

1 **Comparison of PM<sub>10</sub> sources profiles at 15 French sites using a harmonized**  
2 **constrained positive matrix factorization approach**

3 **Supplementary information**

4  
5 Weber Samuël<sup>1</sup>, Salameh Dalia<sup>1</sup>, Albinet Alexandre<sup>2</sup>, Alleman Laurent Y.<sup>3</sup>, Waked Antoine<sup>1</sup>,  
6 Besombes Jean-Luc<sup>4</sup>, Jacob Véronique<sup>1</sup>, Guillaud Géraldine<sup>5</sup>, Mesbah Boualem<sup>6</sup>, Rocq Benoit<sup>7</sup>,  
7 Hulin Agnès<sup>8</sup>, Dominik-Sègue Marta<sup>9</sup>, Chrétien Eve<sup>10</sup>, Jaffrezo Jean-Luc<sup>1</sup>, and Favez Olivier<sup>2</sup>

8  
9 <sup>1</sup> Univ. Grenoble Alpes, CNRS, IRD, INP-G, IGE (UMR 5001), 38000 Grenoble, France.

10 <sup>2</sup> INERIS, Parc Technologique Alata, BP 2, 60550 Verneuil-en-Halatte, France

11 <sup>3</sup> IMT Lille Douai, Univ. Lille, UR SAGE, 59500 Douai, France

12 <sup>4</sup> Univ. Savoie Mont-Blanc, LCME, 73000 Chambéry, France

13 <sup>5</sup> Atmo AuRA, 69500 Bron, France

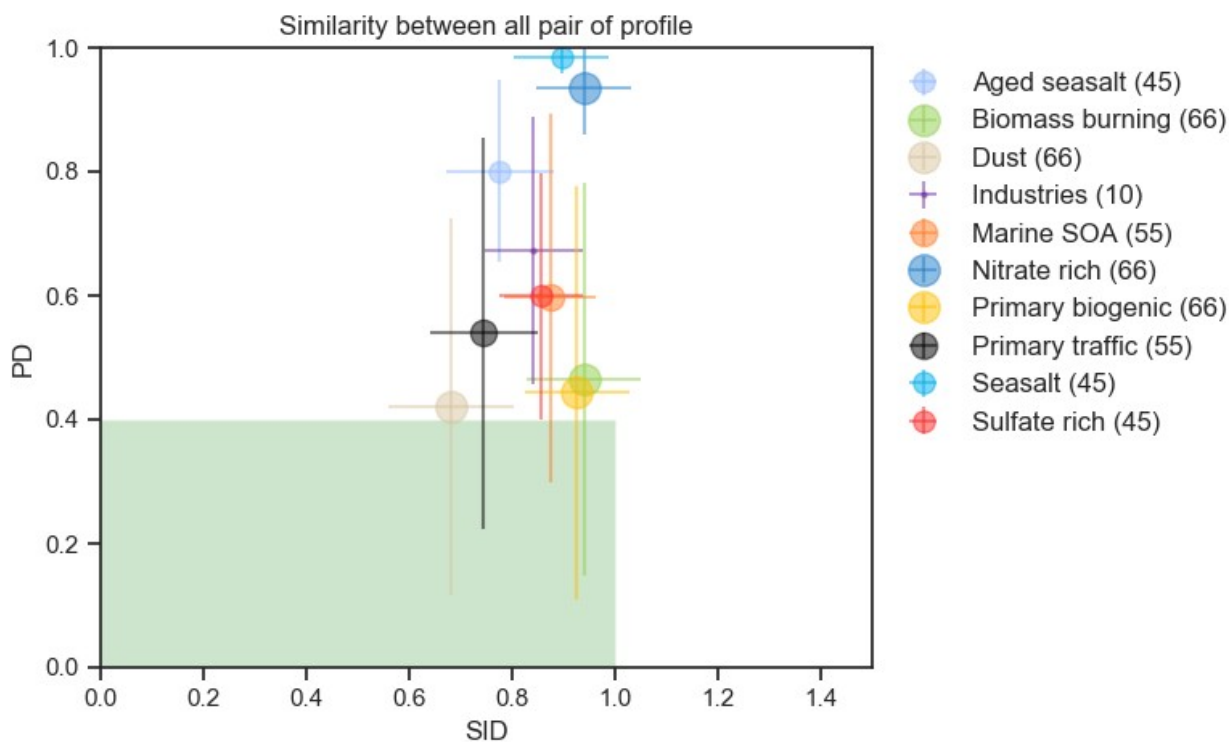
14 <sup>6</sup> Atmo Sud, 13294 Marseille, France

15 <sup>7</sup> Atmo Hauts de France, 59044 Lille, France

16 <sup>8</sup> Atmo Nouvelle Aquitaine, 33692 Merignac, France

17 <sup>9</sup> Atmo Normandie, 76000 Rouen, France

18 <sup>10</sup> Atmo Grand Est, 57070 Metz, France

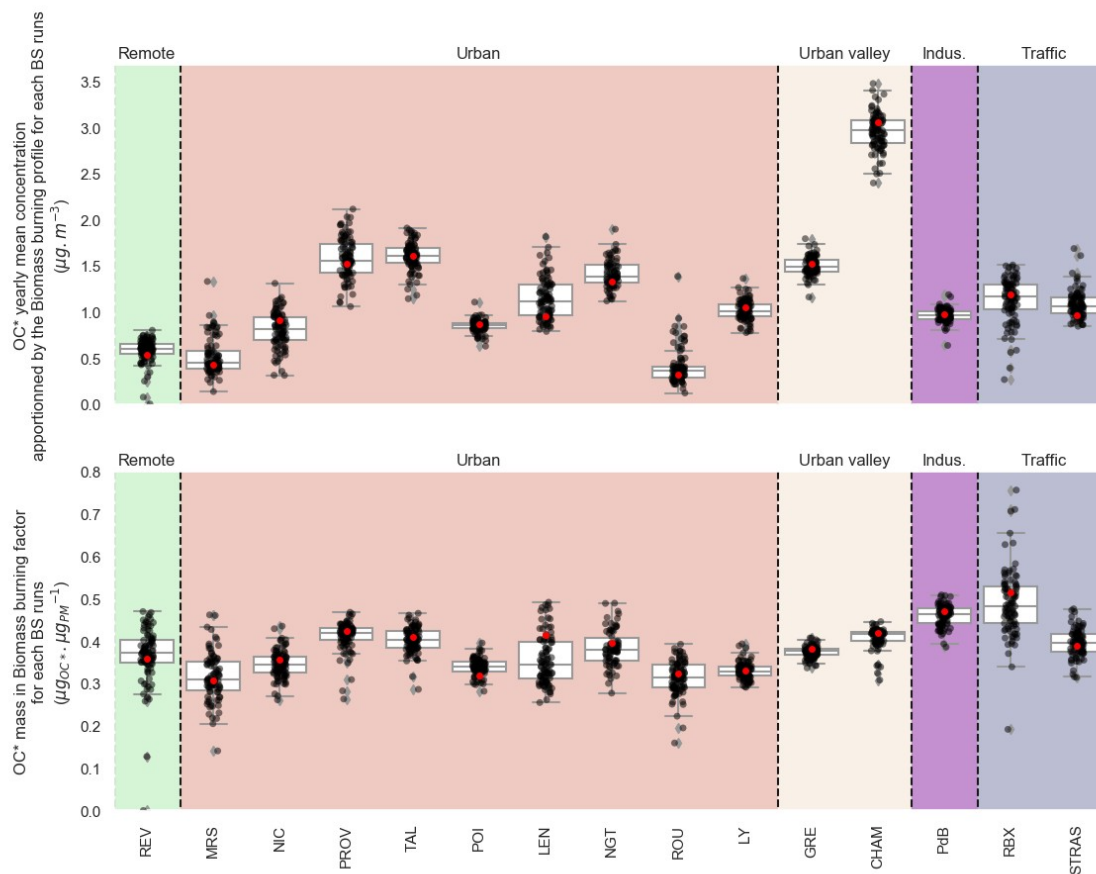


20

21 **Figure S11:** Similarity plot for all pair of profiles containing a “dust” factor. The mean  $\pm$  standard  
 22 deviation for a given source category are plotted. The size of the dot is proportional to the number  
 23 of pair of profile (from 10 to 66, shown in parenthesis in the legend). The green box highlights the  
 24 acceptable area for profile similarity according to Pernigotti and Belis (2018).

25

26



27

28 **Figure SI2:** Uncertainties of OC\* in the Biomass burning profile according to BS for each site. Top: Average OC\*  
 29 concentration apportioned in  $\mu\text{g}\cdot\text{m}^{-3}$ . Bottom: Proportion of OC\* in the Biomass burning profile in  $\mu\text{g}\cdot\mu\text{g}^{-1}$ . Dark dots  
 30 represent each BS value, and the boxplot represent the dispersion of the individual values (box: quartiles, caps:  
 31 min/max, whiskers: lower/greater than  $1.5\times$ inter-quartiles range). The red dots are the value for the reference  
 32 constrained runs.

33