



State of operations at CRS National Facilities

CCRES Workshop – Tuesday 21st September 2021



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SUMMARY

1. Cloud Remote Sensing Facility network
2. CRS Facilities year of labelling
3. NF Instrument diversity in 2021
4. NF challenges
5. Future activities and events

CRS Facility network

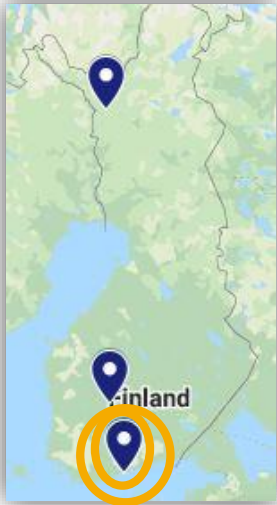

13 COUNTRIES



24 OBSERVATIONAL PLATFORMS



5 EXPLORATORY PLATFORMS



CRS Facilities readiness for labelling

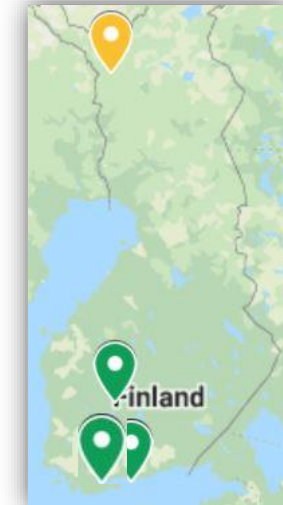
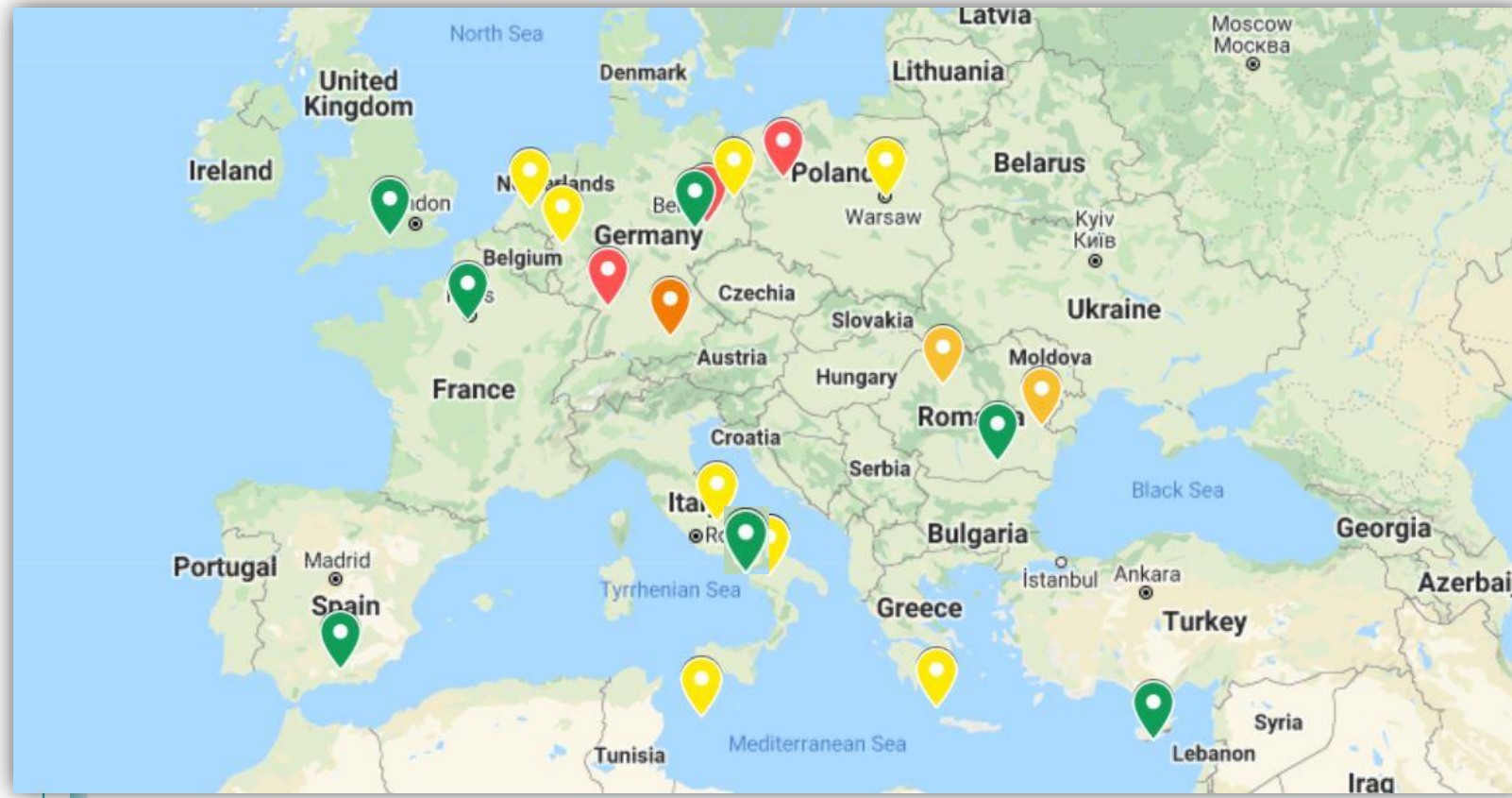
2021 **10**

2022 **8**

2023 **4**

2024 **1**

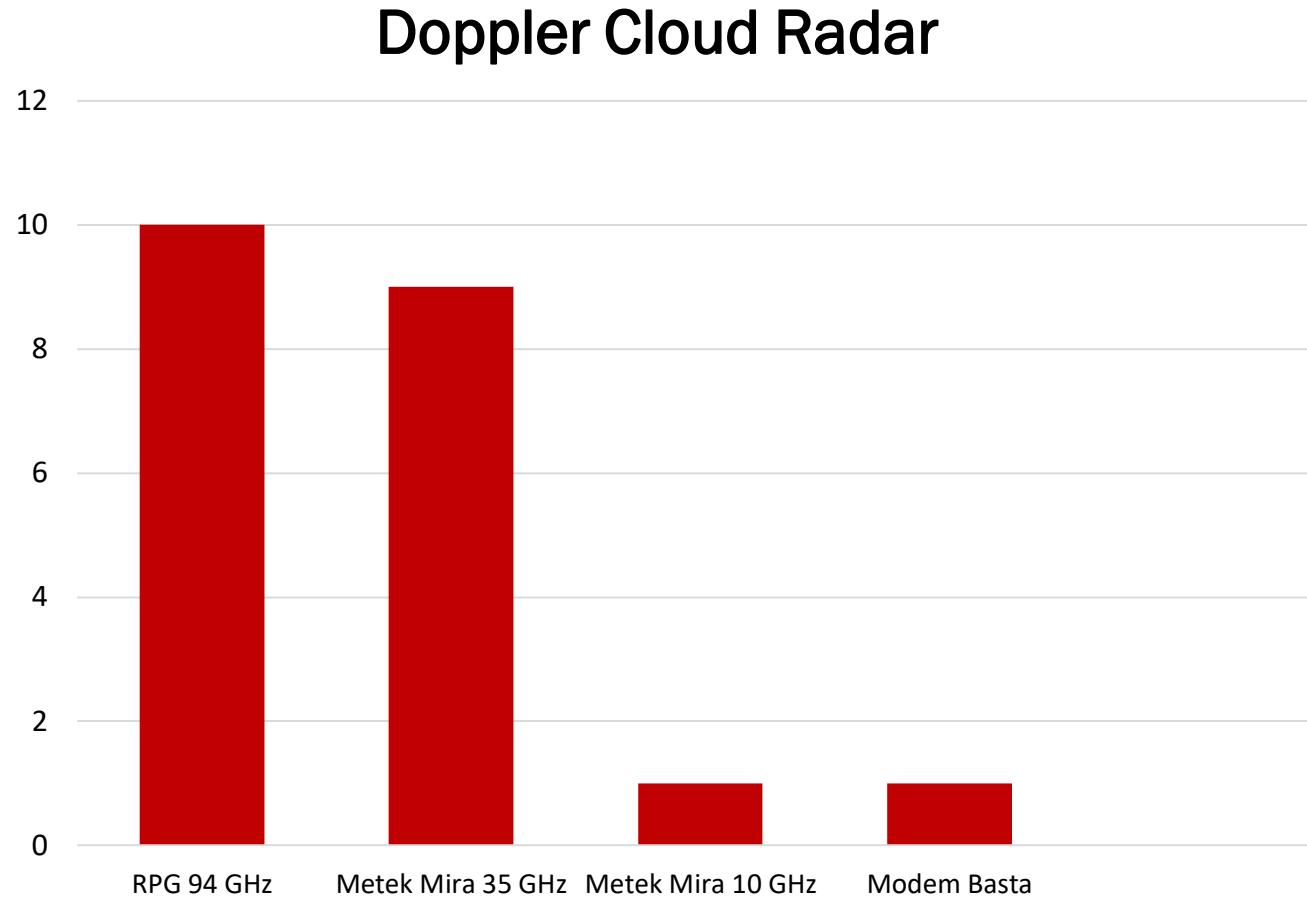
2025 **6**



NF instrument diversity in 2021

21
DCR

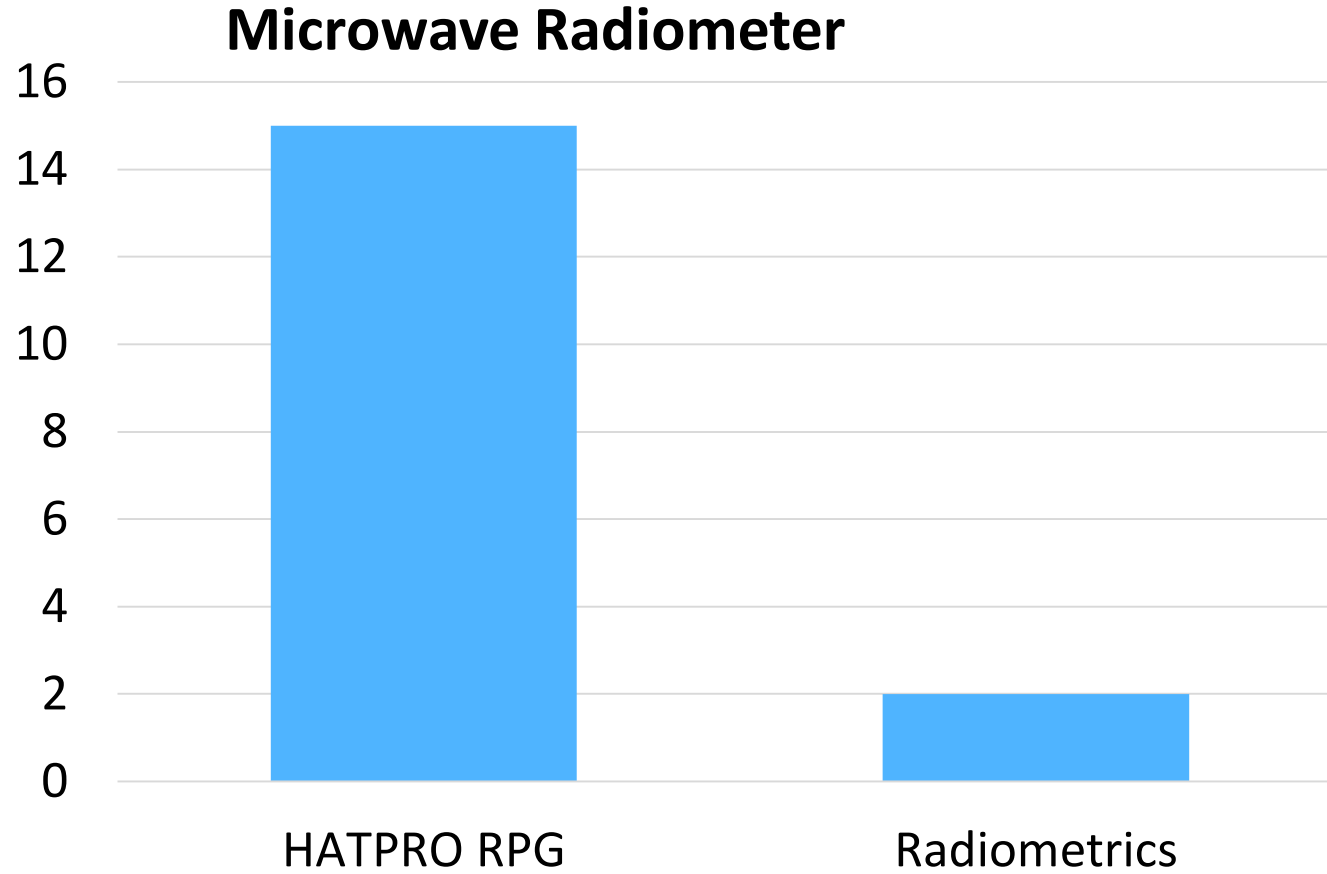
+15 in 2023



NF instrument diversity in 2021

17
MWR

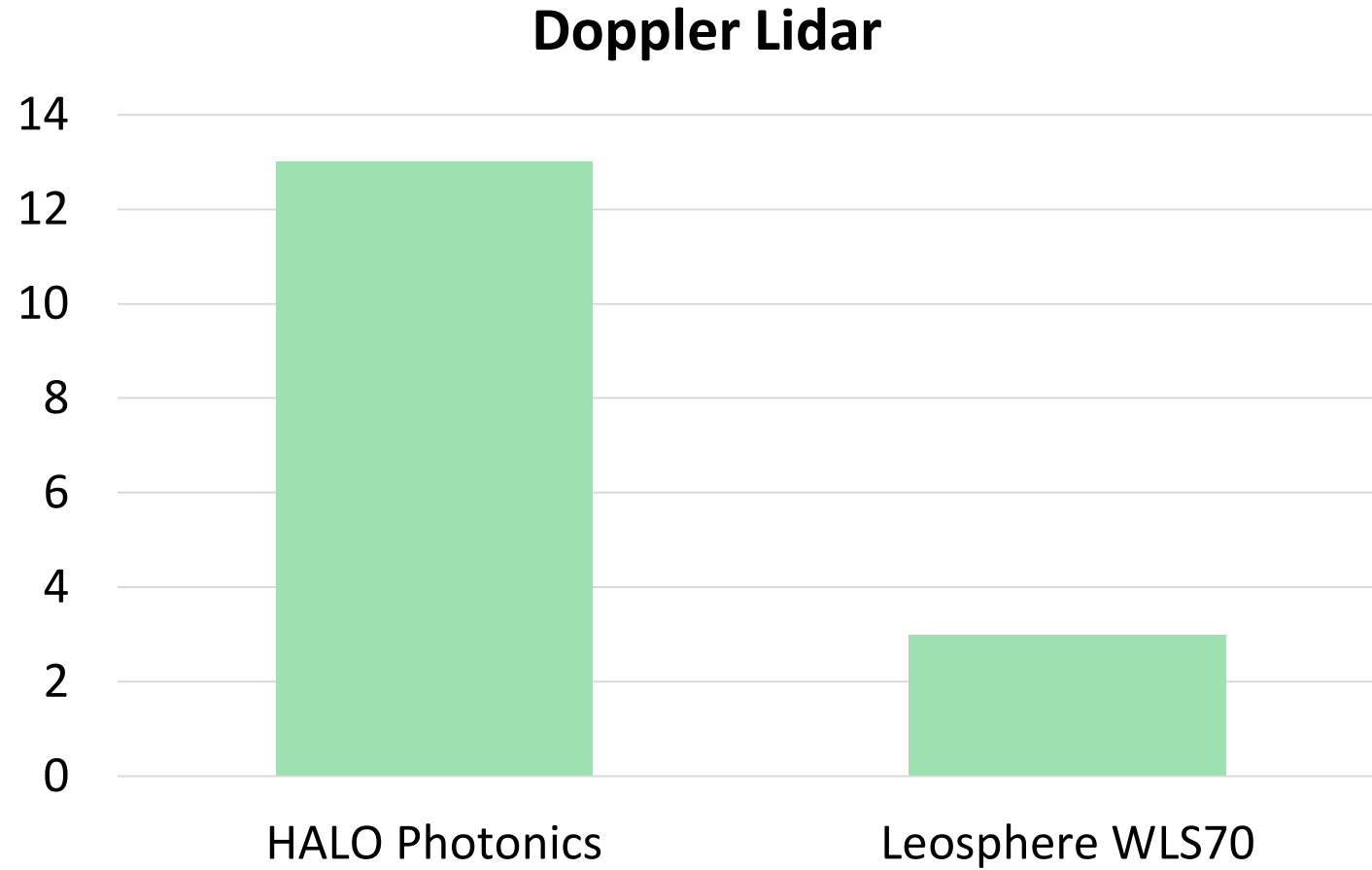
+11 in 2023



NF instrument diversity in 2021

16 DL

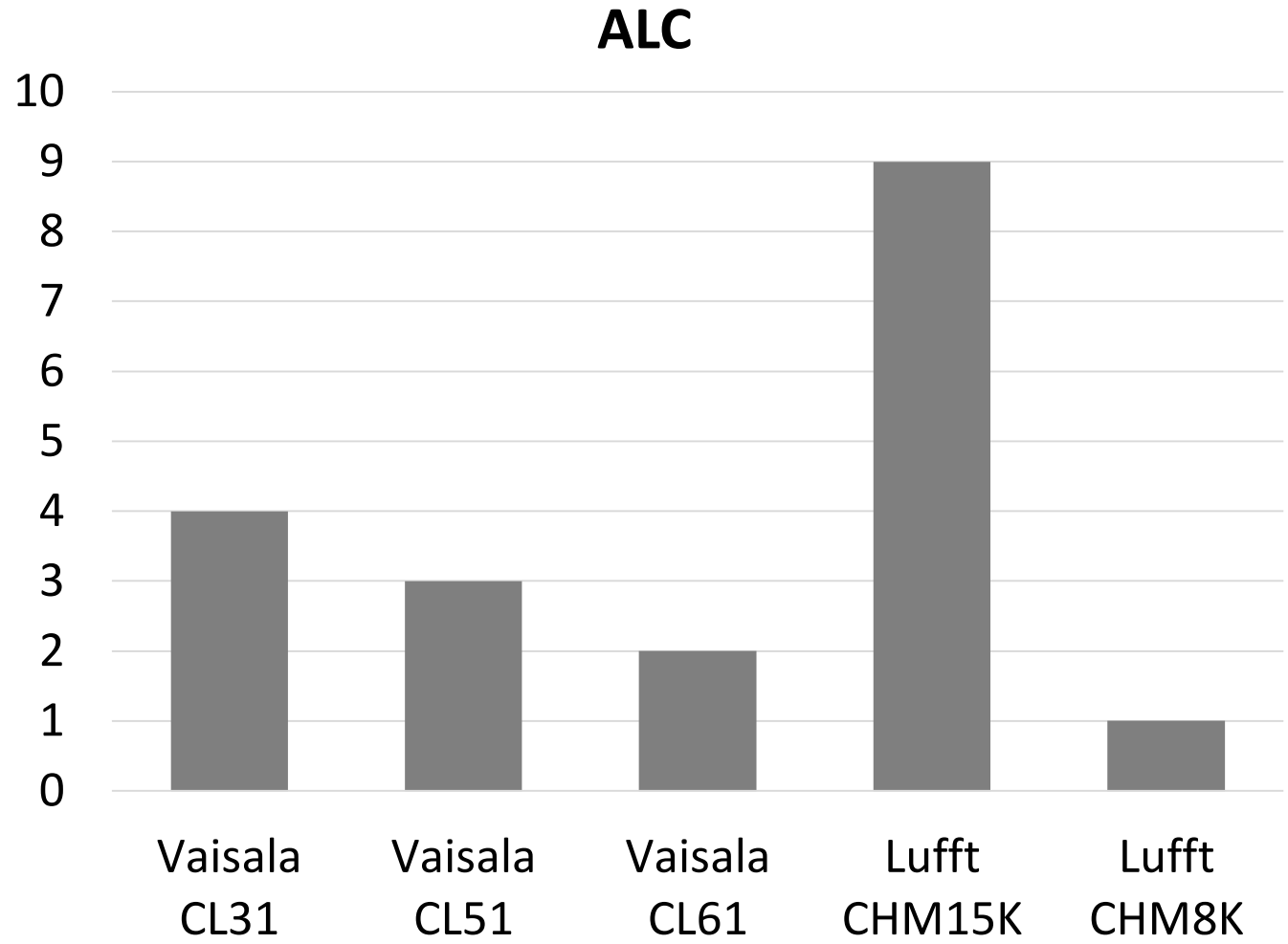
+3 in 2023



NF instrument diversity in 2021

20
ALC

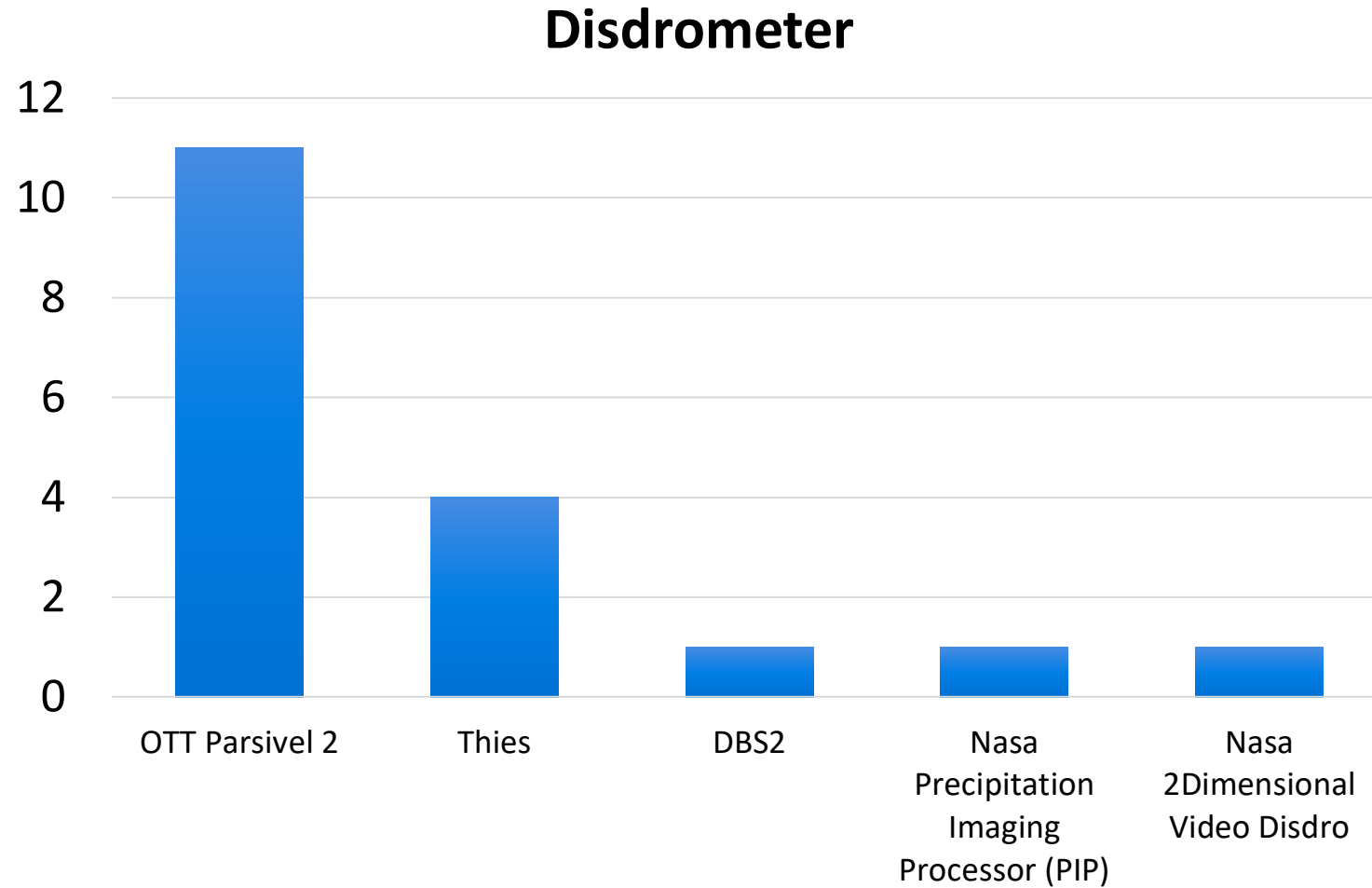
+ 7 in 2023



NF instrument diversity in 2021

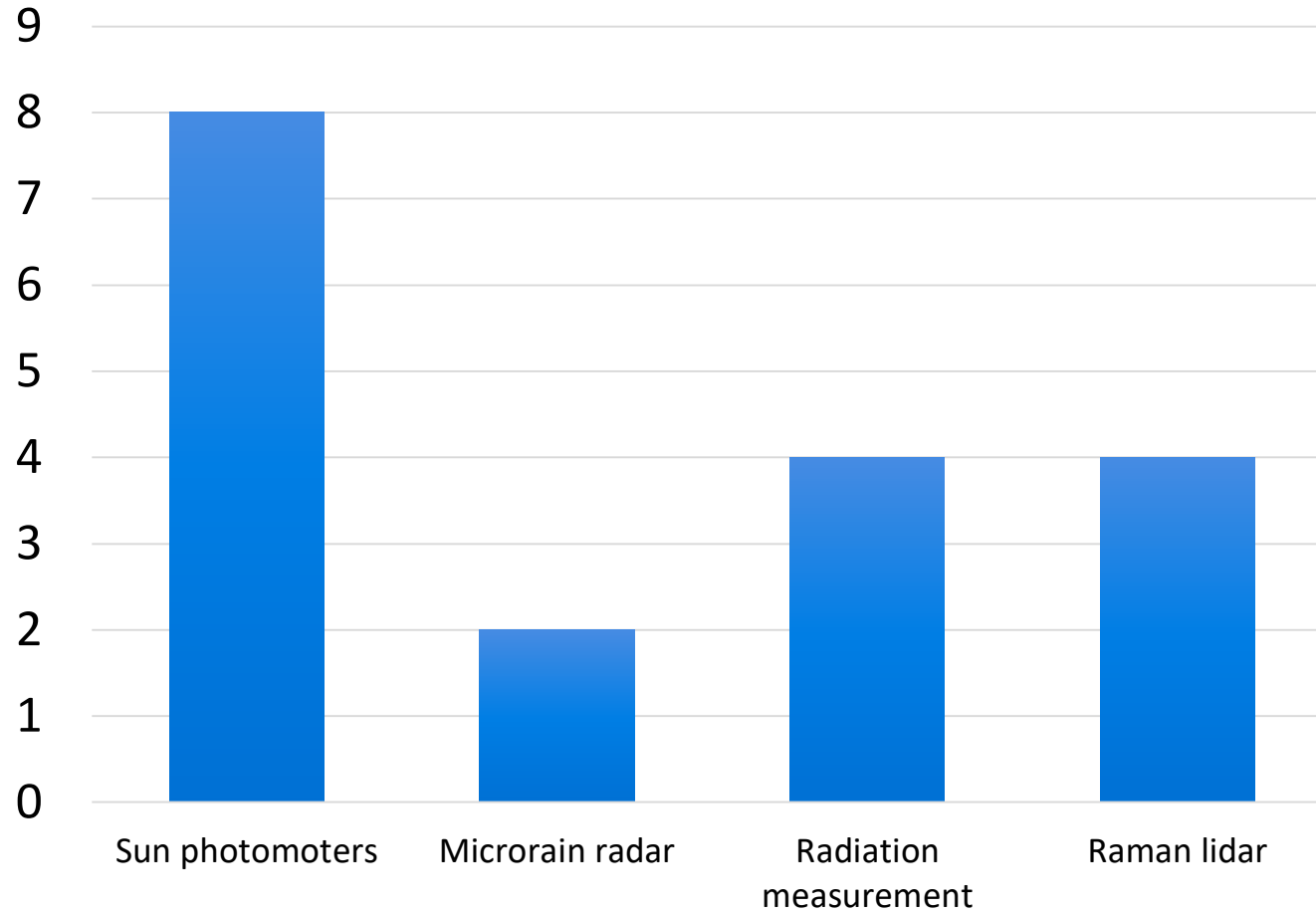
16
Disdro
meters

+6 in 2023



NF instrument diversity in 2021

Others



+ 6 Raman lidar
in 2023



NFs situation in 2021

Continuous operations and developments

In general there has been a **continuous operation** of Cloud Remote Sensing Instrument in 2021.

New Instruments were installed at:

- SMEAR II: Ceilometer Vaisala CL61
- SIRTA: DCR BASTA Mini
- CIAO: MWR RPG HATPRO G5, Ceilometer Vaisala CL51
- Lampedusa: MWR RPG HATPRO G5
- Cabauw: DCR RPG 94 GHz, MWR HATPRO G5, 3 Parsivel Disdrometers
- CIAO Mobile Facility: Doppler lidar Halo Streamline, DCR MIRA 35, MWR RPG HATPRO, Ceilometer: Vaisala CL31

New platforms or building:

- SIRTA platform
- CIAO site
- Cabauw platform for RPG and HATPRO

NFs situation in 2021

Main challenges and issues

COVID 19 related issues

- Travel restrictions: no chance to access instruments in LACROS Facility, Punta Arena Chile

Delays for installation

- CIAO site: issues with installation of HATPRO G5 and CL31
- Lutjewad site: Concerns about the toxicity of the soil have delayed cabling and groundwork

Software/Hardware issues

- Aging systems: in MOL-RAO, in CIAO for ceilometers CT25K and CHM15K
- Issues in Cabauw with OTT NetDL 1000 datalogger attached to parsivel disdrometer
- Issues to connect to RPG radar in Lutjewad
- DCR failed in Hyytiala

NFs situation in 2021

Future developments

New Instruments to be installed at:

- OPAR: HATPRO G5 and mini BASTA 3D in 2022
- SIRTA: MWR HATPRO G5 in 2021
- JOYCE: Raman lidar in 2022, 2 new MWR, Vaisala radiosonde station
- Munchen: Upgrade of MIRA DCR and second wavelength radar in 2022
- CIAO: Upgrade of existing DCR (Metek MIRA 35GHz) and new ceilometer (Lufft CHM8K) to ensure the measurement continuity (in 2022) + New DCR (RPG 95 GHz) and Metek MRR to extend CIAO observational capabilities (in 2022)
- Lampedusa: Installation of a liquid nitrogen generator (end of 2021); installation of Cloud Radar MIRA-35C (summer 2022)
- ...

NFs and CCRES events in 2021

OCTOBER

- CCRES calibration campaign
- ACTRIS Week

NOVEMBER

DECEMBER

JANUARY

FEBRUARY

MARCH

OTHERS?



THANK YOU



Cloud Remote Sensing Data Centre - CLU

- Ewan O'Connor, Simo Tukiainen,
 - Lauri Kangassalo, Anniina Korpinen
-

CLU Data Centre status



- Automated processing operation continues..
 - ACTRIS – CLU (Cloudnet) has moved to centralised processing
 - Raw data (Level 0, including spectra)
 - NF -> CLU
 - All further processing performed at CLU
 - Permits full provenance chain and archive
 - Implemented new data transfer procedure for upload
 - Enables more efficient and rapid update and version control
 - Real-time processing
 - All sites using this route for current data
-

Station Overview - Global

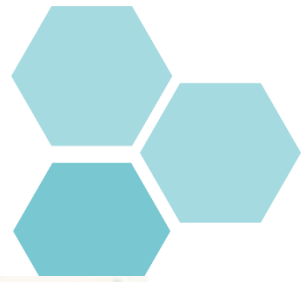


Site types

- Selected
- Cloudnet
- ARM
- Campaign
- Other



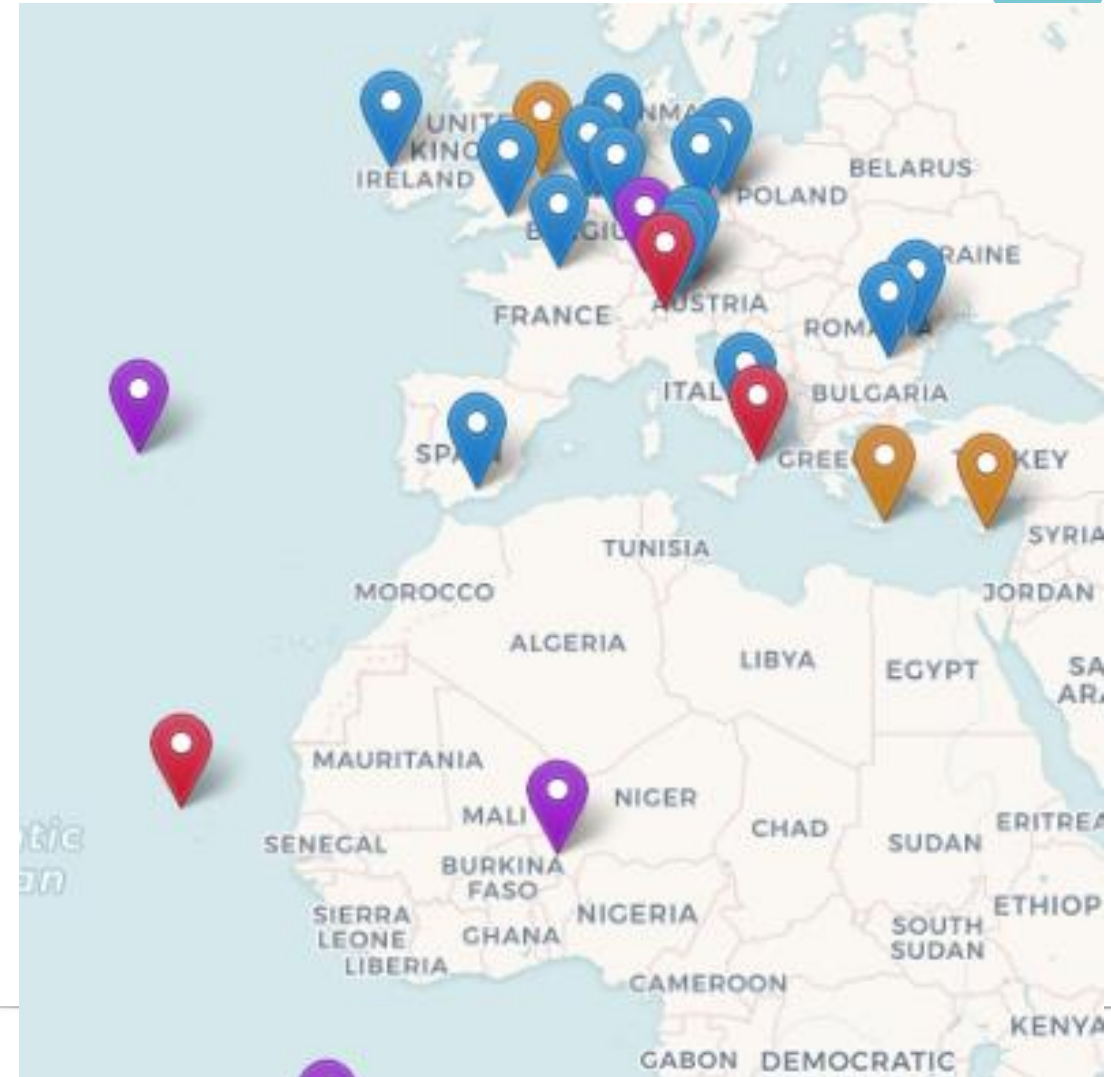
New campaign sites - 2021



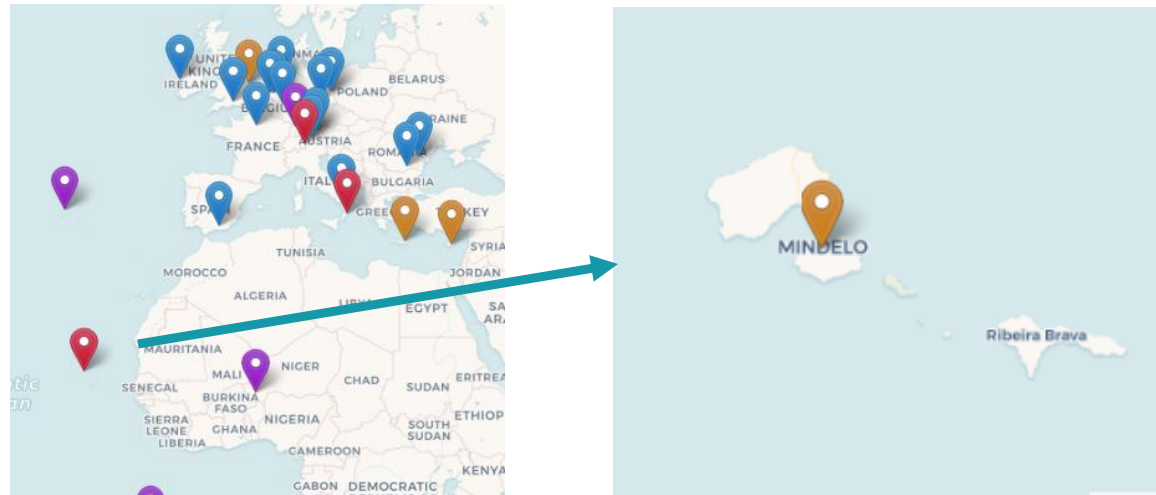
Davos (Switzerland)

Soverato (Italy)

Mindeló (Cape Verde)



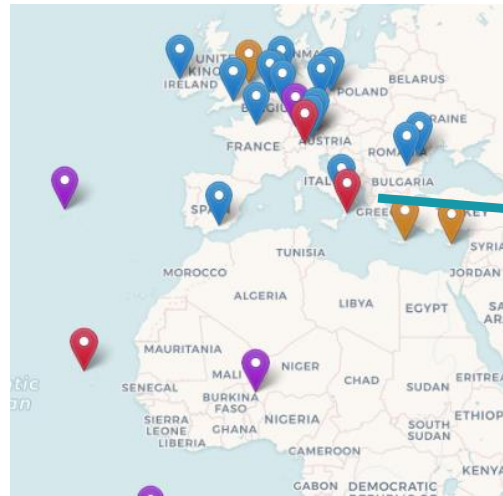
New campaign sites – Mindelo (Cape Verde)



- Full Cloudnet and EARLINET station
- Operations starting now
- ESA funded campaign
 - Planned to become permanent
 - TROPOS

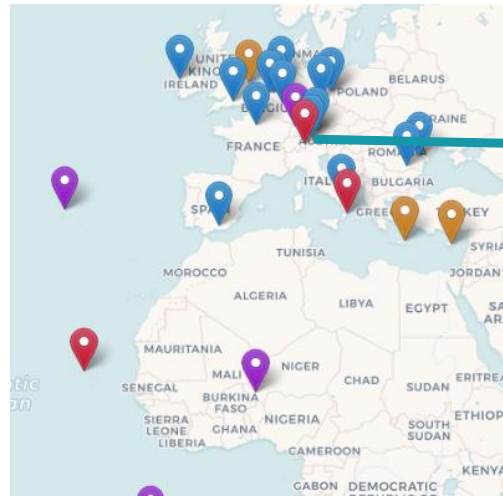


New campaign sites – Soverato (Italy)



- Full Cloudnet and EARLINET station
- Operations started in July 2021
- Fabio Madonna

New campaign sites – Davos (Switzerland)



- Full Cloudnet and EARLINET station
 - Wind profiler
- 4 week campaign 2019 – high altitude station (1630 m)
- Organised by TROPOS as part of the RACLETS campaign

New permanent stations – starting 2021-2



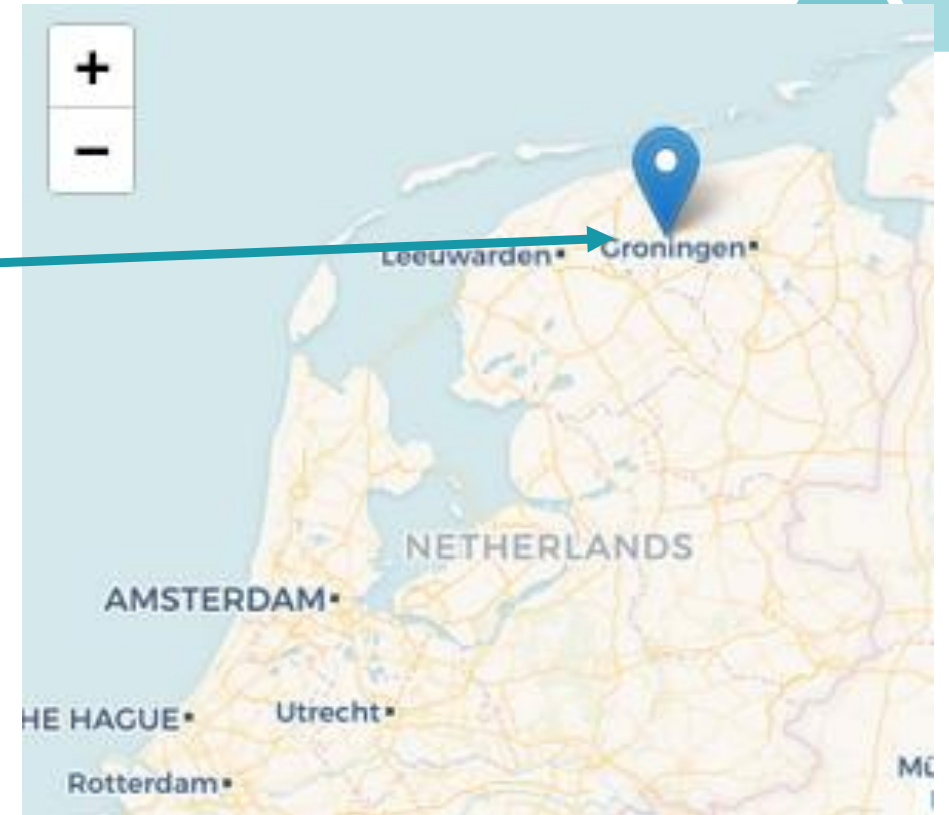
Kenttäröva (Finland)

Lutjewad, Delft (Netherlands)

Galați (Romania)

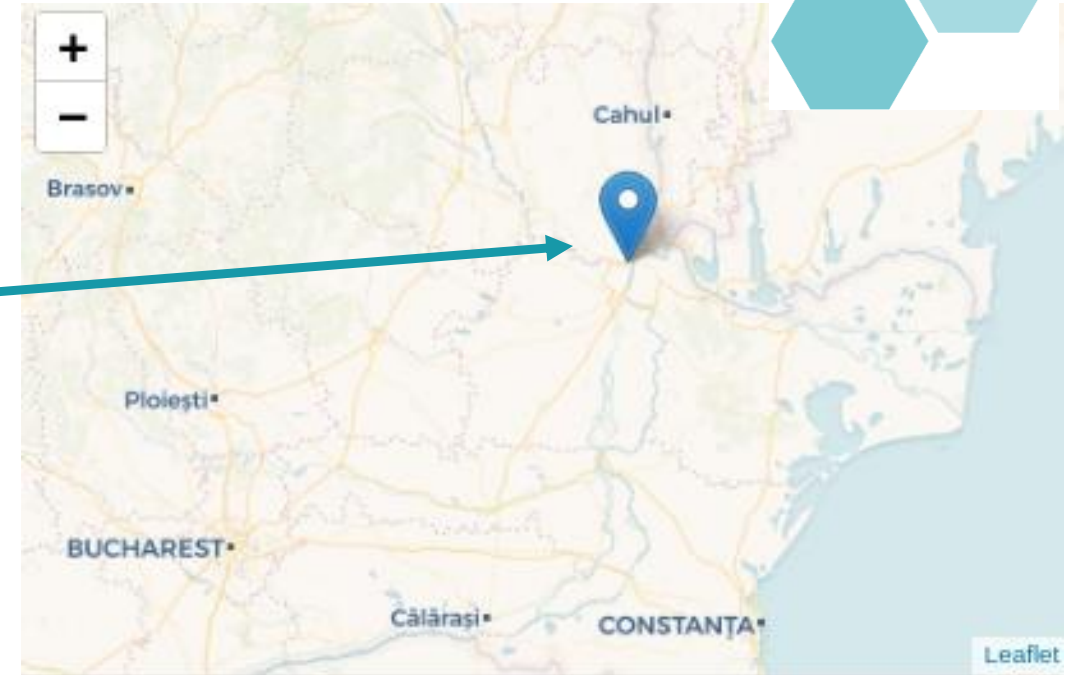


New permanent station – Lutjewad (Netherlands)



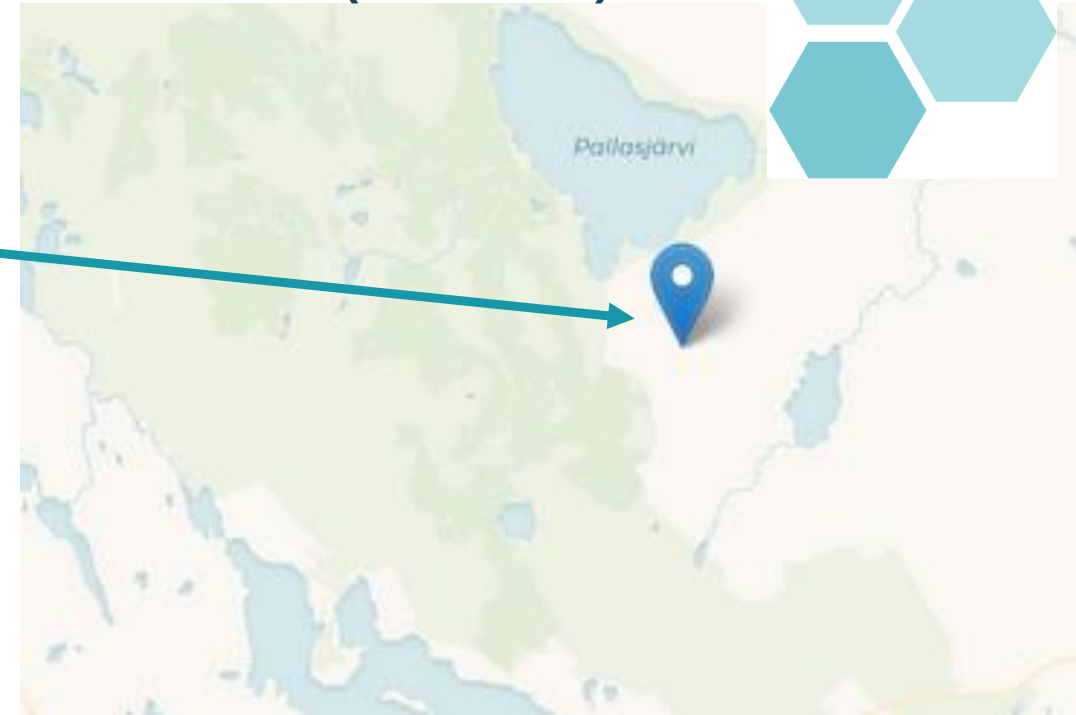
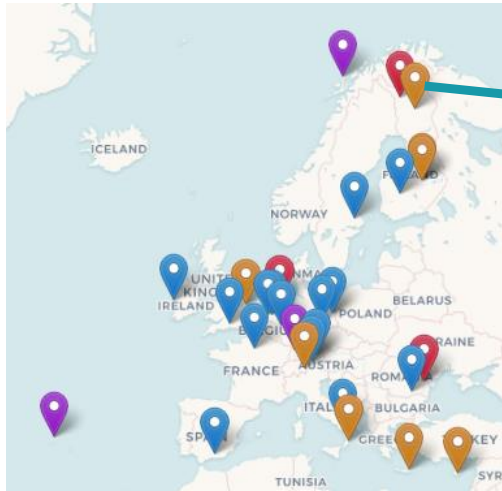
- Full Cloudnet station
- Part of RUISDAEL
 - Some instruments are in testing at Delft

New permanent station – Galați (Romania)



- Full Cloudnet station
 - On the Danube river
- Due to begin operations in 2022

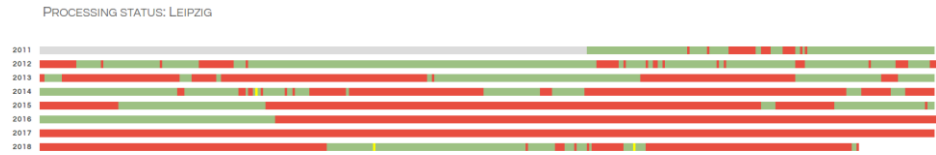
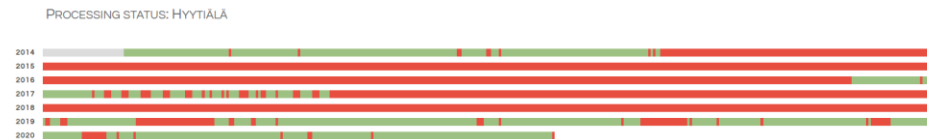
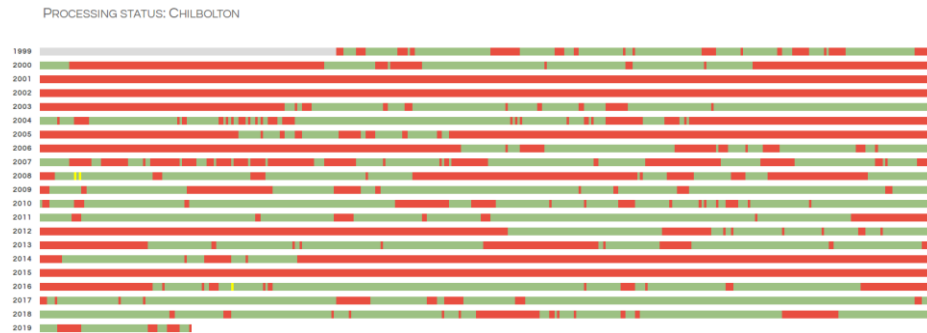
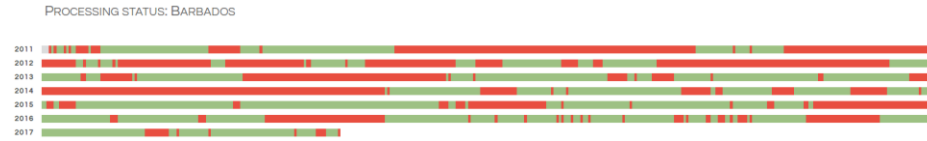
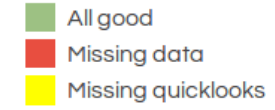
New permanent station – Kenttäröva (Finland)



- Full Cloudnet station
 - Aerosol and cloud in-situ
- Due to begin operations in 2022

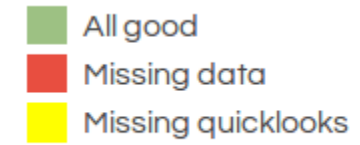
Extensive datasets

- Station data availability



Extensive datasets

- Station data availability

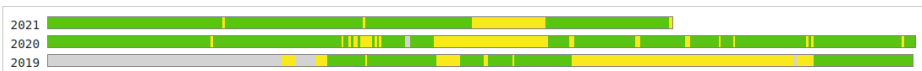


Extensive datasets

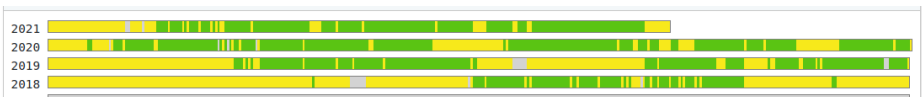
- Station data availa

■ All data
 ■ Missing some data
 ■ Unknown status
 ■ Only legacy data
 ■ Only model data
 ■ No data
 L Legacy file

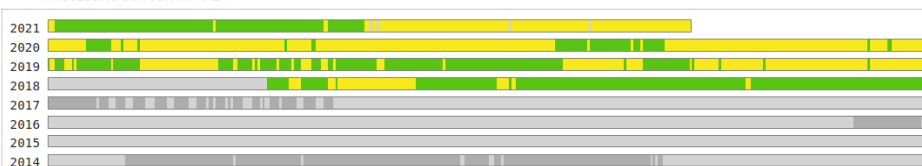
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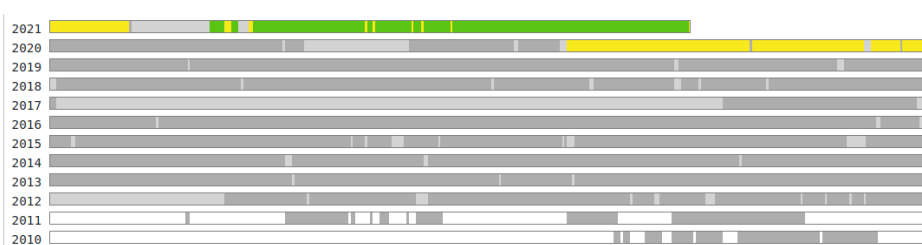
PROCESSING STATUS: GRANADA



PROCESSING STATUS: HYYTIÄLÄ



PROCESSING STATUS: JUELICH



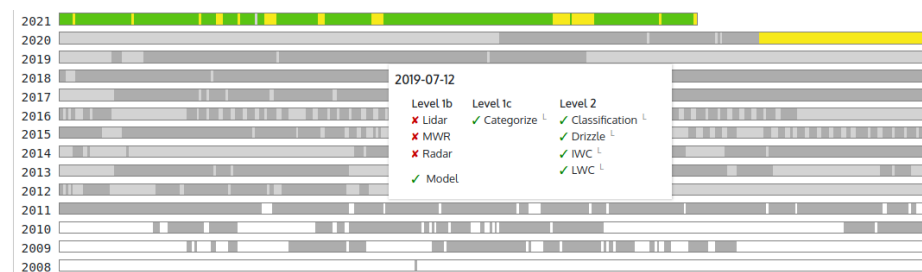
PROCESSING STATUS: LINDENBERG



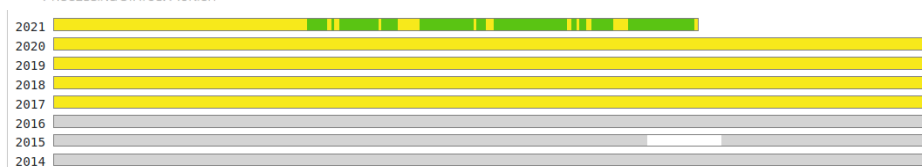
PROCESSING STATUS: LUTJEWAD



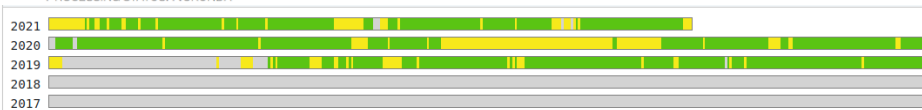
PROCESSING STATUS: MACE HEAD



PROCESSING STATUS: MUNICH



PROCESSING STATUS: NORUNDA



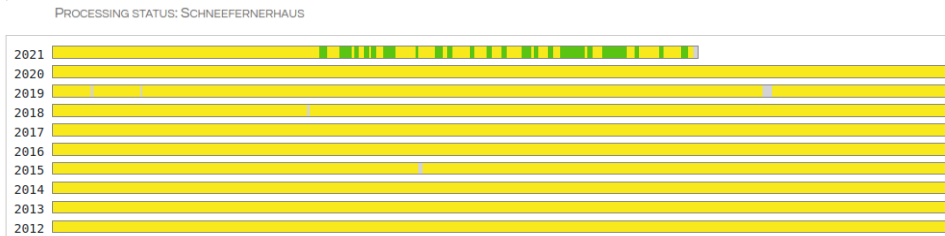
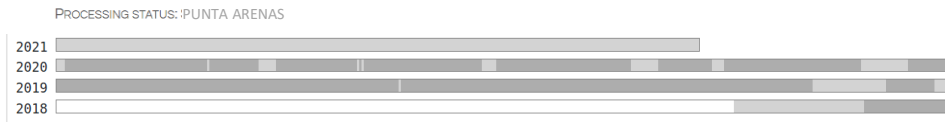
PROCESSING STATUS: NY-ÅLESUND



Extensive datasets

- Station data availa

■ All data ■ Missing some data ■ Unknown status ■ Only legacy data ■ Only model data □ No data
L Legacy file



Data availability



- All stations are able to send data in close to real time !
 - We will start to monitor this more closely
 - Model data available for new sites « on demand »
 - Processing status is much stricter
 - Processing still works but meta data or missing instrument
 - We will continue to update and improve this
 - **New major processing version due to be released soon!**
 - Please give feedback on all issues
 - Categorisation
 - Meta data (variables, attributes)
 - Variable list to be included
-