



Quality Assurance for Earth Observation

KOM

Philippe Goloub & collaborators

Group « Interactions Aerosols Radiations »
Laboratoire d'Optique Atmosphérique
Service National d'Observation

CNRS – University of Lille

What are the news ?

- **PHOTONS/AERONET Service renewed by CNRS and CNES with extension to LiDAR (accepted)**
 - => PHOTONS/AERONET-EARLINET (element of ACTRIS).
 - => Consistency with CARS (Center for Aerosol Remote Sensing, ACTRIS)
- **Instrumental Developments (mobile photometers and integrated systems, LIDAR, 3MI airborne simulator)**
- **Data Processing and retrieval developments**
- **Field Campaigns**
- **ACTRIS**
 - H2020/ACTRIS IMP (IMPLEMENTATION) accepted, KOM in Cyprus (1st week of March 2020)
 - LOA resp. for a Pilot Service to support users needs to setup a « Mobile photometer »
 - (support for training, only)
- **MAPP (EURAMET/EMPIR) project accepted (Metrology for Aerosol optical Properties), KOM (June, Davos)**
- **IDEAS/QA4EO**

Tasks and Outputs in QA4EO

- Provision support in the CIMEL sun/sky-photometer maintenance/operation for AERONET Europe/ACTRIS. Including the provision of QC/QA, calibration and processing for new mobile photometer.
- Improvement of calibration facility and calibration traceability (AOD): Characterization of CIMEL CE318T reference photometer at PMOD/WRC facility (filter response, FOV).
- Field campaign at Observatoire of Haute Provence (calibration site) with a PFR for AERONET AOD traceability with PMOD/WRC.
- Development of new approaches to retrieve aerosol properties from joint photometer-LIDAR inversion: Adaptation and application of GRASP for the NRT processing of new mobile photometers.

Outputs

- Presentation at Cal/Val workshops
- Report on master sun photometer characterization (joint with PMOD)
- Report of the OHP inter-comparison campaign (joint with PMOD)
- Report on the status of mobile photometry (*instrument performances*)
- Report of the status of mobile photometry (*data processing and aerosols retrievals*)
- Input/ presentation to thematic workshops

Supplementary tasks that could be undertaken at FUP (not included in WP Effort above):

Additional sunphotometer robots, 1 per year for provision support in the CIMEL sun/sky-photometer maintenance/operation.

20 min	Metrological and Traceability in Space: Motivations, Challenges and Methodologies	N. Fox, NPL (UK)
20 min	SI-Traceable ground-based observations for ozone and aerosol properties retrieval	J. Gröbner, PMOD (Switzerland)
20 min	Improving Traceability and calibration in the frame of AERONET European network	P. Goloub, LOA (France)
20 min	Eradiate: 3D radiative transfer community model to support metrological applications	Y. Govaerts, Rayference (Belgium)
20 min	Statistically based approach for estimation of sensor performance indicators: status and way forward	S. Mackin, EOSense (UK)
20 min	The CEOS Cal/Val portal: status and updates	P. Castracane, RHEA (Italy)

KOM QA4EO

(Part 1.)

Improving Traceability and calibration in the frame of AERONET European network

LOA – CNRS – University of Lille

Main Activities

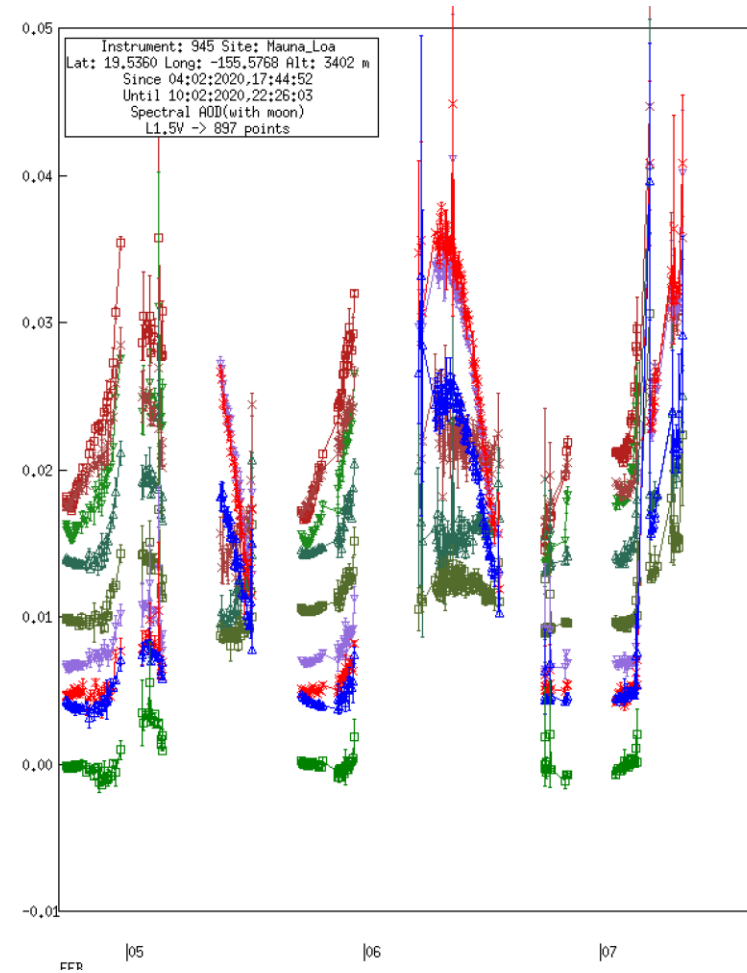
- AERONET/PHOTONS reference instrument (CE318T) at OHP (Observatoire de Haute Provence) (new set of 2 reference instruments, every 3 months)
- Calibrated now at Mauna Loa (Hawaiï, Upgraded platform)- improve AOD accuracy (**New**)
- Continuous AOD link between AERONET/PHOTONS and AERONET/NASA AOD (**New**)
- **Joint PMOD/LOA in QA4EO**: AERONET/PHOTONS AOD traceable to WMO/PFR at OHP (New). One step in the long-term cooperation of PMOD/WORCC with Center of Aerosols Remote Sensing (CARS) of ACTRIS. Assessment of AOD differences among AERONET in Europe and WORCC through continuous comparisons and data analysis. Include WORCC – ACTRIS traceability comparison results to the CARS calibration certificates.
- **Joint PMOD/LOA** : Detailed Characterization of AERONET/PHOTONS reference instrument at PMOD (spectral response, FOV).

Consequence (potential additional contribution to QA4EO)

AERONET/NASA and AERONET/PHOTONS (France) reference instrument co-location at Mauna Loa
+
AERONET/PHOTONS (France) reference instrument and WMO/PRF co-location at OHP (QA4EO)
+
AERONET/RIMA (Spain) reference instrument and WMO/PFR co-location at Izana,
=
the entire AERONET network (daytime) AOD will be traceable to WORCC/PMOD

Mauna Loa

(NASA & CNRS/U. Lille)



- Improvement of Langley calibration for reference instrument

Thank you !