



Welcome to ACTRIS Cloudnet data portal

The ACTRIS Cloudnet data portal provides a data processing and curation service for ground-based cloud remote sensing measurements. This includes centralised processing, quality control, provenance, data harmonisation and archiving.

The data portal is developed by the Cloud Remote Sensing Data Centre Unit (CLU) as part of the [ACTRIS research infrastructure](#), and is hosted at the [Finnish Meteorological Institute](#).



[CCRES services →](#)



CCRES Workshop CLU updates May 2025

CCRES Workshop, 19 May, 2025

CLU updates

Attenuation corrections



Location

Hyytiälä ×

Show all sites

Date

2024-04-28

Product

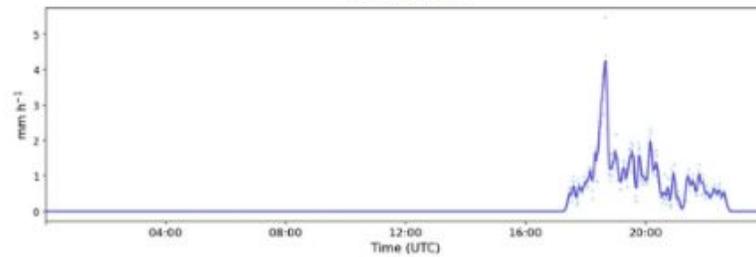
- Disdrometer ×
- Radar ×
- Microwave radiometer ×
- Lidar ×

Visualisations for 28 April 2024

comparison view

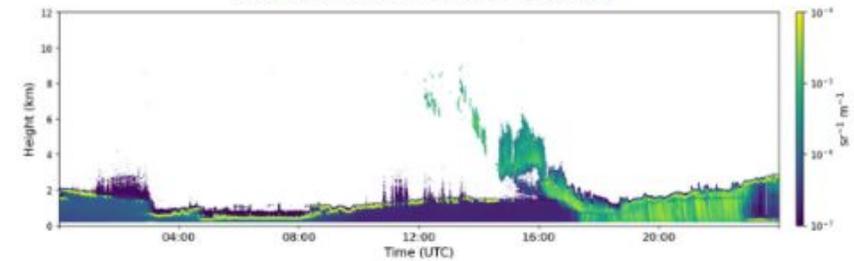
Hyytiälä Parsivel2 disdrometer [Volatile](#)

Rainfall rate



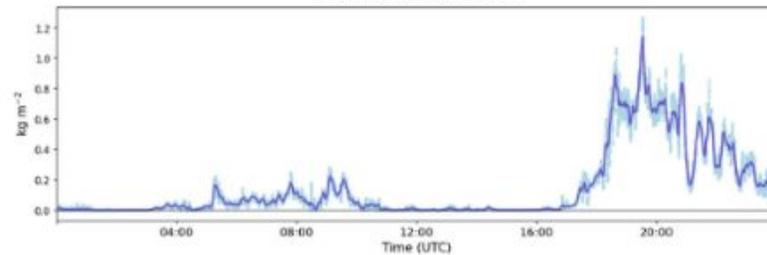
Hyytiälä CL61 ceilometer [Volatile](#)

Attenuated backscatter coefficient



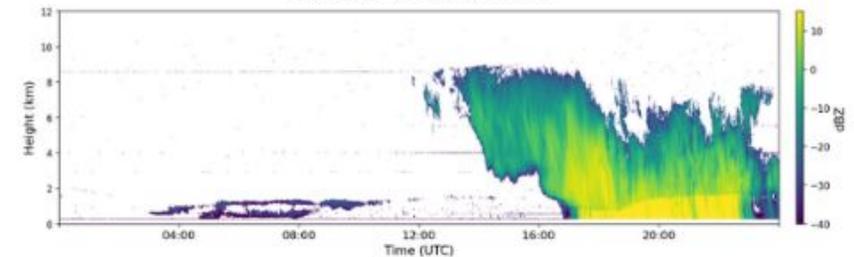
Hyytiälä HATPRO microwave radiometer [Volatile](#)

Liquid water path



Hyytiälä RPG-FMCW-94 cloud radar [Volatile](#)

Radar reflectivity factor



CLU updates

Attenuation corrections



Location

Hyytiälä x

Show all sites

Date

2024-04-28

Product

Classification x

Ice water content x

Show experimental products

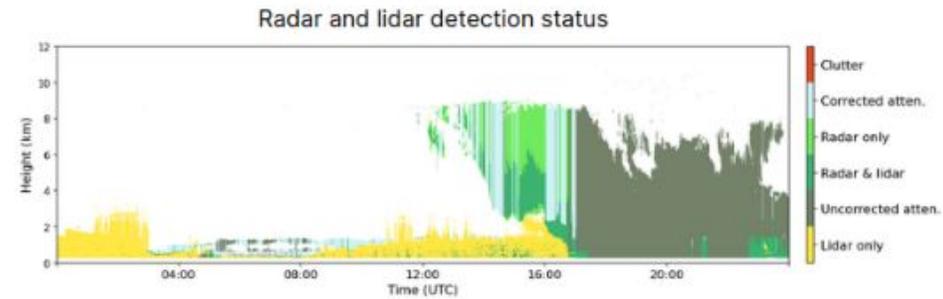
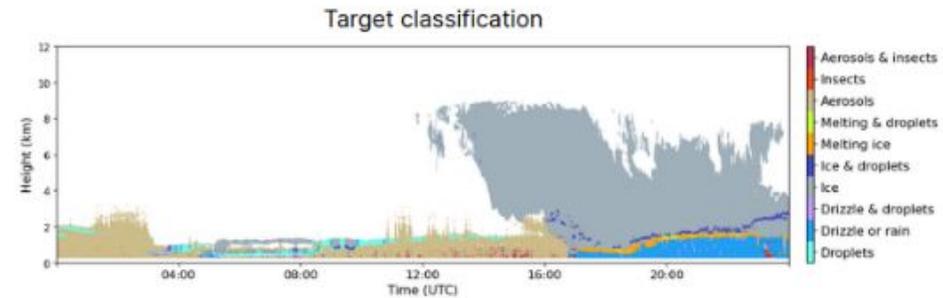
Instrument model

Select

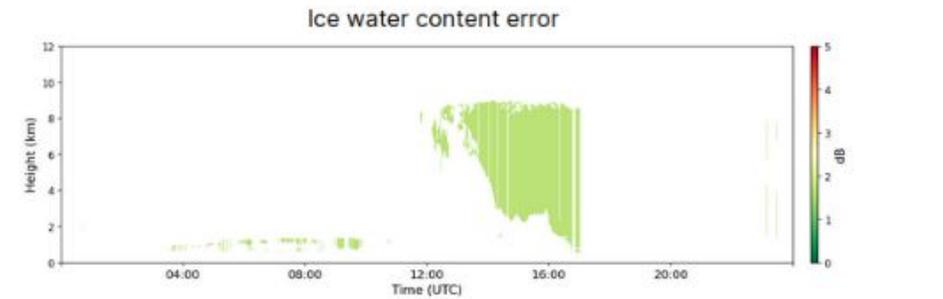
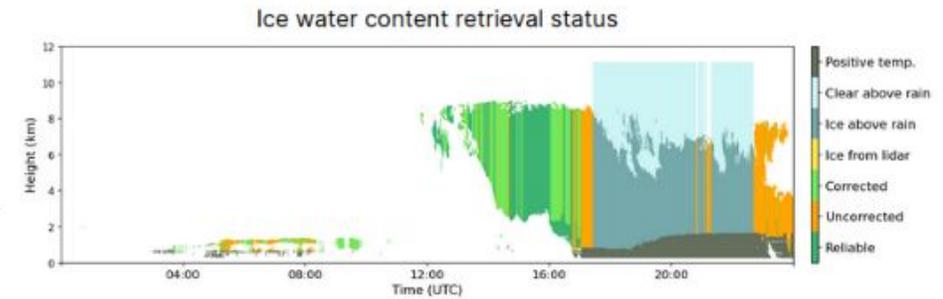
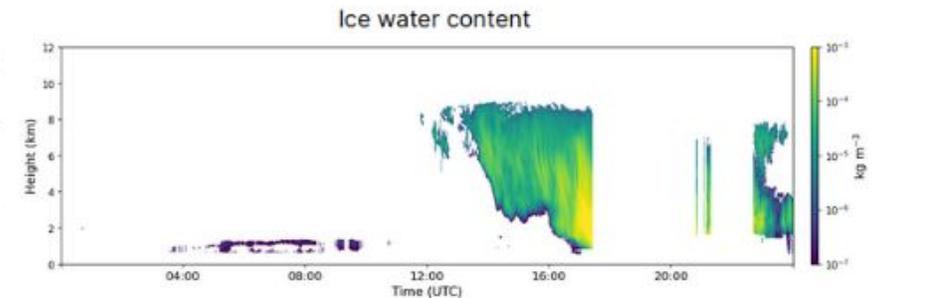
Variable

Visualisations for 28 April 2024

Hyytiälä Classification ☑ Volatile



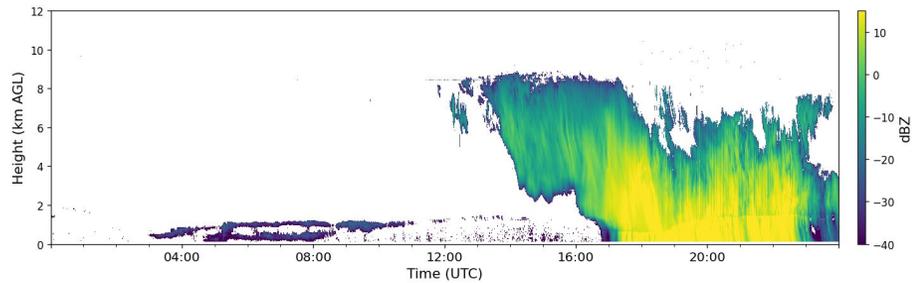
Hyytiälä Ice water content ☑ Volatile comparison view



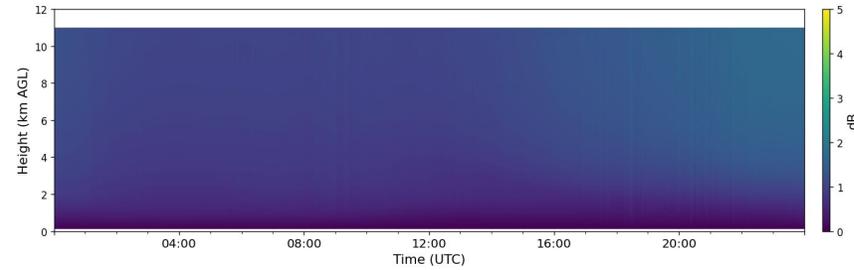
CLU updates

Attenuation corrections

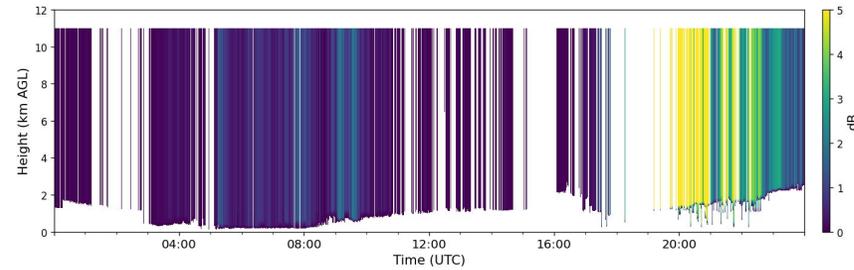
Cloudnet radar data is corrected for **gas** and **liquid water** attenuation. Now, we have initial implementation for **rain** and **melting layer** attenuation.



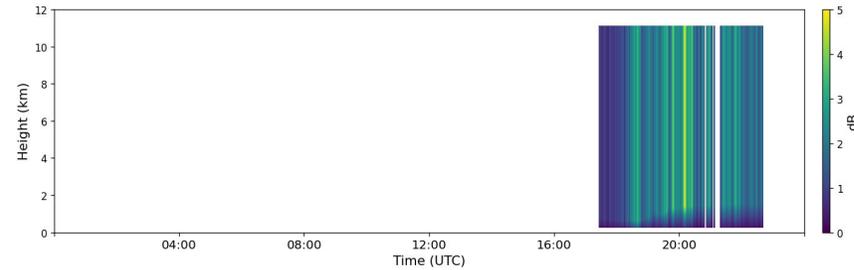
Hyytiälä 2024-04-28



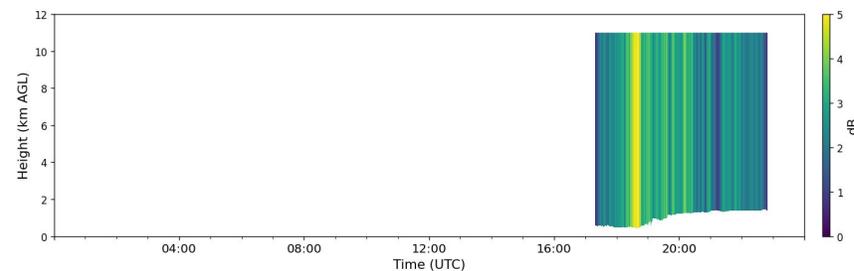
gas



liquid



rain



melting layer

CLU updates

Attenuation corrections



Location

Hyytiälä x

Show all sites

Date

2024-04-28

Product

Classification x

Ice water content x

Show experimental products

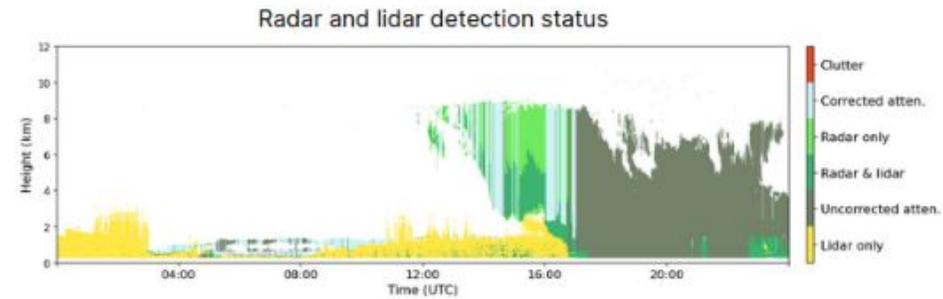
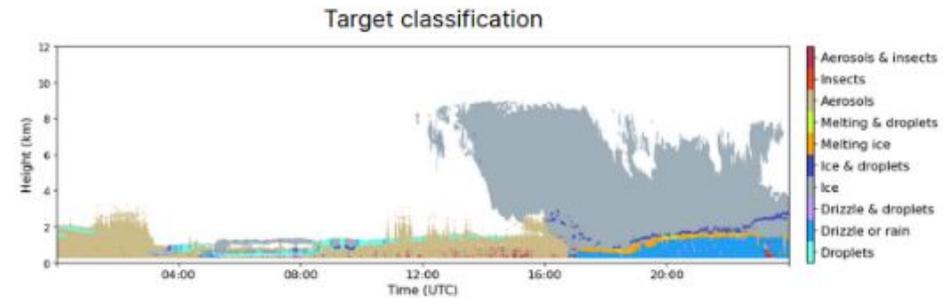
Instrument model

Select

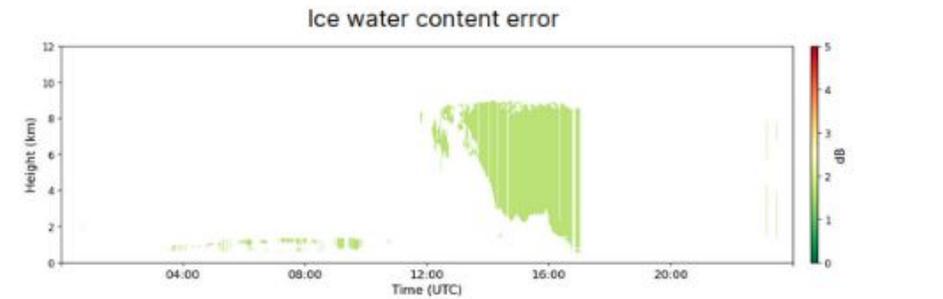
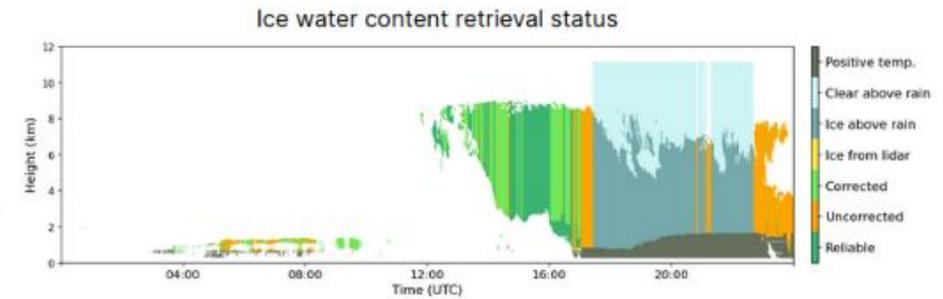
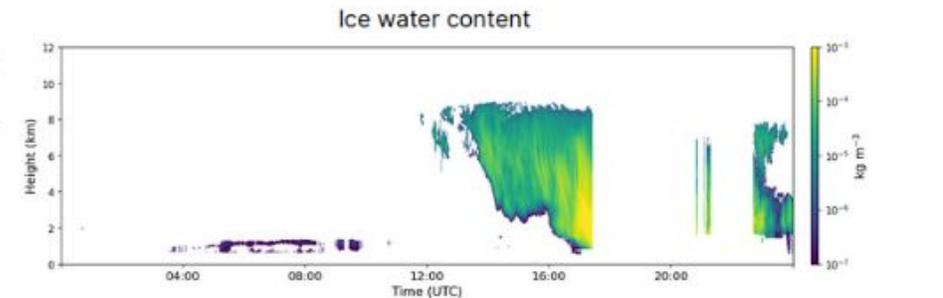
Variable

Visualisations for 28 April 2024

Hyytiälä Classification ☑ Volatile



Hyytiälä Ice water content ☑ Volatile comparison view



CLU updates

Attenuation corrections



Location

Hyytiälä x

Show all sites

Date

2024-04-28

Product

Classification x

Ice water content x

Show experimental products

Instrument model

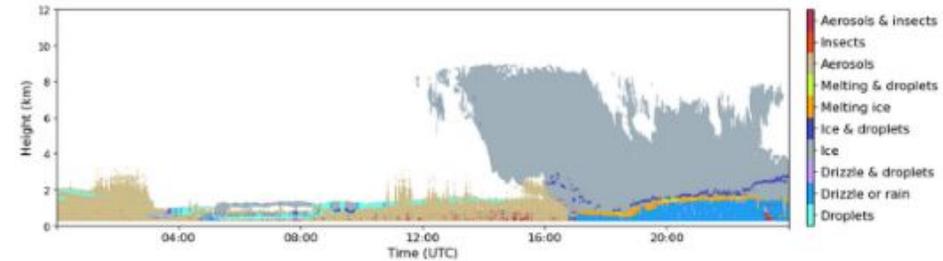
Select

Variable

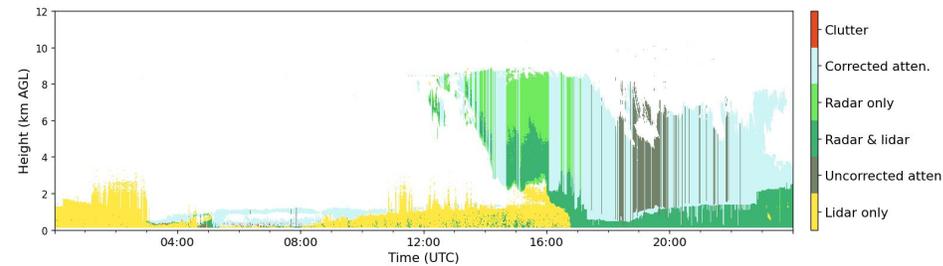
Visualisations for 28 April 2024

Hyytiälä Classification ☑ Volatile

Target classification

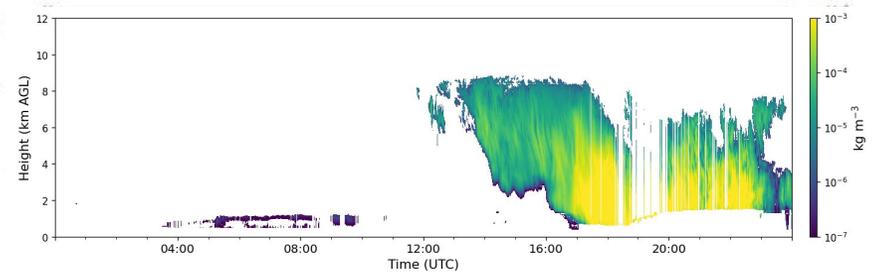


Radar and lidar detection status

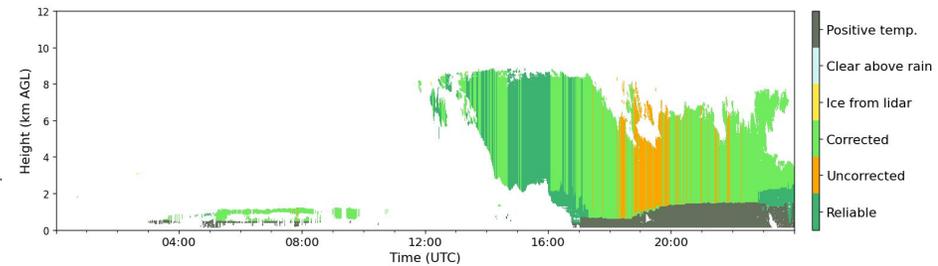


Hyytiälä Ice water content ☑ Volatile

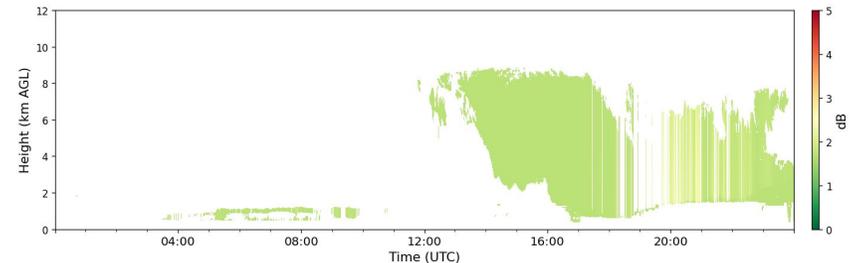
Ice water content



Ice water content retrieval status



Ice water content error



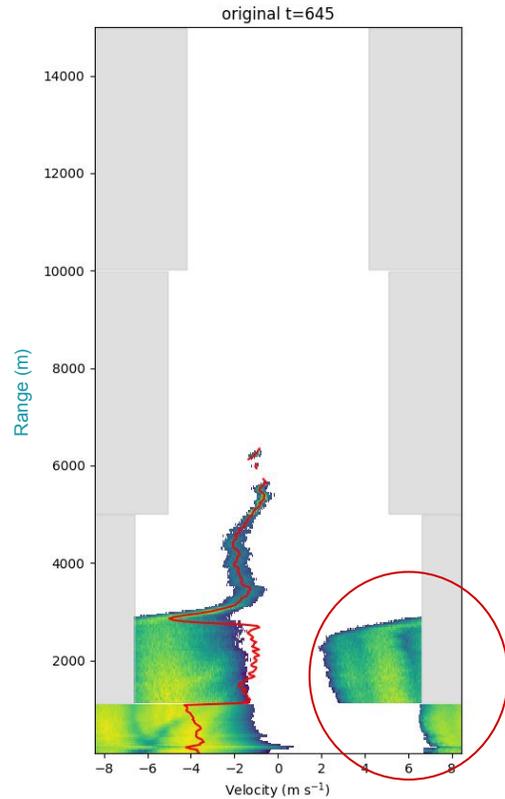
comparison view

CLU updates

Velocity unfolding

RPG-FMCW-94

Doppler spectra with mean velocity



folding!

Chirp 4: $v_{ny} = 4.1 \text{ m s}^{-1}$

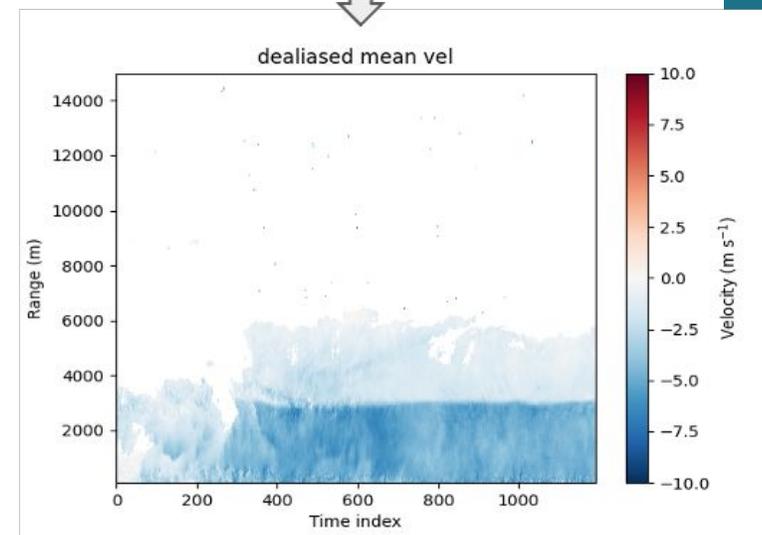
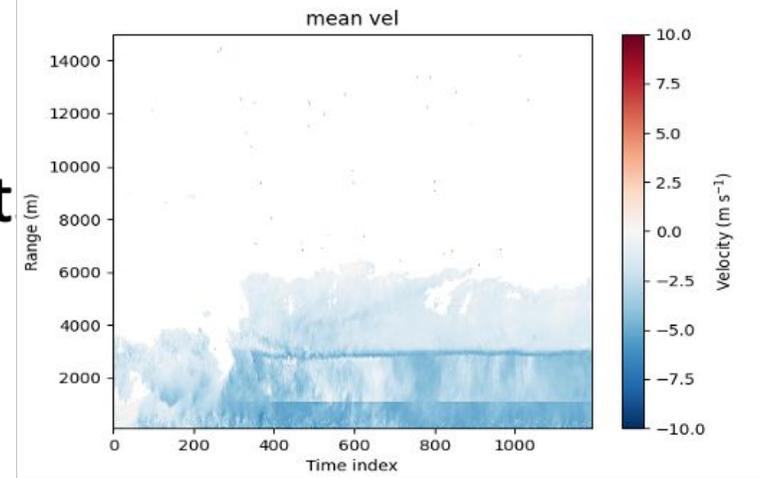
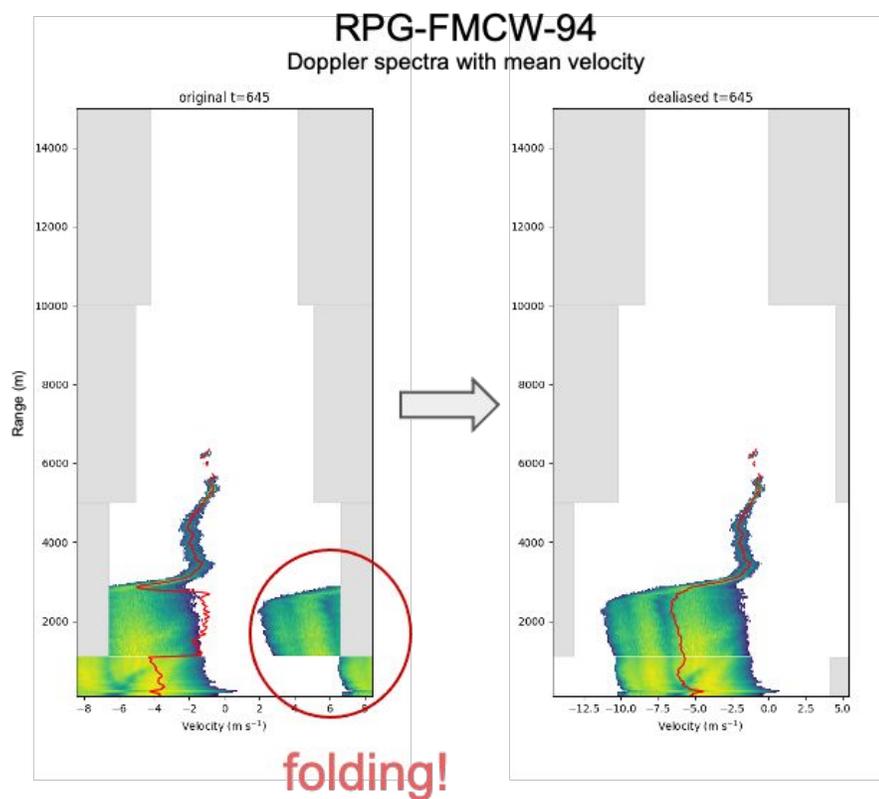
Chirp 3: $v_{ny} = 4.9 \text{ m s}^{-1}$

Chirp 2: $v_{ny} = 6.1 \text{ m s}^{-1}$

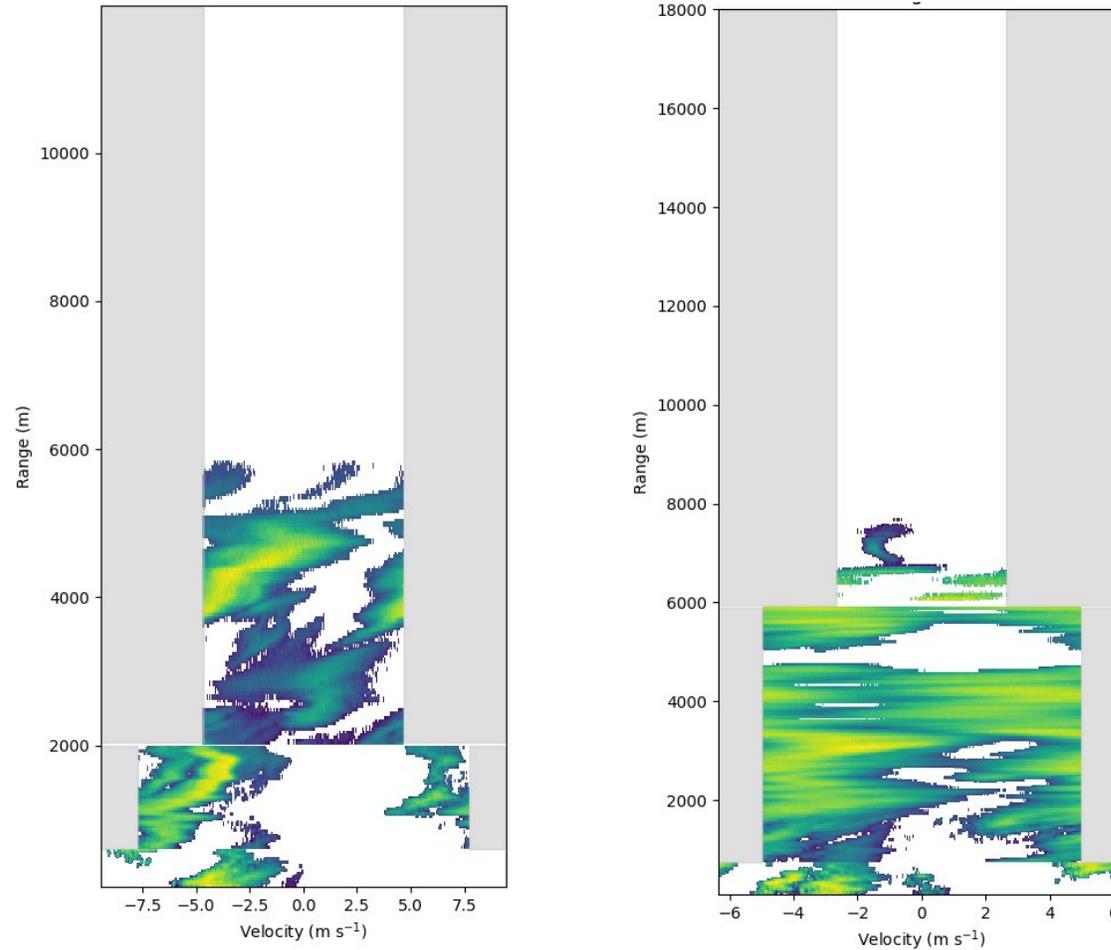
Chirp 1: $v_{ny} = 8.4 \text{ m s}^{-1}$

CLU updates Velocity unfolding

Folding in ground-based measurement



Folding: tricky cases



Next steps

- Implement operational dealiasing method for ground-based radar measurements – with status flags
- Validate attenuation corrections, including radome
- Need to evaluate at stations with multi-frequency radar
 - Will ask for volunteers!

NWP model data

More NWP models will become available

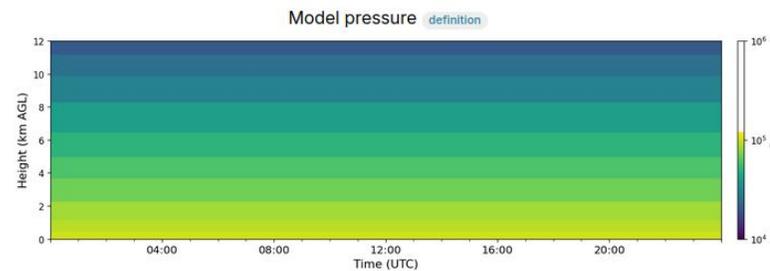
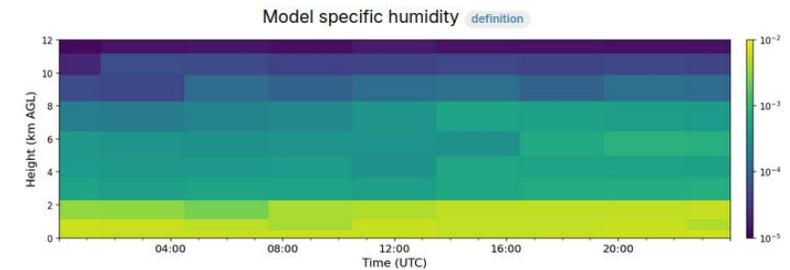
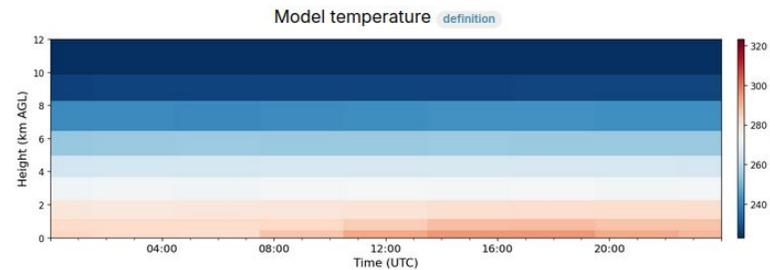
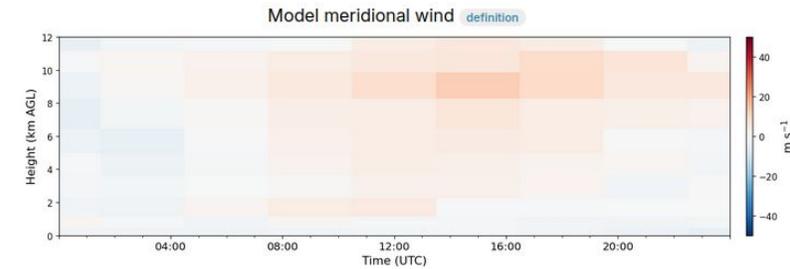
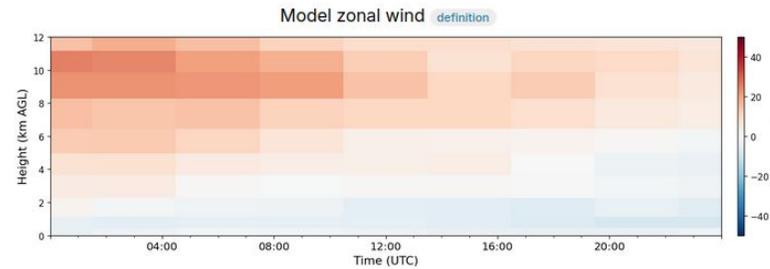
default: IFS

IFS (open data) is quick to access and ensures RRT.

Not all fields, low resolution

Palaiseau **ACTRIS** **Cloudnet**
Measurement station in France

[Summary](#) [Products](#)



[View in visualisation search](#)

Instrument log book

Instruments

[Logbook](#) [Edit](#) [JSON](#) [XML](#) [Log out](#)

FMI CL61-B

PID

<https://hdl.handle.net/21.12132/3.f33e53dddde44495>

OWNER

Finnish Meteorological Institute (FMI) 

MANUFACTURER

Vaisala Oyj 

MODEL

Vaisala CL61

INSTRUMENT TYPE

[depolarisation lidar](#) [ceilometer](#)

MEASURED VARIABLES

- [volume linear depolarisation ratio](#)
- [attenuated backscatter coefficient](#)

LOCATION

2021-07-14 – now [Kenttäröva](#)

PRINCIPAL INVESTIGATOR

2021-07-14 – now [Ewan O'Connor](#)



SERIAL NUMBER

T2520357

CITATION

O'Connor, E. (2025). FMI CL61-B. ACTRIS Cloud remote sensing data centre unit (CLU). <https://hdl.handle.net/21.12132/3.f33e53dddde44495>

If you notice any incorrect or outdated information, please send email to actris-cloudnet@fmi.fi.



Photo: Niko Leskinen, 2023

Instruments » FMI CL61-B

[Add entry](#) [Log out](#)

Logbook

Dec. 19, 2024 – viet

[edit](#) [delete](#)

Calibration hood: Henri

Date on: 2024-12-18

Time on: 12:12 UTC (14:12 EEST)

Date off: 2024-12-19

Time off: 09:27 UTC (11:27 EEST)

Aug. 14, 2024 – ewan

[edit](#) [delete](#)

Calibration hood: Eija Asmi

Date on: 2024-08-14

Time on: 11:34 UTC (14:34 EEST)

Date off: 2024-08-14

Time off: 12:41 UTC (15:41 EEST)

July 25, 2024 – ewan

[edit](#) [delete](#)

Lightning strike hit the tower on 25th July 2024.

June 14, 2024 – niko

[edit](#) [delete](#)

Hat calibration (German):

Hat on: 2024-06-14 11.47 UTC (14.47 EEST)

Hat off: 2024-06-14 14.50 UTC (17.50 EEST)

March 5, 2024 – niko

[edit](#) [delete](#)

Hat calibration (in colder temperature)

Hat on: 2024-03-05 13.10 UTC (15.10 EET)

Hat off: 2024-03-06 10.43 UTC (12.43 EET)

March 4, 2024 – niko

[edit](#) [delete](#)

Hat calibration:

CLU updates

- Client library written in Python

The screenshot shows the GitHub repository page for 'cloudnet-api-client'. At the top, there are tabs for 'README' and 'MIT license'. Below the repository name, there are status indicators: 'Run tests passing', 'pypi package 0.5.1', and '+ 10 releases'. The main heading is 'Cloudnet API client', followed by the description 'Official Python client for the Cloudnet data portal API.' The 'Installation' section contains the command: `python3 -m pip install cloudnet-api-client`. The 'Quickstart' section shows a code snippet for using the `APIClient` class. The 'Documentation' section is partially visible at the bottom.

```
from cloudnet_api_client import APIClient

client = APIClient()

sites = client.sites(type="cloudnet")
products = client.products()

metadata = client.metadata("hyytiala", "2021-01-01", product=["mwr", "radar"])
client.download(metadata, "data/")

raw_metadata = client.raw_metadata("granada", date="2024-01", instrument_id="parsivel")
client.download(raw_metadata, "data_raw/")
```

The screenshot shows the 'Documentation' page for the 'cloudnet-api-client' library. It features a heading 'Documentation' and a sub-heading '`APIClient().metadata()` and `raw_metadata()` → `list[Metadata]`'. Below this, it states 'Fetch product and raw file metadata from the Cloudnet data portal.' and 'Parameters:'. A table lists the parameters with their names, types, default values, and examples. At the bottom, there is a note: '* = only in .metadata()'.

name	type	default	example
site_id	str		"hyytiala"
date	str OR date	None	"2024-01-01"
date_from	str OR date	None	"2025-01-01"
date_to	str OR date	None	"2025-01-01"
updated_at	str, date OR datetime	None	"2025-01-01T12:00:00"
updated_at_from	str, date OR datetime	None	"2025-01-01T12:00:00"
updated_at_to	str, date OR datetime	None	"2025-01-01T12:00:00"
instrument_id	str OR list[str]	None	"rpg-fmcw-94"
instrument_pid	str OR list[str]	None	"https://hdl.handle.net/21.12132/3.191564170f8a4686"
product*	str OR list[str]	None	"classification"
show_legacy*	bool	False	
filename_prefix**	str OR list[str]	None	"stare"
filename_suffix**	str OR list[str]	None	".lv1"
status**	str OR list[str]	None	"created", "uploaded", "processed" or "invalid"

* = only in .metadata()

CLU updates

- Client library written in Python
- Data coverage in JSON metadata - for help in labelling process

```
JSON  Raw Data  Headers
Save  Copy  Collapse All  Expand All  Filter JSON
uuid: "a871bac7-7c86-44ea-985c-4d3ddd396f3a"
version: ""
pid: "https://hdl.handle.net/21.12132/1.a871bac77c8644ea"
dvasId: null
volatile: true
tombstoneReason: null
legacy: false
measurementDate: "2025-04-09"
▼ checksum: "8d1cb5c8732ccdbf008983fbc3367d0eddbc086aee7e76a6b005f3536212cb88"
size: "9515893"
coverage: 0.85520834
format: "HDF5 (HDF4)"
errorLevel: "info"
createdAt: "2025-04-09T01:25:19.623Z"
updatedAt: "2025-04-10T04:57:55.413Z"
dvasUpdatedAt: null
startTime: "2025-04-09T00:00:15.000Z"
stopTime: "2025-04-09T23:59:44.000Z"
instrumentPid: null
▼ site:
```

CLU updates

● New stations

Maïdo Observatory

ACTRIS

Cloudnet

Measurement station in Réunion

[Summary](#)

The Maïdo Observatory is located on a 2200-meter-high su Réunion island, inside a national park. It is under the direct i ing from the west-northwest downhill slope, partially coverec

Instruments

The site has submitted data from the following instruments ir

[LACy BASTA Doppler non-scanning cloud radar](#)

[OSU CS135 lidar ceilometer](#)

[OSU HATPRO-G5 scanning microwave radiometer](#)

Links

- [La Réunion - Maïdo atmospheric observatory in ACTRIS de](#)
- [OPAR Observatoire de Physique de l'Atmosphère à La I database](#)
- [RUN in GAW Station Information System](#)

Troll Station

Campaign

Measurement station in Antarctica

[Summary](#)

[Products](#)

Troll research station in Jutulsessen in Antarctica is the base and starting point for biological, glaciological and geological field work during the summer season, and is a full-year base for continuous, long-term monitoring series in meteorology, radiation, atmosphere, upper atmosphere, environmental toxins and seismology.

Troll is located around 235 km from the coast in Dronning Maud Land, a central area for Norwegian research in Antarctica. It is unusually located on the slope between the coast and the interior plateau.

The station is manned year round. It can accommodate six people in the Antarctic winter and many more in summer.

Intensive cloud monitoring at the station started in the southern summer 2024–25. Other atmospheric monitoring goes back many years.

Instruments

The site has submitted data from the following instruments in the last 30 days:

[NPI CL61 depolarisation lidar ceilometer](#)

[NPI LHATPRO-G5 microwave radiometer](#)

[NPI RPG-FMCW-35-DP Doppler non-scanning cloud radar](#)

Links

- [Troll in ACTRIS data portal](#)



Coordinates
72.01°S, 2.545°E

Altitude
1320 m a.s.l.