Introduction to ACTRIS

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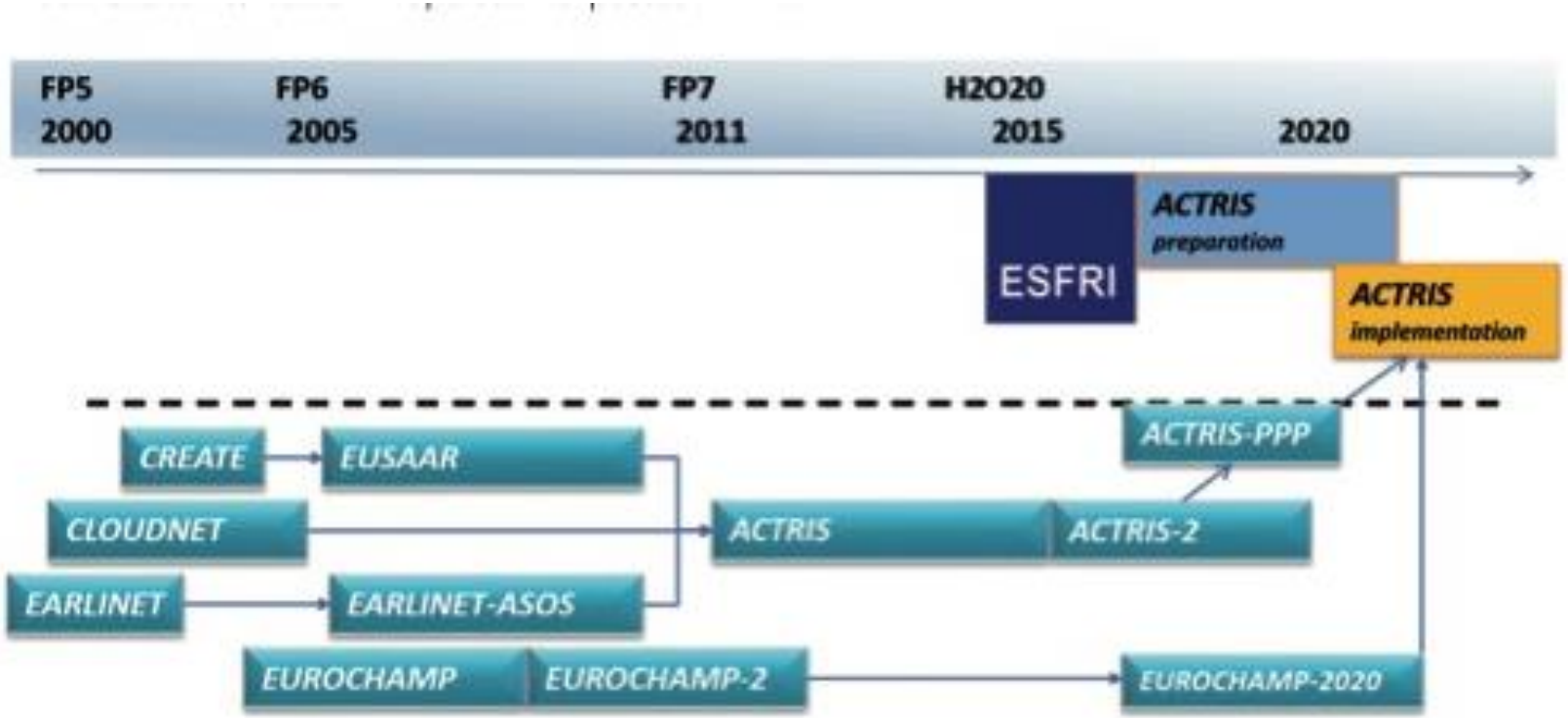
What is ACTRIS?

ACTRIS is the Aerosols, Clouds and Trace Gas Research Infrastructure



Position of ACTRIS in the Atmospheric Domain

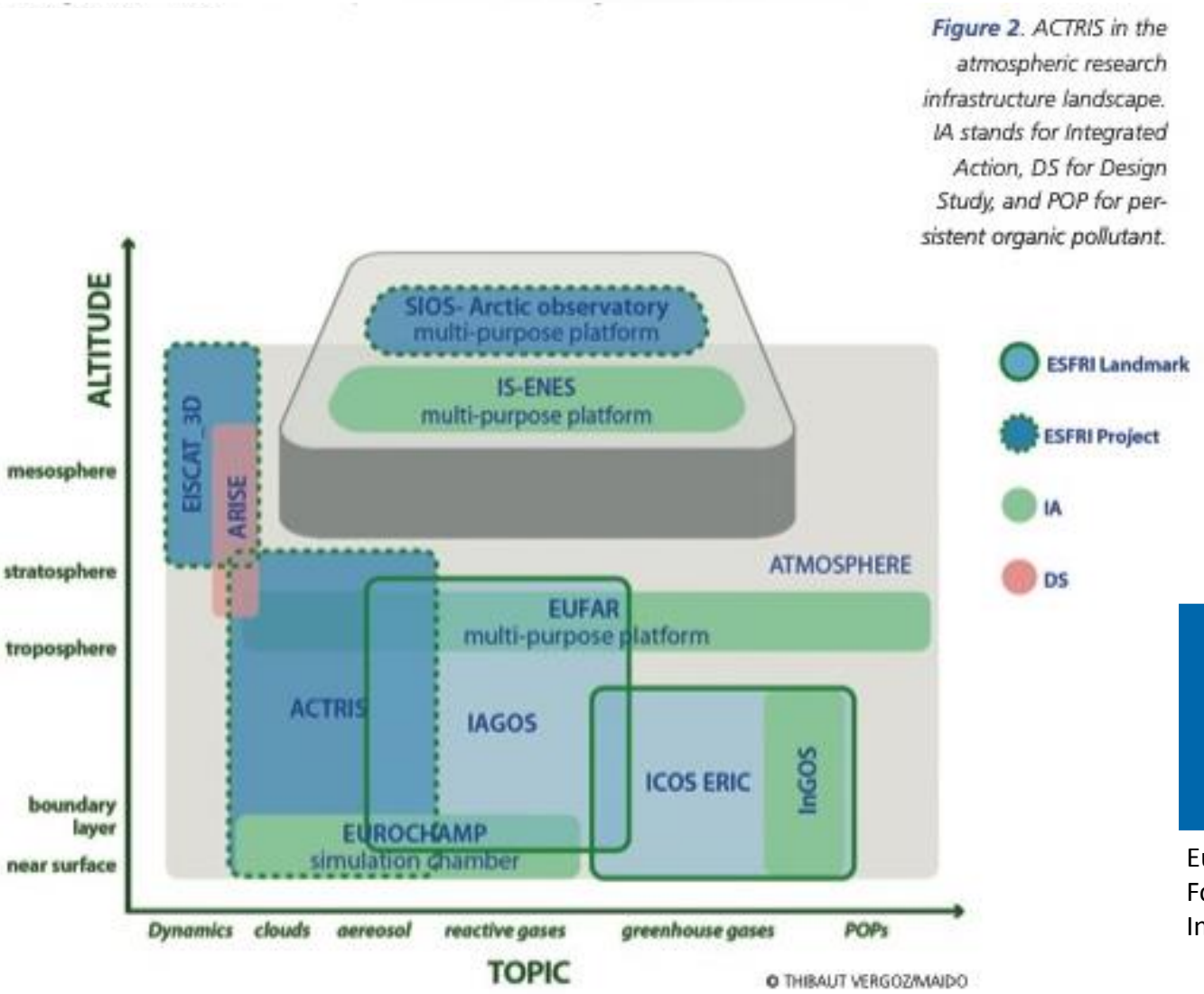


Figure 2. ACTRIS in the atmospheric research infrastructure landscape. IA stands for Integrated Action, DS for Design Study, and POP for persistent organic pollutant.

ESFRI

European Stragey Forum for Research Infrastructures

ACTRIS Vision and Mission

Vision statement of ACTRIS

ACTRIS will be the fundamental European research infrastructure for short-lived atmospheric constituents increasing the excellence in earth system research and developing sustainable solutions to environmental challenges.

Mission statement of ACTRIS

ACTRIS shall establish, operate, and develop a pan-European distributed research infrastructure for short-lived atmospheric constituents. ACTRIS shall provide effective access for a wide user community to its resources and services, in order to facilitate high-quality earth system research.

ACTRIS main building blocks

European level Central Facilities

Head Office
- Coordination and Management
- Service Access Management Unit (SAMU)

Data Centre

Centre for Aerosol In Situ Measurements
Centre for Aerosol Remote Sensing
Centre for Cloud In Situ Measurements
Centre for Cloud Remote Sensing
Centre for Reactive Trace Gases In Situ Measurements
Centre for Reactive Trace Gases Remote Sensing

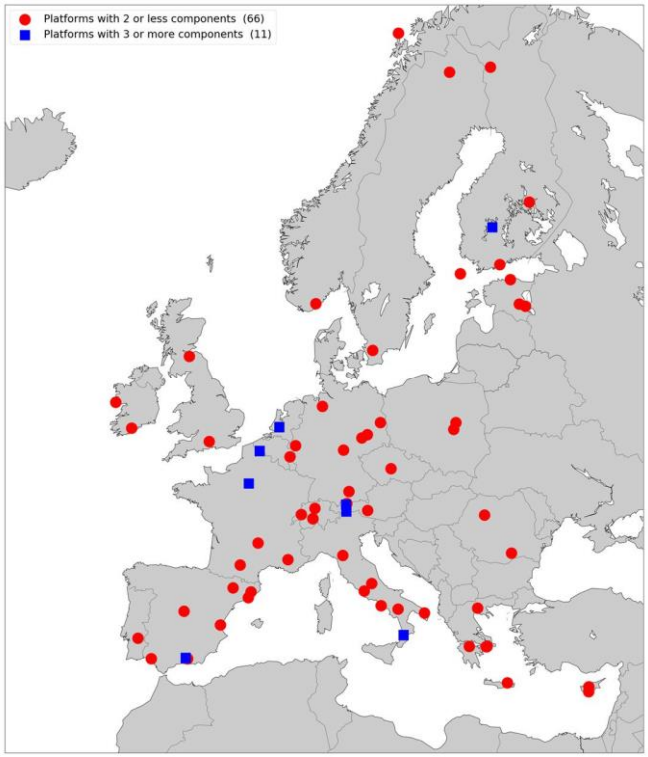
National Facilities

Observational Platforms

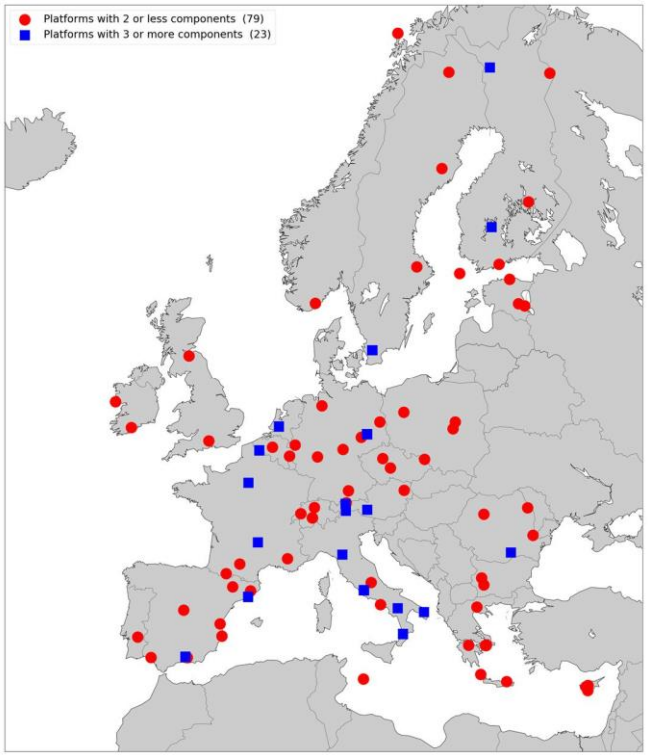
Exploratory Platforms

ACTRIS stations (National Facilities)

Potential ACTRIS National Facilities (year 2020) - Observational platforms in Europe



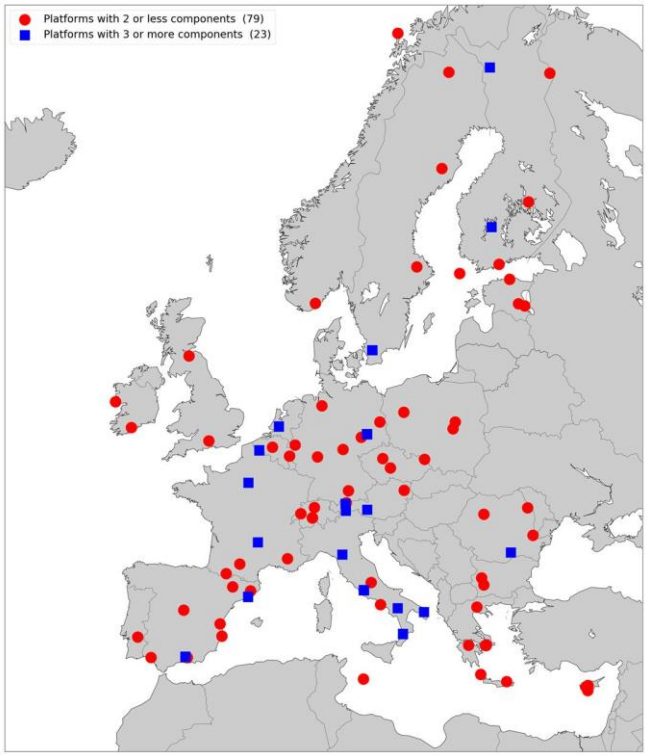
Potential ACTRIS National Facilities (year 2025) - Observational platforms in Europe



ACTRIS stations (National Facilities)

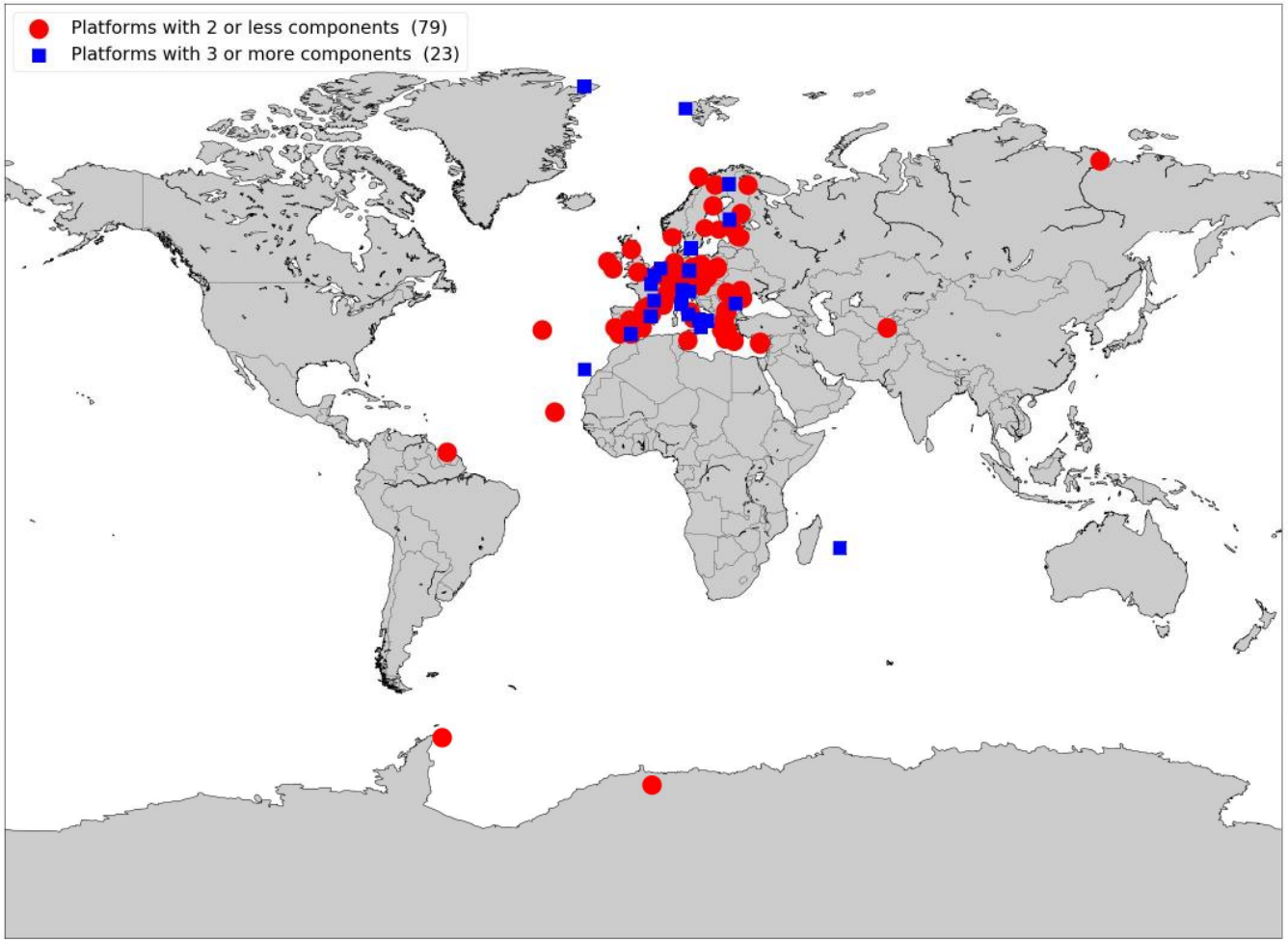
ntial ACTRIS NFs (year 2025) - Observational platforms, Reactive Trace Gases Remote Sensing

Potential ACTRIS National Facilities (year 2025) - Observational platforms in Europe



ACTRIS stations (National Facilities)

Potential ACTRIS National Facilities (year 2025) - Observational platforms



Requirements – Aerosol Remote Sensing

ACTRIS variables	Measurement techniques
• Particle backscatter coefficient profile • Particle extinction coefficient profile • Lidar ratio profile • Ångström exponent profile • Backscatter-related Ångström exponent profile • Particle depolarization ratio profile • Particle layer geometrical properties (height and thickness) • Particle layer optical properties (extinction, backscatter, lidar ratio, Ångström exponent, depolarization ratio, optical depth) • Aerosol optical and microphysical properties (column) • Planetary boundary layer height	• High-power aerosol lidar • Automatic low-power aerosol lidar • Automatic sun/sky/lunar photometer

Requirements – Trace Gas Remote Sensing

ACTRIS variables	Measurement techniques
• Ozone profile • Ozone partial columns • Ozone column • Formaldehyde column • Formaldehyde lower tropopheric profile • NO2 column • NO2 lower tropopheric profile • NH3 column • C2H6 column	• ozone DIAL (Differential Absorption Lidar) • FTIR (Fourier-transform infrared spectroscopy) • UVVIS (differential optical absorption spectrometry in the UV-visible range)

ACTRIS Implementation Timeline