

Quality Assurance and Quality Control in the WMO-GAW-VOC Network

R. Steinbrecher and S. Thiel

Institute of Meteorology and Climate Research (IMK-IFU), World Calibration Centre for VOC,
Forschungszentrum Karlsruhe GmbH, Kreuzleckbahnstr. 19, 82467 Garmisch-Partenkirchen, Germany;
+49 8821 183 217, Fax: +49 8821 73573, E-mail: rainer.steinbrecher@imk.fzk.de

Tropospheric volatile organic compounds (VOC) are one of the recommended measurements to be made at global stations under the Global Atmosphere Watch (GAW) programme of the World Meteorological Organization (WMO). The purpose is to monitor their atmospheric abundance, to characterize the various compounds with regard to anthropogenic and biogenic sources for evaluating their role in global tropospheric ozone. Because of their relatively short residence in the troposphere, a representative global background level can not be easily established, since it would require hundreds or even thousands of measurement sites. Therefore, the objective of GAW-VOC monitoring is to produce high quality data with known uncertainty at specific representative sites for major biomes. Reported mole fractions and compound ratios of VOC are then used for characterization of the photochemical age of air masses and transport processes. Furthermore, those data are needed as input for global/regional climate modeling based on Chemistry-Transport-Models (CTM) to validate their performance, e.g. for understanding the OH-radical, ozone and SOA distributions.

The GAW QA/QC procedures are in line with the following principles: (1) to use internationally accepted methods and vocabulary to describe the uncertainty in measurements; (2) to harmonize the measurement methodology at stations by using measurement guidelines (MGs) and standard operating procedures (SOPs); (3) to conduct regular performance and system audits aimed at checking the station's agreement with the GAW QA/QC system.

The WCC-VOC does not aim at maintaining its own calibration scale, but will be linked to the VOC scale maintained by the Central Calibration Laboratories to be established. Further information about the WCC-VOC can be obtained from <http://imk-ifu.fzk.de/wcc-voc/>. Some results from recent audits and inter-comparisons at GAW-stations will be presented and discussed.

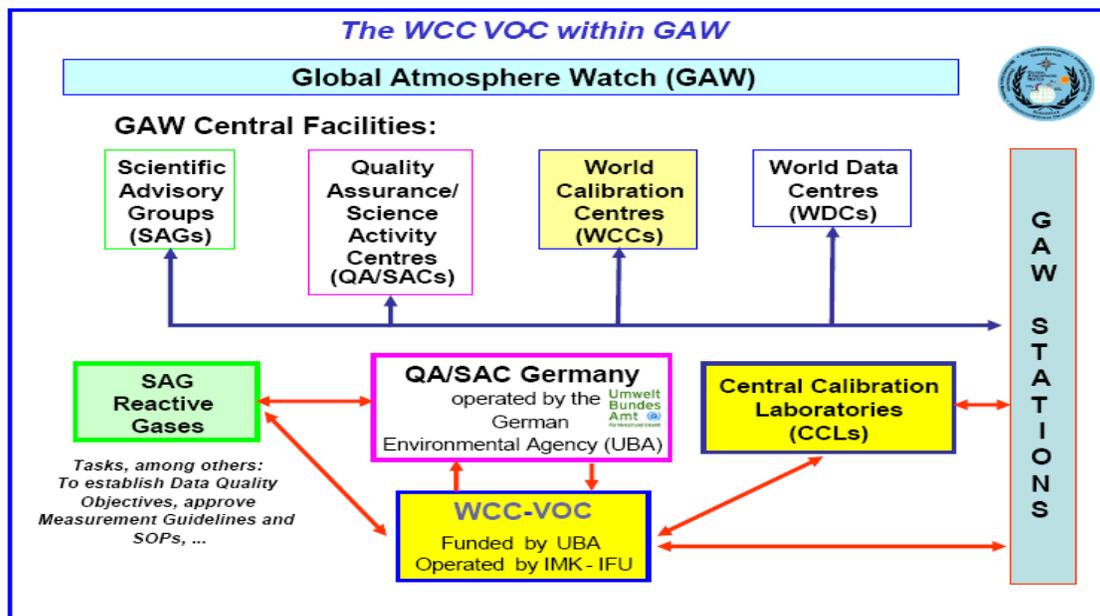


Figure 1. The Global Atmosphere Watch network and its QA/QC system.