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ACTRIS Data Centre: An atmospheric data portal

C. Lund Myhre (1), A. Fahre Vik (1), R. Logna (1), K. Torseth (1), H. Linné (2), and E. O'Connor (3)

(1) NILU - Norwegian institute for Air Reserach, Dep. Atmospheric and Climate Research, Kjeller, Norway (clm@nilu.no), (2) Max-Planck Institute for Meteorology, Hamburg, Germany (holger.linne@zmaw.de), (3) Department of Meteorology, University of Reading, Reading, United Kingdom (e.j.oconnor@reading.ac.uk)

ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network) is a European Project aiming at integrating European ground-based stations equipped with advanced instrumentation for studying aerosols, clouds, and short-lived gas-phase species. The ACTRIS activities result in improved atmospheric measurements data made at more than 60 European sites, from numerous instruments and includes variables measured by ground based in situ and remote sensing technologies. Core variables are in situ aerosol optical, physical and chemical properties, short-lived trace gases (volatile organic carbon and nitrogen oxides), aerosol scattering and extinction profiles, and cloud properties.

The ACTRIS data centre (ACTRIS DC) is giving free and open access to all data resulting from the activities of the infrastructure network, complemented with data from other relevant networks and data bases. The overall goal is to facilitate scientists and other user groups access to atmospheric observational data, and to provide mature products for analysis and interpretation of atmospheric composition change. The ACTRIS DC aims at substantially increasing the number of high-quality data by providing long-term observational data relevant to climate and air quality research produced with standardized or comparable procedures throughout the network.

The backbone of the ACTRIS DC is the three core data bases:
- EARLINET Data Base hosting aerosol lidar data from more than 30 European sites
- EBAS hosting ground based atmospheric in situ data from more than 1000 sites globally
- Cloudnet hosting remote sensing cloud data and products from 5 European sites

Furthermore, a joint portal is developed combining information from various data sources to gain new information not presently available from standalone databases or networks. The data centre will provide tools and services to facilitate the use of measurements for broad user communities. Higher level and integrated products will be developed stage-by-stage during the project, and user requirements, interactions and feedbacks are essential.

The first version of ACTRIS DC is a web portal that allows users to search for atmospheric composition data from a multitude of data archives through a single user interface. Examples of data bases and frameworks included are EMEP, the GAW- world data centres, EARLINET, NDACC, CARIBIC-GEOmon, HTAP, AMAP amongst others. Currently the portal provides an overview of more than 800 000 data sets from more than 20 data bases/frameworks globally. For some of the databases included in the portal, the interface furthermore allows you to download data directly through the portal. A map functionality is implemented facilitating the identification of data and making it possible to search for collocation of observations, variables and sites both in time and space.

The data portal can serve as "one-stop-shop" of atmospheric high-quality data, and the portal will also offer a direct interface towards external users like the MACC II project and GMES in-situ. The data dissemination will take into account the principles outlined in SEIS, INSPIRE, WIS and GEOSS.