



ACTRIS

CCRES

Labelling step 1b
ReOBS quality control procedures

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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

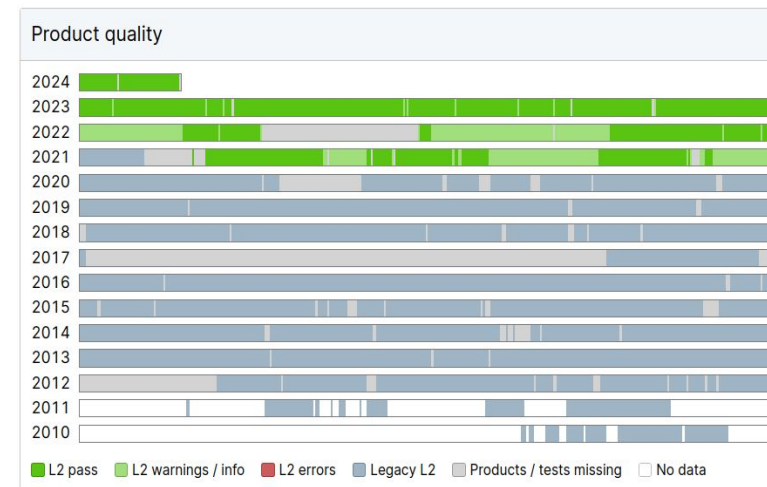
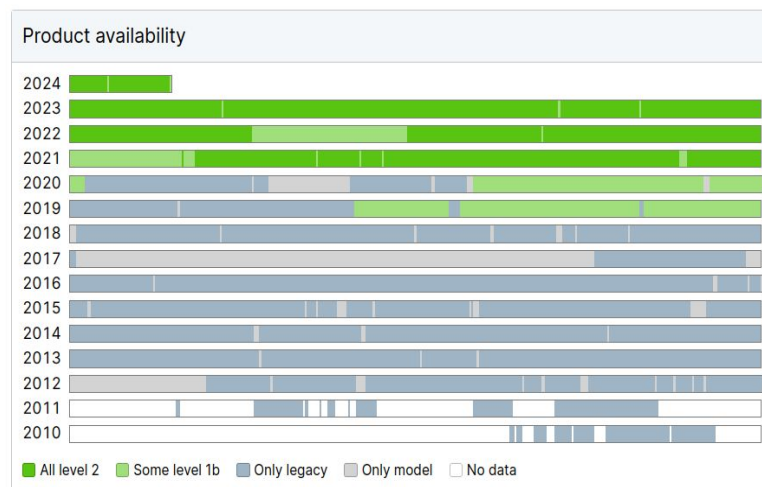
Full label is granted. Signature of ERIC and NF agreement.

- 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 via monthly report**
- Step 1b phase will take **2 years**

How do we proceed for monitoring step 1b ?

- Starting point: using the wealth of information & data available on Cloudnet
- Several levels of informations when it comes to step 1b monitoring:
 - Data availability → instrument-related (reliability, maintenance, ...)
 - Data quality → instrument calibration, setup,...

From cloudnet.fmi.fi



- Use of the **ReOBS** tool:
 - Allows for monitoring step 1b and produce **Monthly Report** for each NF
 - Produce a **.nc file** for end-users : multi-parameter dataset with a **high level of quality control**

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.

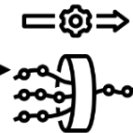
QUALITY CHECKS

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.



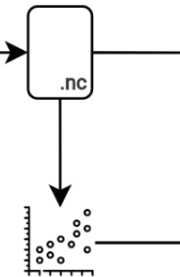
NAMING CONVENTIONS

Applies standard metadata. CF, ACDD and GCMD compliant.



ONE NETCDF FILE

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

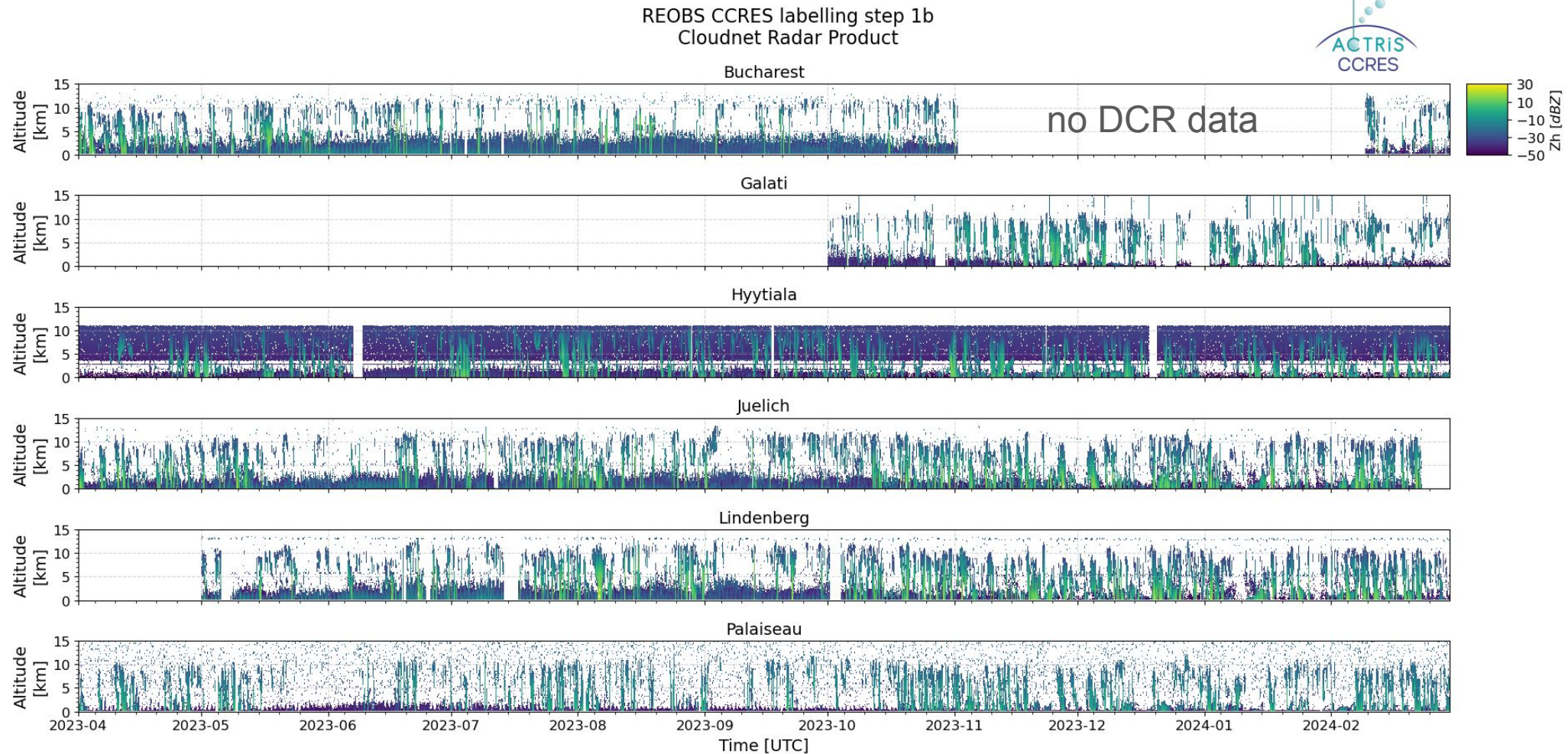


VISUALISATIONS

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

<https://reobs.aeris-data.fr/en/welcome/>

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

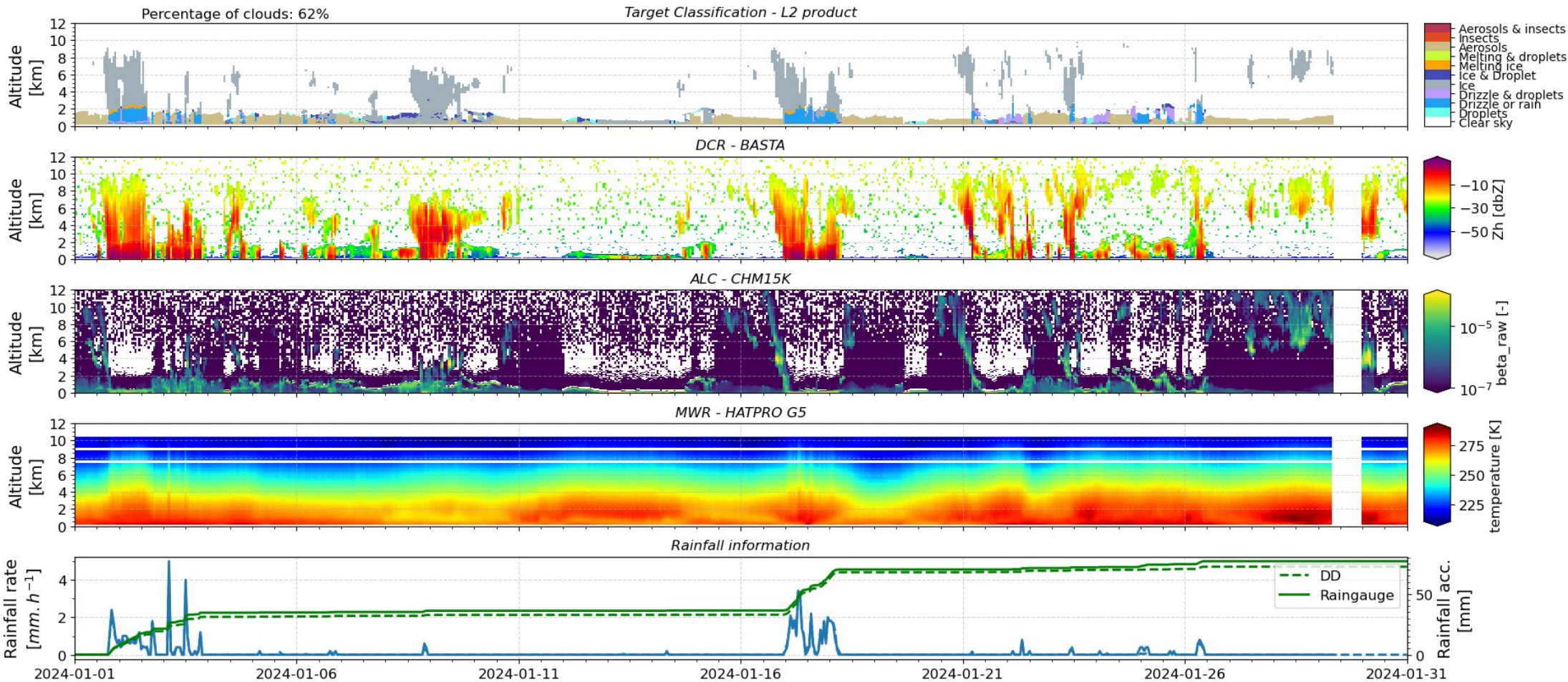


Monitoring step 1b

Monthly report template (1/3)

Overview on the past month

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

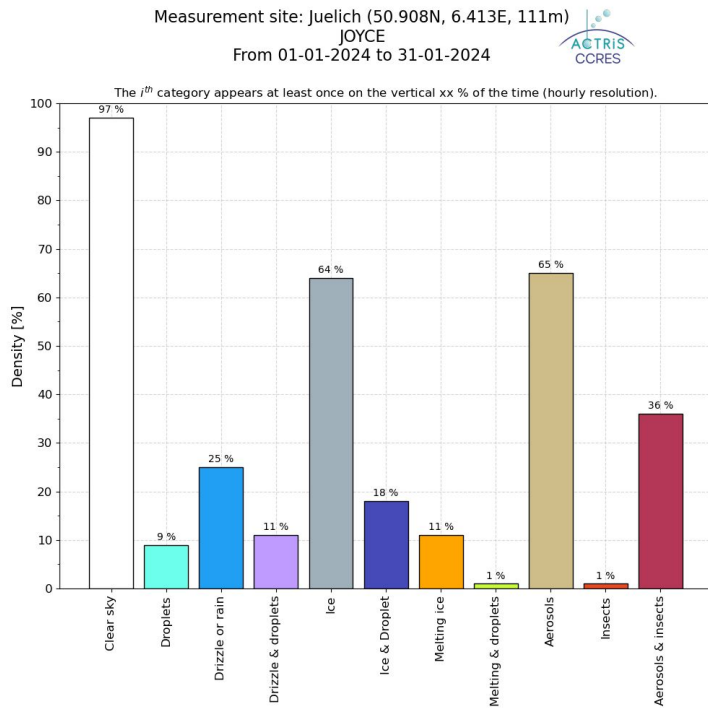


Monitoring step 1b

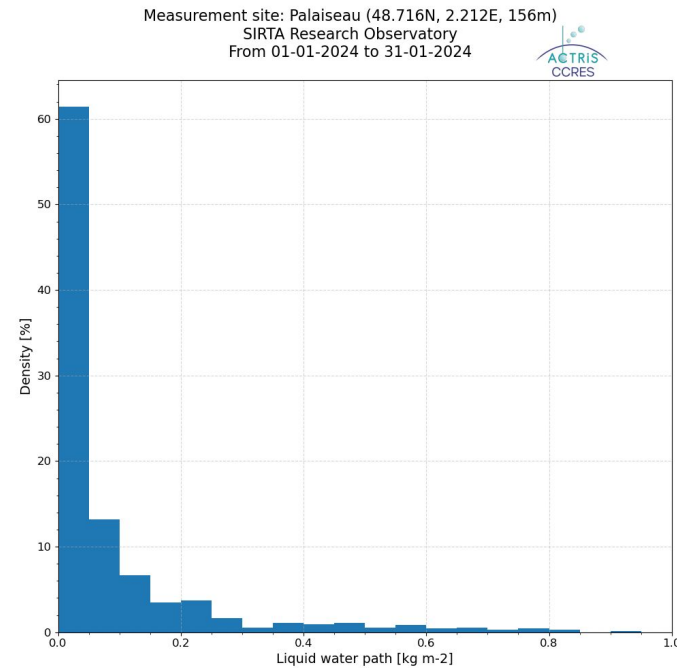
Monthly report template (2/3)

Statistics on the past month

Target classification overview

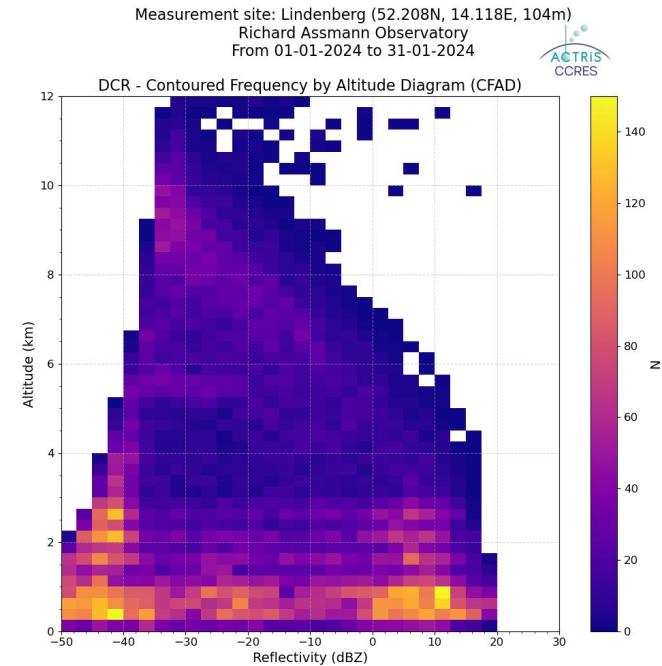


LWP distribution from MWR



*Could be generated for
all 1D variables*

Reflectivity CFAD from DCR



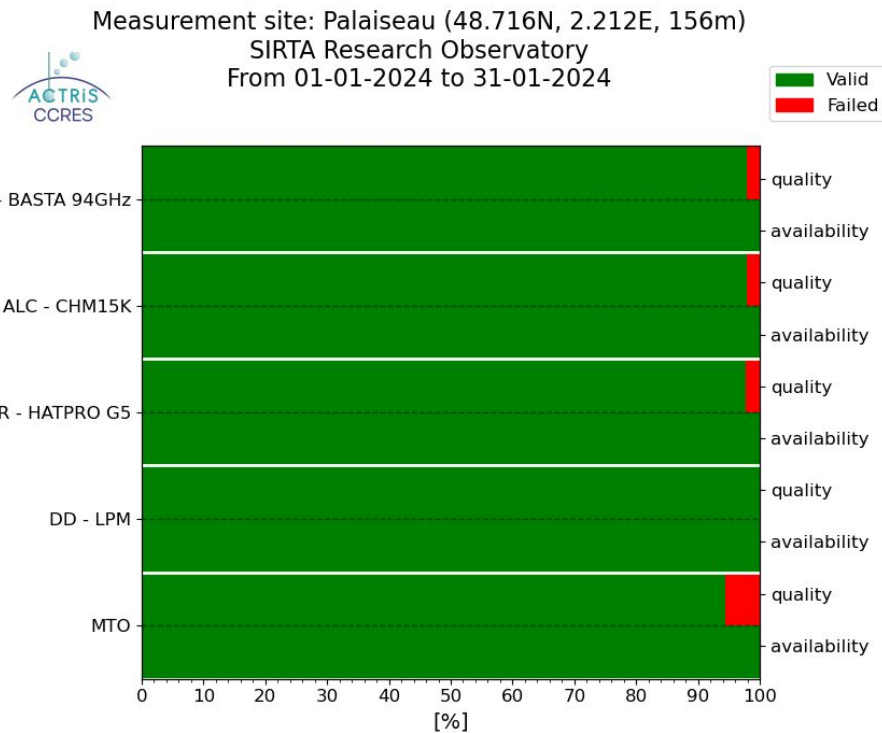
*Could be generated for
all 2D variables*

Monitoring step 1b

Monthly report template (3/3)

Availability: product available on Cloudnet

Quality: product available after ReOBS QC



Measurement site: Palaiseau (48.716N, 2.212E, 156m)
SIRTA Research Observatory
From 01-08-2023 to 31-01-2024



Conclusions



- **What has been developed :**
 - Use of the ReOBS tool to evaluate and monitor labelling step 1b
 - POC with ReOBS-CCRES applied on 6/7 NFs
 - Development of a monthly report template

- **Next steps:**
 - Write ATBD for ReOBS-CCRES with all QA/QC information
 - Develop new functionalities to go further in the analysis (identification if problem comes from QC1 or QC2 etc...)
 - Implementation of a production workflow
 - Distribution of the monthly report to the NF via a new dedicated website

Data Check value	Physical limit QC1		Temporal variability		Sensor uncertainty
	min	max	QC2	QC3 α / γ	
<i>Parameters</i>					
Air temperature z1, z2, <i>airsol</i>	-30°C	50°C	✓	0.25 / 0.22 0.21 / 0.18 0.26 / 0.21	0.2°C
Relative humidity z1, z2, <i>airsol</i>	3%	103%	✓	1.29 / 1.27 1.09 / 1.05 1.26 / 1.13	2%
Precipitation	0mm	5mm/min	X	X	0.1mm
Wind speed z1, z2, <i>airsol</i>	0m/s	40m/s	X	0.26 / 1.50 0.41 / 2.36 0.40 / 1.6	0.2m/s
Wind direction	0°	360°	X	X	1°
Atmospheric pressure, z1, z2, <i>meteoairsol</i>	960hPa	1030hPa	✓	0.14 / 0.20 0.12 / 0.09 0.16 / 0.12	0.1hPa

Table 4. Physical and temporal variability limits for the automatic data check concerning meteorological variables in air. $\alpha + \beta * \gamma$



Thank you