



The Copernicus Emergency Management Service



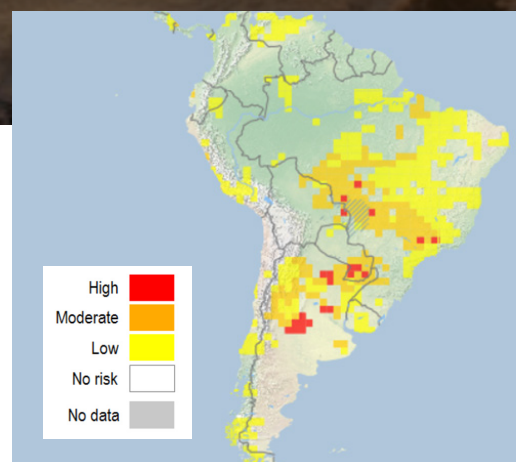
Early warning and monitoring

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 Europe and the globe for signals of an impending disaster or evidence of one happening in real time. It immediately notifies national 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 CEM service is always free of charge for users. The Copernicus Emergency Management service has two main components: On demand Mapping as well as Early Warning and Monitoring. The **Early Warning and Monitoring** component 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 during a disaster.



DROUGHTS – GLOBAL DROUGHT OBSERVATORY (GDO)

The **Drought Observatories (DO)** provide drought-relevant information and early-warning for **Europe (EDO)** and **globally (GDO)**. The latter is mainly targeting at emergency response issues, from the EU Emergency Response Coordination Centre (ERCC) to international stakeholders. Focus is on monitoring and forecasting of key drought indicators, based on a combination of satellite earth observation, hydro-meteorological models and in-situ data. Maps and spatially explicit data are at the core of the Observatory, which provides a main map viewer, dynamic reports and information-rich pages. Drought risk, defined by the combination of hazard, exposure and vulnerability, is the driving framework.



Risk of drought impact for agriculture (RDrl-Agri) over Latin America in mid-October 2020.

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

The service provides global drought information through drought monitoring and forecasting maps, periodical reports on severe droughts, and a database of past drought events.

GDO products encompass a range of indicators:

- sector-specific risk of drought impact (RDri for Agriculture)
- meteorological drought based on precipitation (standardized precipitation index)
- agricultural drought (soil moisture & vegetation greenness)
- hydrological drought (low river flows, groundwater)
- forecast of extreme precipitation and analysis tools:
 - map viewer
 - maps comparing
 - WMS service
 - animated GIFs

A global database of meteorological droughts (1950-2019) with more than 7000 events from country to global scale, based on SPI and SPEI. Each event is assigned duration, severity, intensity, and area.

This classification ranks the 200 biggest droughts and can be used to compare ongoing droughts with the historical ones. All data is accessible on GDO through interactive maps and time series.

- Periodical reports focused on major droughts.
- Data delivery for ERCC daily maps
- Annual summary of droughts worldwide
- Self-generating reports on map click
- Drought monitoring provided to the Global Disaster Alert and Coordination System (GDACS)



Access the Download service



Also available globally as EDO

REFERENCES

DROUGHT COMPONENT IS **PART OF CEMS** SINCE 2018

50+ DROUGHT EVENTS PER YEAR PROVIDED TO GDACS

10+ SPECIAL REPORTS PER YEAR ON MAJOR DROUGHTS

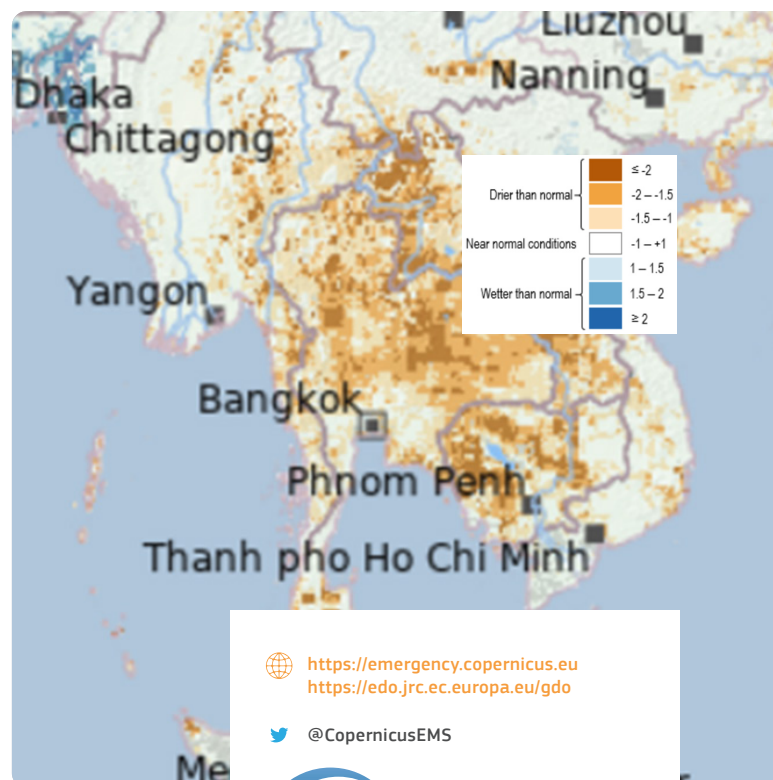
DATABASE OF **7000+** DROUGHT EVENTS SINCE 1950

HOW THE DATA IS BEING USED

Despite a wet climate, underperforming precipitation since mid-2019 hampered the yearly water balance across continental Southeast Asia (Thailand, Cambodia, Laos, Vietnam). In early 2020, most of Mekong river basin was experiencing dry conditions. The river is life-sustaining for the peninsula. Crops, water supply and transportation were impacted, and a deep saline intrusion entered the river delta. With a poor start of the monsoon 2020, strong soil moisture deficit persisted throughout the year until October. The rivers within the Mekong basin and beyond kept recording low levels for the period, and so did reservoirs. Fisheries, transportation and power generation were at stake. Tensions among neighbouring countries grew, with reciprocal complaints of water mismanagement between the upper and the lower Mekong countries. GDO monitored and released three updates over the course of 2019 and 2020, providing a picture of the drought conditions supported by independent data.

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

Soil moisture anomaly over mainland Southeast Asia, early January 2020.



<https://emergency.copernicus.eu>
<https://edo.jrc.ec.europa.eu/gdo>

@CopernicusEMS