

# The filter radiometer comparison international campaigns for AOD traceability

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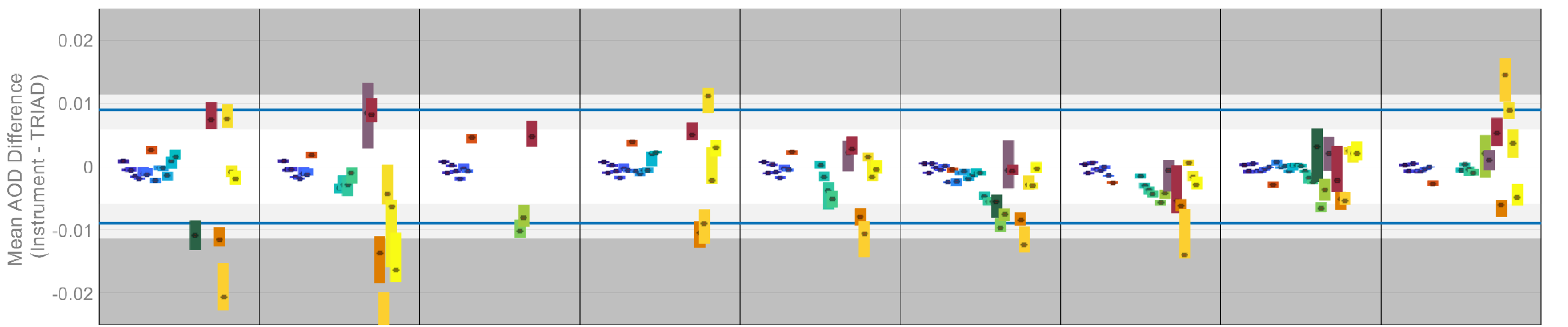
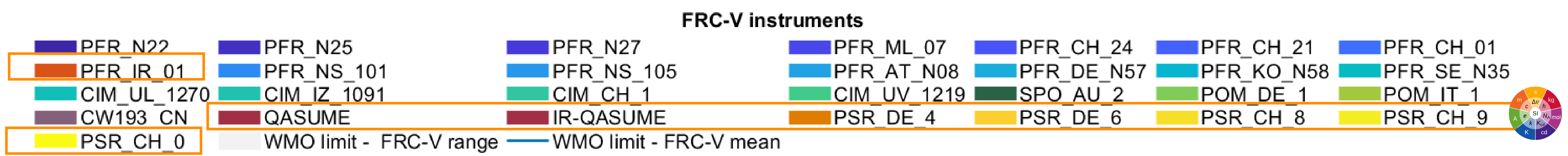
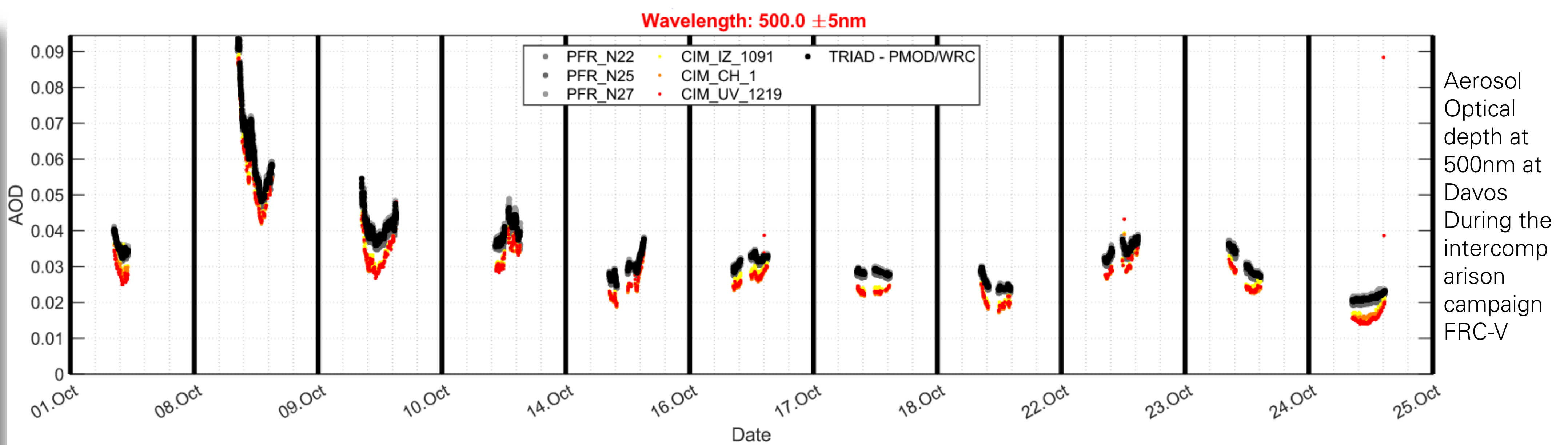


## Introduction

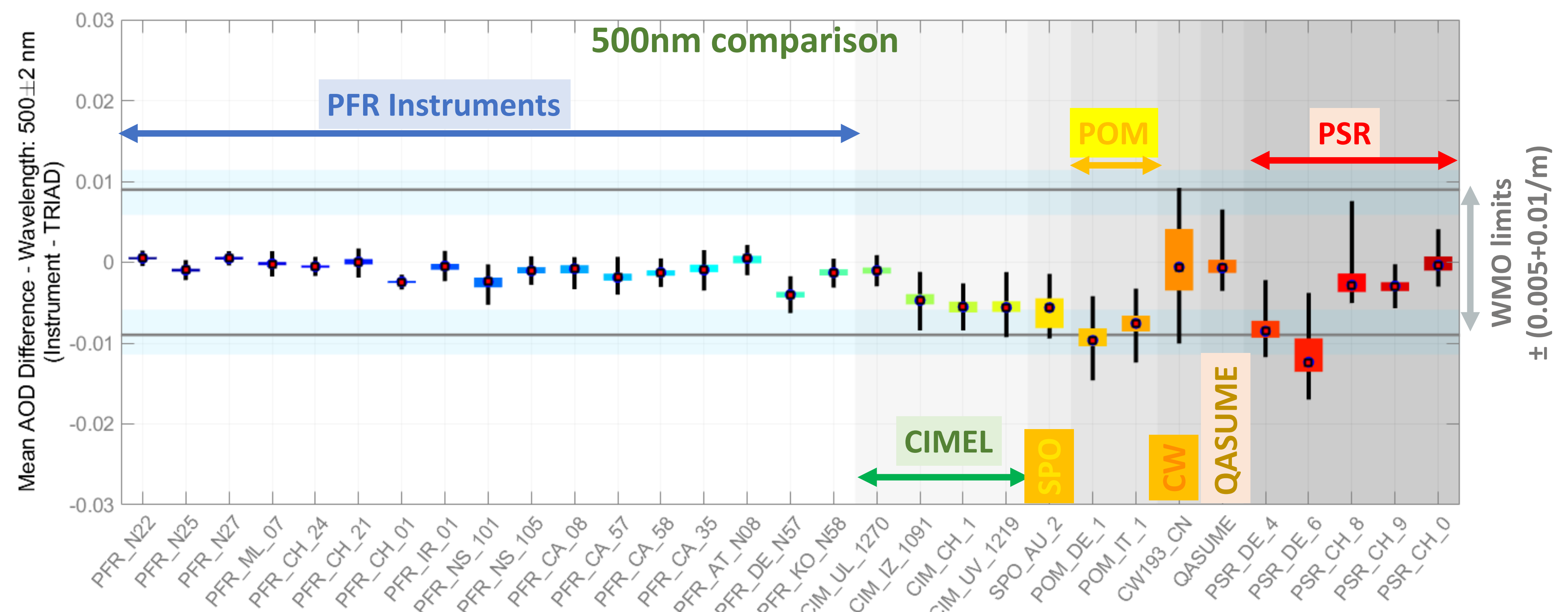
Filter Radiometer Comparisons (FRC) for Aerosol optical depth (AOD) are organized every 5 years by the World Radiation Center (WRC) of the WMO at Davos, Switzerland. The objective of the FRC campaigns is to compare AOD and Ångström exponents (AE) derived from different instruments from different global or national networks. The aim is to demonstrate the current level of agreement, and work towards homogenization of the AOD measurements on a global scale. The comparison protocol is based on WMO recommendations published in GAW report No. 162. Measurements of each instrument are compared to the WMO AOD reference consisting of three Precision Filter Radiometers. The fifth FRC was held in October 2021. Instrumentation belonging to various AOD global networks participated, including three reference instruments from the ACTRIS pan-European research infrastructure Centre for Aerosol Remote Sensing, SKYNET, Chinese and Australian networks. **31 filterradiometers and spectroradiometers from 12 countries participated**, while 28 provided AOD data, with **90% to fulfil the WMO traceability recommendation in the Vis to NIR ranges**.

Plans for the next FRC scheduled for October 2025 are discussed, outlining additional traceability exercises and analysis options.

## FRC-V



Instrument comparison with interpolated/extrapolated AOD using the Ångström exponent formula with inputs from the PFR (368 nm, 412 nm, 500 nm, 862 nm) wavelengths



## FRC-VI - 2025

22-September – 10 October

- Extend the comparison to 340 nm
- Investigate agreement of instruments within the given uncertainties
- Lunar AOD comparison

- Filter Radiometer Comparisons (FRC) for Aerosol optical depth is a valuable intercomparison exercise, held every 5 years, to verify homogeneity of AOD and AE measurements within international and national networks
- Opportunity for information exchange, leading to improvement of uncertainties of our products & development of new retrieval methodologies.

Looking forward to your participation to FRC-VI and suggestions !