UK Centre for Ecology & Hydrology

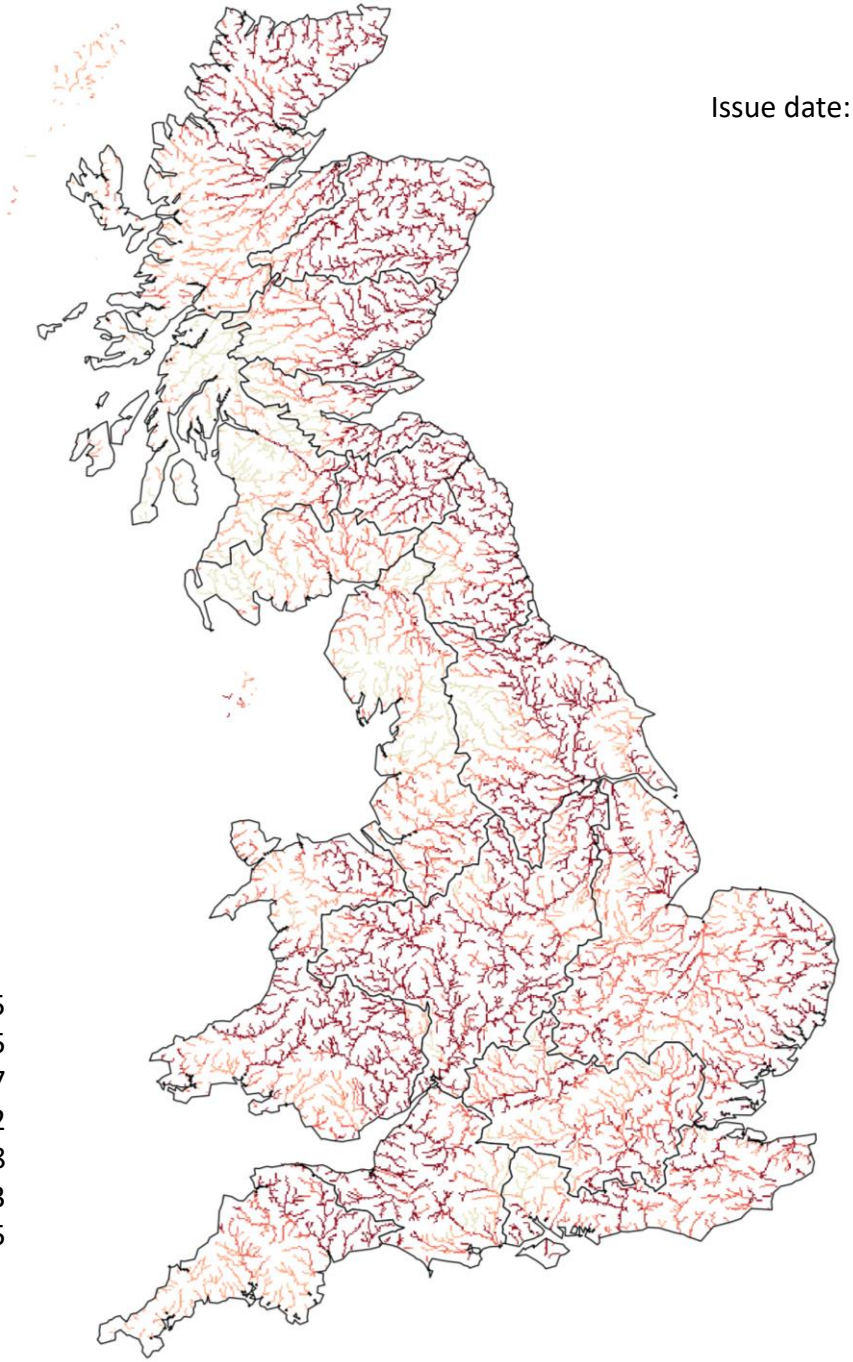
May's mean river flows simulated by the Grid-to-Grid hydrological model

Issue date: 03.06.2025

This map shows the simulated monthly mean flow across Great Britain for last month, ranked in terms of 54 years of historical flow estimates (1963 – 2016).

These flows are produced by the 1km resolution Grid-to-Grid (G2G) hydrological model, which is run up to the end of each calendar month using observed rainfall and MORECS potential evaporation as input.

Note that the G2G model provides estimates of natural flows.



Flow estimate for each river pixel ranked in terms of historic % flow estimates (1963-2016)

Exceptionally high flow	> 95
Notably high flow	87-95
Above normal	72-87
Normal range	28-72
Below normal	13-28
Notably low flow	5-13
Exceptionally low flow	< 5

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Current Daily Simulated Subsurface Water Storage Conditions

Based on subsurface water storage estimated for 31 May 2025

Issue date: 03.06.2025

These maps are based on Grid-to-Grid (G2G) hydrological model simulated subsurface water storage (water in the soil and groundwater), expressed as an anomaly from the historical monthly mean. To highlight areas that are particularly wet or dry, the storage anomaly is presented relative to historical extremes. Rainfall in WET areas with high positive relative wetness could result in flooding in the coming days/weeks. Areas of negative relative wetness indicate locations which are particularly DRY, and little or no rain in these areas could potentially lead to (or prolong) a drought. Maps of soil moisture only are available on the next page.

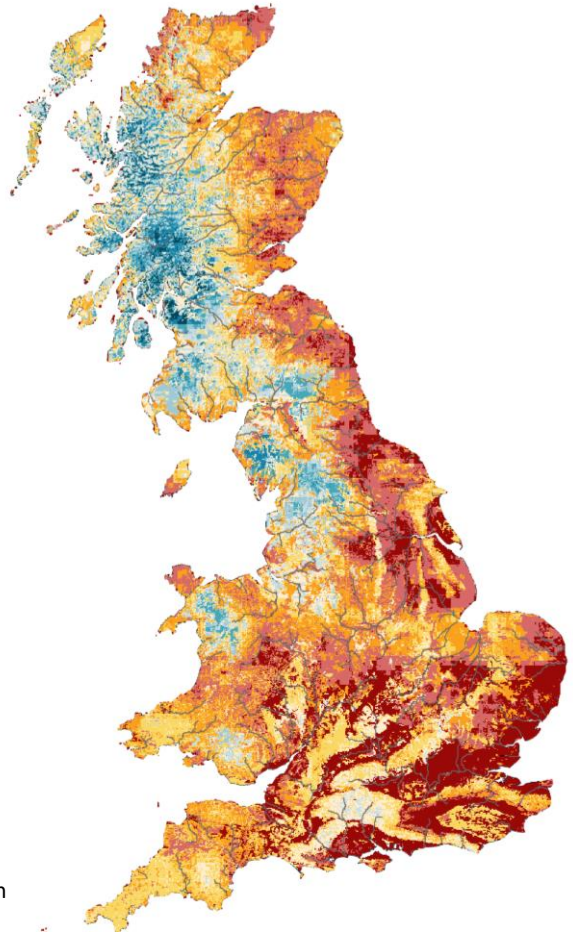
SUMMARY: Subsurface water stores continue to be much lower (drier) than usual over southern and central England, and the east of Great Britain. With higher rainfall during May in northwest Wales, northwest England and western Scotland the shallow subsurface water stores have recovered to higher (wetter) than normal.

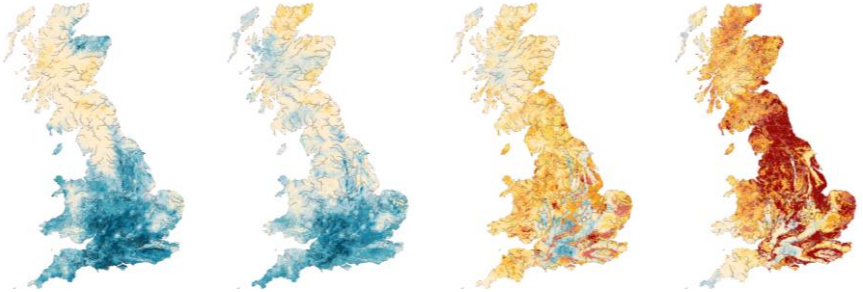
Relative wetness

Water storage anomaly as a % of maximum (positive wetness) or minimum (negative wetness) storage anomaly (zero indicates average value)

High (very wet)	>80
	60-80
Medium wetness	40-60
	20-40
Low wetness	0.01-20
Average conditions	-0.01-0.01
Low dryness	-20--0.01
	-40--20
Medium dryness	-60--40
	-80--60
High (very dry)	<-80
Major rivers	

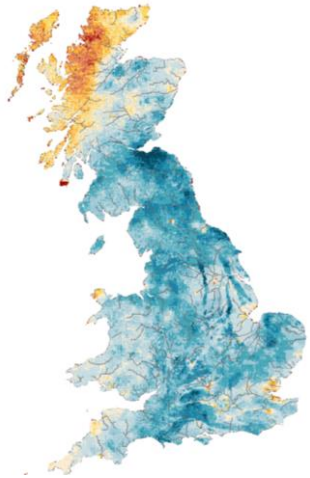
Labels refer to estimated storage on final day of named month



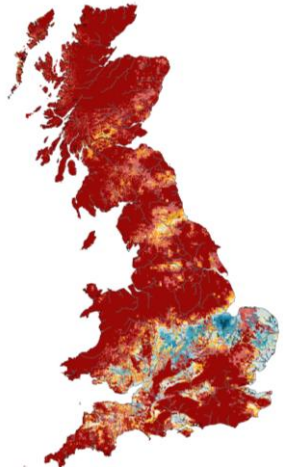


January February March April

May 2024



August 1976*



*Example month displaying extreme negative wetness

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Current Daily Simulated Soil Moisture Conditions

Based on soil moisture estimated for 31 May 2025

Issue date: 03.06.2025

These maps are based on Grid-to-Grid (G2G) hydrological model simulated soil moisture, expressed as an anomaly from the historical monthly mean. To highlight areas that are particularly wet or dry, the soil moisture anomaly is presented relative to historical extremes. These maps are not a forecast; rather an indication of current conditions. Soil moisture will often look similar to total storage (shown on the previous slide), since total storage comprises both soil moisture and storage in the saturated zone.

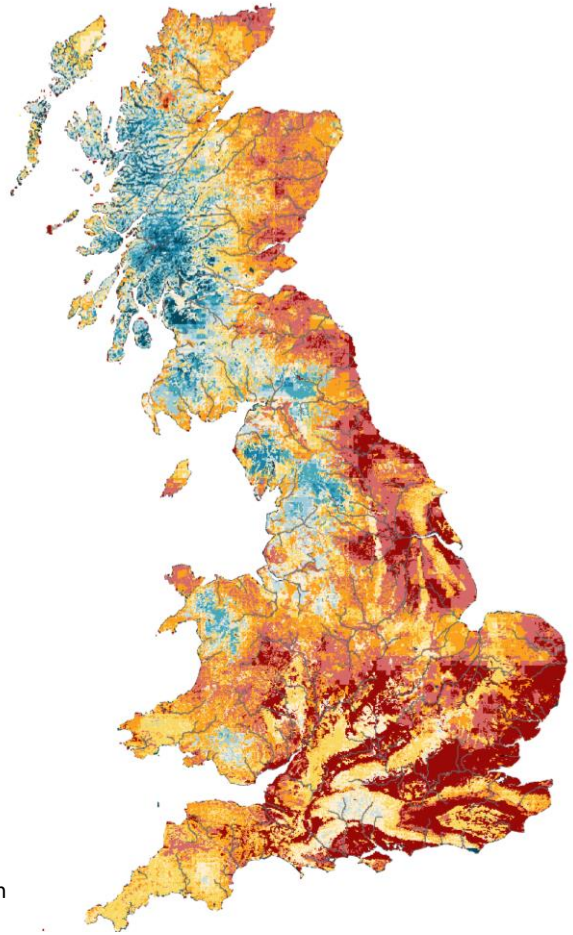
SUMMARY: Soil water stores continue to be much lower (drier) than usual over southern and central England, and the east of Great Britain. With higher rainfall during May in northwest Wales, northwest England and western Scotland, the soil water stores have recovered to higher (wetter) than normal.

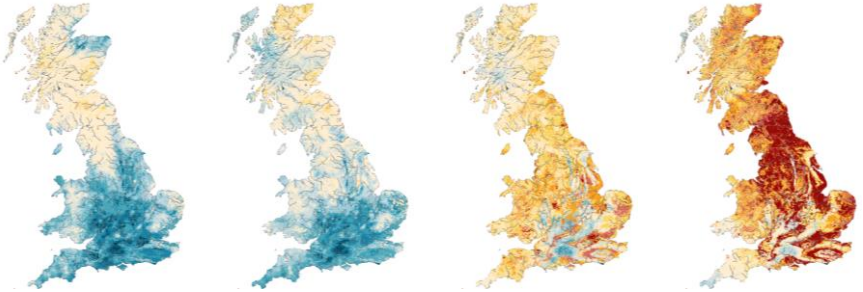
Relative wetness

Soil moisture anomaly as a % of maximum (positive wetness) or minimum (negative wetness) storage anomaly (zero indicates average value)

High (very wet)	>80
	60-80
Medium wetness	40-60
	20-40
Low wetness	0.01-20
Average conditions	-0.01-0.01
Low dryness	-20--0.01
	-40--20
Medium dryness	-60--40
	-80--60
High (very dry)	<-80
Major rivers	

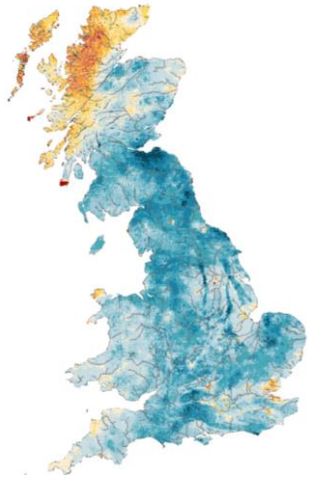
Labels refer to estimated storage on final day of named month





January February March April

May 2024



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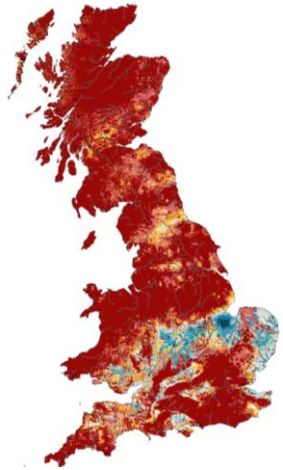

*Example month displaying extreme negative wetness

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UK Centre for Ecology & Hydrology

Estimate of Additional Rainfall Required to Overcome Dry Conditions

Based on subsurface water storage estimated for 31 May 2025

Issue date: 03.06.2025

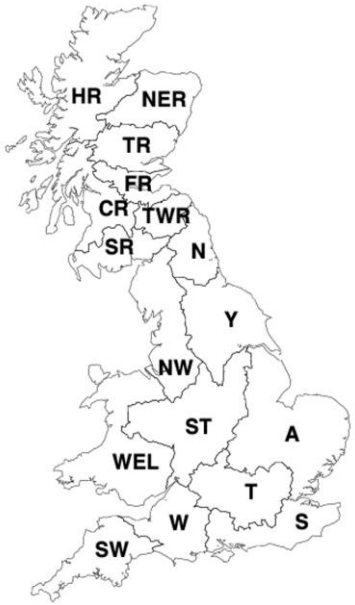
CURRENT CONDITIONS

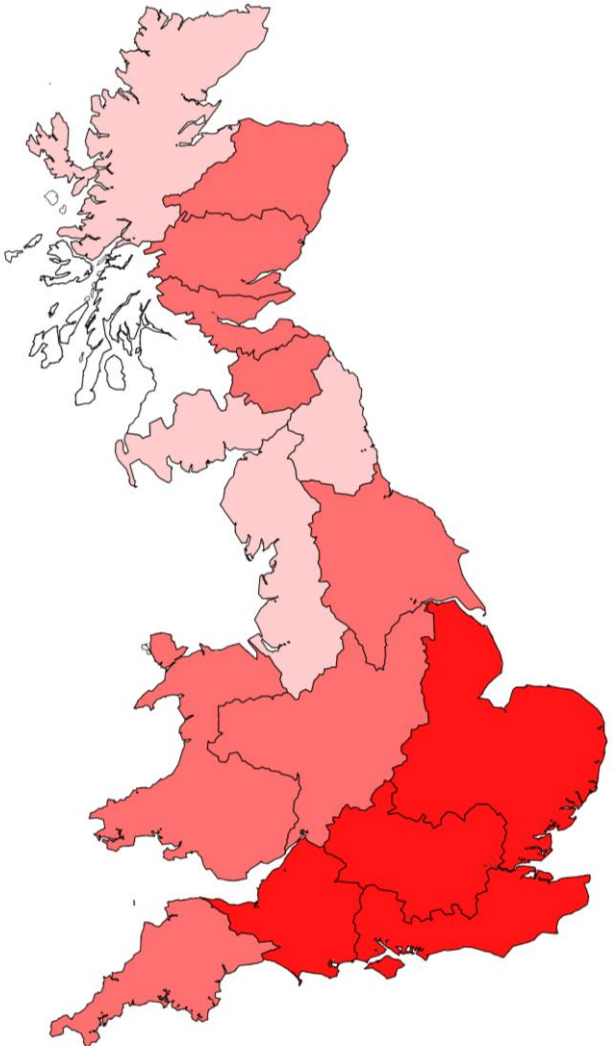
These maps show the Grid-to-Grid (G2G) hydrological model simulated subsurface water storage, expressed as an anomaly from the historical monthly mean (1981-2010), presented on a 1km grid and as regional means. Subsurface storage deficits, i.e. where the subsurface water storage anomaly is less than zero, are highlighted in red/pink.

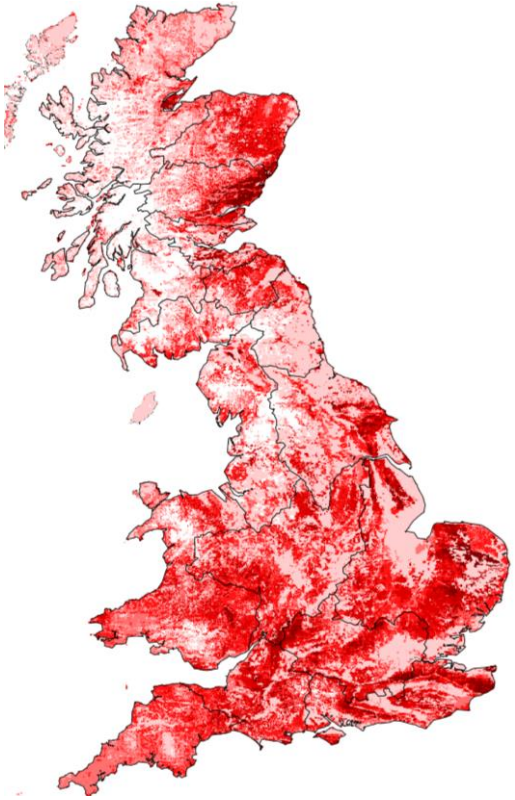
The subsurface storage deficit (mm) can be interpreted as an estimate of additional rainfall that would be required in future months to overcome dry conditions (i.e. rainfall in addition to what is expected on average). Regional mean values of additional rainfall required are provided in the table below.

Regional estimate of additional rainfall required (mm)

	SCOTLAND	
12	HR	Highlands Region
48	NER	North East Region
46	TR	Tay Region
29	FR	Forth Region
0	CR	Clyde Region
43	TWR	Tweed Region
16	SR	Solway Region
	ENGLAND	
20	N	Northumbria
17	NW	North West
33	Y	Yorkshire
45	ST	Severn Trent
51	A	Anglian
54	T	Thames
57	W	Wessex
53	S	Southern
45	SW	South West
	WALES	
42	WEL	Welsh







Water storage deficit (anomaly; mm)

- >125
- 100-125
- 75-100
- 50-75
- 25-50
- 0-25
- <0

June 2025

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Return Period of Rainfall Required to Overcome Dry Conditions

Period: June 2025 - November 2025

Issue date: 03.06.2025

CURRENT CONDITIONS

These maps show the return period of the rainfall required to overcome dry conditions simulated using the Grid-to-Grid (G2G) hydrological model. The maps are coloured according to the return period of accumulated rainfall required to overcome the estimated current subsurface water storage deficit over the next one to six months (areas with no storage deficit will always be white). These maps do not provide a drought forecast; instead they indicate whether particularly heavy rainfall would be required to return to normal conditions for the time of year.

SUMMARY: Subsurface water deficits are still present in most regions, compared to normal levels for the time of year.

These deficits require unusually high rainfall to recover to normal levels before the end of the month, particularly in southern and eastern England and eastern Scotland.

However, to recover these deficits by the end of July would not require unusual rainfall.

Jun

Jul

Aug

Sep

Oct

Nov

SCOTLAND

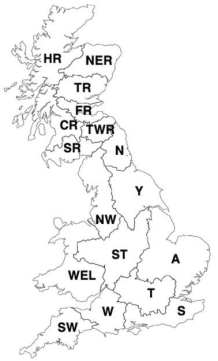
HR Highlands Region
NER North East Region
TR Tay Region
FR Forth Region
CR Clyde Region
TWR Tweed Region
SR Solway Region

ENGLAND

N Northumbria
NW North West
Y Yorkshire
ST Severn Trent
A Anglian
T Thames
S Southern
W Wessex
SW South West

WALES

WEL Welsh



Rainfall amount (Probability)		Return period (years)
Low (Likely)	>20%	<5
	<20%	5-10
	<10%	10-25
	< 4%	25-50
High (Less likely)	< 2%	50-100
	< 1%	100-200
Extreme (Unlikely)	<0.5%	>200

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June 2025