

**Effects of long-range transport of air pollutants on nitrogenous organic matters in mountain background region of Southeast China: Sources and influencing factors identified by observation and modal calculation**

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Table S1 Values of  $Q$  (robust),  $Q$  (true) and average  $r^2$  for the modeling results in the whole sampling period.

<b>species</b>	<b>the whole sampling period</b>
$Q$ (robust)	2120
$Q$ (true)	2270
SO <sub>2</sub> ( $r^2$ )	0.948
NO <sub>2</sub> ( $r^2$ )	0.837
O <sub>3</sub> ( $r^2$ )	0.586
SO <sub>4</sub> <sup>2-</sup> ( $r^2$ )	0.958
NO <sub>3</sub> <sup>-</sup> ( $r^2$ )	0.933
NH <sub>4</sub> <sup>+</sup> ( $r^2$ )	0.962
K <sup>+</sup> ( $r^2$ )	0.905
ff- <i>n</i> -alkanes( $r^2$ )	0.915
PAHs( $r^2$ )	0.934
levoglucosan( $r^2$ )	0.962
4NP( $r^2$ )	0.962
3M4NP( $r^2$ )	0.512
4NGA( $r^2$ )	0.692
5NGA( $r^2$ )	0.796
4NC( $r^2$ )	0.852
4M5NC( $r^2$ )	0.715
3NSA( $r^2$ )	0.871
5NSA( $r^2$ )	0.954

Table S2. Pearson correlations between individual NAC species and meteorological parameters, aerosol components, and gas pollutants during spring (n = 11).

	NACs	4NP	3M4NP	2,4-DNP	4NGA	5NGA	4NC	4M5NC	3NSA	5NSA
PM <sub>2.5</sub>	0.818**	0.803**	0.655*	0.165	0.594	0.756**	0.713*	0.880**	0.648*	0.684*
SO <sub>2</sub>	0.736**	0.789**	0.874**	0.234	0.126	0.386	0.714*	0.630*	0.700*	0.696*
NO <sub>2</sub>	0.945**	0.930**	0.457	(0.037)	0.115	0.803**	0.950**	0.709*	0.934**	0.943**
O <sub>3</sub>	0.783**	0.805**	0.855**	0.245	0.275	0.588	0.704*	0.803**	0.665*	0.684*
ff- <i>n</i> -alkanes	0.736**	0.704*	0.526	0.607*	0.215	0.481	0.690*	0.640*	0.721*	0.716*
PAHs	0.794**	0.826**	0.612*	(0.039)	0.261	0.562	0.772**	0.668*	0.748**	0.784**
Levoglucosan	0.933**	0.936**	0.422	0.122	(0.115)	0.621*	0.975**	0.684*	0.985**	0.966**
K <sup>+</sup>	0.780**	0.766**	0.454	0.158	0.416	0.664*	0.705*	0.818**	0.679*	0.706*
SO <sub>4</sub> <sup>2-</sup>	0.545	0.535	0.6	0.336	0.609*	0.458	0.422	0.773**	0.36	0.382
NO <sub>3</sub> <sup>-</sup>	0.790**	0.786**	0.113	(0.093)	(0.202)	0.574	0.860**	0.468	0.883**	0.890**
NH <sub>4</sub> <sup>+</sup>	0.701*	0.696*	0.662*	0.354	0.561	0.564	0.592	0.822**	0.543	0.569

\*\*Significant correlation at the 0.01 level.

\*Significant correlation at the 0.05 level.

Red data in parentheses represent negative values.

Table S3. Pearson correlations between individual NAC species and meteorological parameters, aerosol components, and gas pollutants during summer (n = 13).

	NACs	4NP	3M4NP	2,4-DNP	4NGA	5NGA	4NC	4M5NC	3NSA	5NSA
PM <sub>2.5</sub>	0.875**	0.940**	0.619*	0.058	0.679*	0.749**	0.926**	0.759**	0.820**	0.930**
SO <sub>2</sub>	0.859**	0.794**	0.585*	0.267	0.585*	0.763**	0.889**	0.819**	0.743**	0.823**
NO <sub>2</sub>	0.869**	0.865**	0.537	0.311	0.629*	0.697**	0.929**	0.863**	0.866**	0.834**
O <sub>3</sub>	0.786**	0.836**	0.426	0.028	0.553*	0.666*	0.877**	0.740**	0.763**	0.799**
ff- <i>n</i> -alkanes	0.852**	0.861**	0.701**	0.199	0.805**	0.732**	0.846**	0.718**	0.732**	0.856**
PAHs	0.880**	0.916**	0.628*	0.196	0.692**	0.739**	0.898**	0.807**	0.837**	0.892**
Levoglucosan	0.731**	0.52	0.515	0.616*	0.716**	0.669*	0.651*	0.697**	0.682*	0.504
K <sup>+</sup>	0.827**	0.914**	0.485	0.095	0.606*	0.676*	0.894**	0.768**	0.842**	0.860**
SO <sub>4</sub> <sup>2-</sup>	0.884**	0.968**	0.639*	0.03	0.707**	0.782**	0.895**	0.738**	0.837**	0.952**
NO <sub>3</sub> <sup>-</sup>	0.678*	0.654*	0.281	0.244	0.393	0.511	0.799**	0.774**	0.690**	0.612*
NH <sub>4</sub> <sup>+</sup>	0.881**	0.966**	0.637*	0.032	0.722**	0.774**	0.894**	0.737**	0.836**	0.945**

\*\*Significant correlation at the 0.01 level.

\*Significant correlation at the 0.05 level.

Red data in parentheses represent negative values.

Table S4. Pearson correlations between individual NAC species and meteorological parameters, aerosol components, and gas pollutants during autumn (n = 13).

	NACs	4NP	3M4NP	2,4-DNP	4NGA	5NGA	4NC	4M5NC	3NSA	5NSA
PM <sub>2.5</sub>	0.684**	0.715**	0.211	(0.02)	0.240	0.467	0.409	0.768**	0.393	0.660*
SO <sub>2</sub>	0.805**	0.847**	0.031	(0.169)	(0.016)	0.211	0.659*	0.633*	0.177	0.838**
NO <sub>2</sub>	0.886**	0.932**	(0.286)	(0.002)	(0.255)	0.026	0.823**	0.588*	0.173	0.899**
O <sub>3</sub>	0.165	0.227	(0.104)	(0.316)	0.115	0.258	(0.028)	0.482	0.38	0.145
ff- <i>n</i> -alkanes	0.943**	0.932**	(0.16)	0.296	(0.082)	0.225	0.844**	0.647*	0.174	0.894**
PAHs	0.886**	0.879**	(0.135)	0.124	(0.119)	0.153	0.825**	0.533	0.043	0.901**
Levogluconan	0.888**	0.809**	(0.351)	0.090	(0.143)	0.223	0.847**	0.696**	0.207	0.799**
K <sup>+</sup>	0.808**	0.799**	(0.052)	0.012	0.111	0.379	0.616*	0.771**	0.318	0.773**
SO <sub>4</sub> <sup>2-</sup>	0.615*	0.636*	0.29	(0.1)	0.304	0.475	0.354	0.730**	0.266	0.592*
NO <sub>3</sub> <sup>-</sup>	0.700**	0.889**	0.143	0.078	(0.090)	0.02	0.53	0.374	0.084	0.801**
NH <sub>4</sub> <sup>+</sup>	0.715**	0.760**	0.172	(0.128)	0.178	0.407	0.471	0.729**	0.287	0.720**

\*\*Significant correlation at the 0.01 level.

\*Significant correlation at the 0.05 level.

Red data in parentheses represent negative values.

Table S5. Pearson correlations between individual NAC species and meteorological parameters, aerosol components, and gas pollutants during winter (n = 12).

	NACs	4NP	3M4NP	2,4-DNP	4NGA	5NGA	4NC	4M5NC	3NSA	5NSA
PM <sub>2.5</sub>	0.710**	0.768**	0.324	0.674*	0.262	0.553	0.456	0.628*	0.592*	0.539
SO <sub>2</sub>	0.659*	0.749**	0.671*	0.241	(0.190)	(0.229)	0.485	0.33	0.509	0.755**
NO <sub>2</sub>	0.879**	0.720**	0.687*	0.557	(0.168)	0.095	0.901**	0.108	0.712**	0.611*
O <sub>3</sub>	0.55	0.567	0.114	0.311	0.281	0.582*	0.284	0.718**	0.503	0.489
ff- <i>n</i> -alkanes	0.790**	0.853**	0.56	0.566	0.313	0.605*	0.504	0.602*	0.751**	0.656*
PAHs	0.817**	0.883**	0.892**	0.358	(0.149)	(0.082)	0.589*	0.4	0.763**	0.896**
Levoglucosan	0.835**	0.692*	0.373	0.484	0.244	0.593*	0.682*	0.562	0.797**	0.605*
K <sup>+</sup>	0.768**	0.760**	0.402	0.570	0.359	0.571	0.561	0.552	0.642*	0.571
SO <sub>4</sub> <sup>2-</sup>	0.453	0.625*	0.249	0.659*	0.118	0.328	0.251	0.373	0.271	0.324
NO <sub>3</sub> <sup>-</sup>	0.56	0.716**	0.524	0.324	(0.047)	(0.013)	0.413	0.258	0.284	0.517
NH <sub>4</sub> <sup>+</sup>	0.413	0.596*	0.271	0.587*	0.045	0.233	0.243	0.274	0.201	0.299

\*\*Significant correlation at the 0.01 level.

\*Significant correlation at the 0.05 level.

Red data in parentheses represent negative values.

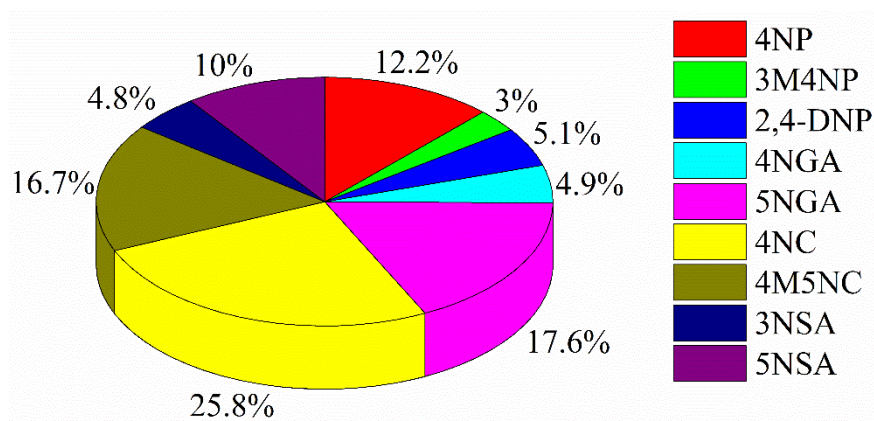


Fig. S1 Relative contribution of each NACs species during the whole year (4NP: 4-nitrophenol; 3M4NP: 3-methyl-4-nitrophenol; 2,4-DNP: 2,4-dinitrophenol; 4NGA: 4-nitroguaiacol; 5NGA: 5-nitroguaiacol; 4NC: 4-nitrocatechol; 4M5NC: 4-methyl-5-nitrocatechol; 3NSA: 3-nitrosalicylic acid; 5NSA: 5-nitrosalicylic acid).