Report of the Dobson Operators and Users Meeting
QOS, Kos, 04.06.2004

This meeting was held at the Kos International Conference Center, part of the Kipriotis Panorama Hotel complex during the Quadrennial Ozone Symposium, Kos Island, Greece. The main goal of the meeting was to summarize the current state of the GAW Dobson network and to specify main tasks on coordination of the network in the coming 1-2 years. Many topics at this meeting will also appear on the agenda of the SAG-Ozone meeting to be held in Boulder, CO in October 2004.

The meeting was attended by 25 participants (Appendix A) and chaired by R. Evans, Head of the World Dobson Calibration Centre. The following items were discussed and conclusions made:

- **Intercomparison Campaigns**
  - The European RDCC Hohenpeissenberg continues annual ICs as scheduled by its scientific Head, U. Koehler, which are primarily calibrations of instruments that need special technical service. A four-year big campaign to calibrate Dobson instruments not needing technical adjustments was suggested. Such an intercomparison would consist of up to ten instruments and could be held at the El Arenosillo observatory, Spain under the leadership of RDCC-E.
  - The South American regional calibration center in Buenos Aires is planning to host an intercomparison for South American Dobson instruments to coincide with one hundred year anniversary (2007) of the Argentine Weather Service.
  - The RDCC-Tsukuba, Japan plans to host two ICs of Asian instruments in 2005 and 2006.
  - The calibration histories of instruments in India are not well known. Fresh information about the current state of the network would be very helpful to the data users.

- **Maintenance Of The Dobson Network In Developing Countries**

  K. Vanicek announced that a three year 2004-2006 development project of the Czech Hydrometeorological Institute has been established at the Solar and Ozone Observatory Hradec Kralove. The project is to assist GAW ozone stations in developing countries. Training of Dobson operators and on-site missions of Czech experts at Dobson stations suggested by DAHC and ENV will be included into the project.

- **The Updated Dobson Manual**

  An update of the W. Komhyr's manual for Dobson observations is now being prepared at WDCC by R. Evans under cooperation with several experts from the community. The document is to be released as WMO/GAW Standard Operation Procedures report and a web dynamical file by the end of 2004. The participants were asked to contribute to this manual by their expertise. An updated formula for calculation of Mu will be included into the manual.

- **Umkehr Observations**
  - Japan Meteorological Agency, through the Observatory in Tsukuba, has prepared and released a copy-righted program for processing Dobson Umkehr observations using the 1992 algorithm. The Dobson operators are recommended to use this software for pre-processing and visualization of their observations. More information is available from Koji Miyagawa, Head of RDCC-Asia at Tsukuba Observatory.
  - It has also been recommended to employ the WOUDC Umkehr subroutine into the Dobson software package created at the Solar and Ozone Observatory of CHMI, Hradec Kralove. This program is now used at many Dobson GAW stations.
  - All stations have been encouraged to start or continue their Umkehr measurements.
  - An expert team appointed by IOC (the International Ozone Commission) is now working on assessment of a new Umkehr-2004 algorithm prepared by I. Petropavlovskikh. Results of analyses will show whether this new code will be implemented as a new standard for processing of observations at WOUDC.

- **Re-Deposition Of Dobson Instruments**

  An extensive discussion was devoted to re-installation of Dobson instruments that are now available from some institutions. Several countries have expressed their strong interest for starting Dobson total ozone measurements and they are requesting assistance with instruments.

Suggested Sites include:

- Gough Island in the South Atlantic, with support from the South African Weather Service
- Cape Verde Islands, with assistance from Portugal Meteorological Institute.
- Mongolia, -- has a history of measurements with M-83 Filter Instrument, now stopped. A proper site in the country is being researched.
- Turkey – site and organization not defined.
- La Reunion Island. Some preliminary contacts have already been made with the Royal Meteorological Institute of Belgium to transfer the instrument from Uccle to the new NDSC facility on Reunion.

The suggestion is for the community to work through the Environment Division of the WMO, both with requests for instruments, and for donation of instruments. This would facilitate the integration of the new station into the global network, with a properly calibrated instrument and well trained operators. An excellent example of the re-installation of an instrument at a new station was the establishment of the Armenian station Amberd (2000) under the guidance of RDCC-Europe (U. Koehler).

The stations considered for Dobson instruments should be ones likely to produce long term records. For short term experiments, other instruments such as Microtops ozonometer are recommended.

❖ **Difference Between Dobson And Brewer Observation Results**

Differences between Dobson and Brewer total ozone observations have been found at some stations that operate collocated instruments. This has been documented in the WMO/GAW Report 149, by presentations at QOS2004, and other publications. These differences come from different technologies of measurements and data processing. Stations that are continuing Total Ozone measurements using a Brewer Spectrophotometer replacing a Dobson Instrument are therefore asked to operate both spectrophotometers simultaneously for at least 3-5 year so that their data sets can contribute to investigation of this phenomenon and the long-term consistency of total ozone data series is guaranteed. .

❖ **Identification Of Problems At Stations By Satellite Observations**

New, updated versions of total ozone data sets from satellite observations have been or will be soon released (TOMS/SBUV V8, GOME/GDOAS, and SCIAMACHY). These data sets can be efficiently used for a fast check of quality measurements and identification of problems in operation of instruments at particular Dobson stations, mainly in remote areas. The community is suggested to use these reliable sources of information in their monitoring programmes.

❖ **Moving Instruments To New Sites**

The Dobson instrument used at the Observatoire de Bordeaux, France will be moved to a new site near Toulouse, France, a distance of approximately 200KM. Dr. Jerome de la Noe plans to make a study of the effects, if any, of the move to the data record from this region

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