

Soil moisture on 30 September 2025 (see back page for explanatory comments).

September's wet conditions helped soil moisture recovery across northern and western regions, but southern COSMOS-UK sites remained notably dry.

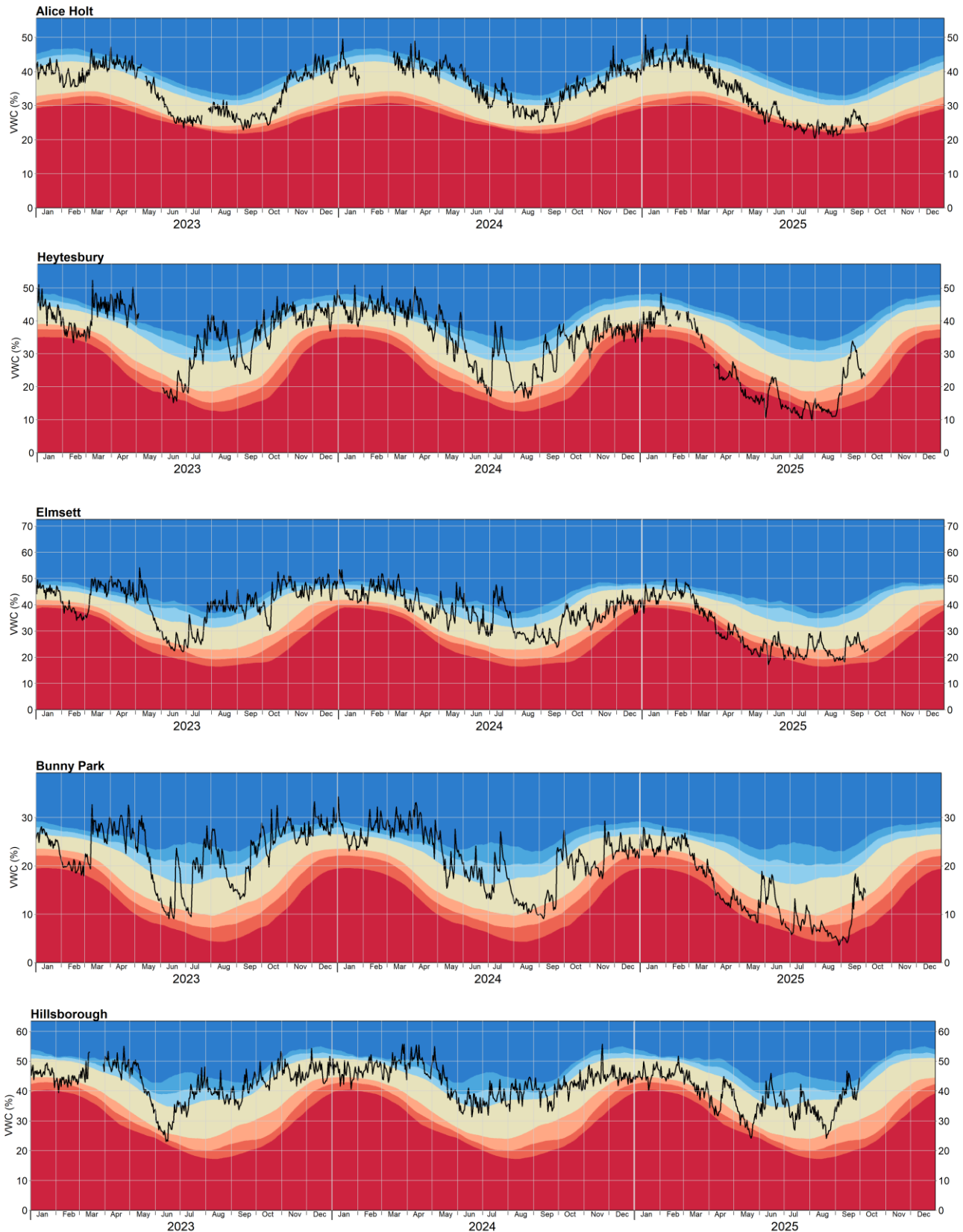
Provisional data indicate that the monthly rainfall in September was above the long-term average for most of the UK, helping to ease the summer dryness in some parts of the country. England and Wales received 142% of their 1991–2020 average rainfall, though this was dominated with particularly heavy rainfall in the northwest (up to 186%). In contrast, rainfall in the southeast was below the monthly average. Northern Ireland received 173% of its monthly average, and Scotland 110%. Temperatures were near normal, with occasional frost in some regions.

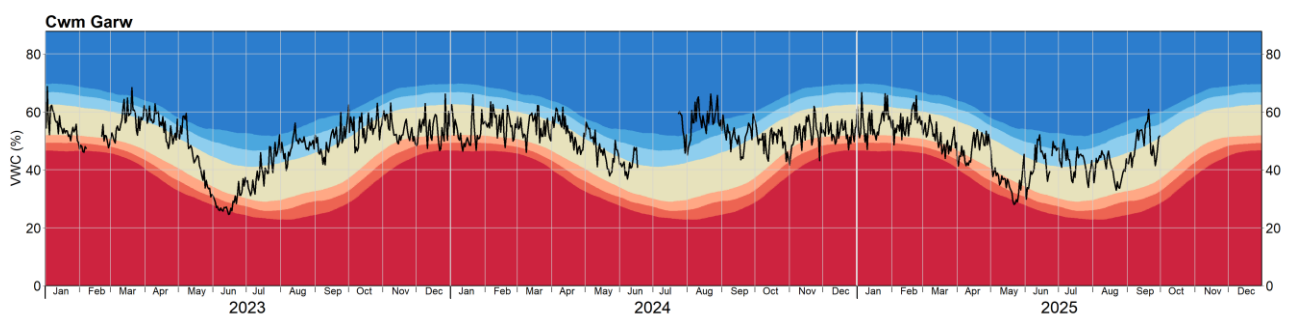
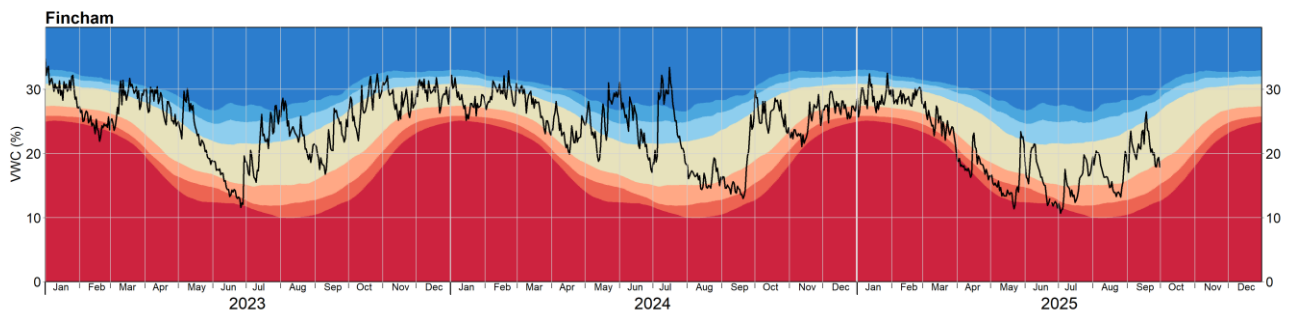
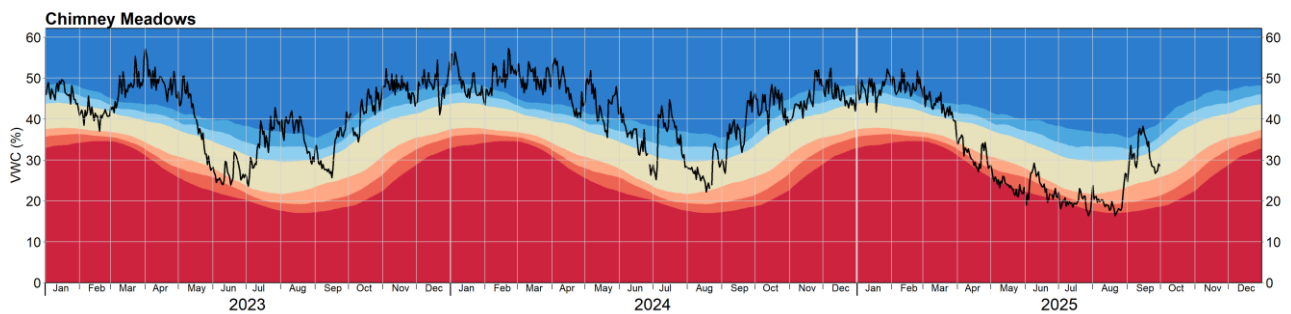
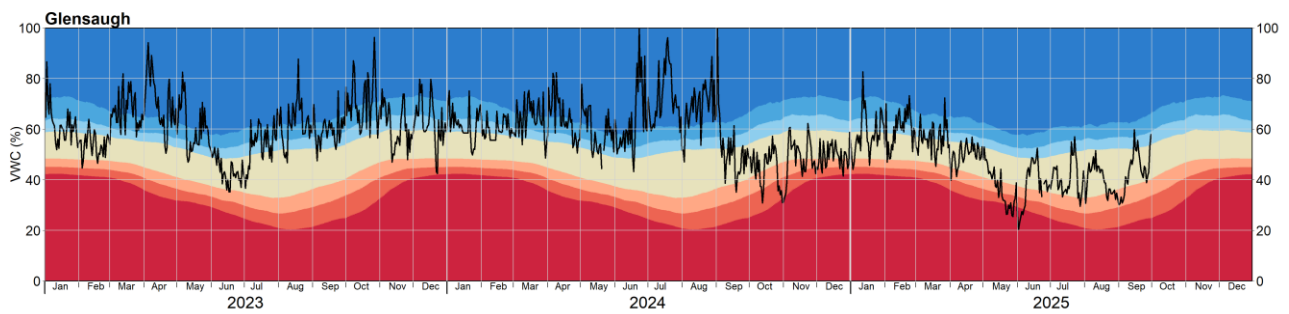
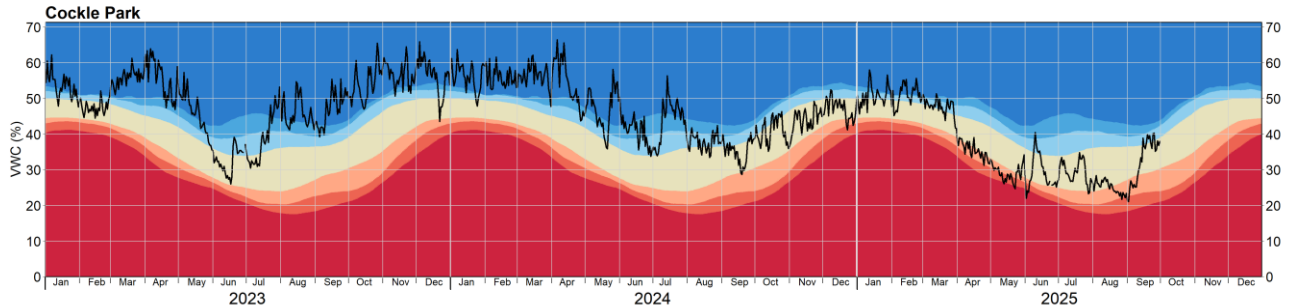
COSMOS-UK sites show a strong north–south contrast in soil moisture for September. Sites in central and southern such as Alice Holt, Heytesbury and Elmsett remained exceptionally dry, though some sites show soil moisture conditions within the normal range for the time of year (e.g. Bunny Park). The wetter conditions in northern areas brought increased soil moisture, for example in Northern Ireland (e.g. Hillsborough), northern England (e.g. Cockle Park) and Scotland (e.g. Glensaugh). Drier, sunnier conditions late in the month led to partial drying at some sites (e.g. Chimney Meadows, Fincham).

Overall, September's above-average rainfall helped replenish soil moisture in northern and western regions, but southern sites remain notably dry following the summer. Entering October, soils across much of England remain below field capacity, leaving limited reserves for an autumn-recharge.

Network news

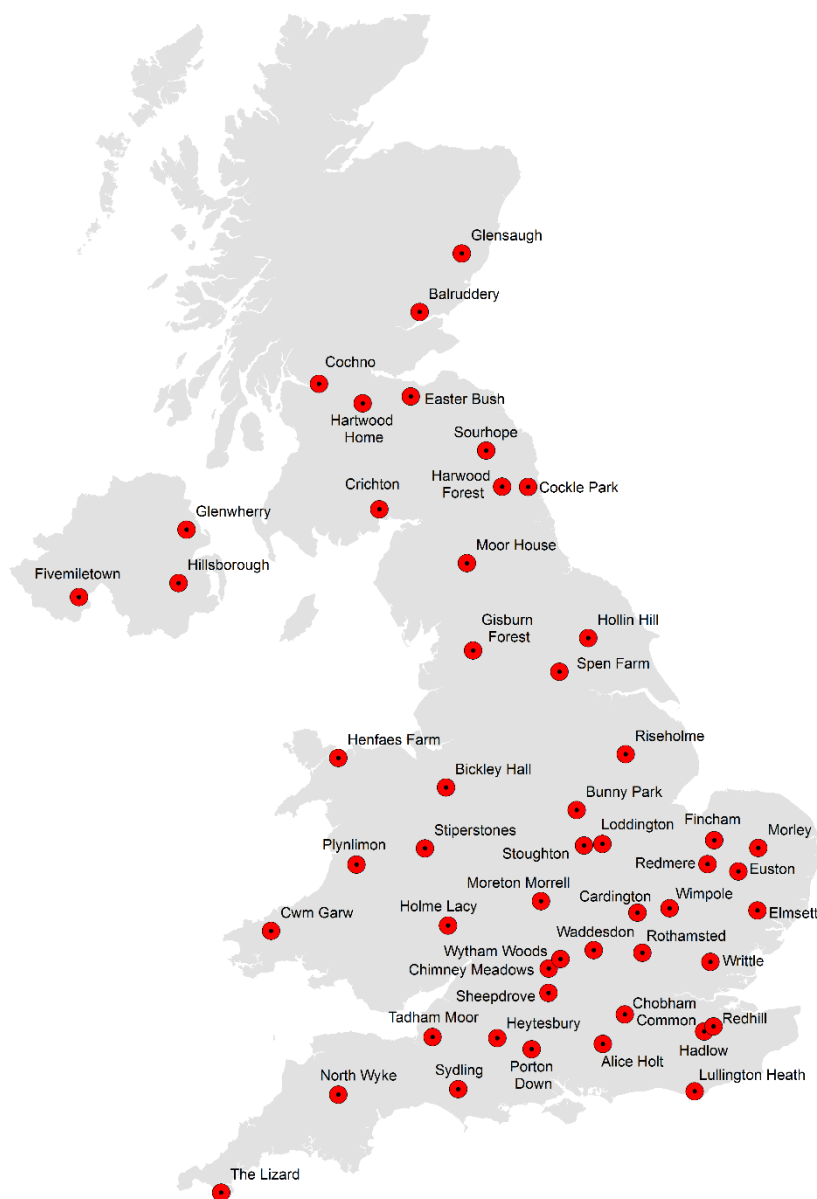
All the network's annual planned preventive maintenance site visits are completed for 2025.







Issued on 08 October 2025



About the maps on page 1: The maps show daily mean soil moisture on the last day of the month. Colours indicate wetness as in the legends.

The map on the left shows wetness as the volumetric water content (VWC) of the soil which is constrained by soil type, i.e. some soils are able to hold more water than others as indicated by the shape of the symbol.

The map on the right presents soil wetness adjusted for site specific characteristics, i.e. taking account of the possible range of soil wetness at each site. Field capacity (FC) is a key point in this range. When soil moisture is below FC soil moisture is said to be in deficit, i.e. there is a (positive) soil moisture deficit (SMD).

Grey shaded areas on these two maps represent principal aquifers.

About the graphs on pages 2 and 3: The black line shows VWC. The coloured bands indicate how VWC compares to historical variability for the site and time of year.

- exceptionally dry
- notably dry
- drier than normal
- normal
- wetter than normal
- notably wet
- exceptionally wet

About soil moisture: Soil moisture varies in the short term (hours to days) with rainfall and as water drains through the soil. Longer term variation is driven by the seasonal difference between rainfall and evaporation. Thus soil moisture decreases in the summer when evaporation exceeds rainfall but increases when this is reversed. In most winters under UK conditions, soil moisture reaches a relatively constant value, known as the field capacity. Field capacity is a measure of how much water the soil can hold against gravity and is strongly dependent on the soil type. Soils are expected to be around field capacity after being wetted to above field capacity and the excess water (e.g. from macropores) has drained away under gravity, which can take several days after heavy rain, to reach a near steady state. Differences in soil type and weather patterns cause variations in soil moisture between sites including when the soil returns to field capacity in autumn/winter and when soil moisture decreases in the spring/summer.

About COSMOS-UK: COSMOS-UK is supported/partially supported by NERC, through the UKCEH National Capability for UK Challenges Programme NE/Y006208/1.

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