Deliverable 5.1: ACTRIS NF Labelling Plan

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1. Purpose of the document

The present document is the first version of the ACTRIS Labelling Plan. It describes the labelling principles, contents of the ACTRIS label, steps of the labelling process and plans for its implementation. Furthermore, an overview on the National Facilities (NFs) proposed by the countries and the timeline for implementing and labelling them in the first phase after establishing the ACTRIS ERIC (2021-2025) is provided. The procedures of the labelling process shall be tested during a pilot labelling activity, which involves experienced National Facilities of different type. After the pilot phase, the Labelling Plan will be updated by considering lessons learnt and respective improvements of the mechanisms and tools applied in the labelling process.

The labelling process shall prove the operational capacities of the NFs and ensure the high quality of ACTRIS data by granting the label "*ACTRIS National Facility*" to Observational and Exploratory Platforms that comply with the ACTRIS standards. The ACTRIS labelling principles and the labelling process have been developed during the ACTRIS Preparation Phase Project (ACTRIS-PPP). They were documented in two deliverables (ACTRIS-PPP D5.3 and D5.4) and approved by the Interim ACTRIS Council (IAC) in its 5th Meeting (Lyon, 25-26 October 2018). Chapters 2 to 4 of this documents summarize the previous work and consider some adaptions based on recent developments of ACTRIS. Chapter 5 describes the tools for facilitating the labelling process, in particular the NF database and the web interface used for the interaction between the parties involved in the procedures, i.e., the NFs, Head Office (HO), Data Centre (DC), and Topical Centres (TCs). The national planning for implementing the NFs and the timeline for the labelling are outlined in Chapter 6. Finally, the pilot labelling activity is described in Chapter 7.

2. Labelling principles

The ACTRIS label is granted if all of the following conditions are fulfilled:

1. The Member or Observer country or the responsible RPO(s) has (have) signed a commitment of the resources for long-term operation of the NF (RI operations are envisaged to run over more than 20 years, a commitment at least for the next 5 years is expected).
2. All contractual agreements required by ACTRIS ERIC for NFs are signed by all parties.
3. The NF has demonstrated, according to the assessment report (see Sec. 2.4), to comply with the ACTRIS NF general principles (see ACTRIS-PPP D5.1, Chapter 3 and D5.2, Chapter 3).
4. The NF has demonstrated, according to the assessment report, to comply with the ACTRIS technical concepts and requirements for at least one type of ACTRIS platforms (see ACTRIS-PPP D5.1, Chapter 4 and D5.2, Chapter 4).
5. The NF has contributed to all QA/QC measures required for the respective type of NF and submitted the required amount of high-quality data to the ACTRIS DC for at least two preceding years, according to the assessment report.

The ACTRIS label may be withdrawn if one of the above conditions is not achieved anymore. The decision on granting and withdrawal of the ACTRIS label is made by the General Assembly.

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3. Contents of the ACTRIS label

The awarded ACTRIS label is: "***ACTRIS National Facility***".

The following specifications shall be assigned together with the ACTRIS label:

"*ACTRIS Observational Platform*" or "*ACTRIS Exploratory Platform*".

The ACTRIS label shall be accompanied with at least one *Certificate of Compliance* regarding

- Aerosol remote sensing
- Aerosol *in situ* measurements
- Cloud remote sensing
- Cloud *in situ* measurements
- Reactive trace gases remote sensing
- Reactive trace gases *in situ* measurements

for ACTRIS Observational Platforms or

- Mobile Platform
- Atmospheric Simulation Chamber
- Laboratory Platform

for ACTRIS Exploratory Platforms.

ACTRIS ERIC shall provide a visual display of the ACTRIS label.

4. Labelling process

4.1. Overview

Figure 1 shows the timeline of the labelling process in connection to the NF lifecycle. The process consists of two major steps. The first step aims at granting the ACTRIS label and is conducted during the implementation and pre-operation phases of the candidate NF (which are not necessarily simultaneous to the respective phases of the ACTRIS ERIC). It comprises three sub-steps: 1a) initial acceptance, 1b) performance evaluation and 1c) approval. The second step of the labelling process represents the continuous monitoring and re-evaluation of the operational NF over the lifetime of the RI.

To perform the labelling process, interactions are required between the HO, the bodies of the ACTRIS ERIC, i.e., the General Assembly (GA) and the Research Infrastructure Committee (RI Com), the Central Facilities (CFs) and the national Research Performing Organizations (RPOs) that implement and operate the NFs, in order to assess and permanently monitor the compliance of the NFs with the ACTRIS standards. These standards are defined in various applicable documents (see Annex A). In particular, the technical concepts and requirements for ACTRIS NFs, including conditions for access provision, are described in the documents ACTRIS-PPP D5.1 and D5.2. Additional principles regarding access and data policy are described in the documents ACTRIS-PPP D6.3, D2.6 and D2.3. In the following, the strategy and the tools that are used to implement the ACTRIS labelling process are described in detail.

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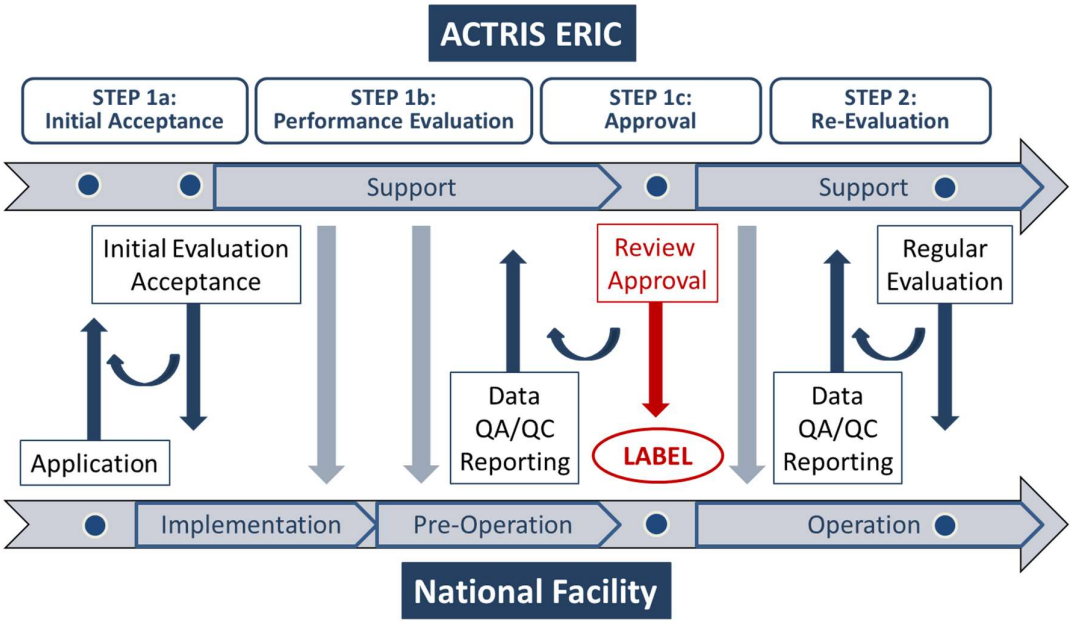

Fig. 1: Steps and actions of the ACTRIS labelling process. The upper horizontal arrow indicates the responsibilities of ACTRIS ERIC, including the CFs, RI Com, and GA, whereas the lower arrow stands for the activities of the NF. Vertical arrows illustrate the interactions between ACTRIS ERIC and the NF. The dark blue dots on the horizontal arrows mark the major points of action within the process.

4.2. Implementation of Step 1 of the ACTRIS labelling process

The implementation of ACTRIS requires major efforts both at national and European levels in order to identify, assess and finally fully integrate the entire suite of Observational and Exploratory Platforms operated by the national RPOs into the operational framework of the European RI. Step 1 of the ACTRIS labelling process aims at steering these efforts by providing necessary guidance and tools for the interaction between the involved partners with the ultimate goal to grant the ACTRIS label to those facilities that are compliant with the ACTRIS standards.

Since ACTRIS is a very large and highly distributed RI with about 120 NFs in 18 countries, it is essential to set up well-defined, efficient, tailored, and streamlined management procedures in order to ensure equal and impartial treatment of the NFs, while keeping the managerial and administrative efforts at a reasonable level for all partners. Therefore, web-based tools, connected to a central NF database for storing and administrating the NF-related information, shall be used in the process (see Chapter 5). A pilot labelling activity will be set up, involving experienced NFs and CFs, to test and optimize the Step 1 procedures and tools (see Chapter 7). Fig. 2 provides an overview of the major actions of Step 1, which are further described in the following.

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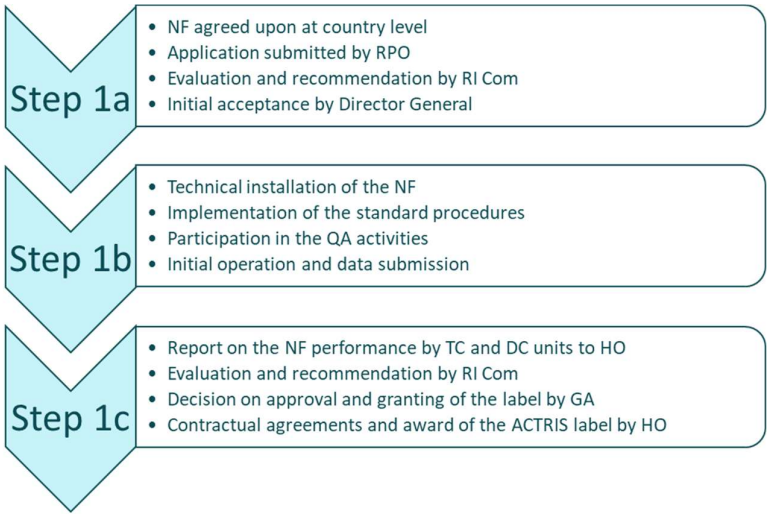

Fig. 2: Overview of the major actions of Step 1 of the labelling process.

Step 1a: Initial acceptance

Step 1a, aiming at the initial acceptance of the candidate NF, includes the following actions:

1. The potential NF is identified and agreed upon at country level, which may include national agreements on responsibilities, funding, governance, commitments, etc. The country delegate(s) in the GA provide(s) the list of NFs agreed at national level to the HO.
2. The **application** is submitted by the RPO(s) responsible for the NF. The application shall include
    - a description of the NF regarding platform type(s), name of the NF, host country, names and contact information of the host institution(s) and PI(s), location, scientific role, heritage, and goals;
    - a statement regarding the *Certificate(s) of Compliance* requested for the NF;
    - a description of the instrumentation to be operated and the variables (for Observational Platforms) or experimental data (for Exploratory Platforms) to be submitted;
    - a description of the expertise of the RPO(s) responsible for the NF;
    - a statement regarding intended provision of physical, remote, and virtual access to the NF and, if access shall be provided, a description of access capabilities and ability of service provision, together with demonstrated user interest (e.g., by past transnational access records or quantitative impact studies);
    - a **statement of acceptance** of the ACTRIS data policy, ACTRIS access and service policy, and other relevant ACTRIS documents (as requested by the ERIC), signed by the legal signatory of the responsible RPO(s);
    - a **5-year plan** describing the activities for implementation and (pre-)operation of the NF,

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- a **commitment** of the resources for long-term operation of the NF, signed by the legal signatory of the responsible RPO(s) (RI operations are envisaged to run over more than 20 years, a commitment at least for the next 5 years is expected).

If RPOs that intend to implement and operate an NF need advice for the application regarding, e.g., technical concepts, they are encouraged to contact the associated CF units.

3. The HO initiates the initial evaluation process.
4. The application is evaluated by the RI Com, with support from the associated CF units. The RI Com shall assign one TC or the Atmospheric Simulation Chamber Committee[1] (ASCC) to take the lead in reporting on the progress of evaluation process. If access shall be provided by the NF, the evaluation of respective capabilities and capacities is led by the Service and Access Management Unit (SAMU) of the HO. During the evaluation, clarifications may be requested from the RPO(s) that intend(s) to implement and operate the NF.
5. The RI Com makes a recommendation regarding the initial acceptance (or refusal) of the NF.
6. The Director General, with the mandate from the GA, makes the decision on the initial acceptance (or refusal) of the NF and informs the Member or Observer country and the RPO(s) formally (**Letter of Initial Acceptance/Refusal**). In case of refusal, the letter must contain a detailed statement of the reasons and a follow-up recommendation (i.e., under which conditions a revised application is feasible).
7. If the NF is initially accepted, the representative of the NF receives the voting right in the National Facility Technical and Scientific Forum.

The Step 1a procedure will be facilitated by means of a **web-based tool** used to collect the information from the potential NFs (as required under item 2) and to perform the evaluation (according to item 4 above). The tool is described in Chapter 5.

Step 1b: Performance evaluation

Step 1b of the labelling process comprises the performance evaluation during the NF implementation and pre-operation phases as follows:

1. At the national level, work ensuring the proper installation of the NF following the ACTRIS standards is performed:
   - The NF is set up or upgraded according to the ACTRIS technical concepts and requirements.
   - The NF implements the ACTRIS standard procedures.

[1] The Atmospheric Simulation Chamber Committee is established as an advisory body for the Director General with the aim to provide recommendations and guidance on specific issues related to the operation of Atmospheric Simulation Chambers, in particular their scientific positioning in the RI and their compliance with the protocols and requirements for chambers.

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- The NF participates in the required QA/QC activities.
- The NF starts initial operation and submits data to the associated TC/DC units.

2. Continuous support is provided by the CFs:
   - The associated TC and DC units support implementation and pre-operation of the NF.
   - The associated TC units supervise the measurement QA/QC activities at the NF.
   - The associated TC and DC units supervise the data QA/QC activities at the NF and control the quality of data submitted by the NF.
   - The associated TC and DC units provide advice on improvements and adjustments, if necessary.
3. The HO coordinates exchange of information between CFs, RI Com, and GA regarding the progress of implementation and pre-operation of the NF. **Regular reporting** may be requested. The pre-operation phase will be concluded (see Step 1c) when the candidate NF has demonstrated compliance with ACTRIS data submission and QA/QC requirements over a period of at least two preceding years (the period could start before the application was made if the NF had already achieved the required level of compliance). If a candidate NF does not reach the required level of compliance in Step 1b after 5 years, the HO shall submit a report to the GA, and the GA may decide on the refusal of the candidate NF.

Most of the activities of Step 1b require individual efforts and exchange between the NF and the associated CF units. The TCs may provide set-up guidelines for specific NF types and may also offer to perform site audits in order to advice the NFs in the setup process. The CFs shall define milestones and performance checks for each type of NF, which have to be achieved during the NF implementation and pre-operation phases. NF and CF units shall report on achieved milestones (e.g., measurement status, application of QA/QC measures, data submission status, access provision) via the web-based tool (see Chapter 5).

Step 1c: Approval and granting of the ACTRIS label

Step 1c of the labelling process, aiming at approval of the NF and granting of the ACTRIS label, includes the following actions:

1. The HO steers the approval process by requesting readiness reports from the CFs regularly.
2. The associated TC and DC units **report** on the readiness of the NF to the HO.
3. The RI Com evaluates the status of readiness and provides the **recommendation for approval** of the NF.
4. The HO prepares the **decision proposal** with justifications for the GA.
5. The GA makes the **decision on the approval** of the NF and the granting of the ACTRIS label.
6. The HO prepares the **contractual agreement** which must be signed by all parties.

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7. The Director General awards the **ACTRIS label** to the NF.

The web-based tool containing the achieved milestones reported under Step 1b will be used to follow the status of readiness of the NF. When the NF has reached the required level of maturity, the associated TC and DC units, under the lead of the assigned responsible TC or the ASCC, will prepare an **assessment report** with the recommendation of granting the label. The assessment report, including an abstract for the decision proposal, will be sent to the HO and the RI Com for a commenting round. If no questions or doubts are raised, the HO will prepare the decision proposal, and the Director General will propose the approval of the NF to the GA.

After the contractual agreement between the ACTRIS ERIC and the NF is signed, the HO will send a printed document on the award of the ACTRIS label to the NF, with the signatures of the Director General and the Chair of the GA.

4.3. Implementation of Step 2 of the ACTRIS labelling process

Step 2 of the labelling process facilitates the continuous monitoring and regular performance assessment of the NF, which will be part of the overall research infrastructure operative monitoring and evaluation. The outline of Step 2 is subject to further refinements during the ACTRIS implementation phase, which will be considered in a consolidated version of this Labelling Plan.

During the lifetime of the RI, the following obligations for maintaining the ACTRIS label shall apply:

1. A **continuous monitoring** of the NF performance is carried out by the associated TC and DC units, the ASCC for Atmospheric Simulation Chambers, and the SAMU for NFs providing access. The results are regularly reported to the HO. Severe issues of non-compliance of NFs with the ACTRIS requirements obtained during this monitoring process shall be reported to the GA, which may take further action.
2. A formal **re-evaluation** of the NF shall take place every 5 years and shall require the following actions:
    - The **NF report**s on its activities over the last 5 years, provides a **new 5-year plan** and a **renewal of the commitment** of the resources for long-term operation (at least for the next 5 years) to the HO.
    - The associated TC and DC units, the ASCC for Atmospheric Simulation Chambers, and the SAMU for NFs providing access provide an **assessment of the technical performance** of the NF to the HO, based on the regular monitoring of the NF performance and respective assessment criteria (see below).
    - The HO **assesses the administrative and management performance** of the NF, based on the regular monitoring of the NF performance and respective assessment criteria (see below).
    - The HO provides an **assessment report** to the GA.
    - The GA decides on the **confirmation or withdrawal of the ACTRIS label**.
    - The HO informs the Member or Observer country formally.

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The PI of the respective NF and the National Contact Person are kept informed throughout the process. In case of withdrawal of the ACTRIS label, the HO shall provide a detailed statement of the reasons and a follow-up recommendation, including the conditions under which a reapplication and restart of the labelling process are feasible. The statement will be brought to the attention of the PI of the NF, the National Contact Person, and the GA delegate(s) of the country in due course. The NF has 60 days for a response to the HO regarding the acceptance of withdrawal or proposed actions and timelines for re-application. The HO is responsible for documenting and concluding the process.

Similar as for Step 1, a web-based tool connected to the NF database will be used to facilitate the continuous monitoring and regular performance assessment of the NFs (see Chapter 5). Continuous monitoring will be implemented by the definition of milestones (e.g., for the application of QA/QC measures, the delivery of data or the provision of access) and the verification of their achievement by the associated CF units, the ASCC, and the HO, including the SAMU (on an annual basis).

The regular performance assessment of the NFs will be based on objective assessment criteria and related KPIs. Preliminary assessment criteria, KPIs, and scores to be used in the NF performance assessment have been proposed in ACTRIS-PPP D.5.4, Annex A. The methodology and metrics of KPIs have been presented in the milestone document ACTRIS-PPP MS26. Specific milestones and numbers for the calculation of scores shall be defined by the associated CF units, the ASCC, and the SAMU, in agreement with the RI Com, for each type of NF according to its Certificate of Compliance. The details will be established in the framework of the ACTRIS IMP project and will be included in a consolidated version of this Labelling Plan.

5. Tools for facilitating the labelling process

5.1. National Facility database

For the labelling, further QA/QC procedures, and monitoring of the NFs, various information concerning the facility is needed, e.g., information on facility contacts and operating organization, facility location, surroundings, instruments and measured parameters, quality procedures, potential access modalities, and administrative data concerning the labelling process. For this purpose, a data base of ACTRIS facilities (ACTRIS NF data base) is needed.

Much of the same information is also needed as meta data for anyone who uses measurement data from the facility. Therefore, it is important that this meta data is also connected to the measurement data at the ACTRIS Data Centre. This can be done through the Data Centre API (https://prod-actris-md.nilu.no/index.html).

5.2. Web interface

For the labelling process, a web interface and the ACTRIS NF data base will be developed at the HO. The different parties in the process will insert the information in the interface, from which it is stored in the ACTRIS NF data base, and some information is automatically further transferred to the DC station

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catalogue through the DC API. The interface and the ACTRIS NF data base should be able to handle several types of data, including numerical data, open text fields, data selected from lists, logical yes/no boxes, and uploaded documents. The interface also needs to be tailored for the different types of platforms, as ACTRIS has different requirements for Observational Platforms, Mobile Platforms, and Atmospheric Simulation Chambers and Laboratory Platforms. The path taken and information asked will depend on the marked tick boxes while filling the form.

Most of the requested information is to be provided by the Principle Investigator (PI) of the NF proposed for labelling. Therefore, he/she would also be the one inserting the information in the interface. There is, however, also information that has to be provided by the respective TC or DC units or the HO, and this information may not be altered by the NF PI. Such entries are, e.g., checks for compliancy with the QA/QC procedures and ACTRIS NF requirements as well as the status of the (initial or final) label.

Many of the NFs proposed by the prospective ACTRIS ERIC Member or Observer countries have a history in ACTRIS-related projects, and for these sites some of the information requested is already available at the current DC data bases. However, the information in the current data bases is not centrally coordinated and is not enough for labelling. Therefore, the PI is expected to enter all the required information in the ACTRIS NF data base. In later updates and modification of the information, the information in the ACTRIS NF data base will be provided as default.

After the PI has inserted the NF information in the interface and uploaded it to the ACTRIS NF data base, the tool should automatically invite the associated TC and DC units, the ASCC if needed, and the HO to confirm the compliancy with the ACTRIS requirements and to provide their evaluation of the facility. The HO will extract this information from the ACTRIS NF data base and start the decision-making process for the initial acceptance of the NF (see Step 1a, Sec. 4.2). Similarly, the interface will facilitate the interactions between the NF, the associated TC and DC units, the ASCC if needed, and the HO for the Steps 1b and 1c (and the Step 2 later on during the operation phase of ACTRIS).

Details of the web interface and the ACTRIS NF data base need to be solved and implemented before the labelling process can start. They will be developed together by HO, DC and the TCs in autumn 2021 and are expected to be ready in early 2022.

6. Overview on National Facilities and labelling schedule

In January 2021, the countries that intend to become Members or Observers of ACTRIS ERIC have confirmed their plans for implementing ACTRIS at the national level and provided the lists of National Facilities to be implemented and ready for labelling in the first five years after the foundation of ACTRIS ERIC. These NFs comprise Observational Platforms, Atmospheric Simulation Chambers and Laboratory Platforms, as well as Mobile Platforms. The confirmation includes information on the type of measurements planned at each NF, and thus the required support from the associated TC and DC units for these components, and also the year of readiness for being labelled for each component. This information is summarized in the following sections.

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6.1. Observational Platforms

The countries have announced 82 Observational Platforms for implementation until 2025. They are listed in the following table. The measurement type (or component) is indicated: AIS – aerosol in-situ measurements, CIS – cloud in-situ measurements, RTGIS – reactive-trace-gases in-situ measurements, ARS – aerosol remote sensing, CRS cloud remote sensing, RTGRS – reactive-trace-gases remote sensing. E stands for existing and P for planned. The planned components usually enter into the labelling process later.

Country	Name	Institute	AIS	CIS	RTGIS	ARS	CRS	RTGRS	Ready
Austria	Sonnblick Observatory (SBO)	ZAMG	E	E					2021
Austria	University Innsbruck (UIBK)	UIBK			E				2022
Austria	University Vienna (UNIVIE)	UNIVIE	P						2022
Belgium	Ukkel	KMI-IR	E						2023
Belgium	Vielsalm	-	E		E				2021/22
Belgium	Scientific Station of the Jungfraujoch, Swiss-Belgian site	-						E	2021
Bulgaria	Basic Environmental Observatory Moussala - BEO Moussala	INRNE-BAS	E						2021
Bulgaria	Sofia Lidar Station	Institute of Electronics				E			2021
Cyprus	Cyprus Atmospheric Observatory (CAO)	The Cyprus Institute	E		P	E			2021
Cyprus	Cyprus Atmospheric Remote Sensing Observatory CARO	CUT & ECoE				E	E		2021
Czech Republic	National Atmospheric Observatory Kosetice	CHMI, ICPF, CzechGlobe	E		E	P			2021/22
Czech Republic	Suchdol	ICPF	E						2022
Czech Republic	Milešovka	IAP		E					2024
Czech Republic	Lom	CHMI	E						2021
Denmark	Villum Research Station	Aarhus Univ.	E				E	E	2025
Denmark	Risoe Research Station	Aarhus Univ., DTU	P						2025
Finland	SMEAR I (Värriö)	UHEL	E	P	E				2023/25
Finland	SMEAR II (Hyytiälä)	UHEL	E		E	P	E		2021/25
Finland	SMEAR III (Helsinki)	UHEL	E		P				2023/24
Finland	SMEAR IV (Kuopio)	UEF, FMI	E	E					2025
Finland	Pallas Atmosphere-Ecosystem Supersite	FMI	E	P	E		P		2021/24
Finland	Utö Atmospheric and Marine Research Station	FMI	E						2021
Finland	Marambio	FMI	E						2022

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Finland	Tiksi	FMI	E						2022
France	SIRTA	CNRS, CEA, EP, UVSQ	E		E	E	E		2021
France	COPDD	UCA, CNRS	E		E	E			2021
France	OPAR, France-Belgian site	UR, CNRS	E			E	P	E	2021/25
France	P2OA	UPS, CNRS	E		P				2021/23
France	OHP-GEO	AMU, CNRS				P			2023
France	POLille	ULILLE, IMT	E			E			2021
Germany	Bremen	UBRE						E	2022
Germany	Garmisch-Partenkirchen/ Zugspitze/Schneefernerhaus	KIT, UBA	E			P		E	2021/25
Germany	Meteorological Observatory Hohenpeißenberg (DWD)	DWD	E		E	E			2021/22
Germany	Jülich Observatory for Cloud Evolution (JOYCE)	UoC					E		2022
Germany	Meteorological Observatory Lindenberg	DWD					E		2022
Germany	Melpitz Research Station	TROPOS	E		P	P	P		2022/25
Germany	München	LMU				P	E		2024
Germany	Schmücke	TROPOS, UBA	P	P	E				2021/24
Germany	Taunus Observatory	GUF	P		P				2024/25
Germany	Waldhof	UBA	E		E				2021
Germany	Cape Verde Atmospheric Observatory	TROPOS	P		P	P	P		2022/23
Germany	Ny-Ålesund, Spitsbergen	AWI, UBRE, UoC				P		E	2022/23
Germany	Paramaribo, Surinam	UBRE						E	2025
Germany	Dushanbe, Tajikistan	TROPOS				E			2022
Greece	ATHENS SUPERSITE	NCSR-Demokritos	E						2021
Greece	ATHENS SUPERSITE	NTUA				E			2021
Greece	ATHENS SUPERSITE	NOA	E		P				2021/22
Greece	Finokalia	UoC	E						2021
Greece	Helmos Mt	NCSR-Demokritos	E	P					2021/24
Greece	PANGEA	NOA	P		P	E	P	P	2021/23
Greece	Thessaloniki	Aristotle Univ. Thessaloniki				E			2021
Italy	Atmospheric RomE joint Supersite	ISMAR - CNR, ISAC - CNR, Rome "La Sapienza" Univ.				E			2022
Italy	CIAO	IMAA-CNR	P			E	E	P	2021/23
Italy	CMN-PV	ISAC-CNR	E	P	E	P			2022
Italy	Lampedusa	ENEA				E	P		2022

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Italy	Lecce (ECO CNR + UNISALENTO)	ISAC-CNR, Univ Salento	E		E	E			2022
Italy	Naples Fixed National Facility	Univ. "Federico II" of Naples	P			E			2023
Italy	UNIAQ/CETEMPS	DSFC/CETEMPS/ Univ. degli Studi dell'Aquila				E	P		2021/22
Netherlands	Ruisdael Observatory: CABAUW	KNMI	E		E	E	E	E	2022
Norway	ALOMAR	Andøya Space Center				E			2021
Norway	Birkenes	NILU	E						2021
Norway	Trollhaugen	NILU	E		E				2021
Norway	Zeppelin	NILU, NPI, SU	E		E				2021
Poland	Belsk	Inst. of Geophysics PAS	P			E			2023
Poland	Racibórz	Inst. of Environmental Engineering PAS / Inst. of Geophysiscs PAS	P			P			2024
Poland	Rzecin	University of Life Sciences in Poznań/UW				P	P		2025
Poland	Warsaw	UW				E	P		2021/22
Poland	ACTRIS ICOS collocated station	All RPOs				P			2026
Poland	Wrocław	UWR	P			P			2026
Romania	RADO-Bucharest	INOE	E			E	E		2021
Romania	RADO-Cluj	UBB				E	E		2021/23
Romania	RADO-Galati	UGAL					P		2023
Romania	RADO-Iasi	UAIC				P			2023
Spain	Barcelona	CSIC, UPC	E			E			2021
Spain	El Arenosillo - ESAt	INTA	E						2021
Spain	Granada	IISTA-UGR	E			E	E		2021
Spain	Izaña Atmospheric Observatory	AEMET	E						2021
Spain	Madrid	CIEMAT	E			E			2021
Spain	Montsec	CSIC	E						2021
Spain	Montseny	CSIC	E						2021
Switzerland	Jungfraujoch (Swiss-Belgium site)	PSI/EMPA	E	P	E				2022/24
Switzerland	Swiss Midland: Payerne (PAY), Beromuenster (BRM)	PSI/EMPA/MeteoSwiss	P		P	P	P		2025
UK	Auchencorth Moss	CEH	E		E				2021/22
UK	Chilbolton Observatory	NCAS				P	E		2021/24
JRC	EC Atmospheric Obs.	JRC Ispra	E		E	E			2021
Total	**82**		**59**	**9**	**29**	**44**	**24**	**10**	

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6.2. Atmospheric Simulation Chambers and Laboratories

The following table lists 17 Atmospheric Simulation Chambers and one Laboratory Platform (at Helsinki University, UHEL) proposed by 10 countries. These facilities will be supported by the TCs for aerosol, cloud, and reactive-trace-gases in-situ measurements and are connected to a dedicated DC unit for this NF type.

Country	Name	Institute	AIS	CIS	RTGIS	ARS	CRS	RTGRS	Ready
Denmark	AURA	Aarhus Univ.	E						2025
Denmark	Photochemical reactor	Copenhagen Univ.	E						2025
Finland	Aerosol, cluster and trace gas laboratory (Helsinki)	UHEL	E		E				2023
Finland	Kuopio Atmospheric Simulation Chambers (KASCs)	UEF	E						2022
France	CESAM	CNRS, UPEC	E		E				2021
France	HELIOS	CNRS, UO	E		E				2021
Germany	AIDA and AIDA-dynamic	KIT	E	E					2022
Germany	SAPHIR	FZJ	E		E				2022
Germany	ACD-C	TROPOS	E		E				2022
Germany	QUAREC	BUW	E		E				2023
Germany	LACIS-T	TROPOS	E	E					2022
Greece	FORTH-ASC	FORTH	E						2021
Italy	ChAMBRe	INFN - Sezione di Genova	E		E				2023
Romania	CERNESIM	UAIC	E		E				2021
Spain	EUPHORE	CEAM	E		E				2021
Switzerland	PACS-C2	PSI	E		E				2022
UK	Manchester Aerosol Chamber	Univ. of Manchester	E						2021
UK	Roland von Glasow Air-Sea-Ice Chamber	Univ. of East Anglia			E				2021
Total	**18**		**17**	**2**	**11**				

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6.3. Mobile Platforms

In the following table, 17 Mobile Platforms confirmed to be set up by 8 countries are listed. The Mobile Platforms contribute to all six observational components and are connected to the TCs and DC units accordingly.

Country	Name	Institute	AIS	CIS	RTGIS	ARS	CRS	RTGRS	Ready
Belgium	PTR-MS	BIRA-IASB			E				2021
Cyprus	Unmanned Systems Research Laboratory (USRL)	CyI	E						2021
Finland	Mobile Aerosol Laboratory	TUNi	E		E				2022
Finland	Multiwavelength Raman Lidar	FMI				E			2021
Finland	Doppler Cloud Radar	FMI					E		2021
Finland	Doppler Lidar	FMI					E		2021
Finland	Unmanned Aerial Vehicle (UAV)	FMI	E	E					2021
Germany	Leipzig Aerosol and Cloud Remote Observations System (LACROS)	TROPOS				E	E		2021
Germany	OCEANET Mobile Shipborne Remote Sensing Facility	TROPOS				E			2021
Germany	Aerosol from Ground to Cloud Mobile Experiment (ACME)	TROPOS	P	P					2023
Germany	Karlsruhe Low-Cloud Exploratory platform (KLOCX)	KIT		P			P		2025
Germany	Mobile FTIR Spectrometer	UBRE						P	2024
Greece	Mobile Aerosol Remote Sensing Facility (MARS)	NOA				P			2022
Italy	CIAO Mobile Facility	IMAA-CNR				E	P		2022
Italy	Mobile Laboratory for Gas and Aerosol Measurements (MAGA)	ISAC-CNR	P		P				2022
Poland	ACTRIS-Poland Mobile LAB	All RPOs				P			2024
Romania	ATMOSLAB	INCAS	E	E		E			2023
Total	**17**		**6**	**4**	**3**	**7**	**5**	**1**	

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6.4. Labelling schedule

Figure 3 summarizes the information on labelling readiness from the tables above. The cumulative number of NFs and their observational components, for which the labelling shall be started, is presented over the period from 2021 to 2026. Many ACTRIS NFs have been operated already for a long time, and thus about 50% of the facilities are mature enough to enter the labelling process right after the inauguration of ACTRIS ERIC. Over the 5-year implementation phase, a fast ramp-up to the full operational capacity is planned. Only the cloud in-situ components will enter into the labelling process with a 2-year delay due to the deferred implementation of the Centre for Cloud In Situ Measurements (CIS).

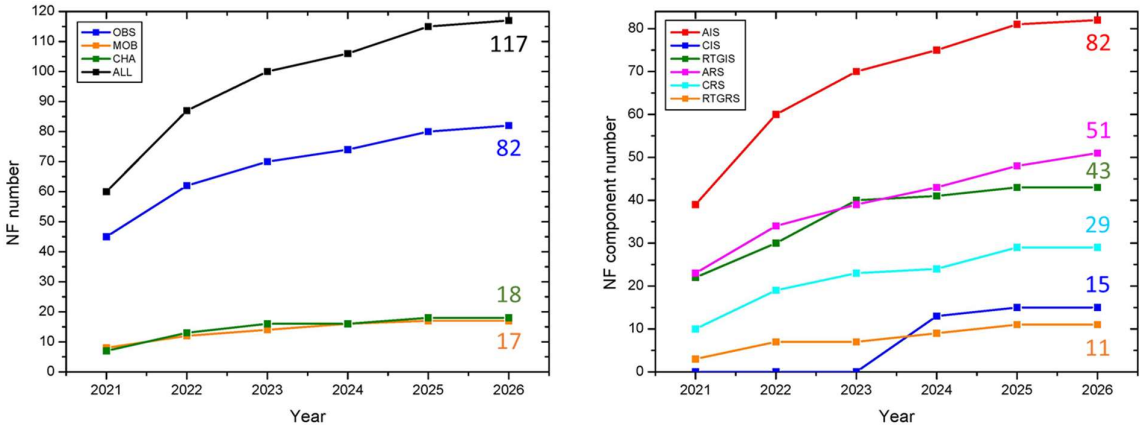

Fig. 3: Cumulative number of National Facilities to be labelled from 2021 to 2026 (left) and related number of observational components (right). OBS – Observational Platform, MOB – Mobile Platform, CHA – Atmospheric Simulation Chamber or Laboratory Platform, AIS – aerosol in-situ measurements, CIS – cloud in-situ measurements, RTGIS – reactive-trace-gases in-situ measurements, ARS – aerosol remote sensing, CRS cloud remote sensing, RTGRS – reactive-trace-gases remote sensing.

7. Pilot labelling activity

The pilot labelling activity shall serve to test and optimize the labelling procedures and to adapt the tools and document templates for each type of NF. The activity shall involve experienced NFs and CFs.

7.1. National Facilities participating in the pilot labelling activity

The following table presents the NFs selected for the pilot labelling activity and the observational components covered by these NFs. The PIs of the NFs volunteered for being part of the pilot exercise, and the participation was agreed with the associated TC and DC units. All selected NFs have experience in access provision and provide Trans-National Access (TNA) for users in the framework of the ATMO-ACCESS project (see www.atmo-access.eu). Crosses in parentheses indicate components that are planned at a later stage, i.e., they will not be part of the pilot labelling activity in the beginning.

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	AIS	CIS	RTGIS	ARS	CRS	RTGRS
OBSERVATIONAL PLATFORMS						
CABAUW	x		x	x	x	x
WARSAW				x	x	
OPAR (LA REUNION)	x					x
JUNGFRAUJOCH	x	(x)	x			
BARCELONA	x			x		
BUCHAREST	x			x	x	
KOSETICE	x		x			
POTENZA	x			x	x	(x)
HYYTIÄLÄ	x		x		x	
PALLAS	x	(x)	x			
ATMOSPHERIC SIMULATION CHAMBERS						
EUPHORE	x		x			
PACS-2	x		x			
MOBILE PLATFORMS						
LACROS				x	x	

7.2. Workflows to be tested

With the pilot labelling activity, the performance and efficiency of the workflows during the labelling process will be tested. Shortcomings and bottlenecks shall be identified, and the procedures upgraded accordingly. In the beginning, the focus will be on Step 1a in order to optimize those workflows that are needed immediately after the foundation of ACTRIS ERIC, when many NFs will apply for the ACTRIS Label (see Sec. 6.4.). As long as the ERIC and its bodies are not established yet, the respective interim bodies (Interim RI Com, ACTRIS Interim Leader) shall facilitate the Step 1a process (see Fig. 2). The pilot activity will then be successively continued for the next steps, always paving the way for the majority of NFs to follow.

According to the description of the labelling process in Chapter 4, the exercises during the pilot activity shall prove the clarity of criteria for the evaluation of NFs and the functionalities of the system used for the interaction between the NFs, HO (including SAMU), TCs and DC units (and ASCC in case of Atmospheric Simulation Chambers). The following procedures hold for all types of NFs, and the related workflows (with major topics indicated in blue) will be tested with high priority.

Step 1a: Initial acceptance as NF

1) Submission of the application by the NF
   a) HO: functionality of the online submission system (web interface, data base)
   b) TC + DC (+ ASCC): clear requirements and criteria to initially certify the NFs
   c) SAMU: clear guidelines about access definition, requirements, and cost calculation

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2) Evaluation of the application by TC, DC, (ASCC) and SAMU
   a) TC + DC (+ ASCC): objective evaluation and scoring (arguments and recommendations included)
   b) SAMU: evaluation as NF access provider (Y/N and recommendations included)

3) Decision making
   a) TC + DC (+ ASCC) + SAMU: agreement on the general assessment (**also related to Step 1c**)
   b) HO: promptitude and completeness of the communication with the NFs (**also related to Step 1c**)

Step 1b: Performance evaluation and support of the NF during implementation and pre-operation

4) Communication of CFs (and ASCC) with the NFs
   a) HO + TC + DC (+ ASCC): functionality of the specific mailing lists and TC mini website (embedded in the ACTRIS website)
   b) HO + TC + DC (+ ASCC): easy and continuous access to information via the TC mini website (documents, announcements, repositories)
   c) HO + TC + DC (+ ASCC): effectiveness of the sharing of responsibilities:
      - Who is communicating what, to whom, and through which channels?
      - Who posts and what information is posted on the ACTRIS website?
      - No duplicate information, no duplicate communication

5) Provision of CF (and ASCC) operation support to NFs
   a) TC + DC (+ ASCC): easy access to updated SOPs, SQAPs, guidelines, and tools
      - TC + DC (+ ASCC): ensuring easy and continuous access to updated SOPs, SQAPs, guidelines, data processing documentation, and tools
   b) TC + DC → NF: timely and efficient support to setup and operate the instruments
      - TC → NF: consultancy to setup / purchase / upgrade the instrumentation
      - TC + DC → NF: consultancy and training activities to NFs
   c) TC + DC (+ ASCC) → NF: timely and efficient QA/QC of the measurements and data
   d) TC + DC (+ ASCC) → NF: efficient support to optimize the operations
   e) TC + DC (+ ASCC) → HO: objective reporting on the NF progress (**also related to Step 1c**)

6) Provision of SAMU operation support to NFs
   a) SAMU → NF: easy access to updated guidelines and tools related to access
   b) SAMU → NF: support in advertising the services and improving their visibility and discoverability to ensure maximum use of all ACTRIS resources
   c) SAMU → NF: timely and efficient support to optimize the access management through PASS (platform for managing access to ACTRIS services)
   d) SAMU → NF: support to receive and process user feedback after the access provision

This general scheme applies in different manner to the various ACTRIS components because of the differences in their technical implementations. In particular, the requirements of the QA/QC activities and the support for optimizing the operations are defined in specific ways for each branch of ACTRIS. A more detailed list of tests to be done in the workflow for each ACTRIS component is provided in the milestone document MS23 (Chapter 4).

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Annex A: Applicable ACTRIS documents

ACTRIS Glossary

ACTRIS-PPP D2.3: ACTRIS Data Policy

ACTRIS-PPP D2.6: ACTRIS Access and Service Policy

ACTRIS-PPP D4.2: ACTRIS Data Management Plan

ACTRIS-PPP D5.1: Documentation on technical concepts and requirements for ACTRIS Observational Platforms

ACTRIS-PPP D5.2: Documentation on technical concepts and requirements for ACTRIS Exploratory Platforms

ACTRIS-PPP D5.3: Documentation on ACTRIS National Facility labelling principles

ACTRIS-PPP D5.4: Details of the ACTRIS National Facility labelling process

ACTRIS-PPP D6.3: Report on access rules and modalities and recommendations for ACTRIS access policy

ACTRIS-PPP MS23: Exercises to test RI operations at experienced NFs

ACTRIS-PPP MS26: Definition of key performance indicators

ACTRIS-IMP MS34: ACTRIS Access Management Plan (2nd draft)

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