



# ACTRIS

# CCRES

Labelling step 1a & 1b

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# CCRES labelling process

## STEP 1 a: Initial acceptance

General feasibility check, collect of information on variables, instruments and personnel  
→ [Compliance with CCRES requirements](#)



## STEP 1 b: Performance evaluation

Data flow and operation support schedule created,  
Tracking of NF data (2 years),  
Upgrade of the facility (if necessary),  
→ [Compliance with CCRES/CLU data requirements](#)



## STEP 1 c: Approval

Full label is granted. Signature of ERIC and NF agreement.

- **10 NFs accepted for step 1a :**
  - AGORA - Granada, Spain
  - CIAO - Potenza, Italy
  - JOYCE - Jülich, Germany
  - Lampedusa, Italy
  - MOL-RAO - Lindenberg, Germany
  - München - Munich, Germany
  - RADO-Bucharest, Romania
  - RADO-Galati, Romania
  - SIRTA - Palaiseau, France
  - SMEAR II - Hyytiälä, Finland
- **3 NFs in process for entering step 1a :**
  - CVAO - Mindelo, Cape Verde
  - Pallas - Kenttäröva, Finland
  - Payerne, Switzerland

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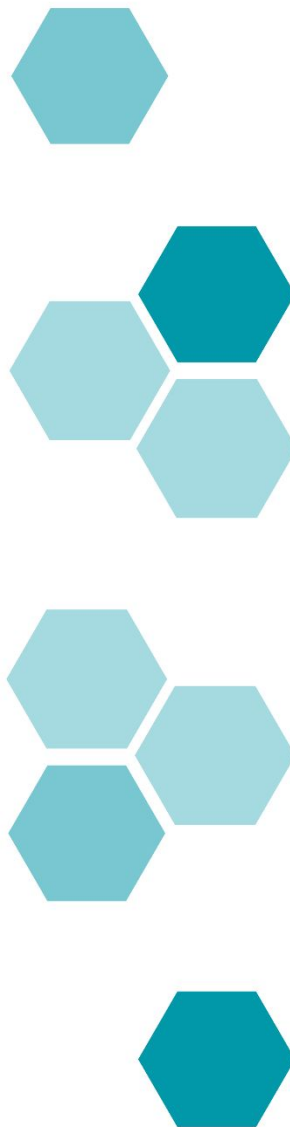
Full label is granted. Signature of ERIC and NF agreement.

- NF **submit data**, meta data, housekeeping data **to CLU**
- **CCRES and CLU are developing and implementing**
  - Daily diagnostics and visualisation of HKD
  - Monthly reports of HKD
  - **Quality control of meta data conformity**
  - **Quality tests and control of geophysical data**
- Step 1b phase will take **2 years**



# How do we proceed ?

- Starting point: using the wealth of information & data available on Cloudnet
- Overview:
  - Each NF has 4-5 instruments: DCR / MWR / ALC / DD / DWL
  - Which means about 30-40 variables
  - About 20 CCRES' NFs
  - ACTRIS = data for the next 20 years
    - Need a specific tool to deal with amount of data !
- → Use the ReOBS tool
  - Allows for monitoring step 1b by synthesizing all products into a single .nc file
  - Produce a .nc file for end-users (multi-parameter dataset with a high level of quality control)
  - Derived monthly analysis/reports from ReOBS .nc file

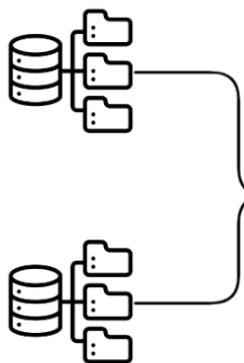


# What is ReOBS ? How it works ?

Creation of a single synthetic NetCDF file with a temporal resolution of 1h containing a multi-variable & multi-year dataset (Chiriaco et al., 2018).

## DATA COLLECTION

ReOBS collects data from both quality-controlled databases (e.g. ACTRIS) and from native datasets.



## PRE-PROCESSING

Adapts to the input data format defined and provided by the Data Center.

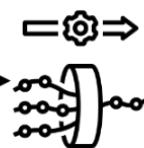
## QUALITY CHECKS

Applies additional quality controls to remove potentially erroneous data through procedures documented in a reference document available on request.



## HARMONISATION

Performs temporal and/or spatial averaging of data while keeping associated statistics.



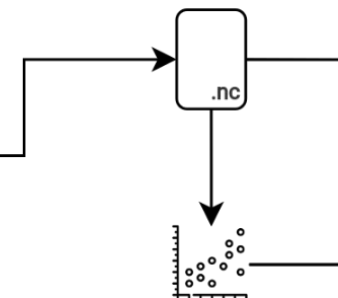
## NAMING CONVENTIONS

Applies standard metadata. CF, ACDD and GCMD compliant.



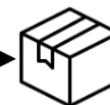
## ONE NETCDF FILE

Provides a well documented NetCDF file with all desired associated statistics.

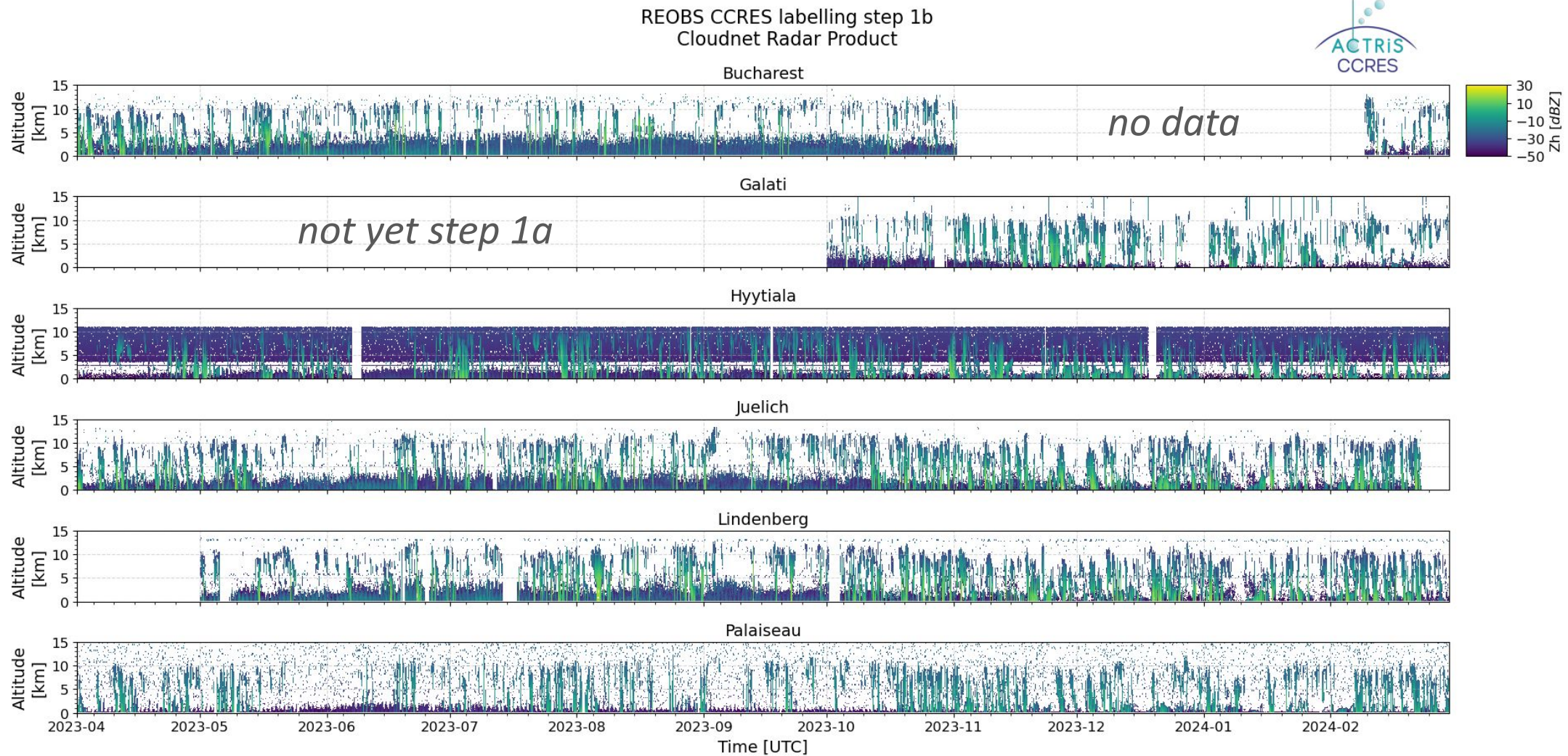


## VISUALISATIONS

Provides 1 and 2 dimensional quicklooks and plots from the NetCDF file.



# Example of cloud radar reflectivity time series after ReOBS has been applied on data available on the Cloudnet Data Portal for 6/7 NFs under Step 1b





Available online :

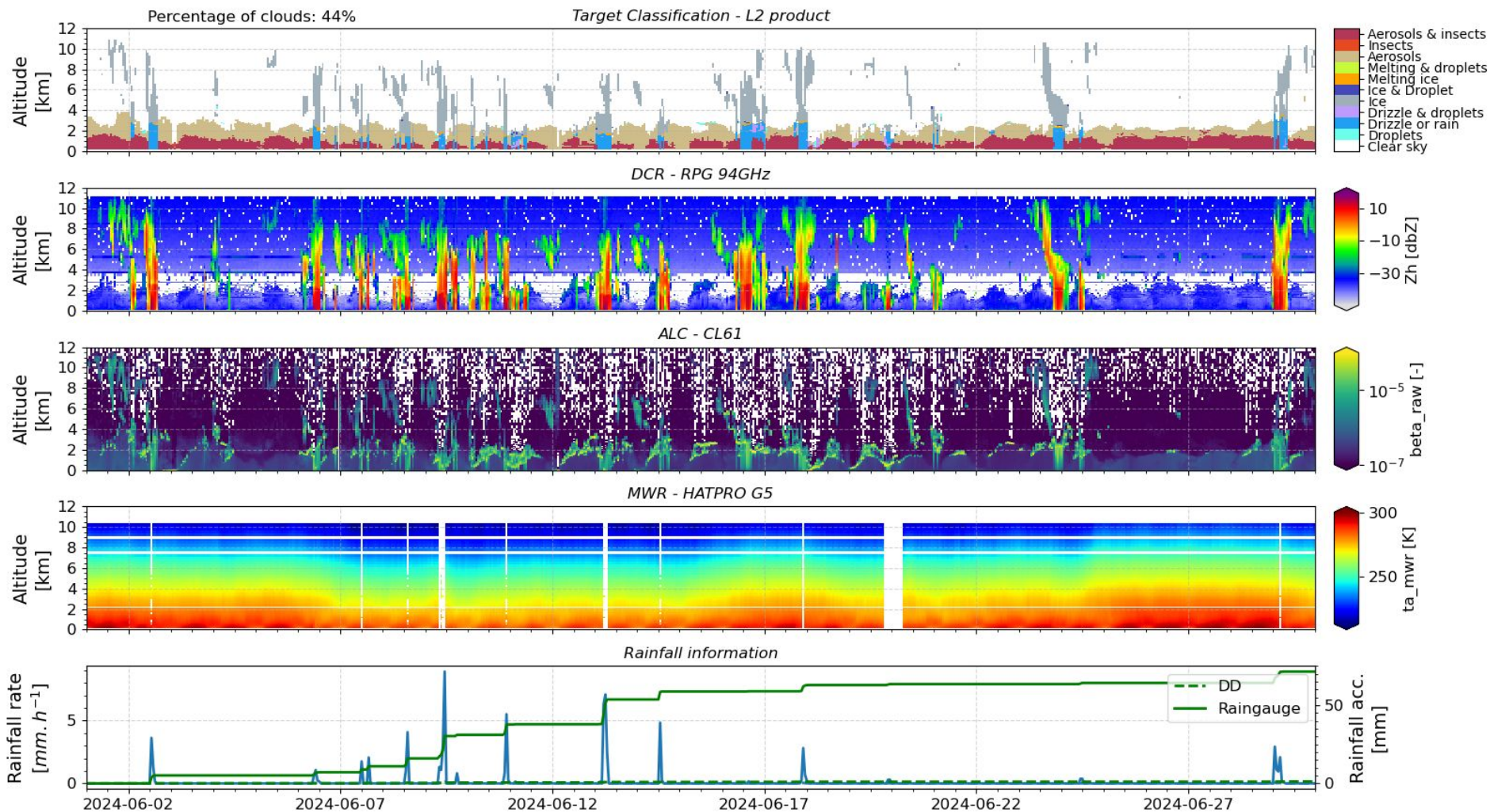
<https://ccres.aeris-data.fr/en/data-visualization-monthly/>

# Monthly report template (1/3)

Measurement site: Hyytiala (61.844N, 24.288E, 174m)

SMEAR II

From 01-06-2024 to 30-06-2024

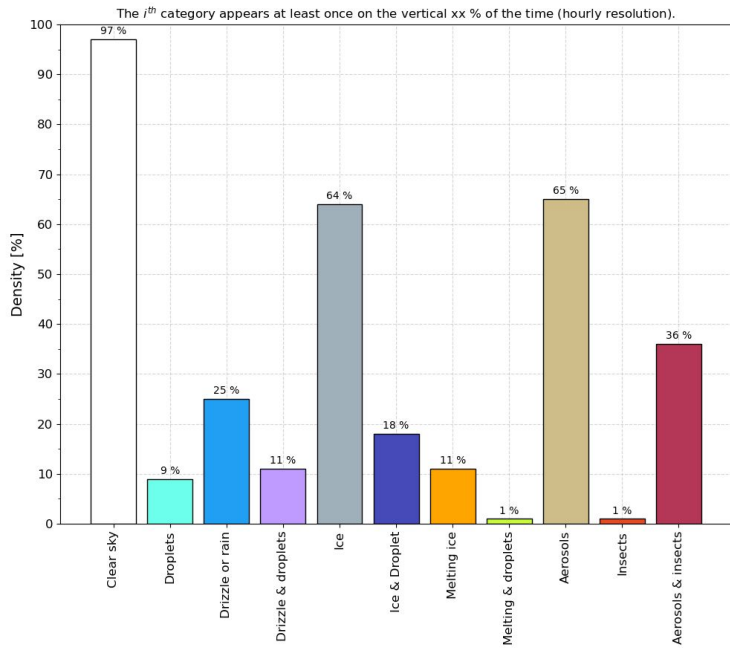


# Monthly report template (2/3)

## Overview & statistics on the past month

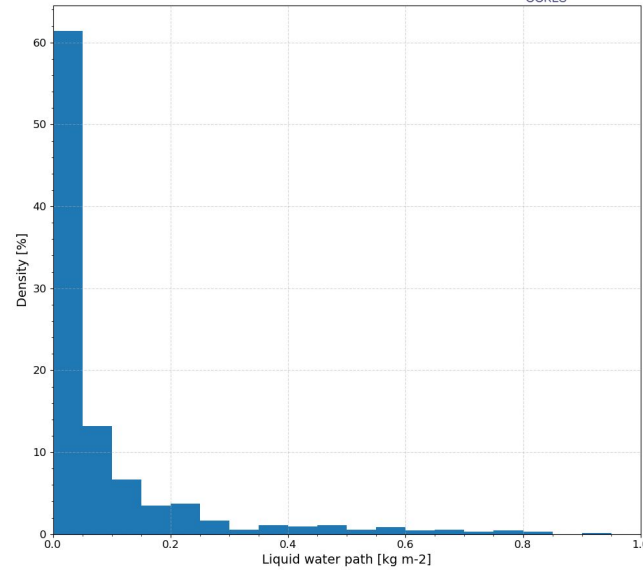
### Target classification overview

Measurement site: Juelich (50.908N, 6.413E, 111m)  
 JOYCE  
 From 01-01-2024 to 31-01-2024



### LWP distribution from MWR

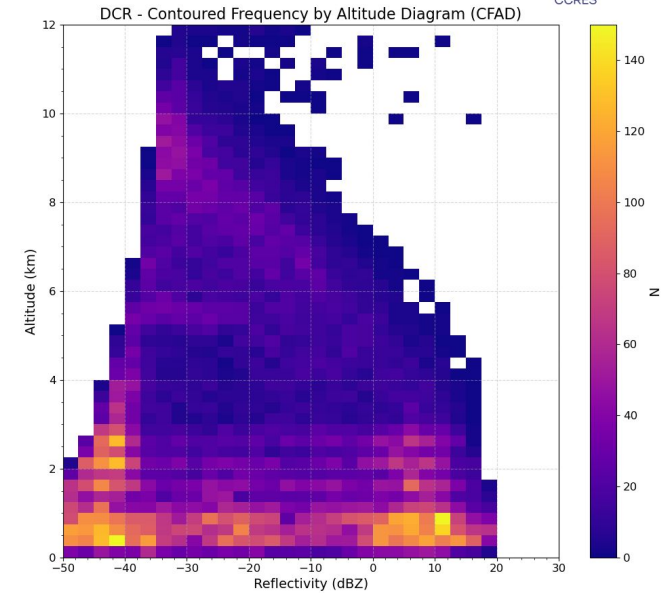
Measurement site: Palaiseau (48.716N, 2.212E, 156m)  
 SIRTA Research Observatory  
 From 01-01-2024 to 31-01-2024



*Could be generated for  
all 1D variables*

### Reflectivity CFAD from DCR

Measurement site: Lindenberg (52.208N, 14.118E, 104m)  
 Richard Assmann Observatory  
 From 01-01-2024 to 31-01-2024



*Could be generated for  
all 2D variables*

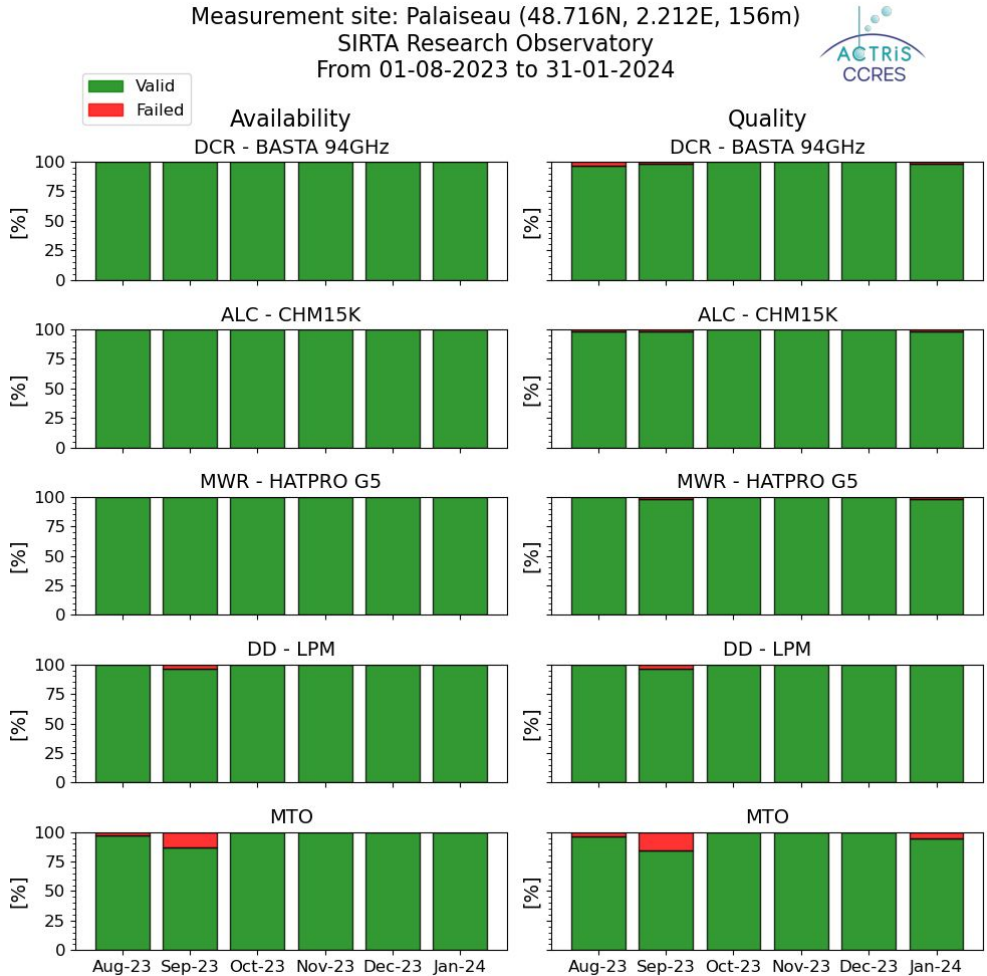
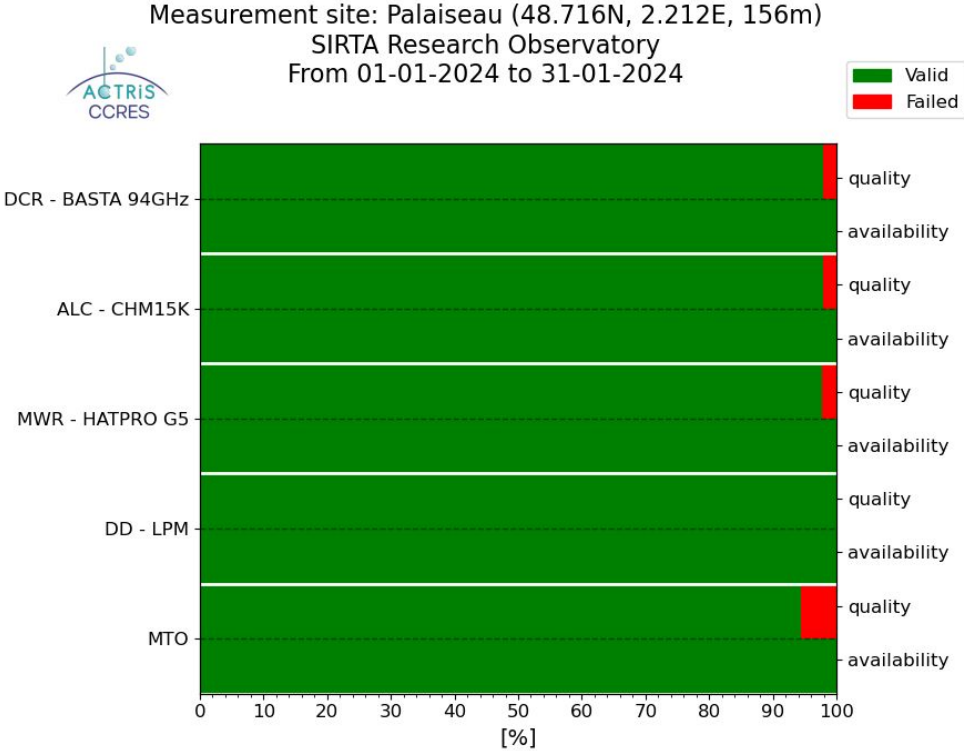




# Monthly report template (3/3)

**Availability:** product available on Cloudnet

**Quality:** product available after ReOBS QC



# Monthly report template with HKD overview

- Need to take into account HKD alerts and find a way to summarize them

*CHM15K alerts summary over last 6 months from Grafana*

	Palaiseau	Payerne	Bucharest	Cabauw	Evora	Galati	Granada
Optical quality index (% > 90 %)	94	10	87	99	58	41	60
Laser quality index (% > 99 %)	100	100	100	100	100	15	100
Warning 'Window contaminated' (% > 0)	0	53	0	0	30	12	20

	Juelich	Lampedusa	Leipzig	Limassol	Lindenberg	Mace-Head	Munich
Optical quality index ( % > 90 %)	53	64	0	54	98	50	90
Laser quality index (% > 99 %)	0	100	100	100	100	100	100
Warning 'Window contaminated' (% > 0)	2	11	95	17	0	0	0

*Courtesy of M. Van Hove*



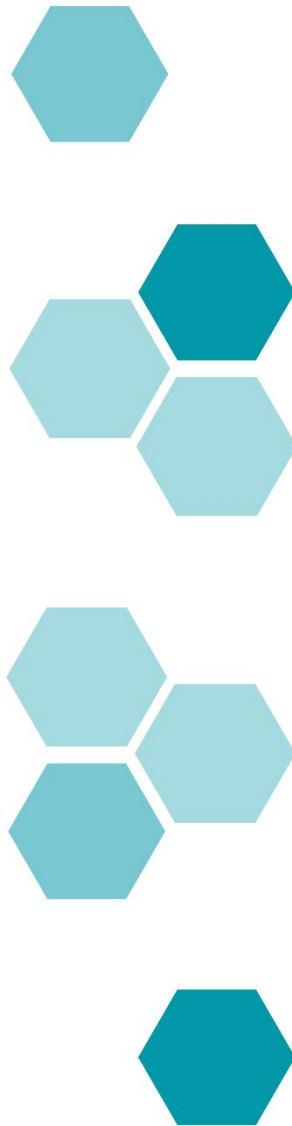
# Conclusions & Perspectives

- **Done**

- Use of the ReOBS tool to evaluate and monitor labelling step 1b
- Use ReOBS files as an input for MWR monitoring (coop. T. Marke)
- ATBD (full documentation) for ReOBS CCRES with all QA/QC information
- POC with ReOBS-CCRES applied on 6/10 NFs
- Development of a monthly report template
- First figures available on <https://ccres.aeris-data.fr/en/data-visualization-monthly/>

- **Perspectives**

- Provide the rest of the template figures for all NFs in step 1b
- Develop new functionalities to go further in the analysis (identification if problem comes from QC1 or QC2 etc...)
- Implementation of a production workflow at Cloudnet
- Define milestones to reach for validating step 1b for a NF







**Thank you**