



GAW-PFR Newsletter Nr. 3, May 2011

Since the last Newsletter in January 2010 several interesting developments have occurred in the GAW-PFR Aerosol Optical Depth network. In this latest Newsletter we'd like to give PFR users and the AOD community a brief overview of these developments.

With the addition of 4 new PFR sites at Anmyeon (KMA, S.Korea), Lindenberg and Zingst (DWD, Germany) and Summit (Greenland) as Associate Partners, the GAW-PFR network (www.pmodwrc.ch/worcc) has continued its steady development and now encompasses 24 stations. Apart from graphs of daily AOD data from these and most other GAW-PFR stations, time-series graphs are now updated each month with "preliminary" AOD data to allow the early detection of any trends.



*Figure 1. Lindenberg Meteorological Observatory
Richard Assmann Observatory, DWD.*

Daily AOD data from 19 GAW-PFR stations have been submitted as hourly means and statistics to the World Data Centre for Aerosols (WDCA) at NILU (ebas.nilu.no) since September 2010. Through our efforts to submit data in Near-Real-Time (NRT), the submission of AOD data will move from a daily to an hourly basis in the near future at stations equipped with an ethernet card allowing data to be directly downloaded by GAW-PFR. Data is available in AMES format where permission for access may be requested online or at ebas@nilu.no.

Through our participation in the EU EUSAAR programme (www.eusaar.org), two AOD inter-comparison campaigns were conducted in the last 12 months. The campaign at the Birkenes "Super-Site" in

Norway, belonging to NILU, ran for 4 months. The second campaign is still in progress at the Puy de Dome "Super-Site" near Clermont-Ferrand, France. These two campaigns conclude our involvement in the EUSAAR programme and bring the total number of CIMEL and PFR AOD inter-comparison campaigns to eight. Overall results indicate that AOD at coincident wavelengths ($\lambda = 500$ and 862 nm) agrees to within the accuracy of measurements (± 0.015). A detailed analysis will be presented in a forthcoming paper.

In preparation of the 3rd Filter Radiometer Comparison (FRC-III) campaign in Autumn 2010, the PFR at Mauna Loa (N22) was exchanged for a newly calibrated instrument (N24). This instrument-swap allowed the accuracy of the Davos reference Triad to be verified by Langley calibrations conducted at Mauna Loa. A careful cross-calibration showed that the Triad scale agreed to within $\pm 0.33\%$ of the Mauna Loa calibration. Thus, one year after incorporation of the Izaña PFR into the Triad, no further adjustment of the WORCC reference scale was considered necessary.

FRC-III was held at PMOD/WRC simultaneous to the 9th International Pyrheliometer Comparison (IPC-XI) from 27 September to 15 October 2010. Both campaigns are held on a five-yearly basis. Nine experts from six countries participated with 17 instruments. Due to the sunny conditions in the last two weeks of the campaign, more than 4'000 concurrent CIMEL/PFR/MFR/SPO2 observations were made on 11 days with > 40'000 measurements in total. As such, the recommendations made in 2004 at the GAW Davos workshop for instrumental inter-comparisons were clearly met. Preliminary analysis of the FRC-III data shows that the excellent agreement found during FRC-II in 2005 was repeated.

On the technical front, a new series of PFR instruments is currently being manufactured and tested at PMOD. They will become available in the 4th quarter of 2011, and orders can already be placed. In addition, an internal sensor heater is now available for PFR instruments. With this factory installable option the lower temperature limit for outdoor operation can be extended to about -40°C .

If you are interested in submitting your PFR data to GAW-PFR then please get in touch with us or visit the GAW-PFR website at www.pmodwrc.ch/worcc.