



Figure 1. Laboratory test of the ability of the conventional nephelometer and the 180° nephelometer to measure the extinction-to-backscatter ratio, S , for conservatively scattering latex spheres of known size and refractive index ($1.59 - 0i$). Uncertainty bars are based on $\pm 7\%$ uncertainty for both scattering measurements and $\pm 2\%$ uncertainty for particle size. Mie calculations (continuous red line) use nearly monodisperse, lognormal size distributions with a geometric standard deviation of 1.03, consistent with the manufacturer's stated breadth of particle sizes.

Figure 2. Correlation plots of S versus potential controlling factors. Bondville data are shown for the two dominant air mass categories only: Long NW (open circles) and Stagnant (filled triangles). (a) S vs RH. Continuous green line is the Continental model from Ackermann [1998]. (b) S vs. σ_{ep} . Colored points are from an experiment on the Washington coast, separated into marine samples (green squares) and continental samples (red triangles). (c) S vs \AA . Colored points as in (b).