

## Supplementary Materials

**Table S1.** Average analytical uncertainty of source profile chemical components (weight percent by mass of resuspended PM<sub>2.5</sub> material)

| Species                       | Soil Classification |         |         |         |         |         |
|-------------------------------|---------------------|---------|---------|---------|---------|---------|
|                               | NAT                 | AGR     | DRA     | PAV     | DRF     | FDL     |
| OC                            | 0.1                 | 0.2     | 0.1     | 0.4     | 0.2     | 1.1     |
| EC                            | 0.0                 | 0.03    | 0.02    | 0.03    | 0.02    | 0.08    |
| TC                            | 0.1                 | 0.2     | 0.1     | 0.4     | 0.2     | 1.1     |
| Cl <sup>-</sup>               | 0.007               | 0.007   | 0.007   | 0.007   | 0.007   | 0.007   |
| NO <sub>3</sub> <sup>-</sup>  | 0.007               | 0.007   | 0.007   | 0.007   | 0.007   | 0.007   |
| PO <sub>4</sub> <sup>3-</sup> | 0.006               | 0.006   | 0.006   | 0.006   | 0.006   | 0.1     |
| SO <sub>4</sub> <sup>2-</sup> | 0.006               | 0.006   | 0.006   | 0.006   | 6       | 0.1     |
| Na <sup>+</sup>               | 0.001               | 0.001   | 0.001   | 0.001   | 0.001   | 0.001   |
| NH <sub>4</sub> <sup>+</sup>  | 0.004               | 0.004   | 0.004   | 0.004   | 0.004   | 0.004   |
| K <sup>+</sup>                | 0.005               | 0.005   | 0.005   | 0.005   | 0.005   | 0.005   |
| Mg <sup>2+</sup>              | 0.002               | 0.002   | 0.002   | 0.002   | 0.002   | 0.002   |
| Ca <sup>2+</sup>              | 0.003               | 0.003   | 0.003   | 0.003   | 0.003   | 0.003   |
| Al                            | 0.3                 | 0.4     | 0.4     | 0.5     | 0.2     | 0.2     |
| As                            | 0.0003              | 0.0004  | 0.0003  | 0.0003  | 0.0002  | 0.0004  |
| Ba                            | 0.002               | 0.002   | 0.002   | 0.003   | 0.001   | 0.002   |
| Ca                            | 0.2                 | 0.3     | 0.3     | 0.1     | 0.7     | 0.4     |
| Cd                            | 0.00001             | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 |
| Co                            | 0.0001              | 0.0002  | 0.0001  | 0.0002  | 0.0001  | 0.0002  |
| Cr                            | 0.0002              | 0.0003  | 0.0003  | 0.0003  | 0.0002  | 0.0003  |
| Cs                            | 0.00003             | 0.00005 | 0.00004 | 0.00011 | 0.00004 | 0.00005 |
| Cu                            | 0.0003              | 0.0006  | 0.0004  | 0.0005  | 0.0004  | 0.0007  |
| Fe                            | 0.1                 | 0.1     | 0.1     | 0.01    | 0.1     | 0.04    |
| Ga                            | 0.0001              | 0.0002  | 0.0001  | 0.0003  | 0.0001  | 0.0002  |
| K                             | 0.1                 | 0.1     | 0.1     | 0.2     | 0.1     | 0.3     |
| Mg                            | 0.1                 | 0.1     | 0.1     | 0.1     | 0.1     | 0.1     |
| Mn                            | 0.003               | 0.005   | 0.004   | 0.002   | 0.002   | 0.002   |
| Na                            | 0.02                | 0.03    | 0.05    | 0.03    | 0.05    | 0.07    |
| Ni                            | 0.0003              | 0.0006  | 0.0004  | 0.0001  | 0.0004  | 0.0006  |
| P                             | 0.003               | 0.005   | 0.008   | 0.003   | 0.006   | 0.053   |
| Pb                            | 0.0002              | 0.0003  | 0.0002  | 0.0011  | 0.0002  | 0.0002  |
| Rb                            | 0.001               | 0.001   | 0.001   | 0.001   | 0.001   | 0.001   |
| Sb                            | 0.00001             | 0.00002 | 0.00001 | 0.00005 | 0.00001 | 0.00002 |
| Sr                            | 0.0004              | 0.0005  | 0.0012  | 0.0003  | 0.0008  | 0.0015  |
| Th                            | 0.00005             | 0.00006 | 0.00006 | 0.00003 | 0.00005 | 0.00003 |
| Ti                            | 0.006               | 0.012   | 0.007   | 0.008   | 0.005   | 0.008   |
| V                             | 0.0003              | 0.0005  | 0.0003  | 0.0008  | 0.0003  | 0.0003  |
| Zn                            | 0.001               | 0.001   | 0.001   | 0.008   | 0.001   | 0.006   |

**Table S2.** Average analytical uncertainty of source profile chemical components (weight percent by mass of resuspended PM<sub>10</sub> material)

| Species                       | Soil Classification |         |         |         |         |         |
|-------------------------------|---------------------|---------|---------|---------|---------|---------|
|                               | NAT                 | AGR     | DRA     | PAV     | DRF     | FDL     |
| OC                            | 0.1                 | 0.2     | 0.1     | 0.4     | 0.2     | 1.2     |
| EC                            | 0.0                 | 0.03    | 0.02    | 0.04    | 0.02    | 0.07    |
| TC                            | 0.1                 | 0.2     | 0.1     | 0.4     | 0.2     | 1.2     |
| Cl <sup>-</sup>               | 0.007               | 0.007   | 0.007   | 0.007   | 0.1     | 0.007   |
| NO <sub>3</sub> <sup>-</sup>  | 0.007               | 0.007   | 0.007   | 0.007   | 0.007   | 0.007   |
| PO <sub>4</sub> <sup>3-</sup> | 0.006               | 0.006   | 0.006   | 0.006   | 0.006   | 0.1     |
| SO <sub>4</sub> <sup>2-</sup> | 0.006               | 0.006   | 0.006   | 0.006   | 8       | 0.1     |
| Na <sup>+</sup>               | 0.001               | 0.001   | 0.001   | 0.001   | 0.001   | 0.001   |
| NH <sub>4</sub> <sup>+</sup>  | 0.004               | 0.004   | 0.004   | 0.004   | 0.004   | 0.004   |
| K <sup>+</sup>                | 0.005               | 0.005   | 0.005   | 0.005   | 0.005   | 0.005   |
| Mg <sup>2+</sup>              | 0.002               | 0.002   | 0.002   | 0.002   | 0.002   | 0.002   |
| Ca <sup>2+</sup>              | 0.003               | 0.003   | 0.003   | 0.003   | 0.1     | 0.003   |
| Al                            | 0.4                 | 0.4     | 0.4     | 0.7     | 0.5     | 0.2     |
| As                            | 0.0003              | 0.0005  | 0.0002  | 0.0001  | 0.0002  | 0.0003  |
| Ba                            | 0.002               | 0.002   | 0.002   | 0.002   | 0.002   | 0.001   |
| Ca                            | 0.1                 | 0.2     | 0.3     | 0.0     | 0.5     | 0.2     |
| Cd                            | 0.00001             | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 |
| Co                            | 0.0001              | 0.0002  | 0.0001  | 0.0001  | 0.0001  | 0.0002  |
| Cr                            | 0.0002              | 0.0003  | 0.0003  | 0.0005  | 0.0002  | 0.0004  |
| Cs                            | 0.00005             | 0.00006 | 0.00004 | 0.00005 | 0.00005 | 0.00004 |
| Cu                            | 0.0003              | 0.0004  | 0.0003  | 0.0002  | 0.0003  | 0.0005  |
| Fe                            | 0.1                 | 0.1     | 0.1     | 0.20    | 0.2     | 0.04    |
| Ga                            | 0.0001              | 0.0002  | 0.0002  | 0.0002  | 0.0001  | 0.0001  |
| K                             | 0.1                 | 0.1     | 0.1     | 0.2     | 0.2     | 0.3     |
| Mg                            | 0.1                 | 0.1     | 0.1     | 0.2     | 0.1     | 0.1     |
| Mn                            | 0.004               | 0.004   | 0.005   | 0.005   | 0.002   | 0.002   |
| Na                            | 0.02                | 0.02    | 0.06    | 0.07    | 0.04    | 0.04    |
| Ni                            | 0.0005              | 0.0003  | 0.0003  | 0.0011  | 0.0003  | 0.0006  |
| P                             | 0.005               | 0.006   | 0.006   | 0.009   | 0.008   | 0.072   |
| Pb                            | 0.0003              | 0.0003  | 0.0001  | 0.0009  | 0.0002  | 0.0002  |
| Rb                            | 0.001               | 0.001   | 0.001   | 0.000   | 0.001   | 0.001   |
| Sb                            | 0.00001             | 0.00002 | 0.00001 | 0.00007 | 0.00001 | 0.00001 |
| Sr                            | 0.0004              | 0.0008  | 0.0012  | 0.0011  | 0.0010  | 0.0007  |
| Th                            | 0.00005             | 0.00006 | 0.00004 | 0.00007 | 0.00004 | 0.00005 |
| Ti                            | 0.010               | 0.010   | 0.015   | 0.016   | 0.005   | 0.006   |
| V                             | 0.0003              | 0.0003  | 0.0003  | 0.0005  | 0.0002  | 0.0003  |
| Zn                            | 0.001               | 0.001   | 0.001   | 0.002   | 0.001   | 0.002   |