# Supplementary material

**Table S1.** Constants $C^*$ and $m_s$ taken from Arnott et al. (2005)

| Wavelength (nm) | $C^*$ | $m_s$ |
|---|---|---|
| 370 | 1.813 | 0.0335 |
| 470 | 2.073 | 0.0457 |
| 520 | 2.076 | 0.0523 |
| 590 | 2.104 | 0.0616 |
| 660 | 2.182 | 0.0713 |
| 880 | 2.226 | 0.1038 |
| 950 | 2.199 | 0.1148 |
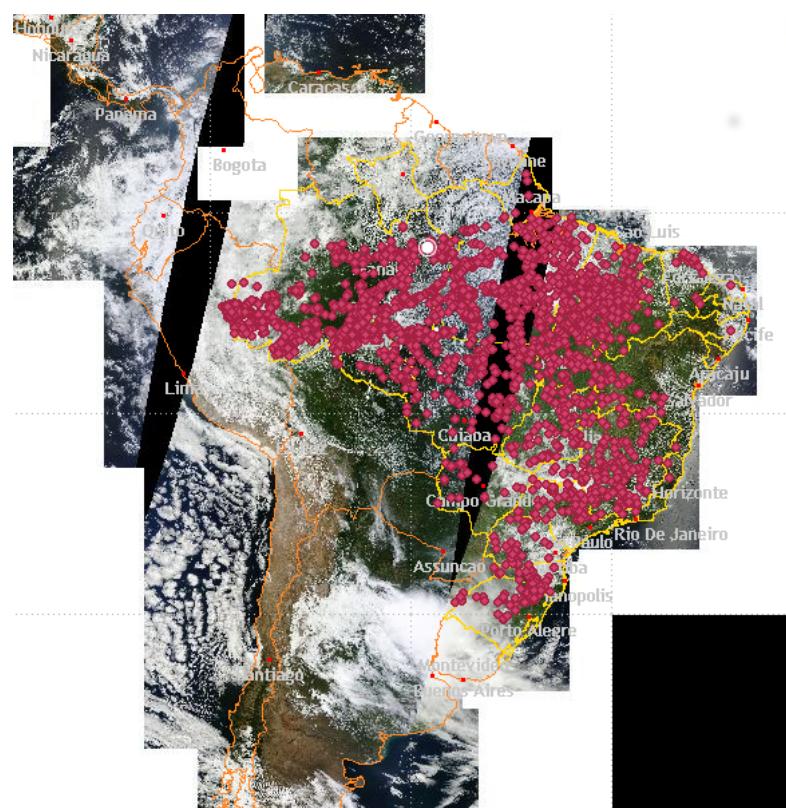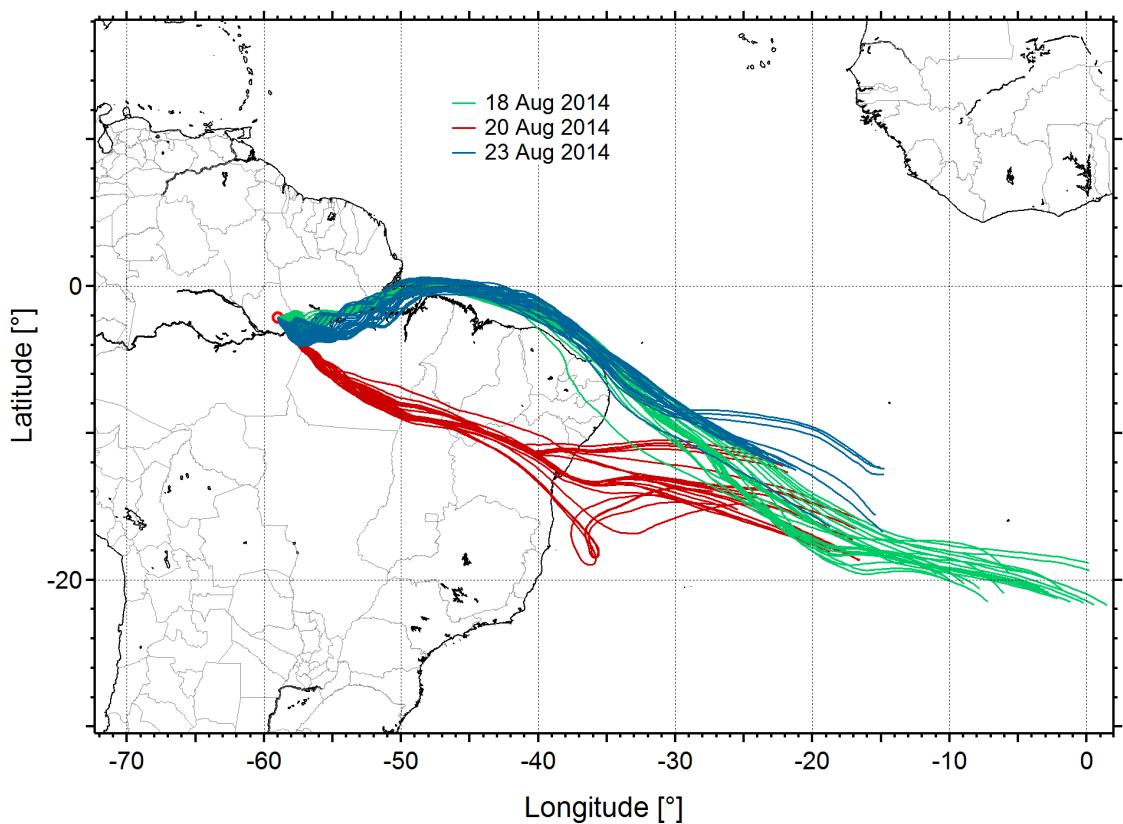
**Figure S1.** HYPSLIT 200-m high 9-days backward trajectories calculated for 18, 20 and 23 August 2014. Fire spots shown in the bottom picture were remotely detected by NOAA-12 between 19 August 2014 00:00:00 and 21 August 2014 23:59:59, ATTO site location is shown as a white circle.

**Filter loading correction**

Comparison between Schmid et al. and Collaud Coen et al.

The ration between attenuation coefficients and the MAAP absorption coefficients (expressed as $C_{ref}$) should not depend on ATN after applying the filter-loading correction. Figure S2 shows $C_{ref}$ as a function of ATN, after applying both filter-loading corrections. The result of both corrections is quite similar and the slopes obtained by orthogonal fits are statistically equivalent. The drop observed in $C_{ref}$ for ATN > 30% in the Schmid correction was also obtained by Collaud Coen et al. (2010) in a sampling site located far from the sources, where the aerosol was characteristically aged and SSA was close to 1.
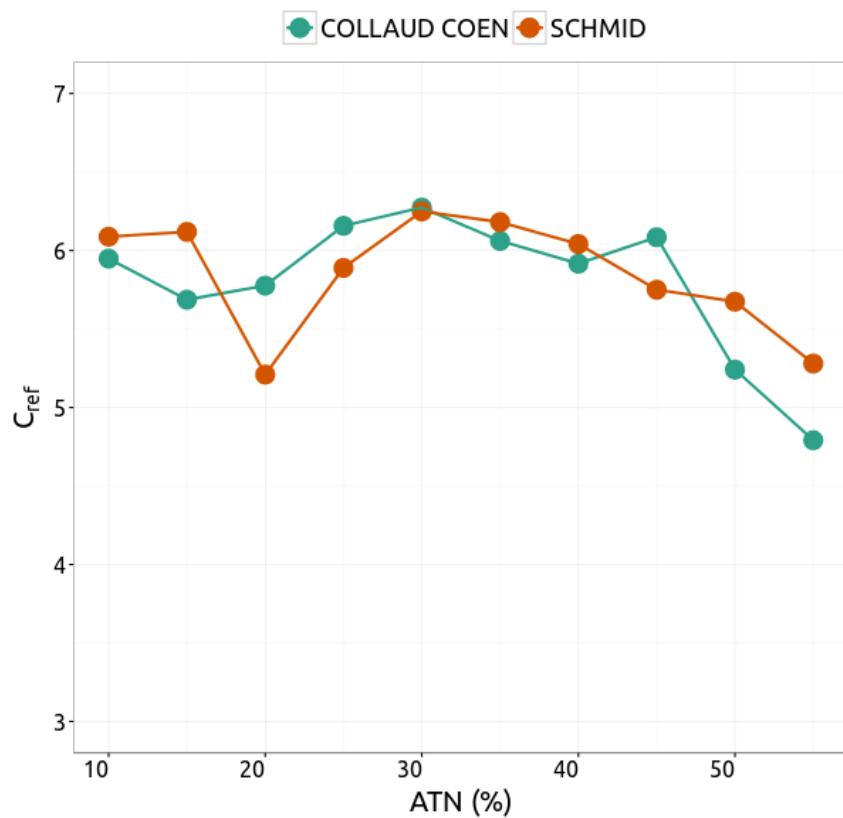


**Figure S2.** $C_{ref}$ obtained by following Schmid and Collaud Coen corrections as a function of 5%-wide attenuation bins.
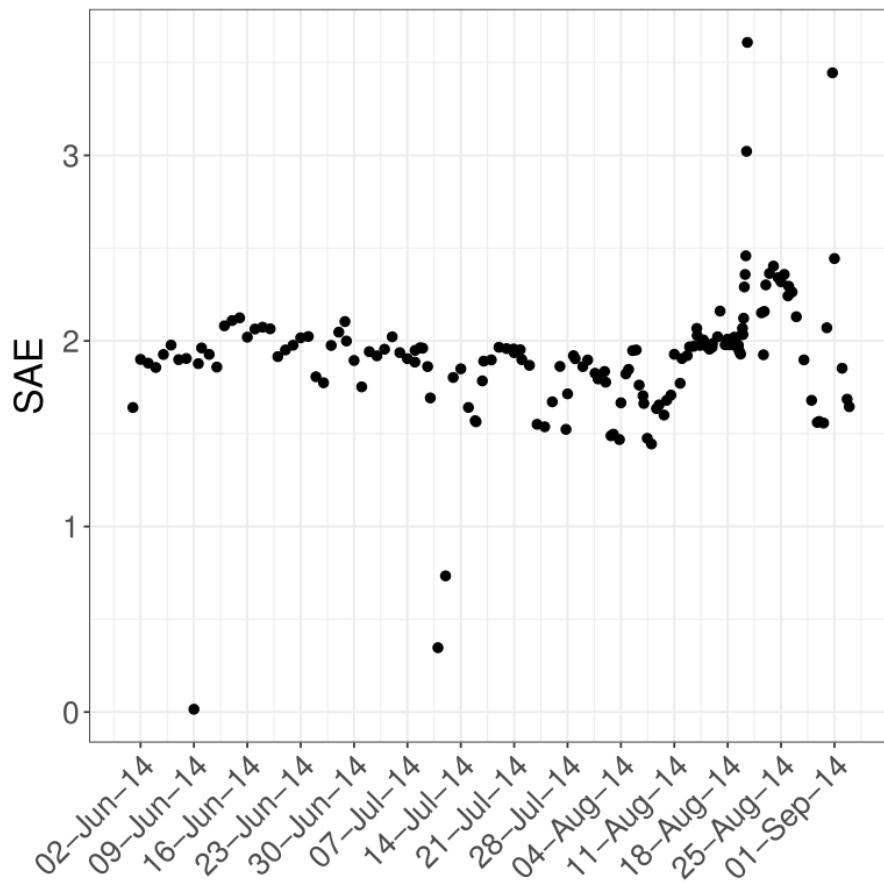
**Figure S3.** Scattering Ångström exponent, $å_{SCA}$, averaged over MAAP filter sampling times.
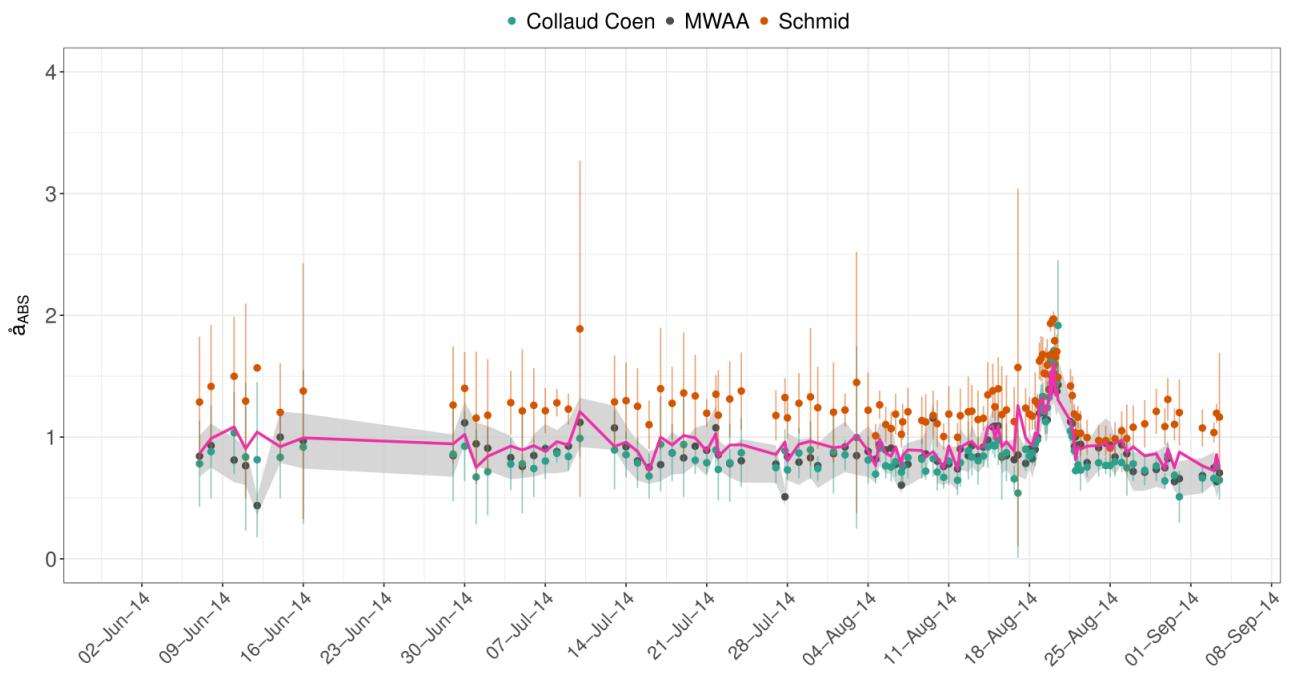
**Figure S4.** Absorption Ångström exponent retrieved from Schmid and Collaud Coen correction algorithms averaged over MWAA sample intervals plotted together with the attenuation Ångström exponent (magenta line).

## Software

We used the statistical software environment R (R Development Core Team, 2009) to process the data presented in this work. When comparing two different datasets, resulting from different instruments or different corrections, we used the package SMATR (Falster et al., 2006; Warton et al., 2012) to apply standardized major axis (SMA) estimations.

The scripts implemented in this work are available under GPLv3 license at:
https://dx.doi.org/10.6084/m9.figshare.c.3501153.v1

## References
Falster, D. S., Warton, D. I. and Wright, I. J.: SMATR: Standardised major axis tests and routines, ver 2.0, 2006.

R Development Core Team: R: A language and environment for statistical computing, [online] Available from: http://www.r-project.org, 2009.

Warton, D. I., Duursma, R. A., Falster, D. S. and Taskinen, S.: smatr 3- an R package for estimation and inference about allometric lines, Methods Ecol. Evol., 3(2), 257–259, doi:10.1111/j.2041-210X.2011.00153.x, 2012.