# Deliverable 4.2: Report on internal organization of CFs

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# Content



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## Purpose of the document

This report is prepared in the context of the activities of the ACTRIS IMP (Aerosols, Clouds and Trace Gases Research Infrastructure Implementation Project) project. The document presents the internal organization of ACTRIS Central Facilities as it is now under establishment based on the recommendations of the Interim ACTRIS Council.

## List of acronyms

ACTRIS – Aerosol, Clouds and Trace gases Research Infrastructure
ACTRIS-PPP – ACTRIS Preparatory Phase Project
ACTRIS-IMP – ACTRIS Implementation Project
CARS – Centre for Aerosol Remote Sensing
CCRES – Centre for Cloud Remote Sensing
CF – Central Facility
CiGas – Centre for Reactive Trace Gases In-Situ Measurements
CIS – Centre for Cloud In-Situ Measurements
CREGARS – Centre for Reactive Trace Gases Remote Sensing
DC – Data Centre
ECAC – Centre for Aerosol In-Situ Measurements
HO – Head Office
KPI – Key Performance Indicators
MB – Management Board
NF – National Facility
QA – Quality Assurance
QC – Quality Control
RI – Research Infrastructure
SAMU – Service and Access Management Unit
SOP – Standard Operation Procedure
TC – Topical Centre

## Introduction

The ACTRIS IMP project is meant to support the implementation of the organizational, operational, and strategic frameworks of ACTRIS. In particular, the Work Package 4, which is coordinated by INOE, deals with the functionalities of ACTRIS Central Facilities as European-wide distributed facilities.

ACTRIS includes eight Central Facilities (CFs): 6 Topical Centres (TCs), the Data Centre and the Head Office (HO), the latter comprising the Service and Access Management Unit (SAMU). Each CF consists of several Units led by various RPOs being also partners in ACTRIS IMP. WP4 will address four principal elements necessary for implementing CF functionalities and enabling their operation, the internal organization of CFs as pan-European collaborative entities; the establishment of workflows between TCs, DC and National Facilities (NFs); the revision of the CF implementation plans in agreement with ACTRIS development at national and European level and the testing the functionalities of TCs and DC. The expected outcome of this WP is establishing the operational framework in which ACTRIS operates. WP4 spans the entire duration of the project.

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During the ACTRIS-PPP project, the CFs have developed their concepts and their draft implementation plans. These were subject to a validation process, based on which the Interim ACTRIS Council has formulated specific recommendations, including simplification and harmonization as possible of the internal structures, activities, and workflows. Part of the work in ACTRIS-IMP WP4 is dedicated to implementing these recommendations.

As a follow-up, CFs have revised their workflows (D4.1), internal structures (D4.2) and implementation plans (D4.3), based on a common approach described in MS4.1, MS4.2 and MS4.3.

After describing the Purpose of the document, the list of acronyms and the introduction, this report documents the CF internal organization (1) and the aspects considered for harmonisation (2).

# 1 Internal organization of the CFs

## 1.1 Head Office

The HO is comprised of four Units to secure the coordination of the RI and management of the legal entity, and to meet the needs of the user communities and the requirements and expectations set for European high-quality research infrastructures (ESFRI RIs). Each HO Unit is entrusted with specific tasks and shares of common activities to ensure the success and long-term sustainability of ACTRIS. The HO is responsible for planning, improving, and securing: 1) high-quality, transparent, and easy-access services for promoting scientific excellence, 2) successful user strategy, 3) efficient governance and management (incl. human resources), 4) financial sustainability, 5) technological development and upgrading of the RI, 6) innovation activities and the socio-economic impacts of ACTRIS, and 7) management and control of risks. Figure 1 shows the different ACTRIS HO Units and their main tasks. The HO Units are described as follows:

1. **Service and Access Management Unit (SAMU)** is the single point of physical and remote access for all ACTRIS users, and a support structure dedicated to optimize the access according to the ACTRIS user policy and strategy;
2. **ERIC Management Unit (EMU)** is responsible for the administration of the ERIC, giving the financial and legal support for the ACTRIS implementation and operation;
3. **Research Infrastructure Operations Unit (OPU)** is responsible for operative coordination and integration of the RI. It supports ACTRIS workflows and the integration of the different activities between the ACTRIS facilities (NFs and CFs), to guarantee a coherent operational system; and
4. **Development and Relations Unit (DEVU)** enhances and maintains the strategic and technological development of ACTRIS, takes care of external communication, relations, and strategic partnerships.

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The Director General (DG) is the leader of ACTRIS research infrastructure and the legal representative of the ACTRIS ERIC. He/she represents equally all aspects of ACTRIS. The DG is responsible for the overall implementation of the decisions made by the General Assembly, ensuring that the scientific and strategic development of ACTRIS meets the expectations on socio-economic impact, technology development and innovation.

HO leader ensures the strong coordination and day-to-day management of ACTRIS and the legal entity. HO leader will work directly under the supervision of the ACTRIS Director General and in close collaboration with all the other Central Facility leaders. HO leader coordinates the tasks and activities pertaining to the Head Office, particularly ensuring the efficient management of the ACTRIS ERIC as well as the operational RI functions and the service provision.

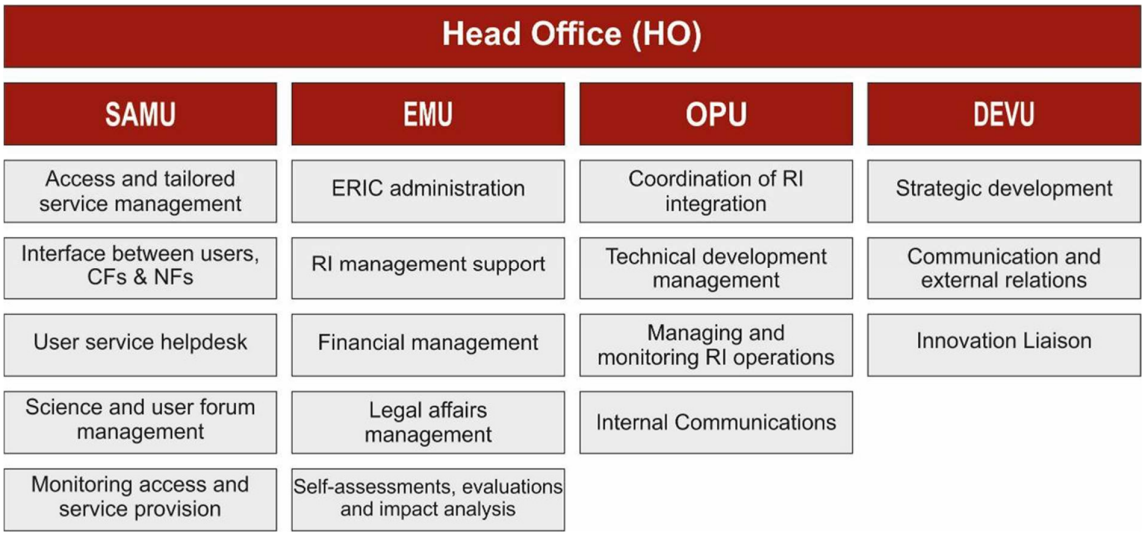


*Figure 1 - ACTRIS Head Office organigram*

The position of the Head Office will change when the ACTRIS ERIC is established (foreseen in 2022). Until then the hosting RPOs of the HO Units, are responsible for implementing the HO operations, for the management of the interim phase and for the leadership of ACTRIS.

The structure of the HO reflects its core functions and guarantees the seamless internal coordination that is essential to achieve the HO mission. As in all Central Facilities the HO has a management board, comprising of the Heads of Unit. The board ensures that the Units located in Finland and Italy have regular information exchange enabling the efficient planning to the work. The integration between the various Units is further ensured by day-to-day communication; it can be physical or virtual meetings among the HO Units of SAMU, OPU, DEVU and EMU, and using communication platforms such as Slack.

In addition to the internal HO coordination, the HO staff ensure the synergy and smooth workflows among HO, other ACTRIS CFs, NFs, and key external partners, and are thus responsible for coordinating and integrating the entire RI. Effective internal ACTRIS coordination is crucial. The HO employs video conferences, emails, reports, bulletins to regularly discuss and exchange information among Units and

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other CFs. The HO officers foster interpersonal and horizontal relationships among the people working in the ACTRIS to promote cooperation and open working environment.

The HO will be part of the ACTRIS ERIC as soon as it is established. Consequently, the HO configuration, management and staff rules will need to comply the applicable legislation and the regulations set for the ACTRIS ERIC by the founding members. The implementation period of the HO units is short, except for SAMU, as all the essential processes need to be in place soon after the establishment of the ERIC. The implementation of SAMU will require more time, since it needs to plan, set up, test, and improve the mechanisms and tools to handle the management of the access for the RI.

## 1.2 Data Centre

The ACTRIS DC is organized in 6 Units, with clear links and procedures for interaction between the data centre Units, NFs and TCs. The range of numerous applied methodologies within ACTRIS and specific needs requires a highly advanced, well-organized, and structured Data Centre. In accordance with the approved DC application the DC is distributed and comprises specialized DC units: aerosol, cloud, and trace gas in situ data; aerosol and trace gas remote sensing data; cloud remote sensing; atmospheric simulation chamber data; each with the relevant in-depth competence and expertise. The distributed topic units are linked in the integration unit ACTRIS Data Discovery, Virtual Access and Services (DVAS) unit, also including the coordination and management of the data centre. The DC comprises the following units:

- ACTRIS In situ data centre unit (In-Situ)
- ACTRIS Aerosol remote sensing data centre unit (ARES)
- ACTRIS Cloud remote sensing data centre unit (CLU)
- ACTRIS Trace gases remote sensing data centre unit (GRES)
- ACTRIS Atmospheric simulation chamber data centre unit (ASC)
- ACTRIS Data Discovery, Virtual Access and Services unit (DVAS)

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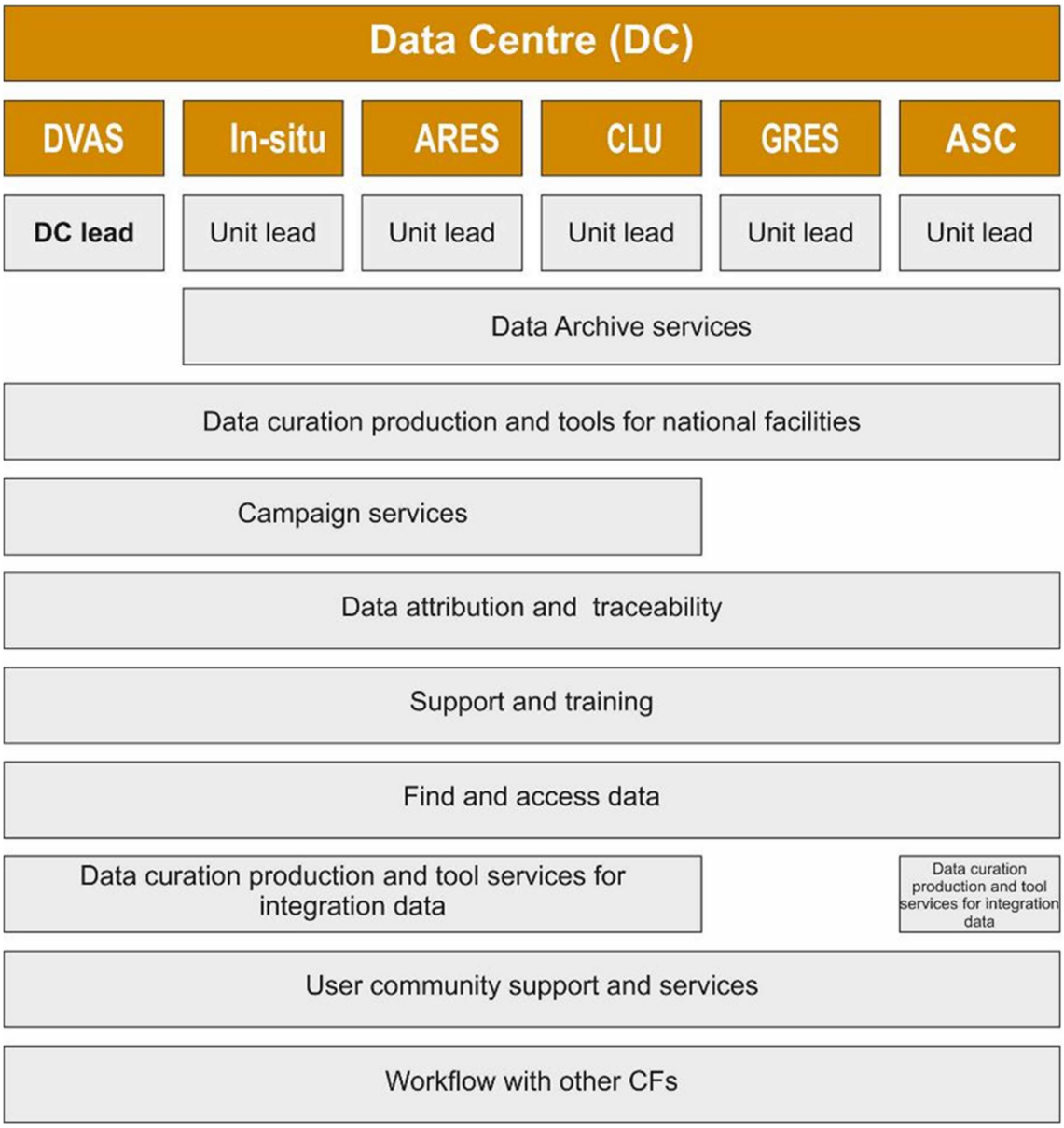


*Figure 2: ACTRIS DC organigram*

The DC governance structure consists of a DC Director, a deputy Director and the Heads of the DC Units. They form the Management Board of DC. The DVAS unit represents the organization and oversees the operational and strategic management of the ACTRIS DC. During ACTRIS implementation phase, there is a DVAS leader (Director), while a deputy leader is selected from one of the topic DC units.

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## 1.2 Topical Centres

### 1.2.1 ECAC

ECAC (also called as CAIS-ECAC or CAIS in other documents), the TC for aerosol in-situ measurements, is divided thematically into two branches – one dealing with physical aerosol particle properties and the other one with chemical composition of aerosol particles. The physical branch includes three units - WCCAP at TROPOS (Germany), PACC at ICPF (Czech Republic), and CCC at University of Helsinki (Finland). The chemical branch also consists of three units, namely OGTAC-CC at TROPOS (Germany), EMC2 at INFN (Italy), and ACMCC which is hosted by a cluster of three French Institutions (INERIS, CNRS, and CEA). Subcontracting partner (ERLAP, JRC, Italy) is included under OGTAC-CC (see ECAC organigram below).
ECAC is managed by the ECAC board consisting of the unit heads and the ECAC director. The ECAC director is elected by the ECAC board as described in the Consortium Agreement for the given period. The ECAC director represents ECAC in the ACTRIS Interim Committee and in all the related ACTRIS events. The unit heads are responsible for their individual ECAC unit towards ECAC and ACTRIS ERIC. Respective rules and responsibilities will be defined in the Consortium Agreement.

| | European Center for Aerosol Calibration and Characterization (ECAC) | | | | | |
|---|---|---|---|---|---|---|
| | WCCAP | PACC | CCC | OGTAC-CC | ACMCC | EMC2 |
| Management & coordination | **TC lead** | Unit lead | Unit lead | Unit lead | Unit lead | Unit lead |
| Link with associated communities | Expert groups (e.g. ISO, CEN) and networks (e.g. GAW, EMEP" | | | | | |
| Training & consultancy | Operators and scientists / Consultancy and knowledge transfer / Private sector | | | | | |
| Measurement & data procedures & tools | Number concentration and size distribution, scattering and absorption coefficient | Number concentration and size distribution | Nanoparticle number concentration and size distribution | Mass concentration of organic tracers, organic and elemental carbon | Mass concentration of non-refractory particulate organics and inorganics | Mass concentration of particulate elements |
| Measurement & data quality monitoring | Calibration at TC, Site performance test with reference device | | | Laboratory intercomparison at NFs | Centralized NRT data qualification, & inter-comparison at TC | Laboratory intercomparison at NFs |
| NF labelling & evaluation | Evaluation and audits | | | | | |
| New scientific & technological developments | Methodology, technical and scientific developments for aerosol in-situ variables and measurement techniques | | | | | |

*Figure 3: ECAC organigram*

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ECAC is internally managed by the ECAC board i.e. the ECAC director plus the ECAC unit heads. The ECAC board coordinates the work between the individual units and manages the communication between ECAC and other CFs - TCs, DC, HO (incl. SAMU), ACTRIS NFs and external ACTRIS users. The board is supported in its daily business by the ECAC office located at the ECAC directors host institution. The ECAC board meets regularly in person at least once a year and online using web-based meeting services at least once a month. The common communication within ECAC will be organized using e-mails or phone calls. The frequency of the meetings can be adjusted according to the current needs. The heads of individual units are responsible for and coordinate the work of their units and manage the communication between their units and the ECAC director/board.
ECAC will continue using the existing ECAC web page for providing information until the new ACTRIS CF web page design and structure is defined. Thereafter, the new ECAC web page will be generated, which shall not only provide information to NFs and external users, but also to upload required data or documents for ECAC.

### 1.2.2 CARS

CARS, the Centre for Aerosol Remote Sensing, is organized in 8 Units which are grouped in 3 clusters, one cluster for each measurement technique covered by CARS. The Units belonging to the same cluster share responsibilities at the technical level for a particular technique, while non-technical activities (management and coordination, links to associated communities) are pursued by each Unit and coordinated at the CF level. Within each cluster, the Units have specific tasks and share other tasks. The coordination and management of CARS is ensured by CARS Management Board, consisting of a CARS Director and eight members (one Unit Head for each Unit). The Unit Heads coordinate and represent their Unit in the CARS Management Board. They elect, according to the rules defined in the CARS consortium agreement, the CARS Director, who is coordinating and representing the CF in all ACTRIS bodies and actions. The Management Board also nominates the deputy Director out of the 8 Unit Heads. The responsibilities of the Unit Heads, of the Director and of the deputy Director will be detailed in the CARS Consortium Agreement and in the CARS Internal rules of procedures.
The activity at CARS is organized as follows:

a) non-technical activities – involve all Units and are coordinated by the CARS Management Board;
b) technical activities – are coordinated at the cluster level and involve one or more Units belonging to the cluster, as needed;

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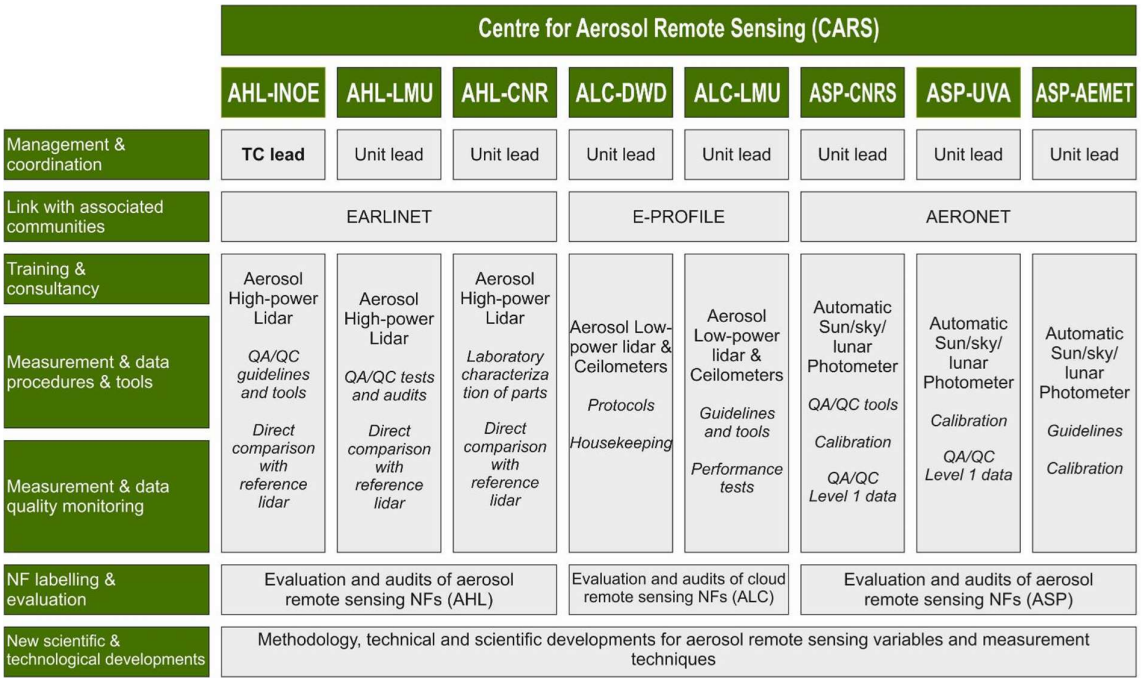


*Figure 4: CARS organigram*

CARS Units are managed internally by the Unit Heads. Coordination between the Units is done by CARS Management Board (CARS-MB), which is composed of the Director and the Unit Heads. Unit Heads ensure the two-way communication between the Units and CARS-MB.

**Unit Heads** are responsible for: a) managing the internal activity of their Unit; b) implementing the decisions of CARS-MB at the level of their Unit; c) reporting to CARS-MB on the activity of their Unit.

**CARS-MB** is responsible for: a) planning the operation support and service provision at CARS Units; b) monitoring the activity of CARS Units; c) reporting to RI Committee and ACTRIS Head Office on the activity of the CARS Units; d) harmonizing, approving, and disseminating measures proposed by the CARS Units; e) overseeing the provision of operation support by the CARS Units, according to the annual plans; f) coordinating the access provision at CARS Units (in collaboration with SAMU); g) maintaining continuous communication with CARS users and associated NFs through website, forums, and other means; h) organizing annual workshops (as stand-alone events or part of ACTRIS events).

CARS MB meets physically twice per year, and remotely each time necessary. Day-to-day communication is organized via email (dedicated mailing lists), phone and webex. An internal webpage will be put in place for sharing documents and announcements.

### 1.2.3 CIS

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CIS, the Centre for Cloud In-Situ Measurements, includes four units. Each unit is led by a unit head, who is employed at the respective hosting institute together with the other unit personnel. The head of the lead unit Center of cloud ice nucleation (CCIce) at Karlsruhe Institute of Technology (KIT) in Germany also acts as the director of the CIS and forms the CIS Management Board (CIS-MaB) together with the other unit heads. The other units of the CIS are the Center for cloud particle properties (CCPar), located at The University of Manchester (U-Man) in the UK, the Center for cloud water chemistry (CCWaC), located at the Leibniz Institute for Tropospheric Research (TROPOS) in Germany, and the European Center for Cloud ambient Intercomparison (ECCINT), located at the ZAMG Sonnblick Observatory (SBO) in Austria.

While this implementation plan is written for 100% ACTRIS tasks only, unit laboratories, offices and existing instrumentation will be partly also used by other communities.

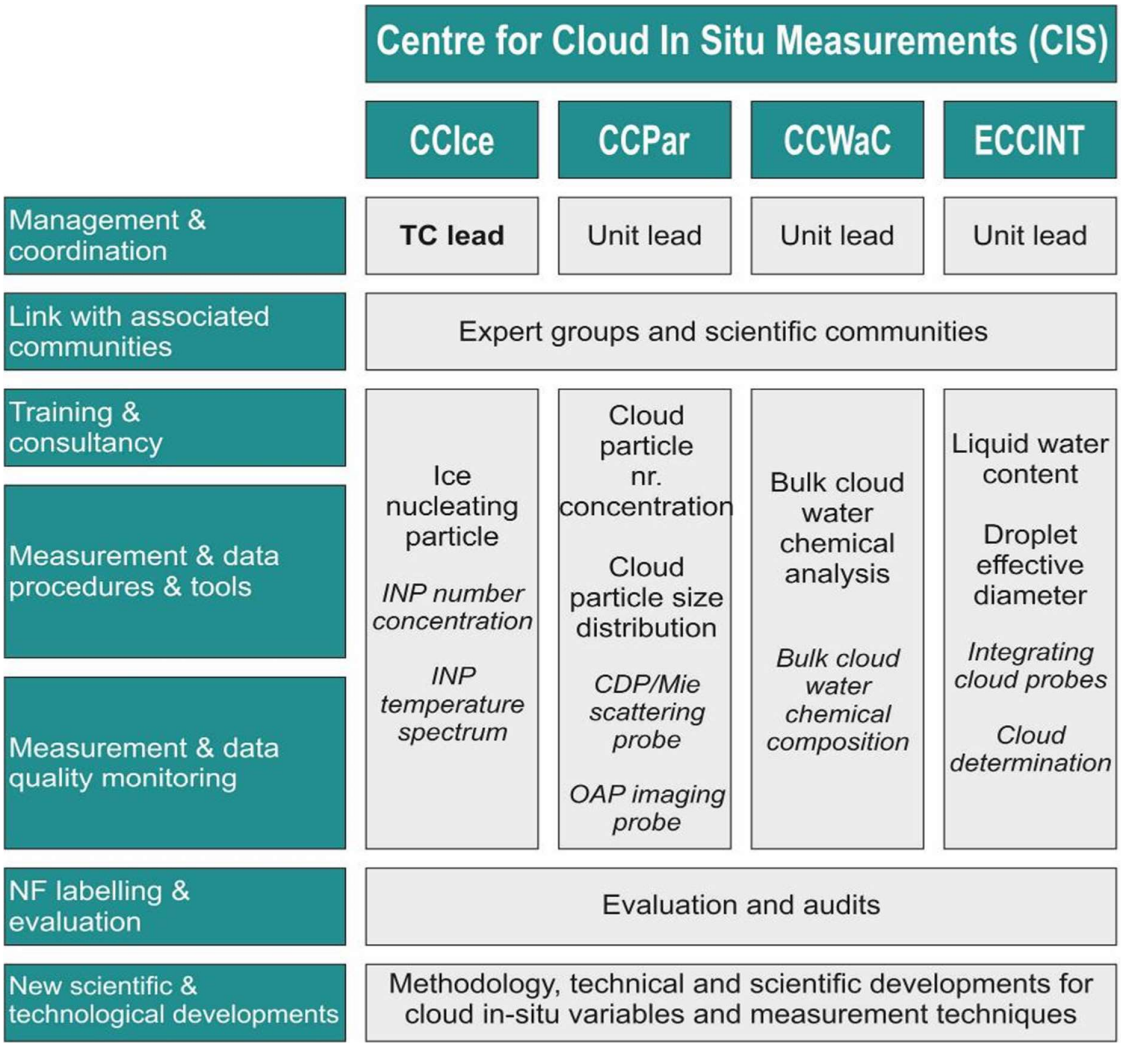


*Figure 5: CIS organigram*

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The CIS director leads and manages the CF CIS and is responsible for developing and implementing activities of CIS. He / She also takes care that the ACTRIS activities are run according to the agreed policies and rules. He / She represents the consortium in the ACTRIS Interim RI Committee and thus is in close communication with other Central Facilities, the Head Office and with the lead representatives of ACTRIS National Facilities covering cloud in situ activities to be serviced by CIS.

CIS Unit heads lead and manage the different Units of the CF, being responsible for the activities defined for that CF unit. In addition to the operative tasks, they support the CIS director, e.g. in annual planning, operations and reporting.

Given that each CIS unit is hosted at one individual RPO, internal communication and management within the unit is straightforward and takes place on an in-person, day-to-day basis.

For communication between the CIS units, CIS-MaB conducts monthly web meetings in order to discuss and decide any aspects of relevance for implementing, operating, and further developing the CIS. Beyond that, web conferences, telephone and email communication take place depending on the demand for discussion and decisions. Every second year, CIS-MaB organizes a discussion and training workshop together with responsible scientists and engineers of the CIS units in order to discuss general scientific, technical, and operational aspects of relevance for all units of CIS.

The CIS-MaB will take care of making structures, decision processes, and any activities as transparent and accessible as possible to the ministries, the funding agencies, the ACTRIS Head Office, the ACTRIS NFs, the potential users and the public by developing respective information material and using appropriate media and communication channels. The CIS-MaB will also ensure secured and long-term storage of any information and data of relevance for CIS.

### 1.2.4 CCRES

The CCRES is the Centre for Cloud Remote Sensing. Its consortium is built on five Central Facility Units. All five partners have been involved for many years in operating multi-instrumented atmospheric observatories that include cloud remote sensing instruments.

- **The CNRS-FR (CCRES-FR)** Unit develops new-generation FMCW **Doppler cloud radar** (DCR) technology and retrieval algorithms for cloud properties. CNRS-FR develops target-based calibration procedures for cloud radars, and reference equipment for on-site calibration at ACTRIS NFs. The main activities of this unit are:
- Coordination and management of the CCRES consortium
- Development of DCR calibration procedures
- Development of quality control package for DCRs
- Training of NF staff and users, organization of workshops
- Testing of new instruments
- Maintenance of the CCRES website
- **The TUD-NL (CCRES-NL)** Unit develops drone-aided radar calibration procedures. Using the multi-instrumented observatory at Cabauw measurement methodologies and retrieval algorithms have been developed for the determination of cloud properties. Its main activities inside CCRES are:
- Development of Doppler Cloud Radar DCR calibration procedures

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- Development of quality control package for DCRs
- Training of NF staff and users, organization of workshops
- Testing of new instruments

**CNRS-FR and TUD-NL** are both necessary to provide enough capacity to support all stations.

- **The NCAS-UK (CCRES-UK)** Unit will serve as support to FR and NL units to develop new technical solutions. It has expertise concerning rain induced attenuation effects (including antenna/radome wetting) on **Doppler Cloud Radars** and their correction. It provides an S-band reference radar for evaluating corrections applied to particular models of cloud radar. In CCRES, NCAS-UK is responsible for:

- Development/evaluation of DCR technical solutions, relating to
- Standard operating procedures
- Doppler Cloud Radar calibration
- Quality control
- Check-up tools
- Training of NF staff and users

- **The UC-DE (CCRES-DE)** Unit has more than 20 years expertise concerning **microwave radiometers** (MWR), their operation, and full in-house characterization (calibration, quality control, retrieval development, data interpretation). They handle the MWR activities in CCRES:

- Development of a data processing and quality control package for MWR
- Training for NF staff and users, calibration workshops
- Instrument calibration monitoring
- Testing of new instrument developments, calibration updates

- **The FMI-FI (CCRES-FI)** Unit has more than 10 years expertise concerning **Doppler Wind Lidars** (DWL), their deployment and operation, and characterization including quality control and retrieval algorithm development. FMI-FI is responsible for:

- Development of data processing and quality control package for DWL
- Training for NF staff and users

With over 20 years of experience in joint cloud remote sensing operations, all five units will be able to work together on the different CCRES activities, following the breakdown of responsibilities listed in the organisational chart.

The Management board of the CCRES is composed of:

- a CCRES Director
- a CCRES Project Manager
- the Heads of the CCRES Units

During the implementation phase, the Head of CCRES-FR has been designated to be the CCRES Director. The nomination of the CCRES Director will be confirmed during the operational phase.

The workflow of the Management board is structured by:

- Internal meetings:

The CCRES Management board organises face-to-face meetings twice per year, but above all, the CCRES maintains strong relations by meeting via video-conference on a monthly basis. Each internal meeting is followed by meeting minutes with a clear structure defining the points

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discussed and the actions needed before the next deadline. Other specific activity related meetings are organized between the monthly meetings to make further progress on particular points.

- Working tools:

To facilitate the interactions an online workspace has been designed for the units to be able to share documents and to work together in real time. The workspace is divided by different folders corresponding to each of the seven CCRES activities. Some interesting publications, presentations and all the documents developed by the CCRES are stored. Online documents are created to allow the units to comment, make suggestions and correct the deliverables at the same time. This workflow allows fruitful exchanges and collaborative work.

The Management Board shares a common strategy and is strongly involved to undertake the following activities:

- Share information on CCRES-Units activities
- Monitor progress in new developments and provision of support and services
- Strengthen the links between the Cloud remote sensing NFs and build a consolidated community across Europe
- Document activities, access provided to NFs and users, key performance indicators, and finances
- Organize CCRES-Units joint activities such as: workshops, training sessions, collection of user feedback, dedicated workshops with ACTRIS Cloud Remote Sensing Unit in the Data Centre, ACTRIS NF site audits, evaluation of new instruments and new sites.
- Define financial distribution modality of the CCRES budget
- Report to ACTRIS Head Office and participate to ACTRIS meetings
- Interact with ACTRIS SAMU regarding access to CCRES units

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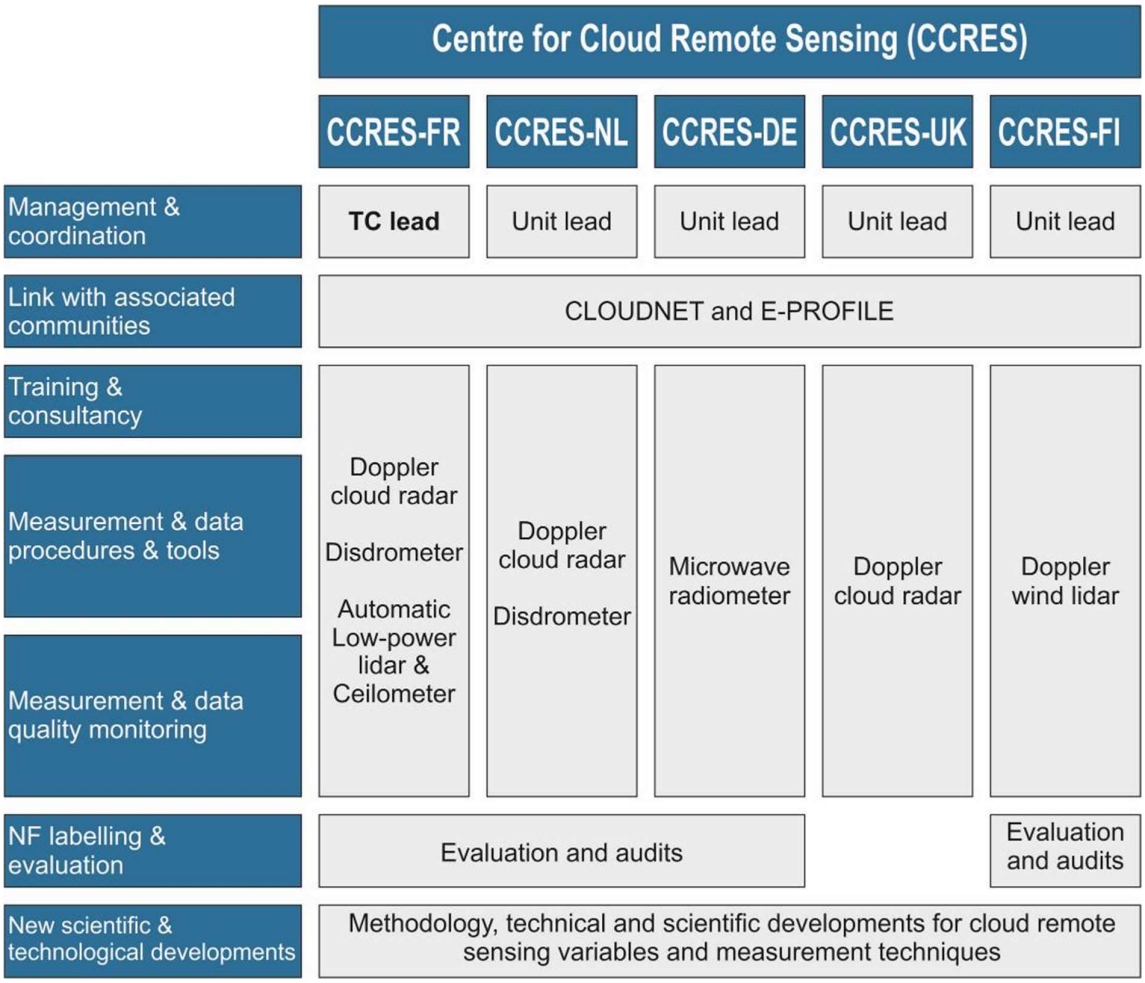


*Figure 6: CCRES organigram*

### 1.2.5 CiGas

The CiGas is the Centre for Reactive Trace Gases In-Situ Measurements. With FZJV (Forschungszentrum Jülich, "V" for VOCs) as leading unit, the tasks are shared between six CiGas-units in order to combine complementary expertise. Some activities are duplicated between units to achieve metrological robustness and to provide sufficient capacity. The planned activities for implementation are 100% for ACTRIS. CiGas is structured along specific compound forming the clusters (1) non-methane hydrocarbons (NMHCs subclassified into anthropogenic and biogenic, ANMHCs and BNMHCs, respectively), (2) oxygenated VOCs (OVOCs), (3) condensable vapours and (4) nitrogen oxides (NOx). The overall organisational structure is displayed in the Figure below.

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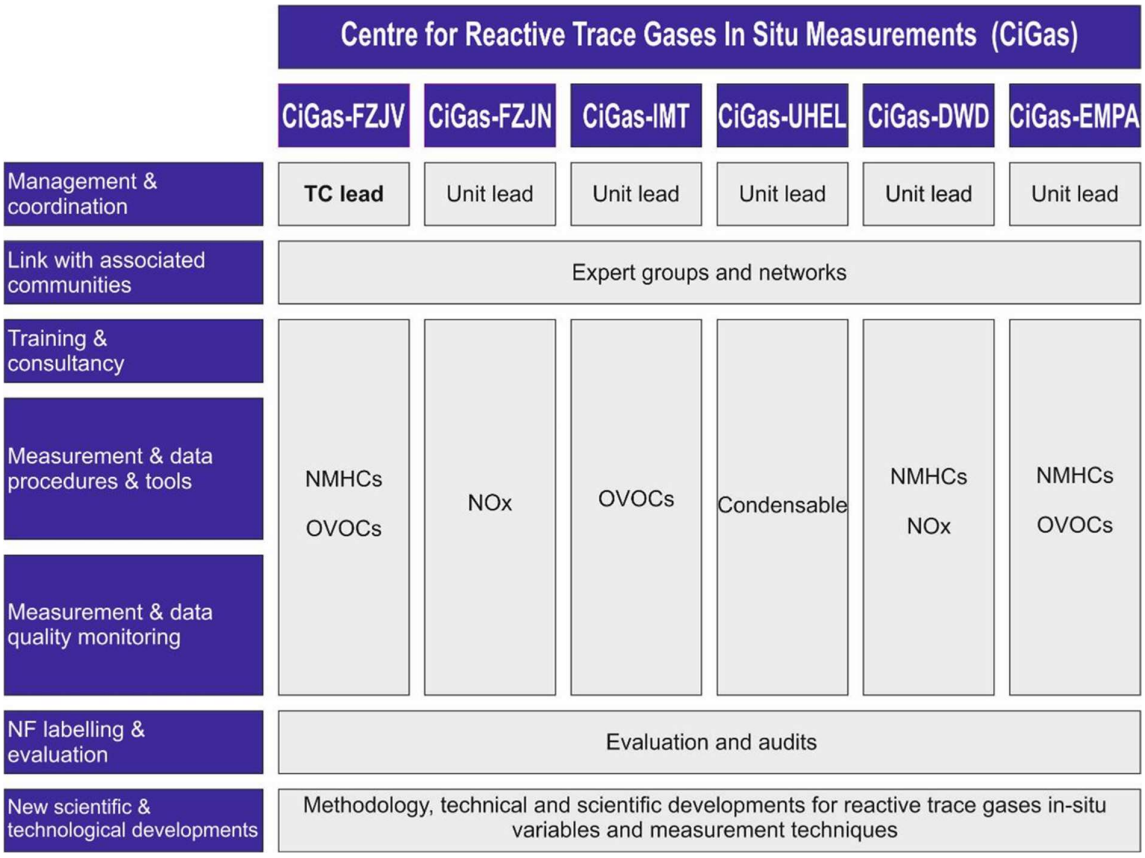


*Figure 7: CiGas organigram*

The CiGas office at the lead unit is coordinating the general workflow between the units, the Head Office (HO) including the Service and Access Management Unit (SAMU), the Data Centre (DC), the other 5 CFs, the NFs and the users. The CiGas director leads the management board, consisting of the unit heads. The management board organises the compound cluster specific workflow coordinated by the cluster lead unit among the participating units. The compound cluster leading units are experts in their field and will address the activities linked to the specific measurement techniques and data quality procedures.

The management board organises its activities in a cost-efficient way, timely and with high quality by using mostly electronic communication pathways. Face-to-face meetings are organised at least once a year. Representatives of CiGas actively participate in the interim RI Committee and later in RI Committee for a sustainable development of ACTRIS. The management board ensures operation support to the NFs according to the identified needs, agreed schedules, procedures, and available capacity at CiGas. Access to CiGas service by users is managed by SAMU in close cooperation with the management board which also coordinates the organisation of workshops, the collection feedbacks from NFs and user, the CiGas website, social media accounts and contributes to the ACTRIS websites for visibility to the general public. Further, it provides annually updated work plan and reports its

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activities in terms of accesses provided, key performance indicators and finances. The work plan and reports are provided to the HO and the ACTRIS ERIC General Assembly (GA). Within the framework of available resources, the management board aims to develop CiGas at the forefront of the technology for reactive trace gases in situ measurements. In doing so, it will be open to guidance by the GA and recommendations by the Advisory Boards of ACTRIS.

### 1.2.6 CREGARS

CREGARS, the Centre for Reactive Trace Gases Remote Sensing, is organized in eight Units which are grouped in three clusters, one cluster for each measurement technique covered by CREGARS. The Units belonging to one cluster share responsibilities at the technical level for a particular technique. Within each cluster, the Units have specific tasks and share other tasks. In particular for the UVVIS cluster, as there are three types of UVVIS instruments compliant with ACTRIS requirements (MAXDOAS, PANDORA and SAOZ), each Unit has the responsibility for providing specific technical support/services for one type of instrument; the lead of the cluster will make sure that the activities of the three Units are coordinated and that the ACTRIS UVVIS data from the three instrument types are harmonized. The fourth UVVIS Unit is essentially responsible for providing the support at the instruments intercomparison field site (Cabauw, NL).

The table below shows the share of responsibilities in the various CREGARS activities.

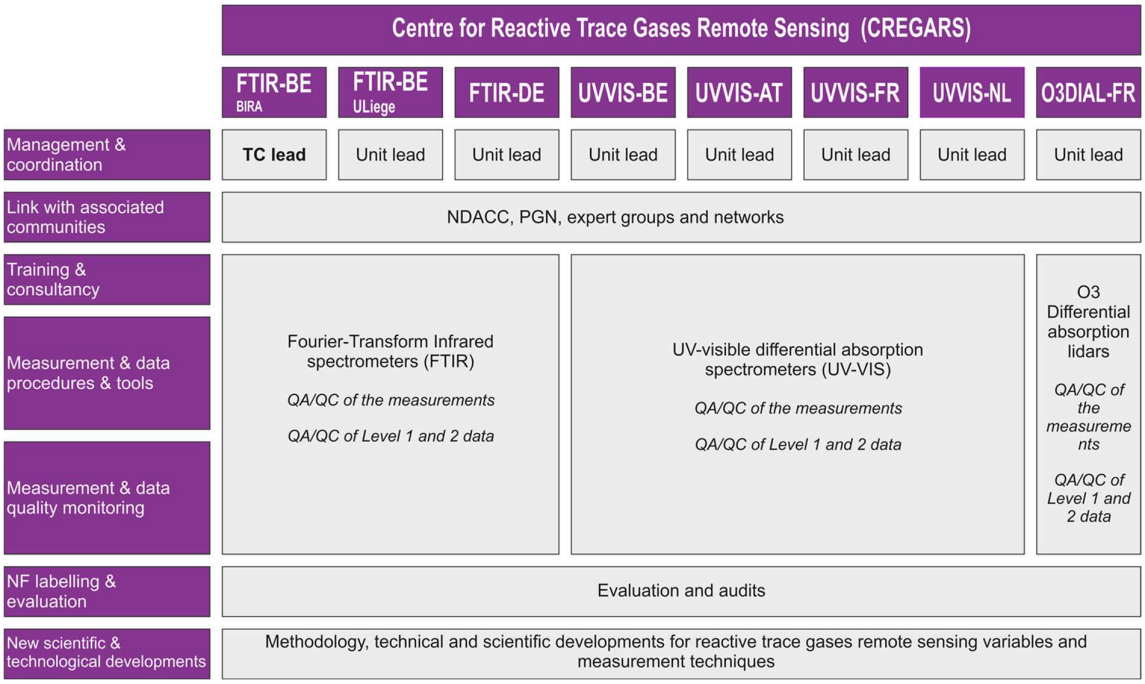


*Figure 8: CiGas organigram*

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The coordination and management of CREGARS is ensured by a CREGARS Management Board, (MB) consisting of the CREGARS Director and the Unit Heads, representing their Unit in the CREGARS Management Board. The Management Board also includes the deputy director of CREGARS, and possibly deputy Unit Heads if relevant.

Among the tasks of the Management Board are: (1) coordination of all CREGARS activities, in particular discuss, agree on and coordinate the development of new data products and /or methods, (2) consult the Head Office (HO) on the labelling of the NFs, based on the site performance reports provided by the concerned CREGARS Units and related discussions in the Management Board, (3) exchange information with HO and RI Committee, and participate to ACTRIS decision making.

The Director represents the CREGARS Management Board in all communications with ACTRIS HO and RI committee and in all ACTRIS bodies and actions.

The Director and each Head of Unit will be supported by administrative staff for administrative, logistical and financial tasks.

The Board meets physically at least once per year; the location for the meeting will rotate among the different units. Additional teleconferences with the members of the Management Board will be organised every 4 months – unless there are no particular topics for discussions.

The Units dedicated to a particular technique may organise additional teleconferences among them for discussing technique-specific topics; they will always invite the Director.

The representative of the Data Centre (DC) Unit for Reactive Trace Gases Remote Sensing (GRES) is invited to take part in Management Board meetings or teleconferences among Units if GRES-relevant topics are on the agenda.

A Web interface will be set up for internal communication and exchange of documents among the members of the Management Board, with GRES, and with the HO and SAMU (internal password protected site) and for communication with the ACTRIS beneficiaries and users (public site).

# 2 Aspects considered for harmonization

ACTRIS is coordinating the work of the different CFs in order to benefit from the expertise of each CF and to simplify as much as possible the procedures and the day-to-day operation of a CF. CF Leaders meetings are organized on a regular basis to share best practices and to harmonize the organization of the CFs. The process for validating the activities planned at the Central Facilities has shown that, while the ACTRIS HO and the ACTRIS DC are distinct in all aspects, ACTRIS TCs have similar roles in the general structure, and their activities can be harmonized, by this increasing the clearness and efficiency of the research infrastructure.

## 2.1 CF harmonized management structure

The CF leaders worked together to harmonize their management structure and each CF is composed of several units each led by a Head of Units. All heads of units are part of the management board which also includes the CF leader.

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1. **The CF Units**

The Units are the operational bodies of the the TC. Each Party forms a unit with its own staff members according to the human resources planned in its annual budget.

2. **The CF Heads of Units**

CF Heads of Units lead and manage the different Units of the CF, being responsible for the activities defined for that CF Unit. In addition to the operative tasks, they support the CF leader in annual planning, operations and reporting through their activities within the Management Board.

3. **The CF Management Board**

The Management Board is the decision-making body of the TC. It is composed of the Heads of Units appointed by the Parties. The Management Board is chaired by the CF Leader.

4. **The CF Leader**

The CF leader leads and manages the CF. She/he coordinates the scientific activities of the CF and acts as a focal point for external communities. He / She also takes care that the ACTRIS activities are running according to the agreed policies and rules. He / She represents the consortium in the ACTRIS Interim RI committee, the CF leader working group and other ACTRIS bodies, and thus is in close communication with other CFs, the HO and with the lead representatives of ACTRIS NFs.

For communication between CF units, the CF Management board conducts periodic meetings in order to discuss and decide any aspects of relevance for implementing, operating, and further developing the CF. Beyond that, web conferences, telephone and email communication take place depending on the demand for discussion and decisions.

## 2.2 TCs harmonized activities and tasks

A thorough analysis of the CFs' first implementation plans has shown that, regardless of the measurement technique and/or the variables covered by each TC, the planned activities can be harmonized if a certain degree of generality is accepted. This is because the TCs have a similar role in ACTRIS: to support the operation of the associated NFs in terms of quality assurance and quality control, to offer technical services to the users and to develop the science and technology in their portfolio. The CF leaders have discussed the best approach for harmonizing the activities of the TCs in several meetings, during spring 2020 and they decided to group all under seven major activities. These recommended harmonized activities have been described in Milestone MS.4.2. and have been used for revising the CF implementation plans.

| Activities | Objectives | Tasks |
|---|---|---|
| **Management and coordination** | • to ensure internal management of the CF<br>• to enable coordination with other ACTRIS CFs and bodies | 1. Interactions between the CFs<br>2. Web development (or outreach, interlinkages) |

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| Activities | Objectives | Tasks |
|---|---|---|
| | • to support ACTRIS internal and external communications,<br>• to set up together with the HO the CFs internal communication tools.<br>• to contribute to the ACTRIS operations activities, including financial reports and the monitoring of the activities<br>• to participate in the different ACTRIS bodies meetings. | 3. Reporting of activities and finances and work plans<br>4. Monitoring KPIs<br>5. Participation in different ACTRIS bodies<br>6. Internal management of a CF<br>7. Internal Management of the Units<br>8. ACTRIS Community building |
| **Link with associated communities** | • to facilitate collaboration with scientific communities in the field of the CF, on the national and international level<br>• to promote ACTRIS activities, techniques and methodologies with other research communities that have the potential to become ACTRIS users.<br>• to support ACTRIS networking with governmental agencies and stakeholders that are potential users of ACTRIS data, products and ACTRIS science | 1. Participation in expert groups<br>2. Dissemination of ACTRIS technical achievements<br>3. Exchange of expertise with external communities<br>4. Enhancing and promoting different TCs Communities<br>5. Participation of the TCs at different events (national and international level)<br>6. Developing external relations<br>7. Links with other networks<br>8. Community building workshops |
| **Trainings and consultancy** | • to provide the necessary training to the potential NFs'x technicians, to facilitated the fulfilment of the specific technical requirements<br>• to provide enough support to the NFs during the Labelling processes to facilities the procedure.<br>• to distribute ACTRIS knowledge to stakeholders, users and private companies | 1. Training of staff<br>2. Training of instrument operators<br>3. Intensive courses<br>4. Webinars<br>5. Summer schools<br>6. Consultancy for setting up observation sites<br>7. Consultancy to stakeholders, users and private companies |
| **Measurement and data procedures and tools** | • to develop, update and implement at the associated NFs the specific quality assurance criteria, guidelines and procedures for calibrating and operating the instruments and processing the observation data<br>• to develop and implement at the associated NFs specific tools for controlling the quality of measurements | 1. Standard Operation Procedures (SOPs)<br>2. Calibration methods<br>3. Instrument guidelines<br>4. Measurement guidelines<br>5. Data processing guidelines<br>6. QA criteria<br>7. QA tools<br>8. Definition of target uncertainties of the instrument |

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| Activities | Objectives | Tasks |
|---|---|---|
| | • to develop, update and implement central processing of observation data, as applicable | 9. Definition of target uncertainties in closure studies<br>10. Central processing components |
| **Measurement and data quality monitoring** | • to monitor and support the quality control of the instruments, measurements and data<br>• to monitor and support the uncertainty estimates of the measurements and data | 1. Housekeeping data real time analysis tool<br>2. Data evaluation procedures and plausibility tests<br>3. Quality control of the measurements<br>4. Quality control of the data<br>5. Workshops for reviewing the quality of the data<br>6. Intercomparison Campaigns<br>7. Instrument Performance test<br>8. Measurements traceability<br>9. Technical maintenance and updates of TC units |
| **NF labelling and evaluation** | • to contribute to the selection of the candidate NFs<br>• to regularly evaluate the performances of the associated NFs | 1. Evaluation of the application<br>2. Labeling verification trough audits |
| **New scientific and technological developments** | • to ensure the progress of science and technology in the field of the topical centre<br>• to preserve the state-of-the-art of ACTRIS in the field of the topical centre<br>• to facilitate new technological developments test and to promote new development within the ACTRIS community | 1. Developing and assessing new techniques<br>2. Coordinating demonstrations and studies<br>3. Disseminating (Scientific Publications, other scientific communications)<br>4. Improvement of measurement techniques<br>5. Prototype development<br>6. Prototype testing<br>7. Development of new measurement strategies<br>8. Development of new retrieval algorithms<br>9. Metrology and standardization (new methodologies)<br>10. Implementing new technologies<br>11. New methods for SOPs and best practices |

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## 2.3 CF harmonized working tools

To facilitate CF internal management and benefit from synergies, common management software tools are selected and implemented at all CF Units in coordination with other WPs: CF Mini-sites, Intranet, and a finance report tool.

As an interface between ACTRIS consortium and ACTRIS users and stakeholders, the website offers visitors the possibility of discovering ACTRIS services by browsing the Catalogue of Services, a comprehensive description of ACTRIS services, and to easily access ACTRIS services through a dedicated single-access platform, managed by the SAMU. The website provides a guided approach that will point external visitors that are not familiar with the ACTRIS organisational structure and activities to relevant pages.

Each TC has its own mini website, with administration rights on the main ACTRIS website. The mini sites have a same structure to keep a same visual identity with five user-oriented menus:

1. Home: mission, Units (laboratories and teams), instruments/variables covered, activities (short description)
2. Science & Technology: main focus, recent achievements, publications, patents, etc
3. Our Facilities: map with the associated NFs, tasks dedicated to operation support, links to relevant documents (guidelines, SOPs, etc.), links to software tools, links to other interfaces (e.g. data submission), open calls (event page for each, including registration and access to related documents, restricted to NFs)
4. Partners and Users: who are our users, services open to user, open calls (event page, link to SAMU for access), description of linked networks and organizations (links), joint events and projects
5. Announcements and resources: events, news, highlight, job opportunity

An intranet, a reserved area for ACTRIS bodies and task forces, functioning not only as a document repository but also as an online workspace, has also been designed for the units to be able to share documents and to work together in real time. Each CF has its own folder, which is then structured in other folders corresponding to the main activities of the CF. The organisation of the different folders allows efficient collaborative work and leads to fruitful exchanges when exchanging during the CF monthly meetings.

A tool for estimating the necessary capacity at the CFs has been designed to collect as accurate as possible quantitative information regarding the CF plan for the years 2020-2025. Both implementation and pre-operation tasks are considered. The tool also calculates the costs associated to the plan, based on the actual use of resources at each participating institution. The tool has been described in Milestone 4.1 and is finalized.

## 2.4 CF harmonized reporting and documentation

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Several harmonized documents are used for the operation of the CFs, to increase the efficiency of the CF work and to allow more transparency towards the research infrastructure. These documents allow the research infrastructure to collect crucial information on the operation of the CF, to detect any issue in the best delay possible and to work towards the resolution of the problems in the most efficient way. The documents are:

- The implementation plan: this document is guiding the activities of each CF using a same structure. It has been finalised.
- The five years financial plan and cost book: These documents have been designed for all CFs and completed to have updated and consolidated costs.
- The annual work plan: The CF will prepare and approve a joint work plan at the beginning of each year of the project and will share it with the ACTRIS ERIC Director General. The template will soon be ready. This document will be designed using the implementation plan model.
- The annual report: Each CF will prepare a joint annual report at the end of each year of the project using a common template and will share it with ACTRIS Director General.

## 2. 5 CF common draft of contract

The CF consortium agreement is a legally binding contract between the Research Performing Organizations (RPOs) hosting CF units. The purpose of this Agreement is to set out the rights and responsibilities of the RPOs of each CF in order to ensure the proper running of the CF as part of ACTRIS.

To facilitate the work of each CF on the document, a Consortium Agreement Working group was set up in early 2021 to develop a common draft. Each CF is now able to use the draft and to adapt it to its internal organization and its own characteristics.

The draft agreement is structured by eleven articles:
Article 1. Purpose
Article 2. Organisation and management
Article 3. Work plans and annual reports
Article 4. Rights and obligations of the Parties
Article 5. Budget
Article 6. Rights to Foreground and Background
Article 7. Confidentiality
Article 8. Liability
Article 9. Duration and termination
Article 10. Annexes
Article 11. Amendments

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## Annexe. The CF Consortium Agreement Draft

**CONSORTIUM AGREEMENT**

**NAME OF THE CENTRAL FACILITY:**

**Between**

1.

2.

…

as member organisations of the [Name of the Central Facility] herinafter referred to as "CF", also individually or collectively referred to as "Party" or "Parties".

**BACKGROUND**

The Aerosol, Clouds and Trace Gases Research Infrastructure (ACTRIS) is a pan-European initiative consolidating activities amongst European partners that produce high-quality data for the understanding of on short-lived atmospheric constituents and processes. ACTRIS compiles, integrates, harmonizes, and distributes datasets, activities, and services provided by the Central Facilities and National Facilities, located in 22 European countries.

ACTRIS includes eight Central Facilities - six Topical Centres, the Data Centre and the Head Office. ACTRIS ERIC (European Research Infrastructure Consortium) is the legal entity of ACTRIS which will coordinate and facilitate the establishment and operation of ACTRIS. ACTRIS ERIC includes the Head Office.

ACTRIS ERIC will make contracts with the organisations hosting the Topical Centres and Data Centre. The tasks, finances, general obligations of the Topical Centre and Data Centre organisations towards the ACTRIS ERIC and ACTRIS shall be defined and agreed in these contracts.

**Definitions**

*[To be added as seen appropriate]*

[*One example to define Background and Foreground if needed*]

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"Background" shall mean any information, knowledge, know-how, materials, including any intellectual property rights, generated by a Party outside the scope and cooperation of this agreement and which is needed and used to perform activities under this agreement.

"Foreground" shall mean all information, knowledge, know-how, materials, including any intellectual property rights generated under the scope and cooperation of this agreement.

**Article 1. Purpose**

The purpose of this agreement is to set out the rights and responsibilities of the Parties related to the CF in order to ensure proper running of the CF as part of ACTRIS. As the Parties shall sign a separate contract with ACTRIS ERIC in which they shall define their obligations and responsibilities towards ACTRIS ERIC and ACTRIS the purpose of this agreement is also to define how the Parties' ensure the proper fulfilment of their responsibilities under the contract made with ACTRIS ERIC.

**Article 2. Organisation and management**

*[To be modified according to each CF's needs. So things can be changed and things can be added as seen appropriate in each CF.]*

2.1. The CF shall include at the mimimum the following bodies: Management Board and the CF Leader.

**Management Board**

[*Annex can also be used here to define in more detaile the structure and rules of procecure of the board*]

2.2. The Management Board is the decision making body of the CF. Each Party has right to appoint [*example one*] representative to the Board. Each Party has one vote.

2.3. The Management Board is chaired by the CF Leader, if not otherwise agreed.

**CF Leader**

2.4. The CF Leader is the executive body. She/he has the overall responsibility for managing the activities decided by the Management Board and representing the CF in ACTRIS activities.

2.5. The Leader is elected by the Management Board [*example: with 2/3 majority*]. The term of the mandate is [*example four years renewable once*].

2.6. The Leader reports to the Director General.

2.7. The Leader cannot make any legally binding decisions on behalf of any Party.

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2.7. The Leader is the CF representative in the ACTRIS (Interim) Research Infrastructure Committee

2.8. The Leader has an appointed deputy

**Article 3. Work plans and annual reports**

3.1. The CF workplans and the associated resources are described for [*example 3, 5 years*] and updated annually in accordance with changing needs and feedback.

[*Annex can be used here as well to define the workplans and resources in more detail*]

3.2. The annual activity and financial reports will be compiled by the CF leader.

**Article 4. Rights and obligations of the Parties**

4.1. Each Party undertakes to take part in the efficient implementation of their responsibilities within the activities of ACTRIS, and to cooperate, perform and fulfil, promptly and on time, all of its obligations as may reasonably be required from it.

4.2. Each Party undertakes to notify promptly any significant information, , problem or delay likely to affect the activities. Each Party shall promptly provide all reasonably required information having effect on other ACTRIS activities. Each Party shall take reasonable measures to ensure the accuracy of any information or materials it supplies to the other Parties.

4.3. Each Party agrees to comply with the provisions of Regulation (EU) 2016/679 of the European

Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) and any other applicable data protection legislation when collecting and processing personal data. If personal data will be shared with the Parties, a data sharing agreement will be put in place.

**Article 5. Budget**

5.1. Each Party shall be responsible for its own budget and resources.

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5.2. Distribution of contributions allocated by the ACTRIS ERIC shall be subject to the contract made between the ACTRIS ERIC and the Parties to this agreement.

**Article 6. Rights to Foreground and Background**

6.1. The principles and process of handling data and intellectual property rights within the activities of ACTRIS are laid down in the ACTRIS data policy and ACTRIS access and service policy which the Parties agree to follow. The provisions of these policies are complemented with this article.

6.2. In case of joint ownership: each of the joint owners shall be entitled to use their jointly generated and jointly owned results, whether patentable or not, for non-commercial research and teaching activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s). Each of the joint owners shall be entitled to otherwise exploit the jointly owned Foreground and to grant non-exclusive licenses to third parties if the other joint owners are given prior notice and compensation.

6.3. Each Party shall own and continue to own its Background and nothing in this agreement shall transfer those rights to another Party.

6.4. Subject to any third-party rights, each Party hereby grants to the other Parties, a non-exclusive, royalty-free license under the owning Party´s Background to use the owning Party´s Background for the purpose of carrying out the tasks under this agreement. Furthermore, the Parties have a royalty-free, non-assignable right to use Background for further use within the activities of ACTRIS.

6.5. Foreground shall belong to the Party or Parties generating it.

6.6. Subject to any third party rights, each Party hereby grants to the other Parties a non-exclusive, royalty-free license to use its Foreground for the purpose of carrying out tasks under this agreement. Each Party shall be responsible for securing rights, to the necessary extent, to such Foreground from its employees, students, and/or any sub-contractors

**Article 7. Confidentiality**

7.1. All information in whatever form or mode of communication, which is disclosed by a Party (the "Disclosing Party") to any other Party (the "Recipient") in connection with the activities under this agreement and which has been explicitly marked as "confidential" at the time of disclosure, or when disclosed orally has been identified as confidential at the time of disclosure and has been confirmed and designated in writing within 15 calendar days from oral disclosure at the latest as confidential information by the Disclosing Party, is "Confidential Information".

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7.2. The Recipients hereby undertake, for a period of 4 years after the termination of this agreement:

-not to use Confidential Information otherwise than for the purpose for which it was disclosed;

-not to disclose Confidential Information to any third party without the prior written consent by the Disclosing Party;

-to ensure that internal distribution of Confidential Information by a Recipient shall take place on a strict need-to-know basis; and

-to return to the Disclosing Party on demand all Confidential Information which has been supplied to or acquired by the Recipients including all copies thereof and to delete all information stored in a machine readable form. The Recipients may keep a copy to the extent it is required to keep, archive or store such Confidential Information because of compliance with applicable laws and regulations or for the proof of on-going obligations.

**Article 8. Liability**

8.1. Each Party is liable only for its own part and the Parties do not have joint liability against third parties or the ACTRIS ERIC.

8.2. Except as otherwise specifically agreed, each Party shall only be liable towards the other Parties for direct damages, whether based on personal injury or material damage, if caused through gross negligence or wilful misconduct.

8.3. No Party shall be liable to any other Party for special, collateral, incidental or consequential loss or damages such as, but not limited to, loss of profit, loss of revenue, or loss of contracts.

8.4. Each Party shall be solely liable for any loss, damage or injury to third parties resulting from any breach of any of the provisions of this agreement or arising out of the termination of this agreement or of the CF.

**Article 9. Duration and Termination**

9.1. This agreement shall come into force on its effective date when all the Parties have signed it. The effective date of the agreement is [ ]

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9.2. This agreement may be terminated by any Party by [*example six (6) months*] written notice to the Management Board. Having received the termination notice the Management Board shall have a meeting within one month in order to discuss the consequences and actions needed regarding the termination notice.

9.3. The provisions relating to Intellectual Property Rights, for the time period mentioned therein, as well as for Liability shall survive the expiration or termination of this agreement.

9.4. Termination shall not affect any rights or obligations of a Party terminating the agreement incurred prior to the date of termination, unless otherwise agreed between the Management Board and the leaving Party. This includes the obligation to provide all input, deliverables and documents for the period of its participation.

**Article 10. Annexes**

[*Annexes to be added as needed and seen appropriate*]

The following annexes are an integral part of this agreement:

[*Foreseen that at least the following annexes could be useful*]

Annex 1: Composition and rules of the Management Board

Annex 2: Annual Work plan and resources

Annex 3: Contact personnel

**Article 11. Amendments**

11.1. Amendments and modifications to the text of this agreement require a separate written agreement to be signed between all Parties.

11.2. Annexes can be modified and updated as agreed in the Management Board.

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