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NF State of operations

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

SUMMARY

1. SIRTA, France
2. CARO, ECoE, Cyprus
3. CIAO, Potenza, Italy
4. LACROS, Germany
5. CVAO, Germany
6. KLOCX, Germany
7. MARS, INOE, Romania
8. Warsaw, Rzecin, Poland
9. Ruisdael, Netherlands
10. Lampedusa, Italy
11. OPAR, France
13. Chilbolton, UK
14. JOYCE, Germany
15. Hyytiala, Finland
16. FCOMLab, Finland
17. Kenttärova: Pallas-Sodankylä, Finland
18. AGORA, Spain
19. Melpitz, Germany
20. Lindenberg, Germany
21. ATMOSLAB, Galati, Romania
22. RADO- Cluj, Romania
23. Payerne, Switzerland

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SIRTA, France

Martial Haeffelin

CCRES Workshop, Online –May 3-5th, 2022

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State of operations

SIRTA CloudNet instruments moved to the new SIRTA observatory

- *BASTA FMCW 94 GHz cloud radar*
- *RPG HATPRO G2 MWR to be replaced by G5 in June 2022*
- *Lufft CHM15k ALC*
- *Leosphere V70 Doppler Lidar*
- *Parcivel and DBS2 disrometers*

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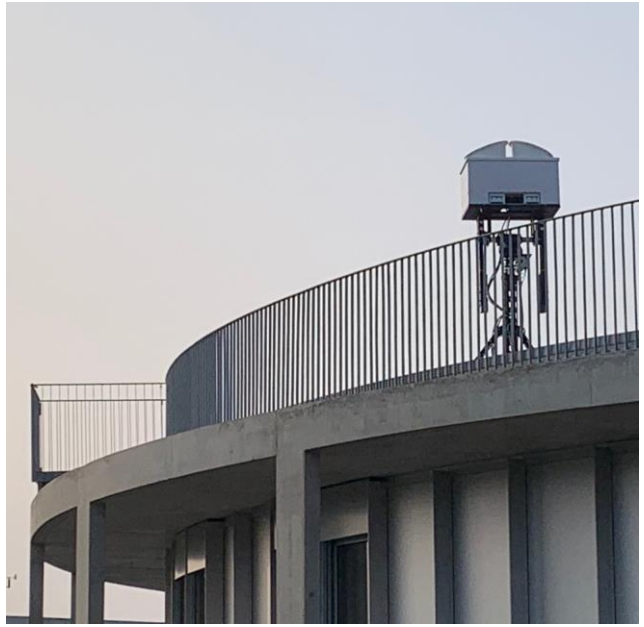
Highlights

SIRTA Observatory is hosting CCRES-FR facility:

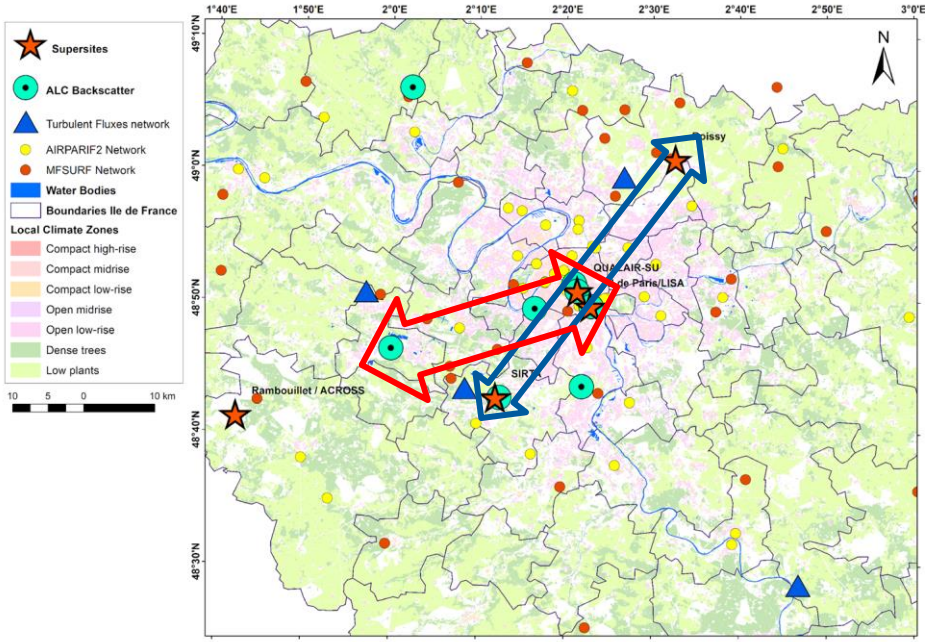
- New BASTA-mini FMCW 94 GHz DCR



SIRTA is contributing to Paris-2022 « PANAME » urban climate and urban air pollution campaigns :

- Network of 10 ALCs
- Network of 3 MWRs
- Network of 3 DLs

See https://paname.aeris-data.fr



Access to SIRTA for cloud, aerosol, trace gas research in urban-suburban environment throug **ATMO ACCESS**

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Thank you

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CARO: Cyprus Atmospheric Remote Sensing Observatory

Rodanthi-Elisavet Mamouri

CCRES Workshop, Online –May 3-5th, 2022

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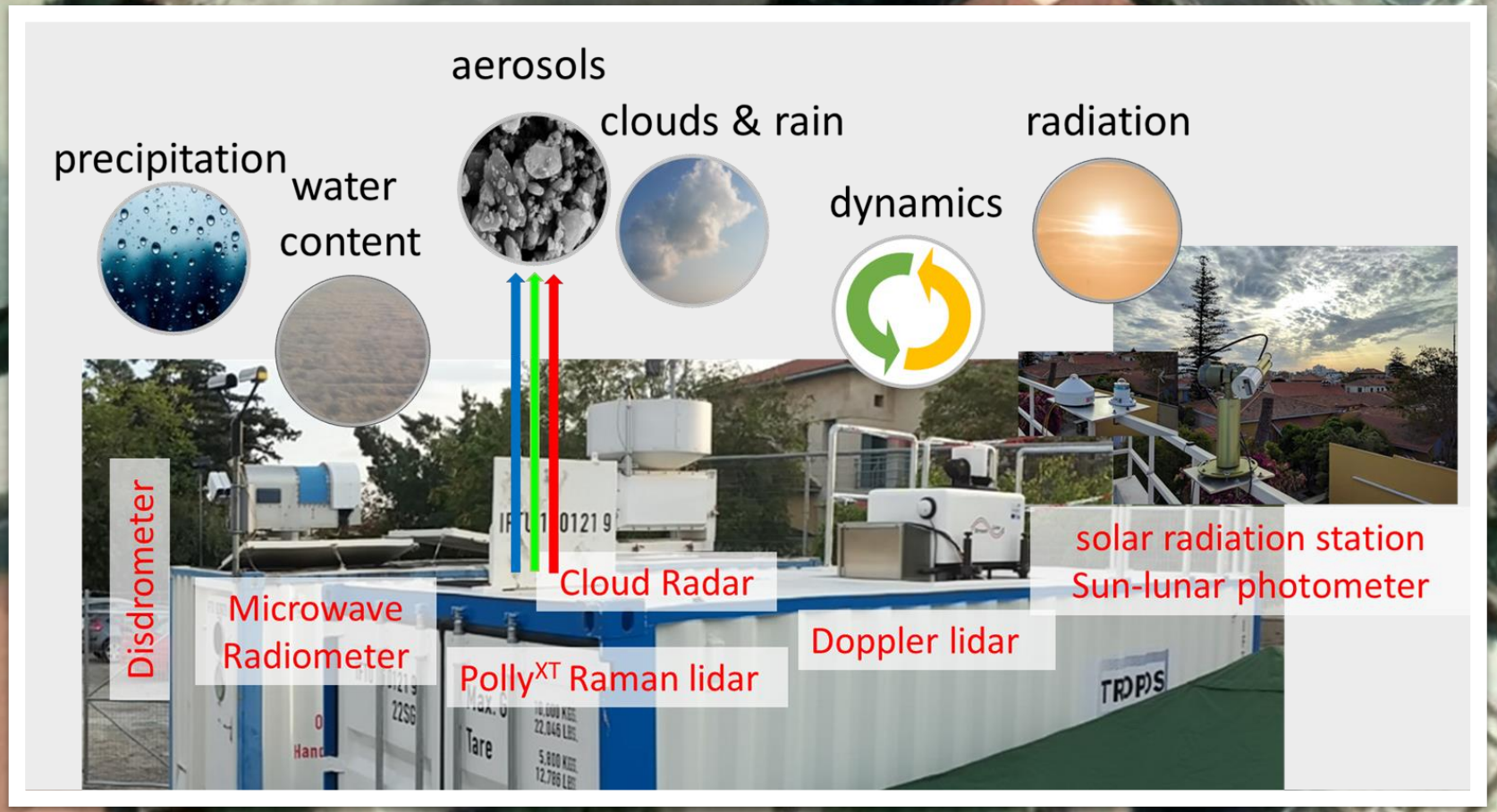
«*CARO*» state of operations

- *State of Cloud Remote Sensing (CRS) measurements operations*
  - ***PLANNED – NO OPERATED YET***
- *New developments done*
  - The build of the NF will be supported by the EXCELSIOR Teaming Project
  - The new established ERATOSTHENES Centre of Excellence is the Host Institution of the NF
- *Issues and challenges experienced in 2021-2022*
  - The pandemic [delays on the establishment of the ECoE and the procurement procedures]
  - Ukraine [uncertainties on the dates of delivery of the instruments]
- *Proposed year to start ACTRIS CRS labelling*
  - **Estimated time for full operation and labelling beginning of 2024**

CARO Field-site

Limassol, Cyprus [34.7°N, 33°E]

Legend



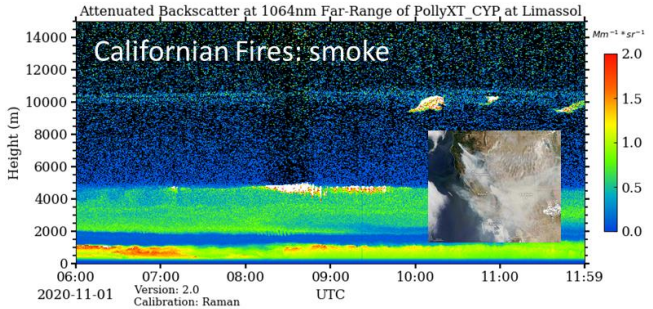
Cyprus Atmospheric Remote Sensing Observatory
CRS NF Planned for early 2024

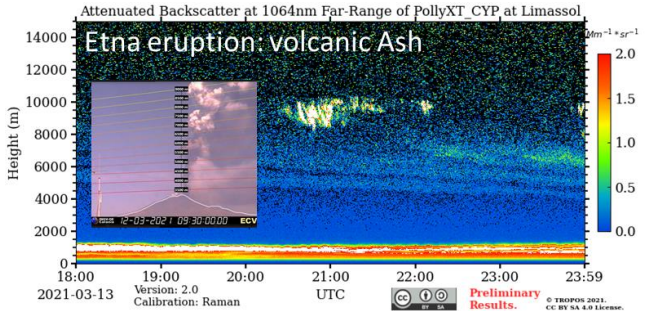
N

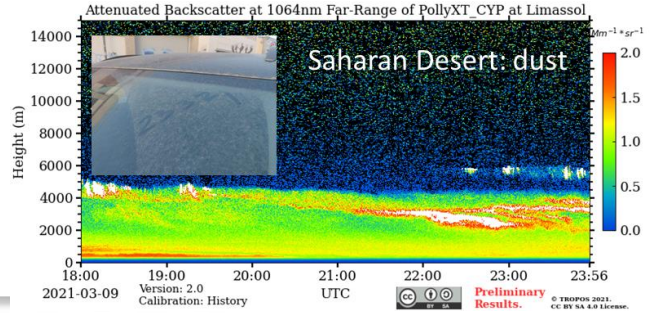
40 m

«*CARO*» highlights and future challenges

- *Scientific or technical highlight of your CRS NF (if any)*
- *PollyXT-CYP collocated with CRS, operates since October 2020.*







- *New developments planned*
- *Next challenges foreseen for the CRS NF*

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CIAO

Marco Rosoldi

CCRES Workshop, Online –May 3-5th, 2022

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CIAO state of operations

- *State of Cloud Remote Sensing (CRS) measurements operations*
  - *Observational platform: no instrument currently in operation*
  - *Mobile platform: new DCR (Metek Mira 35 C) in operation*

- *New developments done*
  - *Observational platform: DCR (RPG 94GHz), MWR (RPG HATPRO G5), ceilometer (Vaisala CL51), Micro Rain radar (Metek MRR), Doppler lidar (Halo Streamline XR) installed in their final location*
  - *Mobile platform: ceilometer (Vaisala CL31), Doppler lidar (Halo Streamline XR) installed in their final location*

- *Issues and challenges experienced in 2021-2022*
  - *Obs.: Failure of the scanner elevation controller of the old DCR (Metek Mira 35): sent to the manufacturer for repair or replacement. Failure of the old MWR (Radiometrics MP3014): repair not possible due to units' obsolescence; upgrade to latest generation hardware/software or new MWR needed; replacement with new RPG HATPRO G5*
  - *Obs./Mobile: Change of installation sites for new instruments and delay for the wiring of network connections and data transfer (the end of works and the operation of all installed instruments within the next 3 months)*

- *Proposed year to start ACTRIS CRS labelling*
  2022 and 2023, depending on instruments' operation

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CIAO highlights and future challenges

- *Scientific or technical highlight of your CRS NF*
  - *Measurement campaign at the coastal site of Soverato (Southern Italy, July-Nov 2021) with CRS instruments (MIRA 35, MP3014, CL51, Halo Streamline XR) and additional aerosol remote sensing instruments (polarization/Raman lidar and sunphotometer) for studying ice nucleation and its parameterizations in models. Data analysis in progress. No results to share are available yet.*

- *New developments planned*
  - *Obs.: upgrade of the old Metek Mira 35 (new Receiver, hardware/software); ceilometer 1064nm (Lufft CHM15k); disdrometer (*JOANNEUM RESEARCH *2D video distrometer)*
  - *Mobile: upgraded or new Radiometrics MP3014*

- *Next challenges foreseen for the CRS NF*
  - *All instruments operational at CIAO Observatory or other sites in measurement campaigns*
  - *Using measurement data in scientific applications and research*
  - *Recruitment of new personnel needed to address the above challenges*

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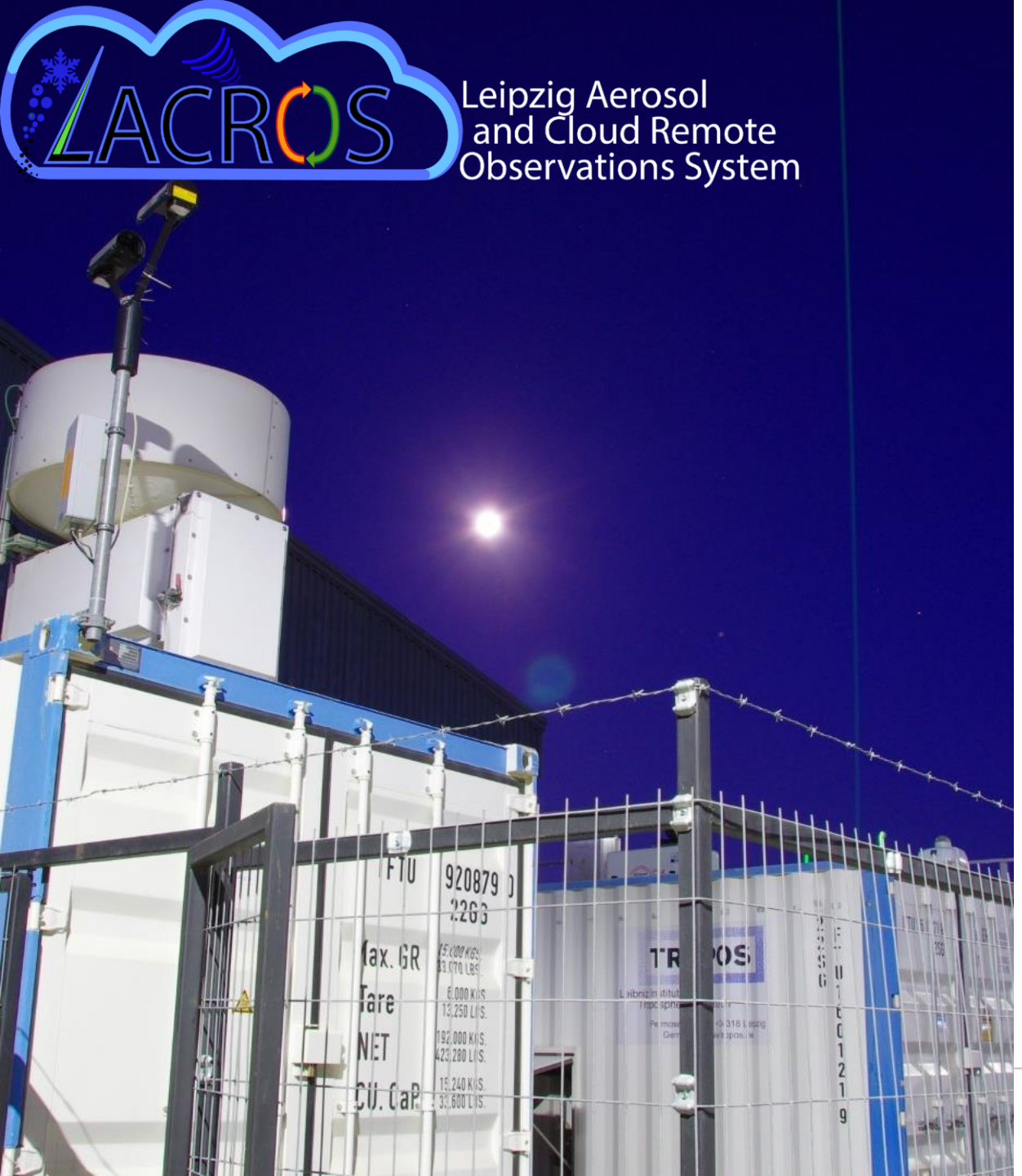
Thank you



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NF LACROS

Patric Seifert
Leibniz Institute for Tropospheric Research (TROPOS),
Leipzig, Germany

CCRES Workshop, Online –May 3-5th, 2022

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NF LACROS state of operations

- ***State of Cloud Remote Sensing (CRS) measurements operations***
  - After 3 years (12/2018-11/2021) of deployment to Punta Arenas, Chile, LACROS is since 03/2022 deployed at TROPOS, Leipzig.
  - Preparation of LACROS for deployment to Eriswil, CH, by 11/2022
    - measurements generally ongoing at Leipzig
    - frequent interruptions of measurements for maintenance and calibrations

- ***New developments done***
  - Solar-lunar photometer CE318-T incorporated into LACROS in 01/2022
  - RPG 94-GHz FMCW radar incorporated into LACROS in 02/2022
  - HATPRO-G2 replaced by HATPRO-G5 in 03/2022
  - HALO Streamline XR incorporated into LACROS in 02/2022
  - Working on automatic online and offline-coupling of LACROS to CloudnetPy

- ***Issues and challenges experienced in 2021-2022***
  - Limited access to Punta Arenas site due to Covid-19

- ***Proposed year to start ACTRIS CRS labelling***
  - 2023 for Ceilometer (CHM-15kx), HATPRO-G5, disdrometer (Parsivel^2), 94GHz FMCW radar, Doppler lidar (Streamline XR)
  - 2024 for Mira-35 (after return from Antarctica)

NF LACROS highlights and future challenges

- ***Scientific or technical highlight of your CRS NF***
  - Mixed-phase cloud statistics based on 8 years of multi-site deployments of LACROS: Radenz et al., 2021, https://doi.org/10.5194/acp-21-17969-2021
  - TNA project with ETH Zürich Deployment of RPG-94-FMCW cloud radar to field site at Eriswil, CH, from 02-04/2022

- New developments planned

- Refurbishment of the Mira-35-SLDR cloud radar (May 2022)
- Temporary transfer of LACROS-Mira-35-SLDR radar into NF-OCEANET for deployment to Neumayer-III station, Antarctica, in 2023
- Developments of cloud-radar techniques for hydrometeor typing ongoing
- Finalize on- and off-line coupling of LACROS data streams to CloudnetPy

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National facility CVAO
NF PI Wadinga Fomba

CCRES Workshop, Online –May 3-5th, 2022

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«*NF CVAO*» state of operations

- *State of Cloud Remote Sensing (CRS) measurements operations:*

most of the ACTRIS-D instruments not before ***2024*** *@OSCM (remote sensing site of NF CVAO)*

Installed:
- *Doppler lidar Streamline XR*
- *Solar-lunar photometer CIMEL CE318-T*

Planned:
- *Scanning 35-Ghz cloud radar Mira-35 (STSR-mode)*
- *Microwave radiometer RPG HATPRO-G5*
- *Raman lidar PollyXT*

Proposed year to start ACTRIS CRS: 2025/2026, Labelling 2026

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Karlsruhe Low Cloud Exploratory Platform (KLOCX)

Jutta Vüllers

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

KLOCX state of operations

- Setup of new mobile platform started
- Conception and instrument aquisition on track
- Significant price increases seen for most of the instruments

Work Package	Aug 2021 – Jul 2022	Aug2022 – Jul 2023	Aug 2023 – Jul 2024	Aug 2024 – Jul 2025	Aug 2025 – Jul 2026
Conception and setup of the main platform					
Instrument acquisition and integration into the system					
Test measurements and commissioning of the sytem					

First Instruments ordered

Platform conception completed

Start of labeling process

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Thank you

Warsaw and Rzecin National Facilities

Pablo Ortiz-Amezcua
Łucja Janicka, Iwona Stachlewska,
Patryk Poczta, Bogdan Chojnicki

CCRES Workshop, Online –May 3-5th, 2022

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Warsaw and *Rzecin* state of operations

State of Cloud Remote Sensing (CRS) measurements operations:

- Operational instruments, continous measurements:
  - *[Warsaw]: Microwave radiometer (RPG HATPRO)*
    Doppler Lidar (Halo Photonics Streamline)
    ~~Low~~ High power lidar (PollyXT)
    Disdrometer (OTT Parsivel²)
  - *[Rzecin]: Disdrometer (OTT Parsivel²): currently under repair*
- Dataflow to Cloudnet data portal
  - *[Warsaw]: MWR database from 2019 + automatized daily dataflow*
    Doppler lidar database from october 2021 + automatized daily dataflow
    PollyXT lidar: manual dataflow

New developments done in 2021-2022

- *[Warsaw]:* Purchase and installation of Doppler Lidar
  Data submission to Cloudnet
- *[Rzecin]:* *Smart Growth Operational Program* POIR4.2 **granted**:
  funding for Doppler Cloud Radar + Ceilometer

Issues and challenges experienced in 2021-2022

- Delayed purchase of Doppler Cloud Radar for *Rzecin*

Proposed year to start ACTRIS CRS labelling: *[Warsaw]:* ***2023*** *[Rzecin]:* ***2024***

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Warsaw and *Rzecin* highlights and future challenges

New developments planned

- *Ministry Investment Grant application:*
  - *[Warsaw]*: *Ceilometer + Doppler Cloud Radar*
  - *[Rzecin]*: *Microwave Radiometer*
- *Complete dataflow to Cloudnet data portal*

Next challenges foreseen for the CRS NF

New price increase?
New delayed delivery times?
Lack of permanent positions for instrument PI's?

Warsaw PI's: Pablo Ortiz-Amezcua (pablo.ortiz@fuw.edu.pl), Łucja Janicka (lucja.janicka@fuw.edu.pl)
Rzecin PI's: Patryk Poczta (patryk.poczta@puls.edu.pl), Bogdan Chojnicki (bogdan.chojnicki@up.poznan.pl)
Coordination of CCRES implementation for Warsaw and Rzecin: Iwona Stachlewska (iwona.stachlewska@fuw.edu.pl)

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Thank you

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Măgurele Center for Atmosphere and Radiation Studies (MARS)

National Institute of Research and Development for Optoelectronics (INOE2000)

Bogdan Antonescu

CCRES Workshop, Online –May 3-5th, 2022

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MARS-INOE2000 state of operations

State of Cloud Remote Sensing (CRS) measurements operations

- continous measurements 2021–present (with small breaks due to power outages, calibration, and maintenance)

New developments done

- RPG radar relocated in July 2021 at Mindelo (Cape Verde) for the ASKOS campaign

Issues and challenges experienced in 2021-2022

- issue with the MWR related to the azimuthal scanning module malfunctioning

Proposed year to start ACTRIS CRS labelling

- 2020 (measurements since Dec 2019)

INOE2000 radar at Mindelo (Cape Verde)

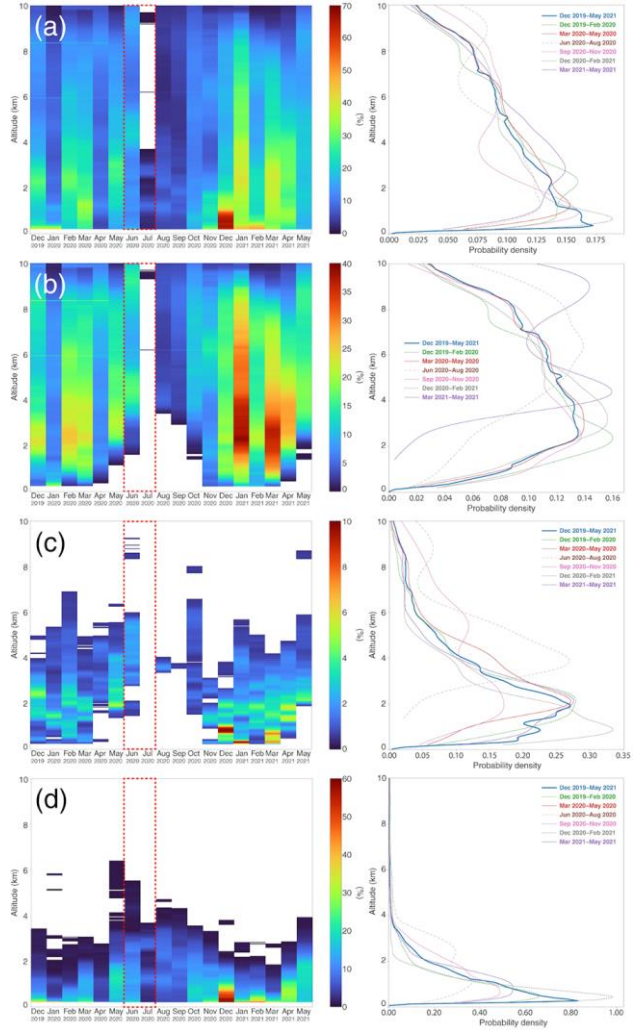
MARS-INOE2000 highlights and future challenges

Scientific or technical highlight of your CRS NF (if any)

- statistical analysis of the cloud properties (2019–2021) (Pîrloagă et al., in progress) over the site

New developments planned

Next challenges foreseen for the CRS NF



Frequency of occurrence for (a) liquid, mixed-phase and ice hydrometeors, (b) ice hydrometeors, (c) mixed-phase hydrometeors, and (d) liquid hydrometeors

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Thank you

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Ruisdael Observatory

Herman Russchenberg

CCRES Workshop, Online –May 3-5th, 2022

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State of operations

Cabauw:

35/94 GHz scanning cloud radar
MWR
disdrometer

Lutjewad:

94 GHz scanning cloud radar
MWR
disdrometer

Delft (home base mobile system)

94 GHz scanning cloud radar
MWR
disdrometer

Processed data in Actris data portal

Lower level data: data server in Delft

A few hardware failures for cloud radars

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Highlights

Annual campaign in Ruisdael domain

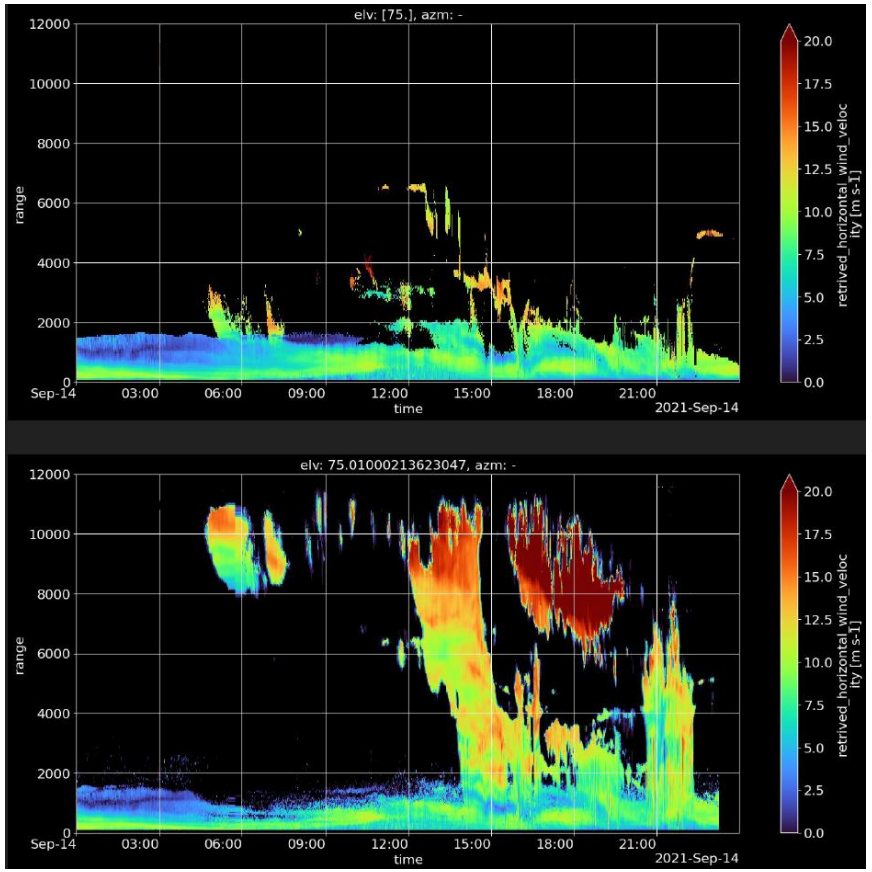
dual cloud radar setup for wind retrievals
evaluation of LES runs

Annual campaign is open to everybody:

september 2022 urban campaign

Calibration campaign in Cabauw

mast + trihedral
different cloud radars



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ENEA Station of Lampedusa

Giandomenico Pace

CCRES Workshop, Online –May 3 -5 th , 2022

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«ENEA Station of Lampedusa » state of operations

- ***State of Cloud Remote Sensing (CRS) measurements operations***

- **the NF of the ENEA Station of Lampedusa was funded to be involved in the Cloud Remote Sensing and Aerosol Remote Sensing component of ACTRIS in 2019;**
- **it is expected to become fully operational end of 2022**
- **it is also a NF of the ICOS research infrastructure (atmospheric, ecosystem and ocean site)**
- **further details https://www.lampedusa.enea.it/**

- ***New developments done***

Doppler Cloud Radar, Metek Mira 35 C with 1,2 antenna diameter, planned installation Autumn 2022

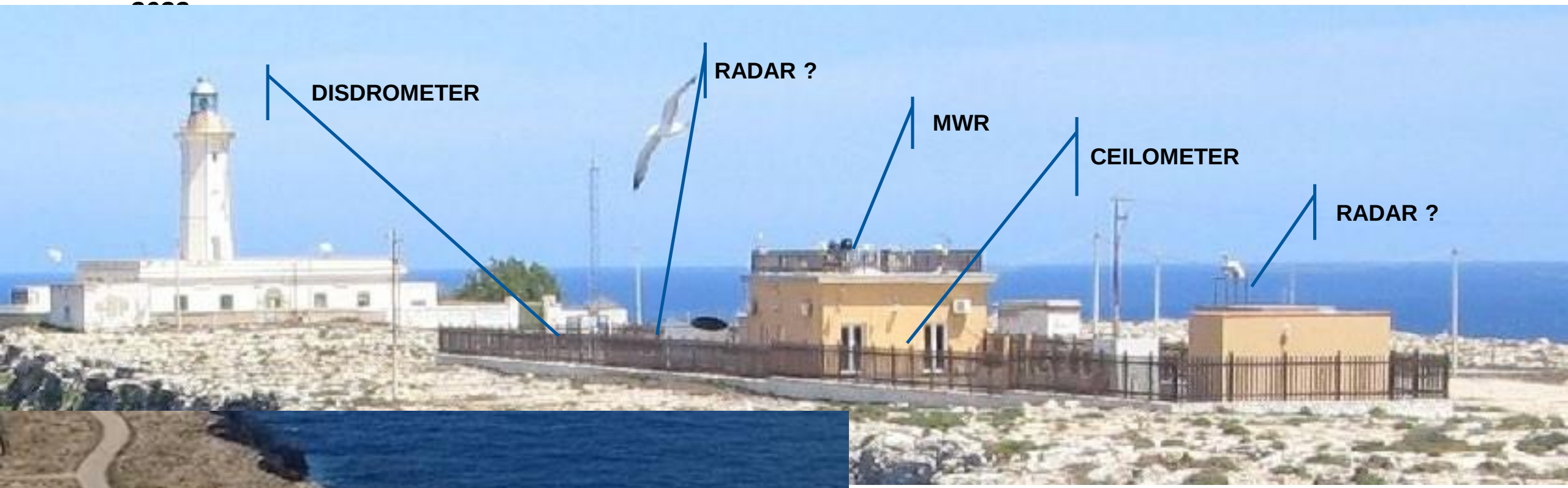
Microwave radiometer, RPG HATPRO G5, installed in June 2021

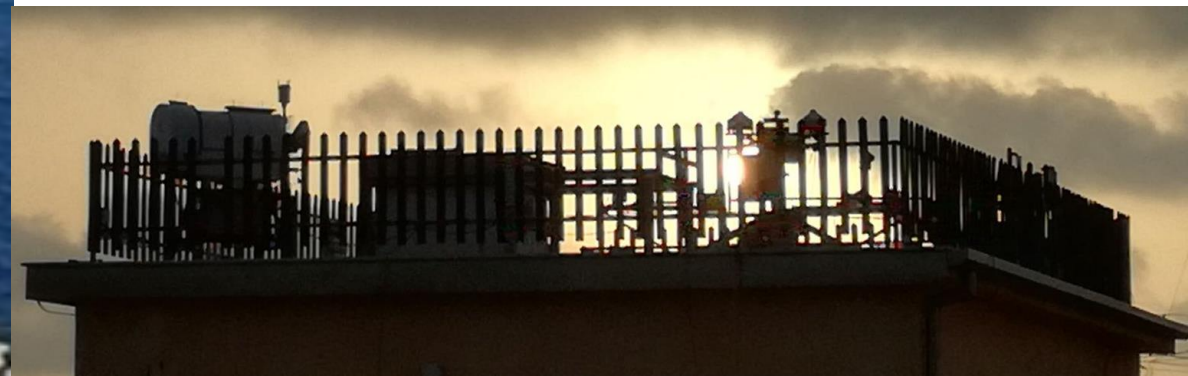
ALC , Lufft CHM15k, installed in July 2020 Disdrometer , Thies LNM, installed in April 2022 Additional instruments:

meteorological station (Vaisala) , radiosounding system (Vaisala Digicora), All-sky camera (ASI -16 Schreder), Raman and depolarization Lidar, SW and LW up -downward irradiance (Kipp & Zonen and Eppley), rain gauge (OTT Pluvio 2)

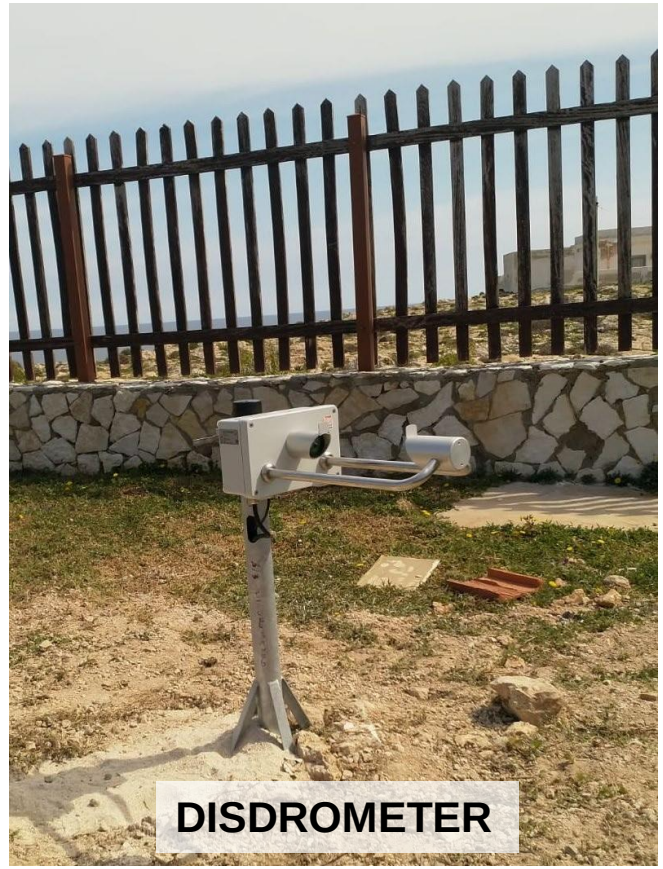
«ENEA Station of Lampedusa» state of operations

- ***Proposed year to start 2022*** ***ACTRIS CRS labelling***





«ENEA Station of Lampedusa » state of operations



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«ENEA Station of Lampedusa » state of operations

Possible Radar installation site

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Thank you

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OPAR

(Observatory of Atmospheric Physics of La Réunion)

Valentin Duflot

CCRES Workshop, Online –May 3-5th, 2022

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OPAR state of operations

State of Cloud Remote Sensing (CRS) measurements operations

- *Ceilometer (Campbell CS135): OK*
- *Radiometer (RPG-Hatpro-G5): OK*
- *Cloud radar (mini-BASTA): maintenance*

Issues and challenges experienced in 2021-2022

- *Installation of newly acquired cloud radar (september 2021)*
- *Multiple issues with cloud radar unresolved to this day*
- *Technical failure in November 2021 forcing a stop in operations until April 2022*

- *Installation of newly acquired Radiometer (January 2022)*

Proposed year to start ACTRIS CRS labelling

- *2025*

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OPAR highlights and future challenges

- - Scientific or technical highlight of your CRS NF
  - System to be technically compliant with ACTRIS-CCRES minimal requirements
- - New developments planned
  - Possibility to make use of radar positionner in order to explore Maïdo slope cloud *formation and evolution*
- - Next challenges foreseen for the CRS NF
  - Considerations for radar upgrade if financing could be secured.

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Thank you

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17. Kenttärova: Pallas-Sodankylä, Finland
18. AGORA, Spain
19. Melpitz, Germany
20. Lindenberg, Germany
21. ATMOSLAB, Galati, Romania
22. RADO- Cluj, Romania
23. Payerne, Switzerland

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Chilbolton Observatory

Chris Walden

CCRES Workshop, Online –May 3-5th, 2022

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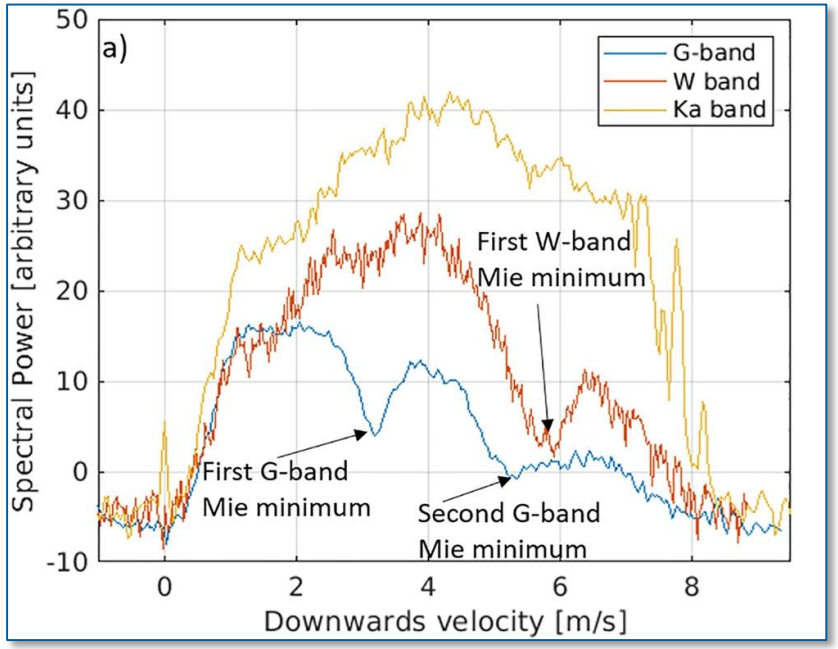
State of operations

- **Copernicus 35GHz klystron-based cloud radar**
  - operational
  - upgrades planned
  - needs reader to enable CloudnetPy processing
- **Metek MIRA35 35GHz magnetron-based cloud radar**
- **Galileo 94GHz klystron-based pulsed cloud radar**
  - under repair (high voltage power supply) + will have new klystron tube this year
- **RPG HATPRO G5 MWR**
- **Vaisala CL51 ceilometer**
- **Halo Streamline Pro Doppler Lidar**
- **Joss-Waldvogel impact disdrometer**
  - permanent installation of Thies disdrometer planned

Highlights

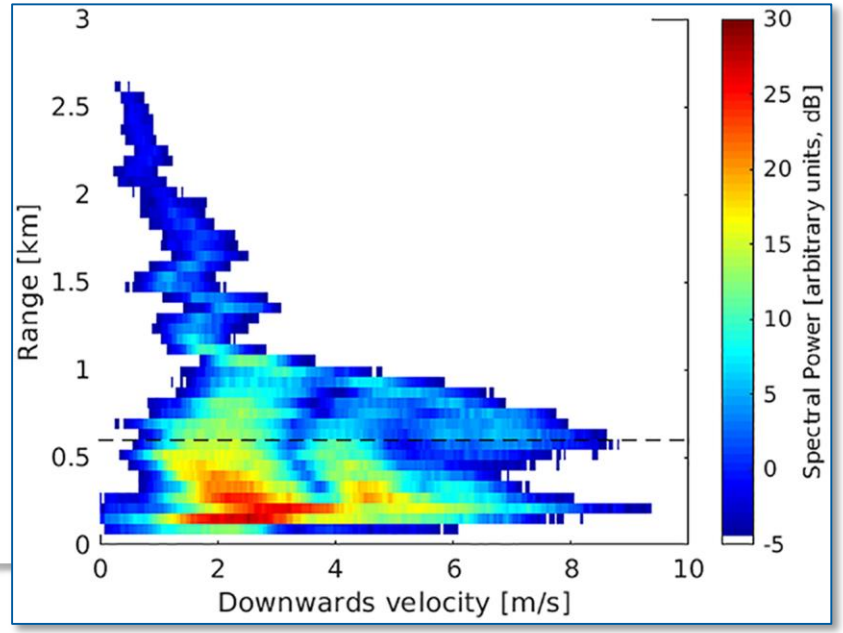
Evaluating new technology:

- 200GHz Doppler radar
- Chilbolton Observatory is hosting a new “G-band Radar for Cloud Evaluation (GRaCE)”
- Intercomparison with 94GHz, 35GHz and 3GHz radars
- Courtier et al., GRL, 2022



Supporting ESA Earth Explorer 11 studies:

- Chilbolton radars will participate in Phase 0 campaign for WIVERN mission candidate.
- Evaluating algorithms for global rainfall retrievals using gradient of reflectivity



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CPEX-LAB

Universität zu Köln

Jülich Observatory for Cloud Evolution (JOYCE)

Andrea Burgos-Cuevas
Ulrich Löhnert
Universität zu Köln

NF JOYCE : State of operations / New instruments

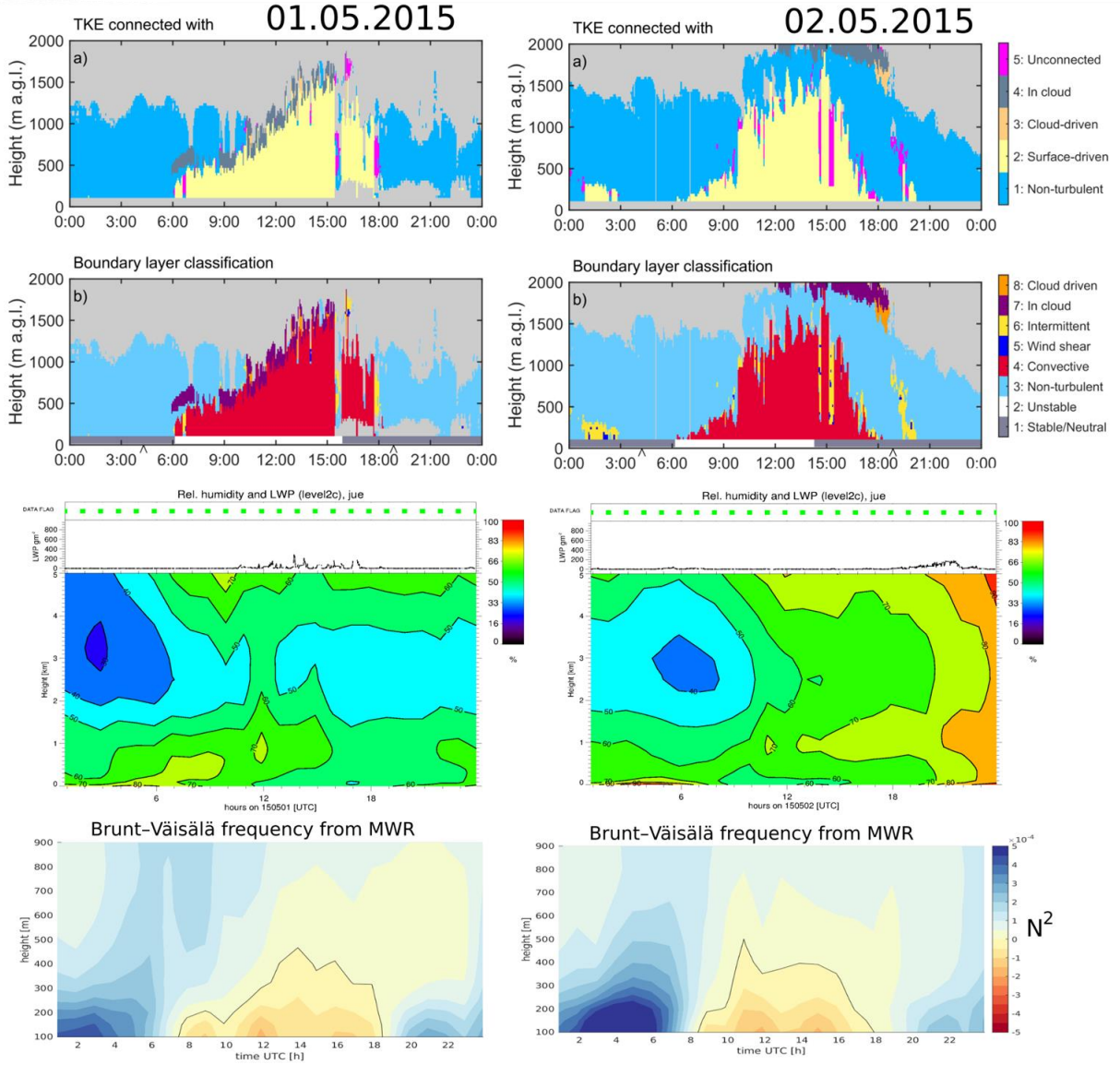
(RPG image)

- State of operations in 2021/22:
  - Continuous operation of all cloud remote sensing instruments, currently MIRA cloud radar broken (since 6 April)
- We received funds to acquire and continuously operate:
  - **Raman Lidar** for temperature and humidity high-resolution profiling (status: in the process of ordering)
  - **Dual frequency** (Ka- / W-band) polarimetric, scanable **cloud radar** (status: expected to arrive at the end of 2022)
- Reference instruments for CCRES Central Facility:
  - HATPRO G5 (K and V-band), water vapor, temperature profiles and LWP
  - LHUMPRO G5 (W and G-band), enhanced water vapor profiles and LWP (status: both expected to arrive in summer 2022)
- Proposed year to start ACTRIS labelling: 2022

JOYCE: Highlights and future challenges

Characterization of the Atmospheric Boundary Layer (ABL) turbulence and stability.

- ABL classification with Doppler lidar.
- Stability analysis with thermal and humidity profiles from MWR, via the Brunt Väisälä frequency (and in the future Richardson number).
- Further research is planned to characterize the structure and evolution of the Boundary Layer and the cloud formation processes in it.



Thank you

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Hyytiälä Cloud Remote Sensing

Dmitri Moisseev

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

Hyytiälä state of operations

Cloud remote sensing

RPG-FMCW-94-DP *(since December 2017)*
Vaisala CL61 *(since June 2021)*
RPG HATPRO G5 *(since June 2018)*
89 GHz passive channel *of RPG-FMCW-94-DP*
Doppler Lidar, Halo Photonics

Precipitation sensors

OTT Parsivel 2 (inside and outside of DFIR)
OTT Pluvio 200 (inside of DFIR) and OTT Pluvio 400 (outside of DFIR)

Other instruments

C-band radar (since August 2016), Metek MIRA-35 (on campaign basis)

New developments done: UPS for all instruments was installed in 2021, data is backed up on ida.fairdata.fi service in addition to Cloudnet

Issues and challenges experienced in 2021-2022: Nothing major, some temporary hardware issues

Proposed year to start ACTRIS CRS labelling: ***2022***

Hyytiälä highlights and future challenges

Aerosol-cloud-Interaction studies:

- *Li et al, 2021: Two-year statistics of columnar-ice production in stratiform clouds over Hyytiälä, Finland: environmental conditions and the relevance to secondary ice production, Atmos. Chem. Phys*
- *Li et al., 2021: Supercooled liquid water and secondary ice production in Kelvin–Helmholtz instability as revealed by radar Doppler spectra observations, Atmos. Chem. Phys.*
- *Calderón et al., 2022.: Aerosol-stratocumulus interactions: Towards a better process understanding using closures between observations and large eddy simulations, Atmos. Chem. Phys. Discuss.*

BLH observations:

- *Sinclair et al., 2022: Boundary-layer height and surface stability at SMEAR II, Hyytiälä, Finland in ERA5 and observations, Atmos. Meas. Tech.*
- Franck et al., 2021: Evaluation of convective boundary layer height estimates using radars operating at different frequency bands, Atmos. Meas. Tech

Next challenges foreseen for the CRS NF: Labelling process

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Thank you

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FMI Mobile Cloud Radar and Doppler lidar (FCOMLab)

Ewan O'Connor

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

FCOMLab state of operations

Mobile Cloud radar

- Metek MIRA-35S
  - Scanning
- Involved in campaigns within Finland
  - Hyytiälä, Kenttärova, Sodankylä, Vehmasmäki
- Currently not in operation
  - Needs power supply repaired

Mobile Doppler lidar

- Halo Photonics Streamline XR
  Or
- Halo Photonics Streamline Pro

- Involved in many campaigns (ACTRIS TNA and others)
  - Åre, Athens, Finokalia, Iquique, Kosetice, Limassol, Linde

Proposed year to start ACTRIS CRS labelling: ***2023***

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Thank you

Kenttärova: Pallas-Sodankylä supersite

FMI – Ewan O’Connor

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union’s Horizon 2020 research and innovation programme under grant agreements No 871115

Kenttärova state of operations

Cloud remote sensing

- Vaisala CL61 *(since June 2021)*
- Vaisala CL31 *(since 2019 – CT25K from 2008)*
- RPG-FMCW-94-DP *(arriving June 2022)*
- 89 GHz passive channel *of RPG-FMCW-94-DP*
- Doppler Lidar, Halo Photonics (on campaigns)

- OTT Parsivel 2 (planned 2023)
- RPG HATPRO (planned 2024)

Other instruments

- Metek MIRA-35S (on campaigns)

Previously

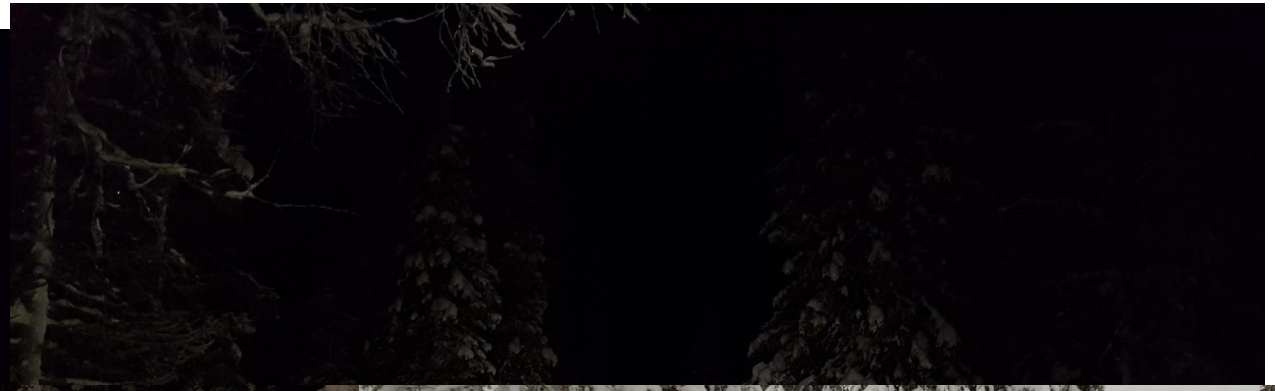
- Campaigns together with PollyXT (FMI-Kuopio)

Kenttärova is also an **ICOS** station – including a tower. Other ACTRIS in-situ measurement stations within supersite

Proposed year to start ACTRIS CRS labelling: ***2023***

Kenttärova challenges

Remote site, can be challenging to access



Kenttärova challenges and future plans

Remote site, can be challenging to access.

- New platform for CRS instruments to be constructed (2022/3)
  - Include space for visiting instruments
- Fibre-optic to the cottage (longer term)
- Upgrade to UPS – separate UPS for CRS instruments (2023)

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Andalusian Global ObseRvatory of the Atmosphere
AGORA

Lucas Alados-Arboledas

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

AGORA state of operations

- *State of Cloud Remote Sensing (CRS) measurements operations*
  - *Operational:*
    - *Doppler Cloud Radar: RPG-FMCW-94-DP-G1*
    - *Microwave Radiometer: RPG HATPRO G2*
    - *Doppler wind lidar: Doppler Lidar Stream Line Halo Photonics*
    - *Ceilometer CHM15K Nimbus Lufft*
    - *Aerosol Raman Lidar LR331D400, MULHACEN, Raymetrics*
    - *Disdrometer: OTT Parsivel 2*
  - *Regular submission to CLOUDNET Database*
    - *Doppler Cloud Radar (near real time), Microwave Radiometer, Ceilometer*
    - *Doppler wind lidar, Disdrometer (in prep.)*
- *Proposed year to start ACTRIS CRS labelling* *2022*

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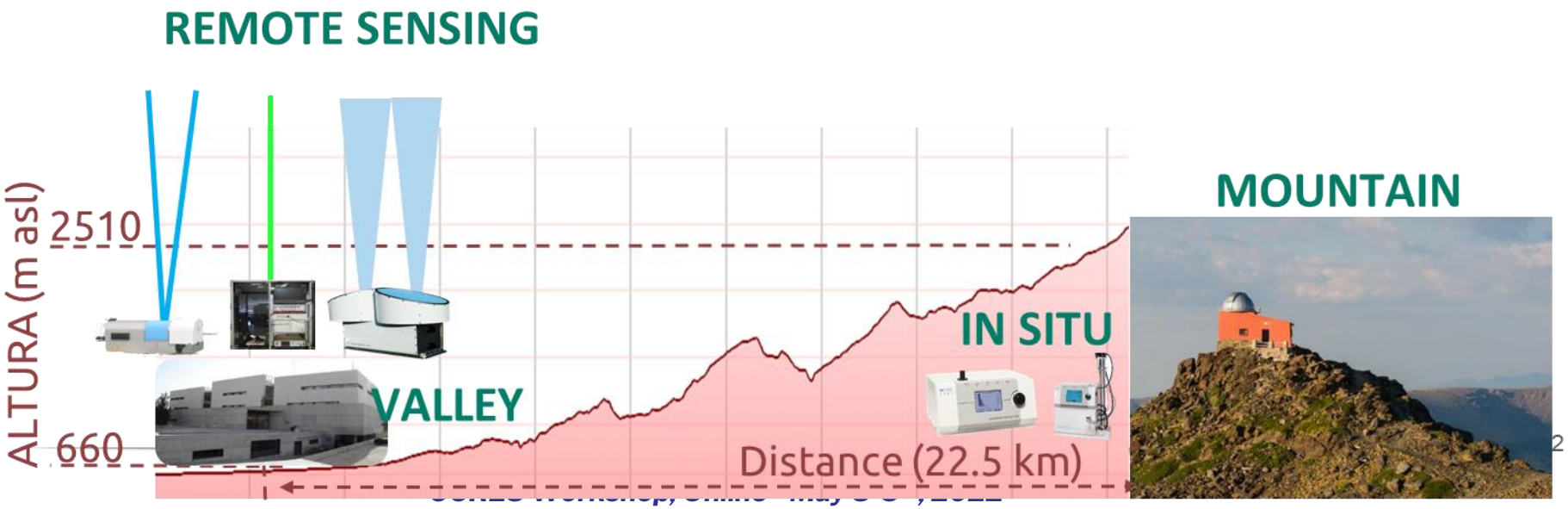
AGORA highlights and future challenges

- *Scientific or technical highlight of AGORA*
  - *AGORA is a NF that includes Cloud Remote Sensing, Aerosol Remote sensing and in-situ remote sensing. It regularly provides data and applies the Quality Assessment procedures.*
  - *AGORA is affected by different aerosol sources with a relevant contribution of North African mineral dust.*
  - *The remote sensing equipment of AGORA is deployed at UGR in the valley, this station is complemented by the high mountain station SNS.*
  - *Use of doppler cloud radar and ceilometer data to study Aerosol-Cloud Interaction (ACI) by quantification of the indirect effect index (Feingold, 2003).*



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AGORA highlights and future challenges

- *New developments planned:*
  - *Acquisition of new equipment:*
    - *Micro rain radar) Metek MRR-Pro (ready in 2022)*
    - *New Doppler wind lidar Halo photonics Stream Line XR+ (ready in 2023)*
    - *New Dual Doppler Cloud Radar RPG-FMCW-35-DP-G1 and RPG-FMCW-94-DP-G1 with positioner system (ready in 2023)*
  - *Permanent set up of High Mountain Station close to UGR-AGORA Station including Fog Monitor FM120*

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National facility Melpitz

NF PI Laurent Poulain
CRS PI Birgit Heese
Leibniz Institute for Tropospheric Research (TROPOS),
Leipzig, Germany

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

NF Melpitz state of operations

- *State of Cloud Remote Sensing (CRS) measurements operations*

  *To date, a - Ceilometer **CHM-15k** and a*
  *- Sun photometer **CE318** are implemented at the NF Melpitz*

- *New developments done*

  *- Ceilometer successfully integrated in the **E-profile** Network*
  *- Automatic and continuous PBL height determination (at TROPOS) from ceilometer data using **STRATfinder** algorithm (Kotthaus, 2020)*

- *Issues and challenges experienced in 2021-2022*

  - the ordering of containers is more complicated and will be conduct in 2022/23 due to actual raw material scarcity

https://doi.org/10.3390/rs12193259

- *Proposed year to start ACTRIS CRS labelling*

  - 2026

NF Melpitz highlights and future challenges

- *Scientific or technical highlight of your CRS NF (if any)*

- *New developments planned*

- *Next challenges foreseen for the CRS NF*

  - *The ordering of most RS instruments is foreseen for 2023*.

  - *Mira-35*
  - *HATPRO G5*
  - *Doppler Lidar Streamline*

  - *PollyXT Raman Lidar will be build at TROPOS in 2023*

  - *NF Melpitz Remote Sensing ready in 2024*

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Thank you

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Meteorologisches Observatorium Lindenberg,
Deutscher Wetterdienst

Ulrich Görsdorf

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

«NF Lindenberg (MOL-RAO)» state of operations 2021/2022

1) State of Cloud Remote Sensing (CRS) measurements

- Continuous operation of DCR, MWR, DL, ALC in 2021/2022
- DCR: data availability of MIRA36 in 2021 > 99 %
- ALC: data availability of CHM15k in 2021 > 99 %, replacement of measuring unit in August 2021
- MWR: no HATPRO G5 measurements between 21/09/2021 and 05/12/2021 due to repair (internal PC) by the manufacture
- DL: HALO Temporary special measurement mode (FESSTVaL, wind gust, TKE)

2) New developments done

- Commissioning of a Parsivel disdrometer in January 2022
- Applying four different setups of Cloudnet processing in order to investigate the effects of different input data and software environments (MatLab, Python)

3) Issues and challenges experienced in 2021-2022

- Delay in renewal of MIRA36 due to Ukraine war of unforeseeable duration
- Missing HATPRO measurements could be compensated by Radiometrics radiometer, but cloudnet processing could not use this data due to missing reading routine

«*NF Lindenberg (MOL-RAO)*» state of operations 2021/2022

4) Proposed year to start ACTRIS CRS labelling

- 2022

4) Scientific or technical highlight of our National Facility

- FESSTVaL (Summer 2021)
- Start of the WMO radiosonde intercomparison campaign:
  - Tests in the laboratory (March – Summer 2022)
  - Ascents (August/September 2022)

6) New developments planned

- Installation and set up a new HATPRO G5 (planned in May 2022)
- Installation and set up of a Doppler lidar network, 4 systems

7) Next challenges foreseen for the CRS NF

- Longer operation of the 18 years old cloud radar MIRA36 (replacement of components if necessary)

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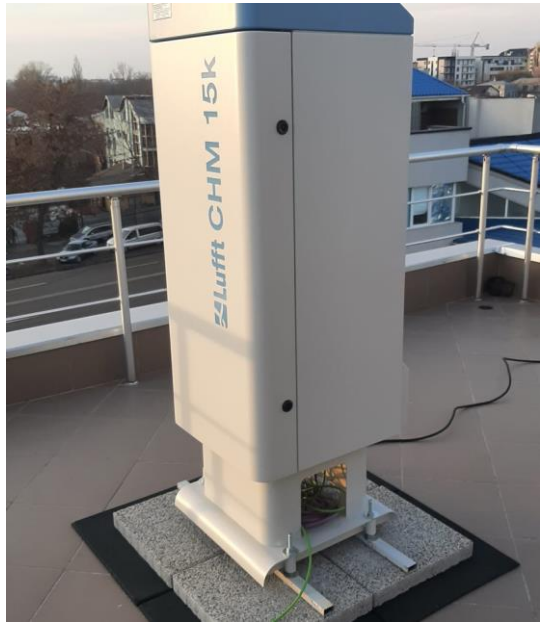
Thank you



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ATMOSLAB

Mirela Voiculescu

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

«*ATMOSLAB*» state of operations

- *State of Cloud Remote Sensing (CRS) measurements operations*

Cloud radar (RPG – FMCW- 94GHz), Radiometer (HATPRO G5), Ceilometer (Luft 15k)- Working

- *New developments done*

Equipment installed in January 2022

- *Issues and challenges experienced in 2021-2022*

Lack of personnel

- *Proposed year to start ACTRIS CRS labelling*

2022

«*NF name*» highlights and future challenges

- *Scientific or technical highlight of your CRS NF (if any)*

Equipment just started working.

- *New developments planned*

Nothing at this point.

- *Next challenges foreseen for the CRS NF*

Keeping equipments working
Finding personnel (and funding their salaries)

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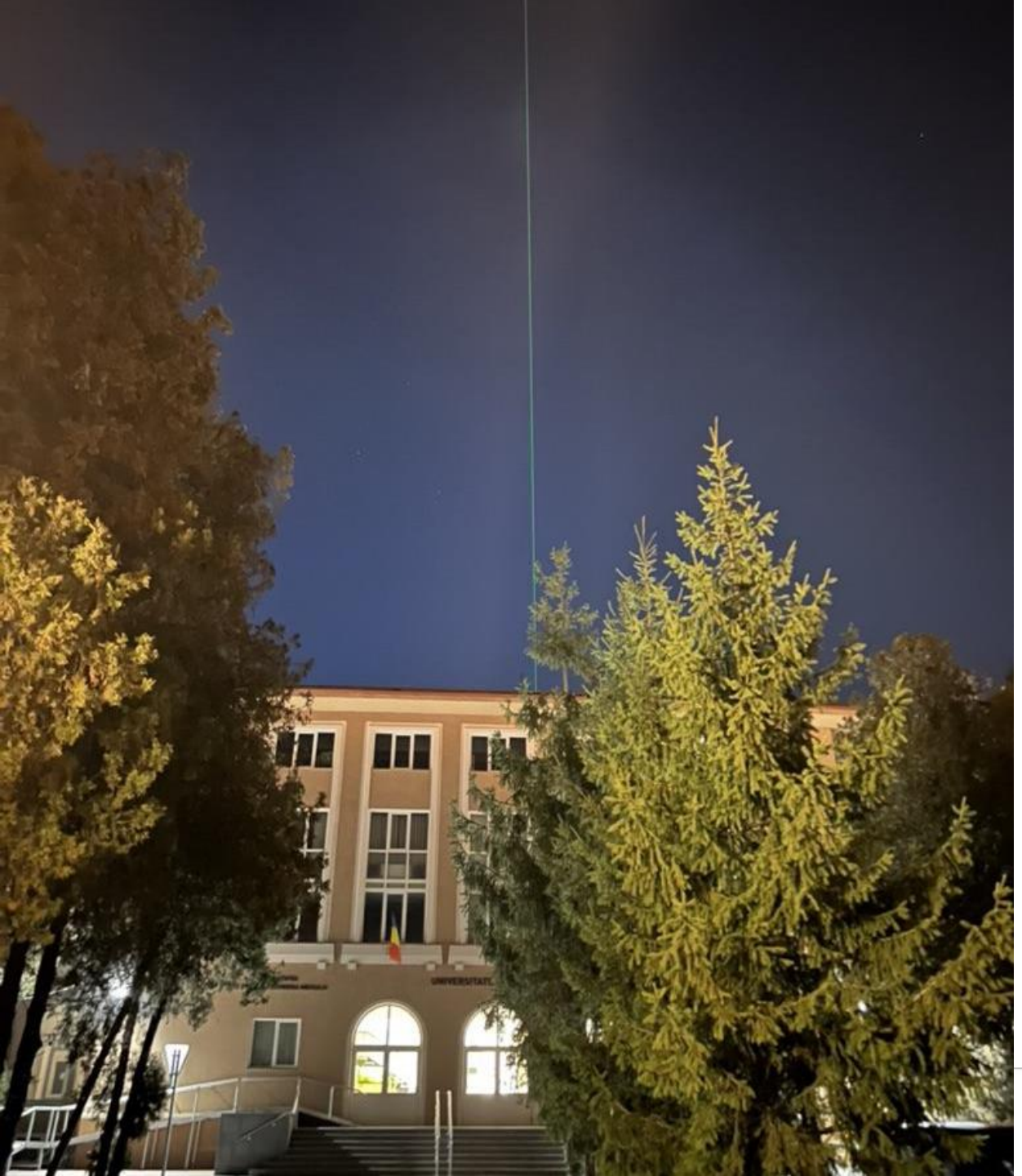
Thank you



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RADO Cluj

Nicolae AJTAI

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

«*RADO Cluj*» state of operations

- **Current state (CRS):**
  - Launching tenders for :
    - **Cloud Radar (RPG 94Ghz DP)**
    - **Microwave Radiometer (RPG HATPRO 5)**
    - **Wind LIDAR (HALO Ph. Streamline XR)**
    - **Ceilometer (Lufft CHM15k)**

    - All sky camera
    - Global radiation
    - CCN counter

- Status: Tenders will be launched this year
- Challenges: Waiting for the construction of the observtory building
- Proposed year to start ACTRIS CRS labelling: 2023

«*RADO Cluj*» highlights and future challenges

- ***Co-located ARS station***
  - *2 multiwavelegth Raman and depol LIDARs (1 for continuous measurements)*
  - *Solar/lunar photometer*
- ***Horizon Twinning Project*** *(under evaluation):*
  - Increase the scientific and technological capacities of Babeș-Bolyai University (BBU) in the field of aerosol and cloud remote sensing through transfer of expertise from the internationally leading counterparts: Finnish Meteorological Institute (FMI) and Consiglio Nazionale delle Richerche - Istituto di Metodologie per l'Analisi Ambientale (CNR).
  - Theoretical and technical training and transfer of expertise is organized with the main scope of transferring top expertise to the entire BBU team working in atmospheric remote sensing and it will cover: **the instrumentation** involved in **ground-based aerosol remote sensing and cloud remote sensing**, **the algorithms and software** for data processing and multi-source data analysis, data synergy and data exploitation and the **synergies** of aerosol cloud interactions.

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Thank you

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Payern, Switzerland

CCRES Workshop, Online –May 3-5th, 2022

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 871115

State of operations

- Renaud Mattey will be the new contact person for Switzerland.
- 2 persons started 1st of april + post doc + PI
- Part of the Meteoswiss infrastructure, earlinet and E-Profile instruments and parameters.
- 1 Hatpro G5 MWR, Doppler lidar
- Raman lidar, new depolarization receiver
- New radar wind profiler and new radiometer
- Procurement phase no DCR at the moment

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Thank you