

Activities of ACTRIS NEXT relevant to the NF community

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ACTRIS NEXT in a nutshell

Funder: European Commission (HORIZON-INFRA-DEV-2025-01)

Objective: To further develop ACTRIS operations, services, and sustainability

Consortium: 35 beneficiaries and 8 affiliated entities
All ACTRIS countries
All ACTRIS components and CFs

Coordinator: ACTRIS ERIC
Coordinators: Tuukka Petäjä and Niku Kivekäs
Project manager: Mikhail Paramonov

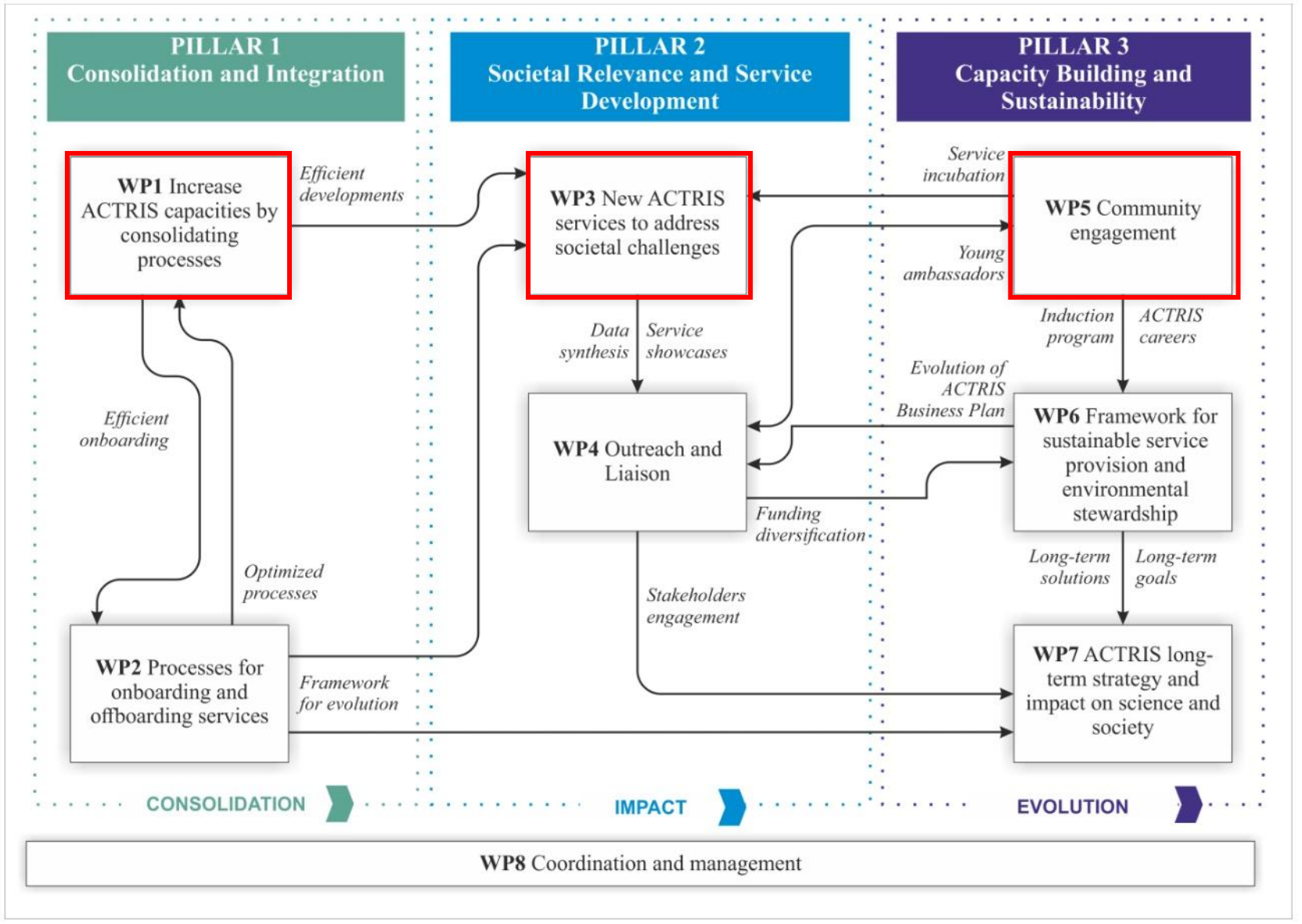
Budget: 5 M€, of which 4 M€ from the Commission

Duration: June 2026 – November 2030 (54 months)

Specific objectives of ACTRIS NEXT

1. Strengthen internal operational and governance capacity of ACTRIS
   - More efficient and harmonized workflows and governance
2. Foster inclusive growth and technology innovation in ACTRIS service delivery
   - Processes for onboarding new countries and new technologies and offboarding outdated services
3. Co-design and demonstration of new ACTRIS services to address urgent societal challenges
   - Co-develop, prototype, and deliver new services in ACTRIS-related fields
4. Build a skilled, connected, and sustainable ACTRIS community
   - Structured training, career development and internal cohesion of ACTRIS community
5. Boost the visibility, outreach, and stakeholder engagement of ACTRIS
   - Raise awareness of ACTRIS services, impacts, and relevance to widen the user base
6. Develop a robust strategy for long-term sustainability and impact
   - Strategy for sustainability including funding models, service provision, environmental responsibility, and risk assessment

Structure of ACTRIS NEXT



WP3 Task 3.1: a cross-cutting ACTRIS data synthesis report

partners: NILU · CNR · FMI · CNRS

What we will build

1. **Data extraction architecture**
   Large-scale data extraction across all ACTRIS Data Centre units

2. **Online, tailored reports**
   An annual flagship report coordinated by the Head Office, plus ad hoc reports responding to events: volcanic eruptions, dust episodes, heatwaves, fires in new areas

3. **Combined data products**
   Co-developed by domain experts in the Topical Centres and the DC team

4. **Open by design**
   Tools published via the ACTRIS VRE (data.actris.eu/vre): CC BY 4.0 for data products, AGPL for software

Purpose & strategic role

- Advocate, advertise and promote ACTRIS data and applications, showing impact and relevance across domains
- Reach audiences well beyond the scientific community, including new user groups
- Standard sections for consistency, with flexibility to address emerging societal challenges
- Topics steered by the RI community and Head Office, informed by *D3.1 Report on user needs and maturity of user uptake* (CNRS)

Who the report is for, and how we will design it

Target audiences

- National stakeholders: authorities, research councils
- EU stakeholders
- Media and journalists
- Earth observation: ESA, EUMETSAT, CAMS
- Public health and medical communities
- Education and universities
- SMEs, policy makers, operational services
- General public

Design sprint: from challenge to tested prototype

A Design Sprint is a structured process used to solve problems, validate ideas, and accelerate innovation by moving from a challenge to a tested prototype in a short period of time, typically 4–5 days.

1. **27–29 October, Oslo**
   3-day physical workshop: understand, sketch, decide
2. **~12 days**
   Developers build a testable prototype
3. **9–10 Nov, online**
   Online sessions to test and validate the prototype

Who: designers and developers on the technical side together with the DC board, supported by dedicated UX/UI developers

ACTRIS

Design sprint: five steps to a tested prototype

1 Understand

- Define long-term goals and challenges
- Turn problems into opportunities
- Map user stories and vote for the best

2 Sketch

- Brainstorm individually and in groups
- Look at inspiring examples
- Mini hackathon: concepts for possible solutions

3 Decide

- Review solutions from the hackathon
- Vote on which solutions go into the prototype

4 Prototype

- Build a realistic prototype quickly
- Testable, not a finished product
- Simulate the user experience with minimal development

5 Test

- Present mock-ups
- Test with representative end users
- Compile feedback and validate assumptions
- Decide: proceed, adjust or pivot

27–29 October · physical workshop in Oslo

Developer homework

9–10 Nov · online



Want to join test phase? *More users and providers are welcome. Not invited yet? Email Marthe at mbre@nilu.no*

ACTRIS

WP3. Service Pilots for **Health applications**

SP1. New monitoring service for bioaerosols in the air

Lead: Mikhael Sofiev FMI; Participants : Meteoswiss, CNRS, TROPOS, GEOSPHERE.

Consolidating SYLVA, BioAirMet, AutoPollen, CEN WG39 findings

- Harmonizing technological approaches
- hardware (SYLVA certified Swisens Poleno and Hund Wetzlar POMO)
- ML classifiers (SYLVA and BioAirMet)
- Reference datasets (SYLVA, SPORELIFE, BioAirMet, …)
- Metrology (BioAirMet, CEN)

Next Bioaerosol WG meeting **Jan 2027 ONLINE**. Contact Fiona Tummon, Julia Burkart, Heike Wex.

SP2. Development of a new Topical Center for Oxidative Potential of PM: New ACTRIS health-relevant variable

Lead: Gaëlle Uzu CNRS/IGE, Participants : CNRS/LISA , CEAM.

- Develop OP protocols (simplified, benchmark)
- Data quality and Training
- OP source apportionment

See OP Working Group Friday at 11h

Looking for NFs interested in implementing OP in coming years

WP3. Service Pilots for **Health and Environmental Security**

SP3. Service for Source Apportionment of Carbonaceous Aerosol

Lead: Jean-Eudes Petit CNRS/LSCE, Participants : INERIS, CSIC, PSI, …

- Structure a FAIR framework for source apportionment of carbonaceous aerosols
- Focus on eBC and OA
- Enables lev3 data submission and NRT process

How can NFs contribute ?

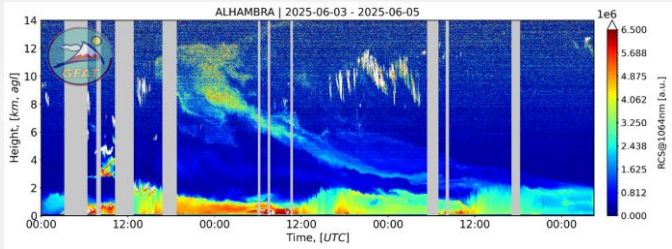
- ❑ Share (NRT) data, and expertise
- ❑ **Participate in the NF Forum WG Source Apportionment (joint session on Friday 9h20-12h30)**

SP4. Service for Rapid Response to Extreme Events

Lead: Lucia Mona CNR, Participants : CNRS, TROPOS, INOE, BSC, NILU, UVA

- Integrate relevant ACTRIS near real-time data sources, complementary modelling tools and an access portal designed for data integration

- Focus on dust, fires, volcanic eruption



How can NFs contribute ?

- ❑ Performing additional relevant measurements (Observational Platforms)
- ❑ Moving platform to relevant sites (Exp Platforms)
- ❑ Looking into the data related to extreme events in a short time & Suggesting specific methods and tools (All)

WP3. Service Pilots for **Renewable Energy and Urban Weather**

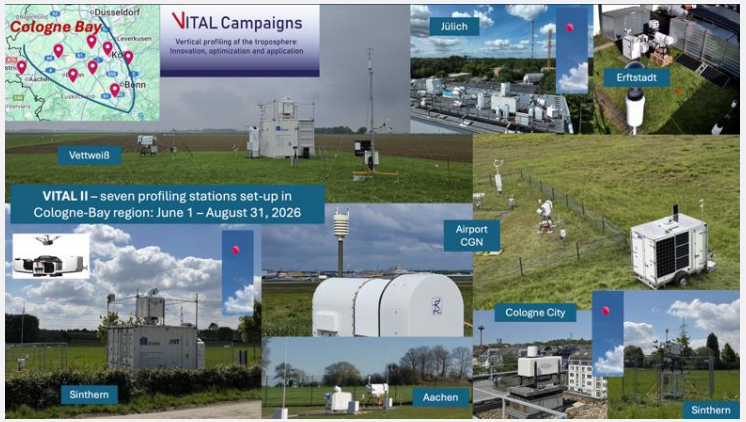
SP5. Service for Wind Energy and Urban Weather

Lead: Ulrich Löhnert U. Cologne

Participants : CNRS, CNR, FMI

- **Urban:** Process-understanding of urban heat hazard in response to surface-driven effects, synoptic and regional scale dynamics
- **Wind energy:** recommendations for **monitoring ABL; develop indicators** relevant for wind energy efficiency and forecast (turbulence, icing, stability)

ACTRIS NFs (CRS) as anchor stations with secondary (ACTRIS-like) stations distributed in the regional vicinity following ACTRIS measurement procedures



SP6. Service for Solar Energy Applications

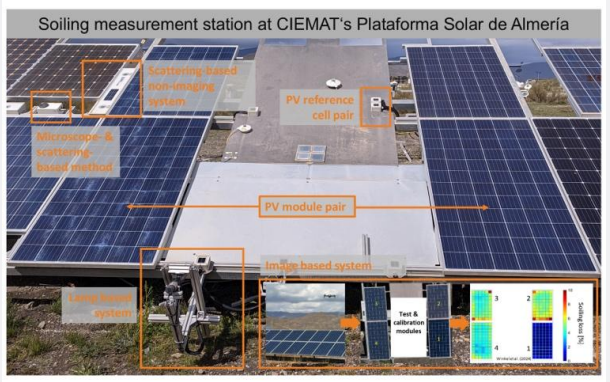
Lead: Stelios Kazadzis PMOD/WRC;

Participants : U. Patras, DLR, ECoC, UVA, CNRS.

- Propose roadmap for solar radiation implementation in ACTRIS through links with BSRN
- Demonstrate use of ACTRIS data for Spectral irradiance calculation (NF /CARO-Cyprus)
- To study soiling effects using ACTRIS data (CIEMAT, Spain)

ACTRIS NFs with BSRN or BSRN-like measurements

ACTRIS NFs with experimental PV power plants





groups

*Supports the **planning** and coordination of ACTRIS experimental and observational platforms and NF experts to participate in **large-scale campaigns and dedicated experiments***

...

Cal/Val of EarthCARE (ctd.)

- ATMO-ACCESS pilot proved to be really important for the first stages of EarthCARE Cal/Val
  - Optimizations have been made based on the community findings
  - Validation of products should continue over the lifetime of the satellite
  - Data analysis and exploitation should continue even beyond its lifetime
- ESA-ACTRIS Memorandum of Intent
  - Exchange of scientific data and technical information, for ESA Aerosol, Cloud, and Trace Gas missions following a joint mission-specific implementation plan;
  - Provision of scientific and technical expertise by the Signatories through participation in each other's scientific committees or stakeholder's consultations;
  - Facilitation of mutual access to data, including pre-operational data, and access to collaborative infrastructures;
  - Calibration and validation cooperation during the development, commissioning, and exploitation of ESA Aerosol, Cloud, or Trace Gas missions;
  - Collaboration in joint calibration and validation campaigns;
  - Organisation of joint events and workshops relevant to the areas of cooperation;
  - Assessing options for the potential exchange of staff and fellows.
- Practical implementation of the ESA-ACTRIS MoI

ATMO-SERV?

CoSense campaign

- Large experimental campaign in the Mediterranean region
  - Fixed Observational Platforms
  - Mobile Platforms (including airborne)
  - Ship observations
  - Currently supporting only ACTRIS facilities in Italy and Greece
  - Planned for August-September 2027
- Enormous potential for science and technology pushes, but also for ACTRIS to remain relevant for satellite Cal/Val on long-term

