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The Use of GAW Surface Observations of CO and O_3 Station Data for the Verification of MACC Global Reactive Gas Forecasts

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The 7th framework project MACC (Monitoring Atmospheric Composition and Climate) provides a comprehensive monitoring and operational forecasting system for atmospheric constituents relevant for climate and air quality issues and surface solar radiation. The MACC forecast system is based on the global weather forecasting system operated by the European Centre for Medium-Range Weather Forecasts (ECMWF) coupled with the chemistry transport models MOZART (Model for OZone and Related chemical Tracers) and TM5. On a near real time (NRT) basis observational data and forecasts, as well as reanalyses are made available for greenhouse and reactive gases, UV radiation and aerosol optical depth. The sub project Global – Reactive Gases is focusing on the evaluation of reactive gases, thus, stratospheric and tropospheric ozone as well as its precursors (e.g. $NO_x, CO, CH2O, SO_2$, non-methane VOCs).

The GAW network provides the ground-based observational data for the evaluation of model simulation forecast and reanalysis of the reactive gases (see above) at surface level on global scale. Contributing stations in this validation process provide their data in rapid delivery mode (within 1 day to 1 month), thus enabling a fast evaluation process. The validation process is performed online and daily updates of the results are displayed on the MACC website (http://www.gmes-atmosphere.eu/d/services/gac/verif/grg/gaw/).

Here, we will give an overview on the status and the results of this near-real-time (NRT) validation of the coupled forecast system for surface O_3 and CO, based on GAW observational data.

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