

Soil moisture on 30 November 2018 (see back page for explanatory comments).

Notes on period to 30 November 2018

Across the UK soil moisture continues to climb back to normal from the very low values seen during the summer months. In southern England a few locations now have above normal soil moisture.

Provisional data for November show that rainfall was above normal in Northern Ireland, southern Scotland, southern Wales, and southern England, below normal in northwest and central England, and close to normal elsewhere.

Despite the above average rainfall during November, soil moisture at sites in Scotland are normal or slightly below normal (e.g. Hartwood Home, Easter Bush).

In Northern Ireland, northern and central England and Wales, soil moisture has been below normal through November (e.g. Hollin Hill, Moor House, Plynlimon) although some sites have recovered to normal values at the end of the month (e.g. Stoughton, Chimney Meadows).

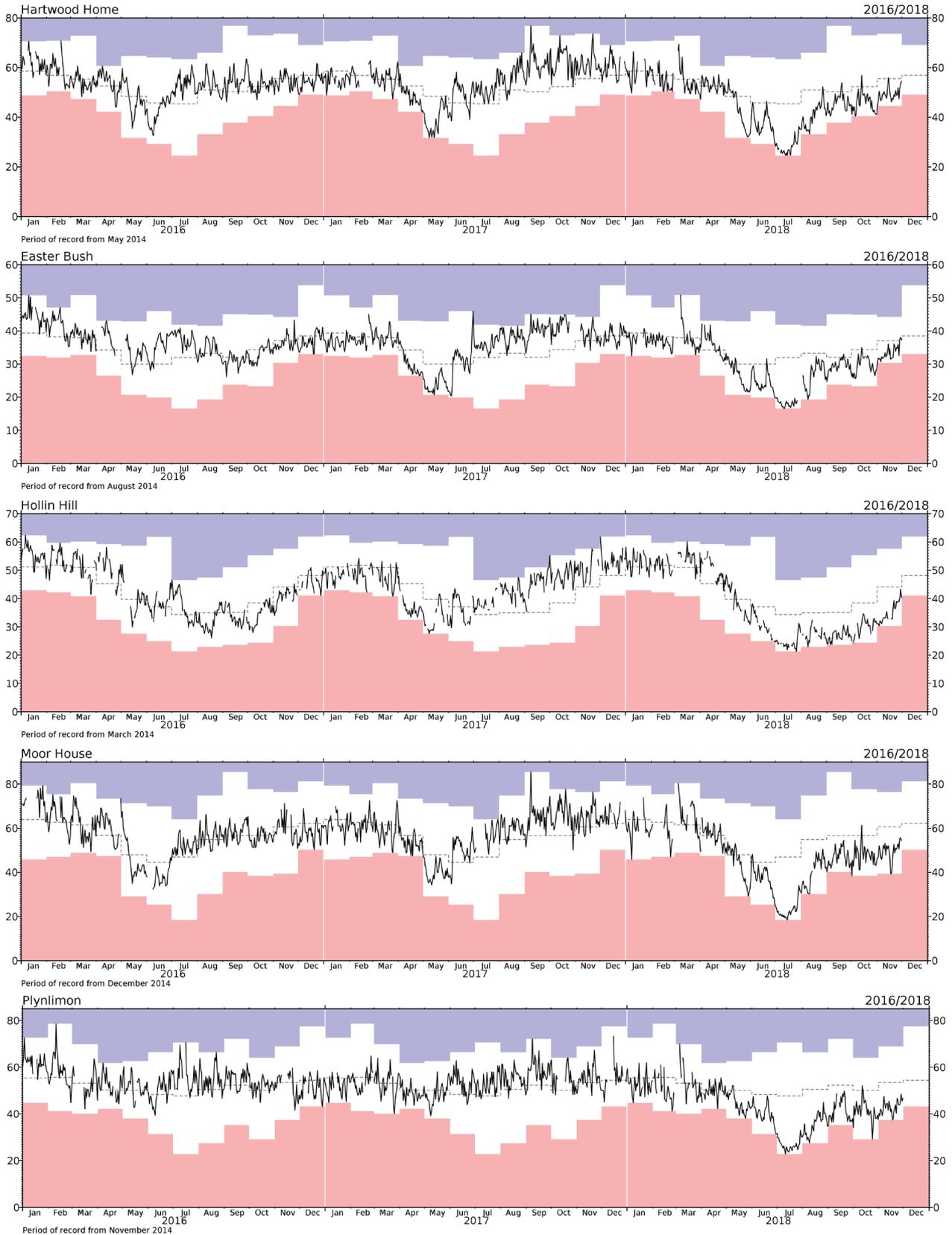
Further south some soil moisture has been typical for the time of year throughout the month (e.g. Rothamsted, Morley).

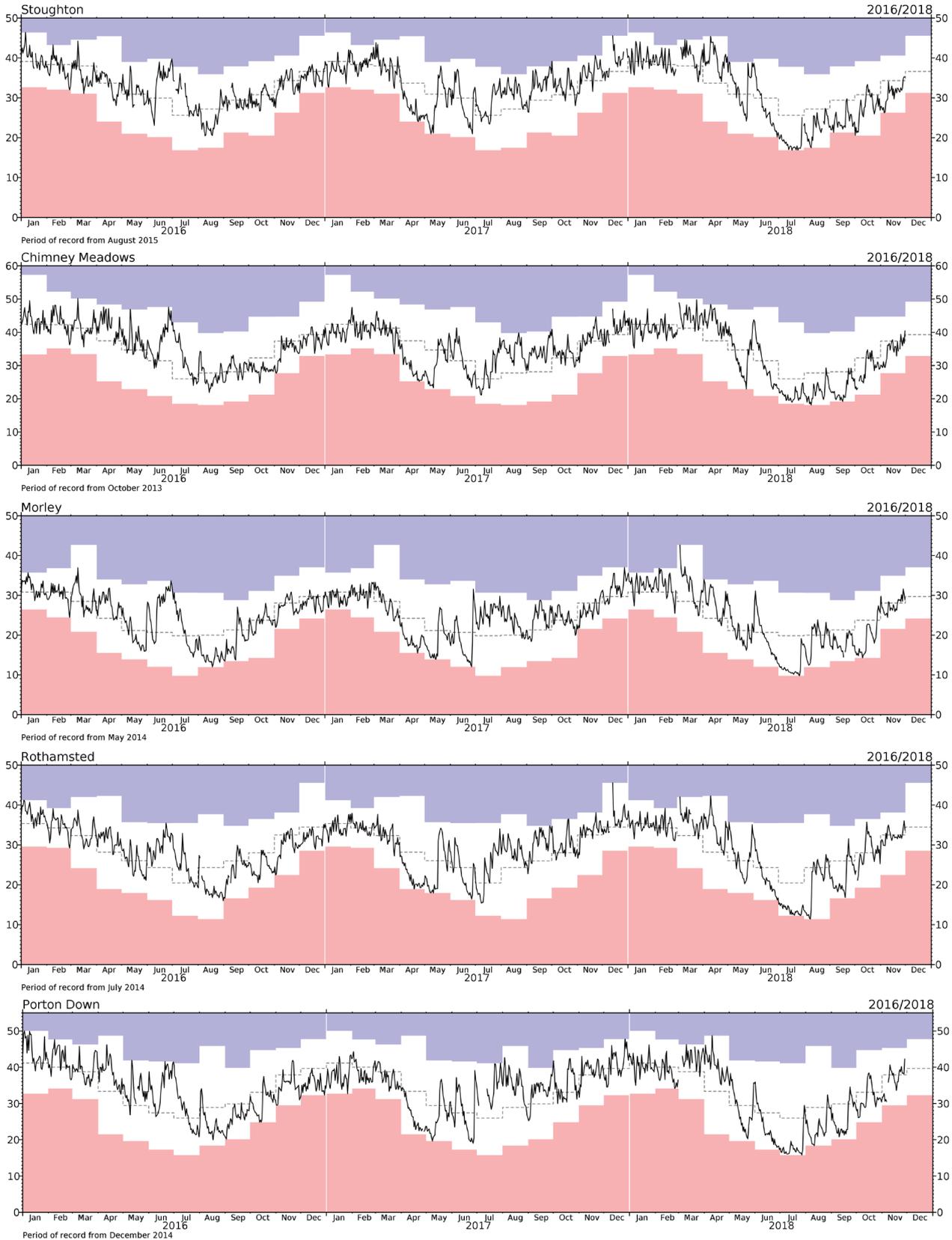
Only in southern England are there above normal soil moisture levels (e.g. Porton Down) although there is considerable local variability.

Note that the COSMOS-UK records are too short to reliably estimate long-term monthly averages and departures from them; it is therefore only possible to give qualitative indications about averages and what is typical for the time of year.

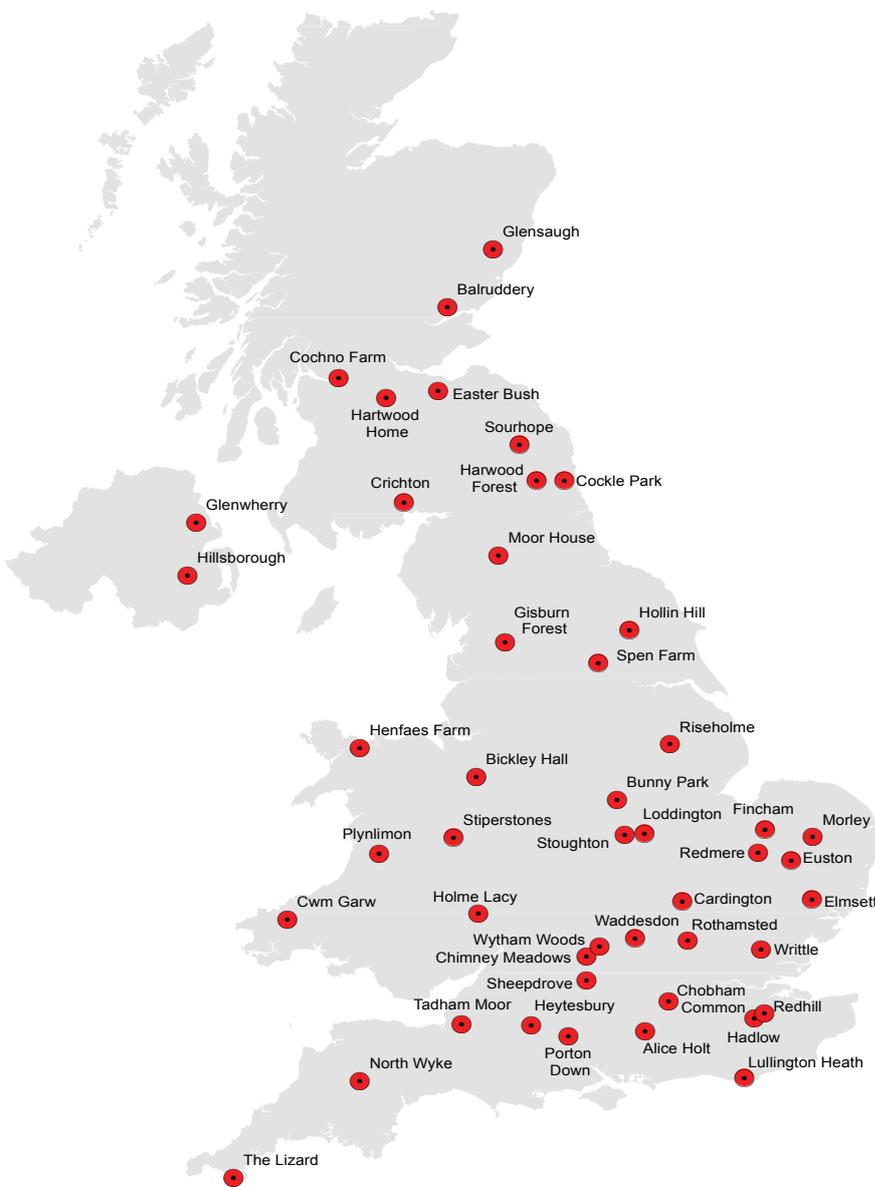
Technical issues during November

- Cosmic ray neutron counter: Harwood Forest
- Telemetry: Alice Holt, Cwm Garw, Euston, Hadlow, Gisburn, Heytesbury, Lullington, North Wyke, Porton Down, Sourhope
- Raingauge: Chimney Meadows, North Wyke
- Logger: Spen Farm
- Minor issues: Bickley Hall, Chobham Common, Cockle Park, Morley, Rothamsted, Spen Farm





COSMOS-UK site locations



About the maps on page 1: The maps of volumetric water content (VWC) and soil moisture index (SMI) show average daily soil moisture at the end of the month. Colours indicate wetness as in the keys. Grey symbols represent missing data.

The symbols represent groups of sites with similar soil maximum water content, i.e.



VWC – This is the percentage water content and reflects both capacity of the soil to store water as well as actual moisture content.

SMI – This is an index of soil moisture that is adjusted for the capacity of the soil to store water. A value of around 1.0 represents field capacity (FC) which is typical moisture content in late autumn and early spring. SMI will generally be lower than this in the summer and higher in the winter.

Nearby sites with the same symbol (i.e. similar rainfall and soils) should be in similar VWC and SMI classes; however neighbouring sites with different symbols (i.e. similar rainfall but different soils) can be in different VWC and SMI classes. Sites represented by circles with an outline are generally poorly draining and wet, and therefore often have VWC and SMI values different from their neighbours; data from these sites are less reliable than from other sites.

The shaded areas represent principal aquifers.

About the graphs on pages 2 and 3: These show the VWC over a three year period. The black line shows the daily soil moisture, the shaded areas show the monthly minima (pink) and maxima (blue) from the period of record, and the dashed grey line indicates the period of record monthly mean. These extremes and means are currently derived from very short records; they do nevertheless give some indication of the seasonal variability of the moisture content.

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, known as 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 funded as part of the NERC's National Capability.