Access to measurements of reactive trace gases 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 reactive trace gases within the European Infrastructure project ACTRIS (Aerosols, Clouds and Trace gas Research InfraStructure network).

EBAS http://ebas.nilu.no is the primary database for the ACTRIS reactive trace gas data, which includes numerous VOCs and NOx measurements from many European sites. Starting with almost no data sets of these variables available for Europe when ACTRIS started in 2011, the number of reactive trace gas data in EBAS September 2013 counts 532 datasets from 15 stations in 8 countries, from 5 different measurement principles. The data resolution range from 1h to 2/week, and for some parameters also the ACTRIS specified measurement uncertainty are included. This poster summarises and documents the data available in EBAS with respect to the distribution of sites, various gases, instrument types, time periods and other relevant information.

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, InGOS (halocarbons) and PEGASOS.

Templates

Data submitted to EBAS need to be formatted in the EBAS NASA-Ames format by the data provider. The EBAS data format is based on the ASCII text NASA-Ames 1001 format, but contains additional metadata specifications ensuring proper documentation.

Because the lack of harmonisation in the reporting format of the trace gas measurements in Europe there was a need to develop data reporting formats for continuous NOx and online and offline instruments (such as GC-FIDs and steel canisters) for NMHCs, OVOCs and terpenoids. Currently (September 2013), regular submission templates for online OVOC, and online and offline NMHC data are available. Two types of regular submission template for NOx data are also designed; EBAS uses different templates for photolytic and molybdenum converters.

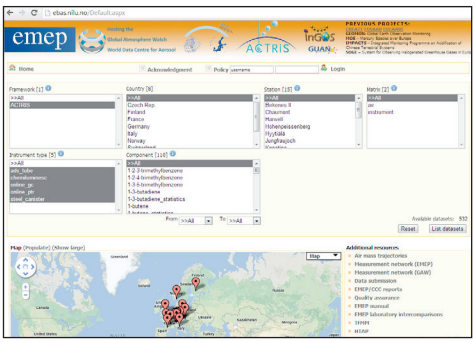

Figure 1: The EBAS web interface. The results of a search for ACTRIS WP4 tracegas data is shown.

Component group	Measurement Prinsiple	No. of datasets 2012	No. of stations/countries 2012	No. of datasets 2012+2013	No. of stations/countries 2012+2013
NMHC	online_gc	334	5/4	340	5/4
NMHC	steel_canister	115	3/2	115	3/2
OVOC	ads_tube	28	2/1	28	2/1
OVOC	online_ptr	3	1/1	25	2/2
NOx	chemiluminescense	22	9/4	24	11/4
	SUM	**502**	**11/7**	**532**	**14/8**

Table 1: Overview of the ACTRIS WP4 data submitted to EBAS in 2012 and submitted data accumulated for 2012 and 2013.

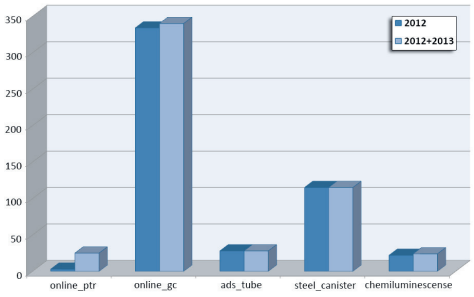

Figure 2: The number of trace-gas datasets (y-axis) available in EBAS for after the 2012 (dark blue) and 2012-2013 (light blue) reporting periods of ACTRIS.

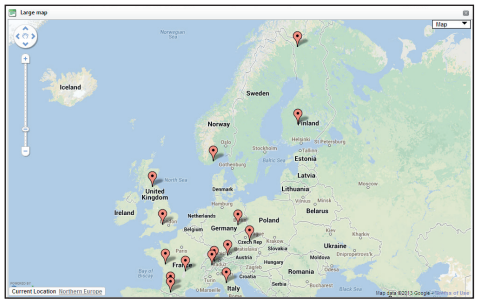

Figure 3: The geographical distribution of the stations reporting trace-gas data to EBAS in ACTRIS in 2012 and 2013.

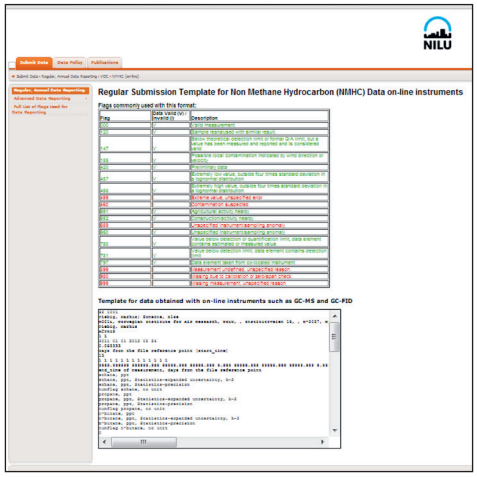

Figure 4: Example of date format template available through http://ebas-submit.nilu.no

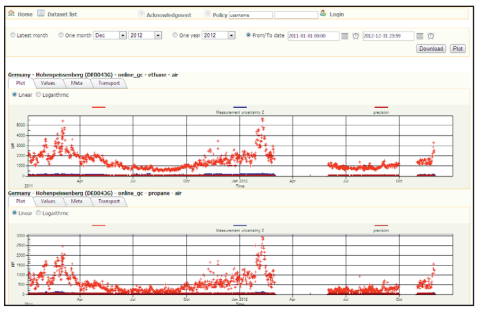

Figure 5: Example of visualisation of data. All time series, incl. following statistical parameters can be online plotted for quick look images before an evt. download of data.

The submission site for improved description of data format templates, reporting procedures etc. is located at http://ebas-submit.nilu.no/ . This web page does also contain information about recommended flags commonly used for the various measurement principles and compound names preferred by ACTRIS.

Conclusion

After two periods of reporting trace gas measurements to ACTRIS (in 2012 and 2013, with 2011 and 2012 data respectively) we find an improvement in 2013 in terms of more datasets uploaded and fewer errors in the format of the submitted files. There is a small increase in the number of data uploaded via the recommended ftp server, but some files are still submitted to the data centre 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 trace gas communities is strengthened.

Acknowledgement

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