

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

Notes on period to 31 March 2021

After what has been a wet winter with above normal soil wetness, a period of dry weather has generally seen soil wetness return to levels normal for the time of year, but with some regional variability.

Provisional data for March indicated that precipitation was below average over most of England, Wales and the east coast of Scotland, with some areas recording less than half of the long-term average. Elsewhere precipitation was generally closer to average, but there was above average precipitation notably in north Wales, the Lake District and north-west Scotland.

During the last six weeks many sites across the UK have seen a return to normal levels of soil wetness after what was a very wet winter (e.g. Bickley Hall, Lullington Heath, North Wyke).

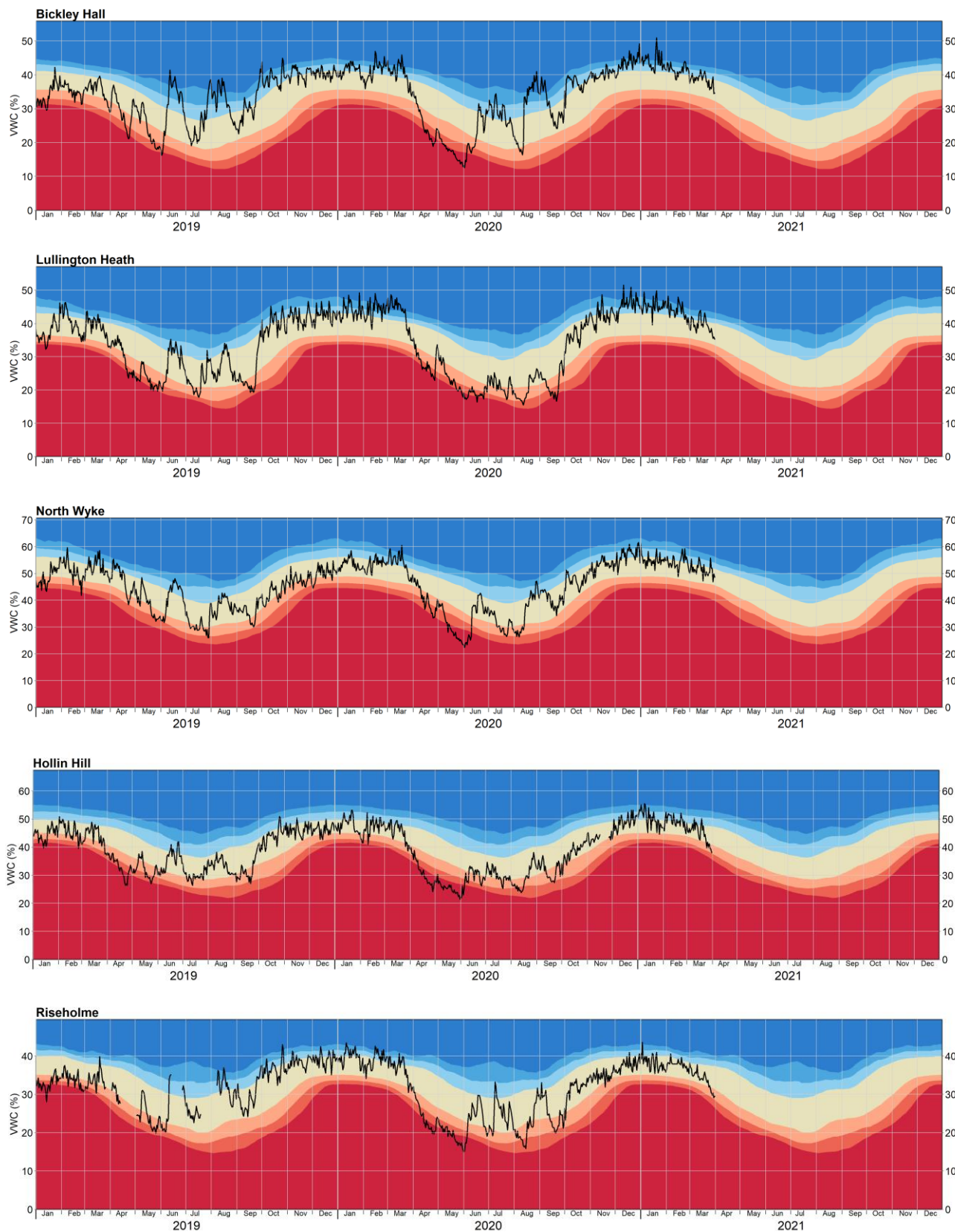
At some sites to the east of England the fall in soil moisture has been particularly rapid, and with a few days of dry and exceptionally warm weather at the end of the month, soil is drier than normal for the time of year, with significant soil moisture deficits developing (e.g. Hollin Hill, Riseholme, Rothamsted). Dry springs have been a feature of recent years and 2021 is, at present, following a similar pattern.

To the north and west at sites that have had above normal rainfall during March, soil wetness levels are above normal for the time of year (e.g. Fivemiletown, Hartwood Home), and this is also true of some sites in southern central England (e.g. Cardington, Waddesdon).

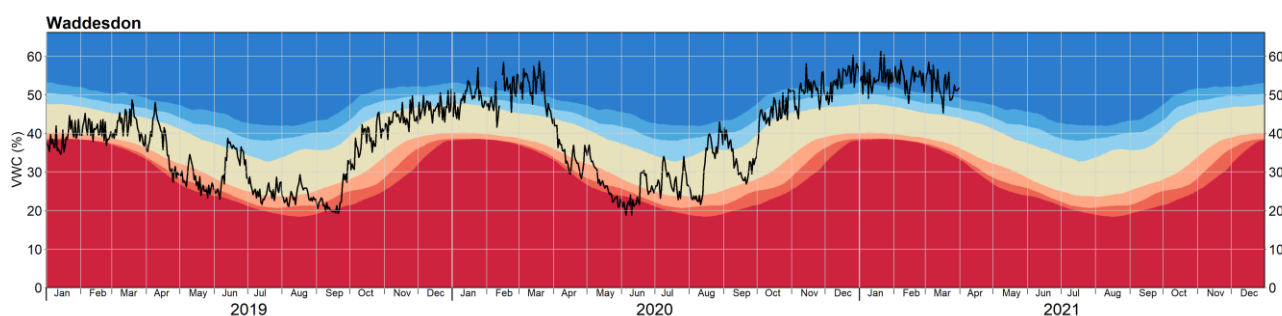
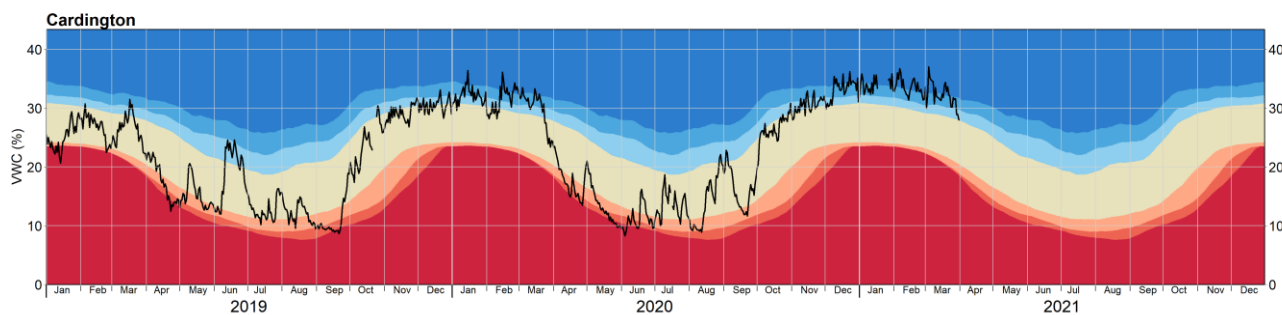
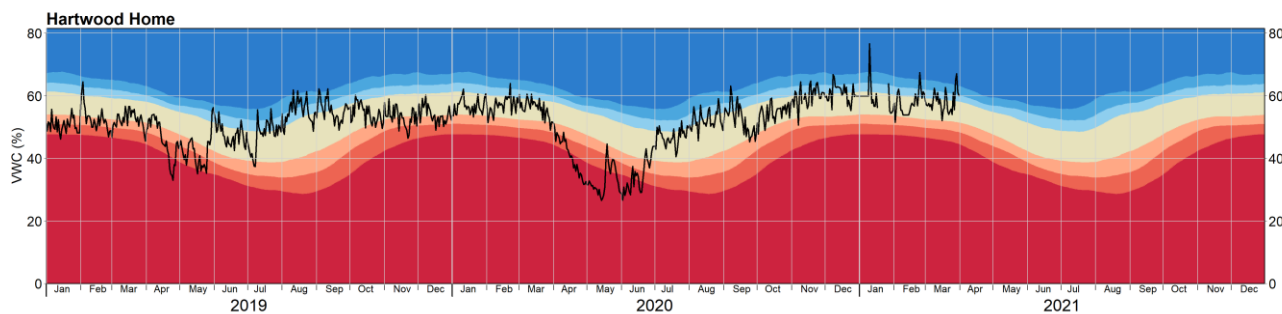
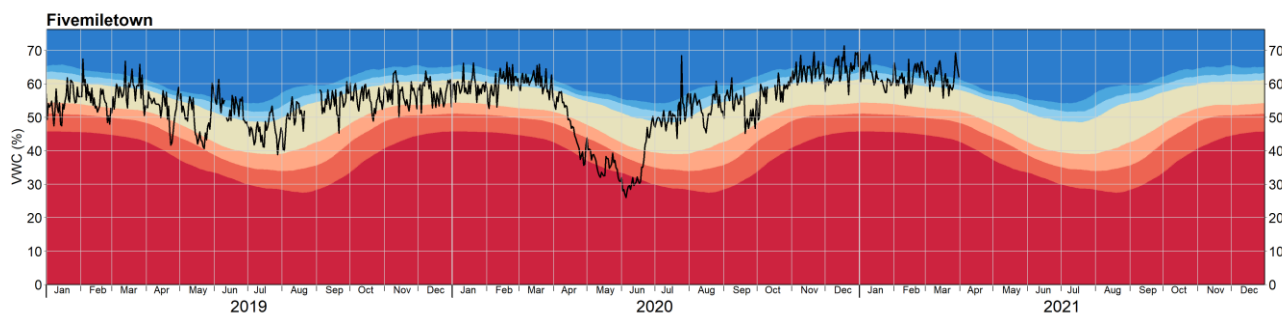
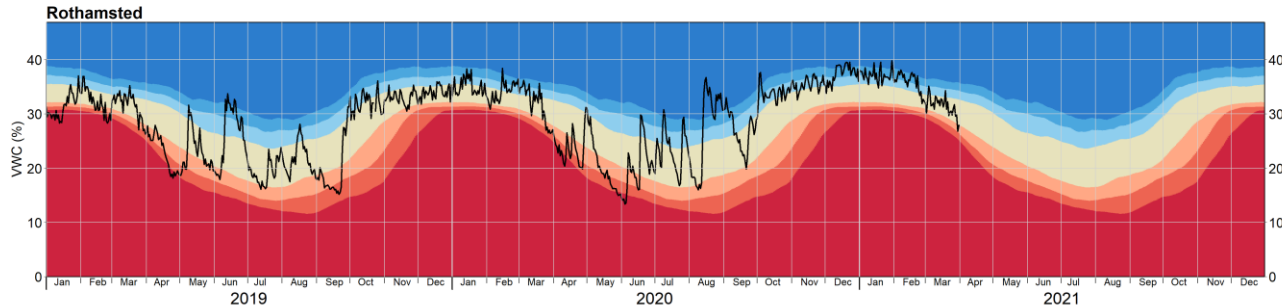
Network News

- Cosmic-ray neutron sensor faults at Easter Bush and Loddington.
- The site at Hollin Hill has now been recording data for 7 years.

Issued on 1 April 2021



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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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