

Access to aerosol in-situ measurements in Europe; developments and improvements within the frame of ACTRIS



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Introduction

This poster summarises the recent developments and improvements of the access to measurements of aerosols within the European Infrastructure project ACTRIS (Aerosols, Clouds and Trace gas Research InfraStructure network).

EBAS is the primary database for the ACTRIS aerosol in-situ measurement data, which includes numerous particle measurements from many European sites. Starting with almost no data sets of these variables available for Europe when the first infrastructure project CREATE was initiated in 2001, EBAS evolved through EUSAAR, and EMEP, in 2006-2011, -also including the World Data Centre for Aerosols (GAW-WDCA). The number of aerosol data in EBAS in September 2013 counts more than 10 000 datasets from 103 stations in 25 countries, from 17 different measurement principles. The number of datasets submitted to EBAS and the quality of the incoming data will increase as the ACTRIS project develops. This work summarises and documents the data available, and the recent development with respect to the spatial distribution of sites, various particle and instrument types, time periods and other relevant information.

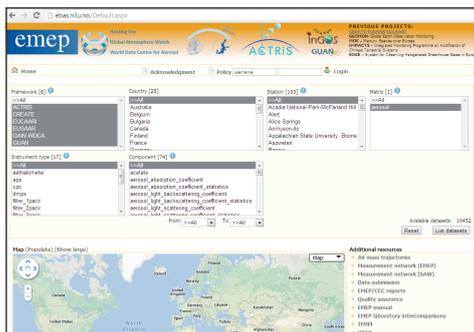


Figure1: The search result of all aerosol data available in EBAS in September 2013.

About EBAS

The EBAS is originally the data archive of the UN Convention for Long-Range Transport of Air Pollution (CLRTAP) under the European Monitoring and Evaluation Programme (EMEP). The first version was developed in 1979 and EBAS is today hosting data in support of a large number of projects and programs ranging from monitoring activities to research projects. Examples in addition to EMEP are AMAP, EUSAAR, EUCAARI, HTAP, GAW-WDCA and the ongoing EU-projects ACTRIS, IN-GOS (halocarbons) and PEGASOS.

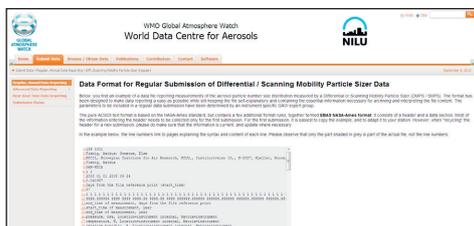


Figure 4: Example of data format template available through <http://www.gaw-wdca.org>

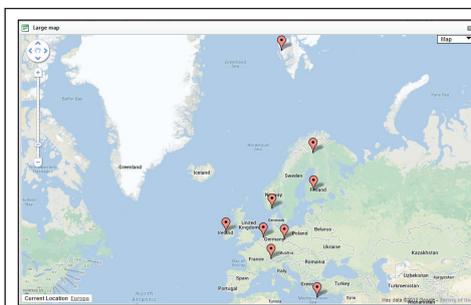


Figure2: The geographical distribution of stations submitting aerosol data to the CTRATE project in 2001-2003.

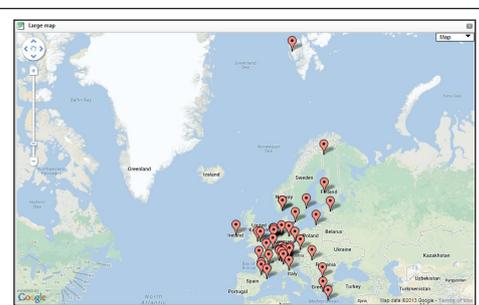


Figure 3: The geographical distribution of stations that have submitted aerosol data to CREATE, EUSAAR and ACTRIS during 2001-2013.

	End CREATE	End EUSAAR	ACTRIS (2 nd reporting)
ECOC	34	74	94
Nephelometer	22	60	91
S/DMPS	47	95	138
Absorption Photometer	27	81	122
CPC	20	47	61
SUM	150	357	506

Table 1: Number of instrument-datasets reported to EBAS in the context of the different aerosol integration projects. 1 dataset = 1 instrument for 1 year.

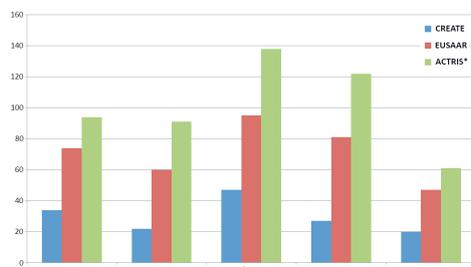


Figure 5: The number of datasets reported for single instruments in CREATE (blue), EUSAAR (red) and ACTRIS* (green). * Deadline for reporting of 2012 measurements was 31. July 2013 (follows EMEP deadline) and that are still in progress for 2012 data*

Templates

Data files submitted to EBAS need to be formatted in the EBAS NASA Ames 1001 format by the data provider. This format is based on the ASCII text NASA Ames 1001 format, but contains additional metadata specifications ensuring proper documentation. The first templates were defined already in 2008 in the context of the EUSAAR project, and in September 2013 formatting templates for 8 different measurement principles are available online on the submission guideline web pages common for GAW-WDCA and ACTRIS, located at <http://www.gaw-wdca.org>

This web page contains in addition information about recommended flags commonly used for the various measurement principles and compound names preferred by ACTRIS, about how to submit data to the data centre and on how to browse and obtain data from EBAS.

Conclusion

After more than 10 years of reporting aerosol measurements to the previous projects CREATE, and EUSAAR and currently to ACTRIS, (2012 and 2013, with 2011 and 2012 data respectively) we find significant achievements in terms of both quality and quantity of data. In ACTRIS the improvements in 2013 are seen in terms of fewer errors in the data format of the submitted files.

There is a small decrease in the number of data sets uploaded in the 2013 reporting (2012 data) but it has to be taken into account that the process of retrieving and processing data from 2012 is not expected to be completed until October 2013.

Most data sets have arrived to the data centre via the recommended ftp server, but some files are still submitted by e-mail. Feedback and discussion are welcome to improve the access and use of the data archived. Based on experiences from similar EU projects, both the number of data sets submitted to EBAS and the quality of the incoming data are expected to increase as the ACTRIS project develops and the established collaborations in the aerosols communities is strengthened.

Acknowledgement

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