

monthly water situation report

Thames Region, North East Area

Summary – September 2010

September was a month of mixed fortune, with several rainfall events maintaining river flows while groundwater levels continued to decline. With the end of summer 2010 rainfall totals were slightly below normal, while effective rainfall was only 61% of the seasonal average. This was due to the drier first four months.

Rainfall

The North East Area experienced close to average rainfall during September. The Area received 87% of its long term average (LTA) rainfall with 48mm of rain falling. The Lee Chalk received above average rainfall (115%) while the Chilterns-East-Colne was close to average receiving 86% of its LTA rainfall. The rainfall total this month was due to a number of rainfall events which accounted for the majority of the monthly rainfall. The heaviest daily rainfall recorded during the month was 13.4 mm at Epping Forest on the 6th, 11.6 mm at Heathrow Airport on the 23rd, 10.6 mm at Weston STW on the 26th and 16 mm at Prestwood Reservoir on the 29th. These dates and totals represent the pattern of the months rainfall at most sites across the Area. The summer of 2010 (April to September) received 84% of the LTA summer rainfall. The first four months received below average rainfall, while a wet August returned the totals close to average.

Soil Moisture Deficit/Recharge

The soil moisture deficit for North East Area is close to the long term average for September. Due to the heavy rain both the Lee Chalk and the Chilterns-East-Colne have a SMD lower than the end of month SMD LTA. The Lee Chalk received 117% of its LTA effective rainfall while the Chilterns-East-Colne had below average effective rainfall. During the summer of 2010 the Area received only 61% of its LTA effective rainfall due to the high SMD caused by the dry beginning to the season.

River Flows

The rivers across the Area responded to the heavy rainfall events and river flows for September were *normal* at the majority of reporting sites. The exceptions were the River Mimram at Panshanger which had a *below normal* monthly mean flow, while the River Colne at Denham was *above normal* with 126% of its September average monthly flow. Despite the heavy rainfall, there were no Flood Watches issued in September.

Groundwater Levels

The groundwater levels at all reporting boreholes were *normal* for September. Levels have continued there seasonal decline across both the Lee and Colne catchments.

Environmental Impact

The table below shows the abstraction licence flow constraints that were in force in September, out of a summer maximum of 30:

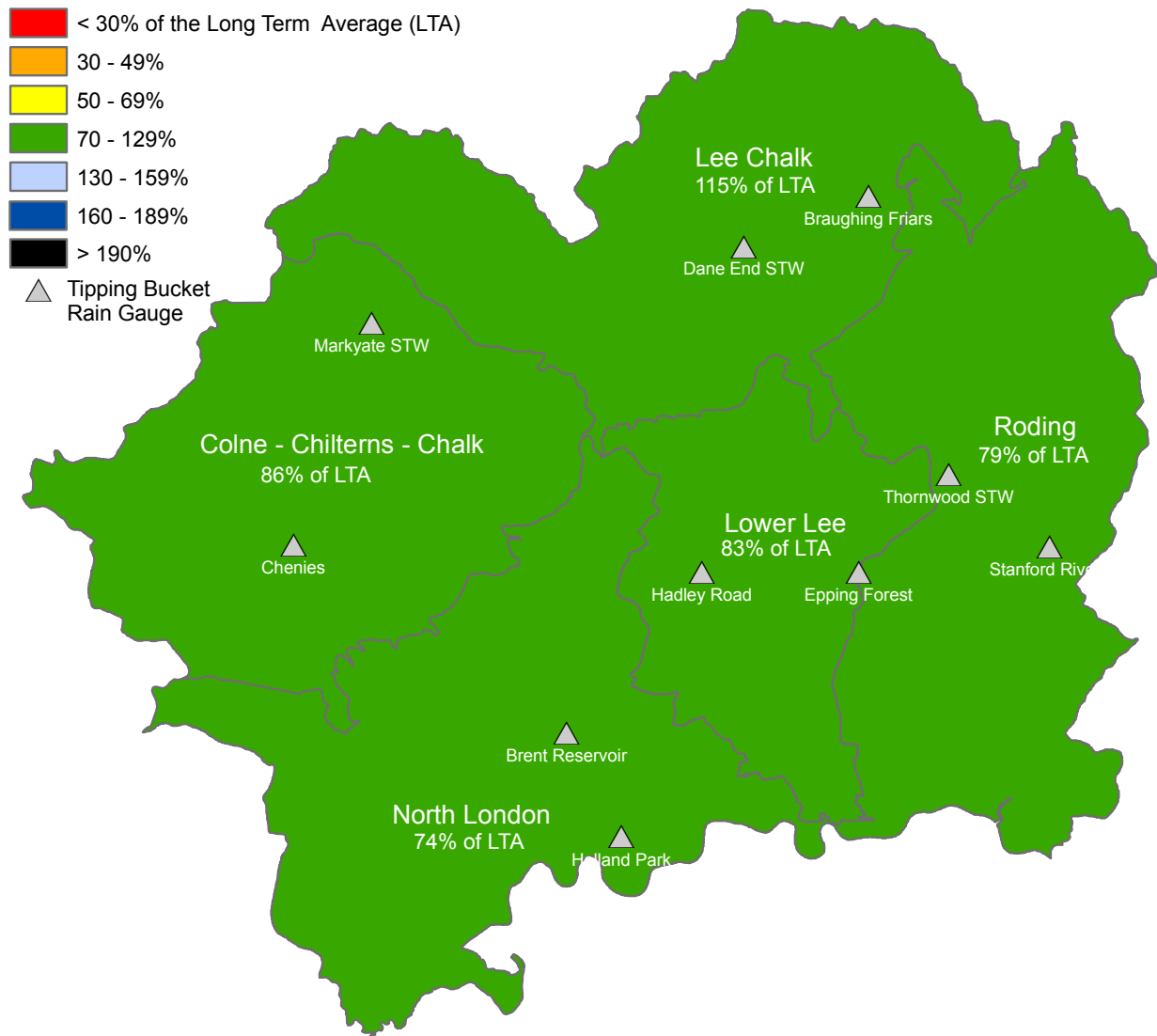
Week Ending	5 th Sept	12 th Sept	19 th Sept	26 th Sept	3 rd Oct
Number of Constraints	8	8	9	9	0

The chalk rivers across the Colne and Lee catchments have maintained their flowing lengths into September. The flows in the River Ver, River Gade and River Bulbourne have all retreated a short way downstream.

Author: [Geoff Angell](#)

Contact details: 01707 632513

Rainfall Map

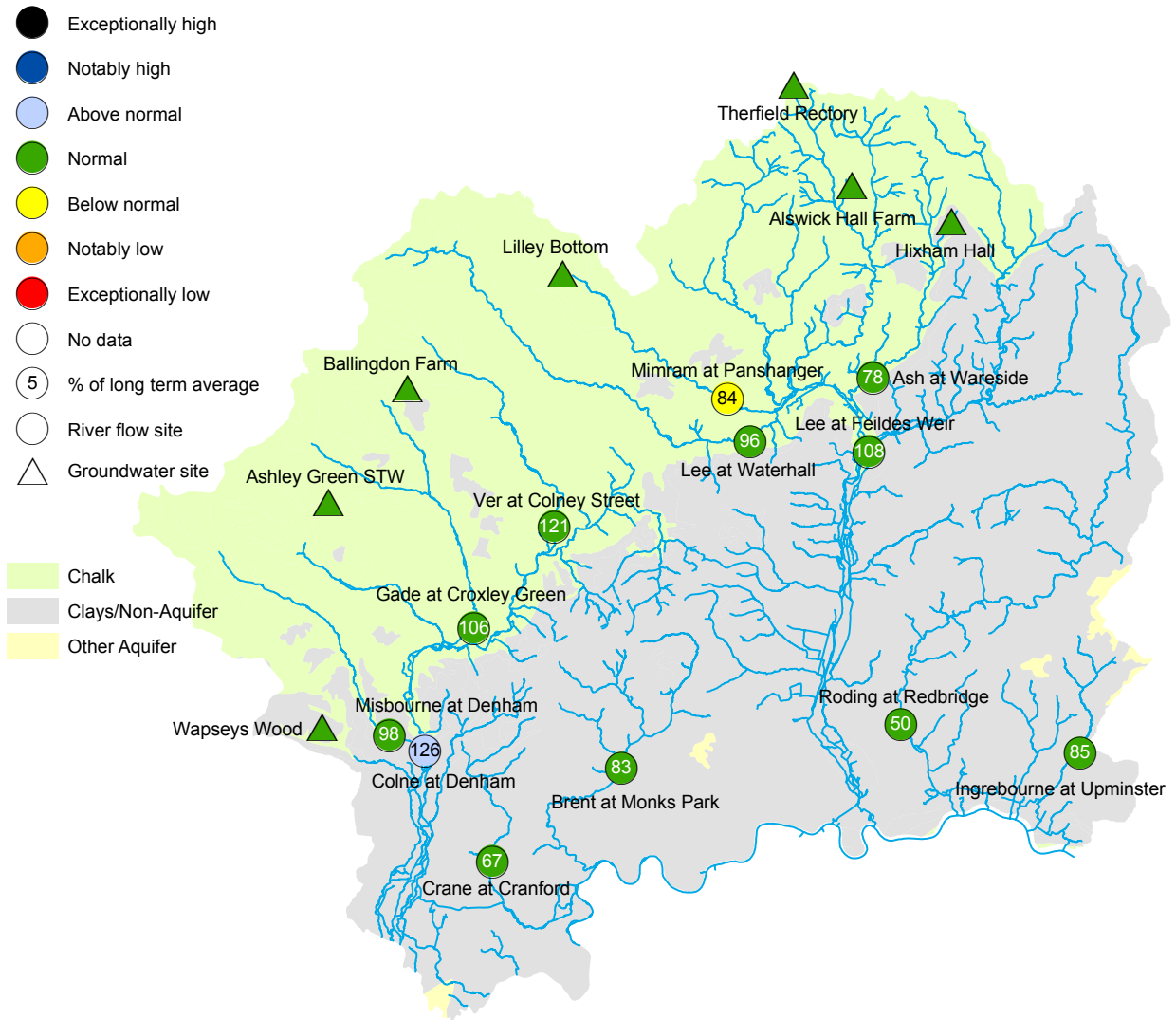


Data source: Rainfall calculated using Thames Soil Moisture Model.

Some features of this map are based on digital spatial data licensed from the Centre for Ecology and Hydrology, © CEH. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown Copyright

© Crown Copyright 2010. All rights reserved. Ordnance Survey licence number 100026380.

River Flow and Groundwater Map




Groundwater site status based on end of month level. Surface water site status based on mean monthly flow.


Some features of this map are based on digital spatial data licensed from the Centre for Ecology and Hydrology, © CEH. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown Copyright

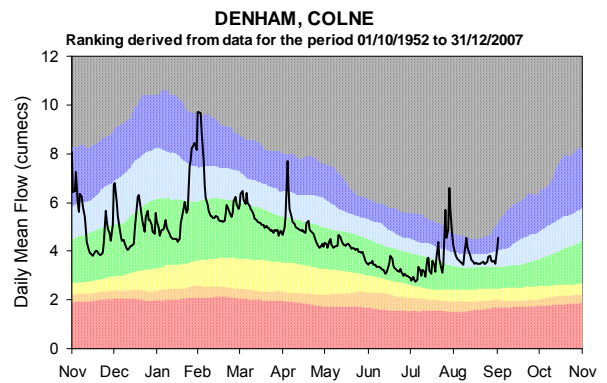
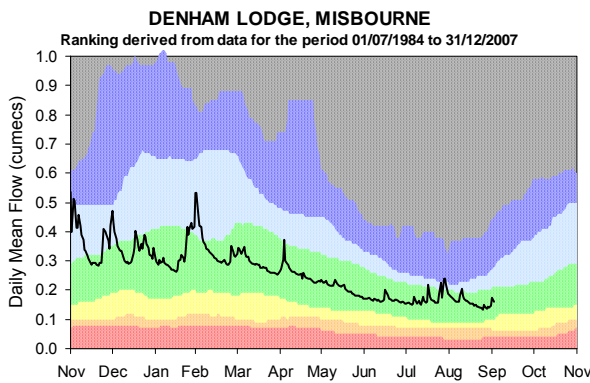
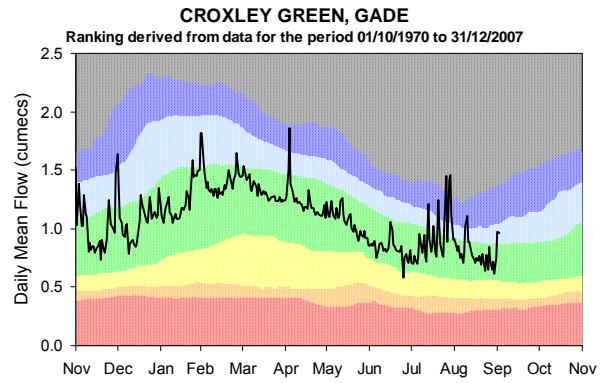
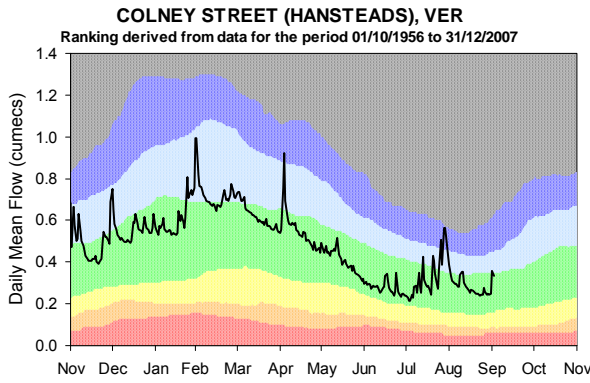
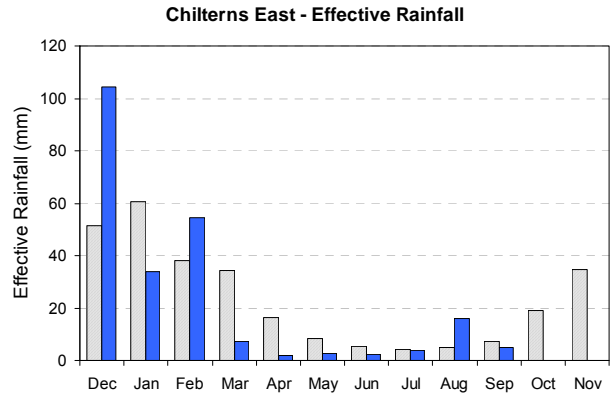
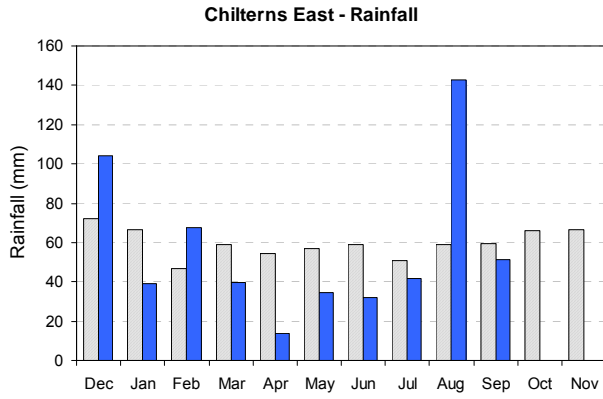
Geological map reproduced with kind permission from UK Groundwater Forum, BGS © NERC



© Crown Copyright 2010. All rights reserved. Ordnance Survey licence number 100026380.



Colne



 Monthly total rainfall (mm)

 Long-term average rainfall (mm)



 Exceptionally high
 Below normal

 Notably high
 Notably low

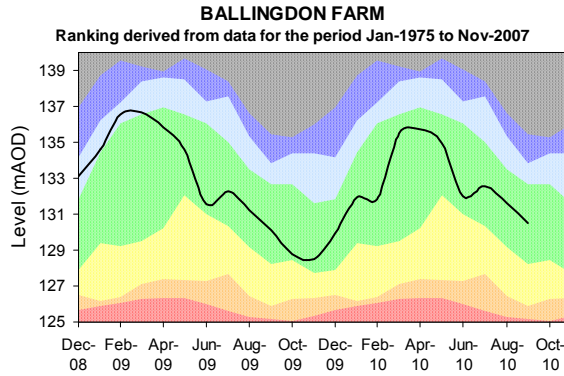
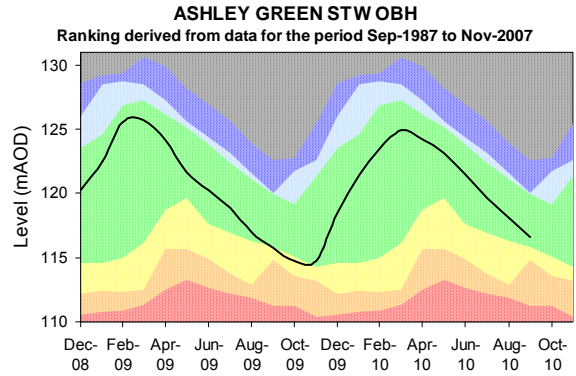
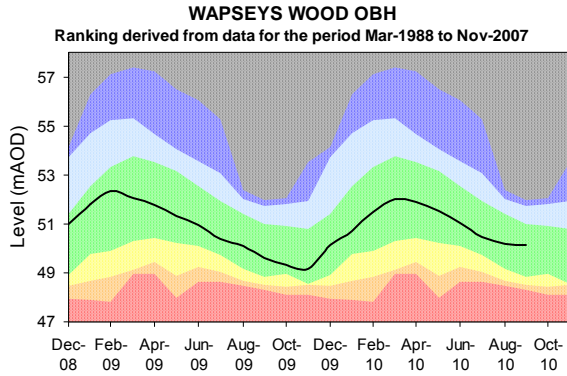
 Above normal
 Exceptionally low

 Normal
 Latest data

All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Colne Groundwater



Exceptionally high
Below normal

Notably high
Notably low

Above normal
Exceptionally low

Normal
— Latest data

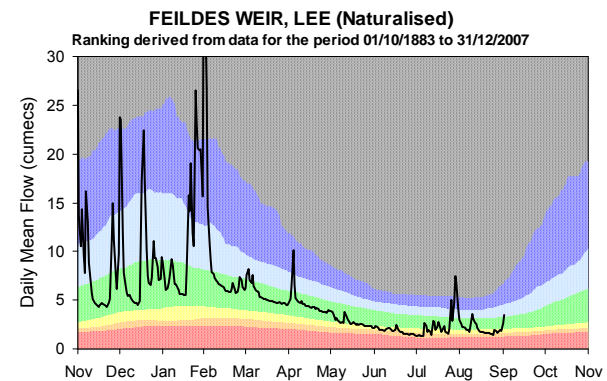
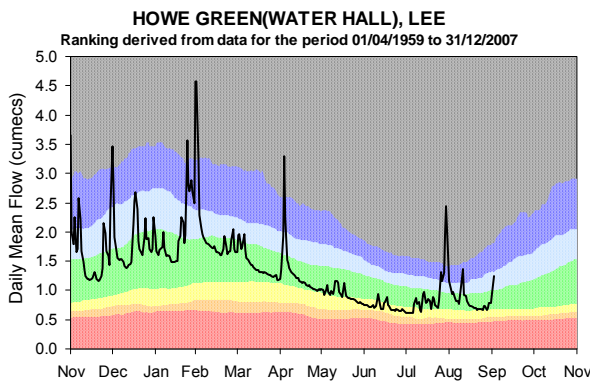
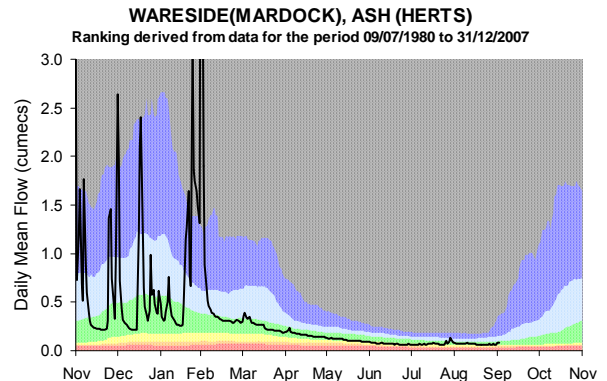
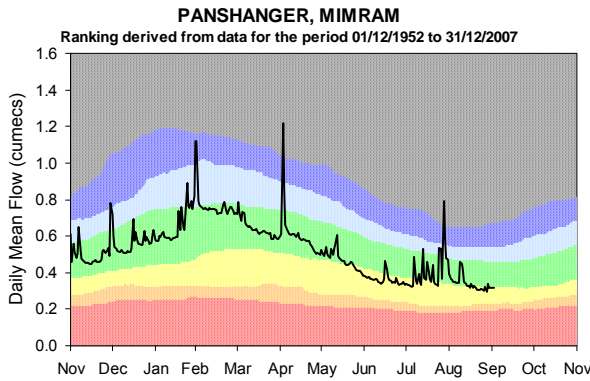
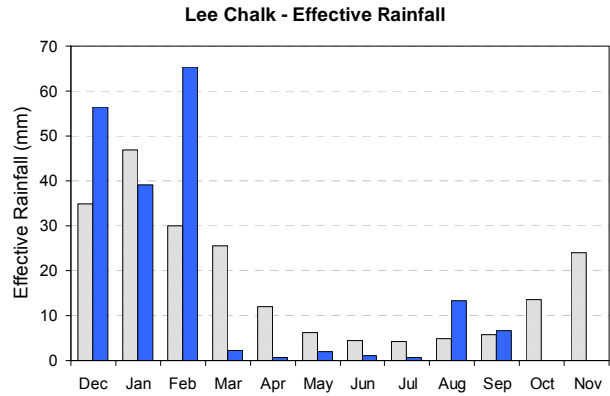
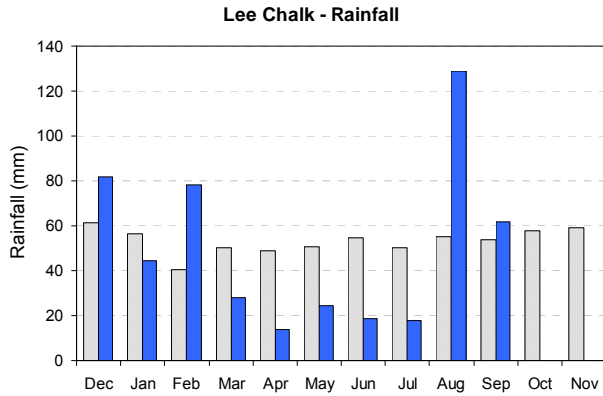
All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Upper Lee

Monthly total rainfall (mm)

Long-term average rainfall (mm)



Exceptionally high
Below normal

Notably high
Notably low

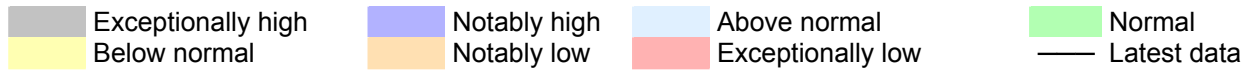
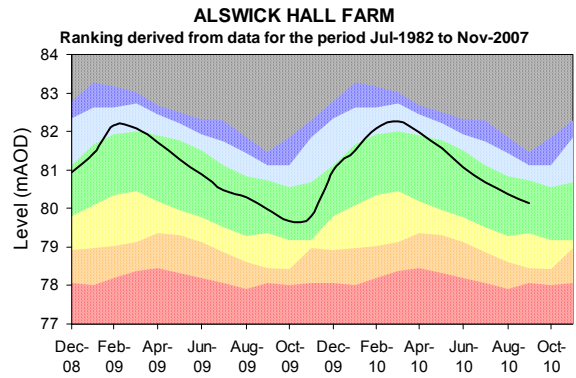
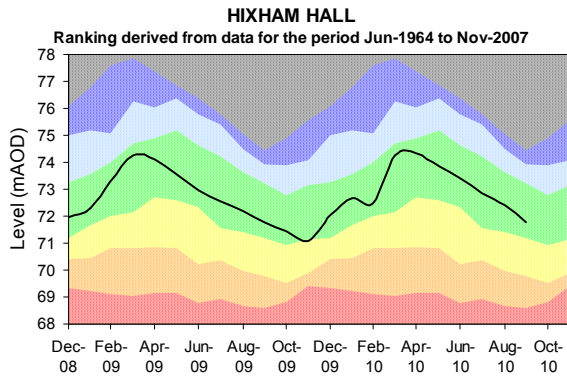
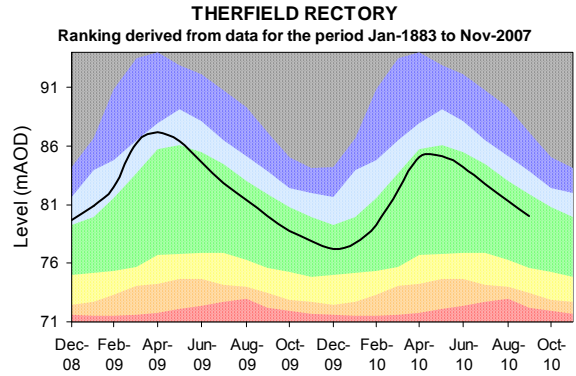
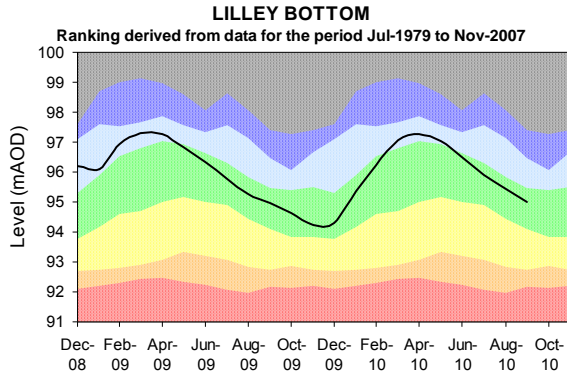
Above normal
Exceptionally low

Normal
Latest data

All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Upper Lee Groundwater



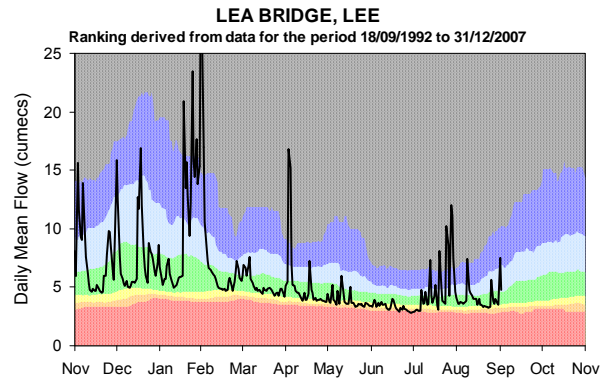
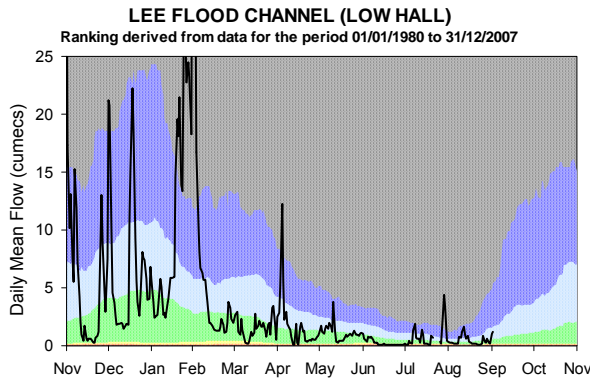
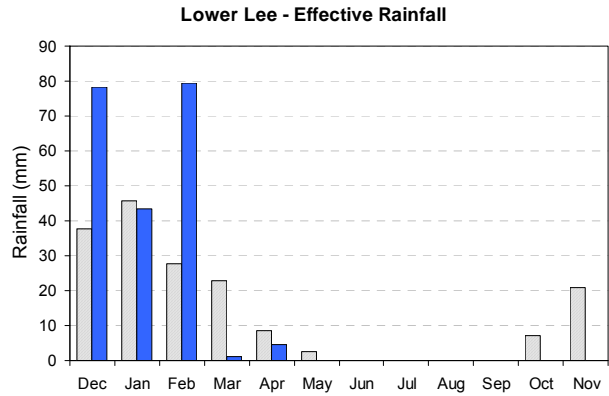
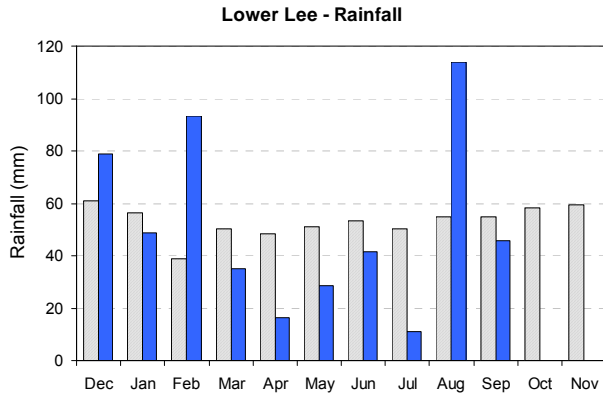
All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Lower Lee

Monthly total rainfall (mm)

Long-term average rainfall (mm)



Exceptionally high
Below normal

Notably high
Notably low

Above normal
Exceptionally low

Normal
Latest data

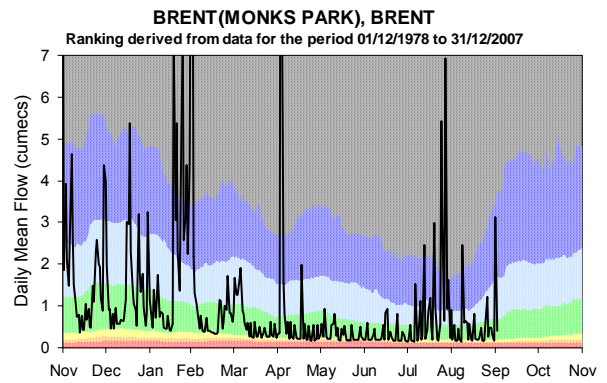
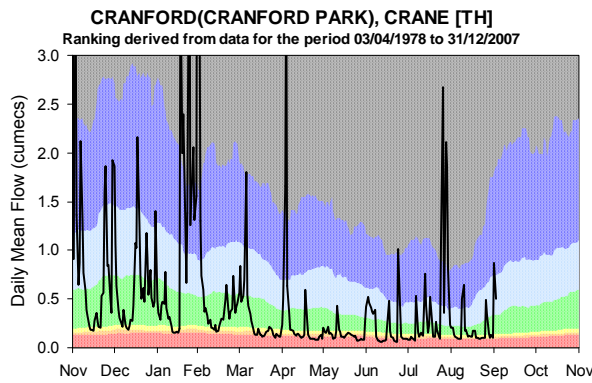
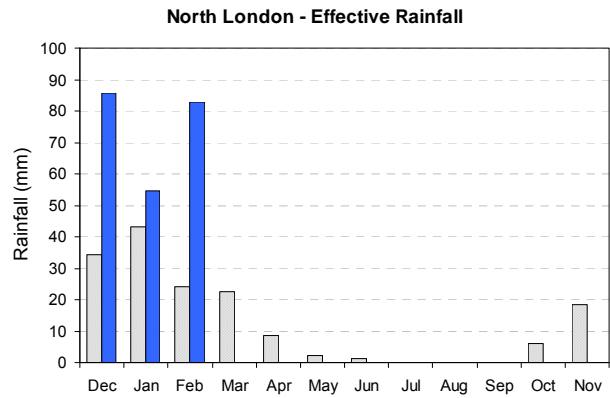
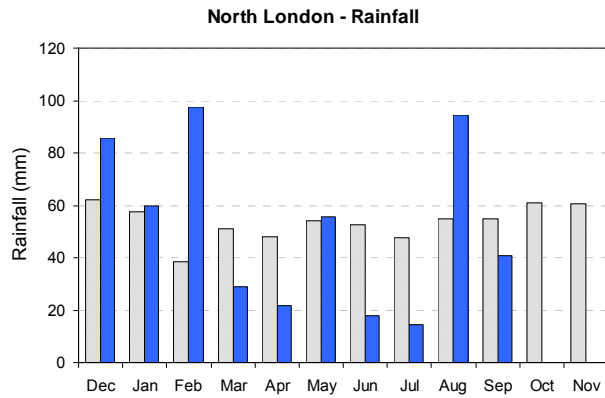
All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

North London

Monthly total rainfall (mm)

Long-term average rainfall (mm)



Exceptionally high
Below normal

Notably high
Notably low


Above normal
Exceptionally low


Normal
Latest data

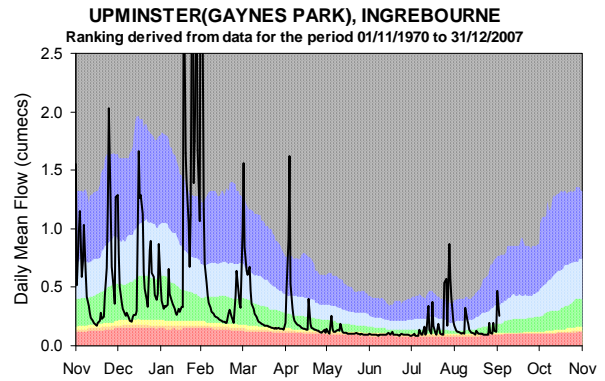
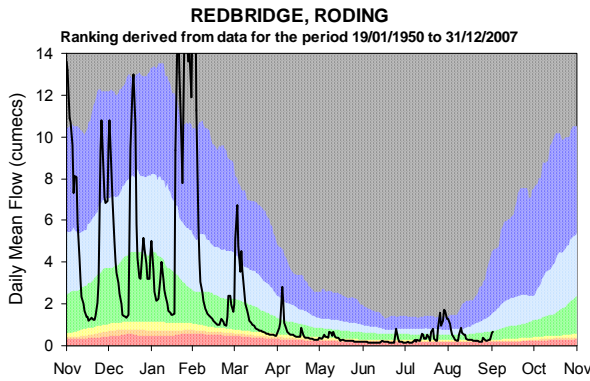
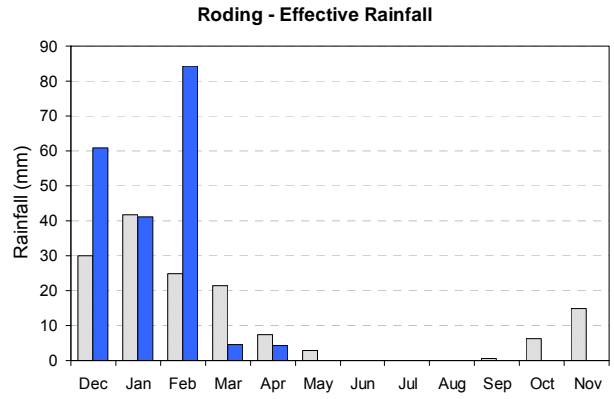
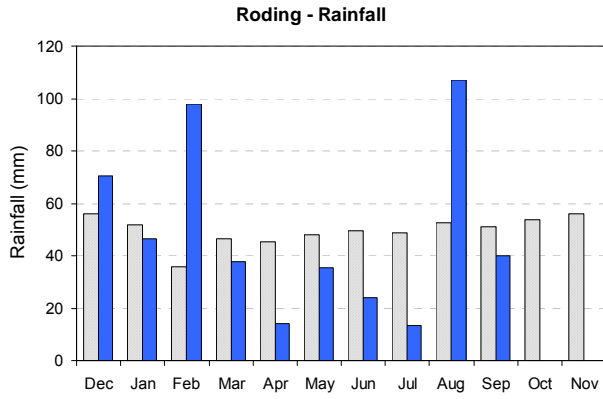
All data are provisional and may be subject to revision.



The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein



Roding



 Monthly total rainfall (mm)

 Long-term average rainfall (mm)



 Exceptionally high
 Below normal

 Notably high
 Notably low

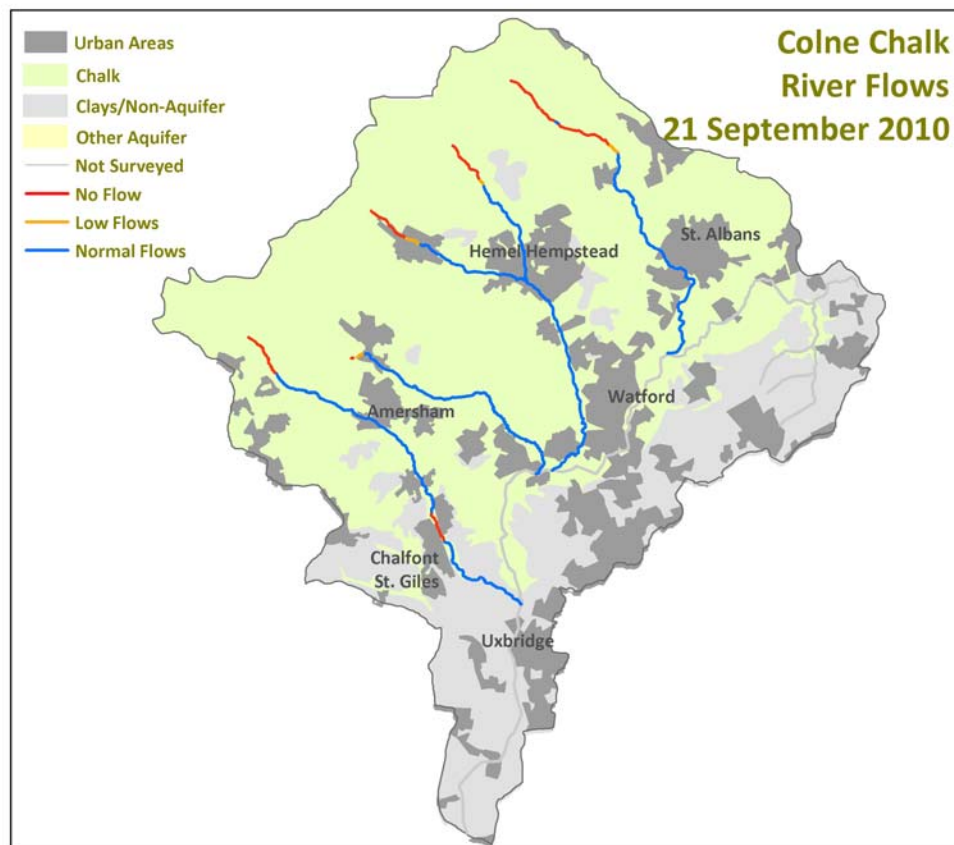
 Above normal
 Exceptionally low

 Normal
 Latest data

All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Flows in the chalk fed rivers – September 2010



All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Summary of rainfall, effective rainfall and soil moisture deficit

Rainfall and Effective Rainfall – September 2010

Area	Rainfall (mm)			Effective Rainfall (mm)		
	Total (mm)	LTA (mm)	% of LTA	Total (mm)	LTA (mm)	% of LTA
Chilterns- East - Colne	51	60	86	5	7	71
Lee - Chalk	62	54	115	7	6	117
North London	41	55	74	0	0	-
Lower Lee	46	55	83	0	0	-
Roding Catchment	40	51	79	0	1	0
North East Area Average	48	55	87	2	3	67

Soil Moisture Deficit (SMD) - September 2010

Area	End of Month SMD (mm)	End of Month SMD LTA (mm)
Chilterns- East - Colne	71	89
Lee - Chalk	89	97
North London	124	100
Lower Lee	99	97
Roding Catchment	108	98
North East Area Average	98	96

Rainfall and Effective Rainfall - Summer total for period 1 April to 30 September 2010

Area	Rainfall (mm)			Effective Rainfall (mm)		
	Total (mm)	LTA (mm)	% of LTA	Total (mm)	LTA (mm)	% of LTA
Chilterns- East - Colne	316	340	93	31	46	67
Lee - Chalk	266	313	85	24	38	63
North London	245	312	79	0	12	0
Lower Lee	257	312	82	5	11	45
Roding Catchment	234	295	79	4	11	36
North East Area Average	264	314	84	19	31	61

All data are provisional and may be subject to revision.

The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability of any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein

Glossary

Term

Aquifer

Areal average rainfall

Effective rainfall

Groundwater

Recharge

Reservoir live capacity

Soil moisture deficit (SMD)

Definition

A geological formation able to store and transmit water.

The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).

The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).

The water found in an aquifer

The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).

The reservoir capacity normally usable for storage to meet established reservoir operating requirements. It is the total capacity less that not available because of operating agreements or physical restrictions. Only under abnormal conditions, such as a severe water shortage might this additional water be extracted.

The difference between the amount of water actually in the soil and the amount of water that the soil can hold. Expressed in depth of water (mm).

Categories

Exceptionally high

Notably high

Above normal

Normal

Below normal

Notably low

Exceptionally low

Value likely to fall within this band 5% of the time

Value likely to fall within this band 8% of the time

Value likely to fall within this band 15% of the time

Value likely to fall within this band 44% of the time

Value likely to fall within this band 15% of the time

Value likely to fall within this band 8% of the time

Value likely to fall within this band 5% of the time

Units

cumecs

mAOD

Cubic metres per second ($\text{m}^3 \text{s}^{-1}$)

Metres Above Ordnance Datum (mean sea level at Newlyn Cornwall).