H. Gadhavi (Referee)

Shakya et al. report analysis of bulk PM2.5 and BC concentrations as well as chemical speciation from six sites in Kathmandu valley, Nepal in the manuscript "Near road sampling of PM2.5, BC and fine particle chemical components in Kathmandu valley, Nepal". Overall manuscript is well written and results reported are useful in more than one way. One of the best use of data I see is the assessing the occupational health hazard for traffic police personnel.

Limitation if any to be considered is relatively short period of observations. However, this does not reduce the importance of their finding given the fact that there are very few studies on air pollution from this part of the world that report such a comprehensive set of observations.

We thank Dr. Gadhavi for his encouraging note on our manuscript.

Few of the suggestion, authors may consider to improve the manuscript are

(1) bulk PM2.5 concentration are measured using optical technology. Such instrument rely on aerosol density measurements/assumption to convert number concentrations into mass. Did author carried out gravimetric measurements to calibrate their instrument?

> All pDR-1500 instruments used in this study were calibrated by the manufacturer following standard measurement protocols gravimetrically, traceable to ISO 12103 fine test dust. The instruments were not calibrated in the field using gravimetric measurements. The instruments were zeroed by using a HEPA filter every week, and volumetric flow rates were regularly checked. Following these protocols, manufacturer specifications include an accuracy and precision of 5% and <2%, respectively, with typical detection limits at 1 $\mu g/m^3$, which is more than an order of magnitude lower than typical concentrations observed in this study. Nonetheless, nephelometric measurements from a pDR are generally different from the reference measurements of PM using gravimetric method because of the inability of an optical method to efficiently detect particles less than ~100nm, which are usually captured in gravimetric measurements. However, in terms of the aggregate mass the particles less than 100 nm are expected to contribute a small fraction to the $PM_{2.5}$ mass. Thus, a comparison between these two measurement approaches was not performed.

(2) There are large differences between elemental carbon and black carbon. Authors have not attempted on explaining this difference. They may do in revised manuscript.

> Following sentences are added to the manuscript.
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> Lines 321-325
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> However, there are some limitations in the comparison in this study. The comparison between EC and BC concentrations is based on measurements from the six set of instruments by thirty six traffic personnel at thirty six locations. Examining the comparisons of our measurements show that about half of measurements had BC/EC ratio between 0.70 and 1.19.

(3) To calculate enrichment factors, authors have to use data for crustal ratios. Authors have not mentioned source and data used in their study

> The data for crustal ratios are based on chemical composition of a generic upper continental crust (Taylor and McLenna, 1995). For the clarity, following information is updated in the manuscript:
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> Lines 455-457
>
> The crustal ratios used for the computation of enrichment factor are based on chemical composition of a generic upper continental crust (Taylor and McLenna, 1995).