

ECMWF	European Centre for Medium-Range Weather Forecasts
EC-DG-JRC	European Commission - Joint Research Centre
EAA	Umweltbundesamt GMBH
BIRA-IASB	Institut d'Aéronomie Spatiale de Belgique
FMI	Ilmatieteen Laitos
ARMINES	Association pour la Recherche et le Développement des Méthodes et Processus Industriels
CEA	Commissariat à l'Énergie Atomique et aux Énergies Alternatives
CERFACS	Centre Européen de Recherche et Formation Avancée en Calcul Scientifique
CNRS	Centre National de la Recherche Scientifique
INERIS	Institut National de l'Environnement Industriel et des Risques
MF-CNRM	Météo-France
UPMC	Université Pierre et Marie Curie - Paris 6
DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V.
DWD	Deutscher Wetterdienst
IUP-UB	Universität Bremen
JÜLICH	Forschungszentrum Jülich GMBH
MPG	Max Planck Gesellschaft zur Förderung der Wissenschaften e.V.
RIUUK	Rheinisches Institut für Umweltforschung an der Universität zu Köln e.V.
ULEI	Universität Leipzig
AA	Academy of Athens
AUTH	Aristotelio Panepistimio Thessalonikis
NUIG	National University of Ireland, Galway
KNMI	Koninklijk Nederlands Meteorologisch Instituut
SRON	Netherlands Institute for Space Research
TNO	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek
VUA	Vrije Universiteit Amsterdam
MET.NO	Meteorologisk Institutt
NILU	Norsk Institutt for Luftforskning
IM	Instituto de Meteorologia
AEMET	Agencia Estatal de Meteorología
SMHI	Sveriges Meteorologiska och Hydrologiska Institutet
CERC	Cambridge Environmental Research Consultants Ltd
KCL	King's College London
UKMET	Met Office
ULEIC	University of Leicester
UNIVLEEDS	University of Leeds

Observations

From satellite observation to air quality forecast

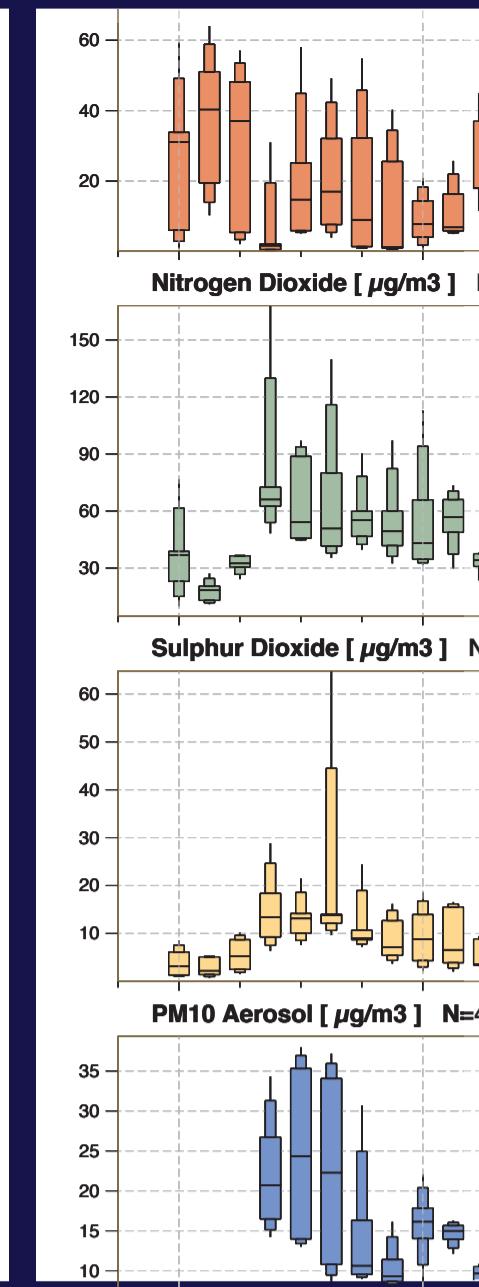
Observations, can provide a snapshot of the air quality, but by themselves have little predictive capability. MACC-II combines observations with computer models of the atmosphere, such as are used for our daily weather forecasts, to provide daily forecasts of the composition of the air around the globe. This combination of millions of daily observations and the predictive power of computer models is the real strength of the pilot Copernicus Atmosphere Service.



Forecasting

Providing a view of the quality of tomorrow's air

Each day, MACC-II provides forecasts of the global composition of the atmosphere for the coming five days, covering plumes of desert dust affecting visibility and health, as well as pollutant plumes from wildfires and volcanic eruptions. MACC-II also generates four-day air quality forecasts for Europe using its ensemble of seven regional air quality models. These forecasts provide important information to citizens and help local authorities to make more informed decisions.



MACC-II Monitoring Atmospheric Composition and Climate

Objectives

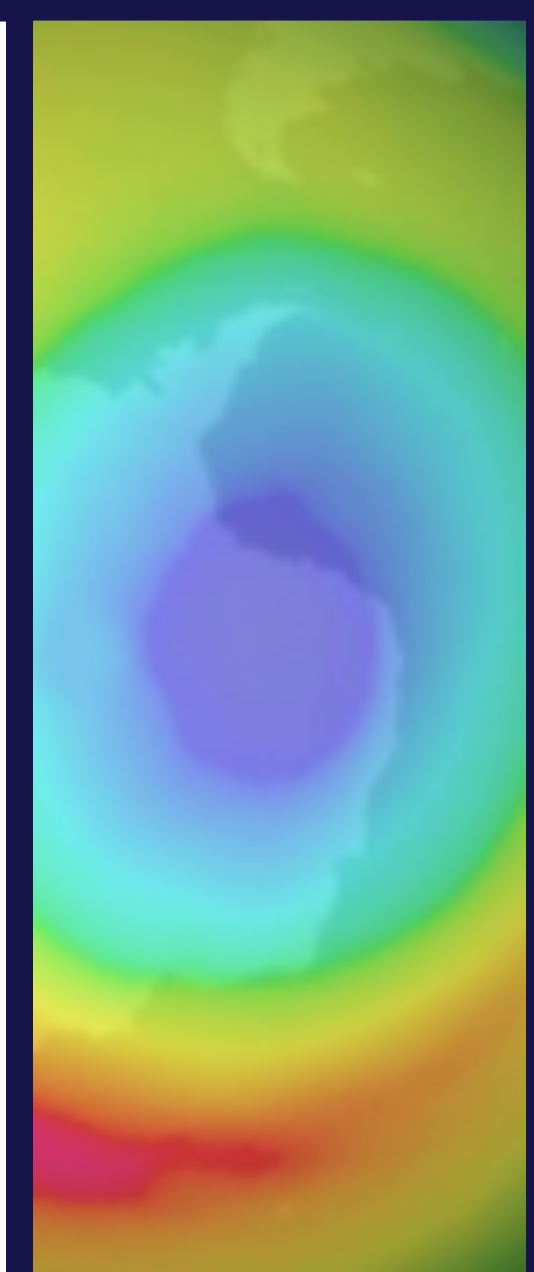
Is the current pre-operational atmospheric service of the European Copernicus programme. MACC-II combines state-of-the-art atmospheric modelling on global and European scale with Earth observation data to provide information services covering European air quality, global atmospheric composition, climate forcing, the ozone layer and UV radiation, and solar energy. Products range from 5-day forecasts of global atmospheric composition and 4-day forecasts of European air quality to re-analyses for past periods of species important for air quality and climate forcing. Validation of the quality of the products forms an integrated part of the project.

MACC-II is a Collaborative Project (2011-2014) funded by the European Union under the 7th Framework Programme. It is coordinated by the European Centre for Medium-Range Weather Forecasts (<http://www.ecmwf.int>) and operated by a 36-member consortium.

Monitoring

Keeping an eye on a changing atmosphere

Monitoring the composition of the atmosphere over time is important to understand changes caused by natural and anthropogenic processes. MACC-II monitors gases and particles in the atmosphere that affect human health and climate, such as aerosols, stratospheric ozone, and the greenhouse gases carbon dioxide and methane. This information is for instance being used in the IPCC assessment reports and the WMO Antarctic Ozone Bulletins.



Users

Meeting societal needs through partnerships

MACC-II users come from a wide range of application areas. Copernicus Downstream Services, the European Environmental Agency, national environmental agencies, the European Commission, Space Agencies, commercial users, the scientific community, and the general public are among an increasing user base for MACC-II products. These are all important actors in the full product chain between observations and user-targeted services.

