

Interactive comment on “In situ aerosol optics in Reno, NV, USA during and after the summer 2008 California wildfires and the influence of aerosol coatings” by M. Gyawali et al.

M. Gyawali

gyawalim@unr.nevada.edu

Reply to Reviewer #5 (reviewer comments for Atmos. Chem. Phys. Discuss., 9, C4093–C4094, 2009, In situ aerosol optics in Reno, NV, USA...by Madhu Gyawali et al.).

Please refer to the Author Comments for description of the added materials and for the notations AC1, AC2, etc that are used here in the reply to the particular reviewer questions.

Reviewer comments are given in bold type-face. Our replies are given in plain text.

I find this paper interesting and surely worth publishing after some work. The other reviewers so far have discussed problems in the modeling; I have nothing to add to that.

Reply:

Thanks for the comments. See **AC10** for Simulations and Discussion.

The measurement part is somewhat inadequately discussed and requires some work. The measurement site, distance to roads, the inlets, cutoffs, etc. are not described at all. They should. Distance to the wildfires?

Reply;

We agree with these comments, and have included more discussion in the revised manuscript. See **AC4**, **AC5** and **AC6**. We estimate the aerosol cut off size to be 2 microns for the inlet system.

There are references to the methods, but I think you should write in the measurement section about the calibration and uncertainty of both the absorption and scattering measurements. How does that propagate into the uncertainty of the AEA and the SSA? Do the instruments get saturated during the real smoke plume?

Reply:

See **AC2** for added description. The error calculations have described in the revised manuscript with the explanation of uncertainty. The dynamic range of the instrument would be sufficient for a factor of 100 times more absorption and scattering.

There are only the daily cycles in the figures, I find that inadequate. The time series of the absorption and scattering should be presented, for instance as hourly or daily averages or medians and some measure of the range, in order to see how much and

for how long time did the levels actually rise when the wildfire plume arrived at the measurement site.

Reply:

See **AC5** for added description of the time series.

Reno is dry and there is probably also some absorbing soil dust in the aerosol. Does that have any effect in your results?

Reply:

We didn't have dramatic dust storms impacting aerosol optics during this study.

p. 14064, L11-12 it is written "The apparent light absorption coefficient ALAOC due to organic carbon aerosol at 405nm is conventionally written as..." If you say conventionally, please give references.

Reply:

We have removed the term "conventionally" in the revised manuscript.

The plots have no error bars, except Fig 5 that has two error bars without any explanations. Add error bars and explanations into the captions.

Reply:

Agree and done.

Anonymous Referee #1 writes. "Section 2.5: It seems that the associated figure is not needed". This seems to mean Fig. 6 which I particularly like: with one glance you can see differences in various absorbing aerosols and where the present measurements fit. I wish it were kept also the final paper.

Reply:

We decided to keep this figure.