

We would like to thank the reviewer for his/her comments.

Comments:

After the new Authors Comment my main points about the paper are the following: RIMA network like to use Toledano et al as a reference: Toledano, C., Cachorro, V. E., Berjon, A., de Frutos, A. M., Fuertes, D., Gonzalez, R., Torres, B., Rodrigo, R., Bennouna, Y., Martin, L., and Guirado, C.: RIMA-AERONET network: long-term monitoring of aerosol properties, Opt. Pura Apl., 44, 629–633, 2011 instead of Prats et al 2011.

Done.

What is the actual collaboration between the different networks? Most of the networks mentioned in the paper have the Cimel photometer as the main instrument and they follow the AERONET protocols for calibration, the comparison between PFR-GAW network and the others will help with the error estimation and analyze.

There are various actions including scientists and institutes responsible for the calibration of instruments towards a framework to achieve homogeneity, compatibility and harmonization among the different spectral AOD networks/instruments. Such actions include MoUs among institutes, long term measurements of reference instruments at common sites (e.g. Mauna Loa and Izana, Spain, as described in this paper), intercomparison campaigns (e.g. Kazadzis et al., 2017, in review, <https://www.atmos-chem-phys-discuss.net/acp-2017-1105/acp-2017-1105.pdf>).

Concerning WMO–GAW and the World Data center for Aerosols, measurement traceability and data quality are essential requirements for monitoring atmospheric aerosol optical properties by International radiometer networks towards their inclusion in the World Aerosol Data Center (WMO-WDCA). GAW-PFR and recently SKYNET networks has been included as WMO-GAW contributing networks to WDCA. The WMO-CIMO (Commission for Instruments and Methods of Observation) defined the standard AOD reference for such traceability and comparison actions, that is the PFR triad, as described in the paper. So for example SKYNET network has started traceability comparison actions (e.g. <http://www.euroskyrad.net/quatram.html>) towards such goals.

In general all the above mentioned actions will help on harmonizing datasets, that could be used in aerosol trends or case studies and on satellite validation aerosol related research. Also, comparison of different calibration procedures and AOD processing basics will help to error estimations and accuracy assessment as the reviewer has mentioned.

The principal point for me is related to the accessibility of the data, looking at the NILU ebas.nilu.no web there are only a few data for most of the stations why that? Is important that you check it and make available the data of all the stations based on what is presented in table 3.

WDCA submissions include some basic rules that have to do with the data quality linked with the instrument re-calibration that it is performed up to 2 years after the actual measurement. (More or less like the AERONET final level 2 data) final data are submitted to WDCA after the recalibration of the instrument with a tentative date to be the end of the next year, for each year's data.

In addition, real time data are submitted. This option for GAW-PFR is at the moment not available, but real time data will start appearing again in the WDCA data base, till the end of January 2018.

Excluding two stations that were added to GAW – PFR network this year and data are processed, about 80% of the data mentioned in the table already exist in WDCA. The missing 20% is for the above mentioned reasons or individual station related/reprocessing reasons or data that are already submitted but they still have not appeared in WDCA site (WDCA data checking phase).

Station (abbreviation)	Country	PFR AOD Time-Series	ebas	Submitted (Years)	Reason of missing data
Alice Springs (ASP)	Australia	2002 – present	2002-2015	14/15	Processing 2016
Bratts Lake (BRA)	Canada	2001 – 2012	2001-2012	11/11	Ok
Danum Valley (MAL)	Malaysia	2007-2016	-	0/9	Reprocess of all data
Hohenpeissenberg (HPB)	Germany	1999 – present	1999-2015	15/17	Processing 2015-16
Izana (IZO)	Spain	2001 – present	2001-2014	13/15	reprocessing 2015-16
Jungfraujoch (JFJ)	Switzerland	1999 – present	1999-2016	17/17	ok
Mauna Loa (MLO)	USA	2000 – present	2000-2015	15/16	Processing 2016
Mace Head (MHD)	Ireland	2000 – 2015	2001-2007	7/15	Corrections to old files

Ny Ålesund (NYA)	Svalbard	2002 – present	2002-2016	14/14	OK
Ryori (RYO)	Japan	2002 – present	2002-2016	15/15	OK
Cape Point (CPT)	S. Africa	2007- present	2014-2015	2/10	Corrections to old files
Mt. Waliguan (WLG)	China	2007- present	2008-2015	8/9	reprocessing 2015-16
Valentia (VAL)	Ireland	2007 - present	2008-2016	9/9	ok
Marambio (MAR)	Argentina	2005 - present		1/12	New GAW stations processing data
Troll (TRO)	Antartica	2012-present		2/6	New GAW stations processing data
total				143/190 (75%) 140/172 (81%)	All Excluding. new