



SWEDISH ENVIRONMENTAL PROTECTION AGENCY



SHAIR

Metadata editor

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SWEDISH DATA HOST: NEW METADATA EDITOR

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Swedish EPA

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SMHI

Current system: excel-based reporting

Årlig rapportering enligt 36 § eller 39 § NFS 2016:9										
Information om luftintag (per uppmätt luftförorening)						Utsläpp (per uppmätt luftförorening)				
Förorening (meny)*	Höjd över mark (m)*	Avstånd från väggkant (m)*	Avstånd till husfasad (m)*	N-koordinat*	E-koordinat*	Koordinatsystem (meny)*	Den utsläppskälla som i huvudsak påverkat de uppmätta halterna (meny)*		Om utsläppskällan inte finns i listan, eller om flera är relevanta, kan källan/källorna anges här*	Utsläpp från vägt på en sträcka av 100 m (ton/km per)
Sot i aerosol	3	0,5	3	59,317222	18,048866	SWEREF99 (EPSG:4619)	Transport			
Kolmonoxid i luft	3	0,5	3	59,317249	18,048889	SWEREF99 (EPSG:4619)	Transport			
Kvävedioxid i luft	3	0,5	3	59,317249	18,048889	SWEREF99 (E				
Kväveoxider i luft	3	0,5	3	59,317249	18,048889	SWEREF99 (E				

Årlig rapportering av mätdata enligt 36 § eller 39 § NFS 2016:9									
Typ av mätningar*	Kontinuerliga	Kontinuerliga	Kontinuerliga	Kontinuerliga	Kontinuerliga				
Antal värden	5418	8620	8663	8695					
Tidstäckning*	100,0%	100,0%	100,0%	100,0%					
Datafångst	61,8%	98,4%	98,9%	99,3%					
Max halt	6,4	2,7	167,5	882,0					
Min halt	0,0	0,0	1,4	1,6					
Medelvärde	1,0	0,3	34,8	80,2					

Tidsreferens	Svensk normaltid	ug,m-3	mg,m-3	ug,m-3	ug,m-3	ug,m-3
starttid	stoptid	Sot i aerosol	Kolmonoxid i luft	Kvävedioxid i luft	Kväveoxider i luft	Ozon i luft
2018-01-01 00:00	2018-01-01 01:00	0,66	0,3	12,7	13,6	
2018-01-01 01:00	2018-01-01 02:00	0,98	0,3	11,0	12,9	
2018-01-01 02:00	2018-01-01 03:00	0,27	0,3	8,9	9,7	
2018-01-01 03:00	2018-01-01 04:00	0,29	0,3	9,3	10,3	
2018-01-01 04:00	2018-01-01 05:00	0,30	0,3	8,0	8,9	
2018-01-01 05:00	2018-01-01 06:00	0,37	0,3	20,1	33,6	
2018-01-01 06:00	2018-01-01 07:00	0,76	0,3	26,2	57,3	
2018-01-01 07:00	2018-01-01 08:00	0,32	0,2	10,6	15,5	
2018-01-01 08:00	2018-01-01 09:00	0,23	0,2	9,2	10,7	
2018-01-01 09:00	2018-01-01 10:00	0,21	0,2	8,2	8,7	
2018-01-01 10:00	2018-01-01 11:00	0,20	0,2	8,5	10,6	
2018-01-01 11:00	2018-01-01 12:00	0,22	0,2	8,9	10,2	

- Annual reporting via excel
- Template with 11 tabs
- Metadata & validated data for datasets D, D1b, E1a, E1b, G
- Approx. 130 different metadata fields
- Not fit for purpose!!

New development project: web-based metadata editor

- Focus on station/measurement metadata (dataset D)
- Planned to implement in Swedish data host and potential future bilateral projects
- On-going project – plan to finalise during 2020
- First prototype is available

Prototype demonstration

Frank van der Stelt | Admin

- Overview
- General information
- Stations
- Inlets
- Measurement information
- Emission information
- Data upload

Overview

Station	Pollutants	
<input checked="" type="checkbox"/> Jönköping Barnarpsgatan 15382	PM10	▼
<input type="checkbox"/> Jönköping Kungsgatan 2A 157858	SO2	▼
<input type="checkbox"/> Jönköping Kungsgatan 18650		▼
<input type="checkbox"/> Jönköping Lantmätaregränd 36365	PM10	▼

Show Add pollutant

Prototype demonstration

Frank van der Stelt | Admin

- Overview
- General information
- Stations**
- Inlets
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- Emission information
- Data upload

Station information - edit

Save changes

Station name: Station ID:

Latitude: Longitude: **Select on map**

Begin time: End time: Altitude:

Average facade heights: Street width: Traffic volume:

Traffic speed (km/h): Distance junction: Heavy duty fraction (%):

Local dispersion: Regional dispersion:

Station classification: Area classification:

Prototype demonstration

Frank van der Stelt | Admin

- Overview
- General information
- Stations
- Inlets**
- Measurement information
- Emission information
- Data upload

Inlet information - edit

SPO_F-SPO_F-SE0075A_00005_100_100

Station	Pollutant
Jönköping Barnarpsgatan	PM10

Latitude: 57.7766647338867 Longitude: 57.7766647338867 [Select on map](#)

Inlet height	Building distance	Kerb distance
4	1	4

[Save changes](#)

Prototype demonstration

Frank van der Stelt | Admin

- Overview
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- Inlets
- Measurement information**
- Emission information
- Data upload

Measurement information - edit

SPP-SE_Gravimetric_IVL_PMmodell_5_10

Station Jönköping Barnarpsgatan	Pollutant PM10
Measurement equipment <input type="text"/>	Sampling equipment <input type="text"/>
Equivalence demonstrated yes	
Detection limit 2.09	Uncertainty <input type="text"/>
Duration unit Minute	Duration 1
Cadence unit Minute	Cadence 1
Description of traceability and uncertainty <input type="text"/>	

Clone Save changes

Prototype demonstration

Frank van der Stelt | Admin

Overview
General information
Stations
Inlets
Measurement information
Emission information
Data upload

Emission information - edit

SPO_F-SE0075A_00005_100_100

Station: Jönköping Barnarpsgatan

Pollutant: PM10

Main emission source: Transport

Traffic emissions (ton/year):

Industrial emissions (ton/year):

Heating emissions (ton/year):

Distance street: 4

Distance industry:

Clone Save changes

Prototype demonstration

Frank van der Stelt | Admin

- Overview
- General information
- Stations
- Inlets
- Measurement information
- Emission information
- Data upload**

Data upload

Upload data | Excel or CSV format

Station

Pollutant

Choose a file:

Upload file

Questions to other countries / EEA

- Are there similar metadata editors already developed in other countries?
- Are any countries planning similar developments?
Potential for co-operation?
- Alternative solutions to web-based editor?
- Help from EEA/ETC with mapping/linking related codelists? E.g. measurement equipment, measurement method, measurement type.



INSPIRE download services

The screenshot shows the QGIS interface with a map of Sweden displaying numerous sampling points. The 'Identifiersresultat' panel on the right displays the following data for a selected object:

Objekt	Värde
samplingpoint_inspireid_...	SE.NV.AQ
samplingpoint_used_aqd	true
samplingpoint_observed...	http://dd.eionet.europa.eu/vocabul...
samplingpoint_observed...	PM10
samplingpoint_observed...	Particulate matter < 10 µm
samplingpoint_observing...	2002-02-12Z
samplingpoint_observin...	2018-10-17Z
samplingpoint_begin_po...	2002-02-12Z
samplingpoint_end_posit...	
samplingpoint_process_t...	http://inspire.ec.europa.eu/codeList...
samplingpoint_result_nat...	http://inspire.ec.europa.eu/codeList...
samplingpoint_measure...	http://inspire.ec.europa.eu/codeList...
samplingpoint_station_cl...	http://dd.eionet.europa.eu/vocabul...
samplingpoint_main_emi...	http://dd.eionet.europa.eu/vocabul...
sample_shape_srs_name	urn:ogc:def:crs:EPSG::4258
sample_shape_latitude	59,3172224331124
sample_shape_longitude	18,0486603472042
sample_height	3
sample_height_uom	http://dd.eionet.europa.eu/vocabul...
station_inspireid_namesp...	SE.NV.AQ
station_name	Stockholm Hornsgatan 108 Gata
station_natstationcode	8780
station_media_monitored	http://inspire.ec.europa.eu/codeList...
station_geometry_srs_na...	urn:ogc:def:crs:EPSG::4258
station_measurement_re...	http://inspire.ec.europa.eu/codeList...
station_latitude	59,3172224331124
station_longitude	18,0486603472042
station_mobile	false
station_begin_position	1981-03-18Z
station_end_position	

INSPIRE download services

- Requirement for INSPIRE download services for priority data sets by December 2019.
- Priority data sets for Air Quality Directive:
 - Management zones and agglomerations (IPR dataset B)
 - AQ monitoring stations (IPR dataset D)
 - AQ model areas (IPR dataset D1b)
 - All AQ data (i.e. both measurement & modelling) associated with AQ monitoring stations (IPR datasets E1a, E1b, E2b)

Swedish AQ download services: WFS, WMS, SOS, AQD, REST

B: https://shair.smhi.se/aqd/wfs?service=WFS&request=GetFeature&typeName=dataflow_B

C: https://shair.smhi.se/aqd/wfs?service=WFS&request=GetFeature&typeName=dataflow_C

D: https://shair.smhi.se/aqd/wfs?service=WFS&request=GetFeature&typeName=dataflow_D

D1b: https://shair.smhi.se/aqd/wfs?service=WFS&request=GetFeature&typeName=dataflow_D1B

E1a / E2a:

<https://shair.smhi.se/52North/service?REQUEST=GetCapabilities&service=SOS&version=2.0.0>

<https://shair.smhi.se/52North/service?REQUEST=GetCapabilities&service=AQD&version=1.0.0>

E1b: https://shair.smhi.se/aqd/wfs?service=WFS&request=GetFeature&typeName=dataflow_E1B

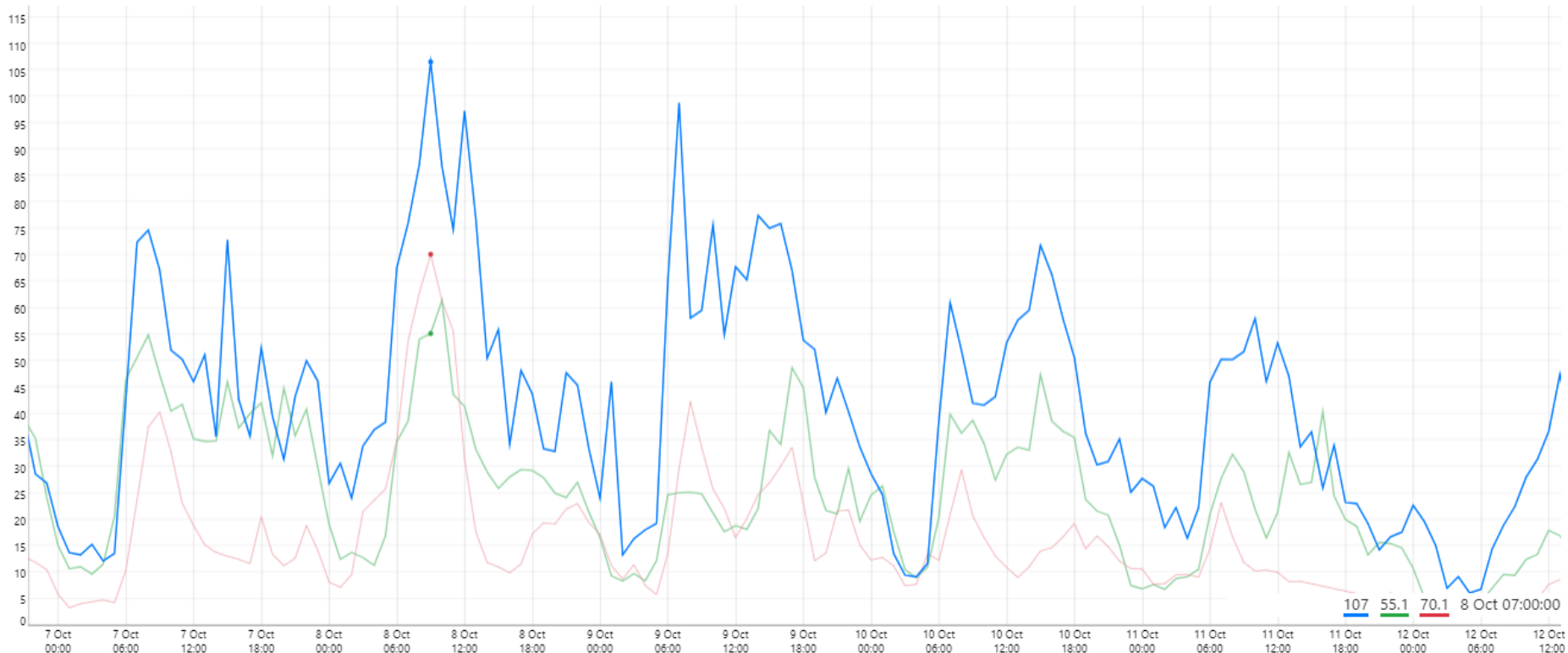
WMS: <https://shair.smhi.se/aqd/wms?request=GetCapabilities> (datasets B and D)

REST: <http://shair.smhi.se/52North/api/v1/timeseries> (E1a/E2a, but not INSPIRE!)



Data validation tool

Shair Preview # Stockholm Hornsgatan 108 Gata • NO2 ; Nitrogen dio • 2019 # Stockholm St Eriksgatan 83 • NO2 ; Nitrogen dio • 2019 # Stockholm Torkel Knutssongatan • NO2 ; Nitrogen dio • 2019



107 55.1 70.1 8 Oct 07:00:00

Stockholm Hornsgatan 108 Gata	
2019 NO2 ; Nitrogen dioxide	
Value	107
Validity	1 Valid
Verification	3 Not verified
Detection Limit	
Yearly Mean	
Equipment	Environnement S.A. Model AC31M NO2 Analyzer
File Name	
File Date	

Stockholm St Eriksgatan 83	
2019 NO2 ; Nitrogen dioxide	
Value	55.1
Validity	1 Valid
Verification	3 Not verified
Detection Limit	
Yearly Mean	
Equipment	Environnement S.A. Model AC32M NO2 Analyzer
File Name	
File Date	

Stockholm Torkel Knutssongatan	
2019 NO2 ; Nitrogen dioxide	
Value	70.1
Validity	1 Valid
Verification	3 Not verified
Detection Limit	
Yearly Mean	
Equipment	Environnement S.A. Model AC32M NO2 Analyzer
File Name	
File Date	



Data validation tool – planned developments

- Plan further development of tool to provide a national system for:
 - Automised warnings (outliers, UTD dropouts)
 - Imputing calibration results
 - Scaling data
 - Flagging data
 - Calculating uncertainties
- Are there similar tools already in place in countries?





SWEDISH ENVIRONMENTAL
PROTECTION AGENCY



THANK YOU!

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