



Performance & evaluation criteria for calibration workshops & ACTRIS compatibility

ACTRIS aerosol in-situ variable: Particle absorption coefficient

Responsible CAIS-ECAC units: WCCAP

Instrument type: Absorption Photometer (AP)

Technical checks & calibration:

- determination of the AP status values
- performing flow check
- performing spot check; spot size is not measured
- performing zero check
- comparison to the reference AP and optical reference using BC from CAST and colloidal graphite
 - at least two(better three) tape advance must take place so that the measured values can be used
 - measuring a time series for at least 2 hours for a stable aerosol concentration with approx. 200 Mm^{-1}

Criteria for evaluation:

- deviation of flow rate from default value < 10%
- filter spot: the contour must be sharp and no shadow effects must be visible
- zero check: standard deviation (1σ) < 0.5 Mm^{-1} with 1min sampling rate for one hour
- comparison to the same type of instrument: deviation < 10%
- comparison to the optical reference method (extinction minus scattering): deviation < 30%

Information for the user:

- regular zero checks, stability checks, flow checks
- cleaning of the measurement block

Literature:

- Müller, T., et al. (2011). "Characterization and Intercomparison of Aerosol Absorption Photometers: Result of two Intercomparison Workshops." AMT 4: 245–268.