ACTRIS Aerosol REmote Sensing Data Centre Unit (ARES)

Integration of the ACTRIS-EARLINET REST API services with new methods

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Abstract

ARES (Aerosol Remote Sensing) is the ACTRIS (Aerosol, Cloud and Trace Gases Research Infrastructure) Data Centre unit for aerosol remote sensing profiling. ACTRIS-ARES host and manage the ACTRIS-EARLINET database, that represents a comprehensive, quantitative, and statistically significant collection of data for the aerosol distribution on European scale. ARES provides data curation, data processing and data access services for ACTRIS aerosol remote sensing data coming from lidar and photometer observations. Additionally, ARES hosts and manage the EARLINET web site and offers data services and digital tools to EARLINET and beyond. Major objectives also include the development and validation of new synergetic remote sensing algorithms, and the continuous evaluation of the representation of atmospheric aerosol parameters in climate and weather forecast models.

The data are accessible via a graphical interface and a REST API service. Access is open and does not require credentials, in accordance with FAIR and OpenAccess principles
The REST API has been enhanced by adding several methods, including the ability to download products in .zip format based on search filters, monitor user access to the network, and view metadata related to a given product type.

Description

The REST API was developed in Java using the Spring framework and the CXF library, which enables the creation and exposure of endpoints.

- **Base service URL:** https://data.earlinet.org/api/services
- **API documentation (Swagger):** https://data.earlinet.org/api/swagger-ui/

Additional REST API Methods:

- /download/stats
- /products/downloads
- /products/downloadsGarrlic
- /products/metadata/{kind}/{id}
- /products/metadata/{kind}
- /tags

Statistics

The newly added GET method accepts the following query string parameters:

- **STATION_COUNTRY**: station country code
- **USER_COUNTRY**: user country code
- **DOWNLOAD_DATE_FROM**: download start date
- **DOWNLOAD_DATE_TO**: download end date
- **FACILITY**: station code

It executes a query on the database table reporting.actris_datasets_downloads, returning a JSON response with the matching records.

Products download

This method is a **GET** that allows downloading products in **.zip** format based on search filters passed in the query string. The available products are:

- **CLOUDMASK**
- **ELDEC**
- **ELIC**
- **ELPP**
- **HIRELPP**
- **OPTICAL**
- **GARRLIC**
- **HIRAC**

- **MAC**

The search filters are:

- **kind**: type of product (see list above)
- **fromDate**: measurement start date
- **toDate**: measurement end date
- **measurementId**: measurement ID
- **wavelength**: wavelength
- **opticaltype**: only for optical products
- **tag**: name

The products matching the search criteria are grouped into folders by **measurement ID** and packaged inside a **.zip** file for download.

Download GARRLiC

A **GET** method to download ELPP-type products in .zip format from the table **metadata.elpp**, using search filters provided as query string parameters:

- **level**
- **fromDate**
- **toDate**
- **stations**
- **sccVersion**

Metadata

Two **GET** methods have been implemented for viewing metadata for a given product type:

- by searching with the product type and its ID
- by searching with the product type and filtering based on the following parameters:
    - **fromDate**
    - **toDate**
    - **stations**
      measurementId

The system returns, in **JSON format**, the list of products that match the search criteria.

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Tag

The **GET** method allows viewing all tags present in the ***tag*** table, useful for using them as search filters in the product download method.