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REVIEW ARTICLE

Supporting Materials of

Long-term observation of air pollution-weather/climate interactions at the SORPES station: a review and outlook

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Table S1 Instrumentation of trace gases and aerosols installed at SORPES station

measurement parameters			manufacturer	model	resolution
trace gases	AQI trace gases	O_3	Thermo Fisher Scientific, USA	TEI-49i	5min/1min
		SO_2	Thermo Fisher Scientific, USA	TEI-43i	5min/1min
		CO	Thermo Fisher Scientific, USA	TEI-48i	5min/1min
		NO,NO_2,NO_x	Thermo Fisher Scientific, USA	TEI-42i	5min/1min
	other trace gases	CO_2	Thermo Fisher Scientific, USA	TEI-410i	5min/1min
		NO_y	Thermo Fisher Scientific, USA	TEI-42i-Y	5min/1min
		HONO	QUMA, Germany	LOPAP-03	2–10 min
		$\delta(^{18}O)$, $\delta(D)$	Picarro, USA	L2120-i	1 min
		CH_4, CO_2	Picaro, USA	G2301	5 min/5 s
PM	particle number size distribution	D_p0.5–20μm	TSI, USA	APS-3321	10 min
		D_p 6–800nm	University of Helsinki/ Airmodus, Finland	DMA + CPC	5 min
		D_p 1–3nm	University of Helsinki	PSM + CPC	4 min
	air ion mobility	D_p 0.8–46nm	University of Tartu/ Airel, Estonia	AIS	3 min
	$PM_{2.5}$ mass and chemical compositions	$PM_{2.5}$ mass	Thermo Fisher Scientific, USA	SHARP-5030	5 min
		soluble ions	Metrohm,Switzerland	MARGA	1 h
		OC/EC	Sunset Laboratory Inc., USA	RT-4	1 h
		BC	Magee Scientific, USA	AE-31	5 min
		heavy metal	Skyray, China	ZHM-X200	1 h
	optical properties	scattering	Ecotech, Australia	Aurora 3000	1 min
		absorption	DMT, USA	PAX-870	1 min
	filter sampling	PM_{10},$PM_{2.5}$	Thermo Fisher Scientific, USA	TEI-2300	weekly, manual
		PM_1	Thermo Fisher Scientific, USA	TEI-2000FRM	weekly, manual

Table S2 Micro-meteorology and vertical profiles measurements at the SORPES station

measurement parameters	**instruments**	**height/depth /m**
wind speed and wind direction	2-D sonic Anemometers (010C and 020C, Campbell Scientific Inc., USA)	4, 9, 18, 36,72
air temperature and RH	temperature and RH probe (HMP155A, Scientific Inc., USA)	4, 9, 18, 36,72
wind vector components (u, v, w)	3-D sonic Anemometers (CSAT3A, Campbell Scientific Inc., USA)	2.3, 25, 50
CO_2/H_2O flux	CO_2/H_2O Open-path gas analyzer (EC150, Campbell Scientific Inc., USA)	2.3, 25, 50
short wave Radiation	pyranometer (4-Component net radiometer, CNR4, Campbell Scientific Inc., USA)	1.5
long wave Radiation	pyrgeometer(4-Component net radiometer, CNR4, Campbell Scientific Inc., USA)	1.5
soil heat flux	soil heat flux plate (HFP01, Campbell Scientific Inc., USA)	0.08
soil moisture	water content reflectometer (CS616, Campbell Scientific Inc., USA)	0.1, 0.2, 0.3, 0.4, 0.5
wind profile	boundary-layer wind profiler (Airda 3000M, Airda Electronic., Beijing)	2.5, on a mobile platform
precipitation	rain gage (TE525WS-L, Campbell,USA ??)	1
air temperature and RH	temperature and RH probe (HC2S3-L, Campbell Scientific Inc., USA)	3