

**Chemical Fingerprint and Source Identification of  
Atmospheric Fine Particles Sampled at Three Environments  
at the Tip of Southern Taiwan**

**Supplementary File**

(6 papers, 2 Tables and 2 Figure include)

**Horng-Yu Yang<sup>1</sup>, Yu-Lun Tseng<sup>2</sup>, Hsueh-Lung Chuang<sup>2</sup>,  
Tsung-Chang Li<sup>2</sup>, Chung-Shin Yuan<sup>2\*</sup>, James J. Lee<sup>3</sup>**

<sup>1</sup>*Department of Civil Engineering, China University of Science and Technology, Taipei  
11581, Taiwan, R.O.C*

<sup>2</sup>*Institute of Environmental Engineering, National Sun Yat-Sen University, Kaohsiung  
80424, Taiwan, R.O.C.*

<sup>3</sup>*Department of Safety, Health and Environmental Engineering, National Yunlin  
University of Science and Technology, Yunlin 64002, Taiwan, R.O.C.*

\* To whom all correspondence should be addressed

Tel: 886-7-5252000 Ext. 4409; Fax: 886-7-52524409;

E-mail: ycsngi@mail.nsysu.edu.tw

## **Table Caption**

Table S-1 Description of the surrounding environments of the three sampling sites at the southern tip of the Taiwan Island.

Table S-2 Sampling, weighing, and chemical analytical methods of PM<sub>2.5</sub>.

## **Figure Caption**

Figure S-1 Wind rose plots for the three sampling sites in the southern Taiwan from December 2014 to May 2015.

Figure S-2 Source apportionment percentage of PM<sub>2.5</sub> sampled at three sampling sites in the southern Taiwan.

Table S-1 The description of the surrounding environments of the three sampling sites at the southern tip of the Taiwan Island.

<b>Sampling Sites</b>	<b>Coordinates</b>	<b>Environments</b>
<b>Chien-Chin (Urban)</b>	120.29E 22.63N	An <b>urban site</b> located on the roof of Chien-Chin Primary School about 15 meters above the ground, around the Love Canal and Kaohsiung City Council. The surrounding is mainly residential and commercial district. The main sources of air pollutions are vehicles.
<b>Siao-Gang (Industry)</b>	120.34E 22.57N	An <b>industrial site</b> located on the roof of Siao-Gang Senior High School about 1 km away from Kaohsiung Harbor and near the Kaohsiung International Airport. Siao-Gang region is one of the largest industrial complexes in Taiwan.
<b>Che -Cheng (Background)</b>	120.76E 22.07N	A <b>background site</b> located on the roof of main building of Boli Country Club surrounding by hills and mountains with limited anthropogenic activities.

Table S-2 Sampling, weighing, and chemical analytical methods of M<sub>2.5</sub>.

Instruments	Brands/Models	Items/Species
High-volume Sampler	Tisch Model 6070DV	PM <sub>2.5</sub>
Microbalance (~10 <sup>-6</sup> g)	Sartorius Model MC 5	Mass Concentration
Ion Chromatography (IC)	Dionex Series Model 100	F <sup>-</sup> , Br <sup>-</sup> , Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , NO <sub>3</sub> <sup>-</sup> , NH <sub>4</sub> <sup>+</sup> , K <sup>+</sup> , Na <sup>+</sup> , Ca <sup>2+</sup> , Mg <sup>2+</sup>
Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)	Perkin Elmer Plasma Model 400	Al, Fe, Na, Mg, K, Ca, Ti, Mn, Ni, Cu, Zn, Cd, Pb, Cr, V
Elemental Analyzer (EA)	Carlo Erba Model 1108	OC, EC, TC
High Performance Ionic Chromatography (HPIC)	Dionex Model ICS-3000	Levoglucosan

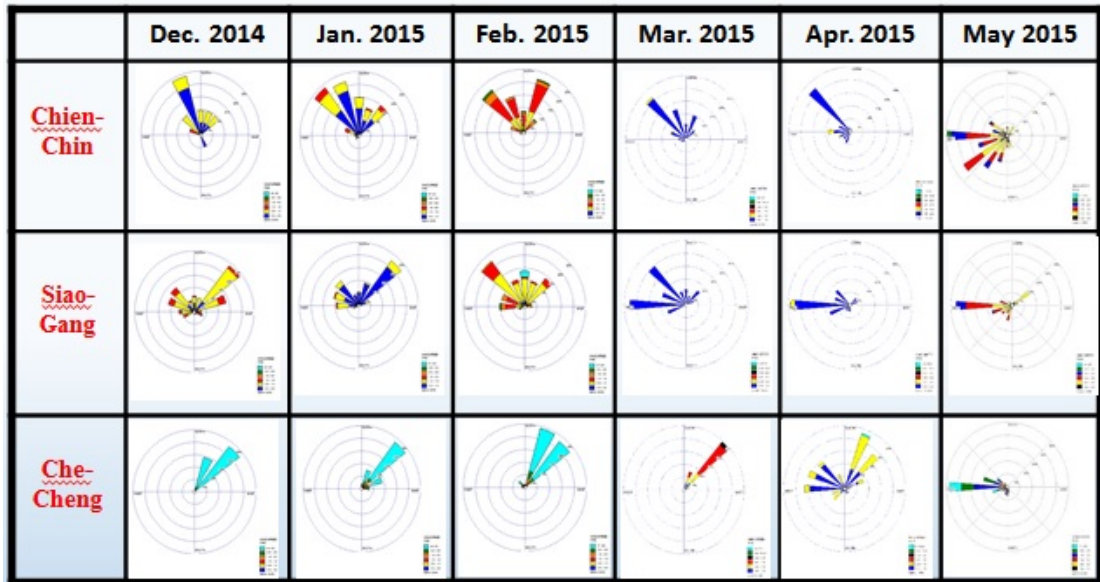


Figure S-1 Wind rose plots for the three sampling sites in the southern Taiwan from December 2014 to May 2015.

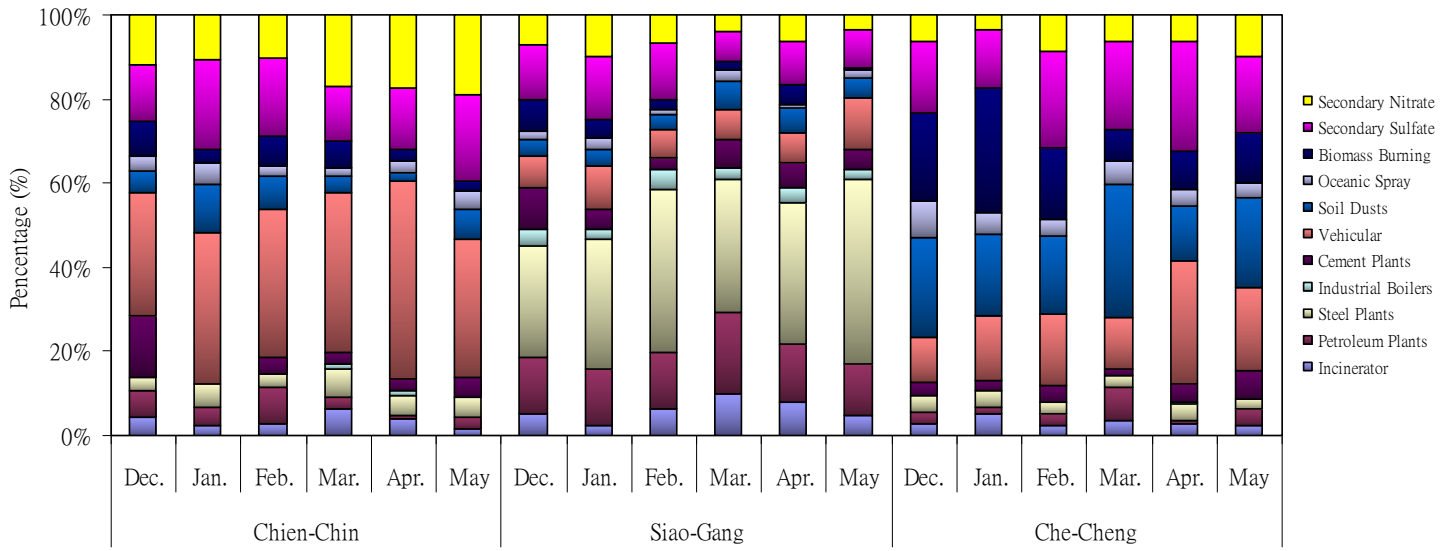


Figure S-2 Source apportionment percentage of PM<sub>2.5</sub> sampled at three sampling sites in the southern Taiwan.