

Soil moisture on 31 March 2022 (see back page for explanatory comments).

Notes on period to 31 March 2022

At the end of March soil moisture is generally normal or drier-than-normal for the time of year.

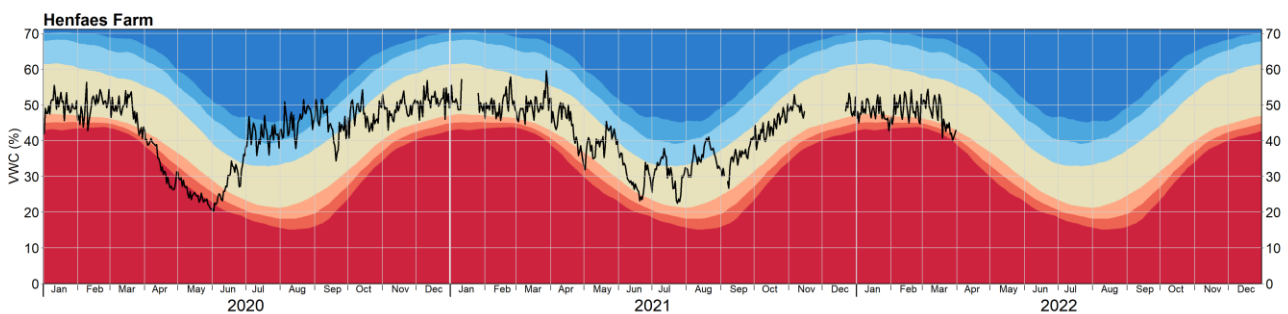
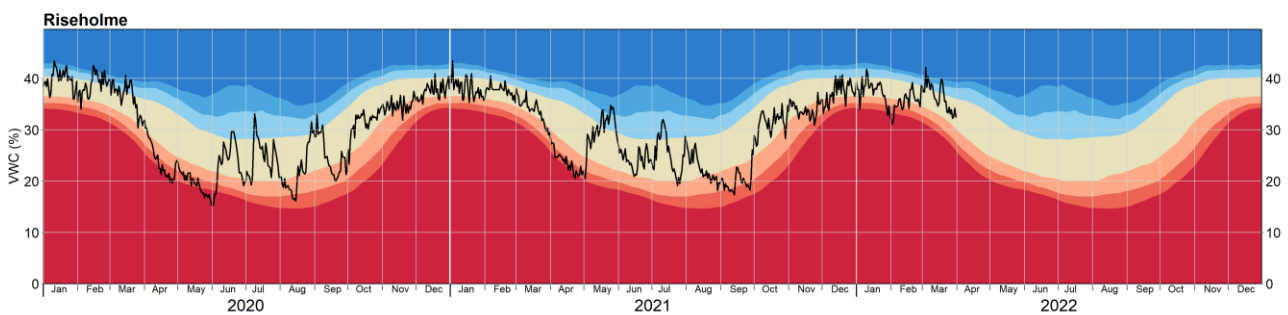
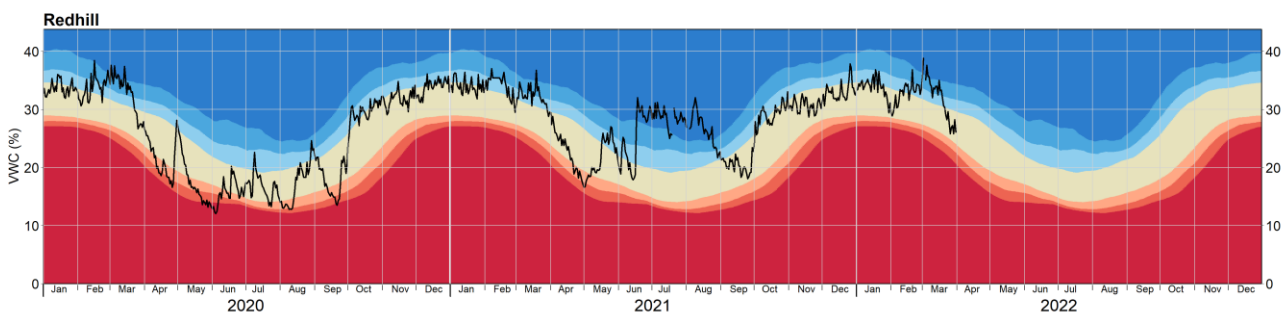
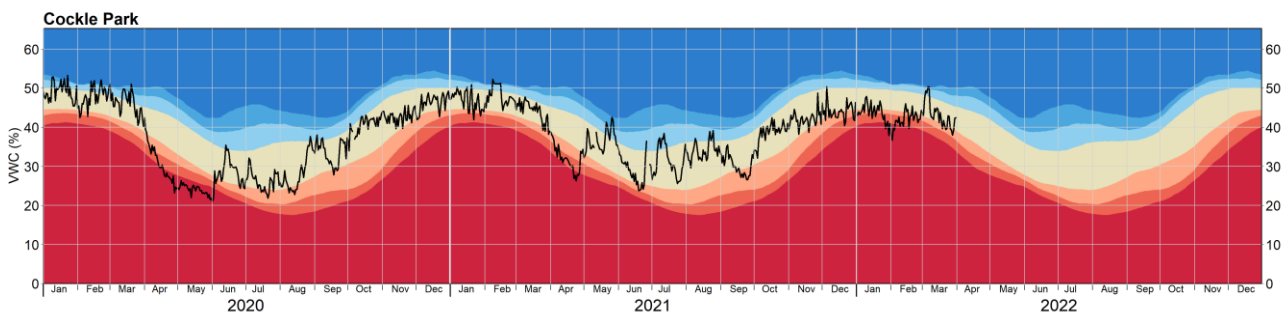
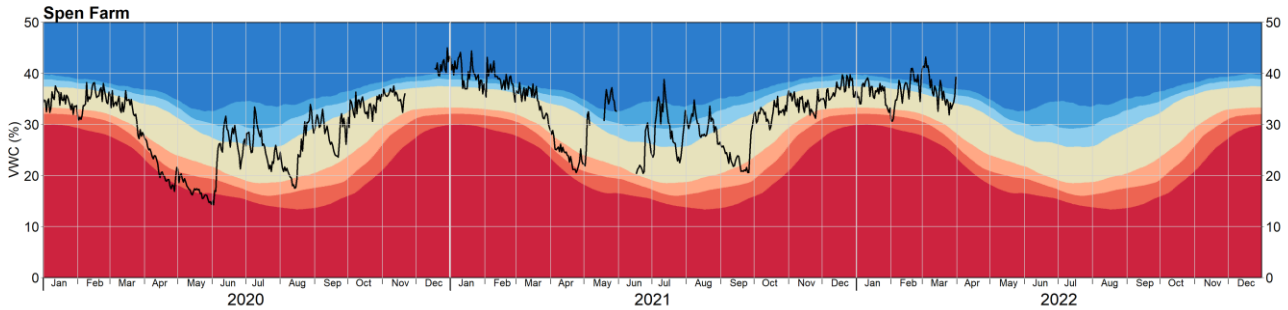
Provisional data indicate that March precipitation was below the long-term average across the whole of the UK. Northern Scotland received the lowest precipitation, around 35% of the long-term average. Central England received the most, just over 70% of the long-term average. Most precipitation occurred in the first half of March, followed by a warm and dry spell. This resulted in many soils drying towards the end of the month and most sites have ended March with soils slightly or well below field capacity (see map top right).

At the end of February, areas in northern England were wet for the time of year. Despite lower-than-average total precipitation in March, these sites have ended the month above field capacity (e.g. Spen Farm). Following high soil moisture in the first half of the month, soils at roughly a third of sites have dried to normal levels for the time of year (e.g. Cockle Park, Redhill and Riseholme).

Approximately two thirds of sites across the UK, which began March with normal soil moisture for the time of year, are now notably dry or drier-than-normal for the time of year (e.g. Henfaes, Fivemiletown, Balruddery and Bickley Hall). Soils in the southwest of England have seen a rapid drying, from wetter-than-normal to exceptionally dry for the time of year (e.g. The Lizard and Sydling).

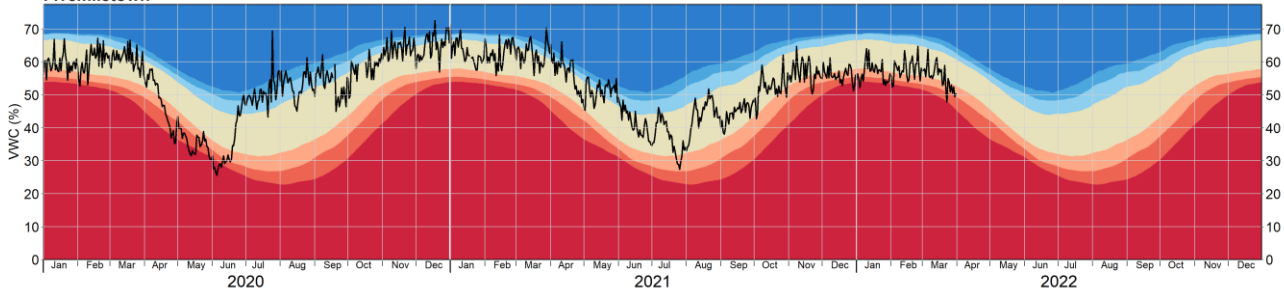
Network News

- Soil moisture derived from the 'cosmos' sensor at Hollin Hill and Harwood Forest is being reviewed.

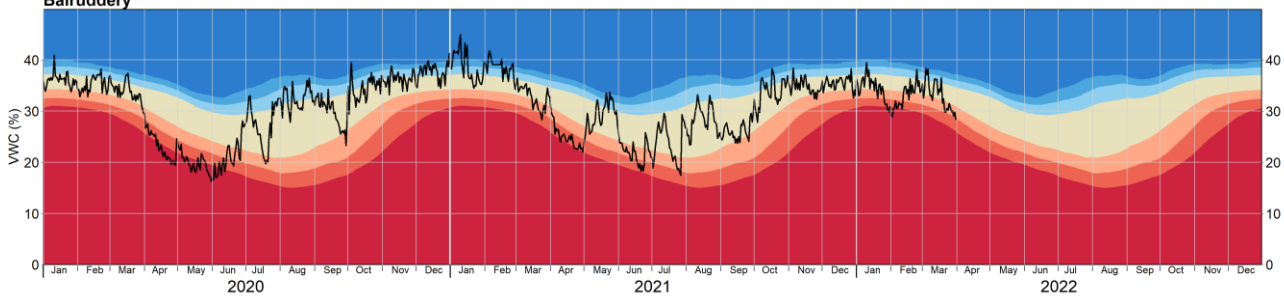




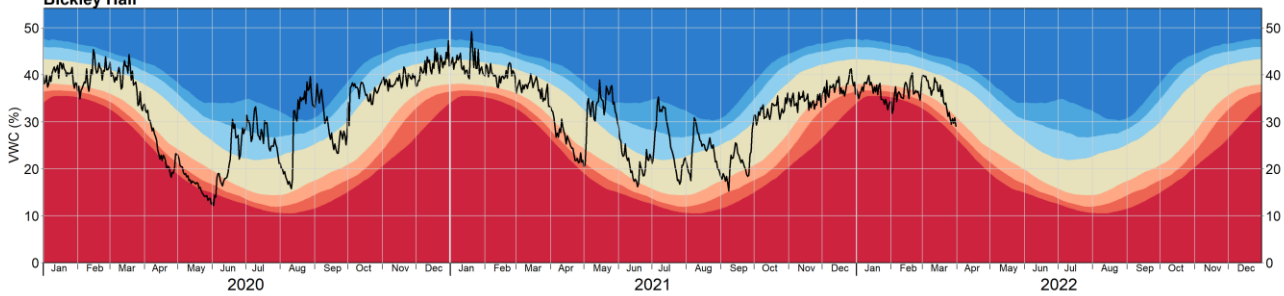
Fivemiletown



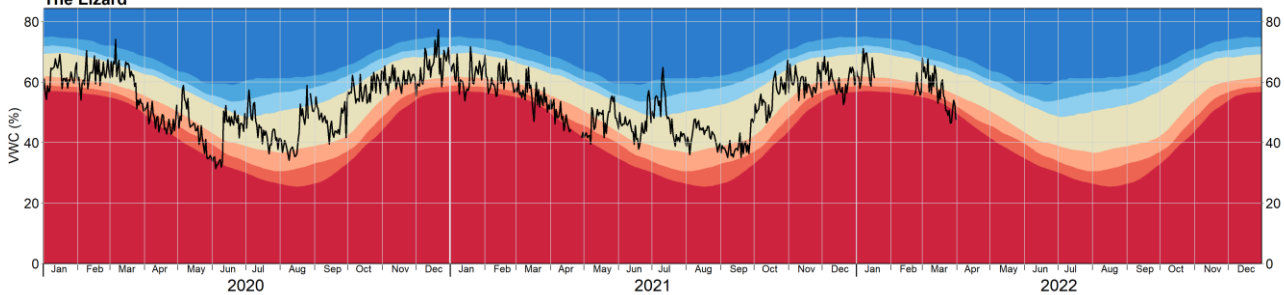
Balruidery



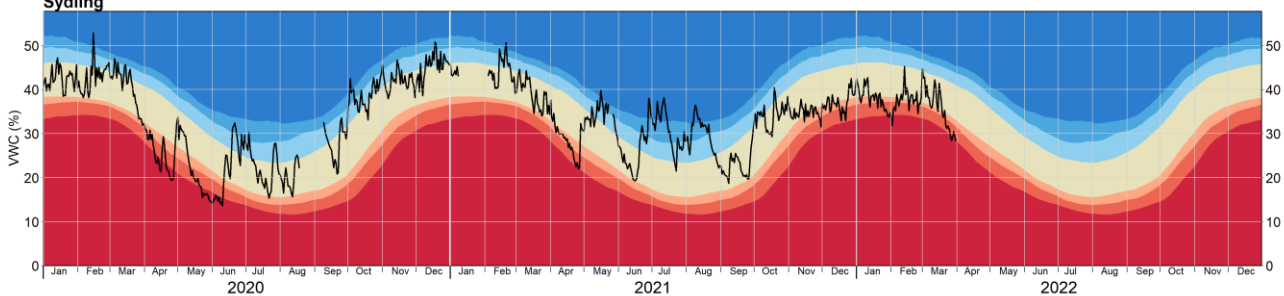
Bickley Hall

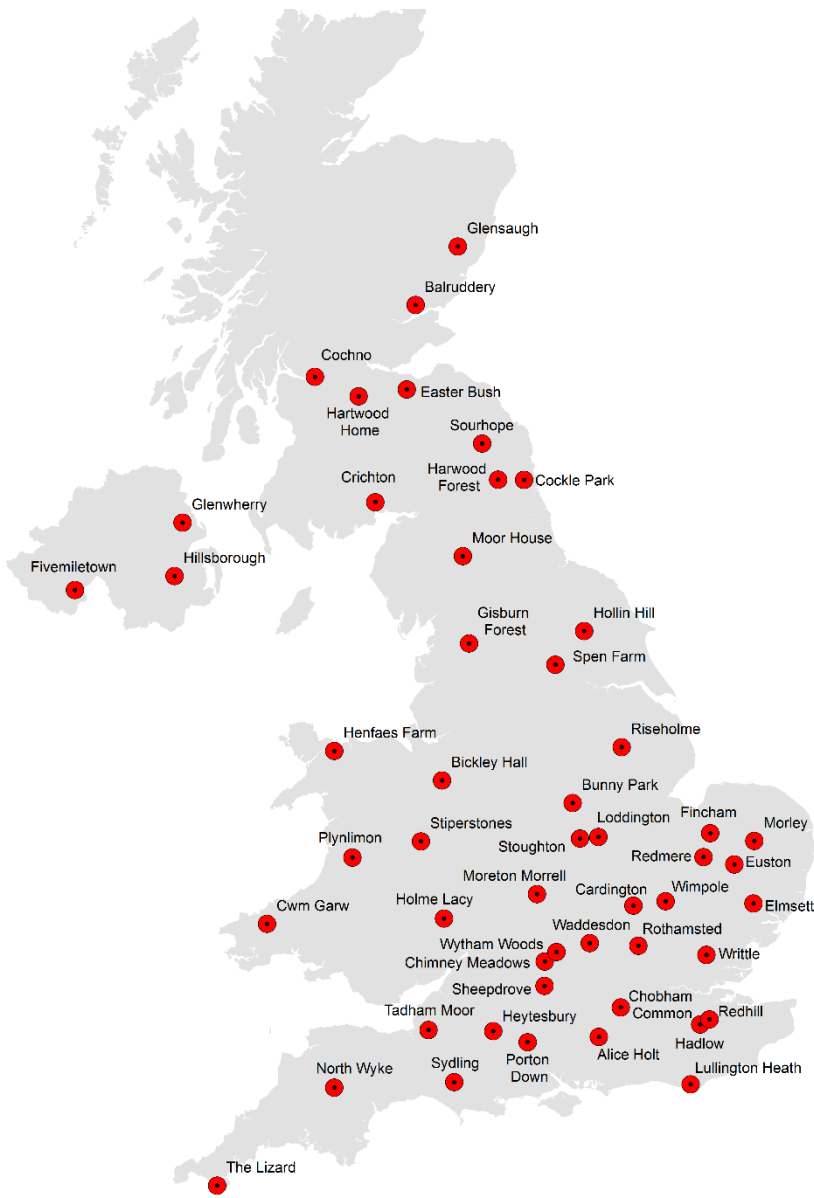


The Lizard



Sydling





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, field capacity; additional rainfall either cannot enter the already saturated soil and flows across the land surface as overland flow, or infiltrates but drains quickly through the soil. 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 by the Natural Environment Research Council award number NE/R016429/1 as part of the UK-SCAPE programme delivering National Capability.

About this summary: Every reasonable effort is made to publish this review on the first working day of the month.

