Milestone 7.1: Definition of the pilot access process to ACTRIS facilities

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Contents

1. Introduction

ACTRIS is a large, highly distributed pan-European Research Infrastructure that has entered its implementation phase in 2020. The aim of the ACTRIS Implementation project (ACTRIS IMP) is to coordinate and accomplish the actions required for implementing a globally recognised long-term sustainable research infrastructure with operational services by 2025. ACTRIS IMP builds on three main pillars: i) securing the long-term sustainability, ii) implementing ACTRIS functionalities, and iii) positioning ACTRIS in the national, European and international science and innovation landscape. ACTRIS IMP will enable ACTRIS to respond to user-community needs and requirements for fully operational services and enhance ACTRIS relevance, innovation potential, and societal impacts.

One of the key objectives of ACTRIS IMP is to implement, test and improve the ACTRIS service provision. Therefore, several pilots of access provision will be offered through the transnational access (TNA) tool in WP7, including the definition of the workflow and procedures related to the access and service provision and centralized management via SAMU (Service and Access Management Unit).

The present document defines the pilot access process based on which the TNA pilot access will be made. The document also includes information on available services and facilities, promotion of access and calls, user application process and request form, user evaluation and selection, support to access, and post-access requirements. The access management for testing of the pilot process and workflows will evolve during ACTRIS IMP, towards the use of a centralized access management platform. In its initial phase, the TNA is coordinated based on tools that are adapted from those developed in previous/ongoing integrated activities related to ACTRIS (ACTRIS-2, ENVRIPLUS-2020).

The terminology used in this document is in line with the EU Charter for Access to Research Infrastructure and the ACTRIS glossary. The references are given in section 7.

2. ACTRIS IMP TNA pilot

2.1. Overview of facilities participating in ACTRIS IMP TNA pilot

ACTRIS IMP will provide limited pilots of TNA to specific services at 11 ACTRIS facilities comprising Topical Centres (TCs), the Data Centre (DC), National Facilities (NFs), or combined ACTRIS Facilities (NF-TC), located in 10 different countries. The choice of participating facilities and services provided allows testing and evaluating the service provision and access provision to optimize the user interaction, workflows and management. The experience gained will help to implement the large-scale access provision in the ACTRIS operational phase. An overview of the facilities participating in the TNA pilot during ACTRIS IMP is given in Figure 2-1 and Table 2-1. A detailed description of the ACTRIS facilities offering TNA and the services offered will be provided on the ACTRIS web portal.

Services to the ACTRIS facilities will be provided through physical and remote access. Particular emphasis is given to:

1) services focusing on technological development, training, forefront scientific exploration, or new services developed/made available according to evolving user needs,

2) services having high potential for involving users from the private sector for prototype testing, joint developments, and industrial applications, and

3) services attracting new users from new/relevant regions, other scientific domains for multi-disciplinary applications, or tailored user services.
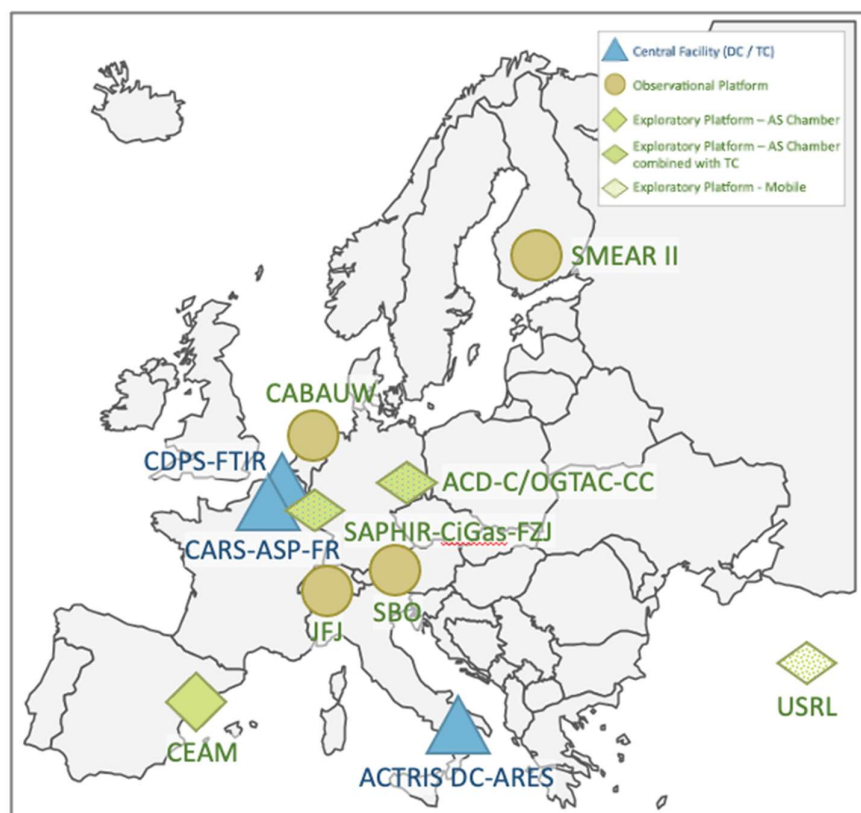
Figure 2-1. Geographical overview of ACTRIS facilities participating in the ACTRIS IMP access pilot.

Table 2-1. ACTRIS facilities participating in the TNA access pilot. NFs comprise OBS (observational platforms), ASC (atmospheric simulation chambers), and MOB (mobile platforms). CFs comprise DC (Data Centre) units and TC (Topical Centre) units.

#	Facility acronym, name and type			Host institution, Country
1	ACTRIS DC-ARES	Aerosol remote sensing data centre unit	DC	CNR, Italy
2	CARS-ASP-FR	Centre for Aerosol Remote Sensing-Automatic Sun/sky/lunar Photometers	TC	CNRS, France

#	Facility acronym, name and type			Host institution, Country
3	CDPS-FTIR	Central Data Processing Systems for FTIR remote sensing data	DC	BIRA-IASB, Belgium
4	SMEAR II	Station for Measuring Ecosystem-Atmosphere Relations II	OBS	UHEL, Finland
5	JFJ	High Altitude Research Station Jungfraujoch	OBS	PSI, Switzerland
6	Cabauw	Cabauw Experimental Site for Atmospheric Research	OBS	KNMI/TUD, The Netherlands
7	SBO	Sonnblick Observatory	OBS	ZAMG, Austria
8	USRL	Unmanned Systems Research Laboratory	MOB	CYI, Cyprus
9	ACD-C/ OGTAC-CC	Atmospheric Chemistry Department - Chamber combined with the Organic Tracers and Aerosol Constituents - Calibration Center	ASC-TC	TROPOS, Germany
10	SAPHIR-CiGas-FZJ	Simulation of Atmospheric Photochemistry in a large Reaction chamber in combination with Centre for Reactive Trace Gases In-Situ Measurements - Forschungszentrum Jülich	ASC-TC	FZJ, Germany
11	EUPHORE	European PhotoREactor	ASC	CEAM, Spain

2.2. Testing and evaluating the service provision

The objective of the TNA pilot is to implement and test the service provision to assess and improve the reliability of the overall service provision within ACTRIS, increase the user trust and expand the user base. The testing and evaluation of the services provision and access process has several aims:

- to demonstrate the functionality, feasibility, efficiency of the access concept,

- to identify design issues and detect shortfalls,

- to reduce risks (e.g., constrains on access due to COVID-19, lack of interest from users in ACTRIS services, inadequate capacity at ACTRIS facility to host TNA, biased user selection, unavailable on-site support, arduous/lengthy access process, etc.).

The testing will focus on the workflows and its components in the access process (see also section 4.9). The workflow process mainly focusses on the following components:

1. the management of the call and access related documents;
2. the evaluation process for the user TNA proposals;
3. the user feedback management and processing.

An evaluation of the workflow testing will be performed based on specific criteria and indicators. The details of the testing of workflow and functionalities of the TNA pilot will be provided in a separate document, and the evaluation results will provide input to deliverable D7.1 (Recommendations for

optimizing the access process and user interaction, month 27) and D7.2 (Recommendations for implementing access to ACTRIS services).

2.3. Quantity of access provided under ACTRIS IMP

Under the ACTRIS IMP TNA pilot, **282 access units** to users will be offered via both physical access (PA) and remote access (RA). The quantity of access is limited due to specific testing of the access workflow at selected facilities. Different units of access are applied, depending on the type of ACTRIS facility. The National Facilities (NF) comprise observational platforms (OBS), atmospheric simulation chambers (ASC) and mobile platforms (MOB), the Central facilities comprise ACTRIS Data Centre (DC) units and Topical Centres (TC), including combined ASC-TC (details are given in Table 2-2).

Typically, and based on experience from TNA provision under previous ACTRIS-related integrated activities (ACTRIS-2, EUROCHAMP-2020), the access units are used for the following facility types:

Observational platforms (OBS) → user working day (**UWD**): equivalence of one working day spent by one user at the facility to access the services. [1]

Atmospheric simulation chambers (ASC) → **DAY**: equivalence of one working day spent by one or several users at the facility to use its services, independent of the number of users. [1]

Topical Centres (TC) → staff working day (**SWD**): equivalence of one labour day required by the facility staff person to provide the access to the services or **CAL**: equivalence of the calibration of one instrument at the facility.

Data Centre (DC) → staff working day (**SWD**) or data processing service (**DPS**)[2]

The minimum units of access to be provided under ACTRIS IMP are the following: 120 UWD, 85 SWD, 63 DAY, 10 CAL, 4 DPS.

Table 2-2: Overview of ACTRIS facilities and their specificities for providing TNA: facility type, units of access applied, access type (new RA capabilities added in green) and estimated number of users and user projects.

ACTRIS Facility	ACTRIS Facility type		Unit of access	Min quantity of access to be provided	Access type	Estimated number of users	Estimated number of user projects
	NF-CF	OBS-ASC-TC-DC					
ACTRIS DC-ARES	CF	DC	SWD	45	RA	5	3
CARS-ASP-FR	CF	TC	CAL	10	RA	10	10
			UWD	9	PA	3	3
CDPS-FTIR	CF	DC	DPS	4	RA	3	3
SMEAR II	NF	OBS	UWD	30	PA/RA	12	6
JFJ	NF	OBS	DAY	30	PA/RA	8	4
Cabauw	NF	OBS	UWD	36	PA/RA	12	6
SBO	NF	OBS	UWD	45	PA/RA	9	3

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[1] Access unit of DAY is also used by the observational platform JFJ (cf. Table 2-2)
[2] Access unit of DPS is used by DC unit CDPS-FTIR and includes data processing of one year of L1 data using a standardized protocol, including quality assurance of the resulting products.

USRL	NF	MOB	SWD	40	PA/RA	6	3
ACD-C/OGTAC-CC	NF-CF	ASC-TC	DAY	20	PA	8	2
SAPHIR-CiGas-FZJ	NF-CF	ASC-TC	DAY	5	PA	10	1
EUPHORE	NF	ASC	DAY	8	PA/RA	4	2

The majority of the facilities (8 out of 11) provide physical access: physical access is provided to ACTRIS NF (OBS, ASC, MOB), to ACTRIS CF (TC, DC) or to combined NF-CF facilities (ASC-TC). Two DC units provide remote access for processing of data and calculation of QC data products and one TC for remote instrument calibration. Due to the evolution with respect to COVID and related difficulties for physical access, a number of ACTRIS facilities are now also promoting remote sensing capabilities that were not foreseen initially.

3. Access management during ACTRIS IMP

In operational ACTRIS, SAMU (as part of the ACTRIS Head Office and represented within ACTRIS by beneficiary CNR) will be the central service and management unit in charge of coordinating the overall access process and representing the interface between the users, the access providers and the review panel. During the ACTRIS implementation phase and within ACTRIS IMP, the coordination of the TNA pilot is under the responsibility of CNRS. Nevertheless, both CNR and CNRS are jointly sharing and following up on the tasks related to the implementation of the user access and the organisation and testing of the service provision. Therefore, the management of the TNA will be jointly managed by CNRS and SAMU/CNR.

The management of the access provision will evolve during ACTRIS IMP, from an initial centralized management towards an updated centralized management system using a specifically designed access management platform aimed at optimizing the overall access process within SAMU. Both steps are shortly described below.

3.1 Initial access management

The initial management of the TNA provision will be handled by CNRS (in charge of WP7) with growing support and involvement of SAMU (CNR). It builds on extensive CNRS experience gathered in coordinating the TNA activities of ACTRIS-related EU projects within previous and ongoing INFRAIA and INFRADEV projects: EUSAAR, ACTRIS, ACTRIS-2, EUROCHAMP-2020, ENVRIplus. The overall process is centralized and requires swift interactions between the different actors in the process due to fixed schedules and timelines, continuously administered by the SAMU. The following tools are deployed to ensure efficient access management:

- Communication tools to ensure wide advertisement of the access opportunities: website, mailing lists, social media, newsletters, etc.) and agile communication among the key actors (web portal, mails);
- Supporting documents for transmission of key information (see section 5);
- Management tools for efficient access tracking and monitoring, analyses, and statistics: advanced excel management forms
- Archiving tools for rapid access to TNA results and documentation: ACTRIS intranet

3.2 Access management platform

The ACTRIS user access and service provision system will be optimized during ACTRIS IMP (as part of WP6) in order to streamline and facilitate the internal workflows and overall process. A tailored access management platform ACTRIS «PASS» (Platform for managing user access to ACTRIS ServiceS) will be developed and implemented by SAMU to control each step of the access and service provision process and the interactions between SAMU and the users, access providers, and review panel members. The access management platform integrates all elements in the process including management, application, review and selection, approval, support to access and monitoring/reporting. A beta version of the platform will be released in month 22 of the project (Oct 2021). Due to the planned timing of the calls (Table 4-1), the access management platform is expected to be available for testing of the 3rd call for access, foreseen in 2022. The final version of the access management platform is estimated to be operational at the end of ACTRIS IMP (Dec 2023).

4. Modalities of access under ACTRIS IMP

ACTRIS will implement a homogeneous and facilitated access process for all actors involved, i.e., users, SAMU, access providers, review panel members. The general ACTRIS access process is governed by the ACTRIS Access Management Plan (AMP) which describes the access rules, procedures and workflows including SAMU and central management of access. A first version of the ACTRIS AMP has been prepared during the ACTRIS preparatory phase (ACTRIS PPP deliverable D6.4 - Recommendations to the user strategy, access management and workflows), a second updated draft will be provided during ACTRIS IMP in WP6 (milestone MS34, month 12). The AMP is complemented by the ACTRIS Data Management Plan (DMP) that describes the management and lifecycle of the ACTRIS data. Both AMP and DMP are based on the principles for access to ACTRIS services established in the ACTRIS access and service policy and the ACTRIS data policy. The policy documents and management plans (cf. section 7) are the pillars for access of users to all ACTRIS services, on which ACTRIS IMP TNA pilot is built and is compatible with. The access process for the ACTRIS IMP testing pilot is illustrated in Figure 3-1. The different steps and modalities of the main elements applicable for the TNA are described in the following.
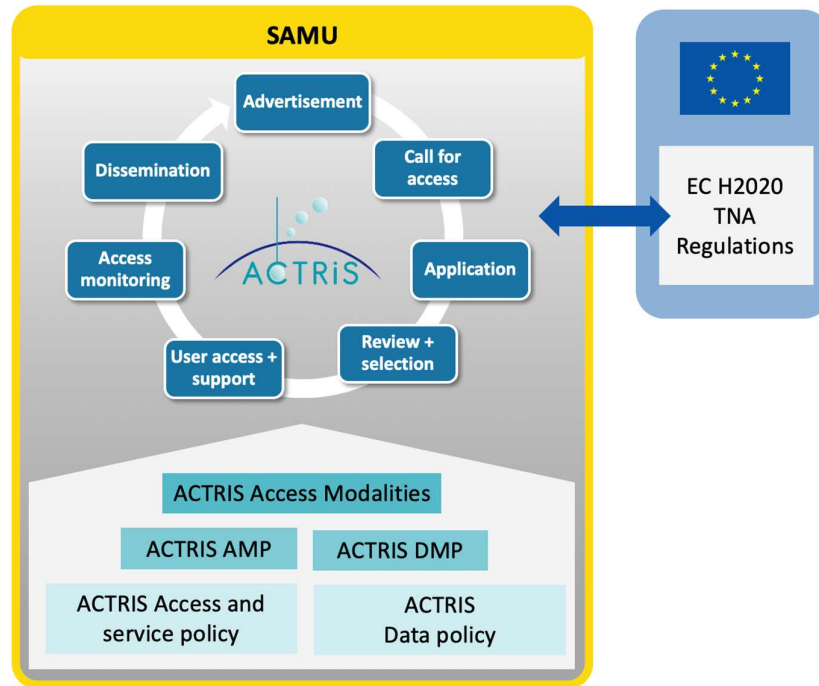
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Figure 3-1. ACTRIS IMP TNA pilot process, steps and underlying management plans, policies and regulations.

4.1 Rules for access under H2020

TNA under ACTRIS IMP underlies the rules and regulations of the H2020 EU projects. Therefore, the access must be provided in accordance with the following conditions:

- The access must be **advertised widely and take into account the gender dimension** to promote equal opportunities.
- The access must be **free of charge**.
- The access must be **trans-national**, i.e., the user group leader (project PI) and the majority of the users must work in a country other than the country(ies) where the installation is located (except for international organisations, an ERIC, the EC Joint Research Centre, or in case of remote access to a set of facilities located in different countries offering the same type of service).
- TNA is principally provided to user groups from EU members, associated and candidate states. TNA is also open to **users working outside EU**, however, limits may be applied as access for user groups with a majority of users not working in an EU or associated country must be globally limited within the project to max 20%.
- The access to the research facilities must be provided for user-groups, selected by an **independent selection panel**, with priority given to new users and users from countries where no equivalent facility exists.
- This access must include the **logistical, technological and scientific support and the specific training** that is usually provided to external researchers using the infrastructure.

4.2 Access communication

4.2.1 Publicity for ACTRIS IMP TNA pilot

Communication is a key and indispensable tool for promoting successful access to ACTRIS services for the user. **Wide measures will be taken to advertise the opportunities of TNA within ACTRIS IMP in collaboration with the ACTRIS communication and outreach strategy developed in WP10** (ACTRIS communication and public relations). An important aspect is to communicate and engage with an identified target audience, using **appropriate communication tools and channels**: ACTRIS website, social media, mailing lists, newsletters, brochures, user fora, announcements at scientific conferences, workshops and meetings, etc. The ACTRIS website will be the key point for users to get all relevant information about the access process and access to the relevant documentation and forms.

4.2.2 Expanding towards new users

Great effort is made to reach out to new users and new user communities and to expand the ACTRIS user base. In ACTRIS IMP, specific users are targeted, particularly i) users from the private sector (in collaboration with WP9 – Positioning ACTRIS in the European innovation ecosystem), ii) users from new countries and regions, and iii) users from other scientific domains to encourage multi-disciplinary access.

The advertisement of access must consider the promotion of equal opportunities and take into account the gender dimension.

Limited financial support for users available through ACTRIS IMP will enable to target specific users, facilitate user mobility and help attracting users.

4.2.3 Calls for access

ACTRIS IMP invites proposals for access to ACTRIS services based on a number of dedicated and specific calls for access. Three access calls are planned within ACTRIS IMP, the proposed call schedule is described in Table 4-1. The calls are planned to be open for 8-10 weeks, with a subsequent review period of 4-6 weeks, and a period for user access of 10-12 months (except for the last call due to required reporting within ACTRIS IMP). However, the timings (open call / review period / access period) should be flexible and allow adjustments if/where needed.

Table 4-1: Planned call schedule within ACTRIS IMP

Call n°	Call open	Call closed	Review period	Access period
Call 1	5 Nov 2020	5 Jan 2020	→ 12 Feb 2021	Mar-Dec 2021
Call 2	15 Sep 2021	15 Nov 2021	→ 15 Dec 2021	Jan-Dec 2022
Call 3	15 Sep 2022	15 Nov 2022	→ 15 Dec 2022	Jan-Aug 2023

4.2.4 Communication and interactions

A sound access process relies on efficient communication between the key actors in the access process, as illustrated in Figure 4-1. SAMU is coordinating the interaction between the users, access providers and members of the review panel in collaboration with the communication office at the ACTRIS Head Office (HO) as part of ACTRIS IMP WP10.

Additionally, a user helpdesk at SAMU will be implemented to provide a central information and contact point on all access-related aspects to the users. Webinars may be considered for users on matters related to services and access. Furthermore, SAMU will manage a science and user forum as online application to provide a framework for discussions and exchanges among the users.
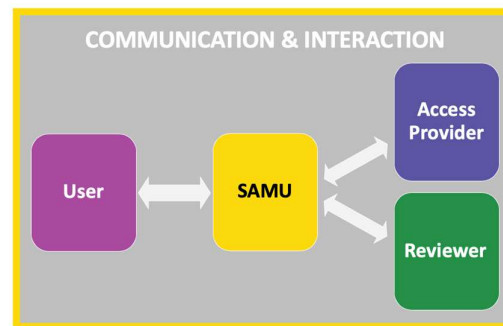
Figure 4-1. Key actors in the access process: SAMU as the focal point in the access process, users interacting via single entry point with SAMU, access providers, reviewers.

4.2.5 Dissemination of results

The ACTRIS communication and outreach strategy also comprises measures to ensure a wide dissemination of the scientific results from access via publications, and to enable access to the TNA data and publications via the ACTRIS web portal. Users are encouraged to disseminate the results from work carried out via the TNA pilot in peer-reviewed publications (exception are granted for users from the private sector concerning any proprietary research). It is expected that the support and contribution provided by ACTRIS, i.e., the use of the facility and the contribution of those persons working at the ACTRIS facilities, is acknowledged. The users are expected to make their publications available through open access repositories and the data should be made available for archiving via the ACTRIS DC.

4.3 Centralized management via SAMU

The management of the entire access process to ACTRIS services is centralised via SAMU (located at the ACTRIS HO). SAMU represents the main interface between all key actors (users, access provider, review panel members). The tasks and actions by the key players are illustrated in Figure 4-2. The centralized management via SAMU is fundamental for any distributed research infrastructure and is an essential support structure to optimize the access.

SAMU is the single entry point for physical and remote access for all users, providing effective guidance and support before, throughout and after the access. All access requests are channelled through SAMU. Via SAMU, users obtain information about the available services and access opportunities. SAMU

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coordinates the harmonized access process that is implemented for all ACTRIS services via TNA in a uniform manner: SAMU receives the written access requests, coordinates the review and selection process, and informs the applicants on the acceptance or rejection of their requests, or on any revision that is needed to the application. SAMU provides assistance to users throughout the process and, where needed, interacts with the access providers to ensure efficient access according to the terms of use and requirements, in line with the ACTRIS data and access policies. Once the user access is completed, SAMU contacts the users, collects the access reports and centralizes user feedback, and any other information on results and publications. ACTRIS furthermore documents and archives the data resulting from the access in the ACTRIS Data Centre (in compliance with the ACTRIS data policy and ethical guidelines).
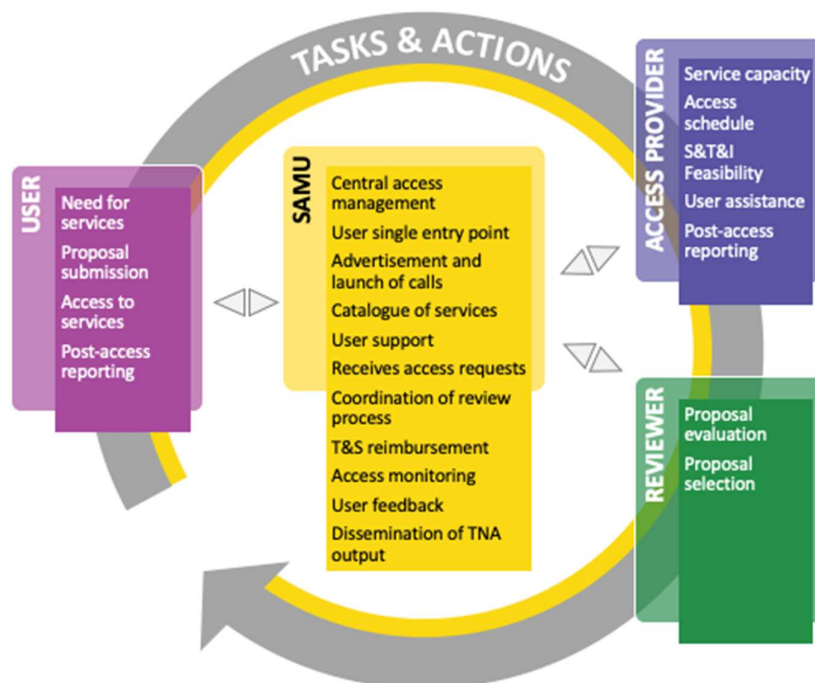
Figure 4-2. Tasks and actions performed by the key players.

SAMU also ensures all interaction with the user in all stages, before, during and after the access, and is responsible for the following aspects[3]:

- providing information on pilot access and calls,
- providing information on availability of services and scheduling of the access (an online catalogue of services will be developed during ACTRIS IMP, as part of WP6),
- handling the application and review process,

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[3] The responsibility for overseeing the financial support to user travel is with the WP7 coordinator in collaboration with the access provider whose host partner institution will be in charge of the reimbursement of user's travel expenses.

- coordinating and supporting the access,
- monitoring the user access and service provision,
- disseminating the access output and providing information about results and publications,
- ensuring the user help desk.

The WP7 Leader and SAMU/CNR will connect to the access providers of the different facilities providing TNA for availability of services, facility capacity, S&T as well as logistic feasibility and schedule. A well-defined access workflow will be established to ensure efficiency on all levels. The workflow will be tested and, based on the results, adjusted where necessary and optimized. WP7/SAMU coordinates the proposal evaluation and selection and communicates with the review panel (see details in section 4.5).

The access process under ACTRIS IMP will be described on the ACTRIS web portal (https://www.actris.eu) and is made in accordance with the H2020 TNA regulation (ACTRIS IMP Grant Agreement and/or H2020 Annotated Model Grant Agreement), the ACTRIS access and service policy, the ACTRIS data policy, the ACTRIS AMP and DMP.

4.4 User application process

During ACTRIS IMP, WP7/SAMU will be the central entry point and interface for users seeking physical and/or remote access to any ACTRIS facility. Access request of any user (team of one or more users) to an ACTRIS facility must be made in writing. In the initial phase of ACTRIS IMP, a written application form, also made available on the ACTRIS website, must be submitted by the project leader. The application form provides all relevant information on the user project to allow adequate review and selection of the user(s): title and acronym, planned project dates, the project leader and participants, a description of the objectives and work the user(s) wish to carry out, including any user requirements for access on-site, dissemination plans, estimated travel costs of the users, etc. The application form will be integrated in the access management platform, when implemented (see section 3.2 for more information). During proposal preparation and in case of needs, the user will be able to request additional information via SAMU or, if requested, also directly with the relevant access provider (as also illustrated in Figure 4-4).

The template of the user application form is available in section 5.1.

4.5 User evaluation and selection

A common review procedure will apply for evaluating and selecting the access requests (Figure 4-3, and Figure 4-5 for more details).
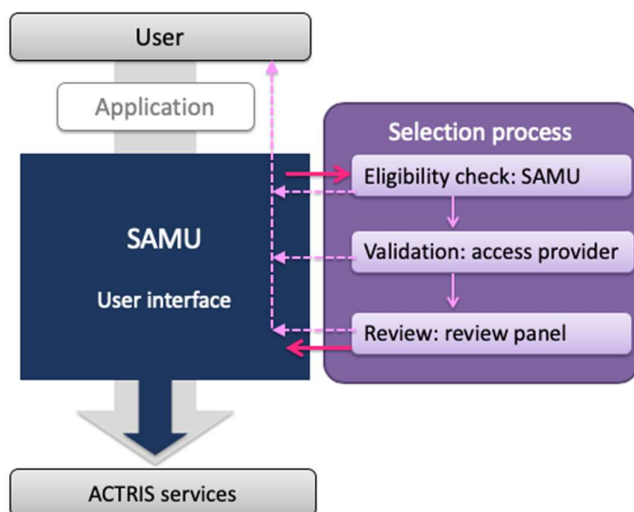
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Figure 4-3. Illustration of user evaluation and selection process

SAMU coordinates the entire review process for reviewing and selecting the users (the details will also be described on the ACTRIS web portal). SAMU receives the user application and guides the multi-stage review procedure which includes the following steps:

1. Validation by SAMU for eligibility

SAMU will verify the application for formal compliance with the EC regulations (cf. section 4.1) and ACTRIS eligibility criteria according to the ACTRIS access and service policy and ACTRIS AMP. If needed, SAMU will interact with the project leader during the application process, e.g., for revising and optimising the application.

2. Validation by the access provider (feasibility check)

SAMU will interact with the access provider to check availability of the services requested, the existing capacity, the scientific, technical and logistical feasibility of the project, and the timing of the access request. Only after positive evaluation by the access provider, the next review step will be launched.

The template of the access provider evaluation form is available in section 5.2.

3. Review and selection by independent review panel

SAMU will transmit the application to an independent peer-review panel for scientific and technical evaluation. The evaluation by the review panel will be based on principles of transparency, fairness and impartiality.

3.5.1 Review panel

The review panel is set up in the initial phase of the project. The review panel is an independent panel which will be constituted by international experts, with the majority being from outside ACTRIS IMP. The different panel members must have sufficient expertise to cover the various fields of research related to short-lived atmospheric components. The process for selection the panel members will be coordinated by WP7. The review panel is expected to include about 10-15 members, the composition may be reviewed

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during the project if needed. The members will be nominated by the ACTRIS IMP General Assembly and will serve in the review panel for the duration of the ACTRIS IMP project. The members of the review panel will act in an honorary capacity. Expenses related to their participation in any ACTRIS IMP review meeting will be covered by the project.

4.5.2 Selection criteria and access modes

The review panel will evaluate and select the applications according the defined criteria and access modes, which comprise:

• **Scientific excellence criteria** including scientific originality, quality, state of the art, technical aspects for instrument performance and high quality, relevance and impact of the project, dissemination plan, etc.

• **Technical need-driven criteria** for increasing instrument performance (maintenance, calibration, QA) and operator training.

• **Market-driven aspects** apply when access is defined through an agreement between the user and ACTRIS, principally in relation to business and innovation, private sector participation, technological development, innovative solutions, socio-economic impact.

Additional aspects will be considered:

i.   Only projects focusing on the following aspects:
   - technological development, training, forefront scientific exploration, or new services developed/made available according to evolving user needs,
   - projects with high potential for involving users from the private sector for prototype testing, joint developments, and industrial applications, and
   - projects attracting new users from new/relevant regions, other scientific domains for multi-disciplinary applications, or tailored user services.
ii. Priority is given to new users and users in countries where no equivalent facility exists.
iii. Gender equality will be promoted.
iv. Particular user profiles are strongly encouraged:
   ▪ users from non-academic domains: private sector, public services (e.g., environmental agencies, climate and space services);
   ▪ users from environmental or other domains to promote cross-disciplinary research;
   ▪ users from new regions/countries;
   ▪ early-career researchers or researchers from less-favoured regions or users requesting training and educational services (particularly from those outside the EU);

Finally and importantly, the selection of projects is part of the overall TNA pilot aimed at testing the service provision and workflows in the overall process: diversity of access types, access modes, platform types, categories of users, any malfunctioning, weak points etc.

A specific evaluation form will be used for the review process (see section 5.3). The evaluation form considers both, quantitative and qualitative aspects. For quantification, different weights will be assigned to each selection criterion (example: criterion 'Scientific merit': point may range between 0-... (depending on the criterion). The sum of points achieved for all criteria will give a total score according to which each proposal will be ranked as A (excellent), B (good), C (average), D (poor), E (rejected or not eligible). Primary

and secondary reviewers will be assigned to each proposal. The proposals are expected to be assessed by all panel members and discussed at a dedicated meeting (either physical or virtual) of the review panel, during which the proposals will be ultimately selected. The feasibility check of the access provider will be available and taken into account before selection of the users.

The review panel will inform SAMU of the evaluation results and give recommendations on the users that should benefit from the TNA. SAMU will centralize the review results and interact with the project leader and access provider to communicate the outcome of the review process (acceptance / revision / rejection of the application).

4.6 User access, support and terms of use

In case of selection of a user (project) for access, SAMU will invite the project leader to organize the access and contact the access provider. The project leader will be requested to accept the TNA terms and conditions of access using a corresponding document (user acknowledgement statement form, see template in section 5.5). The project leader must furthermore agree with the post-access requirements (section 4.7):

- to provide any relevant TNA documentation,
- to disseminate the output resulting from the TNA and available for open access[4]:
  - peer-reviewed publications (including reference/DOI);
  - TNA data (à priori provided via the ACTRIS Data Centre for archiving and access, where possible, see also section 4.6.4);
  - to acknowledge the contribution and support provided by ACTRIS.

Both access providers and users have their commitment towards the access process once an access request has been accepted.

4.6.1 Applicable regulations and terms of use

Users are responsible for complying with applicable law and safety regulations, which comprise, e.g., national and local regulations, procedures and specific measures of the hosting organisations related to access to facilities or parts of a facility, the use of equipment, required protection, safety regulations, adequate training, health and risks, insurance requirements, and any other terms of use of and access to the ACTRIS facility concerned. It is the responsibility of the access providers to inform the users on the facility-specific terms of use.

4.6.2 Insurance

Users are responsible for their own insurances. The hosting institutions have the right to request that certain insurances are taken and also to request proof for that. It is the responsibility of the access providers to inform the users on any specific requirements regarding insurances prior to the access provision.

4.6.3 User support offered

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[4] In principle, only users that are allowed to disseminate their results from TNA may benefit from access. Exceptions, however, apply, e.g., in the case of users working for SMEs.

The access includes the logistical, technological and scientific support and the specific training that is needed for users to access the facility. The support to users includes assistance by SAMU in all stages of the process and on-site support at the facility by access providers:

- Support for administrative and logistic issues including customs, shipping and transport of instrumentation, specific permissions, instrument and/or storage space, arrangements of travel and accommodation;
- Scientific and technical support for project planning, preparation, set-up and disassembly, instrument handling and operation;
- Training on the use of the facility;
- Scientific expertise;
- Any other necessary information related to on-site needs, data handling and archiving.
- Additional support provided by a specific ACTRIS facility as described on the ACTRIS website.

SAMU facilitates the support and supervises the process. The access management platform will ultimately enable a line of communication between users and access providers, via SAMU.

The provision of TNA for using ACTRIS facility services is free-of-charge to users. Limited financial support for user travel and subsistence will be available to some facility services and upon request. The conditions are detailed in the guidance notes of the application form (section 5.1)

4.6.4 Data management

Users are requested to submit the data resulting from physical and remote access under ACTRIS IMP (TNA data submission will be detailed in a second step together with the ACTRIS DC). The data will be archived and made available through the ACTRIS DC in accordance with the ACTRIS DMP and the ACTRIS data policy immediately or after an agreed period of time, according to FAIR principles (section 7). Certain users, e.g., from the private sector, may be excluded from the obligation to provide data from access.

4.6.5 Dissemination of results

Users are expected to make the results available via open access and disseminate them in peer-reviewed publications. Proper citation and acknowledgement should be made, including the contribution and support provided by ACTRIS IMP, the use of the facility and the contribution of persons working at the ACTRIS facilities involved in the access provision. Authors of publications resulting from TNA activities are, therefore, encouraged to propose co-authorship to those colleagues having made substantial contributions both by users and facility staff. Users are requested to communicate the references to the publications resulting from TNA activities via WP7 Leaders/SAMU.

4.7 Post-access requirements

After completion of the user access, WP7 Leaders/SAMU collects the TNA documents from the users for adequate access reporting and monitoring:

- Information of quantity of access provided, project participants and access dates (section 5.6).
- A scientific or technical activity report. The report will be adapted, depending on the type of service used (research, technical, innovation, training, or data service) (section 5.7).

- User feedback on the access conditions, quality and experience (questionnaire-type) to improve and facilitate the access process for the users (section 5.8). The management and processing of the user feedback is illustrated in more detail in Figure 4-6.
- Information on access results: scientific publications and data.

Any financial support provided by ACTRIS IMP to the users will directly reimbursed via the access provider (i.e., the project beneficiary in charge of the ACTRIS facility concerned). Therefore, users will furthermore have to provide the required travel documents for reimbursement of users' travel and subsistence expenses to the access provider, according to the accounting rules of the access provider's administration.

Additional information from both the access providers and users will be collected in order to improve and optimize the user interaction, access workflows, process, concept and reporting. Furthermore, a detailed testing of the access workflow components will be carried out for which specifications will be provided in a separate document (Figures 4-4, 4-5, 4-6 in section 4.9 illustrate the workflow processes). Results from testing and additional information collecting will provide input to the corresponding WP7 milestones and deliverables:

- MS42: Intermediate assessment of the pilot access concept and process (month 25 – Jan 2022),
- D7.1: Recommendations for optimizing the access process and user interaction (month 27 – Mar 2022);
- MS44: Final assessment of the pilot access concept and process (month 44 – Aug 2023),
- D7.1: Recommendations for implementing access to ACTRIS services (month 46 – Oct 2023).

4.8 User meetings

Specific physical meetings of TNA users are not envisaged under ACTRIS IMP. However, the possibility of dedicated webinars might be considered with participation of users discussing and exchanging on ongoing access projects and results to improve the quality of the service provision, user interaction, and the overall access process.

Specific sessions during ACTRIS meetings will be scheduled to enable the presentation of selected results from TNA, either by the users or access providers of the ACTRIS facility concerned (e.g., via dedicated poster sessions).

Users are furthermore encouraged to present the results of the TNA under ACTRIS IMP at scientific meetings and conferences.

4.9 Access process workflows

The access process workflows for different workflow components and for testing and evaluating the service provision are illustrated in the following Figures 4-4, 4-5, and 4-6. They comprise:

1. the workflow for the management of the call and access related documents (Figure 4-4);
2. the workflow for the evaluation process of the user TNA proposals (Figure 4-5);
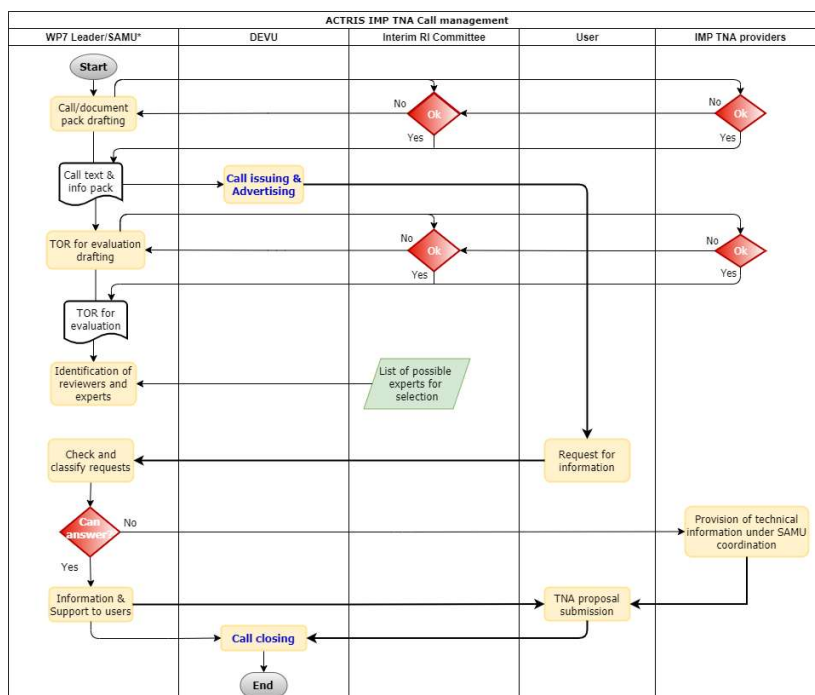3. the workflow for user feedback management and processing (Figure 4-6).

Figure 4-4. Workflow diagram describing the process of publishing and closing the TNA call for access and the interactions among the key actors involved: WP7 Leader/SAMU, DEVU (Development and Relations Unit at the HO), the user, and access providers.
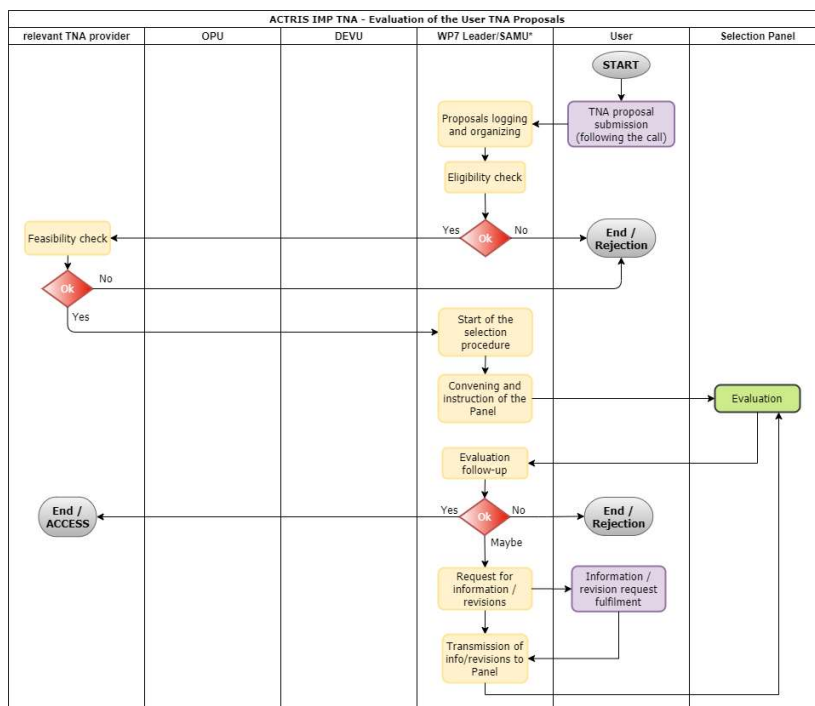

Figure 4-5. Workflow diagramme describing the evaluation process for TNA proposals submitted by the user, undergoing a 3-step review process by WP7 Leader/SAMU, access provider, and review panel.
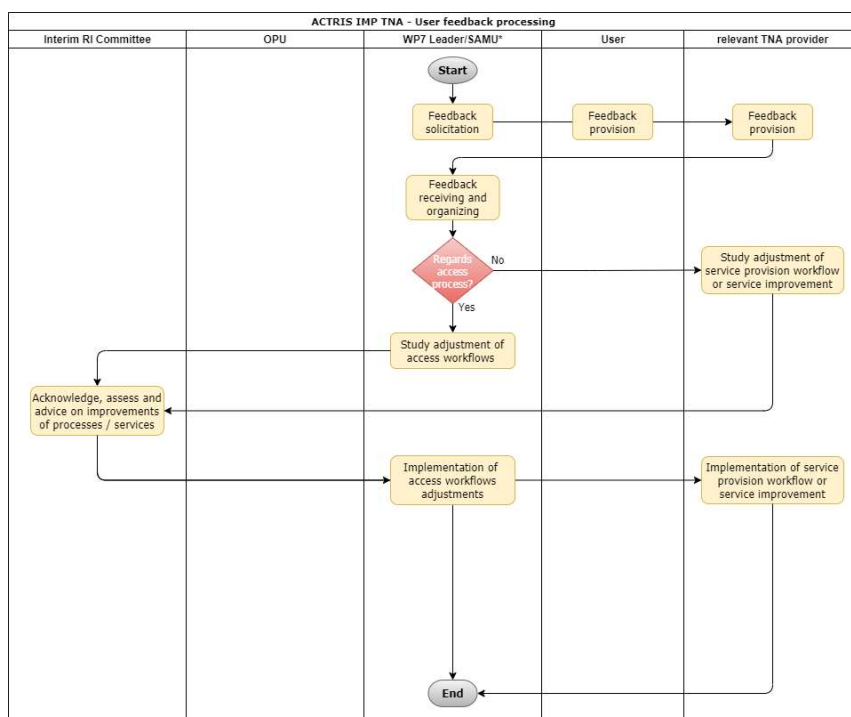
Figure 4-6. Workflow diagramme of the the management and processing of TNA the user feedback provided to WP7 Leaders/SAMU and access provider.

5. Access-related template documents

The management, monitoring and reporting of TNA is based on a number of documents used by SAMU to facilitate the overall process. An overview of the template documents is given in Table 5-1. Some templates to be used in the different steps which are available at this stage are described in the specific subsection. Those becoming available at later stage are not yet included. Additional documents may become relevant and added in the internal workflow process.

Table 5-1. Overview of template documents used in the access process, actors involved and tools used in the initial phase (phase 1) and once the access management platform is available (phase 2). Templates described in more detail in section 5 are indicated in blue/bold. Templates not yet available are indicated by "n/a".

#	Information provided	Template document	Access process step	Sender	Receiver	Section for detailed description
1	Call for access	Generic call information (+ website content)	Advertisement	ACTRIS HO	User	
2	**User request information**	**User application form**	**Application and submission**	**User**	**SAMU**	**5.1**

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3	SAMU acknowledge-ment	Application reception	Application and submission	SAMU	User	
4	SAMU check for eligibility	Eligibility check	Review and selection	SAMU	-	
5	Request for validation	Request form for validation step 1	Review and selection	SAMU	Access provider	
6	Feasibility check	Access provider evaluation form	Review and selection	Access provider	SAMU	
7	Request for validation	Request form for validation step 2	Review and selection	SAMU	Review panel members	
8	Evaluation of user project	Review panel evaluation form	Review and selection	Review panel members	SAMU	
9	**Evaluation results**	**SAMU response letter**	**Review and selection**	**SAMU**	**User**	**5.2**
10	**Acceptance of TNA conditions**	**User acknowledgement statement form**	**User access and support**	**User**	**SAMU**	**5.3**
11	User cost claims	T&S Reimbursement request form	User access and support	User	Access provider	
12	**Access information**	**Confirmation of access form**	**Access Monitoring**	**Access Provider**	**SAMU + User**	**5.4**
13a	**Access report_NF**	**Access activity report form (access to NF)**	**Access Monitoring**	**User**	**SAMU**	**5.5**
13b	**Activity report_CF**	**Access activity report form (access to TC, DC)**	**Access Monitoring**	**ACTRIS facility (TC, DC)**	**SAMU**	**5.5**
14	TNA output: data and publications	n/a	Access Monitoring	User	SAMU (DC for data)	
15	**User feedback**	**User feedback form**	**Access Monitoring**	**User**	**SAMU**	**5.6**

5.1 User application form – template

Application form for Trans-national Access under ACTRIS IMP

Please consult the enclosed guidance notes for information on completing the application

1. Project Information	
Project title:	
Project acronym: *(20 characters max)*	

Service requested:	☐ **Data Service**
	    ☐ Central processing of aerosol lidar data at ACRIS DC-ARES
	    ☐ Central processing of remote sensing FTIR data at CDPS-FTIR
	
	☐ **Research Service**
	    ☐ Scientific exploration at SMEAR II
	    ☐ Scientific exploration at JFJ
	    ☐ Scientific exploration at Cabauw
	    ☐ Scientific exploration at SBO
	    ☐ Scientific exploration at USRL
	    ☐ Scientific exploration at ACD-C/OGTAC-CC
	    ☐ Scientific exploration at SAPHIR-CiGas-FZJ
	    ☐ Scientific exploration at EUPHORE
	
	☐ **Technological Service**
	    ☐ Photometer calibration and maintenance at CARS-ASP-FR
	    ☐ Photometer upgrading for mobile application at CARS-ASP-FR
	    ☐ Technological development and testing at SMEAR II
	    ☐ Technological development and testing at Cabauw
	    ☐ Cloud radar calibration at Cabauw-CCRES
	    ☐ Technological development and testing at SBO
	    ☐ Technological development and testing at USRL

	☐ Technological development and testing at ACD-C/OGTAC-CC
	☐ Technological development and testing at SAPHIR
	☐ XXX at SAPHIR-CiGas-FZJ
	☐ Technological development and testing at EUPHORE
	☐ **Innovation Service** at *select*: *(for private sector users only)* ☐ Prototype testing ☐ Technological and/or joint developments ☐ Industrial applications ☐ Other: please specify: ……………………………………
	☐ **Training service** at *select*:
	☐ **Other service** at *select*: *Please describe service:* …………………………………..
Type of access requested	☐ **Physical access** (i.e., hands-on access of user at facility) ☐ **Remote access** (i.e., the user does not physically visit the facility)
Additional project information	• **Is the project multi-disciplinary?** (i.e., integrate disciplines outside the atmospheric domain) ☐ Yes ☐ No
	• **Does the project involve users from new countries/regions?** (i.e., users that have never benefitted from ACTRIS services before) ☐ Yes ☐ No
Planned project dates:	**Start date:** *dd/mm/yyyy* **End date:** *dd/mm/yyyy*
	Potential flexibility of project dates? ☐ Yes ☐ No *(in case of unforeseen/ unexpected events or logistic conflicts)* Give details if necessary: ………………………………………………

2. Principal Investigator

First and LAST name:	

Gender:	☐ F ☐ M ☐ OTH			
Home institution:	**Name:**			
	Legal status:	*Please select:*		
	Address, Country:			
E-mail:			**Phone n°**	+
Profile:	☐ ECS – Early career scientist (e.g., UND, PGR, PHD, PDOC, …)			
	☐ EXP – Expert scientist			
	☐ ENG – Engineer, Technician			
	☐ OTH – Other: ……………………………………..			
	Are you a new user? *(i.e., a user that has never accessed the facility before)*	☐ Yes ☐ No ☐ Other: …………………………………….		

3. Project Participants

(Note: the role of each participant in the project must be briefly described in section 5)

• Participants' employing organization / Home institution

Name	Email	Institution name	Institution legal status	Institution country
			Please select	

• Participants' information

Name	Nationality	Gender M/F/OTH	Profile Please select	New user Y/N	Field of activity	Expertise	Access start dd/mm/yy	Access end dd/mm/yy
PI								

4. Recent References *(both project leader and key participants, min 5 references / if no references available please provide short CV)*

-
-
-
-
-

5. Project Description

- **Scientific objectives** *(max 350 words)*

- **State-of-the-art / novelty (if applicable)** *(max 100-150 words)*

- **Technical description of work to be performed and expected duration** *(max 350 words)*

- **Potential / impact towards business & innovation (if applicable)** *(max 50-100 words)*

- **Expected results and deliverables** *(max 100 words)*

6. On-site requirements during access

On-site support needed at the facility:	Administrative / logistic:	
	Technological / scientific:	
	Training:	

(*see guidelines for details*)	**Other:**	

7. Data management

It is mandatory that data from measurements at ACTRIS facilities will be provided for long-term storage and access (exceptions may apply in case of industrial/commercial use or on justified case-by-case basis).

Do you agree to make available the measurement data resulting from your access to the ACTRIS facility? *(E.g., from other additional measurements at the site or from additional instrument(s) deployed during the access.)*

☐ Yes ☐ No. *If No, please justify:* ….

If additional instrument(s) are deployed during the project, please include a list of instruments you plan to bring to the site during the access: *(expand Table if necessary)*

Additional instrument(s)	Resulting variable(s)	Principle investigator (Name, E-mail)

Please describe the data resulting from the access in more details *(unless already sufficiently done in section 5 above):*

8. Estimated user's travel & subsistence costs, in EUR *(for physical access only)*

(A) Travel costs	Travel costs per person (A1)	xxxx €	No of participants (A2)	xxxx €	Total travel costs (A = A1 x A2)	xxxx €
(B) Subsistence costs	Daily subsistence costs per person (B1)	xxxx €	Total number of days (B2)	xxxx €	Total subsistence costs (B = B1 x B2)	xxxx €
(C) Total estimated T&S costs					(C = A + B)	xxxx €
(D) Co-financing	Provide details, if applicable:		Fraction requested to ACTRIS IMP:		%	
(E) Grand total				Financial support requested to ACTRIS IMP:		xxxx €

9. Additional information

Do you agree to comply with any applicable national legislations and local health and safety regulations at the ACTRIS facility concerned?	☐ Yes ☐ No

Do you confirm that each member of the user group has appropriate personal insurance during the access?	☐ Yes ☐ No

10. Comments *(optional)*

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Guidance notes to ACTRIS IMP user application form

(1) Project information

Project title and acronym
Project title and acronym are mandatory. The length of the acronym should not exceed 20 characters.

Service requested
ACTRIS IMP provides limited pilots of Trans-national Access (TNA) to different types of services, via remote or physical access. Please indicate if the access is related to data services, research services, technological services, innovation services, or training services and which ACTRIS facility is concerned. Only access projects with particular emphasis on the following aspects will be considered:
- services focusing on technological development, training, forefront scientific exploration, or new services developed/made available according to evolving user needs,
- services having high potential for involving users from the private sector for prototype testing, joint developments, and industrial applications, and
- services attracting new users from new/relevant regions, other scientific domains for multi-disciplinary applications, or tailored user services.

The ACTRIS facilities offering access under ACTRIS IMP are listed in the below table. The facilities comprise OBS (observational platforms), ASC (atmospheric simulation chambers), MOB (mobile platforms), DC (Data Centre) units and TC (Topical Centres). A description of the facility and services is available on the ACTRIS website. Access is possible via physical access (PA) or remote access (RA)

#	ACTRIS Facility (acronym, name and type)			Host institution, Country	Access type
1	ACTRIS DC-ARES	Aerosol remote sensing data centre unit	DC	CNR, Italy	RA
2	CARS-ASP-FR	Centre for Aerosol Remote Sensing-Automatic Sun/sky/lunar Photometers	TC	CNRS, France	RA/PA
3	CDPS-FTIR	Central Data Processing Systems for FTIR remote sensing data	DC	BIRA-IASB, Belgium	RA
4	SMEAR II	Station for Measuring Ecosystem-Atmosphere Relations II	OBS	UHEL, Finland	PA/RA
5	JFJ	High Altitude Research Station Jungfraujoch	OBS	PSI, Switzerland	PA/RA
6	Cabauw	Cabauw Experimental Site for Atmospheric Research	OBS	KNMI/TUD, The Netherlands	PA/RA
7	SBO	Sonnblick Observatory	OBS	ZAMG, Austria	PA/RA
8	USRL	Unmanned Systems Research Laboratory	MOB	CYI, Cyprus	PA/RA
9	ACD-C/ OGTAC-CC	Atmospheric Chemistry Department - Chamber combined with the Organic Tracers and Aerosol Constituents - Calibration Center	ASC-TC	TROPOS, Germany	PA
10	SAPHIR-CiGas-FZJ	Simulation of Atmospheric Photochemistry in a large Reaction chamber in combination with Centre for Reactive Trace Gases In-Situ Measurements - Forschungszentrum Jülich	ASC-TC	FZJ, Germany	PA
11	EUPHORE	European PhotoREactor	ASC	CEAM, Spain	PA/RA

Project dates
Indicate the first and last day the facility is accessed by any person of the user group. Indicate your potential flexibility in order to optimize schedule of the access with the facility operator.

(2) Principle Investigator

Principal Investigator
The Principal Investigator (project leader) is the person responsible for the project who acts as contact of the application for the research team (user group) involved in the planned project.

Institution legal status

Please select:
- UNI: University and higher education
- RES: Public research organization (including international organizations and non-profit private research organizations)
- PUB: Public services (e.g., operational services, national weather services, data services, AQ networks, public authorities, ...)
- PRV: Private sector - Small Medium Enterprises or other industrial and/or profit private organizations
- OTH: Other (non-governmental organizations, citizen, ...)

Profile

Please select:
- ECS = Early career scientist (e.g., UND-Undergraduate, PGR-Postgraduate student with 1st university degree, PHD, PDOC-Postdoctoral researcher, ...)
- TEC = Technician
- EXP = Experienced, professional researcher
- OTH = Other (e.g., other private sector, public authority, education, etc.)

New user

Indicate if the user has visited/accessed/used the ACTRIS facility in the past.

(3) Project participants

List all participants needed to carry out the project. Indicate all relevant information for each participant in the user group involved in the project, see explanations under section 2, including access dates if different from the general project dates indicated in section 1. **Trans-national access criterion: access support is limited to participants whose home institution is not located in the same country as the ACTRIS facility.**

Field of activity

Please select for each participant:
- ENV-ATMO - Earth and environmental sciences/Atmospheric domain
- ENV-HYDRO - Earth and environmental sciences/Hydrosphere domain
- ENV-LITHO - Earth and environmental sciences/Lithosphere
- ENV-ECOBIO - Earth and environmental sciences/Eco-biosphere
- PHY - Physics astronomy, astrophysics and mathematics
- CHEM - Chemistry and material sciences
- BIO-MED - Biological, medical sciences and biotechnology
- ENG-TECH - Engineering and technology
- EGY - Energy
- ART - Humanities and arts
- ISC - Information science and communication
- SOC - Social sciences

Expertise

Please add the specific expertise for each participant in the given field. The information will allow to assess the pertinence of each member in the user group and give ACTRIS IMP additional information on the outreach capacity with respect to the specific user background.

Access dates (Physical access only)

Indicate the first and last day of access (dd/mm/yyyy) of the participant concerned. If a participant's access is not continuous, please list periods on separate lines. The access may include days for installation, tests, dismantling (max 20%).

(4) Recent references

List <u>at least</u> 5 relevant references demonstrating the relevant scientific research experience and profile of the project leader and key team members (alternatively, a short CV for young researchers who have not yet published; in this case, the targeted research training objectives of the planned activities should be addressed in the project description, section 5).

(5) Project description:

Please limit the text to the recommended length!

- **Scientific objectives**: Explain in concise and clear manner the scientific objectives of the planned activities; highlight the originality. State your motivation and potential for using the specific ACTRIS facility and it has been selected. The proposal needs to demonstrate how the project will benefit the services its focused on (see project focus in section 1).

- **State-of-the-art / novelty**: Describe, if applicable, the state-of-the-art of research and current knowledge in the specific domain. Will the project help to answer new scientific questions, acquire new knowledge, contribute to scientific excellence and competitiveness, identify S&T gaps? Explain how the proposed work may help answering them. Describe the innovative nature, what is new and what has been done in the past for this site or other similar sites, or in relation to the objectives of the proposed activity.

- **Technical work plan and expected duration**: Provide a succinct and accurate description of your plan for achieving the goals in the given time frame, the methods employed, the experimental set-up foreseen, expected duration, planned timetable, and additional information about the role of each participant. In order to ensure efficient use of the infrastructure, the need for specific measurements and data at the platform should be described. The work plan should provide sufficient information needed for evaluating of the project and for verifying its feasibility and credibility.

- **Potential / Impact to business & Innovation**: describe the innovation potential of the planned research project, any contributions to technology development, potential for breakthrough innovation. Highlight potential for public-private partnership collaborations, provision of innovative solutions for businesses or relevant industrial applications.

- **Expected results and deliverables**: Describe the expected results and deliverables (scientific and technological outcome) and how the outcome may fit with the overall goals of ACTRIS. Specify the nature of the deliverable evidencing the research work: scientific report, manuscript, conference presentations, etc.

(6) On-site requirements

Describe the needs at the facility to carry out the planned project, or any other requirements or support to be provided at the ACTRIS facility. Specify, e.g., which specific instruments will be needed? Which on-site services? Any requirements for aligning and integrating the access into the facility operations? Which preparatory work/ installation/ dismantling time is required? Is training needed for using the instruments? Do you want to participate in routine measurements? Is support needed from local staff for post-access data analysis? Is there need for space to deploy additional instrumentation, for data from permanent instruments, local transport, customs, travel, accommodations, specific authorizations, etc. Note that local/national procedures and safety regulation might apply when accessing the infrastructure. **The information is relevant for the facility operator /access provider in order to evaluate the technical and logistical feasibility of the project.**

(7) Data management

ACTRIS aims at collecting and curating data from measurements at their facilities in the ACTRIS Data Centre for long-term storage and access to any interested users. ACTRIS supports an open access data policy (see ACTRIS data policy and ACTRIS Data management plan for further information). With respect to Instruments brought by the user group to the infrastructure, please provide sufficient details for planning and integration during the access. For the management of the data resulting from TNA under ACTRIS IMP, any relevant information about additional measurements should be indicated. Furthermore, please describe the data resulting from the access in more details, i.e., how are you planning to process and distribute the data?

(8) Estimated costs for users' travel and subsistence

In case of physical access (only), list your estimated costs for all participants included in the Table of section 3. Any financial support from ACTRIS IMP to the project user group is intended to facilitate TNA but cannot guarantee full reimbursement of travel expenses of the participating users. **Financial support is only available upon request**. Please note that:

- Financial support to users will only cover expenses related to travel and subsistence (T&S). Eligible costs:
    - Travel costs: estimated eligible costs for travel from and to the facility. A maximum flat rate for travel costs might apply. Only those costs are eligible for which proof can be provided (e.g., copy of travel ticket). Short travels on-site, e.g., bus, train, taxi, etc. are not reimbursable. Costs related to the use of personal car or rental car are not eligible.
    - Subsistence costs: the subsistence costs are the estimated eligible costs in relation to the daily expenses of the participant(s) during the visit at the facility. It should be calculated based on the actual daily expenses for accommodation and meals. A maximum daily flat rate might apply.
    - Other costs: other costs (e.g., instrument shipping and transport, insurance, etc.) will not be reimbursed.
- Independent of the size of the research group, financial support will be limited to max 2 equivalent persons per project. Due to the limited access provision within ACTRIS IMP, the quantity of access granted to the user will be confirmed on a case-by-case basis after proposal evaluation in agreement with the facility operator.
- The amount of financial support to travel expenses will be decided on a case-by-case basis after proposal evaluation in agreement with the facility operator.
- Financial support to T&S depends on the ACTRIS facility and location, calculations may vary and are based on the availability of funding from the European Commission and on the applicable rates of the accounting practices of the institution in charge of the host infrastructure.
- Financial support requested to ACTRIS IMP: the financial support requested to ACTRIS must only consider the fraction of costs not covered or coverable elsewhere. Indicate any potential co-financing.

Reimbursement of the grant will usually be done after project completion and after submission of all requested documentation to SAMU, except for documentation related to the reimbursement of the financial user support for T&S. The reimbursement of any T&S costs will be made via the host institution in charge of the ACTRIS facility (see Table of ACTRIS Facilities under section 1 above). Reimbursement will require proper justification (original tickets, receipts, etc.) according to the regulation applied to by the host institution. Details for reimbursement of the costs will be provided after proposal acceptance. For any questions related to the financial support and reimbursement, SAMU should be contacted.

(9) Additional information

Applicable regulations and terms of use

Users are responsible for complying with applicable law and safety regulations, which comprise, e.g., national and local regulations, procedures and specific measures of the hosting organisations related to access of facilities or parts of a facility, the use of equipment, required protection, safety regulations, adequate training, health and risks, insurance requirements, and any other terms of use of and access to the ACTRIS facility concerned.

Insurance

Users shall be responsible for their own insurances. The hosting institutions have the right to request that certain insurances are taken and also to request proof for that.

(10) Comments

You may provide any optional comments. Any crucial information not included in previous sections of relevance for the ACTRIS facility operator may be included here.

After submission of the user application form to SAMU, the application will undergo a 3-stage evaluation: 1) it will be verified by SAMU for its eligibility to ensure formal compliance with the EC regulations (e.g., transnationality aspect) and compliance with the ACTRIS access policy and ACTRIS access management plan. TNA is only provided to user groups working in EU members, associated and candidate states. TNA is also open to users from institutions outside EU, however, limits may be applied as access for user groups with a majority of users not working in an EU or associated country must be globally limited within the project to max 20%. SAMU interacts with the project leader during the application process (and, if needed, e.g., for revising and optimising the applications) and coordinates the review and selection process. 2) Furthermore, the application will be validated by the access provider for the scientific, technical and logistical feasibility of the project and to verify the scheduling and capacity of the facility. After positive evaluation by the access provider, SAMU will launch the 3) validation by the review panel, consisting in evaluating the project according to defined criteria by an independent review panel. Details on the process will be given on the ACTRIS web portal. SAMU centralizes the TNA review results and will interact with the project leader to communicate acceptance / revision / rejection of the application. In case of acceptance, the TNA project leader is invited to organize the access, in collaboration with the access provider. Upon acceptance, the users are furthermore requested to accept the TNA terms and conditions of access and to provide any relevant TNA documentation, and to disseminate the output resulting from the TNA. Users may contact SAMU in case of any questions before, during and after the access process.

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5.2 SAMU response letter – template(s)

5.2.1 <u>SAMU acceptance letter – template</u>

ACTRIS IMP Trans-national Access

[Name of TNA project leader]

[Home institution]

[Home institution address]

[Month dd, yyyy]

ACTRIS IMP Trans-National Access

Dear TNA project leader,

we are pleased to inform you that the ACTRIS IMP Review Panel has positively evaluated your proposal to access the [ACTRIS Facility] entitled:

[TNA project acronym].

We confirm that you will be granted financial support of **xxxx EUR** for your expenses related to travel and subsistence to facilitate access to the facility.

Please note that the funding is a maximum amount and will be reimbursed according to the accounting rules of the facility's host institution after the provision of the necessary TNA documentation, including confirmation of the quantity of access provided.

The grant is subject to the provision of the following post-access documents (after completion of the access):

- a 'Confirmation of Access' document, issued by the access provider, justifying the quantity of access provided and signed by the access provider;
- any supporting documents for reimbursement of the travel expenses (to be provided to the access provider);
- an access activity[5] report.

The document templates are available on the www.actris.eu website.

Please acknowledge receipt of this letter and conditions for access by returning to actris-imp-tna@helsinki.fi by returning the user acknowledgement statement (appendix 1), and provide answers to the remarks made by the review panel (if applicable, appendix 2) in your access activity report.

Please contact the access provider of the ACTRIS facility, [Access provider name + Email], for preparing the access.
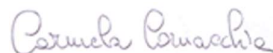
---

[5] Only in case of access to NF and to be provided by user. In case of access TC and DC, the access report (e.g., calibration, service provided) will be issued by the relevant CF unit.

We thank you for your interest in ACTRIS IMP and wish you a successful project. For any further questions please don't hesitate to contact us.
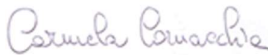

Yours sincerely,

Sabine Philippin
ACTRIS IMP TNA Coordinator

Carmela Cornacchia
ACTRIS SAMU Head

5.2.2 SAMU rejection letter – template

ACTRIS IMP Trans-national Access

[Name of TNA project leader]

[Home institution]

[Home institution address]

[Month dd, yyyy]

ACTRIS IMP Trans-National Access

Dear TNA project leader,

we regret to inform you that the ACTRIS IMP Review Panel has not accepted your proposal to access the [ACTRIS Facility] entitled:

[TNA project acronym].

The project...

.....

We thank you for your interest in ACTRIS IMP and wish you success in your future research endeavours.

Yours sincerely,

Sabine Philippin
ACTRIS IMP TNA Coordinator

Carmela Cornacchia
ACTRIS SAMU Head

5.2.3 SAMU request for revision letter – template

ACTRIS IMP Trans-national Access

[Name of TNA project leader]

[Home institution]

[Home institution address]

[Month dd, yyyy]

ACTRIS IMP Trans-National Access

Dear TNA project leader,

we inform you that the ACTRIS IMP Review Panel gives you the opportunity to revise your proposal to access the [ACTRIS Facility] entitled:

[TNA project acronym].

The project...

.....
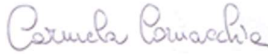
The revised proposal addressing the remarks and questions from the reviewers should be sent to actris-imp-tna@helsinki.fi **before [Month dd, yyyy]**.

For any further questions please don't hesitate to contact us.

Yours sincerely,

Sabine Philippin   Carmela Cornacchia
ACTRIS IMP TNA Coordinator   ACTRIS SAMU Head

5.3 User acknowledgement statement form – template

ACTRIS IMP User Acknowledgement Statement

TNA Project Leader	**TNA project**
[Name of TNA project leader]	[TNA project acronym]
[Home institution and address]	

As the project leader of the above-named Trans-national access (TNA) project under ACTRIS IMP:

I hereby acknowledge receipt of the response letter related to my request for TNA dated [dd/mm/yyyy] and certify that I have read and accepted its content.

I agree that I am disposed to access the ACTRIS Facility under the given conditions and understand that I am under the obligation to provide any required TNA documentation after the access will be completed.

In agreement with the EC Horizon 2020 rules, I agree that any results from work carried out under the ACTRIS IMP TNA activity (publications, conference contributions, etc.) must acknowledge i) the project and support of the European Community, and ii) the use of the ACTRIS facility and contribution of the facility staff[1]. The acknowledgement and shall include the following statement:

"This [insert type of result] is part of a project that is supported by the European Commission under the Horizon 2020 – Research and Innovation Framework Programme, H2020-INFRADEV-2019-2, Grant Agreement number: 871115."

I agree to make the data resulting from this TNA project available to the ACTRIS Data Centre[1].

I confirm that with regard to this TNA project granted under ACTRIS IMP no double financing is taking place from other sources.

I understand and agree that the decision for TNA is subject to approval by the European Commission in case of legal discontinuity of ACTRIS IMP.

[Location], [Date dd/mm/yyyy]

_____

Location and date

[Typed name is sufficient if sent by signatory via email]

_____

Signature

[1] *Exceptions may apply in case of industrial/commercial use or on justified case-by-case basis.*

ACTRIS IMP (www.actris.eu) is supported by the European Commission under the Horizon 2020 – Research and Innovation Framework Programme, H2020-INFRADEV-2019-2, Grant Agreement number: 871115

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5.4 Confirmation of access form – template

ACTRIS IMP Confirmation of Trans-national access	

ACTRIS Facility

[Name of ACTRIS Facility]

[Name of host institution]

[Address of host institution]

Document duplicate to be sent to:

- **WP7 leader/SAMU** (actris-imp-tna@helsinki.fi)

- **TNA Project Leader**

  [Name of TNA project leader]

  [Home institution and address]

Confirmation of Access

The access provider confirms that the following Trans-National access (TNA) project has been carried out in the framework of ACTRIS IMP Trans-national access at the above-named ACTRIS Facility:

TNA project acronym: ....

Access type: ☐ Physical access   ☐ Remote access

The amount of access delivered to the user group is as follows:

	Participant name	Duration of stay (start-end date)	Amount of access	Unit of access
Project leader:		[dd/mm/yyyy - dd/mm/yyyy]		
Project user 1:				
Project user 2:				
...				
Project user n:				
Total amount of access provided to project user group:				

[Location], [Date dd/mm/yyyy]

———————————————————   ———————————————————
Location and date   Signature of access provider

5.5 Access report – template(s)

An access report will be produced following each TNA. The type of access report depends on the service used and/or ACTRIS facility accessed.

5.5.1. Access report for research services at NF

The access report is an activity report to be provider by the user (TNA project leader).

ACTRIS	**ACTRIS IMP Scientific Activity report**

[*TNA project title, Acronym*] [*Name of Project Leader and co-authors*]

Instructions *Please limit the report to max 3-5 pages, including tables and figures.* *The report should be sent as pdf document and include the subheadings listed below. Please make sure to address any comments made by the reviewers (if applicable).*   • Introduction and motivation • Scientific objectives • Reason for choosing station/ infrastructure • Method and experimental set-up • Preliminary results and conclusions • Outcome and future studies • References

Is the information provided in the report confidential and should not be made available on the ACTRIS website? ☐   No, the information can be made public. ☐   Yes, the information should not be made public and access should be restricted to SAMU, the ACTRIS IMP access providers and the reviewers concerned.

5.5.2. Access report for other services

The access report related to services provided by the ACTRIS CF will be provided the Topical Centre and Data concerned. At this stage it is not yet confirmed if the template will be (become) a unique document for all technical, innovation, training, and data services or if the activity report will differ depending on the CF unit concerned.

5.6 User feedback form – template

ACTRIS IMP User feedback questionnaire

1. First and last name of user (+ Home institution/organisation)

2. Title and acronym of ACTRIS IMP Trans-national Access (TNA) project

3. Name of ACTRIS facility accessed

4. How did you hear about ACTRIS IMP TNA opportunities and funding?

- ☐ ACTRIS website
- ☐ Mailing list, I am subscribed to: …………………….. (please specify)
- ☐ Social media: ……………………. (please specify)
- ☐ Information received by colleagues
- ☐ Information received at event: ………………….. (please specify)
- ☐ Other: ……………………. (please specify)

5. Without the support of ACTRIS IMP funding, would you have been able to access the ACTRIS facility?

- ☐ Yes. Please give details: ....
- ☐ No. Please specify why or indicate possible co-funding options: ....

6. Please assess the service provided by ACTRIS IMP

(0 = not evaluable, 1 = very poor, 2 = sufficient, 3 = good, 4 = excellent)

- • **Advertisement and call for access**

6.1 Publicity and information about the access opportunities:	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.2 Comments related to the TNA advertisement and calls:	....				

• Application

6.3 Practical information on how to apply, on available support and documentation:	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.4 Application form and easiness of the procedure to apply/submit:	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.5 Length of time for preparing the application:	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.6 Comments related to application:	....				

• Access to facility

6.7 Information and support for organizing the access:	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.8 On-site scientific, technical, administrative and logistic support by the access provider	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.9 Comments related to access:	....				

• Post-access

6.10 Quantity of post-access documentation required	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Quality of services accessed	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
6.11 Comments related to post-access:	....				

• Overall aspects

6.12 Interaction with and support by SAMU	☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4
6.13 Please evaluate the overall service provided by the ACTRIS IMP TNA:	☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4
	If your evaluation is ≤2, please briefly explain why: ....

7. Shortly comment the benefits of the TNA and/or lessons learnt

8. Has the TNA led to new discovery, breakthroughs, novelties...?

9. Has the access via TNA contributed to filling a patent or to the design of a prototype?

10. Do you have any suggestions for improvement?

11. Do you have any other comment?

6. Next steps

In the process of implementing and testing the pilot service provision during ACTRIS IMP, the activity will be regularly evaluated during ACTRIS IMP. The modalities of the access process described in the present document are essential to define the activities and interactions needed for the access provision in its initial phase. It is a working document that is expected to evolve in order to consider any required changes to improve the workflows and functionalities of the overall access system and interaction with the users with the goal of optimizing the access and service provision within ACTRIS towards fully operational services.

7. Reference documents

ACTRIS Access and Service Policy (ACTRIS PPP Deliverable D2.6):
https://www.actris.eu/Portals/46/Documentation/ACTRIS%20PPP/Deliverables/Public/WP2_D2.6_M32.pdf?ver=2018-10-29-152442-467

ACTRIS Access Management Plan (Draft v1, ACTRIS PPP Deliverable D6.4):
https://www.actris.eu/Portals/46/Documentation/ACTRIS%20PPP/Deliverables/Public/WP6_D6.4_M36.pdf?ver=2019-12-20-135527-560

ACTRIS Data Management Plan (ACTRIS PPP Deliverable D4.2):
https://www.actris.eu/Portals/46/Documentation/ACTRIS%20PPP/Deliverables/Public/ACTRIS%20PPP_WP4_D4.2_ACTRIS%20data%20management%20plan_27nov2019.pdf?ver=2019-11-29-120927-617

ACTRIS Data Policy (ACTRIS PPP Deliverable D2.3):
https://www.actris.eu/Portals/46/Documentation/ACTRIS%20PPP/Deliverables/Public/WP2_D2.3_M30.pdf?ver=2018-10-29-152439-550

ACTRIS Ethical Guidelines (ACTRIS PPP Deliverable D2.2):
https://www.actris.eu/Portals/46/Documentation/ACTRIS%20PPP/Deliverables/Public/WP2_D2.2_M24.pdf?ver=2018-12-07-080117-913

ACTRIS Glossary:
https://www.actris.eu/Portals/46/Documentation/ACTRIS%20RI/glossary/ACTRIS_glossary_20190109.pdf?ver=2019-01-09-120109-177

ACTRIS IMP Grant Agreement (N° 871115)

European Charter for Access to Research Infrastructures: Principles and guidelines for access and related services. Publications Office of the European Union, 2015. ISBN: 978-92-79-45600-8, doi: 10.2777/524573, KI-04-15-085-EN-N.
https://ec.europa.eu/research/infrastructures/pdf/2016_charterforaccessto-ris.pdf

Force 11 The Fair Data Principles https://www.force11.org/group/fairgroup/fairprinciples

H2020 Annotated Model Grant Agreement:
https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

ACTRIS IMP (www.actris.eu) is supported by the European Commission under the Horizon 2020 – Research and Innovation Framework Programme, H2020-INFRADEV-2019-2, Grant Agreement number: 871115

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Annex A. Description of the ACTRIS facilities in the TNA pilot

The below description of ACTRIS facilities participating in the TNA pilot corresponds to the information provided in the ACTRIS IMP annex I document under WP7. Due to the evolution with respect to COVID and related difficulties for physical access, a number of ACTRIS facilities are now also offering remote access for promoting their (new) remote sensing capabilities. These are indicated in green font.

A.1 Aerosol remote sensing data centre unit (ACTRIS DC-ARES)

Location
Tito, Potenza, Italy

Web site address
http://www.ciao.imaa.cnr.it/,
https://scc.imaa.cnr.it

Description of the facility
ACTRIS DC-ARES, operated by CNR, is the main responsible for the Single calculus cHain for Aerosol Remote sEnsing (SHARE), the centralized processing suite for the processing of aerosol lidar data. The Single Calculus Chain (SCC) is currently used by some of the EARLINET/ACTRIS stations and it will become mandatory for the retrieval of ACTRIS aerosol profiling data in the operational phase. ACTRIS DC-ARES provides support in setting up SCC for the stations, configuring it, interpreting the results, but also through web forum, documentation and schools. Based on this unique expertise in the aerosol lidar processing, CNR will offer the SCC use to external users for fostering international cooperation and standardization.

Services currently offered by the facility
CNR is currently handling the use of SCC for the aerosol processing for some ACTRIS stations. The harmonized and centralized processing is allowing a faster analysis, traceability and faster developments of advanced products. Opening this to external users will foster international cooperation, but also new advancements in different fields. Currently most of the EARLINET stations use the SCC as ordinary tool to analyze raw lidar data. Lidar stations from Latin American Lidar Network (LALINET) are also starting to use SCC to calculate quality-controlled aerosol optical products, and other aerosol lidar observing stations outside ACTRIS have requested access (the last SSC school has involved 6 external users and 16 associated ACTRIS partners. The access to SCC potentially attracts various user communities and countries: new users from outside Europea for improving the aerosol lidar processing (researcher communities), non academic users (e.g., air quality related stakeholders through use in devoted campaigns). The use of the aerosol lidar processing chain could act as baseline for new products development in the private sector for example at prototype system developments, but even as testing for automatic low power lidar and ceilometer processing delivered by producing SMEs.

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Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Remote	uc	Ex	SWD	45 SWD	3 pr, 5 us	n/a	n/a

Description of integration, duration of work, and facility-specific modalities: A remote user access typically requires 10 SWD, the time scheduling is decided in agreement with the facility. Users must provide at least level 2 (fully quality assured) aerosol optical properties data will be requested as requirement, data storing capabilities are considered. SCC is based on open source project and an open data policy is mandatory for the data obtained by the SCC (modalities for data access and provision will be according to ARES modalities).

Support offered: On-site support includes necessary S&T, administrative and logistic aspects. Remote access to SCC will be important for testing set up of data agreement with external users, data legacy and related issues. SHARE offers the use of the SCC, storing and archiving of the SSC analysed data, support to the SCC users (forum, remote meeting, school), potential evaluation of climatological products based on SCC outputs.

A.2 Centre for Aerosol Remote Sensing-Automatic Sun/sky/lunar Photometers (CARS-ASP-FR)

Location
Lille, France

Web site address
https://www.actris.eu/ DataServices/InstrumentCalibratio n/ AERONETEurope.aspx, http://www-loa.univ-lille1.fr/photons

Description of the facility
The infrastructure is a TC unit for Aerosol Remote Sensing and in charge of instrumental development, characterization, calibration, data preparation and processing for aerosols retrievals of automatic sun/sky/lunar photometers. The facility contributes to the ground-based standardized automatic sun/sky- photometer network AERONET and complements the US NASA calibration centre. The infrastructure consists of photometry and radiometry calibration platforms for calibration of field instruments and the infrastructure holds a mobile platform simulator that allows to test instruments dedicated to mobile observations.

Services currently offered by the facility
The facility offers calibration, quality control, data processing and training services, and expertise in Aerosol Remote Sensing. CNRS-LOA will offer two types of services: (i) calibration and maintenance for sun/sky/lunar/polar photometers; and (ii) services dedicated to mobile photometry for users willing to upgrade their photometer for mobile (e.g., maritime) observation capabilities. Current CE318T photometer has the capability to perform measurements on mobile platform, as already done (e.g on

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ships). However, additional components are requested. Aerosols products derived from AERONET Europe activities have shown to be very useful and relevant for supporting lidar aerosol retrievals, joint photometer LiDAR retrievals (LIRIC and GARRLIC), aerosol absorption profiling, night-time AOD and satellite and model validation. The scientific applications of delivered aerosol products / services are widely contributing to research activities in many European and worldwide countries (e.g. China) and 50 % of users are from outside the ACTRIS community. Users come from remote sensing, in-situ, and satellite communities and comprise private companies (for testing and calibration of new, e.g. mobile instruments, or users from climate services (e.g UK MetOffice network).

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Remote + physical	1) uc 2) ac	T, M	1) CAL 2) UWD	10 CAL 9 UWD	10+3 pr, 10+3 us	1) 1month 2) 3 days	y
Description of integration, duration of work, and facility-specific modalities: The remote access for one standard calibration typically requires one month (remote access). Upgrading of mobile photometers require 2 or 3 UWD (physical access). The services typically includes reception of instrument, testing in laboratory, calibration of instrument, data pre-processing, quality control, data processing and quality assurance, and training if needed.							
Support offered: On-site support includes all S&T, administrative and logistic aspects.							

A.3 Central Data Processing Systems for FTIR remote sensing data (CDPS-FTIR)

Location
Brussels, Belgium

Web site address

Description of the facility
CDPS-FTIR is a processing system running on HPC infrastructure at BIRA-IASB, as part of the TC unit for Reactive Traces Gases Remote Sensing (CREGARS), for processing remote sensing FTIR level 1 data (spectra) to level 2 data (geophysical products, i.e., total column abundances and in some cases vertical concentration profiles of ACTRIS target reactive gases). It consists of a S/W chain, of which the heart is a spectral inversion code agreed in CREGARS, with a web-based interface for communication with the users, including upload of level1 data, and access to the processing results (level2 data and associated processing logbook). CDPS-FTIR is under development: a beta version is expected in 2020, a fully operational system by 2022.

Services currently offered by the facility

Preliminary CDPS-FTIR services have already been set up in the frame of Copernicus Atmosphere Monitoring Service (CAMS) projects. This includes central processing of all in-house measurements and of some collaborating stations. Tests with a preliminary CDPS-FTIR version have enabled users to contribute to the CAMS-84 project and resulted in several research papers. The service is available to all external instrument operators in the worldwide FTIR community; most of them are NDACC-affiliated or candidate NDACC affiliates, but also new FTIR operators outside NDACC may appear, e.g., in developing countries (capacity building). There is a strong willingness to have worldwide consistency of the data to enable research that makes use of the global dataset, e.g., for satellite validation. For users of the ACTRIS CDPS-FTIR service, this consistency is automatically ensured and the data will be much more easily integrated in research studies pertaining to the global scale. CDPS-FTIR is also of interest for new instrumental developments, e.g., by a commercial company, which may require verification of the data that CDPS-FTIR can be provide.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Remote	ac	T	DPS	4 DPS	3 pr, 3 us	n/a	y

Description of integration, duration of work, and facility-specific modalities: The user will interact with the CDPS remotely. The interaction will be an iterative process; the duration depends on the quality of the L1 data submitted. This may take some time for a new user, but this time will be minimal each time the user calls again for the service. CDPS will work with a queuing/scheduling system that will be elaborated by the BIRA IT managers. The service (1 data processing service, DPS) comprises data processing of one year of L1 data using a standardized protocol, including quality assurance of the resulting products. The CDPS will require formal compliance of L1 data and metadata as defined by the facility.

Support offered: On-site supports includes necessary S&T, administrative and logistic aspects.

A.4 Station for Measuring Ecosystem-Atmosphere Relations II (SMEAR II)

Location
Hyytiälä, Juupajoki, Finland

Web site address
https://www.helsinki.fi/en/research-stations/hyytiala-forestry-field-station

Description of the facility

SMEAR II represents background boreal forest site consisting of main site at scots pine forest and additional flux measurements in wetland fen and boreal lake environments. The site, represented in the project by UHEL, has several operation units to reach into and above the stand canopy. The site is a

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world-renowned site for cutting edge aerosol science, multidisciplinary research and having one of the longest time series of atmospheric data (over 20 years). The site contributes to ACTRIS (in-situ aerosol and trace gases, and remote sensing of clouds). SMEAR is comprehensive and co-located ICOS, ACTRIS and LTER site.

Services currently offered by the facility

SMEAR II is operational 24/7, year-round. On-site accommodation and support is in place and open access to comprehensive multidisciplinary SMEAR II data is available. Technical help and instrument monitoring and maintenance for observations during extended periods, research planning and training are provided. SMEAR II has high potential for involving new users due to its reliable infrastructure, multidisciplinary nature of the site and high profile in science. The services aim at specific target users of TNA: instrument developers and SMEs, significant potential for involving users from the private sector; comprehensive instrumentation for benchmarking, on-site electrical engineering staff and technical staff to help in troubleshooting and instrument development, in-depth calibration and verification laboratories available upon request, development and testing of new technologies/scientific exploration, new instruments, and co-development, hands-on training activities at the site. SMEAR II data has provided novel insights into various atmospheric processes. These results are published in over 30 Nature or Science papers. SMEAR II has hosted over 50 multi- and cross-disciplinary campaigns and has over 2300 users annually. SMEAR II is currently part of the TNA programme of ACTRIS-2. Novel remote access capabilities added: Installation, operation and maintenance of guest instrumentation, virtual training opportunities, instrument benchmarking, field calibrations for selected instrumentation.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	uc	Ex, T, M	UWD	30 UWD	6 pr, 12 us	10 days	y

Description of integration, duration of work, and facility-specific modalities: Training services, and development and testing of new technologies/instruments and/or scientific exploration, benchmarking and co-development, the estimated duration of work is 2 weeks (10 days). Almost full independence for users with some restrictions (incl. long-term measurements and instrument operations cannot be disturbed). On-site field manager participates in the planning of the access activity.

Support offered: On-site support includes all S&T, administrative and logistic aspects. Furthermore included is, e.g., troubleshooting and maintenance, and data related support during the TNA) for the user. Compliance with local law and safety regulations, national regulations, host procedures, other measures related to access of facilities or parts of the facility, use of equipment, adequate training, and health insurances are requested from the users. Accommodation is provided on site and is free of charge for users.

A.5 High Altitude Research Station Jungfraujoch (JFJ)

Location
CH-3801 Jungfraujoch,
Switzerland

Web site address
http://www.hfsjg.ch/jungfraujoch

Description of the facility

The research programmes on trace gases (i.e. greenhouse gases, reactive air pollutants) and aerosols at the JFJ are among the most comprehensive worldwide. JFJ (3450 m asl), represented in the project by PSI, is the highest research station in Europe that is accessible all year round by rail, and it is the only easily accessible observation point in Europe with adequate infrastructure that is within the free troposphere most of the year. The research station JFJ is therefore of utmost importance for ground-based observations of the free troposphere. As the research observatory is within clouds 40% of the time throughout the year, it provides a unique opportunity for in situ studies of liquid clouds (in summer) and mixed-phase and glaciated clouds (in winter).

Services currently offered by the facility

Users will have access to JFJ measurement platforms to deploy and operate instruments and to data from continuously operating instruments (access to real-time and archived data). The high scientific quality of the atmospheric research is demonstrated by the more than 100 peer-reviewed publications from PSI and EMPA with JFJ data on aerosol and gas phase composition and aerosol-cloud interaction (e.g., Bianchi et al., Science, 352, 1109, 2016; Bukowiecki et al., Aerosol and Air Quality Research, 16, 764, 2016). The JFJ has been massively overbooked by access requests in the past and has high potential to attract new scientific users, as well as users from the private sector. Physical access is offered to a broad variety of atmospheric scientists. Examples of activities comprise closure of organic species in the gas and aerosol phase (links to EUROCHAMP and various CFs), characterization of black carbon, investigation of vertical transport processes, or aerosol-cloud interactions. Testing of newly developed instruments by companies will be supported by cutting-edge complementary instrumentation. The data have high potential to be used by public services such as clear air authorities, and the site has sufficient maturity to provide capacity building e.g. by attracting new facility operators. Novel remote access capabilities added: Installation, operation and maintenance of specific instrumentation to be operated remotely.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	uc	Ex, T, M	DAY	30 DAYs	4 pr, 8 us	20 days	y
Description of integration, duration of work, and facility-specific modalities: All projects planned at JFJ have to be approved by the Research Foundation HFSJG (www.hfsjg.ch). Physical access to high altitude station JFJ has a duration of 2-4 weeks (typically 20 days). Access information and scheduling							

of project activities are given through the HFSJG and will be further detailed by PSI/EMPA. Users need to be able to work at high altitude and follow the HFSJG rules.

Support offered: On-site support includes all S&T, administrative and logistic aspects. PSI and EMPA will provide scientific support to users. In addition, the Research Foundation supports logistics and accommodation. Additionally, access to complementary data for data interpretation is available.

A.6 Cabauw Experimental Site for Atmospheric Research (Cabauw)

Location
Lopik, The Netherlands

Web site address
http://ruisdael-observatory.nl/?page_id=388,
www.cesar-observatory.nl

Description of the facility
At Cabauw (51.971° N, 4.927° E), represented in the project by KNMI/TUD, a uniquely comprehensive set of parameters is measured using state of the art instrumentation to study the physical and chemical atmosphere and its interaction with the land surface. The 213 m high Cabauw tower was built in 1972 for meteorological research to study the state of the atmospheric boundary layer linked to land surface conditions. Cabauw offers access for research and host a cloud remote sensing and trace gas remote sensing CF units. The measurement programme supports aerosol in situ observations, aerosol remote sensing, cloud remote sensing and trace gas remote sensing. In-situ trace gases and greenhouse gases are measured for ICOS. Cabauw is part of BSRN, NDACC, GRUAN and Aeronet networks.

Services currently offered by the facility
Cabauw provides access to users for i) Cloud remote sensing - hands on capacity training, developing and testing new technologies and/or scientific exploration (in particular cloud calibration), this will attract users from private sector, ii) aerosol remote sensing equipment (state of the art (Raman) lidar techniques), and iii) mobile trace gas instruments. The data is provided through ACTRIS and ICOS databases, as well as the CESAR database (http://www.cesar-database.nl), to be developed into the Ruisdael Observatory data portal. The database currently has about 1750 unique users. The multi-themed observations continuously provide an attractive environment for external research. Regular large-scale field campaigns are organised in Cabauw, including satellite validation campaigns. The datasets are invaluable for model evaluation. Recent campaigns include CINDI-2 (trace gas remote sensing), PICAB (in situ trace gases), ACCEPT (clouds), INGOS (methane). Users developing new observational sites in foreign countries are attracted to Cabauw for training and testing their equipment. The Cabauw site attracts users from strong upcoming markets such as the solar and wind-power industries and to use data and develop modelling techniques for optimal use of renewable energy sources. Novel remote access capabilities added: maintenance of user instrumentation by local personnel. Or alternatively a mixed mode can be foreseen: installation of instruments by users and access to the equipment via remote access.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	uc	Ex, T, M	UWD	36 UWD	6 pr, 12 us	3 days	y

Description of integration, duration of work, and facility-specific modalities: An average visit of 3 days is expected (typical duration is weeks to months). A mentor will be assigned to each user, preferably working as closely in the same research domain. Users are granted a large degree of autonomy at the site, reporting to the mentor and site manager. If needed regular meetings are held with the involved permanent site scientists.
Support offered: On-site support includes all S&T, administrative and logistic aspects. Access to site and on-site office space is ensured. The team of permanent staff connected to the Cabauw site is diverse and broad. This provides a unique working environment with access to scientific support in a multitude of themes and state of the art measurement techniques. Users need to comply with the local safety regulations and protocol, insurance requirements, and local law.

A.7 Sonnblick Observatory (SBO)

Location
Mt. Hoher Sonnblick,
Kolmstrasse 100, 5561 Rauris,
Austria

Web site address
www.sonnblick.net

Description of the facility

SBO, operated by ZAMG, is located within the Austrian Central Alps at 3.106m a.s.l. It is situated in the "Nationalpark Hohe Tauern" at the main alpine ridge, being exposed, detached and nearly emission-free. SBO was established in 1886 and is surrounded by glaciers and permafrost and provides a various research area from the valley Rauris up to the top of Mt. Hoher Sonnblick. Today, the SBO is a station of interdisciplinary research covering the atmosphere, cryosphere, biosphere, lithosphere and the hydrosphere. It is outstanding with the respect to its long-term climate observations and studies on glacier changes. SBO has been involved in many international projects on atmospheric chemistry and physics and is part of the networks GTS, GAW, GCW, GTBN-P, BSRN; NDACC, LTER, etc. It is used for testing instruments before starting campaigns in the Arctic or Antarctica.

Services currently offered by the facility

SBO has a comprehensive portfolio of regular measurements and access for multi-disciplinary applications is offered. Scientists have for a long time been interested in the extreme location of the observatory (e.g. the Nobel-prize winner V.F. Hess for his measurements of cosmic rays were, instrument testing and material analysis by private sector). SBO provides a platform for temporary

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installation of scientific instrumentation to users, testing instruments, measuring campaigns, dedicated cloud in situ training and workshops. Several measuring campaigns took place and were serviced at the SBO focusing on cloud water chemistry, wet precipitation, analysis of the black carbon content of both aerosol and cloudwater or analysis of scavenging processes in mixed clouds or supercooled clouds, testing and development of a cloud water sampler for high wind speeds. Users have accessed SBO during the EUROTRAC projects, for Saharan dust reports, airborne Inoculation of Microbial Communities in Glacial Environments (Marie Curie Actions-Innovative Training Networks), data, e.g. for CAMS products. External users include governmental institutions and academia, e.g. DLR, University of Utrecht, University of Heidelberg, ETH Zürich, Masaryk University and many Austrian institutions. Novel remote access capabilities added: installation, maintenance and some calibrations in consultation with the owner of user instruments at SBO. Possibility to take samples as SBO is staffed 24/7 with at least 2 technicians that can assist where possible.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	cb	Ex, T	UWD	45 UWD	3 pr, 9 us	5 days	y

Description of integration, duration of work, and facility-specific modalities: SBO offers access to the services all year round via cable car (SBO head must be informed beforehand). A typical duration of access is 5 days for implementation, testing and measuring. Users can work independently but have to agree with the SBO house rules and ropeway directives of the SBO cable car. The SBO cable car is owned by the "Sonnblick Verein", thus, each use has to be charged (actual costs). The access of SBO otherwise is based on unit costs.

Support offered: On-site support includes all S&T, administrative and logistic aspects. SBO offers a guided tour of the facility. It provides data, data visualization and support by taking samples, observations and if needed access to software, like KNIME Analytic Platforms. If required, support is given to get flight permits for drone flights around the SBO from the national park "Hohe Tauern"). All users are invited to the annual SBO user workshops (not included in the physical access, at charge of participants).

A.8 Unmanned Systems Research Laboratory (USRL)

Location
Nicosia, Cyprus (Workshop)
Orounda, Cyprus (airfield)

Web site address
https://usrl.cyi.ac.cy/

Description of the facility

USRL focuses on cost-effective UAV (Unmanned Aerial Vehicle) atmospheric applications (vertical profiling, 3D mapping, plume tracking) with miniaturized and lightweight atmospheric sensors fulfilling ACTRIS QA/QC and SOPs (e.g. Aerosol Number Size Concentration, Black Carbon Concentration). It comprises laboratories (150m²) with weather chamber for sensor qualification, specialised mechanical/electronic workshops, as well as a private airfield and permanent airspace (with max ceiling of 3km altitude) located nearby the Cyprus Atmospheric Observatory (ACTRIS National Facility candidate, https://cao.cyi.ac.cy/). USRL is operated by a team of 13 staff of experienced engineers (electronic, software, system, communication, mechanic /material), professional pilots (flying commercial airliners), and experienced researchers in atmospheric sciences. USRL includes a large fleet of customized UAVs (fixed and rotary wings) with different payload capacity (up to 10kg) and miniature air sensors.

Services currently offered by the facility

USRL provides 1) research support in performing intensive field campaigns (profiling, 3D mapping) of UAV-sensor systems, 2) technical support through customized integration of lightweight sensors into UAVs (multi-copter, fixed wing), 3) innovation support through the optimization of lightweight instrumentation for their specific use onboard UAVs, 4) quality UAV training of new users (pilots and scientists).

USRL has been successfully used in the past for in-situ validation of LIDAR retrieval algorithms (Mamali et al., 2018; Marinou et al., 2019), Ice Nuclei measurements in the cloud region (Schrod et al., 2017), on-flight validation of lightweight absorption sensors (Pikridas et al., 2019), or for the characterisation (weather chamber) of miniaturized aerosol sensors (Bezantakos et al., 2018). USRL was candidate (as TNA provider) for the 3rd TNA call of ENVRI+ (http://envri.eu/2018/03/04/3rdenvriplustnacallopen/), and has been successfully used many large international field campaigns (EU-FP7 BACCHUS in Cyprus; H2020-ACTRIS2 in Greece and Finland; AESA-ASKOS in Cape Verde) and for the provision of services to public/private collaborators (e.g. NOA, Greece; CEA, France). Potential new users: ISARRA Community (International Society for Atmospheric Research using Remotely piloted Aircraft; http://www.isarra.org/); >250 members, EU Research Infrastructure (ICOS, EUFAR) partners from the Eastern Mediterranean and the Middle East region, governmental Units for Environmental monitoring, Security and civil protection. Support/training for SMEs developing UAV-sensor technology in compliance with EU directives (i.e. UAV-based stack emissions), for instrument testing and optimization, and training for UAV flight operation. Novel remote access capabilities added: integration, testing and flights of new atmospheric sensors in USRL drones, performance of research (field) campaigns and UAV-sensor optimization with remote guidance by the end user.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	ac	Ex, T, M	SWD	40 SWD	3 pr, 6 us	10 days	y

Description of integration, duration of work, and facility-specific modalities: UAV-sensor projects = 2 weeks (1 week without user for integration; 1 week with user for field test and short measurement campaign). UAV training and Miniaturized sensors tests = 1 week with user. One SWD = activity undertaken by the whole USRL technical team in implementing the project (covering instrumentation test/integration, training, and operational flights). Access will be granted with maximum time flexibility while safeguarding health and safety standards.

Support offered: On-site support includes all S&T, administrative and logistic aspects, including the general research facilities of the Cyprus Institute with dedicated offices and lab space, transportation (instrument, staff), flight permissions in Cyprus, and access to the Cyprus Atmospheric Observatory (infrastructure, data).

A.9 Atmospheric Chemistry Department - Chamber combined with the Organic Tracers and Aerosol Constituents - Calibration Center (ACD-C/OGTAC-CC)

Location
Leipzig, Germany

Web site address

Description of the facility

TROPOS' ACD-C/OGTAC-CC uniquely combines chamber experiments and state-of-the-art online and offline measurement techniques. ACD-C is a twin chamber with a broad online and offline instrumentation, including two SMPS, PTR-TOFMS, PTR-QMS, two CAPS, two sub-ppb level NO2 analysers, an AMS, a CI-APi-TOFMS to comprehensively characterize a wide variety of chamber multiphase processes. The online ensemble is complemented by extensive offline instruments available in OGTAC-CC covering the most important separation techniques: gas and liquid (including ion-) chromatography connected to various detectors (MS, UV, PAD, etc.). OGTAC-CC enables users to detect and quantify the mass concentration of the most important biogenic and anthropogenic particulate marker compounds from their chamber experiments to examine their formation pathways and their role in the atmospheric multiphase system.

Services currently offered by the facility

TROPOS has a more then 15-year history in providing access for guest researchers from all over the world (scientific activities, measurement campaigns). High-quality research is ensured through the existing excellence for experimental and theoretical investigation of gas-phase processes, SOA formation processes and the processing of biomass burning exhausts. Good chamber practice, hands-on training in online and offline instrumentation relevant for chamber experiments and comprehensive data analysis are a fixed part of the services offered. Users have successfully detected a highly relevant atmospheric BSOA marker compound and its formation mechanism (Kahnt et al., 2010 ES&T, Wang et al., 2018, Faraday Discussions). Hands-on training courses are usually booked out within few days after each call launch. To date, ACD-C has successfully provided access to international users from Europe and the US. The chamber is attractive for toxicologists, biologists, as well as for health and biodiversity studies. ACD-C strongly cooperates with SMEs like Ionicon for PTR-TOFMS technology and Aerodyne for CI-API-TOFMS. These companies will be encouraged to use the service provided by ACD-C/OGTAC-CC.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	uc	Ex, T	DAY	20 DAYs	2 pr, 8 us	10 days	y

Description of integration, duration of work, and facility-specific modalities: A typical duration is 1.5-2 weeks of experiments (10 DAYs), of which 5 days are dedicated to the chemical analysis of the filter and/or to set-up a dedicated method for certain target compounds via OGTAC-CC. Users will be actively integrated to discuss results, gain insights into new research fields, and participate in presentations and scientific discussions.

Support offered: On-site support includes all S&T, administrative and logistic aspects. For accessing the infrastructure, users will get instructions on i) planning, ii) realization, iii) minimum requirements for instrumentation, iv) good chamber practice, v) sample treatment and vi) quantification of target compounds.

A.10 Simulation of Atmospheric Photochemistry in a large Reaction chamber in combination with Centre for Reactive Trace Gases In-Situ Measurements – FZ Jülich (SAPHIR-CiGas-FZJ)

Location
Forschungszentrum Jülich, Jülich, Germany

Web site address
http://www.fz-juelich.de/iek/
iek-8/EN/Expertise/
Infrastructure/ SAPHIR/
SAPHIR_node.html

Description of the facility
SAPHIR is operated by FZJ and provides a platform for reproducible studies of the atmospheric degradation of biogenic and anthropogenic trace gases and the build-up of secondary particles and pollutants. Controlled artificial trace gas mixtures, ambient air or emissions from plants can be added to SAPHIR. It is equipped with a comprehensive, unique set of sensitive instruments for radicals (OH, HO2, RO2, NO3), traces gases (NO_x, N_2O_5, O_3, HONO, OH reactivity, VOC, OVOC), aerosols, and physical parameters. CiGas-FZJ manages the calibration activities for the in situ measurements of NO_x within ACTRIS and GAW.

Services currently offered by the facility
The chamber is used for high quality experiments investigating the transformation of gas-phase species and aerosols with i) permanently installed and calibrated instrumentation; ii) additional instrumentation provided by users while planning of experiments is carried out in collaboration with experts from FZJ. The provided services include SAPHIR chamber studies, hands-on training activities on NO_x instrumentation, side by side inter-comparisons to reference methods, overarching instrument

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inter-comparisons, investigation of possible interferences by tuneable atmospheric matrices, and data quality workshops. Especially in the field of atmospheric NOx measurements new techniques emerge, which implies a growing demand for instrument developers for inter-comparisons in exactly defined environments. In the past dedicated instrument intercomparisons for HOx, NO3, N2O5, VOCs, SOA, HCHO and HONO provided significant improvement of the respective techniques. SOA production from biogenic and anthropogenic precursors have been extensively investigated. Photochemical degradation processes of VOC revealed non-classical regeneration of HOx from RO2. In the years 2003 to 2015 scientists from 42 national and international institutions have used the SAPHIR chamber. Currently 20 GAW stations are equipped with NOx-instrumentation supervised by WCC-NOx.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	uc	Ex, T	DAY	5 DAYs	1 pr, 10 us	5 days	y

Description of integration, duration of work, and facility-specific modalities: The location of the work will be at FZJ with its unique infrastructure. A project will last about 1 week. Experiments, instrument inter-comparisons and hands-on training will be organized on a daily basis. Daily meetings will coordinate the different activities and provide possibilities for quick look data presentation. The activities will be accompanied by experienced experts from FZJ.

Support offered: On-site support includes all S&T, administrative and logistic aspects. Furthermore, training on some instrumentation (especially NOx measurement) is provided, logistic support also concerns any specific permissions concerning the user of radioactive sources. Users are requested to comply with the local health and safety regulations, to which every user will be introduced in prior to the use of the service.

A.11 Atmospheric simulation chamber- European PhotoREactor (EUPHORE)

Location
Paterna (Valencia), Spain

Web site address
http://www.ceam.es/WWWEUPHORE /home.htm

Description of the facility
EUPHORE is an installation with two twin outdoor simulation chambers. Its characteristics allow the study of atmospheric behaviour of biogenic and anthropogenic VOCs, formation of ozone and aerosols under near-real conditions thanks to its large size (200 m^3 each) and the use of natural light. For gas-phase measurements there are optical, spectroscopic and gas chromatography techniques: LP-FTIR, LP-

UV/VIS-DOAS, PTRMS, GC-MS, CIMS and CEAS. There are also O_3, NO_x, SO_2, CO, HONO-LOPAP and HCHO monitors, and systems to measure radiation. OH and HO_2 radicals are followed using a LIF-FAGE. Aerosol formation is also measured by SMPS, TEOM, CIMS and other off-line techniques (LC-MS or GC-MS/MS).

Services currently offered by the facility

Scientific services comprise the study of atmospheric behaviour of biogenic and anthropogenic VOCs and semi-VOCs, formation of O_3, aerosols and secondary products (determination of life times in air, and degradation products) and validation of photochemical models. Technical services include intercomparison of instrumentation with possibility of accommodating a large number of external instruments, and the use of the chamber to test, develop or improve new instruments or technological solutions. EUPHORE has participated in more than 20 research projects (7 as coordinator). The facility has been used by more than 60 research groups and more than 300 international researchers (see list of projects at the EUPHORE webpage. EUPHORE has relevant experience in international campaigns, high versatility and potential of adaptation to new industry and specific user's demands, huge number of external instrumentation can be hosted for joint experiments among different communities (researchers, health, city air-quality managers, etc.) and industrial/research sectors (automotive, low-cost sensors, photo-catalytic, potential harmful market products, etc.). Novel remote access capabilities added: conduction of experimental campaigns by EUPHORE staff (under the condition that installation of advanced external instrumentation different from EUPHORE instrumentation is not a requirement for the campaign). Extra time and a careful experimental design are needed.

Modalities of access and support offered

Type of access	Access costs base	Access mode	Unit of access	Quantity of access provided	No of projects, users	Duration of access	Financial support to users
Physical	uc	Ex, T, M	DAY	8 DAYs	2 pr, 4 us	4 days	y

Description of integration, duration of work, and facility-specific modalities: A typical duration of access is from a few to 12 access days. Timing of access is made via calendar available on-line in agreement between user and EUPHORE. Daily meetings are carried out during the campaign for logistic and scientific discussions, with possibility of preliminary data. EUPHORE staff continuously looks after the experiments during the campaign. The access includes carrying out the experiments and operation of EUPHORE instrumentation, and data analysis of samples acquired with it.

Support offered: On-site support includes all S&T, administrative and logistic aspects. A previous technical adaptation of the chambers is possible if required. Support to install external user instrumentation, required documentation, and training on some instrumentation is provided. Users have to accept the safety regulations and precautions at EUPHORE Laboratories. Personal protection equipment is provided if necessary. The users must have insurance.