

# ***Interactive comment on “Mobile-Platform Measurement of Air Pollutant Concentrations in California: Performance Assessment, Statistical Methods for Evaluating Spatial Variations, and Spatial Representativeness” by Paul A. Solomon et al.***

## **Anonymous Referee #2**

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General comments: This study aims to use a mobile platform for air quality measurements for characterizing spatial variations of air pollution within 15 urban areas in California, USA. They obtained data from the Aclima, Inc. mobile measurement and data acquisition platform used to equip Google Street View cars between May 2016 and September 2017 at very high temporal and spatial resolutions. The results demonstrate that the approach used for quantifying spatial variations of air pollutant concentrations over the measurement periods is working well. They focused on examining

measurement capabilities and developed statistical methods for analyzing the data. This manuscript demonstrates the capabilities of a fairly new instrument and clearly the authors put a lot of effort in the measurements and data analysis including spatial and temporal error and accuracy. The referee thinks this manuscript is well written and the scientific community will benefit from this type of study. The referee finds this manuscript to be a good fit to be published in AMT after addressing the comments below.

Specific Comments: 1. There is no discussion or comparison between Aclima instrumentation and capabilities to other sensors in the market (e.g. Purple Air), including technical and accuracy information. Have the authors done any comparison studies at similar times and locations to demonstrate Aclima outperforming other sensors? 2. This analysis provides information on mobile air quality monitoring in a certain environment. The measurements represent air quality in urban locations near roads and that covers certain points/line measurements yet does not create a continuous air quality map. 3. PN is measured by the Aclima platform for different size bins. It is not clear how this measurement is evaluated, as the EPA monitors particulate matter mass concentration? 4. It is not clear why the distance between cars is important in the discussion. 5. All the measurements have been done for periods of several weeks and there is no 'long-term' monitoring campaign presented (e.g >1 year) that captures, for example, seasonality. This limitation of measurements period should be addressed in the discussion. 6. A description of the climatology at the different measurement locations is missing (e.g. temp, RH, and wind profiles, built area, type of road, no. of cars etc.). That can help understand some of the results. 7. The authors should do a better job in stating the limitations of the Aclima platform in this study set and in general. 8. Did the authors consider validating their results with continuous modeled data (CMAQ)? Or satellite data? Technical Comments: 1. General: The referee strongly suggests not having question marks “?” in titles. 2. Line 81-82: distance from adjacent air quality validation monitor <4m. While in the abstract, line 25 it's mentioned that the distance is <9m ?

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