

PS PUBLIC SERVICE REVIEW

European Union 22

an independent review

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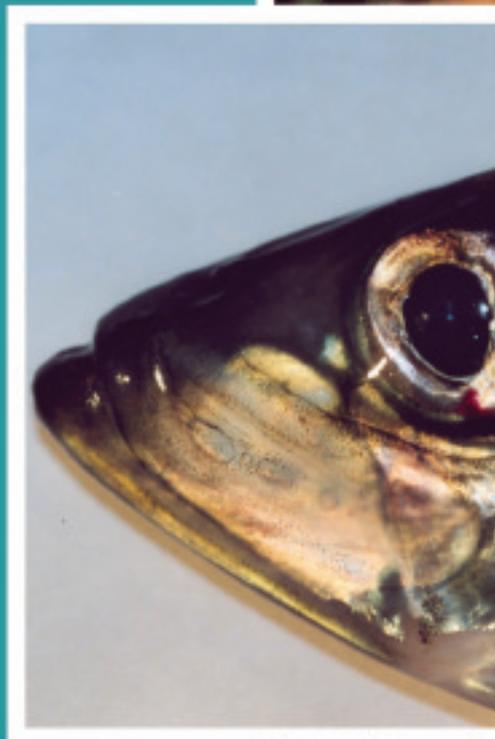
Delivering security via sustainable farming

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FOCUSING ON THE SEA

The Institute of Marine Research is responsible for advising on the management of our sea and coastal regions based on the best available knowledge. The advice we give comes from resource and environmental data accumulated over long periods. All our research is open and available to the general public. Find out more on our website www.imr.no

RESOURCES

We monitor and provide advice about more than 40 different fish stocks. Our advice is based on knowledge of both the stocks we monitor and the environment they live in. We are continuously working to improve and develop methods for estimating stocks and the technology to monitor them.

ENVIRONMENT

We are one of the partners behind the Bjerknes centre for climate research and the Fram centre for research on climate and the environment. We investigate the consequences of climate change for fisheries and aquaculture. We monitor the marine environment in order to document that Norwegian sea and coastal regions are clean and pure.

AQUACULTURE

Fish farming must be sustainable. We research into fish welfare, disease and the spread of infection, genetic and ecological effects of escaped fish and the environmental effects of aquaculture and sea ranching.

COAST

Surveying the types of nature in the coastal zone provides the basis for good planning both locally and regionally. Monitoring the coast's resources and environment means we can give good advice about sustainable management.

FACTS ABOUT THE INSTITUTE OF MARINE RESEARCH

- ▶ Europe's second largest marine research centre
- ▶ Employs 700 people, more than 200 of them researchers
- ▶ Has a division in Tromsø and research stations in Austevoll, Flødevigen and Matre
- ▶ Owns four and operates two research vessels. Also leases a number of fishing vessels. Spent more than 2,500 days at sea each year
- ▶ Planning a new Norwegian icebreaker research vessel
- ▶ Has a microbiological, biological and chemical laboratory in Bergen
- ▶ Had a turnover of NOK 860 million in 2009



INSTITUTE OF MARINE RESEARCH
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Foreword

José Manuel Barroso

President
European Commission

The financial and economic crisis has shown us that we are interconnected as never before. The effects have been felt in every community, every family and every business in the European Union.

The EU has been at the forefront of efforts to mitigate and counteract the negative impacts of the crisis. By providing support to member states in need, coupled with commitments to unprecedented fiscal and structural reform, we have been working towards stability and restoring confidence – the bedrock for a return to sustainable growth.

In today's world, sustainable growth has to mean green growth and inclusive growth. Reform is not an end in itself but the key to maintaining our social market economy, our quality of life, and societal cohesion. It depends on 'smart' fiscal consolidation: frontloading measures to stimulate growth and job creation, investing in education, research and innovation, and taking bold action to put public finances on a sound footing for the future.

It will take a combination of national reforms and more coordination and cooperation among EU member states to achieve the turnaround we need. The Europe 2020 policy agenda – our detailed roadmap for smart, sustainable and inclusive growth across Europe – provides a common framework for these efforts.

The European Commission is delivering its end of the bargain, providing an independent analysis of national governments' commitments towards the collective targets to help make our economies fit for the future. On the basis of the Commission's proposals, all 27 EU member states now have their own tailored recommendations for action in the coming months. Many are focused on the need to create more opportunities for jobs.

The single market alone has created nearly three million additional jobs in the past two decades. Through the Single Market Act we are helping move the single market up a gear, to adapt it to the challenges and opportunities of tomorrow, to achieve the potential of the world's largest market. In particular we are looking for progress in critical areas like the digital economy and intellectual property, the energy sector, as well as freeing up opportunities for Europe's 23 million small and medium-sized businesses.

Europe is open for business – and this extends beyond our borders. The Commission will continue to be a firm advocate for open international trade and we will do everything we can to promote a successful outcome to the Doha Round.

All of these efforts will need to be underpinned by investment. The EU budget we have proposed for the seven years from 2013 is about investing today for growth tomorrow. It is a responsible budget, reflecting the current times of austerity. It focuses on the areas where EU spending provides a real added value over and above national spending, such as cross-border research and energy grids. It is a small but essential part of our overall efforts to ensure that the EU emerges from this crisis stronger and more focused, building a fair and lasting legacy for future generations.

European atmospheric monitoring

Climate change is for a large part governed by atmospheric processes, in particular the interaction between radiation and atmospheric components (eg aerosols, clouds, greenhouse, and trace gases). Some of these components are also those with adverse health effects influencing air quality. Strengthening the ground-based component of the Earth Observing System for these key atmospheric variables has been unambiguously asserted in the IPCC Fourth Assessment Report and Thematic Strategy on air pollution of the EU. However, a coordinated research infrastructure for these observations is presently lacking.

‘ACTRIS is an important piece of the EU contribution to a Global Earth Observing System of Systems (GEOSS) and its EU component GMES atmospheric services (GAS).’

Aerosols, Clouds and Trace gases Research InfraStructure Network (ACTRIS) aims to fill this observational gap through the coordination of European ground-based network of stations equipped with advanced atmospheric probing instrumentation for aerosols, clouds and short-lived gas-phase species.

ACTRIS is a European Project funded within the EC 7th Framework Programme under ‘Research Infrastructures for Atmospheric Research’. ACTRIS started on 1st April 2011 for a period of four years.

ACTRIS is building the next generation of the ground-based component of the

EU observing system by integrating three existing research infrastructures EUSAAR, EARLINET, CLOUDNET, and a new trace gas network component into a single coordinated framework.

ACTRIS will have the essential role to support building of new knowledge as well as policy issues on climate change, air quality, and long-range transport of pollutants.

Main objectives of ACTRIS:

- To provide long-term observational data and to substantially increase the number of high-quality data relevant to climate and air quality research on the regional scale produced with standardised or comparable procedures throughout the network;
- To provide a coordinated framework to support transnational access to European advanced infrastructures for atmospheric research, strengthening high-quality collaboration in and outside the EU and access to high-quality information and services for the user communities (research, environmental protection agencies, etc);
- To develop new 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 improvement of the parameterisations used in global and regional scale climate and air quality models. ACTRIS aims at providing time series of climate and air quality related variables not directly measured, which are presently not available through existing data centres;
- To enhance training of new scientists and new users – in particular students, young scientists, and scientists from eastern European

FP7 establishes a new research infrastructure to coordinate crucial observations...

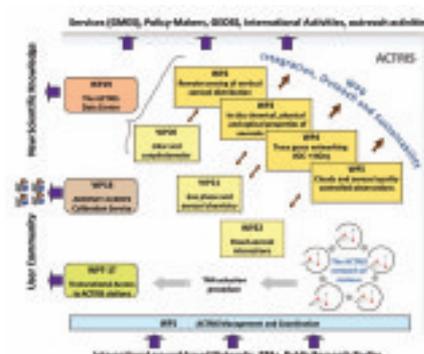


Fig. 1: Interdependence of activities and tasks within ACTRIS

and non-EU developing countries in the field of atmospheric observation;

- To promote the development of new technologies for atmospheric observation of aerosols, clouds and trace gases through close partnership with EU companies. ACTRIS aims at contributing to more than four new operating standards for atmospheric monitoring by the end of the project.

The work of ACTRIS is organised in networking activities, transnational access and service activities, and joint research activities as reported in Fig. 1.

The data provision structure in ACTRIS involves four networking activities (NAs) that will feed the data centre:

- WP2: Remote sensing of vertical aerosol distribution;
- WP3: In situ chemical, physical and optical properties of aerosols;
- WP4: Trace gases networking: volatile organic carbon and nitrogen oxides;
- WP5: Clouds and aerosol quality-controlled observations.

These networking activities are completed by a fifth NA aimed at integrating information from WP2-5 into a higher level of products required by

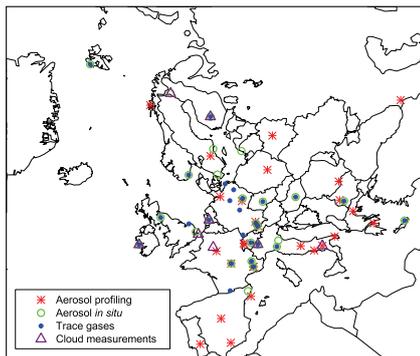


Fig. 2: Map of measurement sites contributing to ACTRIS

users in the modelling and satellite-validation communities: WP6: Integration, outreach, and sustainability.

This activity can be considered as the core of the research infrastructure, aiming at:

- Technological and conceptual integration of the quality assured products delivered in the frame of the other networking activities;
- Dialogue with end-users and dissemination of results;
- Sustainability and development of a pan-European long-term monitoring network.

Such a pan-European integration level is required to establish a research infrastructure able to operate according to common strategies and measurement protocols as well as to provide advanced integrated products for improving the knowledge of the atmosphere and to support the future EU environmental and socioeconomic policies.



Fig. 3: ACTRIS sites offering transnational access

The activities of the research infrastructure will be oriented to a rigorous quality assurance programme addressing both instruments and evaluation algorithms, and a standardised data exchange format. ACTRIS will also found and strongly sustain effective partnership between users and data providers and will pursue innovative initiatives to address the need of users. Moreover, standardisation of procedures for the different measurement techniques and best practices across all stations and all European climatic regimes are paramount to facilitate the coordinated expansion of the network in a sustainable and efficient way.

Transnational access activities and service activities will enable users to conduct high-quality research by:

- Offering access to infrastructures with an excellent combination of instruments and expertise: this gives the opportunity to perform experiments using the state-of-art equipment in atmospheric research that could be used for measurement campaigns or instrument tests (WP7-17: Trans-National Access);
- Training a new generation of scientists: ACTRIS activities are aimed at enhancing accessibility to the observatories and the exploitation of technical resources and knowledge; this is organised through WP6 and WP7-17;
- Offering to the whole scientific community the use of a unique sun photometer calibration facility currently operational in the frame of PHOTONS/AERONET. This is performed in WP18: AERONET-EUROPE Calibration Service;
- Enhancing access to information on advanced aerosols, clouds and trace gases high-quality data in Europe through a service activity (WP19: The ACTRIS Service Centre: access to observations and service products of the infrastructure). The data centre integrates measurement data from the ACTRIS infrastructure and

other highly relevant networks. In addition to free access to atmospheric high-quality data, the data centre will provide tools and applications for end-users to facilitate the use of all measurements for broad user communities, offer a direct interface towards external users (eg MACC, GMES in situ), and take into account the principles outlined in SEIS, INSPIRE, WIS and GEOSS.

Joint research activities are intended to support and promote the ACTRIS infrastructure by taking advantage of the synergistic effects of coordinating different observation capabilities. WP20 and WP22 address novel techniques and algorithms using a multi-sensor approach to improve observation performances and define new data products. WP21 focuses on investigating technological and methodological aspects of simultaneously networking real-time chemical composition of aerosols and trace gases. These JRAs are topically connected with networking activities and in cooperation with WP6 to ensure their results are assimilated for the whole ACTRIS infrastructure benefit.

ACTRIS is an important piece of the EU contribution to a Global Earth Observing System of Systems (GEOSS) and its EU component GMES atmospheric services (GAS).



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