Status ACTRIS NF Labeling CAIS-ECAC

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CAIS-ECAC

Aerosol In-Situ Community Meeting

January 25, 2023

Member of Leibniz Association

World Calibration Centre for Aerosol Physics

ACTRiS

ECAC European Center for Aerosol Calibration

TROPOS Leibniz Institute for Tropospheric Research

ACTRIS Initial Acceptance (Labeling Step 1a)

Current status:

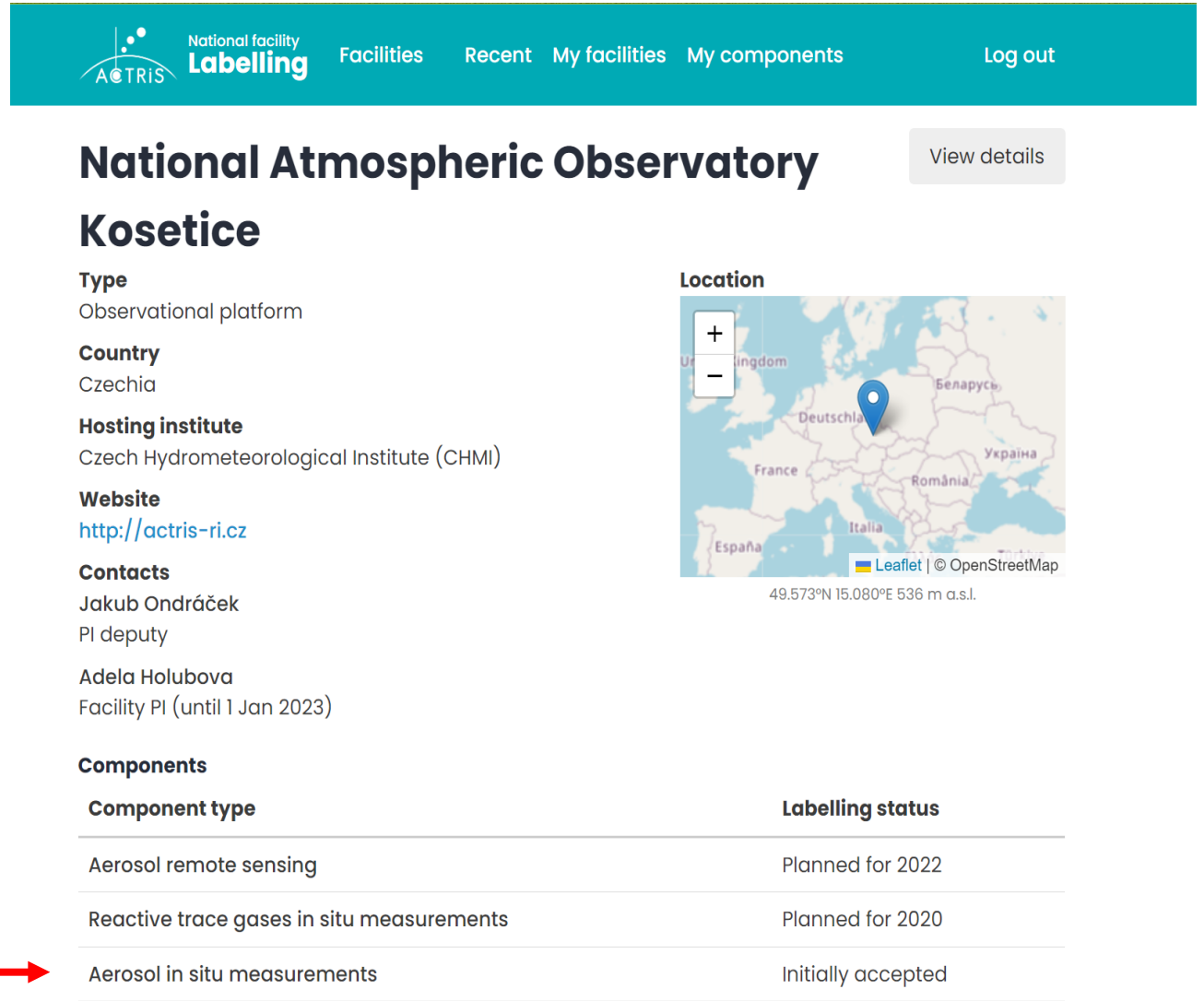
- The pilot labeling has been done for seven aerosol in-situ observatories in 2022
- 6/7 observatories have been received the "Initial Acceptance" so far.
- The labeling portal for other aerosol in-situ National Facilities (NF) will be possibly open by March 2023.
- CAIS-ECAC would like to encourage those observatories to apply for the "Initial Acceptance", which have been already audited.
- To avoid a high number of applications of aerosol in-situ observatories, other NFs are invited step-by-step (based on agreements between the NF and CAIS-ECAC) to apply for the initial acceptance.

Status of Auditing January 2023

- ✓ 30 audits performed
- ➢ 9 audits planned until June 2023

Country	NF	Audit physical/virtual	Date	Auditors	Comments	Preliminary Report	Application Initial Acceptance	Preliminary Report Submitted	NF Update Feedback	Final Report	Final Report Submitted	Initial Acceptance
Austria	Hoher Sonnblick	physical	19.07.2022	Wiedensohler, Weinhold								
Belgium	Vielsalm	physical	26.04.2022	Wiedensohler, Ondracek								
Czech Republic	Lom	physical	11.07.2022	Wiedensohler, Weinhold								
	Suchdol	physical	11.07.2022	Wiedensohler, Weinhold								
	Kosetice	physical	12.07.2022	Wiedensohler, Weinhold	Pilot Station							
Cyprus	Cyprus Atmospheric Observatory	physical	03.05.2023	Wiedensohler, Ondracek								
France	Lille	physical	28.04.2022	Wiedensohler, Ondracek								
	SIRTA	physical	18.05.2022	Wiedensohler								
	La Reunion	physical	16.11.2022	Wiedensohler, Ondracek	Pilot Station	not needed		not needed				
	Pic du Midi	physical	27.07.2023	Wiedensohler, Ondracek								
	Puy de Dome	physical	29.07.2023	Wiedensohler, Ondracek								
Finland	SMEAR II (Hyytiälä)	virtual		Wiedensohler, Ondracek	Pilot Station							
	Pallas	virtual	26.04.2022	Wiedensohler, Ondracek	Pilot Station							
	SMEAR IV (Kuopio)	physical	02.11.2022	Wiedensohler, Ondracek								
Germany	Melpitz	physical	21.02.2022	Wiedensohler								
	Hohenpeissenberg	physical	24.11.2021	Wiedensohler, Weinhold								
	Waldhof	physical	04.11.2021	Wiedensohler, Weinhold								
	Zugspitze/Schneefernerhaus	physical	22.11.2021	Wiedensohler, Weinhold								
	Kleiner Feldberg	physical	09.12.2021	Wiedensohler	Pre-visit; no report							
Greece	Helmos	physical	12.09.2022	Wiedensohler, Ondracek								
	Athens Supersite - NCSR-Demok	physical	10.09.2022	Wiedensohler, Ondracek								
	Athens Supersite - NOA	physical	07.09.2022	Wiedensohler, Ondracek								
	Finokalia	physical	June 2023	Wiedensohler, Ondracek								
Italy	Monte Cimone	physical	14.06.2022	Wiedensohler								
	San Pietro Capofiume	physical	13.06.2022	Wiedensohler	questionnaire is not complete							
	Potenza		17.10.2022	Wiedensohler, Ondracek								
	Lecce		19.10.2022	Wiedensohler, Ondracek								
JRC	Ispra	physical	05.07.2022	Wiedensohler								
Norwegen	Birkenes	physical	09.08.2022	Wiedensohler, Ondracek	Pilot Station			not needed				
	Zeppelin	physical	31.05.2023	Wiedensohler, Ondracek								
Poland	Wroclaw	physical	21.02.2023	Wiedensohler, Ondracek								
	Radiborz	physical	20.02.2023	Wiedensohler, Ondracek								
Romania	Bucharest	physical	12.10.2021	Wiedensohler, Ondracek	Pilot Station							
Sweden	Zeppelin	physical	31.05.2023									
Spain	Barcelona	physical	23.09.2021	Wiedensohler, Ondracek	Pilot Station							
	Montseny	physical	21.09.2021	Wiedensohler, Ondracek								
	Montsec	physical	22.09.2021	Wiedensohler, Ondracek								
	Granada	physical	07.02.2023	Wiedensohler, Ondracek								
Switzerland	Jungfraujoch	physical	04.04.2023	Wiedensohler, Ondracek								

Procedure for the Initial Acceptance (Example Kosetice)



National Atmospheric Observatory Kosetice

Aerosol in situ measurements

Labelling plan

According to the National Facility plan provided to ACTRIS Head Office by Czechia, the facility National Atmospheric Observatory Kosetice is scheduled to start the labelling process for aerosol in situ measurements in 2020.

Initial application

In the initial application phase the facility PI or other staff at the facility provide more detailed information on the facility and component specific contacts and instrumentation, and a plan how to reach compliance with ACTRIS technical requirements. This is done in collaboration with the respective Topical Centre in ACTRIS. The organization hosting the facility is also to sign a commitment for providing the necessary resources for the facility for at least 5 years. The existing and planned set-up of the facility is evaluated by the respective Topical Centre and the RI committee, after which the facility proceeds to initial acceptance phase.

Component information

submitted 23 Nov 2022, 11:30 UTC

The facility PI fills information on the component-specific contacts and instrumentation in the forms below. After that he / she submits the information, and it will be automatically directed to the respective Topical Centre and Data Centre unit for further elaboration and contact with the facility PI and staff.

Contacts
5 contacts

Instruments
11 instruments

Upgrade plan

The facility PI is to provide a plan how and when the facility will reach full technical compliance with ACTRIS requirements. If the facility is already in line with ACTRIS requirements, the PI is to upload a document stating that.

This should be uploaded only after contact with the respective TC.

Upgrade plan
Document uploaded

Commitment letter

submitted 23 Nov 2022, 11:30 UTC

The organization hosting the facility has to commit to providing the needed resources for the facility for at least 5 years, and to approve the relevant ACTRIS policies. This commitment has to be signed by a legal signatory of the organization.

For commitment letter template and more information, press the button below.

Commitment letter
Document uploaded

Evaluation

In this stage the Director General of ACTRIS initially approves or refuses the facility to be an ACTRIS National Facility. The decision is communicated to the facility PI, the hosting organization and the hosting country. In case the facility is initially accepted, the status will also be visible in ACTRIS maps and documents.

HO evaluation

Head Office checks that the application is well formed.

HO evaluation
Evaluation submitted

TC evaluation

The Topical Centre in charge of the applied measurement component evaluates the readiness of the facility and feasibility of its upgrade plan.

TC evaluation report
Document uploaded

RI committee evaluation

The RI committee evaluates the facility in a broader context and gives recommendation whether the initial acceptance should be granted. Download the report for RI com for evaluating this component.

RI com evaluation
Evaluation submitted

1a Initial acceptance

Initially accepted on 14 Dec 2022, 12:23 UTC

Steps until Initial Acceptance

- HO & CAIS-ECAC agree to open the labeling portal for a NF.
- NF fills in the contact people & the instruments (aerosol in-situ variables).
- NF uploads the commitment letter.
- CAIS-ECAC performs an audit.
- CAIS-ECAC uploads a technical evaluation report.
  - CAIS-ECAC uploads a preliminary evaluation report in case the audit was many months ago.
- NF uploads an upgrade plan based on the technical evaluation report
  - CAIS-ECAC uploads a final technical evaluation report in case the audit was many month ago.
- CAIS-ECAC fills in detailed statements to recommend (or not) the initial acceptance.
- HO fills in their detailed statements to recommend (or not) the initial acceptance.
- RI committee decides about the initial acceptance.

Preliminary Evaluation Report (Example Kosetice)

Evaluation Report - Aerosol In-Situ Measurements

National Atmospheric Kosetice Observatory

Observatory details

Station name	National Atmospheric Kosetice Observatory (NAOK)
Principal Investigator	Jakub Ondracek
Home Institution	Institute of Chemical Process Fundamentals, AS CR
Country	Czech Republic
GAW ID	KOS
EBAS ID	CZ0003R
Date	July 12, 2022
Reviewer	Alfred Wiedensohler

Overall evaluation

The National Atmospheric Kosetice Observatory is ready for the initial acceptance of the labeling process.

Traffic Light Evaluation					
Obligatory variables:	1st: CPC	2nd: MPSS	3rd: IN	4th: AP	5th: ACSM
Additional variables	6th: APSS	7th: OC/EC	8th: NAIS	9th: CCNC	
Aerosol inlet					
Aerosol splitter & distribution					
Aerosol drying					
Infrastructure of the laboratory					
Qualified & dedicated people					

Color code:

Requirements are fulfill
Needs to be upgraded/improved
Requirements are not fulfilled
Decision about variable is pending

General comments

General remarks:

- National Atmospheric Kosetice Observatory is an established ACTRIS aerosol in-situ station.
- The measurement containers and infrastructure were recently re-constructed and are in good shape.
- Data has been previously submitted to the data center.
- NRT was already implemented in the frame of the CAMS21a project.
- National Atmospheric Kosetice Observatory is available for physical access.
- The operation of the aerosol in-situ measurements is assured by qualified people.

Minimum requirements of aerosol in-situ variables:

- The minimum requirements of the aerosol in-situ variables are already fulfilled.

Urgent Improvements:

- Inlet-1: We recommend to use an isokinetic splitter because of the APSS measurements.
- Inlet-2: The sampling head for the optical aerosol measurements (integrating nephelometer and absorption photometer) should be changed to a lower flow rate. Currently, the flow in the sampling pipe is turbulent.
- Inlet-3: Change the sampling head to a PM2.5 with a better omnidirectional sampling head with a sufficient stopping distance.
- Inlet-4 and Inlet-6: We recommend to combine the CCNC and ACSM at one inlet and to install a PM2.5 sampling head.
- Equip the Aurora 3000 (integrating nephelometer) with the new switching valve system (two ball valves), place the instrument more to the vertical position under the inlet, and add an additional RH/T sensor in front of the instrument.
- Add an additional RH/T sensor in front of the AE33 (absorption photometer).
- Add Nafion dryers to the CCNC.

Additional general comments:

Aerosol Inlets

Recommendations:

We recommend following:

- Use an isokinetic splitter after inlet-1, because of the APSS measurements.
- Change the sampling head of Inlet-2 to a lower flow rate. Currently, the flow in the sampling pipe is turbulent.
- Change Inlet-3 to a PM2.5 with a better omnidirectional sampling head with a sufficient stopping distance.
- Combine Inlet4 and Inlet-6 to one 2.5 sampling head.

Final Evaluation Report (Example Kosetice)

Evaluation Report - Aerosol In-Situ Measurements

National Atmospheric Kosetice Observatory

Observatory details

Station name	National Atmospheric Kosetice Observatory (NAOK)
Principal Investigator	Jakub Ondracek
Home Institution	Institute of Chemical Process Fundamentals, AS CR
Country	Czech Republic
GAW ID	KOS
EBAS ID	CZ0003R
Date	July 12, 2022
Reviewer	Alfred Wiedensohler, Kay Weinhold

Overall evaluation

The National Atmospheric Kosetice Observatory is ready for the initial acceptance of the labeling process.

Traffic Light Evaluation					
Obligatory variables:	1st: CPC	2nd: MPSS	3rd: IN	4th: AP	5th: ACSM
Additional variables	6th: APSS	7th: OC/EC	8th: NAIS	9th: CCNC	
Aerosol inlet					
Aerosol splitter & distribution					
Aerosol drying					
Infrastructure of the laboratory					
Qualified & dedicated people					

Color code:

Requirements are fulfill
Needs to be upgraded/improved
Requirements are not fulfilled
Decision about variable is pending

General comments

General remarks:

- National Atmospheric Kosetice Observatory is an established ACTRIS aerosol in-situ station.
- The measurement containers and infrastructure were recently re-constructed and are in good shape.
- Data has been previously submitted to the data center.
- NRT was already implemented in the frame of the CAMS21a project.
- National Atmospheric Kosetice Observatory is available for physical access.
- The operation of the aerosol in-situ measurements is assured by qualified people.

Minimum requirements of aerosol in-situ variables:

- The minimum requirements of the aerosol in-situ variables are already fulfilled.

Urgent Improvements:

- Inlet-1: We recommend to use an isokinetic splitter because of the APSS measurements.

  Update:
  Will be implemented during 2023 – the flow splitter will be rearranged with the excess flow and subsampling tubing sticking inside the flow splitter.

- Inlet-2: The sampling head for the optical aerosol measurements (integrating nephelometer and absorption photometer) should be changed to a lower flow rate. Currently, the flow in the sampling pipe is turbulent.

  Update:
  Will be implemented in 2023 – changing the sampling head to PM10 at 1 m3/h (16.7 l/min).

- Inlet-3: Change the sampling head to a PM2.5 with a better omnidirectional sampling head with a sufficient stopping distance.

  Update:
  Will be implemented in 2023 – proper PM2.5 sampling head will be used.

- Inlet-4 and Inlet-6: We recommend to combine the CCNC and ACSM at one inlet and to install a PM2.5 sampling head.

  Update:
  The sampling head was already changed to PM2.5 and the ACSM and the CCNC are now sampling from common inlet.

- Equip the Aurora 3000 (integrating nephelometer) with the new switching valve system (two ball valves), place the instrument more to the vertical position under the inlet, and add an additional RH/T sensor in front of the instrument.
  Update:
  Will be implemented in 2023 – the instrument is re-arranged in better position and will be equipped with a two three-way valve switching system and RH/T.

- Add an additional RH/T sensor in front of the AE33 (absorption photometer).

  Update:

CAIS-ECAC Recommendations (Example Kosetice)

Technical requirements

Does the facility fill the technical and data requirements to be an ACTRIS NF?

- (●) Yes
- ( ) Partially
- ( ) No

Short justification:

The National Atmospheric Observatory Kosetice is an established station, which submits aerosol in-situ data since more than 13 years. The station mostly fulfills technical and data requirements to become an ACTRIS NF.
Only few improvements must be done before valid and high quality ACTRIS compliant date can be submitted.
The people are highly motivated and experienced to conduct the measurements with a high quality.

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If the facility does not yet fill the technical and data requirements, does it provide a realistic plan and schedule how to reach the requirements during the next three years?

- (●) Yes
- ( ) Partially
- ( ) No

Short justification:

The observatory has provided a clear and concrete update and upgrade plan as also described in the final evaluation report. The station will be operational in 2023.

Operation support

Does the respective TC have the capability and capacity to provide the operation support required for the facility?

- (●) Yes
- ( ) Partially
- ( ) No

Short justification:

CAIS-ECAC has the capability and capacity to provide the operation support for National Atmospheric Observatory Kosetice.

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Initial acceptance

Does the respective TC recommend **initial acceptance** of the facility for the applied label, considering the technical and data requirements?

- (●) Yes
- ( ) Conditionally
- ( ) No

Short justification:

We strongly recommend the initial acceptance step 1a for the Kosetice observatory. National Atmospheric Observatory Kosetice wil be one of the flagship observatories within the future ACTRIS.

How to Proceed after the Initial Acceptance

- CAIS-ECAC is responsible for the QA/QC of the NF now.
- NF implements the urgent improvements according to the evaluation report.
- NF installs the Near-Real-Time software (only the official of CAIS-ECAC).
- CAIS-ECAC performs the QA such as calibration of instruments or round robin tests.
- NF starts NRT data submission.
- CAIS-ECAC confirms the start of the official ACTRIS data submission.
- NF starts the 2-year consecutive quality-assured ACTRIS measurements.

ACTRIS Data

ACTRIS labeled data:

- Quality-assured data of NFs (also data of the 2-year consecutive measurements after labeling)

ACTRIS compliant data:

- Data of other observatories having the same quality assurance as ACTRIS NFs
- Following the ACTRIS recommendations for aerosol in-situ measurements

ACTRIS legacy data:

- Data taken under the framework of ACTRIS such as ACTRIS-I, ACTRIS-II or ACTRIS-related campaigns