

MACC-III

Users, data access, website

Thomas Holzer-Popp (DLR)

On behalf of the MACC-III consortium



MACC-III General Assembly
Reading, 19 – 21 January 2015



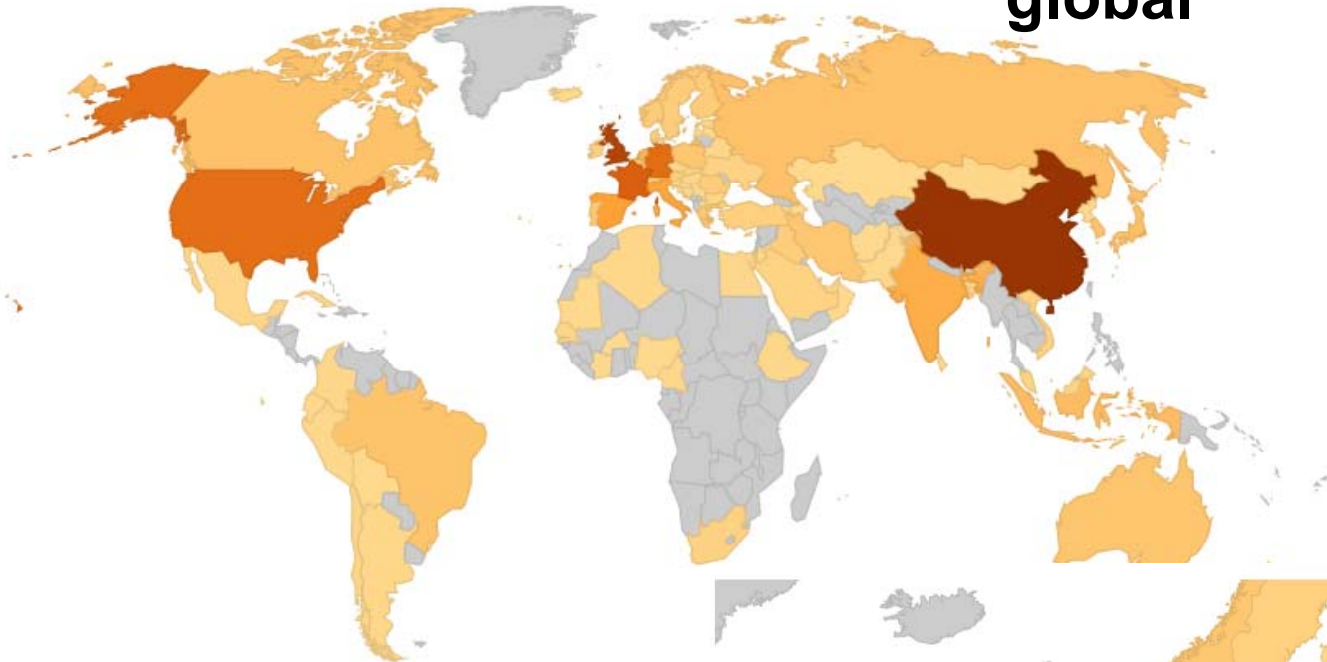
Who are our users? - Overall categories

- **Interim users** of ...
 - ... global and regional boundary condition forecasts
 - ... emission databases
 - ... NRT fire products
- **Direct users** of ...
 - ... atmospheric composition re-analysis
 - ... NRT atmospheric composition information
 - ... policy-relevant assessments
 - ... value-added GHG and aerosol forcing services
 - ... radiation products for solar energy
- Indirect users in...
 - ... **downstream services**

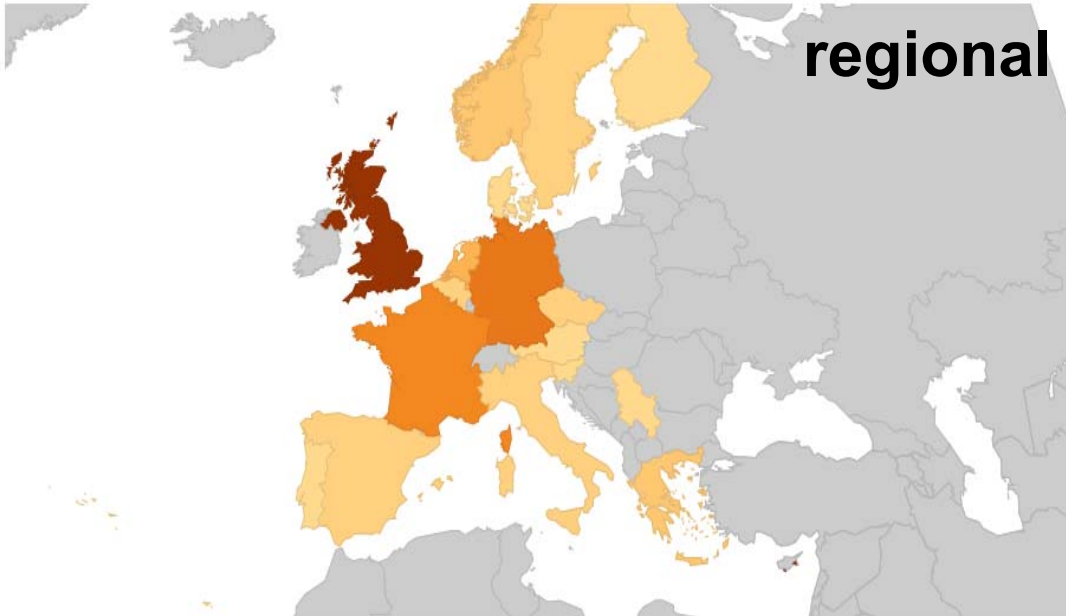


Where are our users?

global



regional



1 244

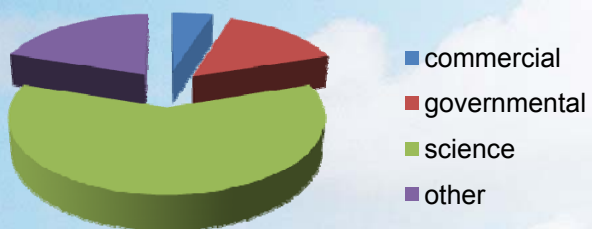
1 22



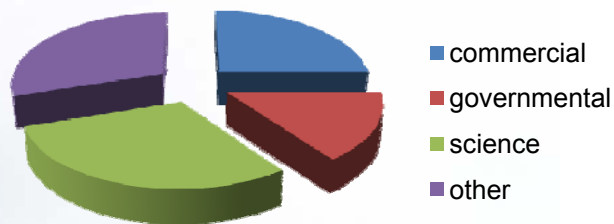
Who are our users? – Numbers, categories

Service	Number of Users/ Requests for data
Global NRT Analyses & Forecasts	~225 users
Regional NRT Analyses & Forecasts	155 users
Global Reanalysis	1600 users
GHG flux inversions	40 users
Solar Radiation	~1000 requests/year
Global ftp	~ 40 users
Emissions, fire	1773 users (716 institutes)
User queries tracking system	318 items until 8/1/2015

global



regional



solar



How do users get access to our data and information?

Monitoring atmospheric composition & climate [Login](#) | [Site map](#) | [Print](#)

mac Monitoring atmospheric composition & climate **Openicus**

[HOME](#) | [NEWS](#) | [CATALOGUE](#) | [PRESS ROOM](#) | [ABOUT THE PROJECT](#) | [CONTACT US](#)

Home > Services > Air Quality & Atmospheric Composition >

Air Quality & Atmospheric Composition

Air quality is defined as the quality of the air that one directly breathes at the surface. It directly affects lives of most European citizens. It forms a significant risk factor for various health conditions and can also aggravate existing health conditions, such as respiratory disease. On a larger scale, atmospheric composition represents the full state of the global atmosphere covering phenomena such as desert dust plumes, long-range transport of atmospheric pollutants and ash plumes from volcanic eruptions, but also variations and long-term changes in the background concentrations of trace components.

MACC-II uses a comprehensive global monitoring and forecasting system that estimates the state of the atmosphere on a daily basis, combining information from models and observations, and it provides a daily 5-day forecast. The global modelling system is also used to provide the boundary conditions for an ensemble of more detailed regional air quality models that are used to zoom in on the European domain and produce 4-day forecasts of air quality.

European Air Quality	Global Atmospheric Composition
Access to Product Catalogue	Access to Product Catalogue
Validation & verification	Validation & verification
Documentation	Documentation

Additional resources

- Scientific field campaign support
- European Policy support

User cases

Model (µg/m³) aerosol amount and cloud fraction above 8144 km of a train orbit between 10:55:45 & 10:57:00 (27/07/12 UT)



Beginning of July 2012, Seattle and Vancouver were covered in a thick haze which exceeded regulations for particulate matter. MACC-II forecasts of aerosol and carbon monoxide were instrumental in showing that this pollution was caused by smoke coming from wild fires in Asia and not from local or even national sources, such as the wild fires in Colorado. MACC-II therefore provided important information for local authorities to judge the situation.

MACC-III is a Coordination & Support Action (2014-2015) funded by the European Union under the Horizon 2020 Programme. It is coordinated by the European Centre for Medium-Range Weather Forecasts and operated by a 36-member consortium.



How do users get access to our data and information?

Monitoring atmospheric composition & climate Not logged in | [Login](#)

maccc Monitoring atmospheric composition & climate Copernicus

[HOME](#) [NEWS](#) [CATALOGUE](#) [PRESS ROOM](#) [ABOUT THE PROJECT](#) [CONTACT US](#)

[Home](#) > Catalogue

Product	Name	Service Type	Product Family	Parameter	Service Status
Air quality and atmospheric comp	MACC-IFS NRT forecast of global dust aerosol concentration (3 bins)	Air quality and atmospheric composition	Aerosol	Dust concentration	PRE-OP
-- Please select a product family --					
-- Please select a parameter --	Aerosol alert system	Air quality and atmospheric composition	Aerosol	Aerosol alert system	EXP
-- Please select a data type --					
Global (-180, 180, -90, 90)					

MACC-IFS NRT forecast of global dust aerosol concentration (3 bins)

Description: This service provides pre-operational daily global forecasts up to 5 days for dust aerosol concentrations for 3 bins.

Service type: Air quality and atmospheric composition **Vertical coordinate:** Potential temperature; Potential vorticity; Model; Pressure; Surface

Product family: Aerosol **Time resolution:** 3-hourly

Parameter: Dust concentration **Data type:** Forecast

Geographical area: Global (-180, 180, -90, 90) **Service status:** Pre-operational

Links: [Data access](#) [Verification results](#) [Validation reports](#) [Contact us](#) [XML](#)

dust aerosol concentration (3 bins) Aerosol PRE-OP

MACC-IFS analysis of global organic carbon aerosol concentration Air quality and atmospheric composition Aerosol Organic carbon concentration PRE-OP

1-8 of 57

Please use the search criteria on the left to filter products. Once you get a list of products, you may check a product's details by clicking on it. You can also type one or more keywords to search the catalogue.

Explanation of [Service Status levels](#).

If you have any comments, please feel free to contact us using [this form](#).

MACC-III is a Coordination & Support Action (2014-2015) funded by the European Union under the Horizon 2020 Programme. It is coordinated by the European Centre for Medium-Range Weather Forecasts and operated by a 36-member consortium.

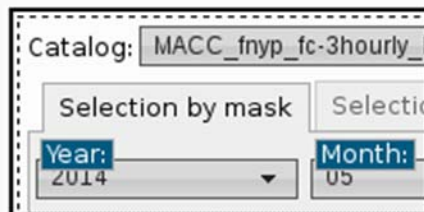
How do users get access to our data and information?

Global Near-Real-Time Data Access

Data Access Options

Currently MACC-II provides its global NRT analyses and forecasts in three different ways:

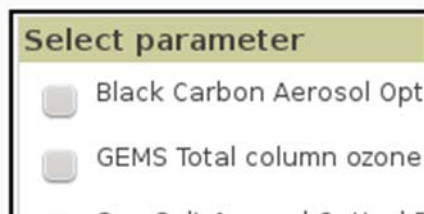
Interactive data access and plotting (FZ Juelich data server)



not operationally supported;
batch data access using OGC web services;
NetCDF format;

**Interactive
WCS/WMS**

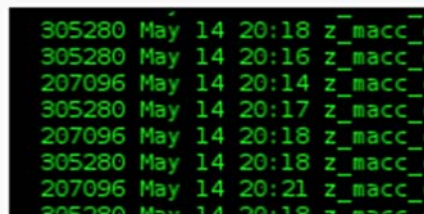
Interactive data access to full dataset (ECMWF data server)



batch data access using ECMWF Web API web services;
GRIB and NetCDF format;
from Nov 2011 to present;

**Interactive
web api**

Operationally supported routine daily access (ECMWF FTP server)



batch access using FTP protocol;
GRIB and NetCDF format;
three latest forecast kept online;

**Operationally
supported ftp**

Online user registration

- For access to **graphics**
 - no registration at all
- For **scientific data access + general data access**
 - few simple entries to help identify / document users
 - wish to name planned application
 - name required MACC-III products
- For **specific commitment**
 - sign specific Service Level Agreement

MACC-III license terms -> open Copernicus data policy

- non-exclusive use for own purposes
- Use for **research, education and commercial** activities
- **no reproduction**, distribution, selling of MACC-III products
- intellectual property remain with the MACC-III Consortium
- **acknowledgement to MACC-III required**; copy of publications on request
- **no warranty** for accuracy or completeness of products or for software
- **no liability** for damages of using MACC-III products
- no liability for unavailability, delay or interruption of direct access
- User acknowledgement that such **service breaks may happen**
- MACC-III termination within 30 days upon any breach of obligations
- MACC-III right to change, add, remove MACC-III Products
- MACC-III right to change this license

The MACC website

Monitoring atmospheric composition & climate Login | Site map | Print

 Monitoring atmospheric composition & climate 

HOME NEWS CATALOGUE PRESS ROOM ABOUT THE PROJECT CONTACT US

Home >

Home

- News
- Press Room
- About the Project
- Contact us
- Jobs

Today's Forecasts

- Reactive Gases
- Aerosols
- European Air Quality
- UV Index
- Ozone Layer
- CO2

Latest Analyses

- Fire Monitoring
- Reactive Gases
- Aerosols
- European Air Quality

LATEST MACC-III supports French authorities on elevated SO2 values   



Air Quality and Atmospheric Composition



Climate Forcing



Ozone Layer & UV



Solar Radiation



Emissions and Surface Fluxes

User Support

- Documentation
- Validation
- E-learning
- Mailing Lists
- Operational Info

Services

- Air Quality & Atmospheric Composition
- Climate Forcing
- Ozone Layer & Ultra-Violet Radiation
- Solar Radiation
- Emissions & Surface Fluxes



In Focus: ECMWF Copernicus services - Information day



8 January 2015 Copernicus is the European Union's flagship Earth-observation programme. The programme ensures operational monitoring of the atmosphere, oceans, and continental surfaces, and will provide reliable, validated information services for a range of environmental and security applications.

ECMWF has been entrusted to operate the Copernicus Atmosphere Monitoring Service (CAMS) and the Copernicus Climate Change Service (C3S) on behalf of the European Commission until the end of 2020.

A majority of the service elements for CAMS and C3S will be procured by means of competitive Invitations To Tender (ITT). Prior to the release of the first batch of ITTs, ECMWF has published [Prior Information Notices](#) and will organise an Information Day in Brussels on the afternoon of Monday 2 February. At the end of the session, time has been set aside to allow networking between prospective bidders. More information and online registration details will be available shortly.

Potential users of MACC-III are invited to complete the questionnaire at this [link](#)

MACC-III is a Coordination & Support Action (2014-2015) funded by the European Union under the Horizon 2020 Programme. It is coordinated by the European Centre for Medium-Range Weather Forecasts and operated by a 36-member consortium.



User support on the website

Monitoring atmospheric composition & climate [Login](#) | [Site map](#) | [Print](#)

 Monitoring atmospheric composition & climate 

[HOME](#) [NEWS](#) [CATALOGUE](#) [PRESS ROOM](#) [ABOUT THE PROJECT](#) [CONTACT US](#)

Home >

Home

- News
- Press Room
- About the Project
- Contact us
- Jobs

Today's Forecasts

- Reactive Gases
- Aerosols
- European Air Quality
- UV Index
- Ozone Layer
- CO2

Latest Analyses

- Fire Monitoring
- Reactive Gases
- Aerosols
- European Air Quality

LATEST MACC-III supports French authorities on elevated SO2 values || ◀ ▶



Air Quality and Atmospheric Composition



Climate Forcing



Ozone Layer & UV



Solar Radiation



Emissions and Surface Fluxes

In Focus: ECMWF Copernicus services - Information day



8 January 2015 Copernicus is the European Union's flagship Earth-observation programme. The programme ensures operational monitoring of the atmosphere, oceans, and continental surfaces, and will provide reliable, validated information services for a range of environmental and security applications.

ECMWF has been entrusted to operate the Copernicus Atmosphere Monitoring Service (CAMS) and the Copernicus Climate Change Service (C3S) on behalf of the European Commission until the end of 2020.

A majority of the service elements for CAMS and C3S will be procured by means of competitive Invitations To Tender (ITT). Prior to the release of the first batch of ITTs, ECMWF has published [Prior Information Notices](#) and will organise an Information Day in Brussels on the afternoon of Monday 2 February. At the end of the session, time has been set aside to allow networking between prospective bidders. More information and online registration details will be available shortly.

Potential users of MACC-III are invited to complete the questionnaire at this [link](#)

MACC-III is a Coordination & Support Action (2014-2015) funded by the European Union under the Horizon 2020 Programme. It is coordinated by the European Centre for Medium-Range Weather Forecasts and operated by a 36-member consortium.



User Support

- Documentation
- Validation
- E-learning a'
- Mailing Lists
- Operational Info

Services

- Air Quality & Atmospheric Composition
- Climate Forcing
- Ozone Layer & Ultra-Violet Radiation
- Solar Radiation
- Emissions & Surface Fluxes





User interaction activities

- Direct contacts
- User **questionnaire**
- User queries tracking
- User requirement cycles
- User workshops
- User Advisory Board
- Summer schools

The screenshot shows the MACC website interface. At the top, there is a navigation bar with 'HOME', 'NEWS', 'CATALOGUE', 'PRESS ROOM', 'ABOUT THE PROJECT', and 'CONTACT US'. A search bar is located on the right. The main content area features a 'LATEST' news item titled 'Copernicus Atmosphere Monitoring Service launched'. Below this, there are five featured images with captions: 'Air Quality and Atmospheric Composition', 'Climate Forcing', 'Ozone Layer & UV', 'Solar Radiation', and 'Emissions and Surface Fluxes'. A section titled 'In Focus: ECMWF Copernicus services - Information day' contains text about the 8 January 2015 event. A red-bordered box highlights the text: 'Potential users of MACC-III are invited to complete the questionnaire at this [link](#)'. The footer includes the MACC-III project description and a row of national flags.

Documentation on the website

Monitoring atmospheric composition & climate [Login](#) | [Site map](#) | [Print](#)

 **maccc** Monitoring atmospheric composition & climate 

[HOME](#) | [NEWS](#) | [CATALOGUE](#) | [PRESS ROOM](#) | **[ABOUT THE PROJECT](#)** | [CONTACT US](#)

Home > About the Project > Documentation >

About the Project

- Project Description
- Project Structure
- Partners

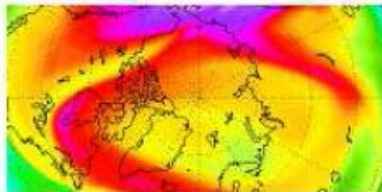
Today's Forecasts

- Reactive Gases
- Aerosols
- European Air Quality
- UV Index
- Ozone Layer
- CO2

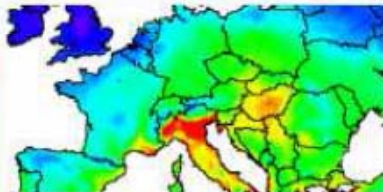
Latest Analyses

- Fire Monitoring
- Reactive Gases
- Aerosols
- European Air Quality

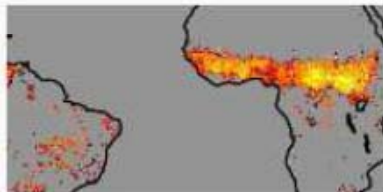
Documentation




[global systems](#)



[regional systems](#)



[GFAS](#)




[radiation](#)

User Support

- Documentation
- Mailing Lists
- E-learning
- Operational Info

Services

- Air Quality & Atmospheric Composition
- Climate Forcing
- Ozone Layer & Ultra-Violet Radiation
- Solar Radiation
- Emissions & Surface Fluxes

 **ACCESS CATALOGUE**

Technical documentation is available online and is continuously extended.

Validation on the website

Monitoring atmospheric composition & climate [Login](#) | [Site map](#) | [Print](#)

macc Monitoring atmospheric composition & climate **Opemicus**

[HOME](#) | [NEWS](#) | [CATALOGUE](#) | [PRESS ROOM](#) | [ABOUT THE PROJECT](#) | [CONTACT US](#)

Home > Services > Air Quality & Atmospheric Composition > Verification of Regional Services >

Air Quality & Atmospheric Composition

- Verification of Global Services
- Scientific Field Campaign Support
- Verification of Regional Services
- Validation reports

Today's Forecasts

- Reactive Gases
- Aerosols
- European Air Quality
- UV Index
- Ozone Layer
- CO2

Latest Analyses

- Fire Monitoring
- Reactive Gases
- Aerosols
- European Air Quality

Verification of Regional Services

Validation Reports

The regional modelling systems are being validated on a 3-monthly basis. The validation reports are available here:

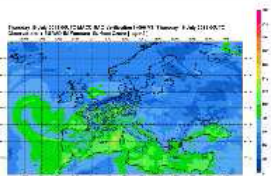
- [Validation reports](#)

Quick-look verification pages

The verification of the MACC-II Regional Air Quality services over Europe is based on comparisons with in-situ surface observations of the following air pollutants: ozone, nitrogen dioxide, sulphur dioxide, carbon monoxide and PM10 aerosols. These hourly observational data are delivered to the MACC-II project close to real-time. They are preliminary and not validated and can therefore not be used for checking compliance with air quality regulations or for any purpose other than the evaluation of MACC-II Regional Air Quality products. Detailed information can be obtained from [the data owners](#).

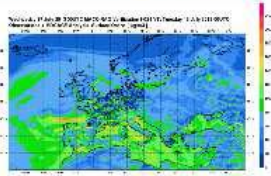
Forecast verification against in-situ observations

Maps of the forecasts of surface pollutants (ozone, nitrogen dioxide, sulphur dioxide, carbon monoxide and PM10 aerosols) produced by each of the 7 individual models or from the ensemble on a 3-hourly basis, overlaid with in-situ observations as coloured dots. Available for the past 30 days.



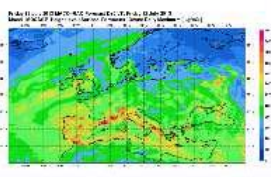
Analysis verification against in-situ observations

Maps of the ozone analysis at the surface produced by each of the 7 individual models or from the ensemble on a 3-hourly basis, overlaid with in-situ observations as coloured dots. Available for the past 30 days.



Forecast versus analysis verification

Maps of the daily maximum at the surface for the different pollutants (ozone, nitrogen dioxide, sulphur dioxide, carbon monoxide and PM10 aerosols) from the analysis together with the forecasts for Day 0, Day 1, Day 2 and Day 3. Available for each of the 7 individual models and the ensemble for the past 30 days.



Mean forecast scores



MACC-II Validation Score	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
MACC-II Ozone (ppb)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MACC-II NO2 (ppb)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MACC-II SO2 (ppb)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MACC-II CO (ppb)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MACC-II PM10 (µg/m³)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[ACCESS CATALOGUE](#)

Mailing lists

Monitoring atmospheric composition & climate

[Login](#) | [Site map](#) | [Print](#)

HOME
NEWS
CATALOGUE
PRESS ROOM
ABOUT THE PROJECT
CONTACT US

Home > About the Project > Mailing Lists >

About the Project

- [Project Description](#)
- [Project Structure](#)
- [Partners](#)

Today's Forecasts

- [Reactive Gases](#)
- [Aerosols](#)
- [European Air Quality](#)
- [UV Index](#)
- [Ozone Layer](#)
- [CO2](#)

Latest Analyses

- [Fire Monitoring](#)
- [Reactive Gases](#)
- [Aerosols](#)
- [European Air Quality](#)

Mailing Lists

Subscribe to a mailing list

MACC-II uses email mailing lists to inform users about changes to its near-real-time products, such as system upgrades and potential changes to the timing of the product availability. If you would like to stay informed, you can subscribe to the relevant mailing list below.

List name	Description
NRT global notification	This list is used for announcements about upcoming MACC-II NRT global service changes
NRT regional notification	This list is used for announcements about upcoming MACC-II NRT regional service changes
E-mail Newsletter	This list is used to distribute our MACC-II e-mail Newsletter

Review your subscriptions

If you would like to review your existing subscriptions, search the archives or request a password reminder please visit this page:


[Mailing list manager](#)

User Support





























- [Documentation](#)
- [Validation](#)
- [E-learning e'](#)
- [Mailing Lists](#)
- [Operational Info](#)

Services

- [Air Quality & Atmospheric Composition](#)
- [Climate Forcing](#)
- [Ozone Layer & Ultra-Violet Radiation](#)
- [Solar Radiation](#)
- [Emissions & Surface Fluxes](#)



MACC-III is a Coordination & Support Action (2014-2015) funded by the European Union under the Horizon 2020 Programme. It is coordinated by the European Centre for Medium-Range Weather Forecasts and operated by a 36-member consortium.

Online information about system upgrades

Monitoring atmospheric composition & climate Login | Site map | Print

mac Monitoring atmospheric composition & climate Copernicus

HOME NEWS CATALOGUE PRESS ROOM ABOUT THE PROJECT CONTACT US

Home > Operational Info >

Operational Info

This page provides information about the users. Current configuration, expected here.

Global system

Details of the current near real-time implementation of IFS cycle 40r2_MACC (C-IFS)

MACC-II routinely runs a coupled implementation of IFS testing system (e-suite, with 36R1_MACC (ExpID 36r1) and 37r3_MACC (ExpID 37r3) systems using the MOZART (v193i) chemistry.

- [Details about the implementation of IFS cycle 37r3_MACC \(ExpID 37r3\)](#)
- [Overview of IFS cycle 37r3_MACC \(ExpID 37r3\)](#)
- [Data access for IFS cycle 37r3_MACC \(ExpID 37r3\)](#)
- [Definition of IFS cycle 37r3_MACC \(ExpID 37r3\)](#)

Overview of observations

- [MACC-II input data](#)
- [Satellite data](#)

System changes for the current cycle

- [Documentation of IFS cycle 40r2_MACC \(C-IFS\)](#)
- [Detailed change log](#)

Global reanalysis

- [Description of the MACC-II reanalysis](#)

Regional systems

- [Description of operational implementation of IFS cycle 40r2_MACC \(C-IFS\)](#)

Implementation of IFS cycle 40r2_MACC (C-IFS)

IFS cycle 40R2_MACC is based on ECMWF IFS cycle 40R2 (which includes the meteorological changes described in [ECMWF IFS cycle 40R1](#)) and introduces the first version of **C-IFS** (Composition-IFS). This is a major step in the MACC-II system development, moving from a coupled system to a fully integrated system for the chemistry. It also incorporates a change from the Mozart chemical scheme to the TMS chemical scheme.

The page will be updated as required. It was last changed on 20.09.2014.

For a record of changes made to this page please refer to [Document versions](#).

Further information and advice regarding the upgrade can be obtained from [User Support](#).

- [Timetable for implementation](#)
- [Meteorological contents of the new cycle](#)
- [Changes specifically for MACC](#)
- [Impact on analyses and forecasts](#)
- [Technical details of the new cycle](#)
- [E-suite description and log](#)
- [Document versions](#)

Time table for implementation

The timetable for the implementation of IFS cycle 40r2_MACC in operations is as follows:

Date	Event
June 2014	Pre-announcement of expected implementation date
18 September 2014	Date of implementation

The timetable represents current expectations and may change in light of actual progress made.












Meteorological contents of the new cycle

No significant change

Chemical content of the new cycle

Chemical content - This cycle will be the first with the chemistry updated consistent with the...

MACC-III is a Coordination & Support Action (2014-2015) funded by the European Union. It is coordinated by the European Centre for Medium-Range Weather Forecasts (ECMWF).

[User Support](#)
[Documentation](#)
[Validation](#)
[E-learning](#)
[Mailing Lists](#)
[Operational Info](#)

[Services](#)
[Air Quality & Atmospheric Composition](#)
[Climate Forcing](#)
[Ozone Layer & Ultra-Violet Radiation](#)
[Solar Radiation](#)
[Emissions & Surface Fluxes](#)

ACCESS CATALOGUE

Online service status

Monitoring atmospheric composition & climate Not logged in | [Login](#)

macc Monitoring atmospheric composition & climate **Copernicus**

[HOME](#) [NEWS](#) [CATALOGUE](#) [PRESS ROOM](#) [ABOUT THE PROJECT](#) [CONTACT US](#)

[Home](#) > Catalogue

Product	Name	Service Type	Product Family	Parameter	Service Status
Air quality & atmospheric composition -- Please select a product family -- Please select a parameter -- Please select a data type -- Please select a geographical area	European-scale AQ ozone forecast by SILAM				
	<p>Description: This service provides pre-operational european-scale air quality ozone forecasts for every hour up to 3 days in advance provided by SILAM model. The maps provided are experimental and representative for large scale phenomena, they cannot reproduce local aspects of air pollution.</p> <p>Tuesday 21 January 2014 00UTC MACC-RAQ Forecast 1+000 VT: Tuesday 21 January 2014 00UTC Model: SILAM Height level: Surface Parameter: Ozone [ppb m3]</p>				
	Service type: Air quality & atmospheric composition		Vertical coordinate:		
	Product family: Reactive gas		Time resolution: Hourly		
	Parameter: O3		Data type: Forecast		
	Geographical area: Europe (-25, 45, 30, 70)		Service status: Pre-operational		
	Links: Plots Data access Verification results Contact us				
					EXP
					PRE-OP
					PRE-OP
					PRE-OP
					PRE-OP
					PRE-OP
					PRE-OP

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 and operated by a 36-member consortium.

Impact of user feedback on service evolution

- **Continuous service improvements** for downstream services
 - Increased **resolution** of global, fire datasets
 - Increased **area** and **forecast length** of the regional ensemble
 - Increased ensemble output: **species, vertical layers**
 - **New regional CO2 forecasting** service
 - Dedicated **campaign support** website, **policy support** website
- Continuous **improvements of documentation and data access**
 - Online extended documentation
 - Online operational information
 - Demonstration web services
- Requirements considered in **CAMS planning (prior tender info)**
 - Ensemble operations to support **interim assessment reports**
 - Specialized **user interface tools**
 - **Seamless transition** to MACC-III and (to be assured!) operational phase



Website:

<http://www.copernicus-atmosphere.eu>

Contact:

info@copernicus-atmosphere.eu