Posting type  Advisory, updated to cover calibrated HIPS data (2015)
Subject  Bias between masked and unmasked light absorption measurements
Module/Species  A/ Fabs
Sites  Entire network
Period  Before 2008
Recommendation  Recognize the effect of mask removal on reported absorption.
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Supporting information

Masks were historically used at many sites to reduce the nominal collection area of A-module filters from 3.53 cm$^2$ to 2.20 cm$^2$. As recently as 2003, masks were employed at approximately half of all sites; by the end of 2007, all masks had been removed.

IMPROVE’s Hybrid Integrating Plate/Sphere (HIPS) is designed to measure the absorption thickness of a Teflon filter sample. HIPS data back to 2003 were redelivered in 2015 with an improved calibration that provides more accurate absorption values. An earlier version of this advisory covered the uncalibrated light absorption parameters now renamed fAbs_HIPS and fAbs_LIPM, and demonstrated an inequivalence between measurements on masked and unmasked samples. A comparable inequivalence remains in the newly calibrated data, as shown below.

**Figure.** Measured Fabs/EC ratios at 55 sites that were converted from masked to unmasked operation around the beginning of 2004. The 55-site medians, arithmetic means, and geometric means are shown for each of the 10 sampling days immediately preceding and following conversion at each site.