



The Copernicus Emergency Management Service



Early warning and monitoring

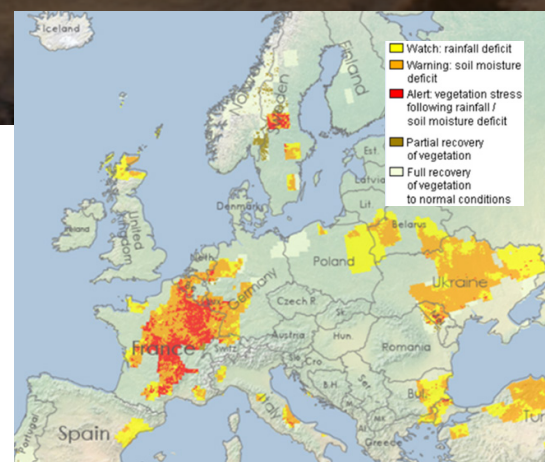
Copernicus is an EU programme aimed at developing European information services based on satellite Earth Observation and in situ data.¹ The Copernicus Emergency Management Service (CEMS) supports all actors involved in the management of natural or manmade disasters by providing geospatial data and images for informed decision making. CEMS constantly monitors and forecasts Europe and the globe for signals of an impending disaster or evidence of one happening in real time. It notifies authorities of their findings or can be activated on-demand and offers to provide them with maps, time-series or other relevant information to better manage disaster risk. CEMS products show information about a disaster event on a scale, timeline, and perspective that only geospatial information can provide. They can examine changes to an area of Earth over a series of days, weeks, months, or years.²

The **Early Warning and Monitoring** component of CEMS offers critical geospatial information at European and global level through continuous observations and forecasts for floods, droughts and forest fires.³ It provides continuous disaster forecasting and monitoring information to assist with preparedness and emergency response. The continuous monitoring products of this component serve also as a basis for prevention planning and recovery after a disaster.



DROUGHTS – EUROPEAN DROUGHT OBSERVATORY (EDO)

As part of the CEMS early warning and monitoring component, the **European and Global Drought Observatories (EDO and GDO)** provide drought-relevant information and early warnings at European and global scales, respectively. The focus of EDO is on the computation, monitoring and forecasting of key drought indicators (outlined below) – based on a combination of satellite Earth observation, hydro-meteorological models and in-situ data – representing different components of the hydrological cycle (e.g. precipitation, soil moisture, reservoir levels, river flow, groundwater levels) or specific impacts (e.g. vegetation water stress) associated with a particular type of drought. Maps and spatially explicit data are at the core of EDO, which provides a main map viewer, dynamic reports and information-rich pages. EDO is developed at the European Commission’s Joint Research Centre (JRC).



EDO’s Combined Drought Indicator (CDI) for the second 10-day period of August 2020 showing an intense drought in France and Western Germany and patches of a drought starting in Ukraine and Turkey. Note that Russia and North Africa are not analysed.

¹ <https://emergency.copernicus.eu/index.html> – Box at the bottom of the website (in the orange banner)

² <https://emergency.copernicus.eu/faq.html> – Overall FAQ text

³ <https://emergency.copernicus.eu/index.html> – Section Early Warning and Monitoring

EDO provides European drought information through drought monitoring and forecasting maps, analysis tools and periodical reports on severe droughts. In order to ease the interpretation and to provide information for decision-making, individual indicators can be logically combined into high-level indicators that highlight different warning levels with respect to a given economic sector or the environment. This is provided through the **Combined Drought Indicator (CDI)**, for agricultural and ecosystem drought.

EDO products encompass a range of key drought-relevant indicators:

- CDI for monitoring agricultural and ecosystem drought.
- Standardised Precipitation Index (SPI): for monitoring meteorological drought.
- Soil moisture and vegetation greenness: for monitoring agricultural drought.
- Low flow in main rivers, groundwater: for monitoring hydrological drought.
- Forecasts of extreme precipitation, soil moisture anomalies.
- Daily temperature anomalies and heatwaves.

EDO provides users a series of tools for:

Mapping drought:

- Interactive MapViewer.
- Side-by-side maps.
- “Make your own” maps.

Understand drought evolution:

- Trend viewer.
- Graphs and time-series.
- Combined Drought Indicator (CDI) time animation.
- Animated GIFs.

- Overview map of current droughts (CDI).
- Current media reports on drought.
- Forecast of the soil moisture drought conditions for the coming week.
- Periodical reports focused on severe drought events.
- Technical factsheets for all the drought indicators.



Access the Map Viewer



Also available globally as GDO

KEY NUMBERS

COLLABORATION

WITH PARTNERS, E.G.: PORTUGUESE INSTITUTE FOR SEA AND ATMOSPHERE (IPMA), INTERNATIONAL CONVENTION FOR THE PROTECTION OF THE RHINE (ICPR), SEGURA & EBRO BASINS IN SPAIN, DROUGHT MONITORING CENTRE FOR SOUTH EASTERN EUROPE, INTERDROUGHT IN CZECHIA & SLOVAKIA

6 NATIONAL, REGIONAL, AND RIVER BASIN AUTHORITIES DELIVER DATA INTO EDO MAPVIEWER AND INTEGRATE EDO PRODUCTS IN THEIR SERVICES

CONTINUOUS MONITORING OF KEY DROUGHT INDICATORS

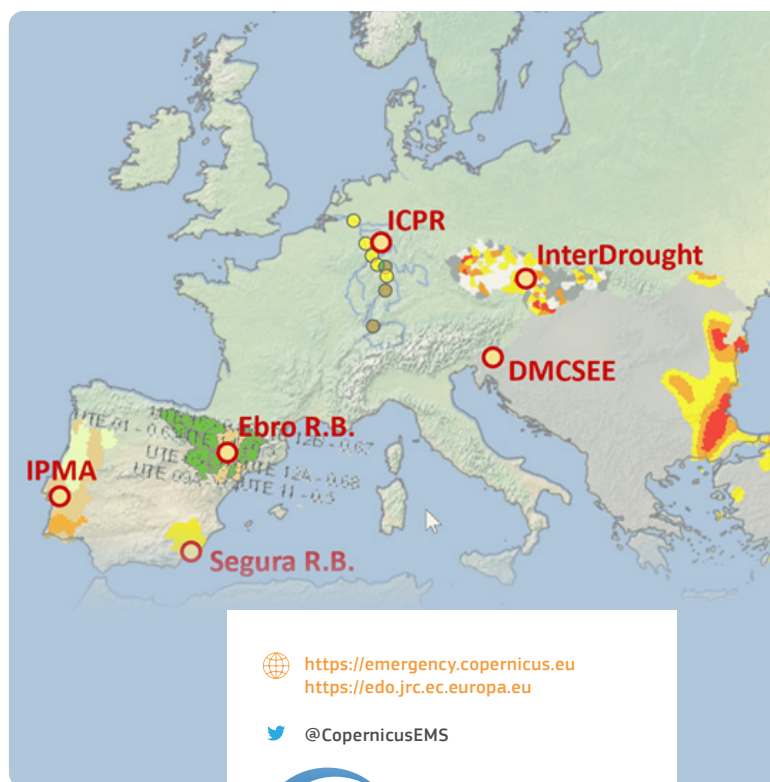
FREELY ACCESSIBLE CURRENT DROUGHT MAPS SITUATION

WHAT IS A DROUGHT

Drought is a recurrent feature of the climate that results from a shortfall in precipitation over an extended period of time, its inadequate timing compared to the needs of the vegetation cover, or a negative water balance due to an increased potential evapo-transpiration caused by high temperatures. These conditions may be exacerbated by strong winds, atmospheric blocking patterns and antecedent conditions in soil moisture, reservoirs and aquifers, for example. If this situation leads to an unusual and temporary deficit in water availability, it is termed a drought. Droughts are to be distinguished from aridity, a permanent climatic feature, and from water scarcity, a situation where the climatologically available water resources are insufficient to satisfy long-term average water requirements.

<https://edo.jrc.ec.europa.eu>

Overview of the six partner organizations currently providing data-layers to the EDO MapViewer.



<https://emergency.copernicus.eu>
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