



Cloud Remote Sensing Data Centre - CLU

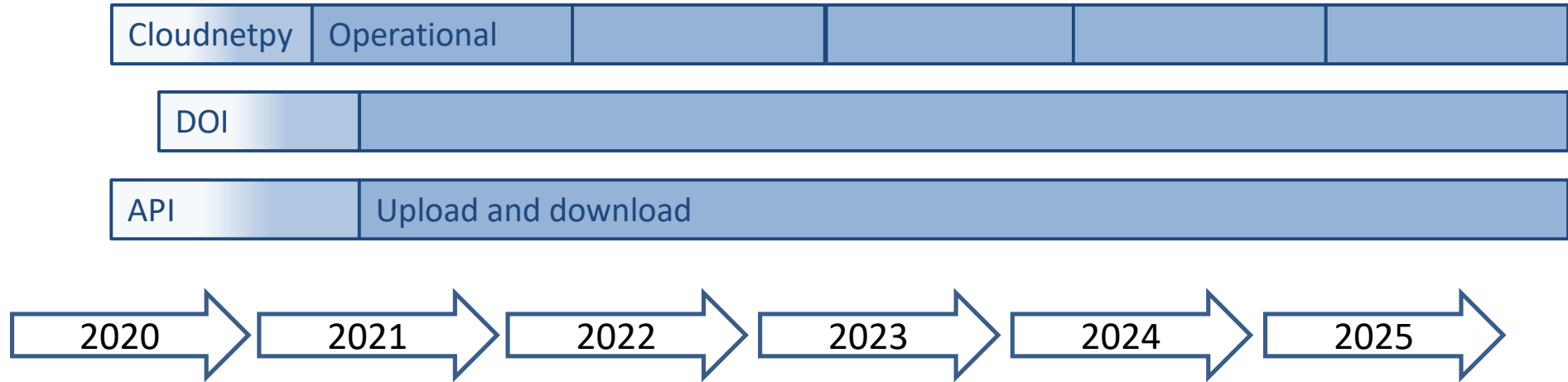
Ewan O'Connor, Simo Tukiainen, Tuomas
Siipola, Niko Leskinen
Lauri Kangassalo, Anniina Korpinen

CLU Data Centre – timeline

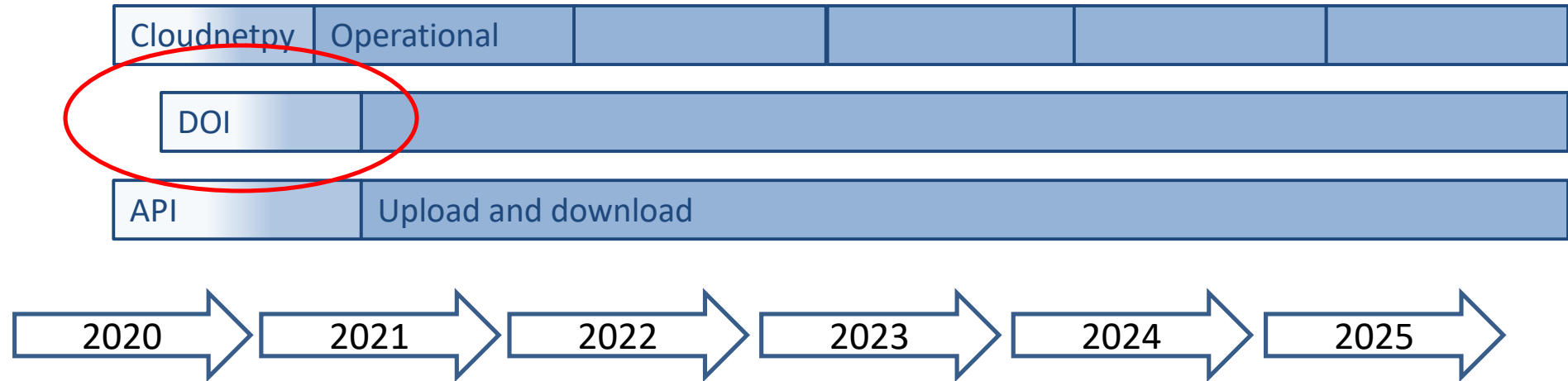


- Cloudnetpy
- New data transfer
- DOI – data service
- Calibration APIs
 - Radar
 - ALC
 - MWR
 - DL
 - disdrometer

CLU: timeline




CLU: timeline





- All data objects have PIDs (persistent identifier)
 - Includes processing software
 - Track data through processing chain
 - Provenance
 - Version control
 - Landing page
 - Citation (including collections)
- DOI is very similar - in progress

Landing page




< Cloudnet data object
Categorize data from Bucharest on 1 January 2021.

How to cite License Download file 

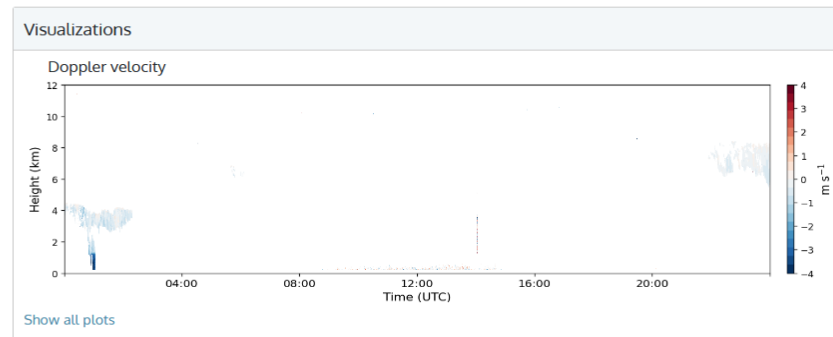
File information	Product information	Site information
PID: https://hdl.handle.net/21.12132/1.1388ac7e6110433a	Product:  Categorize	Location: Bucharest, Romania
Filename: 20210101_bucharest_categorize.nc	Level: 1c	Coordinates: 44.348° N, 26.029° E
Format: HDF5 (NetCDF4)	Quality: Near Real Time (NRT)	Site altitude: 93 m
Size: 5443026 bytes (5.2 MB)	Quality check: <input checked="" type="checkbox"/> Pass.	
Hash (SHA-256): 8e97916ebfd5854c23961448df4c536174d403576434a158e22d55d815d5fe7c	Software version: CloudnetPy 1.27.3 	
Last modified: 2021-12-17 10:39:42 UTC	Data from: 2021-01-01	
Versions: previous		

History

This file was generated using the following files:

-  Radar
-  Lidar
-  Model

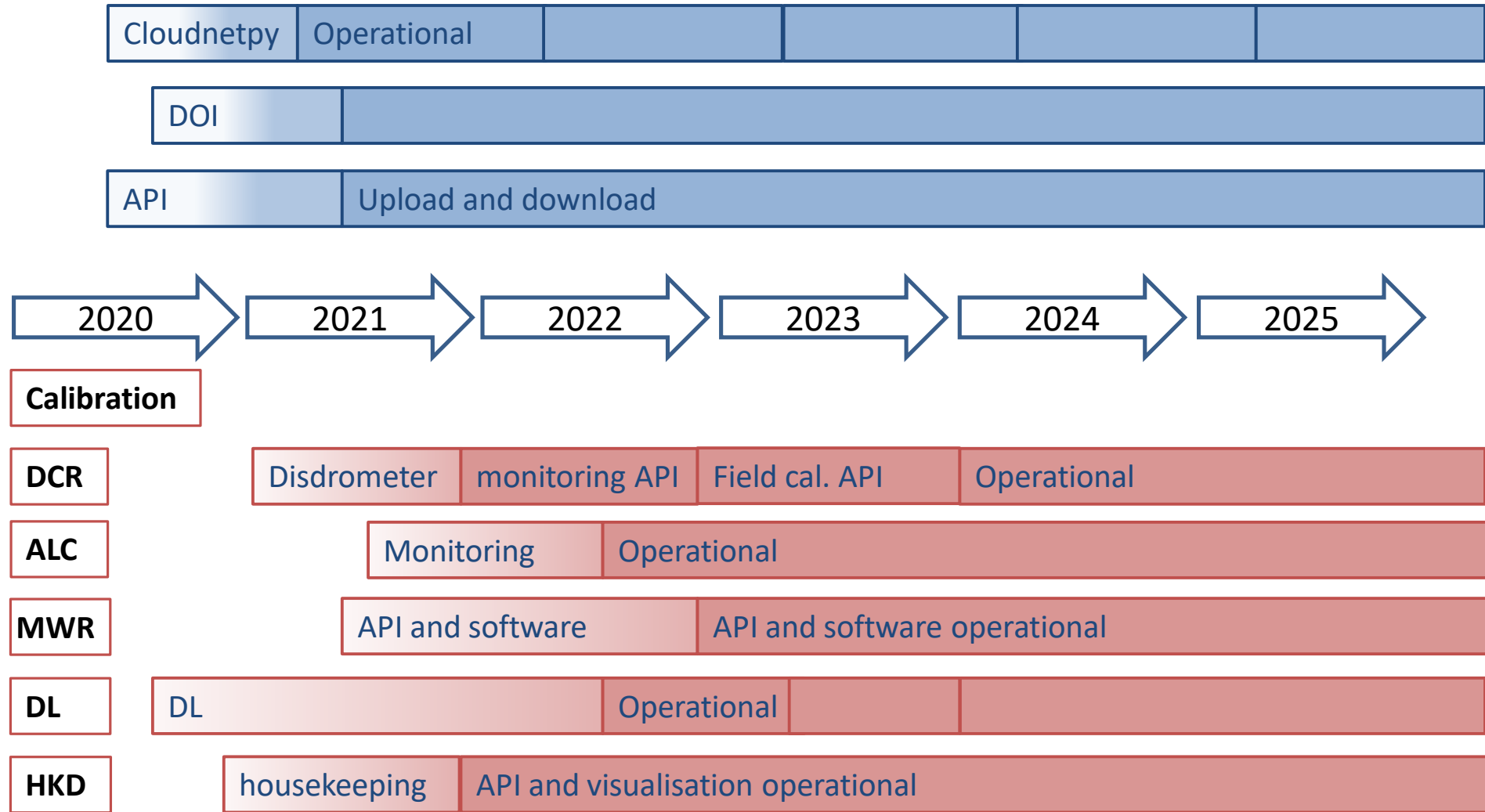
[Show details](#)



Items

- File
 - Product
 - Site
 - History
 - Quicklook
-
- Download button

CLU: timeline - previously



CLU Data Centre – calibration



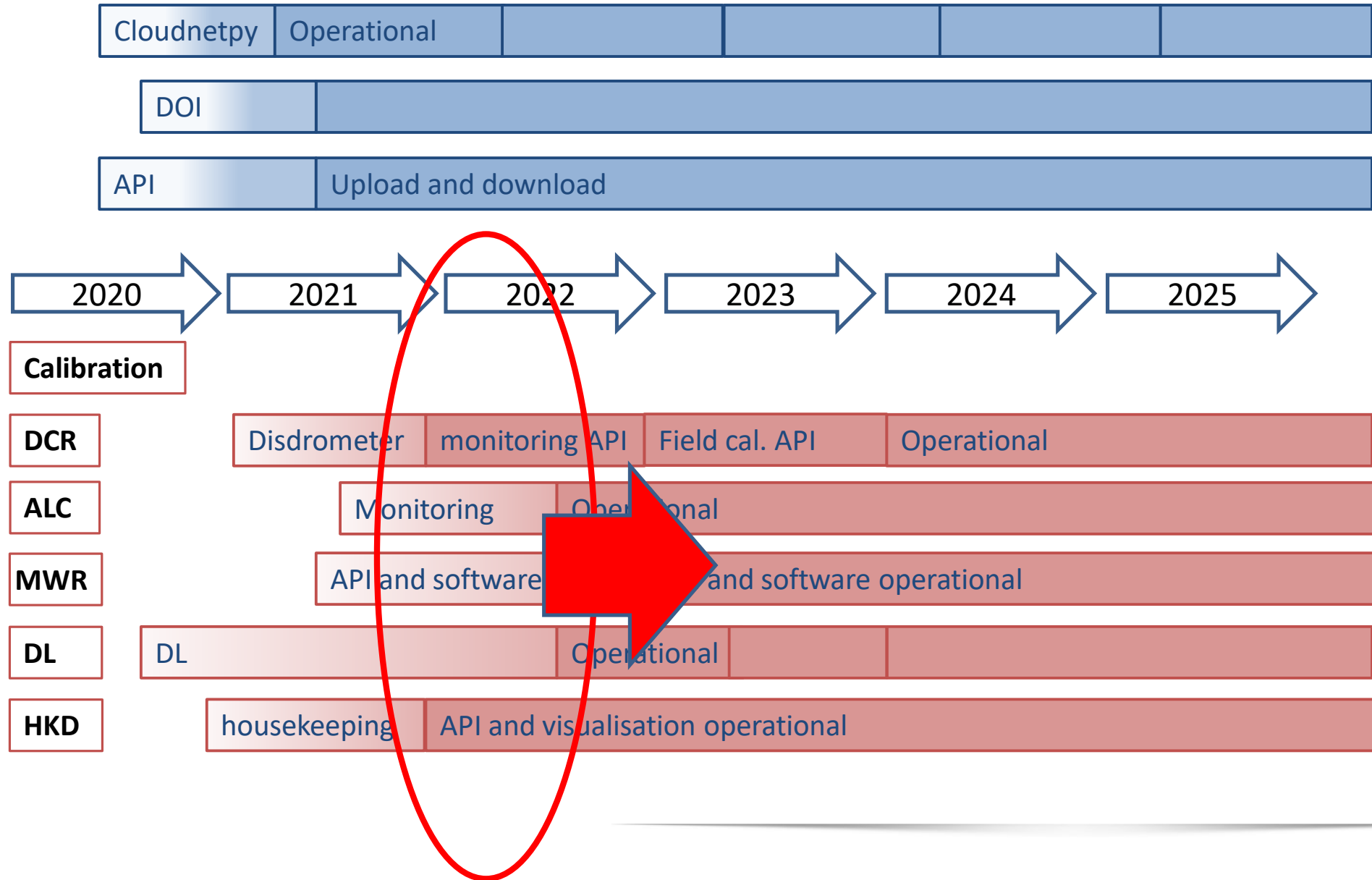
- Radar
 - API – to be done
 - Routine calibration will depend on disdrometer
- Disdrometer
 - Data collection/delivery – implementation started in CLU
 - Discussion required on
 - Data format
 - Where products are generated
 - Software repository location
- MWR
 - In progress – U Köln – implementation at CLU when ready
 - Collaboration with PROBE and E-PROFILE
 - Provision for more file types to be provided

CLU Data Centre – calibration



- ALC
 - Calibration factor API implemented
 - Upload calibration factors
 - Work ongoing for operational calibration
 - new results from PROBE
 - Need to add APIs for
 - Overlap, shape correction, water vapour, laser temperature
- DL
 - In progress but will require longer lead time – new results from PROBE
- House keeping data - HKD (for all instruments)
 - Some HKD in data file
 - CLU can store this
 - Access similar to raw data, or via database API?
 - What is required?

CLU: timeline



CLU Data Centre – topics for discussion



- Data flow monitoring
- Data citation
- Data quality
- Calibration API
- Disdrometer
- ACTRIS CLU - Github pages
 - cloudnetpy
 - rpgpy
 - ...

CLU Data Centre – topics for discussion



- **Data flow monitoring**
- Data citation
- Data quality
- Calibration API
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Data flow monitoring



< Bucharest
Measurement station in Romania.

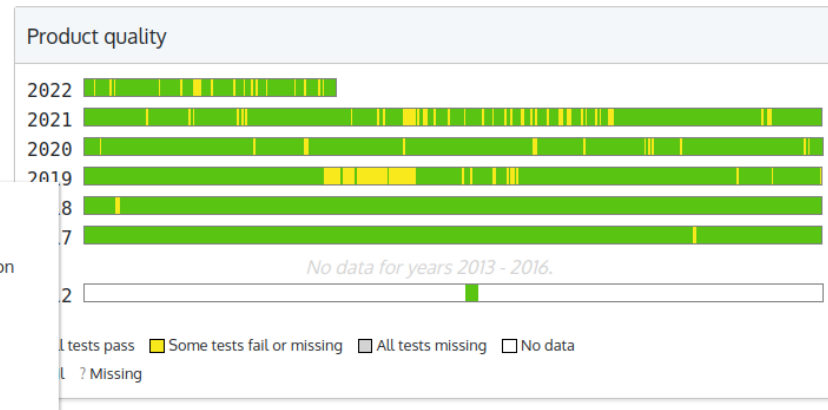
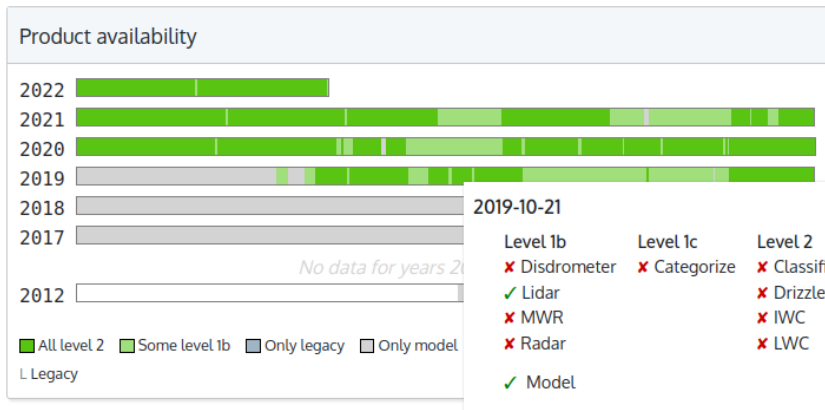
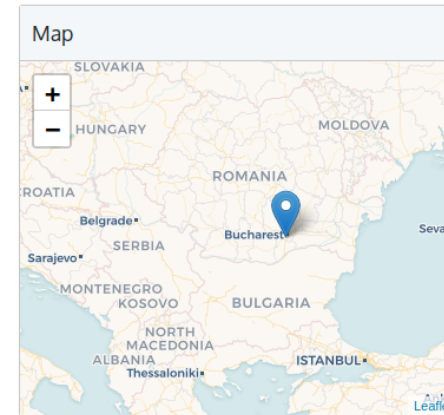
Summary

Location: Bucharest, Romania
Coordinates: 44.348° N, 26.029° E
Site altitude: 93 m
Last measurement: 2022-05-05

Instruments

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

- ☼ Lufft CHM15k ceilometer
- 📡 RPG-Radiometer Physics HATPRO microwave radiometer
- 📡 METEK MIRA-35 cloud radar




CLU Data Centre – topics for discussion





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Landing page




< Cloudnet data object
Categorize data from Bucharest on 1 January 2021.

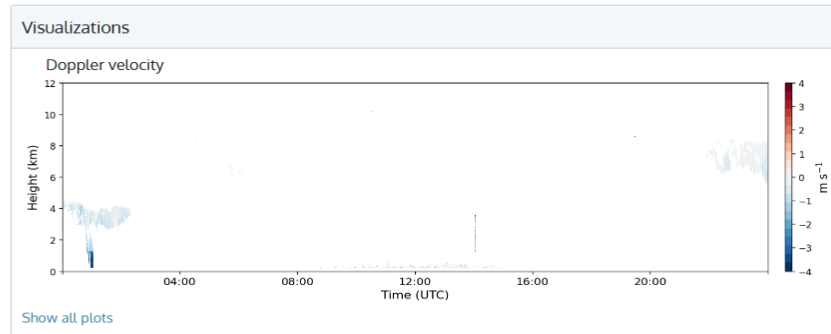
How to cite License **Download file** 

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PID:	https://hdl.handle.net/21.12132/1.1388ac7e6110433a
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Software version:	CloudnetPy 1.27.3 
Data from:	2021-01-01

Site information	
Location:	Bucharest, Romania
Coordinates:	44.348° N, 26.029° E
Site altitude:	93 m

History
This file was generated using the following files:
 Radar
 Lidar
 Model
Show details



Items

- File
- Product
- Site
- History
- Quicklook

- Download button

How to cite – individual file

This is an example of how to cite Cloudnet datasets. You may edit the text to suit publication standards. ✕

Data availability

The ground-based remote-sensing data used in this article are generated by the European Research Infrastructure for the observation of Aerosol, Clouds and Trace Gases (ACTRIS) and are available from the ACTRIS Data Centre using the following link: <https://hdl.handle.net/21.12132/1.1388ac7e6110433a>.

Acknowledgements

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Citation

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How to cite – file collection

< Custom collection

Summary

Date span: 2018-01-01 - 2022-02-17
File count: 4190
Total size: 28.7 GB

Sites



General | All files

How to cite

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38 lines (38 sloc) | 2.91 KB

Raw

Blame



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How to cite – file collection

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CLU Data Centre – topics for discussion



- Data flow monitoring
- Data citation
- **Data quality**
- Calibration API
- Disdrometer
- ACTRIS CLU - Github pages
 - cloudnetpy
 - rpgpy
 - ...

Data quality



- Current status
 - File check
 - Meta data check
 - Data limits check
- Processing
 - Artifacts are removed (radar interference, lidar fog saturation)
 - But not yet described in data quality
- To include
 - Data present check
 - Product checks
 - Product plausibility

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ACTRIS Cloudnet

ACTRIS Cloud Remote Sensing Unit (CLU)

Helsinki, Finland <https://cloudnet.fmi.fi/> [@ACTRIS_Cloudnet](#) actris-cloudnet@fmi.fi

- Overview
- Repositories 15
- Projects
- Packages
- People

Pinned

cloudnetpy Public

Python package for Cloudnet data processing

Python 15 14

rpgpy Public

Cython reader for RPG cloud radar binary files

Python 4 3

dataportal Public

ACTRIS cloud remote sensing data portal

TypeScript 4 2

dataportal-docs Public

ACTRIS Cloudnet data portal documentation

Shell 1 1

Repositories

Find a repository...

Type

Language

Sort

dataportal Public

ACTRIS cloud remote sensing data portal

TypeScript 4 MIT 2 0 2 Updated 19 hours ago



cloudnetpy Public

Python package for Cloudnet data processing

Python 15 MIT 14 1 0 Updated yesterday

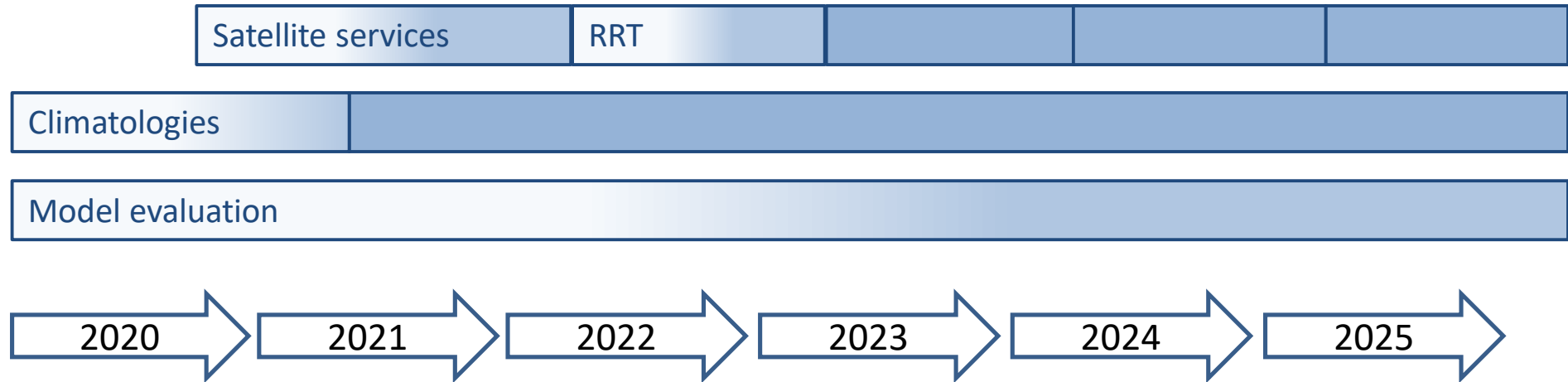


CLU Data Centre – Housekeeping

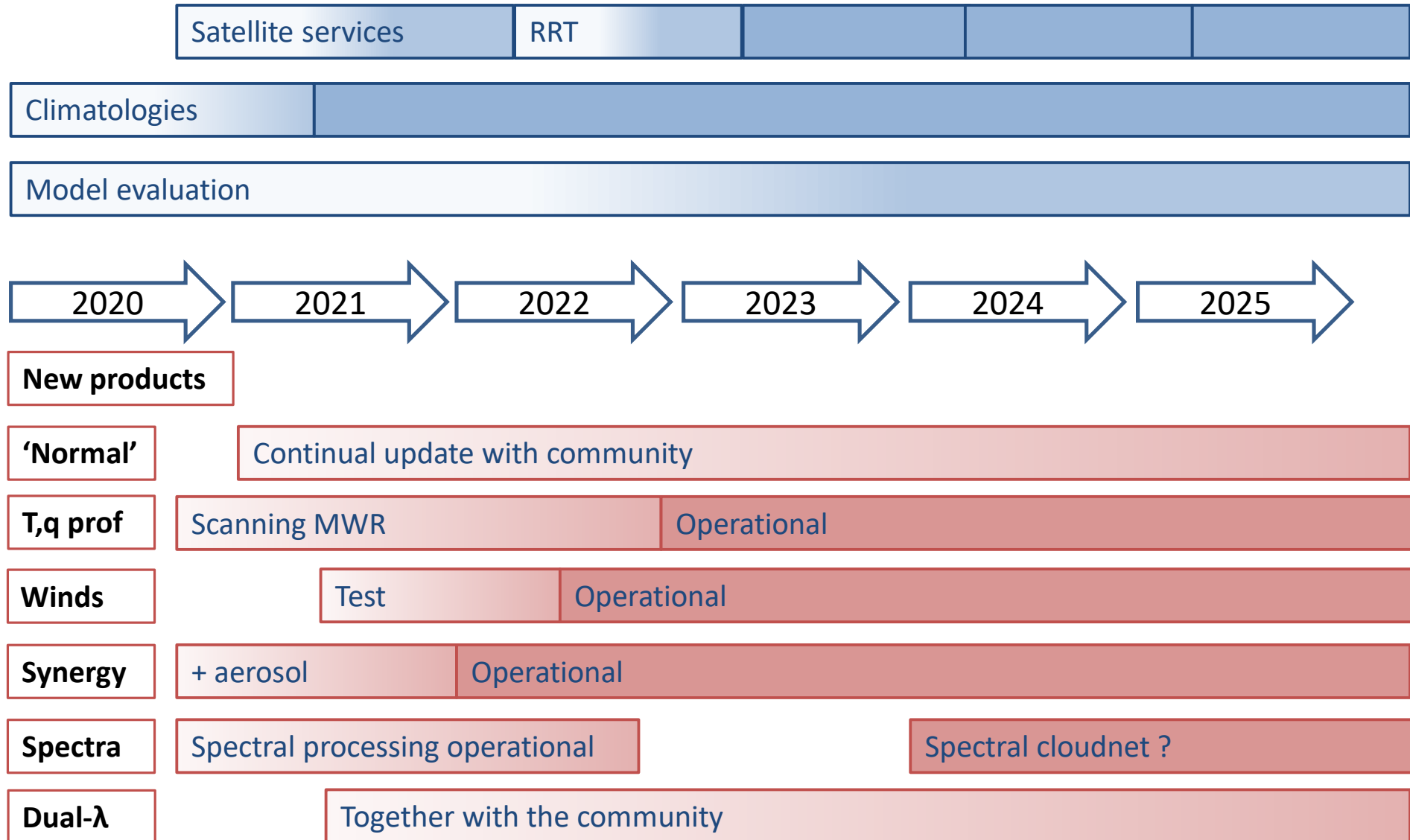


- Housekeeping data monitoring
 - What to store
 - What to monitor and how
 - Who should provide the monitoring information, and to whom
 - Grafana etc..
- CLU can store and provide data via API
 - In principle, also provide monitoring
 - To all? To CCRES and NF only?

CLU: timeline



CLU: timeline



Please give feedback on all issues



- Data transfer
 - Upload
 - Download
- Data production
 - Categorisation
 - Meta data (variables, attributes)
 - Variable list to be included
- CloudnetPy community on github
 - Instrument processing
 - Product processing
 - Standard products
 - Test/implement new products

Please give feedback on all issues

- Website
 - API search and download
 - Visualisation
 - Colour scheme
 - Products and status
 - Documentation
 - Processing
 - Instruments
 - Sites
- List of papers





ILMATIETEEN LAITOS
METEOROLOGISKA INSTITUTET
FINNISH METEOROLOGICAL INSTITUTE

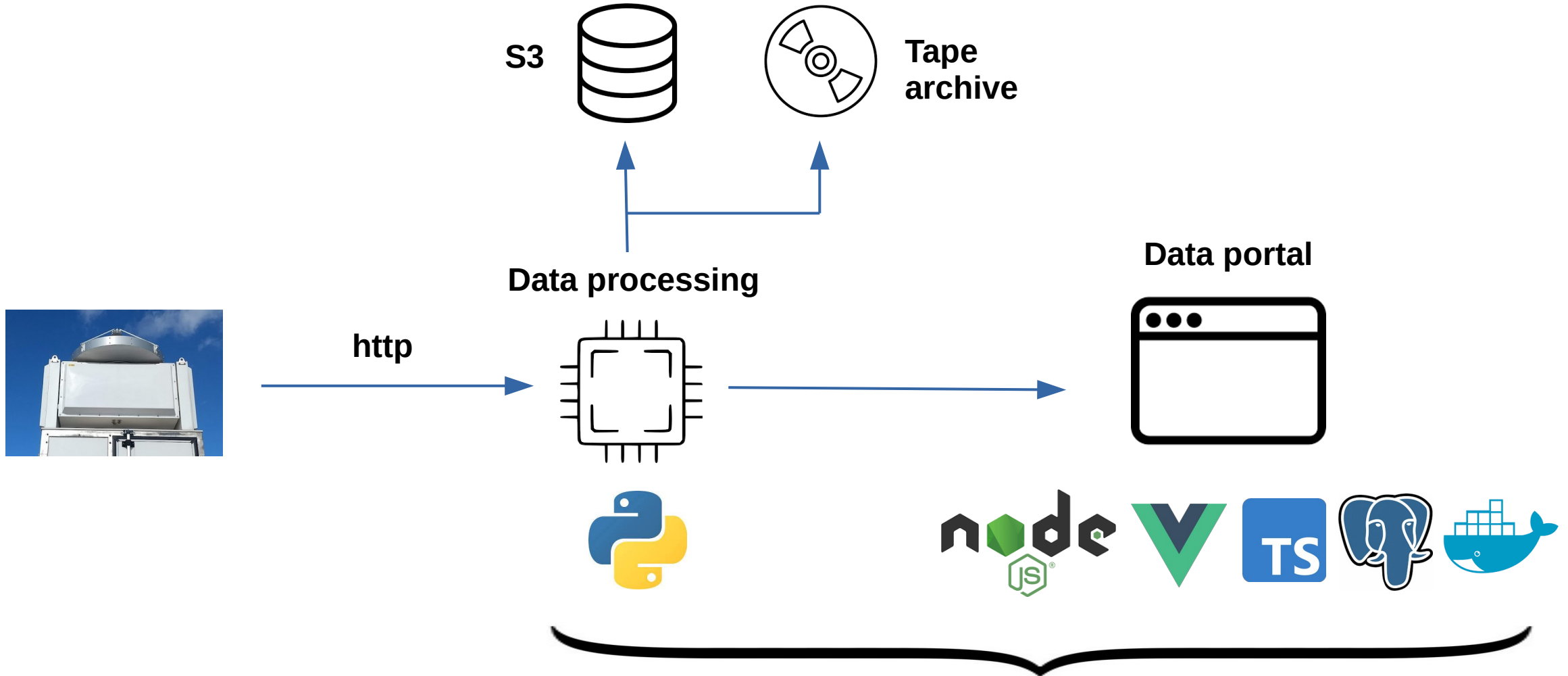
Cloudnet data processing

5.5.2022

**Simo Tukiainen, Tuomas Siipola, Niko Leskinen,
Ewan O'Connor, Lauri Kangassalo, Anniina
Korpinen**

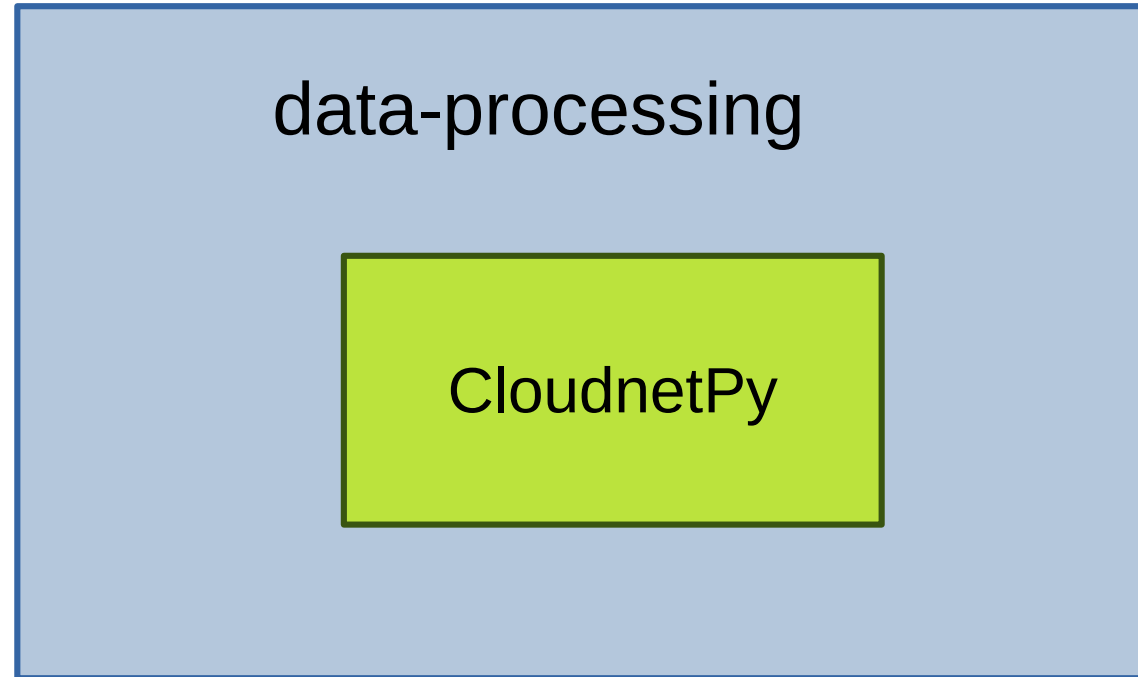


Architecture



Data processing

- Raw data
- Files processed using 3rd party software



Data portal



Latest GUI improvements

- Product filter for data availability graphs
- Experimental products
- Site table
- Download stats (internal)
- Aligned images



Latest API improvements

- Calibration
- Public raw data
- Visualizations



GUI improvements (upcoming)

- Enable search filters via URL
 - `/search/data?site=hyytiala&product=classification`
- Publications list
- Improved site pages (dynamic only?)
- Dynamic model data / L3 visualizations



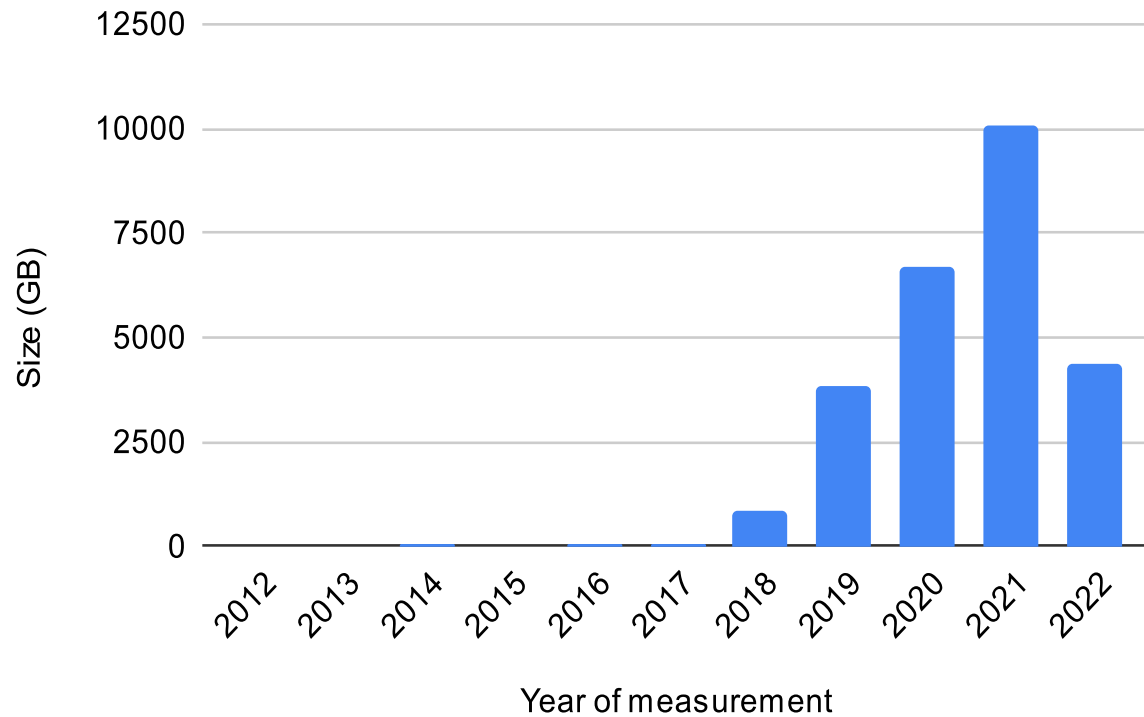
Other ongoing work

- Instrument PIDs
- Improved QC
- Utilize STSR mode
- RPG Level 0 processing (?)



Data archive

Amount of raw data (~27 TB)



Number of product files

