Hydrological Summary
for the United Kingdom

General

June began with unsettled conditions across the UK – a sharp contrast to the exceptionally dry spring. The second half of June was drier, with southerly air masses bringing heatwave conditions across England and Wales. It was the warmest June for England (2.5°C above long-term average) and the second warmest for the UK as a whole (both in series from 1890). Although total UK rainfall was average overall, this masked a stark contrast between above normal rainfall in northern and western Britain and below normal rainfall elsewhere. River flows across central and eastern Britain continued to recede and were notably to exceptionally low at month-end. Low river flows and very dry soils caused ecological stress (requiring fish rescues in Shropshire) and agricultural impacts (reduced crop yields and irrigation stocks). Groundwater levels across most of the UK continued to decline and were mostly normal to below normal. Reservoir stocks at most impoundments remained below average, with pronounced deficits of over 20% at East Lothian, Washburn, Bradford Supply Zone and Derwent Valley; with some (e.g. East Lothian, Washburn and Ardingly) registering new June minima. Drought status was declared in Yorkshire on the 9th and remained in place for north-west England. Many regions remained on alert ("prolonged dry weather" for regions in England and eastern Wales, and "moderate water scarcity" in eastern Scotland). The latest Hydrological Outlook indicates that below normal to low river flows and groundwater levels will persist across eastern Britain. Early July has seen some summer downpours, but many areas have remained dry, with further heatwave conditions. There is a continued, and heightened, risk of drought impacts through summer, on agriculture, the environment and water supplies, especially across eastern Britain.

June 2025

Rainfall

The first week of June saw frequent showers from Atlantic weather systems, especially in northern and western areas. Thunderstorms and heavy rain affected southwest England, Wales and parts of southeast England from 12th-14th, causing flooding of properties in Bridgend and disruptions to road and rail transport in Devon. Parts of Scotland, Northern Ireland and northwest England received near- or above average June rainfall in the first two weeks. Thundery downpours following heatwave conditions on the 21st were concentrated across northern England and the Scottish borders, where unsettled weather continued until month-end. However, there was little respite for central and eastern Britain where there was only modest rainfall after the first week. June rainfall was average for the UK (103%) but there was a marked regional contrast. Rainfall was above average across western Britain (including Northern Ireland), most notably for North West England (165%) and the Orkney Isles, where it was the wettest June on record (in series from 1890). Elsewhere, rainfall was below average (80% for England as a whole) and large parts of central and eastern Britain recorded less than half the average; Anglian region registered 46% of average. Although June went some way to offsetting the low spring rainfall in North West England, dry conditions across central and eastern England and eastern Scotland were extended. March-June totals were the driest on record for the Northumbria, Yorkshire and Severn-Trent regions and the second driest for England as a whole (all in series from 1890). It was the second driest start to the year (January-June) for Yorkshire region, and the third driest for Northumbria and North East Scotland regions (all in series from 1890).

River Flows

River flows started June generally below average, apart from above normal flows in the north and west following a wet end to May. Flows responded to heavy rainfall in the first two weeks across northwest Britain and southwest England (the Kenwyn recorded its highest June peak flows on the 13th, in a series from 1969). Flows across northwest Britain remained elevated at month-end. Elsewhere, there were only muted responses to rainfall and recessions established in the spring continued through June. Sustained daily flow minima were established for catchments in eastern Scotland in the first two weeks (e.g. Helmsdale and Scottish Tyne), and for east England in the last two weeks (e.g. Yorkshire Derwent). The Bervie was notable, recording new consecutive daily minima for the whole of June (apart from 14th, in a series from 1979). While some exceptionally high June mean flows were registered in northwest Britain (e.g. the Cumbrian Derwent, Leven and Lune all recorded flows over 2.5 times their average), catchments across central and eastern Britain were mostly notably to exceptionally low with many recording less than half their monthly average (including new June minima on the Yorkshire Derwent in a series from 1974). Record low flow accumulations since the spring (March-June) were registered across central and eastern Britain (e.g. the Coquet registered less than a third of average). As with rainfall, deficits in flow have persisted since the start of 2025 or earlier, except for more permeable catchments in the far south. Outflows for the January-June period were the lowest on record from Northern Ireland (in a series from 1980), Scotland and the UK as a whole (in series from 1961).

Soil Moisture and Groundwater

Soil moisture levels recovered in parts of the north and west but drying persisted elsewhere, with nearly a third of COSMOS-UK sites recording their lowest average June soil moisture levels (in records from 2013 or later). Similarly, end-of-June MORECS soil moisture deficits were reduced in northern and western areas, but remained exceptional across central, southern and eastern England. Groundwater levels in the southern Chalk generally decreased and remained in the normal range to below normal. Levels at West Woodyates Manor, Ashton Farm and Chilgrove House fell and moved into the normal range. In East Yorkshire and Lincolnshire, levels were mostly in the normal range. At Killyglen, levels decreased and were notably low. In the Jurassic Limestone at Ampney Crucis, levels decreased and moved into the normal range. Levels in the Magnesian Limestone decreased and remained in the normal range at Aycliffe. Levels in the Carboniferous Limestone decreased, Pant y Lladron registered a record June minimum (in a 30 year series). At Alstonfield, levels fell and dropped to notably low. Levels in the Permo-Triassic Sandstones fell slightly but remained exceptionally high at Weir Farm and above normal at Llanfair D.C. Levels continued to decrease but remained in the normal range at Bussels No. 7a and moved into the normal range at Skirwith. In the Fell Sandstone at Royal Observatory, levels decreased but remained within the normal range. At Easter Lathrisk in the Devonian Sandstone, levels continued to fall and dropped to notably low.

National Hydrological Monitoring Programme | UK Centre for Ecology & Hydrology | BGS British Geological Survey

Rainfall . . . Rainfall . . .

Rainfall accumulations and return period estimates

Percentages are from the 1991-2020 average.

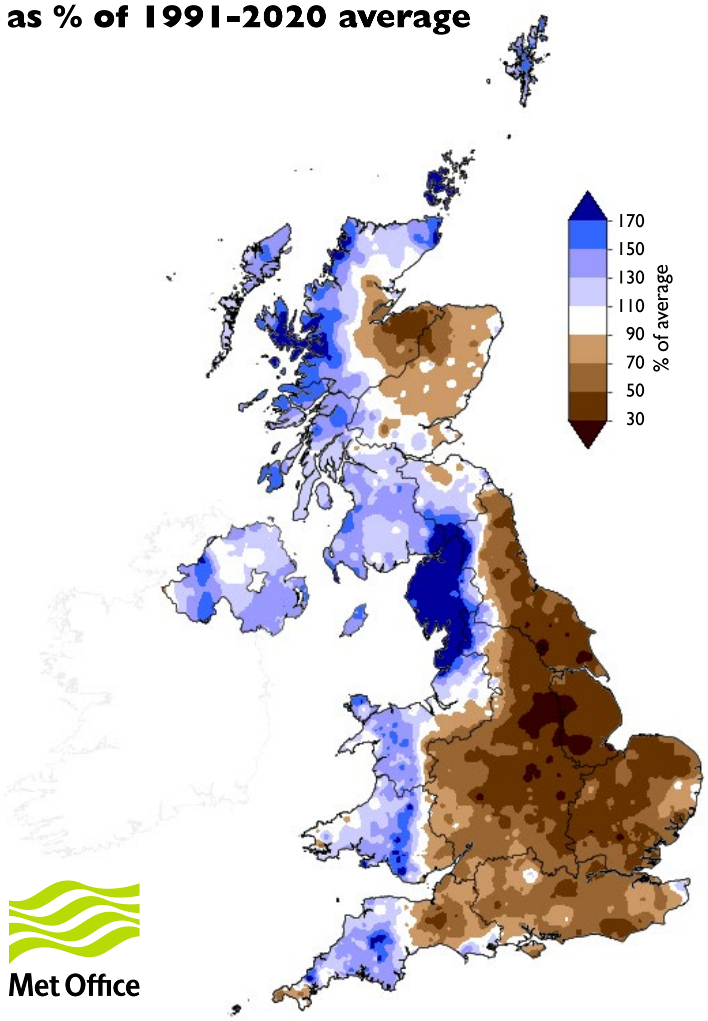
Region	Rainfall	Jun 2025	Mar25 – Jun25	RP	Jan25 – Jun25	RP	Oct24 – Jun25	RP	Jul24 – Jun25	RP
United	mm	**80**	208		376		703		1003	
Kingdom	%	**103**	68	15-25	72	10-20	79	5-10	87	2-5
England	mm	**52**	128		273		522		780	
	%	**80**	54	40-60	71	10-20	80	5-10	90	2-5
Scotland	mm	**112**	316		509		947		1307	
	%	**120**	79	2-5	71	5-10	77	5-10	83	2-5
Wales	mm	**114**	260		497		945		1291	
	%	**124**	70	5-10	77	5-10	83	2-5	89	2-5
Northern	mm	**104**	272		419		671		947	
Ireland	%	**128**	86	2-5	80	5-10	76	10-20	82	8-12
England &	mm	**60**	146		303		580		850	
Wales	%	**88**	57	30-50	72	10-15	80	5-10	90	2-5
North West	mm	**142**	267		428		813		1175	
	%	**165**	83	2-5	77	5-10	84	2-5	92	2-5
Northumbria	mm	**58**	130		229		468		699	
	%	**79**	52	60-90	56	60-90	69	15-25	77	10-20
Severn-Trent	mm	**37**	106		228		476		729	
	%	**56**	45	>100	63	30-50	79	5-10	91	2-5
Yorkshire	mm	**41**	113		231		462		684	
	%	**56**	46	>100	59	80-120	71	15-25	79	8-12
Anglian	mm	**25**	77		168		332		525	
	%	**46**	42	60-90	60	50-80	72	10-20	84	5-10
Thames	mm	**31**	79		228		433		714	
	%	**59**	39	70-100	69	8-12	78	5-10	99	2-5
Southern	mm	**36**	91		272		506		759	
	%	**68**	43	50-80	76	5-10	79	2-5	93	2-5
Wessex	mm	**44**	111		315		596		903	
	%	**74**	46	40-60	78	5-10	85	2-5	100	2-5
South West	mm	**93**	259		547		918		1220	
	%	**122**	82	2-5	98	2-5	93	2-5	97	2-5
Welsh	mm	**108**	248		480		914		1255	
	%	**121**	69	8-12	77	5-10	84	2-5	90	2-5
Highland	mm	**131**	380		607		1223		1630	
	%	**131**	81	2-5	70	5-10	84	2-5	88	2-5
North East	mm	**58**	173		294		589		848	
	%	**73**	60	40-60	62	40-60	73	20-35	80	15-25
Tay	mm	**82**	248		427		753		1018	
	%	**94**	69	8-12	66	8-12	69	20-30	73	25-40
Forth	mm	**90**	248		391		656		929	
	%	**105**	76	2-5	69	5-10	69	10-20	75	10-20
Tweed	mm	**95**	200		325		565		817	
	%	**121**	69	8-12	67	10-20	68	15-25	75	10-20
Solway	mm	**133**	316		520		874		1275	
	%	**137**	79	2-5	74	5-10	72	8-12	81	2-5
Clyde	mm	**141**	405		627		1086		1539	
	%	**132**	87	2-5	73	2-5	74	5-10	82	2-5

% = percentage of 1991-2020 average *RP = Return period*

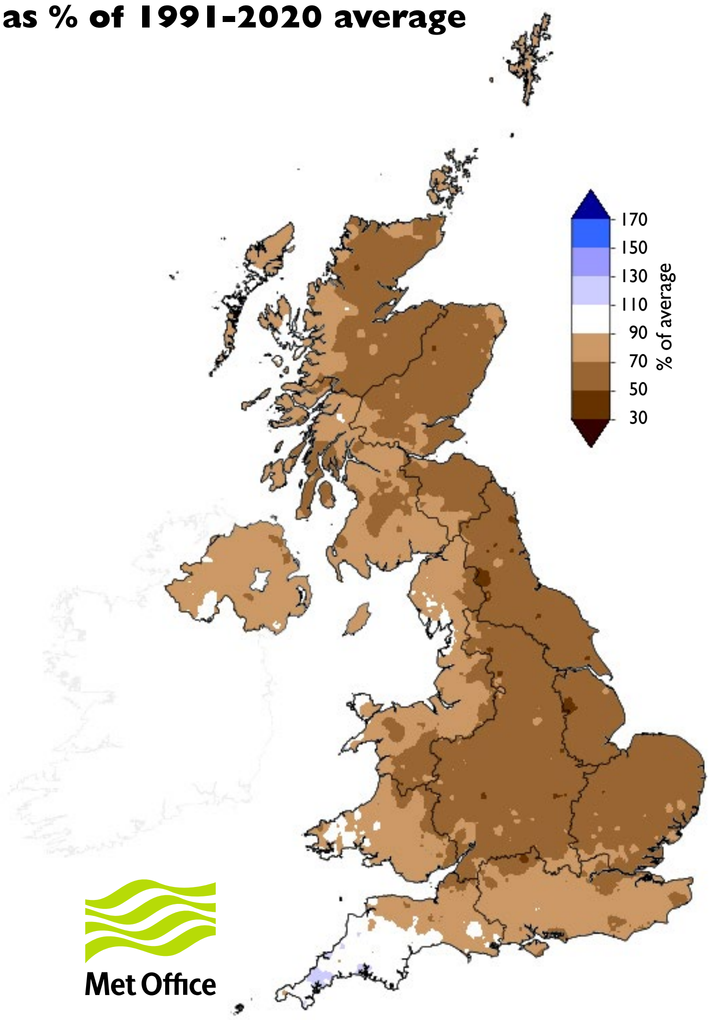
Important note: Figures in the above table may be quoted provided their source is acknowledged. Where appropriate, specific mention must be made of the uncertainties associated with the return period estimates. The RP estimates are based on data provided by the Met Office and reflect climatic variability since 1890; they also assume a stable climate. The quoted RPs relate to the specific timespans only; for the same timespans, but beginning in any month the RPs would be substantially shorter. The timespans featured do not purport to represent the critical periods for any particular water resource management zone. For hydrological or water resources assessments of drought severity, river flows and/or groundwater levels normally provide a better guide than return periods based on regional rainfall totals. Note that precipitation totals in winter months may be underestimated due to snowfall undercatch. All monthly rainfall totals since January 2023 are provisional. Source: Data from HadUK-Grid dataset at 1km resolution v1.2.0.0.

Rainfall . . . Rainfall . . .

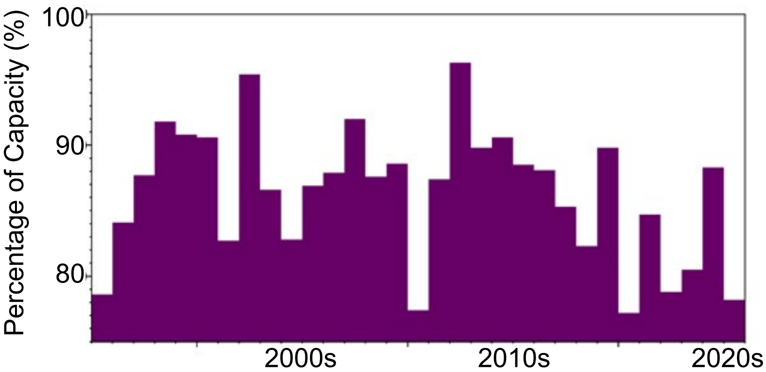
June 2025 rainfall as % of 1991-2020 average



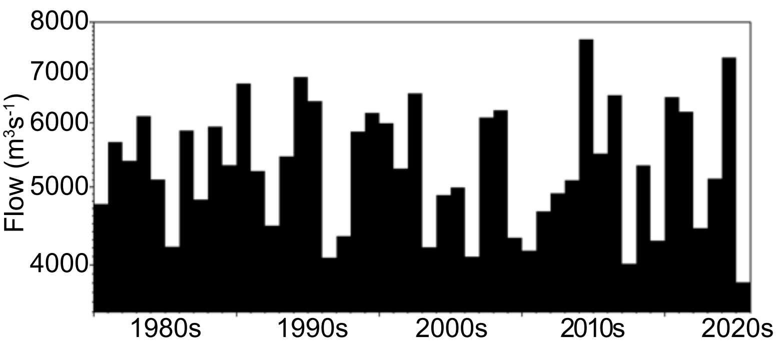
January 2025 - June 2025 rainfall as % of 1991-2020 average



End of June reservoir stocks for the UK



January - June outflows for the UK



UK Hydrological Outlook

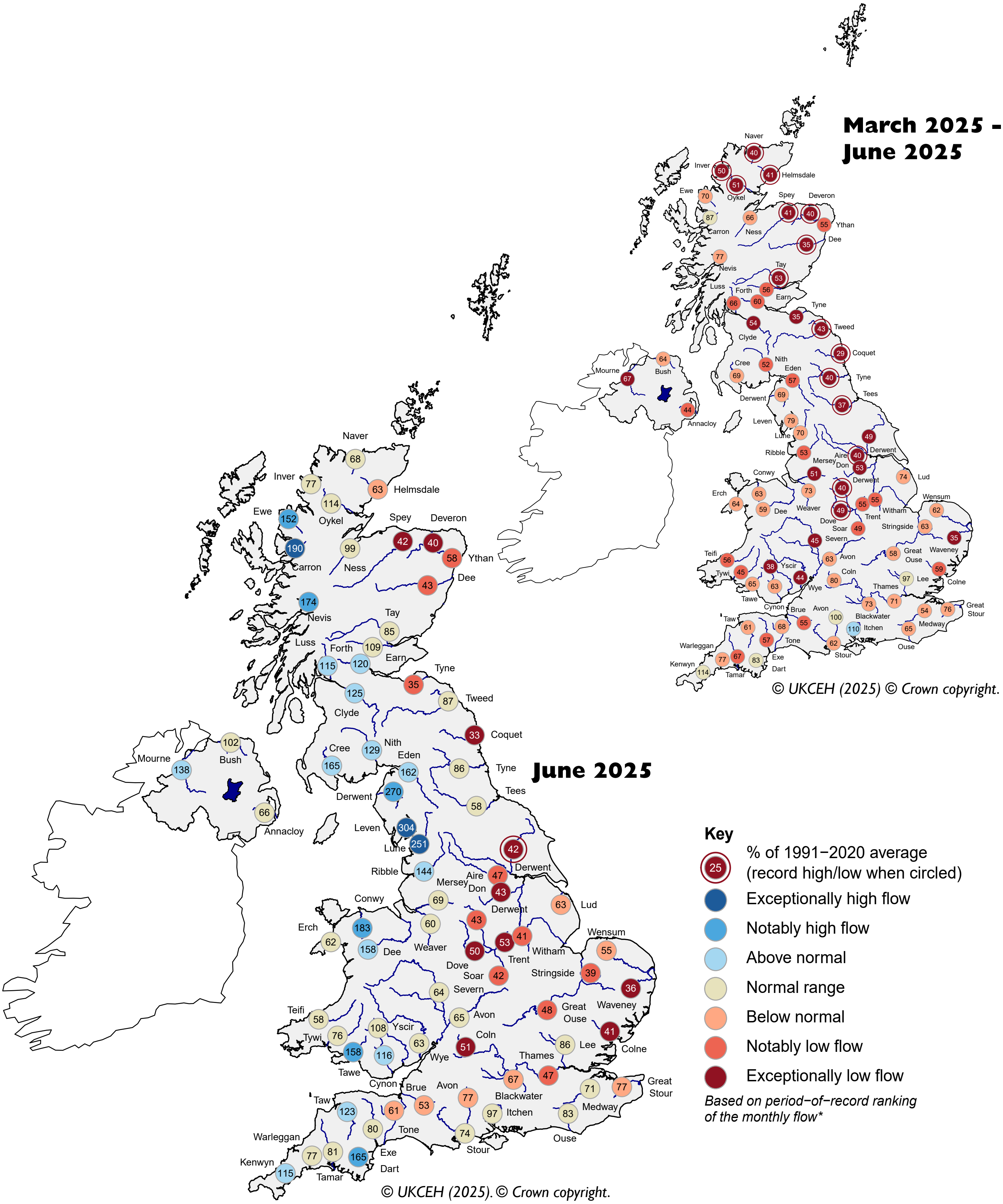
The Hydrological Outlook provides an insight into future hydrological conditions across the UK. Specifically it describes likely trajectories for river flows and groundwater levels on a monthly basis, with particular focus on the next three months.

The complete version of the Hydrological Outlook UK can be found at: www.hydoutuk.net/latest-outlook/

Period: **from July 2025**
Issued: **09.07.2025**
using data to the end of June 2025

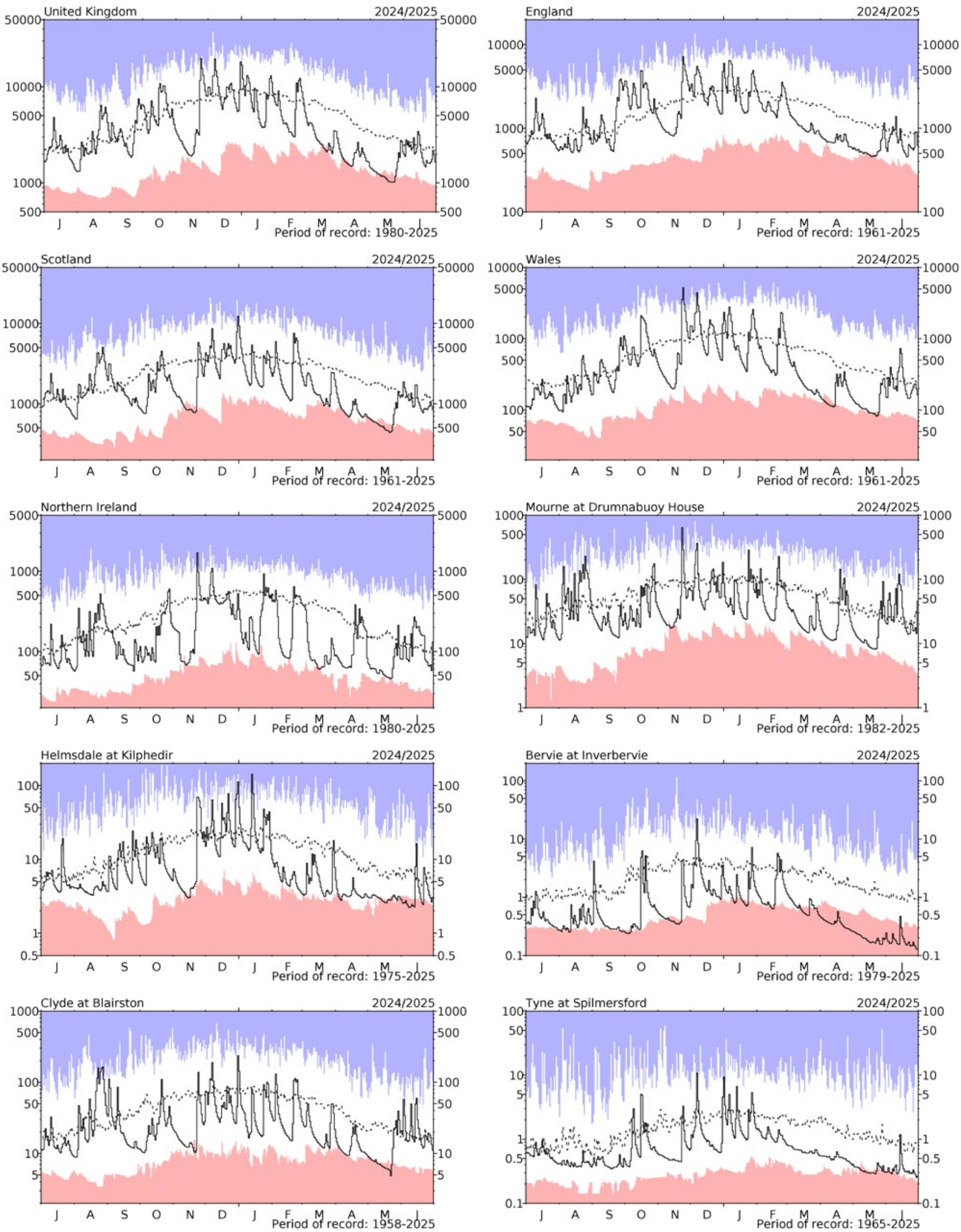
The river flow outlook for July indicates below normal to low flows across eastern Scotland and central and eastern England, with some catchments expected to experience notably or exceptionally low flows. In contrast, western areas are likely to see normal to above normal flows. The July to September outlook suggests a continuation of this east-west contrast, with flows remaining below normal to low in central and eastern areas, whilst western regions are expected to be in the normal range. Groundwater levels for both July and the July to September period are anticipated to be normal to below normal across the country.

River flow . . . River flow . . .



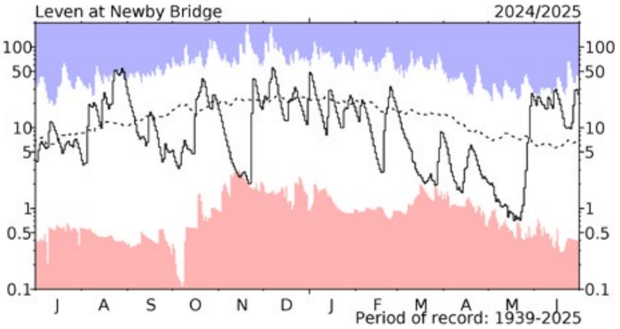
River flows

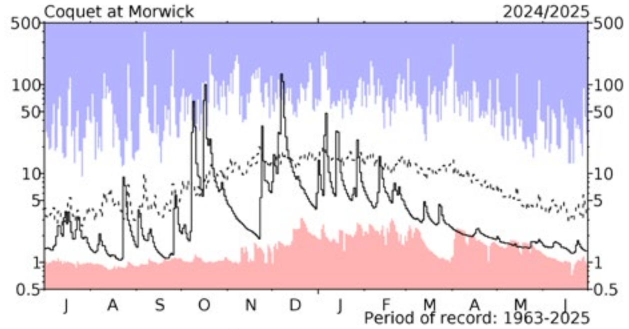
*Comparisons based on percentage flows alone can be misleading. A given percentage flow can represent extreme drought conditions in permeable catchments where flow patterns are relatively stable but be well within the normal range in impermeable catchments where the natural variation in flows is much greater. The categories of the spots are based on the full period-of-record data whereas the percentages are based on the 1991-2020 averaging period for consistency between rainfall and river flows. Percentages may be omitted where flows are under review.

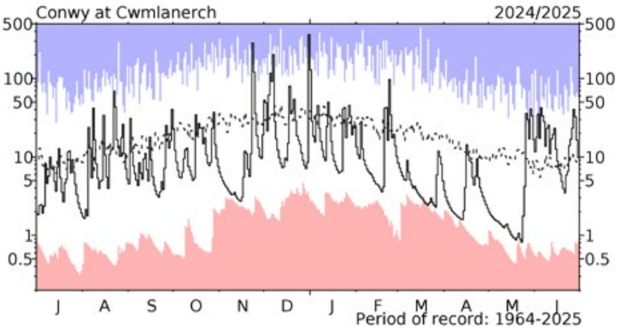


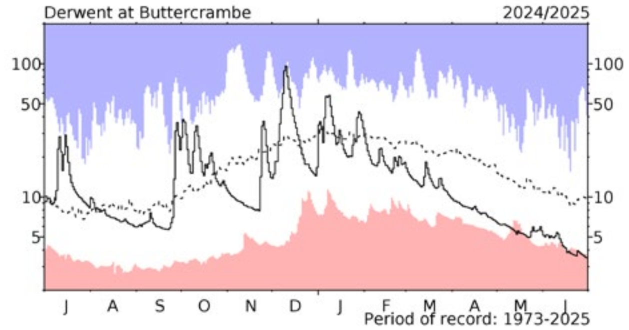
River flow hydrographs

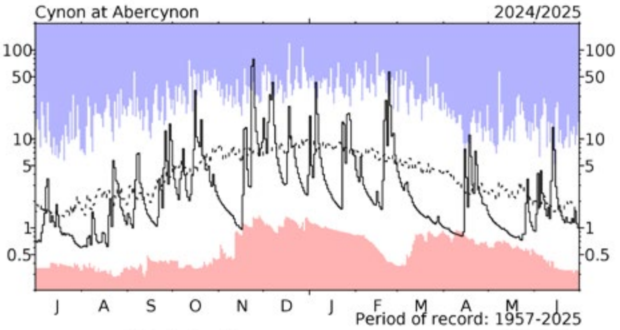
*The river flow hydrographs show the daily mean flows (measured in m^3s^{-1}) together with the maximum and minimum daily flows prior to January 2024 (shown by the shaded areas). Daily flows falling outside the maximum/minimum range are indicated where the bold trace enters the shaded areas. The dashed line represents the period-of-record average daily flow.

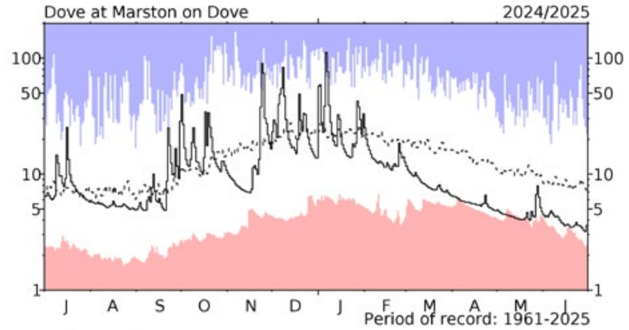

Leven at Newby Bridge
2024/2025
J A S O N D J F M A M J
Period of record: 1939-2025

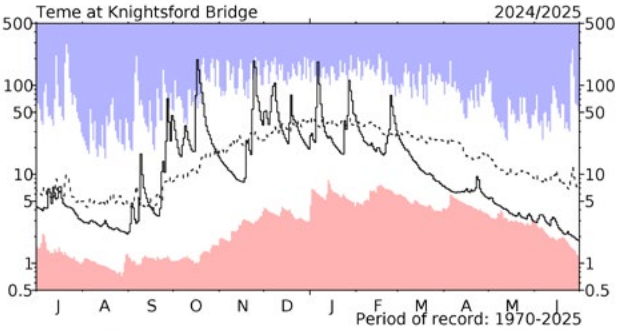

Coquet at Morwick
2024/2025
J A S O N D J F M A M J
Period of record: 1963-2025

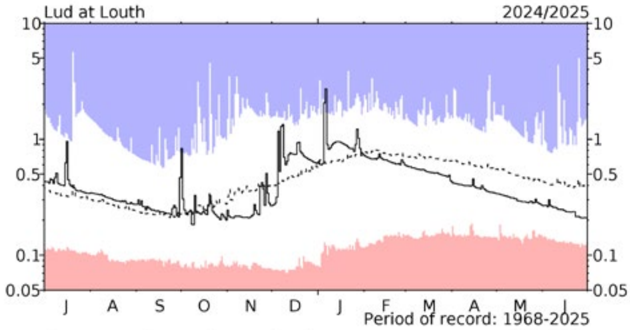

Conwy at Cwmlanerch
2024/2025
J A S O N D J F M A M J
Period of record: 1964-2025

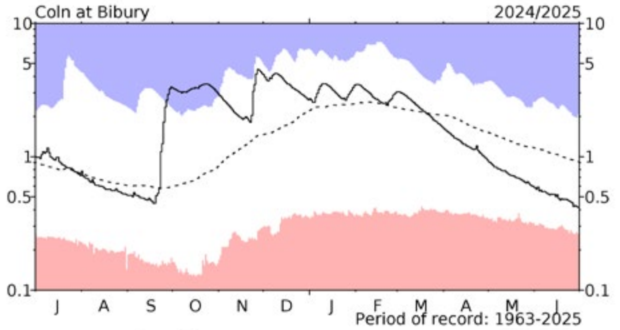

Derwent at Buttercrambe
2024/2025
J A S O N D J F M A M J
Period of record: 1973-2025

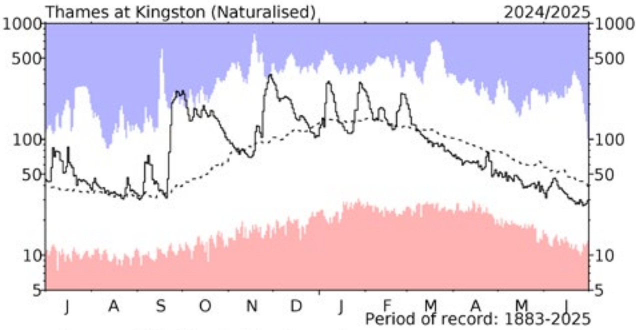

Cynon at Abercynon
2024/2025
J A S O N D J F M A M J
Period of record: 1957-2025

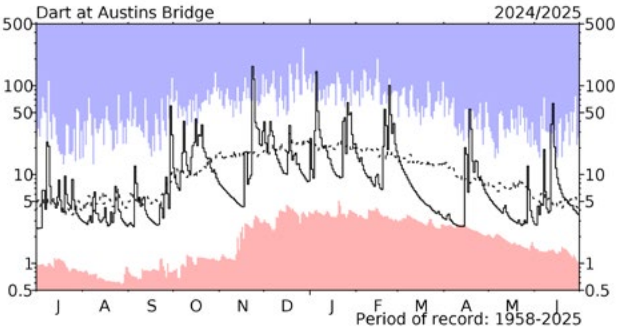

Dove at Marston on Dove
2024/2025
J A S O N D J F M A M J
Period of record: 1961-2025

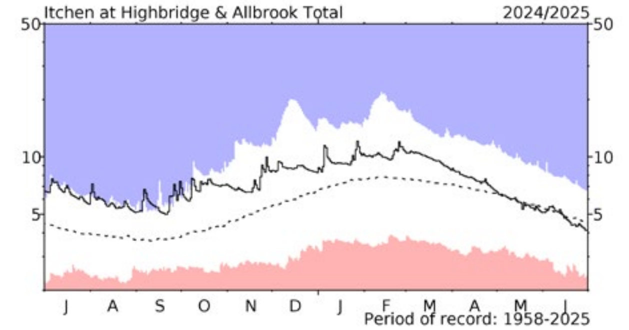

Teme at Knightsford Bridge
2024/2025
J A S O N D J F M A M J
Period of record: 1970-2025


Lud at Louth
2024/2025
J A S O N D J F M A M J
Period of record: 1968-2025

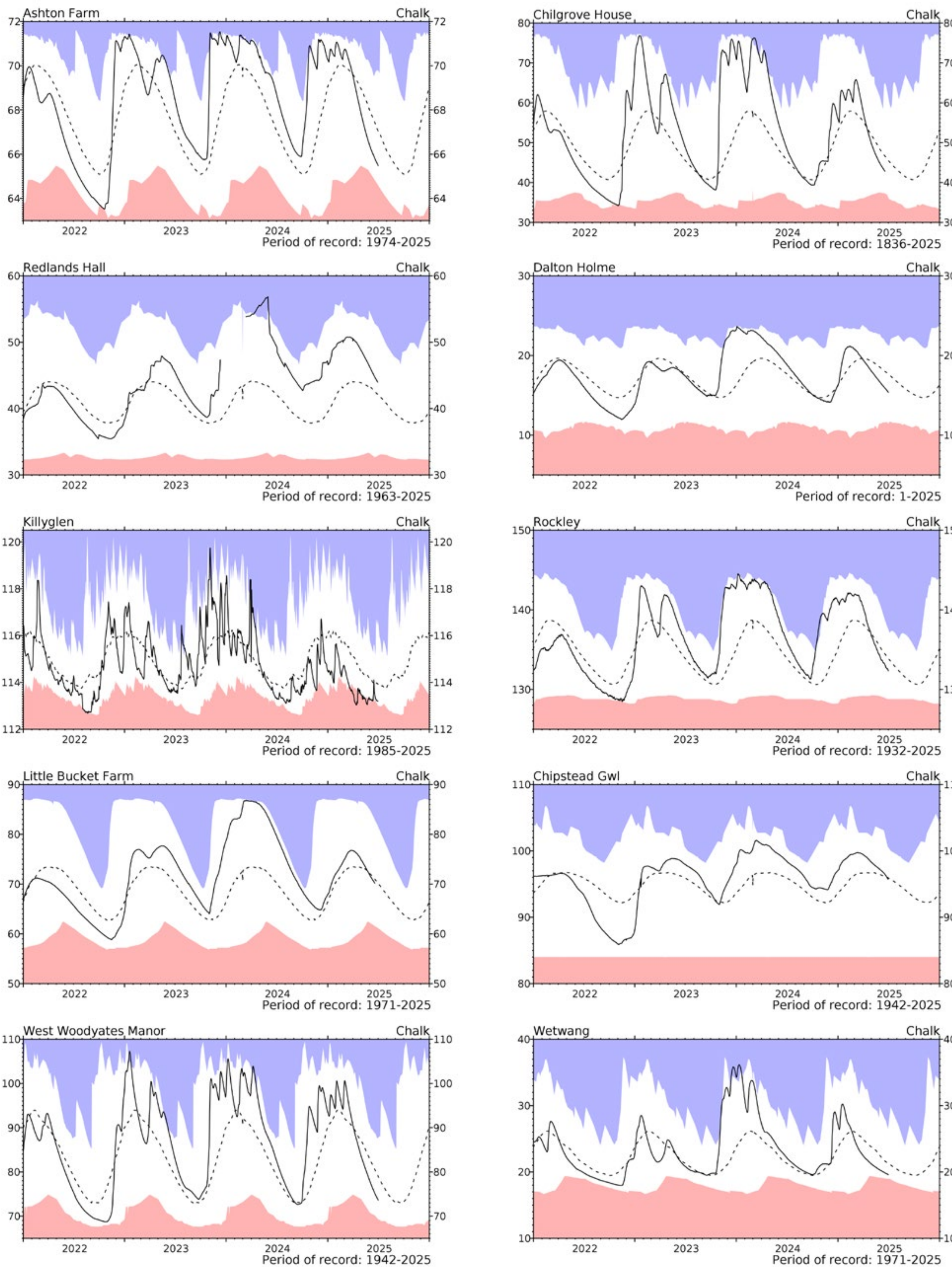

Coln at Bibury
2024/2025
J A S O N D J F M A M J
Period of record: 1963-2025


Thames at Kingston (Naturalised)
2024/2025
J A S O N D J F M A M J
Period of record: 1883-2025


Dart at Austins Bridge
2024/2025
J A S O N D J F M A M J
Period of record: 1958-2025

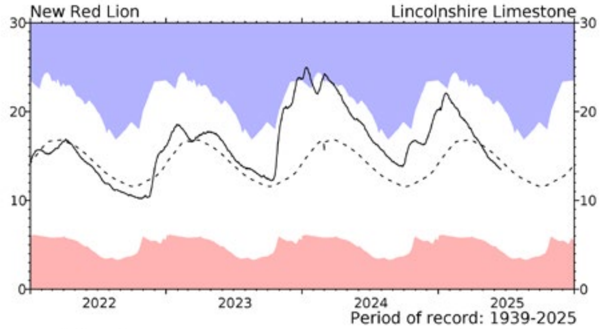

Itchen at Highbridge & Allbrook Total
2024/2025
J A S O N D J F M A M J
Period of record: 1958-2025

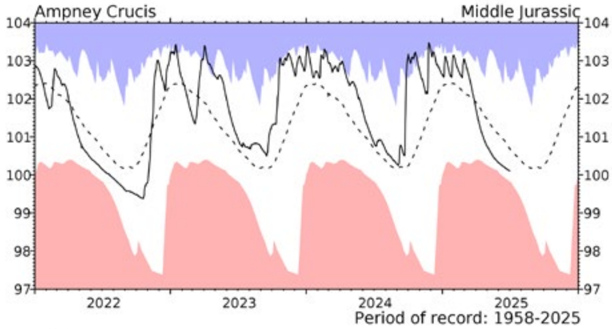
Groundwater . . . Groundwater

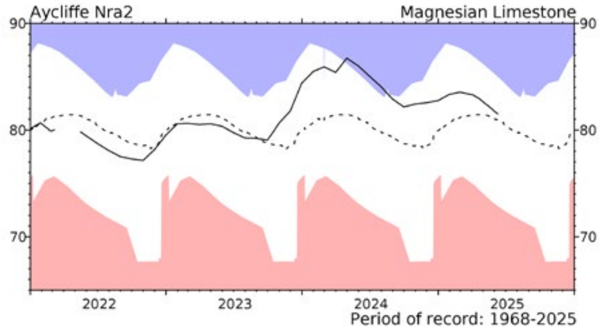


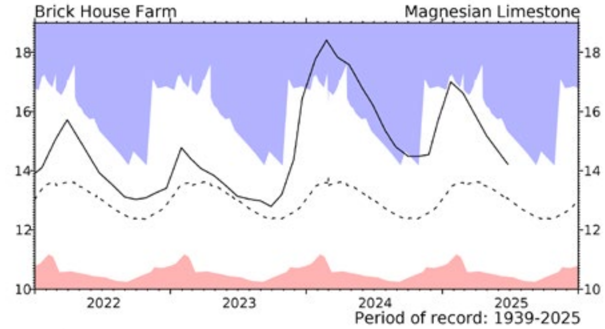
Groundwater levels (measured in metres above ordnance datum) normally rise and fall with the seasons, reaching a peak in the spring following replenishment through the winter (when evaporation losses are low and soil moist). They decline through the summer and early autumn. This seasonal variation is much reduced when the aquifer is confined below overlying impermeable strata. The monthly mean and the highest and lowest levels recorded for each month are calculated with data from the start of the record to the end of 2021. Note that most groundwater levels are not measured continuously and, for some index wells, the greater frequency of contemporary measurements may, in itself, contribute to an increased range of variation.

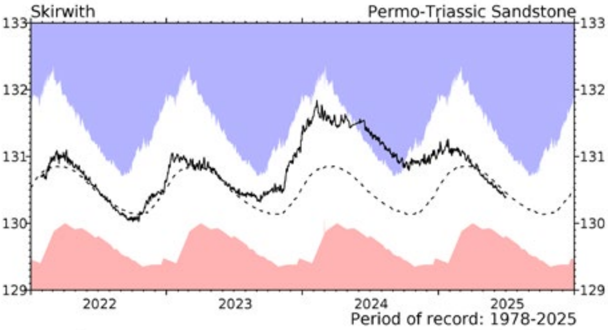
Groundwater . . . Groundwater

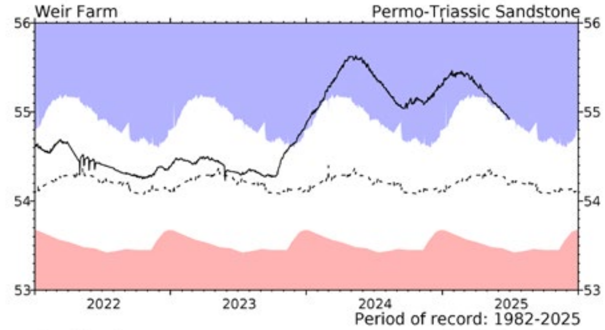


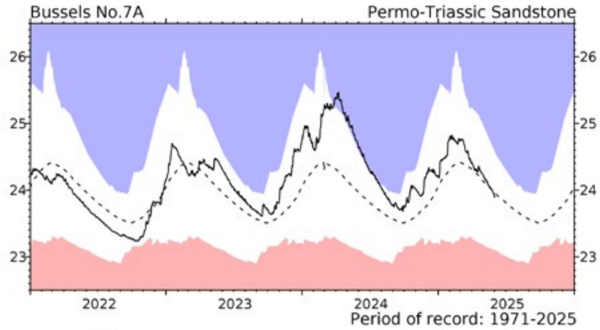


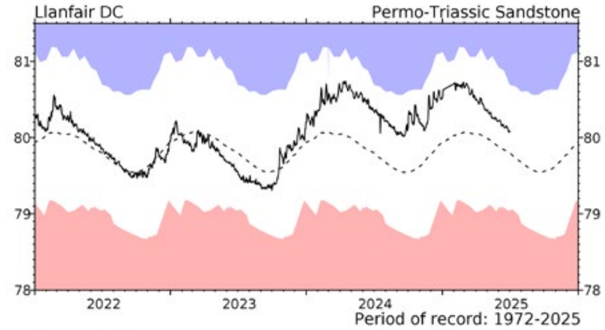


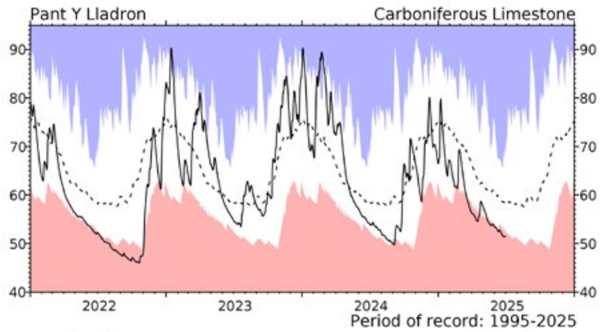


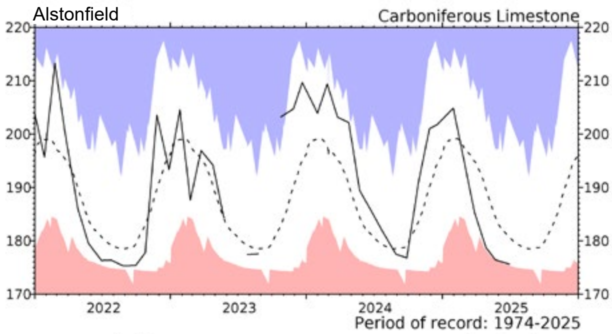


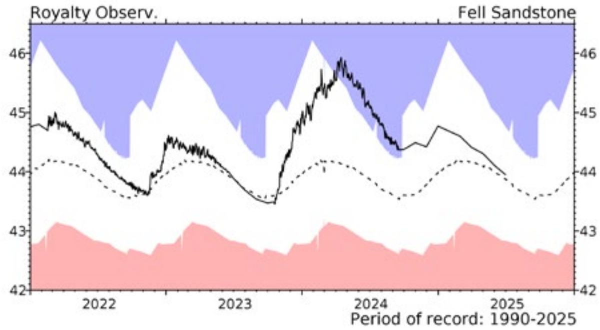


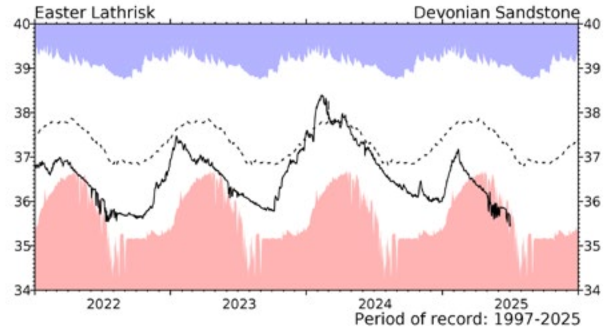




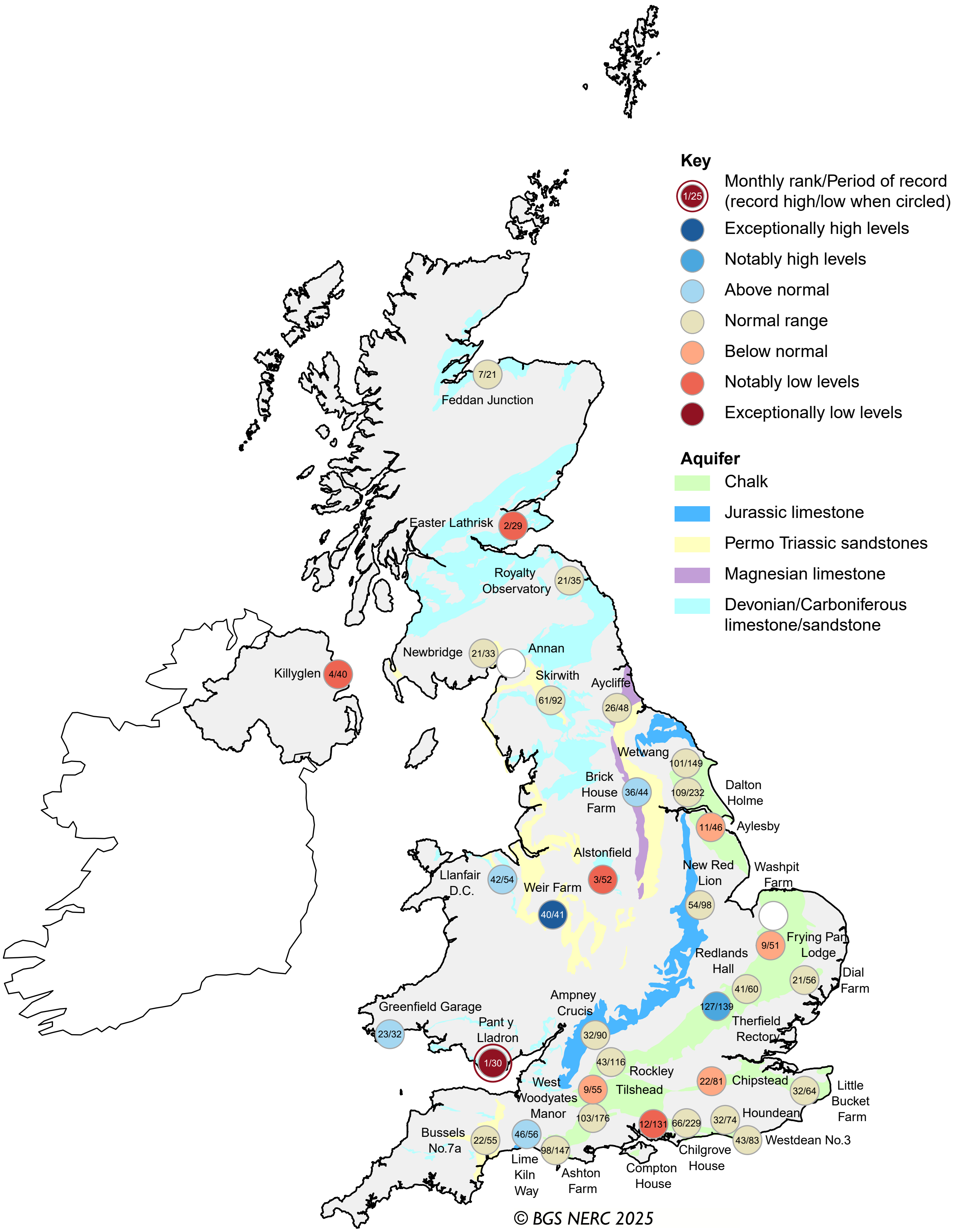








Groundwater . . . Groundwater

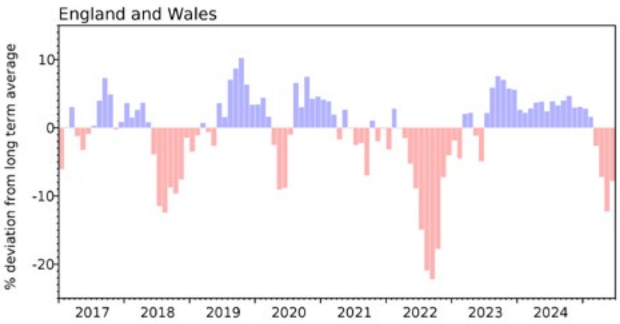


Groundwater levels - June 2025

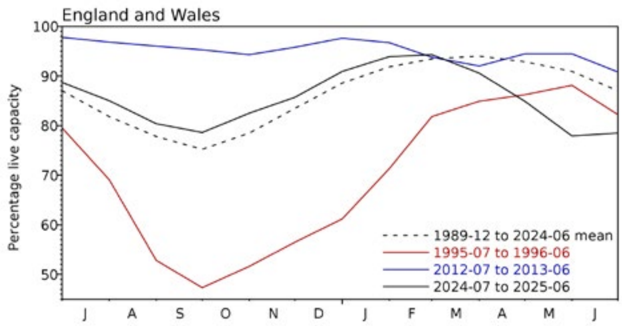
The calculation of ranking has been modified from that used in summaries published prior to October 2012. It is now based on a comparison between the most recent level and levels for the same date during previous years of record. Where appropriate, levels for earlier years may have been interpolated. The rankings are designed as a qualitative indicator, and ranks at extreme levels, and when levels are changing rapidly, need to be interpreted with caution.

Reservoirs . . . Reservoirs . . .

Guide to the variation in overall reservoir stocks for England and Wales



Comparison between overall reservoir stocks for England and Wales in recent years



Percentage live capacity of selected reservoirs at end of month

Area	Reservoir		Capacity (Ml)	2025 Apr	2025 May	2025 Jun	Jun Anom.	Min Jun	Year* of min	2024 Jun	Diff 25-24
North West	N Command Zone	•	124929	62	47	61	-9	38	1984	63	-2
	Vyrnwy		55146	91	83	94	10	58	1984	89	5
Northumbrian	Teesdale	•	87936	76	69	71	-9	58	1989	96	-25
	Kielder		(199175)	84	81	86	-4	71	1989	91	-4
Severn-Trent	Clywedog		49936	96	93	99	6	32	1976	99	0
	Derwent Valley	•	46692	76	65	57	-22	53	1996	84	-27
Yorkshire	Washburn	•	23373	80	67	58	-22	58	2025	90	-32
	Bradford Supply	•	40942	71	56	55	-23	54	1995	87	-32
Anglian	Grafham		(55490)	95	91	85	-8	70	1997	95	-11
	Rutland		(116580)	91	89	86	-4	75	1997	93	-7
Thames	London	•	202828	95	93	91	-2	85	1990	95	-5
	Farmoor	•	13822	97	99	95	-2	92	2022	98	-3
Southern	Bewl		31000	89	82	74	-10	52	1990	95	-21
	Ardingly		4685	98	89	74	-19	74	2025	93	-18
Wessex	Clatworthy		5662	86	76	65	-17	61	1995	82	-17
	Bristol	•	(38666)	89	78	66	-17	64	1990	85	-19
South West	Colliford		28540	86	79	73	-8	51	1997	92	-19
	Roadford		34500	96	90	87	6	49	1996	94	-7
	Wimbleball		21320	93	83	72	-13	63	2011	88	-16
	Stithians		4967	100	94	86	7	53	1990	80	6
Welsh	Celyn & Brenig	•	131155	80	72	75	-17	70	2020	85	-9
	Brianne		62140	90	81	83	-9	68	2022	97	-14
	Big Five	•	69762	85	75	74	-10	61	1989	85	-11
	Elan Valley	•	99106	81	70	70	-17	65	2022	87	-17
Scotland(E)	Edinburgh/Mid-Lothian	•	97223	86	80	80	-7	54	1998	94	-14
	East Lothian	•	9317	88	79	74	-21	74	2025	100	-26
Scotland(W)	Loch Katrine	•	110326	84	72	70	-10	55	2010	81	-11
	Daer		22494	79	73	80	-2	62	2023	78	2
	Loch Thom		10721	87	79	89	3	65	2021	88	1
Northern Ireland	Total+	•	56800	93	82	80	-2	61	2008	83	-3
	Silent Valley	•	20634	100	87	84	5	54	1995	85	-1

( ) figures in parentheses relate to gross storage

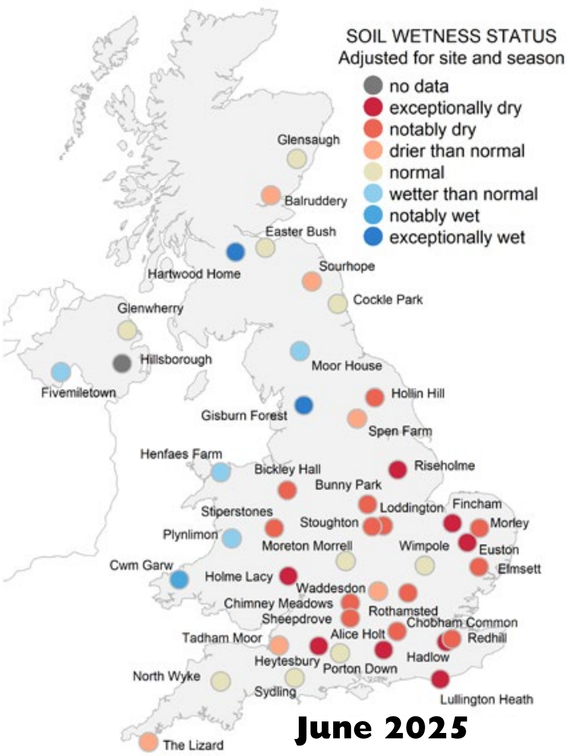
• denotes reservoir groups

*last occurrence

+ excludes Lough Neagh

Details of the individual reservoirs in each of the groupings listed above are available on request. The percentages given in the Average and Minimum storage columns relate to the 1988-2012 period except for West of Scotland and Northern Ireland where data commence in the mid-1990s. In some gravity-fed reservoirs (e.g. Clywedog) stocks are kept below capacity during the winter to provide scope for flood attenuation purposes. Monthly figures may be artificially low due to routine maintenance or turbidity effects in feeder rivers.

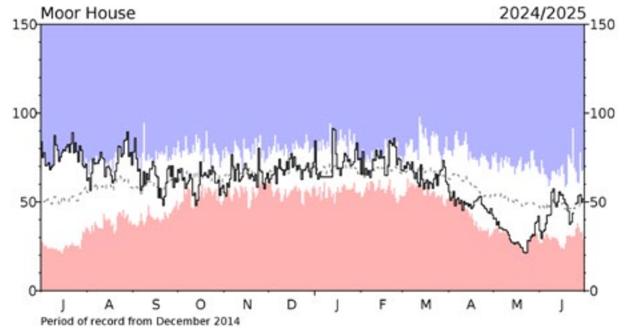
Soil Moisture . . . Soil Moisture

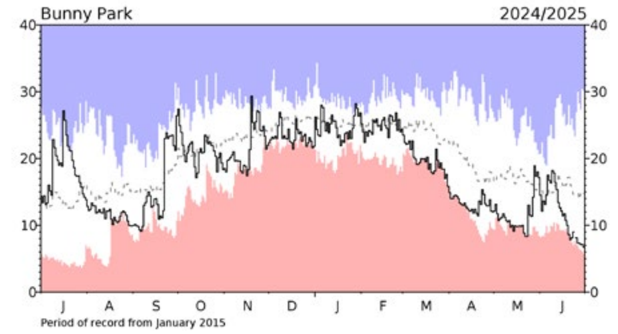


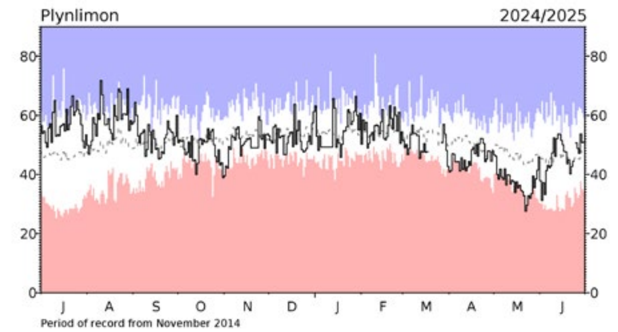
Daily mean soil moisture status at COSMOS-UK sites on the last day of the month 30 June 2025. Soil wetness categories are adjusted for site specific characteristics, i.e. taking account of the possible range of soil wetness at each site, determined through period-of-record data and hindcast modelling. Where no data are available on the last day of the month, these are shown by grey dots.

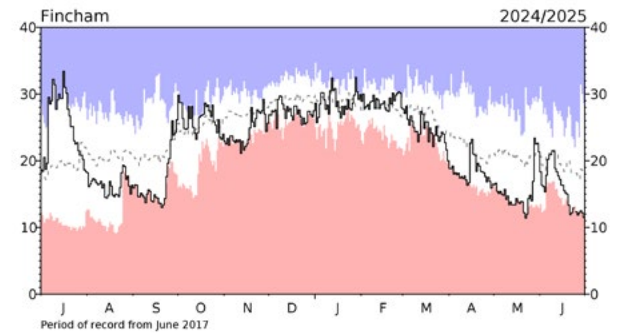
Almost a third of the COSMOS-UK sites experienced their lowest average soil moisture levels for June on record. By the end of the month, soil moisture levels remained well below field capacity for most of the UK. Much of southern England remains drier than usual (e.g., Bunny Park, Euston, Fincham, Heytesbury, Sheepdrove). However, rain at some sites (e.g. Cwm Garw, Fivemiletown, Hartwood, Moor House, Plynlimon) resulted in conditions being wetter than normal for the time of year.

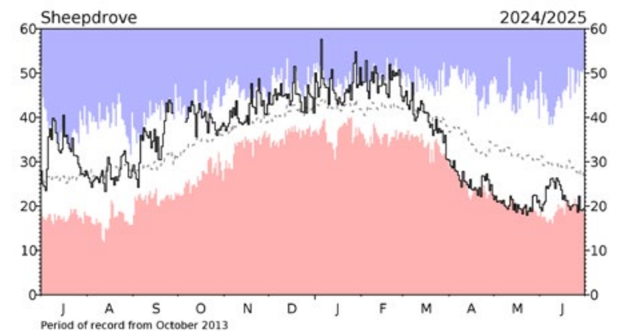
Despite receiving more rain than the previous month, warm and sunny conditions mean that most COSMOS-UK sites remain drier than usual. However, rain at some northerly and westerly sites helped recover soil moisture levels to within and above their normal range for the time of year.











Soil moisture data

These data are from UKCEH's COSMOS-UK network. The time series graphs show volumetric water content as a percentage in black together with the maximum and minimum daily values for the period-of-record of the sites. The dashed line represents the period-of-record mean VWC. For more information visit cosmos.ceh.ac.uk.

NHMP

The National Hydrological Monitoring Programme (NHMP) was started in 1988 and is undertaken jointly by the UK Centre for Ecology & Hydrology (UKCEH) and the British Geological Survey (BGS). The NHMP aims to provide an authoritative voice on hydrological conditions throughout the UK, to place them in a historical context and, over time, identify and interpret any emerging hydrological trends. Hydrological analysis and interpretation within the Programme is based on the data holdings of the National River Flow Archive (NRFA; maintained by UKCEH) and National Groundwater Level Archive (NGLA; maintained by BGS), including rainfall, river flows, borehole levels, and reservoir stocks.

The Hydrological Summary is supported by the Natural Environment Research Council award number NE/Y006208/1 as part of the NC-UK programme delivering National Capability.

Data Sources

The NHMP depends on the active cooperation of many data suppliers. This cooperation is gratefully acknowledged. A location map of all sites used in the Hydrological Summary can be found on the NHMP website. River flow and groundwater level data are provided by the Environment Agency (EA), Natural Resources Wales - Cyfoeth Naturiol Cymru (NRW), the Scottish Environment Protection Agency (SEPA) and, for Northern Ireland, the Department for Infrastructure - Rivers and the Northern Ireland Environment Agency. In all cases the data are subject to revision following validation (high flow and low flow data in particular may be subject to significant revision).

Details of reservoir stocks are provided by the Water Service Companies, the EA, Scottish Water and Northern Ireland Water.

The Hydrological Summary and other NHMP outputs may also refer to and/or map soil moisture data for the UK. These data are provided by the Meteorological Office Rainfall and Evaporation Calculation System (MORECS). MORECS provides estimates of monthly soil moisture deficit in the form of averages over 40 x 40 km grid squares over Great Britain and Northern Ireland. The monthly time series of data extends back to 1961.

Rainfall data are provided by the Met Office. To allow better spatial differentiation the rainfall data for Britain are presented for the regional divisions of the precursor organisations of the EA, NRW and SEPA. The areal rainfall figures have been produced by the Met Office National Climate Information Centre (NCIC), and are based on the HadUK-Grid 1km resolution gridded data from rain gauges. The majority of the full rain gauge network across the UK is operated by the EA, NRW, SEPA and Northern Ireland Water; supplementary rain gauges are operated by the Met Office. The Met Office NCIC monthly rainfall series extend back to 1836 and form the official source of UK areal rainfall statistics which have been adopted by the NHMP. The gridding technique used is described in Hollis, 2019 available at https://doi.org/10.1002/gdj3.78

Long-term averages are based on the period 1991-2020 and are derived from the monthly areal series.

The regional figures for the current month in the hydrological summaries are based on a limited rain gauge network so these (and the associated return periods) should be regarded as a guide only.

The monthly rainfall figures are provided by the Met Office NCIC and are Crown Copyright and may not be passed on to, or published by, any unauthorised person or organisation. These are provisional totals calculated from a sub set of Met Office registered gauges and will be subject to change once data from the complete network of Met Office registered gauges has been quality assured and gridded within the annual process of updating the HadUK-Grid dataset.

For further details on rainfall or MORECS data, please contact the Met Office:

Tel: 0370 900 0100
Email: enquiries@metoffice.gov.uk

Enquiries

Enquiries should be directed to the NHMP:

Tel: 01491 692599
Email: nhmp@ceh.ac.uk

A full catalogue of past Hydrological Summaries can be accessed and downloaded at:

http://nrfa.ceh.ac.uk/monthly-hydrological-summary-uk

Some of the features displayed on the maps contained in this report are based on the following data with permission of the controller of HMSO.