

Title: Background atmospheric carbon measurement and other related ECVs in WMO/GAW

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Session II: Carbon measurement and other related climate variables: Global systems, principals and traceability

Abstract:

The Global Atmosphere Watch (GAW) Programme of the World Meteorological Organization is a long-term international global programme that coordinates observations and analysis of atmospheric composition and related physical parameters changes. The programme is based on a collaboration of more than 100 countries and it relies fundamentally on contributions of its Members to help build a single coordinated global understanding of atmospheric composition and its change. Global greenhouse gas (GHG) observations and analysis is one of six focal areas of GAW. This area includes CO₂, CH₄ and their isotopes as well as N₂O, SF₆ and halocarbons. GHG observations and research within GAW are contributing to observational and research pillars of the Global Framework for Climate Services (GFCS). GHG observations are also required for implementation of the Integrated Global Greenhouse Gas Information System (IG3IS). GAW works towards integrated observations unifying measurements from different platforms (ground based in situ and remote-sensing, balloon, aircraft and satellite) supported by modelling activities. GAW observational network includes the stations that are not directly impacted by emission sources and that are regionally representative. The stringent requirements to quality of observations are evaluated at the meetings of experts on GHG measurement techniques every two years. GAW Quality Assurance/Quality Control (QA/QC) system relies on the set of Central Facilities supported by Members. These Central Facilities include in particular Central Calibration Laboratories (that support GAW network primary standard), World and Regional Calibration Centres (that ensure traceability of the station measurements to the network standards and network compatibility) and World Data Centre (that archives and disseminates GHG data and prepares data products). WMO/GAW collaborates with the Bureau International des Poids et Mesures (BIPM). NOAA, in the framework of an agreement signed between WMO and BIPM, participates in a number of BIPM key comparisons to establish a link of the GAW network standard to the other existing standards. Global Climate Observing System (GCOS) recognizes GAW coordinated observational networks for CO₂, CH₄ and N₂O as comprehensive (and their subset as a baseline) networks for these Essential Climate Variables.