



ACTRIS

Exploring the Atmosphere

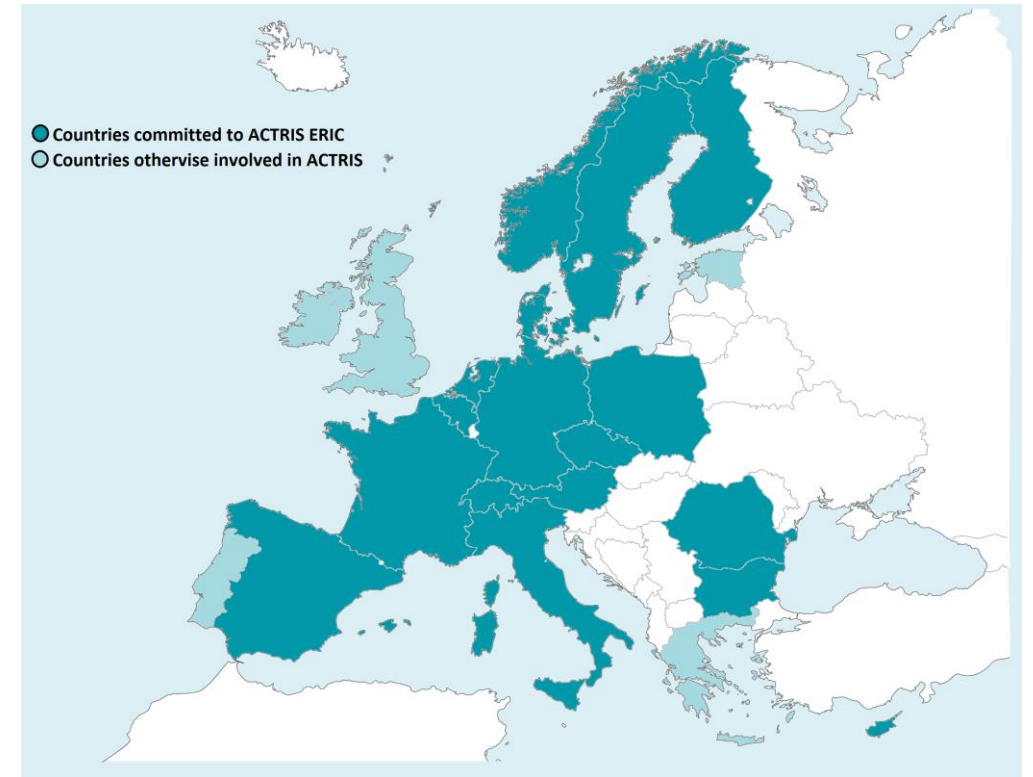
ACTRIS feedbacks on AQ- directive draft

Paolo Laj

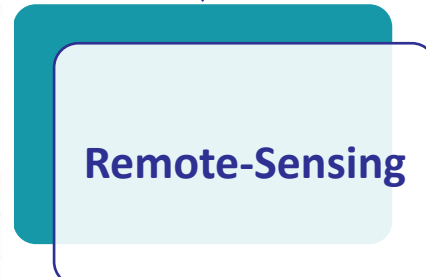
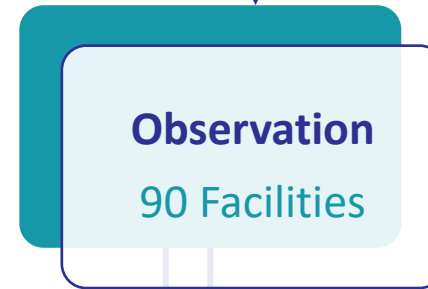
ACTRIS Science Chair

ACTRIS-ERIC

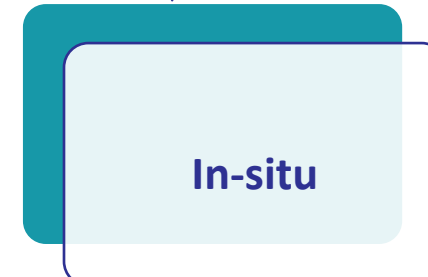
- Since 25 April, 2023, A legal entity with seat in Helsinki and funded by 17 (+2) European countries : ACTRIS-ERIC
- ACTRIS membership contributes to jointly operating 1) the Head Office, 2) 6 Topical Centers and, 3) the Data Centre
- ACTRIS facilities receive support from National Stakeholders for investment and operations
- Fully operational in 2026. Harmonized policy framework (access, data, funding, SOPs)

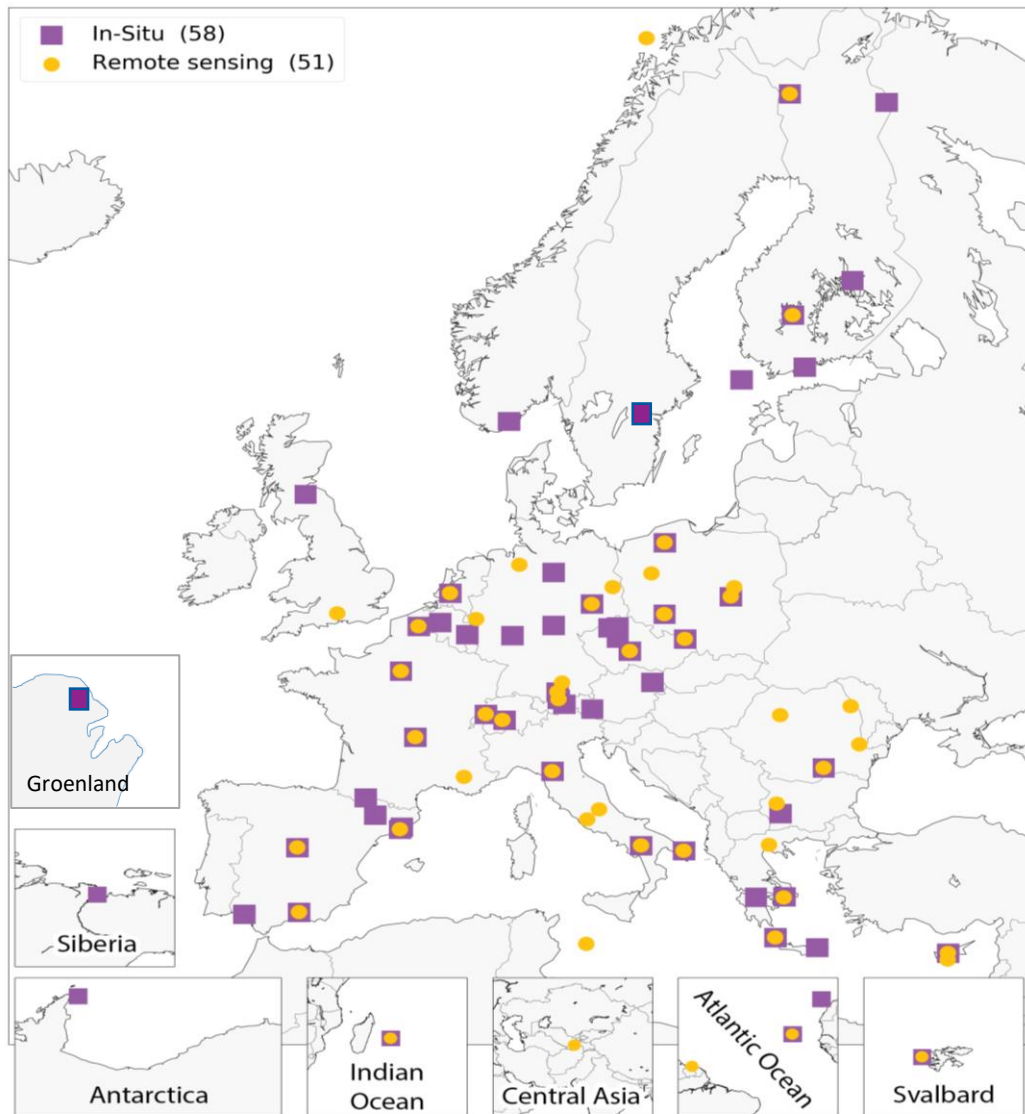


ACTRIS member and observer countries in 2023

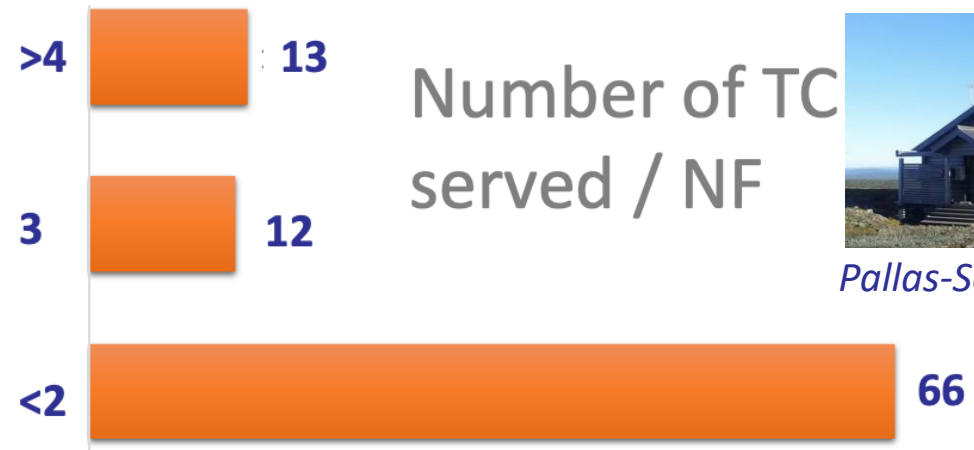


AEROSOL
CLOUDS
TRACE GASES





A « supersite » approach



Pallas-Sodankyla: 5 TCs

- 90 facilities operational (some of them also EMEP and/or GAW)
- Approx. 20 located in urban/peri-urban areas



- **Most-suited operating principles** (standards potentially defined with Metrology Institutes and discussed/ adopted by wider scale: GAW, EMEP, ...)
- Countries committing for operations at NF, DC and TCs **in the long-term**
- Distribution of data through **FAIR environment**, compliant to RI and international standards and delivering to Copernicus Atmosphere Service
- Not only provision of data but also of relevant **products**

ACTRIS Variables : full control of the value chain



| | | | |
|---|------------------------------------|---|-----------------------|
| <ul style="list-style-type: none"> • Particle size (Spectrometers) • Aerosol composition (mass Spectrometers) • Optical properties Integrating Nephelometers • Absorption coefficient (Photometers) • Condensation Particle Counters | AEROSOL 12 variables | CAIS-ECAC Aerosol In situ measurements | IN SITU |
| <ul style="list-style-type: none"> • Droplet properties (Cloud Probes) • Ice Nucleating Particles (flow chambers) • Cloud chemical composition • Effective radius (PVMs) | CLOUDS 11 variables | CIS Cloud In situ measurements | |
| <ul style="list-style-type: none"> • Volatile Organic Carbon (GC-MS, PTR-MS) • NO_x (Chemiluminescence) • Condensable Vapours (CIMS) | TRACE GASES 6 variables | CiGas Reactive Trace Gases In situ measurements | |
| <ul style="list-style-type: none"> • Aerosol vertical profile (High Power aerosol Lidars) • BL Height (Automatic Lidars) • AOD (Automatic sun/sky/lunar Photometers) | AEROSOL 16 variables | CARS Aerosol Remote Sensing | REMOTE SENSING |
| <ul style="list-style-type: none"> • Hydrometeor properties (Cloud Radars) • Doppler cloud Radar • Water Vapour profiles (Microwave Radiometers) • Automatic low-power Lidars and Ceilometers | CLOUDS 10 variables | CCRES Cloud Remote Sensing | |
| <ul style="list-style-type: none"> • Ozone profile (Ozone DIAL) • Integrated SO₂, HCHO columns (FTIR) • Integrated RG columns (UVVIS absorption) | TRACE GASES 10 variables | CREGARS Reactive Trace Gases Remote Sensing | |

- **>150 Variables delivered (incl. VOC species)**
- **5 GCOS ECVs (28 ECV products)**
 - ECV Upper-air Water Vapour (3)
 - ECV Cloud Properties (7)
 - ECV Ozone (6)
 - ECV Precursors (5)
 - ECV Aerosol Properties (7)

ACTRIS and the proposed new AQ variables

Aerosol properties (in-situ)

- Ultra-Fine Particles (UFP), Particle Number Size Distribution (PNSD)
- Black Carbon (BC)
- Speciation of Particulate Matter (PM)

Volatile Organic Compounds

- isoprene, benzene, toluene, acetaldehyde and acetone

Other Variables

- Ammonia (NH₃),
- Oxidative Potential (OP)

| Testing phase | CEN | SOP | ACTRIS data | NRT CAMS |
|---------------|-----|-----|-------------|----------|
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The proposal of the revision of the EC AQ Directive calls for an enhanced coordination with the strategy and measurement programme of ACTRIS (and EMEP and AQUILA)

Major suggestions formulated to DG ENV

- Capitalise from ACTRIS/RI-URBANS and promote synergies in operations
- Maintain the provisional list of non-regulated pollutants in the new directive
- Build upon measurement methodologies developed by RIs
- Ensure interoperability of data value chains



Comments from ACTRIS on the proposal for reviewing the EC Air Quality (AQ) Directives published on 26th October 2022

(07/03/2023)

Document prepared by Paolo Laj (ACTRIS Science chair), Xavier Querol (RI-URBANS coordinator), an expert team from RI-URBANS and ACTRIS and from the ACTRIS National Representatives from 21 European countries¹

Conclusions 1



Conclusions 2

- Significant investments in 19 countries also to operate expertise and data centers fully relevant to AQ issues

Enabling research is the « Raison d'être » of a Research Infrastructure

- ACTRIS has a clear open policy (data, softwares, etc..) and know how on air quality issues (reinforced in RI-URBANS) transferable to AQMNs
- RI services can be extended to maintain RI-URBANS tools in the long-term (resource and capacity permitting) in support of AQMNs
- ACTRIS is fully committed to work with AQUILA and EMEP in the context of the new EC directive on Air Quality



Exploring the atmosphere

www.actris.eu

ACTRIS ERIC Head Office:
actris-head-office@helsinki.fi

Find ACTRIS on

