

Further developments of ACTRIS for coordinated long-term observation of aerosols, cloud-aerosol interactions, and trace gases in Europe

G. Pappalardo¹ and P. Laj²

¹Consiglio Nazionale delle Ricerche-Istituto di Metodologie per l'Analisi Ambientale (CNR-IMAA), Tito Scalo, Potenza, Italy

²Laboratoire de Glaciologie et Géophysique de l'Environnement, CNRS-Université J. Fourier, Grenoble, France

Keywords: in-situ measurements, lidar, remote sensing

Presenting author email: gelsomina.pappalardo@imaa.cnr.it

The ACTRIS-2 project, funded by Horizon 2020, addresses the scope of integrating state-of-the-art European ground-based stations for long term observations of aerosols, clouds and short lived gases, capitalizing on the work of FP7-ACTRIS. It aims at achieving the construction of a user-oriented RI, unique in the EU-RI landscape for providing 4-D integrated high-quality data from near-surface to high altitude (vertical profiles and total-column) which are relevant to climate and air-quality research. ACTRIS-2 develops and implements, in a large network of stations in Europe and beyond, observational protocols that permit the harmonization of collected data and their dissemination. It offers networking expertise, upgraded calibration services, training of users, trans-national access to observatories and calibration facilities, virtual access to high-quality data products. Through joint research activities, ACTRIS-2 develops new integration tools that will produce reusable scientific or technical progresses in infrastructures, thus, shaping future observation strategies. Innovation in instrumentation is one of the fundamental building blocks of ACTRIS-2. Associated partnership with SMEs stimulates the development of joint-ventures to address new technologies for use in atmospheric observations. Target user-groups comprise a wide range of communities worldwide. End-users are institutions involved in climate and air quality research, space agencies, industries, air quality agencies. ACTRIS-2 will improve systematic and timely collection, processing and distribution of data and results for use in modeling, in particular towards implementation of atmospheric and climate services. ACTRIS-2 invests substantial efforts to ensure long-term sustainability beyond the term of the project by positioning the project in both the GEO and the on-going ESFRI contexts, and by developing synergies with national initiatives.

Main objectives are:

- ✓ To maintain and increase availability of long-term observational data relevant to climate and air-quality research on the regional scale produced with standardized or comparable procedures throughout the ACTRIS network of stations;
- ✓ To further develop and disseminate integration tools to fully exploit the use of multiple atmospheric techniques at ground-based stations, in particular for the calibration/validation/integration of satellite sensors and

- for the improvement of the parameterizations used in global and regional-scale climate and air-quality models;
- ✓ To open calibration facilities and advanced observing platforms to Trans-National Access to the benefit of a large user community, including SMEs, and to further facilitate virtual access to high-quality information, tools and services enhancing the ACTRIS Data Centre;
- ✓ To maintain and enhance the capacity of training in the field of atmospheric observations particularly directed to new users including those from non-EU developing countries;
- ✓ To increase the Technology Readiness Level of technologies for atmospheric observation of aerosols, clouds, and trace gases in close partnership with EU SMEs associated to the project.
- ✓ To develop a sustainable strategy for maintaining ACTRIS-services in the long-term, improving synergies with all relevant research infrastructures in the field of environmental sciences and coordination with national strategies in the EU.

ACTRIS-2 represents a fundamental step towards the establishment of the atmospheric component of the Integrated European Observing System and a clear upgrade in services offered to users.

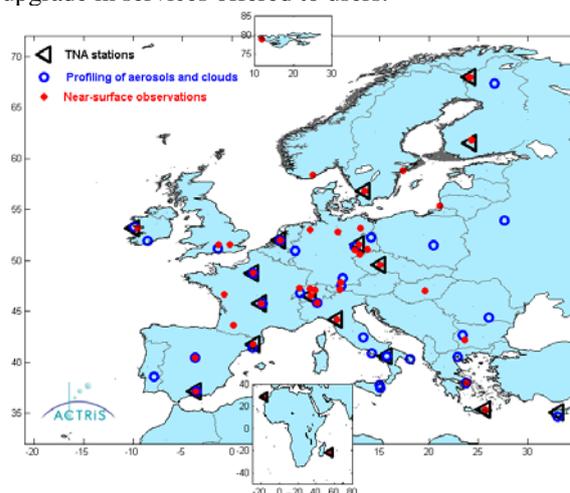


Figure 1. Map of ACTRIS measurement stations.

ACTRIS is supported by the European Union Seventh Framework Programme under grant agreement No. 262254. ACTRIS-2 will receive funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 654109.