ACTRiS CCRES

Labelling step 1b
ReOBS quality controle 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**

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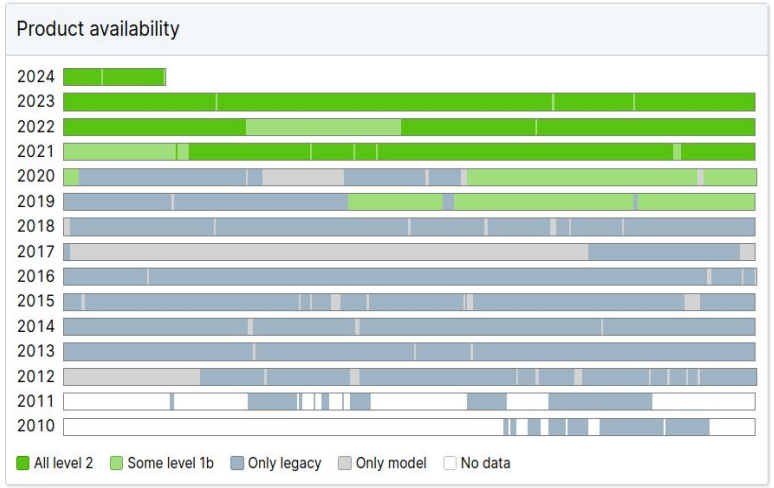
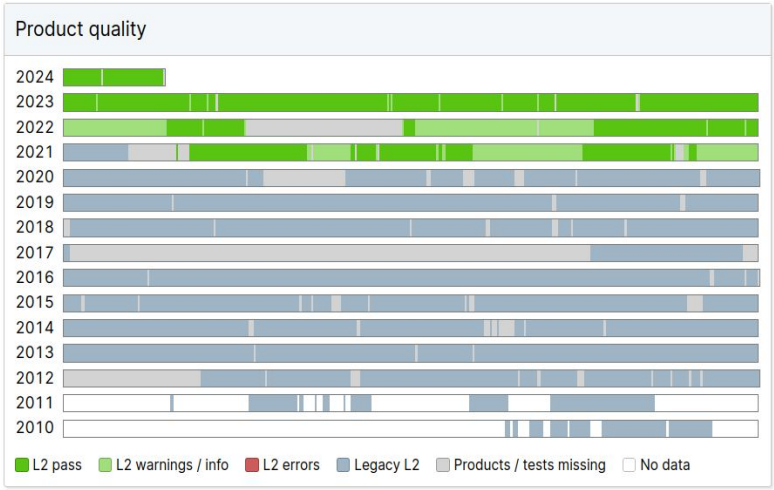
How do we proceed for monitoring step 1b ?

- 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**

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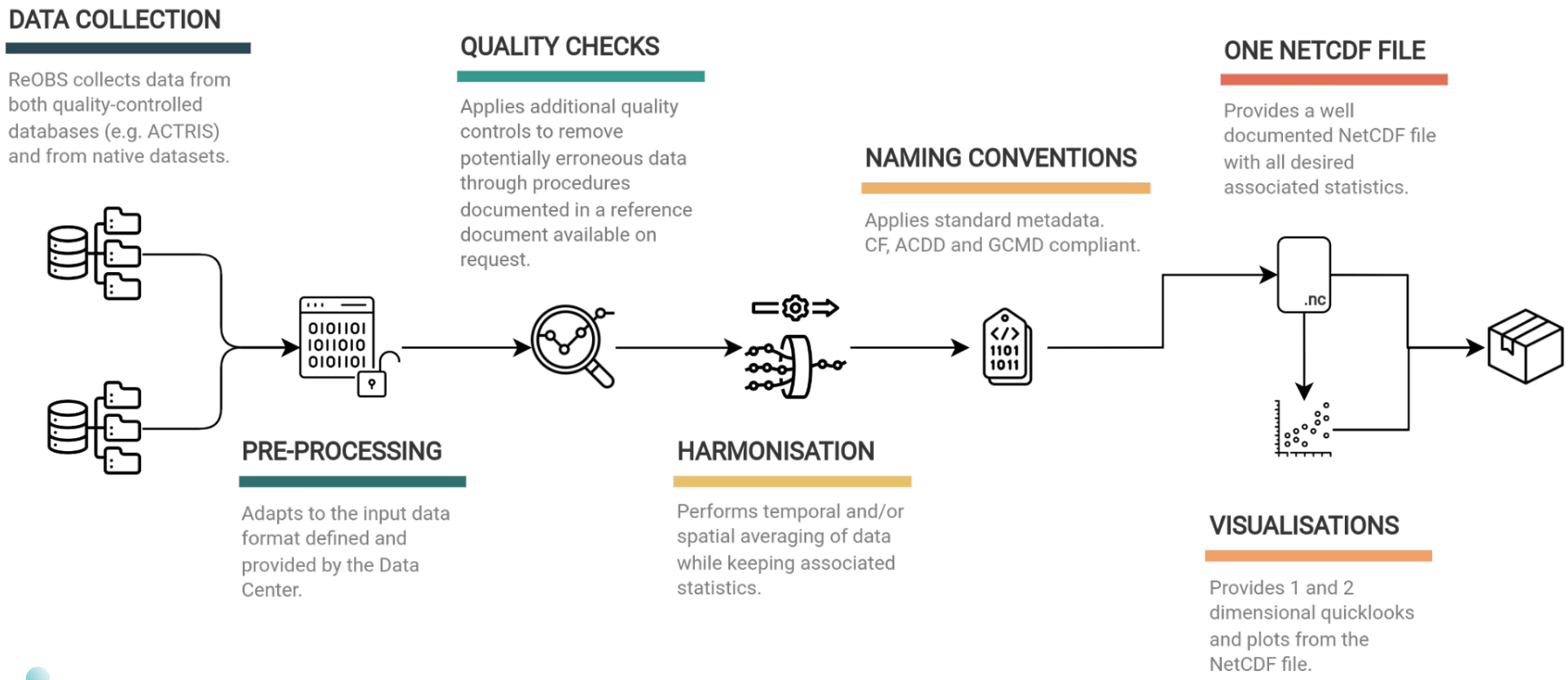
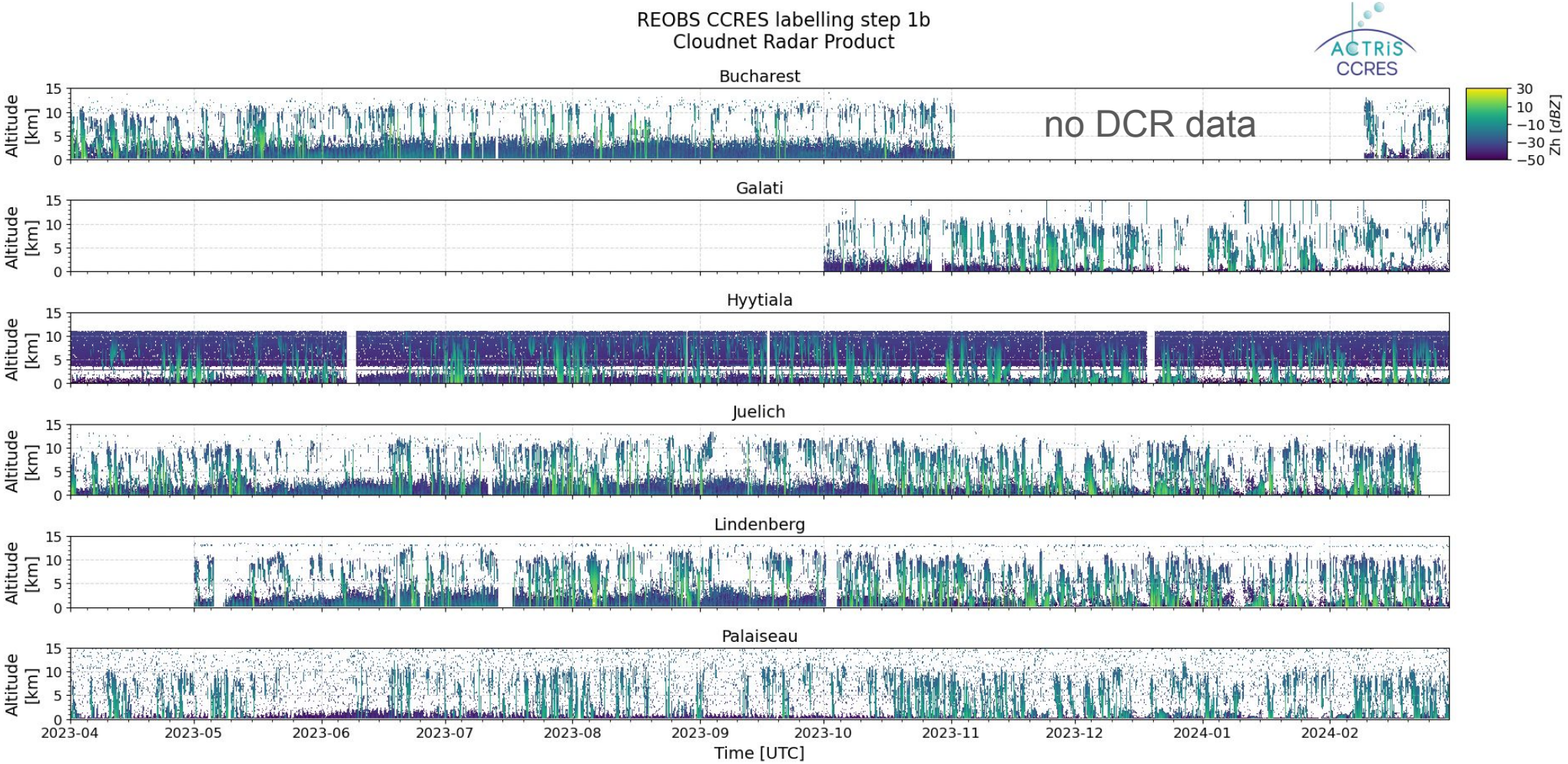
What is ReOBS ? How it works ?

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



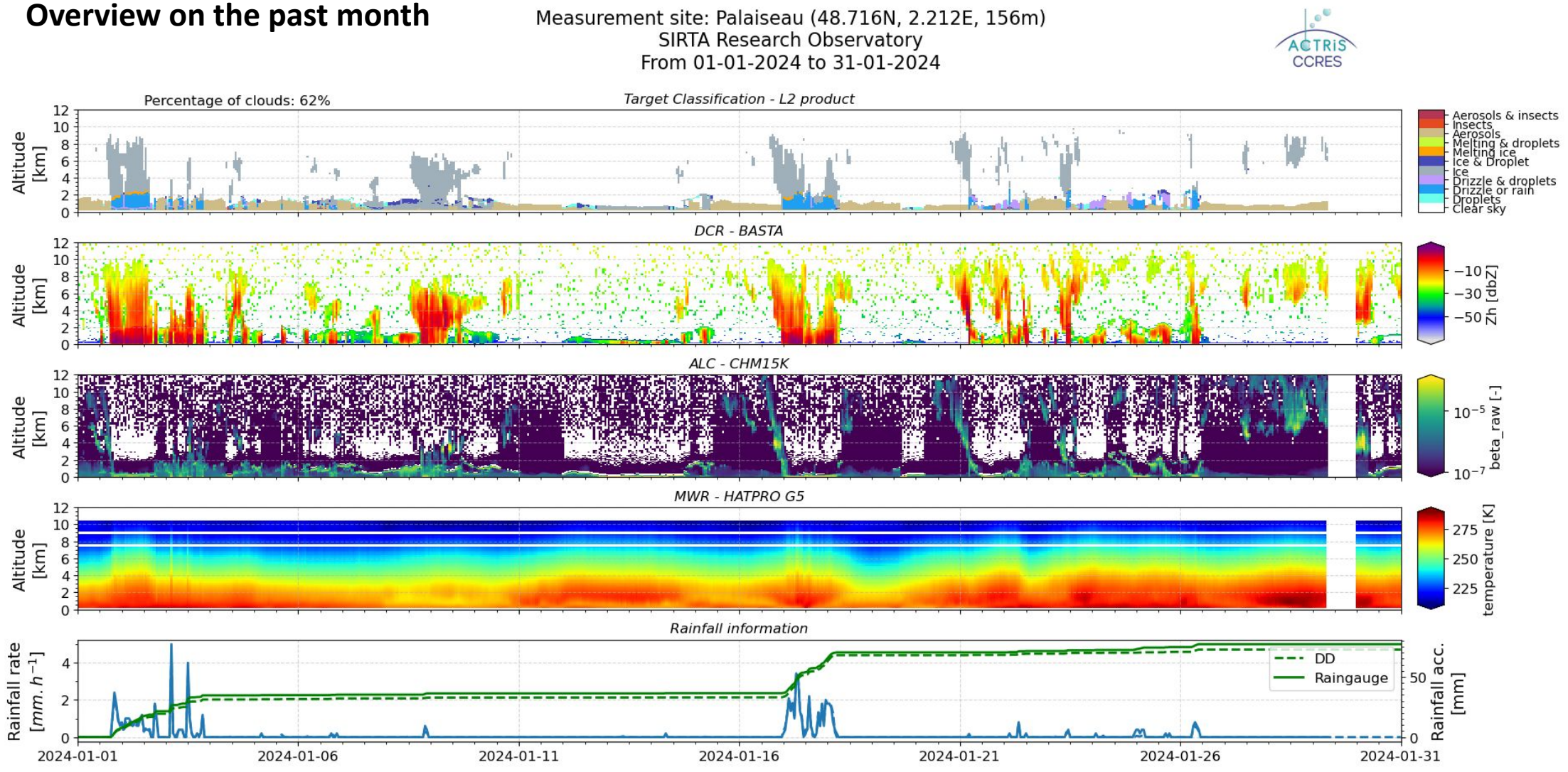
https://reobs.aeris-data.fr/en/welcome/

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)

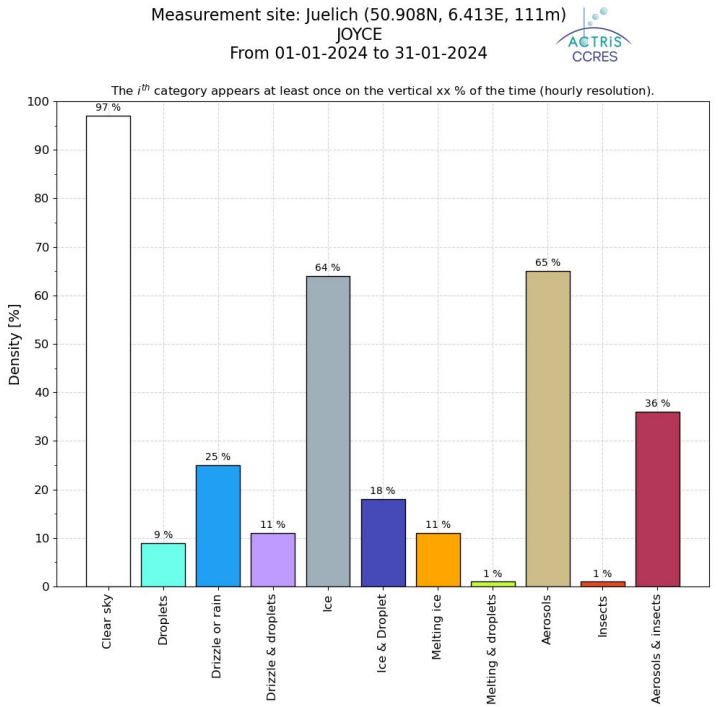
Overview on the past month



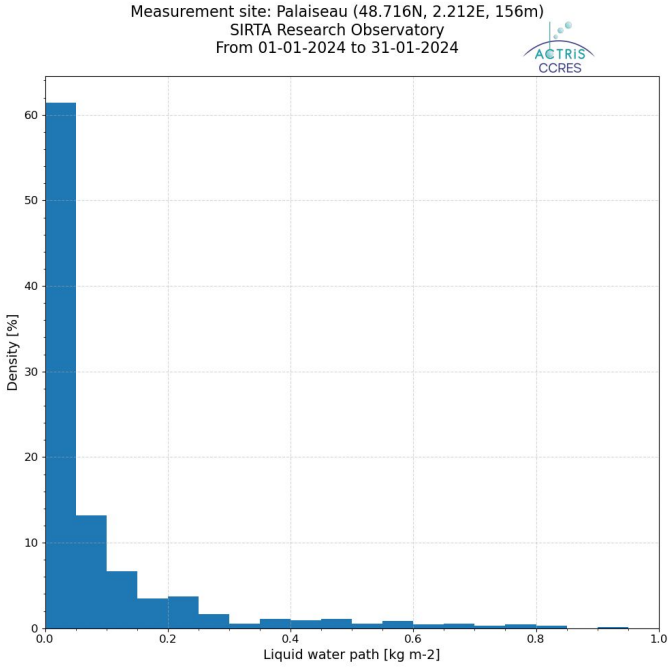
Monitoring step 1b
Monthly report template (2/3)

Statistics on the past month

Target classification overview

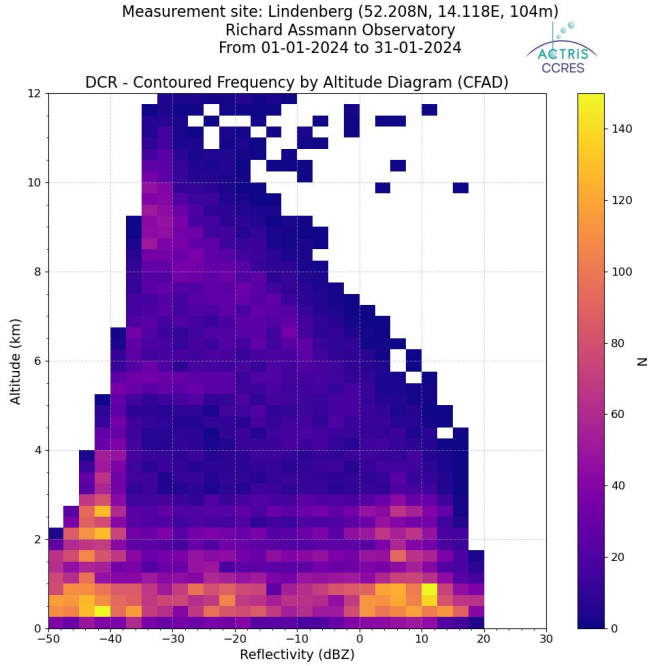


LWP distribution from MWR



Could be generated for all 1D variables

Reflectivity CFAD from DCR

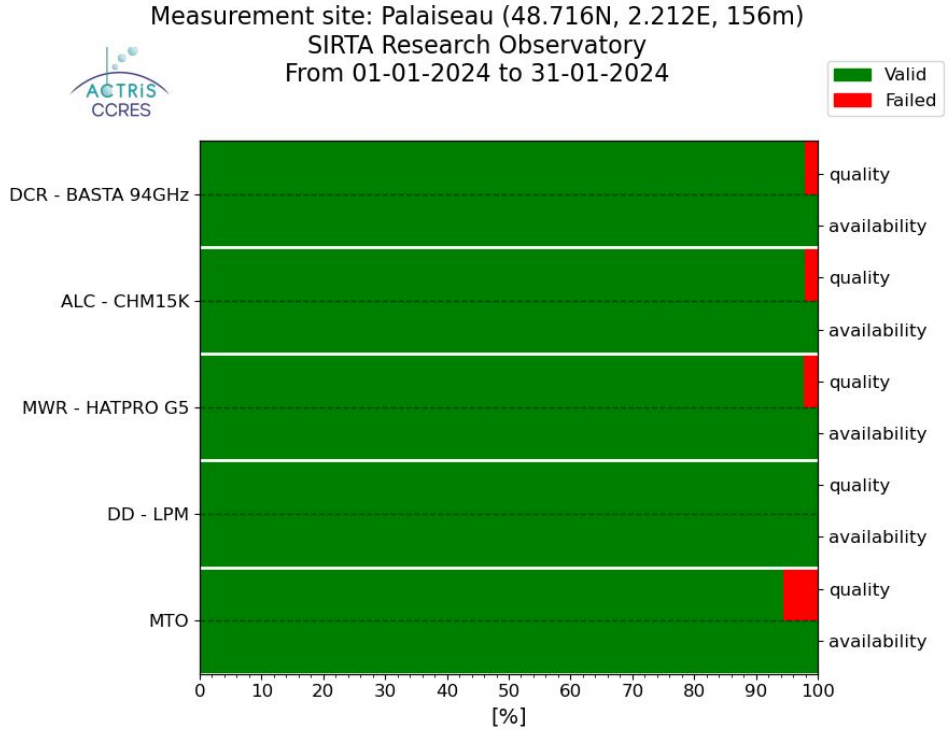


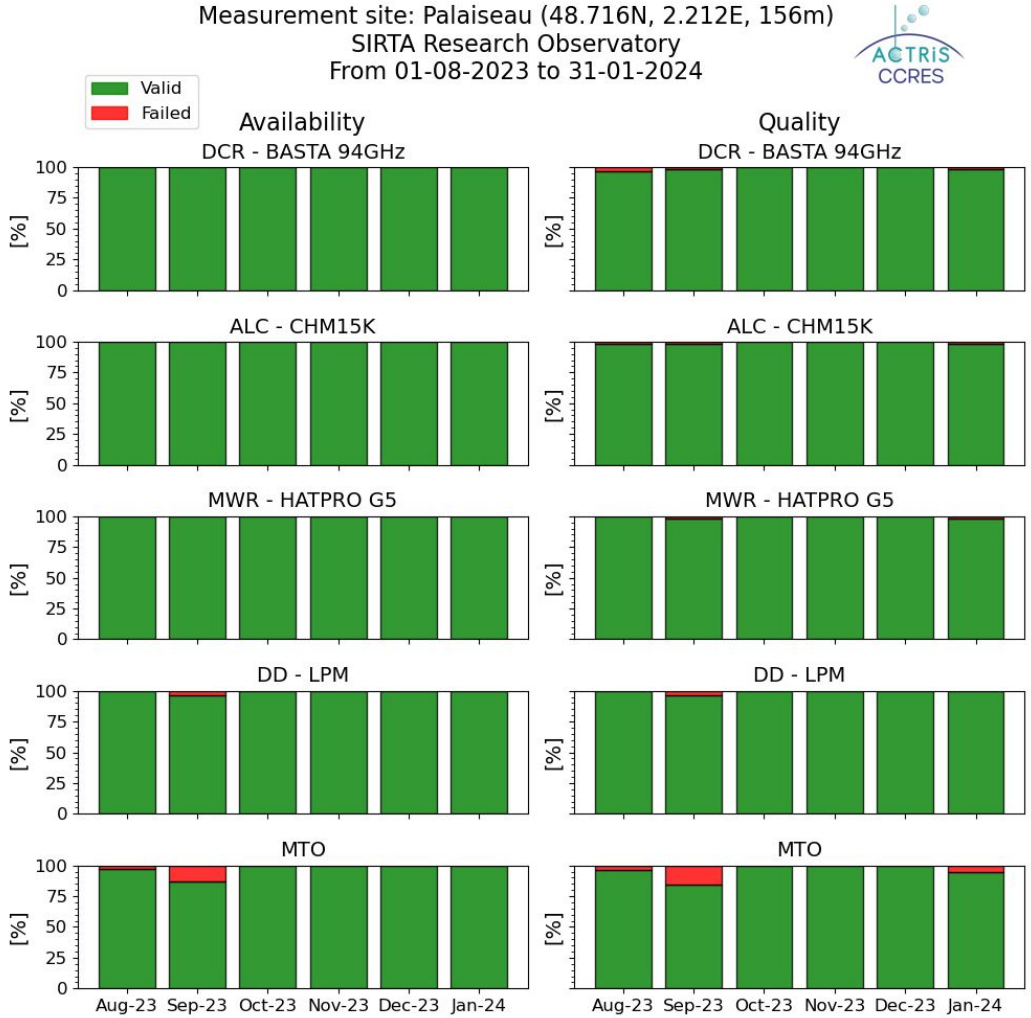
Could be generated for all 2D variables

Monitoring step 1b
Monthly report template (3/3)

Availability: product available on Cloudnet

Quality: product available after ReOBS QC





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
Parameters	min	max	QC2	QC3 α / γ	
Air temperature *z1, z2, airsol*	-30°C	50°C	✓	0.25 / 0.22 0.21 / 0.18 0.26 / 0.21	0.2°C
Relative humidity *z1, z2, airsol*	3%	103%	✓	1.29 / 1.27 1.09 / 1.05 1.26 / 1.13	2%
Precipitation	0mm	5mm/min	✗	✗	0.1mm
Wind speed *z1, z2, airsol*	0m/s	40m/s	✗	0.26 / 1.50 0.41 / 2.36 0.40 / 1.6	0.2m/s
Wind direction	0°	360°	✗	✗	1°
Atmospheric pressure, *z1, z2, meteoairsol*	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. $\alpha + \beta * \gamma$

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Thank you