Hydrological Summary *for the United Kingdom*

August 2025

General

Although bookended by unsettled conditions, August rainfall was below average for the UK and high temperatures mid-month (11th-15th) contributed to warmer than average conditions overall. August caps a hot, dry summer; the warmest June-August on record for the UK since 1884. River flows were in the normal range in western Scotland and the far southeast of England but widely below normal and notably low elsewhere. Drought impacts were extensive – low flows caused ecological stress (fish mortalities), and dry soils reduced crop yields and exacerbated wildfires (e.g. North Yorkshire Moors). Widespread hands-off flow restrictions affected agriculture whilst navigation was heavily impacted by canal closures and restrictions. Reservoir stocks declined nationally and were >30% below average at Derwent Valley (Severn Trent), Washburn (Yorkshire), Elan Valley (Wales) and Ardingly (West Sussex); some (e.g. East Lothian, Washburn and Bristol) registered new August minima. Groundwater levels fell across the UK with exceptionally low levels in some southern and eastern boreholes but remained above normal in north Wales and central England. Drought status was declared for south-east Wales on the 14th, north Wales on the 29th and remained in place for north-west England, the Midlands and Yorkshire (where drought permit applications have been made). "Significant water scarcity" was issued for parts of eastern Scotland on the 28th. The latest Hydrological Outlook suggests normal to above normal autumn flows in the north-west but continued below normal flows across southern and eastern areas. September started with welcome rainfall that eased some pressures on agriculture but sustained wet weather over autumn and winter, a crucial period for replenishing water resources, will be necessary to reverse deficits established through 2025.

Rainfall

The first week of August was unsettled, with storm 'Floris' bringing strong winds and heavy rain for northern England and Scotland from 4th-5th, causing transport disruption and power cuts to more than 65,000 homes in Scotland. Elsewhere, conditions were mostly dry until the last week of August when low pressure took over and the remnants of Hurricane 'Erin' brought heavy rain to western Scotland, southeast England and south Wales (e.g. 82mm at Resolvan Sewage Works, south Wales on the 28th). The week from the 27th was the wettest for England in seven months and caused flooding of roads and properties in Devon and Cornwall. This late rainfall pushed August totals closer to average in Scotland (83%) but the UK as a whole saw lower totals (62%) and England received less than half the average (42%). The Yorkshire, Northumbria, Severn-Trent and Anglian regions all received less than a third of their respective averages. Summer (June-August) rainfall was below average for the UK (84%) with parts of central and eastern Britain receiving less than a third of average, ranking amongst the driest ten for Severn Trent and Anglian regions (in series from 1890). Deficits since the spring were exceptional; it was the driest March-August period for Severn Trent, the second driest for Northumbria, Yorkshire, Anglian and Wessex regions and the third driest for England as a whole (behind notable drought years 1976 and 1995; all in series from 1890). 2025 so far (January-August) was the driest for Yorkshire and the second driest for North East Scotland and Northumbria.

River Flows

River flows started August below average, except for above normal flows in the far south-east of England. Flows across the north-west increased in response to heavy rainfall from storm 'Floris' in the first week (4th-5th). Thereafter, flows across the UK continued to recede until the last week of August. Some catchments in Wales and eastern Britain were tracking the lowest August flows by the last week, rivalling drought years like 2022 and 1976 (e.g. Deveron, Yorkshire Derwent, Wye). Unsettled conditions from 27th-31st interrupted recessions in western Scotland, north-west England and the far south-east of England, pushing August mean river flows in these areas closer to average. Elsewhere, August mean flows ranged from below normal to exceptionally low. Many rivers in south Wales and north-east England registered a third or less of their monthly averages, including record August minima for the Wye and Yorkshire Derwent (in series from 1937 and 1974, respectively). For the summer (June-August), flows were normal to above normal in the north-west (e.g. Carron and Cumbrian Derwent recording >140% of average) but notably to exceptionally low in central and eastern areas (e.g. the Yorkshire Derwent recording the lowest mean summer flows in a series from 1974). River flow deficits were even more pronounced over longer periods: record low flow accumulations since spring (March-August) were registered in many rivers across central and eastern areas and flows were widely notably to exceptionally low apart from some groundwater-dominated catchments in south east England. Accordingly, outflows for the UK over March-August were the lowest on record (in a series from 1980) and the second lowest for England & Wales (behind 1976, in a series from 1961).

Soil Moisture and Groundwater

Although soil moisture deficits (SMDs) reduced in areas with higher rainfall totals, month-end deficits remained exceptionally high across central and eastern areas. Groundwater levels in the Chalk were in the normal range to notably low, with many sites moving into drier categories, particularly around Wiltshire and neighbouring counties. Exceptionally low levels were recorded at Compton House, Chilgrove House, Tilshead and Dalton Holme Levels at Killyglen in Northern Ireland remained notably low, while declines at sites such as West Woodyates Manor and Tilshead showed signs of plateauing, hinting at the potential onset of recharge. In the Jurassic Limestone, levels decreased, remaining notably low at Ampney Crucis. In the Magnesian Limestone, levels also fell, although Aycliffe and Brick House Farm remained in the normal and above normal range, respectively. In the Carboniferous Limestone, levels continued to recede across England and Wales, with Pant y Lladron registering a record low for the third consecutive month (in a 30-year series). At Alstonfield, levels plateaued, shifting from exceptionally to notably low. In the Permo-Triassic Sandstones, levels continued to fall at all index boreholes. Weir Farm moved from notably high to above normal, while Llanfair remained above normal. At Bussels No. 7a and Skirwith, levels decreased but remained within the normal range. In the Upper Greensand, levels at Lime Kiln Way declined but stayed above normal. In the Fell Sandstone at Royal Observatory, groundwater levels dipped but remained within the normal range.

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

Rainfall . . . Rainfall . . .

Met Office

Rainfall accumulations and return period estimates

Percentages are from the 1991-2020 average.

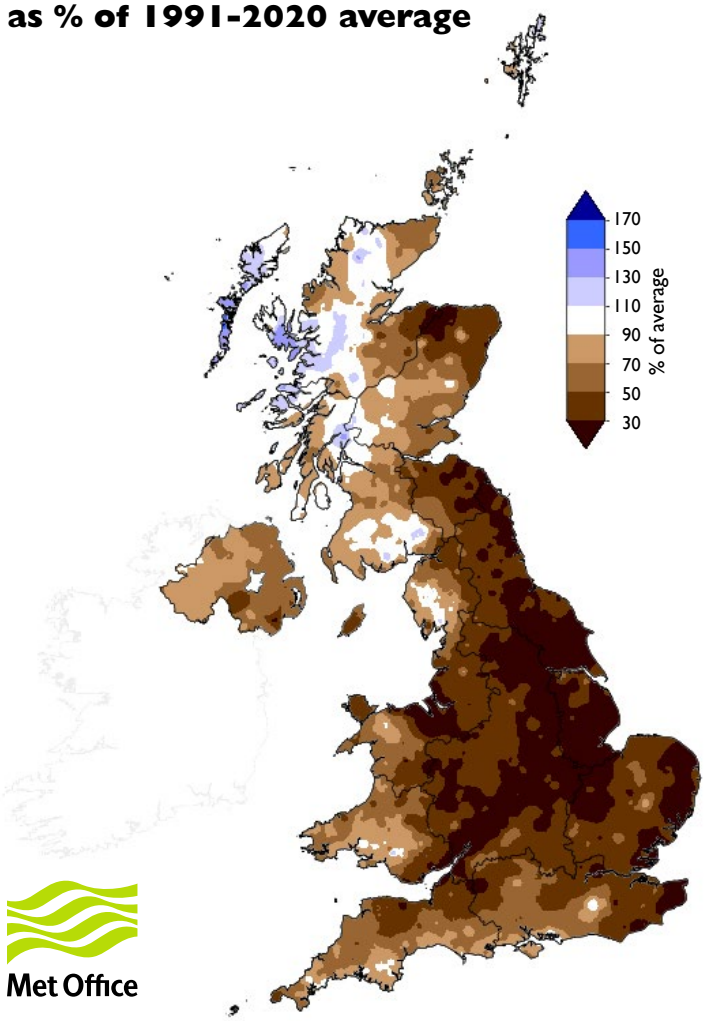
Region	Rainfall	Aug 2025	Jun25 – Aug25	RP	Mar25 – Aug25	RP	Jan25 – Aug25	RP	Sep24 – Aug25	RP
United Kingdom	mm	**58**	212		340		509		970	
	%	**62**	84	2-5	71	30-50	73	25-40	84	5-10
England	mm	**31**	142		218		363		753	
	%	**42**	69	5-10	58	70-100	69	25-40	87	2-5
Scotland	mm	**100**	315		519		712		1272	
	%	**83**	99	2-5	83	5-10	76	8-12	81	5-10
Wales	mm	**67**	240		385		622		1254	
	%	**60**	79	2-5	66	25-40	73	15-25	86	2-5
Northern Ireland	mm	**67**	251		419		566		888	
	%	**67**	93	2-5	83	5-10	80	10-15	77	30-50
England & Wales	mm	**36**	155		241		398		821	
	%	**45**	71	5-10	59	70-100	70	25-40	87	2-5
North West	mm	**61**	299		424		585		1103	
	%	**55**	101	2-5	80	5-10	77	10-15	86	2-5
Northumbria	mm	**27**	159		231		331		662	
	%	**33**	69	5-10	57	80-120	59	80-120	73	20-30
Severn-Trent	mm	**21**	108		177		299		699	
	%	**31**	54	15-25	48	>100	60	80-120	87	2-5
Yorkshire	mm	**22**	132		204		322		671	
	%	**28**	60	8-12	52	>100	60	>100	77	10-15
Anglian	mm	**18**	99		150		242		516	
	%	**30**	58	10-15	50	80-120	61	70-100	82	5-10
Thames	mm	**28**	107		156		304		680	
	%	**45**	64	5-10	49	60-90	69	15-25	94	2-5
Southern	mm	**32**	138		193		374		767	
	%	**51**	82	2-5	59	20-30	79	5-10	94	2-5
Wessex	mm	**36**	111		178		382		858	
	%	**50**	57	10-15	47	>100	71	10-15	95	2-5
South West	mm	**61**	198		364		652		1182	
	%	**65**	78	2-5	74	5-10	88	2-5	94	2-5
Welsh	mm	**65**	228		368		601		1219	
	%	**59**	78	2-5	66	30-50	73	10-20	87	2-5
Highland	mm	**124**	374		624		852		1609	
	%	**95**	111	2-5	88	2-5	77	5-10	87	2-5
North East	mm	**44**	179		294		415		835	
	%	**48**	71	5-10	63	50-80	64	>100	79	15-25
Tay	mm	**83**	264		430		608		1037	
	%	**77**	91	2-5	76	5-10	72	8-12	75	15-25
Forth	mm	**67**	235		392		535		886	
	%	**67**	84	2-5	75	5-10	70	10-15	71	20-30
Tweed	mm	**39**	229		333		458		777	
	%	**41**	89	2-5	71	10-20	69	15-25	72	15-25
Solway	mm	**108**	346		529		733		1202	
	%	**84**	103	2-5	83	2-5	78	5-10	76	8-12
Clyde	mm	**129**	390		654		876		1448	
	%	**88**	103	2-5	88	2-5	78	2-5	77	5-10

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

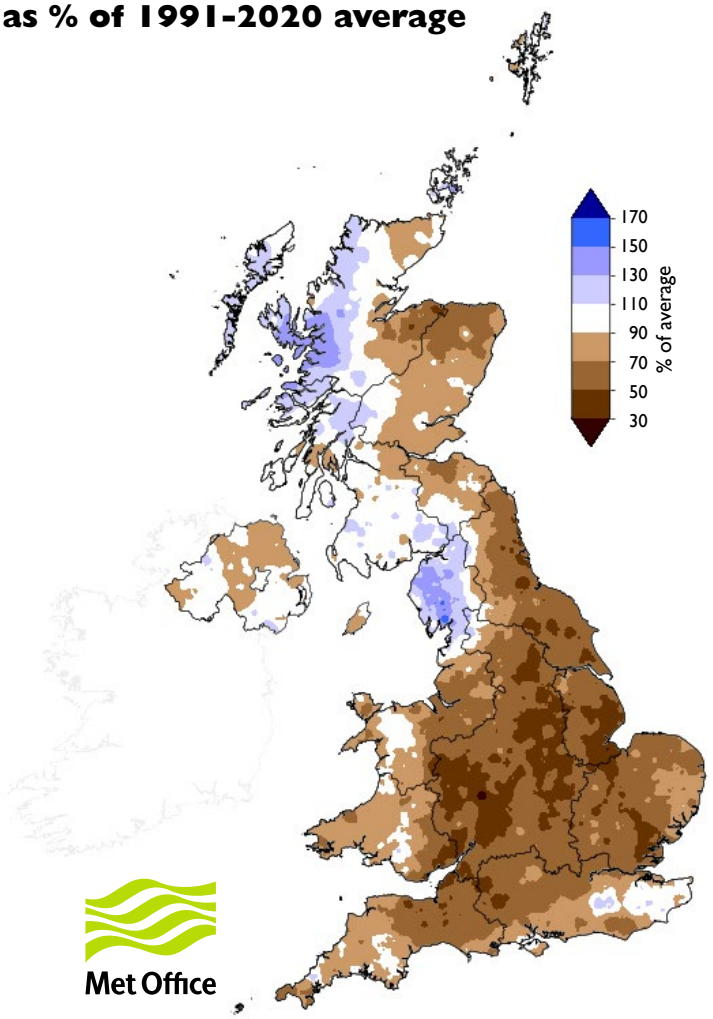
Important note: Figures in the above table may be quoted provided their source is acknowledged. Where appropriate, specific mention must be made of the uncertainties associated with the return period estimates. The RP estimates are based on data provided by the Met Office and reflect climatic variability 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 2025 are provisional. Source: Data from HadUK-Grid dataset at 1km resolution v1.3.1.0.

Rainfall . . . Rainfall . . .

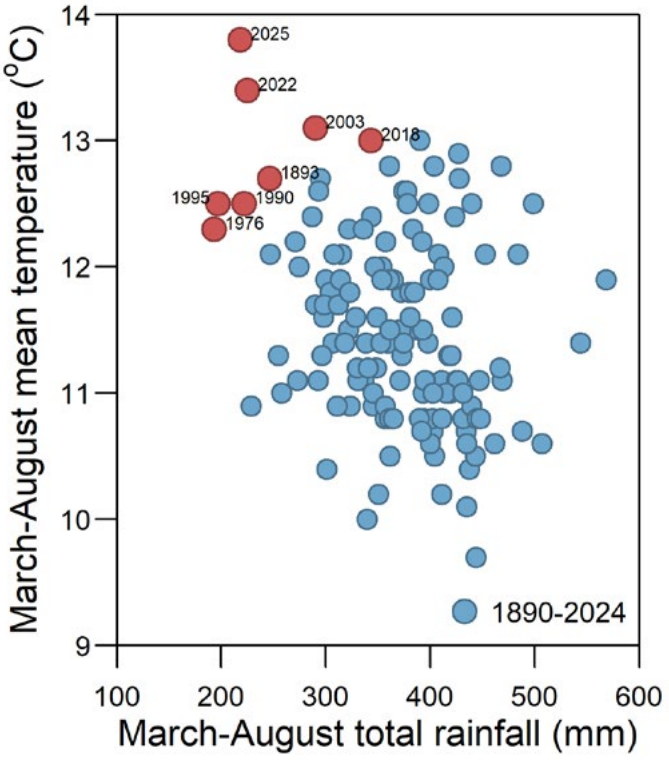
August 2025 rainfall
as % of 1991-2020 average



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



March-August rainfall and mean temperature for England 1890-2025



UK Hydrological Outlook

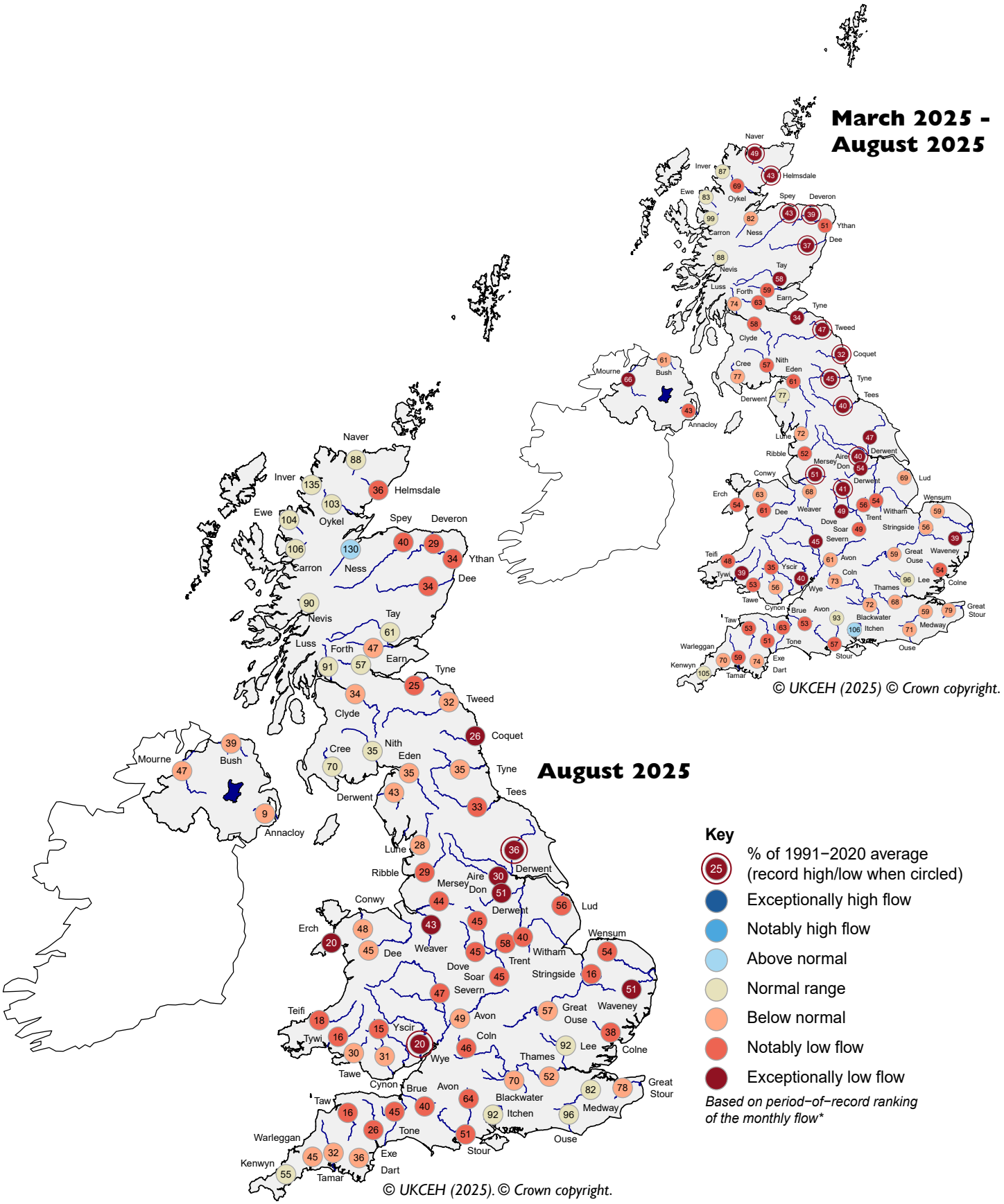
The Hydrological Outlook provides an insight into future hydrological conditions across the UK. Specifically it describes likely trajectories for river flows and groundwater levels on a monthly basis, with particular focus on the next three months.

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

Period: **from September 2025**
Issued: **09.09.2025**
using data to the end of August 2025

The outlook for September indicates normal to below normal flows across southern and eastern areas of the UK. Northwestern parts are likely to see normal to above normal flows. The September-November outlook for river flows indicates a continuation of normal to below normal flows across southern and eastern areas, and above normal flows in northwestern areas of the UK. Groundwater levels across the UK are likely to be normal to below normal for September, with some boreholes likely to see notably low levels. For September-November, groundwater levels are expected to trend closer to normal.

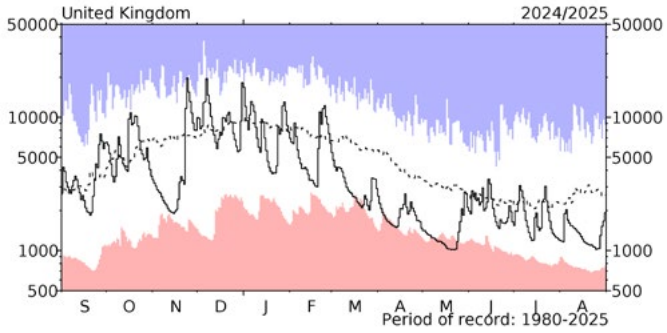
River flow . . . River flow . . .

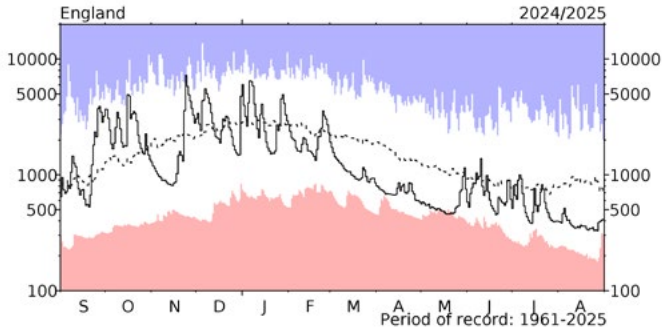


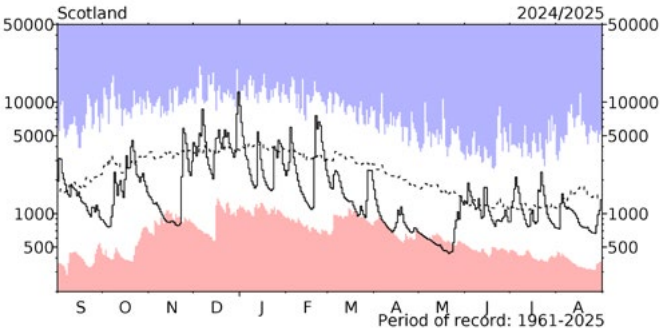
River flows

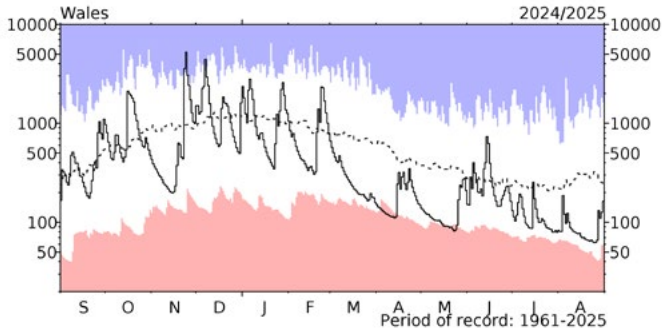
*Comparisons based on percentage flows alone can be misleading. A given percentage flow can represent extreme drought conditions in permeable catchments where flow patterns are relatively stable but be well within the normal range in impermeable catchments where the natural variation in flows is much 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.

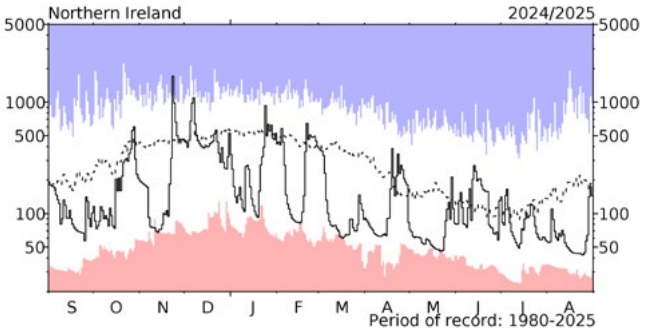
River flow . . . River flow . . .

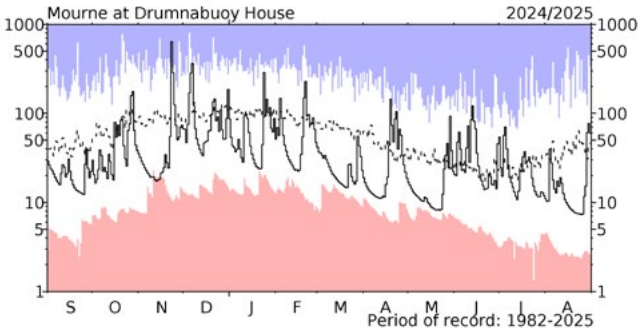


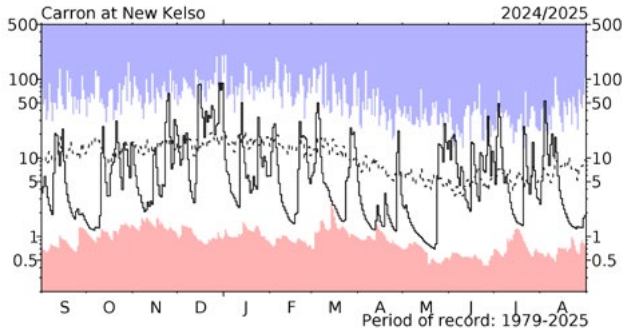


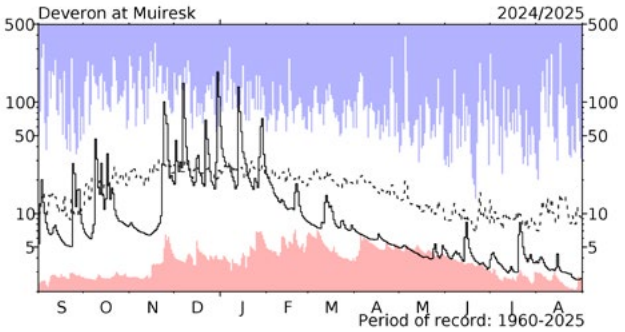


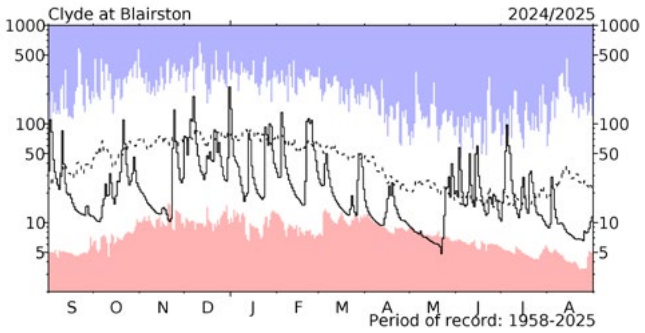


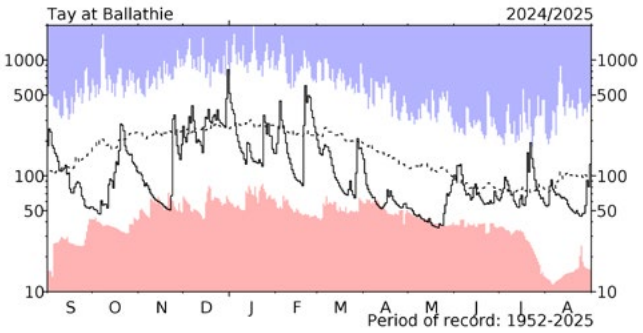








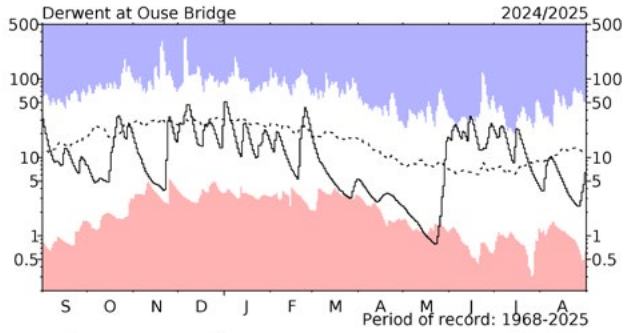


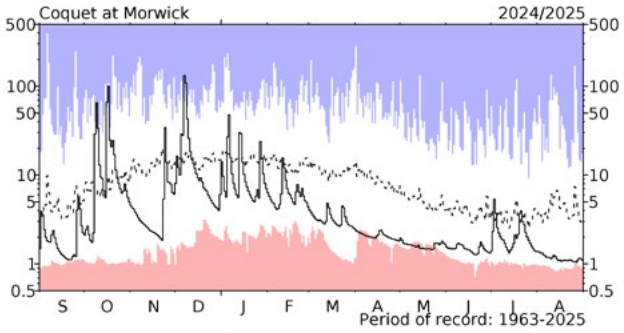


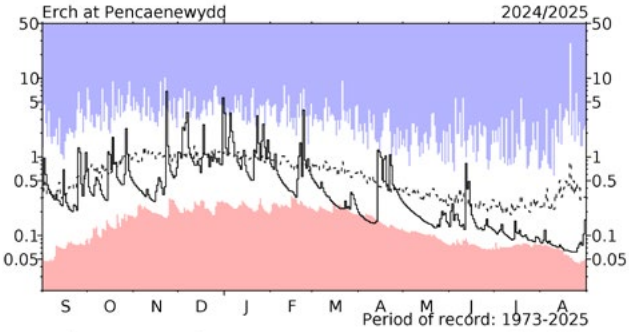
River flow hydrographs

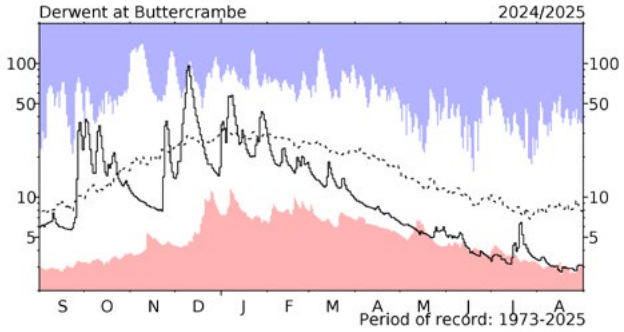
*The river flow hydrographs show the daily mean flows (measured in m^3s^{-1}) together with the maximum and minimum daily flows prior to January 2024 (shown by the shaded areas). Daily flows falling outside the maximum/minimum range are indicated where the bold trace enters the shaded areas. The dashed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

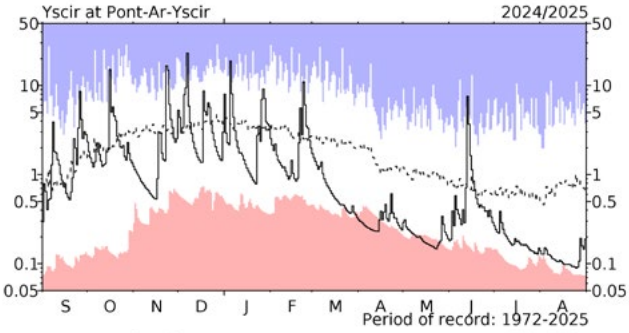
River flow . . . River flow . . .

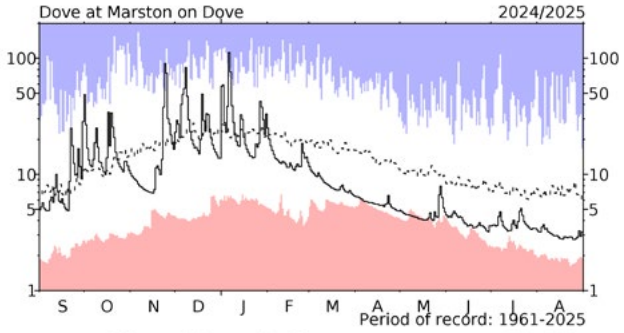


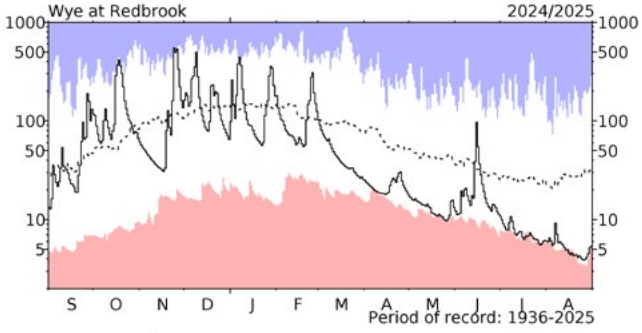


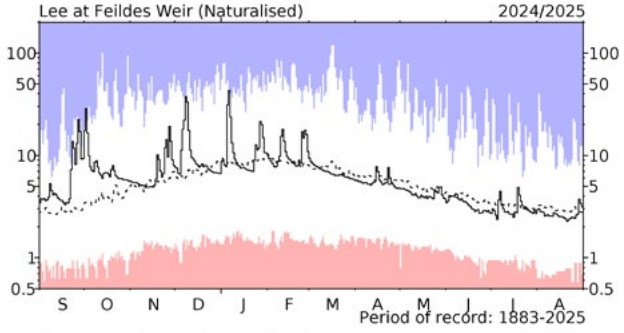


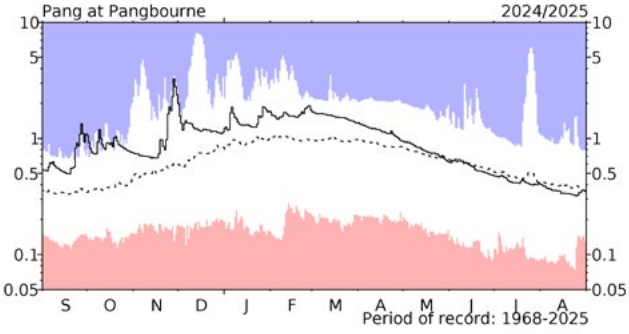


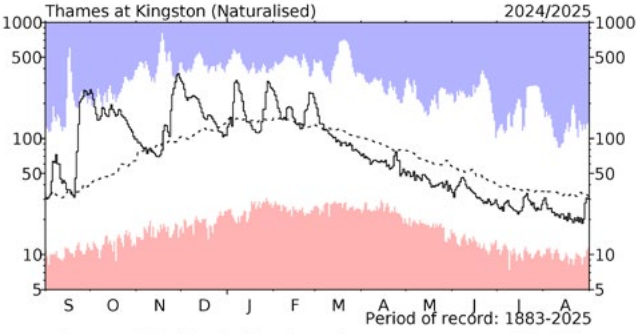


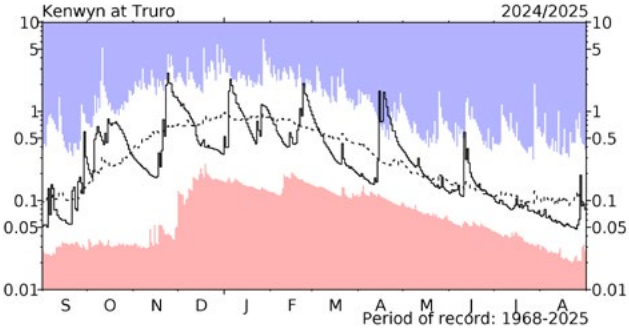


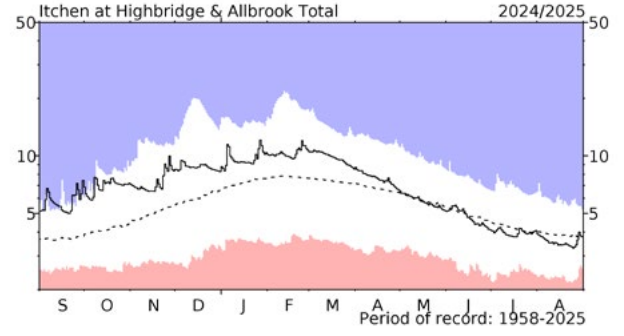




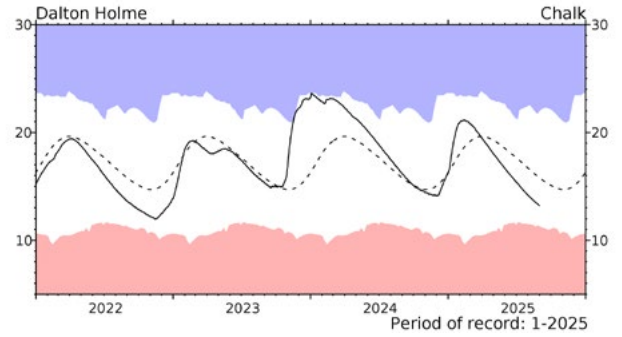


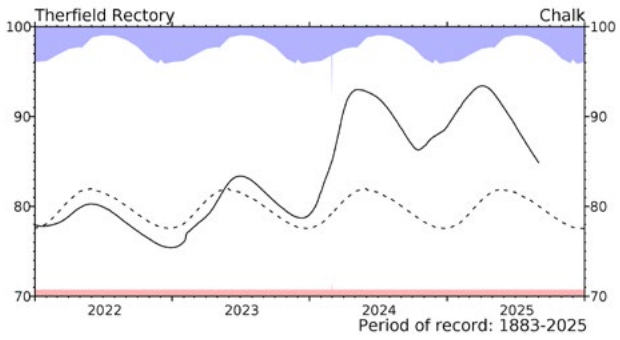


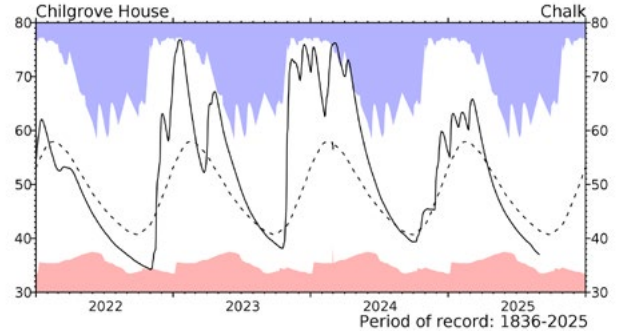


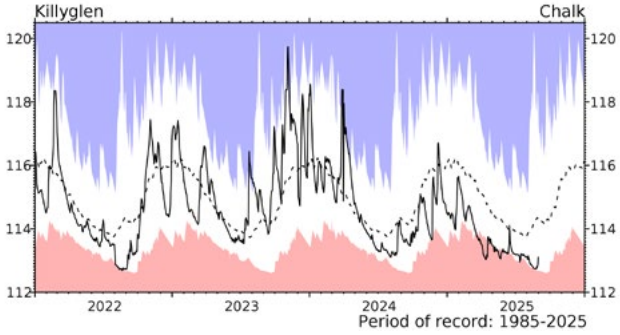


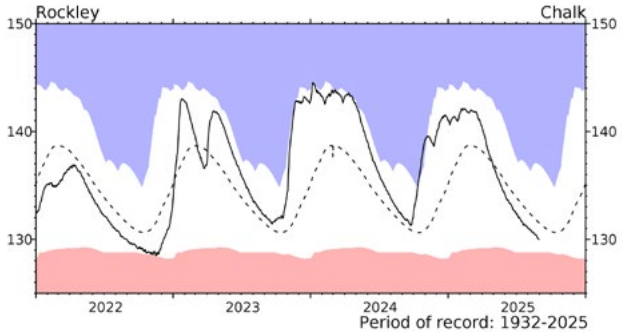
Groundwater…Groundwater

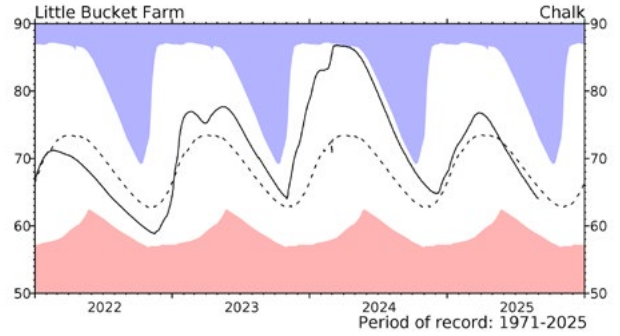


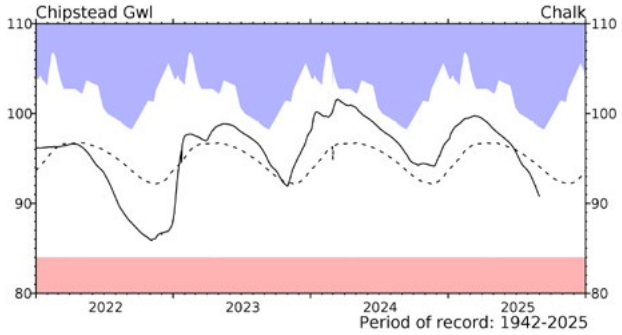


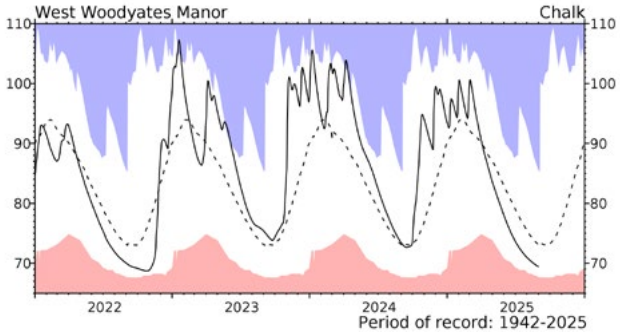


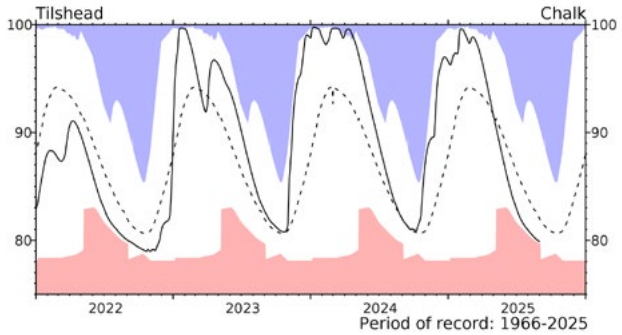


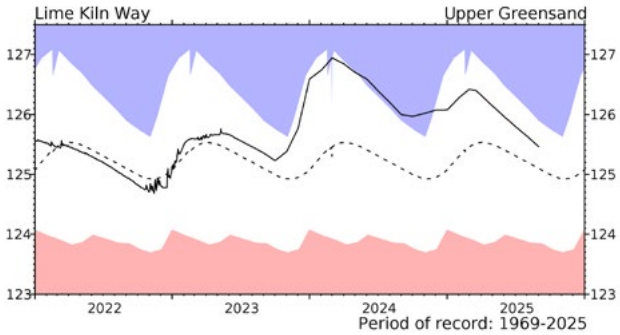






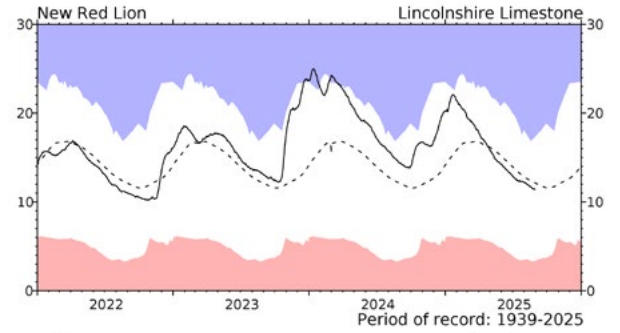


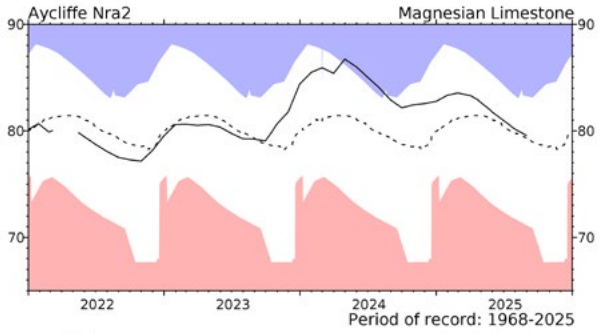


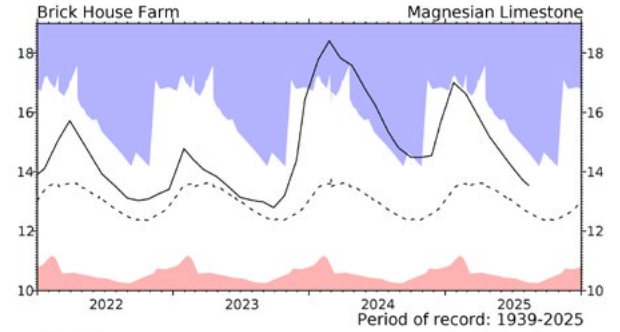


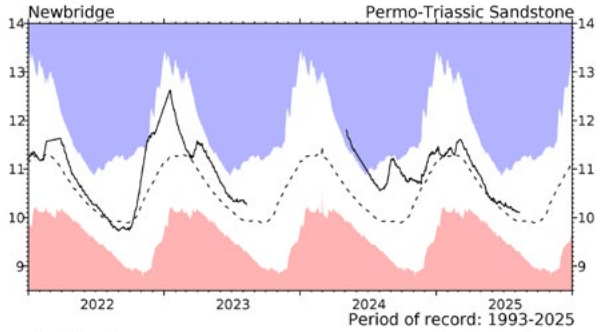
Groundwater levels (measured in metres above ordnance datum) normally rise and fall with the seasons, reaching a peak in the spring following replenishment through the winter (when evaporation losses are low and soil moist). They decline through the summer and early autumn. This seasonal variation is 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.

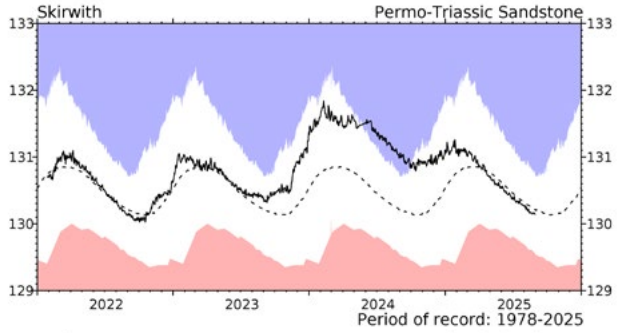
Groundwater … Groundwater

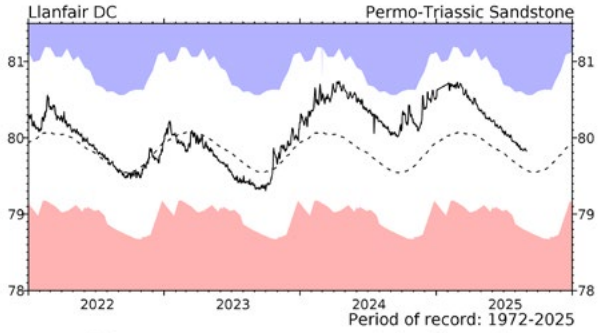


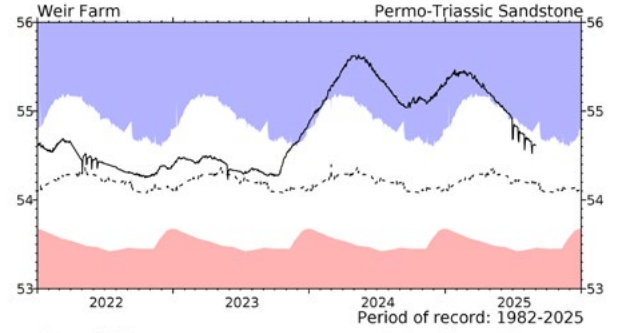


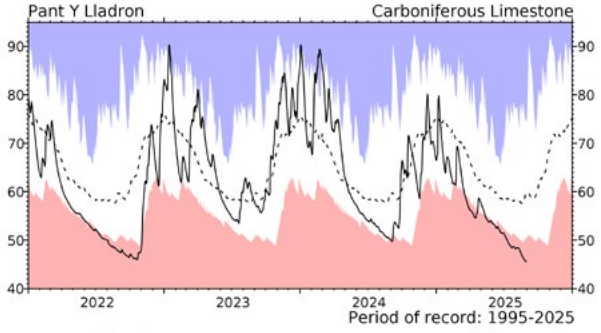


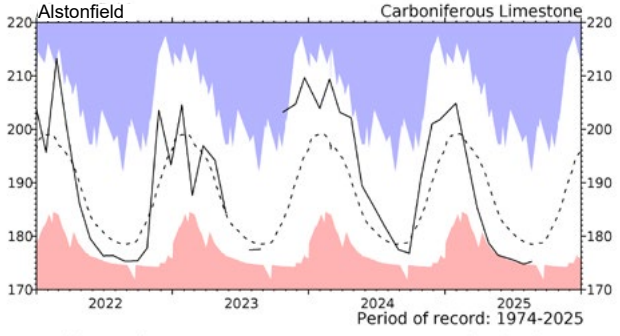


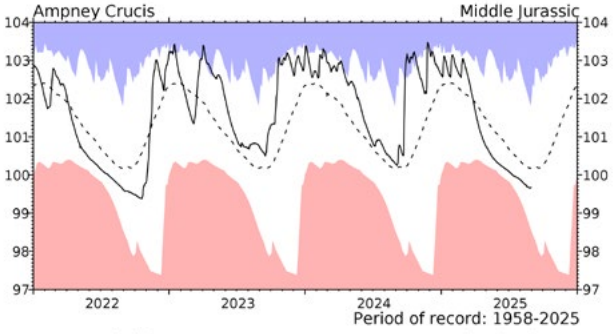


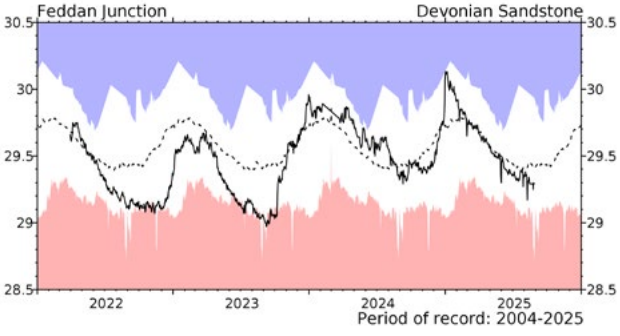


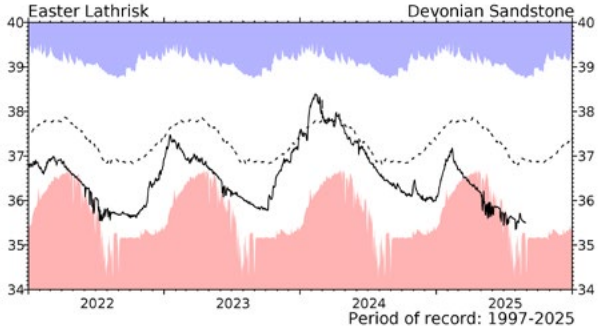


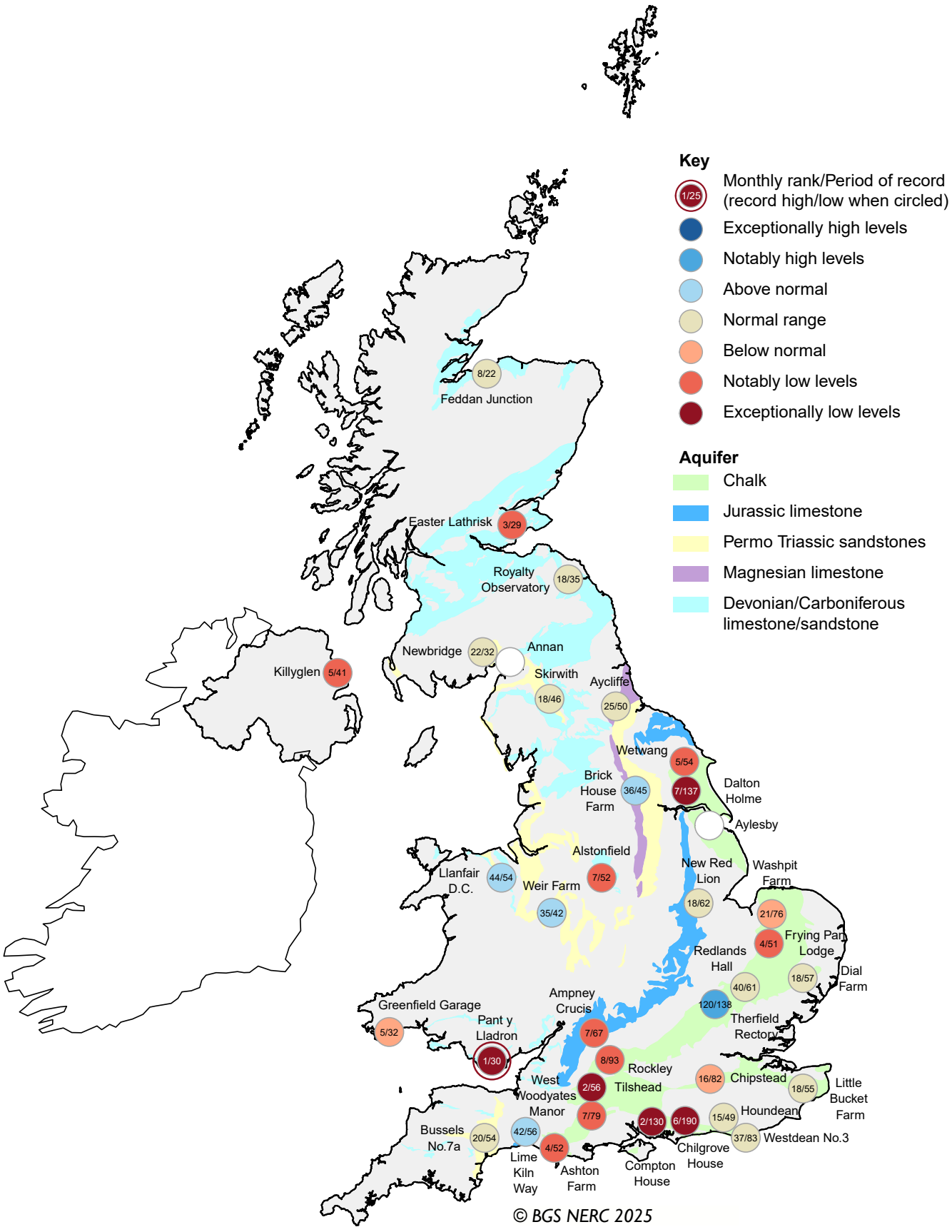










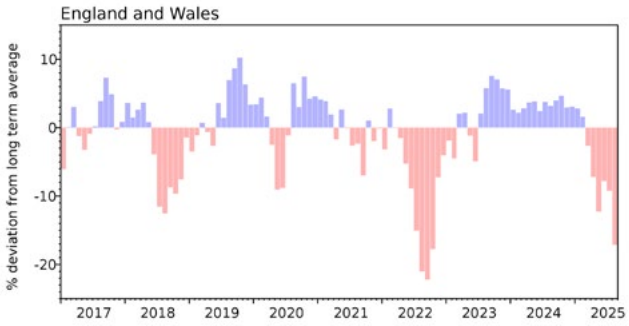


Groundwater levels - August 2025

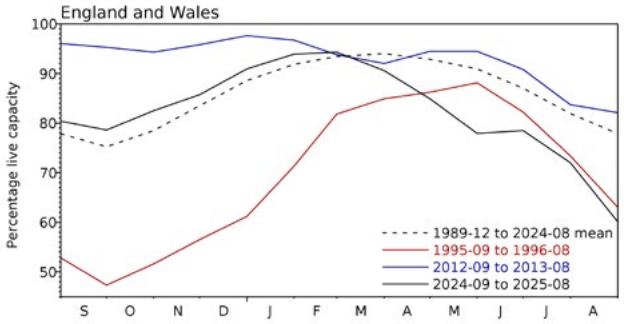
The calculation of ranking has been modified from that used in summaries published prior to October 2012. It is now based on a comparison between the most recent level and levels for the same date during previous years of record. Where appropriate, levels for earlier years may have been interpolated. 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 Jun	2025 Jul	2025 Aug	Aug Anom.	Min Aug	Year* of min	2024 Aug	Diff 25-24
North West	N Command Zone	•	124929	61	58	43	-17	15	1984	73	-30
	Vyrnwy		55146	94	87	75	1	36	1995	97	-22
Northumbrian	Teesdale	•	87936	71	68	57	-16	38	1995	91	-34
	Kielder		(199175)	86	90	81	-7	66	1989	89	-8
Severn-Trent	Clywedog		49936	99	86	59	-19	27	1976	97	-38
	Derwent Valley	•	46692	57	49	40	-27	34	1995	60	-21
Yorkshire	Washburn	•	23373	58	51	30	-40	30	2025	73	-43
	Bradford Supply	•	40942	55	48	31	-37	21	1995	69	-38
Anglian	Grafham		(55490)	85	80	72	-14	59	1997	91	-19
	Rutland		(116580)	86	80	72	-12	66	1995	84	-13
Thames	London	•	202828	91	82	71	-10	62	2022	83	-12
	Farmoor	•	13822	95	90	82	-12	64	1995	96	-14
Southern	Bewl		31000	74	65	55	-14	38	1990	64	-9
	Ardingly		4685	74	56	34	-37	31	2022	66	-31
Wessex	Clatworthy		5662	65	51	37	-27	31	1995	60	-23
	Bristol	•	(38666)	66	51	39	-29	39	2025	61	-22
South West	Colliford		28540	73	62	48	-22	31	2022	76	-28
	Roadford		34500	87	80	65	-6	40	1995	87	-22
	Wimbleball		21320	72	58	39	-30	37	2022	66	-27
	Stithians		4967	86	73	54	-8	27	2022	60	-6
Welsh	Celyn & Brenig	•	131155	75	72	62	-19	49	1989	77	-15
	Brianne		62140	83	72	63	-25	52	2022	94	-31
	Big Five	•	69762	74	60	47	-24	29	1995	70	-23
	Elan Valley	•	99106	70	55	43	-32	37	1976	66	-23
Scotland(E)	Edinburgh/Mid-Lothian	•	97223	80	78	72	-8	45	1998	93	-21
	East Lothian	•	9317	74	72	63	-24	63	2025	95	-32
Scotland(W)	Loch Katrine	•	110326	70	65	55	-19	50	2021	97	-42
	Daer		22494	80	77	69	-9	41	1995	96	-27
	Loch Thom		10721	89	82	77	-5	50	2021	100	-23
Northern Ireland	Total+	•	56800	80	77	68	-9	40	1995	77	-10
	Silent Valley	•	20634	84	80	68	-6	33	2000	79	-11

( ) figures in parentheses relate to gross storage

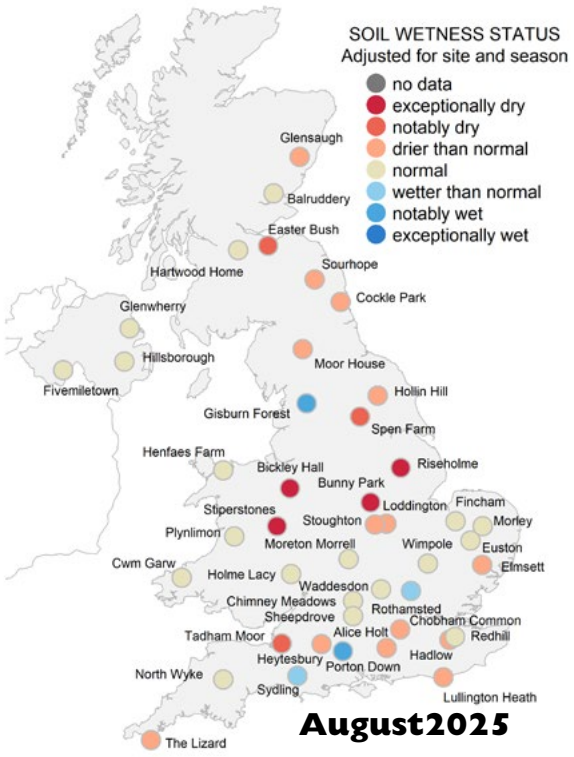
• denotes reservoir groups

*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.

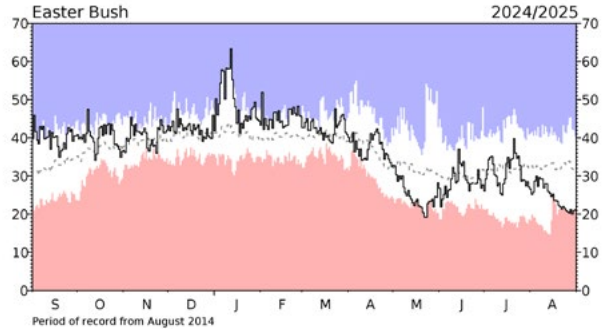
Soil Moisture . . . Soil Moisture

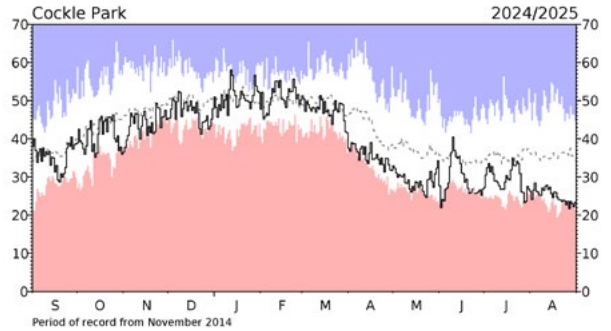


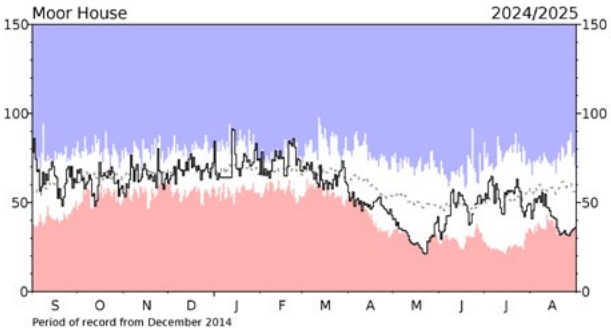
Daily mean soil moisture status at COSMOS-UK sites on the last day of the month 31 August 2025. Soil wetness categories are adjusted for site specific characteristics, i.e. taking account of the possible range of soil wetness at each site, determined through period-of-record data and hindcast modelling. Where no data are available on the last day of the month, these are shown by grey dots.

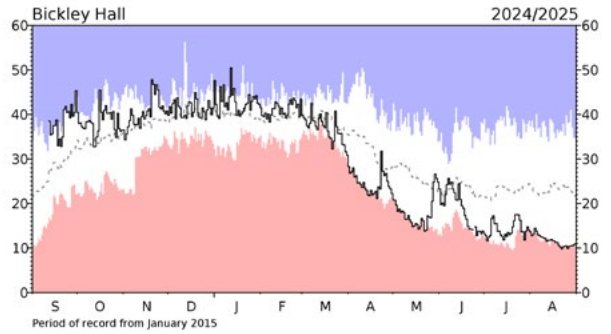
Soil moisture conditions across the COSMOS-UK network were generally below normal for the time of year, with regional differences reflecting contrasting rainfall and temperature patterns. Nine COSMOS-UK sites, spread across the country, recorded their driest August soil moisture levels since their monitoring began. Bickley Hall and Bunny Park remained very dry throughout, while sites such as Cockle Park, Easter Bush, Elmsett, Glensaugh, and Moor House became gradually drier as the month progressed. Others, including Hillsborough, Holme Lacy, and Wimpole, became drier mid-month but recovered back into the normal range by the end.

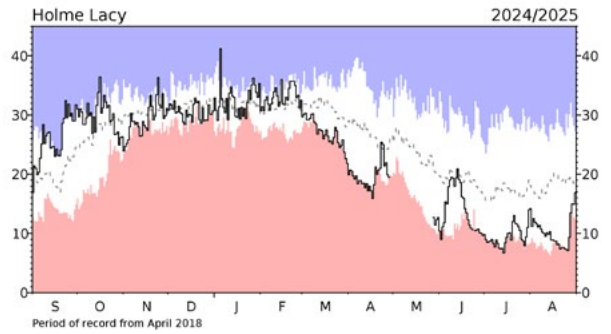
Overall, below-average rainfall and warm temperatures have resulted in soils drying out at many sites, following July's brief recovery. Wetter soils were generally limited to northerly and westerly regions.











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

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