



# Atmosphere Monitoring Service









- Key constituents of the atmosphere: aerosols, reactive gases and greenhouse gases
- Global and regional (Europe) data
- Near-real time analyses and real-time forecasts
- · Surface fluxes and emissions
- · Models and verification against observations

# Discover and Visualise



- Access quality information for a range of products
- Visualise, analyse, interpret and share the data you need





- To download data
- To benefit from customised services and a manned-expert helpdesk
- To provide feedback and express your requirements

### Download



- Select and download the data sets you need
- · One-off download or by scripts

Compute



- Use data as you wish for calculation, estimation, rating, producing indicators...
- Integrate data in other models
- · Merge data with your own

Join Up



• Subscribe to the newsletter for latest updates





#### What is it?

Some of today's most important environmental concerns relate to the composition of the atmosphere, such as the increasing concentration of the greenhouse gases, the ozone layer, aerosols and other atmospheric pollutants in the air we breathe, volcanic eruptions, large wildfires and solar radiation. These changes in atmospheric composition impact climate, human health and life expectancy, and the health of ecosystems.

They influence the amount of ultraviolet radiation reaching the surface and affect the safe operation of transport systems and the availability of power from solar generation, the formation of clouds and rainfall, and the remote sensing by satellite of land, ocean and atmosphere.

The Copernicus Atmosphere Monitoring Service (CAMS) meets the need for data and processed information to address these concerns, aiming

at supporting policymakers, business and citizens with enhanced atmospheric environmental information available as analyses, re-analysis and forecasts at global and pan-European scales.

CAMS uses data from more than 70 satellite instruments and acquires 280 million observations every 12 hours to produce 14,000 maps on a daily basis as an uninterrupted high-quality service. CAMS also provides support to its users.

CAMS is operated by the European Centre for Medium-Range Weather Forecasts (ECMWF) on behalf of the European Union. The portfolio of products is delivered by ECMWF and its contractors, regrouping the best expertise available in Europe.

#### What for?

CAMS produces useful data for a large number of applications covered by the public and the private sectors, for example the solar energy industry, health and transport, climate change... It can provide answers to the following questions:

- What will the air we breathe be like tomorrow?
- Will air pollution events such as smoke from fires in Canada or volcanic eruptions in Iceland affect air quality in continental Europe?
- Where are the best places for my solar farm? What is the yield I can expect?

Businesses can use these data to create new products or augment their existing services to their clients. Industry can benefit from forecasts of upcoming extreme air quality or pollution events that might affect sensitive equipment or production lines. Moreover, public services and scientists can rely on CAMS' comprehensive and quality assured data.

#### Where?

Where can I access the CAMS data?

The CAMS online catalogue provides access to a large portfolio of global and regional products and parameters, and supplementary services. All data are available at this URL: atmosphere.copernicus. eu/catalogue#.

Do I need to register before downloading the products?
 CAMS maps and visualisations are available without registration. A name and an email address are required to download the data, for the

purpose of informing about changes in the products and of gathering feedback from users.

· Is there user support?

CAMS provides the users with online information that answers the most common questions. The user can also submit questions through a dedicated Service Desk available from all pages of atmosphere. copernicus.eu or via email Copernicus-support@ecmwf.int.

#### How?

• How to download CAMS products?

To download the CAMS products (through Web API or FTP), simply visit the CAMS catalogue and select the product in which you are interested. Click on data download and accept the license agreement. atmosphere.copernicus.eu/global-near-real-time-data-access.

• Can I automate downloads of CAMS products?

Examples and instructions on how to write and run scripts to download CAMS products are available on the ECMWF webpage that can be found here: software.ecmwf.int/wiki/display/WEBAPI/Access+ECMWF+Public+Datasets.

To download the products through the web interface, registration is needed. Through WebAPI a one-off key is needed.

How to download a large amount of data?
 There is no download limit in terms of volume. However, the WebAPI requests are currently limited to 20 gb per request to serve more users.

Which tools can I use to manipulate CAMS products?
 The following tools can be used to manipulate the CAMS netCDF files:
 CDO, NCO, Panoply netCDF, Metview, HDF and GRIB Data Viewer. To quickly visualise a product Metview, Panoply netCDF, HDF and GRIB Data Viewer can be used.

#### Other information

- Newsletter: atmosphere.copernicus.eu/newsletter/subscriptions
- Twitter: @ECMWFCopernicus and @CopernicusEU

### CAMS in numbers

## 280 million

observations enter CAMS every 12 hours 14,000

new maps are produced online daily

## Around 1.4 terabytes

of fresh data is produced every day

#### 70

different satellite instruments used or monitored

#### **Over 500**

surface sites provide in-situ observations

