S1 Statistical indicators used in the validation of the model experiments

Pearson correlation coefficient (r), normalized mean bias (NMB), and normalized mean square error (NMSE) are defined as:

$$r = \frac{\sum_{i=1}^{N}(m_i - \overline{m})(o_i - \overline{o})}{\sqrt{\sum_{i=1}^{N}(m_i - \overline{m})^2}\sqrt{\sum_{i=1}^{N}(o_i - \overline{o})^2}}, \tag{S1}$$

$$\text{NMB} = \frac{\sum_{i=1}^{N}(m_i - o_i)}{\sum_{i=1}^{N}o_i}, \tag{S2}$$

$$\text{NMSE} = \frac{\frac{1}{N}\sum_{i=1}^{N}(m_i - o_i)^2}{\overline{m}\,\overline{o}}, \tag{S3}$$

where m_i and o_i denote the corresponding modeled and observed concentrations in the compared sample, respectively, N is the total number of pairs m_i vs. o_i in the sample, and $\overline{m}$ and $\overline{o}$ stand for the arithmetic average of modeled and observed concentrations in the sample, respectively.

The standard deviation (σ) from a finite data set $\{x_1, x_2, ..., x_N\}$ containing N numbers is defined as:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \overline{x})^2}, \tag{S4}$$

where $\overline{x}$ represents the arithmetic average of all x_i in the set.
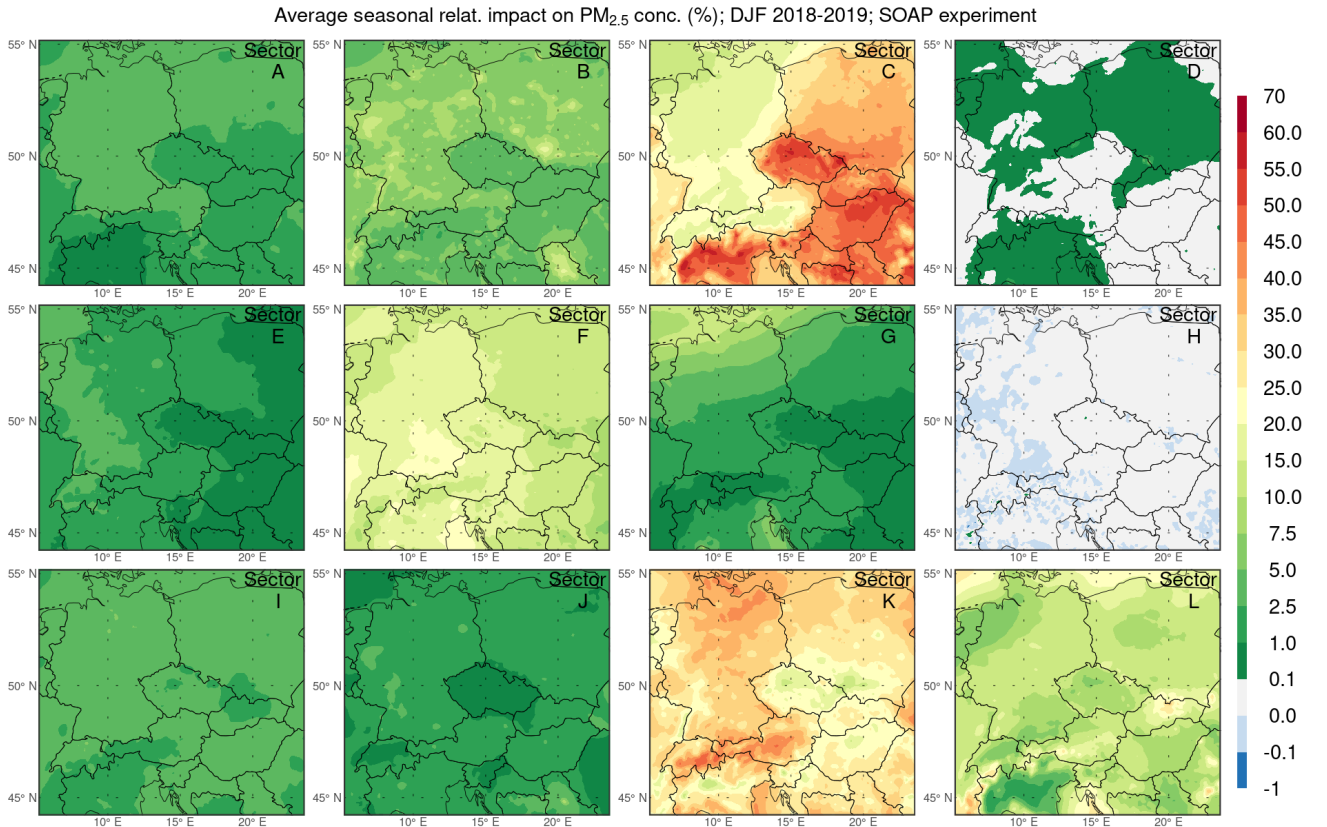
S2 Figures and tables

Figure S1. Spatial distributions of the average seasonal relative impact of individual GNFR sectors A–L (indicated in the upper right corner of the panels) on the concentration of PM$_{2.5}$ (in %) during the winter (DJF) seasons of 2018–2019 in the SOAP experiment.

Average seasonal abs. impact on PM$_{2.5}$ conc. (µg m^{-3}); DJF 2018-2019; VBS experiment
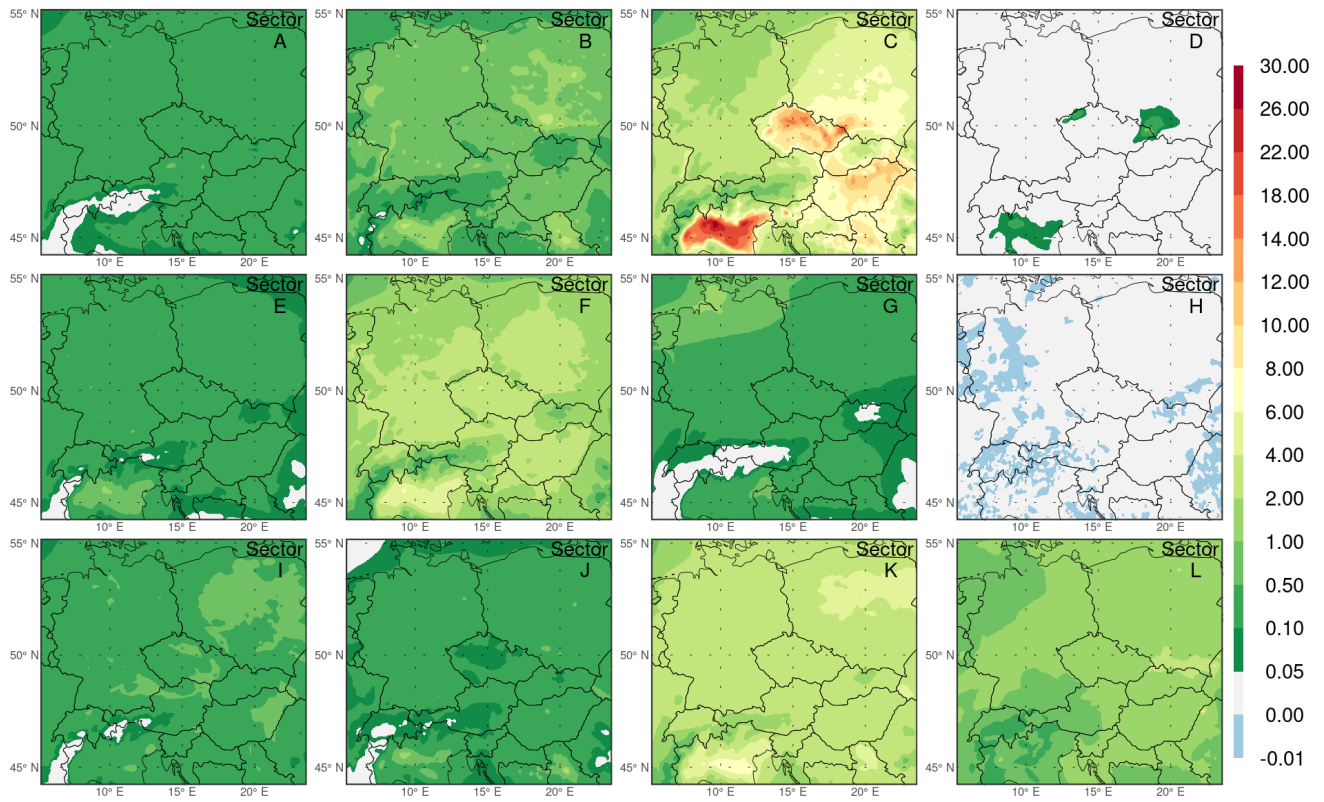

Figure S2. Spatial distributions of the average seasonal absolute impact of emissions from individual GNFR sectors A–L (indicated in the upper right corner of the panels) on the concentration of PM$_{2.5}$ (in µg m^{-3}) during the winter (DJF) seasons of 2018–2019 in the VBS experiment.

Average seasonal relat. impact on PM$_{2.5}$ conc. (%); DJF 2018-2019; VBS experiment
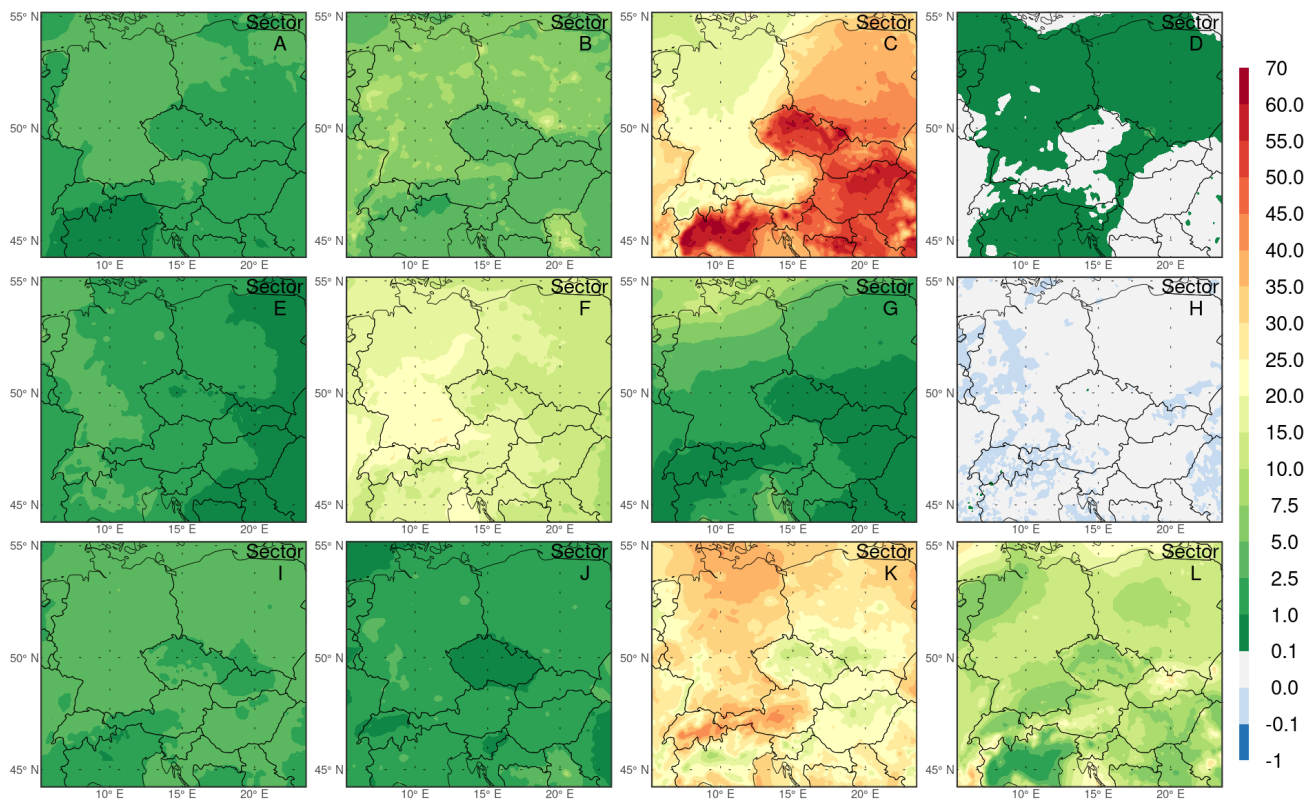

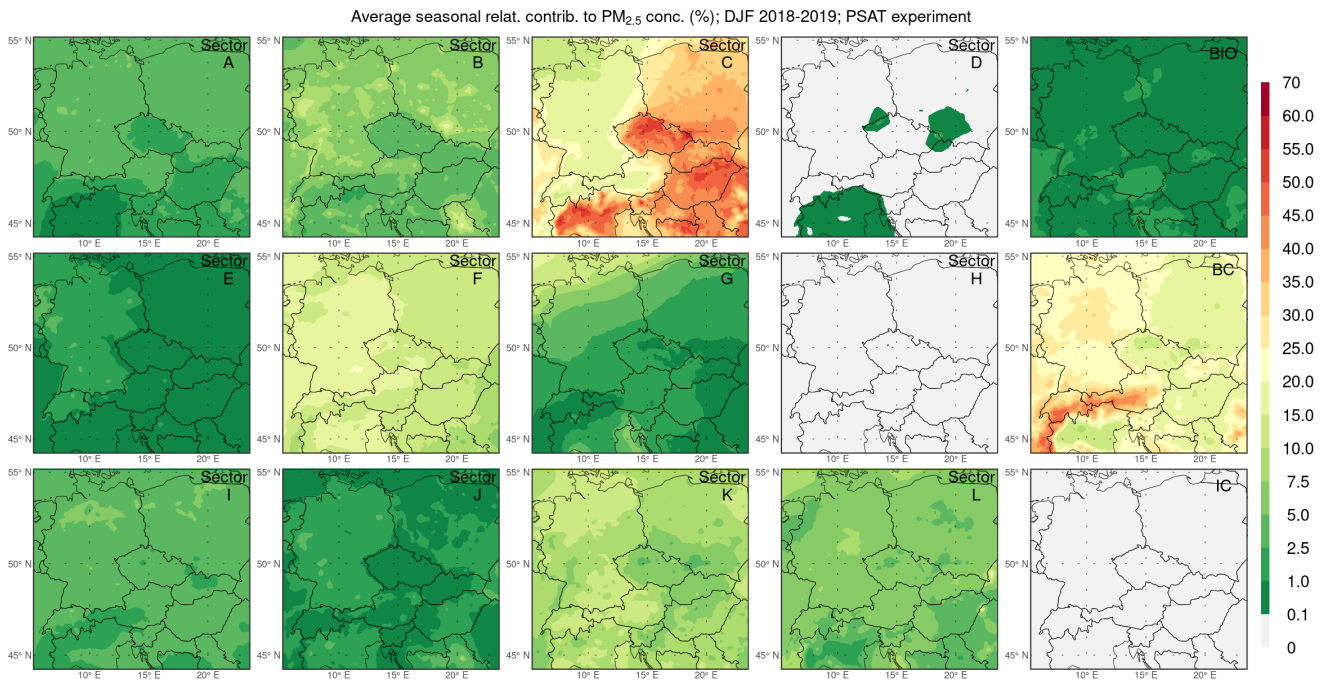**Figure S3.** Same as Fig. S1 but for the VBS experiment.

Figure S4. Spatial distributions of the average seasonal relative contribution of individual categories (indicated in the upper right corner of the panels) to the concentration of PM$_{2.5}$ (in %) during the winter (DJF) seasons of 2018–2019 in the PSAT experiment. Categories used are: GNFR sectors A–L, BIO – biogenic emissions, BC – boundary conditions, IC – initial condition.

Figure S5. Spatial distributions of the difference between the average seasonal absolute impacts of emissions from individual GNFR sectors A–L (indicated in the upper right corner of the panels) on the concentration of PM$_{2.5}$ in the SOAP experiment and their corresponding average seasonal absolute contributions to the concentration of PM$_{2.5}$ in the PSAT experiment (in $\mu g\,m^{-3}$) during the winter (DJF) seasons of 2018–2019.
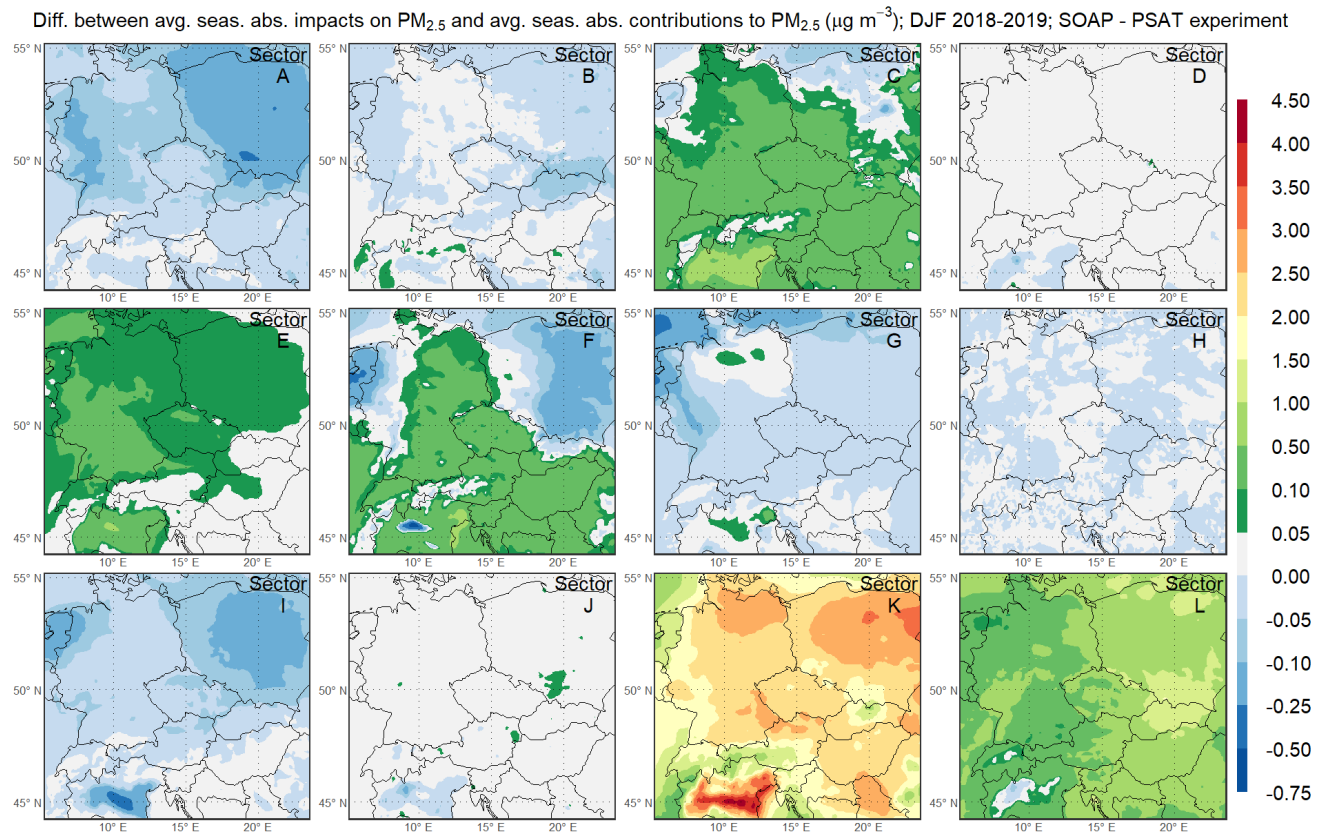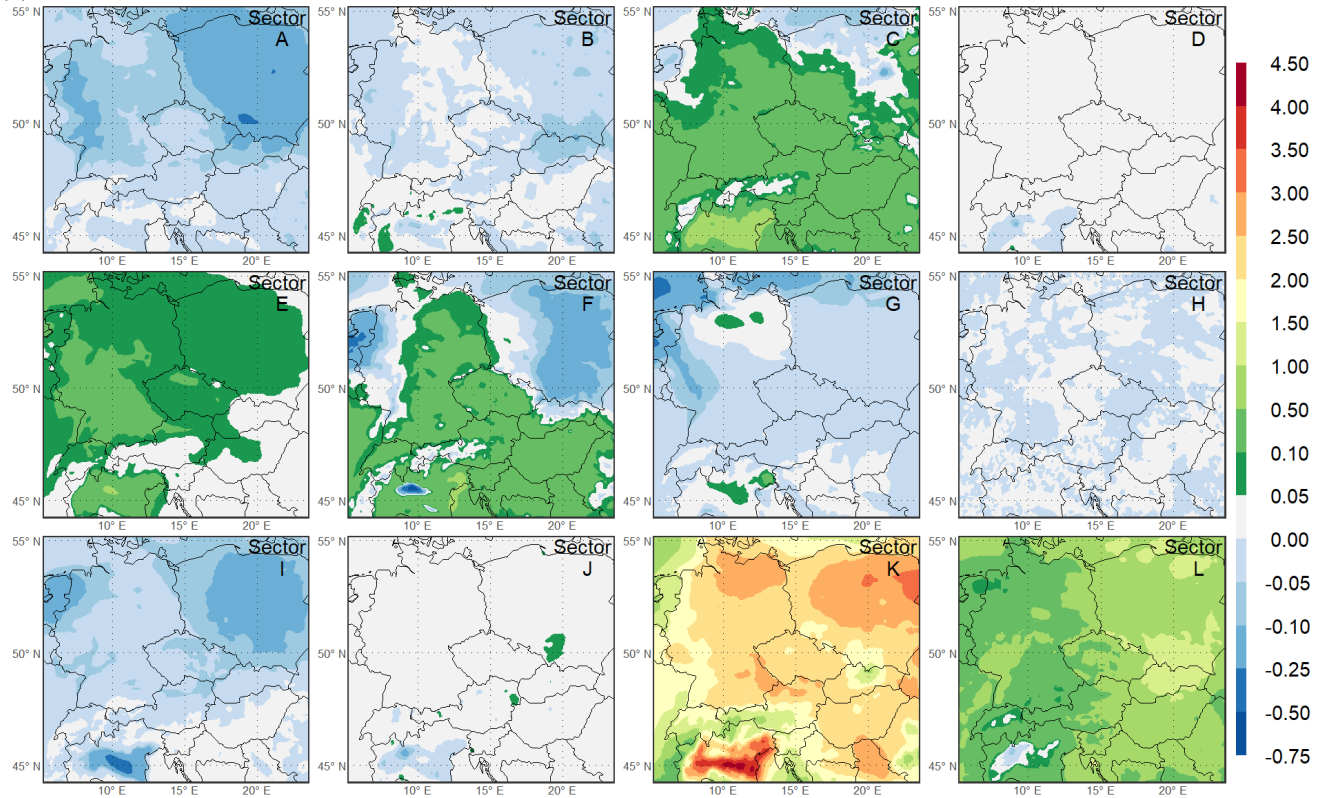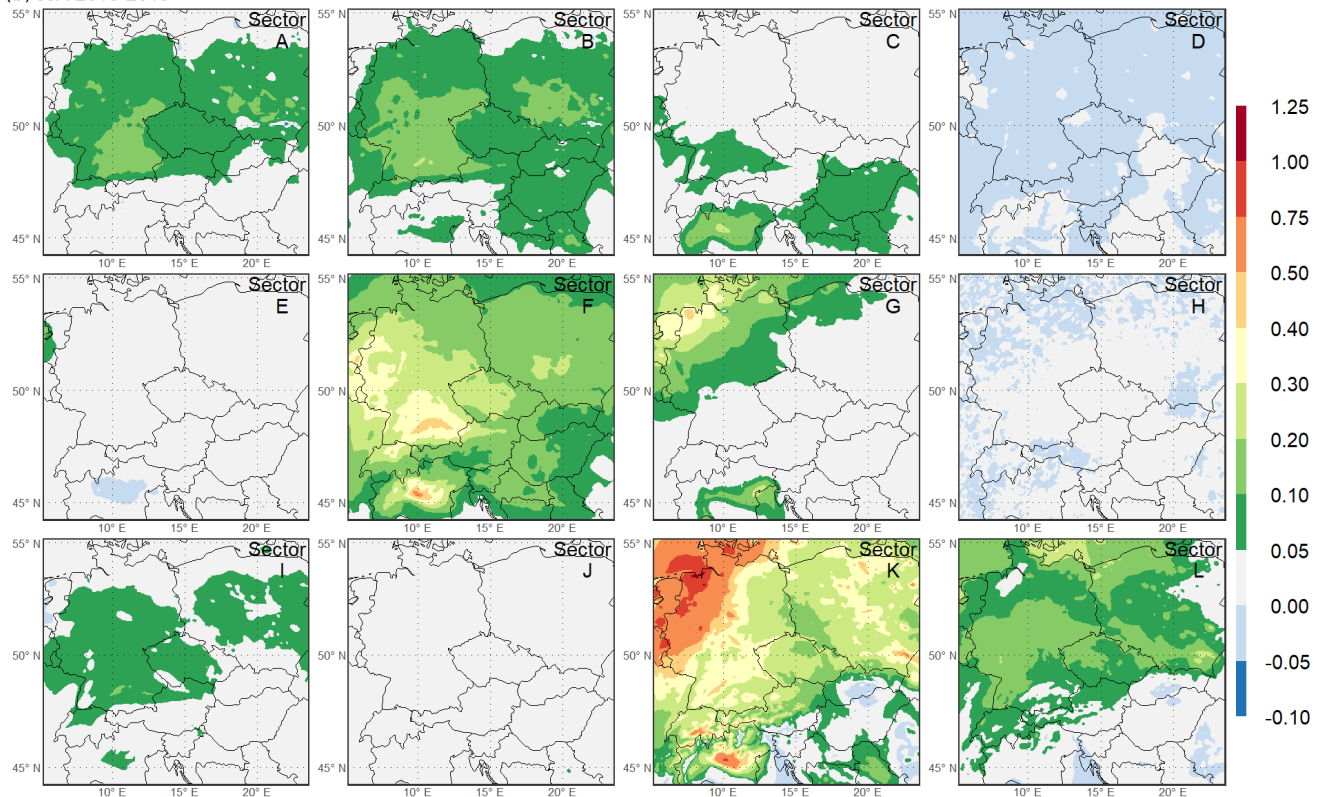
Figure S6. Spatial distributions of the difference between the average seasonal absolute impacts of emissions from individual GNFR sectors A–L (indicated in the upper right corner of the subpanels) on the concentration of secondary aerosol (SA) in the SOAP experiment and their corresponding average seasonal absolute contributions to the concentration of SA in the PSAT experiment (in $\mu g\, m^{-3}$) during the winter (DJF, panel **(a)**) and summer (JJA, panel **(b)**) seasons of 2018–2019. SA is represented here by the sum of PNH_4, PNO_3, PSO_4, and SOA.

Average seasonal relat. impact on PM$_{2.5}$ conc. (%); JJA 2018-2019; SOAP experiment
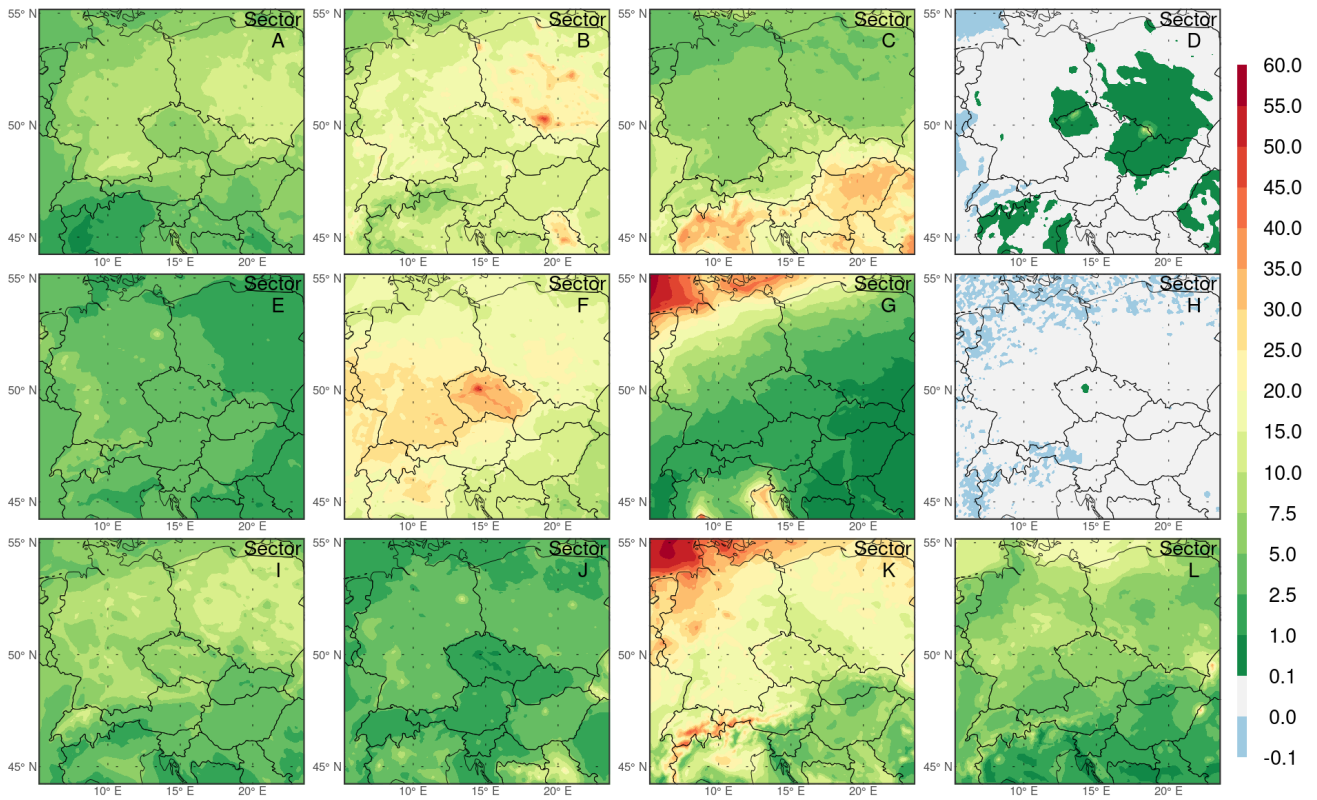
Figure S7. Same as Fig. S1 but for the summer (JJA) seasons of 2018–2019.

Average seasonal abs. impact on PM$_{2.5}$ conc. (µg m^{-3}); JJA 2018-2019; VBS experiment
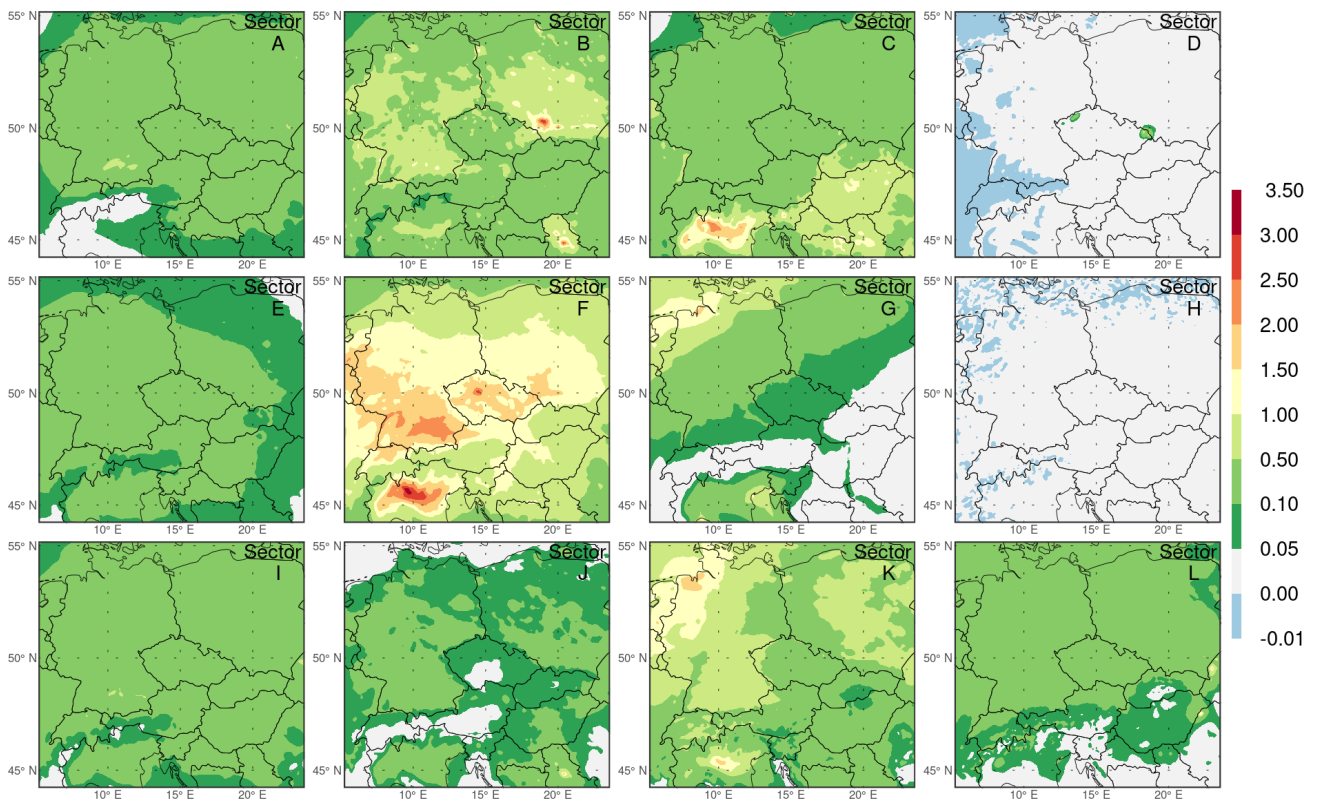
Figure S8. Same as Fig. S2 but for the summer (JJA) seasons of 2018–2019.

Average seasonal relat. impact on PM$_{2.5}$ conc. (%); JJA 2018-2019; VBS experiment
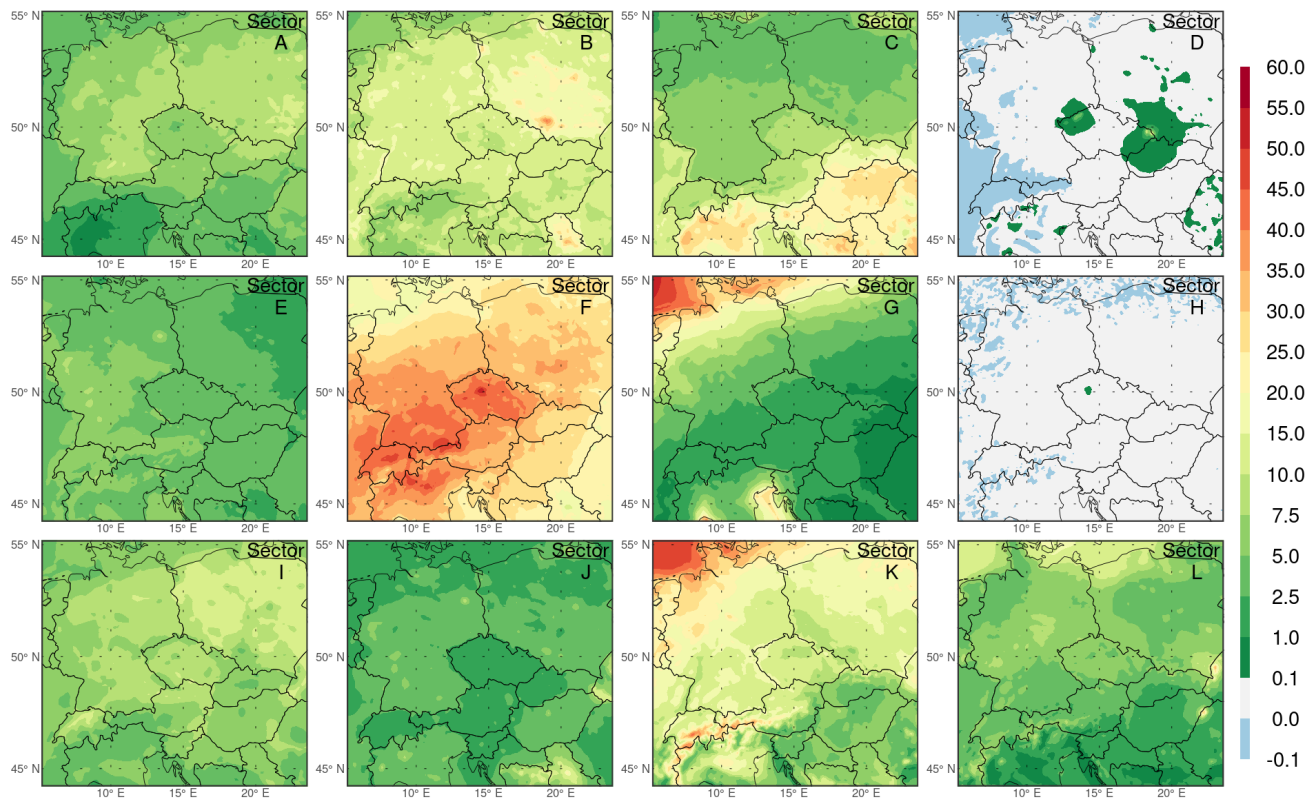
Figure S9. Same as Fig. S3 but for the summer (JJA) seasons of 2018–2019.

Average seasonal relat. contrib. to PM$_{2.5}$ conc. (%); JJA 2018-2019; PSAT experiment
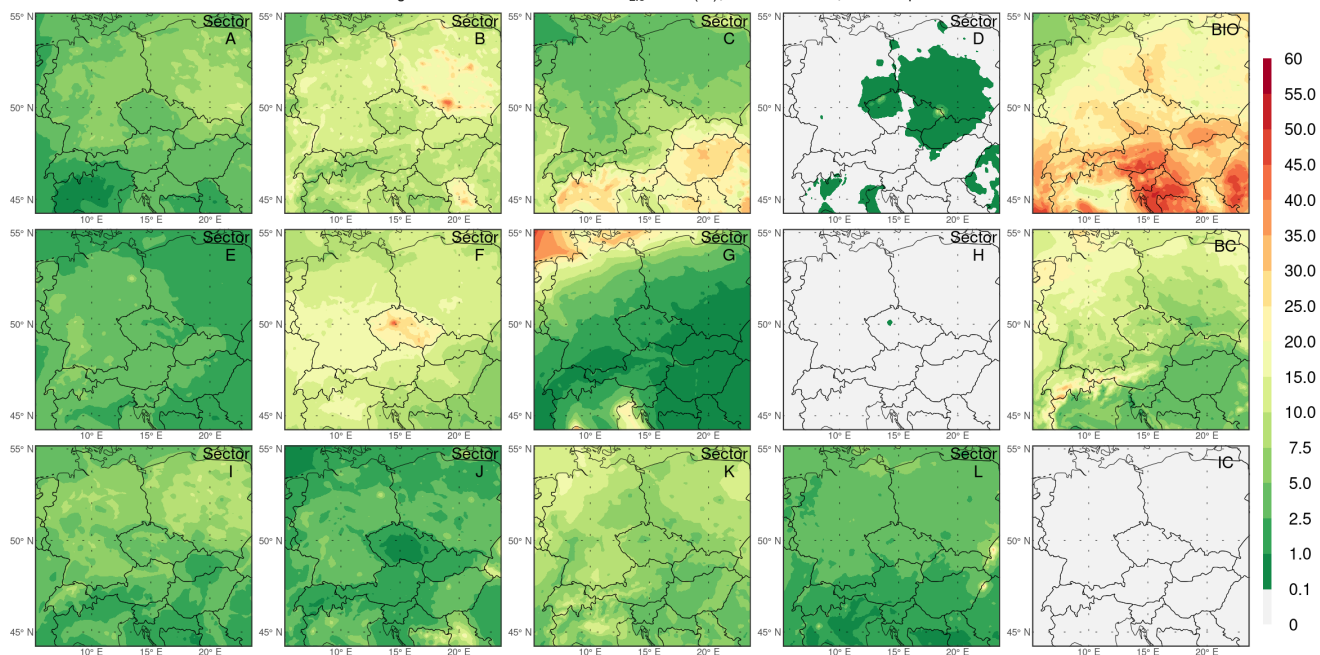
Figure S10. Same as Fig. S4 but for the summer (JJA) seasons of 2018–2019.
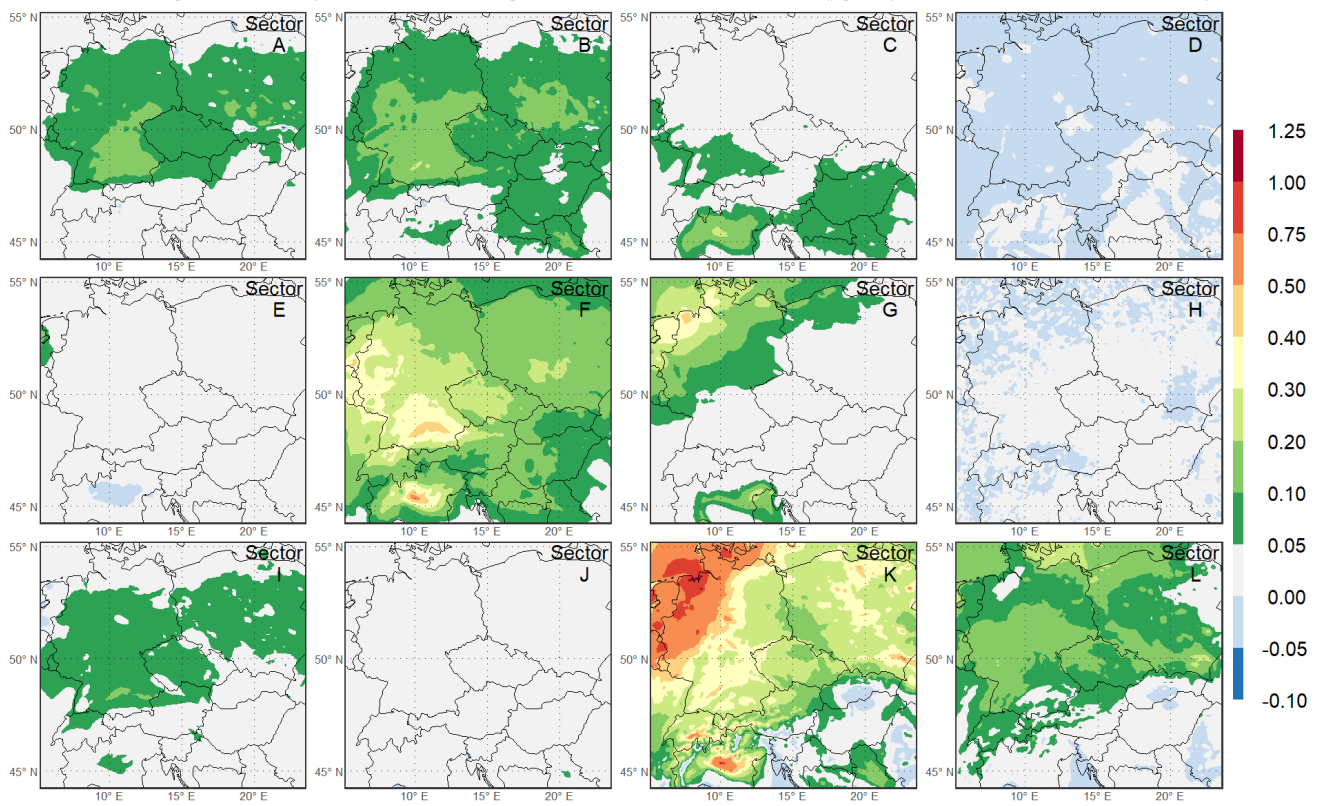
Figure S11. Same as Fig. S5 but for the summer (JJA) seasons of 2018–2019.
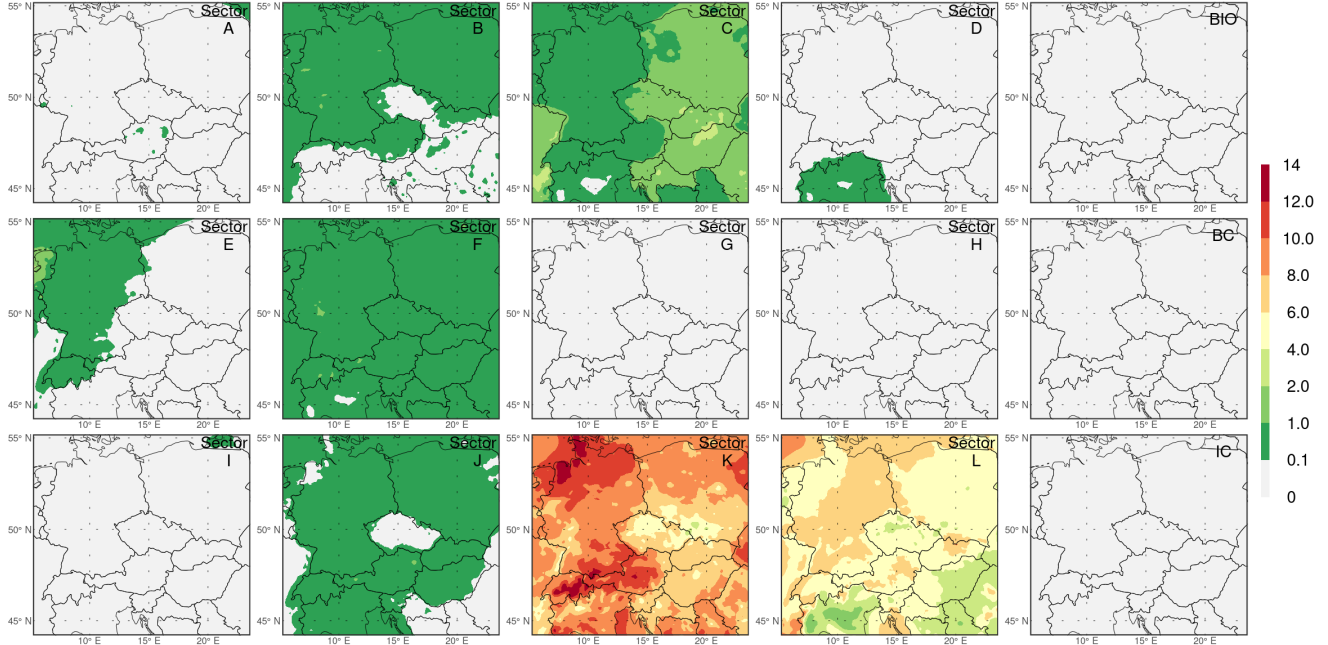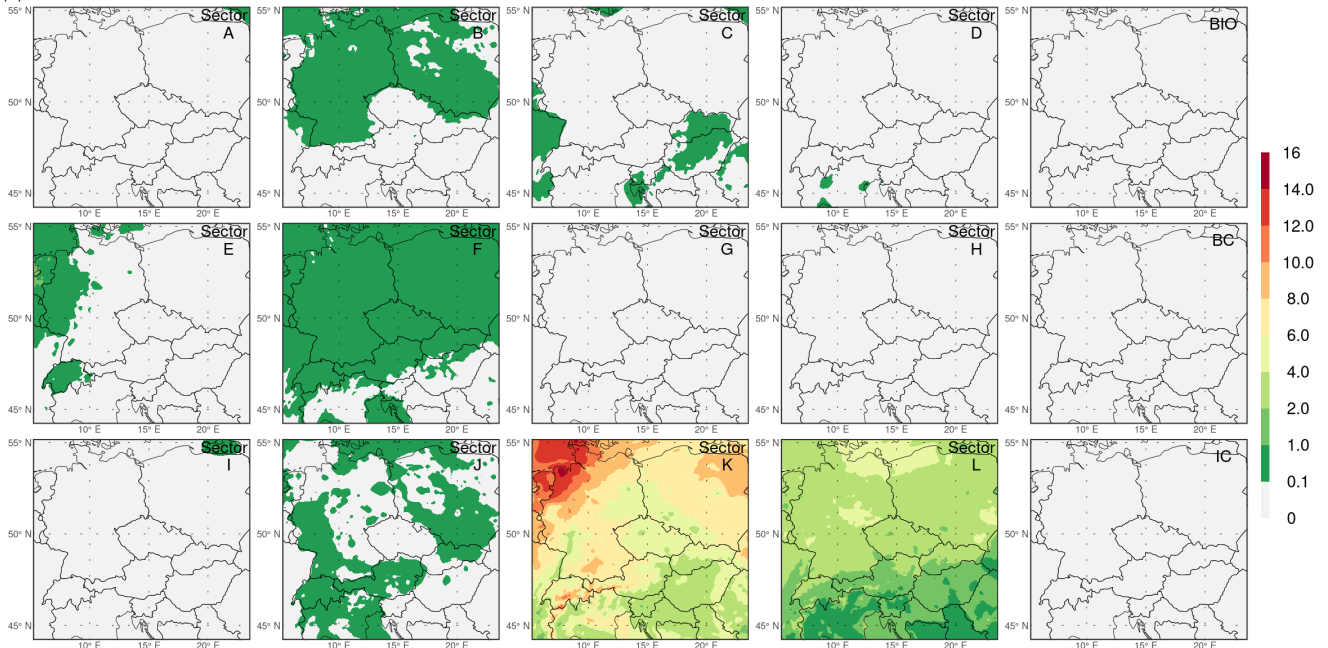
Figure S12. Spatial distributions of the average seasonal relative contribution of individual categories (indicated in the upper right corner of the subpanels) to the concentration of PNH$_4$ (in %) during the winter (DJF, panel **(a)**) and summer (JJA, panel **(b)**) seasons of 2018–2019 in the PSAT experiment. Categories used are: GNFR sectors A–L, BIO – biogenic emissions, BC – boundary conditions, IC – initial condition.
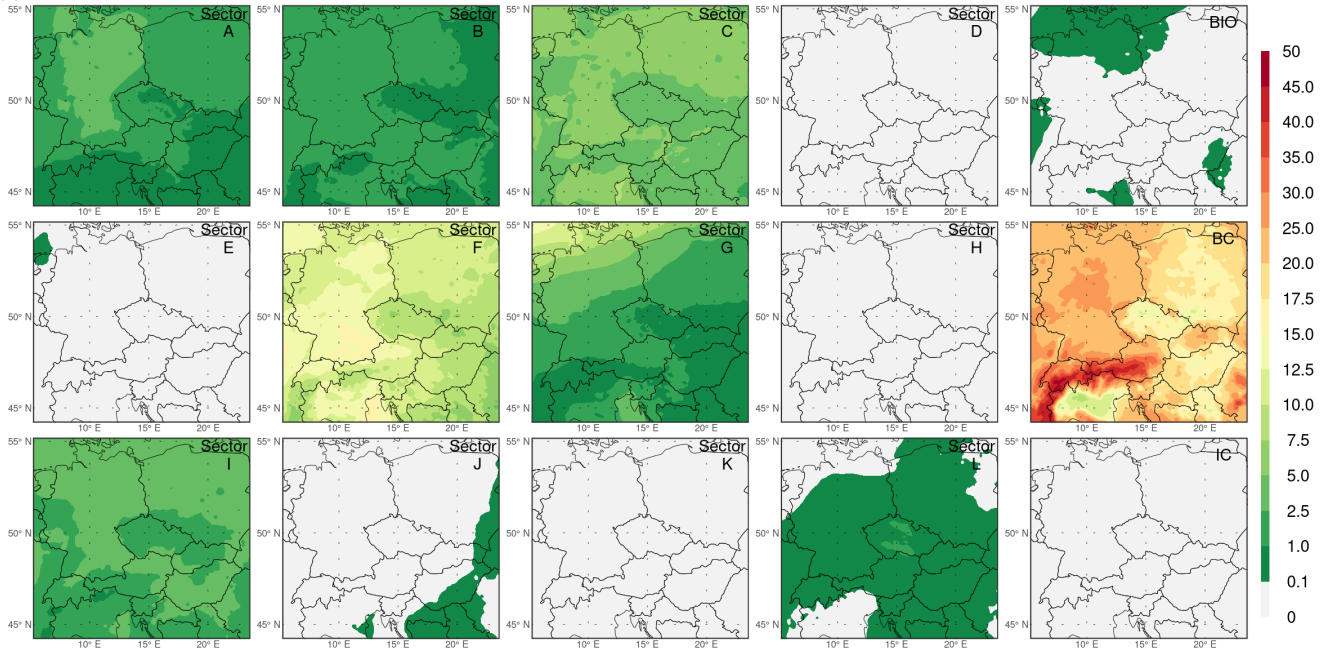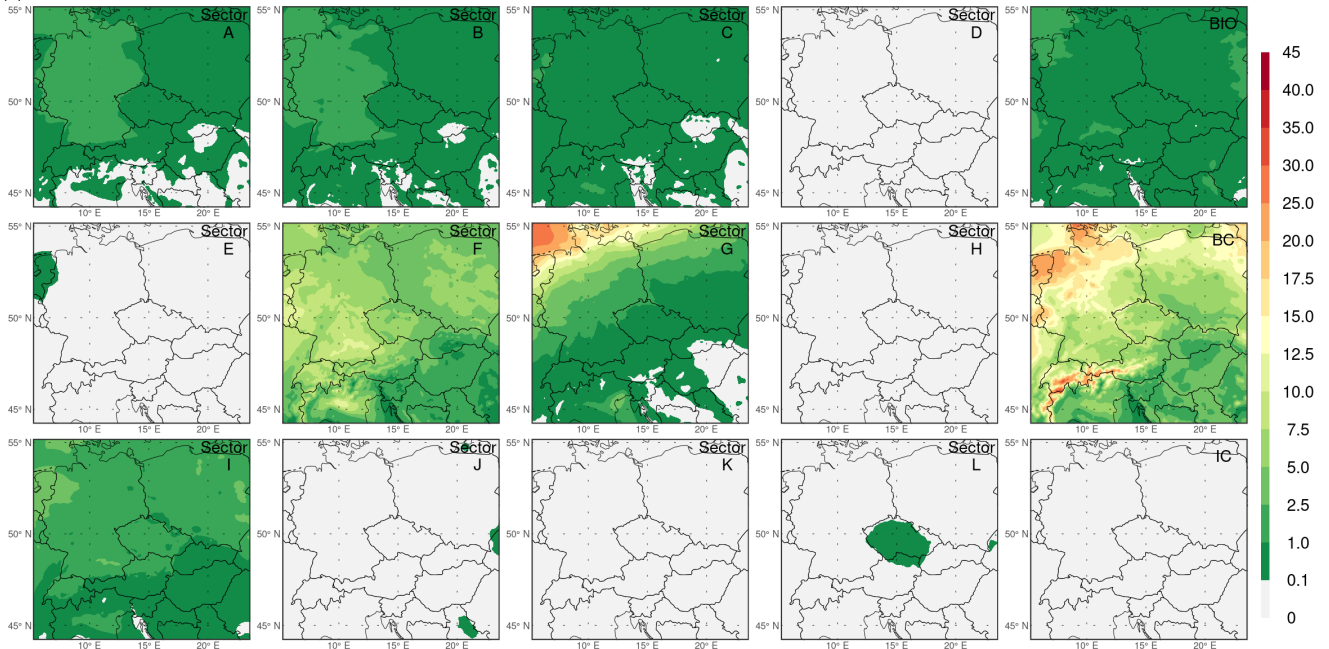
Figure S13. Same as Fig. S12 but for PNO₃.

Average seasonal relat. contrib. to PSO$_4$ conc. (%); DJF/JJA 2018-2019; PSAT experiment
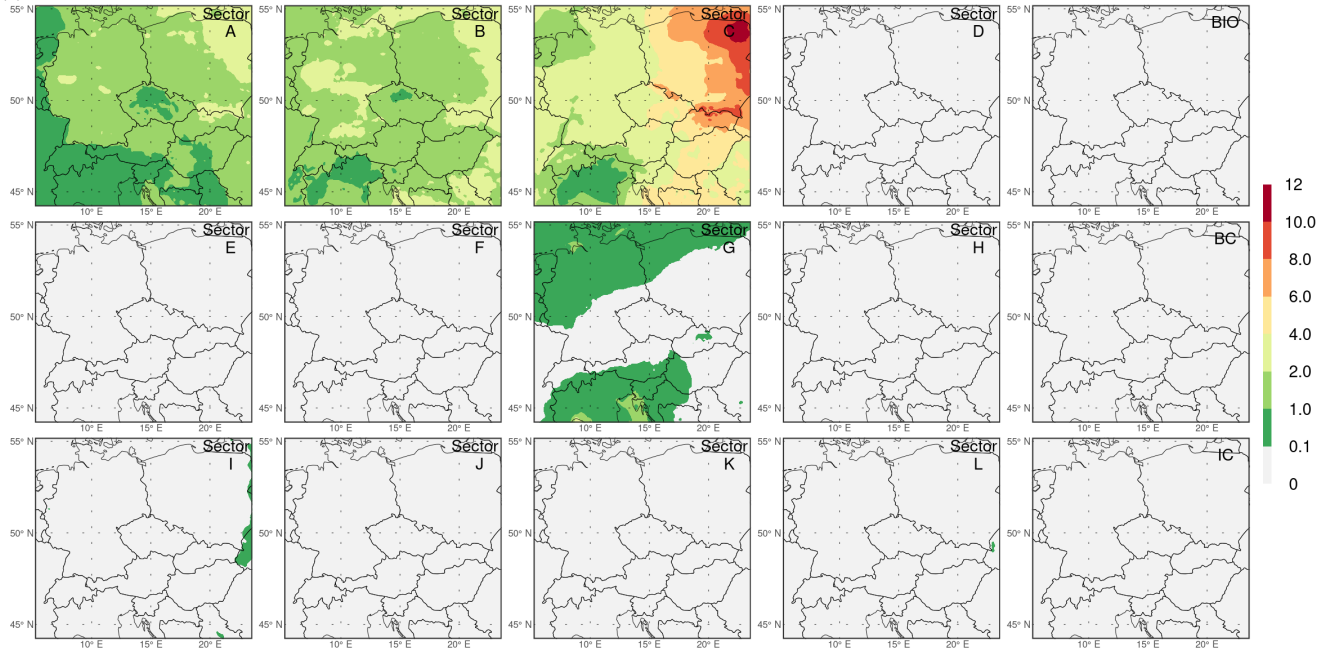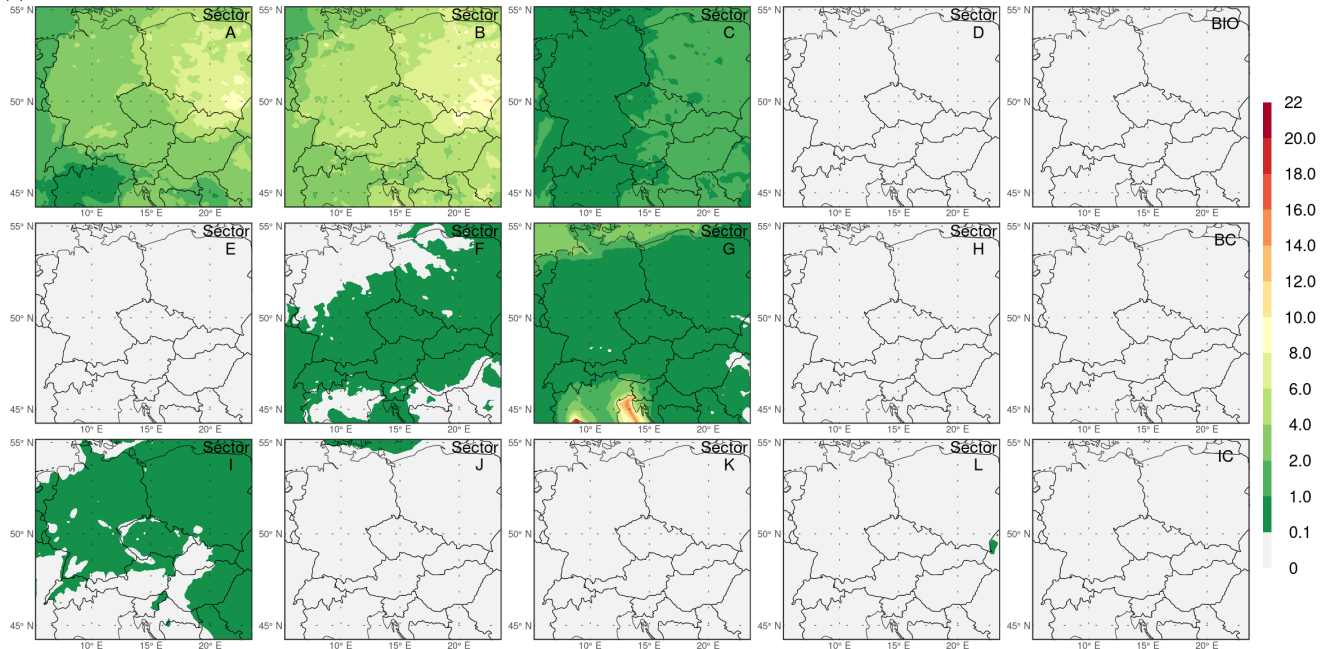
Figure S14. Same as Fig. S12 but for PSO$_4$.

Average seasonal relat. contrib. to SOA conc. (%); DJF/JJA 2018-2019; PSAT experiment
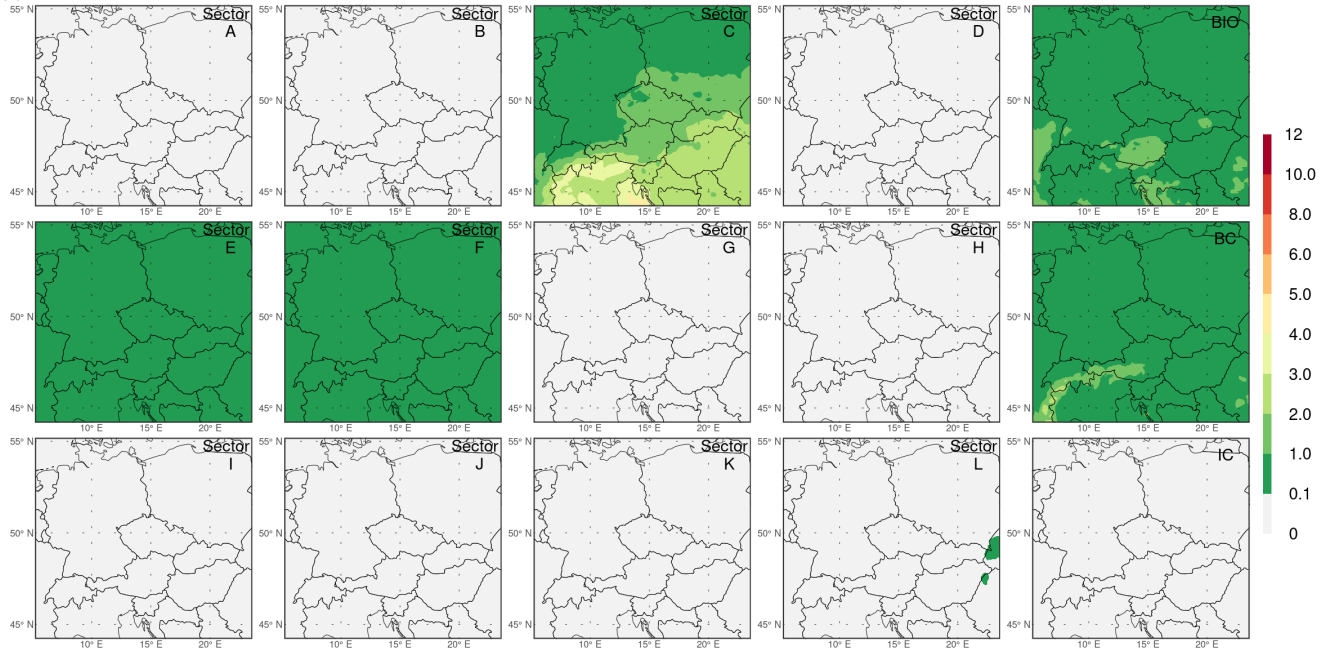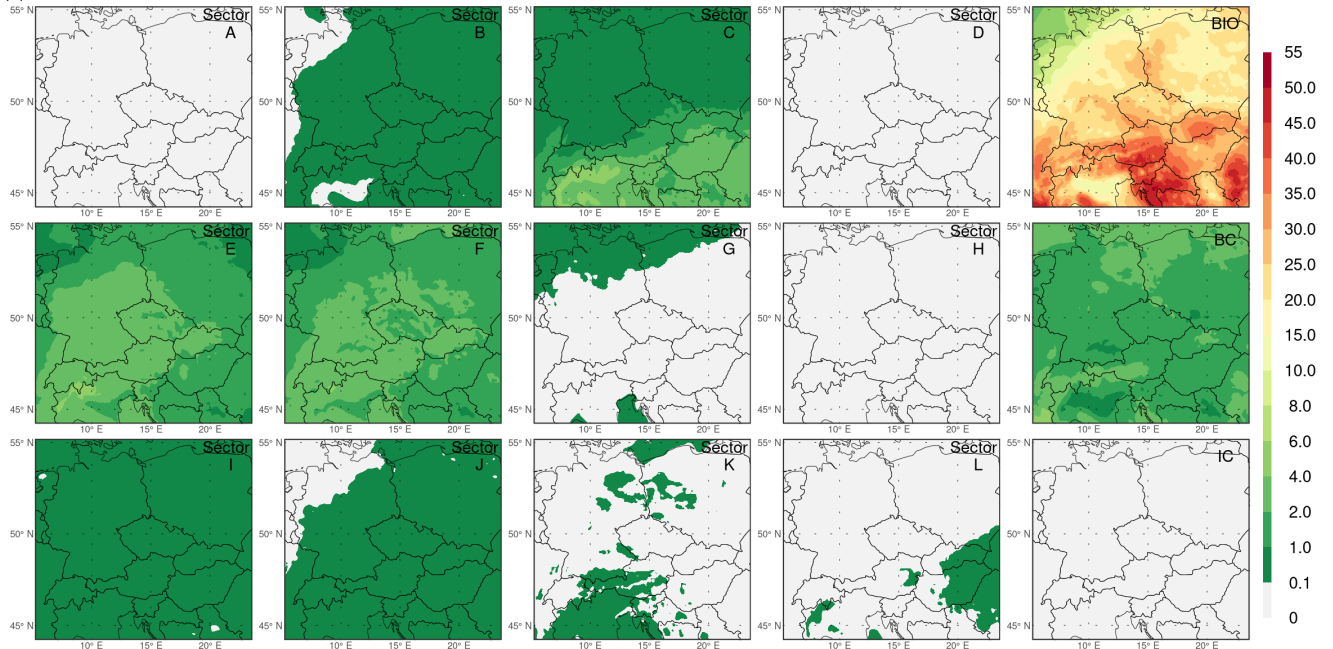
Figure S15. Same as Fig. S12 but for SOA.
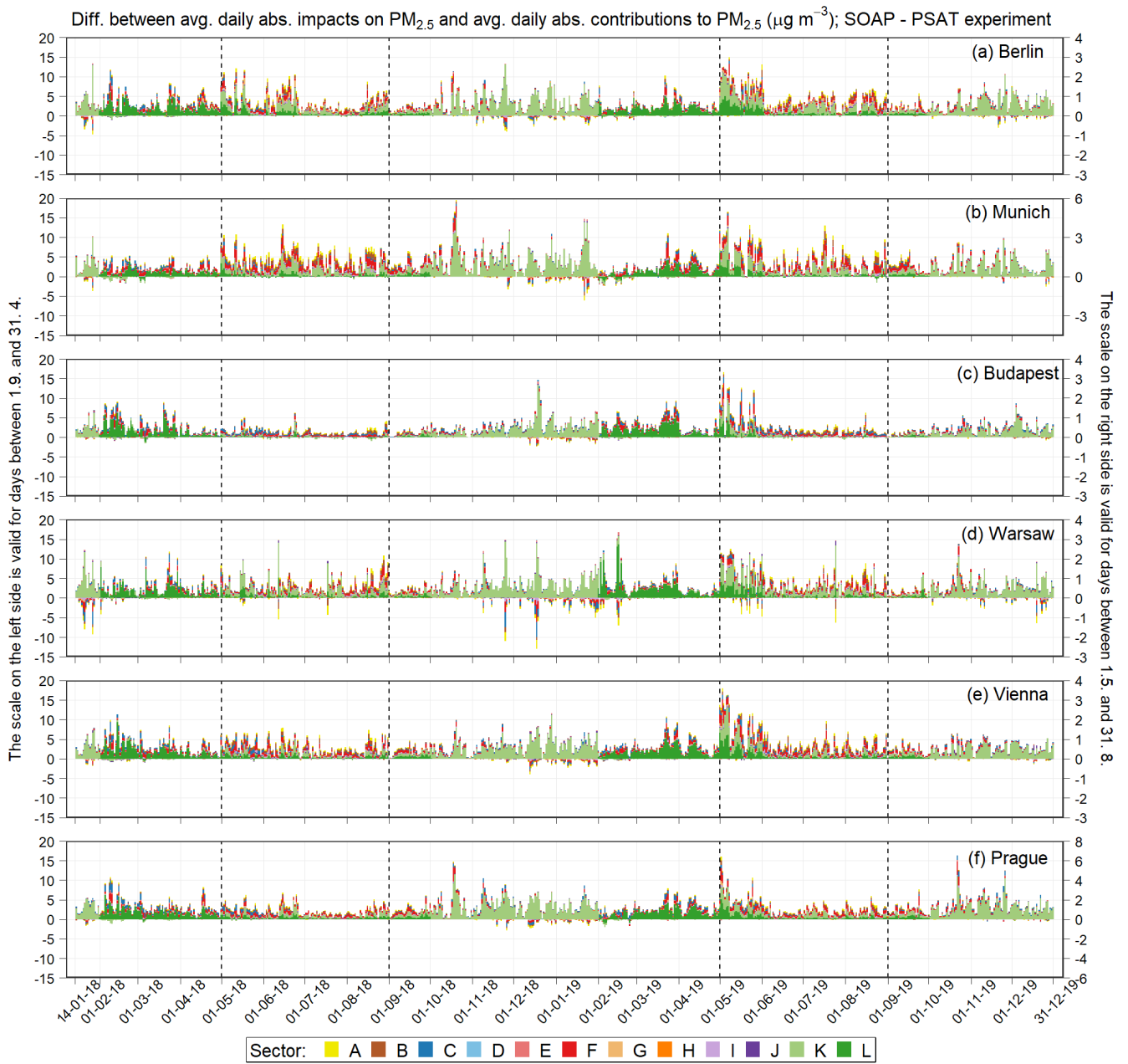
Figure S16. Temporal evolution of the differences between the average daily absolute impacts of emissions individual GNFR sectors A–L on the concentration of $PM_{2.5}$ in the SOAP experiment and their corresponding average daily absolute contributions to the concentration of $PM_{2.5}$ in the PSAT experiment (in $\mu g\,m^{-3}$) above Berlin **(a)**, Munich **(b)**, Budapest **(c)**, Warsaw **(d)**, Vienna **(e)**, and Prague **(f)**. The scale on the left (right) side is valid for the days between 1.9. and 31.4. (1.5. and 31.8.).
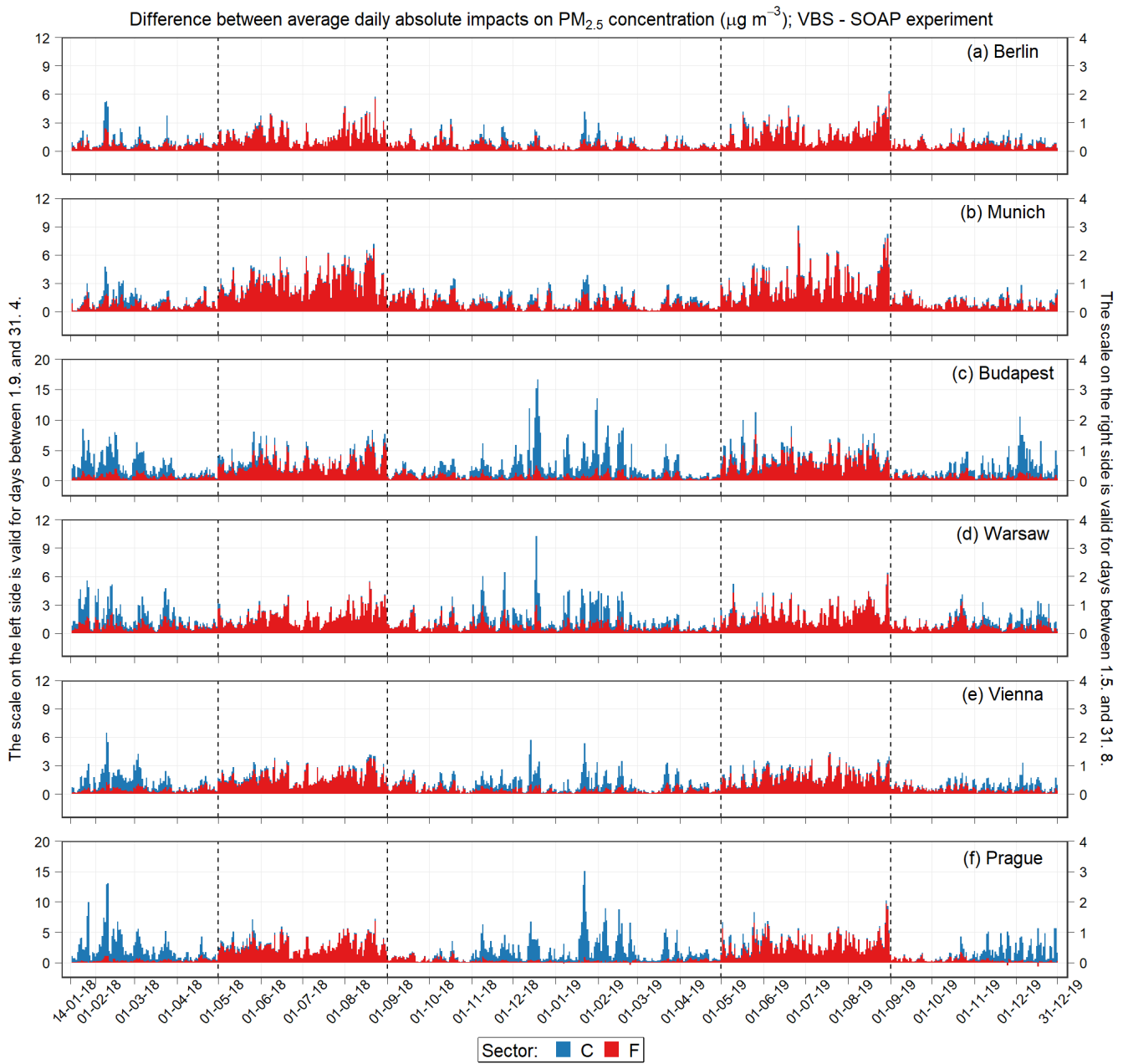
Figure S17. Temporal evolution of the differences between the average daily absolute impacts of emissions from GNFR sectors C and F on the concentration of $PM_{2.5}$ (in $\mu g\,m^{-3}$) above Berlin **(a)**, Munich **(b)**, Budapest **(c)**, Warsaw **(d)**, Vienna **(e)**, and Prague **(f)** in the VBS and SOAP experiments. The scale on the left (right) side is valid for the days between 1.9. and 31.4. (1.5. and 31.8.).

Figure S18. Spatial distributions of the difference (VBS - SOAP) between the average seasonal concentrations (in μg m^{-3}) of primary inorganic aerosol (PIA, panels **(a–d)**), primary organic aerosol (POA, panels **(e–h)**), secondary inorganic aerosol (SIA, panels **(i–l)**), and secondary organic aerosol (SOA, panels **(m–p)**) in the base simulations of the VBS and SOAP experiments during the winter (DJF, first column), spring (MAM, second column), summer (JJA, third column), and autumn (SON, fourth column) seasons of 2018–2019.

Table S1. Comparison of the seasonal averages of the average daily absolute (relative) impacts/contributions[1] of individual categories[2] on/to PM$_{2.5}$ concentration in µg m^{-3} (in %) calculated from the SOAP and VBS/PSAT experiments for Berlin. While the highest averages within each season are shown in red for each experiment, the second and third highest averages are shown in blue. The seasonal relative averages greater than or equal to 5 % are shown in bold. The last row shows the sum of the seasonal averages.

| **Berlin** | Seasonal avrg. of the avrg. daily abs. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (µg m^{-3}) | | | | | | Seasonal avrg. of the avrg. daily relat. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (%) | | | | | |
| | Winter (DJF) | | | Summer (JJA) | | | Winter (DJF) | | | Summer (JJA) | | |
Category	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT
GNFR A	0.44	0.43	0.52	0.21	0.26	0.16	3.7	3.3	4.3	**7.1**	**6.5**	**5.3**
GNFR B	1.04	1.05	1.03	**0.55**	**0.59**	**0.47**	**10.3**	**9.6**	**9.8**	**19.9**	**16.0**	**17.1**
GNFR C	**2.06**	**2.38**	**1.96**	0.14	0.16	0.12	**17.0**	**17.7**	**16.1**	4.9	4.2	4.1
GNFR D	0.01	0.02	0.01	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
GNFR E	0.36	0.37	0.27	0.21	0.25	0.20	3.6	3.4	2.9	**7.7**	**6.8**	**7.2**
GNFR F	**1.81**	**2.39**	**1.71**	**0.44**	**1.06**	**0.32**	**15.3**	**19.4**	**14.3**	**15.7**	**28.1**	**11.4**
GNFR G	0.41	0.41	0.4	0.13	0.17	0.08	4.1	3.9	4.0	**5.0**	**5.5**	3.0
GNFR H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNFR I	0.46	0.47	0.49	0.20	0.28	0.16	4.1	3.9	4.4	**7.6**	**7.7**	**6.2**
GNFR J	0.35	0.39	0.32	0.21	0.23	0.19	4.0	4.0	3.5	**8.1**	**6.5**	**7.3**
GNFR K	**3.05**	**3.06**	0.84	**0.36**	**0.37**	0.14	**34.1**	**31.8**	**8.7**	**13.9**	**11.3**	**5.2**
GNFR L	1.33	1.34	0.66	0.17	0.18	0.07	**10.3**	**9.7**	4.7	**6.4**	**5.0**	2.5
BIO	-	-	0.09	-	-	**0.56**	-	-	0.9	-	-	**20.3**
IC	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
BC	-	-	**2.35**	-	-	0.24	-	-	**26.2**	-	-	**10.1**
$\sum$	11.32	12.31	10.65	2.62	3.55	2.71	106.6	106.8	99.9	96.4	97.7	99.8

[1] While the impacts (imp.) are connected with the SOAP and VBS experiments, the contributions (contrib.) are connected with the PSAT experiment.
[2] The categories (cat.) considered in the SOAP and VBS experimets are GNFR sectors A–L; the categories considered in the PSAT experiment are GNFR sectors A–L, BIO – biogenic emissions, IC – initial condition, and BC – boundary conditions.

Table S2. Same as Table S1 but for Munich.

| **Munich** | Seasonal avrg. of the avrg. daily abs. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (µg m^{-3}) | | | | | | Seasonal avrg. of the avrg. daily relat. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (%) | | | | | |
| | Winter (DJF) | | | Summer (JJA) | | | Winter (DJF) | | | Summer (JJA) | | |
Category	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT
GNFR A	0.45	0.44	0.52	0.44	0.48	0.31	3.2	2.8	3.7	**8.6**	**7.7**	**6.0**
GNFR B	0.98	0.98	1.00	**0.87**	**0.92**	**0.70**	**8.8**	**8.0**	**8.8**	**18.8**	**15.7**	**15.4**
GNFR C	**2.13**	**2.55**	**2.02**	0.26	0.31	0.21	**18.7**	**19.6**	**17.5**	**6.2**	**5.7**	**5.1**
GNFR D	0.01	0.01	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1
GNFR E	0.45	0.47	0.31	0.30	0.38	0.28	4.1	3.8	3.1	**7.3**	**6.8**	**6.9**
GNFR F	**2.21**	**2.99**	**2.11**	**1.06**	**2.13**	**0.74**	**17.7**	**22.6**	**16.7**	**23.6**	**38.5**	**16.5**
GNFR G	0.13	0.13	0.14	0.05	0.06	0.03	1.1	1.0	1.2	1.0	1.1	0.6
GNFR H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNFR I	0.43	0.46	0.45	0.32	0.41	0.25	3.7	3.5	3.9	**7.5**	**7.5**	**5.9**
GNFR J	0.34	0.40	0.32	0.29	0.31	0.26	3.7	3.8	3.4	**7.3**	**6.1**	**6.6**
GNFR K	**3.10**	**3.12**	1.00	**0.70**	**0.72**	0.34	**33.4**	**30.8**	**9.6**	**15.2**	**12.3**	**7.0**
GNFR L	0.87	0.87	0.68	0.17	0.18	0.11	**5.8**	**5.3**	4.3	3.9	3.1	2.2
BIO	-	-	0.09	-	-	**0.88**	-	-	1.1	-	-	**20.8**
IC	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
BC	-	-	**2.50**	-	-	0.28	-	-	**26.5**	-	-	**6.6**
$\sum$	11.10	12.42	11.14	4.46	5.90	4.39	100.3	101.3	99.8	99.5	104.5	99.7

[1] While the impacts (imp.) are connected with the SOAP and VBS experiments, the contributions (contrib.) are connected with the PSAT experiment.
[2] The categories (cat.) considered in the SOAP and VBS experimets are GNFR sectors A–L; the categories considered in the PSAT experiment are GNFR sectors A–L, BIO – biogenic emissions, IC – initial condition, and BC – boundary conditions.

Table S3. Same as Table S1 but for Budapest.

Budapest	Seasonal avrg. of the avrg. daily abs. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (μg m^{-3})						Seasonal avrg. of the avrg. daily relat. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (%)					
	Winter (DJF)			Summer (JJA)			Winter (DJF)			Summer (JJA)		
Category	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT
GNFR A	0.28	0.27	0.31	0.12	0.14	0.09	1.4	1.2	1.7	4.2	3.6	3.1
GNFR B	0.91	0.92	0.91	**0.42**	**0.45**	**0.37**	**5.1**	4.4	**5.1**	**14.5**	**11.8**	**12.6**
GNFR C	**9.18**	**12.12**	**8.89**	**0.93**	**1.03**	**0.87**	**52.7**	**56.9**	**50.8**	**30.8**	**26.7**	**28.6**
GNFR D	0.01	0.01	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
GNFR E	0.19	0.25	0.13	0.10	0.15	0.10	1.1	1.1	0.7	3.5	3.7	3.3
GNFR F	**2.17**	**2.95**	**1.94**	**0.39**	**1.04**	0.31	**11.2**	**13.1**	**10.1**	**13.3**	**27.1**	**10.6**
GNFR G	0.15	0.15	0.17	0.03	0.04	0.03	0.9	0.8	1.0	1.0	1.2	0.9
GNFR H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNFR I	0.47	0.48	0.47	0.09	0.18	0.07	2.4	2.0	2.4	3.0	4.7	2.4
GNFR J	0.39	0.51	0.38	0.20	0.22	0.19	2.4	2.5	2.3	**6.8**	**5.8**	**6.4**
GNFR K	**2.85**	**2.88**	0.92	0.10	0.11	0.10	**17.4**	**15.0**	**5.3**	3.3	2.7	3.2
GNFR L	1.38	1.39	0.62	0.04	0.05	0.04	**7.7**	**6.8**	3.2	1.4	1.2	1.3
BIO	-	-	0.10	-	-	**0.73**	-	-	0.6	-	-	**24.4**
IC	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
BC	-	-	**2.52**	-	-	0.08	-	-	**16.6**	-	-	2.9
$\sum$	17.98	21.93	17.36	2.42	3.41	2.98	102.4	103.9	99.8	81.9	88.6	99.8

[1] While the impacts (imp.) are connected with the SOAP and VBS experiments, the contributions (contrib.) are connected with the PSAT experiment.
[2] The categories (cat.) considered in the SOAP and VBS experimets are GNFR sectors A–L; the categories considered in the PSAT experiment are GNFR sectors A–L, BIO – biogenic emissions, IC – initial condition, and BC – boundary conditions.

Table S4. Same as Table S1 but for Warsaw.

Warsaw	Seasonal avrg. of the avrg. daily abs. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (μg m^{-3})						Seasonal avrg. of the avrg. daily relat. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (%)					
	Winter (DJF)			Summer (JJA)			Winter (DJF)			Summer (JJA)		
Category	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT
GNFR A	0.41	0.40	0.64	0.30	0.31	0.26	2.2	1.9	3.2	**8.1**	**6.8**	**6.9**
GNFR B	1.78	1.82	1.84	**1.08**	**1.09**	**1.00**	**10.7**	**9.9**	**10.7**	**32.4**	**26.0**	**29.7**
GNFR C	**6.62**	**7.83**	**6.74**	0.16	0.18	0.15	**39.1**	**41.2**	**39.0**	5.1	4.4	4.6
GNFR D	0.03	0.04	0.01	0.01	0.01	0.01	0.2	0.2	0.1	0.2	0.2	0.2
GNFR E	0.16	0.18	0.08	0.07	0.10	0.07	0.8	0.8	0.5	2.2	2.3	2.1
GNFR F	**1.83**	**2.58**	**2.00**	**0.55**	**1.21**	**0.43**	**10.5**	**13.6**	**11.0**	**16.0**	**28.1**	**12.4**
GNFR G	0.19	0.19	0.23	0.04	0.07	0.03	1.3	1.2	1.5	1.4	1.7	0.9
GNFR H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNFR I	0.46	0.49	0.58	0.22	0.30	0.18	2.8	2.6	3.3	**6.8**	**7.2**	**5.5**
GNFR J	0.35	0.43	0.31	0.21	0.22	0.19	2.2	2.3	1.9	**6.6**	**5.5**	**6.0**
GNFR K	**3.53**	**3.55**	1.03	**0.48**	**0.49**	0.20	**23.1**	**21.1**	**6.5**	**13.7**	**11.3**	**5.7**
GNFR L	1.63	1.64	0.72	0.17	0.17	0.08	**7.9**	**7.3**	3.6	4.7	3.9	2.1
BIO	-	-	0.09	-	-	**0.52**	-	-	0.5	-	-	**15.9**
IC	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
BC	-	-	**2.45**	-	-	0.22	-	-	**18.1**	-	-	**7.5**
$\sum$	16.99	19.15	16.72	3.29	4.15	3.34	100.8	102.1	99.9	97.2	97.4	99.5

[1] While the impacts (imp.) are connected with the SOAP and VBS experiments, the contributions (contrib.) are connected with the PSAT experiment.
[2] The categories (cat.) considered in the SOAP and VBS experimets are GNFR sectors A–L; the categories considered in the PSAT experiment are GNFR sectors A–L, BIO – biogenic emissions, IC – initial condition, and BC – boundary conditions.

Table S5. Same as Table S1 but for Vienna.

| Vienna | Seasonal avrg. of the avrg. daily abs. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (μg m^{-3}) | | | | | | Seasonal avrg. of the avrg. daily relat. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (%) | | | | | |
| | Winter (DJF) | | | Summer (JJA) | | | Winter (DJF) | | | Summer (JJA) | | |
Category	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT
GNFR A	0.48	0.48	0.54	0.26	0.29	0.20	3.7	3.4	4.2	**8.4**	**7.2**	**6.4**
GNFR B	0.97	0.97	1.00	**0.59**	**0.63**	**0.49**	**7.8**	**7.2**	**7.9**	**19.0**	**15.7**	**16.0**
GNFR C	**4.20**	**5.14**	**3.97**	**0.38**	**0.43**	0.34	**31.8**	**34.6**	**30.1**	**12.1**	**10.7**	**10.6**
GNFR D	0.01	0.02	0.01	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
GNFR E	0.22	0.26	0.14	0.14	0.21	0.13	1.8	1.8	1.2	4.8	**5.1**	4.3
GNFR F	**2.07**	**2.45**	**1.91**	**0.58**	**1.23**	**0.43**	**15.0**	**16.5**	**13.9**	**19.2**	**31.4**	**14.3**
GNFR G	0.15	0.15	0.17	0.05	0.07	0.04	1.2	1.2	1.5	1.7	1.8	1.2
GNFR H	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNFR I	0.47	0.49	0.52	0.21	0.31	0.16	3.4	3.2	3.8	**6.8**	**8.0**	**5.3**
GNFR J	0.32	0.35	0.28	0.12	0.14	0.10	2.8	2.9	2.4	3.8	3.5	3.3
GNFR K	**3.03**	**3.05**	0.84	0.21	0.23	0.11	**28.5**	**26.5**	**7.3**	**7.2**	**5.9**	3.6
GNFR L	1.51	1.51	0.78	0.13	0.14	0.07	**8.9**	**8.2**	4.5	4.1	3.4	2.0
BIO	-	-	0.10	-	-	**0.85**	-	-	0.9	-	-	**27.7**
IC	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
BC	-	-	**2.56**	-	-	0.14	-	-	**22.1**	-	-	**5.0**
$\sum$	13.43	14.87	12.82	2.67	3.68	3.06	105	105.6	99.8	87.2	92.8	99.8

[1] While the impacts (imp.) are connected with the SOAP and VBS experiments, the contributions (contrib.) are connected with the PSAT experiment.
[2] The categories (cat.) considered in the SOAP and VBS experimets are GNFR sectors A–L; the categories considered in the PSAT experiment are GNFR sectors A–L, BIO – biogenic emissions, IC – initial condition, and BC – boundary conditions.

Table S6. Same as Table S1 but for Prague.

| Prague | Seasonal avrg. of the avrg. daily abs. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (μg m^{-3}) | | | | | | Seasonal avrg. of the avrg. daily relat. imp./contrib.[1] of the given cat.[2] on/to PM$_{2.5}$ (%) | | | | | |
| | Winter (DJF) | | | Summer (JJA) | | | Winter (DJF) | | | Summer (JJA) | | |
Category	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT	SOAP	VBS	PSAT
GNFR A	0.32	0.30	0.34	0.18	0.21	0.11	1.6	1.4	1.8	4.5	4.2	2.8
GNFR B	0.62	0.62	0.60	**0.41**	**0.44**	**0.32**	3.4	3.1	3.3	**10.5**	**9.2**	**8.3**
GNFR C	**9.73**	**12.39**	**9.45**	0.33	0.36	0.29	**49.6**	**54.1**	**48.2**	**8.5**	**7.5**	**7.4**
GNFR D	0.01	0.02	0.01	0.01	0.01	0.01	0.1	0.1	0.0	0.2	0.1	0.2
GNFR E	0.15	0.20	0.06	0.10	0.17	0.09	0.7	0.8	0.3	2.6	3.4	2.3
GNFR F	**3.66**	**3.88**	**3.55**	**1.81**	**2.42**	**1.58**	**18.5**	**17.6**	**18.0**	**46.8**	**51.5**	**40.7**
GNFR G	0.16	0.16	0.17	0.06	0.09	0.04	0.9	0.8	1.1	1.7	2.0	1.0
GNFR H	0.01	0.01	0.01	0.01	0.01	0.01	0.0	0.1	0.0	0.2	0.2	0.2
GNFR I	0.43	0.44	0.46	0.21	0.32	0.15	2.0	1.8	2.2	**5.4**	**6.7**	3.9
GNFR J	0.08	0.10	0.05	0.03	0.05	0.03	0.5	0.5	0.3	0.9	1.2	0.8
GNFR K	**2.83**	**2.85**	0.85	**0.39**	**0.41**	0.16	**18.7**	**17.0**	**5.0**	**10.3**	**9.0**	4.1
GNFR L	1.35	1.33	0.81	0.20	0.22	0.09	**5.9**	**5.2**	3.3	**5.1**	4.6	2.2
BIO	-	-	0.11	-	-	**0.74**	-	-	0.6	-	-	**19.1**
IC	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0
BC	-	-	**2.56**	-	-	0.25	-	-	**15.6**	-	-	6.8
$\sum$	19.35	22.30	19.03	3.74	4.71	3.87	101.9	102.5	99.7	96.7	99.6	99.8

[1] While the impacts (imp.) are connected with the SOAP and VBS experiments, the contributions (contrib.) are connected with the PSAT experiment.
[2] The categories (cat.) considered in the SOAP and VBS experimets are GNFR sectors A–L; the categories considered in the PSAT experiment are GNFR sectors A–L, BIO – biogenic emissions, IC – initial condition, and BC – boundary conditions.