



Updates from ACTRIS DC In Situ Unit

M. Fiebig and the EBAS Team

Topics

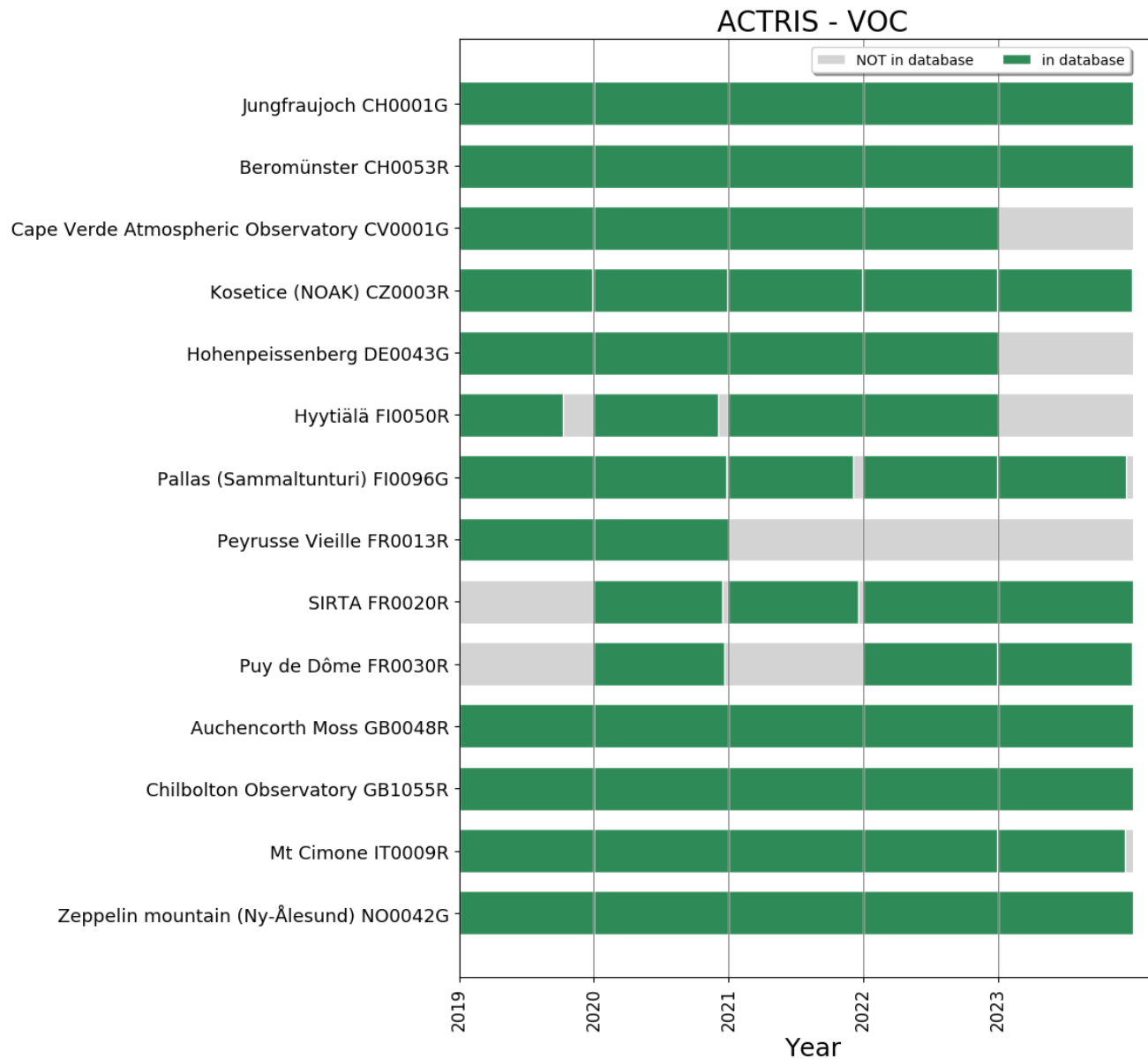
1. Data submission status.
2. Functions of portal for gas phase
3. Data identification






Data submission status



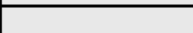



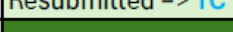


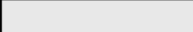
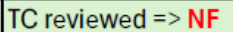







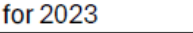





VOC Data Submission Status - Timeline

- Most expected submissions are in.
- Few long time series still have issues.
- One site stopped reporting



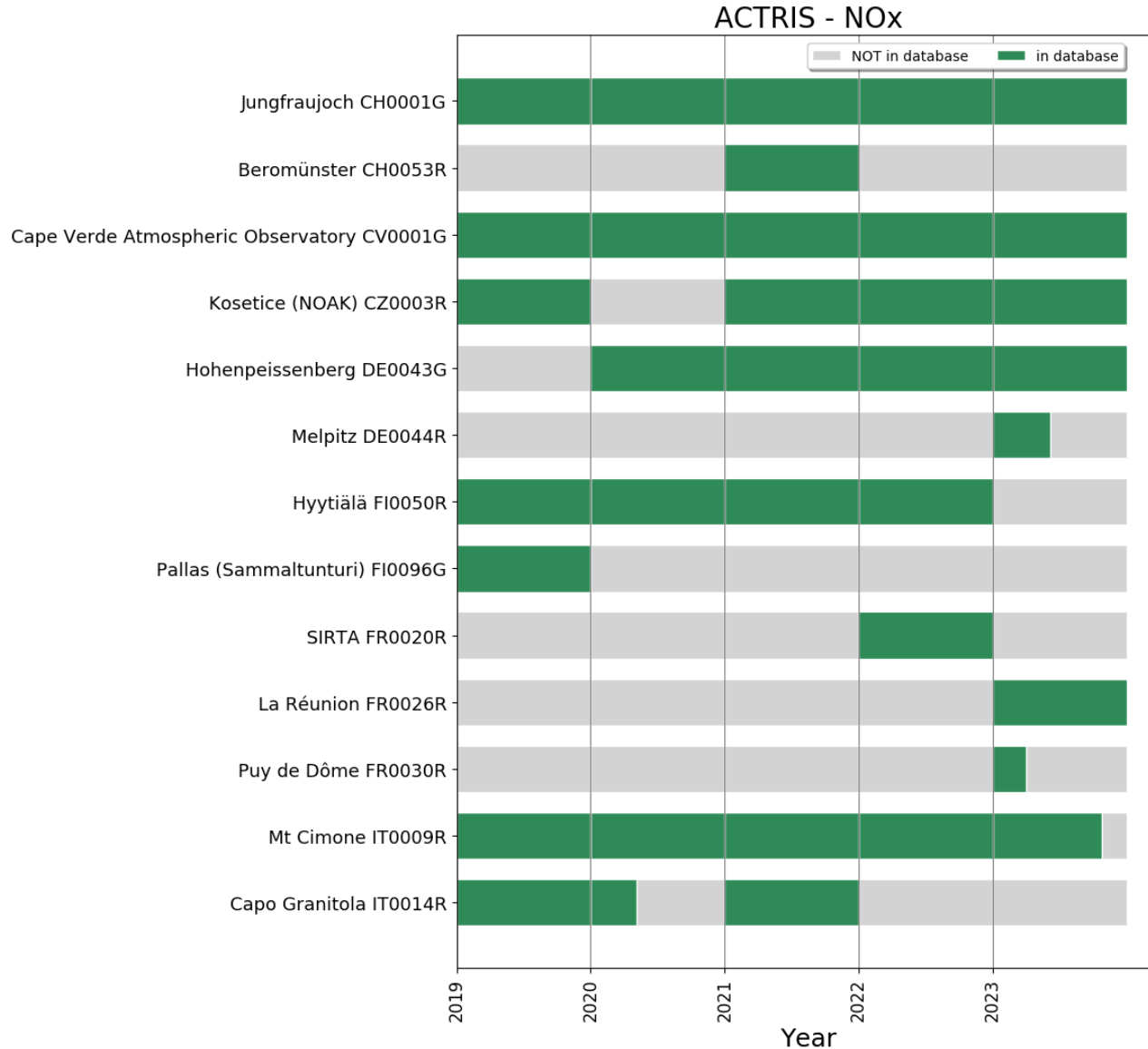
VOC Data Submission Status - Details

	No submission
	Submitted but not in EBAS (e.g. problem detected, check mantis)
	lev0 data are archived in EBAS. lev2 data are approved by TC and are in the EBAS database

	Station	Instrument	VOC for 2023		Mantis #
			lev0	lev2	lev0, lev2
1	CH0001G Jungfrauoch	online_gc			4125, 4126
2	CH0053R Beromünster	online_gc			4127, 4128
3	CV0001G Cape Verde Atmospheric Obs.	online_gc		Resubmitted => TC	4129, 4130
4	CZ0003R Kosetice (NOAK)	steel_canister			4149, 4150
5	DE0043G Hohenpeissenberg	online_gc		Resubmitted=> TC	4133, 4134
6	FI0050R Hyytiälä	PTR-MS		TC reviewed => NF	4145, 4146
7	FI0096G Pallas (Sammaltunturi)	online_gc			4135, 4136
8	FR0020R SIRTA	PTR-MS			4147, 4148
9	FR0030R Puy de Dôme	ads_tube			4123, 4124
		online_gc: No measurement for 2023			4143, 4144
10	GB0048R Auchencorth Moss	online_gc			4137, 4138
11	GB1055R Chilbolton Observatory	online_gc			4139, 4140
12	IT0009R Mt Cimone	online_gc			4141, 4142
13	NO0042G Zeppelin mountain (Ny-Ålesund)	online_gc			4119, 4120

- Most stations didn't submit level 0, i.e. measurement not traceable.
- Will impact labelling.

NO_x Data Submission Status - Timeline



- More sites than before.
- Several stations not available yet, data at TC.



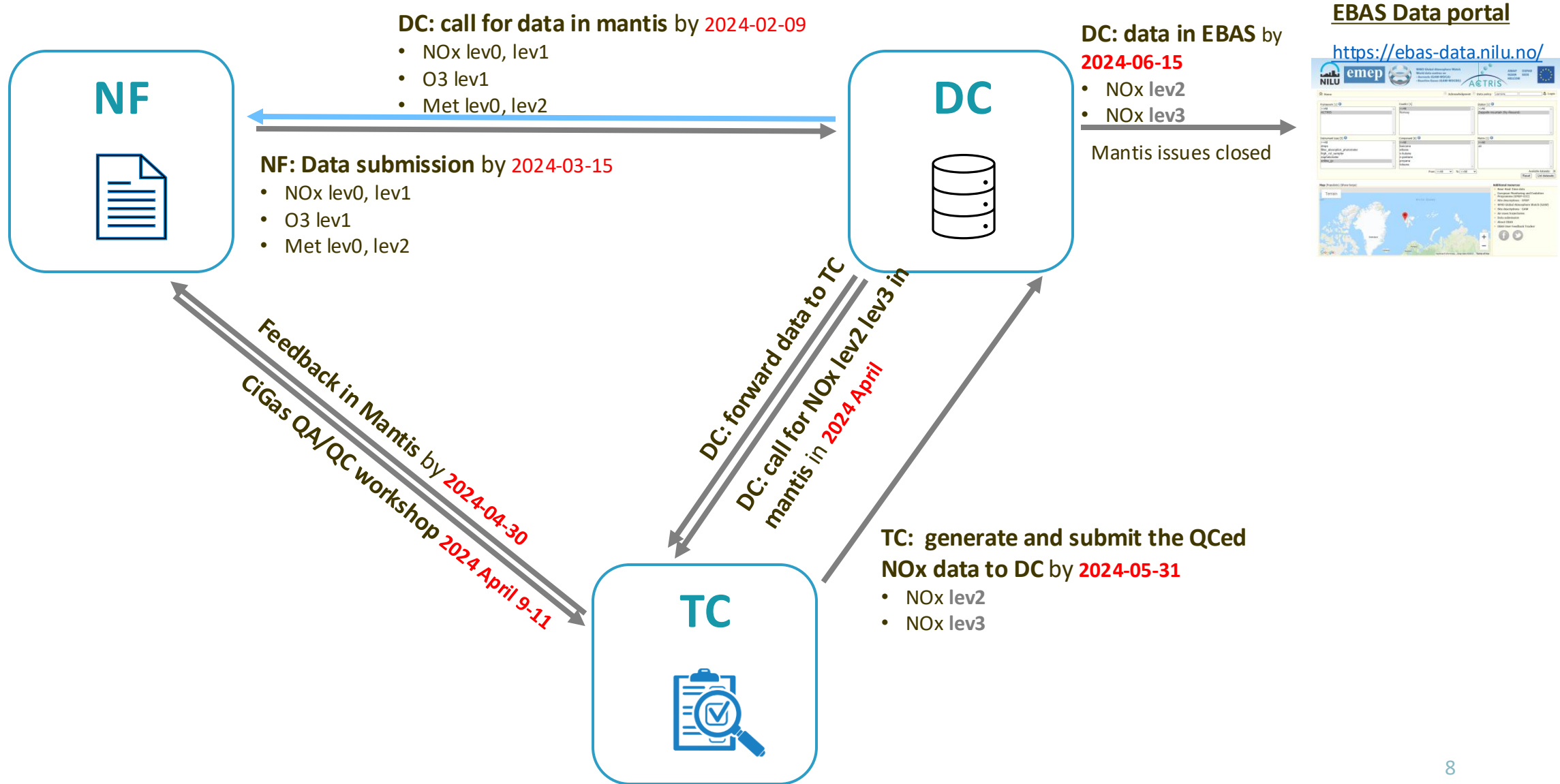
- No submission of Nox
- Submitted but not in EBAS (e.g. problem detected, check mantis)
- The lev2/lev3 data created by TC are in the EBAS database

	Station	NOx for 2023				Mantis #
		lev0	lev1	lev2	lev3	lev0, lev1
1	CH0001G Jungfrauoch - NO (photolytic)	Met	NO+O3	(#4878)	TC	4736, 4737
	Jungfrauoch - NO2 (laser)	Met	NO2+O3	(#4880)	TC	4738, 4739
2	CH0053R Beromünster - NO (molybdenum)	NO+Met	NO+O3	lev2(by NF) TC	TC	4820, 4821
	Beromünster - NO2 (CAPS)	NO2+Met	NO2+O3	lev2 (by NF) TC	TC	4822, 4823
3	CV0001G Cape Verde Atmospheric Obs.		NOx			4743, 4744
4	CZ0003R Kosetice (NOAK)					4748, 4749
5	DE0043G Hohenpeissenberg	NOx+Met	Nox+O3			4753, 4754
6	DE0044R Melpitz	NOx	NOx			4758, 4759
7	FI0050R Hyytiälä	Met		lev2 (by NF)		4763, 4764
8	FI0096G Pallas (Sammaltunturi)		O3			4840, 4841
9	FR0020R SIRTÀ	NOx+Met, Re-submitted (corrected)	NOx+O3(Re-submitted)	TC	TC	4768, 4769
10	FR0026R La Réunion (chem_photo_Teledyne_T2)	NOx+Met, O3 Re-submitted	NOx +O3(Re-submitted)		TC	4773, 4774
11	FR0030R Puy de Dôme - T200UP	NOx+Met	NOx+O3			4838, 4839
	Puy de Dôme -42i-TL(molybdenum)	NOx+Met	NOx+O3	in EBAS (EMEP)		4778, 4779
12	GB0048R Auchencorth Moss - T200UP		NO+O3+aws(lev2)	lev2(by NF) TC	TC	4960, 4961
	Auchencorth Moss - CAPS		NO2+O3+aws(lev2)	lev2(by NF) TC	TC	4958, 4959
13	IT0004R Ispra	NOx+O3	Met	TC	TC	4783, 4784
14	IT0009R Mt Cimone -- T200UP	NOx+Met	NOx+O3			4833, 4834
	Mt Cimone -- Tei42TL	NOx+Met	NOx+O3			4788, 4789
15	IT0014R Capo Granitola	no NOx measurements for 2023				4973, 4974

- Some datasets at TC for evaluation and processing.
- Some don't use ACTRIS NOx data workflow.
- Timeliness of data production at TC has improved.



ACTRIS NOx - *New* data workflow: from instrument to data portal ... via TC



Data Reporting Summary

- Still similar issues as compared to previous years (issues on issue tracker not completed by reporting deadline).
- However, improvements are visible.
- From next year, counting will refer to stations in labelling process.



Functions of portal for gas phase

Beta release of new ACTRIS data portal

Remove Basket Items | Help

Data Search

Number of data objects matching your search: 294345

Variable matrix
Search or select one or more items

Facility types
Search or select one or more items

Variables
Search or select one or more items

Facilities
 ACTRIS National Facility - In Progress
Search or select one or more items

Timeliness
Search or select one or more items

Start date
mm / dd / yyyy

End date
mm / dd / yyyy

Clear Filters

Advanced

Instruments
Search or select one or more items

Product type
Search or select one or more items

Facilities (690)

Legend:
Facilities
ACTRIS National Facility - In Progress



ACTRIS In Situ real-time data: latest progress



ACTRIS Tracegas In Situ Real-Time Variables

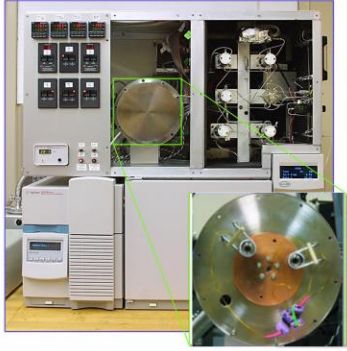


Photo: <https://agage.eas.gatech.edu/>
 gas chromatograph / mass spectrometer
 (GC-MS)
 volatile organic compound concentrations



Photo: <https://www.tesscorn-aerofluid.com/>
 Filter absorption photometer Proton Transfer –
 Mass Spectrometer (PTR-MS)
 volatile organic compound concentrations



ACTRIS In Situ station

Continuous data provision:

- 24 h per day.
- 365(366) days per year.
- Except calibration periods.



Photo: Teledyne
 Chemiluminescence detector +
 photolytic converter
 NO, NO₂, NO_x concentrations

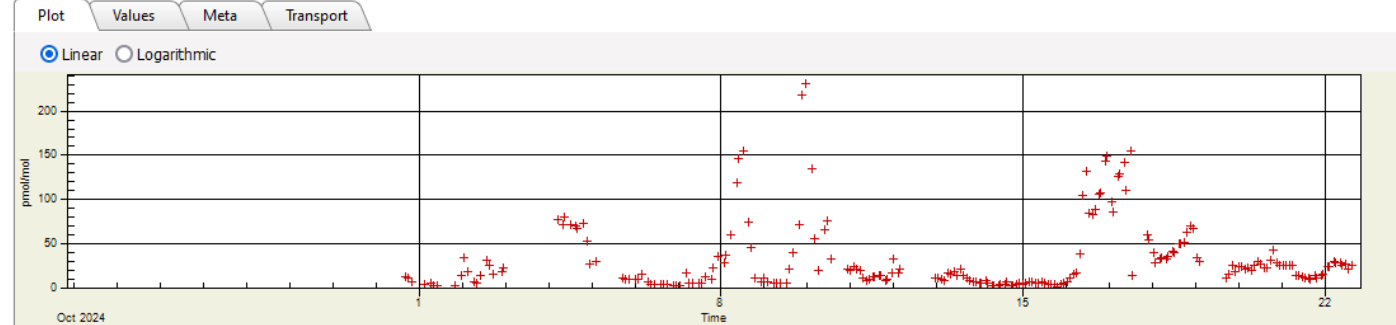


Photo: Thermo Fisher
 UV differential absorption photometer
 ozone concentration

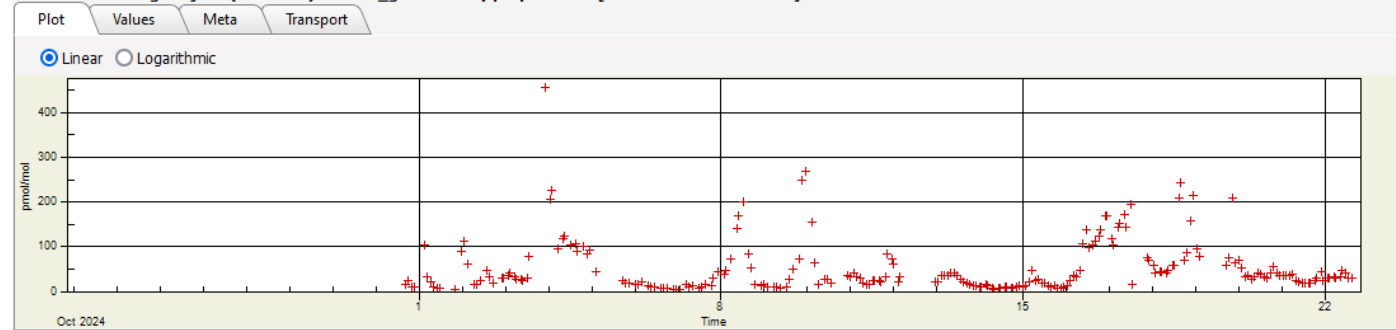


WP2: First GC-MS Pilot Station Online!

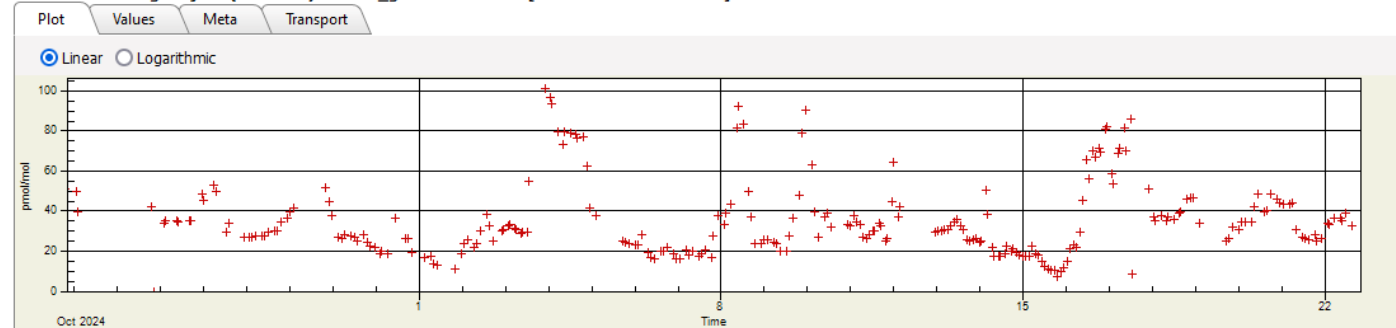
Switzerland - Jungfrauoch (CH0001G) - online_gc - 2-methylbutane - air [0001.01.01-2024.10.22]



Switzerland - Jungfrauoch (CH0001G) - online_gc - 2-methylpropane - air [0001.01.01-2024.10.22]



Switzerland - Jungfrauoch (CH0001G) - online_gc - benzene - air [0001.01.01-2024.10.22]



- Pilot station Jungfrauoch.
- First online GC-MS delivers RT data since start of October 2024.

WP2: Detailed Status



GC-MS RT workflow:

- First pilot instrument (Jungfraujoch) online.
- Workflow needs some fixes to resolve a calibration provenance issue.

PTR-MS RT workflow:

- Draft of software exists.
- Needs updates because of needed data format upgrades. Issue discovered during implementation.

WP3: Status

- DAQ software for NO_x, O₃, and auxiliary data exists.
- Developer tested.
- Next step: pilot test at Hohenpeissenberg

- Production software for NO_x drafted (FZ Jülich).
- Production software for O₃ drafted (NILU).

- Full pilot test planned before December 2024.



ACTRIS In Situ Data Identification



The Data FAIRness Principles

Findable

F1: (Meta)data have eternal PID.
F2: Rich metadata.

F3: Indexed in search portal and similar.
F4: Metadata include PID.

Accessible

A1: (Meta)data retrievable by PID with
standardised protocol
A1.1: open and free protocol

A1.2: authentication / authorization
possible
A2: Metadata always accessible

Interoperable

I1: (Meta)data use formal, accessible,
shared, broadly applicable language.
I2: (Meta)data use FAIR vocabulary.

I3: (Meta)data include qualified
references

Reusable

R1: (Meta)data have a plurality of
accurate and relevant attributes.
R1.1: (meta)data have data usage license.

R1.2. (meta)data document provenance.
R1.3. (meta)data meet domain-relevant
community standards.

Findable in Data Search Portals



Data Search

Variables ⓘ
Search or select one or more items

Facilities ⓘ
Search or select one or more items

Facility types ⓘ
Search or select one or more items

Timeliness ⓘ
Search or select one or more items

Matrix ⓘ
Search or select one or more items

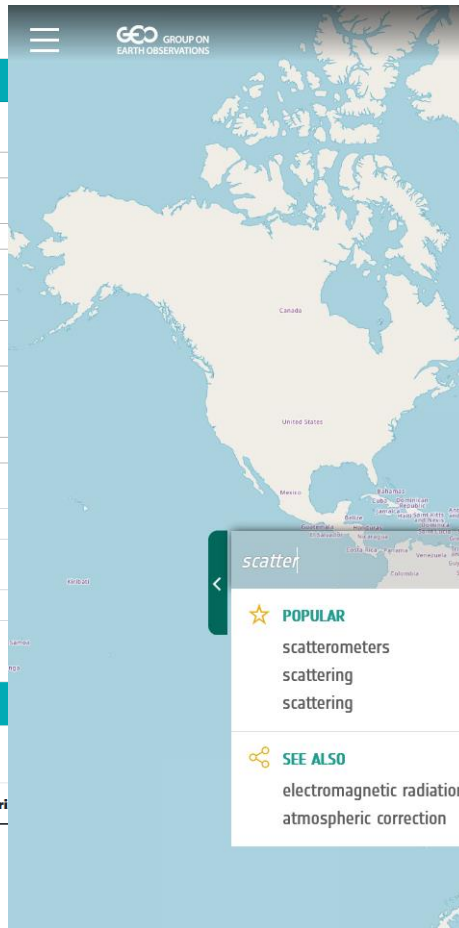
Start date
01/01/1970

End date
04/18/2024

Clear Search

Advanced Search

<input type="checkbox"/>	Title	Matrix
<input type="checkbox"/>	Drizzle data derived from	



GEOSS GROUP ON EARTH OBSERVATIONS

GEOSS Portal

scatter

FILTERS

Measurements of volume backwards scattering coefficient...
(Organisation: WIS GISC DWD)
This service provides nephelometer measurements of volume backwards...

Measurements of volume scattering coefficient in air due...
(Organisation: WIS GISC DWD)
This service provides nephelometer measurements of volume scattering...

Measurements of volume backwards scattering coefficient in air due to dried aerosol particles at Granada, Spain (20170430 - 20180425) 1 0.0

This service provides nephelometer measurements of volume backwards scattering coefficient in air due to dried aerosol particles observed at Granada, Spain (20170430 - 20180425). The observations contain level 1.5 data. The time resolution is 1h. The observations are stored in the EBAS database (<http://ebas.nilu.no/>).

See more

Measurements of volume backwards scattering coefficient...
(Organisation: WIS GISC DWD)
This service provides nephelometer measurements of volume backwards...

Measurements of volume scattering coefficient in air due...
(Organisation: WIS GISC DWD)
This service provides nephelometer measurements of volume scattering...

Ground based in situ

Measurements of volume

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FAIR Vocabulary

- <https://vocabulary.actris.no/>
- Well-defined terms («freetext»)
- Concepts may be used in a controlled way
- All concepts have definitions
- All concepts should be reviewed by experts.
- Well-defined relationships (ontology).
- Website is only the interface, the underlying database is not readable.

The screenshot displays the ACTRIS Vocabulary website interface. At the top, there is a navigation bar with links for 'Vocabularies', 'About', 'Feedback', 'Sparql Endpoint', 'REST API', and 'Help'. The interface language is set to 'English'. Below the navigation bar, the main content area is divided into two sections. The left section shows a hierarchical tree of terms under the heading 'ACTRIS Vocabulary'. The tree is organized into levels: 'data source', 'experiment', 'instrument', 'instrument model', 'instrument type', and 'filter absorption photometer'. The 'filter absorption photometer' term is highlighted in red. The right section shows a detailed view of the 'filter absorption photometer' concept. It includes a breadcrumb trail: 'data source > instrument > instrument type > light absorption spectrometer > filter absorption photometer'. The preferred term is 'filter absorption photometer'. The definition is: 'Instrument designed for measuring the particle light absorption coefficient by means of measuring the light attenuation across a filter while the filter is being loaded with sample particles.' The broader concept is 'light absorption spectrometer'. The narrower concepts are 'Aerosol AE31', 'Aerosol AE33', 'NOAA Continuous Light Absorption Photometer', and 'Thermo 5012'. The creator is 'https://orcid.org/0000-0002-3380-3470'. The URI is 'https://vocabulary.actris.nilu.no/actris_vocab/filterabsorptionphotometer'. The download options are 'Download this concept: RDF/XML TURTLE JSON-LD'.

The Data FAIRness Principles

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How ACTRIS In Situ / EBAS Landing Pages Implement FAIRness

<https://doi.org/10.48597/AMG9-62FQ>

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F4: Metadata include PID

A1: (Meta)data retrievable by PID with standardised protocol

I3: (Meta)data include qualified references

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R1.3: (meta)data meet domain-relevant community standards.

- Page content and presentation carefully crafted to follow ENVRI-FAIR recommendations.
- Example: citation string recommendation

Aerosol light scattering at Birkenes II
1 January 2010 - 1 January 2023

Summary Data coverage

Product information

Variable(s) aerosol_light_scattering_coefficient, aerosol_light_backscattering_coefficient, relative_humidity, temperature, pressure

Product type [Observation](#)

Instrument type(s) Nephelometer

Timeliness [Scheduled](#)

Start time 1 January 2010

Stop time 1 January 2023

Framework NILU, GAW-WDCA, ACTRIS, EMEP

Instrument model(s) TSI/3563

Facility information

Facility name Birkenes II (NO0002R)

Facility type [Observation platform, fixed](#)

Coordinates [58.38853°N, 8.252°E](#)

Altitude 219.0 m

File information

PID <https://doi.org/10.48597/BPPN-MZBH>

Filename BPPN-MZBH.nc

Format(s)

Filesize

Version

Last modified

Data Access

Metadata access

Provenance (to be completed)

Software

Version history

Citation & acknowledgements

License [CC BY 4.0](#)

Citation string [Fiebig, M., Lunder, C. NILU, GAW-WDCA, ACTRIS, EMEP, 2010-2023, Aerosol light scattering at Birkenes II, data hosted by EBAS at NILU, DOI: https://doi.org/10.48597/BPPN-MZBH](#)

Please include the following information in your publication. You may edit the text to suit publication standards.

Acknowledgements

Data used in this <study/report/figure/etc.> were accessed from EBAS (<https://ebas.nilu.no/>) hosted by NILU. Specifically, the use included data affiliated with the framework: NILU, GAW-WDCA, ACTRIS, EMEP

Originator(s)

Markus, Fiebig Norwegian Institute for Air Research

Chris, Lunder Norwegian Institute for Air Research

Principal investigator(s)

Markus, Fiebig Norwegian Institute for Air Research

Chris, Lunder Norwegian Institute for Air Research

Download

Catalog <https://thredds.nilu.no/thredds/catalog.html>

Dataset	Size	Last Modified
EBAS/		--
ACTRIS_NRT/		--
EBAS_DOI/		--
EBAS_NRT/		--

TDS installation for EBAS data at ATMOS see [Info](#)

Documentation

A2: Metadata always accessible

A newer version of this dataset is available.

Aerosol light scattering at Birkenes II

1 January 2010 - 1 January 2022

[Download](#)

Summary | **Data coverage**

Product information

Variable(s)	aerosol_light_scattering_coefficient, aerosol_light_backscattering_coefficient, relative_humidity, temperature, pressure
Product type	Observation
Instrument type(s)	Nephelometer
Timeliness	Scheduled
Start time	1 January 2010
Stop time	1 January 2022
Framework	NILU, GAW-WDCA, ACTRIS, EMEP
Instrument model(s)	TSI/3563

Facility information

Facility name	Birkenes II (NO0002R)
Facility type	Observation platform, fixed
Coordinates	58.38853°N, 8.252°E
Altitude	219.0 m

File information

PID	https://doi.org/10.48597/VJPE-7ZQY
Filename	VJPE-7ZQY.nc
Format(s)	HDF5 (NetCDF4)
Filesize	48.0 MB
Version	v2
Last modified	23 May 2022 14:11:11
Data Access	OPENDAP DAP4 HTTPServer
Metadata access	NCML VDDC ISO

Provenance (to be completed)

Software	ebas-io
Version history	Concept DOI

Citation & acknowledgements

Licence [CC BY 4.0](#)

Citation string
Fiebig, M., Lunder, C. NILU, GAW-WDCA, ACTRIS, EMEP, 2010-2022, Aerosol light scattering at Birkenes II, data hosted by EBAS at NILU, DOI: <https://doi.org/10.48597/VJPE-7ZQY>

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- Each dataset version has its own DOI and landing page.
- Also obsolete dataset versions are still accessible by the same interfaces.
- Obsolete datasets are clearly marked as such.



Landing Page Types: Version and Concept

Aerosol light scattering at Birkenes II

1 January 2010 - 1 January 2023

Concept Summary

Product information

Variable(s)

Product type

Instrument type(s)

Timeliness

Start time

Stop time

Framework

Instrument model(s)

PID

Facility information

Facility name

Facility type

Coordinates

Altitude

Aerosol light scattering at Birkenes II

1 January 2010 - 1 January 2023

Concept Summary

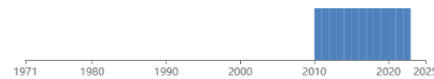
Versions

Latest version

DOI <https://doi.org/10.48597/BPPN-MZBH>

Start time 1 January 2010

Stop time 1 January 2023



Previous versions

DOI <https://doi.org/10.48597/VJPE-7ZQY>

Start time 1 January 2010

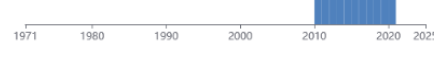
Stop time 1 January 2022



DOI <https://doi.org/10.48597/9Vfy-E5BY>

Start time 1 January 2010

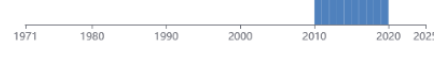
Stop time 1 January 2021



DOI <https://doi.org/10.48597/K4H6-UUVQ>

Start time 1 January 2010

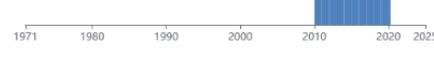
Stop time 1 January 2020



DOI <https://doi.org/10.48597/V4V7-3Y5B>

Start time 1 January 2010

Stop time 16 April 2020



DOI <https://doi.org/10.48597/XZ5V-59U2>

Start time 1 January 2010

Stop time 1 January 2020



DOI <https://doi.org/10.48597/D5AH-3EM6>

Start time 1 January 2010

Stop time 1 January 2019



Aerosol light scattering at Birkenes II

1 January 2010 - 1 January 2023

Download

Summary

Data coverage

Product information

Variable(s) aerosol_light_scattering_coefficient, aerosol_light_backscattering_coefficient, relative_humidity, temperature, pressure

Product type [Observation](#)

Instrument type(s) Nephelometer

Timeliness [Scheduled](#)

Start time 1 January 2010

Stop time 1 January 2023

Framework NILU, GAW, WDCA, ACTRIS, EMEP

Instrument model(s) TSI/3563

Facility information

Facility name Birkenes II (N00002R)

Facility type [Observation platform, fixed](#)

Coordinates

Altitude

File information

PID

Filename

Format(s)

Filesize

Version

Last modified

Data Access

Metadata access

Provenance (to be completed)

Software

Version history

Citation & acknowledgements

License [CC BY 4.0](#)

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Filesize 48.0 MB

Version v2

Last modified 23 May 2022 14:11:11

Data Access [OPEN/OLAP](#)

[Data](#)

[HTTServer](#)

Metadata access [NILU](#)

[UQDC](#)

[ISO](#)

Provenance (to be completed)

Software [ebas.io](#)

Version history [Concept DOI](#)

Citation & acknowledgements

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Citation string Fiebig, M., Lunder, C. NILU, GAW, WDCA, ACTRIS, EMEP, 2010-2022, Aerosol light scattering at Birkenes II, data hosted by EBAS at NILU, DOI: <https://doi.org/10.48597/VJPE-7ZQY>

Please include the following information in your publication. You may edit the text to suit publication standards.

Acknowledgements Data used in this <study/report/figure/etc.> were accessed from EBAS (<https://ebas.nilu.no>) hosted by NILU. Specifically, the use included data affiliated with the framework: NILU, GAW, WDCA, ACTRIS, EMEP

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Principal Investigator(s)

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Chris, Lunder Norwegian Institute for Air Research

Data FAIRness – Are We There?

Each FAIRness requirement is connected to a FAIR Enabling Resources (FER)!

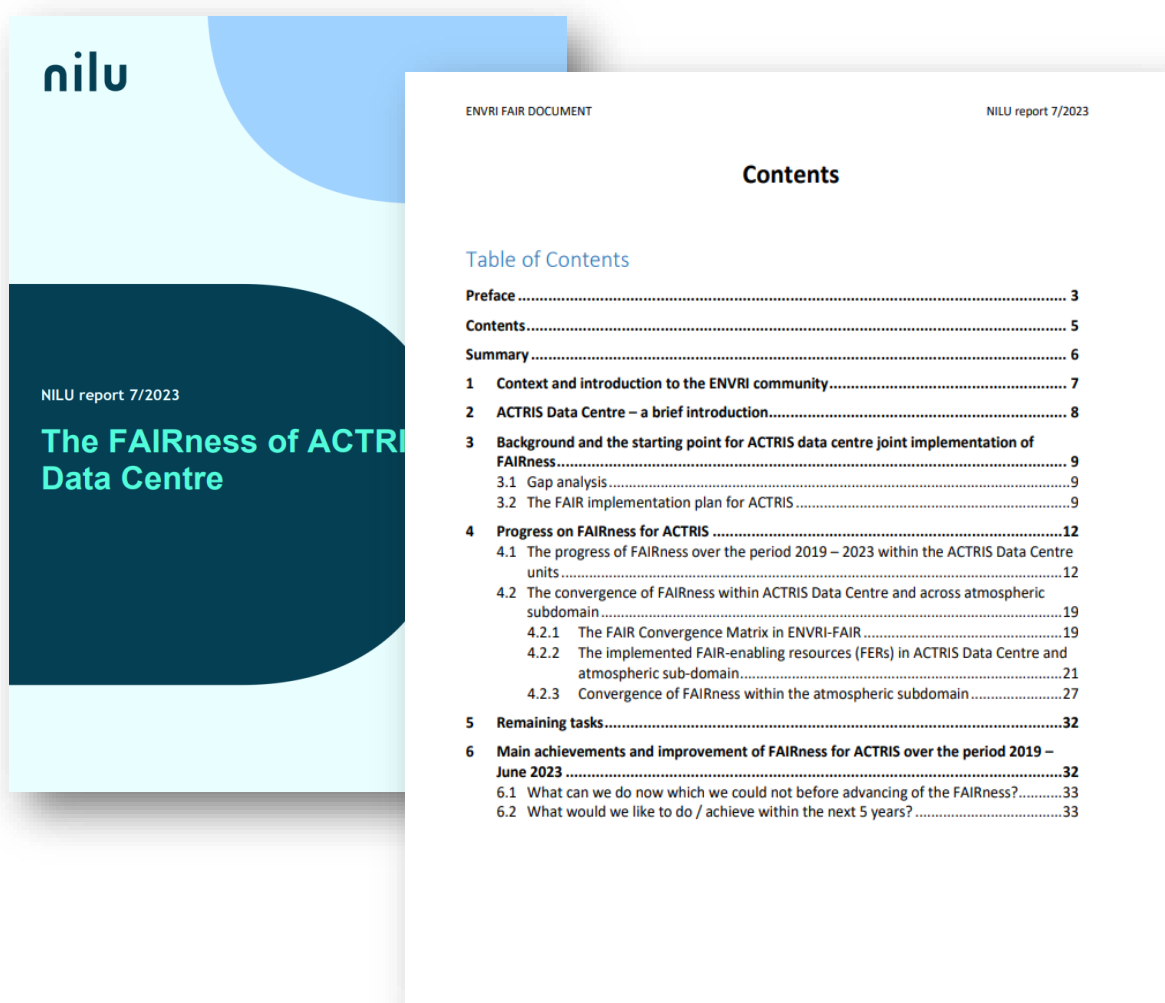
- **Data format / profile:** NetCDF (CF, ACDD)
- **Transfer protocol:** OPeNDAP, DAP4, HTTPserver
- **Metadata formats:** NCML, UDDC, ISO
- **Vocabulary:** Jena-Fuseki, SKOSMOS, I-ADOPT
- ...

Data FAIRness works best if a community agrees on using the same FERs.

The process towards agreeing on common FERs is called:

FAIR Convergence

NILU report on FAIRness of ACTRIS Data Center and EBAS



Document the **achievements** and **convergence** of FAIRness within ACTRIS Data Centre and across atmospheric subdomain (ACTRIS, ICOS-atm, SIOS-atm, IAGOS, EISCAT-3d)

Explains

- FAIR Implementation Profile (FIP)
- FAIR-enabling resources (FERs) in ACTRIS Data Centre and full atmospheric sub-domain

*Implementation as part of ENVRI-FAIR and ACTRIS-Norway
Lund Myhre et al, 2024 NILU Brage: [The FAIRness of ACTRIS Data Centre \(unit.no\)](#)*

How Do I Use This Now?



Ultimate Solution: the New ACTRIS / EBAS Data Portal



Data Search

Matrix **1**
Search or s

Facility types **1**
Search or s

Variables **1**
Search or s

Facilities **1**
Search or s

Timeliness **1**
Search or s

Start date
01 / 01 / 15

End date
04 / 22 / 20

Clear Search

Advanced Search

<input type="checkbox"/>	Title	Matrix
--------------------------	-------	--------



Basket

The basket contains your selected datasets.

[Search datasets](#) [Remove all datasets](#)

Ethane partial and total column from FTIR at Paramaribo - 26 September 2004

Matrix: gas phase

Instrument: Fourier Transform Infrared Spectrometer

Facility: Paramaribo

Coverage: 2004-09-26 16:40:33 -> 2004-11-23 12:13:22

Variables: ethane partial column molecular content, ethane total column molecular content

[Inspect](#) [Go to DOI landing page](#) [Download](#)
[Remove](#)

Ethane partial and total column from FTIR at Paramaribo - 13 February 2005

Matrix: gas phase

Instrument: Fourier Transform Infrared Spectrometer

Facility: Paramaribo

Coverage: 2005-02-13 15:26:46 -> 2005-10-30 15:48:45

Variables: ethane partial column molecular content, ethane total column molecular content

[Inspect](#) [Go to DOI landing page](#) [Download](#)
[Remove](#)

Data Search

Matrix **1**
gas phase

Facility types **1**
Search

Variab **1**
Search

Faciliti **1**
Search

Timeli **1**
Search

Start c
01 /

End di
04 /

Clear

Advant

<input type="checkbox"/>	Title	Matrix
<input checked="" type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 26 Sep 2004	
<input checked="" type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 13 Feb	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 14 Mar	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 18 Feb	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 07 Nov 2008	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 08 Nov 2010	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 03 Mar	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 26 Oct	
<input type="checkbox"/>	Ethane partial and total col. FTIR at Paramaribo - 07 Mar	
<input type="checkbox"/>	Ethane partial and total column from FTIR at Paramaribo - 24 February 2016	gas phase

Showing 1 to 10 of 10 rows

The list is not empty. [Select all](#) [Remove](#) [Add selection to basket](#)

< 1 2 3 ... 102 >

Meanwhile – Classical Quotation of Data

In NASA-Ames file:

```
93.1001
Fiebig, Markus; Lunder, Chris
NO01L, Norwegian Institute for Air Re
Lunder, Chris; Bäcklund, Are
ACTRIS-EMEP-GAW-WDCA-NILU
1.1
2022-01-01-2023-06-23
0.041667
days from file reference point
11
1.1.1.1.1.1.1.1.1.1
999.999999.9999.999999.9999.999999.9999
end time of measurement, days from th
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
aerosol_light_scattering_coefficient,
numflag, no unit
0
68
Data definition:.....EBAS_1.
Data license:....."https:
Citation:....."Fiebig
Set type code:.....TU
Timezone:.....UTC
File name:.....NO0002R
Represents DOI:.....
Contains data from DOI:....."https:
File creation:.....
Export state:.....2024040
Export filter:.....exclude
Startdate:.....2022010
Revision date:.....2023062
Version:.....1
Version description:.....initial
Data level:.....2
Period code:.....1y
Resolution code:.....1h
Sample duration:.....1h
Orig time res:.....30s
```

In NetCDF file:

```
// global attributes:
:Conventions = "CF-1.8, ACDD-1.3";
:featureType = "timeSeries";
:title = "Aerosol light scattering at Birkenes II";
:keywords = "pml0, E
aerosol_light
:id = "BPPN-MZBH.nc"
:naming_authority = "no.nilu.ebas";
:project = "ACTRIS,
:acknowledgement = "
:doi = "https://doi.
:license = "https://
:citation = "Fiebig,
:summary = "Aerosol
:source = "surface c
:institution = "NO01
:processing_level =
:date_created = "202
:date_metadata_modif
:creator_name = "Mar
:creator_type = "per
:creator_email = "Ma
:creator_institution
:contributor_name =
:contributor_role =
:publisher_type = "i
:publisher_name = "N
:publisher_instituti
:publisher_email = "
:publisher_url = "ht
:geospatial_bounds =
:geospatial_bounds_c
:geospatial_lat_min
```

On landing page:

Aerosol light scattering at Birkenes II

1 January 2010 - 1 January 2023

Download

Summary	Data coverage
Product information	
Variable(s)	aerosol_light_scattering_coefficient, aerosol_light_backscattering_coefficient, relative_humidity, temperature, pressure
Product type	Observation
Instrument type(s)	Nephelometer
Timeliness	Scheduled
Start time	1 January 2010
Stop time	1 January 2023
Framework	NILU, GAW-WDCA, ACTRIS, EMEP
Instrument model(s)	TSI/3563
Facility information	
Citation & acknowledgements	
Licence	CC BY 4.0
Citation string	Fiebig, M., Lunder, C. NILU, GAW-WDCA, ACTRIS, EMEP, 2010-2023, Aerosol light scattering at Birkenes II, data hosted by EBAS at NILU, DOI: https://doi.org/10.48597/BPPN-MZBH
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Outlook: See Where Your Data Has Been Used!

The screenshot displays the OpenAIRE EXPLORE interface for a research article. The article title is "Changes in black carbon emissions over Europe due to COVID-19 lockdowns". The page is divided into several sections:

- Navigation:** Search, Deposit, Link, Data sources, Funders, and Sign in options are visible at the top.
- Article Information:** The article is categorized under "Atmospheric Chemistr...". It is a "Publication" (Article, Other literature type, Preprint) funded by the EC | ACTRIS-2, AKA | Centre of Excellence in A. The authors listed are N. Evangeliou, S. M. Platt, and S. Eckhardt, C.
- Identifiers:** DOI: 10.5194/acp-2020-1005, 10.5194/acp-21-; HANDLE: 20.500.11765/12705, 20.500.12666/10138/344415.
- Metrics and Usage:**
 - IMPACT BY BIP!** (BIP icon): Citations (48), Popularity (TOP 1%), Influence (TOP 10%), and Impulse (TOP 1%).
 - UsageCounts** (UsageCounts icon): Views (357) and Downloads (429).
 - Social Media:** Blogged by 1, Tweeted by 9, and 21 readers on Mendeley.
 - Other Metrics:** A circular gauge shows a value of 17.
- Abstract:** The abstract begins with "Following the emergence of the severe acute res... 2019 in Wuhan (China) and its spread to the re... 2020. Without effective treatment in the initial p... only available preventative measure. In contrast... lockdowns were applied, due to lower pollutant... ambient black carbon (BC), which affects clim... Bayesian inversion framework. BC emissions de... during lockdowns compared to the same peri..."

Data Analysis in Virtual Research Environment

The image shows a screenshot of a JupyterLab interface running in a web browser. The browser's address bar shows the URL `https://dev-actris-vre.nilu.no/user/mf@nilu.no/lab`. The JupyterLab interface includes a top menu bar with options like File, Edit, View, Run, Kernel, Tabs, Settings, and Help. On the left, there is a file browser pane with a search bar and a table of files, including 'Untitled.ipynb' modified 6 minutes ago. The main area is the 'Launcher' view, which offers options to create a Notebook, Console, or Other file types. Under 'Notebook', there are two 'Python 3 (ipykernel)' options. Under 'Other', there are icons for Terminal, Text File, Markdown File, Python File, and Show Contextual Help. The bottom status bar shows 'Simple' mode, 0 files, 1 kernel, and 195.00 MB of memory usage.

