PROGRAMME OF THE EUROPEAN UNION

Implemented by European Commission

#EUSpace

The Copernicus Emergency Management Service: an overview

Focus on Drought Observation through EDO/GDO

13 May 2025
Guido Fioravanti,
European Commission's Copernicus
Emergency Management Service – Joint Research Centre

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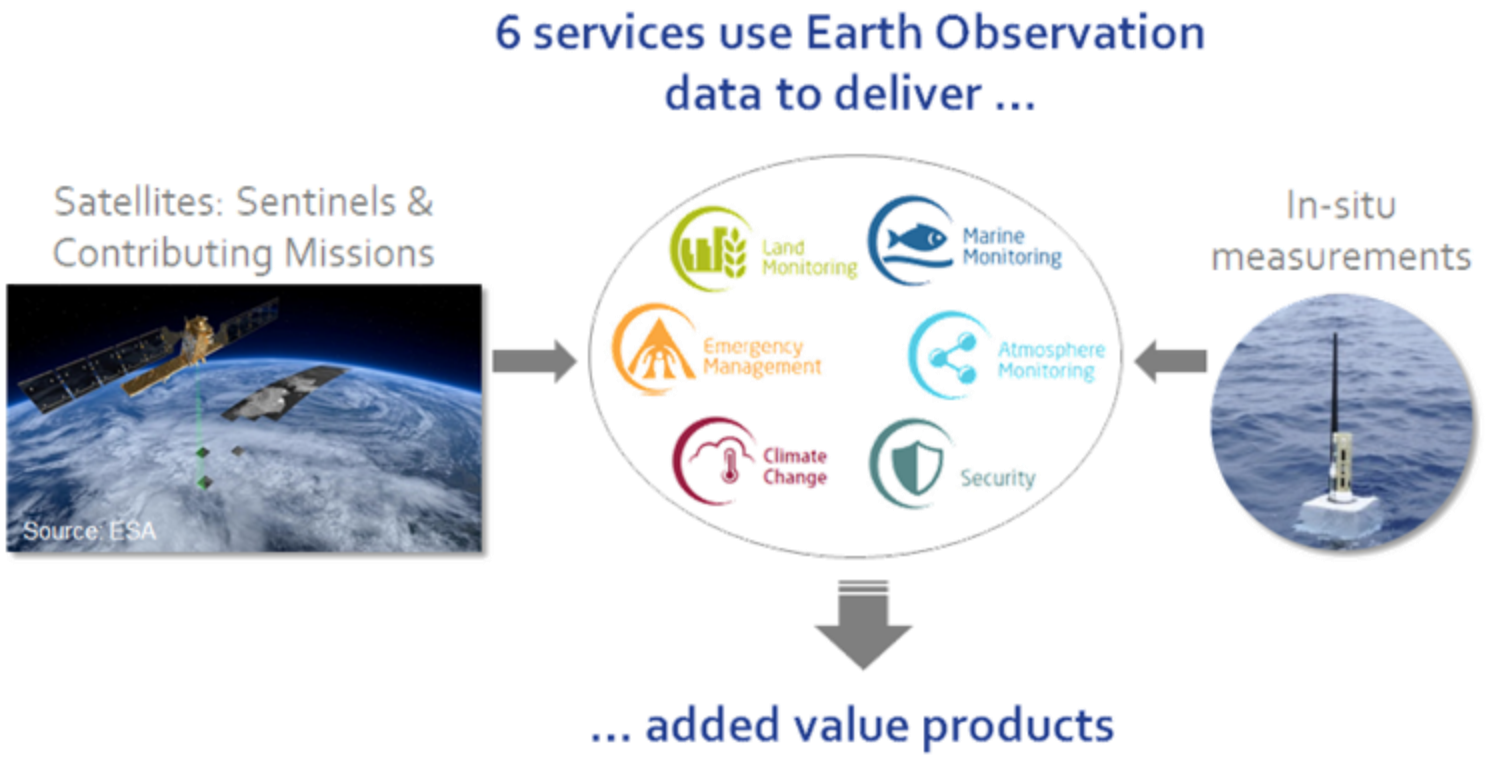
Emergency Management

Copernicus
Europe's eyes on Earth

The European Union's Earth Observation Programme



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Emergency Management

The Copernicus Emergency Management Service (CEMS)

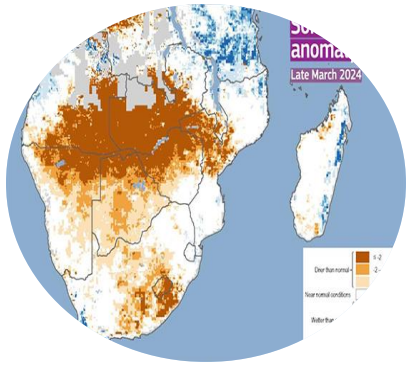
Operational since April 2012

- Supporting **all actors** in **managing natural and man-made disasters**
- **Complementary** to national efforts
- Across **all** disaster risk management (DRM) phases

Users:

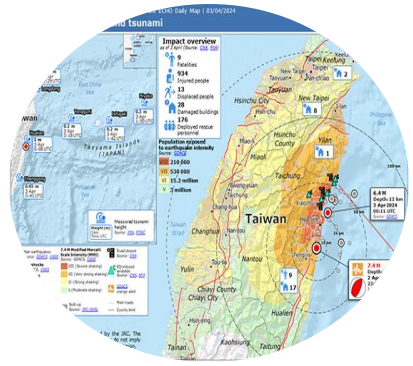
- EU's Emergency Response & Coordination Centre (ERCC)
- EU national, regional, local users from different fields
- Development agencies, international aid organizations, UN, private sector

Preparedness: forecasts & early warning information to anticipate risk



Prevention: risk assessment and reduction

Response: rapid maps and monitoring of events



Recovery: post-disaster analyses

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Emergency Management

The three CEMS components

1 On-demand mapping

2 Exposure mapping

3 Early Warning and Monitoring

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Resources Contact Login

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Copernicus Europe's eyes on Earth

Emergency Management

Home About Activations Stats News

Copernicus

Emergency Management Service - Mapping

We use satellite imagery and other geospatial data to provide free of charge mapping service in cases of natural humanitarian crises throughout the world.

1

On-demand mapping

Mapping activations

Two mapping modules: **Rapid mapping** and **Risk and Recovery Mapping**

An activation for **preparedness (or pre-event)** aims to reduce the impact of potential disasters through risk analysis. It provides information on the exposure, vulnerability and risk of population and assets for all type of hazards.

An activation for **emergency response** rapidly assesses and monitors the extent and impacts of a disaster during its immediate aftermath.

An activation for **recovery (post-event)** assesses the impact of a disaster with detailed impact assessments and plans for developing and monitoring recovery efforts.

https://mapping.emergency.copernicus.eu/

Search fo

Country

Phase

EMSN

Mappi

Fire risk a

ACTIVATION TI

07/02/2025, 00:

EMSN215 - Risk and Recovery ONGOING

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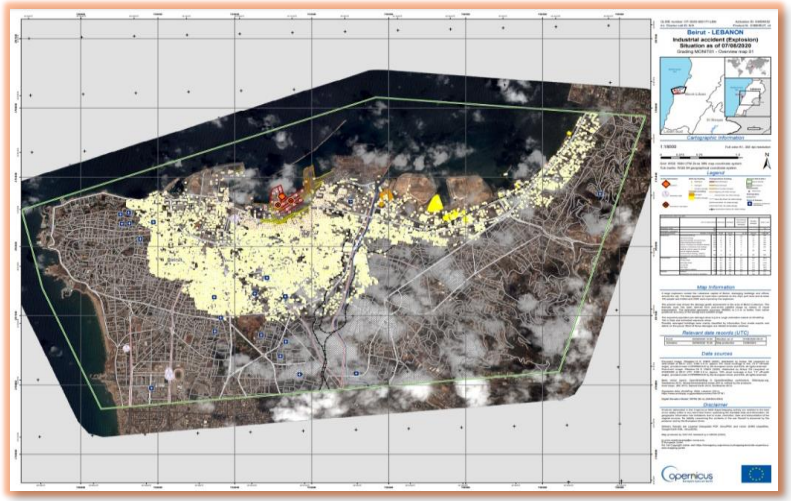
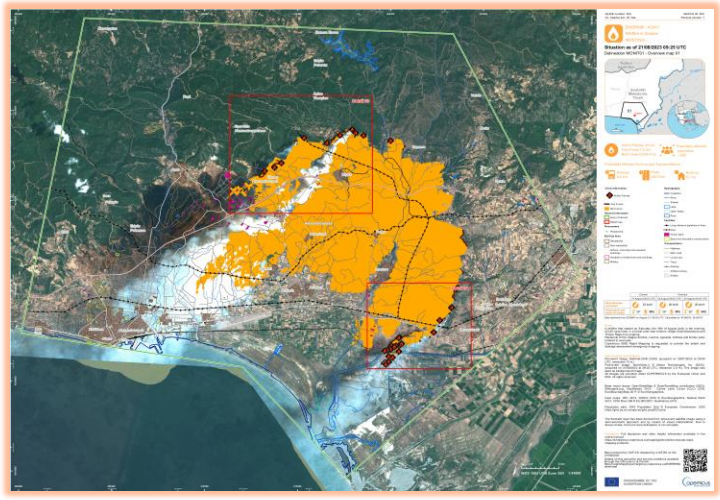
1. On-demand mapping

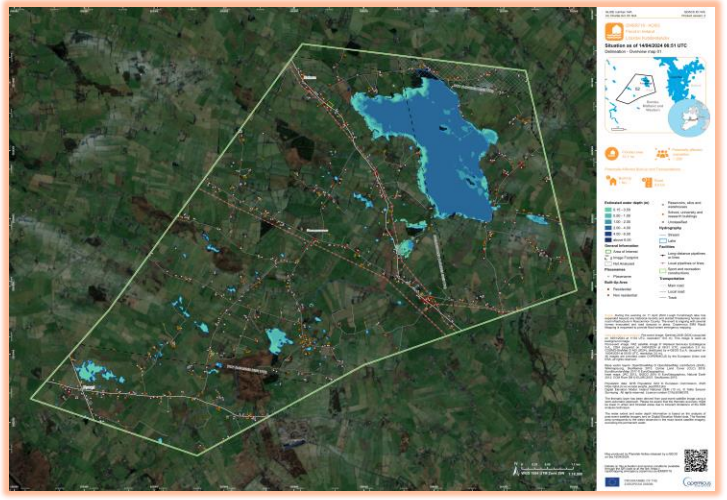
Beirut, Lebanon (2020)



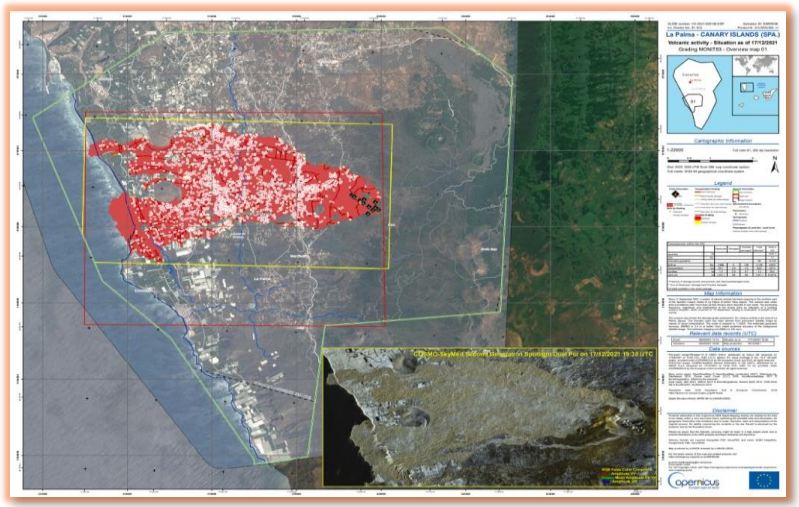
Aristino, Alexandropolis, Greece (2023)



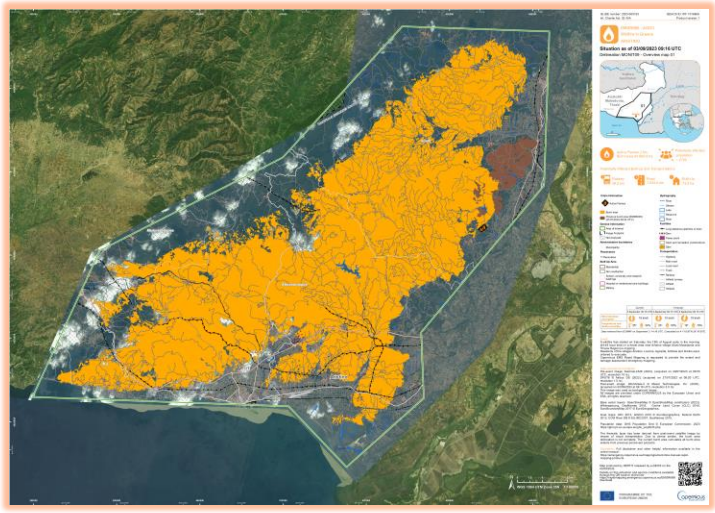
Lough Funshinagh, Ireland (2024)



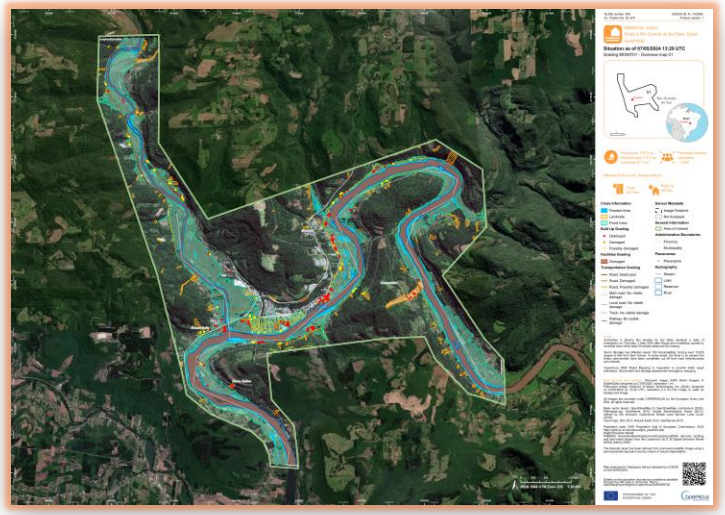
La Palma, Canarias, Spain (2021)



Aristino, Alexandropolis, Greece (2023)



Guaporé, Rio Grande do Sul, Brazil (2024)



2
Exposure mapping

Accurate and updated information on the presence of human settlements and population with the Global Human Settlement Layer (GHSL) derived from satellite and census data

GHSL built-up surface of Paris.

https://human-settlement.emergency.copernicus.eu/

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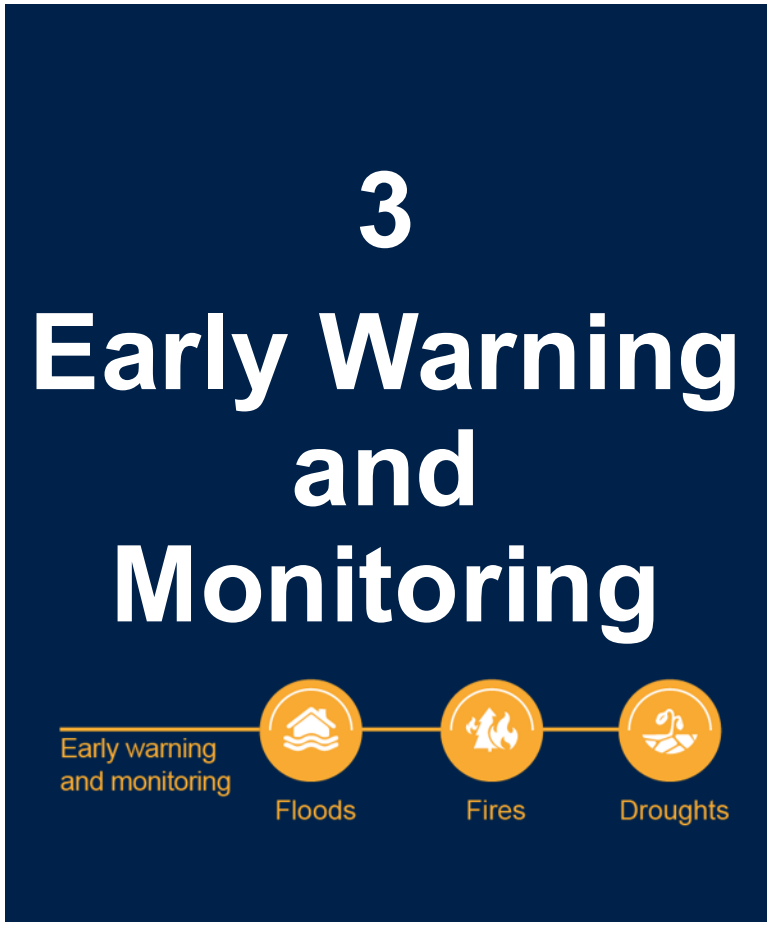
Early warning, risk and impact assessment, and monitoring of specific natural hazards.

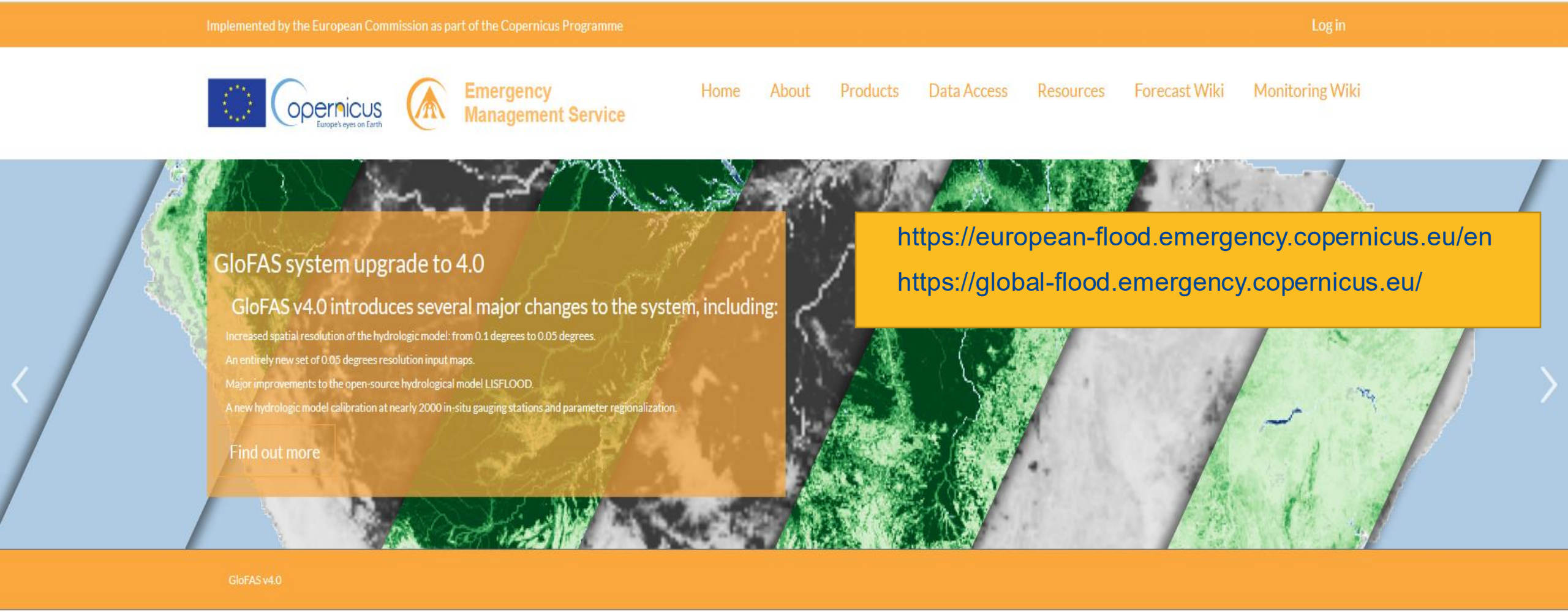


Three thematic areas: forest fires, droughts and floods at European and global level.

The European and Global **Drought** Observatories (**EDO and GDO**)

The European Forest **Fire** Information System (**EFFIS**)

The European and Global Flood Awareness Systems (**EFAS and GloFAS**)



https://european-flood.emergency.copernicus.eu/en

https://global-flood.emergency.copernicus.eu/

Global Flood Awareness System:

The aim of the Global Flood Awareness System (GloFAS) is to support preparatory measures as well as emergency response to predicted and ongoing major flood events at global scale

Read more...

Early-warning and monitoring

The Global and European Flood Awareness Systems

https://forest-fire.emergency.copernicus.eu/

https://gwis.jrc.ec.europa.eu/apps/gwis_current_situation/index.html

Early-warning and monitoring

Welcome to EFFIS

EFFIS - European Forest Fire Information System - supports the services in charge of the protection of forests against fires in the EU and neighbor countries and provides the European Commission services and the European Parliament with updated and reliable information on wildfires in Europe. The fires mapped in EFFIS may include fires set intentionally for the purpose of vegetation management.

Since 1998, EFFIS is supported by a network of experts from the countries in what is called the Expert Group on Forest Fires, which is registered under the Secretariat General of the European Commission. Currently, this group consists on experts from 43 countries in European, Middle East and North African countries. In 2015, EFFIS became one of the components of the Emergency Management Services in the EU Copernicus program.

A number of specific applications are available through EFFIS:

New features

Get up-to-date countries statistics by the new **Current Statistics Portal**

Make your specific requests of data by the new **Data Request Form**

Visit our

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Copernicus Europe's eyes on Earth

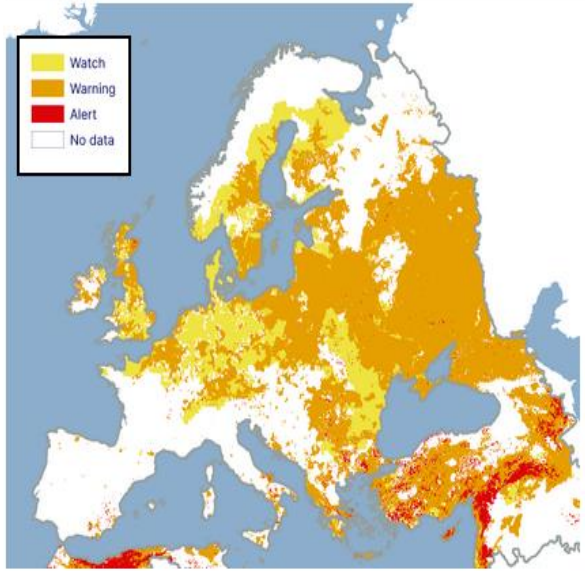
Emergency Management Service

Home | European Observatory | Global Observatory | Risks and Impacts | Data | Reference

THE EUROPEAN AND GLOBAL DROUGHT OBSERVATORIES

Welcome to the Drought Observatories of the Copernicus Emergency Management Service. Updated maps and data can be accessed by using the mapviewer of the European Drought Observatory (EDO) and the Global Drought Observatory (GDO). The service can be used on tablets, smartphones and desktop computers. Detailed information on data, indices, research activities can be found at EU Science Hub.

EDO GDO



Situation of Combined Drought Indicator in Europe
3rd ten-day period of April 2025

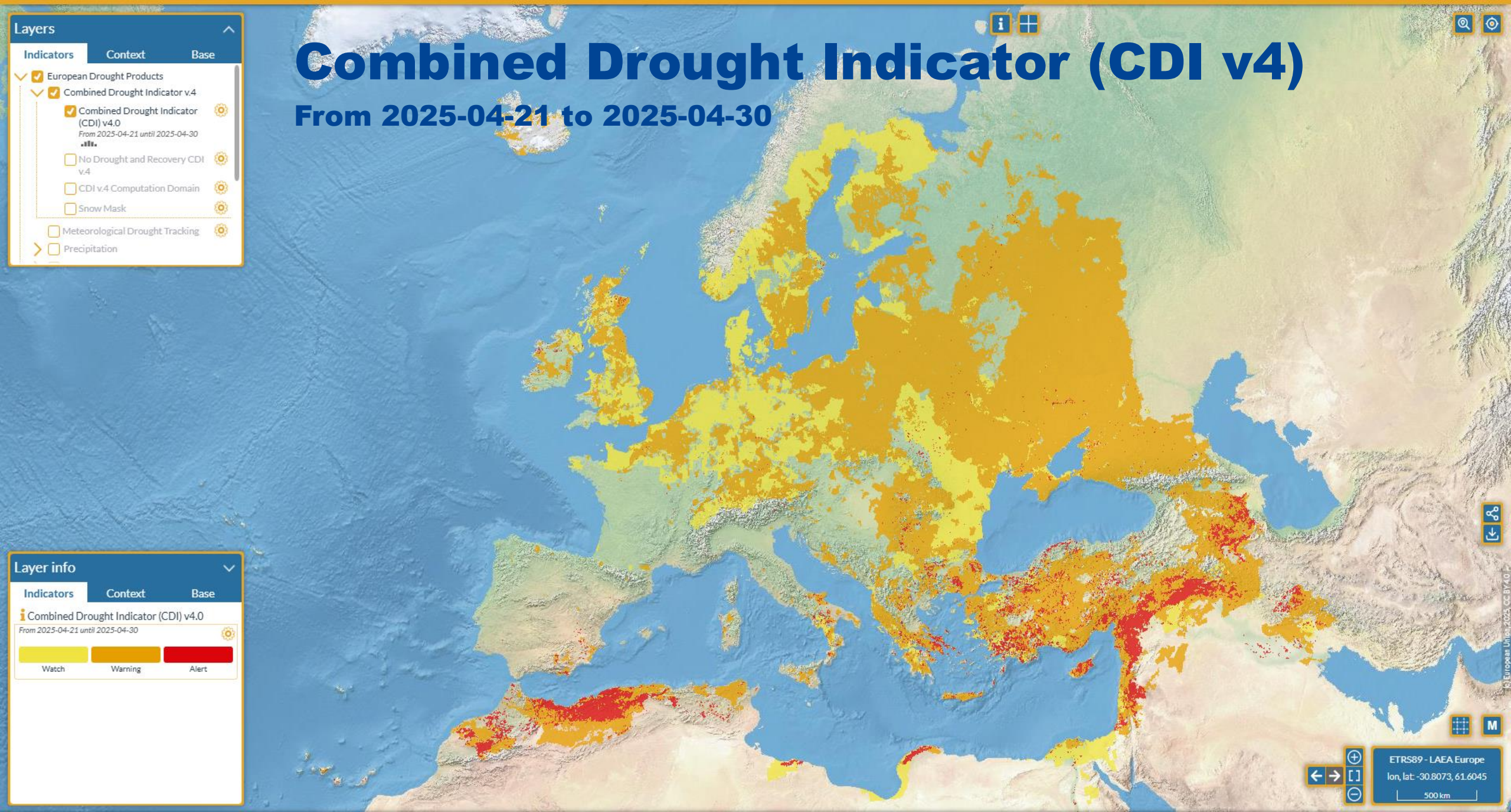
According to the latest data, **31.3%** of the EU-27 territory (without Madeira, Azores, Canary Islands) plus the United Kingdom is in **Warning** conditions and **0.7%** is in **Alert** conditions.

See a description here and an analysis of the current drought in Europe in our **latest report**.

Discover drought in the new **World Drought Atlas**, in its **web presentation** and in the **European Drought Impact Database (EDID)**.

Browse this map

https://drought.emergency.copernicus.eu/



Combined Drought Indicator (CDI v4)

From 2025-04-21 to 2025-04-30

Combined Drought Indicator (CDI v4)

From 2022-08-01 to 2022-08-10

Options - Combined Drought Indicator (C...

Year
2022
2012 2018 2025

Month
8
1 6 7 12

Ten day period
1

Layer info

Indicators | Context | Base

Combined Drought Indicator (CDI) v4.0
From 2022-08-01 until 2022-08-10

Watch | Warning | Alert

ETRS89 - LAEA Europe
lon, lat: -25.0959, 37.8353
500 km

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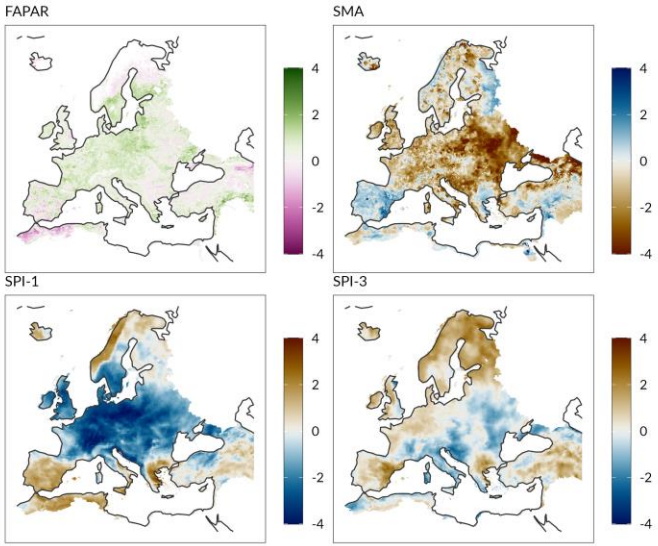
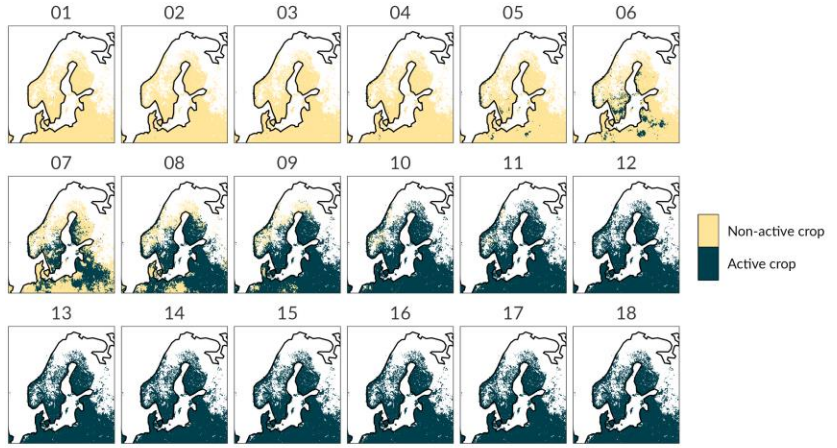
Combined Drought Indicator (CDIv4)

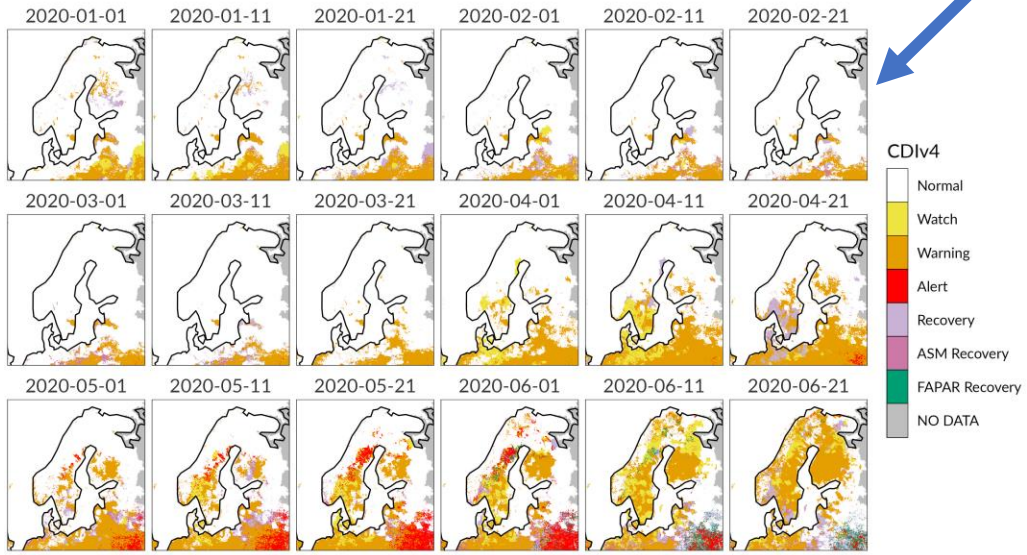
The CDI computation involves three indicators:

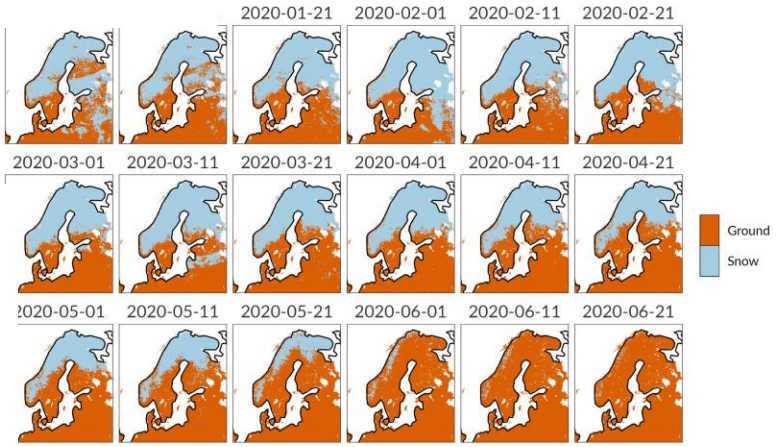
- **the Standardized Precipitation Index (SPI),**
- **the Soil Moisture Index Anomaly (SMA),**
- **the Fraction of the Photosyntetically Active Radiation (FAPAR) anomaly.**





Crop masks

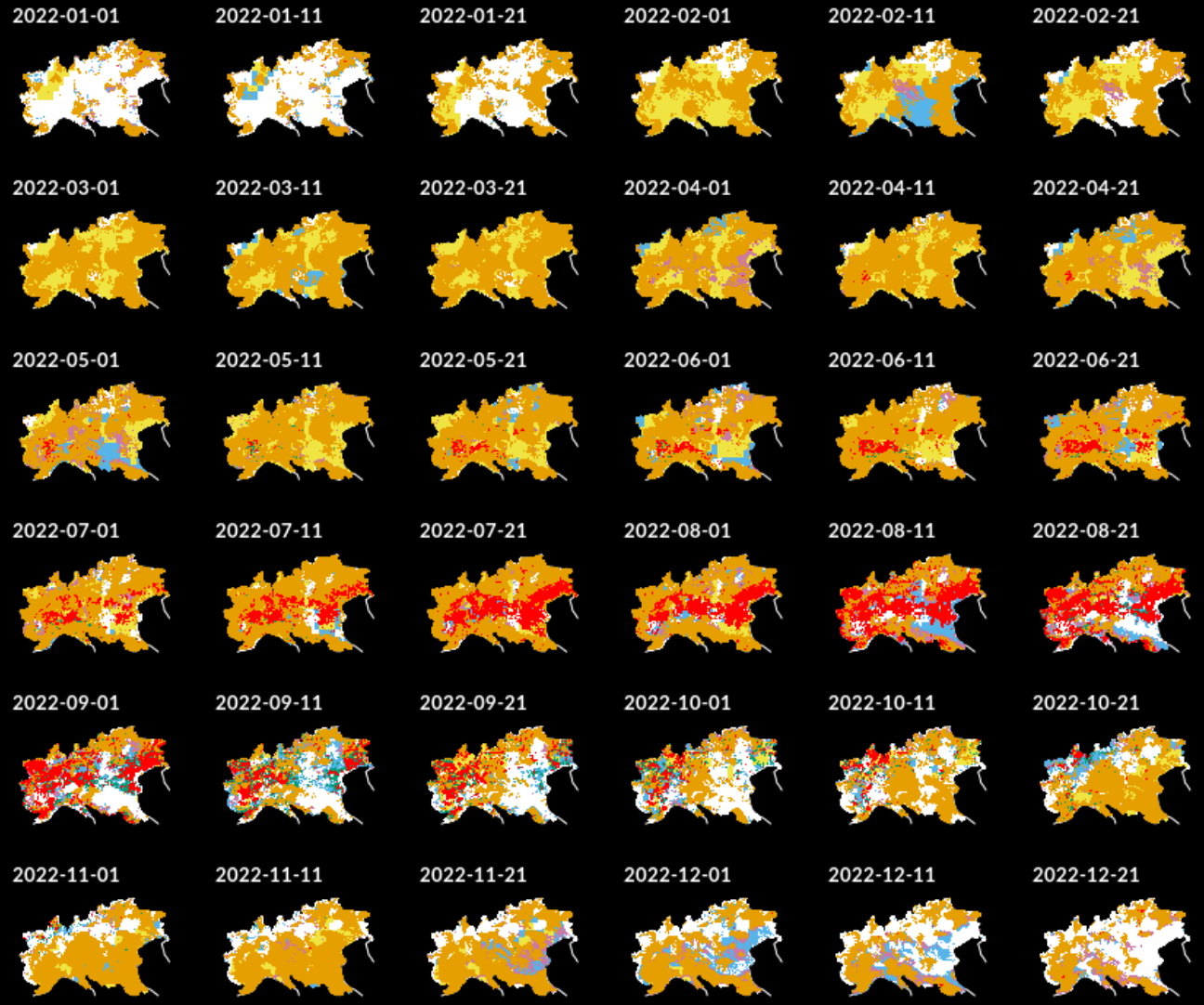


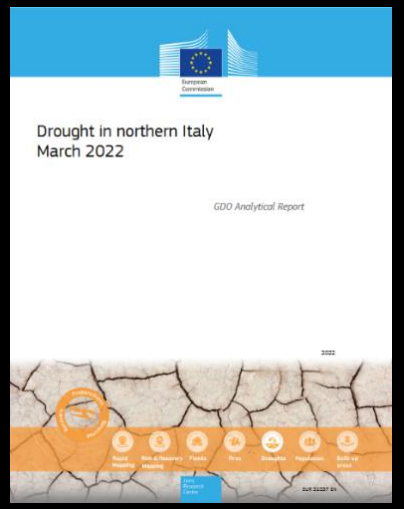


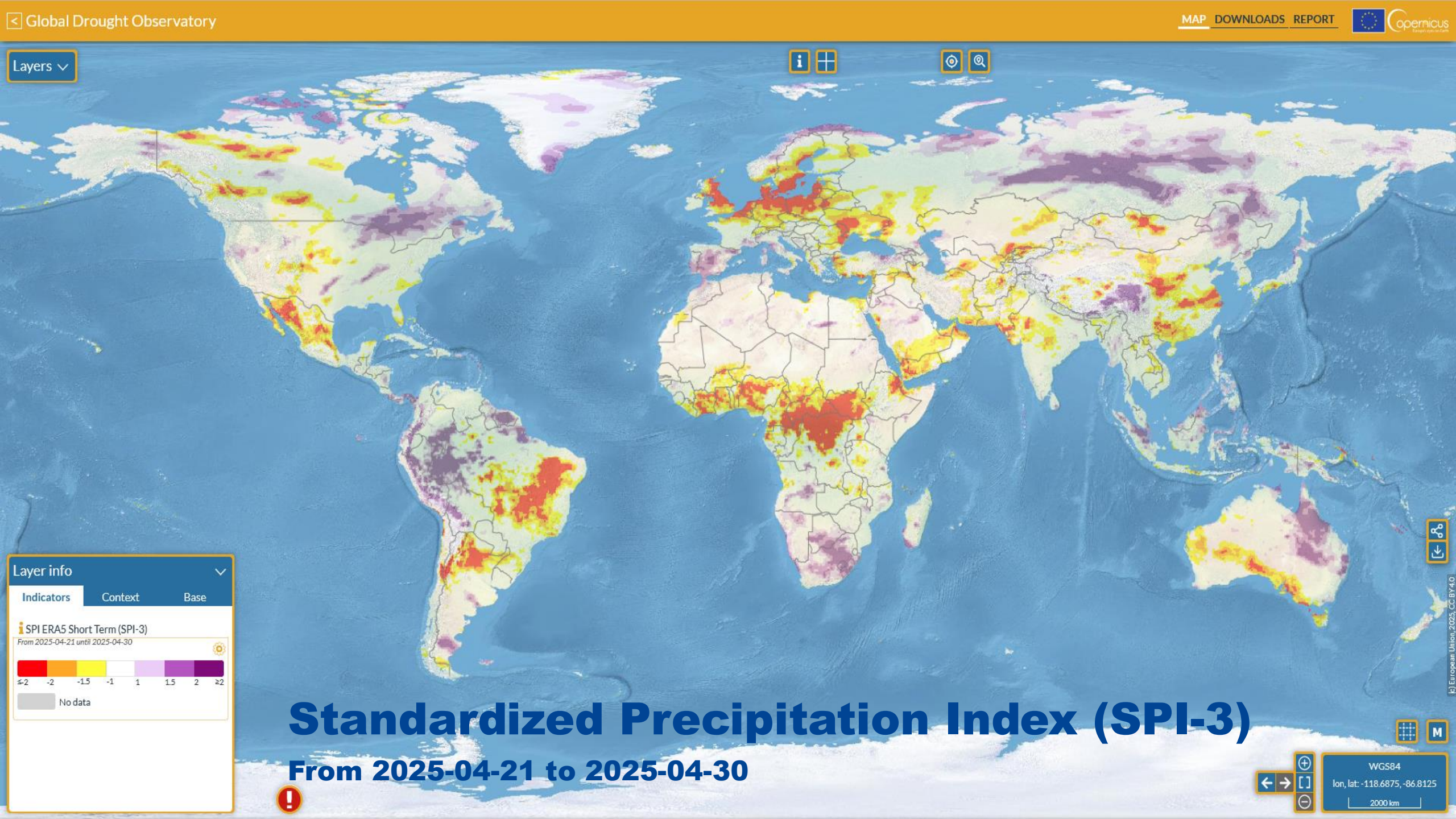
Snow masks

Northern Italy

Year: 2022

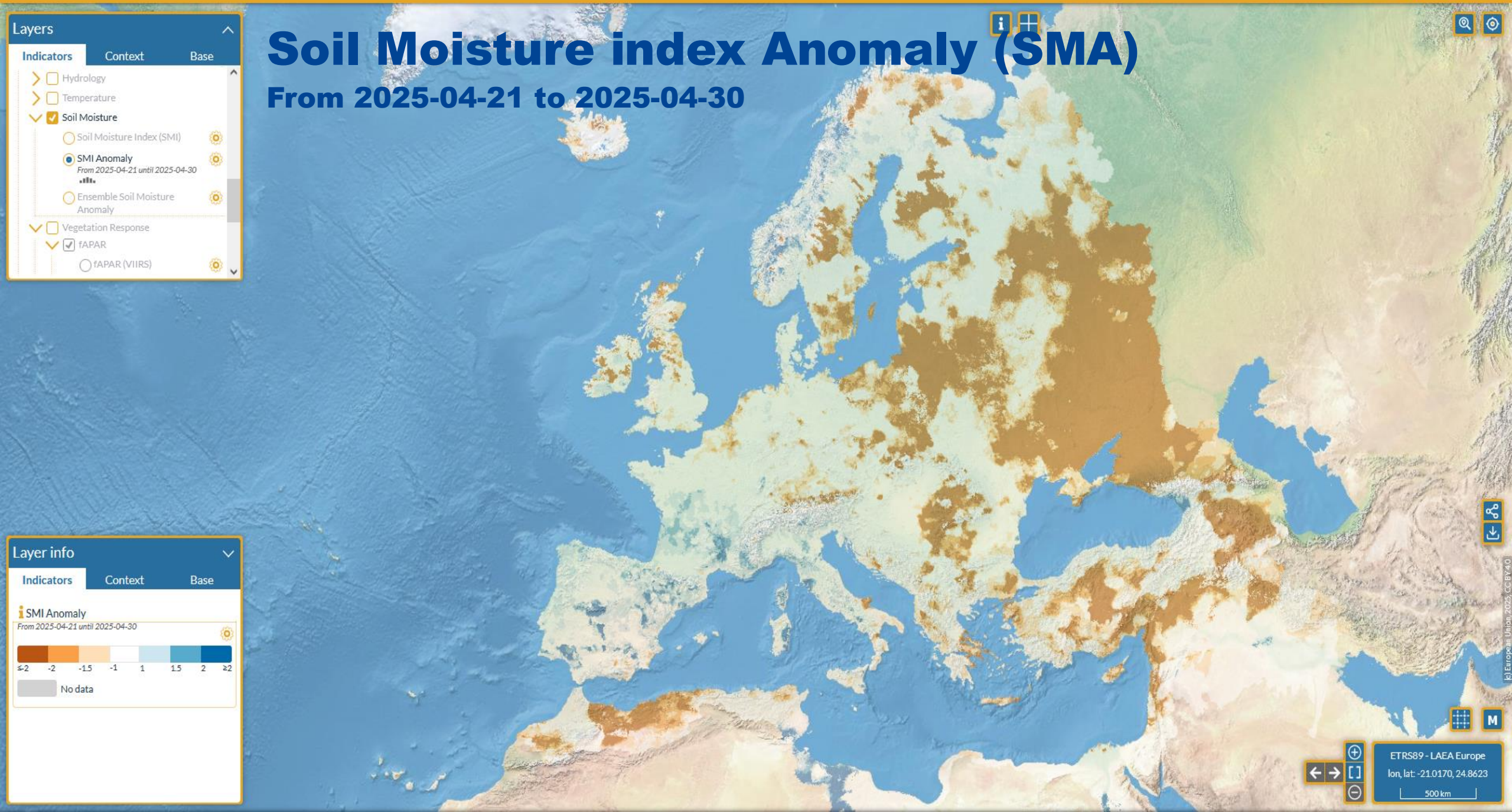





Global Drought Observatory
MAP DOWNLOADS REPORT
Layers
Layer info
Indicators
Context
Base
SPI ERA5 Short Term (SPI-3)
From 2025-04-21 until 2025-04-30
≤-2 -2 -1.5 -1 1 1.5 2 ≥2
No data
Standardized Precipitation Index (SPI-3)
From 2025-04-21 to 2025-04-30
WGS84
lon, lat: -118.6875, -86.8125
2000 km
© European Union, 2025, CC BY 4.0

Soil Moisture index Anomaly (SMA)

From 2025-04-21 to 2025-04-30



Layers

Indicators | Context | Base

- Hydrology
- Temperature
- Soil Moisture
  - Soil Moisture Index (SMI)
  - SMI Anomaly
    From 2025-04-21 until 2025-04-30
  - Ensemble Soil Moisture Anomaly
- Vegetation Response
  - fAPAR
    - fAPAR (VIIRS)

Layer info

Indicators | Context | Base

SMI Anomaly

From 2025-04-21 until 2025-04-30

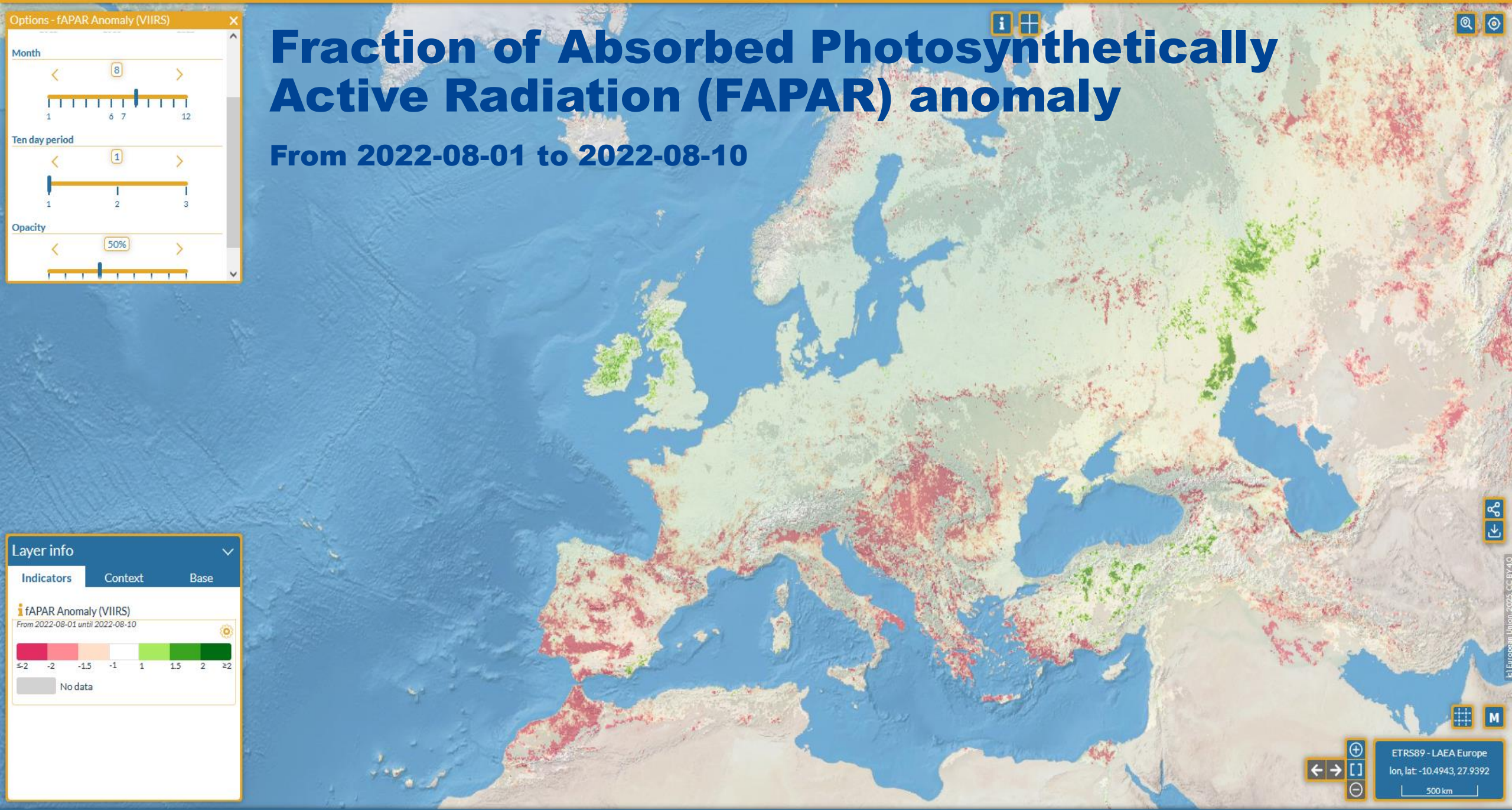
≤-2 -2 -1.5 -1 1 1.5 2 ≥2

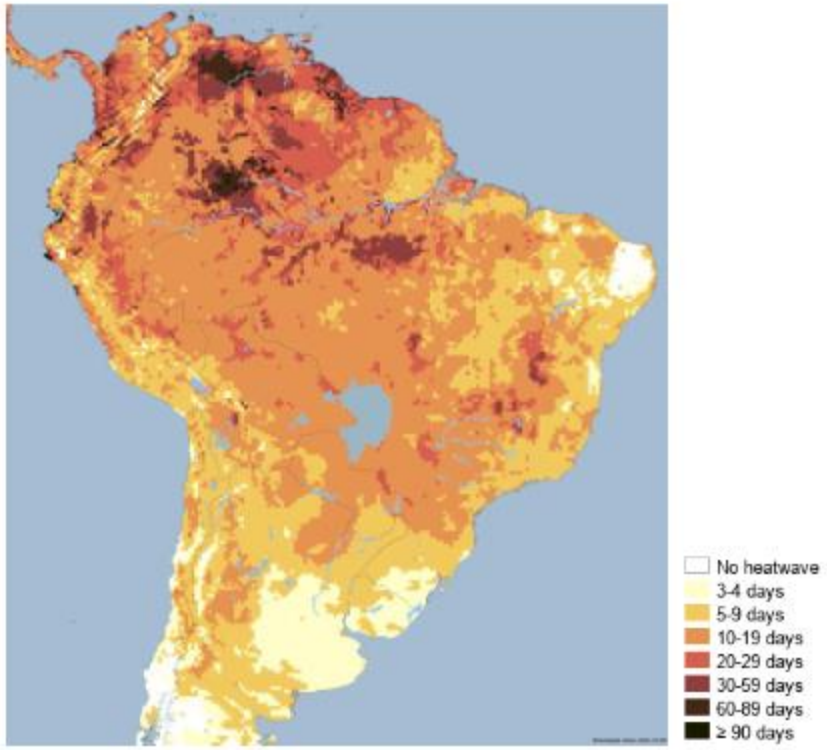
No data

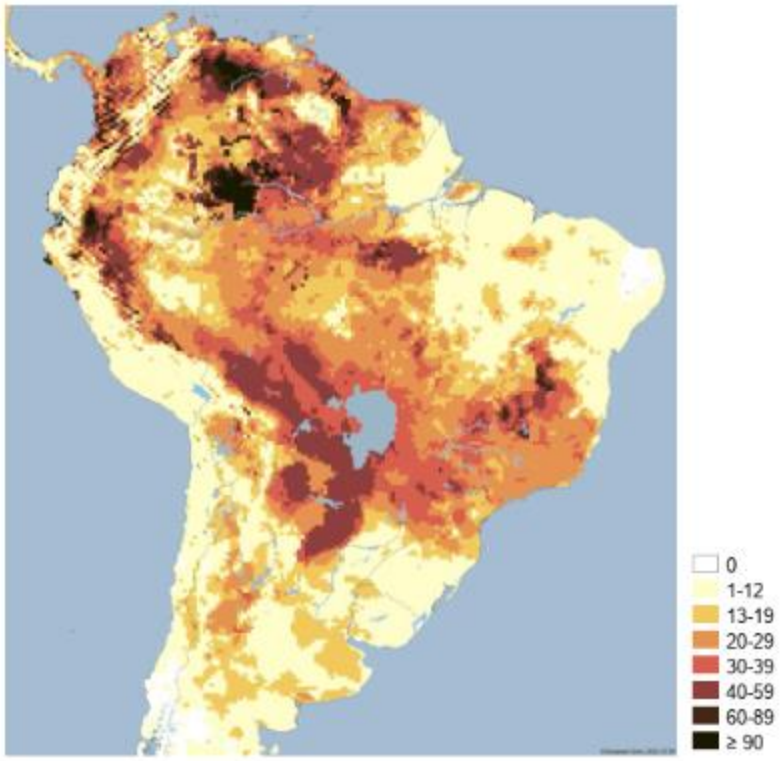
ETRS89 - LAEA Europe

lon, lat: -21.0170, 24.8623

500 km

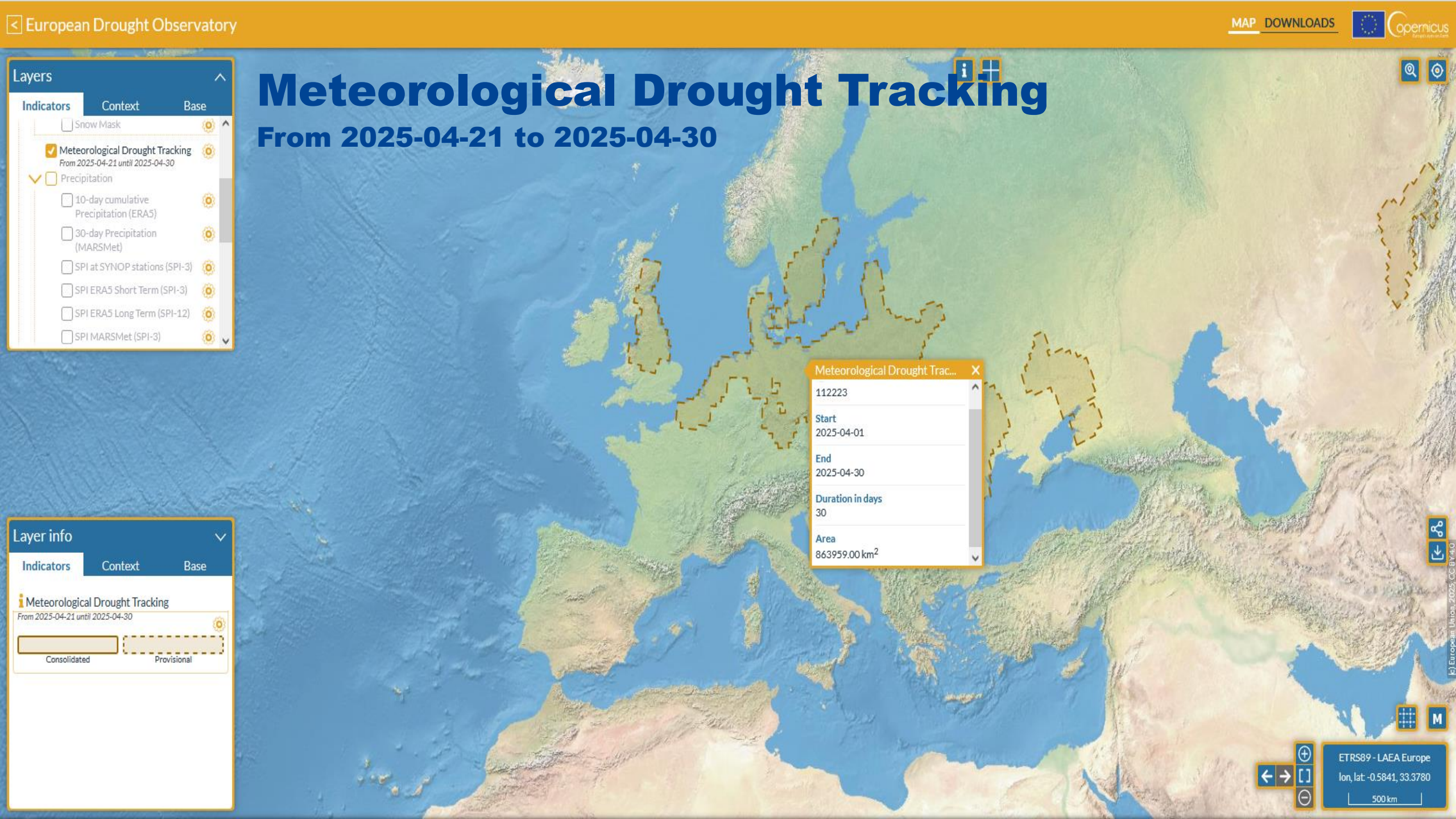

Options - fAPAR Anomaly (VIIRS)
Month
8
1
6 7
12
Ten day period
1
1
2
3
Opacity
50%
Fraction of Absorbed Photosynthetically Active Radiation (FAPAR) anomaly
From 2022-08-01 to 2022-08-10
Layer info
Indicators
Context
Base
fAPAR Anomaly (VIIRS)
From 2022-08-01 until 2022-08-10
≤-2
-2
-1.5
-1
1
1.5
2
≥2
No data
ETRS89 - LAEA Europe
lon, lat: -10.4943, 27.9392
500 km





Heat and Cold waves: duration and intensity

A new version of the heat and cold waves indicated will be deployed soon


European Drought Observatory
MAP
DOWNLOADS
Layers
Indicators
Context
Base
Snow Mask
Meteorological Drought Tracking
From 2025-04-21 until 2025-04-30
Precipitation
10-day cumulative Precipitation (ERA5)
30-day Precipitation (MARSMet)
SPI at SYNOP stations (SPI-3)
SPI ERA5 Short Term (SPI-3)
SPI ERA5 Long Term (SPI-12)
SPI MARSMet (SPI-3)
Meteorological Drought Tracking
From 2025-04-21 to 2025-04-30
Meteorological Drought Trac...
112223
Start
2025-04-01
End
2025-04-30
Duration in days
30
Area
863959.00 km2
Layer info
Indicators
Context
Base
Meteorological Drought Tracking
From 2025-04-21 until 2025-04-30
Consolidated
Provisional
ETRS89 - LAEA Europe
lon, lat: -0.5841, 33.3780
500 km

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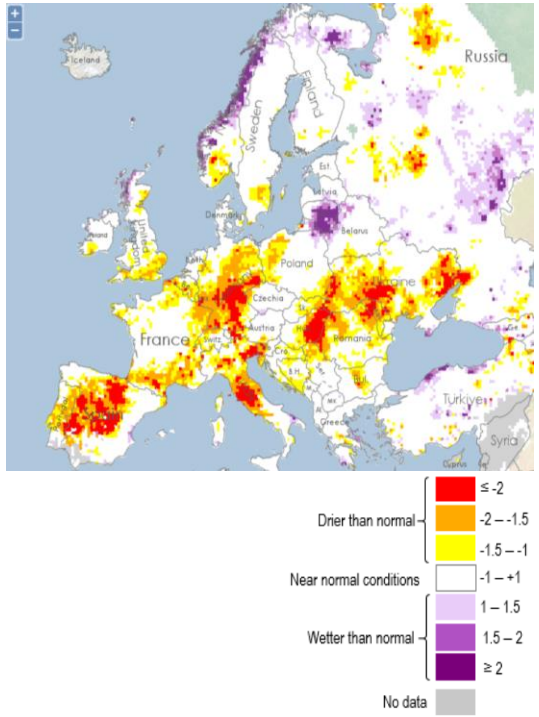
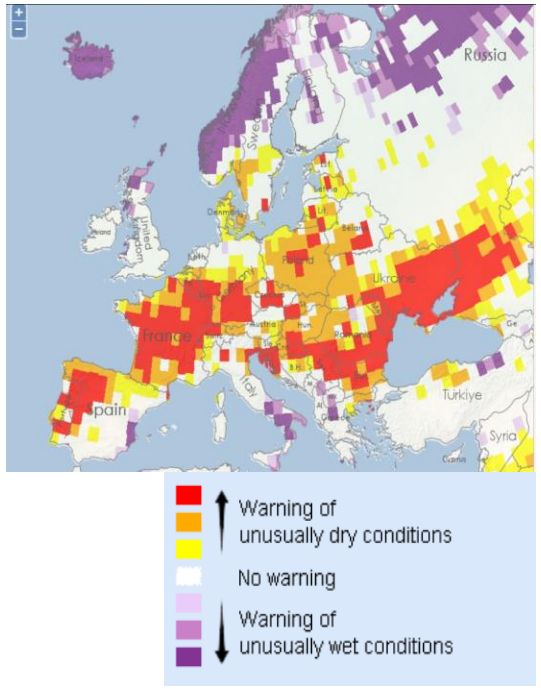
Indicator for Forecasting Unusually Wet and Dry Conditions

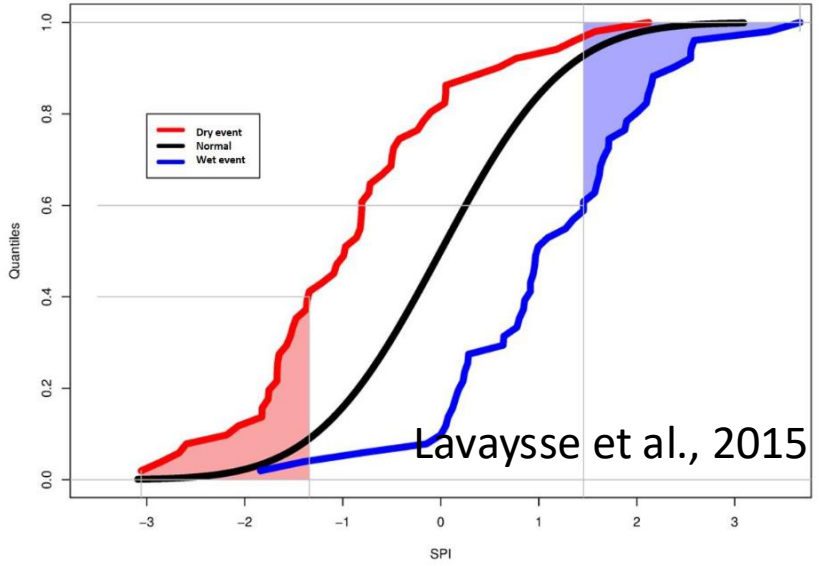
SPI3 MJJ 2022
ERA5



Forecasted Warnings
SPI3 MJJ 2022 SEAS5



Computation frequency: *monthly*
It is based on forecasted SPI derived from seasonal precipitation forecast system (SEAS51) of the European Centre for Medium-Range Weather Forecasts (ECMWF)



Lavaysse et al., 2015

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Thank you!

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