COSMOS-UK | soil moisture

UK Soil Moisture Monitoring Network

Issued on 1 June 2021

SOIL WETNESS STATUS
Water content (%)

- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80
- 80 - 100
- no data

Symbol indicates approx. maximum water content
- 40%
- 50%
- 60%
- 70%
- >= 80%

SOIL WETNESS STATUS
Adjusted for site characteristics

- extremely dry
- dry
- well below field capacity
- slightly below field capacity
- wet/above field capacity
- very wet/saturated
- no data

Soil moisture on 31 May 2021 (see back page for explanatory comments).

Notes on period to 31 May 2021

After a generally wet May soil moisture is now close to normal, or in some places slightly wetter than normal, for the time of year across the whole of the UK.

Provisional data for May indicated that precipitation was above average over most of the UK with many parts receiving twice the normal monthly rainfall. While still being wet, rainfall in the west of Scotland and Northern Ireland was typically 150% of the monthly average. There were some exceptions to this general wetter than normal picture with some places along the south coast of England having closer to normal rainfall. In all parts of the UK, the month ended with a spell of warm and dry weather.

There has been a remarkable transition in the weather from late April; April had been a very dry month and soil moisture was very much below normal for the time of year at the end of the month, with the very real possibility of crops and other vegetation becoming stressed. Since then, the above average rainfall saw soil moisture rise to normal levels for the time of year, and then to be notably wetter than normal especially in central and eastern parts of England. The warm and dry end to May has caused soil moisture to fall to be generally normal for the time of year at the end of the month.

Sites seeing the most dramatic changes in soil moisture through May included Bunny Park, Euston, Porton Down and Writtle. Some sites saw remarkably little change in soil moisture, although this is a time when some decrease in soil moisture would generally be expected, e.g. Plynlimon, Fivemiletown, Hartwood Home.

Network News
- Lullington, Spen Farm and Easter Bush are currently offline.
- Recurrence of cosmic-ray neutron sensor issues at Easter Bush.

Fivemiletown

Hartwood Home

Plynlimon

Cockle Park

Hollin Hill

Stiperstones

Bunny Park

Euston

Porton Down

Writtle

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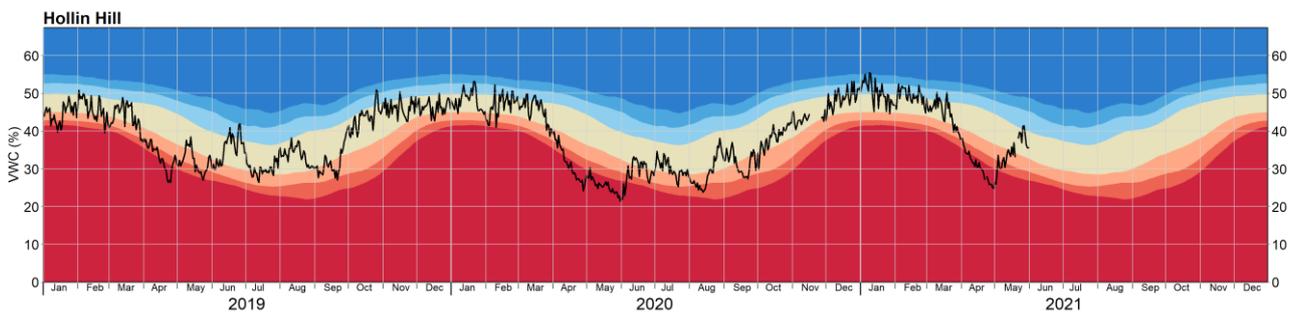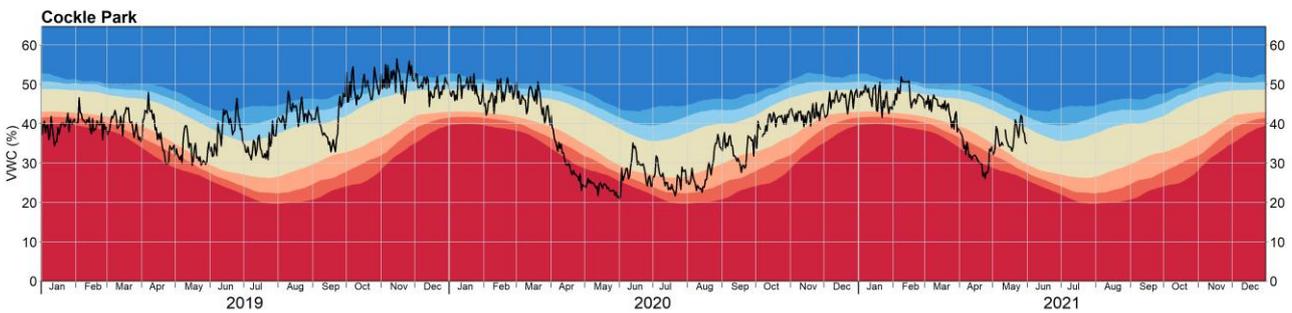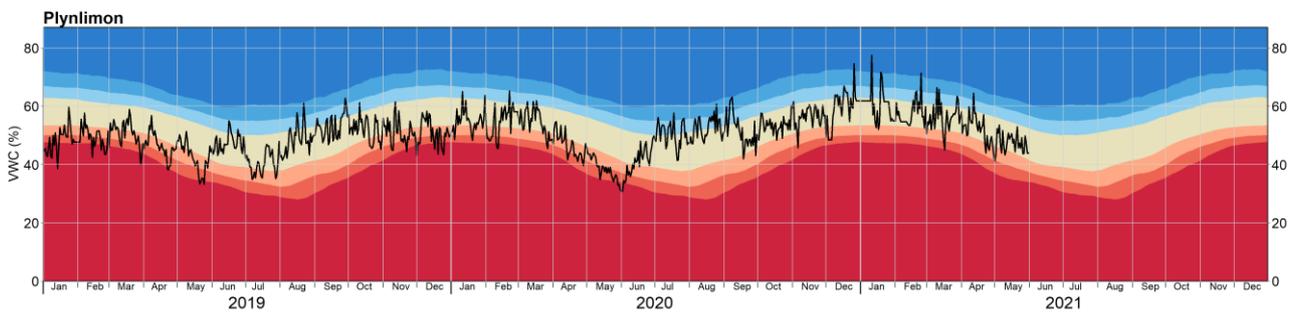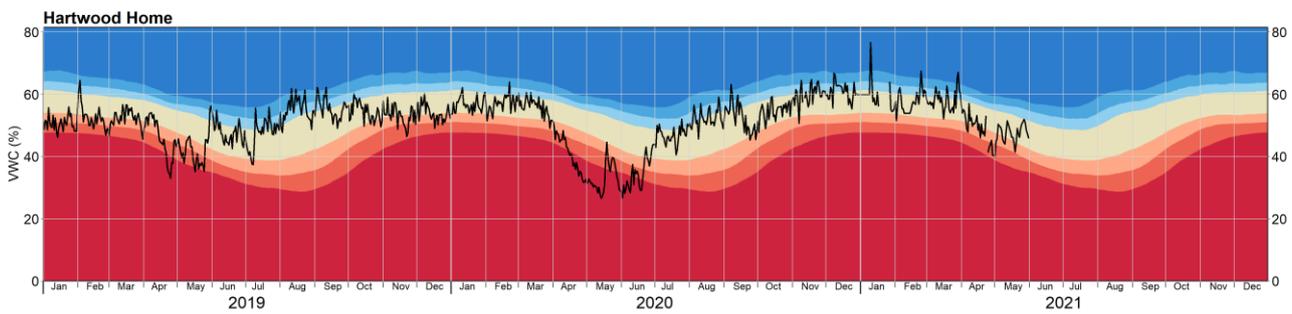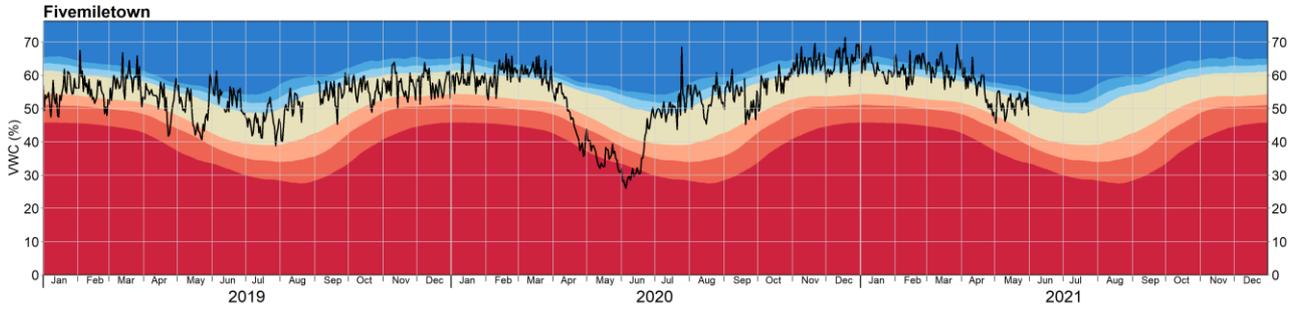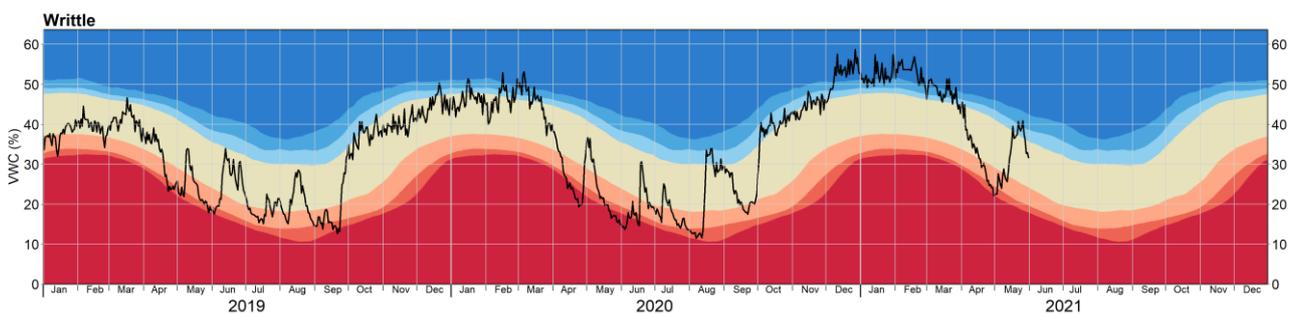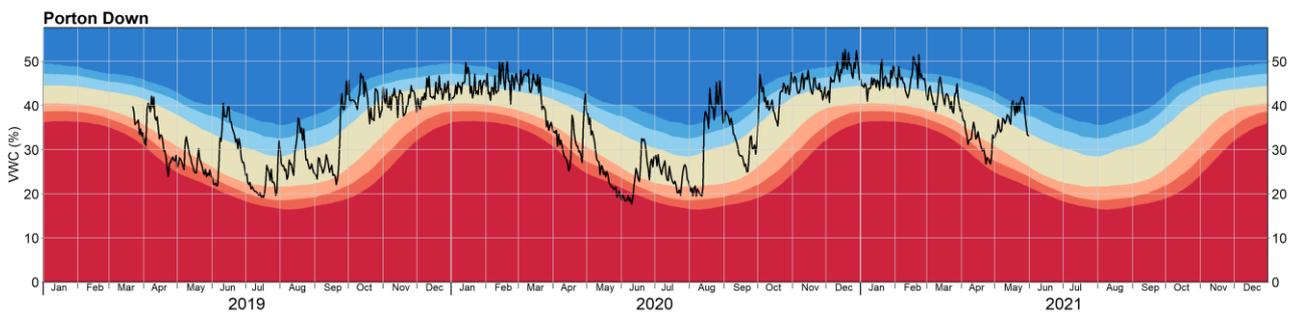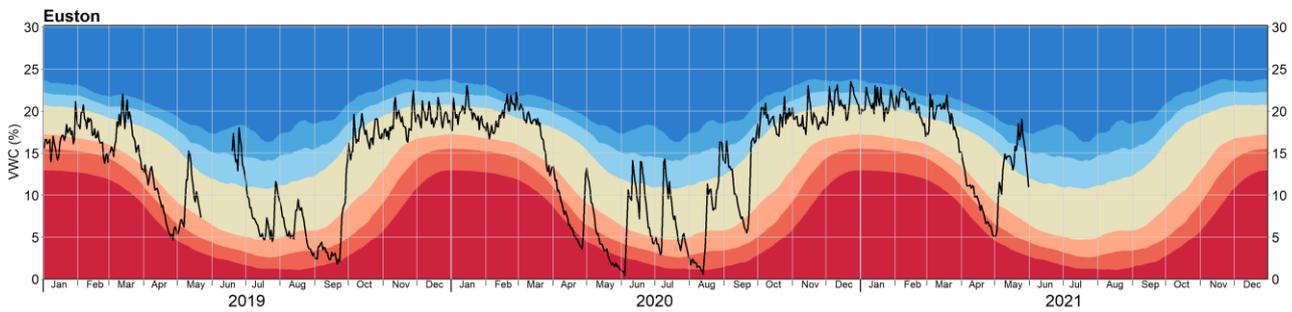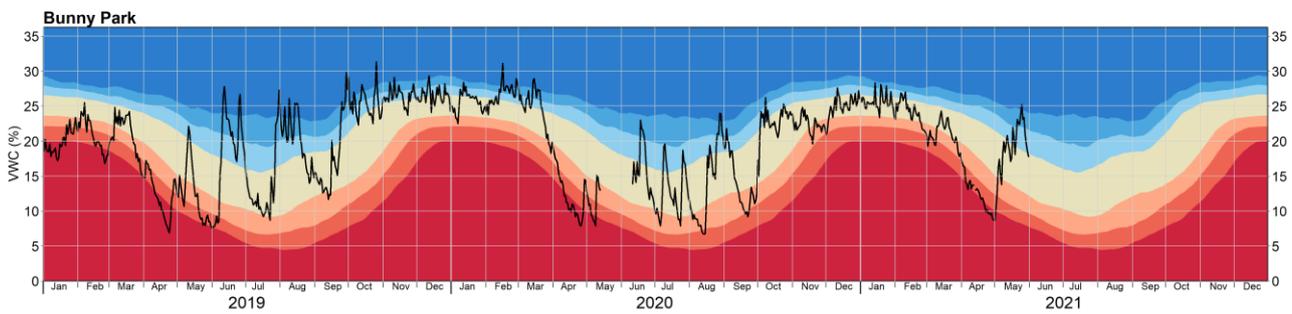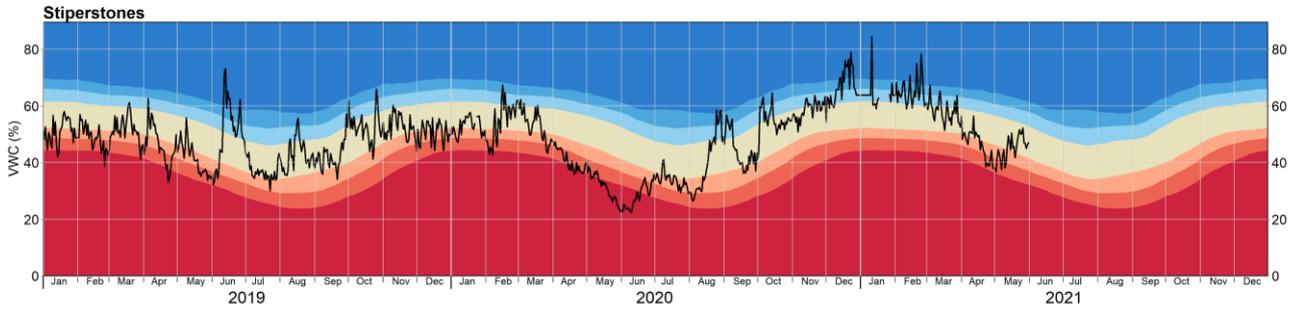
COSMOS-UK site locations

Glensaugh
Balruddery
Cochno
Easter Bush
Hartwood Home
Sourhope
Crichton
Harwood Forest
Cockle Park
Glenwherry
Moor House
Fivemiletown
Hillsborough
Gisburn Forest
Hollin Hill
Spen Farm
Henfaes Farm
Riseholme
Bickley Hall
Bunny Park
Stiperstones
Loddington
Fincham
Morley
Plynlimon
Stoughton
Redmere
Euston
Moreton Morrell
Cardington
Wimpole
Elmsett
Cwm Garw
Holme Lacy
Waddesdon
Rothamsted
Wytham Woods
Writtle
Chimney Meadows
Sheepdrove
Chobham Common
Redhill
Tadham Moor
Heytesbury
Hadlow
North Wyke
Sydling
Porton Down
Alice Holt
Lullington Heath
The Lizard

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.

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