



European Drought Observatory

Progress on Drought Monitoring

Alfred de Jager – Diego Magni

*European Commission
Joint Research Centre (JRC)
Disaster Risk Management Unit*

Joint
Research
Centre



1. Introduction

- Philosophy
- Hidden system interface
- Web interface

2. European Drought Observatory

- Monitoring
- Forecast
- Impact
- Climate
- Integration of your Maps/Data

3. What do you want to change / add

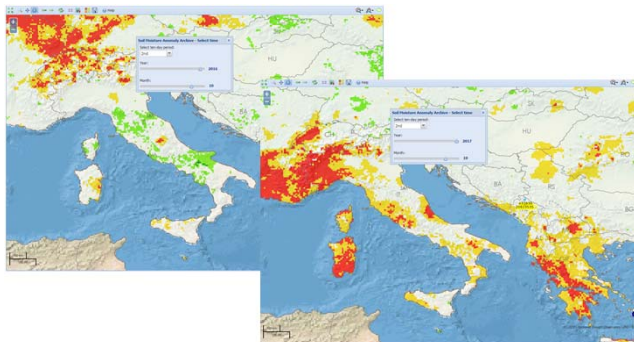
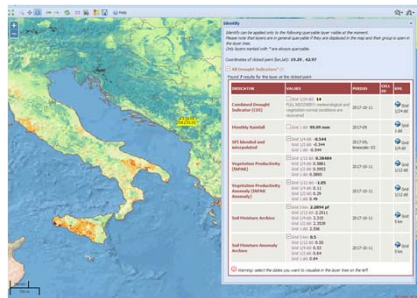
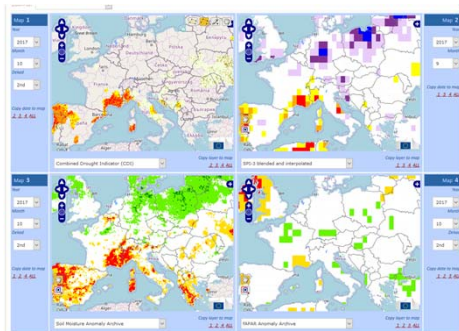
- Current Droughts
- Mapping
- Analysis / Evolution

4. How to change



- Open System
 - Satellite Imagery
 - NetCDF
 - Weather Station data
 - WMS exchange
- Timely System
 - Daily and 10-day data
 - Forecasts
 - Large Archive





Side by Side Maps

- Checking up to 4 parameters varying in time on the same spot
- Rainfall, SPI, Soil moisture, fAPAR, CDI **DM3**
- Locking and unlocking maps to follow each other

Map Viewer Identify, integrating

- Get the numbers behind the map
- Compare the various parameters
- Analyze the effect of resolution / averaging

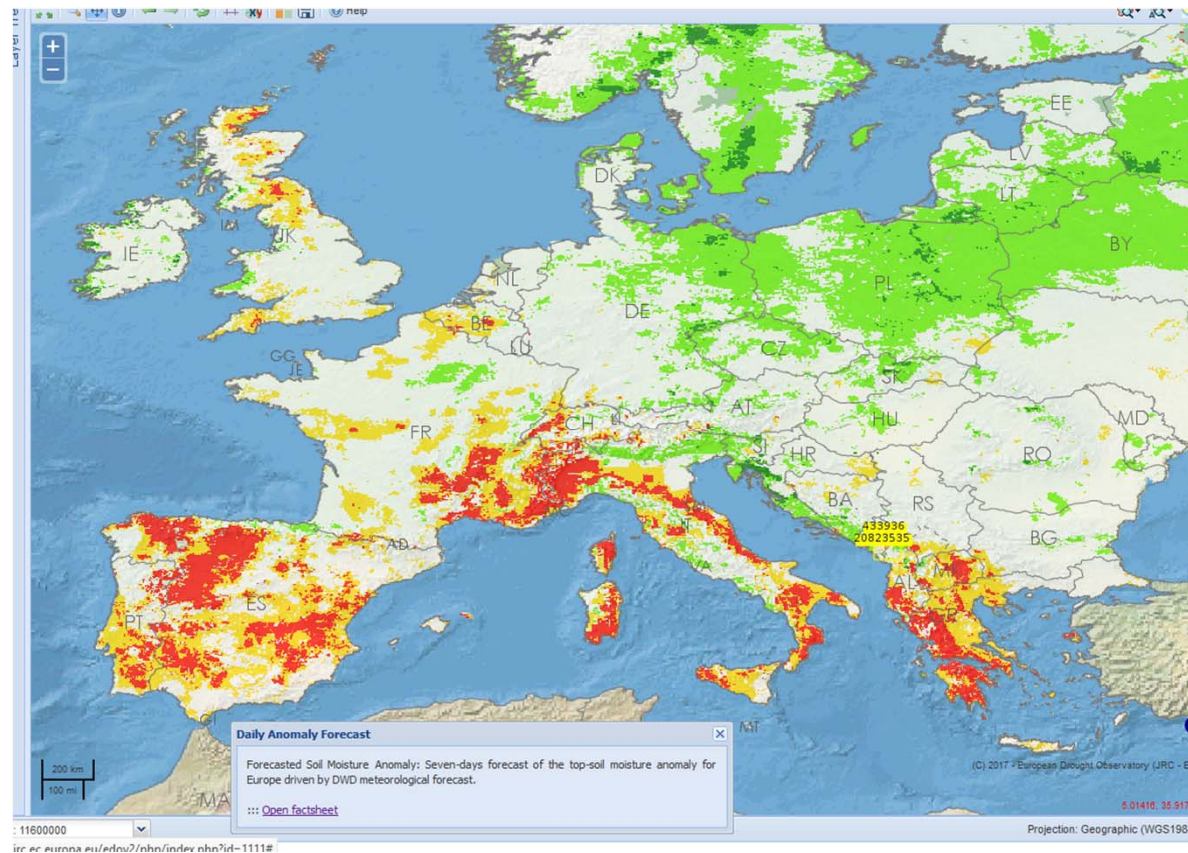
Go through time

- Step from month to month or year to year
- Compare various themes
- Export quickly a map for inclusion in a report
- Slider bar in ArcGIS for WMS themes

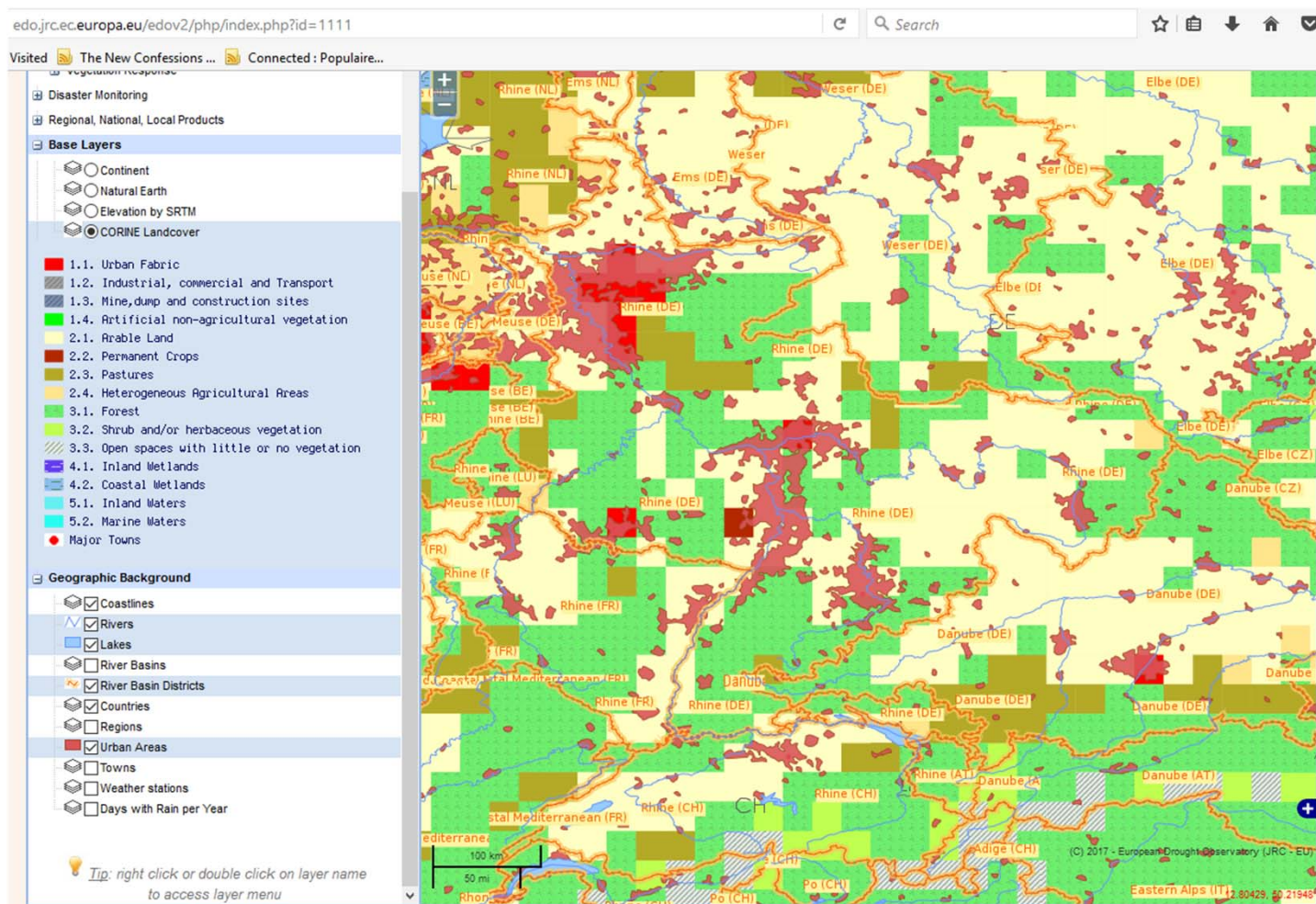
Forecast



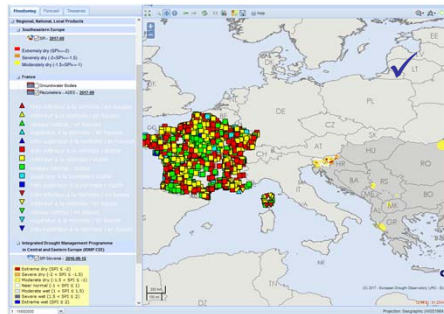
- ✓ Soil moisture
- ✓ Model output



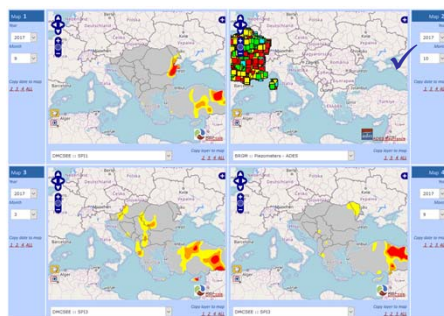
Integrate with Background Data



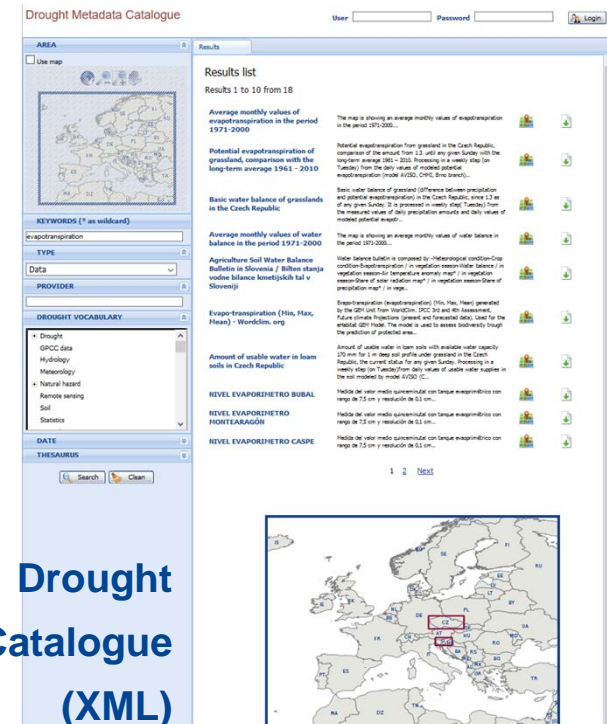
Integration platform of EDO: where your data/maps appear



Interactive MapViewer
(WMS, links to WCS, WFS)



Side by Side Maps
(WMS)



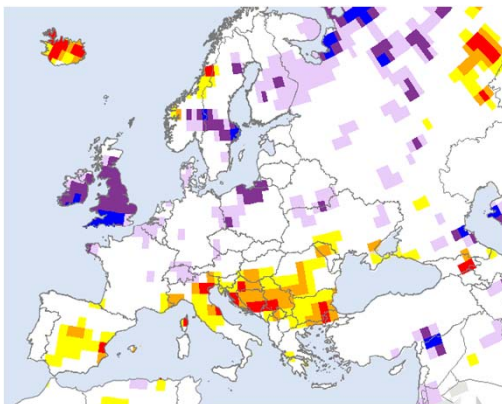
**Drought
Metadata Catalogue**
(XML)

Integration platform of EDO: steps to join EDO

- 1 Resource preparation**
You can link to EDO any type of information concerning drought: papers, collection of data, indicators, maps, services (WMS, WCS, WFS, WPS).
- 2 Resource description**
Your resource will be registered into the Drought Metadata Catalogue by means of a set of mandatory INSPIRE metadata, possibly enriched by additional information.
- 3 Service publication**
If your resource is a WMS service, it can be published into the Interactive MapViewer and/or the Side by Side Maps, after providing the necessary information to plug it to the EDO systems. WFS and WCS can also be linked to EDO.
- 4 Maintenance**
WMS-delivered data must be provided/made available to EDO according to their production frequency. Layer names, descriptions and metadata must be up-to-date.

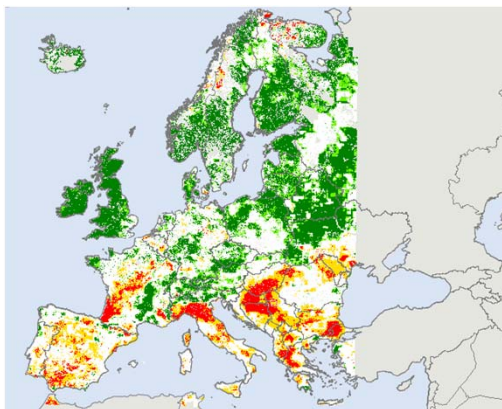
Combined Drought Indicator (CDI)

Precipitation Anomalies (SPI)



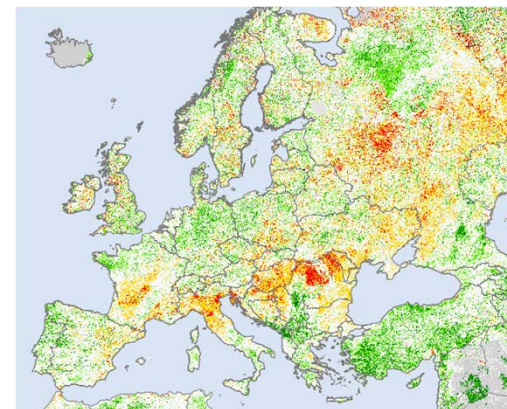
- reflects the statistically **expected frequency** (i.e. probability) of a given event
- is obtained **monthly**, calculated over **different rainfall accumulation periods**
- is obtained from the interpolation of observed **meteorological point data + Gridded GPCC data**
- **reference period:** 1981 - 2010

Soil Moisture Anomalies



- is obtained **daily** with the hydrological model LISFLOOD & aggregated to **10 days**.
- the meteorological input information is derived from observed **meteorological point data**
- is presented as **anomalies** (statistical deviation from the long-term mean)
- **reference period:** 1995-2016

fAPAR Anomalies



- is a **remote sensing derived** indicator available at intervals of **10 days**
- is presented as **anomalies** (statistical deviation from the long-term mean)
- the available **time-series** is still short (from 1997)
- the indicator is derived from SPOT-VEGETATION and MODIS (**reference period:** 2001-2016)

Combined Drought Indicator (CDI)

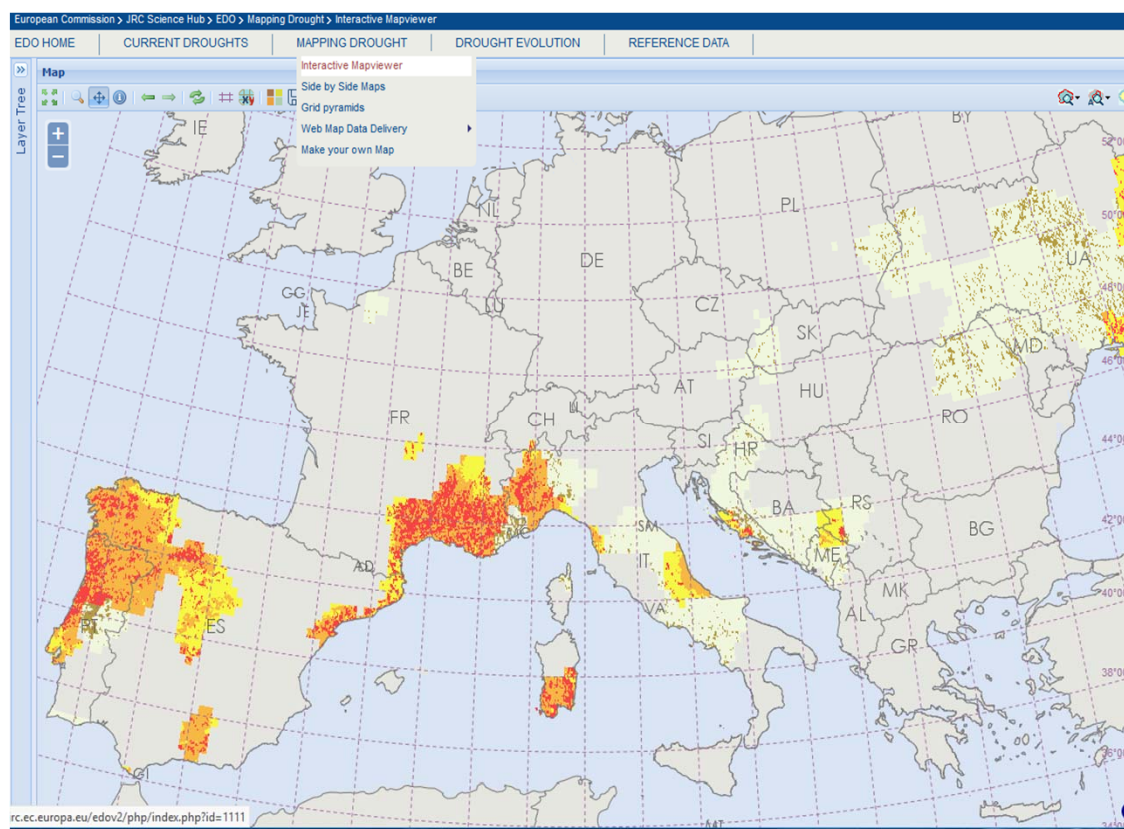
Combined Drought Indicator (CDI)

Impact	Level
Watch: rainfall deficit	1
	2
	3
Warning: soil moisture deficit	4
	5
	6
Alert: vegetation stress following rainfall/soil moisture deficit	7
	8
	9
	10

Increasing Dryness

Impact	Level
Partial Recovery of Vegetation:	11
	12
Full Recovery of Vegetation:	13
	14

Increasing Recovery

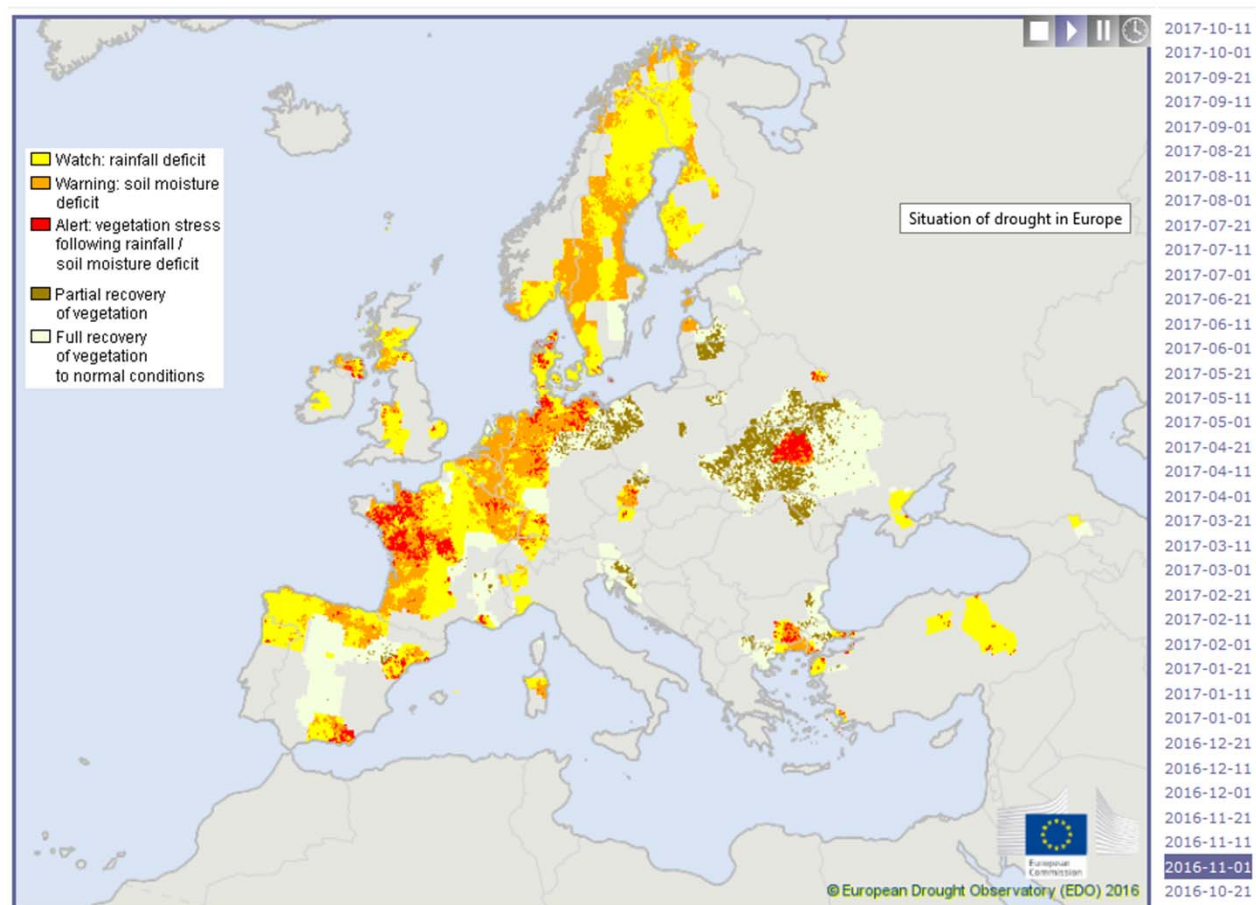


CDI, 11-21 October 2017

CDI Evolution 2017

[EDO HOME](#)[CURRENT DROUGHTS](#)[MAPPING DROUGHT](#)[DROUGHT EVOLUTION](#)[REFERENCE DATA](#)

Animation of Combined Drought Indicator (CDI) maps during last year





Reports of Severe Drought Events

In case of severe drought events we produce also reports with a detailed description of the situation.

[Drought News in 2009: Europe, Asia and Africa](#)

[Drought News in Horn of Africa: Situation in March 2017](#)

[Drought News in Sri Lanka: Situation in January 2017](#)

[Drought News in Europe: Situation in August 2015](#)

[Drought News in Europe: Situation in August 2014](#)

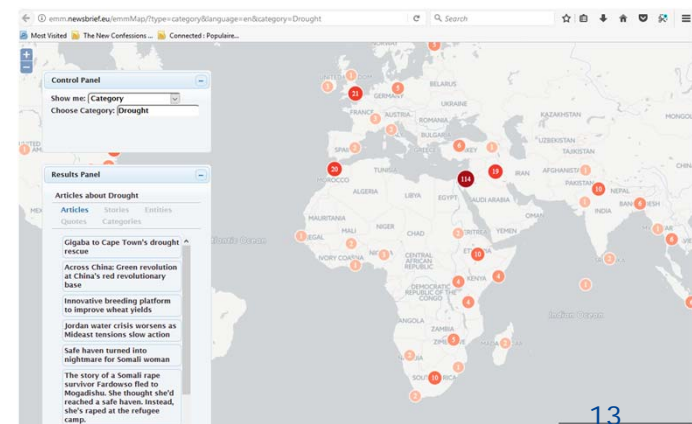
[Drought News in Europe: Situation in March 2012](#)

[Drought News in Europe: Situation in May 2011](#)

[Drought News in Europe: Situation in May 2011](#)

- Combined Drought Index Maps
- Comprehensive Reports
- EMM Drought News

Current Droughts





- Map viewer
- Side by Side Maps
- WMS access
- Make your own Map

EDO HOME | CURRENT DROUGHTS | **MAPPING DROUGHT** | DROUGHT EVOLUTION | REFERENCE DATA

Make your own Map with the Map Generator

This mapgenerator allows you to generate a map from our Database containing large amounts of Geographic data regarding Climate ; generated using the current content of the database but are of high quality. Such functionality is rare on the internet were quick and standard. Enjoy the maps and color your walls and corridors. The maps are projected in Lambert Equal Area and go from the North Ca from the Azores to the Ural.

The options you can choose are the following:

Output Format: ☒ JPEG ☐ PNG ☐ TIFF

Background Layers

Select optional layers that you want to display in the map: ☐ Coastlines ☐ River basins ☐ Soil types

Main Themes

Combined Indicator



☐ 1. Combined Drought Indicator

Select date: 2017-10-11 Resolution: 0.0416 DD

Vegetation



☐ 2. Vegetation Productivity (fAPAR)

Year: 2017 Month: 1 Ten-day period: 01 Resolution: 1 DD



☐ 3. Vegetation Productivity Anomaly (fAPAR Anomaly)

Year: 2017 Month: 1 Ten-day period: 01 Resolution: 1 DD

Precipitation

Analysis / Evolution



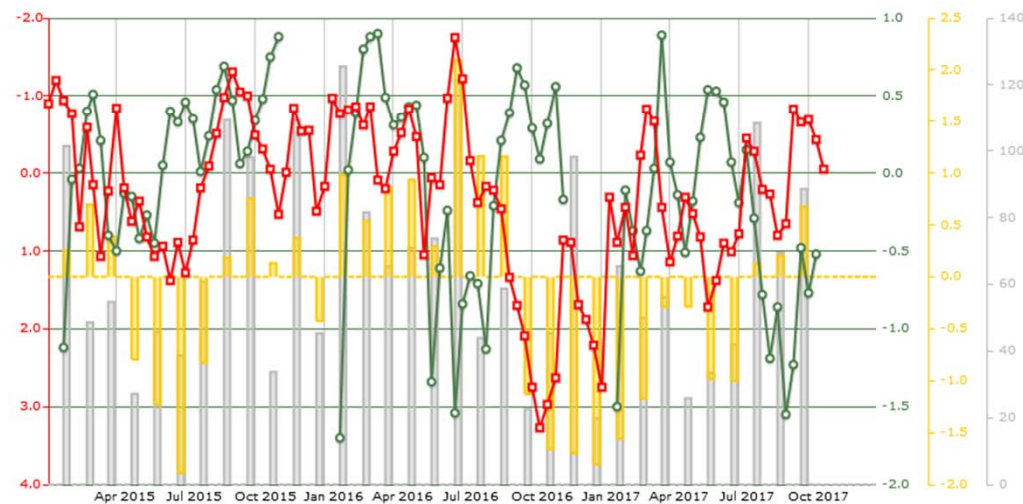
LAT: 52 LON: 5 FROM: 2015 TO: 2017 TITLE

☒ Rainfall ☐ SPI-1 ☒ SPI-3 ☐ SPI-6
☐ SPI-9 ☐ SPI-12 ☐ SPI-24 ☐ SPI-48
☐ Soil Moisture ☒ Soil Moisture Anomaly ☐ fAPAR ☒ fAPAR Anomaly
☐ Combined Drought Indicator

[Draw graph](#) [Reset](#) [?](#)

[Advanced options](#)

Rainfall (mm)
 SPI-3
 fAPAR Anomaly
 Soil Moisture Anomaly



Nederland / Netherlands > Lopik NUTS-3 [Google Maps](#)

Queried cells:

-- Export chart as --

-- Download chart data --



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

Alfred de Jager – Diego Magni

alfred.de-jager@ec.europa.eu diego.magni@ext.ec.europa.eu

European Commission

Joint Research Centre

<http://ec.europa.eu/>

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