



STANBC : Standardisation of Black Carbon aerosol metrics for air quality and climate modelling

European Aerosol Conference, EAC2023
3-8 September 2023,
Malaga, Spain.

Konstantinos Eleftheriadis, Maria I. Gini, Stergios Vratolis, National Centre for Scientific Research "Demokritos", Greece; Konstantina Vasilatou, Federal Institute of Metrology METAS, Switzerland; Andreas Nowak, Jorge Saturno, Physikalisch-Technische Bundesanstalt, Germany; Eija Asmi, Finnish Meteorological Institute, Finland; Andrew Brown, Krzysztof Ciupek, National Physical Laboratory, UK; Thomas Müller, Leibniz Institut für Troposphärenforschung, Germany; Griša Močnik, Institut Jožef Stefan, Slovenia; Luka Drinovec, Haze Instruments, Slovenia; Ernest Weingartner, Alejandro Keller, University of Applied Sciences FHNW, Switzerland; Joel Corbin, Greg Smallwood, National Research Council, Canada; Francois Gaie-Levrel, Alexandre Bescond, Laboratoire national de métrologie et d'essais, France



The need :

1. **Black carbon (BC)** contribute to the global warning
2. In 2019, about **300 000 premature deaths** in the EU were attributed to fine particulate matter in ambient air. BC-containing particles from combustion sources are carcinogenic.
3. The **lack of standard methodology** for BC have not allowed incorporating it into the **Air Quality legislation**

Question:
How to establish new standards for the determination of aerosol light absorption and Black Carbon mass concentration (BC) ?

$$BC (g/m^3) = \frac{b (m^{-1})}{MAC (m^2/g)}$$

Aerosol light absorption coefficient (*b*)
Mass absorption cross section (*MAC*)

Scientific objectives to address this question:

1. **WP1** : To standardise and calibrate in situ reference methods for aerosol light absorption coefficient
2. **WP2** : To standardise methods for the measurement of mass absorption cross-section (*MAC*)
3. **WP3** : To standardise methods for calibrating filter-based photometers against the reference methods
4. **WP4** : To develop a new CEN standard which describes traceable methods WP1-WP3
5. **WP5** : To facilitate the uptake of the technology and measurement methodologies developed in the project

