

General overview of the OrGanic Tracers and Aerosol Constituents - Calibration Centre (OGTAC-CC)

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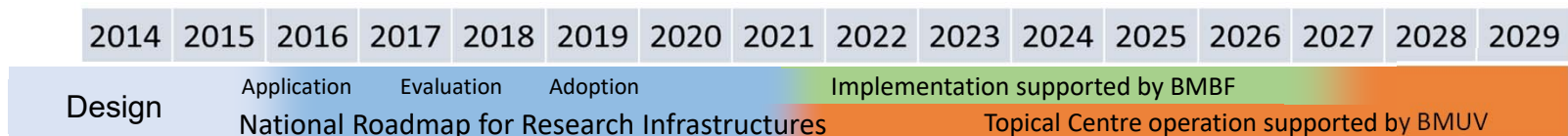
*2nd OGTAC-CC community meeting within the framework of the
CAIS-ECAC CF 04/2026*



- 1) Introduction ACTRIS-D
- 2) ACTRIS @TROPOS and ACTRIS @Atmospheric Chemistry Department (ACD)
- 3) Organic Tracers and Aerosol Constituents – Calibration Centre (OGTAC-CC) @ACTRIS
 - Training of operators and scientists
 - *Calibration centre activities*
 - Trans national access (TNA)

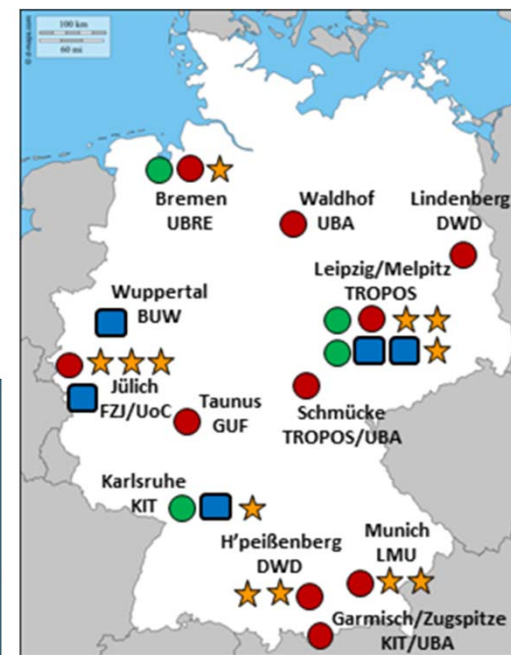
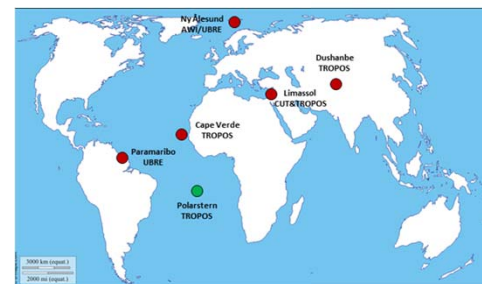


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- ACTRIS-D started in 2021 with 11 German partner institutions, led by TROPOS
- Implementation phase 1 2021-2026 is supported with 75 Mio. Euro by the BMFTR (Federal Ministry of Research, Technology and Space)
- 27 NFs and 12 TCs in total

- 15 Observational platforms
 - 5 Atmospheric simulation chambers
 - 7 Mobile platforms
- } Exploratory platforms



- Observational Platforms (National Facilities)
- Mobile Platforms (National Facilities)
- Atmospheric Simulation Chambers (National Facilities)
- ★ Topical Centres – German Units
- + Contributing networks (GAW, PollyNET, GUAN) (Central Facilities)

- Operation supported by the BMUKN (Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety) since the **European Research Infrastructure Consortium (ERIC)** was established in March 2023



TROPOS facilities

Topic Centre Units

World Calibration Center for Aerosol Physics (WCCAP)

OrGanic Tracers and Aerosol Constituents - Calibration Centre (OGTAC-CC)

Centre for Cloud Water Chemistry (CCWaC)

Observational Platforms

Melpitz Research Station

PollyNET

German Ultrafine Aerosol Network (GUAN)

Cape Verde Atmospheric Observatory (CVAO)

Schmücke Cloud Observatory (SCO)

Exploratory Platforms

Atmospheric Chemistry Department Chamber (ACD-C)

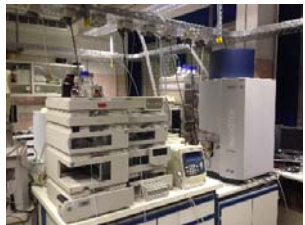
Turbulent Leipzig Aerosol Cloud Interaction Simulator (LACIS-T)

Leipzig Aerosol and Cloud Remote Observations System (LACROS)

Mobile shipborne facility (OCEANET)

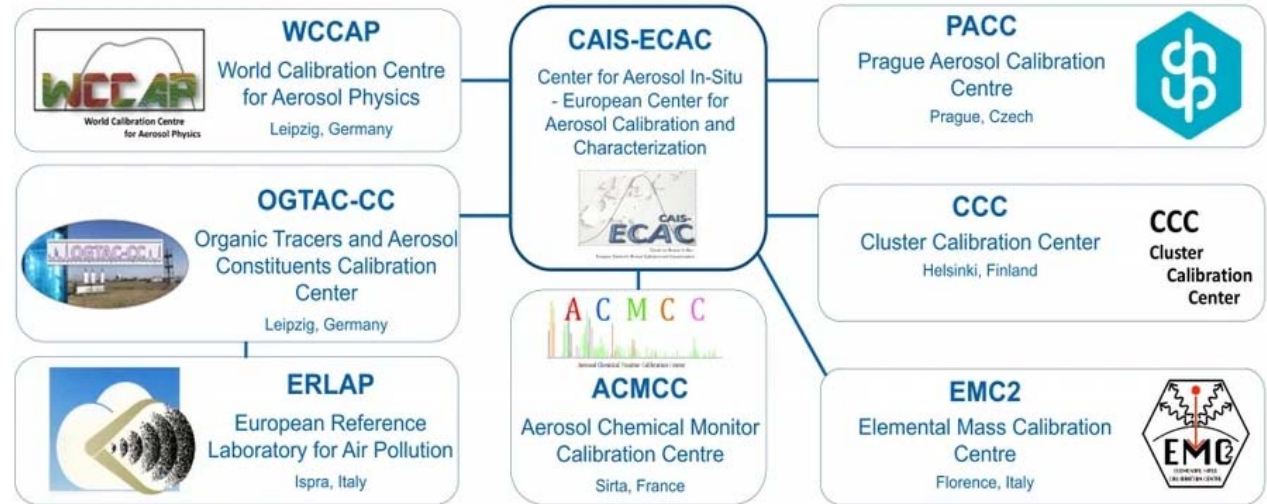
Mobile shipborne facility on Polarstern-2 (OCEANET-2)

Aerosol from ground to Cloud Mobile Experiment (ACME)



General overview

- Within ACTRIS OGTAC-CC became an Aerosol in situ TC unit as one partner of the Center for Aerosol In Situ-European Center for Aerosol Calibration and Characterization (CAIS-ECAC)
- TC parameter: Mass concentration of particulate organic tracer compounds



CAIS-ECAC is a consortium, consisting of seven facilities. The WCCAP (World Calibration Center for Aerosol Physics), PACC (Prague Aerosol Calibration Center), and CCC (Cluster Calibration Center) are responsible for aerosol microphysical and optical aerosol variables. The OCTAC-CC (Organic Tracer and Aerosol Constituents - Calibration Center), ERLAP (European Reference Laboratory for Air Pollution), the ACMCC (Aerosol Chemical Monitor Calibration Center) and EMC2 (Element Mass Calibration Center) are in charge of the chemical & elemental aerosol variables.

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<https://www.actris-ecac.eu/>



ACTRIS Standard Procedures for In-Situ Aerosol Sampling, Measurements, and Analyses at ACTRIS Observatories

ACTRIS-ERIC Version 1.0; January, 2024
Center for Aerosol In-Situ Measurement
European Center for Aerosol Calibration and Characterization (CAIS-ECAC).

ACTRIS aerosol in-situ variables

Five out of the 12 ACTRIS aerosol in-situ variables are obligatory for NFs (observatories). The number of obligatory variables for exploratory and mobile platforms may differ and is explained elsewhere.

Obligatory ACTRIS aerosol in-situ variables for observatories:

- Particle number concentration $D_{p50} = 10$ nm (EN-16976)
- Particle number size distribution – mobility diameter 10 to 800 nm (CEN/TS-17434) ¹⁾
- Particle light scattering & backscattering coefficient - multi-wavelength ²⁾
- Particle light absorption coefficient and/or equivalent black carbon concentration ²⁾
- At least one additional variable from the list below, preferably a variable on particle chemical or elemental composition, considering the scientific program of the NF.

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Center for Aerosol In-Situ Measurement

European Center for Aerosol Calibration and Characterization (CAIS-ECAC).

OGTAC-CC @TROPOS

subcontracting

European Reference Laboratory
for Air Pollution – ERLAP, Italy

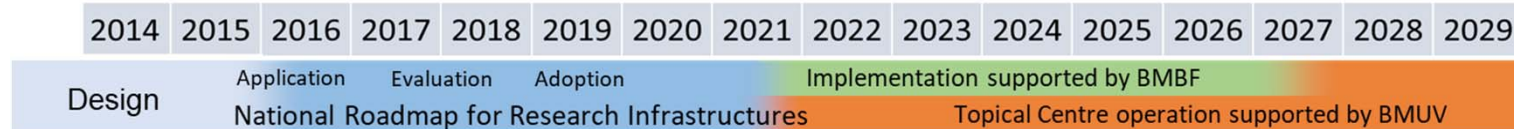
Dr. Fabrizia Cavalli
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Other ACTRIS aerosol in-situ variables:

- Nano-particle number concentration ($D_{P50} < 10 \text{ nm}$)
- Nano-particle number size distribution $< 10 \text{ nm}$
- Particle number size distribution - aerodynamic diameter $0.8 \text{ to } 10 \mu\text{m}$ ³⁾
- Cloud condensation nuclei number concentration
- Mass concentration of particulate organic tracers / unit: (ng m^{-3})
- Mass concentration of particulate organic and elemental carbon ⁴⁾
- Mass concentration of non-refractory particulate organics and inorganics within PM1 fraction ^{5,6)}
- Mass concentration of particulate elements ²⁾

Overview OGTAC-CC main activities



2 main activities:

1) Training of operators and scientists – operational activity

2) Calibration Centre Activities – task chain

a) implementation → b) operation

+ Trans National Access (TNA),
new project ATMO-SERV starts
this summer until 2030!

The logo for TROPOS, consisting of the word 'TROPOS' in bold, black, uppercase letters inside a blue rectangular box with a white border.

Hands-on training workshops @TROPOS ACD, Leipzig (Germany)

1) Training of operators and scientists

Course is free of charge



Topic: Theory and practice - Offline chromatographic determination of organic tracer compounds and organic and elemental carbon (OC/EC) measurements in particulate matter collected on filters

Upcoming training

The course will be held for 5 days from **Monday 18th to Friday 22nd of May 2026** at TROPOS ACD in Leipzig.

Next course in November 2026!

Pre-registration welcome

Subscription via email to ogtac-cc@tropos.de



Training on sample collection (chamber and field), filter extraction, analysis and quantification



Training at state-of-the-art analytical instrumentation



Lectures in atmospheric particle related chemical analysis

The operators of future NFs planning to measure particulate organics from filters should consider the participation at the training course as a part of their QA/QC measures.

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2) Calibration Centre Activities – task chain

- List of **target compounds**, e.g., biomass burning or on secondary organic aerosol constituents of biogenic and anthropogenic origin
- Set up **technical requirements**, for all steps from sampling to the quantitative result, set Data Quality Objectives (DQO)
- Development of **measurement guidelines** based on the technical requirements and **Interlaboratory Comparisons** (ILCs)
- Standard Operating Procedure (SOP) templates needs to be finalized by each NF individually together with the calibration centre
- **NF individual SOP** will finally need approval by the calibration centre
- Define **QA/QC** procedures, e.g., performance test by ILCs
- Develop workflow for offline **data submission**

→ All in close collaboration with the NFs!!!



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2nd OGTAC-CC community meeting 2026 (online) – Agenda Tuesday April 28	
13:00 - 13:10	Welcome
13:10 - 13:30	General overview / status of OGTAC-CC
13:30 - 14:00	Current status of the Technical Requirements documentation
14:00 - 14:15	Current status of the measurement guidelines documentation
14:15 - 14:30	Instrument data base, offline data workflow, labelling status
14:30 - 14:45	Coffee break
14:45 - 15:00	Review 1 st ILC on BB tracer compounds (<i>modules 1+2</i>)
15:00 - 15:15	Presentation of the latest ILC on SOA tracer compounds (<i>modules 4-6</i>)
15:15 - 15:45	Information about the next ILCs
	a) Biennial ILC on <i>modules 1+2</i> autumn 2026
	b) 1 st ILC on PAHs (<i>module 7</i>) spring 2027
15:45 – 16:00	Open discussion