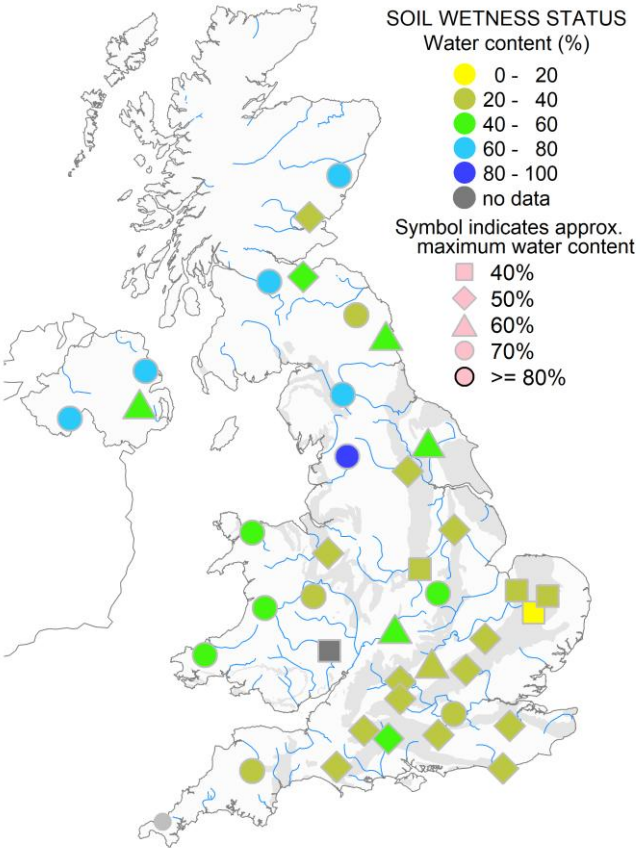
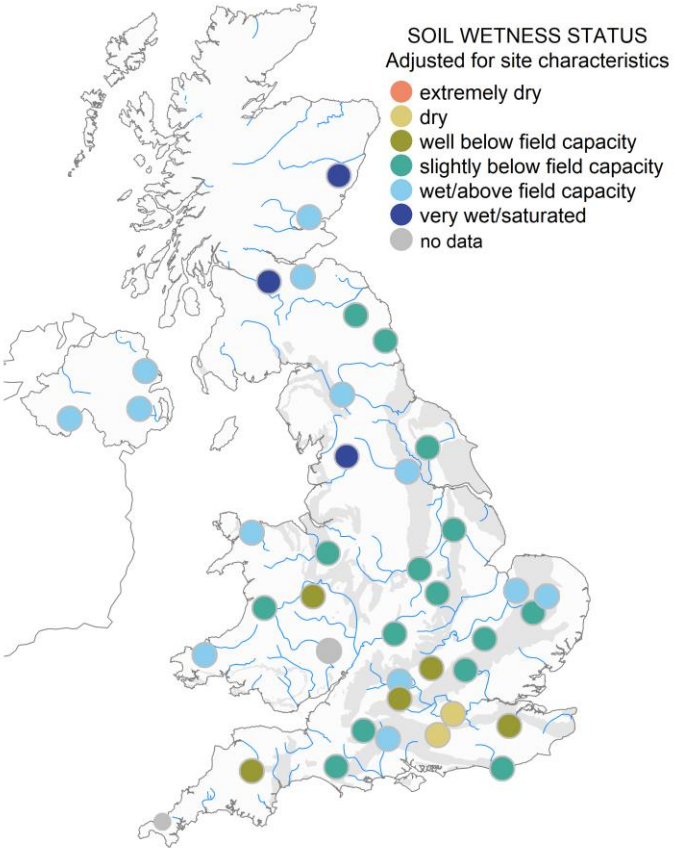
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Soil moisture on 31 October 2026 (see back page for explanatory comments).

Overall, soil moisture conditions at the end of October were close to typical autumn conditions, though with notable variations between sites.

Provisional data suggest October was wetter than average across the UK, with England and Wales receiving +8% of average rainfall, Scotland +13% and Northern Ireland +30%. Rainfall increased during the latter half of the month following storms Austen and Boelo. Temperatures were 0.9°C above average across the UK, resulting in a relatively mild autumn despite increasingly unsettled weather.

Soil moisture responses varied considerably across the COSMOS-UK network. Many sites showed appreciable increases in soil moisture during October (e.g. Bunny Park, Euston, Fincham, Rothamsted and Sydling). However, some of the more northerly sites remained relatively wet throughout the month (e.g. Balruddery and Glensaugh). Several sites experienced alternating periods of wetting and drying during September and October, reflecting the intermittent nature of autumn rainfall rather than a uniform recovery across the network (Bunny Park, Euston, Fincham and Sydling). By the end of October, many sites had returned towards their typical autumn range, but several remained below normal for the time of year (e.g. Alice Holt, Chobham Common and North Wyke), indicating that soil moisture deficits persisted at some locations despite the wetter conditions throughout the month.

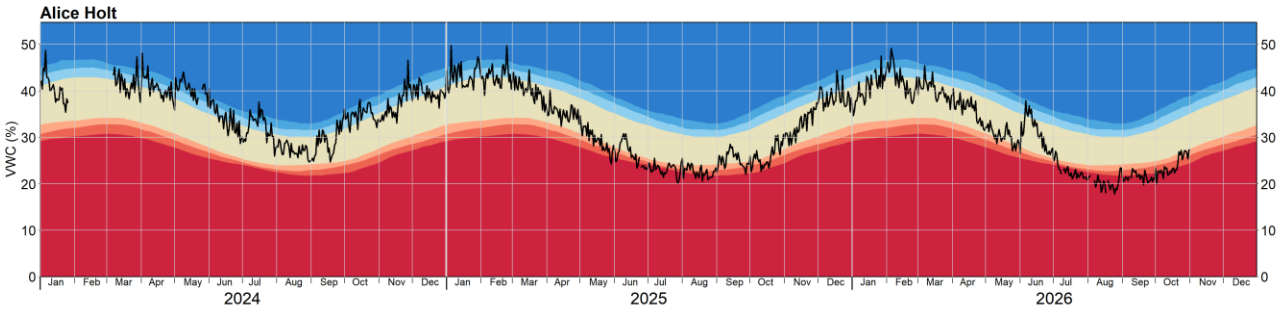
Overall, above-average rainfall during October helped reduce soil moisture deficits across much of the network. Nevertheless, site-to-site variability remained pronounced, with generally wetter conditions in northern and western regions and more persistent deficits at some southern and eastern sites.

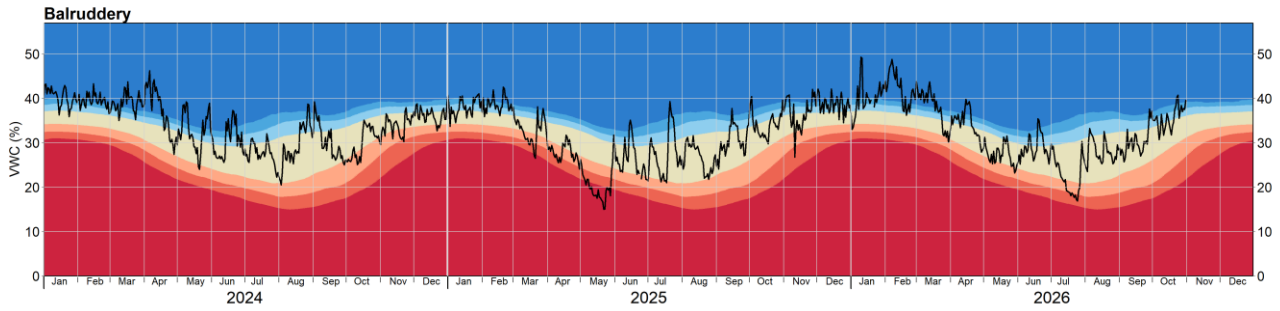
Network news

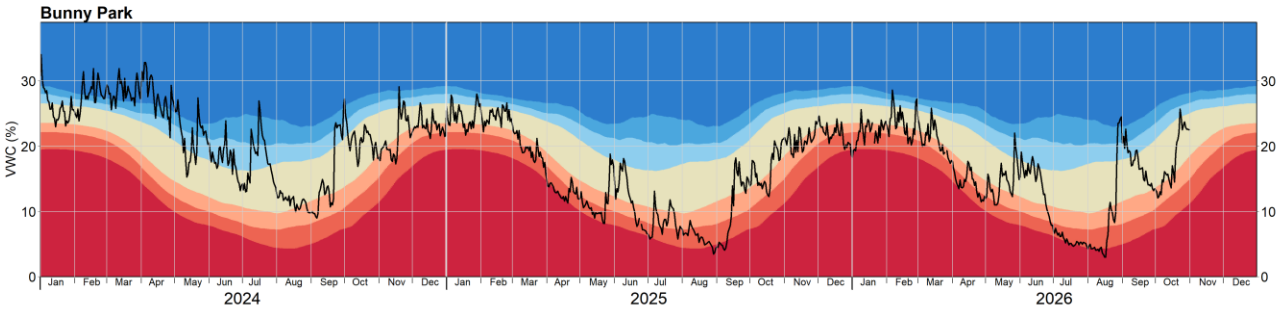
Preventive maintenance site visits are now complete, with a final visit to Wimpole to repair faulty wiring for a soil temperature probe.

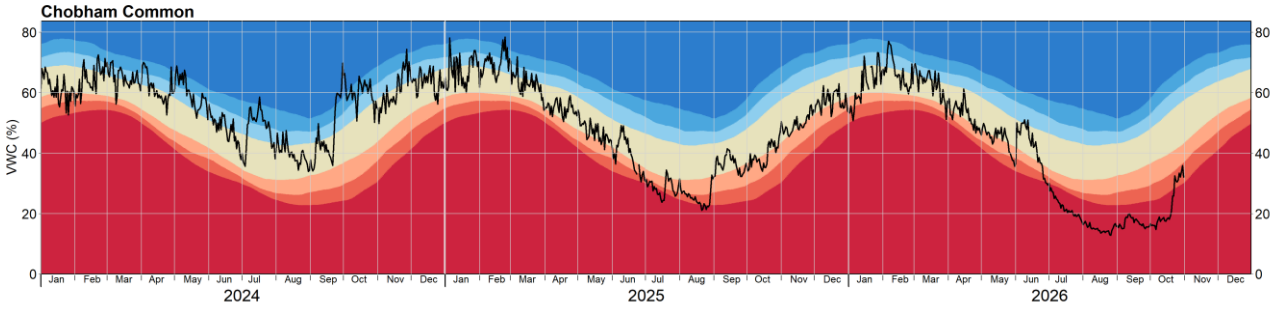
COSMOS-UK | soil moisture

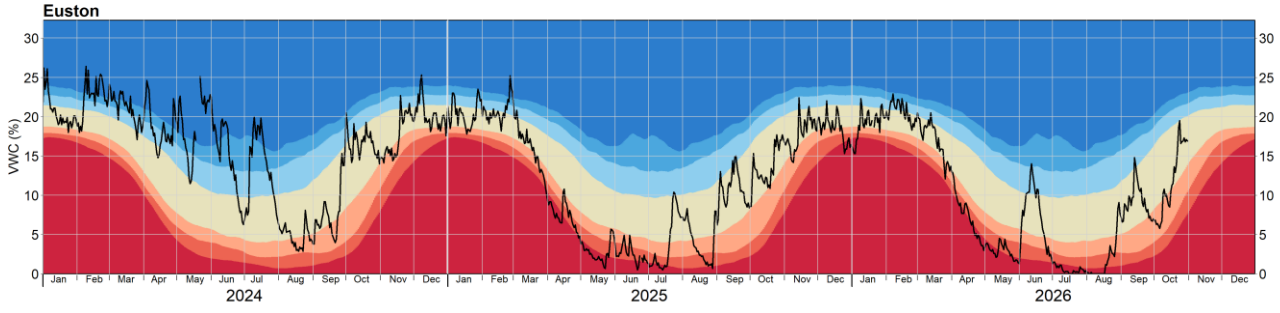
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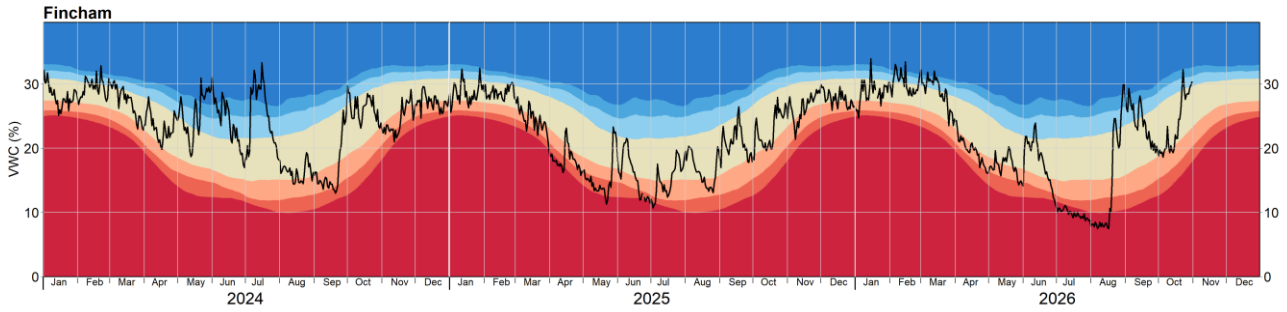


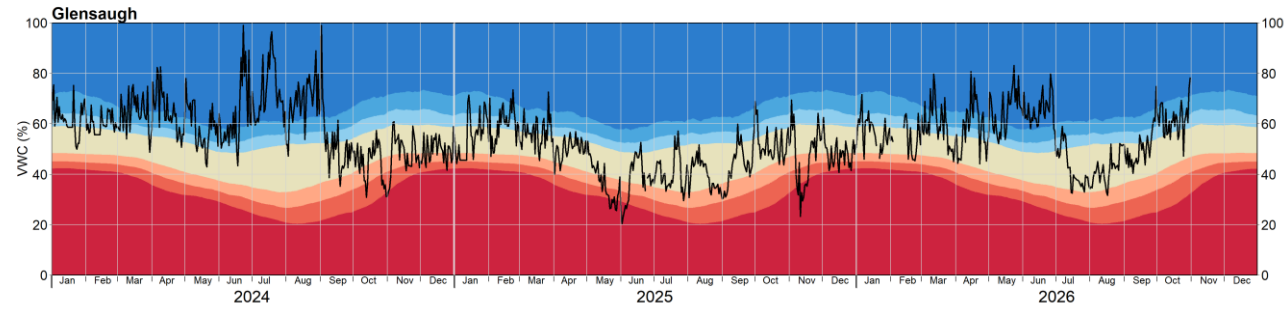


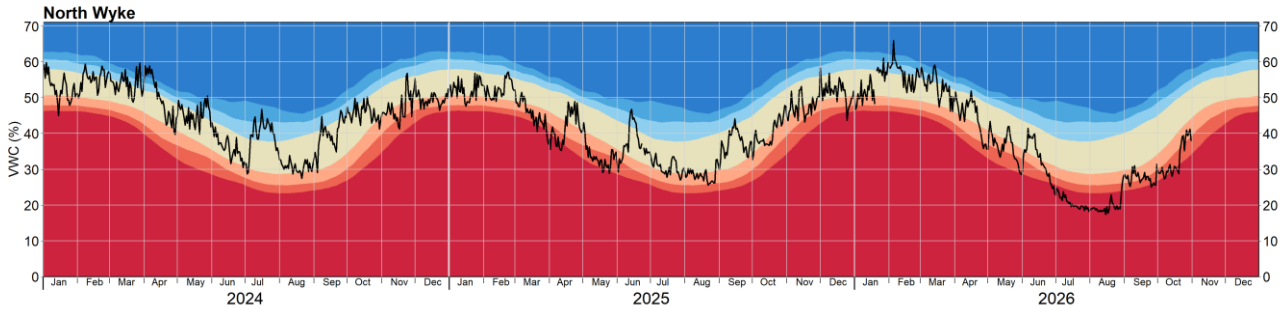


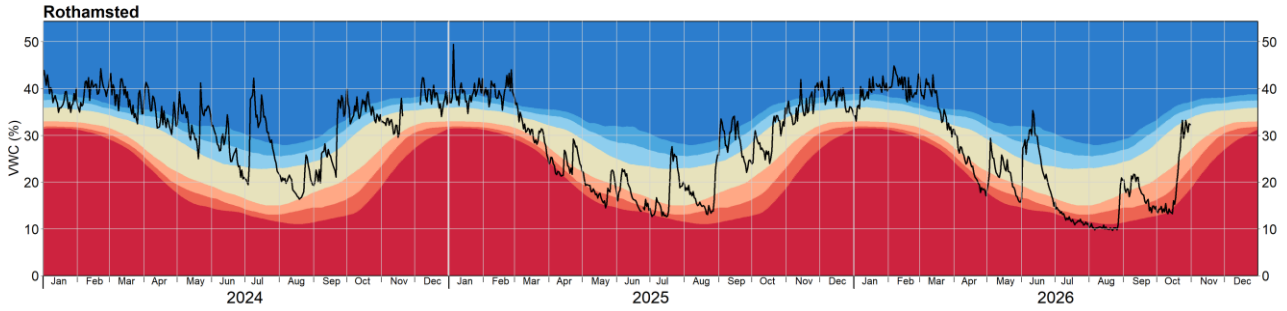
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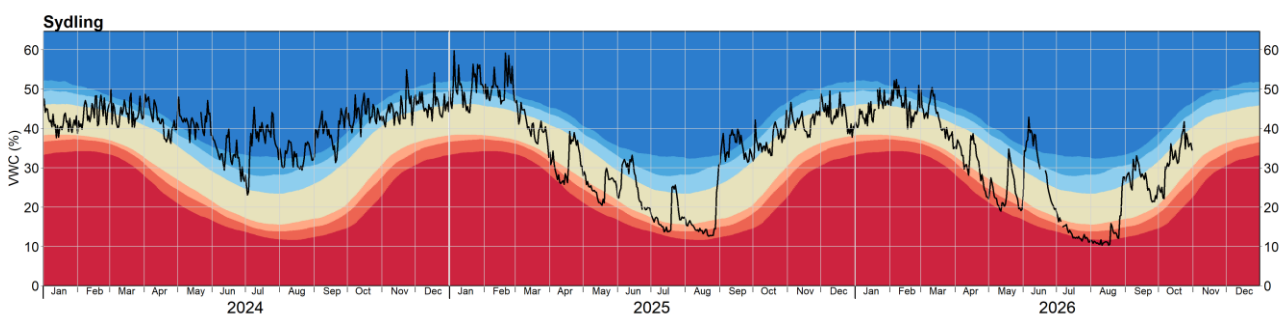
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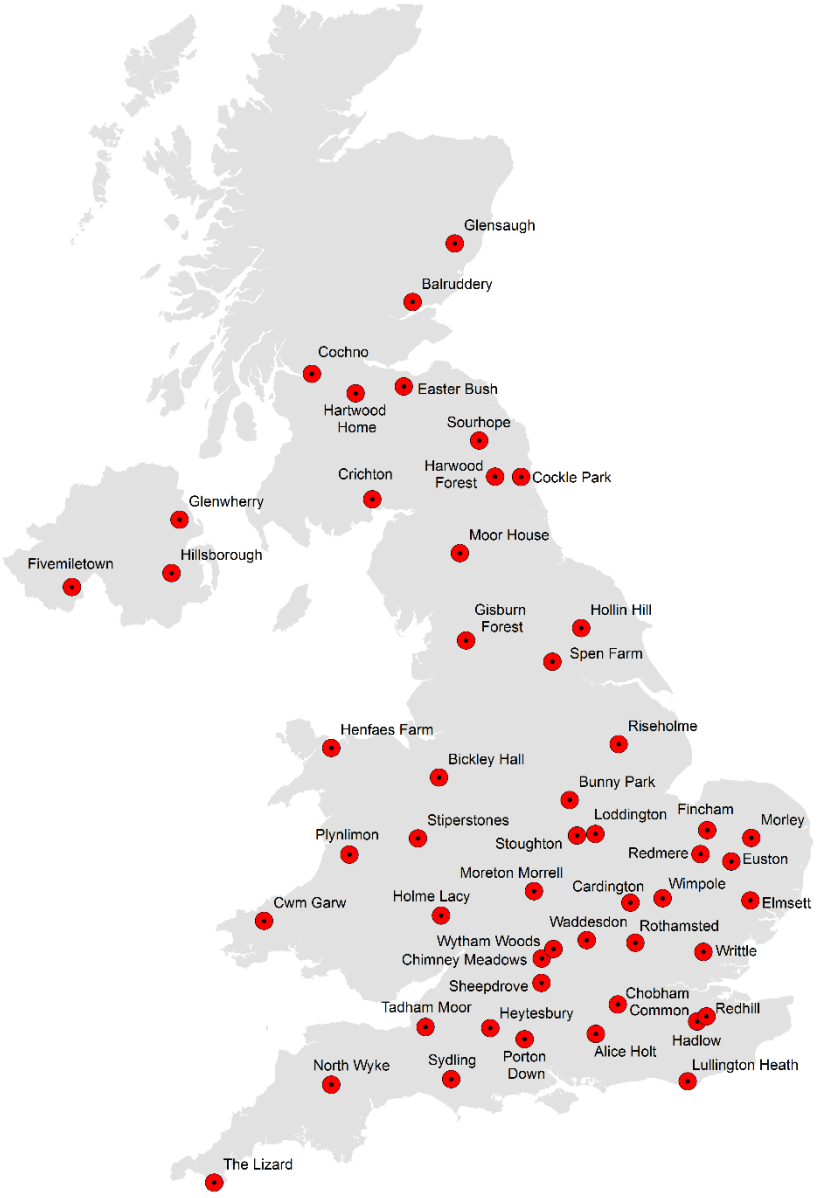






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About the maps on page 1: The maps show daily mean soil moisture on the last day of the month. Colours indicate wetness as in the legends.

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.

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