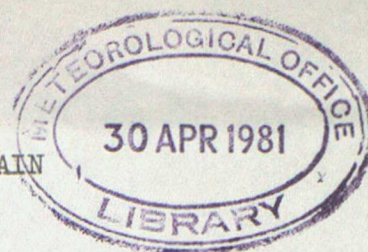


## METEOROLOGICAL OFFICE

## ESTIMATED SOIL MOISTURE DEFICIT OVER GREAT BRITAIN

AT 0900 ON 29 APRIL 1981



This issue is the first in the 20th year of Estimated Soil Moisture Deficit bulletins. Most recipients will be aware that a more comprehensive and versatile bulletin, MORECS (Meteorological Office Rainfall and Evaporation Calculating System) has been available since April 1978. The MORECS system has met with teething troubles in this period and it is now generally agreed that calculated soil moisture deficits have been too high. MORECS has been restructured in the recent winter and the new system will come into force next month. If, as expected the new MORECS gives good results, it is likely that the ESMD bulletin will be discontinued at the end of the 1981-82 season.

The last bulletin for the 1980-81 season was despatched on 21 January 1981. The following fortnight saw one of the quietest, most settled spells of weather since the spring of 1980, and many places recorded almost a fortnight without measurable precipitation. January continued the run of dry months from November 1980 over England and Wales. November was wet over Scotland and the eight months from June 1980 were the wettest for June to January over that country since the start of the series since 1869. The dry spell from 21 January was brought to an end by heavy rainfall on 2 February but February as a whole was rather dry over most of Britain, especially the southern half. A wet unsettled spell began towards the end of February and continued for most of March which proved to be the second wettest such month over England and Wales since 1727. March 1947 was wetter and the rapid melt of an extensive snow cover gave rise to the disastrous spring floods of that year. No such eventuality arose in 1981, but extensive flooding did occur in South Wales and southwest England after heavy rainfall from 6 to 13 March: more than 200 mm was recorded in the period on the mountains of South Wales, with about 150 mm on the Moors of southwest England. A further very wet period occurred about 20-24 March, with more than 120 mm on Brecon Beacons on 20th-21st and more than 80 mm on Dartmoor. By contrast, April was a rather dry, quiet month up to 21st, with rainfall, mainly light on several well scattered days. The quiet spell was interrupted from about 23rd to 27th however, by a spell of quite extraordinarily severe late wintry weather. Heavy snowfall, with drifting occurred over an area extending from southern Scotland, through northern and midland England to the Moors of southwest England. The blizzards occurred earliest in the north, about 23rd, and progressed southwards. In southeast England, precipitation occurred mainly as rain in the period and snow cover was very short in duration. Water equivalents amounted to about 50 mm on 23rd-24th in Southern Uplands and to more than 70 mm on 24th-26th in southern Pennines, Lincolnshire and Norfolk. More than 50 mm was recorded on 26th on Dartmoor. With the thaw, extensive flooding occurred in Lincolnshire and East Anglia. Most of the snow has now melted but cover still exists on some higher ground.

By 21 January 1981, soils under short-rooted vegetation were returned to capacity everywhere but deficits persisted under long-rooted vegetation in many places. Areal land use deficits of up to 25 mm were apparent in the Cambridge area and around the Thames estuary. Deficits under long-rooted vegetation were maintained throughout the winter in these areas. Elsewhere deficits were slow to recommence in the wet March but by 22 April, mean deficits for areal land use were at or above the seasonal average over all river divisions and over most of Scotland, greatest excesses being over Wales and Northwest England. Mean areal deficits fell substantially in the week ending 29 April and soils were near capacity then in eastern areas from Yorkshire to Norfolk and Suffolk. General values for areal land use were still above average on 29 April over South West Wales but were below average over other divisions of England and Wales. Values were well above average



over all River Purification Board areas.

The outstanding features of the maps are the relatively high values in central and northern Scotland and the low values from the Southern Uplands southwards.

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ESTIMATED SOIL MOISTURE DEFICIT (S.M.D.) AT 09 GMT ON 29 APR 1981

River Area	Areal Land Use	Change During the Week Ending at 09 GMT on	
	Estimated S.M.D. mm	29 Apr 81 mm	22 Apr 81 mm
Northumbrian	10.4	- 10.9	+ 12.8
Yorkshire	2.3	- 17.9	+ 13.5
Trent	0.9	- 20.8	+ 14.3
Lincolnshire	1.0	- 18.9	+ 13.7
Welland and Nene	1.5	- 22.6	+ 15.0
Great Ouse	3.7	- 21.0	+ 13.6
Norfolk and Suffolk	0.9	- 21.9	+ 13.4
Essex	13.2	- 17.5	+ 12.8
Lee Division	10.0	- 16.3	+ 13.3
Thames Conservancy	5.3	- 16.7	+ 14.2
London area	13.3	- 10.8	+ 13.5
Kent	18.4	- 8.0	+ 13.0
Sussex	12.9	- 6.1	+ 13.6
Hampshire	4.8	- 13.8	+ 14.9
Isle of Wight	10.4	- 9.6	+ 14.6
Upper Thames	6.7	- 18.6	+ 13.9
Avon and Dorset	9.3	- 14.0	+ 14.8
Devon	7.3	- 18.0	+ 15.3
Cornwall	11.4	- 10.5	+ 16.4
Somerset	11.7	- 14.3	+ 15.4
Bristol Avon	12.5	- 14.0	+ 14.9
Severn	7.0	- 17.0	+ 14.9
Wye	11.6	- 14.9	+ 15.4
Usk	12.4	- 15.0	+ 15.7
Glamorgan	20.1	- 5.7	+ 15.4
South West Wales	16.4	- 10.0	+ 15.2
Gwynedd	9.6	- 18.4	+ 15.3
Dee and Clwyd	13.4	- 12.4	+ 14.9
Mersey and Weaver	8.6	- 15.8	+ 14.2
Lancashire	7.2	- 20.9	+ 15.3
Cumbria	9.7	- 16.6	+ 14.7

N.B. Apart from normal changes these differences also reflect retrospective adjustments after receipt of additional data.



