

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

### Notes on period to 31 January 2022

#### At the end of January soil moisture is drier than normal for the time of year.

Provisional data indicate that January precipitation was generally close to average for the time of year at the start of the month and then well below average for the remainder and majority of the month. Some areas observed as little as 20% of the long-term average and most of the UK observed below 50%. Only northern Scotland received close to normal precipitation for the time of year.

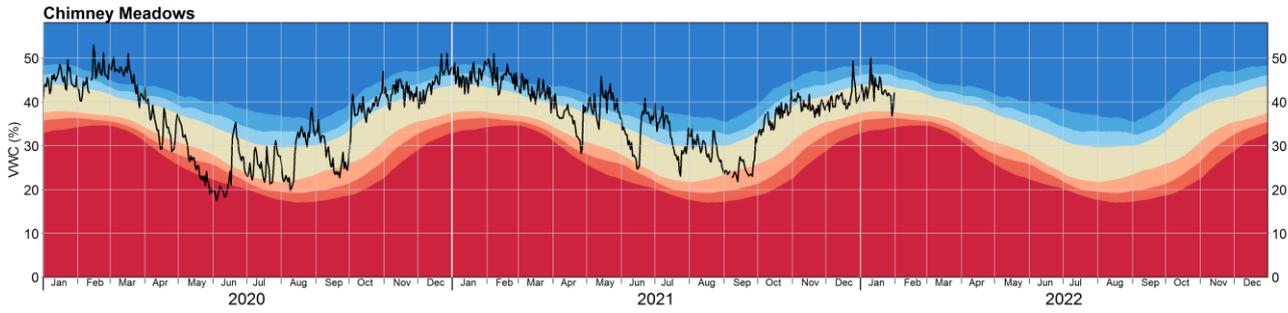
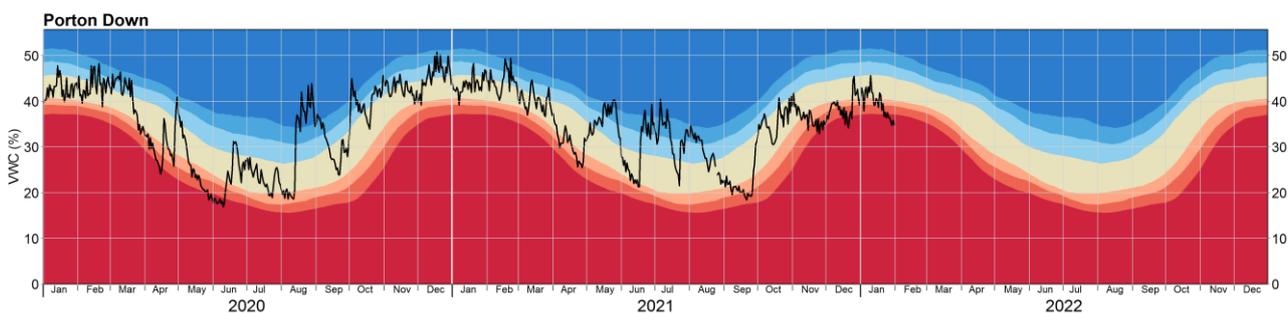
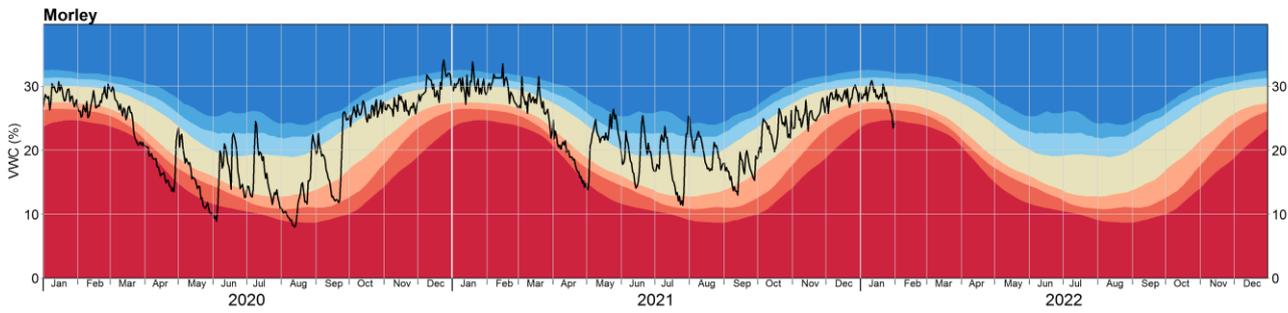
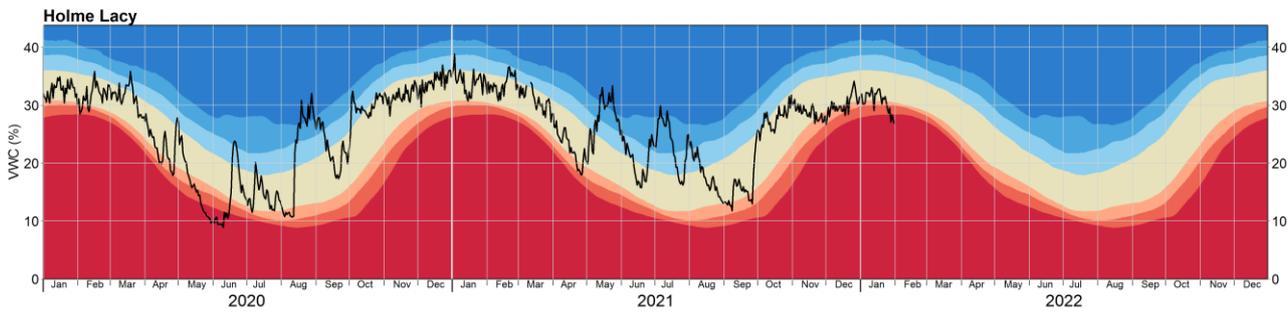
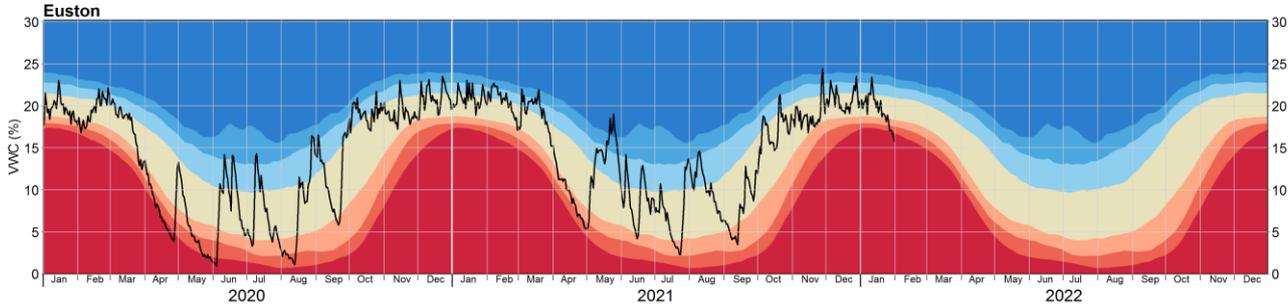
In January soil moisture is expected to be close to, or above, field capacity. It is unusual for soil moisture to be below field capacity, due to generally lower evaporation at this time of year. However, at the end of January most sites are slightly below field capacity and unusually dry compared to normal for the time of year, as seen in the map above right.

At many sites soils dried steadily through January (e.g. Euston, Holme Lacy, Morley and Porton Down).

Some sites received rainfall at the very end of the month. At sites that began January with somewhat wetter soils, this rainfall resulted in soil moisture increasing but only to normal levels for the time of year (e.g. Chimney Meadows, Glensaugh and Loddington). At sites in Scotland and Northern Ireland, where soils were drier than normal at the beginning of January, this rainfall increased soil moisture although soils remain drier than normal for the time of year (e.g. Fivemiletown, Hartwood Home and Hillsborough).

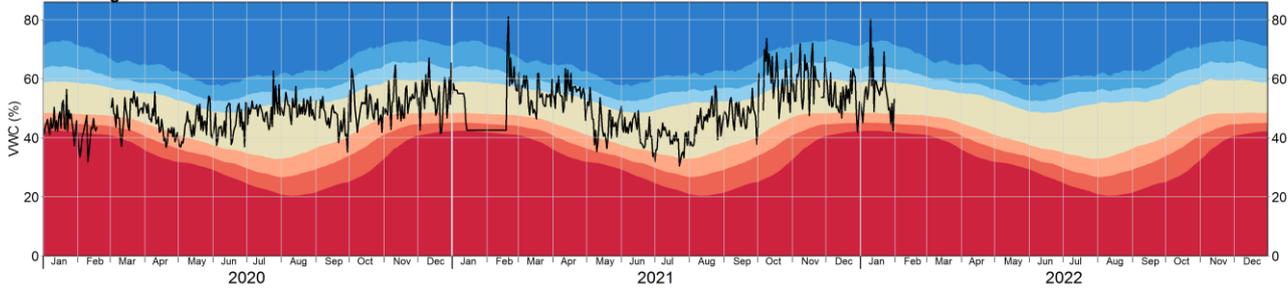
### Network News

- Soil moisture derived from the 'cosmos' sensor at Hollin Hill and Harwood Forest is being reviewed.
- Cwm Garw and The Lizard are currently offline.

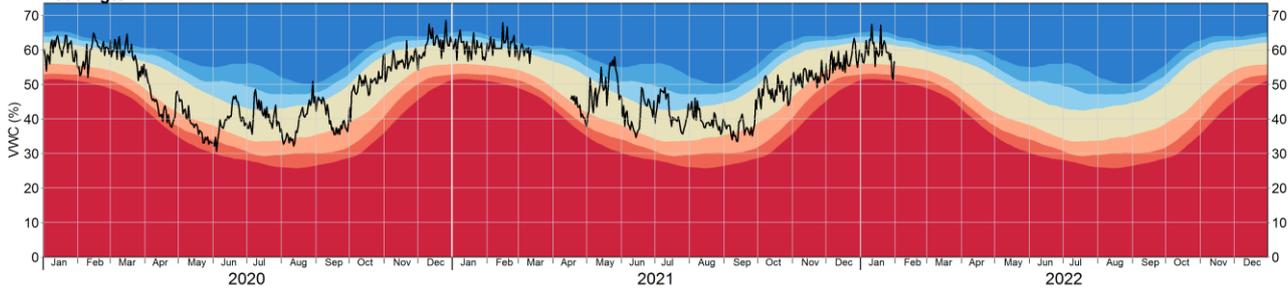




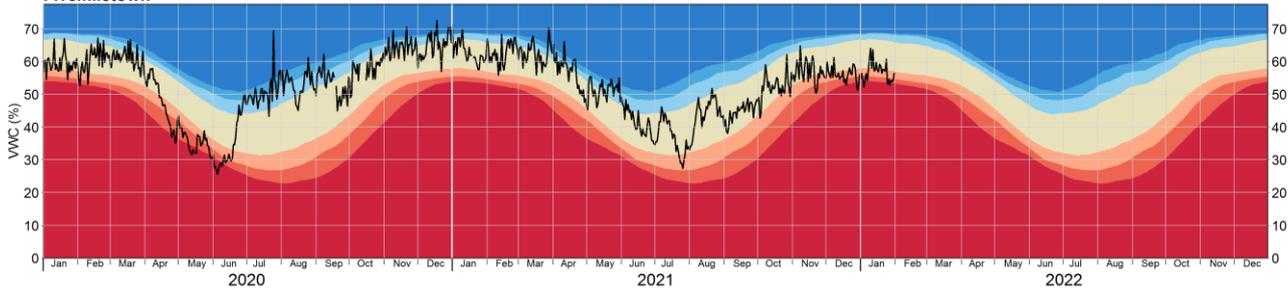
Glensaugh



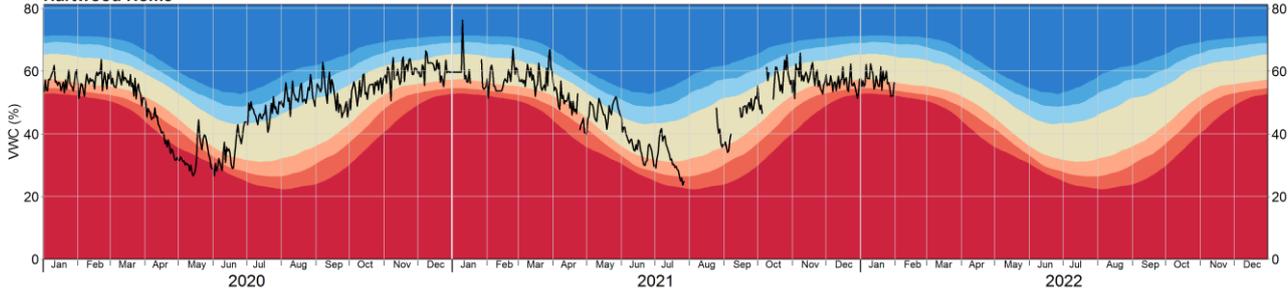
Loddington



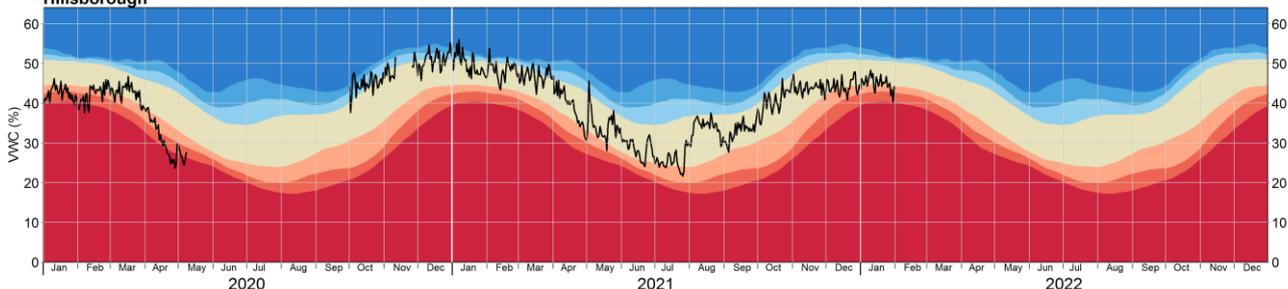
Fivemiletown

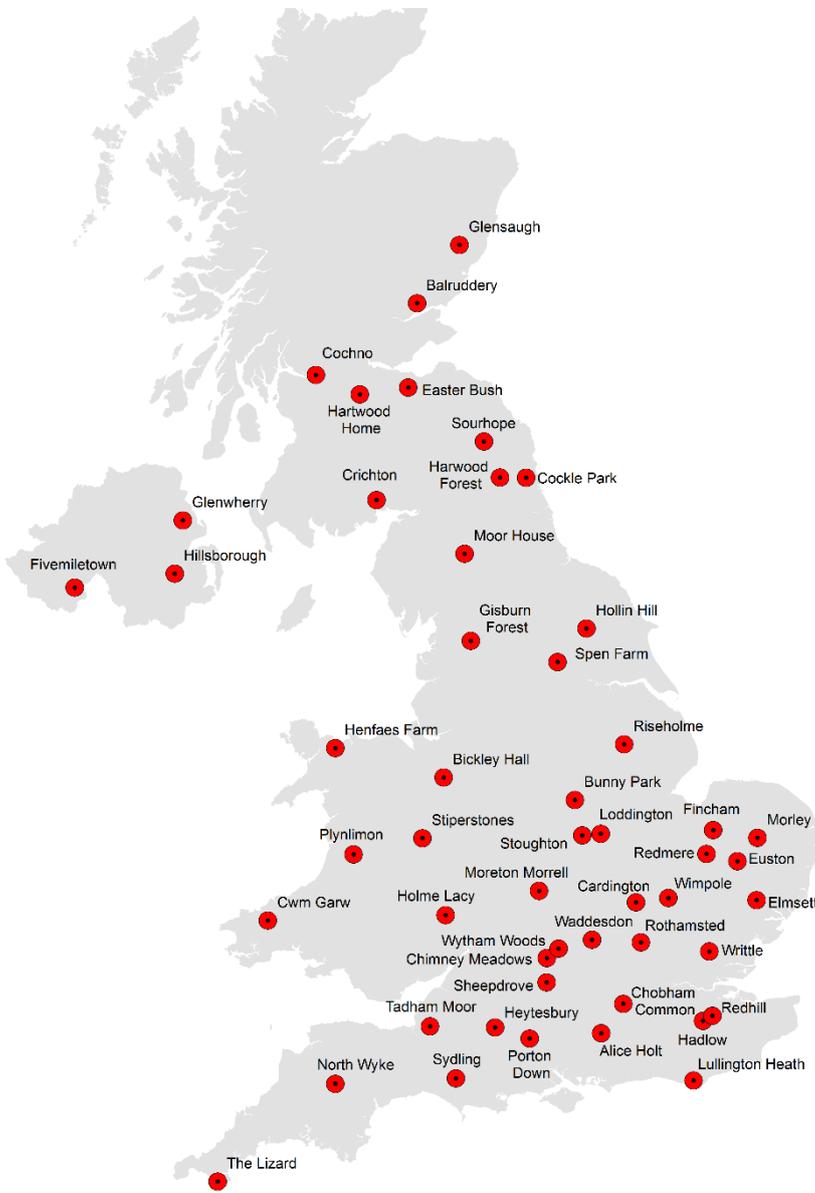


Hartwood Home



Hillsborough





**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.

