Supplementary material

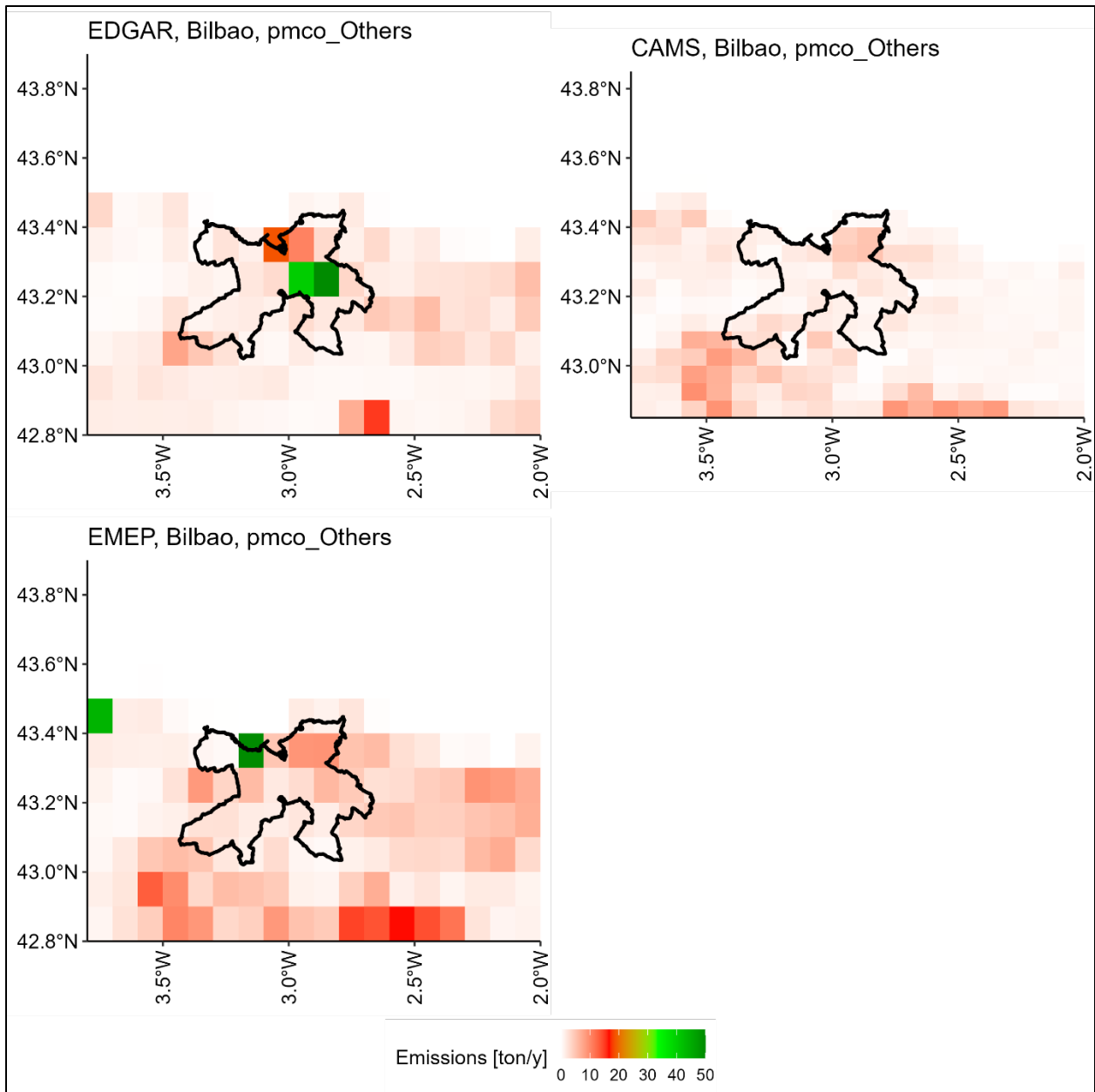
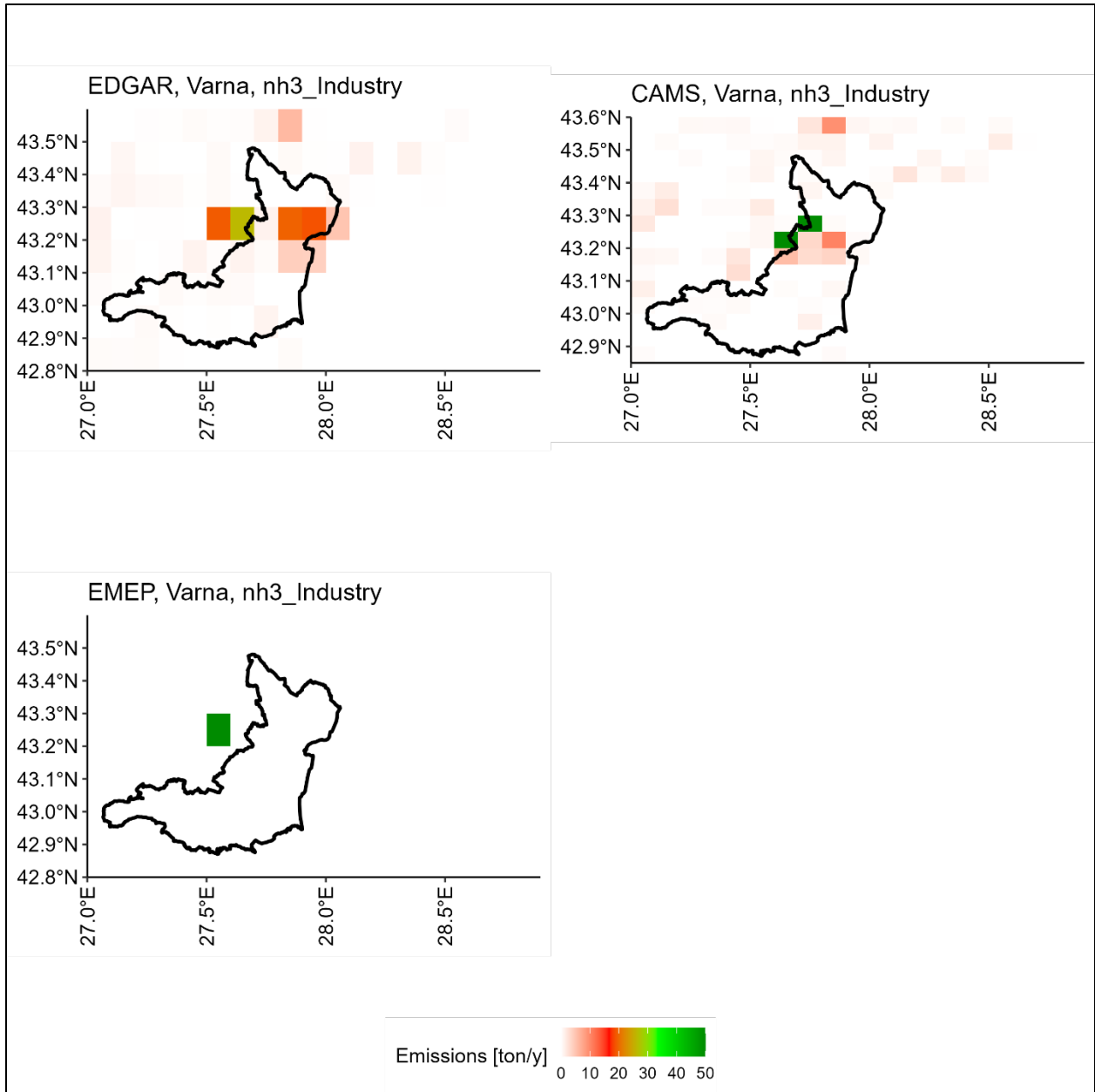



Figure S1: PMco emissions for the "other" sector in Bilbao. The dark line indicates the shape of the functional urban area.

6 *Figure S2: NH3 emissions Industry for Varna.* The dark line indicates the shape of the functional urban area .

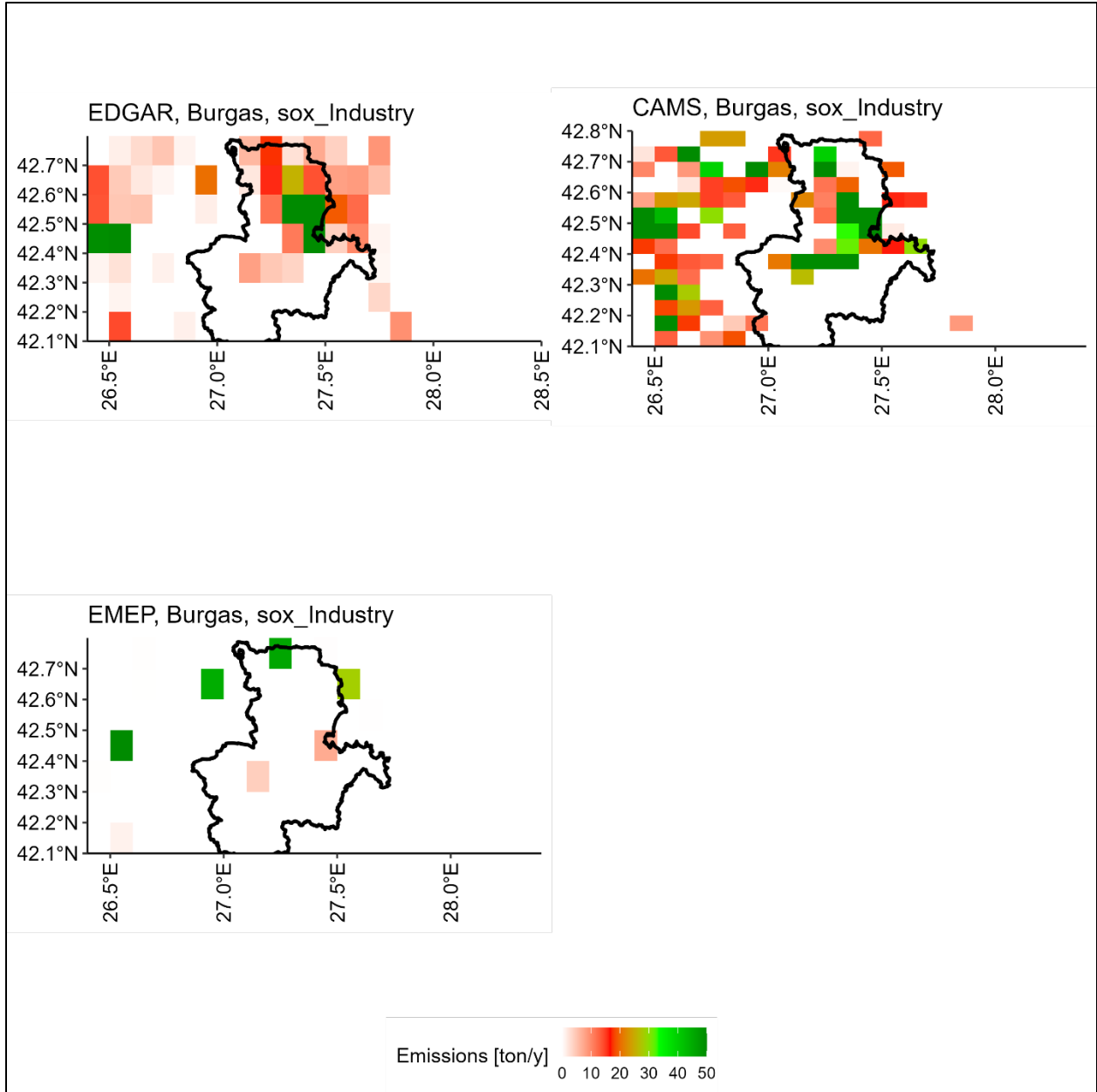



Figure S3: SO2 emissions Industry Burgas (ES). The dark line indicates the shape of the functional urban area.

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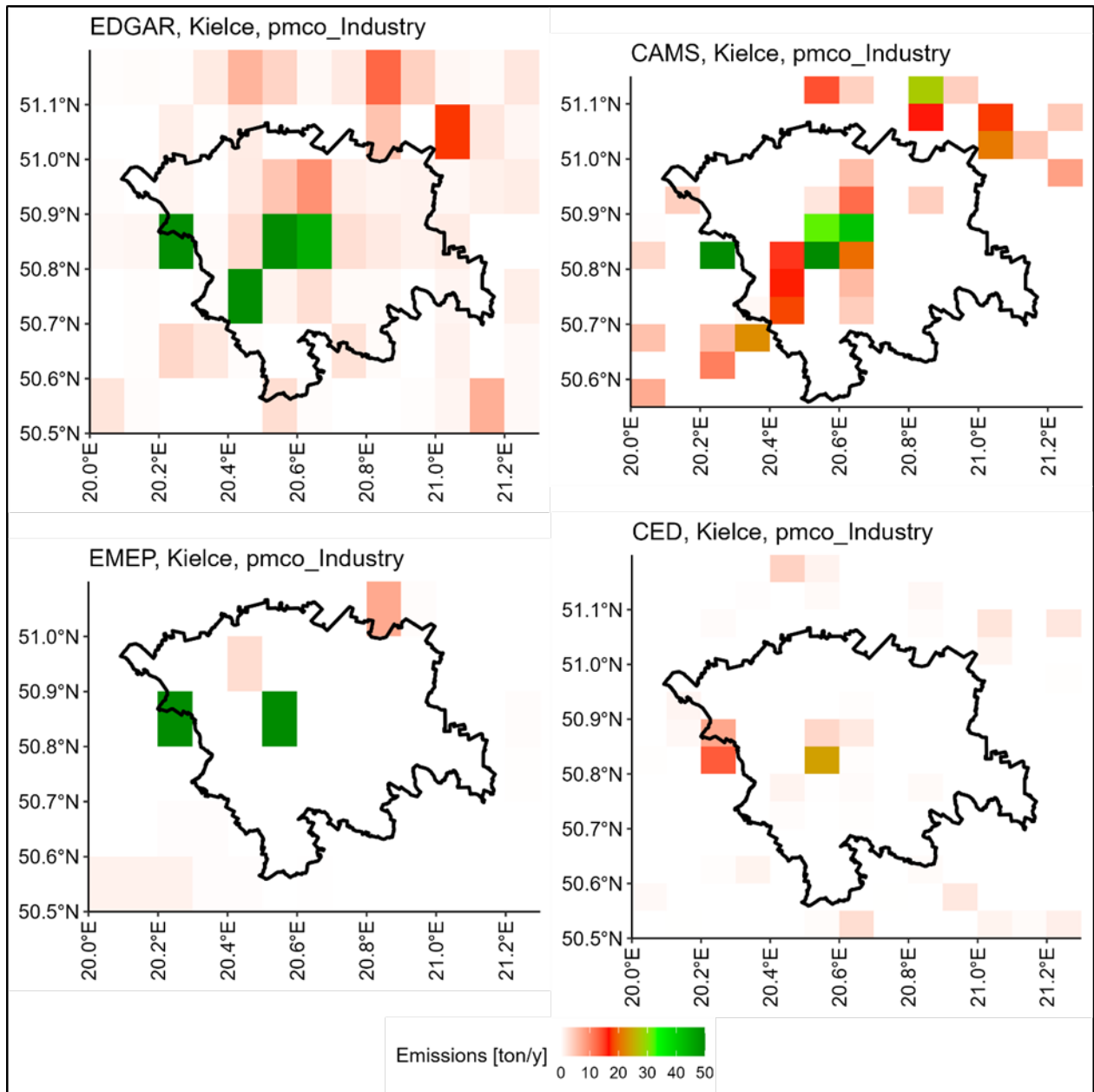
Figure S4: PMco emissions for the industry sector in Kielce. The dark line indicates the shape of the functional urban area.

12
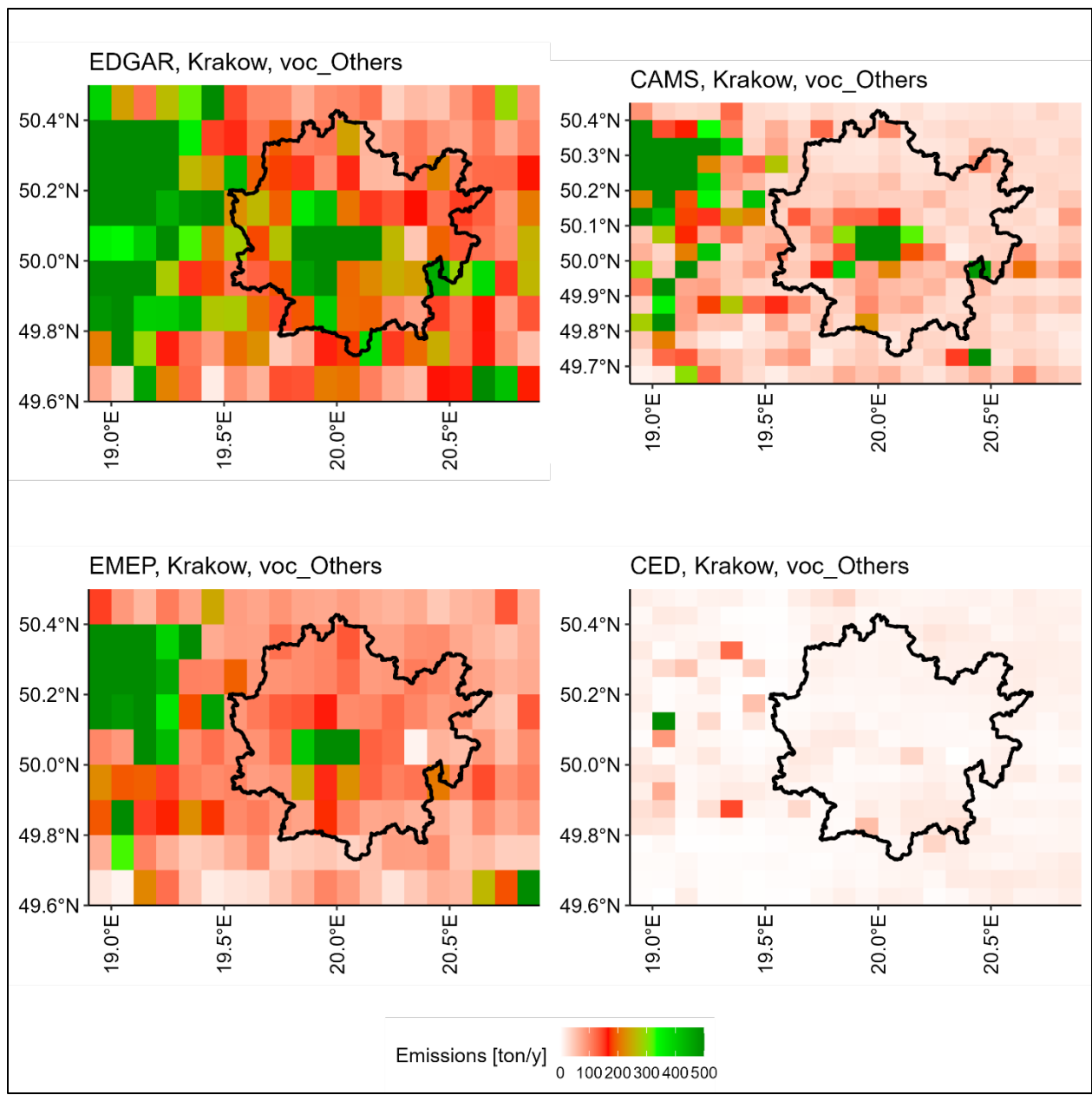
Figure S5: VOC emissions for the "other" sector in Krakow. The dark line indicates the shape of the functional urban area.

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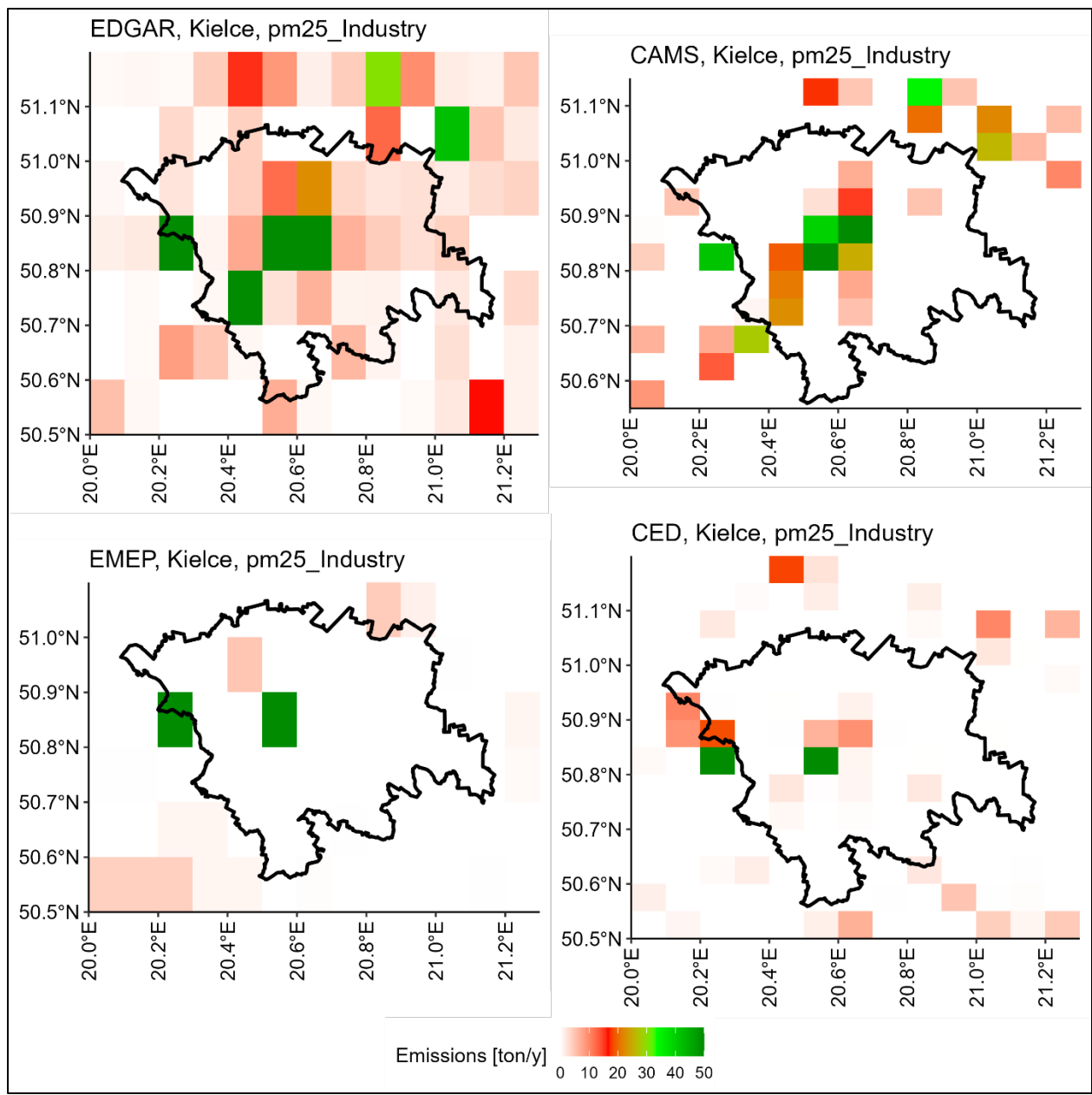
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16 *Figure S6: PM25 emissions from the industry sector in Kielce.* The dark line indicates the shape of the functional urban area.

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. GNFR	SNAP	CED
A_PublicPower	SNAP01	Emission from NB named as SNAP1
B_Industry	SNAP03 and SNAP04	Emission from NB named as SNAP3 and SNAP4
I_Offroad	Part of SNAP08	Emission from agricultural tractors
F_RoadTransport	SNAP07	Emission from road transport
C_OtherStationaryComb	SNAP02	Emission from residential heating
D_Fugitive	SNAP05	Emission from heap and excavation and from NB named as SNAP5
E_Solvents	SNAP06	Emission from NB named as SNAP6
K_AgriLivestock i L_AgriOther as one GNFR K+L	SNAP10	Emission from agriculture and lifestock
J_Waste	SNAP09	Emission from landfills and from NB named as SNAP5

19 *Table S1: Translation from SNAP to GNFR applied in CED*

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	NMVOC		NH3		NOx		PM10		PM25		SO2	
	CED	EMEP	CED	EMEP	CED	EMEP	CED	EMEP	CED	EMEP	CED	EMEP
GNFR A	0.28[1]	2.68[1]	0.13	0.00	115.91	135.09	8.27	5.96	5.60	3.21	126.29[1]	193.17[1]
GNFR B	17.76[2]	107.75[2]	5.98	4.25	69.30	74.70	12.06[2]	59.99[2]	8.89	34.69	45.23[2]	107.83[2]
GNFR C	201.71	101.83	-	8.31	50.55	73.69	190.66[5]	88.51[5]	187.02[5]	59.12[5]	113.10	115.26
GNFR D	1.50[3]	79.17[3]	-	0.06	0.32[3]	3.58[3]	19.44	9.58	4.81	1.64	0.16[3]	7.52[3]
GNFR E	13.98[3,4]	164.11[3,4]	0.14	0.15	0.00	0.06	0.02[3]	0.93[3]	0.021[1]	0.93[1]	0.00	0.68
GNFR F	74.98	75.52	2.93	2.95	274.00	273.50	18.10	18.06	13.57	13.54	0.54	0.58
GNFR G	0.00	0.01	0.00	0.05	0.00	4.03	0.00	0.15	0.00	0.15	0.00	0.20
GNFR H	0.03	0.08	0.00	0.00	0.66	1.85	0.00	0.01	0.00	0.01	0.05	0.15
GNFR I	3.30	4.12	0.02	0.02	35.56	46.01	1.48	1.69	1.47	1.67	0.05	0.15
GNFR J	0.77[2,3]	6.31[2,3]	0.27	0.89	1.33	1.97	0.51[2,3]	4.47[2,3]	0.47[2,3]	5.73[2,3]	0.18	0.26
GNFR KL	105.97	105.96	303.43	300.14	69.91	69.22	29.87	29.48	3.32	3.29	0.00	0.01
SUM	420.27	647.53	312.91	316.84	617.54	683.74	280.41	218.83	225.17	123.97	285.59	425.82

Table S2: Country totals for CED and EMEP data (biggest differences are underlined and commented below).

1) NB users are not obligated to report all pollutants (NMVOC can be omitted) in this sector. For EMEP reporting, the missing emission values are estimated using official emission factors (EMEP/EEA air pollutant emission), which depend on basic activity data (Tier 1 – fuel consumption)

2) Reports provided to NB are based on user-specific permits which specify the list of pollutants to be reported. In EMEP reports, emissions are calculated using official EMEP/EEA emission factors.

3) In the case of NB, some reports might be based (or supplemented with) on individual emission measurements resulting from user-specific industrial processes. Such in-situ data does not always align with EMEP reporting methodology, nor does it cover the same set of pollutants.

4) For some processes categorized into GNFR E, which are not fully addressed in CED, EMEP emissions are based on population (like domestic solvent use, including fungicide and dry cleaning).

5) PM10 and PM2.5 emissions from stationary combustion are much lower in EMEP, because the data used in this work do not yet include condensable emissions whereas CED does.