 GC-MS, USA). The filter was extracted with dichloromethane by the ultrasonicator. The extract was firstly concentrated to approximately 5 ml by the rotary evaporator, and then condensed to 1 ml under the gentle flow of pure nitrogen. The condensed extract was injected to the gas chromatography coupled with mass spectrometer, and the PAHs were separated and identified based on the retention time.

Two types of standard reference materials (Supelco #48743 and Supelco #36962, Environmental Protection Agency, USA) were used in the PAHs analysis, and the information of internal standards, method detection limit, recovery and relative standard deviation was listed in Table S2.

Table S2. Summary of the PAH analysis and Quality Control/Quality Assurance.

| PAH | Internal Standard | Method Detection Limit (ng/ml) | Recovery (%) | Relative Standard Deviation (%) |
|-------|-------------------------------|--------------------------------|--------------|---------------------------------|
| Flu | D ₁₀ -Acenaphthene | 6 | 86.6 | 7.7 |
| Phe | D ₁₀ -Phenanthrene | 8 | 89.6 | 3.8 |
| Pyr | D ₁₂ -Chrysene | 6 | 84.5 | 5.6 |
| BaA | D ₁₂ -Chrysene | 10 | 81.2 | 6.8 |
| BbF | D ₁₀ -Acenaphthene | 10 | 84.9 | 9.2 |
| Chr | D ₁₂ -Chrysene | 10 | 84.9 | 7.1 |
| BeP | D ₁₂ -Perylene | 12 | 88.8 | 4.3 |
| BaP | D ₁₂ -Perylene | 12 | 92.7 | 6.8 |
| IND | D ₁₀ -Acenaphthene | 10 | 81.2 | 12.7 |
| BghiP | D ₁₀ -Acenaphthene | 10 | 82.5 | 14.5 |
| Fl | D ₁₀ -Phenanthrene | 7 | 88.0 | 9.9 |
| BkF | D ₁₂ -Perylene | 10 | 87.08 | 9.63 |
| Ace | D ₁₀ -Acenaphthene | 7 | 89.72 | 8.65 |
| DahA | D ₁₀ -Acenaphthene | 10 | 82.11 | 10.61 |

Figure S1 Twenty-four hours air parcel backward trajectories (every 2 h in each day) during sampling period. The end point is at 500 m AGL at the selected residential communities (N: 39.10°, E: 117.16°). The percent of trajectories belonging to a particular cluster is shown next to the line.

Figure S1 showed the air parcel backward trajectories during the sampling period. During winter, there was no trajectories coming from the sea and the personal PM_{2.5} samples in this paragraph were hardly influenced by sea breeze.

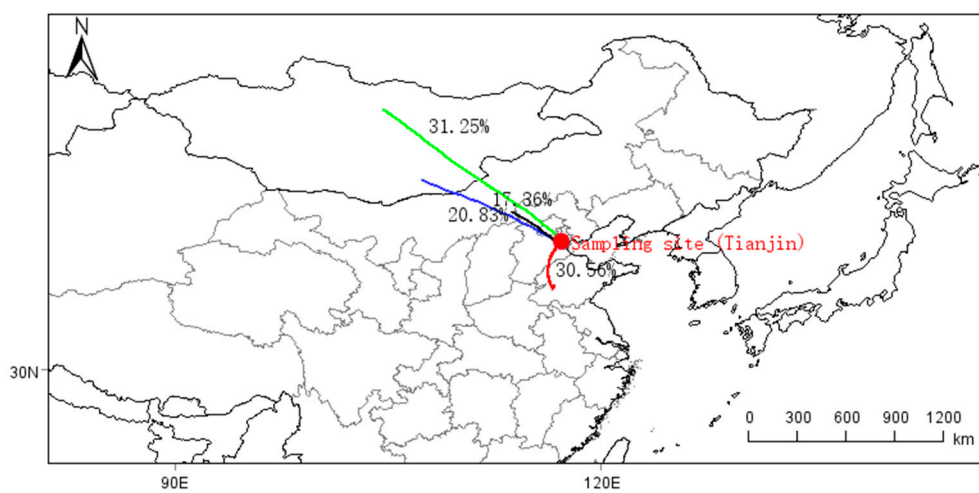


Figure S1. Twenty-four hours air parcel backward trajectories (every 2 h in each day) during sampling period. The end point is at 500 m AGL at the selected residential communities (N: 39.10°, E: 117.16°). The percent of trajectories belonging to a particular cluster is shown next to the line.