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Drought in Europe July 2026

GDO Analytical Report

PROGRAMME OF THE EUROPEAN UNION

Copernicus Europe's eyes on Earth

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Contents

Abstract

Drought conditions have been deteriorating in central and eastern Europe.

Alert conditions persist in central-eastern Europe and have worsened in western Europe. Warning drought conditions remain generally stable in Europe and have extensively expanded in France.

Scarce precipitation is the main driver of the drought, with severe and prolonged deficits observed in eastern and central Europe. Key compounding factors have been the observed temperature anomalies, much warmer than average over central-western Europe, and the severe heatwaves that affected large areas of Europe.

Soil moisture and river flow are below normal. Heat and water stresses have been affecting vegetation and crops. Therefore, impacts on crop yields are expected.

In the next months, a north-south water dipole is expected in Europe, with drier conditions in most of the central and northern regions and wetter than usual conditions in the Mediterranean areas. Severe heatwaves may also again affect most regions of Europe.

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1. Introduction

The Copernicus Emergency Management Service (CEMS)[1], implemented by the European Commission's Joint Research Centre, provides timely and accurate geospatial information on ongoing and forecasted natural hazards and man-made disasters to support decision making and actions. Its products and services support emergency response and disaster management activities, helping to reduce risks and mitigate the impact of disasters and saving lives. CEMS has three components: early warning and monitoring; on-demand mapping; exposure mapping. The early warning and monitoring component focuses on floods, drought, and wildfire.

The European and Global Drought Observatories[2] (EDO and GDO) of CEMS provide drought forecasting and monitoring information, analysis tools and analytical reports. The Observatories aim at detecting, monitoring, and predicting droughts by using a suite of indices and indicators characterising different aspects and phases of drought. In addition, EDO and GDO provide monitoring information and forecasts of warm spells, heatwaves and cold spells. In addition, JRC runs the Anomaly Hotspots of Agriculture system that provides warnings on agricultural drought affecting crops and rangelands[3].

Drought is likely the most complex climate-related natural hazard, due to its spatio-temporal evolution, its cascading impacts on all socio-economic sectors (including agriculture, public water supply, energy production, transportation, tourism), human health, biodiversity, and natural systems. Drought is a climate extreme characterised by an imbalance in the hydrological cycle. It is due to a deficit in precipitation, that accumulates over time, often compounded by warm spells and heatwaves. It is influenced by land and water use and management. Drought can occur on multiple time scales, from a few weeks to several years, affecting large areas and populations worldwide. The related impacts are both direct and indirect and can persist after its end. Depending on the effect in the hydrological cycle and the impacts on society and environment, different drought phases are commonly distinguished:

1. meteorological drought, characterised by a substantial deficit in precipitation. The deficit is defined with respect to the long-term climatology;

2. agricultural drought, characterised by reduced soil moisture that results from below-average precipitation often compounded by warmer conditions and/or heatwaves;

3. hydrological drought, that occurs when river streamflow and water storages in aquifers, lakes, and reservoirs fall below long-term mean levels.

Due to its complexity, drought monitoring relies on a set of different indices and indicators, representing different components of the hydrological cycle (e.g. precipitation, temperature, soil moisture, reservoir levels, river flow, and groundwater levels), as well as specific impacts (e.g. vegetation stress).

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1 https://emergency.copernicus.eu/

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

3 https://agricultural-production-hotspots.ec.europa.eu/

All details of drought indices and indicators used in the Copernicus Drought Observatories are available in the associated factsheets[4] and in the JRC Data Catalogue[5].

This study is part of a series of analytical reports focused on the analysis of drought events affecting Europe as well as the other regions of the world. These studies build on data and information retrieved and processed by the Copernicus Drought Observatories. The information derived from the Observatories is usually complemented with additional sections on impacts, large-scale circulation, and other relevant factors.

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4 https://drought.emergency.copernicus.eu/data/factsheet.

5 https://data.jrc.ec.europa.eu/collection/drought.

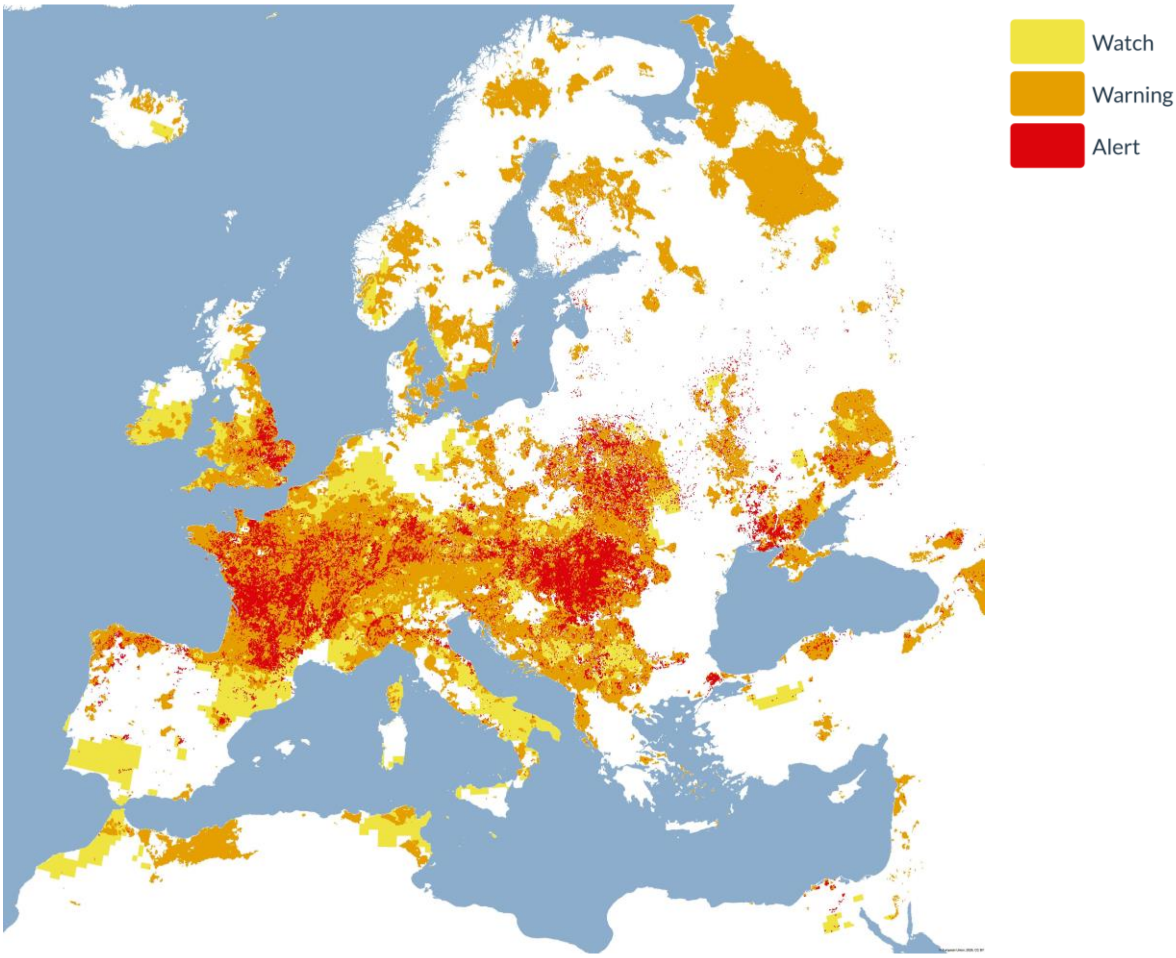
2. Combined Drought Indicator (CDI)

The Combined Drought Indicator is used to identify the different phases of droughts and their extent, with a particular focus on vegetated areas (areas at risk of drought, areas where the vegetation has already been affected and areas where the vegetation is recovering). To this purpose, the CDI integrates three complementary indicators: the Standardized Precipitation Index (SPI), the Soil Moisture Index Anomaly (SMA) and the Fraction of Absorbed Photosynthetically Active Radiation (fAPAR) anomaly.

In mid-July 2026, drought conditions remained stable and critical in most of Europe and worsened in central-western Europe. According to the Combined Drought Indicator for mid-July 2026 (Figure 1), alert conditions are estimated in part of Ukraine, Belarus, Poland, have emerged in the northeastern Iberian Peninsula, and worsened in the southern UK, northern Italy and central Europe, from France and southern Germany to Hungary and Romania, affecting also Austria, Czechia and Slovakia. Warning drought conditions have extensively expanded in France, the Balkans, the UK and central Europe, and also emerged in Scandinavia[6]. Watch drought conditions persisted or slightly reduced in the Iberian Peninsula, France, southern UK, southern Germany, the Alps, Italy and some regions in the Balkans, generally worsening towards the more severe classes. Some areas with recovery conditions are visible in the Baltic region, in the Iberian Peninsula and in Italy.

[6] Due to known issues (currently under investigation) that affect the estimated soil moisture, the CDI map may be less reliable in some regions, particularly western Russia. Users may consult the Standardized Precipitation Index (SPI) and the Standardized Precipitation Evapotranspiration Index (SPEI), available at the European or Global Drought Observatory (EDO/GDO).

Figure 1. The Combined Drought Indicator (CDI), based on a combination of indicators of precipitation, soil moisture, and vegetation conditions, in mid-July 2026.



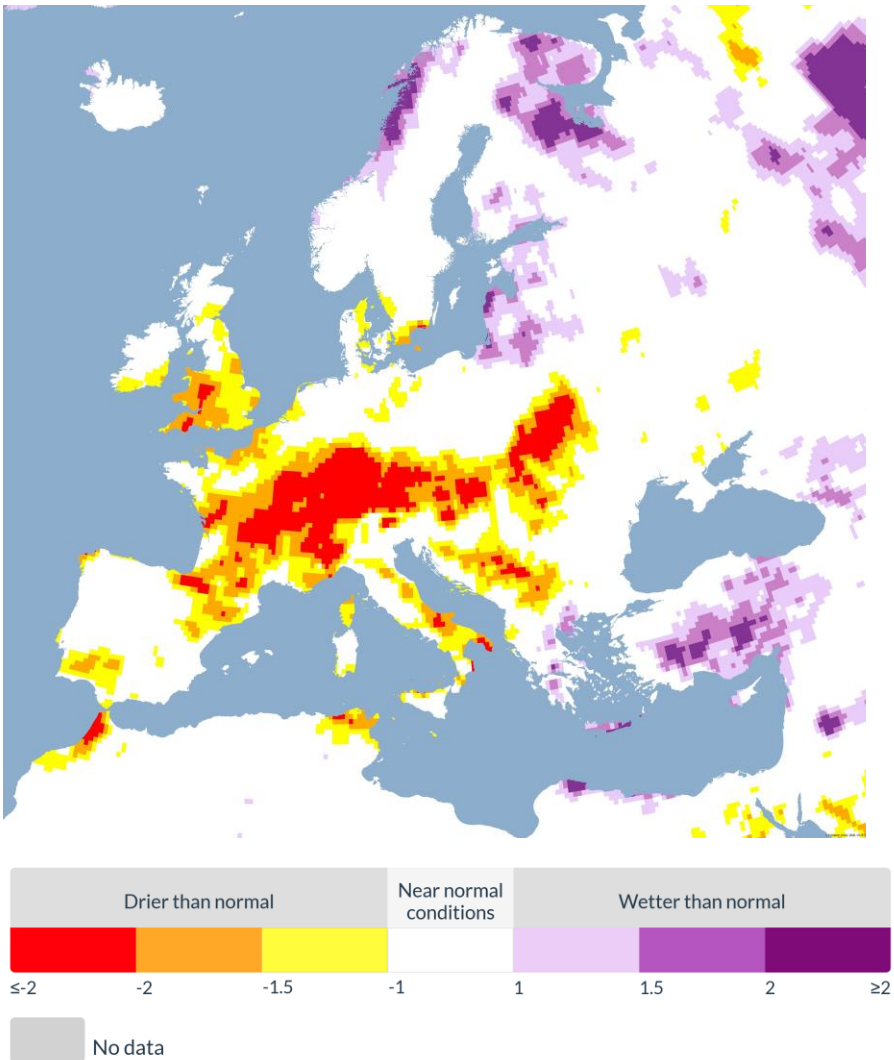
Source: JRC, Copernicus EMS European Drought Observatory.

3. Standardized Precipitation Index (SPI)

The SPI provides information on the intensity of the precipitation deficit (or surplus) over a defined accumulation period (e.g. from 1 to 48 months). The lower (i.e. more negative) the SPI, the more intense is the drought. SPI can be computed for different accumulation periods. The 3-month period is often used to evaluate agricultural drought and the 12-month (and longer) period for hydrological drought, when rivers fall dry and groundwater tables are affected.

The SPI for Europe at the 3-month accumulation period shows that most of central Europe, the southwestern UK, the Alps, the Balkans, areas of southeastern Italy, and eastern Europe have been affected by a severe and prolonged lack of precipitation, hitting in particular southern Germany, the Alps, central France, and western Ukraine (Figure 2).

Figure 2. SPI-3 in mid-July 2026.

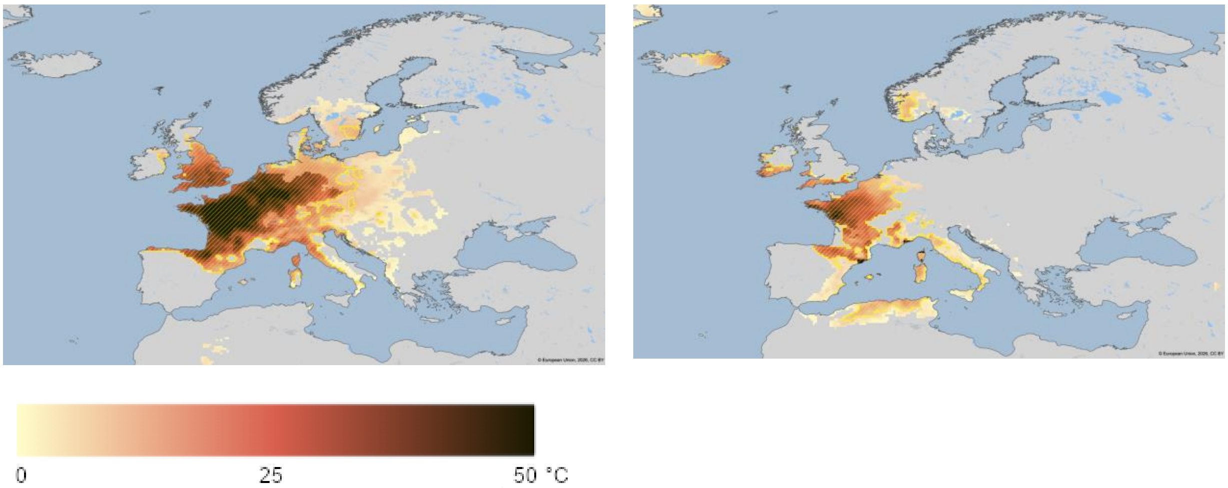


Source: JRC, Copernicus EMS European Drought Observatory, based on ERA5 (ECMWF, European Centre for Medium-Range Weather Forecasts, Reanalysis v5).

4. Temperature

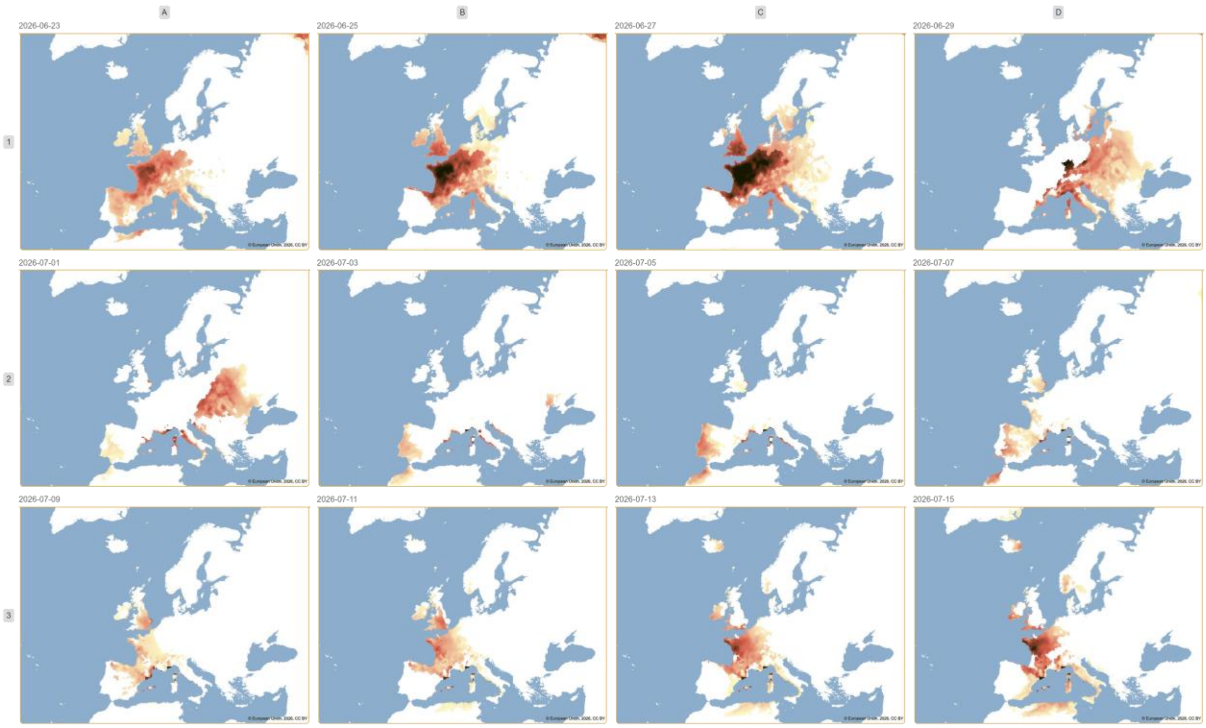
According to the map of heatwave intensity (Figure 3), showing the estimated conditions at the peak of the events at the end of June and in mid-July 2026, the severe heatwaves hit large areas of Europe, especially France, Germany, the UK, and northeastern Spain.

Figure 3. Accumulated heatwave intensity (until 27 June 2026, left panel, and 14 July, right panel) in degrees Celsius (°C). Yellow contours highlight the areas with a heatwave duration of at least 10 days (left panel) and 7 days (right panel), respectively.



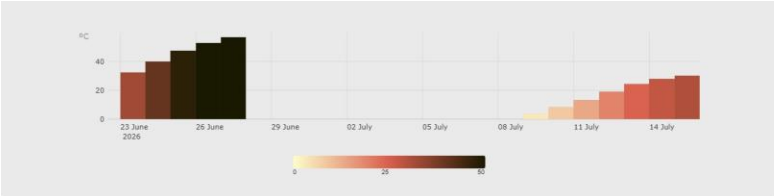
Source: JRC, Copernicus EMS European Drought Observatory, based on ERA5 and Destination Earth Extreme Digital Twin.

Figure 4. Evolution of the identified heatwaves. The maps show the accumulated heatwave intensity, from 23 June until 15 July, in degrees Celsius (°C).



Source: JRC, Copernicus EMS European Drought Observatory, based on ERA5 and Destination Earth Extreme Digital Twin.

Figure 5. Heatwave temporal evolution in one of the hot spots of the event in France. Values represent the accumulated heatwave intensity, from 23 June until 15 July, in degrees Celsius (°C).



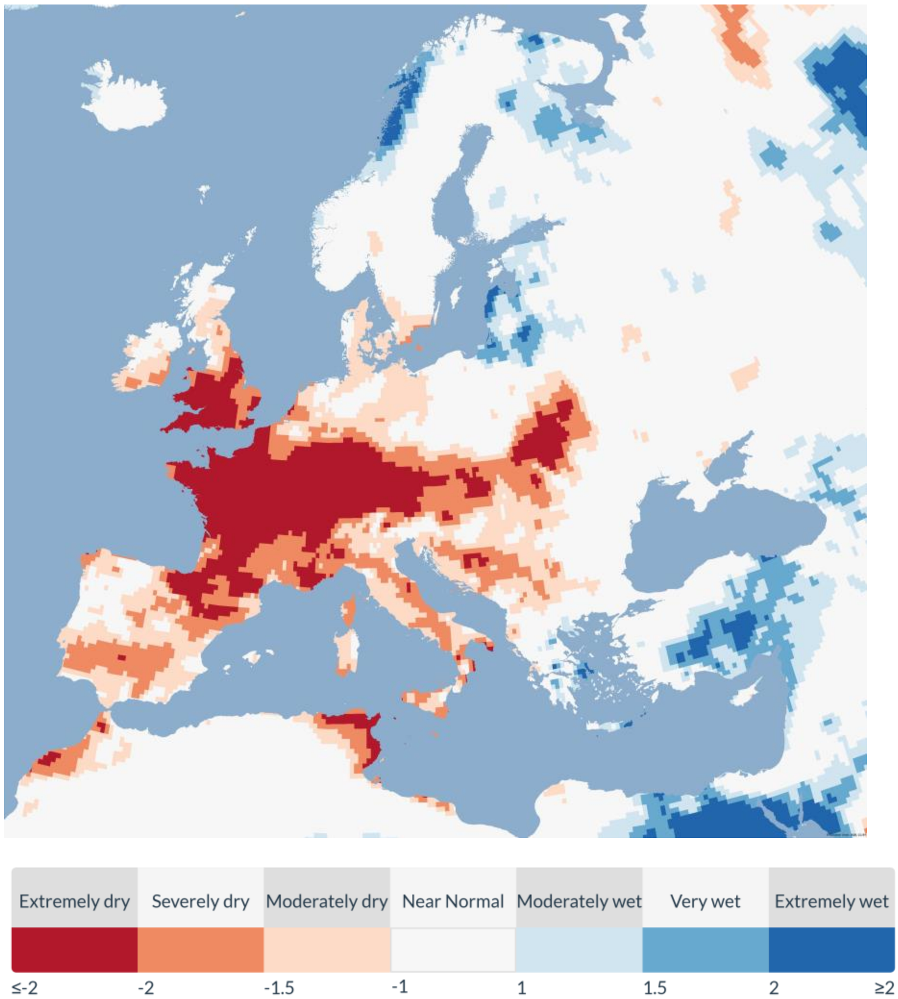
Source: JRC, Copernicus EMS European Drought Observatory, based on ERA5 and Destination Earth Extreme Digital Twin.

The evolution of the June-July heatwaves is shown in Figure 4 that provides information on the accumulated intensity over time as well as the spatial extent of the events beyond their peaks. An example of this temporal evolution, that makes possible to appreciate the severity of the events, is shown in Figure 5 reporting the estimated accumulated intensity over time in a location of the French hotspots for the first heatwave.

5. Standardized Precipitation Evapotranspiration Index (SPEI)

SPEI accounts for both precipitation and evapotranspiration (potential evapotranspiration, PET, is here computed with the Hargreaves-Samani[7] method) to estimate anomalies of the climatic water balance (precipitation minus potential evapotranspiration) with respect to the climatological average over a given period. Thus, SPEI provides an estimation of the combined effects of precipitation deficit (based on ERA5 data like the previously discussed SPI) and warmer-than-usual conditions and/or heatwaves. The SPEI, shown in Figure 6, confirms the prolonged drought over the areas identified and discussed in the previous section. SPEI-3 well aligns with the corresponding SPI-3 confirming that the current drought is precipitation-driven and exacerbated by warmer temperature anomalies and heatwaves, as occurred in north-western France, for example.

Figure 6. SPEI-3 in mid-July 2026.



Source: JRC, Copernicus EMS European Drought Observatory, based on ERA5.

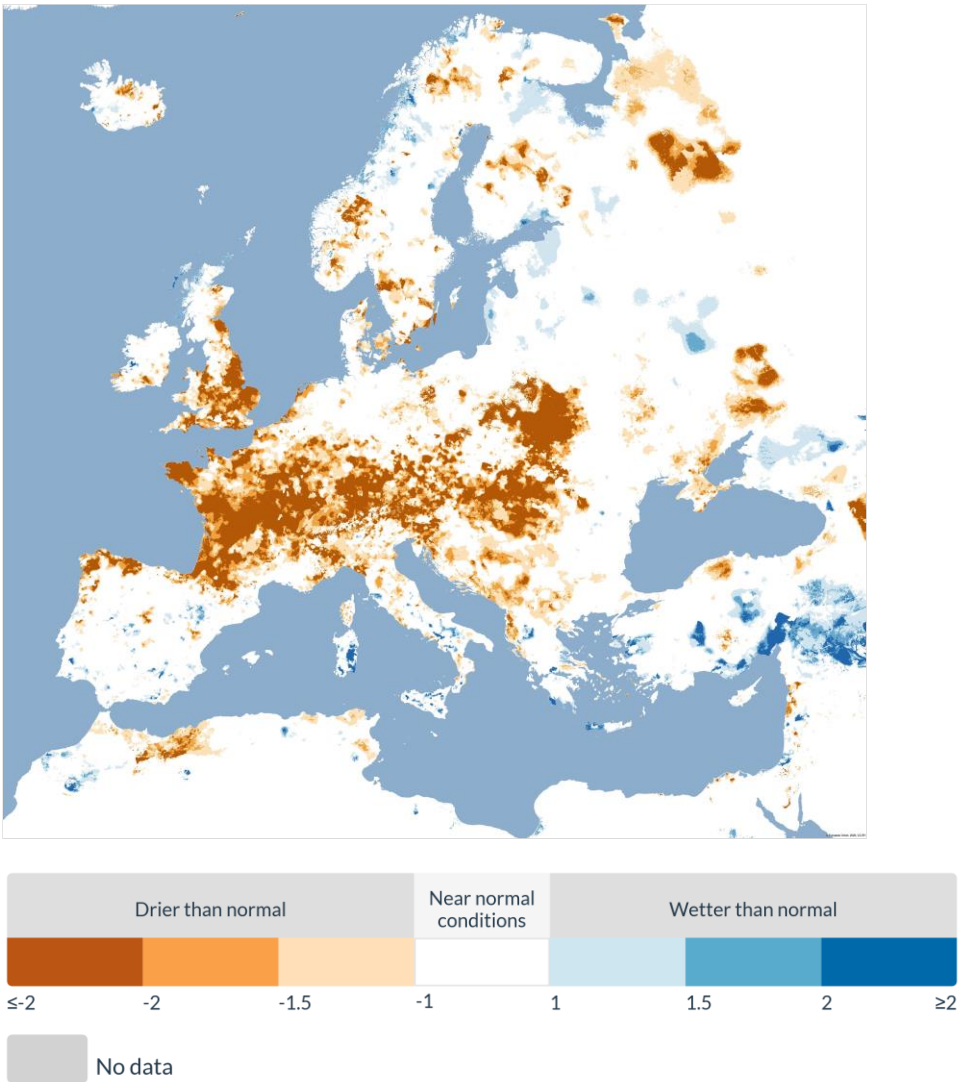
[7] See Hargreaves, G. H. and Samani, Z. A.: Estimating potential evapotranspiration, J. Irrig. Drain E.-ASCE, 108, 223–230, 1982 and Hargreaves, G. H. and Samani, Z. A. 1985. Reference crop evapotranspiration from ambient air temperature, American Society of Agricultural Engineers.

6. Soil moisture

The Soil Moisture Index Anomaly (SMA) is a standardised index that estimates deviations from normal conditions of the root-zone water content. It is an index derived from a hydrological model (OS LISFLOOD) and associated with the difficulty of plants in extracting water from the soil.

The Soil Moisture Index Anomaly shows negative anomalies over most of central Europe, the southern and eastern UK, the northeastern Iberian Peninsula, the Alps, and eastern Europe. Less severe anomalies affect some areas in Scandinavia and central-northern Italy (Figure 7).

Figure 7. Soil Moisture Index Anomaly, mid-July 2026.



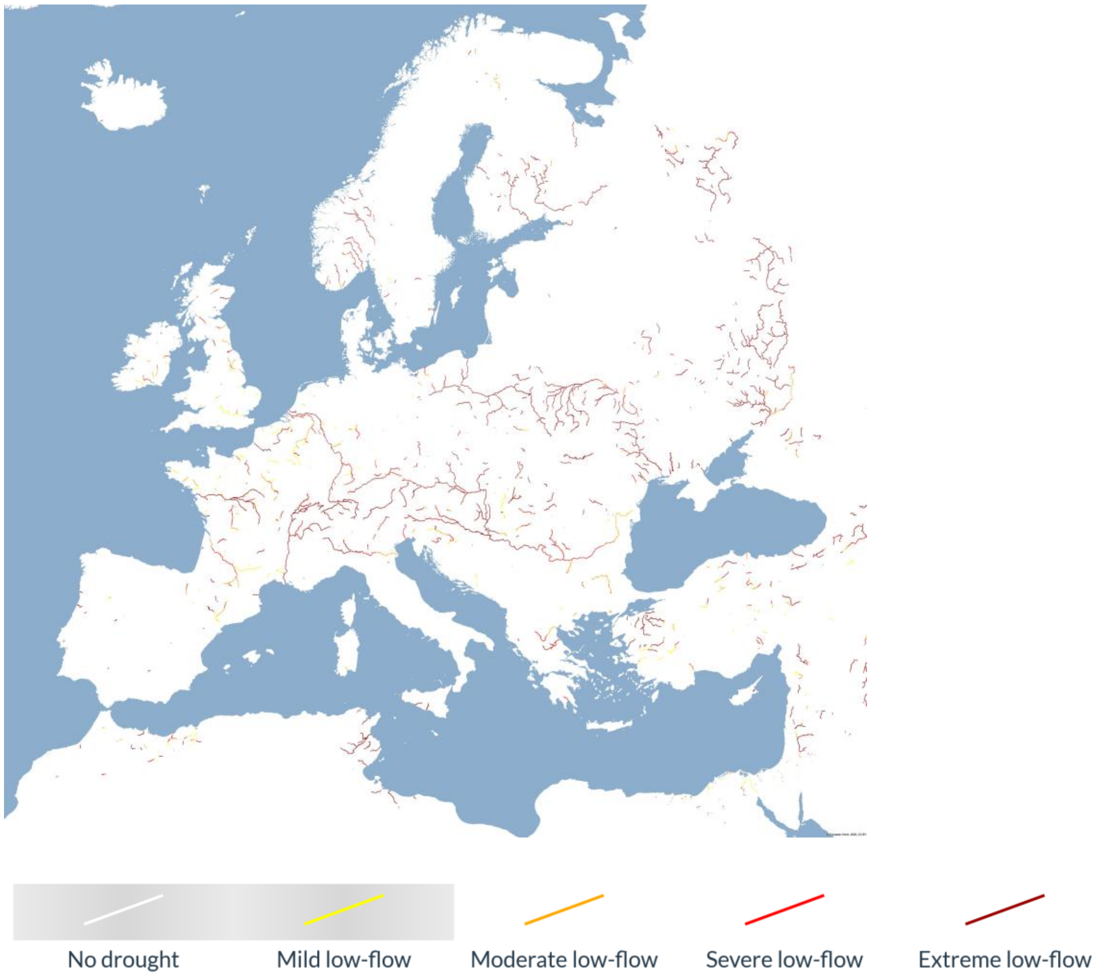
Source: JRC, Copernicus EMS European Drought Observatory, based on the OS LISFLOOD hydrological model.

7. Hydrology

The Low-Flow Index (LFI) is a metric used to assess hydrological drought, based on the OS LISFLOOD hydrological model. It identifies consecutive periods of exceptionally low streamflow. By comparing the resulting water deficit during these periods to historical climatological conditions, the LFI enables the estimation of drought severity.

In mid-July 2026, the Low-Flow Index shows critical hazard values mainly over central-eastern Europe, Norway, Finland, western Russia, the Alps, northern Italy and the main rivers in Germany and France (Figure 8). The flow reduction correlates well with the soil moisture anomaly pattern and the lack of precipitation over the last months.

Figure 8. Low-Flow Index (LFI) in mid-July 2026.



Source: JRC, Copernicus EMS European Drought Observatory, based on the OS LISFLOOD hydrological model.

8. Vegetation and crops

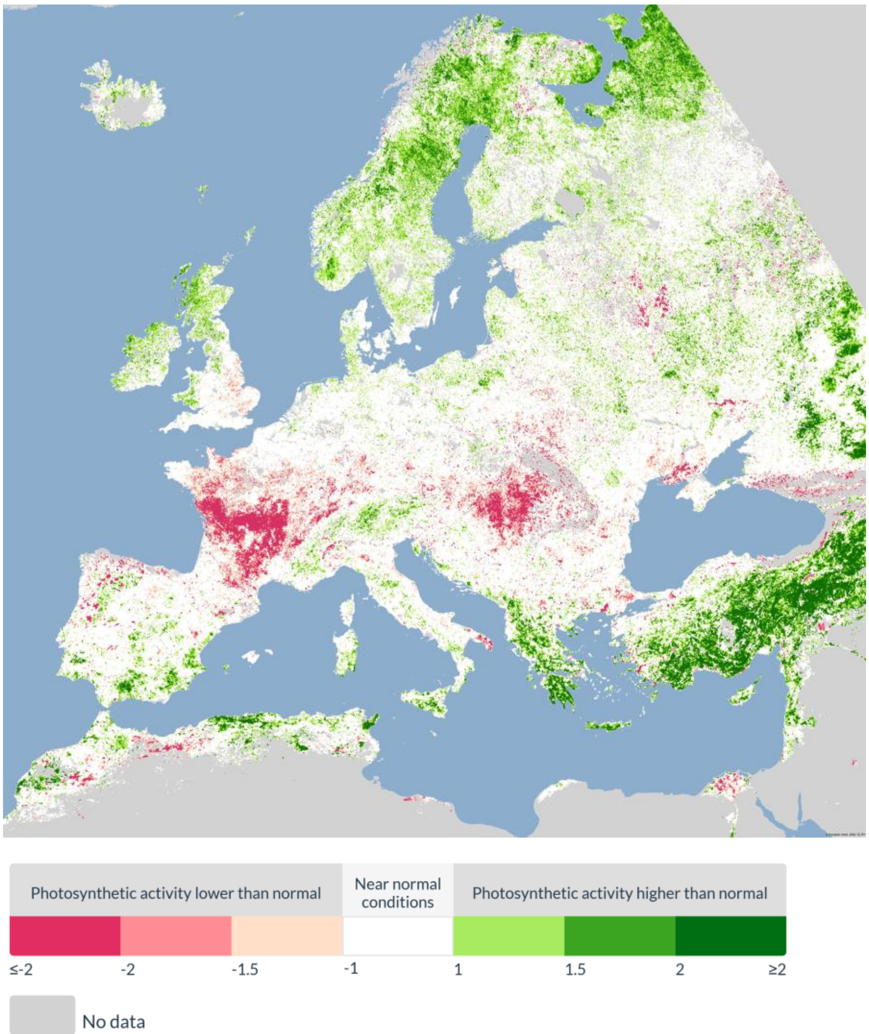
The satellite-based fraction of Absorbed Photosynthetically Active Radiation (fAPAR) represents the fraction of solar energy absorbed by leaves due to photosynthesis. It is a measure of vegetation health and biomass. Negative fAPAR anomalies with respect to the long-term average are associated with a reduction in biomass and often with negative impacts on vegetation.

In mid-July 2026, the satellite-derived fAPAR anomaly indicator shows below-average vegetation conditions mainly across parts of France, central Europe, Hungary and western Romania (Figure 9). Persistent heatwaves and limited rainfall have depleted soil moisture across western and central Europe, particularly in southern Germany, Austria, Czechia, south-eastern Poland, Slovakia, Hungary and western Romania, increasingly constraining spring and summer crop development. These conditions have already resulted in downward revisions of the EU yield forecasts. Winter crop forecasts have been reduced by around 1–4% compared to the previous month, while the largest reductions for summer crops have reached 6–7% for grain maize and sunflower. If hot and dry conditions will persist without sufficient rainfall to replenish soil moisture, further expected yield reductions are likely to occur in the coming weeks.

Dedicated information on the agricultural yield forecast for Europe is provided in the JRC MARS (Monitoring Agricultural ResourceS) Bulletins[8].

[8] https://joint-research-centre.ec.europa.eu/monitoring-agricultural-resources-mars/jrc-mars-bulletin_en

Figure 9. VIIRS (Visible Infrared Imaging Radiometer Suite) satellite-derived fAPAR anomalies in mid-July 2026.

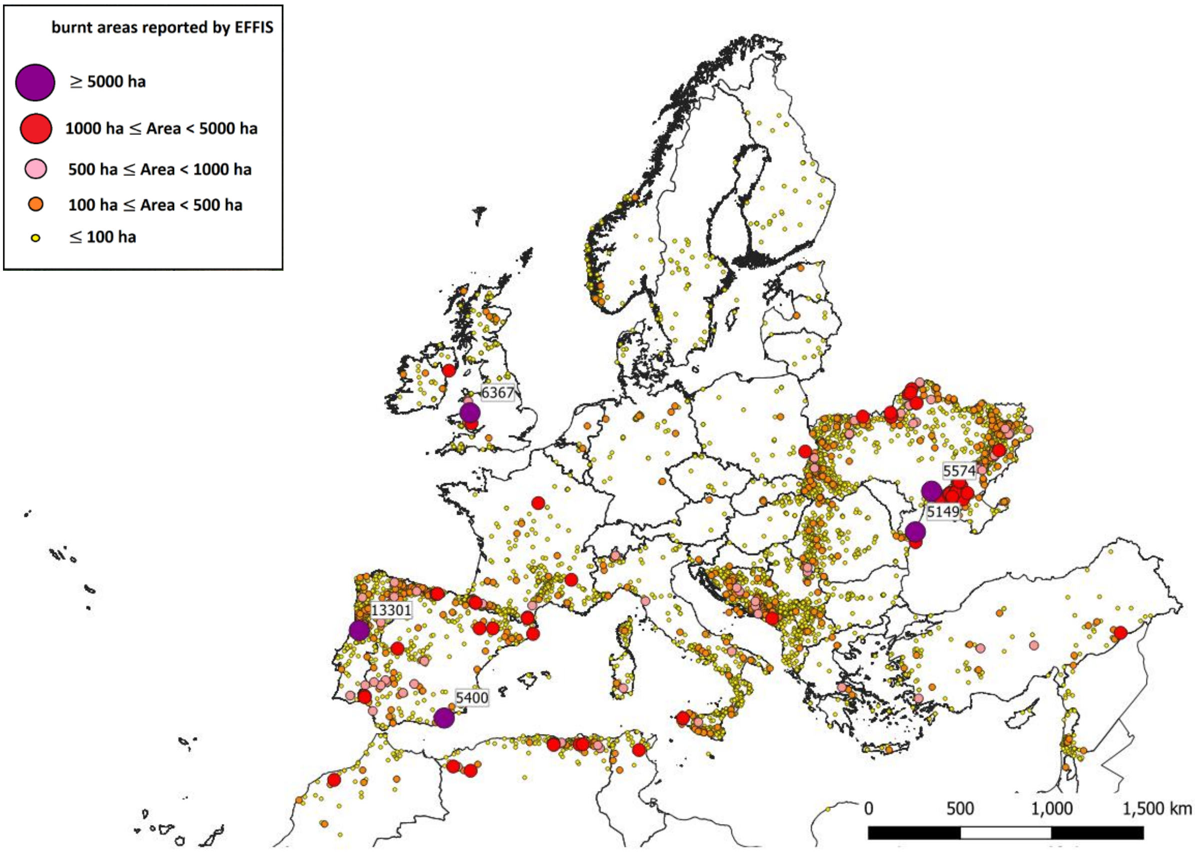


Source: JRC, Copernicus EMS European Drought Observatory, based on VIIRS.

9. Wildfires

Most of the fire events reported by the Copernicus European Forest Fire Information System EFFIS during the first part of the year (up to 15 July) affected the Mediterranean areas. However, of the five recorded ones with an area over 5 000 ha (violet circles in Figure 10), only one is in the Mediterranean basin. The other ones are in central Portugal, in the UK and along the Black Sea (Figure 10).

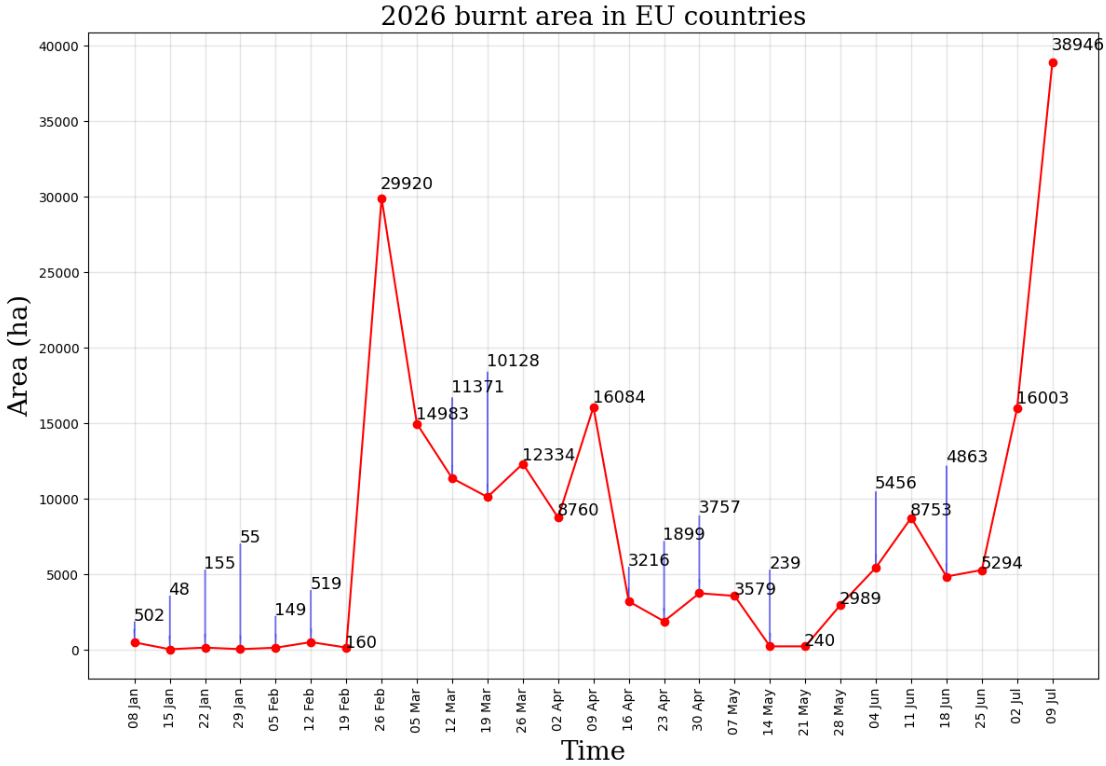
Figure 10. Fire events recorded by EFFIS in 2026 (up to 15 July).



Source: JRC, EFFIS (European Forest Fire Information System).

In the EU countries, three main peaks of activity characterised the year so far. After a very quiet beginning of the year, from the last week of February until the first half of April major fires took place mainly in the Iberian Peninsula and in eastern European countries (Figure 11, Figure 12).

Figure 11. Weekly progression of burnt areas in EU countries in 2026.



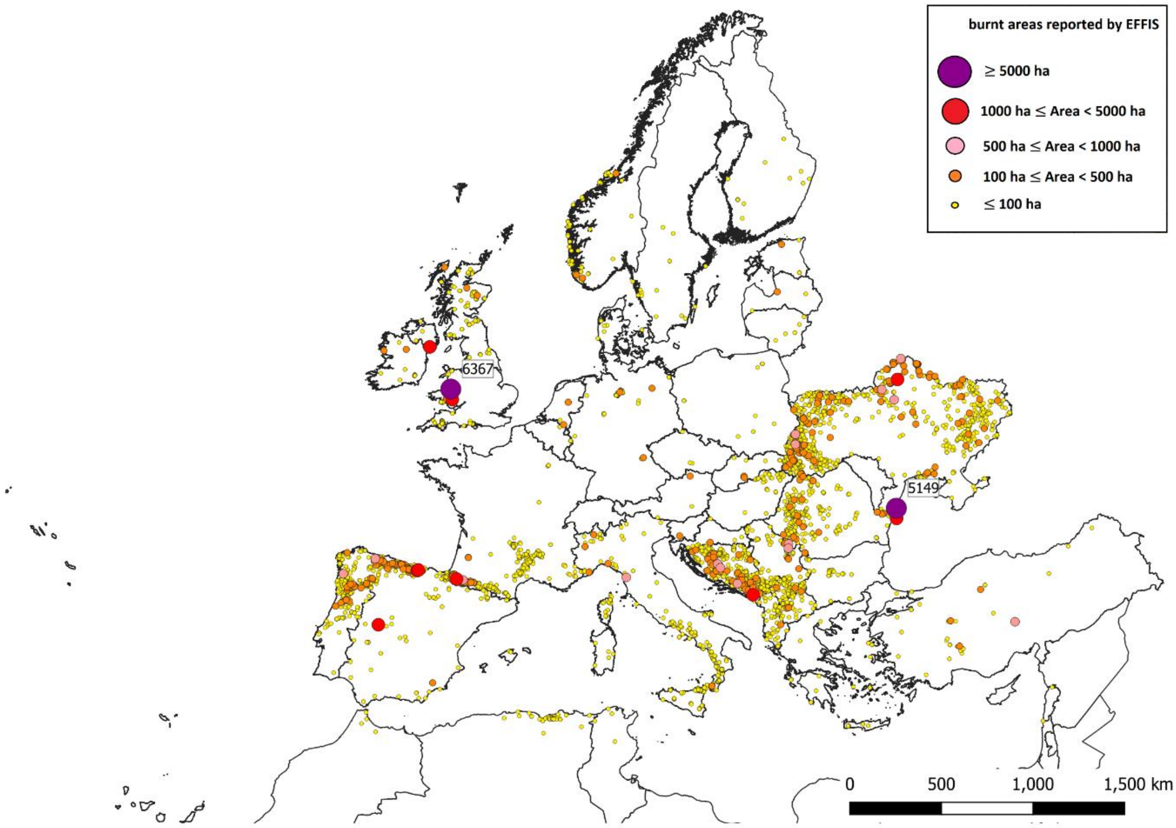
Source: JRC, EFFIS (European Forest Fire Information System).

April and May were also quiet in terms of wildfires, but since the beginning of June EFFIS recorded an increase of activity that culminated in the maximum weekly amount of the year reaching almost 39 000 ha of burnt area (Figure 11). In this last stretch of time the Mediterranean part was the most hit, both in terms of number of events and burnt area (Figure 12).

Looking more into the temporal evolution, the first two months of 2026 were quiet in terms of wildfires in all the countries, until major events took place in the Iberian Peninsula and eastern European countries. Two events over 5 000 ha were recorded: the biggest one in the UK near Manchester, which impacted over 6 000 ha and the second one in the Ukrainian side of the Danube delta (Figure 12).

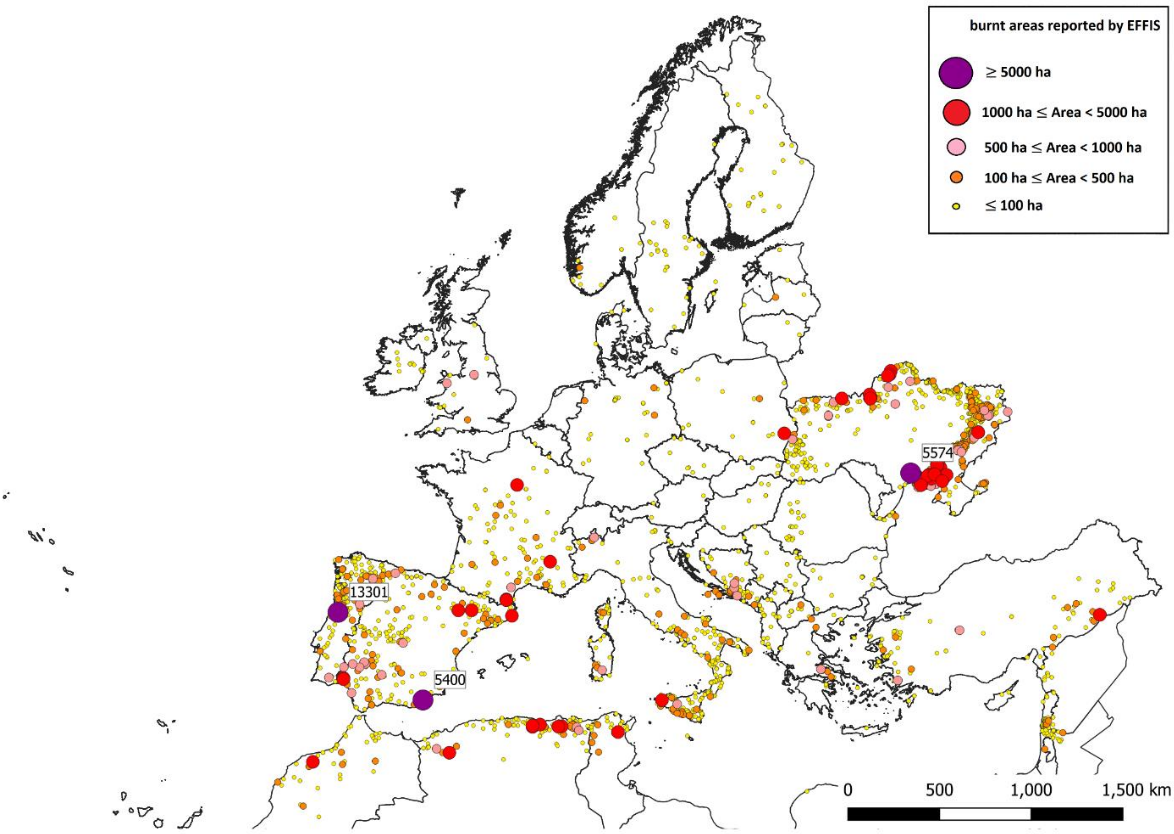
After a fairly quiet month of May, the activity of fire events steadily increased in June and reached the year's maximum in July (Figure 13). The fires affected mainly the Mediterranean area, but severe events took place in northern France (1 300 ha of burnt area near Paris), the UK and Ukraine (Figure 13). The biggest fire event of this period occurred in Portugal, burning more than 13 000 ha in the Viseu Dão Lafões subregion.

Figure 12. Location and magnitude of the fire events recorded by EFFIS from January to April.



Source: JRC, EFFIS (European Forest Fire Information System).

Figure 13. Location and magnitude of the fire events recorded by EFFIS from May to 15 July.



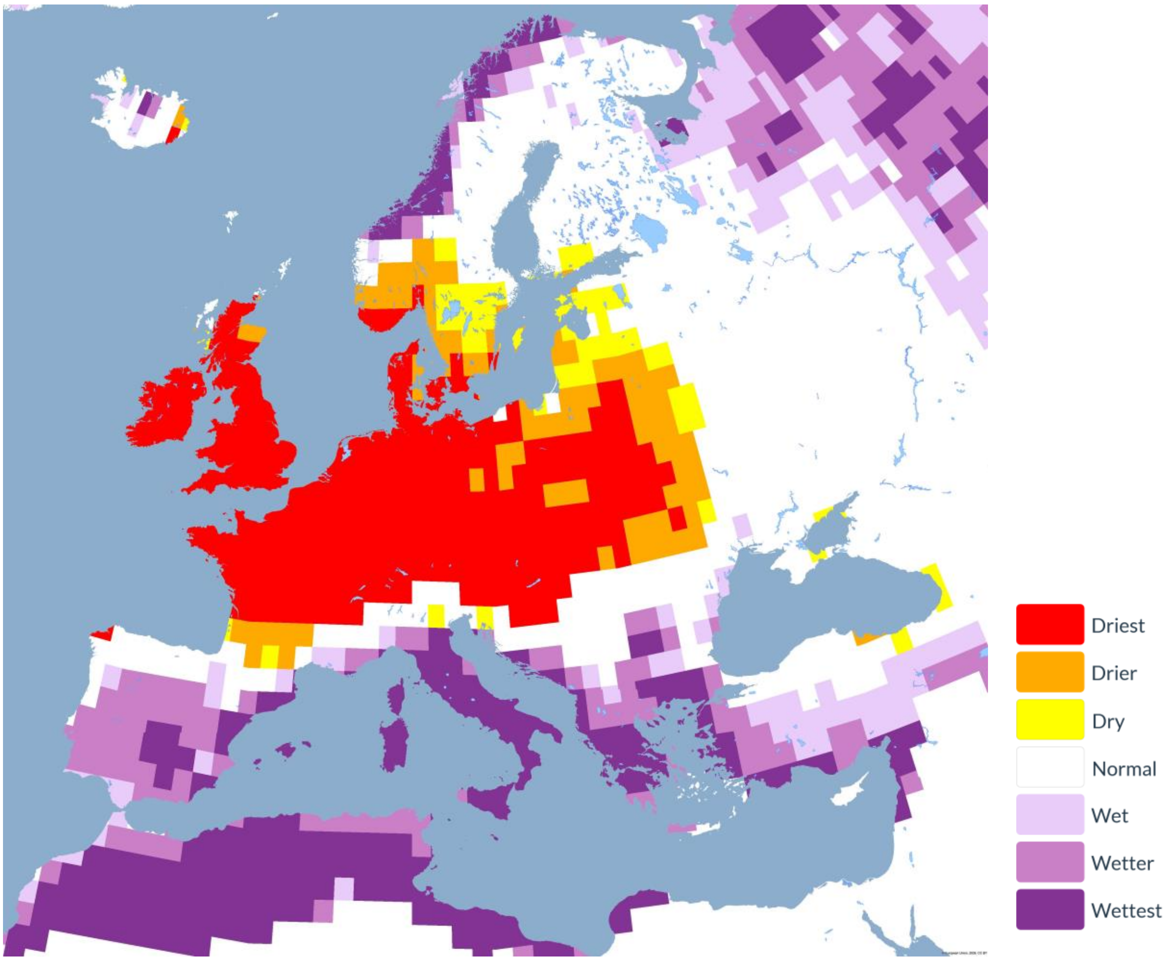
Source: JRC, EFFIS (European Forest Fire Information System).

10. Seasonal forecast

The Multi-system Indicator for Forecasting Unusually Wet and Dry Conditions provides early risk information at global scale. The indicator is computed from forecasted SPI-1, SPI-3, and SPI-6 derived from eight modelling systems: ECMWF (European Centre for Medium-Range Weather Forecasts), CMCC (Centro Euro-Mediterraneo sui Cambiamenti Climatici), DWD (Deutscher Wetterdienst), ECCC (Environment and Climate Change Canada), Météo France, NCEP (USA National Centers for Environmental Prediction), UKMO (UK Meteorological Office), BOM (Bureau of Meteorology, Australia).

Severely drier than average conditions are forecasted for the next months (till September 2026) by the multi-system ensemble (Figure 14) over large areas in Europe. This follows an already dry period in the same regions, rising concerns for the drought development and consequent impacts. On the contrary, Mediterranean regions may experience significantly wetter conditions than usual.

Figure 14. Multi-system Indicator for Forecasting Unusually Wet and Dry Conditions, July - September 2026, based on dynamic forecasting systems from 8 centres, issued in July 2026: ECMWF, CMCC, DWD, ECCC, Météo France, NCEP, UKMO, BOM. The baseline period is 1993-2016.

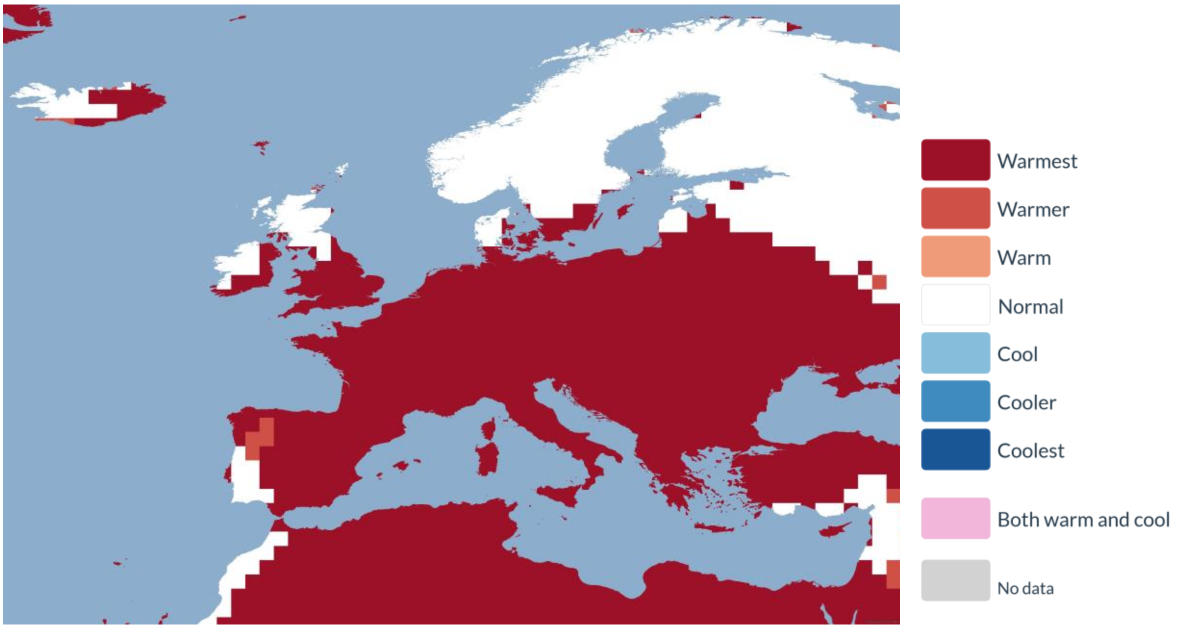


Source: JRC, Copernicus EMS European Drought Observatory, based on ECMWF, CMCC, DWD, ECCC, Météo France, NCEP, UKMO, BOM.

The individual forecasting systems (not shown here) show broad agreement on the dry anomalies, differing slightly in spatial extent and severity.

The Multi-system Indicator for Forecasting Unusual Warm and Cool Conditions provides early risk information at global scale, based on the eight forecasting systems mentioned before. Concerning August 2026, the ensemble points to the risk of having severe heatwaves over most of Europe (Figure 15). This will further exacerbate the current drought. Only for Scandinavia, the northern UK, most of Ireland and Denmark, Iceland, and the south-western Iberian Peninsula normal conditions are predicted.

Figure 15. Multi-system Indicator for Forecasting Unusually Warm and Cool Conditions, August 2026, based on dynamic forecasting systems from 8 centres, issued in July 2026: ECMWF, CMCC, DWD, ECCC, Météo France, NCEP, UKMO, BOM. The baseline period is 1993-2016.



Source: JRC, Copernicus EMS European Drought Observatory, based on ECMWF, CMCC, DWD, ECCC, Météo France, NCEP, UKMO, BOM.

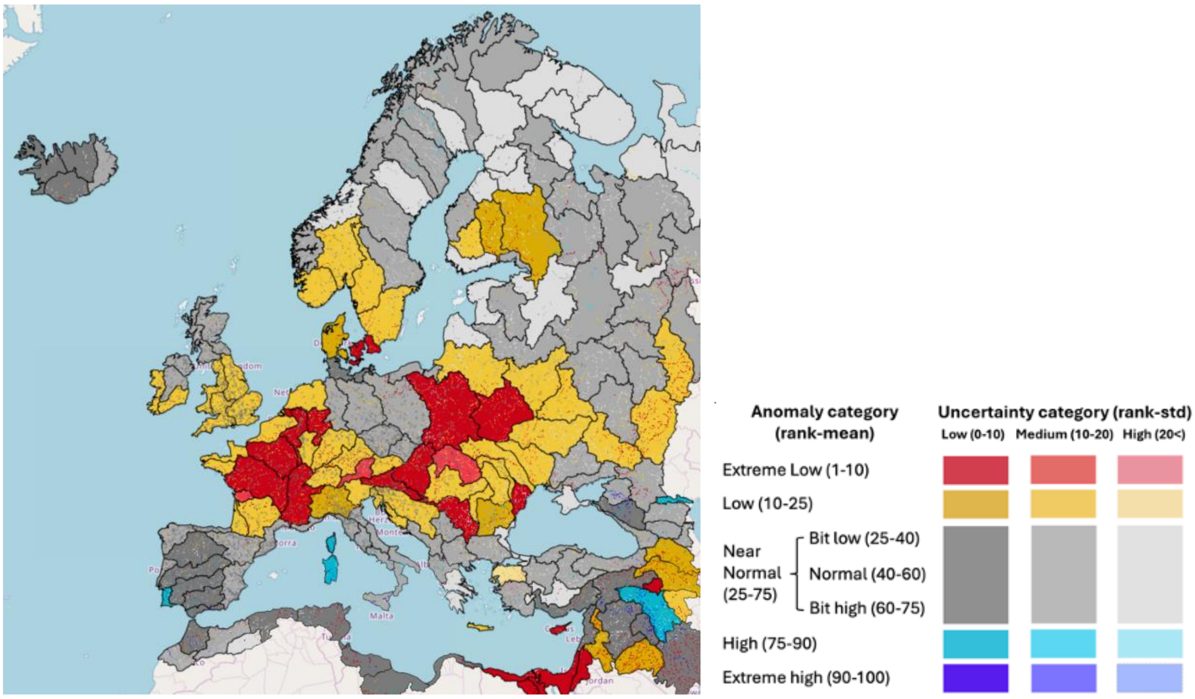
Based on the Copernicus Climate Change Service (C3S) seasonal forecasts[9] (not shown here), warmer than usual conditions are predicted in Europe with slightly wetter than usual anomalies in southern Europe and slightly drier anomalies in northern Europe up to October 2026.

In August 2026, river flow forecasts from the European Flood Awareness System (EFAS[10], Figure 16) indicate low to extremely low discharges across most catchments in France, Alpine region, eastern Europe, the Baltic Sea regions, and the southern UK, pointing to a progressive worsening of drought conditions. Exceptions are the Iberian Peninsula, central and southern Italy, most of Greece and Türkiye, central and northern Scandinavia, Iceland, and western Russia, where normal or higher than usual flows are predicted.

9 https://climate.copernicus.eu/seasonal-forecasts.

10 https://european-flood.emergency.copernicus.eu/react/map.

Figure 16. Seasonal forecast anomaly and uncertainty for August 2026 provided by the 7-month simulation covering August 2026 to February 2027, with information aggregated by river basin. Different colours indicate the anomaly category, while the colour intensity shows the confidence level in the anomalies, with the lighter colours associated with higher uncertainty. The forecast anomaly and uncertainty signals are derived by comparing the EFAS (European Flood Awareness System) hydrological forecast driven by ECMWF SEAS5 (Seasonal Forecasting System 5) to the 99-value percentile climatology. The climatology is generated by using the ECMWF SEAS5 reforecasts over a 20-year period[11].



Source: Copernicus EMS EFAS.

[11] Source: The CEMS European Flood Awareness System (EFAS): https://www.efas.eu, documentation at EFAS sub-seasonal and seasonal forecasting - Copernicus Emergency Management Service - CEMS - ECMWF Confluence Wiki. River flow anomalies shown for 204 major basins within the EFAS domain, delineated semi-automatically against the 1 arcmin OS LISFLOOD river network and based on the hydrological model OS LISFLOOD. Colours indicate anomaly direction and colour intensity reflects ensemble confidence. Results are based on OS LISFLOOD driven by 51 ECMWF SEAS5 ensemble members (De Roo et al., 2000; https://ec-jrc.github.io/lisflood/).

11. Reported impacts

11.1. Agriculture

According to the JRC MARS Bulletin published on 27 July[12], the current agricultural outlook across Europe remains relatively favourable for winter crops, which have matured more rapidly under the high temperatures and are being harvested earlier than usual. However, the dry spring and heatwave in May, and the subsequent heatwaves in June have taken a toll on winter crop yield prospects in parts of western, central, and eastern Europe. Summer crops have suffered from the exceptionally high temperatures and the rainfall deficit across western and parts of central Europe which persisted throughout June and July. Soil moisture reserves have rapidly depleted, and water demand has increased, thus threatening the yield potential of summer crops. Regional hotspots of concern include central-western France, southern Czechia, western Slovakia, Hungary, and western Romania, where prolonged dryness has negatively impacted winter crop development. Additionally, areas such as south-western Germany, easternmost France, northern Spain and north and central Italy are experiencing reduced yield expectations due to heat and water stress. While the 2026 rice campaign has started smoothly, water availability and management have become increasingly challenging under the heatwaves, which have depleted reservoir and rivers water levels. The overall yield forecasts at the EU level point to yields just above the five-year average, but below last year's figures, highlighting the need for continued monitoring of the drought situation and its impacts on European agriculture[13].

The drought conditions in Europe have also been assessed by the Crop Monitor for AMIS (Agricultural Market Information System)[14], which reports that in Europe, the current agricultural conditions are marked by drought alerts and warnings across various regions, including parts of central and eastern Europe. As of early June, drought alerts were present in several countries, while drought warnings and watches covered most countries. The July outlook indicates a high likelihood of above-average temperatures across the continent, with below-average precipitation expected in central Europe. This may exacerbate crop water stress, particularly in areas where soil moisture reserves are already depleted. Winter wheat in the EU is under generally favourable conditions, although dry soils in central Europe and heatwaves in western Europe may reduce yield prospects. Maize conditions have improved in southeastern Europe, but heatwaves in western Europe could negatively affect yields. Overall, the European drought situation warrants close monitoring, as it may impact crop yields and agricultural productivity in the region.

11.2. Energy systems and electricity markets

Heatwaves negatively impact power generation via cooling-water constraints and limiting the potential of hydropower generation. Heatwaves were accompanied by a sharp rise in electricity prices across European markets, as demand for air conditioning and electric fans surged and generation fell. Increased power demand caused grid stress, including power plant outages and

12 https://joint-research-centre.ec.europa.eu/monitoring-agricultural-resources-mars/jrc-mars-bulletin_en#crop-monitoring-in-europe

13 https://eciu.net/media/press-releases/june-heatwave-knocks-2-billion-off-european-harvest-prospects-new-analysis

14 GEOGLAM (Group on Earth Observation Global Agricultural Monitoring) https://www.cropmonitor.org/crop-monitor-for-amis

reduced nuclear output in, e.g., France due to high river water temperatures making cooling harder[15,16,17]. These conditions also affect thermal plants, and renewable energy production may suffer too.

11.3. Human health and emergency heatwave response

The exceptional heatwaves pose a threat for human health, and ten thousand excess deaths have been already estimated at the end of June. According to EuroMOMO (European Mortality Monitor, backed by the European Centre for Disease Prevention and Control ECDC and by the World Health Organisation WHO), nine thousand excess deaths were recorded among those aged 65 and over[18,19]. In France, the government placed more than half of its 96 departments under danger-to-life red alert for heatwave conditions, with temperatures well exceeding 40 °C and Wednesday 24 June reported as the hottest day recorded since measurements began in 1947, according to Météo-France[20]. Moreover, important impacts were registered for nuclear energy production. Nuclear plants rely on water of rivers for cooling reactors, but in late June rivers were in low-flow conditions or with water too warm for being withdrawn. As a result, three nuclear reactors were switched off and eight operated at reduced power[21,22]. Hot temperatures are also striking the farming sector, e.g. with hundreds of thousands of poultry killed[23]. The heatwave impacted also the Tour de France, one of the most important races of road cycling: its 9th stage was shortened to guarantee that the event could take place under conditions compatible with the ongoing red alert[24]. Time reductions involved also many landmarks in Paris, including the Eiffel Tower and museums[25].

In the UK, 37.3 °C were recorded on 25 June and Red Warnings for Extreme Heat issued for the first time for three consecutive days[26]. Several gas plants had outages and output reduction because of hot weather, which can stress equipment and limit the efficiency of cooling towers.

In Belgium more than thousand excess fatalities were recorded during the heatwave with exceptionally high peak at the end of June[27,28].

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15 https://www.theguardian.com/business/2026/jun/23/electricity-prices-jump-in-europe-as-demands-soars-in-the-heatwave

16 https://www.nucnet.org/news/impact-of-heatwave-on-french-nuclear-plants-limited-with-exports-continuing-7-1-2026

17 https://www.pv-magazine.com/2026/07/01/when-the-rivers-ran-warm-how-a-heatwave-thinned-frances-nuclear-export-cushion/

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27 https://epidata.sciensano.be/epistat/dashboard/#momo

28 https://statbel.fgov.be/en/about-statbel/what-we-do/visualisations/mortality

The effects of the exceptional heatwave were also registered in the Netherlands, with around 480 more fatalities than expected from 20 June to 2 July and temperatures very close to 40 °C[29]. The KNMI (Koninklijk Nederlands Meteorologisch Instituut) issued an unprecedented Red Alert for extreme heat for eight provinces and reported new station records and a new national June temperature record of 39.4 °C. Temperature records were broken in June also in Denmark (37.0 °C, according to the DMI Danmarks Meteorologiske Institut[30]), Germany (41.7 °C[31] and overnight minimum temperature of 29.4 °C, leading DWD Deutscher Wetterdienst to classify the heatwave as historic[31]), Austria (40.0 °C[31]), Hungary (42.0 °C, registered by HungaroMet, the Hungarian Meteorological Service, on 30 June[32]), Switzerland (39 °C, new June record[31]), Poland (new all-time temperature of 40.5 °C[31]), Czechia (new all-time record of 41.9 °C confirmed by the Czech Hydrometeorological Institute CHMI[33]), Slovenia (new June record of 38.7 °C, according to ARSO Agencija Republike Slovenije za Okolje[34]) and Spain (with many location well above 40 °C including new June temperature records, according to the Agencia Estatal de Meteorologia AEMET[35]). In Italy, the highest maximum temperatures were recorded in mid-July, with many stations exceeding 45 °C in Sardinia[36] and Sicily[37].

11.4. Drought and hydrological impacts on water resources

In Italy, the June heatwave and the drought affected especially the northern rivers, lakes and agricultural districts in the area. According to the June bulletin[38] of the *Osservatorio permanente sugli utilizzi idrici nel distretto idrografico del fiume Po* (Permanent observatory on water uses in the Po River hydrographic district) of ADBPO (*Autorità di bacino distrettuale del Fiume Po*, Po River Basin District Authority), during June, the Po river basin registered above-average temperatures close to the historical records, and cumulative precipitation values below the average in the majority of the Lombardy section. In the first days of July, temperature remained above normal values and rainfall was scarce. Water volumes of basin's major lakes were smaller than average on 8 July. Po river discharge experienced a continuous reduction from mid-June to the beginning of July at every gauge. This situation led the basin authority to issue a hydrological severity scenario of level 6 out of 7 (medium severity without precipitation). News about Po River record low flow, northern Italy major lakes shortages and related impacts threatening crops, farming and fisheries, appeared also in the media[39], citing also the issue of saltwater intrusion from the Adriatic Sea into the Po delta

29 https://www.reuters.com/business/environment/heat-wave-caused-some-480-excess-deaths-netherlands-health-authorities-say-2026-07-02/

30 https://www.dmi.dk/nyheder/2026/varme-og-uvejr-ny-dansk-varmerekord-sat-i-baade-oedum-og-odense

31 https://www.dwd.de/DE/wetter/thema_des_tages/2026/6/28.html

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33 https://watchers.news/2026/07/01/czech-republic-records-hottest-day-on-record-with-41-9c-107-4f/

34 https://meteo.arso.gov.si/uploads/probase/www/climate/text/sl/weather_events/vrocina-neurja_18jun-1jul2026.pdf

35 https://www.aemet.es/es/noticias/2026/07/resumen_junio2026

36 https://www.snpambiente.it/notizie/snpa/arpa-sardegna/ondata-di-calore-eccezionale-in-sardegna-sfiorati-i-48c-e-record-storico-dellindice-di-calore/

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38 https://www.adbpo.it/wp-content/uploads/2026/07/07_Bollettino_10luglio26_Osservatorio.pdf

39 https://www.ilfattoquotidiano.it/2026/06/26/siccita-po-cuneo-salino-colture-rischio-notizie/8431138/

and irrigation canals. Drought, heatwave and their effects threaten especially the North, but also central Italy is worrying for possible reduction in agricultural yield[40].

Communal water supplies in Hungary suffered severe problems during record-high heatwaves and decreasing water resources in numerous municipalities around Budapest, and villages in the regions east of the Tisza River and western Hungary causing drinking water shortages[41].

Hungary has been also suffering from severe hydrological drought. Critically low water levels are measured across major rivers due to prolonged drought. In late June, water level of Danube River decreased to historical record low close to the Serbian border (at Baja and Mohács) resulting in problems in civil navigation and river crossing of ferries[42]. Water level of Danube between the Slovak and Serbian borders has fallen below operational limits for some massive shipping vessels causing disruption of some touristic activities. Numerous shipwrecks and previously flooded historical monuments became visible again. The Tisza River has also extreme low flow and the water level waned to lowest ever level at Kisköre and Szolnok[43]. The smaller rivers and streams are close to dry out. The water level of lake Velence (third biggest lake of Hungary) is about one meter below the average, reaching also unprecedented value and made it possible for somebody to cross it on foot as an experiment[44].

Drought is also hitting Romania, where the Danube River is experiencing severe low flow, one of the worse in the last two decades, with interruption of commercial and touristic navigation and no water for field irrigation[45].

11.5. Drought and impacts on ecosystems

The exceptional heatwave impacts ecosystems, with animals and plants suffering hot and dry conditions. Such conditions have been, for instance, reported in France by the Ligue pour la Protection des Oiseaux (LPO)[46]. The combination of hot temperatures and drought put also trees over their limit of coping capacity with such extreme conditions[47,48,49].

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41 https://divany.hu/edesotthon/2026/06/29/tobbtucatnyi-telepulesen-korlatozzak-az-ivovizhasznalatot-ime-a-lista/?utm_source=divany&utm_medium=cikklink&utm_campaign=cikklink_belso

42 https://www.vg.hu/vilaggazdasag-magyar-gazdasag/2026/07/hajo-utvonal-budapest-alacsony-vizallas

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46 https://www.lemonde.fr/en/environment/article/2026/07/04/devastating-heatwave-leaves-france-s-wildlife-in-crisis_6755134_114.html

47 https://theconversation.com/heatwaves-why-british-trees-are-shedding-branches-and-dying-286701

48 https://www.bbc.com/news/articles/c87241v13x8o

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List of abbreviations and definitions

Abbreviations	Definitions
ADBPO	Autorità di bacino distrettuale del Fiume Po
AEMET	Agencia Estatal de Meteorologia
AMIS	Agricultural Market Information System
ARSO	Agencija Republike Slovenije za Okolje
BOM	Bureau of Meteorology, Australia
C3S	Copernicus Climate Change Service
CDI	Combined Drought Indicator
CEMS	Copernicus Emergency Management Service
CHMI	Czech Hydrometeorological Institute
CMCC	Centro Euro-Mediterraneo sui Cambiamenti Climatici
DMI	Danmarks Meteorologiske Institut
DWD	Deutscher Wetterdienst
ECCC	Environment and Climate Change Canada
ECDC	European Centre for Disease Prevention and Control
ECMWF	European Centre for Medium-Range Weather Forecasts
EDO	European Drought Observatory (Copernicus Emergency Management Service, CEMS)
EFAS	European Flood Awareness System
EFFIS	European Forest Fire Information System
ERA5	ECMWF Reanalysis v5
EU	European Union

Abbreviations	Definitions
EuroMOMO	European Mortality Monitor
fAPAR	Fraction of Absorbed Photosynthetically Active Radiation
GDO	Global Drought Observatory (Copernicus Emergency Management Service, CEMS)
GEOGLAM	Group on Earth Observation Global Agricultural Monitoring
JRC	Joint Research Centre
KNMI	Koninklijk Nederlands Meteorologisch Instituut
LFI	Low-Flow Index (LFI)
LPO	Ligue pour la Protection des Oiseaux
MARS	Monitoring Agricultural ResourceS
NCEP	National Centers for Environmental Prediction (National oceanic and Atmospheric Administration, NOOA)
OS LISFLOOD	grid-based hydrological rainfall-runoff-routing model
PET	Potential Evapotranspiration
SEAS	Seasonal Forecasting System
SMA	Soil Moisture Index Anomaly
SPEI	Standardized Precipitation Evapotranspiration
SPI	Standardized Precipitation Index
UKMO	United Kingdom Meteorological Office
VIIRS	Visible Infrared Imaging Radiometer Suite
WHO	World Health Organization

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