

**Soil moisture on 28 February 2022** (see back page for explanatory comments).

### Notes on period to 28 February 2022

**At the end of February, soil moisture is generally normal or wetter than normal for the time of year.**

Provisional data indicate that February precipitation was well above the long-term average for all of the UK, partly due to storms Dudley, Eunice, and Franklin, which led to many flood warnings across the UK.

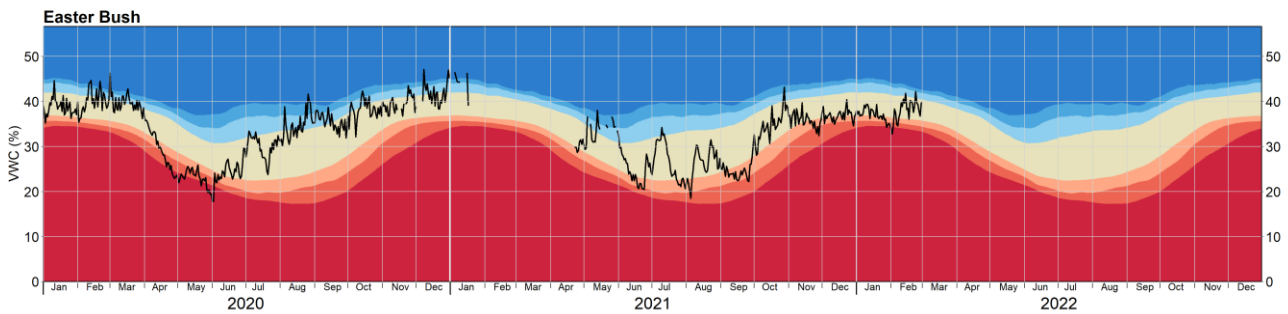
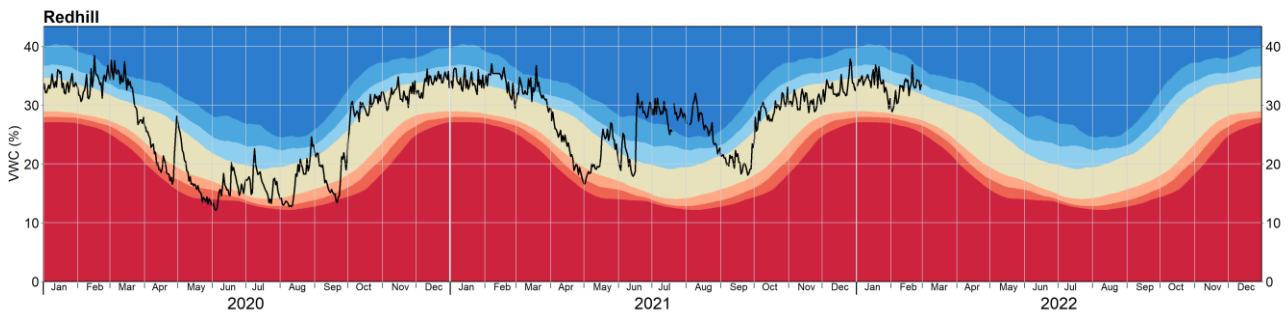
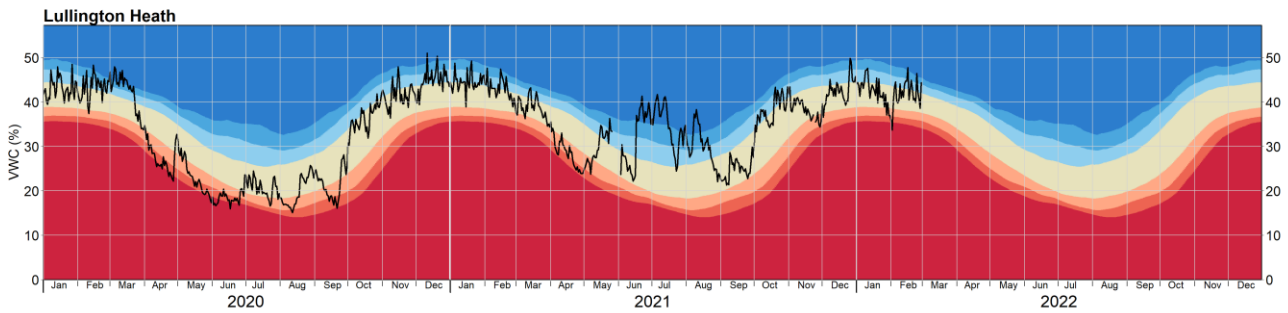
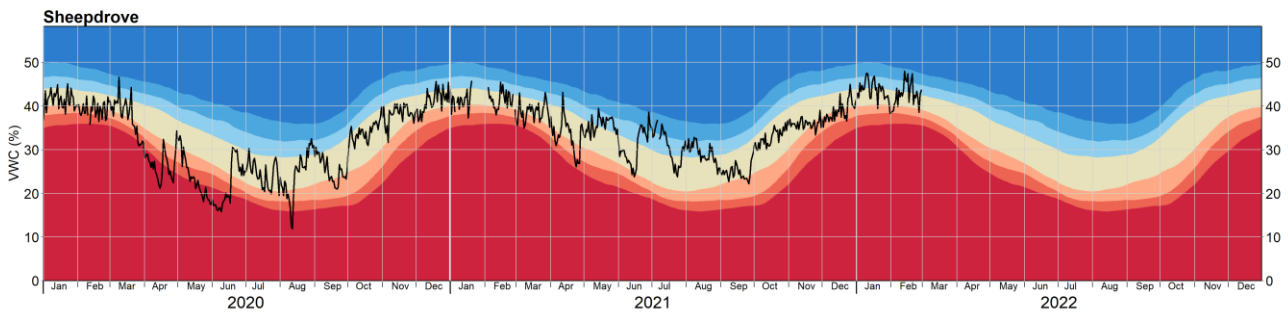
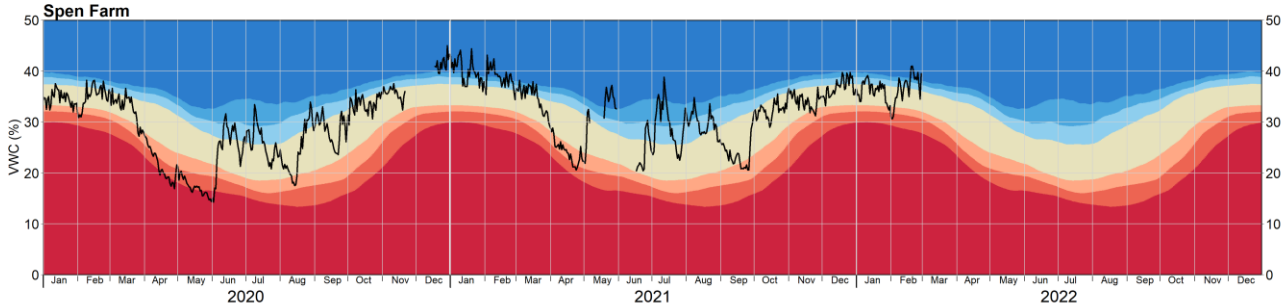
The majority of sites across the UK started the month with soil moisture slightly below field capacity. Higher than average precipitation throughout the month led to most sites ending February above field capacity, as seen in the map above right.

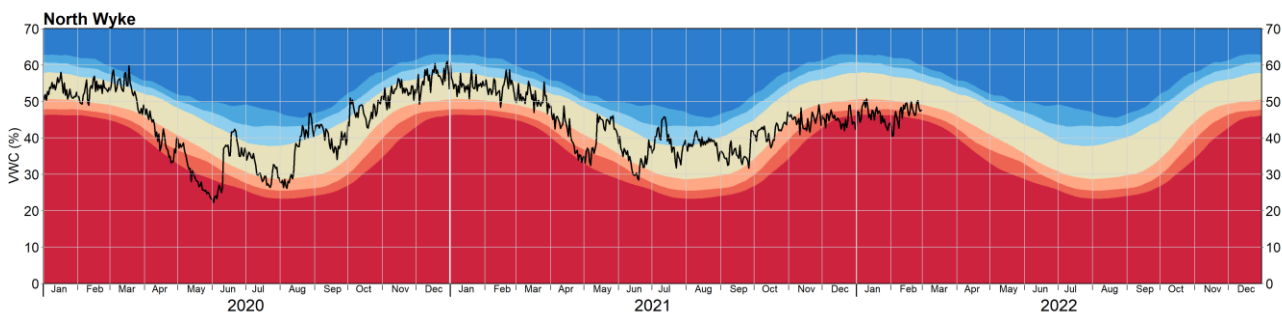
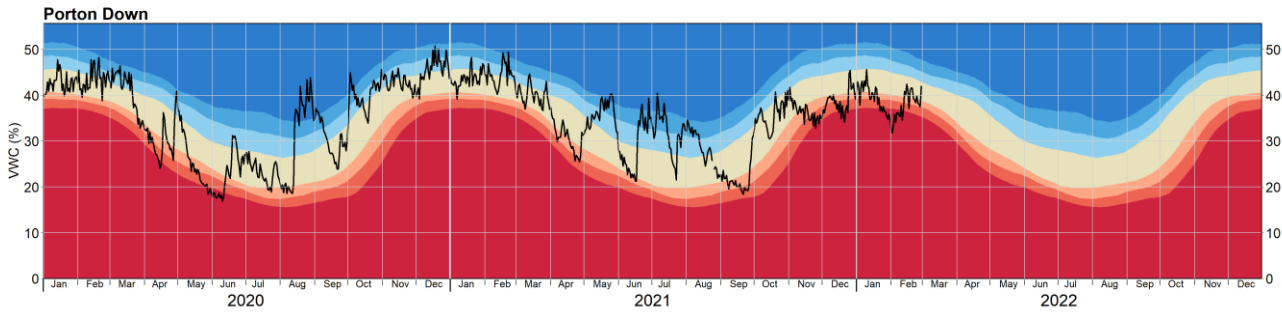
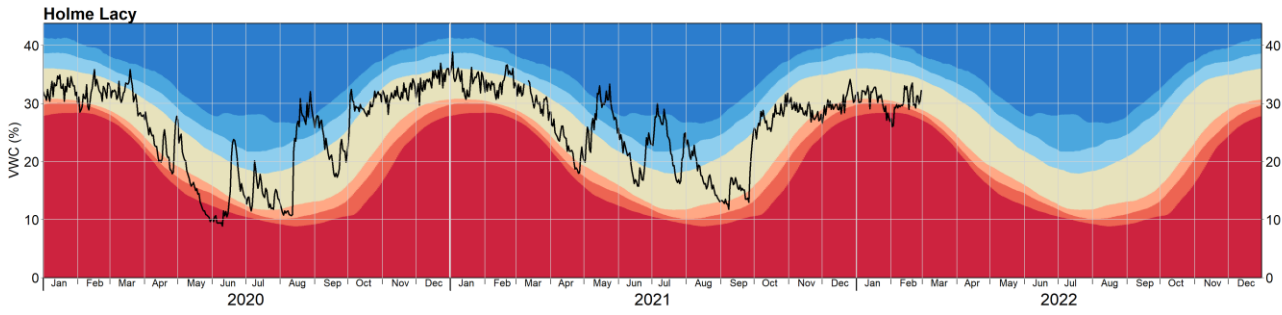
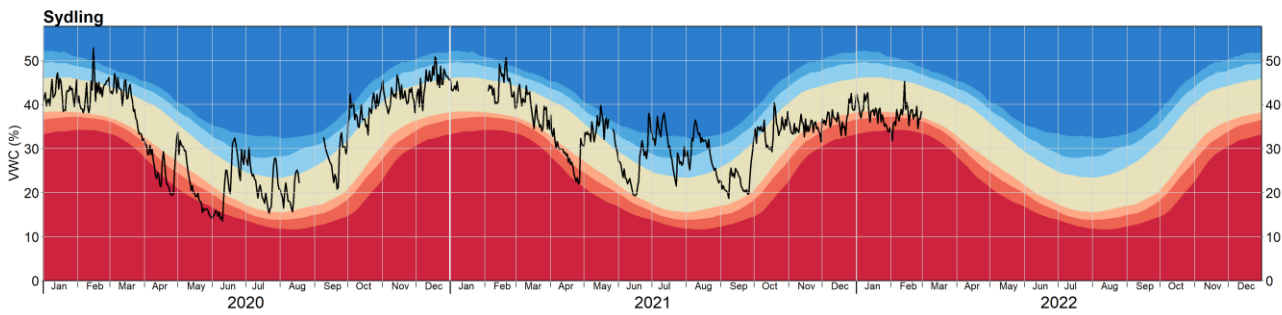
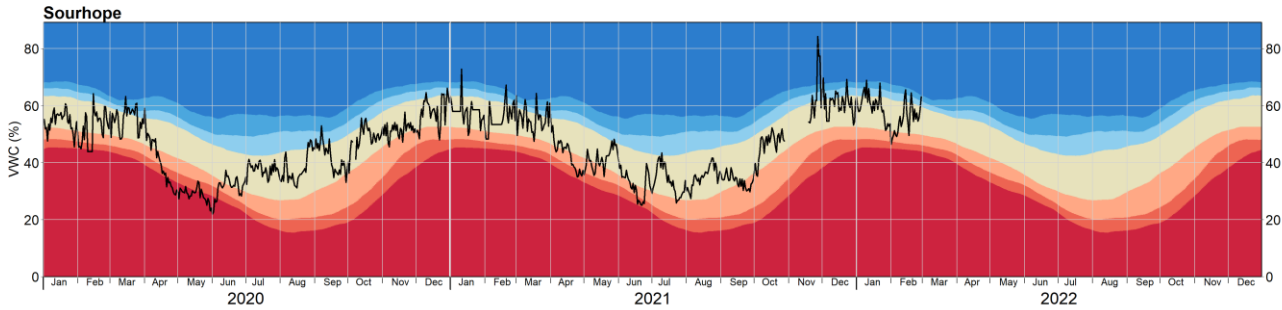
Some areas in northern England received up to 300% of their long-term average rainfall, increasing soil moisture from unseasonably low to exceptionally wet for the time of year (e.g. Spen Farm). Soil moisture at many southern sites increased from unusually dry to notably wet for the time of year (e.g. Sheepdrove, Lullington and Redhill). Sites in Scotland received around 200% of their long-term average precipitation, taking soil moisture from notably dry to normal levels for the time of year (e.g. Easter Bush, Sourhope).

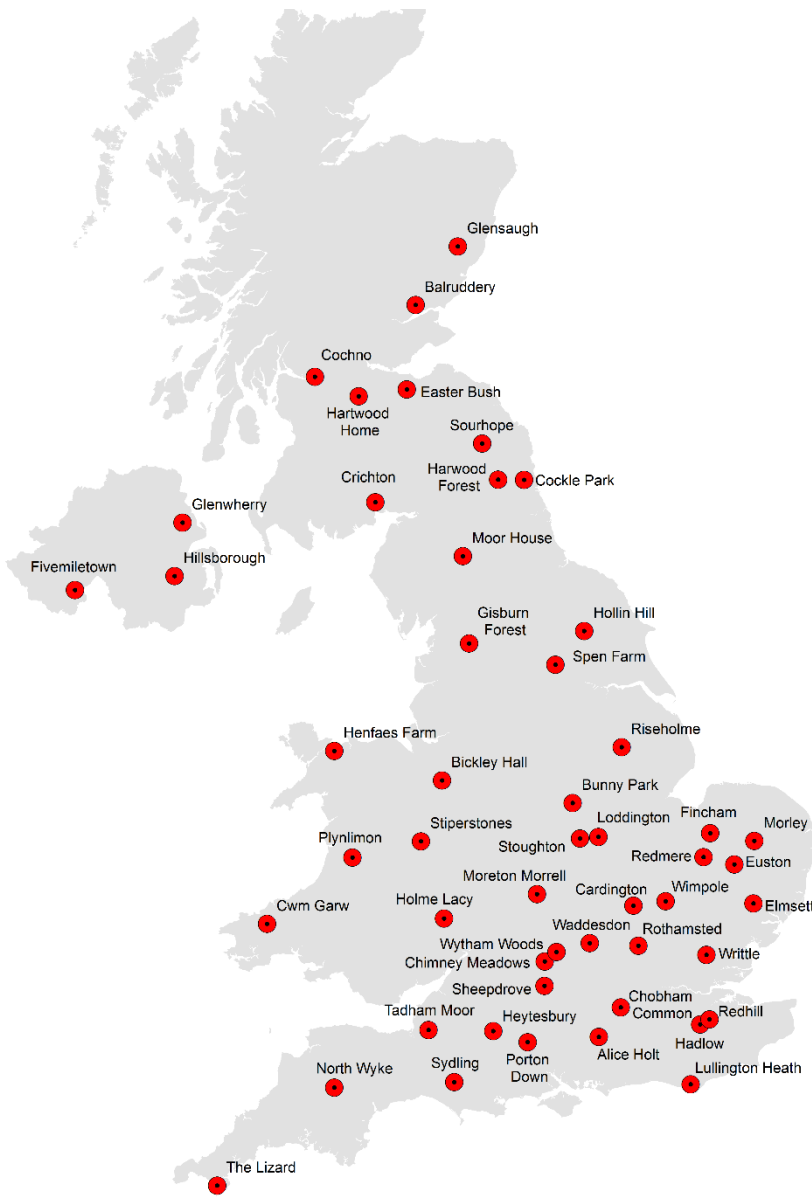
Although still receiving above average precipitation for February, the south and southwest of England recorded the least precipitation across the UK and the closest to the long-term average. This resulted in the smallest increase in soil moisture from notably dry January levels to normal levels for the time of year (e.g. Sydling, Holme Lacy, Porton Down) and some drier than usual soils for the time of year (e.g. North Wyke).

### Network News

Cwm Garw and The Lizard are now back online. Crichton and Plynlimon are currently experiencing issues. Soil moisture derived from the 'cosmos' sensor at Hollin Hill and Harwood Forest is being reviewed.







**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.

