

Interactive comment on “Evaluating Vehicle Emission Control Policies using on-Road Mobile Measurements and Continuous Wavelet Transform: a Case Study during the Asia-Pacific Economic Cooperation Forum, China 2014” by Ziqiang Tan et al.

Anonymous Referee #1

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This paper reports the results of a measurement campaign conducted by a mobile research platform on the 4th ring road of the city of Beijing. Six main air pollutants (PM_{2.5}, black carbon (BC), SO₂, CO, NO_x and O₃) were measured before (28 October - 2 November), during (3 - 12 November) and after (13 - 22 November) the APEC meeting. To avoid poor air quality during the APEC period, the government formulated a series of air quality control policies in Beijing. The authors applied the continuous wavelet transform (CWT) method to estimate the on-road emissions better than other

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methods reported in the literature. Usually the measured contrast in concentration between major roads and (sub)urban background is considered as the vehicle emission. Many analysis of the magnitude of the measured difference in the street vs. background for major streets with different street configurations and for a large range of pollutants were already reported in the literature. The authors observed that the vehicle emission decreased during the APEC period relative to the period before APEC, and to the period after APEC. They concluded that the vehicle emission control policy implementation was successful in controlling air quality during APEC 2014, China. In my opinion the observed decrease is exactly that what had to be expected, taking under consideration the huge dimension of the traffic control, industrial emission control, and dust pollution control measures (please refer to Table 1). Furthermore, as the majority of the measures were implemented only temporary for a relative short time period (3 - 12 November, 2014) the extent of this decrease is only of secondary importance. In some parts the study is essentially a data reporting exercise (e.g. page 13). Whilst the information will be of interest to policy makers in China I'm not sure whether it is also interesting for the broader audience. At least the authors should try to present such results in a table and not in a running text.

The presented study could be more interesting from the methodological point of view. The authors stated in the abstract that “the ‘instantaneous concentration’ decomposed by the CWT method represents on-road emissions better than other methods reported in the literature”. This conclusion is not supported by the presented analysis. The authors have made no attempt to estimate the contrast in concentration between major roads and (sub)urban background based on the measurements from fixed monitoring sites. I'm sure that many measurement stations (urban background and traffic) are in operation in Beijing and it might be not so difficult to analyze the air pollution levels by more traditional method. This the comparison of the two different approaches might really raise the scientific value of this paper.

Page 14, line 284: is a decrease by -46% just an increase by 46%? To avoid any

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misunderstanding, it might be better to name a “negative decrease” just “increase”.
This is valid for all such examples in text.

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