



Current status of the Warsaw NF

L. Janicka, K. Gabzdyl, M. Karasewicz,
W. Kumala, K. Markowicz, D. M. Szczepanik,
I. S. Stachlewska

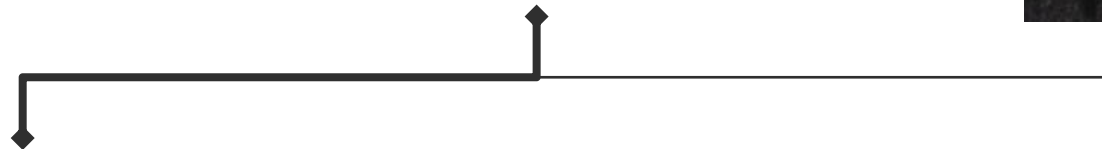
CCRES/CLU Autumn Workshop, Evora, 22 October 2025

Staff of the Warsaw National Facility



Iwona S. Stachlewska

Principal Investigator of the Warsaw
National Facility



Łucja Janicka

PI of the CRS component

Dominika Szczepanik

PI of the ARS component

- **Katarzyna Gabzdyl** – general component support
- **Maciej Karasewicz** - technical/scientific support
- **Wojciech Kumala** - logistic/technical support
- **Krzysztof Markowicz** – data/technical support

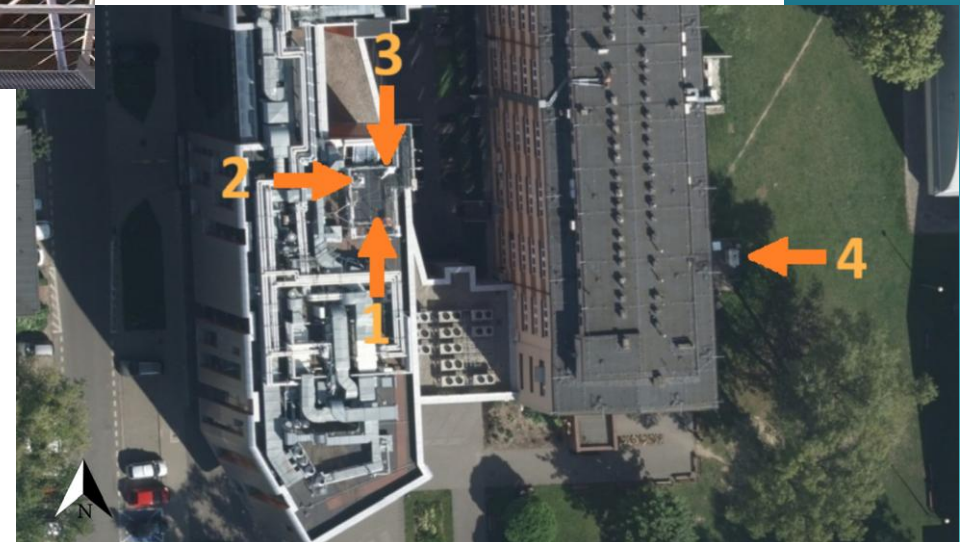


Warsaw National Facility



Instrument PIs:

- **Lucja Janicka** - doppler lidar
- **Wojciech Kumala** - radiometer
- **Krzysztof Markowicz** - disdrometer, meteostation
- **Iwona Stachlewska** - Mie-Raman lidar

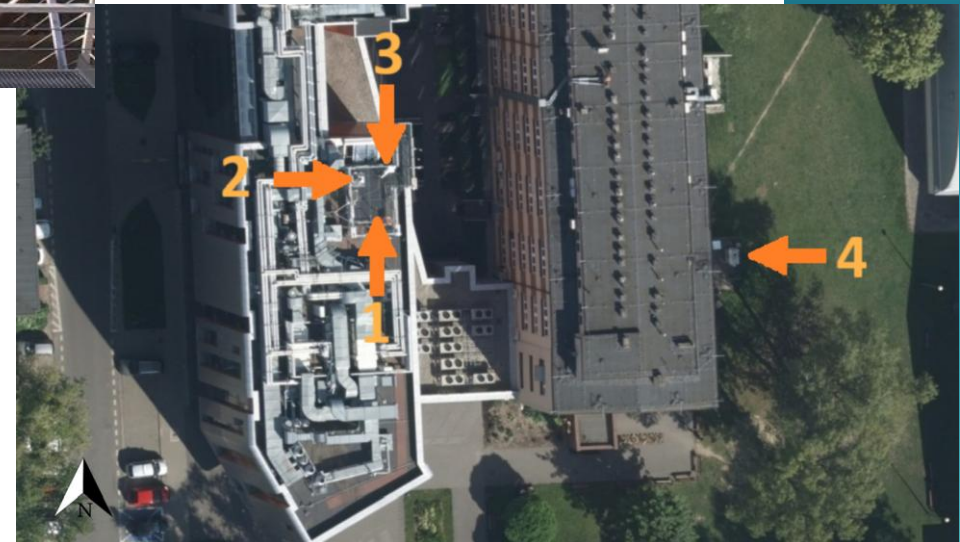


Aerial view

Warsaw National Facility



Labelling step 1a



Aerial view

Labelling step 1a Warsaw NF

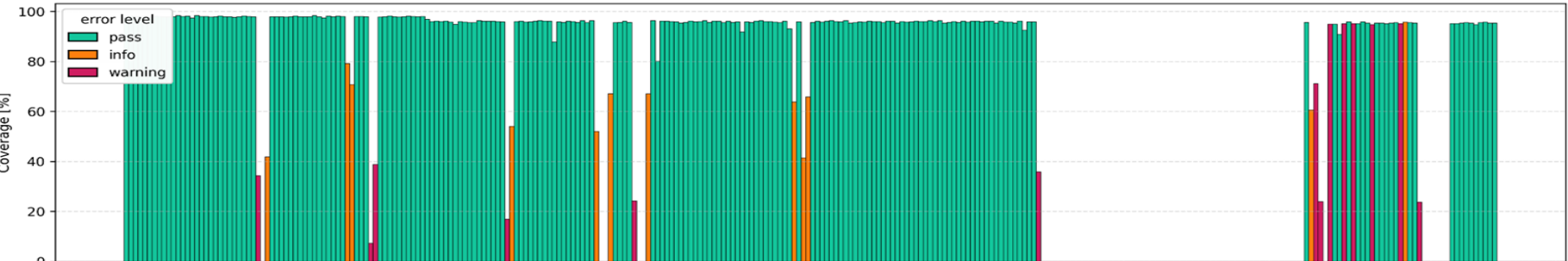
Instruments:

- **Doppler Lidar** ✓
- **Disdrometer** ✓
- **Microwave Radiometer** ✓
- **Weather station** ✓ existing station is currently being upgraded: anemometer, thermometer, and humidity sensor are purchased but need to be installed
- **Raingauge** (purchase finalising)
- **Ceilometer** ? (purchase under consideration; *24/7 Mie-Raman lidar - is not sufficient?*)
- **Doppler Cloud Radar** (purchase in progress)

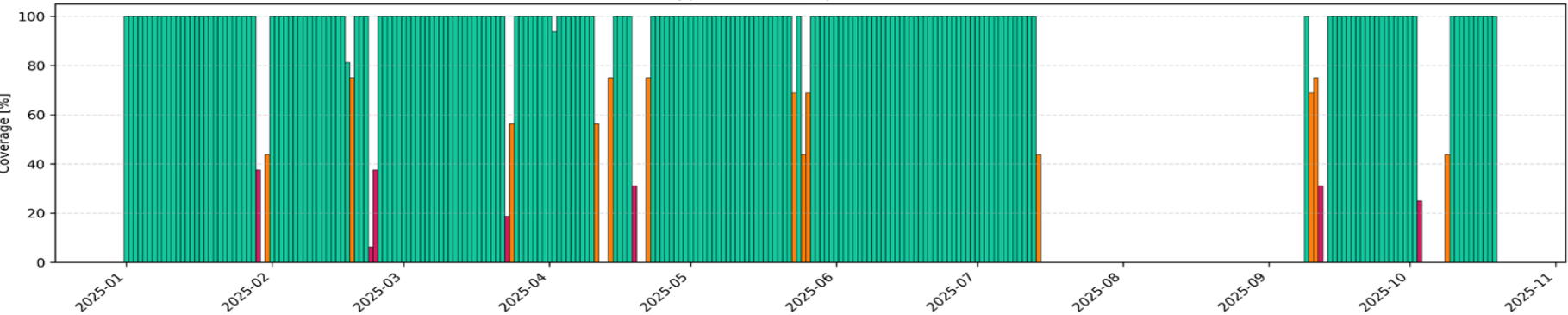
Doppler Lidar

Halo Photonics, StreamLine

Daily coverage and quality of the Doppler Lidar data from 01.01.2025 till 19.10.2025
The Doppler Lidar product - stare scans

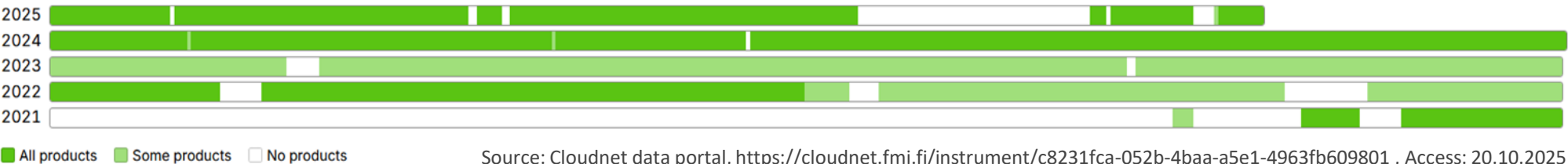


The Doppler Lidar Wind product - VAD scans



Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.

Product availability



Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/c8231fca-052b-4baa-a5e1-4963fb609801> , Access: 20.10.2025

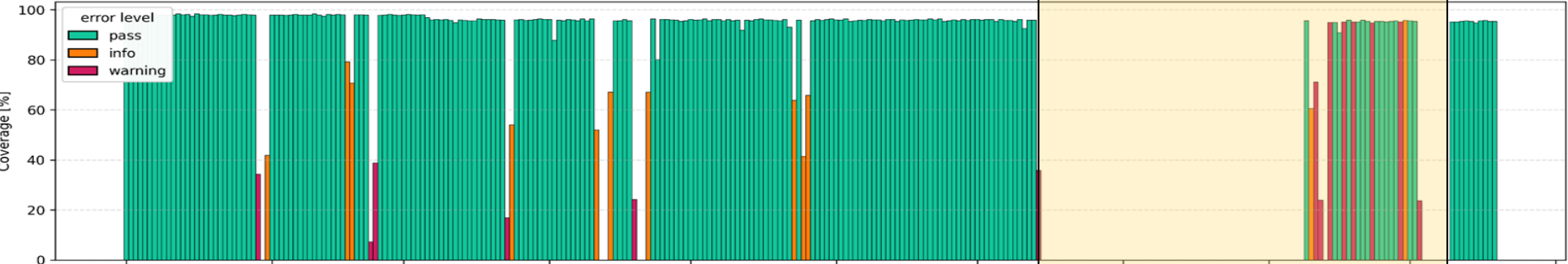
Doppler Lidar

Halo Photonics, StreamLine

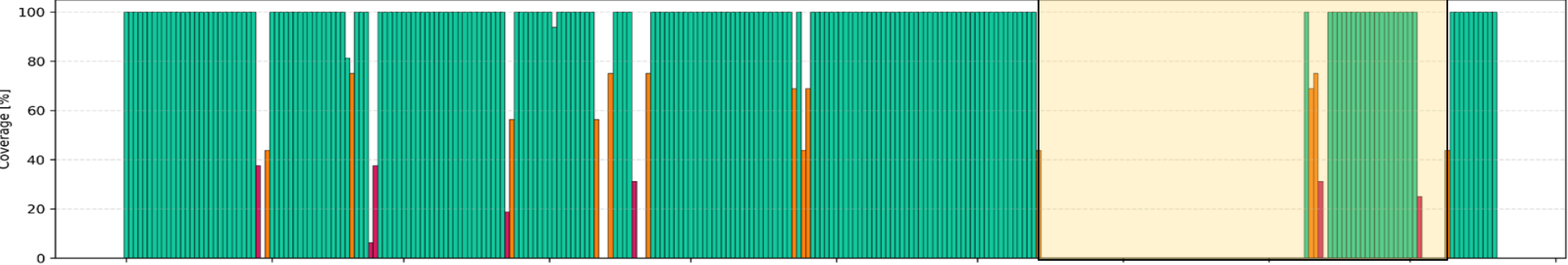
Technical issues,
amplifier replacement

Daily coverage and quality of the Doppler Lidar data from 01.01.2025 till 19.10.2025

The Doppler Lidar product - stare scans

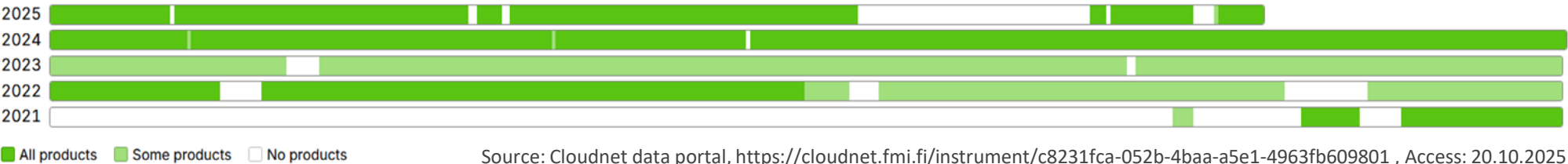


The Doppler Lidar Wind product - VAD scans



Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.

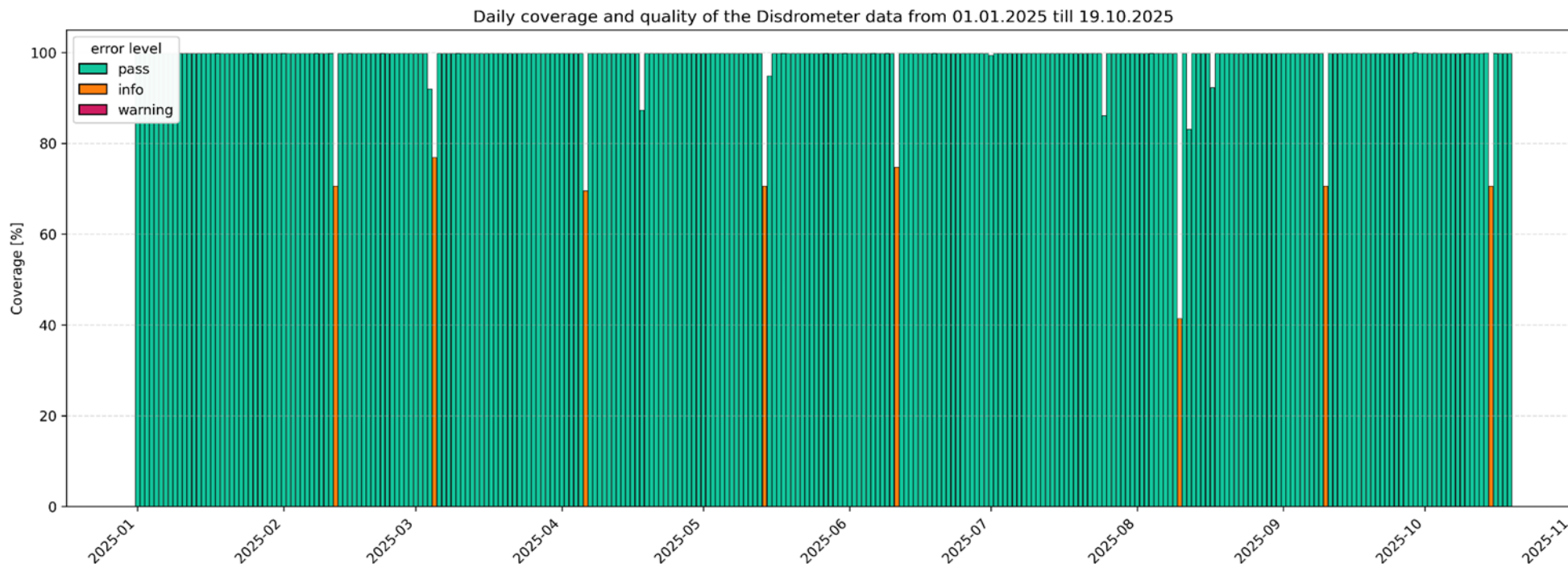
Product availability



Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/c8231fca-052b-4baa-a5e1-4963fb609801> , Access: 20.10.2025

Disdrometer

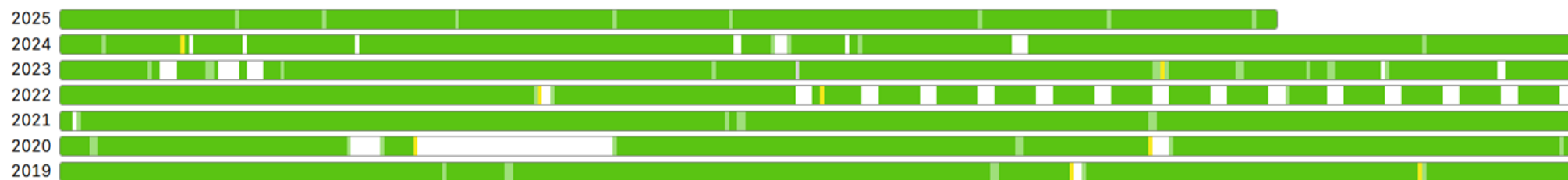
OTT Hydromet GmbH, OTT Parsivel2



Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.



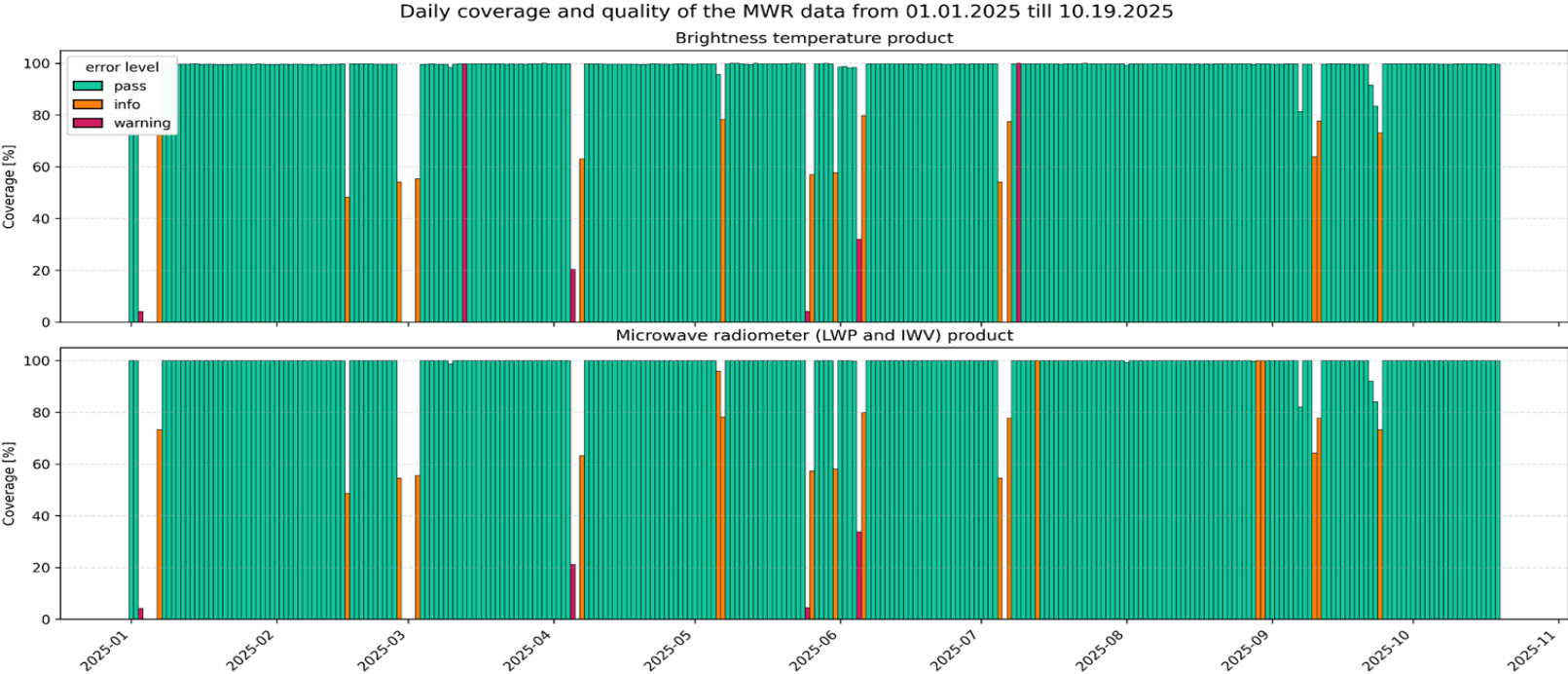
Product quality / availability – Disdrometer



Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/0b70b7b7-38cb-4593-8a91-85c8bacaaa6>, Access: 20.10.2025

Microwave Radiometer

Radiometer Physics GmbH, RPG-HATPRO-G2

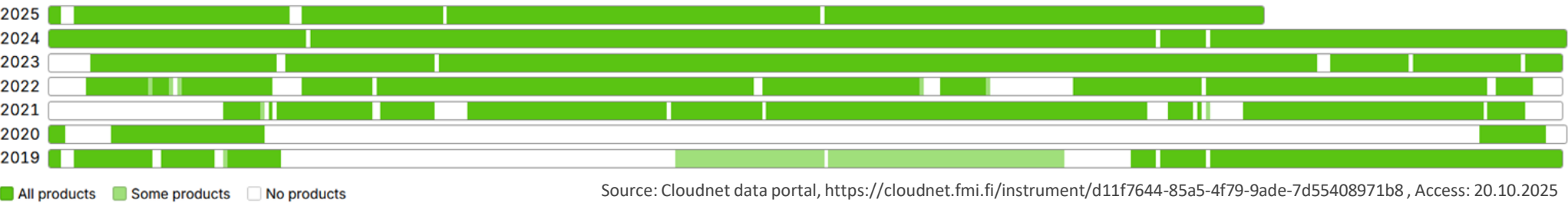


Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.



Owner: National Institute of Research and Development for Optoelectronics (INOE)

Product availability

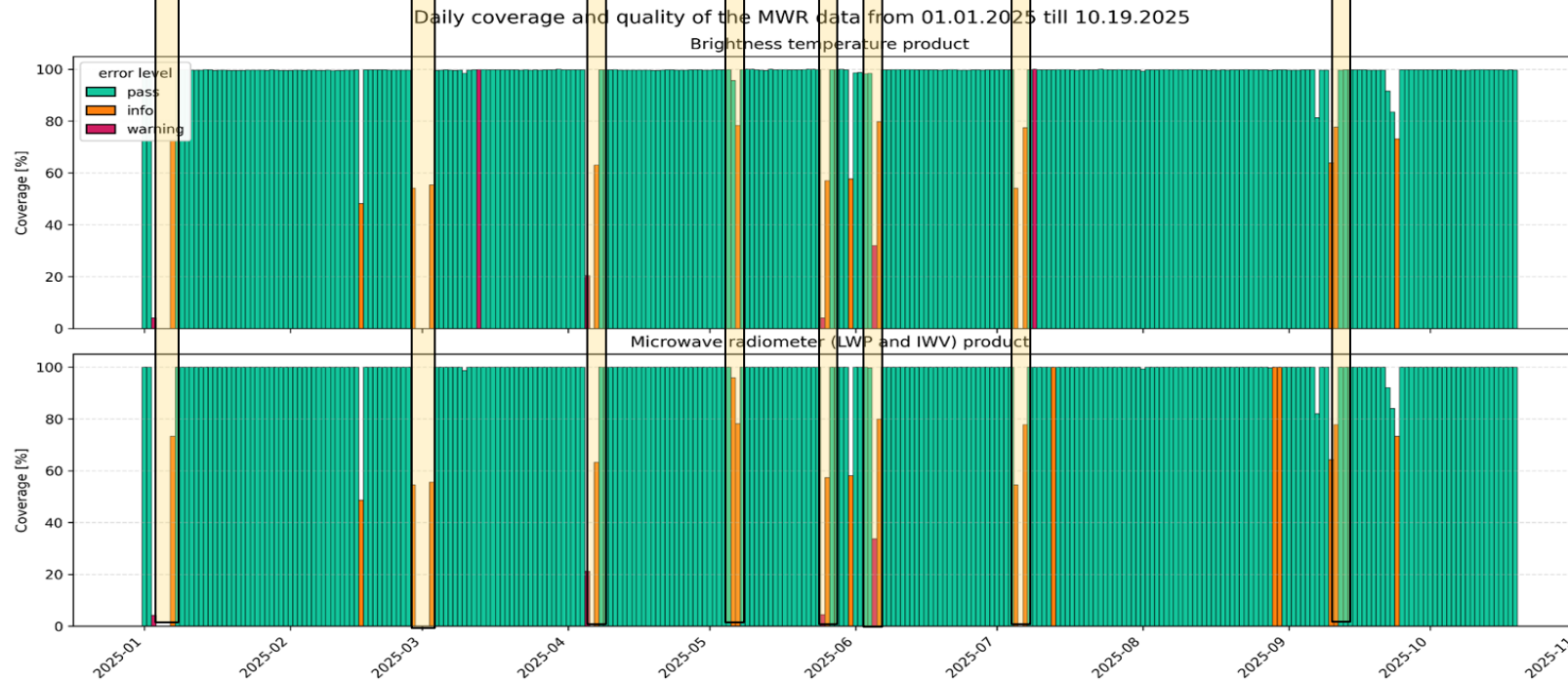


Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/d11f7644-85a5-4f79-9ade-7d55408971b8>, Access: 20.10.2025

Microwave Radiometer

Radiometer Physics GmbH, RPG-HATPRO-G2

System freezing

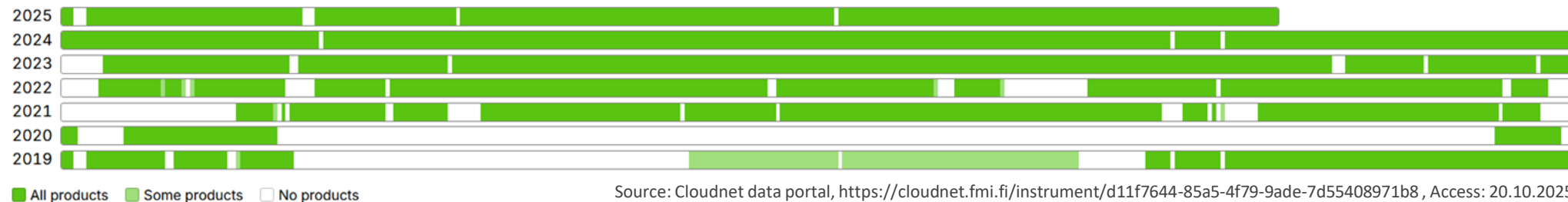


Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.



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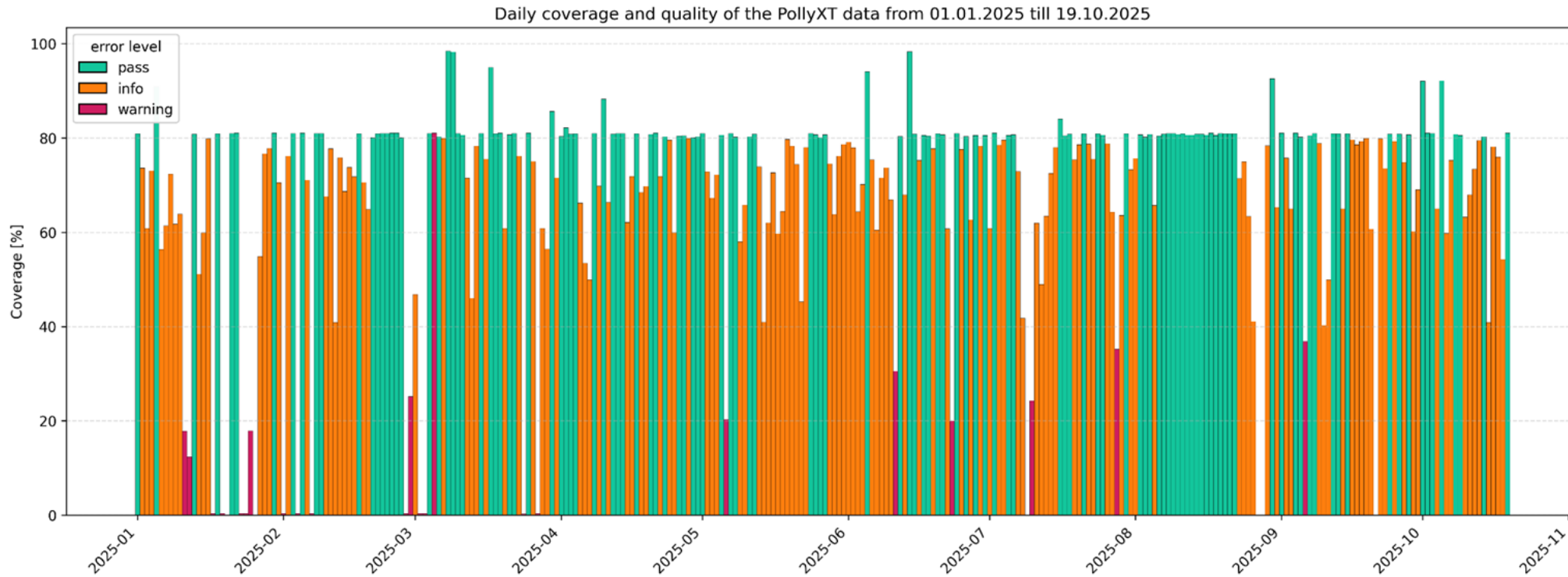
Product availability



Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/d11f7644-85a5-4f79-9ade-7d55408971b8>, Access: 20.10.2025

High power lidar

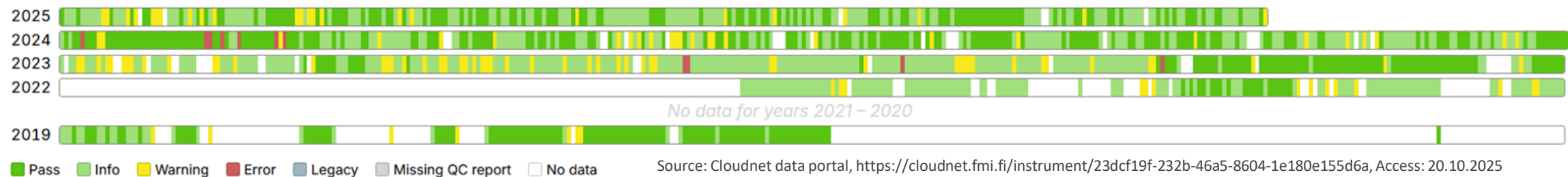
Multiwavelength Raman Polarization PollyXT Lidar



Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.



Product quality / availability – Lidar

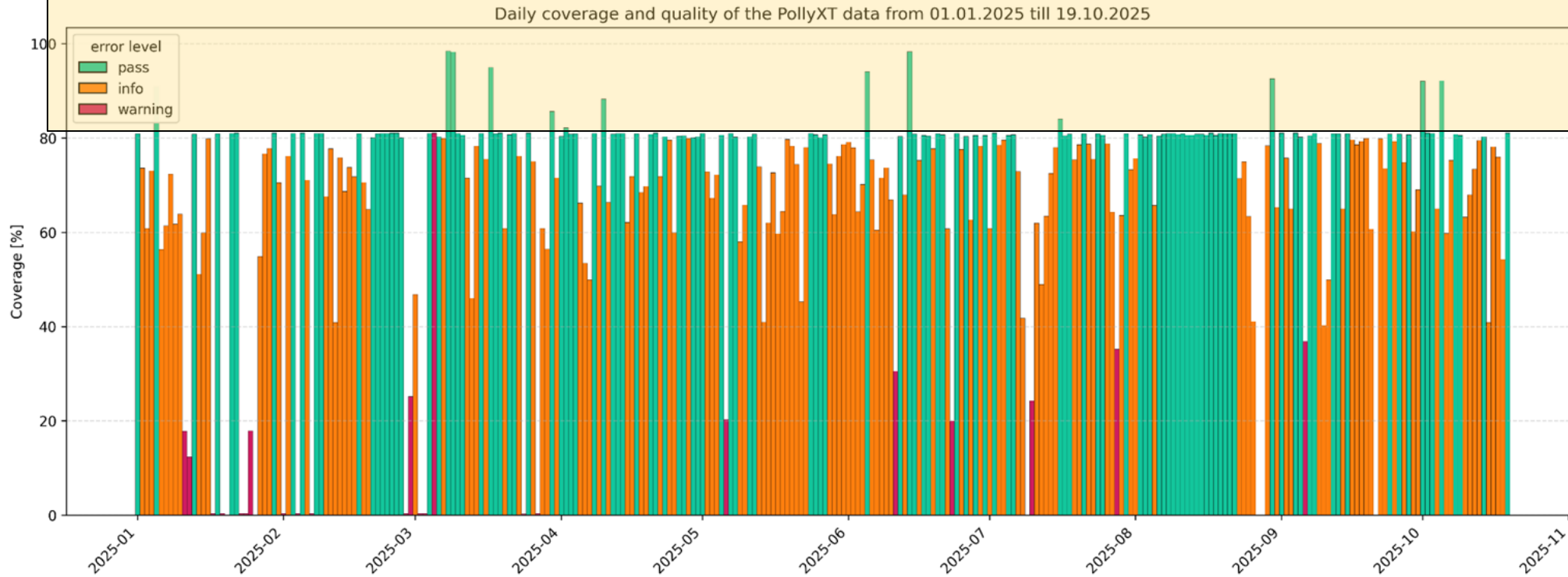


Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/23dcf19f-232b-46a5-8604-1e180e155d6a>, Access: 20.10.2025

High power lidar

Multiwavelength Raman Polarization PollyXT Lidar

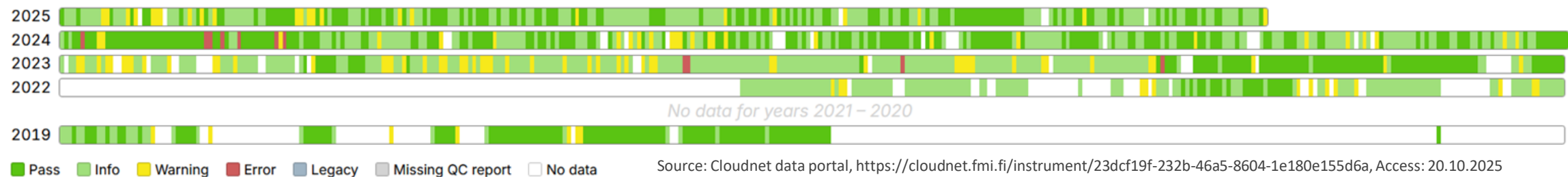
Data coverage up to ~80% (depolarization calibration?).
But sometimes the values are higher...



Analysis via Cloudnet data portal API (<https://docs.cloudnet.fmi.fi/api/data-portal.html>) accessed on 20-10-2025.



Product quality / availability – Lidar



Source: Cloudnet data portal, <https://cloudnet.fmi.fi/instrument/23dcf19f-232b-46a5-8604-1e180e155d6a>, Access: 20.10.2025

New weather station (build from separate elements)

Anemometer, Gill Instruments, WSM HTD OPT2

Thermometer and Humidity sensor, Campbell Scientific, HygroVue 10

- ❖ *The SOP for weather station no longer available on the Cloudnet website – is it not longer requested to have those instruments?*
- ❖ *Is the barometer still required?*
- ❖ *Is the raingauge still required? **We consider purchase of model OTT Pluvio2 – is this still recommended?***



Scientific outcome

- Karasewicz M., Waławczyk M., Ortiz-Amezcu P., Janicka L., Poczta P., Borges C.K. and Stachlewska I.S., 2024, [Investigation of non-equilibrium turbulence decay in the atmospheric boundary layer using Doppler lidar measurements](#), Atmospheric Chemistry and Physics, vol. 24(23), pp. 13231-13251, [10.5194/acp-24-13231-2024](#)
- Carneiro R.G., Karasewicz M., Borges C.K., Janicka L., Wang D., Fisch G. and Stachlewska I.S., 2024, [Seasonal analysis of planetary boundary layer and turbulence in Warsaw, Poland through Lidar and LES simulations](#), Remote Sensing, vol. 16(24), art. 4728, [10.3390/rs16244728](#)
- **Bachelor's Thesis in preparation:**
Working title: Investigating the Venturi Effect in Urban Airflows Using Doppler Lidar
Author: Katarzyna Gabzdyl
Supervisors: Lucja Janicka, Iwona Stachlewska
- **Doctoral Thesis in preparation:**
Thesis working title: Analysis of the boundary layer variability using synergy of Raman lidar and Doppler lidar
Author: Maciej Karasewicz
Supervisor: Iwona Stachlewska



Thank you !