Atmospheric
Chemistry
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Supplement of

Large contrast in the vertical distribution of aerosol optical properties and radiative effects across the Indo-Gangetic Plain during the SWAAMI–RAWEX campaign

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Uncertainty in CALIPSO retrievals:

CALIOP level 2 products are provided with the estimates of systematic errors in extinction coefficient, back-scattering coefficient and PDR values based on profile calibration, signal to noise ratios and biases in the lidar ratio assumption. Details of the uncertainty estimation and its propagation in various aerosol parameters are described in (Young et al., 2013). Present study make use of uncertainty information provided with CALIOP level 2 version 3 data product to screen the data as recommended by (Winker et al., 2013) (Range bins with an uncertainty flag of value greater than or equal to 99.9 km-1 are excluded in the study). Further Cloud screening is carried out with CAD score in the range -70 to -100 to filter the cloud free pixels with high confidence (Liu et al., 2009). To eliminate unstable extinction retrievals, extinction quality control flag (QC) of 0 and 1 are used, that represents the constrained retrievals using transmittance measurements and unconstrained retrievals using stable lidar ratio throughout the iterations, respectively. Figure S1 and Figure S2 show the CALIPSO derived total extinction profiles and dust extinction profiles over the stations JDR (left), VNS (centre) and BBR (right), respectively.
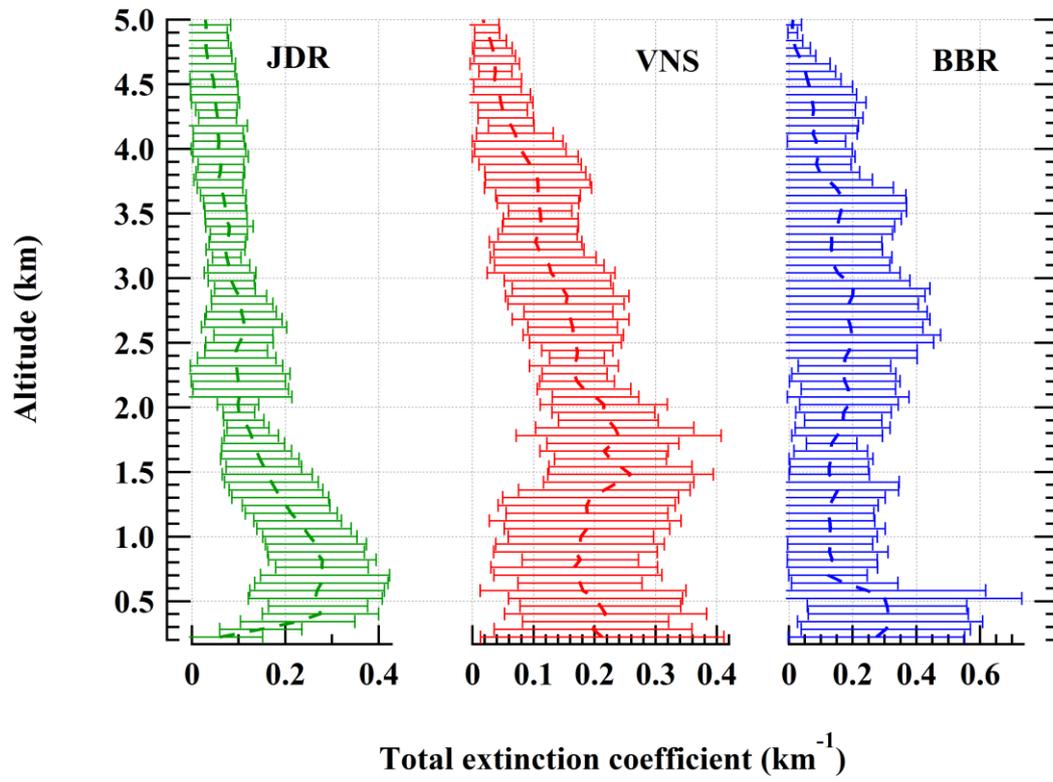
Figure S1: CALIPSO derived total extinction profiles over the stations JDR (left), VNS (centre) and BBR (right). Error bars indicate the standard deviation around the mean.
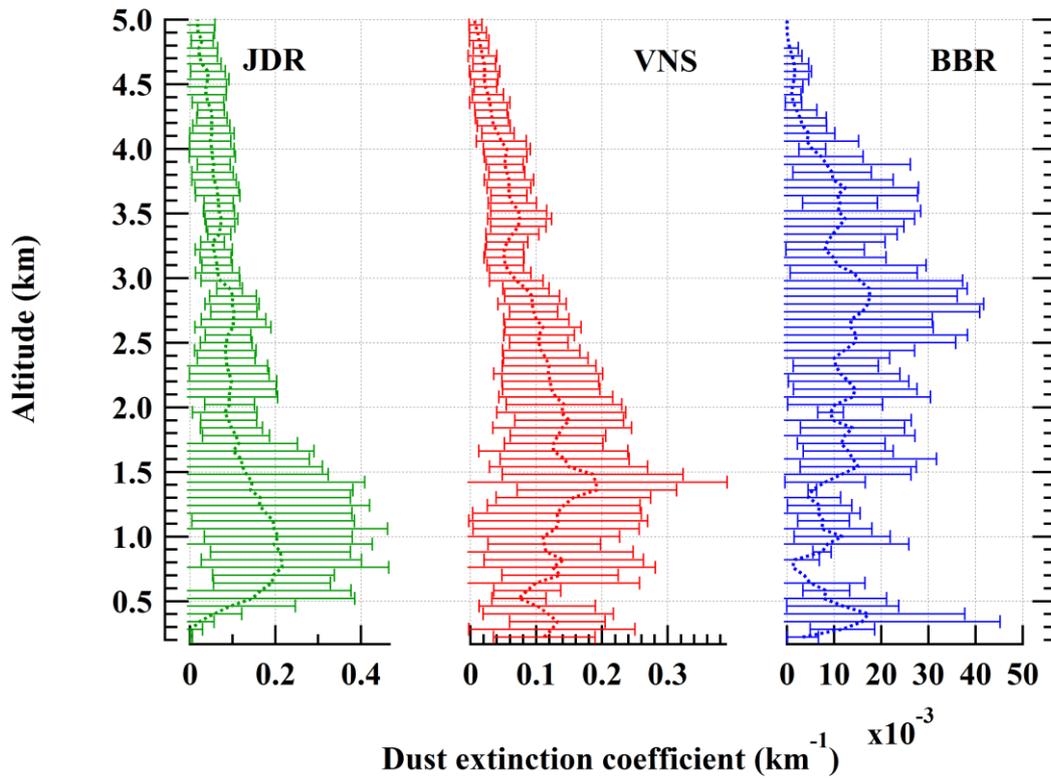
Figure S2: CALIPSO derived dust extinction profiles over the stations JDR (left), VNS (centre) and BBR (right). Error bars indicate the standard deviation around the mean.

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