



## **Validation of aerosols, reactive gases and greenhouse gases in the CAMS forecasts, analyses and reanalyses**

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The Atmosphere Monitoring Service of the European Copernicus Programme (CAMS) is an operational service providing analyses, reanalyses and daily forecasts of aerosols, reactive gases and greenhouse gases on a global scale, and air quality forecasts and reanalyses on a regional scale. CAMS is based on the systems developed during the European MACC I-II-III (Monitoring Atmospheric Composition and Climate) research projects. In CAMS data assimilation techniques are applied to combine in-situ and remote sensing observations with global and European-scale models of atmospheric reactive gases, aerosols and greenhouse gases. The global component is based on the Integrated Forecast System of the ECMWF, and the regional component on an ensemble of 7 European air quality models. CAMS is implemented by ECMWF, and the transition from MACC to CAMS is currently being implemented (2015-2016).

CAMS has a dedicated validation activity, a partnership of 13 institutes co-ordinated by KNMI, to document the quality of the atmospheric composition products. In our contribution we discuss this validation activity, including the measurement data sets, validation requirements, the operational aspects, the upgrade procedure, the validation reports and scoring methods, and the model configurations and assimilation systems validated. Of special concern are the forecasts of high pollution concentration events (fires, dust storms, air pollution events, volcano ash and SO<sub>2</sub>). A few interesting validation results will be shown.