

Accepted Manuscript

Chemical characteristics of PM_{2.5} during summer at a background site of the Yangtze River Delta in China

Linlin Liang, Guenter Engling, Xiaoye Zhang, Junying Sun, Yangmei Zhang, Wanyun Xu, Chang Liu, Gen Zhang, Xuyan Liu, Qianli Ma



PII: S0169-8095(17)30158-8
DOI: doi: [10.1016/j.atmosres.2017.08.012](https://doi.org/10.1016/j.atmosres.2017.08.012)
Reference: ATMOS 4039

To appear in: *Atmospheric Research*

Received date: 13 February 2017
Revised date: 30 June 2017
Accepted date: 12 August 2017

Please cite this article as: Linlin Liang, Guenter Engling, Xiaoye Zhang, Junying Sun, Yangmei Zhang, Wanyun Xu, Chang Liu, Gen Zhang, Xuyan Liu, Qianli Ma , Chemical characteristics of PM_{2.5} during summer at a background site of the Yangtze River Delta in China, *Atmospheric Research* (2017), doi: [10.1016/j.atmosres.2017.08.012](https://doi.org/10.1016/j.atmosres.2017.08.012)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Chemical characteristics of PM_{2.5} during summer at a background site of the Yangtze River Delta in China

Linlin Liang¹, Guenter Engling^{2,3}, Xiaoye Zhang¹, Junying Sun¹, Yangmei Zhang¹, Wanyun Xu¹, Chang Liu¹, Gen Zhang¹, Xuyan Liu⁴, Qianli Ma⁵

¹ State Key Laboratory of Severe Weather & Key Laboratory for Atmospheric Chemistry, Chinese Academy of Meteorological Sciences, Beijing, China

² Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan

³ Now at: California Air Resources Board, El Monte, CA, USA

⁴ National Satellite Meteorological Center, China Meteorological Administration, Beijing, China

⁵ Lin'an Regional Atmosphere Background Station, Lin'an, China

Abstract:

With rapid economic development and urbanization, particular attention has been paid to atmospheric chemical studies in the Yangtze River Delta in China. PM_{2.5} samples were collected by a MiniVolTM air sampler in summer time at a background site of the Yangtze River Delta in China. Carbonaceous components, i.e., OC and EC, levoglucosan and water-soluble inorganic ions, including sulfate, nitrate, ammonium, etc., were quantified. The average concentration of PM_{2.5} in summer at Lin'an was $30.19 \pm 8.86 \mu\text{g m}^{-3}$, lower than previous studies reported, confirming that air pollution in China is improving, e.g., by emission control measures and subsequent reduction in PM emissions in China. Investigating the relationship among sulfate, nitrate and ammonium showed that SO_4^{2-} existed as $(\text{NH}_4)_2\text{SO}_4$, while NO_3^- may have been present as NaNO_3 and KNO_3 . Based on molecular tracer, synoptic data as well as air mass back trajectory analysis, it was revealed that regional transport and stable synoptic conditions both play an important role in controlling the variations of aerosol chemical components. The comparison of aerosol chemical components between clean and hazy days showed that secondary organic and inorganic aerosols have different production processes. Secondary organic carbon (SOC) was much more important during clean days, while secondary inorganic aerosol species were readily produced and

Download English Version:

<https://daneshyari.com/en/article/5753566>

Download Persian Version:

<https://daneshyari.com/article/5753566>

[Daneshyari.com](https://daneshyari.com)