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France



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This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 654109 and 739530

Lead



Compound Cluster Leads



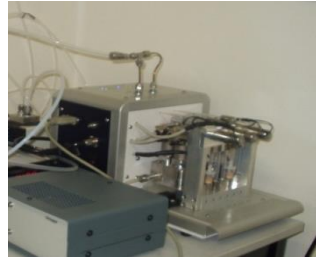
Units



Activities



Implementation Status



Available:

- PTR-QiToF-MS Ionicon
- PTR-ToF-MS KORE
- DNP samplers/HPLC-UV
- TD-GC FID/FID; TD-GC-FID/MS (online & offline/tubes, canisters)
- Aerodyne TILDAS formaldehyde analyzer in 2023
- NOx analyzers, ozone analyzer and generator
- Liquid Calibration Unit; Gas Calibration Unit
- Permeation system
- Target gas cylinder filling system
- Multi-gas generation systems & intercomparison platform

Upcoming:

- NH₃ analyzer 2023
- Humidity generator
- VOCUS 2024-2025

+ Certified laboratory standards (NPL, NIST, upcoming VSL)

- **Activity 1** (e.g. Management and coordination)
 - *RI Comm meeting (deputy leader)*
 - *CF leader meeting (deputy leader)*
 - *Participation to regular management meetings*
- **Activity 2** (e.g. Links with associated communities)
 - Standards Committee CEN WG13: „Ambient air - Ozone precursors and benzene”
 - Participation to the WG7 “ozone precursors” of AQUILA – contributing to the update of the Air Quality Directive
 - NMIs: EMPIR Project Metrology for climate relevant volatile organic compounds (MetClimVOC)
 - EMEP – TFMM; VOC expert group of WMO/GAW; TOP WG of TOARII; ASCC
 - Co-coordination of ACTRIS France WG6 – reactive trace gases
 - Conferences (CIM, gas analysis, etc.), building relations with the private sector

- **Activity 3** (e.g. Training and consultancy): Consultation in OVOCs, NMHCs, NO_x measurements
 - Participation/organization to the annual ACTRIS NO_x/VOC QA Workshop
 - ACTRIS training school May 2021 - 2022: course on trace gases
 - Training given within EURAMET/EMPIR MetClimVOC project
 - Virtual training of French NF on the measurement of NO_x and calibration in 2022
 - Practical training of French NO_x analyzers users on the measurement of NO_x and calibration (30/01-01/02/2023) – ACTRIS France funded project
- **Activity 4** (e.g. Measurement and data procedures and tools)
 - Contribution to NMHC measurement guideline for WMO-GAW published in 2023
 - Measurement guidelines update for PTR-MS and publication in 2023

Measurement Guidelines for PTRMS: Standardised operating procedures for measurement, data evaluation, QA/QC

2023
Circulated within PTRMS users community before publication in 2023



2019

Deliverable WP3/D3.20
Version 30 April 2019

WP3/NA3: Near-surface observations of aerosols, clouds and trace gases

Deliverable D3.20: Measurement Guideline for VOC Analysis by PTR-MS

Summary: This SOP provides information that enables proper operation of PTR-MS in the field and addresses quality assurance parameters needed to produce high-quality data sets that meet the ACTRIS-2 standard.

This report is still in a preliminary stage that needs to be endorsed by the scientific PTR-MS community. An updated version amended by feedbacks from the whole community will be submitted soon.

The SOP contains the following topics

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Measurement Guideline for VOC Analysis by PTR-MS

Authors: S. Dusanter, R. Holzinger, F. Klein, T. Salameh, M. Jamar

Reviewers: ...

Summary: This SOP provides information that enables proper operation of PTR-MS in the field and addresses quality assurance parameters needed to produce high-quality data sets that meet the ACTRIS standard.

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4. Field operation	12
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- **Activity 5** (e.g. Measurement and data quality monitoring)

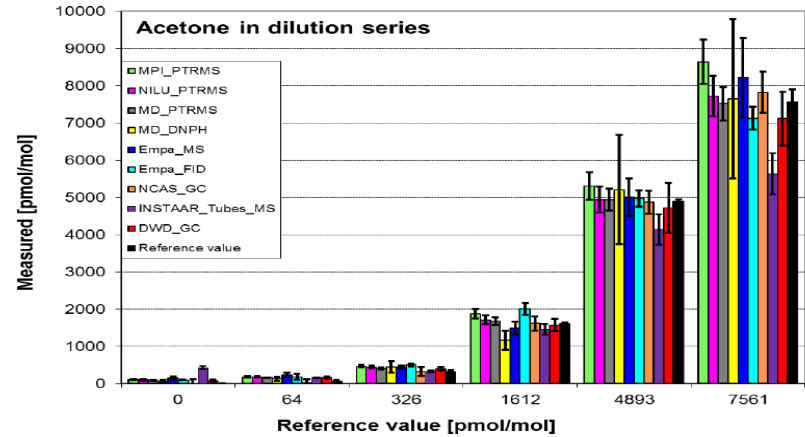
- Preparation of target gases, checking working standards for HCNM, OVOC by PTRMS and GC
- Organizing s-b-s intercomparisons: formaldehyde intercomparison June 2022, NO_x intercomparison at Pic du Midi – France in 2019 - 2020
- Round-robin cylinders organization: PTRMS NPL cylinder during ACROSS campaign (7 participants)
- Development and evaluation of calibration strategies: Test of a permeation system for NH₃, HCHO, SO₂
- NO target gas cylinder filling system, stability test
- Support to NF for data submission



Measurement performance monitoring : side-by-side intercomparisons & round-robin

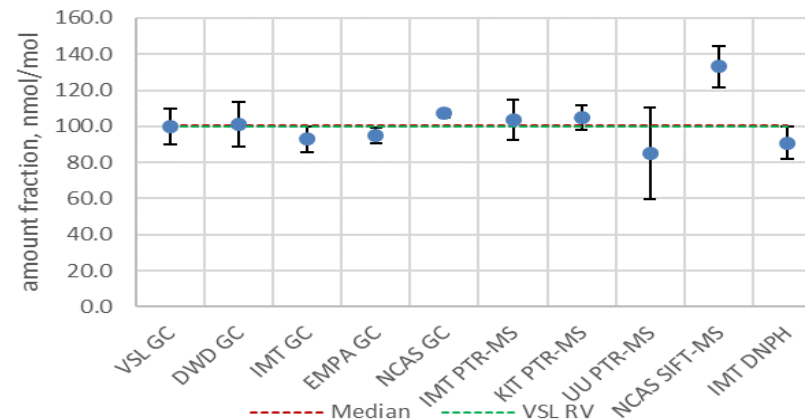
s-b-s OVOCS, ACTRIS (2013-2018) at HpB/DWD:
on-line GC-FID/MS; PTR-ToFMS; off-line DNPH/HPLC-UV

Acetone



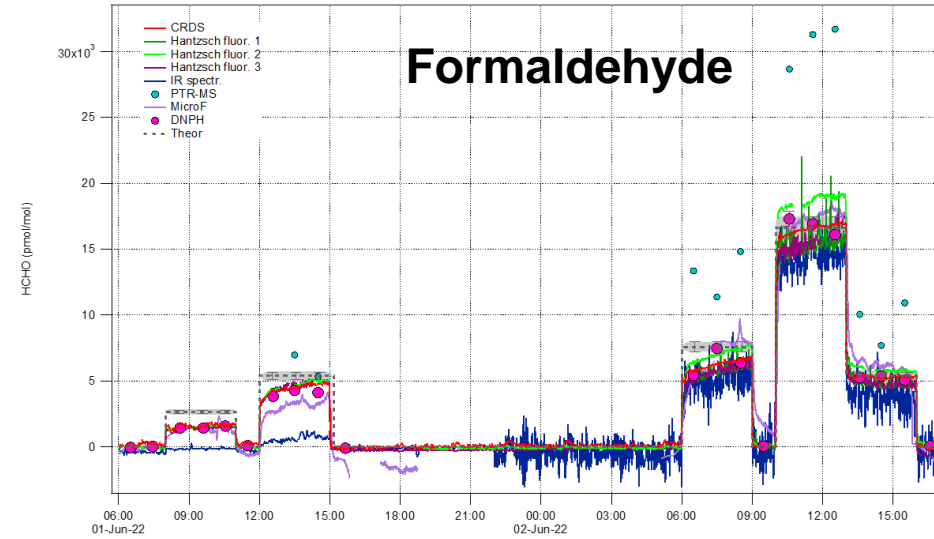
Interlaboratory comparison using a novel Oxygenated VOC reference Standard from VSL (courtesy A-R. Baldan)

Acetaldehyde

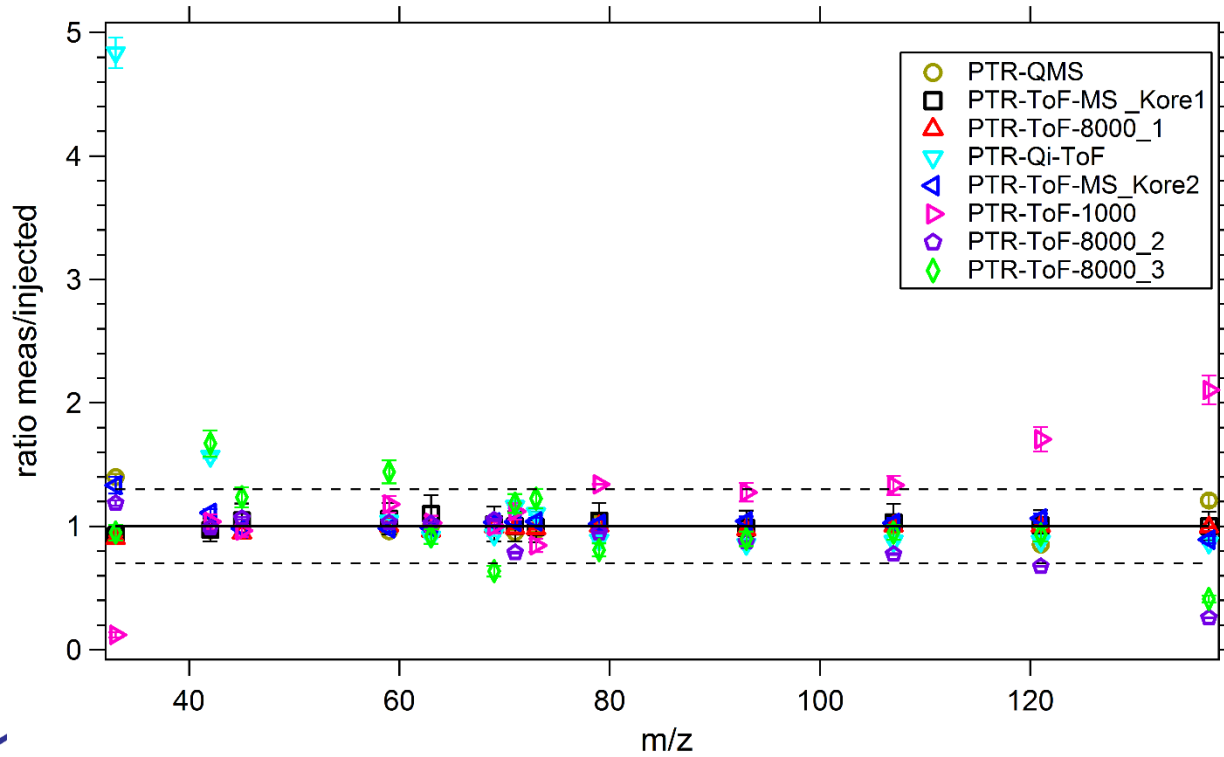


01 & 02-June-2022

Formaldehyde



Measurement performance monitoring : PTRMS side-by-side intercomparison at Helios Chamber – France 2019



- Overall good agreement for most compounds (measurement within 30% of injected values) (Courtesy of V. Michoud)



- **Activity 6** (e.g. NF labelling and evaluation): contribution to the concept of the labelling requirements and evaluation of the pilot NF with all CiGas units
- **Activity 7** (e.g. New scientific and technological developments)
 - Development of Atmobox (GHG and air quality sensors) in the framework of OBS4CLIM project
 - Test of NOx monitor N500 in controlled conditions and on site (Revin-EMEP site)
 - Development and evaluation of calibration strategies for VOC, NOx, and new variables (NH₃) and newly developed calibration standards (terpenes from NIST, PTRMS from NPL)

ACTRIS related projects

- ✓ **EQUIPEX+/Obs4CLIM** (2021-2027): new variables, innovative approach
- ✓ **ANR ACROSS – AO** (2021-2024) **MOPGA** : canisters campaign onboard of an aircraft July 2022
- ✓ **AO ACTRIS-Fr SOERE/CNRS (for equipments and training)**: 2018, 2019, 2020, 2021, 2022, 2023
- ✓ **EURAMET/EMPIR MetClimVOC** (2020-2023)
- ✓ **INFRA/ ACTRIS IMP** (2019-2023) – TNA ACTRIS IMP (Carbon balance campaign: August/September at Jungfrauoch – Switzerland)
- ✓ **INFRA/ ATMO ACCESS** (2021-2024) : Virtual ACCESS, MOOC/Video/Serious game on Observing system
- ✓ **Green Deal RI-URBANS**
- ✓ **EIMEP campaign**: June/July 2022
- ✓ **CAMS21a-2nd phase (COPERNICUS)** (2022-2026): NRT for reactive trace gases data provision

The logo features the word "ACTRIS" in a light teal, sans-serif font. The letter "C" is stylized with a white circle inside. Below "ACTRIS" is the word "CiGas" in a dark blue, sans-serif font. A thick, dark blue arc curves over the text. A thin, dark blue vertical line extends from the top of the arc down to the center of the "C". Above the arc, three light teal circles of varying sizes are arranged in a diagonal line from bottom-left to top-right.

ACTRIS
CiGas

