Regional Brewer Calibration Center- Europe

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In November 2003 the WMO/GAW Regional Brewer Calibration Centre for RA-VI region (RBCC-E) was established at the Izaña Observatory (IZO) in the Canary Islands, from the Meteorological State Agency from Spain (AEMET). IZO is located in the subtropical region (28ºN) on top of the Izaña Mountain (2370 m.a.s.l.) with clear sky and small ozone variability. This allows routine absolute calibrations of the radiation instrument references similar to the MLO site on Hawaii. A triad of Brewer MK-III double monochromators maintains the ozone reference. The IZO Triad is linked to the Environment Canada (EC) Triad by yearly calibrations towards the IOS travelling reference BR 017. Recently, and because some uncertainties regarding the support of the world triad by EC, the WMO SAG Ozone agreed in the 2011 meeting, that the RBCC-E will transfer its own calibration based on Langley technique at IZO. A summary of the comparison of Langley calibration against the calibration transferred by the travelling instrument is presented, showing a difference in ozone lower than 0.5%. The RBCC-E triad is carefully maintained achieving a long-term agreement between the instruments of the triad with a precision of at least 0.25% in ozone.

Seven (7) Brewer calibration campaigns and 65 calibrations were performed since 2009 involving 40 instruments, which were supported by the CEOS CALVAL project most of them, and with the participation of the RDCC-E. The results of the last two campaigns are shown: Arosa 2012 and the Absolute calibration at Izaña 2012. The Arosa campaign results confirm the current status of the Brewer network showed on previous campaigns; all of the operative instruments are in the ±2% range, 80% of them within 1% range, and 66% the Brewers with a perfect agreement of 0.5% after two years calibration period. The Absolute Langley calibration of Dobson and Brewer spectrophotometers at IZO, together with the analysis of different absorption coefficients derived from the ACSO initiative, provided encouraging results since they solve the Brewer-Dobson discrepancies when the Bremen University ozone cross sections are used.

Technical developments, as well as the evaluation of the NO2 measurements with the Diemoz's Brewer MKIV (Aosta, Italy), the testing of new electronic board of the Brewer spectrophotometer with Kipp & Zonen, and the stray light model suitable for ozone corrections developed in collaboration with Karppinen et al. (Finnish Meteorological Institute) are briefly presented in the poster together with the training and capacity building activities carried out with Tamanrasset Station (Algeria), Casablanca and Dakhla (Morocco), King George station (Antarctic Uruguay) and the Korea Meteorological office. More information at http://www.iberonesia.net.