



Supplement of

Chemical and stable carbon isotopic compositions of PM_{2.5} from two typical forests in China: implication for sources

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Table S1. Annual and seasonal summary of concentrations of carbonaceous (EC, OC, SOC, WSOC and WIOC), nitrogenous (WSTN, IN and WSON) components and WSII (Cl^- , NO_3^- , SO_4^- , Na^+ , K^+ , NH_4^+ , Ca^{2+} and Mg^{2+}) ($\mu\text{g m}^{-3}$) and $\delta^{13}\text{C}_{\text{TC}}$ (‰) in $\text{PM}_{2.5}$ at CB and BN, China during 2023-2024.

Components	Annual		Summer		Winter	
	Range/med	Avg ± SD	Range/med	Avg ± SD	Range/med	Avg ± SD
CB (<i>n</i> = 60)			CB (<i>n</i> = 31, Jul-Aug, 2023)		CB (<i>n</i> = 29, Dec, 2023-Jan, 2024)	
BN (<i>n</i> = 60)			BN (<i>n</i> = 30, Jul-Aug, 2023)		BN (<i>n</i> = 30, Dec, 2023-Jan, 2024)	
Carbonaceous components (µg m ⁻³)						
EC	n.d. - 0.68/0.16	0.17 ± 0.14	n.d. - 0.09/0.05	0.02 ± 0.03	n.d. - 0.68/0.19	0.14 ± 0.22
	n.d. - 0.41/0.19	0.19 ± 0.09	n.d. - 0.41/0.11	0.16 ± 0.11	0.13 - 0.34/0.23	0.23 ± 0.05
OC	0.74 - 9.64/2.27	2.73 ± 1.72	0.74 - 3.51/1.56	1.67 ± 0.67	1.72 - 9.64/3.34	3.87 ± 1.78
	1.22 - 6.75/3.87	3.75 ± 1.33	1.22 - 6.75/2.71	2.93 ± 1.26	2.80 - 5.90/4.73	4.58 ± 0.77
WSOC	0.41 - 5.97/1.19	1.48 ± 1.00	0.41 - 1.83/0.87	0.95 ± 0.40	0.80 - 5.97/1.73	2.04 ± 1.14
	0.42 - 5.84/2.41	2.16 ± 1.03	0.42 - 5.84/1.30	1.55 ± 1.10	1.63 - 3.45/2.81	2.77 ± 0.45
WIOC	0.81 - 3.87/1.57	1.83 ± 0.77	0.33 - 1.68/0.60	0.71 ± 0.34	0.81 - 3.87/1.57	1.83 ± 0.77
	n.d. - 2.76/1.71	1.80 ± 0.44	n.d. - 3.00/1.35	1.44 ± 0.56	1.15 - 2.76/1.71	1.80 ± 0.44
SOC	n.d. - 6.77/1.57	1.74 ± 1.14	n.d. - 2.27/1.15	1.16 ± 0.60	n.d. - 6.77/1.97	2.36 ± 1.28
	n.d. - 5.62/1.03	1.34 ± 1.09	n.d. - 5.62/1.82	1.98 ± 1.20	n.d. - 1.50/0.81	0.73 ± 0.42
WSOC/OC	0.34 - 0.72/0.51	0.51 ± 0.09	0.42 - 0.80/0.55	0.57 ± 0.09	0.34 - 0.72/0.52	0.52 ± 0.09
	0.47 - 0.69/0.62	0.61 ± 0.05	0.25 - 1.04/0.48	0.50 ± 0.15	0.47 - 0.69/0.62	0.61 ± 0.05
OC/EC	n.d. - 82.07/22.04	26.92 ± 16.42	23.03 - 82.07/36.67	43.94 ± 19.69	6.15 - 29.15/19.39	19.29 ± 5.35
	6.82 - 52.31/21.34	22.90 ± 9.78	n.d. - 52.31/25.54	25.41 ± 13.42	15.02 - 25.15/20.74	20.56 ± 2.32
SOC/OC	n.d. - 0.99/0.63	0.58 ± 0.19	n.d. - 0.99/0.59	0.50 ± 0.29	n.d. - 0.75/0.63	0.61 ± 0.11
	n.d. - 3.45/2.05	1.78 ± 1.13	n.d. - 0.86/0.72	0.63 ± 0.20	1.63 - 3.45/2.81	2.77 ± 0.45
WIOC/OC	0.28 - 0.66/0.49	0.49 ± 0.09	0.20 - 0.58/0.45	0.43 ± 0.09	0.28 - 0.66/0.49	0.47 ± 0.09
	n.d. - 0.53/0.38	0.39 ± 0.05	n.d. - 0.75/0.52	0.52 ± 0.12	0.31 - 0.53/0.38	0.39 ± 0.05
Nitrogenous components (µg m ⁻³)						
WSTN	0.01 - 11.89/1.54	2.33 ± 2.34	n.d. - 3.06/0.91	0.97 ± 0.84	0.87 - 11.89/3.48	3.80 ± 2.54
	n.d. - 2.57/1.21	1.29 ± 0.51	n.d. - 3.25/0.32	0.47 ± 0.74	0.63 - 2.57/1.21	1.29 ± 0.51
IN	0.44 - 5.89/1.65	1.85 ± 1.26	0.02- 1.40/0.41	0.53 ± 0.35	0.44 - 5.89/1.65	1.85 ± 1.26
	n.d. - 1.10/0.48	0.52 ± 0.23	n.d. - 0.42/0.13	0.15 ± 0.11	0.19 - 1.10/0.48	0.52 ± 0.23
WSON	n.d. - 5.99/0.90	1.32 ± 1.22	n.d. - 1.90/0.42	0.58 ± 0.51	0.43 - 5.99/1.78	1.92 ± 1.29
	n.d. - 1.47/0.71	0.77 ± 0.30	n.d. - 2.93/0.32	0.58 ± 0.85	0.31 - 1.47/0.71	0.77 ± 0.30
Water – soluble inorganic ions, WSII (µg m ⁻³)						
Cl ⁻	n.d. - 0.52/0.02	0.06 ± 0.09	n.d. - 0.06/0.01	0.02 ± 0.01	n.d. - 0.52/0.06	0.10 ± 0.11
	n.d.- 0.12/0.02	0.03 ± 0.02	n.d. - 0.12/0.02	0.02 ± 0.03	n.d. - 0.07/0.03	0.04 ± 0.02
SO ₄ ⁻	0.17 - 9.27/1.78	2.31 ± 1.71	0.17 - 5.84/1.46	1.89 ± 1.38	0.89 - 9.27/2.11	2.74 ± 1.91
	0.04 - 3.61/0.96	1.07 ± 0.74	0.04 - 1.31/0.53	0.60 ± 0.35	0.65 - 3.61/1.39	1.54 ± 0.72
NO ₃ ⁻	0.01 - 8.71/0.08	1.10 ± 1.79	0.01 - 0.08/0.02	0.03 ± 0.02	0.23 - 8.71/1.46	2.19 ± 2.03
	n.d. - 0.44/0.04	0.07 ± 0.07	n.d. - 0.08/0.04	0.04 ± 0.02	0.02 - 0.44/0.05	0.09 ± 0.10
Na ⁺	n.d. - 2.66/0.35	0.56 ± 0.48	n.d. - 2.66/0.20	0.29 ± 0.45	0.23 - 1.46/0.84	0.83 ± 0.32
	n.d. - 0.72/0.32	0.33 ± 0.19	0.03 - 0.72/0.31	0.30 ± 0.17	n.d. - 0.72/0.34	0.39 ± 0.21
NH ₄ ⁺	0.03 - 5.04/0.93	1.18 ± 0.95	0.03 - 1.79/0.52	0.67 ± 0.45	0.50 - 5.04/1.42	1.71 ± 1.04
	n.d. - 1.40/0.32	0.41 ± 0.33	n.d. - 0.53/0.16	0.17 ± 0.14	0.24 - 1.40/0.57	0.64 ± 0.30
K ⁺	n.d. - 0.68/0.08	0.13 ± 0.14	n.d. - 0.09/0.03	0.03 ± 0.02	0.08 - 0.68/0.18	0.22 ± 0.14

	n.d. - 0.50/0.16	0.17 ± 0.12	n.d. - 0.41/0.07	0.10 ± 0.09	n.d. - 0.50/0.25	0.24 ± 0.09
Mg ²⁺	n.d. - 0.13/0.03	0.04 ± 0.03	n.d. - 0.13/0.04	0.05 ± 0.03	n.d. - 0.04/0.01	0.01 ± 0.01
	n.d. - 0.02/0.01	0.01 ± 0.01	n.d. - 0.02/0.07	0.01 ± 0.00	n.d. - 0.02/0.01	0.01 ± 0.01
Ca ²⁺	n.d. - 0.07/0.03	0.03 ± 0.02	n.d.		n.d. - 0.07/0.03	0.03 ± 0.02
	n.d. - 0.28/0.07	0.09 ± 0.07			n.d. - 0.28/0.07	0.09 ± 0.07
Isotope ratios (‰)						
δ ¹³ C _{TC}	(−27.8) - (−22.1)/(−25.9)	(−25.7) ± 1.5	(−27.8) - (−26.2)/(−27.0)	(−27.0) ± 0.5	(−26.2) - (−22.1)/(−24.6)	(−24.6) ± 1.1
	(−27.6) - (−24.5)/(−25.8)	(−26.0) ± 0.9	(−27.6) - (−26.2)/(−26.8)	(−26.9) ± 0.4	(−25.9) - (−24.5)/(−25.3)	(−25.3) ± 0.4