

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

Notes on period to 30 June 2021

At the end of June there is a gradient of soil moisture across the UK, with soils in the south of England being wetter than usual for the time of year and soils to the north being drier than normal for the time of year.

Provisional data indicate that during June northern parts of the UK received considerably less precipitation than is normal for the time of year. Areas in Scotland received as little as a third of average rainfall. Precipitation in central regions of the UK was close to average, while further south precipitation was well above average, with most of the rain falling in the second half of the month.

Many COSMOS-UK sites experienced a dry start to June, leading to a steady reduction in soil moisture. Some sites in the north of the UK continued to dry to levels below what would be expected for the time of year (e.g. Fivemiletown, Gisburn Forest and Hartwood Home).

For sites in central regions of the UK the near-average rainfall resulted in soil moisture returning to levels close to normal for the time of year (e.g. Bickley and Henfaes). The heavy rainfall in the south of England has resulted in soil moisture increasing to levels well above normal for the time of year (e.g. Hadlow, Heytesbury and Rothamsted). Despite widespread heavy rainfall, local variations in precipitation mean that some sites in the south east have ended the month with soil moisture close to normal for the time of year (e.g. Euston and Morley).

Network News

- Telemetry issues have been resolved at Lullington, Spen Farm and Easter Bush.
- New telemetry issue at Stoughton.

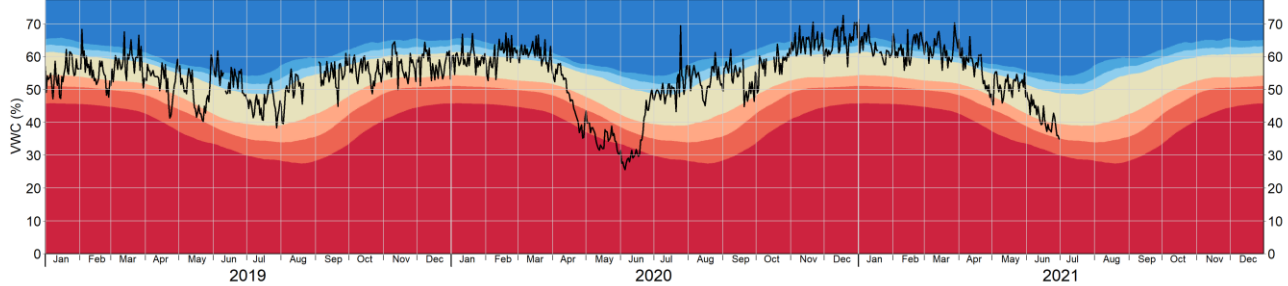


COSMOS-UK

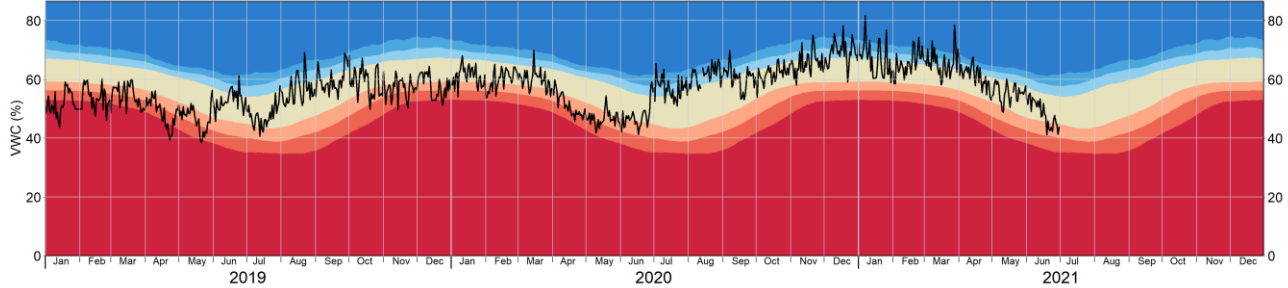
soil moisture

Issued on 1 July 2021

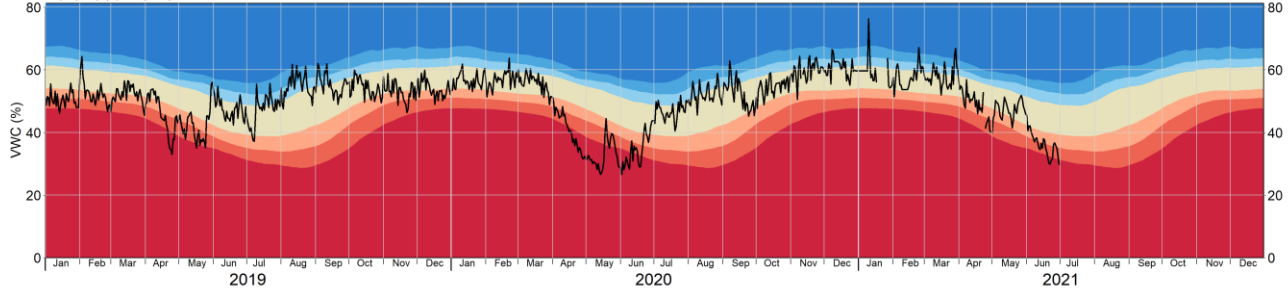
Fivemiletown



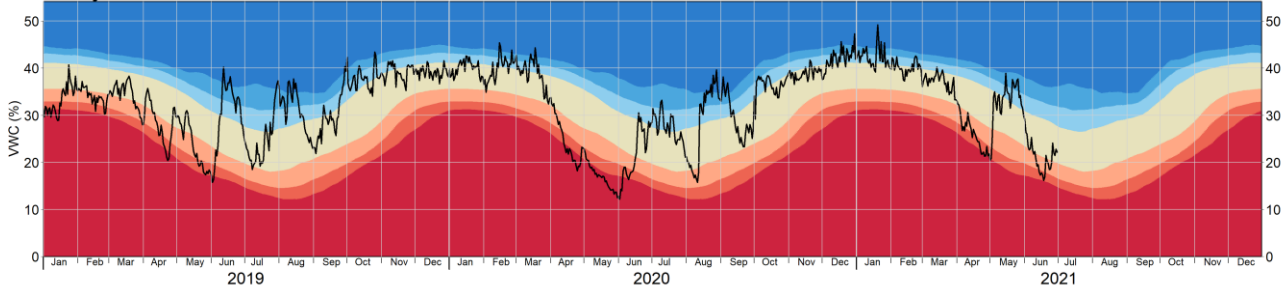
Gisburn Forest



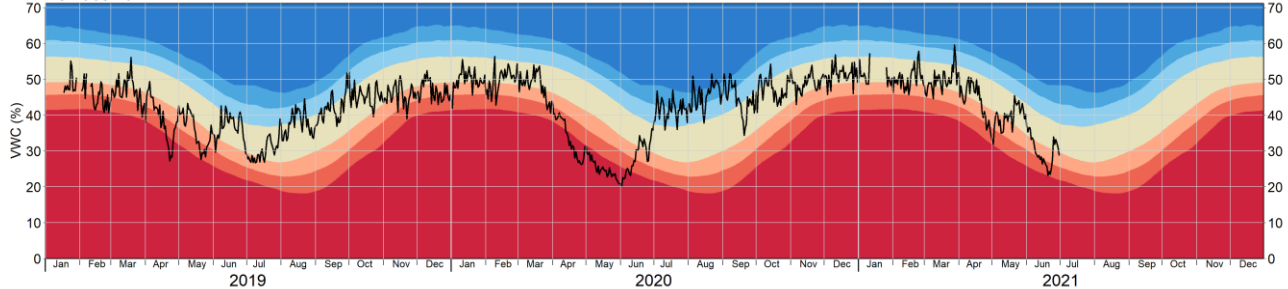
Hartwood Home

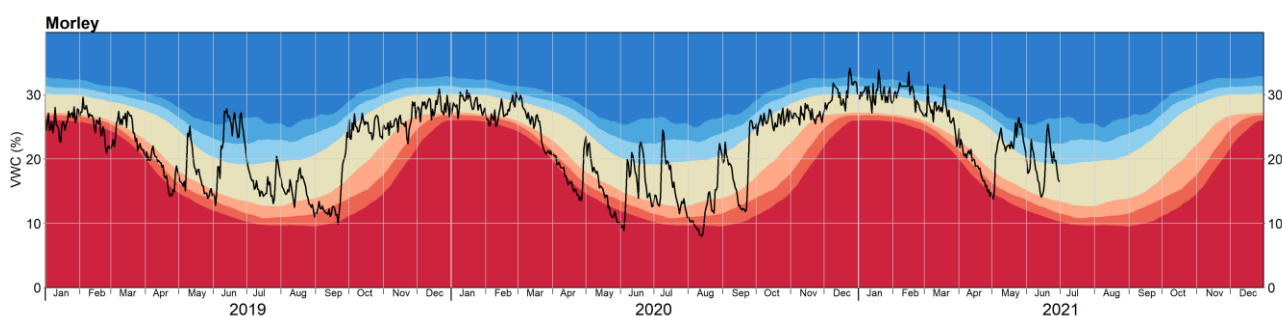
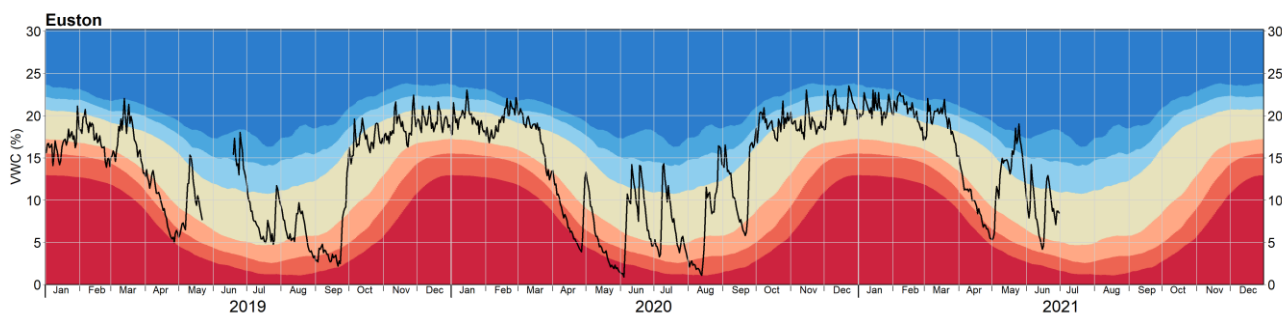
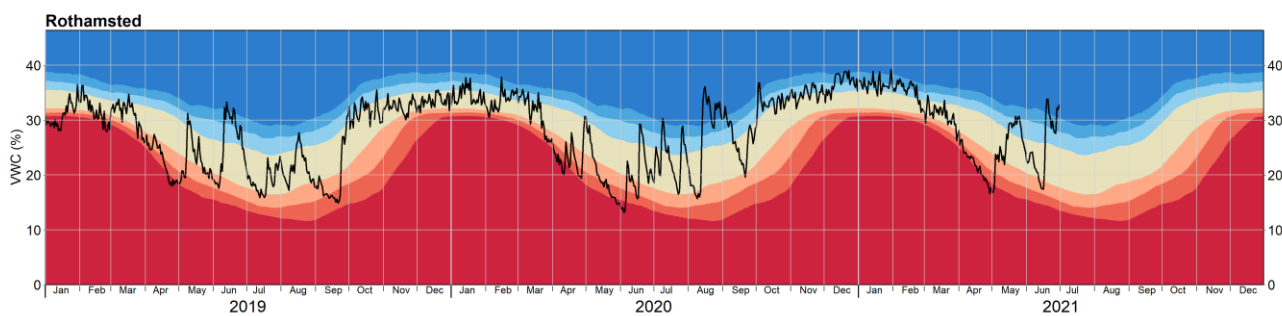
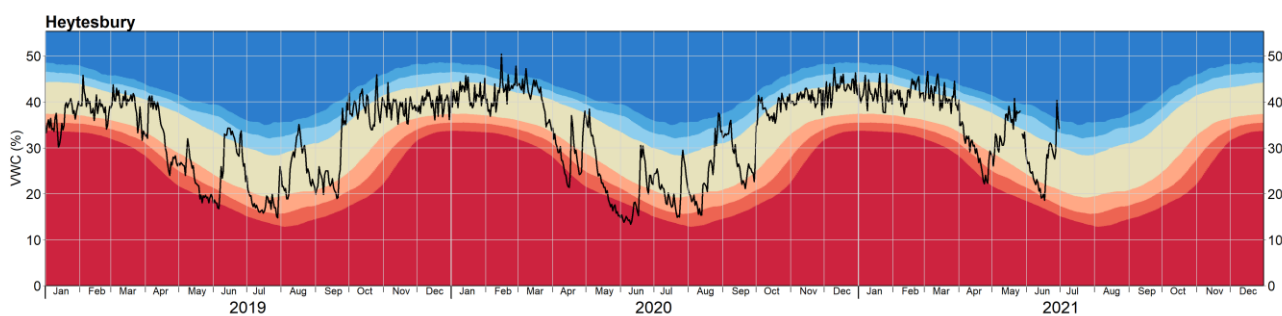
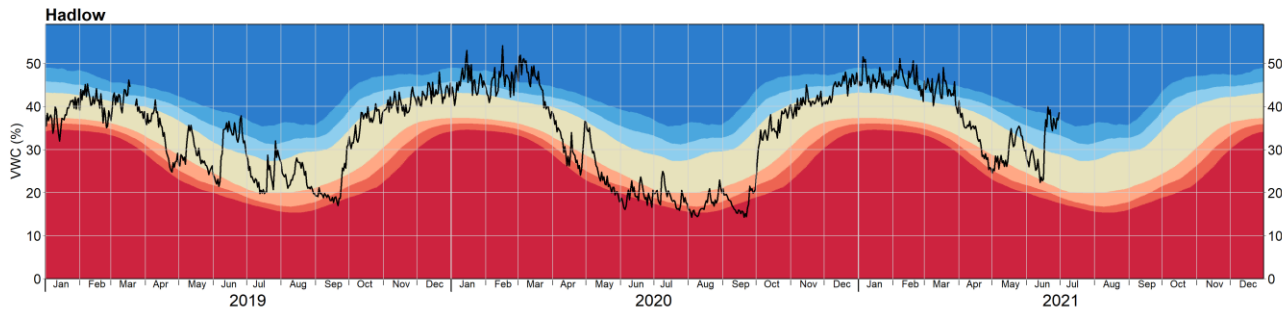


Bickley Hall



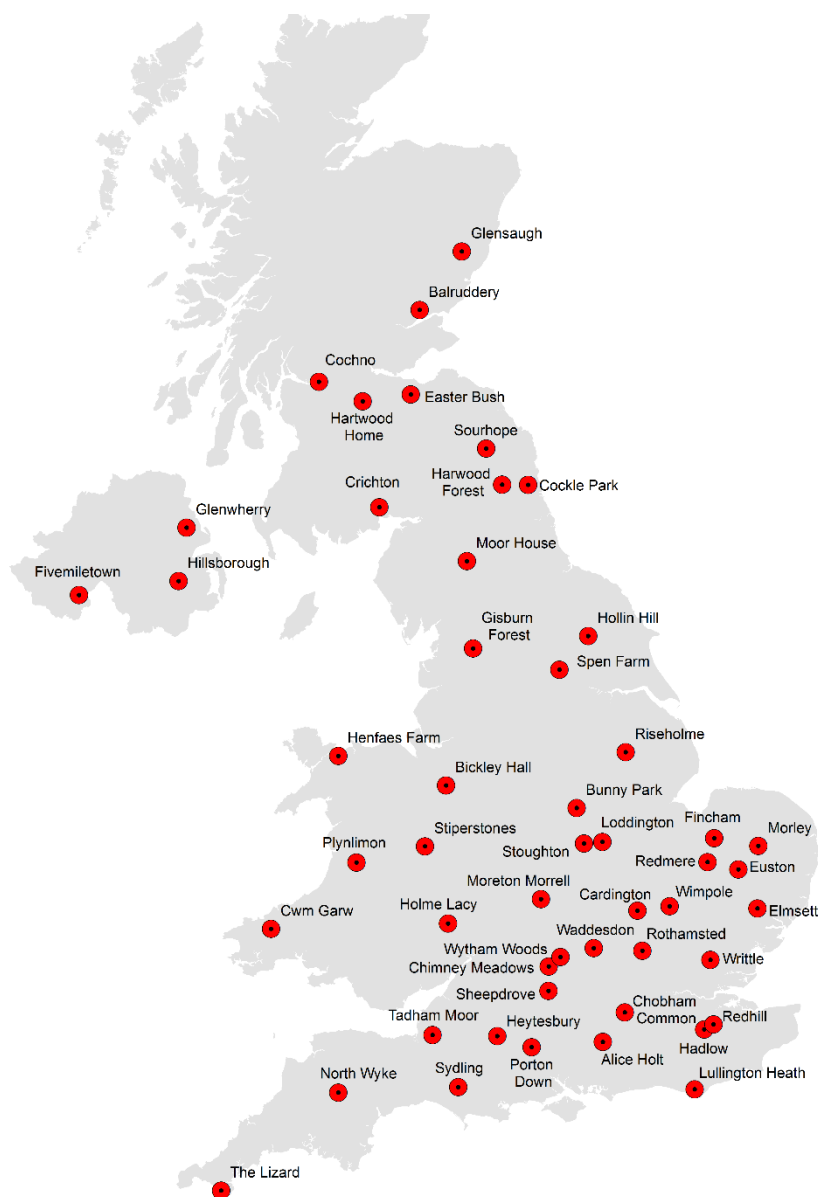
Henfaes Farm







Issued on 1 July 2021



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.

