

## Foreword

For many years, France and Spain, thanks to their National Facilities and SMEs are promoting, managing, contributing to the AERONET observations in Europe, working in very close cooperation with our NASA partners. Since 2011, in the framework of ACTRIS, these activities become recognized and supported as AERONET-Europe Calibration Centre. Many people and specialities are behind these activities in Europe. The first part of this newsletter just puts a picture on the main actors name. Our ambition is to provide, thanks to our national and european supporters and with the contribution of all PI and site managers, high quality aerosols properties to a wide range of users and communities. Our joint ambition is to become one of the Central Facility of the future ACTRIS-Research Infrastructure to serve users needs, provide new services and take our part in the definition and elaboration of a new generation of added-value products thanks to multiple synergies.

## Who and where are we ?



France - LOA-CNRS-University of Lille  
<http://loaphotons.univ-lille1.fr>

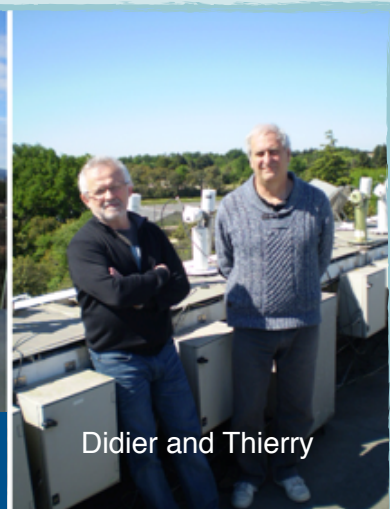
13 persons are involved in France ,10 in Lille at LOA (mostly on picture 2), 1 at LISA in Paris (picture 1) and 2 in Météo France at Carpentras (Picture 3)



Anaïs



Maxime, Thierry, Anne, Gaël, Luc, Sasha, Philippe,...



Didier and Thierry

This project has received funding from the European Union's Horizon 2020 under grant agreement No 654109 (ACTRIS-2)



Spain - GOA-UVA  
<http://goa.uva.es>



Spain AEMET - Izaña  
[aemet.izana.org](http://aemet.izana.org)



The last important person without who the infrastructure could not work is Sabine Philippin, ACTRIS-Project Manager, and her team, at CNRS-Université de Clermont-Ferrand, France.

We would all like to thank her for her assistance and great availability



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## Infrastructure's life

*France/Spain:* several CE318T (sun/moon photometer, so called, Triple or TTT) have been purchased (funded by ESA) and are currently under characterization and calibration at Izaña station to become master instruments for LOA and GOA inter-calibration sites.

*WMO/GAW inter-comparison exercise :* An intercomparison campaign between 30 instruments (12 countries) measuring AOD (at 368, 412,500 and 865 nm) from global and national

networks has been performed last October (2015) at Davos (PMOD/WRC). AOD quality has been evaluated by applying WMO criteria (GAW report, 2005). Three instruments from AERONET-Europe (including one master instrument) have participated to this campaign. For AERONET-Europe (as well as AERONET-USA), the results were excellent. The difference in AOD (all wavelengths) between AERONET-Mauna Loa and AERONET-Izaña is less than 0.5%. Moreover, the difference with PFR reference Triad instrument is less than the upper limit for applying a new calibration (reference to a report

under preparation (Kazadis et al. 2016) will be given in the next newsletter).

The mean difference between Triad reference instrument (WMO) and AERONET-Europe instrument are about 0.007 (AOD=0.040), 0.007 (AOD=0.030), 0.005 (AOD=0.025), 0.004 (AOD=0.01), respectively at 380 nm, 440 nm, 500 nm and 870 nm. Continuous comparison is now organized at least at Izaña site, for maintaining AOD traceability between AERONET-Europe and GAW PFR triad.

## Highlights on nighttime AOD

Thanks to the joint efforts (Instrumental developments, moon tracking and AOD processing software development) from Spain (Izaña, AEMET, GOA-UVA), France (LOA, CIMEL) and Ukraine (Astronomy Space Dep., Kyiv University), AERONET-Europe is now able to release the version 1.0 of AERONET-Europe Night Time AOD. During the on going validation phase, the AOD is available at the following link [http://loaphotons.univ-lille1.fr/photons/data\\_monitor/AE/scp-week3-triple.php](http://loaphotons.univ-lille1.fr/photons/data_monitor/AE/scp-week3-triple.php) (login upon request).

The idea of this validation phase is to share with users this first AOD release (version 1.0 AE) at a small network scale (about 10 sites including calibration sites). Papers from Barretto et al. have demonstrated the quality of the Direct Moon AOD measurement and its current known limitations. With version 1.0-AE, negative AOD values can be found in pristine conditions and accuracy varies a bit with the moon phase. Part of these current known limitations will be corrected this year. Maximum measurable AOD is probably about 2 (as observed at Dakar sites). No AOD is available in the UV channels because the Moon's reflected flux is too weak. H2O calculation refinement will also be done this year. Cloud detection need to be improved and an update module will be set this year, and data reprocessed. The AOD files are publicly available in the ACTRIS/ICARE/AERIS database at the following link: [http://www.icare.univ-lille1.fr/archive/?dir=GROUND-BASED/AERONET/AOD-NIGHT\\_L15/](http://www.icare.univ-lille1.fr/archive/?dir=GROUND-BASED/AERONET/AOD-NIGHT_L15/) (you will have to register only once)

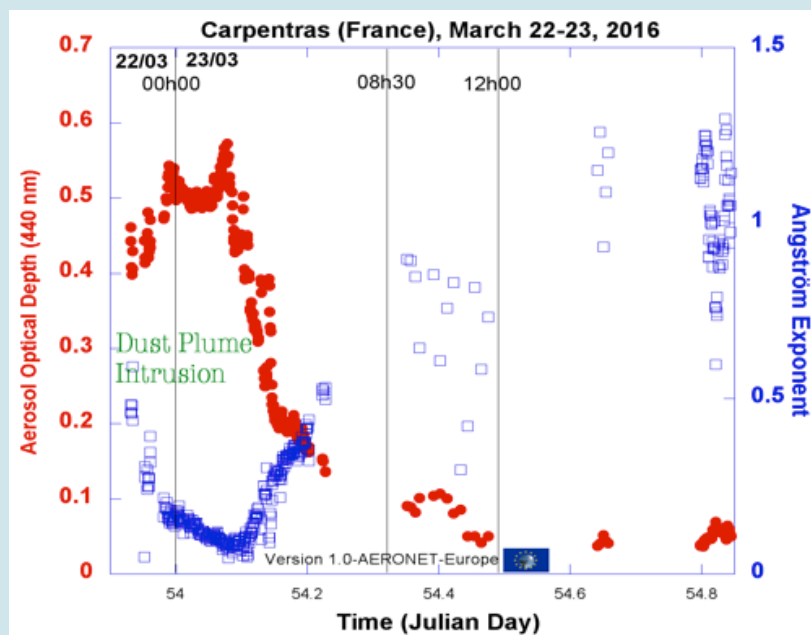
**Sites:** Current sites that are equipped with CE318T (so called «triple») photometer within ACTRIS are located in: Poland (Raciborz), Romania (Magurele Inoe), South Africa (Henties Bay), West Africa (Dakar), Spain (Izaña, Valladolid, Calibration sites + Granada, Burjassot), Germany (MetObs Lindenberg, Leipzig, Munich), France (Lille and Carpentras, Calibration site), Cyprus (Nicosia), Norway (Andenes). Future sites are in Italy (Leece, Napoli, Lamezia Terme), UK (Chilbolton, Bayfordbury), Spain (Huelva), Norway (Andenes), Finland, France, Germany (Munich).

**Recommendations:** as for other products, it is recommended to follow guidelines for data use and publication (contact PI, offer co-authorship, etc).



## Atmospheric Event

At the beginning of Spring, this year, a strong Saharan dust event has been travelling across the Mediterranean Sea, then North over Spain and France. Next figure shows time series of AOD and Angström exponent for 22/23 March at Carpentras calibration site where moon photometer was in operation. Climatological monthly averaged values for March are, at Carpentras, 0.19 and 1.35, respectively for AOD(440) and Angström exponent.



## Technical advices : new wet sensor

From the beginning, a problem has been noticed about the wet sensor used on the CIMEL photometers. Indeed it cannot make any discrimination in between rain and dew. Some measurements were therefore not done even with a clear sky especially in the morning when dew has not evaporated yet. This problem will be even more embarrassing with the new Sun-Moon Photometers as measurements will also be missed during the night. LOA/CNRS (PHOTONS National Observing Service) has adapted an optical wet sensor that overcomes all these problems. It makes the distinction between rain and dew, and also detects snow, hail, drizzle. It has been used successfully on the calibration platform in Izaña and Carpentras calibration sites. The detector is made by the German company Thies Clima.



Thies Wet sensor.

It can be bought from the supplier BLET. See references and price at the end of the article. If you are interested by this wet sensor, please get in touch with LOA in Lille as it is not a plug and play system. Few modifications have to be done to "fit" with the photometer firmware. LOA offers to make them free of charge. A technical document will be released soon if you wish to make the modifications yourself.

Contact, reference and price: <http://www.thiesclima.com>, reference n° 5.4103.1000, 458,65 Euros. [gael.picoulet@univ-lille1.fr](mailto:gael.picoulet@univ-lille1.fr),



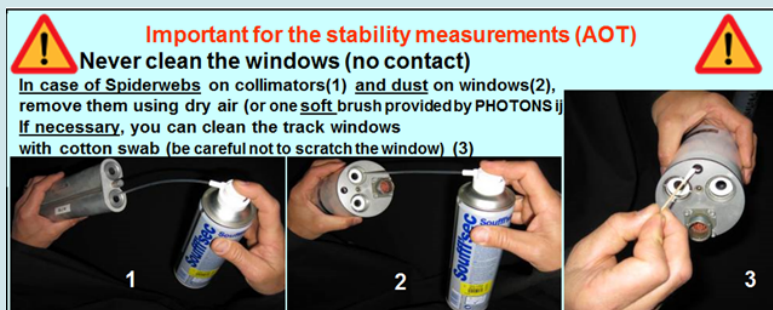
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## Important technical recommendation

This is a strong recommendation to all users before sending your sun photometer head for calibration :

You should NOT clean the sun-photometer lenses before packing and sending it to either France or Spain. It should remain as it was in the field.



## Publications (reporting and highlight)

It is very important to report to ACTRIS all the publications related to the use of scientific instruments calibrated within AERONET-Europe. We kindly request every PI/user to send us the list of these publications (full reference, and when/if possible the publications in pdf format). For preparing the 1<sup>st</sup> ACTRIS-2 reporting, we will appreciate to receive your contribution by end of June 2016. We also kindly remind to follow the recommendations for acknowledgement as given below :

«Authors acknowledge AERONET-Europe/ACTRIS for calibration and maintenance services. The research leading to these results has received funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 654109 ».

## Publications of the month

AERONET-Europe partners want to highlight the following contributions

- (1) Chaikovsky A. et al., *Lidar-Radiometer Inversion Code (LIRIC) for the retrieval of vertical aerosol properties from combined lidar/radiometer data: development and distribution in EARLINET*, Atmos. Meas. Tech., 9, 1181–1205, 2016, doi:10.5194/amt-9-1181-2016.
- (2) Barreto A. et al., *The new sun-sky-lunar Cimel CE318-T multiband photometer – a comprehensive performance evaluation*, Atmos. Meas. Tech., 9, 631–654, 2016 [www.atmos-meas-tech.net/9/631/2016/](http://www.atmos-meas-tech.net/9/631/2016/) doi:10.5194/amt-9-631-2016

Picture of the month - **Please submit yours for the next issue !**



This picture has been taken by Isabelle Jouvie, IPEV-CNRS, at the Amsterdam Island AERONET site, (Indian Ocean), May 2016.



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