Project Update: Overview

Over the past few months, the stanBC project has consolidated the findings of two measurement campaigns. The first campaign aimed to compare primary reference methods for measuring light absorption, while the second campaign aimed to transfer the calibration of these primary methods to filter-based absorption photometers under different aerosol mixing conditions. The methods and protocols developed in the project are essential for establishing different standards for measuring aerosol light absorption in the future.

One of the project's main challenges has been achieving a combined measurement uncertainty of less than 10% for absorption coefficient measurements. We have already achieved this for a wavelength of 405 nm using a NO_2 calibration. However, aerosol calibrations at longer wavelengths still have an uncertainty of over 10% (k = 2). Future developments will help push this limit below 10%. Additionally, calibrating field absorption photometers remains challenging. Several approaches have been suggested, such as using a transfer standard or taking the field instruments to an NMI laboratory for intercomparison with the primary method.

The stanBC consortium is actively involved in standardization activities within CEN TC 264. The consortium has presented the project outcomes to both the technical committee and WG 35. It has also proposed the creation of a new working group to develop the various standards required for black carbon measurement, as set out in the new European Air Quality Guidelines.

BC Symposium @ EAC 2025

As part of the European Aerosol Conference 2025, we are organizing a symposium on black carbon (BC), which will take place on Wednesday 3 September 2025 at 16:30 CEST. The symposium will consist of one-hour panel discussion on various topics related to BC measurements, including:
i) the traceability of light absorption measurement,
ii) BC mass absorption cross-section,
iii) the comparison of absorption filter-based measurement and in-situ techniques.

The symposium will be in person at the EAC venue.

The 2025 European Aerosol Conference (EAC 2025) will be held in the city of LECCE (Italy), during the period of 31 August – 5 September 2025 under the auspices of the European Aerosol Assembly (EAA).

Communication, Dissemination and Networking highlights

At EAC2025, the consortium will share the project's key findings through either an oral or poster presentation.

TH2-3 - WG3: Optical aerosol measurement techniques 873, The roadmap to a European standard for aerosol light absorption. **J. Saturno**, E. Asmi, J. Backman, K. Ciupek, J. Corbin, L. Drinovec, K. Eleftheriadis, M. Gini, T. Hammer, A. Keller, G. Močnik, T. Müller, A. Nowak, A. B. Suja, K. Vasilatou, E. Weingartner.

ID: 1018 / PO2: 147 Field intercomparison of absorption measurements at the suburban Demokritos station in Athens. **Maria Gini**, Konstantinos Granakis, Stergios Vratolis, Evaggelia Diapouli, Luka Drinovec, Jesús Yus-Díez, Grisa Močnik, Tobias Hammer, Thomas Müller, Robin Lewis Modini, Jorge Saturno, Konstantina Vasilatou, Konstantinos Eleftheriadis.

ID: 909 / PO2: 171 Challenges in interpreting black carbon data from national air quality monitoring in the UK. **Krzysztof Ciupek**, David Butterfield, Gyanesh Singh, David C. Green, Anja H. Tremper, Max Priestman, Eija Asmi, Griša Močnik, Konstantina Vasilatou, Tobias Hammer, Thomas Müller, Joel Corbin, Alejandro Keller, Konstantinos Eleftheriadis, Jorge Saturno.

ID: 827 / PO3: 42 Investigation of coating thickness and black carbon mass absorption cross-section variation during winter campaign in Ljubljana (Slovenia). **Luka Drinovec**, Jesus Yus-Diez, Petra Makorič, Martin Rigler, John Backman, Griša Močnik.

ID: 1007 / PO3: 7 Review of the mass absorption cross-section literature for mixed atmospheric black carbon. **Eija Asmi**, Joel Corbin, John Backman, Konstantina Vasilatou, Ernest Weingartner, Krzysztof Ciupek, Thomas Müller, Arun Babu Suja, Griša Močnik, Luka Drinovec, Kostas Eleftheriadis, Jorge Saturno.

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CONTACT DETAILS

Dr. Jorge Saturno
Physikalisch-Technische
Bundesanstalt
Bundesallee 100
38116 Braunschweig
Germany
Phone: +49 531 592 3217
E-mail: Jorge.Saturno@ptb.de

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