



Cyprus Atmospheric Remote-Sensing Observatory (CARO) National Facility

Progress, Challenges, and Lessons Learned

Presenter: Konstantinos Chrysostomou, PhD student

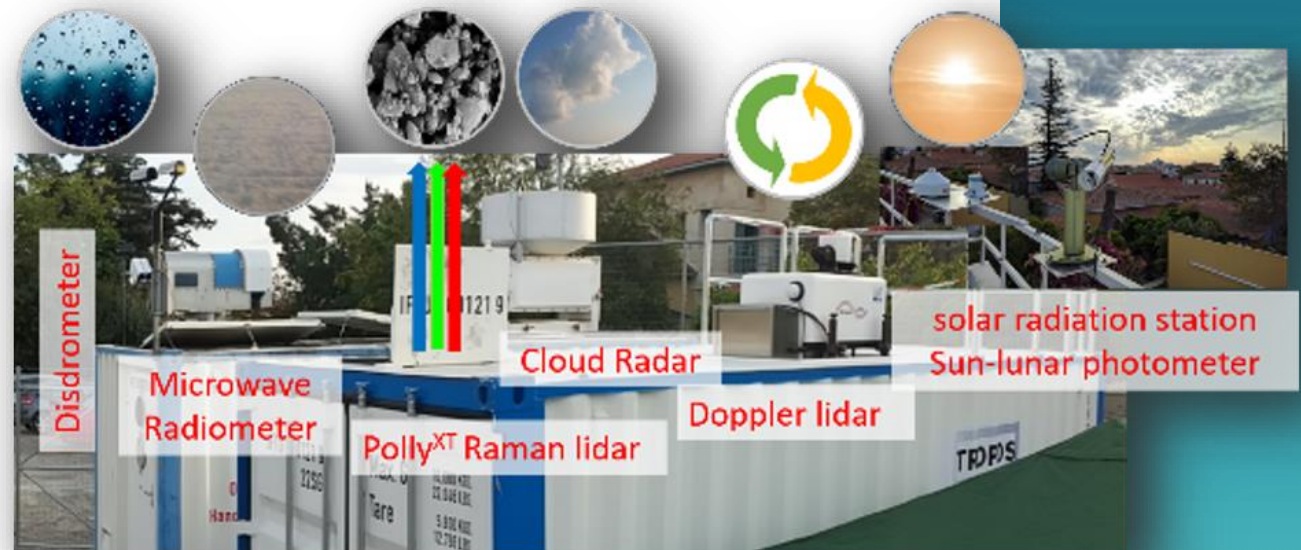
CCRES/CLU Autumn Workshop, Evora, 22 October 2025

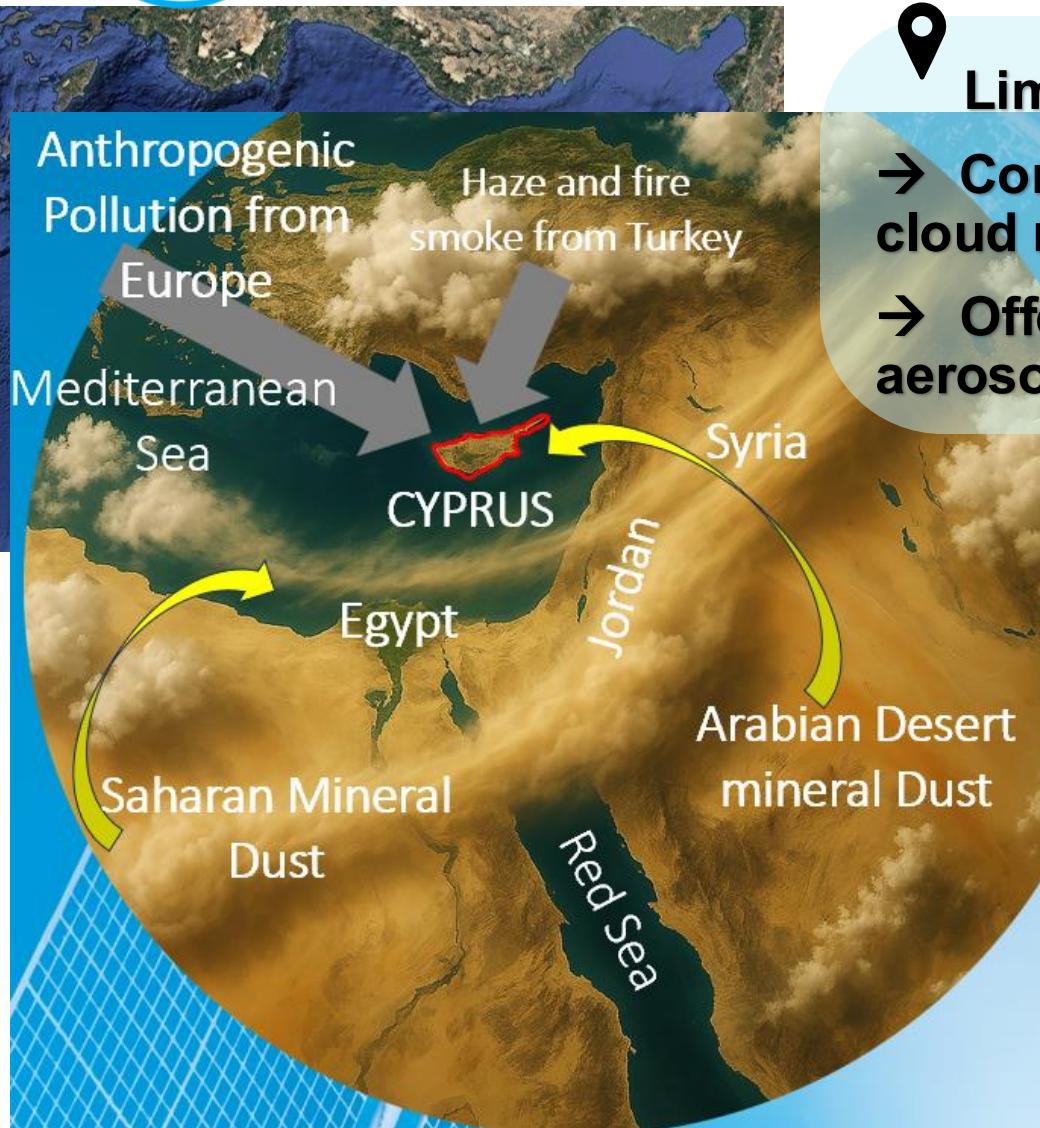


Limassol (34.677°N , 33.038°E) @ 10 m amsl

→ Consists of an aerosol remote sensing (ARS) and a cloud remote sensing (CRS) observational platform.

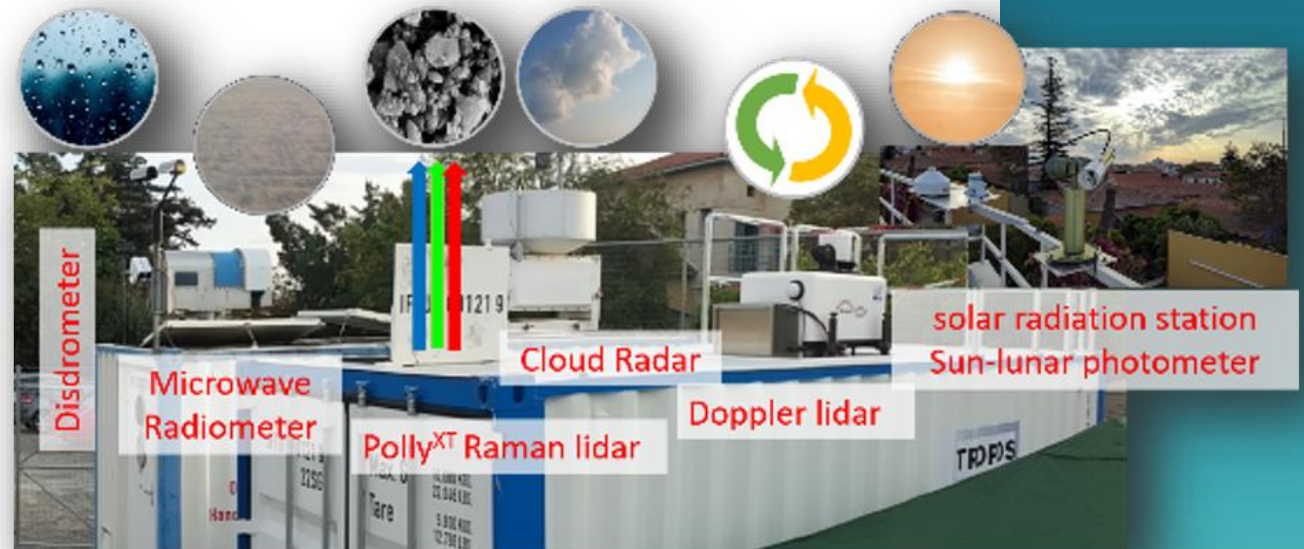
→ Offers complete insights into atmospheric dynamics, aerosol load, and cloud dynamics.





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CARO – Instrumentation and Measurements

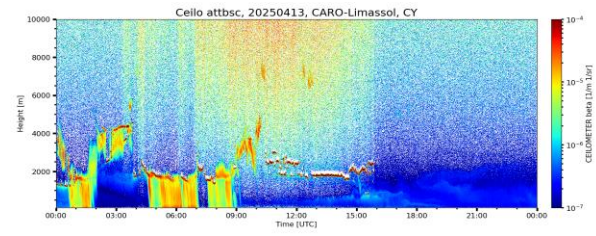
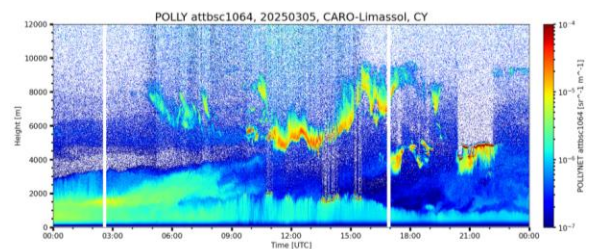


PollyXT
Raman Lidar



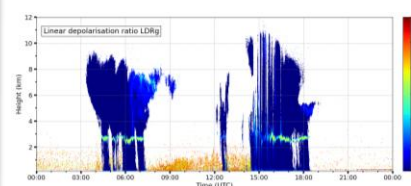
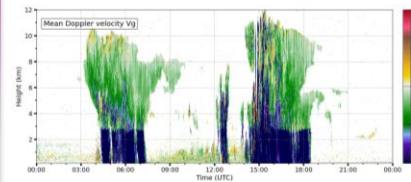
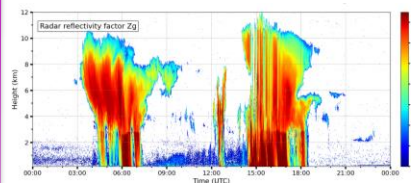
Ceilometer

Aerosols



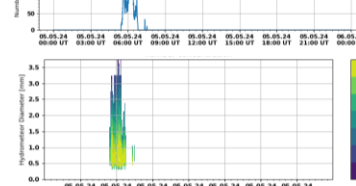
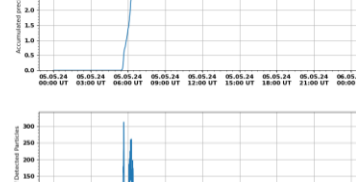
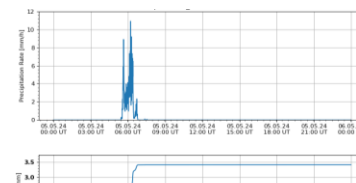
Cloud
Radar

Clouds



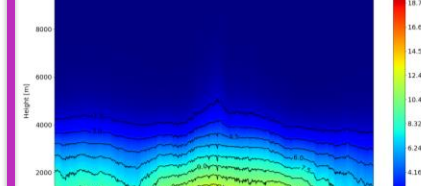
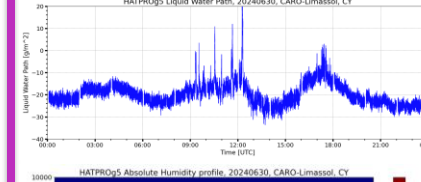
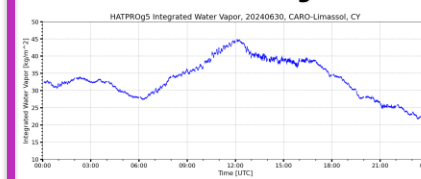
Disdrometer

Precipitation



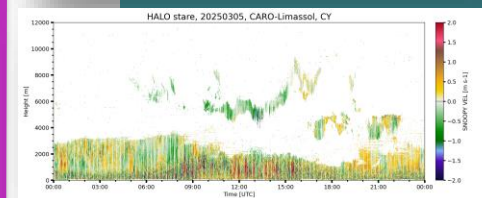
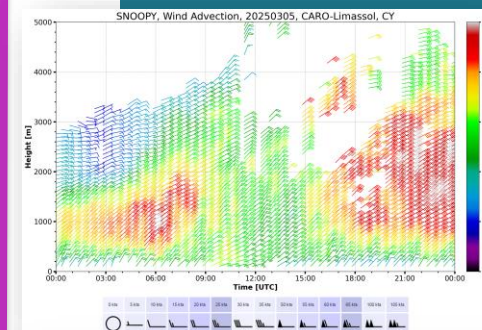
Microwave
Radiometer

Temperature & Humidity



Doppler Lidar

Dynamics



HATPRO-G5 MWR

Instrument

PID	https://hdl.handle.net/21.12132/3.33ef1f084a964bff
Owner	ERATOSTHENES Centre of Excellence (ECoE)
Model	RPG-HATPRO-G5
Type	scanning microwave radiometer
Serial number	0030242

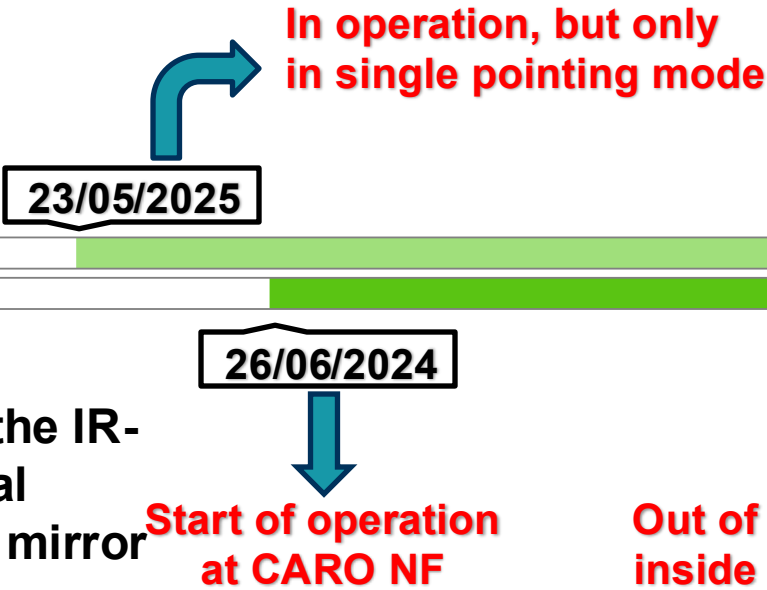
Locations

2024-06-26 – now [Limassol](#)

Product availability



- The internal elevation motor for the IR-Radiometer as well as the internal elevation motor for the (internal) mirror were defective.
- Changes were made at the power supply of the IR motor to prevent defects
- Replacement of a fuse



Out of service due to water leakage inside the cloud container, causing short-circuit problems



DCR Mira-35

PID <https://hdl.handle.net/21.12132/3.9af43f93e39649f5>
Owner ERATOSTHENES Centre of Excellence (ECoE)
Model METEK MIRA-35
Type Doppler non-scanning cloud radar
Serial number MBR8

Locations

2024-06-26 – now Limassol



**Back in
operation**

Product quality / **21/02/2025** dar



■ Pass ■ Info ■ Warning ■ Error ■ Legacy ■ Missing QC report ■ No data

26/06/2024



**Start of operation
at CARO NF**

05/11/2024



**Transmitter
stopped working**

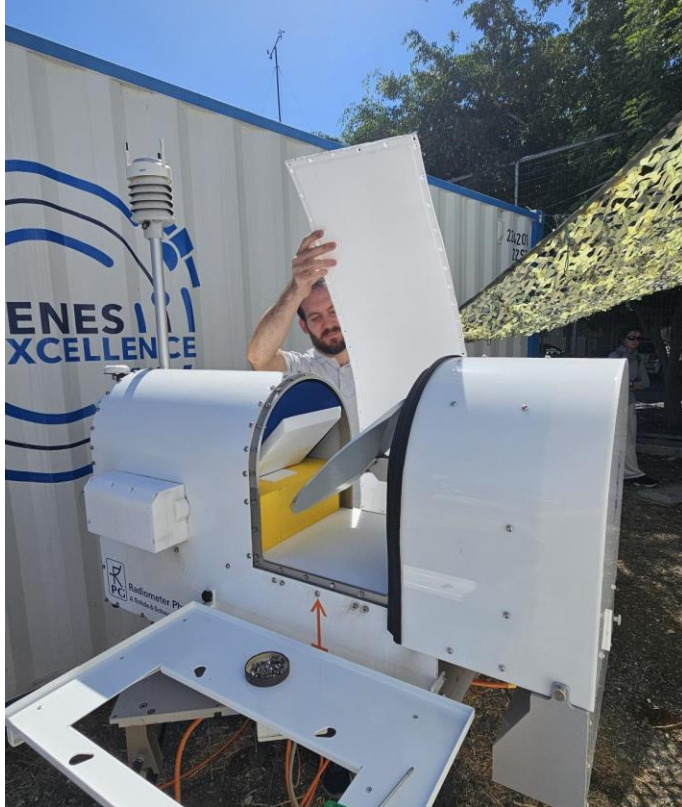


ACTRIS
CCRES

- The radar was still under guarantee by the METEK company
- The transmitter was sent for repairment
- We lost the opportunity to record the radar's first rainy/cloudy season

HATPRO-G5 MWR – Absolute Calibration

09 Oct.2025 → Change of radome



→ 1st radome change

→ Faced some problems with the stability of the platform

HATPRO-G5 MWR – Absolute Calibration

10 Oct.2025 ➡ LN2 Calibration



- ✓ Successful calibration
- ✓ Difference between the old and new System Noise Temperatures < 3 K

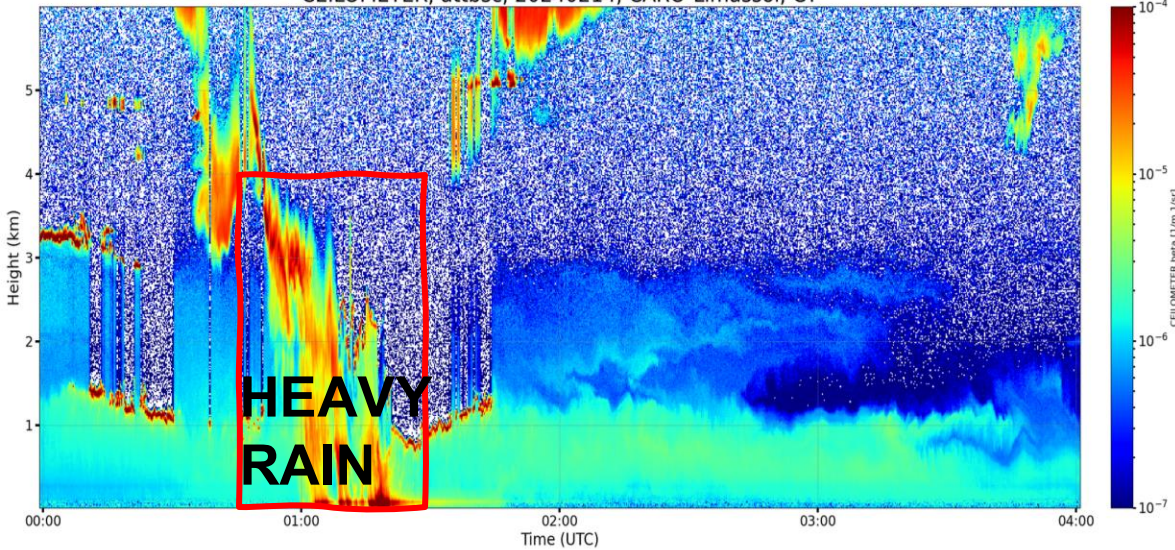
EXTREME WEATHER EVENT
T O R N A D O
1 4 . 0 2 . 2 0 2 4



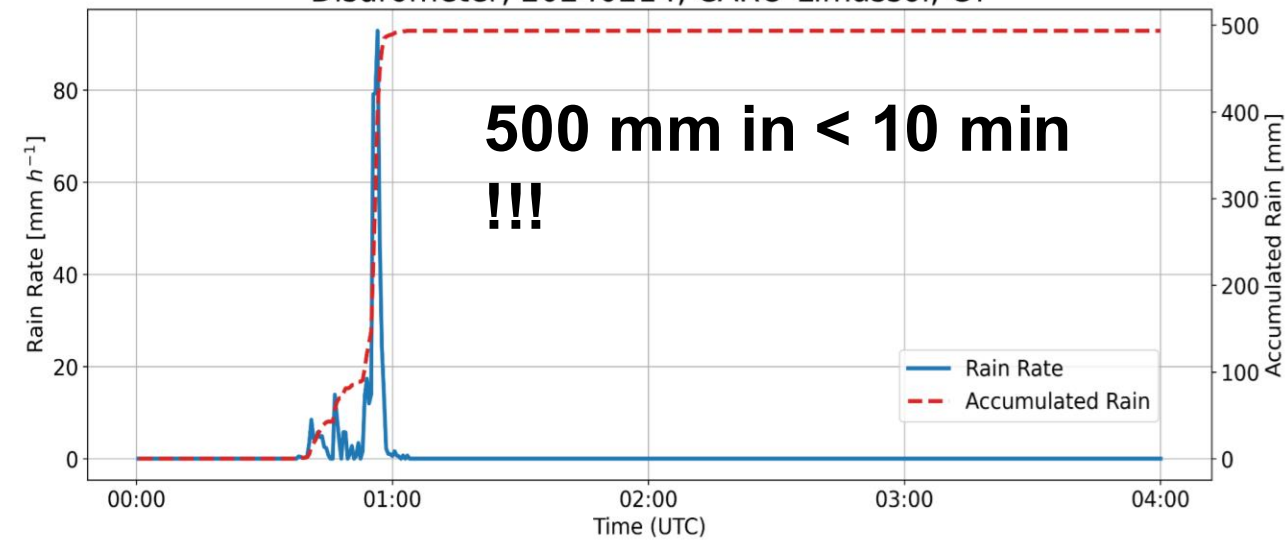
TORNADO

14.02.2024

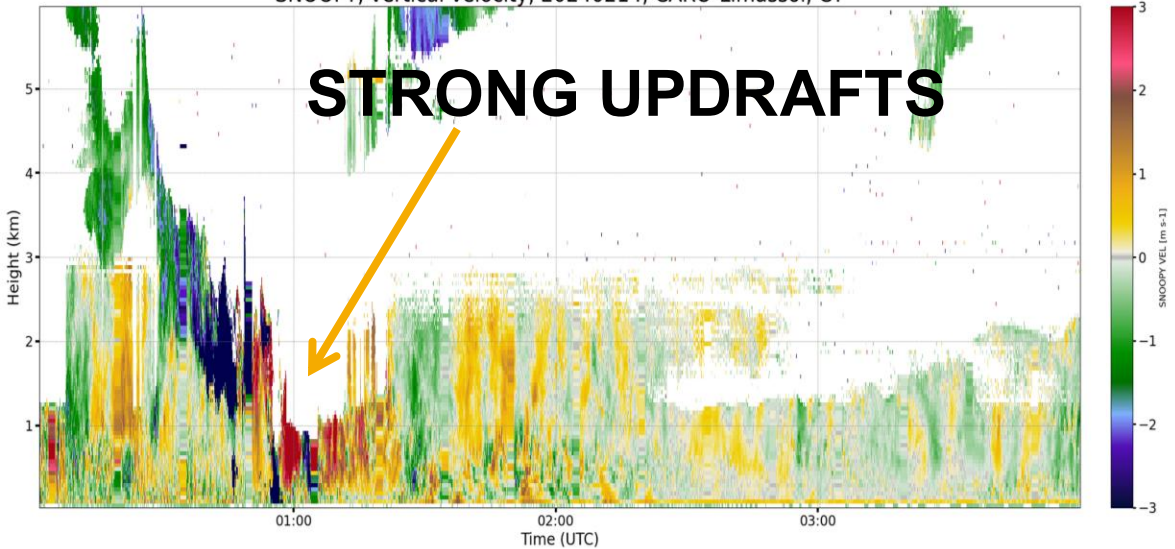
CEILOMETER, attbsc, 20240214, CARO-Limassol, CY



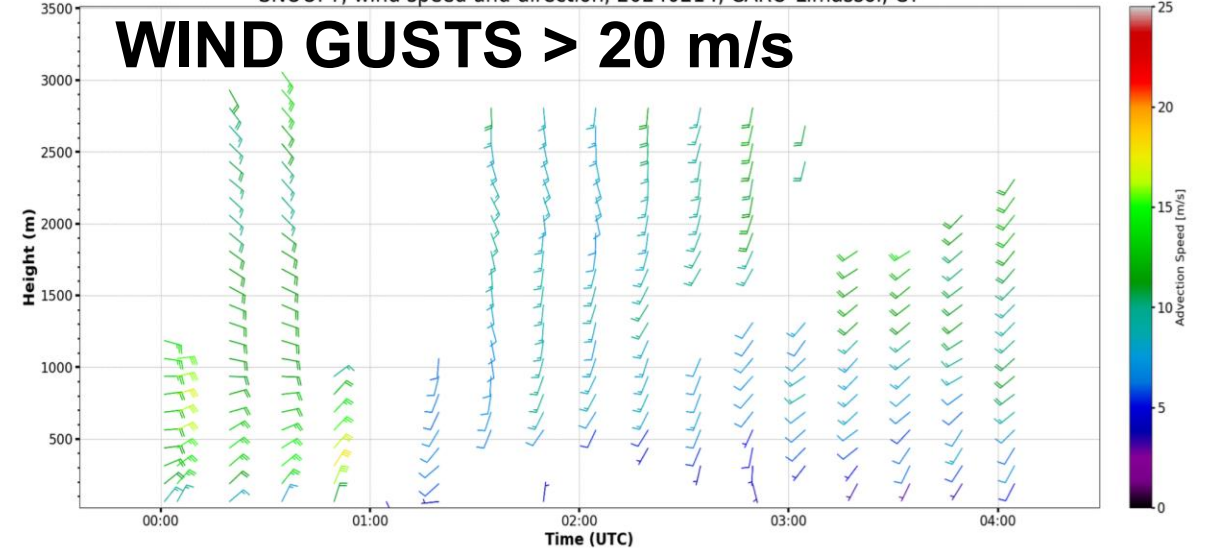
Disdrometer, 20240214, CARO-Limassol, CY



SNOOPY, vertical velocity, 20240214, CARO-Limassol, CY



SNOOPY, wind speed and direction, 20240214, CARO-Limassol, CY





Thank you !