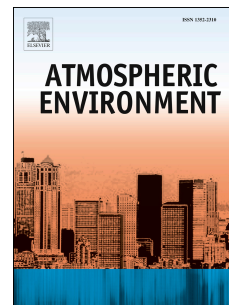


Accepted Manuscript

Characteristics and Origins of Carbonaceous Aerosol in the Sichuan Basin, China

Yuan Chen , Shaodong Xie , Bin Luo , Chongzhi Zhai



PII: S1352-2310(14)00384-7

DOI: [10.1016/j.atmosenv.2014.05.037](https://doi.org/10.1016/j.atmosenv.2014.05.037)

Reference: AEA 12981

To appear in: *Atmospheric Environment*

Received Date: 13 February 2014

Revised Date: 8 May 2014

Accepted Date: 12 May 2014

Please cite this article as: Chen, Y., Xie, S., Luo, B., Zhai, C., Characteristics and Origins of Carbonaceous Aerosol in the Sichuan Basin, China, *Atmospheric Environment* (2014), doi: 10.1016/j.atmosenv.2014.05.037.

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.

1 **Characteristics and Origins of Carbonaceous Aerosol in the Sichuan**
2 **Basin, China**

3

4 **Yuan Chen^a, Shaodong Xie^{a,*}, Bin Luo^b, Chongzhi Zhai^c**

5 ^a College of Environmental Science and Engineering, State Key Joint Laboratory of
6 Environmental Simulation and Pollution Control, Peking University. No. 5 Yiheyuan
7 Rd, Beijing 100871, China

8 ^b Sichuan Environmental Monitoring Center, NO. 88 3rd East Guanghua Rd,
9 Qingyang District, Chengdu 610031, China

10 ^c Chongqing Research Academy of Environmental Science, No. 252 Qishan Rd, Yubei
11 District, Chongqing 401147, China

12 * Correspondence to: S.D. Xie (sdxie@pku.edu.cn), Tel: +86 10 62755852, Fax: +86
13 10 62751927.

14

15 **Abstract**

16 The Sichuan Basin is a low visibility area in southwest China, where the hilly and
17 basin topography, plus humid and stagnant weather, lead to unique pollution patterns.
18 To identify the characteristics and sources of carbonaceous aerosols, one-year record
19 of 24-h PM_{2.5} samples were analyzed for organic carbon (OC) and elemental carbon
20 (EC) content following the thermal/optical transmission protocol at three cities
21 (Chengdu (CD), Neijiang (NJ), and Chongqing (CQ)) in the region during May 2012
22 to April 2013. The annual average concentrations were 19.0±13.3 μg OC m⁻³ and
23 4.6±2.6 μg EC m⁻³ in CD, 18.3±8.4 μg OC m⁻³ and 4.1±1.8 μg EC m⁻³ in NJ, and
24 15.2±8.4 μg OC m⁻³ and 4.0±1.6 μg EC m⁻³ in CQ, respectively. Organic matter
25 (1.6OC) plus EC contributed about 40% of PM_{2.5} mass and displayed weak regional
26 uniformity. Relatively high ratios of OC to EC were observed in the region with 4.3
27 for CD, 4.6 for NJ, and 3.8 for CQ, respectively. OC and EC pollution in the region
28 exhibited interesting season-dependent characteristics with the lowest concentrations
29 and OC/EC ratios in summer, but higher levels in other seasons. Higher OC/EC ratios
30 in spring and autumn resulted from biomass burning, and in winter were from the

Download English Version:

<https://daneshyari.com/en/article/6339560>

Download Persian Version:

<https://daneshyari.com/article/6339560>

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