Supplementary Material: Reducing future air pollution-related premature mortality over Europe by mitigating emissions: assessing an 80% renewable energies scenario

Patricia Tarín-Carrasco[1], Ulas Im[2], Camilla Geels[2], Laura Palacios-Peña[1,3], and Pedro Jiménez-Guerrero[1,4]

[1]Physics of the Earth, Regional Campus of International Excellence (CEIR) "Campus Mare Nostrum", University of Murcia, Spain.
[2]Aarhus University, Department of Environmental Science, Frederiksborgvej 399, DK-4000, Roskilde, Denmark.
[3]Dept. of Meteorology, Meteored, Almendricos, Spain.
[4]Biomedical Research Institute of Murcia (IMIB-Arrixaca), Spain.

Correspondence: Pedro Jiménez-Guerrero (pedro.jimenezguerrero@um.es)

Table SM1. WRF-Chem physico-chemical configuration used in the simulations.

Scheme	Option	Reference
Physics		
Microphysics	Lin	Lin et al. (1983)
SW & LW radiation	RRTM	Iacono et al. (2008)
Planetary boundary layer	YSU	Hong et al. (2006)
Cumulus	Grell 3D	Grell and Dévényi (2002)
Soil	Noah	Tewari et al. (2004)
Chemistry		
Gas-phase	RACM-KPP	Stockwell et al. (1997) Geiger et al. (2003)
Aerosols	GOCART	Ginoux et al. (2001) Chin et al. (2002)
Photolysis	Fast-J	Fast et al. (2006)
Biogenic emissions	MEGAN	Guenther et al. (2006)
Anthropogenic emissions	ACCMIP	Lamarque et al. (2010)

Table SM2. Estimated annual premature deaths (PD $\times$ 10^3) by age range in all scenarios covered (in thousands).

	Present	PRE-P2010	RCP8.5	FUT-P2010	RCP8.5	REN80-P2010	RCP8.5	FUT-P2050	RCP8.5	REN80-P2050
Age Range	PD $\times$ 10^3	PD/100,000 h.	PD $\times$ 10^3	PD/100,000 h.	PD $\times$ 10^3	PD/100,000 h.	PD $\times$ 10^3	PD/100,000 h.	PD $\times$ 10^3	PD/100,000 h.
25-29	4.4	7.5	4.4	7.5	4.2	7.2	3.2	7.2	3.0	6.9
30-34	8.0	13.8	8.0	13.8	7.7	13.3	6.4	13.6	6.2	13.0
35-39	12.7	22.0	12.7	22.1	12.2	21.1	10.9	22.3	10.5	21.3
40-44	18.0	31.4	18.0	31.5	17.3	30.2	15.7	32.4	15.1	31.1
45-49	28.5	48.0	28.5	48.1	27.4	46.2	21.8	47.6	20.9	45.7
50-54	43.6	77.1	43.6	77.2	41.9	74.2	34.5	75.1	33.1	72.2
55-59	60.8	118.3	60.8	118.5	58.5	113.9	58.4	117.5	56.2	113.0
60-64	80.0	182.5	80.1	182.6	77.0	175.6	103 .4	191.0	99.3	183.4
65-69	80.7	236.9	80.8	237.2	77.8	228.4	126.7	243.8	121.8	234.3
70-74	112.3	328.3	112.5	328.8	108.0	315.7	153.9	321.9	147.7	308.8
75-79	116.8	460.9	117.0	461.8	112.4	443.5	195 .4	458.6	187.6	440.2
80+	328.7	1035.3	329.4	1037.5	317.2	999.3	807 .5	1043.7	778.0	1005.6
TOTAL	894.3	157.5	895.8	157.8	861.5	151.8	1537.9	254.3	1479.3	244.7

(PRE-P2010): PD for the present case; (FUT-P2010): PD for the future scenario with population at 2010 levels; (REN80-P2010): PD for the future mitigation scenario with population at 2010 levels; (FUT-P2050): PD for the future scenario with population projections of UN for 2050; (REN80-P2010): PD for the future mitigation scenario with population at 2010 levels; (REN80-P2050): PD for the future mitigation scenario with population projections of UN for 2050.

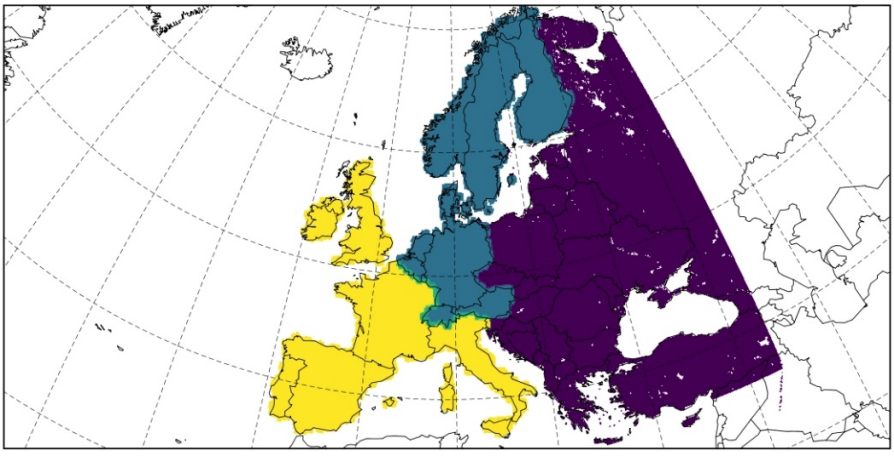

Figure SM1. Target domain and European regions included in this contribution: Western Europe (yellow), Central Europe (blue) and Eastern Europe (purple).

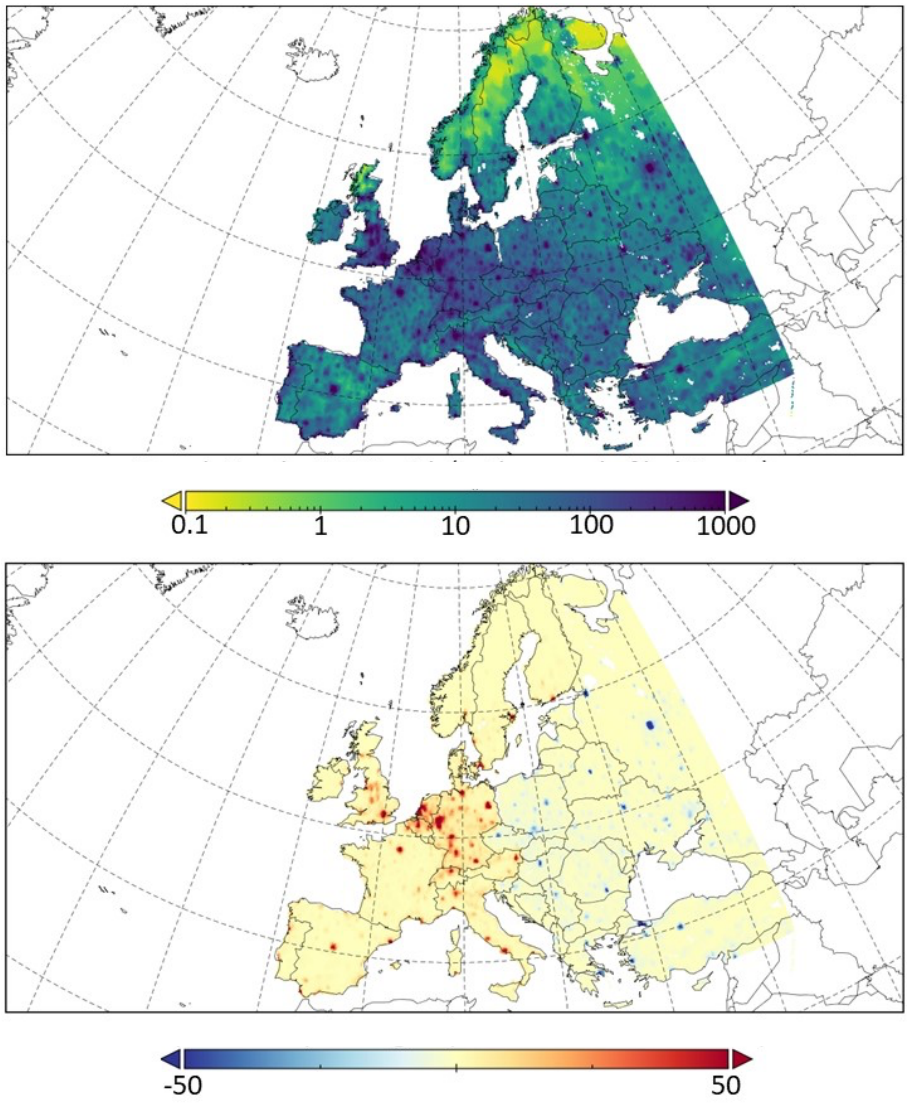

Figure SM2. Population density (pop/km^2) in each grid cell for the present case (top) and difference with UN-projected population in 2050 (bottom) over the European target domain (pop/km^2).

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