Supplement for

Evaluation on the ambient particle spectral light absorption measured by 'dual-spot' aethalometer for the East and North China Plain

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Table S1. Instruments used during the field measurements. The filled color in the table represents that the data corresponding to the instrument and date was available.

Date / Instrument	3.20-4.24	4.24-4.30	10.10-10.15	10.15-10.19	5.24-6.17
	PKU				Taizhou
PASS3		■			■
AE33-345(8050)		■		■	■
AE33-345(8060)	■		■		
AE33-582(8060)	■	■			■
AE33-582(8050)			■	■	
SMPS+APS	■	■			■
Nephelometer	■	■			■

1 Inter-comparison of the σ_{sca} measured by nephelometer and calculated using the Mie scattering model.

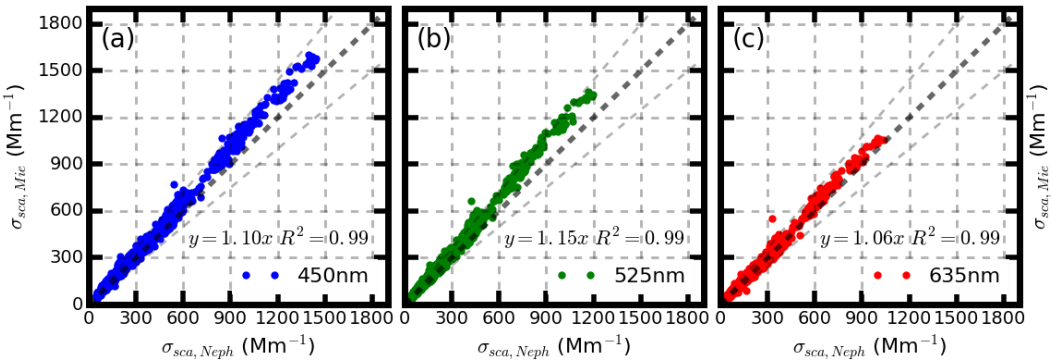

Figure S1. Comparison of the σ_{sca} measured by nephelometer and calculated by Mie scattering model at wavelength of (a) 450 nm, (b) 525 nm and (c) 635 nm. The dashed lines in each panel represent 1:1 and relative difference of 20%.

2 Inter-comparison of the σ_{sca} measured by nephelometer and PASS-3

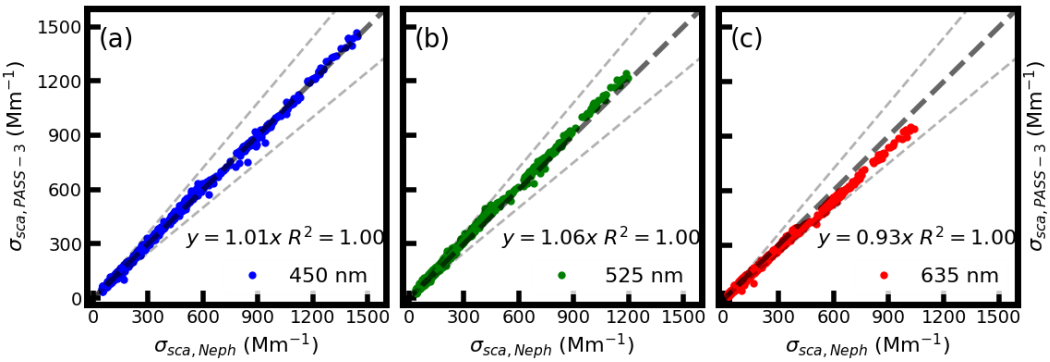

Figure S2. Comparison of the σ_{sca} measured by nephelometer and PASS-3. The wavelengths are (a) 450 nm, (b) 525 nm and (c) 635 nm. Scattering coefficient for PASS-3 were adjusted to the same wavelength using the scattering Å ngström exponent. The dashed lines in each panel represent 1:1 and relative difference of 20%.

3 α_{abs} properties under different ATN values at Taizhou site.

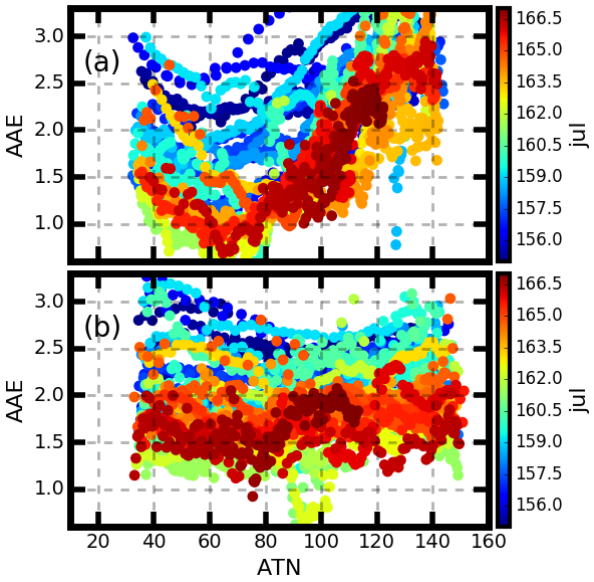

Figure S3. Measured α_{abs} at different ATN for (a) tape 8050 and (b) tape 8060 at Taizhou site. Dots with almost the same color and small difference in ATN share the same tape spot.

4 Statistics of the σ_{abs} noise at 781 nm.

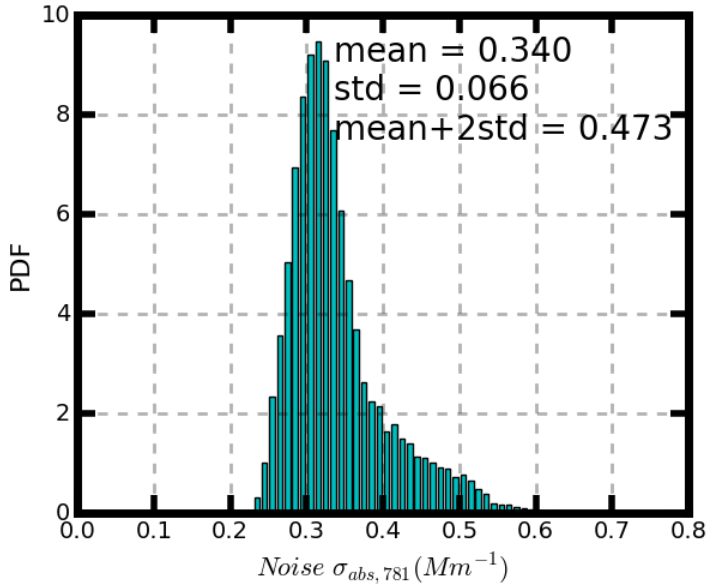

Figure S4. The probability distribution of the σ_{abs} noise at 781 nm.

5 Comparison between the measured $\boldsymbol{\sigma_{abs}}$ by PASS-3 and $\boldsymbol{\sigma_{ATN}}$ by AE33

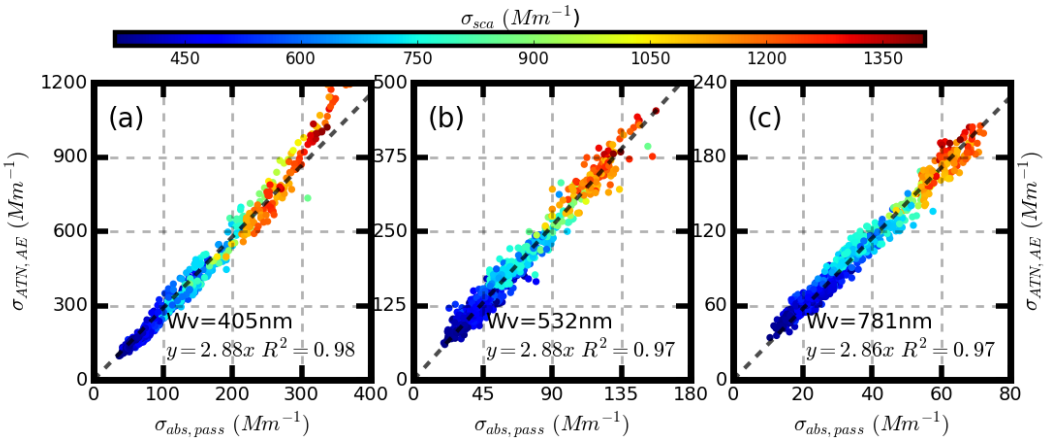

Figure S5. Comparison between the measured $\boldsymbol{\sigma_{abs}}$ by PASS-3 and $\boldsymbol{\sigma_{ATN}}$ by AE33 at (a) 405 nm, (b), 532 nm, and (c) 781 nm for Taizhou site.