

## ***Interactive comment on “Observational Analyses of Dramatic Developments of A Severe Air Pollution Event in the Beijing Area” by Ju Li et al.***

### **Anonymous Referee #1**

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This study investigates the meteorological reasons for haze formation in Beijing that occurred at the end of November 2015. The authors presented one-week surface stable layer and wind data collected at Beijing sampling site that of interest to the readers to solidify their findings. The paper is valuable to the audiences and scientists who want to understand the reasons for Beijing haze formations in winter and also well organized for being published on ACPD.

However, this study is unable to provide a long-term meteorological dataset of haze event at the sampling site in Beijing, where  $\sim 30\%$  of the year were haze day according to the Chinese air quality standards (Page 1 Line 22). Zheng et al collected one-year Beijing PM<sub>2.5</sub> samples in 2013, when 73 haze episodes were found. They found these episodes differed in terms of sources and formation process and long term policies for

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air quality regulation could not be determined by the results from the single episode. Please see Environment Science & Technology 2016, 50, 4632-4641.

In addition, the air pollution in Northern China exhibited a spatiotemporal variations, even in one city. Please see Environment Pollution 2017, 227, 334-347. In other words, the results from one sampling site in Beijing is unable to represent the whole one to illustrate the reasons of haze formation in Beijing.

Also, a large number of papers have already looked at this topic from the meteorological angle.

1. Characteristics of chemical composition and role of meteorological factors during heavy aerosol pollution episodes in northern Beijing area in autumn and winter of 2015 Author: Zhang, Zhouxiang; Zhang, Xiaoye; Zhang, Yangmei; et al. TELLUS SERIES B-CHEMICAL AND PHYSICAL METEOROLOGY, 69: 1347484, JUL 26 2017 2. Attributions of meteorological and emission factors to the 2015 winter severe haze pollution episodes in China's Jing-Jin-Ji area Author: Liu, Tingting; Gong, Sunling; He, Jianjun; et al ATMOSPHERIC CHEMISTRY AND PHYSICS, 17: 2971-2980 , FEB 27 2017 3. Characteristics and classification of PM2.5 pollution episodes in Beijing from 2013 to 2015 Author: Wang, Xiaoqi; Wei, Wei; Cheng, Shuiyuan; et al. SCIENCE OF THE TOTAL ENVIRONMENT , 612 : 170-179, JAN 15 2018 4. Relative Contributions of Boundary-Layer Meteorological Factors to the Explosive Growth of PM2.5 during the Red-Alert Heavy Pollution Episodes in Beijing in December 2016 Author: Zhong, Junting; Zhang, Xiaoye; Wang, Yaqiang; et al. JOURNAL OF METEOROLOGICAL RESEARCH, 31 : 809-819 , OCT 2017 5. Climatology of the Meteorological Factors Associated with Haze Events over Northern China and Their Potential Response to the Quasi-Biannual Oscillation Author: Liang, Ju; Tang, Yaoguo JOURNAL OF METEOROLOGICAL RESEARCH , 31 , 5: 852-864 , OCT 2017 6. Cause and predictability for the severe haze pollution in downtown Beijing in November-December 2015 Author: Zhang, Ziyin; Gong, Daoyi; Mao, Rui; et al. SCIENCE OF THE TOTAL ENVIRONMENT, 592 : 627-638 , AUG 15 2017 7. Characteristics of chemical composition

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and role of meteorological factors during heavy aerosol pollution episodes in northern Beijing area in autumn and winter of 2015 Author: Zhang, Zhouxiang; Zhang, Xiaoye; Zhang, Yangmei; et al. TELLUS SERIES B-CHEMICAL AND PHYSICAL METEOROL- OGY, 69 : 1347484, JUL 26 2017 8. Local and regional contributions to fine particulate matter in Beijing during heavy haze episodes Author: Wang, Yangjun; Bao, Shengwei; Wang, Shuxiao; et al. SCIENCE OF THE TOTAL ENVIRONMENT, 580 : 283-296, FEB 15 2017

Thus, this paper could not show a more complete picture of illustrating the meteorological reasons for Beijing haze formation and lacks the comprehensiveness for the audiences in ACP . I recommend this paper could not be accepted by ACP.

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