ACTRIS aerosol profiling database: NEW DESIGN AND NEW PRODUCTS FOR A WIDER USE OF AEROSOL LIDAR DATA

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Data curation of ACTRIS aerosol lidar data collected at stations distributed over Europe (currently 35)

Aerosol Remote Sensing National Facilities

CARS Central Facility

Provision of Data

QA test results

ACTRIS – ARES Unit

Services provided:
- Unique access point for aerosol remote sensing (meta)data and data products
- Tool for data upload, visualization and handling
- Quality Assurance / Quality Check
- Longterm sustainable archive
- Data Versioning
- Central data processing (SCC)
- Training / Support
- Traceability
- Reprocessing
- Links with DC Units, TCs, NFs
- Link with international bodies for use of ARES data and services

Level 0 data
- Raw Data

Level 1 data
- High/Low Resolution Total Attenuated Backscatter and Volume Depolarization Ratio time series

Level 2 data
- Fully Quality Assured Aerosol optical and microphysical vertical profiles

Level 3 data
- Statistical Analysis (e.g. seasonality, annuality) of Aerosol Optical Parameters
Goals

• Standardization
• Full traceability
• Quality controls
• Reprocessing capability
• Open and FAIR data
• NRT data provision
Challenges

• Inhomogeneity of lidar systems
  • Highly customized or fully home-made

• Growing and pressing demand for new tailored products
New design of ARES database and services

Database and services re-design

- Versioning
- Traceability (PIDs/DOIs and provenance)
- CF 1.7 compliance (new data format and names)
- On-fly QC documented procedures on data
- Interoperability and automation

Centralized automatic processing software

- Single Calculus Chain (SCC)

Implementation of new products
ARES infrastructure — Technical view

**CNR IMAA (Potenza):** 8 VM and 2 SAN in synchronous replication for high availability
- 1°: ARES PostgreSQL database
- 2°: Web interface for data originators
- 3°: Web interface for end-users
- 4°: THREDDS server
- 5°: SCC calculus
- 6°: SCC MySQL database
- 7°: SCC web interface
- 8°: Local Handle PID server and DataCite DOI client
- ARES data products are safely stored on a SAN H.A. Cluster. A full daily back up is made automatically and it is stored on a Network Attached Storage (NAS)

**CNR Headquarters (Rome):** Secondary asynchronous backup system
Grazie per l’attenzione!


EARLINET: https://www.earlinet.org

Single Calculus Chain: https://scc.imaa.cnr.it/

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