

Newsletter Focus

ACTRIS-ERIC LANUNCHED: CUTTING-EDGE DATA AND SERVICES FOR ATMOSPHERIC AND CLIMATE RESEARCH



ACTRIS-ERIC, the European Research Infrastructure Consortium ACTRIS (Aerosol, Clouds and Trace Gases Research Infrastructure), was formally established on 25 April. Its mission is to provide forefront data and services for research on the atmosphere and climate. The founding countries are 17, and they pool their resources to open access to a wide range of technologies, services and

resources in the field of atmospheric sciences. The establishment of ACTRIS-ERIC realizes a long-term effort begun in 2011, and pursued and shared by various European countries, including Italy, which participates with a network of institutions, including the CNR National Research Council and the INFN. The establishment of ACTRIS-ERIC proves the progress of ACTRIS from a project-based network to a mature and sustainable research infrastructure. Finland will host the headquarters and manage the overall coordination of ACTRIS, while Italy will manage access to ACTRIS services. Italy is actually one of the founding countries of ACTRIS, having had key roles in the coordination of the European infrastructure from the very beginning. The Italian participation in ACTRIS counts on the contribution of INFN with the LABEC (<https://web.infn.it/labec/>) laboratories in Florence and ChAMBRé (<https://labfisa.ge.infn.it/>) in Genoa, of the CNR, of the Atmospheric Observatory Group and LIDAR Remote Sensing of the CETEMPS Center of Excellence of the Department of Physical and Chemical Sciences of the University of Studies of L'Aquila, the Department of Sustainability of Productive and Territorial Systems of ENEA, the Department of Pure and Applied Sciences of the University of Urbino Carlo Bo, the University of Salento and the University of Naples Federico II, which hosts, at the Ettore Pancini Physics Department, the Advanced Metrological and Technological Services Center (CeSMA). ACTRIS with its observation sites constitutes the largest distributed atmospheric research infrastructure in the world, which has allowed over the years a deeper understanding of the causes of climate change and air pollution. Monitoring the temporal and spatial variability of short-lived atmospheric constituents (aerosols, clouds and trace gases) from 80 observation platforms in Europe and beyond, over more than a decade, has provided an unprecedented insight into the effectiveness of emission reduction policies in Europe, but also highlighted the complex feedback mechanisms acting on the climate system. Now, with the institutionalization of ACTRIS in the form of an ERIC, the doors are opening to researchers, businesses and more generally to countries, to encourage even more free access to key information on the state of the atmosphere, to share the best observational research platforms in Europe and to support the decision-making process with all the scientific

competences of reference. ACTRIS offers its users open access to FAIR (Findability, Accessibility, Interoperability, and Reuse) data management tools, expertise, training opportunities and services. In fact, all users, regardless of their affiliation, area of expertise or field of activity, can benefit from pan-European services in open access mode. Hundreds of researchers from all over the world, but also private sector users, have already accessed ACTRIS platforms (observation sites, atmospheric simulation chambers) to perform innovative experiments and improve scientific knowledge, develop new tools or receive training on new technologies. Every year, more than 5,000 users in around 50 countries in the world use ACTRIS data for their research, enabling reliable weather forecasts, including short-term weather and health warnings, as well as long-term assessments of climate changes. Together with other European environmental research infrastructures, ACTRIS contributes to the objectives of the new European Research Area (ERA), with higher investments in Research and Development (R&D), with a more equitable distribution of capabilities and access to excellence in research and innovation, for a better circulation of knowledge and technologies, as well as greater competitiveness of the European Union in the atmospheric field. INFN participates in ACTRIS with two unique research structures: the LABEC (Laboratory of Nuclear Techniques for the Environment and Cultural Heritage) of the Florence Division and ChAMBRé (Chamber for Aerosol Modeling and Bio-aerosol Research) of the Genoa Division. The two laboratories are now synergistically included in the ACTRIS-ERIC, the LABEC hosting the European reference center for the elemental characterization of atmospheric particulate matter (Elemental Mass Calibration Centre, EMC2) and ChAMBRé as a national facility specialized in the study of the biological component, and the optical properties of atmospheric aerosols, i.e. the most elusive pollutant with very significant impacts both on health and on the challenge of climate change.