

Soil moisture on 30 April 2021 (see back page for explanatory comments).

Notes on period to 30 April 2021

The period of dry weather that began in mid-March continued through April causing further reductions in soil moisture. Soils in much of eastern England are now considerably drier than normal for the time of year. Crops and other vegetation will become stressed if this dry period continues through May.

Provisional data for April indicated that precipitation was below average over the entire UK. Some locations in south east England recorded as little as 10% of the long-term average, and the majority of this fell in the final few days of the month. The wettest areas of the UK were parts of northern Scotland where rainfall was around 80% of the long-term average.

Sites in eastern England have seen continuous and rapid falls in soil moisture since mid-March, when soils were exceptionally wet, to the end of April when soils are notably dry for the time of year (e.g. Cardington, Elmsett, Redhill).

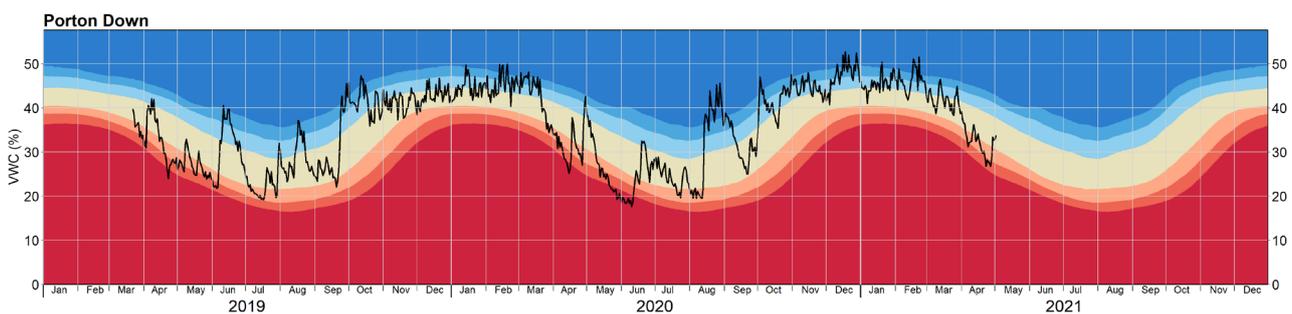
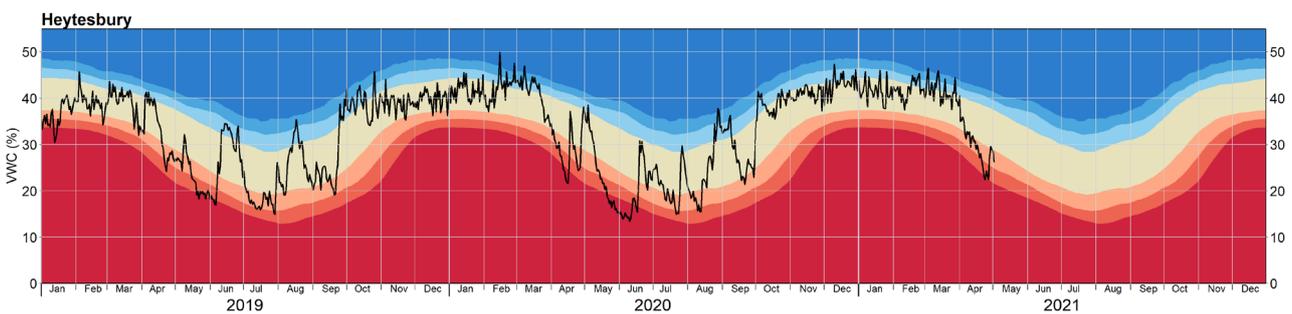
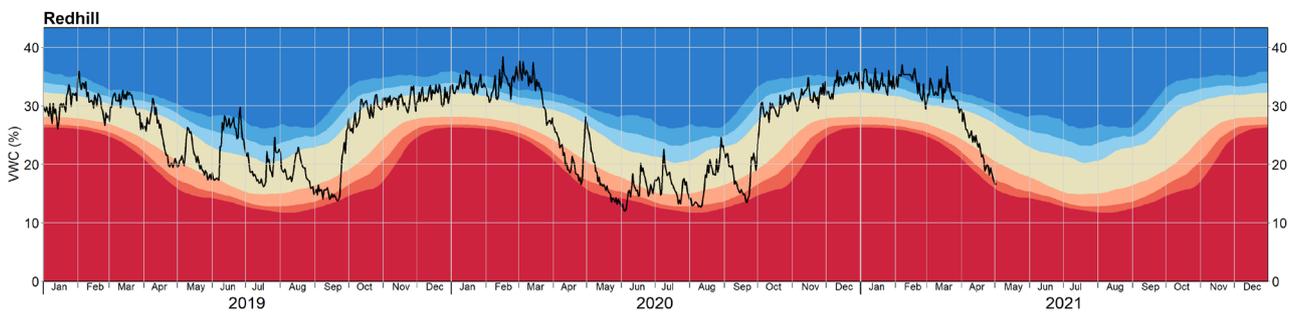
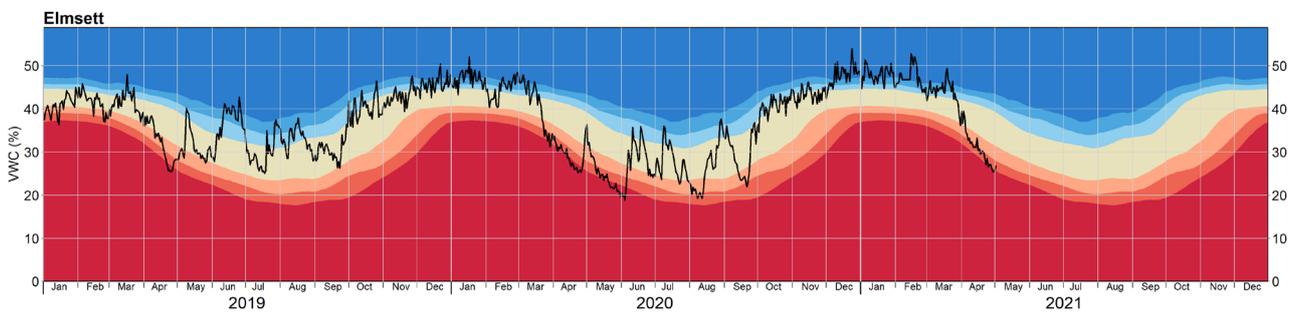
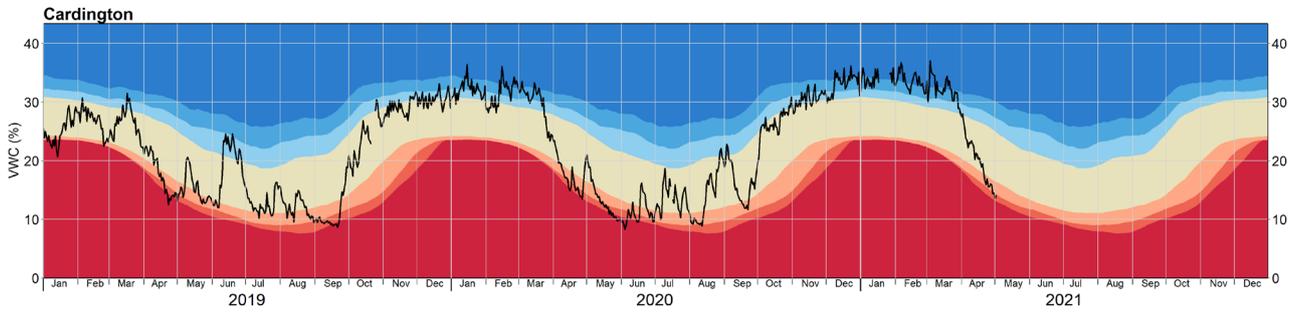
The rainfall at the end of the month provided some relief to the unseasonably dry conditions at some sites in southern England (e.g. Heytesbury, Porton Down, Sydling).

To the north and west, soil moisture has also fallen although less dramatically (e.g. Hartwood Home, Plynlimon).

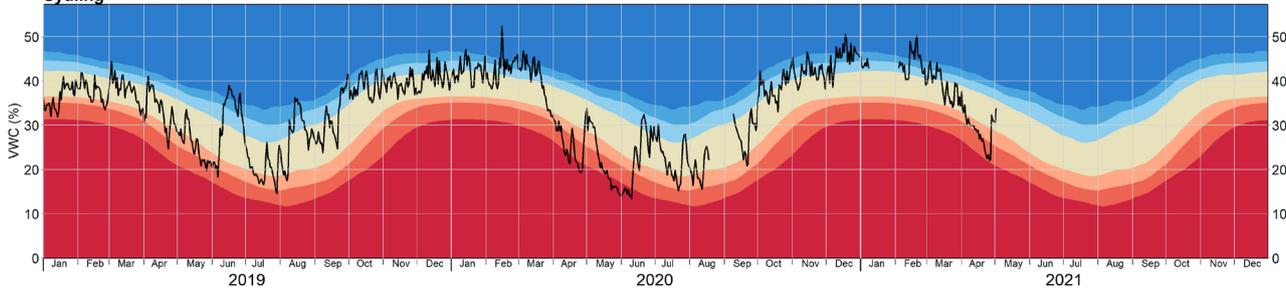
During this period soil moisture at some sites has remained close to normal (e.g. Alice Holt and Chobham Common, both to the south-west of London).

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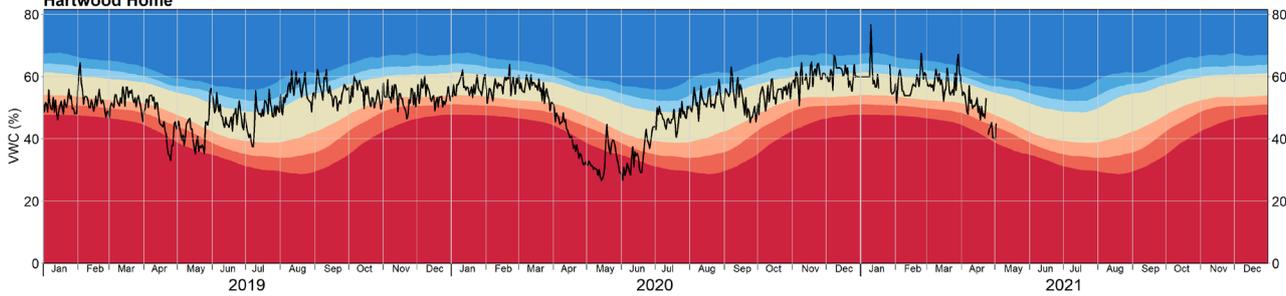
- Technical issues at Easter Bush have been resolved.



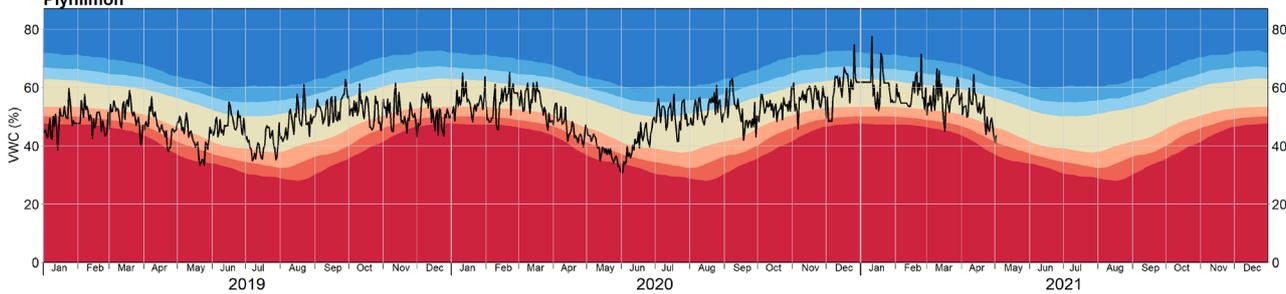
Sydling



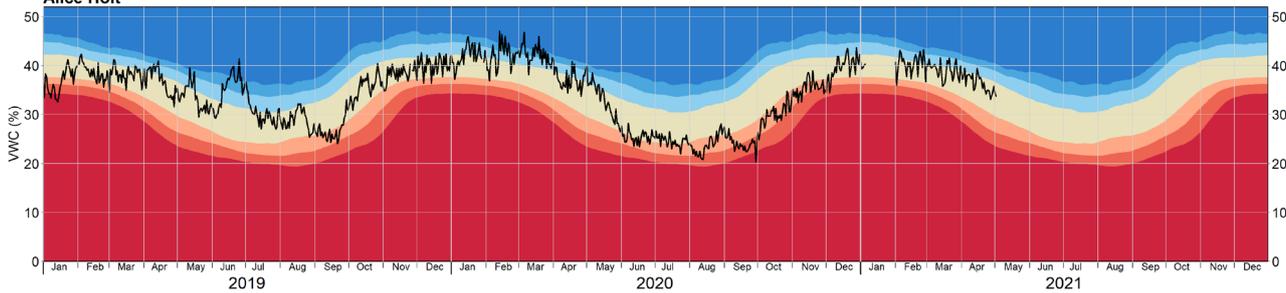
Hartwood Home



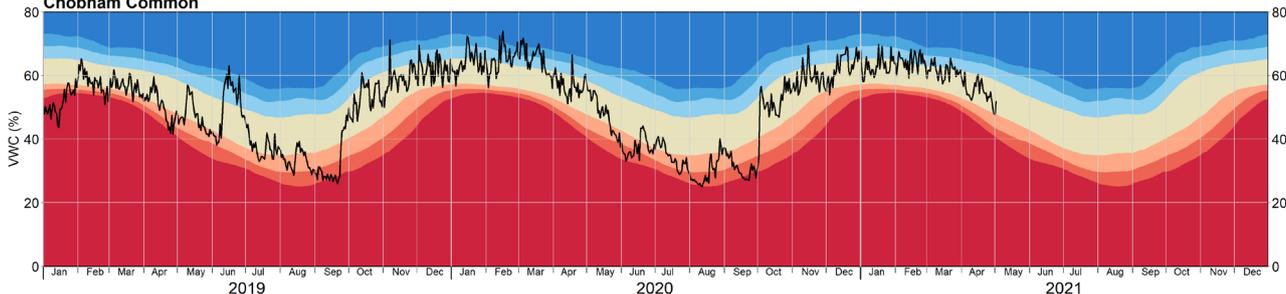
Plylimon



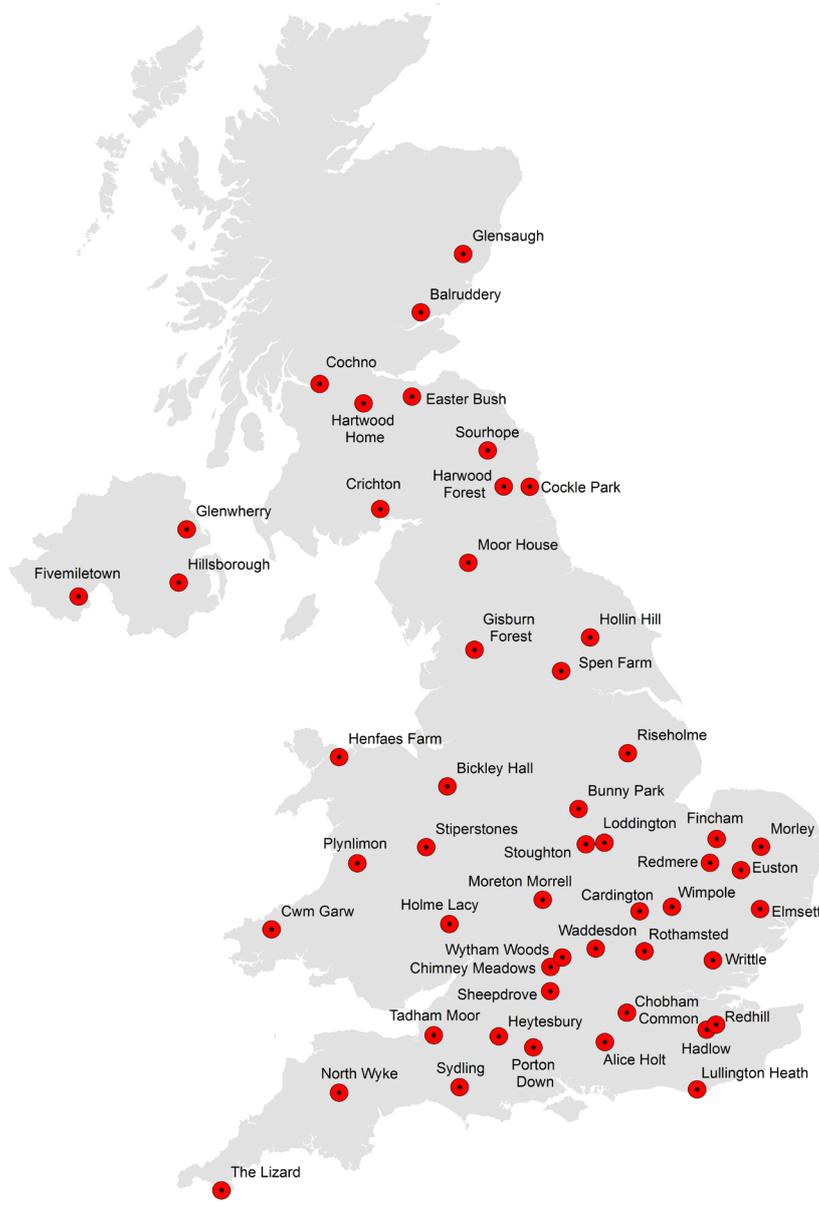
Alice Holt



Chobham Common



COSMOS-UK site locations



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.



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.

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