



The WMO-GAW Volatile Organic Compound Program - Concept and Findings

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A program for the global monitoring of atmospheric volatile organic compounds (VOC) was initiated by The World Meteorological Organization (WMO) - Global Atmospheric Watch (GAW). Essential components are 1. regular, in-situ, high temporal resolution measurements of VOC at surface stations, 2. VOC analyses in samples collected within flask sampling networks for wide geographical coverage, and 3. a concerted calibration and data quality control effort. There are approximately a dozen stations providing VOC in-situ data at hourly to daily time resolution. These measurements have provided insight into VOC long-term trends and analyses of transport events and source regions of VOC. A second centerpiece of the flask sampling component builds upon the greenhouse gas sampling within the US NOAA Earth System Research Laboratory – Global Cooperative Air Sampling Network. Nine non-methane hydrocarbon species (NMHC) are currently analyzed at the University of Colorado's Institute of Arctic and Alpine Research (INSTAAR) in bi-weekly collected pairs of samples collected at 45 global background monitoring sites. Since the implementation of this program in 2004 more than 7500 measurements have been obtained. The obtained data allow elucidating the geographical and seasonal behavior of atmospheric NMHC, as well as interannual variations. The richness of information in these data helps addressing a plethora of questions related to atmospheric chemistry and greenhouse gas cycling.