ACTRIS
CCRES

Communication to **Cloud Remote Sensing National Facilities**

- August 2025 -

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1. CCRES/CLU Workshops, Training and Consultancy

CCRES/CLU Spring Workshop

CCRES and CLU held an online **workshop on May 19 and 20.** A total of 68 persons attended.. At least 19 NFs were represented, coming from 12 different countries.

Presentations are available at this link.

Topics presented during the workshop covered CCRES and CLU services for National Facilities, EarthCARE Cal/Val, calibration procedures (Doppler Cloud Radar and disdrometer), labelling process and new technical developments and scientific results at Cloud Remote Sensing NFs.

Next CCRES/CLU workshop will take place during the **ACTRIS Week in Evora,** Portugal, on **October 22,** 2025.

In case of any question, please contact Elisa Villard (evillard@ipsl.fr).

CCRES/CLU Training school in September 2025

A CCRES/CLU training school will take place **from 2 to 5 September 2025, hosted at the Ludwig-Maximilians University in Munich, Germany**. Registrations are now closed and the program is accessible here. 42 persons have registered, from 11 countries and representing 18 Cloud Remote Sensing National Facilities. Further information on the event is available on ACTRIS CCRES website.

time	MONDAY 01.09	TUESDAY 02.09	WEDNESDAY 03.09	THURSDAY 04.09	FRIDAY 05.09
09:00 09:30	*Travel*	Welcome session	**Lecture :** Visualization and interpretation of radar Doppler spectra *S. Kneifel (LMU)*	**Lecture :** Microphysical properties of liquid and ice clouds by means of dual-FOV lidar and lidar/radar synergy *J. Bühl (TROPOS)*	**Lecture:** EarthCARE Cal/Val *L. Pfitzenmaier*
09:30 10:30		**Lecture :** Intrduction to DCR remote sensing *CCRES FR*			
10:30 10:45		BREAK	BREAK		
10:45 11:15					
11:00 11:15					
11:15 12:30		**Lecture :** Microwave radiometry *CCRES DE*	**Lecture/hands-on:** CloudNet products *CLU*	**Lecture :** Doppler Lidar/doppler DCR *CCRES-FI*	**Lecture/hands on :** ABL height retrieval *S. Kotthaus*
12:30 14:00		LUNCH			
14:00 15:30		**Hands-on :** MWR calibration *CCRES DE* / **Hands-on :** DCR calibration *CCRES FR / LMU*	**Hands-on :** Cloud radar doppler spectra analysis with peako and peaktree *M. Radenz (TROPOS)* / **Hands-on :** HKD monitoring/ReOBS *CCRES-FR*	**Hands-on :** Disdrometer/ Raingauge calibration *DD WG* / **Hands-on :** Doppler Lidar processing *CCRES-FI*	**Hands-on :** Ceilometer dark current measurements *CARS*
15:30 16:00		BREAK			Closing session
16:00 17:30	CCRES/CLU Teambuilding	**Hands-on :** DCR calibration *CCRES FR / LMU* / **Hands-on :** RPG radar/ transfer MWR-radar *CCRES DE*	**Hands-on :** HKD monitoring/ReOBS *CCRES-FR* / **Hands-on :** Cloud radar doppler spectra analysis with peako and peaktree *M. Radenz (TROPOS)*	**Hands-on :** Doppler Lidar processing *CCRES-FI* / **Hands-on :** Disdrometer/Raing auge calibration *DD WG*	*Travel*
17:30 18:00		Wrap-up session			
18:00 19:00					
19:00 20:00				SOCIAL DINNER	

Program for CCRES/CLU Training School, September 2 to 5, 2025, in Munich (Ludwig-Maximilians-Universität)
In case of any question, or if you registered but didn't receive further information about the event, please contact Elisa Villard (evillard@ipsl.fr).

CCRES/CLU Autumn Workshop

Next CCRES/CLU workshop will take place **on October 22 in Evora, Portugal and online**, as part of the ACTRIS Week 2025. More information on the event can be found on ACTRIS website.

Registrations will open at the end of August.

This workshop will focus specifically on **National Facilities activities, feedback, and queries,** presenting technical and scientific results, case studies or any point they would like to raise. More information will be sent in due course.

In case of any question, please contact Elisa Villard (evillard@ipsl.fr).

2. CCRES Operational Services for NFs

Cloud radar calibration campaigns

To ensure **a high level of quality** across the network, CCRES performs **cloud radar calibration transfers** at each National Facilities site. To achieve this, CCRES-FR travels to the NFs with the BASTA-CCRES reference cloud radar and conducts **measurement campaigns** lasting approximately two months.

In January 2025, the **CCRES reference cloud radar** (94 GHz BASTA) was installed by the CCRES-FR team at the LACROS station in Leipzig **to apply the calibration transfer method to four cloud radars**, based on colocated measurements with local radars of the LACROS (RPG 94 and Metek MIRA 35) and Melpitz (RPG 94 and Metek MIRA 35) stations for 2 months.

In mid-March, CCRES-FR team returned to Leipzig to uninstall the CCRES reference radar and transfer it to Lindenberg, with much appreciated support from the LACROS team. A second campaign then began in Lindenberg, with the aim of **applying the calibration transfer method to three radars** : Lindenberg MOL-RAO's RPG 94 and Metek MIRA 35, and Rzecin station's (Poland) 94 GHz BASTA that was moved to Lindenberg by the instrument PI for the occasion.

Data from the Leipzig campaign (RACE-LE for Radar Cloud Experiment at Leipzig) and the Lindenberg campaign (RACE-LI for Radar Cloud Experiment at Lindenberg) have been analyzed to calibrate the seven cloud radars installed near the BASTA reference radar. Between two and nine **interesting cloud situations have been selected depending on sites and cloud radar data availability**, and we have optimised the processing to **determine the calibration constants of these seven cloud radars.** This work should be completed within a few weeks, and we will deliver a **calibration certificate for each radar**, detailing (1) the calibration constant and (2) the associated uncertainty. We present here our preliminary results version 2.

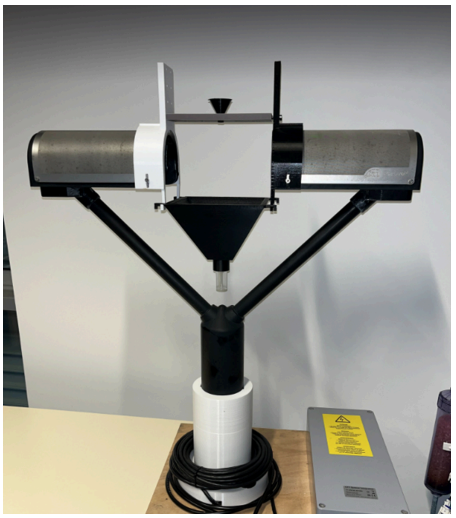
Site	Campaign	Cloud Radar	PID	Number of events	Periods duration accumulated [hour]	Correction coefficient [dB]
Leipzig (GER)	14/01/2025 - 10/03/2025	MIRA-35S NMRA LACROS (TROPOS)	https://hdl.handle.net/21.12132/3.ec09dc9c028c42d1	2	11.75	1.4 ± 1.1
		RPG-FMCW-94-DP (TROPOS)	https://hdl.handle.net/21.12132/3.fa39ba9928544aae	7	36.5	-1.1 ± 0.9
		MIRA-35S MBR9 (Melpitz)	https://hdl.handle.net/21.12132/3.7ddef75d7fee4dba	7	36.5	-2.0 ± 0.9
		RPG-FMCW-94-DP (Melpitz)	https://hdl.handle.net/21.12132/3.3809aae6fdb24f61	7	36.5	-0.3 ± 0.9
Lindenberg (GER)	11/03/2025 - 12/05/2025	DWD MIRA-35 (Lindenberg)	https://hdl.handle.net/21.12132/3.d6cc3d73f9dd4d4b	9	38.03	-0.6 ± 0.9
		DWD RPG-FMCW-94-DP (Lindenberg)	https://hdl.handle.net/21.12132/3.70dd09553d13484d	9	38.03	0.0 ± 0.9
		UW BASTA (Rzecin)	https://hdl.handle.net/21.12132/3.b517b9f95c014893	9	38.03	-1.6 ± 0.9

Conclusion : The correction coefficients obtained for the 7 different DCRs (Leipzig, Melpitz, Lindenberg, Rzecin) show very good consistency with the reference BASTA-CCRES radar.

N.B : the BASTA reference cloud radar has been calibrated before and after these two field experiments and the calibration constant difference is very stable with an absolute difference of - 0.3 dB.

In case of any question, please contact Jean-François Ribaud (jean-francois.ribaud@ipsl.fr) or Felipe Toledo (felipe.toledo@latmos.ipsl.fr).

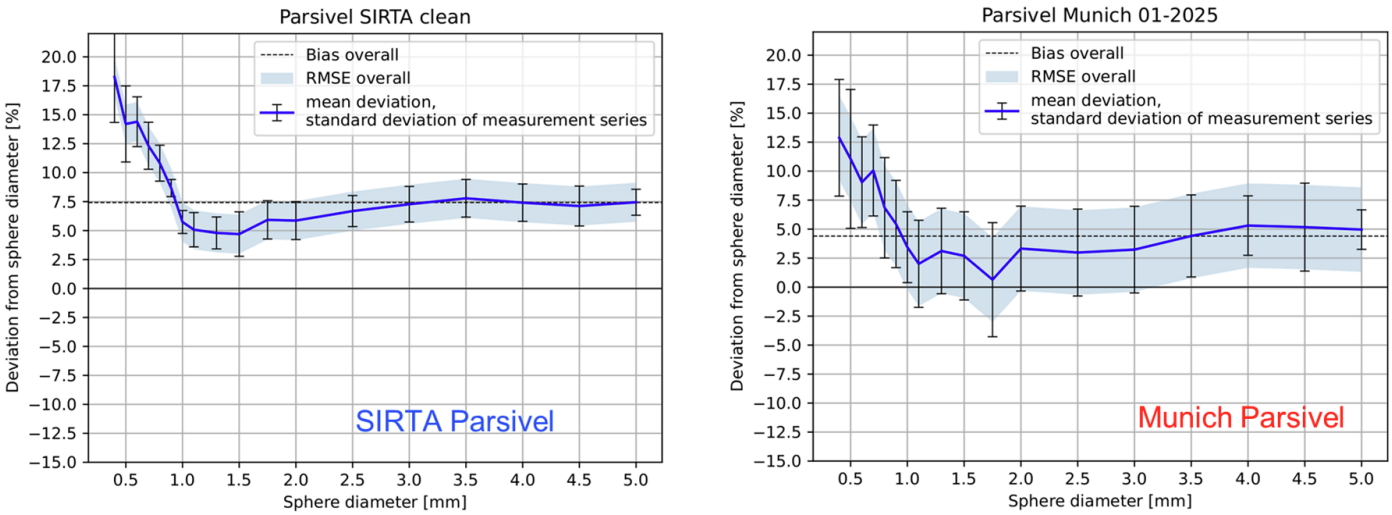
Disdrometer calibration procedure in progress



Stefan Kneifel and Jonathan Roßmanith from the Ludwig-Maximilians University (LMU) developed a device and procedure to perform **disdrometer calibration** using either steel or plastic spheres. CCRES-FR together with Dmitri Moisseev from the University of Helsinki and Marc Schleiss from TU-Delft joined the LMU team to further investigate the replicability of the **disdrometer calibration method and evaluate how this could be deployed at CRS stations.** Since May 2025, tests have been done at SIRTA observatory to "check" or "calibrate" the OTT Parsivel² disdrometer (see picture).

The procedure has been tested at Cabauw, Munich, and the SIRTA Observatory, and the results are very encouraging: **reproducibility is excellent, the standard deviation is low, deviation behavior is consistent across all three sites, metallic spheres have been cross-compared, and sensitivity tests produced consistent results.**

The plots below show comparisons for two Parsivel² disdrometers, illustrating the deviation between the measured diameter of steel spheres and their known reference diameter. A slightly larger bias is observed for the SIRTA Parsivel² (around 7.5%) compared to the Munich one (approximately 5.5%), but the variability is twice as low for the SIRTA instrument, with a very similar overall deviation pattern.



Results of tests conducted at SIRTA NF (Jonathan Roßmanith, LMU ; CCRES-FR team IPSL)

The calibration kit developed for the Parsivel² disdrometers (by LMU) is currently being adapted for use with the Thies LNM disdrometer, enabling the same type of experiments to be conducted. Discussions are also ongoing about the possibility for various NFs to perform such disdrometer verification procedures themselves.

If you would like to join the working group on this topic, please contact Elisa Villard (evillard@ipsl.fr).

3. Labelling process

Update on labelling step 1a

Cape Verde

Finland

La Réunion

Cloud Remote Sensing National Facilities : Labelling status

- ACTRIS CRS Labelling in progress
- ACTRIS CRS Labelling initiated
- ACTRIS CRS candidate
- Other CRS station

Cloud Remote Sensing NFs map

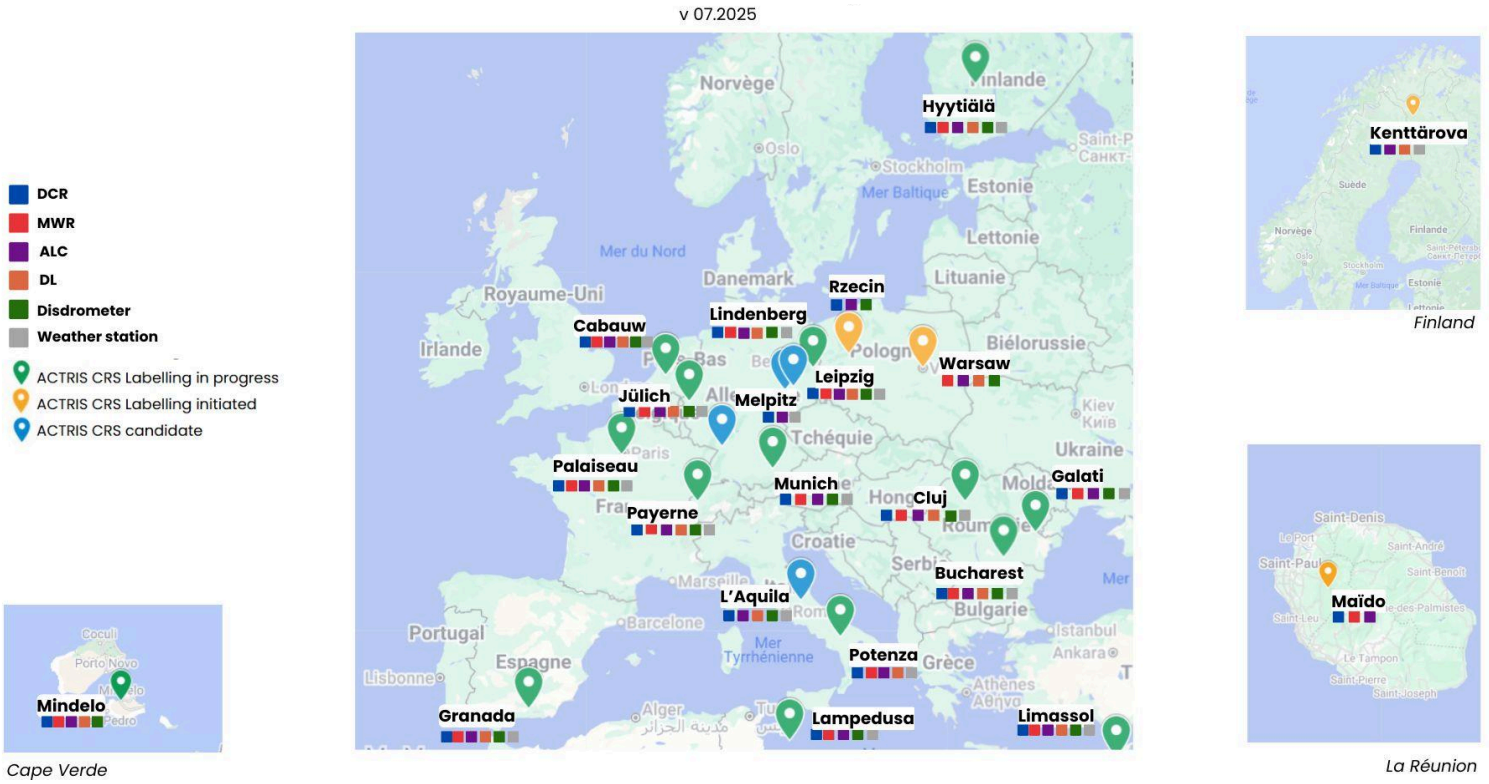
Stations initially accepted for labelling step 1a: AGORA (Spain), Cabauw (Netherlands), CARO Limassol (Cyprus), CIAO-Potenza (Italy), CVAO (Cape Verde), JOYCE (Germany), Lampedusa (Italy), MOL-RAO (Germany), München (Germany), Payerne (Switzerland), RADO-Bucharest (Romania), RADO-Cluj (Romania), RADO-Galati (Romania), SIRTA (France), SMEAR II (Finland).

Stations in process to enter labelling step 1a : Maïdo (La Réunion), Pallas (Finland), Rzecin (Poland), Warsaw (Poland).

Stations to enter the process in 2026 : Leipzig (Germany), Melpitz (Germany).

NFs instrument diversity

The map below shows instruments of stations initially accepted for labelling or in progress.



All information about CRS stations instruments can be found on this map : [NF instrument diversity]

- **Reminder for labelling** : One disdrometer (OTT Parsivel2 or Thies LNM for example) is mandatory for the NF labelling, as well as a weather station and a rain gauge. Please see CCRES requirements for these instruments in the SOPs resources at the end of this newsletter.

- Update on the **current status of NFs instruments** :

Cyprus	**CARO/Limassol**	Metek MIRA35	Rpg HATPRO G2	Lufft CHM15k	Halo Streamline	OTT Parsivel2	Weather station
Finland	**Pallas/Kenttärova**	Rpg DCR94		Vaisala CL61	Halo Streamline	OTT Parsivel2	Weather station
	SMEAR II/Hyytiälä	Rpg DCR94	Rpg HATPRO G5	Vaisala CL61	Halo Streamline	OTT Parsivel2	Weather station
France	**SIRTA/Palaiseau**	Latmos BASTA94	Rpg HATPRO G5	Lufft CHM15k	Vaisala WLS70	OTT Parsivel2	Weather station
	OPAR/Maïdo	BASTA94	Rpg HATPRO G5	Campbell CS135			
Germany	**CVAO/Mindelo**	Metek MIRA35	Rpg HATPRO G5	PollyXT	Halo Streamline	OTT Parsivel2	Vaisala WXT536
	LACROS/Leipzig	Rpg DCR94	RPG HATPRO G5	Lufft CHM15k	Halo Streamline	OTT Parsivel2	Vaisala WXT536
	JOYCE/Jülich	Metek MIRA35	Rpg HATPRO G5	Lufft CHM15k	Halo Streamline	OTT Parsivel2	Weather station
	Melpitz	Rpg DCR94		Lufft CHM15k			Weather station
	MOL-RAO/Lindenberg	Metek MIRA35	Rpg HATPRO G5	Lufft CHM15k	Halo Streamline	Thies LPM	Weather station
	München	Metek MIRA35	Rpg HATPRO G5	Lufft CHM15k		OTT Parsivel2	Weather station
	KLOCX/Karlsruhe	Rpg DCR94	RPG HATPRO G5	Vaisala CL31	Halo Streamline	OTT Parsivel2	
Italy	**CIAO/Potenza**	Metek MIRA35	Rpg HATPRO G5	Vaisala CL51	Halo Streamline	OTT Parsivel2	Vaisala AWS310
	Lampedusa	Metek MIRA35	Rpg HATPRO G5	Lufft CHM15k		Thies LPM	Vaisala AWS310
	UNIAQ/CETEMPS	Rpg DCR94		Vaisala CL51	Vaisala WLS100S	Thies LPM	Vaisala WXT536
Netherlands	**Ruisdael Obs./Cabauw**	Rpg DCR94	Rpg HATPRO G5	Lufft CHM15k	Vaisala WLS200S	OTT Parsivel2	Weather station
Norway	**Ny Alesund**	Rpg DCR94	Rpg HATPRO G2	Vaisala CL51		OTT Parsivel2	
Poland	**Rzecin**	BASTA94		Lufft CHM15k		OTT Parsivel2	
	Warsaw		Rpg HATPRO G2	PollyXT	Halo Streamline	OTT Parsivel2	
Romania	**RADO-Cluj**	Rpg DCR94	Rpg HATPRO G5	Lufft CHM15k	Halo Streamline	OTT Parsivel2	Theis Clima
	RADO-Bucharest	Metek MIRA35/RPGDCR94	Rpg HATPRO G5	Lufft CHM15k	Halo Streamline	OTT Parsivel2	Weather station
	RADO-Galati	Rpg DCR94	Rpg HATPRO	Lufft CHM15k		OTT Parsivel2	Weather station
Spain	**AGORA/Granada**	Rpg DCR94	Rpg HATPRO G2	Lufft CHM15k	Halo Streamline	OTT Parsivel2	Campbell CR1000X
Sweden	**NORUNDA**	Rpg DCR94		Vaisala CL51		OTT Parsivel2	
Switzerland	**Payerne**	Rpg DRC94	Rpg HATPRO G5	Lufft CHM15k	Vaisala WLS200S	Thies LPM	Weather station
UK	**Chilbolton Obs.**	RAL Copernicus/Metek MIRA	Rpg HATPRO G5	Vaisala CL51	Halo Streamline	Thies LPM	

If your instruments are not listed in this table or if you see any error, please inform Elisa Villard (evillard@ipsl.fr).

The labelling process is on-going for Cloud Remote Sensing observatory platforms, while the **procedure for mobile stations** to enter the labelling process is under development by the ACTRIS Head Office. This process will be **simultaneous to all components** of the mobile National Facilities.

Information on labelling step 1b and step 1c was delivered during our spring workshop on May 19 and 20, 2025 and is available here : **Labelling step1b.**

4. EarthCARE Cal/Val campaign

EarthCARE was successfully **launched on May 29, 2024**. Read more about the mission at this link : EarthCARE launched to study the role of clouds and aerosols in Earth's climate (European Space Agency). Global information about the mission is available on the ESA website and **updated SOPs** are available here.

The data needed for the Cal/Val activities are transferred to the ESA server via the CLU Data Centre. As a facility PI involved in EarthCARE, please **make sure that you follow the Satellite Cal/Val SOPs and that your data are uploaded to CLU**.

In the third week of March 2025, the **second in-orbit EarthCARE validation workshop** was held in Frascati, Italy. Lukas Pfitzenmaier (U. Cologne) and Nathan Feuillard (LATMOS/IPSL) presented their results conducted together with Felipe Toledo Bittner and the ACTRIS CCRES team **using the ACTRIS cloud radars to validate EarthCARE CPR level 1 and level 2 measurements - reflectivity and Doppler**

velocity. The data comparison is on a statistical basis based on work from Protat et al., 2009, and Kollias et al., 2019. We used vertical profiles +/- 1h around the overpass from the ground-based sites, and all profiled from overpasses within a radius of 200 km for reflectivity and 100 km for Doppler velocity.

We modified the well-known method for comparing reflectivity by **statistically testing the ground and CPR data**. This allows us to exclude height ranges where the data are statistically not comparable within selected boundaries, in order to reduce uncertainties in the comparisons**.** An open version of both presentations are available: reflectivity presentation, doppler velocity presentation.

Since EarthCARE is the first mission ever to deliver Doppler velocity validation, it represents a **new area of research**. To achieve ground-satellite comparisons, we utilised two approaches: for homogeneous overpasses near the site, one can use ground and CPR data scatter plots. However, for statistical comparison, the bias of the mean profiles from both data sets is employed. Here, we also observe that our findings are within the bias introduced by the CPR antenna miss-pointing.

We can conclude that ACTRIS CRS stations, CCRES and CLU were ready in time to provide calibrated and quality-controlled Cloud Radar measurements to evaluate the CPR cloud radar.

You may find below an overview of the results presented at the EarthCARE workshop. Please note these results are still preliminary.

Number of overpasses North

Site	Ze (ACTRIS)	Vm (BA)	Vm (BB)	Vm (CA)	Comments Vm
Ny Ålesund	-6 ± 1 dB	0.65 ms^{-1}	no ground	0,17 ms^{-1}	Calibration monitored by ACTRIS
Hyytiälä	3 ± 1 dB	0.48 ms^{-1}	0.25 ms^{-1}	0,26 ms^{-1}	mirroring ground echo in the data
Lindenberg	-1 ± 1 dB	0.59 ms^{-1}	0.43 ms^{-1}	-0.21 ms^{-1}	To be calibrated by ACTRIS (2025) & monitoring
Cabauw	1± 1 dB	0.65 ms^{-1}	0.33 ms^{-1}	0.42 ms^{-1}	No height bins selected for comparison
Jülich	-2 ± 1 dB	0.49 ms^{-1}	To low data	0.26 ms^{-1}	Calibrated by ACTRIS (2024) + monitoring
Palaiseau	-1 ± 1 dB	0.53 ms^{-1}	0.47 ms^{-1}	0.28 ms^{-1}	Calibrated by ACTRIS (2024) + monitoring
Munich	1 ± 1 dB			0.44 ms^{-1}	Calibration monitored by ACTRIS
Galati		0.56 ms^{-1}	0.34 ms^{-1}	-0.09 ms^{-1}	Calibration monitored by ACTRIS
Bucharest		0.78 ms^{-1}	0.46 ms^{-1}	0.08 ms^{-1}	Calibration monitored by ACTRIS
Potenza	-4 ± 1 dB			0.32 ms^{-1}	Calibration monitored by ACTRIS
Granada	-1 ± 2 dB	0.75 ms^{-1}	To low data	0.01 ms^{-1}	Calibration monitored by ACTRIS Low number of overpasses
Mindelo	-1 ± 1 dB				Low number of overpasses
Neymayer		0.18 ms^{-1}	0.46 ms^{-1}	-0.31	

If you have any questions, please contact Lukas Pfitzenmaier (l.pfitzenmaier@uni-koeln.de) and Nathan Feuillard (nathan.feuillard@latmos.ipsl.fr). The results refer to the ESA workshop in March 2025.

We will continue our work on EarthCARE validation. If you are interested in learning more, please contact us or follow the presentation at the ACTRIS CCRES September training school. They validate EarthCARE's L1 Cloud Profiling Radar products, including reflectivity and Doppler velocity measurements, using statistics gathered around overpasses at individual sites.

In general, if you want to stay up to date and view nice pictures, https://www.earthcarescience.net/home is the webpage to visit. It provides a brief background on the Satellite Mission, as well as nice illustrative examples of what was found and measured.

In addition, here are more News about EarthCARE and satellites:

- The **EarthCARE mission lifetime is expected to be up to 10 years**. The ESA officially announces this at the Living Planet Symposium at the end of June!
- The **Best Practice Protocol for the Validation of Aerosol, Cloud, and Precipitation Profiles (ACPPV) is now available** to the public. The protocol outlines state-of-the-art practices, methods, and tools for validating Atmospheric Satellite Profiles using ground-based and airborne measurements. It also includes a section with gaps and open questions in validation. If you are now interested, please have a look at the following link:
  Marinou, E., & Amiridis, V. (2025, May 14). Best Practice Protocol for the Validation of Aerosol, Cloud, and Precipitation Profiles (ACPPV). Zenodo. https://doi.org/10.5281/zenodo.15400055.
- The **first year of EarthCARE data will be reprocessed until the end of July**. If you want to use data from EarthCARE for your study, I advise waiting till the homogeneous data across all instruments and L2 products becomes available.
- Currently, only four papers have been published using EarthCARE data. If you want to participate in the race for the first papers, you still have a chance.
- **The deadline for Abstract submission for the 3rd EarthCARE Calibration/Validation and science workshop is the 20th August**. The workshop will be helt in Tokio, 1-5 December 2025. More information you can find here: https://www.eorc.jaxa.jp/EARTHCARE/event/ws2025/
- **Explore a fascinating piece of science communication related to EarthCARE and cloud and aerosol profiling.** I strongly recommend watching this YouTube video: https://www.youtube.com/watch?v=6VsrIXwVg3Q. ESA and Jamie Perera, an artist and composer, collaborated to transform real EarthCARE measurements into sound. The YouTube video is a demonstration of a single orbit, including some visualisation. ESA plans to make the sound available near real-time soon. You will be able to listen today to what the satellite measured yesterday. So stay tuned for the EarthCARE radio :-)

If you have any questions, please contact Lukas Pfitzenmaier (l.pfitzenmaier@uni-koeln.de) and Nathan Feuillard (nathan.feuillard@latmos.ipsl.fr).

5. CLU Data Centre updates

- Official Cloudnet API client released: https://github.com/actris-cloudnet/cloudnet-api-client
- Work to support and reprocess old (before 2013) data from Lindenberg and Leipzig is ongoing
- Monitoring pages are under development.
- More rain gauge and weather station types were added.
- We are still missing most of the site descriptions. Please send a description by email (actris-cloudnet@fmi.fi). For example, see Hyytiälä : https://cloudnet.fmi.fi/site/hyytiala.

6. Calendar

- August 25-29th, 2025 : **AMS 41st International Conference on Radar Meteorology,** Toronto (Canada)
- September 2-5th 2025 **: CCRES Training school** in Munich (Germany)
- September 8-12th 2025 : **EMS Annual Meeting** in Ljubljana (Slovenia)
- September 15-17th 2025 : **5th International Snowfall Workshop** in Reading (UK)
- October - December 2025 : **BASTA CCRES calibration campaign** in Granada (Spain)
- October 20-24th 2025 : **ACTRIS Week**, Evora (Portugal) and **CCRES/CLU Autumn workshop**
- January -July 2026 **: BASTA CCRES calibration campaign** in Bucharest, Galati and Cluj (Romania)
- April 20-24th 2026 : **ACTRIS Science Conference**, Oslo (Norway)
- April 27-30th 2025 : **18th Specialist Meeting on Microwave Radiometry & Remote Sensing of the Environment** in L'aquila (Italy)

7. Resources

CCRES website for operational services

A **new website** is being implemented by CCRES to provide a platform for National Facilities to access **operational services**. A beta-version is available for facilities to **monitor the stability of operations and data quality**, and **track instrument parameters** of their station, while accessing **documentation** about CCRES operational services, **SOPs, codes** and available tools on the interface. https://ccres.aeris-data.fr/ **CCRES Newsletters** are now available on this website as well.

General information about ACTRIS and CCRES units, communication, procedures and news can still be found on the ACTRIS website at this address : https://www.actris.eu/topical-centre/ccres

Cloudnet data portal (https://cloudnet.fmi.fi/) provides access to **all ACTRIS Cloud Remote Sensing data.** It hosts **data processing and curation service** for ground-based cloud remote sensing measurements.

NF instrument diversity : online resources

An **interactive map** showing the stations status and their instruments is available on **ACTRIS CCRES website**, as well as on **OpenStreetMap** : click on the layers and filters on the left in order to view instruments diversity, or click on a station to get to know the details about its instruments.

Presentation of CCRES and CLU at conferences

A short **presentation of CCRES and CLU** is available **at this link.** It can be **used for conferences** involving Cloud Remote Sensing community related activities. Please inform us (evillard@ipsl.fr) when CCRES is mentioned at an event, or in any publication you have been involved in.

Labelling process

The procedure for labelling is explained further in detail in this document presented during our last workshops : **Labelling process** and **Labelling step1b.**

SOPs

SOPs : At this link, you can find the Standard Operating Procedures for each instrument**.**
**SOPs for EarthCARE : ** At this link, you can find the last version (March 2024) of Standard Operating Procedures related to EarthCARE Cal/Val campaign.

EarthCARE Cal/Val

Presentations from January, March, and the Poster from June 2025 are available **here**

Housekeeping data
The training session on HKD monitoring was organised on May 7, here is the presentation : **Grafana training session**
Last updates were presented during November 2024 workshop and are available here :
6. HKD_monitoring.pdf
Documentation and access to Grafana are accessible on **CCRES operational services website.**

Workshop material

All CCRES workshops presentations are available **here.**

Publications

CCRES publications are available **here.**