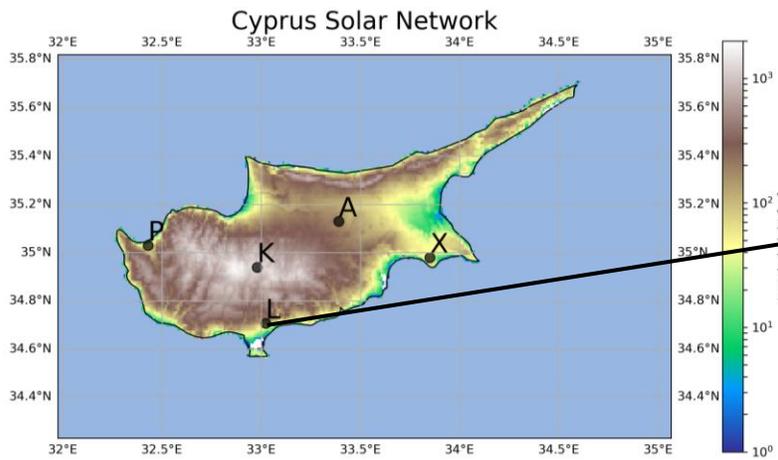




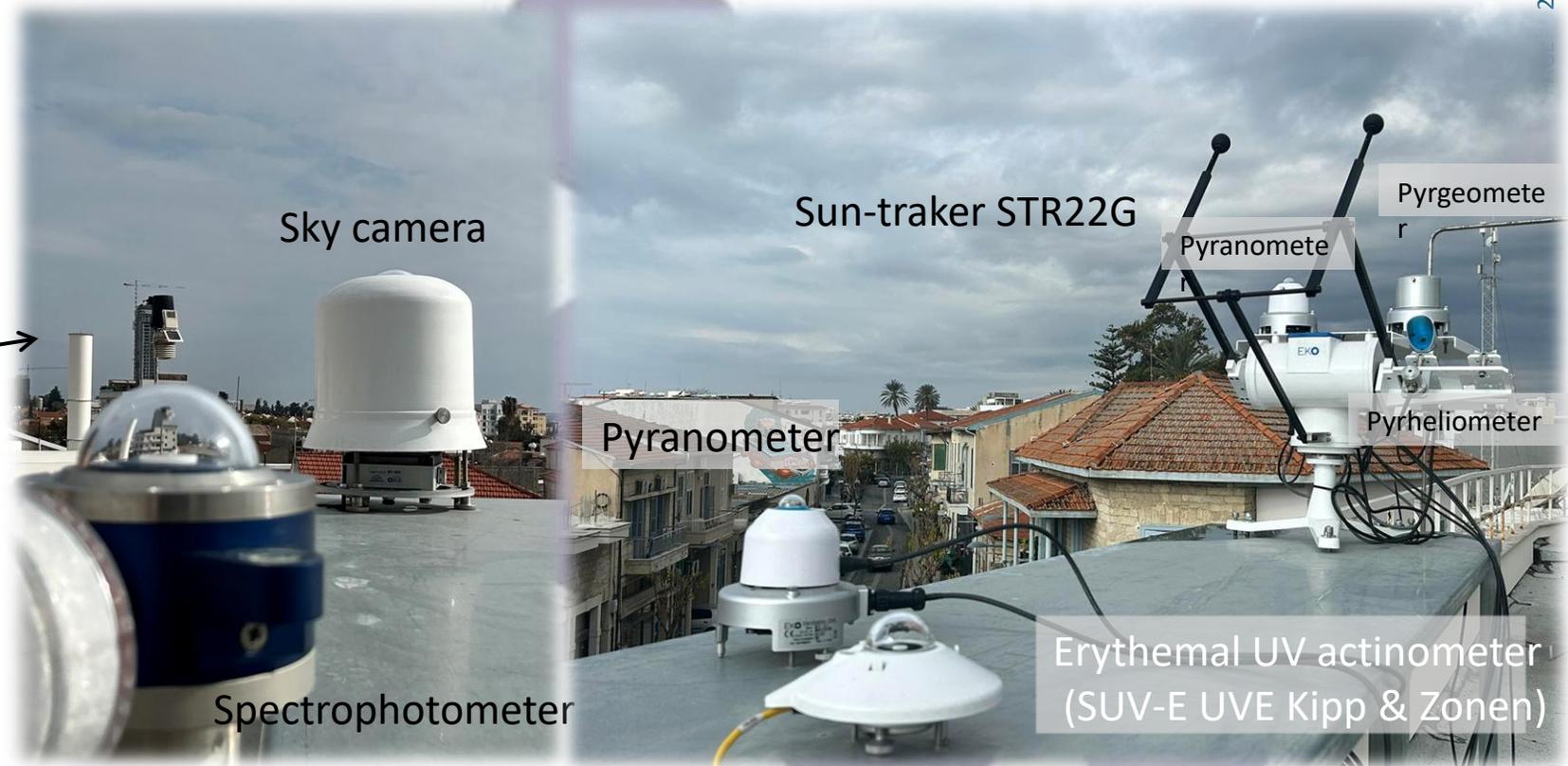
# Solar measurements at Eratosthenes Centre of Excellence

Georgia Charalampous , PhD Candidate  
Assistant Researcher A'

Harmonia Workshop on aerosol data users and applications, 16th and 17th June, 2025, Limassol, Cyprus

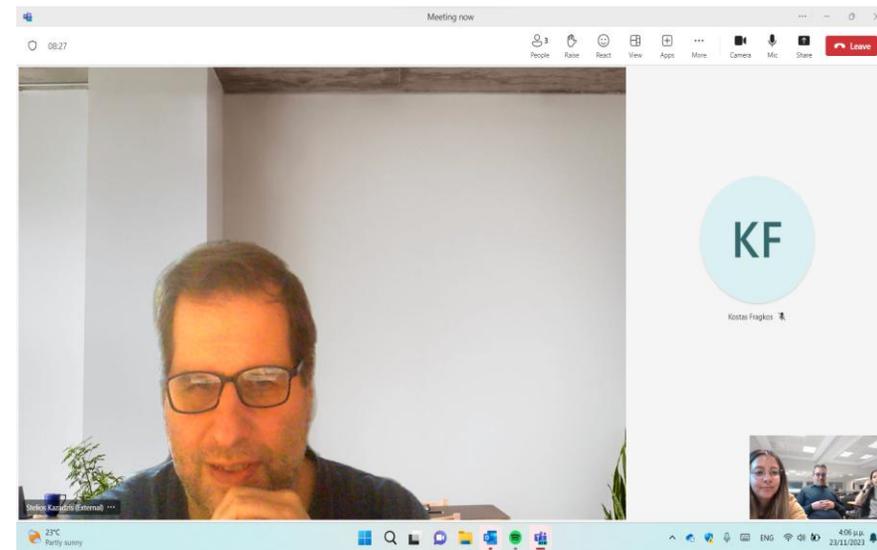


Since the end of 2023





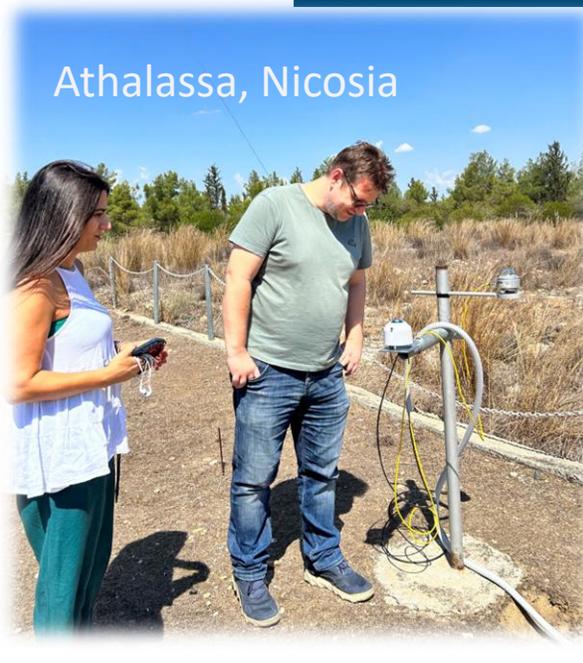
**Nov2023**



**Harmonia Workshop on aerosol data users and applications, 16th and 17th June, 2025, Limassol, Cyprus**

## 4 Regional Stations

- ✓ Pyranometer (MS-80 EKO instruments → global broad-band solar radiation)
- ✓ Erythemal UV actinometer



**Harmonia Workshop on aerosol data users and applications, 16th and 17th June, 2025, Limassol, Cyprus**

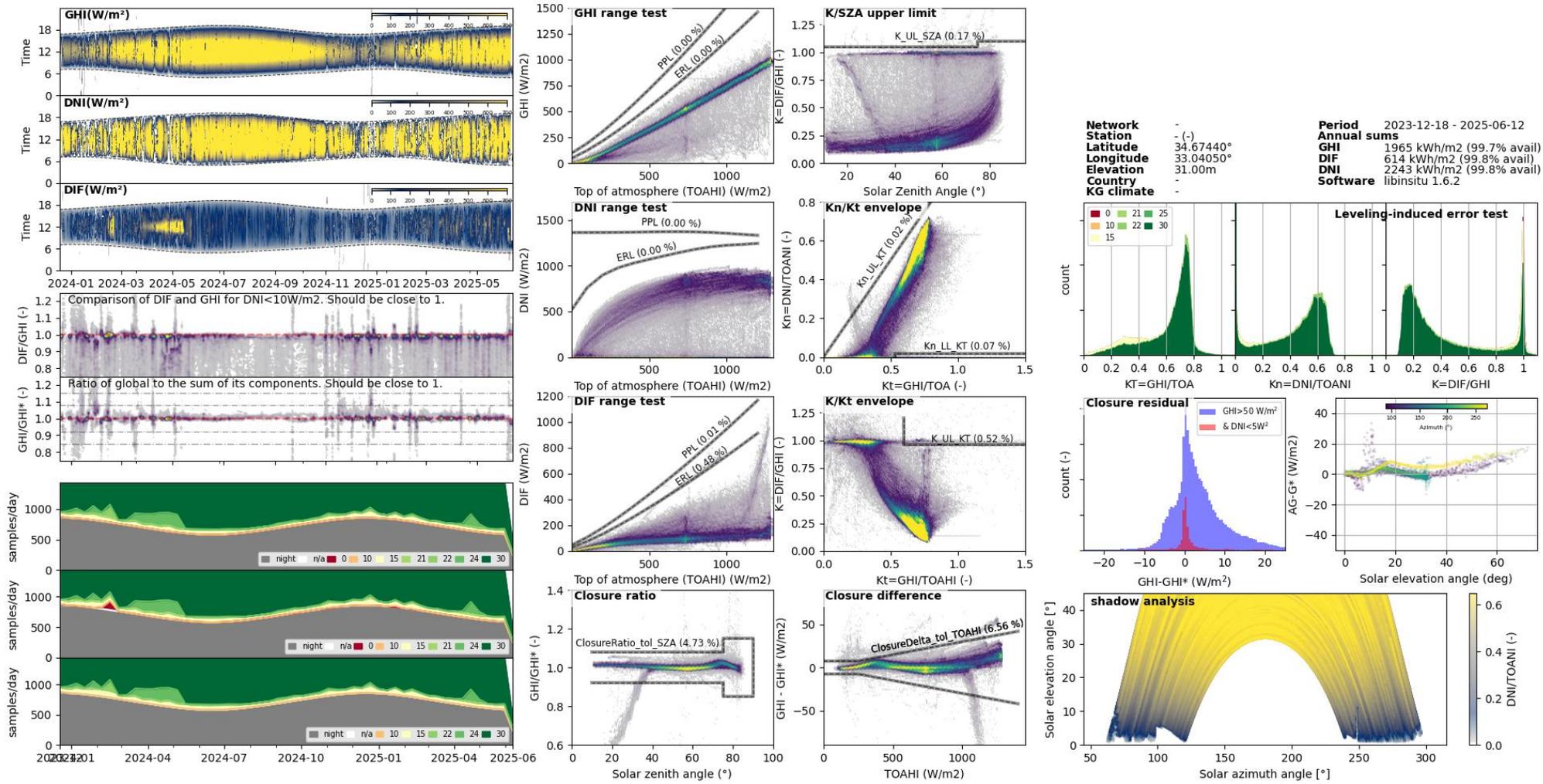
## Limassol Station

- 1.Global Horizontal Irradiance ( $\text{W}/\text{m}^2$ , temporal resolution 1 min)
- 2.Diffuse Horizontal Irradiance ( $\text{W}/\text{m}^2$ , temporal resolution 1 min)
- 3.Direct Normal Irradiance ( $\text{W}/\text{m}^2$ , temporal resolution 1 min)
- 4.Erythema UV Irradiance ( $\text{W}/\text{m}^2$ , temporal resolution 1 min, multiply by 40 to get UV-Index dimensionless)
- 5.Spectral Solar irradiance (spectral range from  $\sim 290$  to  $600\text{nm}$ . This can be used as the reference instrument for the UV measurements, quantities that could be derived, UV-Index, UV-DNA damage, Vitamin D production, UV quantities related to agriculture e.g., UV plant growth or blue light etc.
- 6.All Sky Camera (captures every 1 min), Cloud coverage

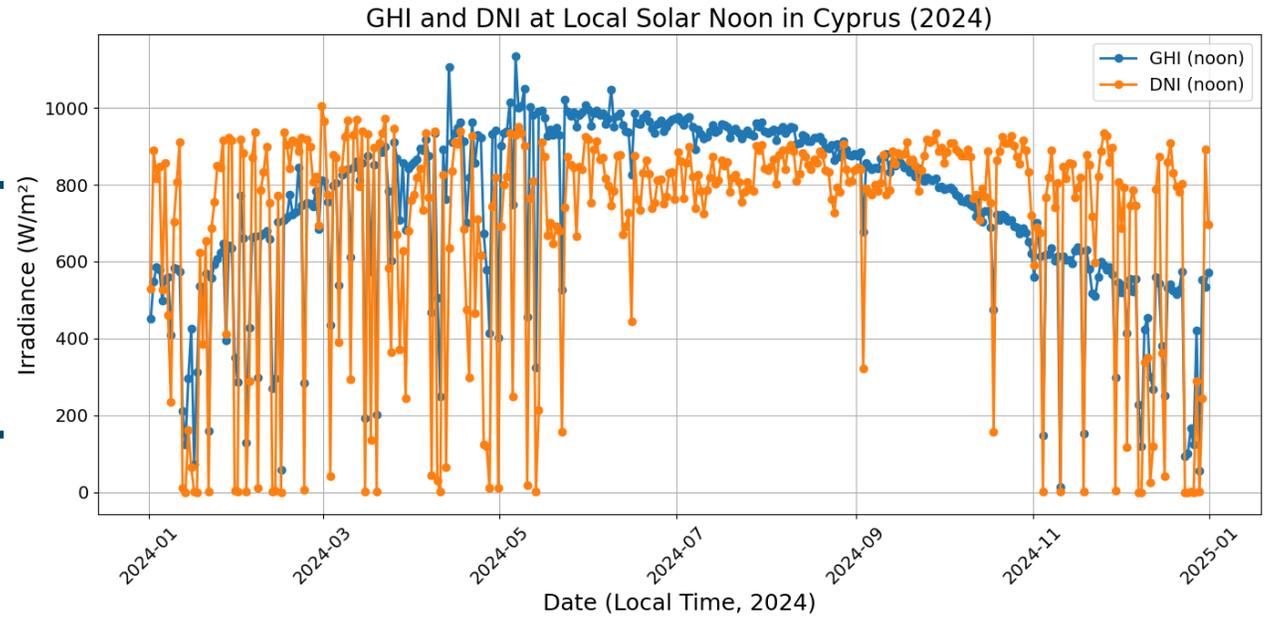
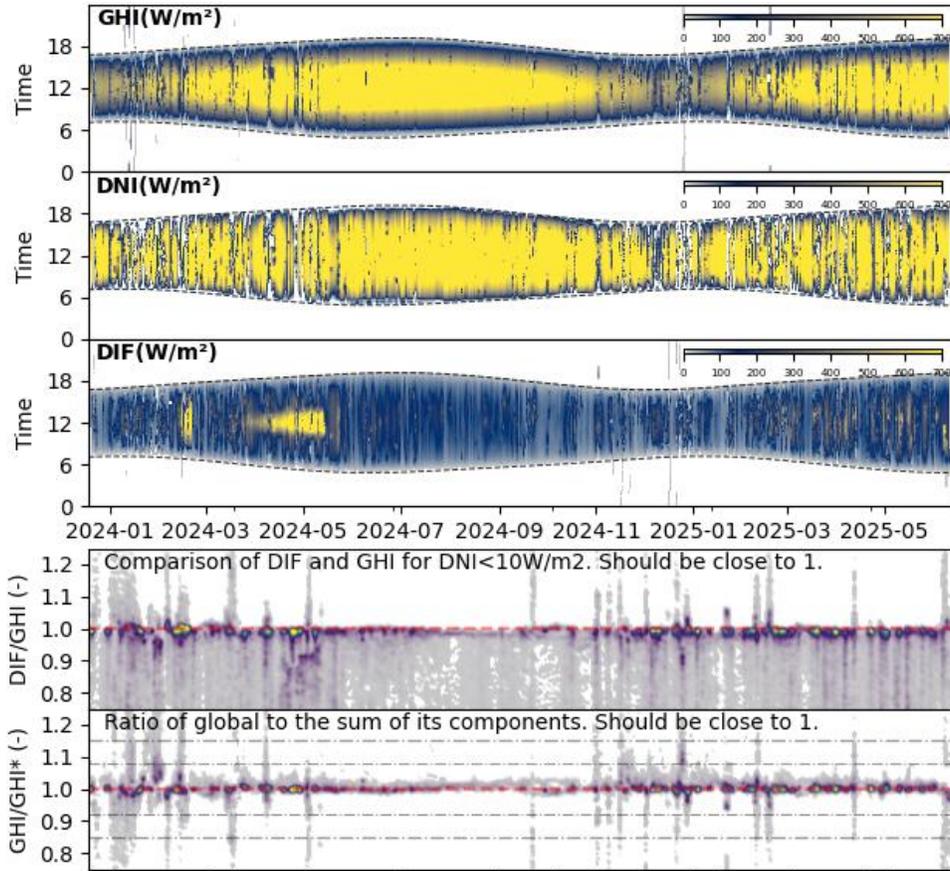
## Other stations

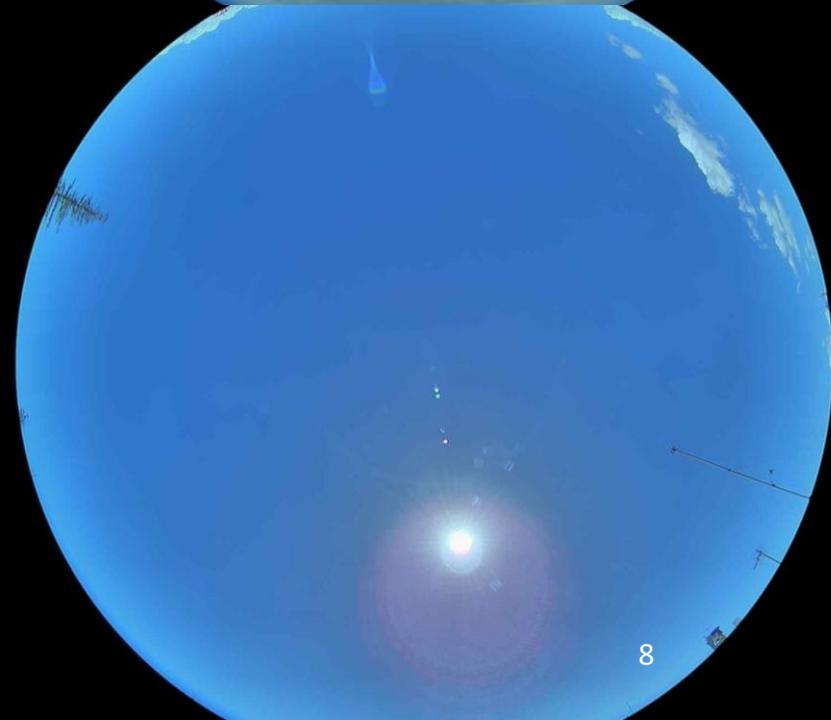
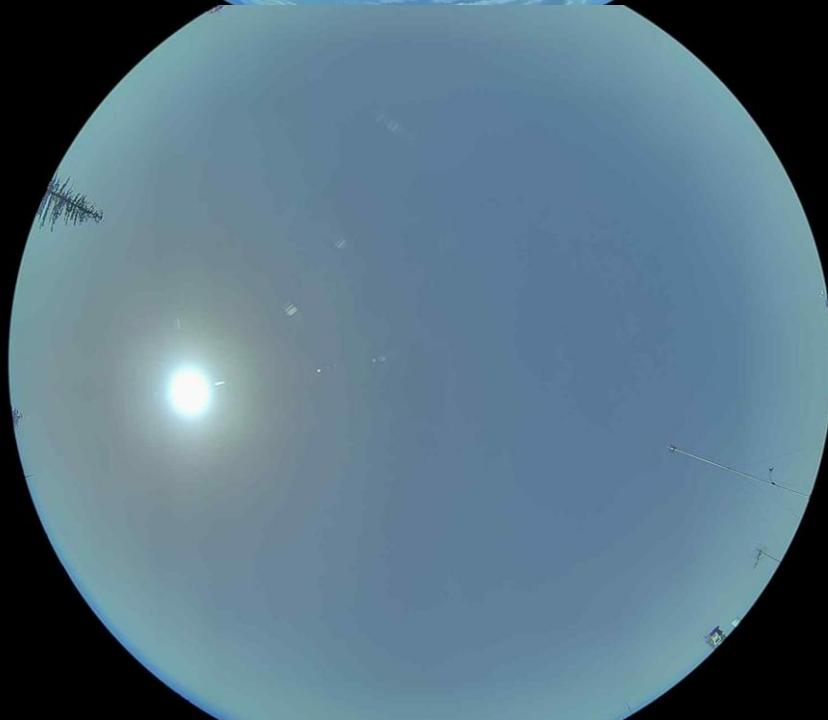
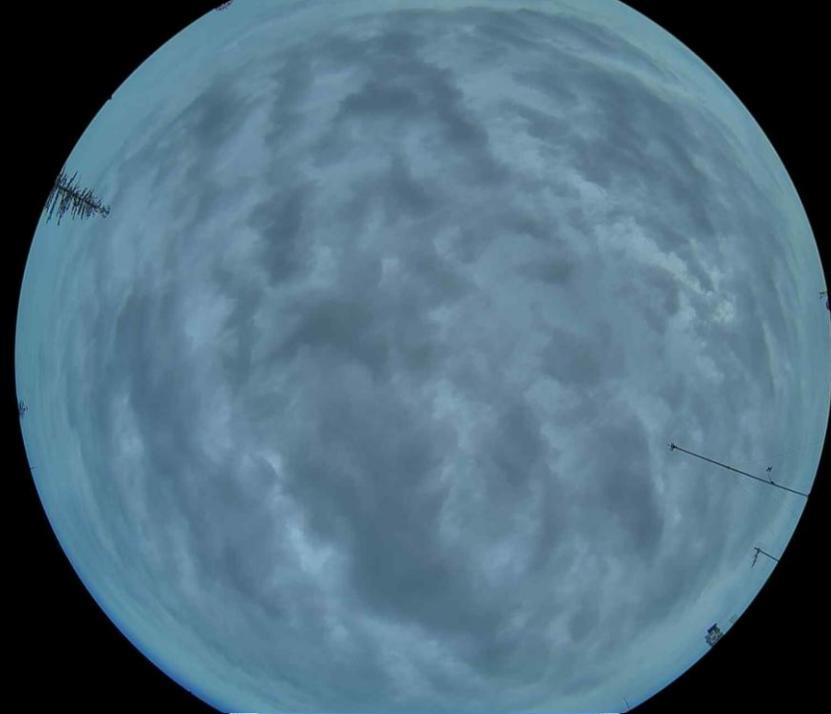
Global Horizontal Irradiance ( $\text{W}/\text{m}^2$ , temporal resolution 1 min)

Erythema UV Irradiance ( $\text{W}/\text{m}^2$ , temporal resolution 1 min, multiply by 40 to get UV-Index dimensionless)



<https://libinsitu.readthedocs.io/en/1.4/qc.html>



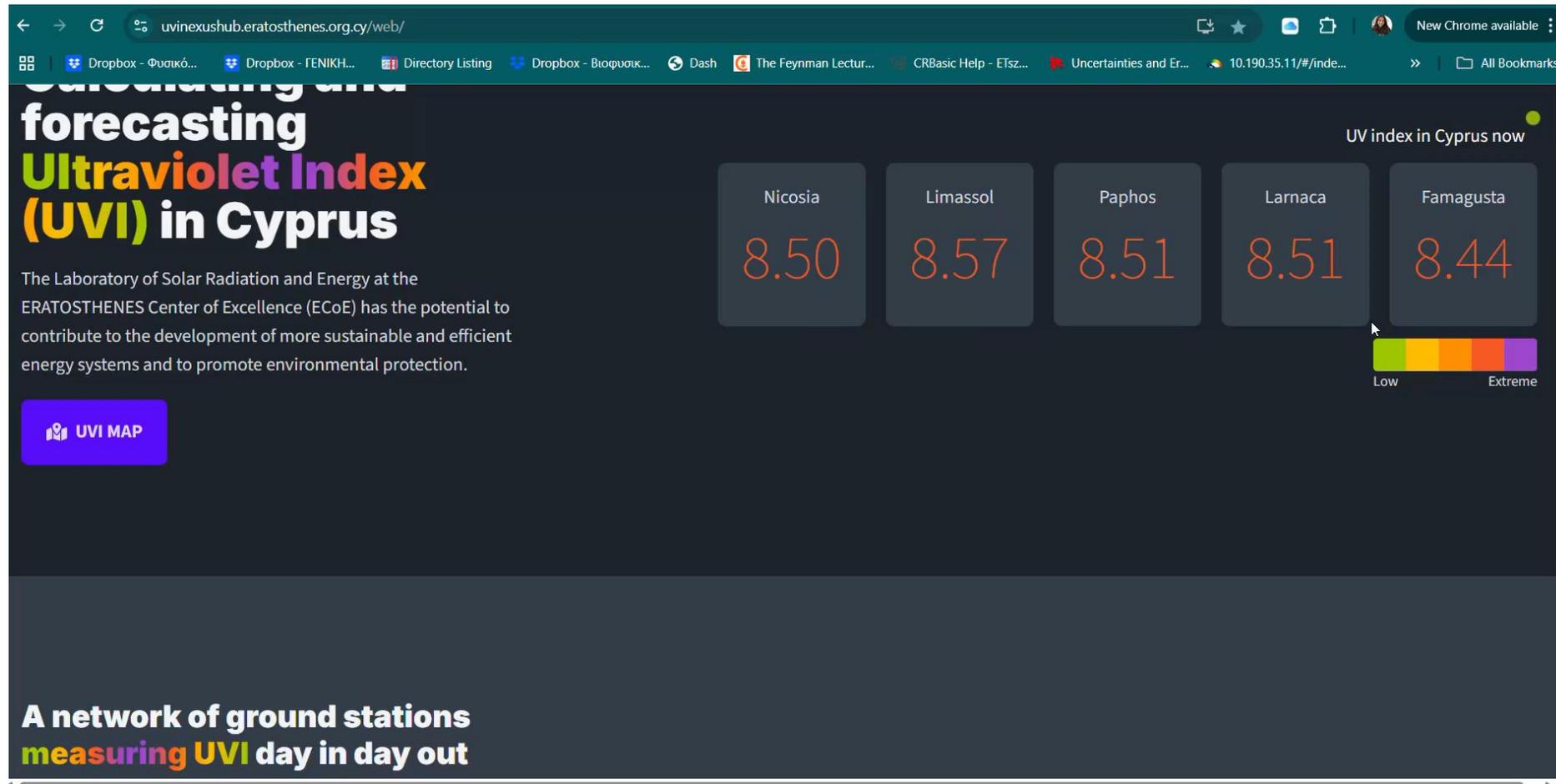


# Calibration of the spectrophotometer



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# Preliminary Evaluation of The Cyprus Erythematol Irradiance Forecasting System

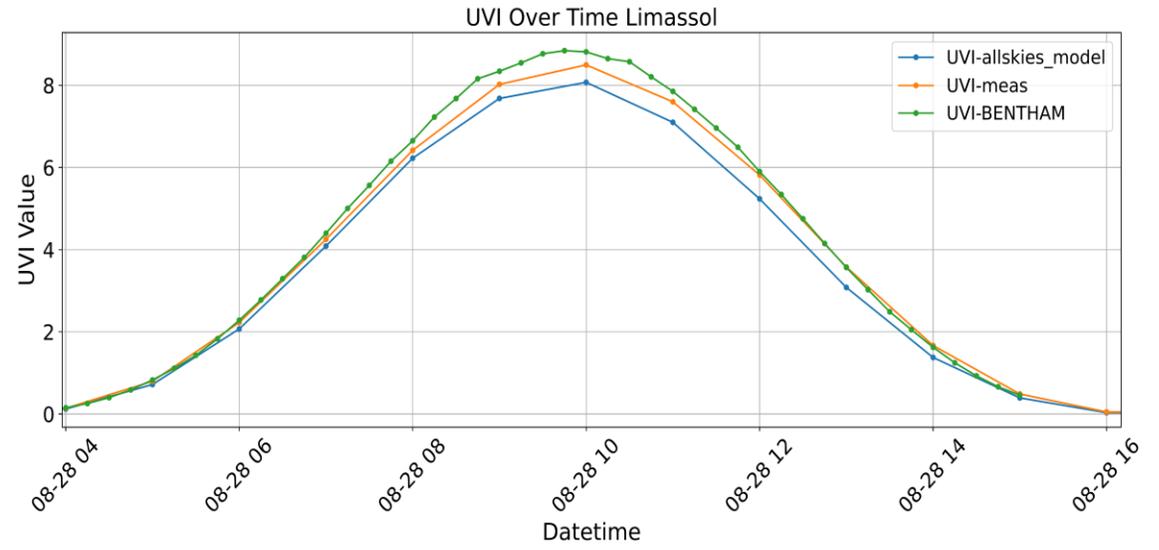
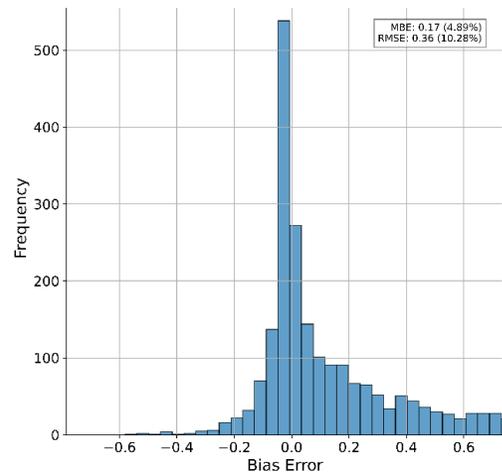
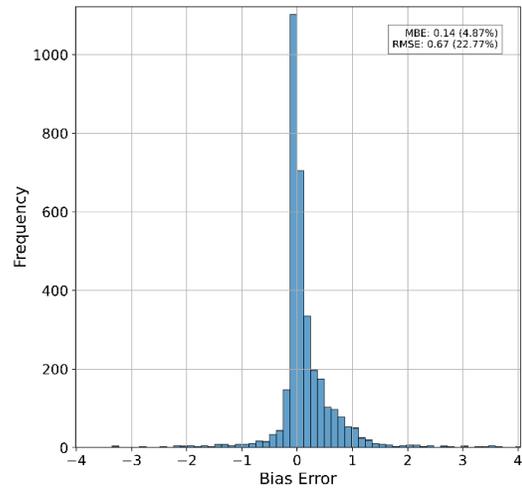
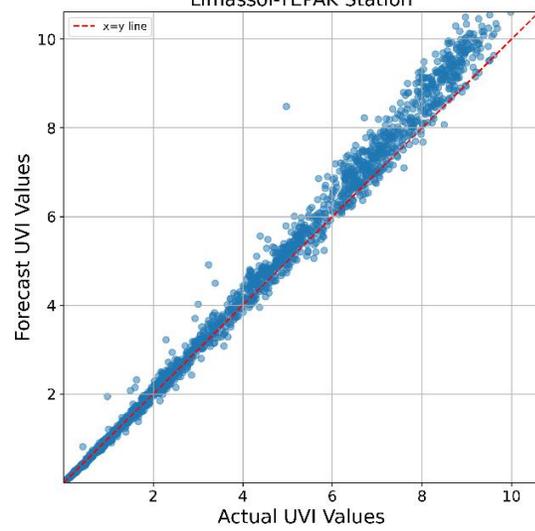
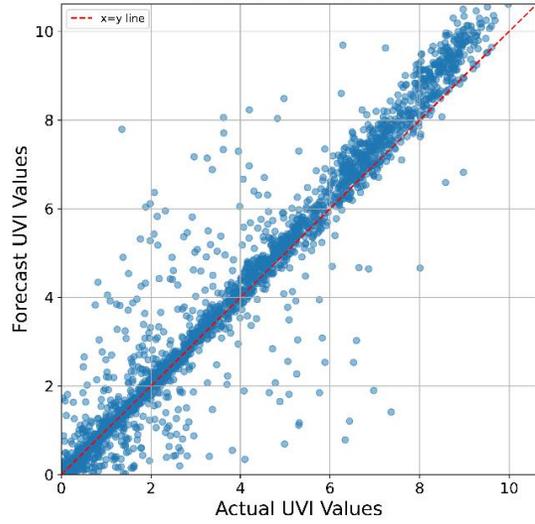


## All Sky Conditions

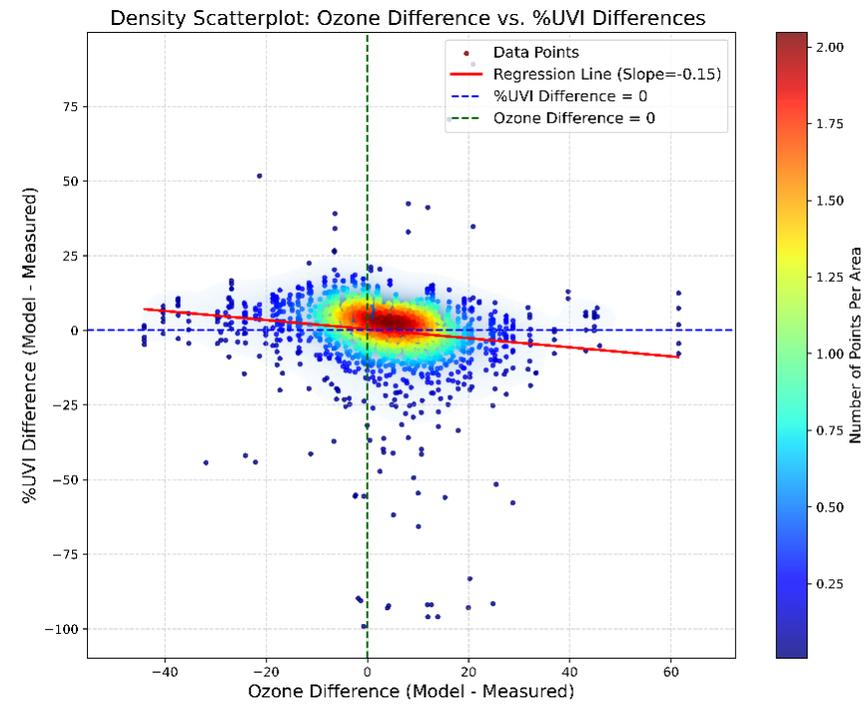
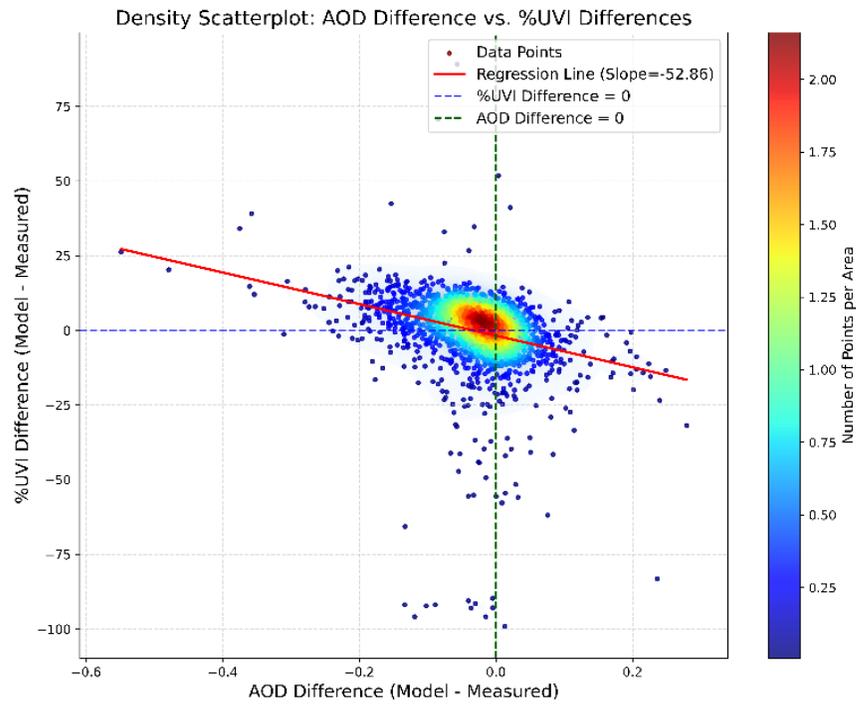
## Clear Sky Conditions

Limassol-TEPAK Station

Limassol-TEPAK Station



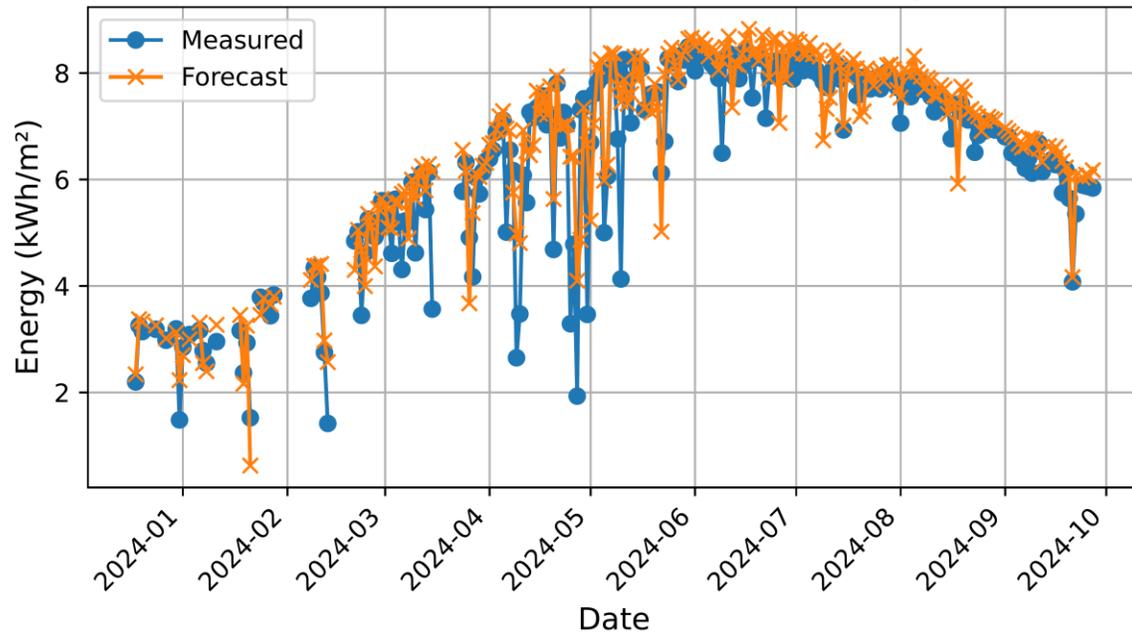
Charalampous et al, 2025, IRS proceedings



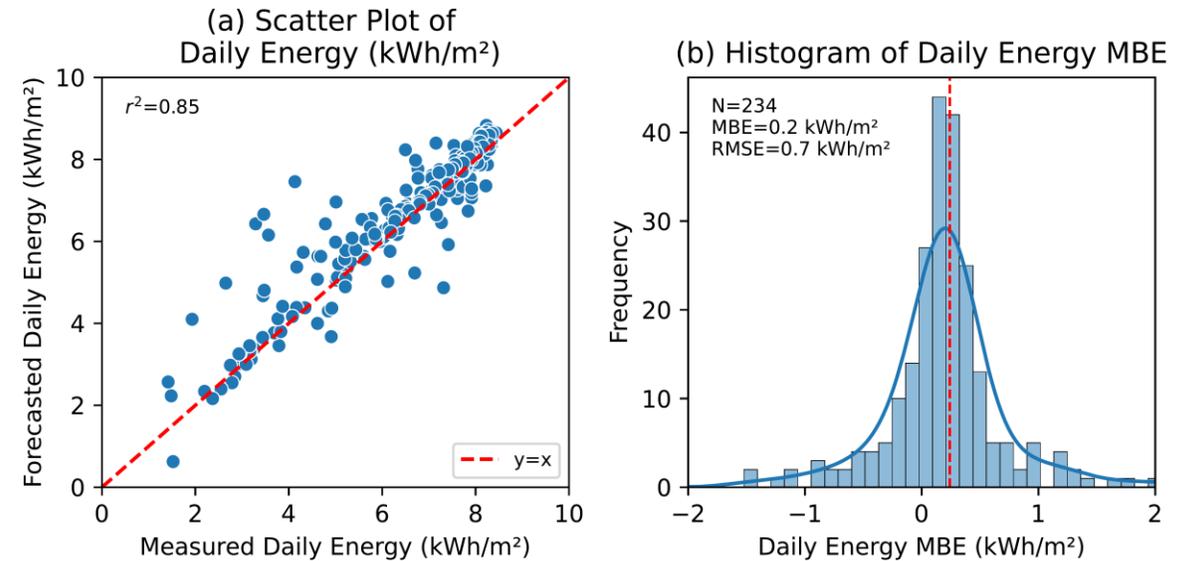
Charalampous et al, 2025, IRS proceedings

# Next-Day Solar Irradiance Forecasting: A Preliminary Study in Limassol

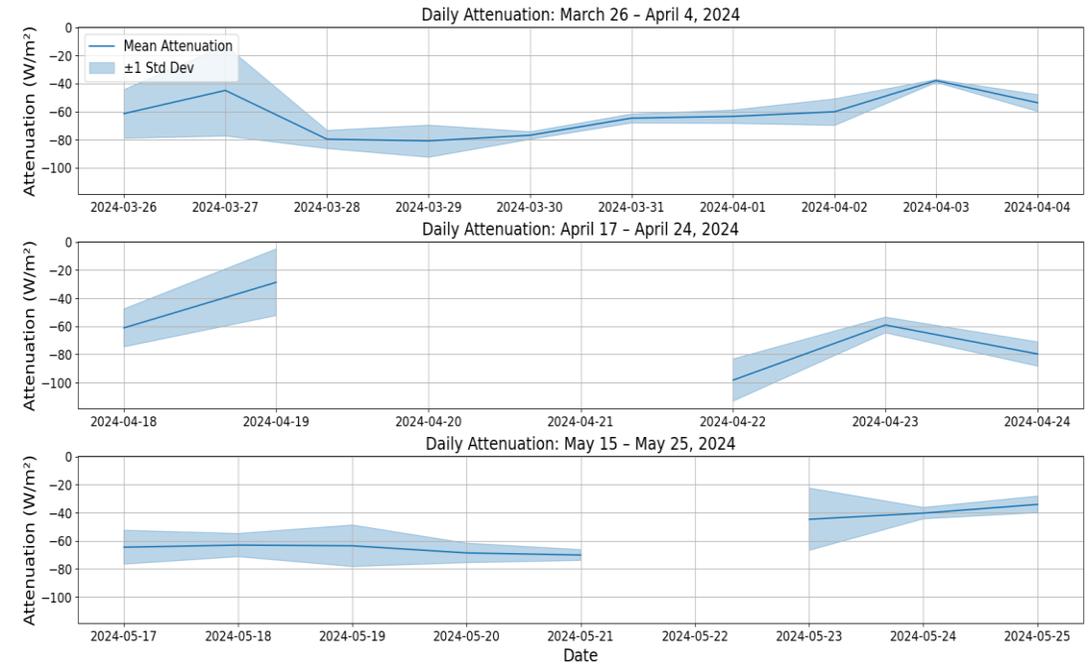
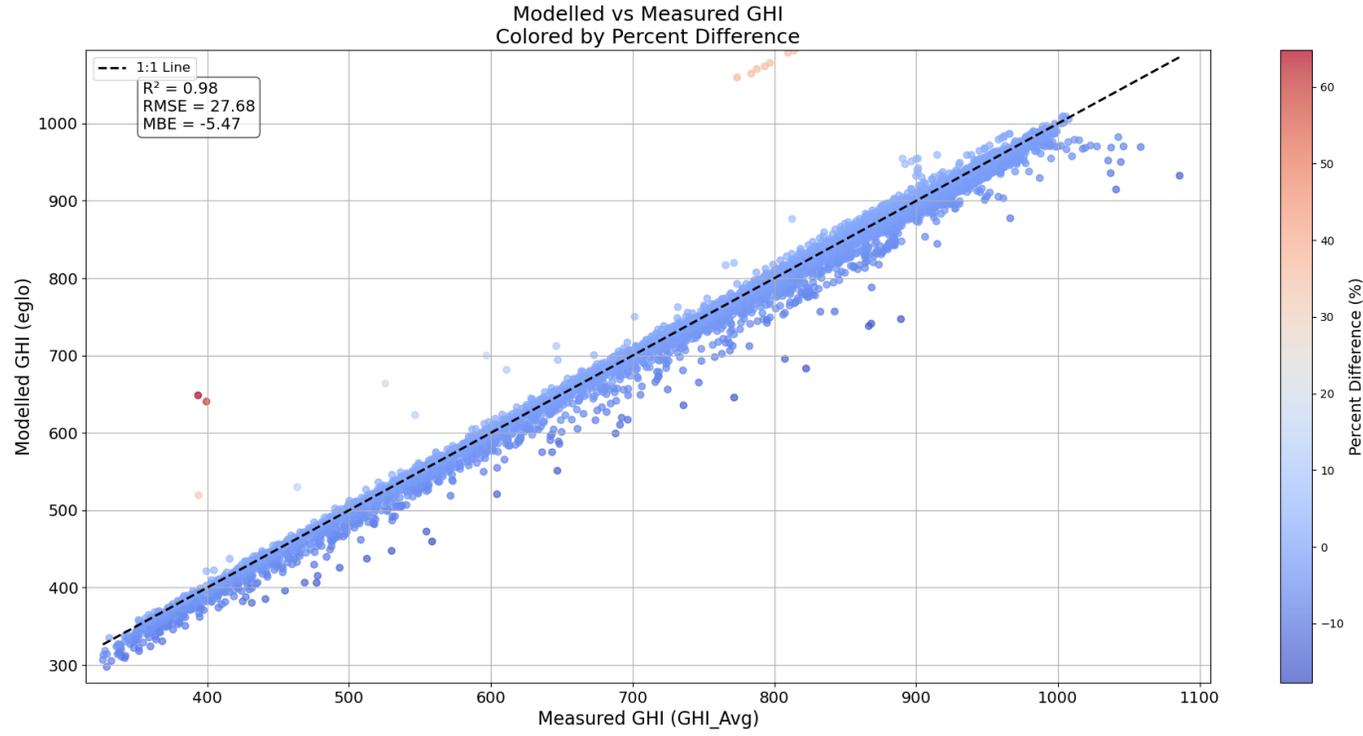
Time Series of Measured and Forecasted Daily Insolation



Global-Daily Energy Forecast and Measurements



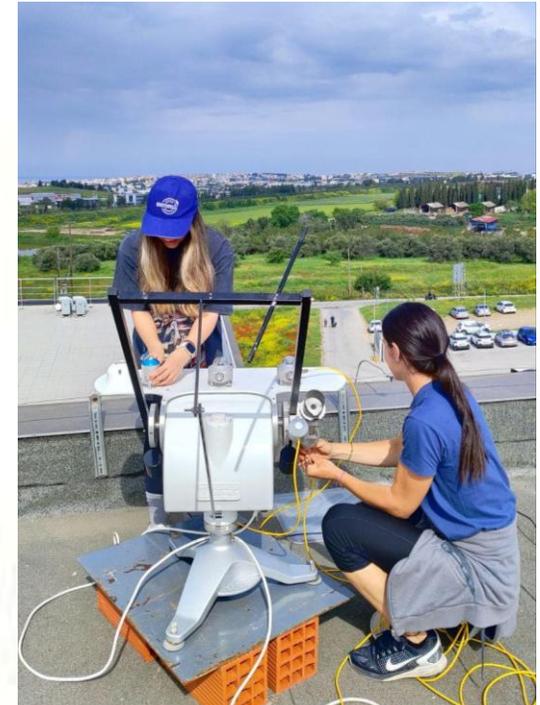
Fragkos et al, 2024



Charalampous et al, 2025, COMECAP2025 proceedings

# EarthCare Cal/Val Campaign Thessaloniki 22April-22 May 2025

Eratosthenes participates with one pyranometer, an all Sky-Camera and a Microtrops II sun-photometer (**Collaboration between Solar Radiation and Atmospheric Clusters**)





Thank you for your attention!

