

We thank Referee#2 for his/her comments and suggestions on our paper titled “Increase absorption by giant aerosol particles over Gangetic-Himalayan region”. We have incorporated the suggestions into the paper as follows:

Major Comment & Minor Comment 1:

The following table on the instrument operation has been included in the paper:

Instrument	Measured parameter	Uncertainty range*	Sources of uncertainties
Particle Soot Absorption Photometer	Absorption Coefficient (Mm^{-1})	1 to 4 Mm^{-1} for one-minute average data	Flow rate, spot size, wavelength, interpretation of scattering as absorption and instrument response to absorption
Nephelometer	Scattering Coefficient (Mm^{-1})	1.3 to 10 Mm^{-1} for one-minute average data	Drift in calibration, noise in filtered air scattering coefficient, instrument calibration to Rayleigh scattering of dry air and CO ₂ , truncation of near forward scattered light

*reference: Aerosol Observing System Handbook, http://www.arm.gov/publications/tech_reports/handbooks/aos_handbook.pdf?id=36

Minor Comment 2:

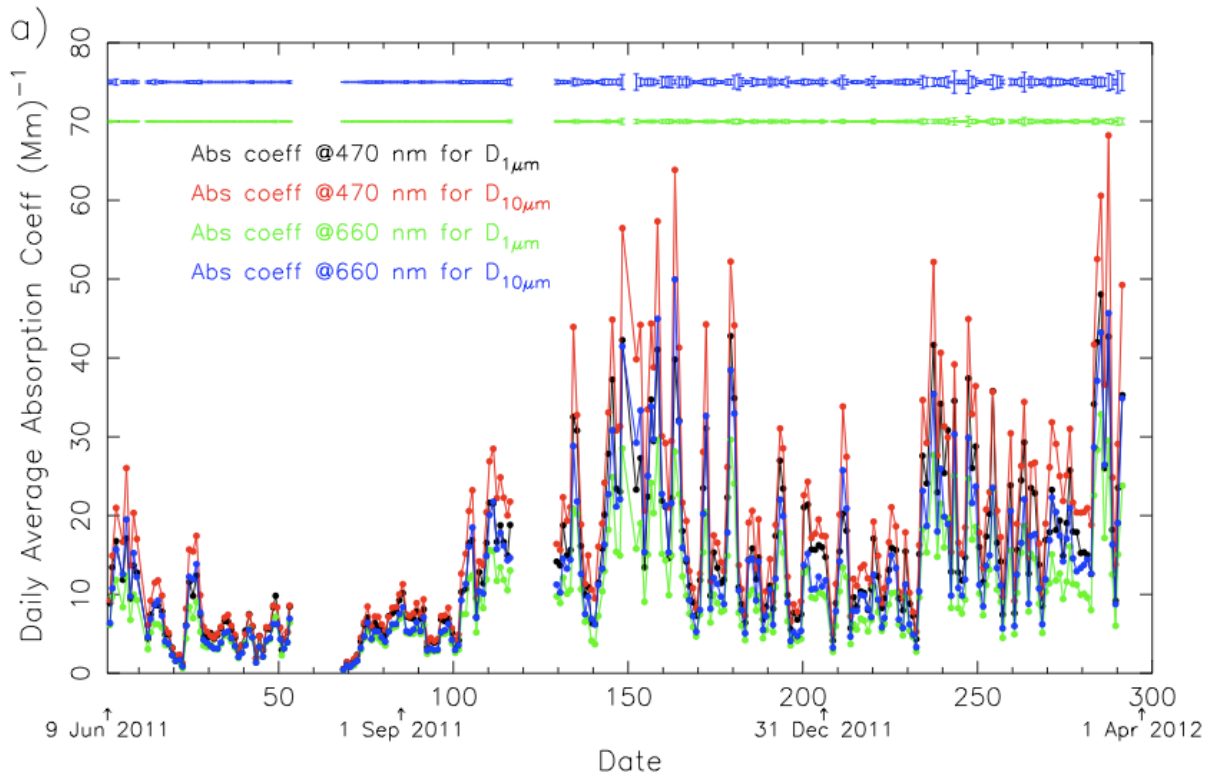
We observed higher measured absorption for large size particles from the Particle Soot Absorption Photometer (PSAP) associated with the Aerosol Observing System (AOS). We also observed similar high absorption by large size particles at other ARM sites.

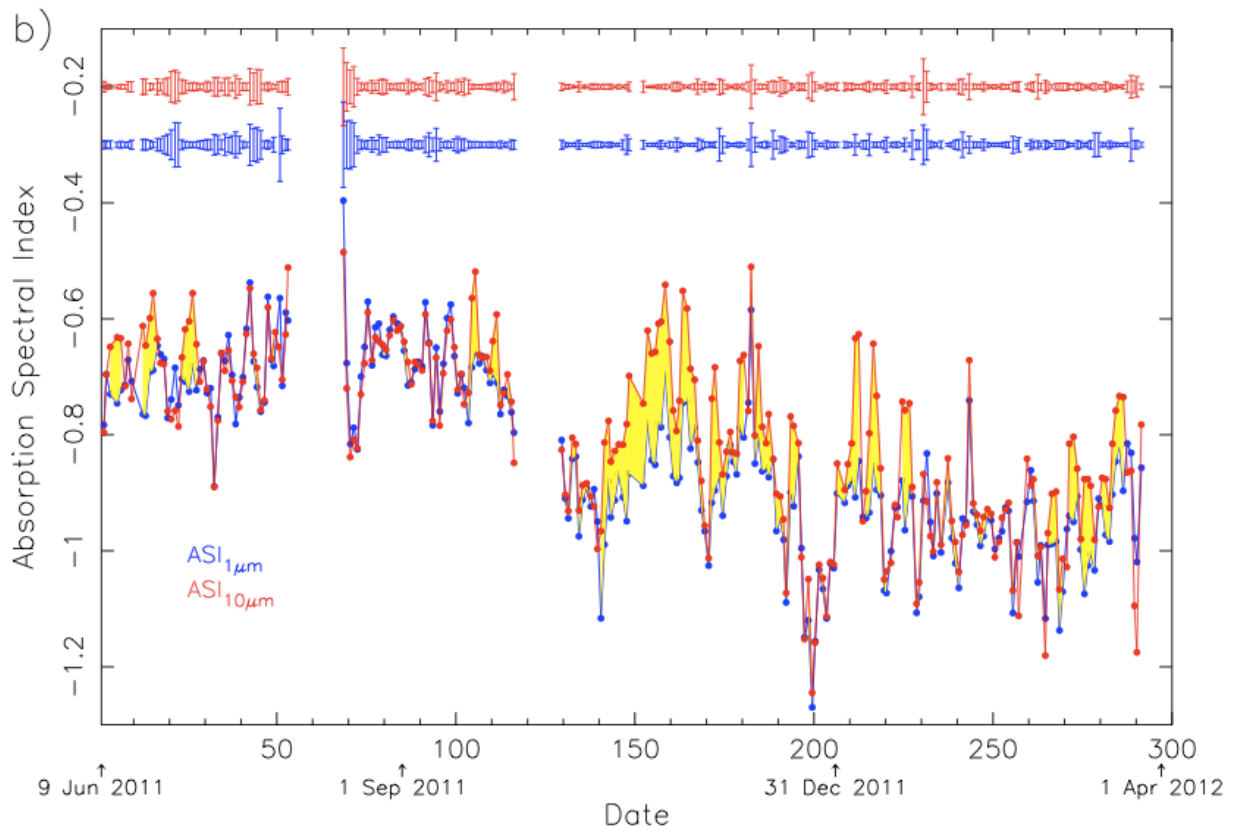
Minor Comment 3:

We have included the error bar ($\pm\sigma$) from daily averaging of absorption coefficient for each day in Figures 2a and 3a for $D_{1.0\mu m}$ and $D_{10.0\mu m}$ at 600nm. The error bars for absorption coefficient of $D_{1.0\mu m}$ and $D_{10.0\mu m}$ at 470nm have not been included as they are in similar range as that of absorption coefficients at 600nm and too many lines in the figure mask out the main features.

We have also included error bars from daily averaging of absorption and scattering spectral indices in Figure 2b and 3b.

The figure captions have also been edited.





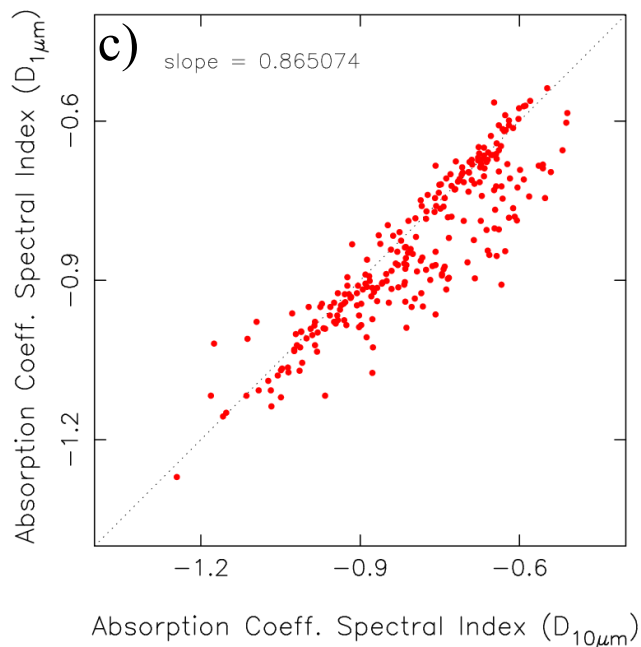
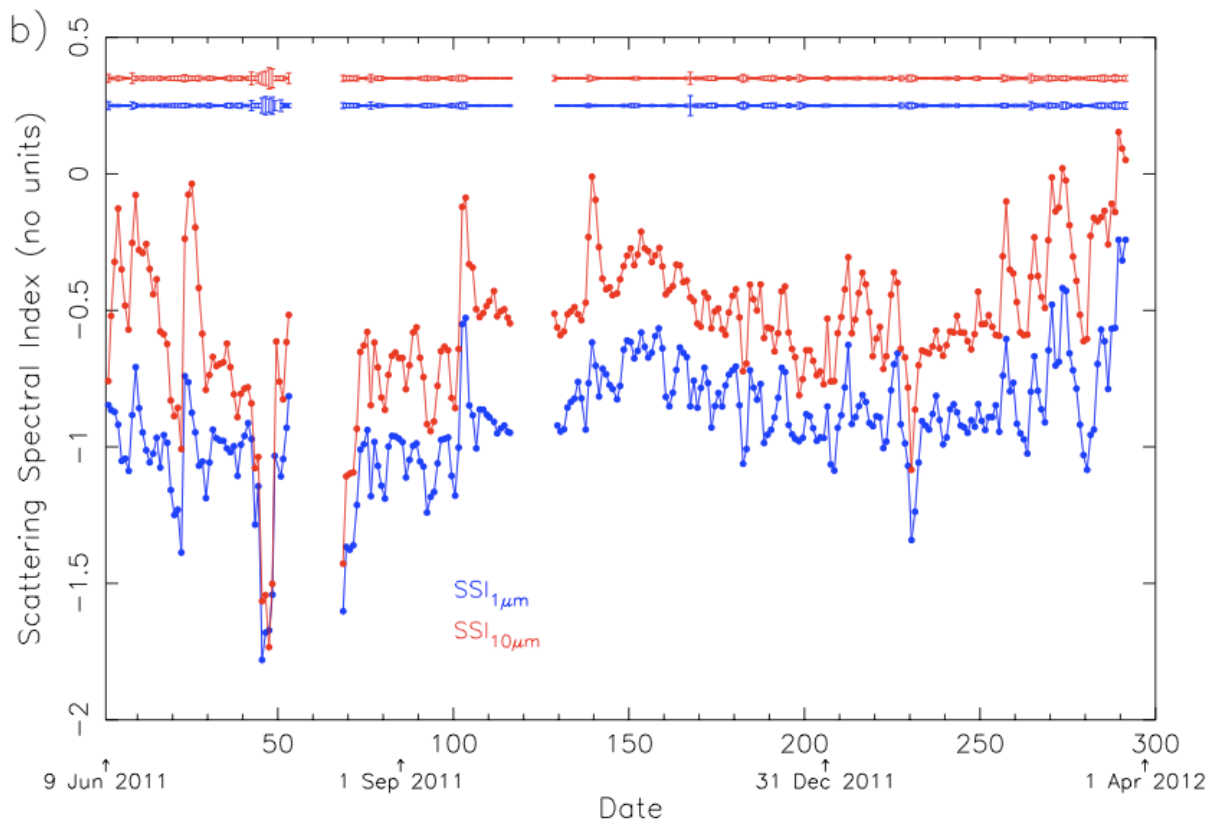
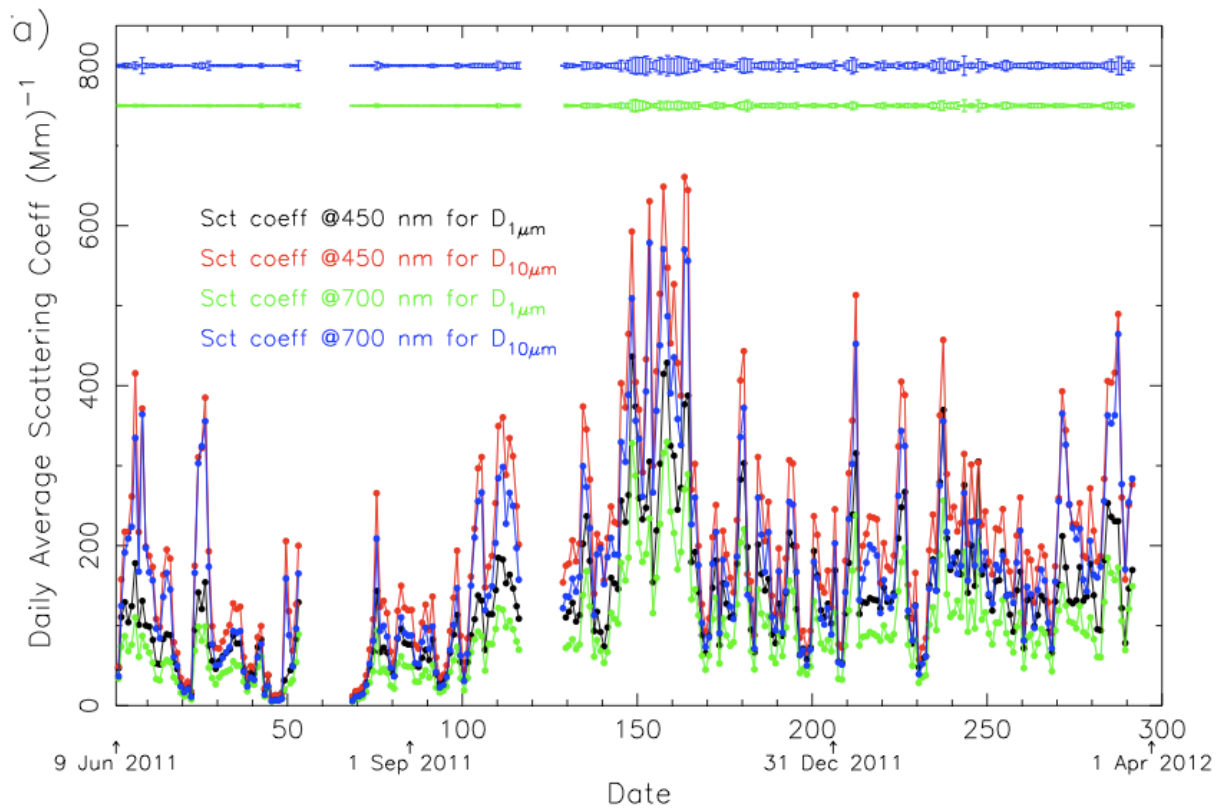


Figure 2 – Absorption properties of aerosols. a, Time series of daily averaged absorption coefficient values at 470 and 660 nm for $D_{1\mu m}$ and $D_{10\mu m}$ particles. The green and blue bars at the top of the plot are the error bars ($\pm\sigma$) of daily averaged absorption coefficient of $D_{1\mu m}$ and $D_{10\mu m}$ respectively at 600nm. **b,** Times series of daily averaged $ASI_{10\mu m}$ and $ASI_{1\mu m}$ values. The blue and red bars at the top of the plot are the error bars ($\pm\sigma$) of daily averaged $ASI_{1\mu m}$ and $ASI_{10\mu m}$ respectively. The area shaded in yellow represents $ASI_{10\mu m} > ASI_{1\mu m}$. **c,** Plot of $ASI_{10\mu m}$ versus $ASI_{1\mu m}$, showing approximately 90% correlation.



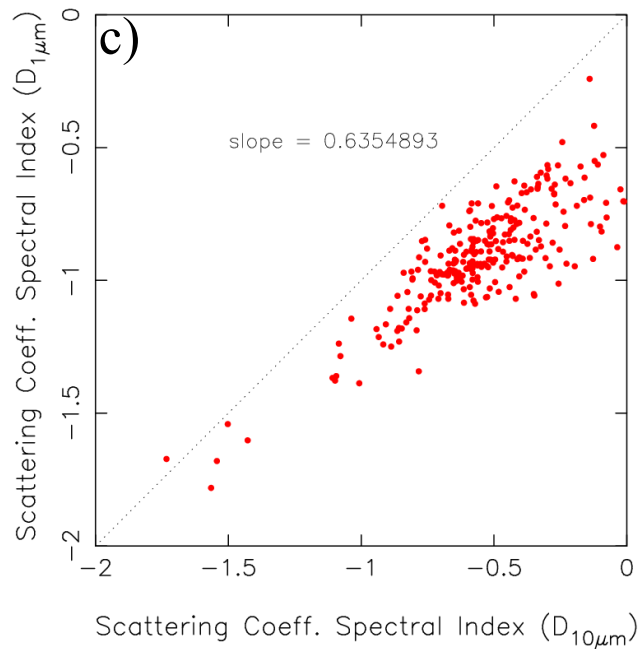


Figure 3 – Scattering properties of aerosols. a, Time series of daily averaged scattering coefficient at 450 and 700 nm for $D_{1\mu m}$ and $D_{10\mu m}$ particles. The green and blue bars at the top of the plot are the error bars ($\pm\sigma$) of daily averaged absorption coefficient of $D_{1\mu m}$ and $D_{10\mu m}$ respectively at 700nm. **b,** Times series of daily averaged values of $SSI_{10\mu m}$ and $SSI_{1\mu m}$. The blue and red bars at the top of the plot are the error bars ($\pm\sigma$) of daily averaged $SSI_{1\mu m}$ and $SSI_{10\mu m}$ respectively. **c,** Plot of $SSI_{10\mu m}$ versus $SSI_{1\mu m}$, showing approximately 83% correlation.

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