

SUPPLEMENTARY INFORMATION

Table S.1. Location, measurement technique and sampling period for the different regional background monitoring sites used in this study. * Corrected measurements versus gravimetric

Monitoring site	Latitude	Longitude	Altitude (m. a.s.l.)	Technique	Sampling period
Viznar	37° 14' 18"N	03° 28' 28"W	1265	Gravimetric	2001-2007
Zarra	39° 05' 10"N	01° 06' 07"W	885	Gravimetric	2001-2007
Els Torms	41° 23' 42"N	00° 43' 16"E	470	Gravimetric	2001-2007
Montseny	41° 45' 36"N	02° 35' 00"E	728	Laser spectr. *	2002-2007
Monagrega	40° 56' 48"N	00° 17' 27"W	570	TEOM	1996-2007
Rojen Peak	41° 41' 45"N	24° 44' 19"E	1750	Beta abs.	2005-2006
Lazaropole	41° 32'N	20°42'E	1333	Beta abs.	2004-2006
Finokalia	35° 20' 00"N	25° 40' 00"E	150	Beta abs.	2004-2006
Ayia Marina	35° 02' 21"N	33° 03' 29"E	532	TEOM	2003-2006
Erdemli	36° 36'N	34°18'E	22	Gravimetric	2001-2002
Fontechiari	41° 40' 48"N	13° 40' 48"E	393	TEOM	2001-2006
Sant Antioco (Censt1)	39° 03' 52"N	08° 27' 26"E	270	Beta abs.	2005-2006

TableS.2. Mean annual levels of PM₁₀ and PM_{2.5} components measured at MSY, FKL and ERL and a selection of rural-regional background sites

Country	Germany			Austria		Switzerland		Norway	Great Britain	Spain						Greece		Turkey		
	Melpitz ¹			Streithofen ²		Chaumont ³		Birkenes ⁴	Churchill-P.S. ⁵	Bemantes ⁶		Villar Arzobispo ⁷		Monagrega ⁸	Montseny (this study)		Finokalia (this study)		Erdemli (this study)	
Site	2004-2006			1999-2000		2004-2006		2004	2005-2006	2001		2004-2005		1999-2000	2004-2007	2002-2007	2004-2006		2001-2002	
Period n	153	153	153			104	78			87	45	72	72	112	351	239	86	86	281	281
fraction	PM ₁₀	PM _{2.5}	PM ₁	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM ₁₀	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM ₁₀	PM _{2.5}	PM ₁₀	PM ₁	PM ₁₀	PM _{2.5}
PM	20.5	16.1	12.2	23.7	18.1	10.8	7.7	5.4	19.0	18.9	13.5	21.0	18.0	22.0	16.3	13.6	36.0	12.0	36.4	9.7
Mineral	1.1	0.7	0.5			1.6	0.7	0.1	1.0	2.5	1.5	7.3	5.2	5.8	3.5	1.0	14.1	1.7	9.2	1.4
Sea spray	0.5	0.2	0.1	0.3	0.2	0.2	0.1	0.8	2.0	2.4	0.9	0.6	0.4	0.6	0.5	0.2	2.9	0.1	8.9	0.4
SO ₄ ²⁻	3.1	2.8	2.3	3.9	3.3	2.0	2.3	1.1	2.8	3.0	2.9	2.3	2.5	3.8	2.6	2.9	5.5	4.4	5.0	3.4
NO ₃ ⁻	3.4	2.8	2.0	4.1	2.9	0.8	0.6	0.4	3.2	0.9	0.4	1.4	1.3	2.2	1.7	1.3	1.7	0.1	1.9	0.3
NH ₄ ⁺	2.0	1.8	1.4	2.6	2.1	0.8	0.8	0.8	1.3	1.3	1.2	1.1	1.2	1.3	0.9	1.2	1.6	1.4	0.9	0.9
SIA	8.6	7.4	5.7	10.6	8.3	3.6	3.7	2.2	7.3	5.2	4.5	4.8	5	7.3	5.2	5.3	8.8	5.9	7.7	4.6
OC				4.3	3.0	1.7*	1.6*	0.9	3.6					1.7	2.1	2.1	2.9	1.8		
EC				2.0**	1.8	0.6	0.4	0.1	1					0.6	0.2	0.2	0.4	0.3		
OM+EC [#]	6.4	4.5	3.6	11.0	8.1	2.3	2.0	2.0	8.6	4.5	4.0	2.4	2.8	4.2	5.8	5.2	6.5	4.1		
Unacc.	4	3	2	2	2	3	1	<1	<1	4	3	6	5	4	1.3	1.8	4	<1		

¹ Spindler et al. (2007); ² Puxbaum et al. (2004); ³ Hueglin et al. (2005); ⁴ Yttri (2007); ⁵ Yin and Harrison (2008); ⁶ Salvador et al. (2007); ⁷ Viana et al. (2008); ⁸ Rodriguez et al. (2004).

SIA: secondary inorganic aerosols; OM+EC: organic matter + elemental carbon; Unacc.: unaccounted PM mass [#] OM=OC*2.1 (Turpin et al., 2000); * OM values instead of OC; ** BC values instead of EC.

