

Monthly water situation report

Solent and South Downs Area

Summary – February 2020

Solent and South Downs had above average rainfall for February with 260% of the long term average (LTA). The soil moisture deficits ended the month at zero. River flows ranged from **above normal** to **exceptionally high**. Groundwater levels ranged from **normal** to **exceptionally high**. End of month reservoir stocks were above average at Ardingly Reservoir and close to average at Arlington Reservoir.

Rainfall

Solent and South Downs (SSD) had well above average rainfall for February, receiving 260% (151mm) of the LTA (50mm). Typically February weather is influenced by high pressure, which is why statistically it is one of the driest months of the year, but this month the jet stream tracked further south than normal bringing with it several areas of low pressure. This caused the weather to be dominated by three named storms (Ciara, Dennis and Jorge) which distributed the rainfall more or less evenly across the area. The highest daily total was recorded on the 15th at Lyndhurst (Lymington) with 41mm but the impact of the storm events meant that there were other days with significant totals. It was the wettest February on record for England as a whole but for SSD it was only the 4th wettest (in a record going back to 1891). The December to February period (Met Office definition of winter) was the 12th wettest and the September to February period was the 6th wettest on record for SSD.

Soil Moisture Deficit/Recharge

Soil moisture deficits across Solent and South Downs remained at zero throughout the month.

River Flows

Monthly mean river flows across SSD ranged from **above normal** to **exceptionally high**. The River Itchen at Allbrook & Highbridge and the River Test at Chilbolton GS recorded monthly mean flows in the **above normal** range. Flows on the River Medina at Blackwater, the River Test at Broadlands GS and the Wallington River at North Fareham were **notably high**. All other reported sites recorded **exceptionally high** flows. There were some significant daily mean flows in SSD during February. Most notable was the figure of 40.7m³/s recorded on 16/02/2020 at Iping Mill (Western Rother). This represents the highest February daily mean flow at this gauging station in a record that dates back to 1973.

Groundwater Levels

End of month groundwater levels ranged from **normal** to **exceptionally high**. Levels at Harting Common Down (Western Rother Greensand) and Youngwoods Copse (Isle of Wight) were both **normal**. These sites measure the Lower Greensand which responds to rainfall differently to Chalk. Figures for all the reported Chalk boreholes were in the **above normal** category or higher. Most notable were the levels recorded at Beeding Hill and Houndean Bottom. The levels at both of these sites were in the **exceptionally high** category and represent the highest end of February figures on record. Levels at some sites continue to rise and have yet to peak. Most notably Clanville Gate which usually peaks at the end of March or even early April.

Reservoir Storage/Water Resource Zone Stocks

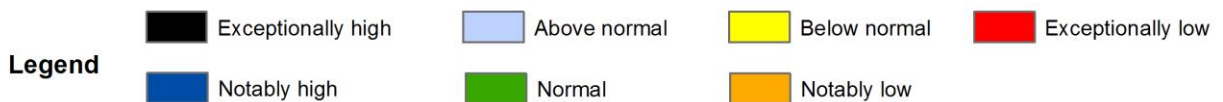
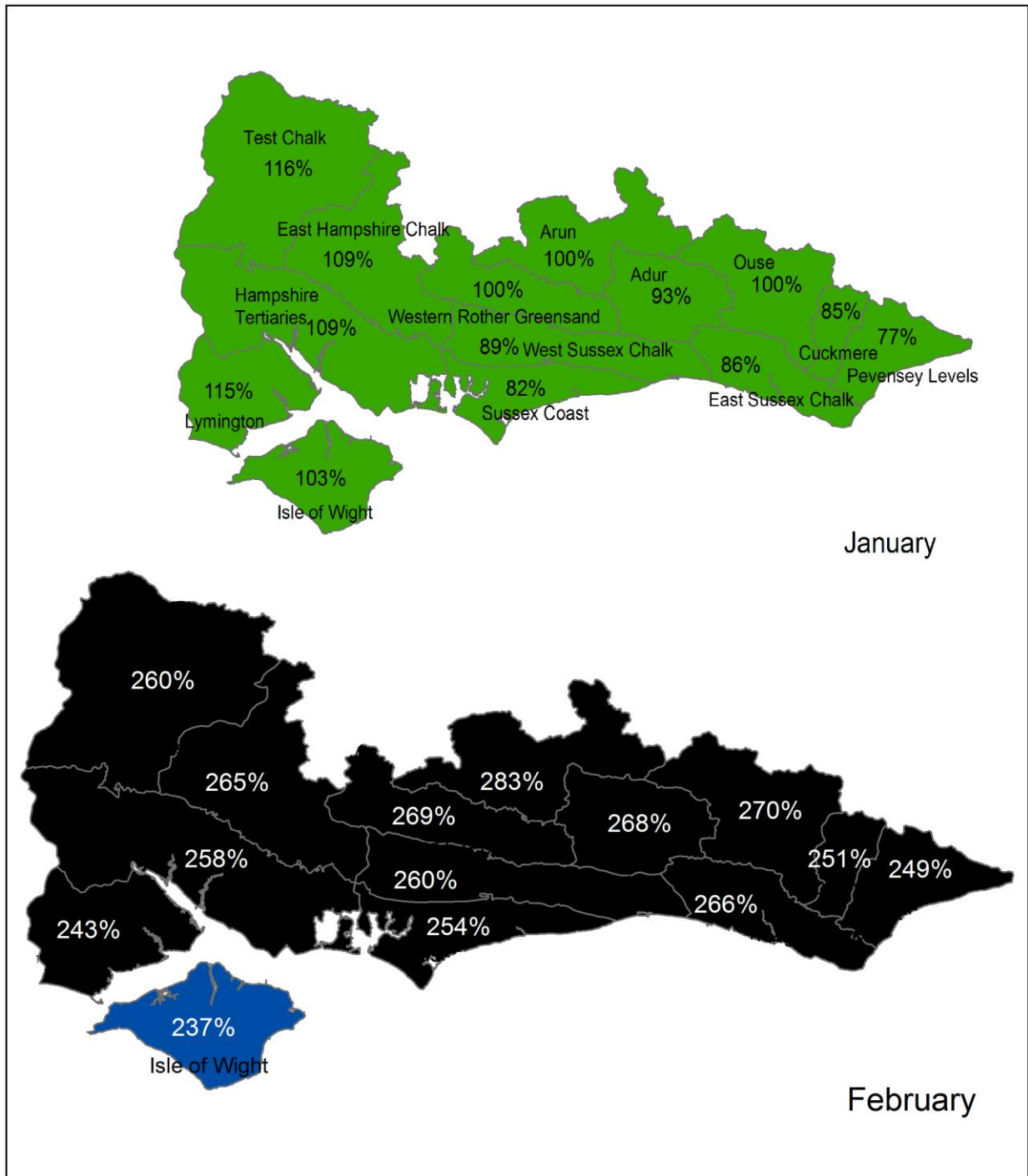
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse Catchment) with 100% of total capacity (LTA is 96%) and close to average at Arlington Reservoir (Cuckmere catchment) with 97% of total capacity (LTA is 98%).

Environmental Impact

During February 48 Fluvial Flood Alerts and 21 Fluvial Flood Warnings were issued. Additionally there were 12 Groundwater Flood Alerts issued. There were no licence restrictions in force.

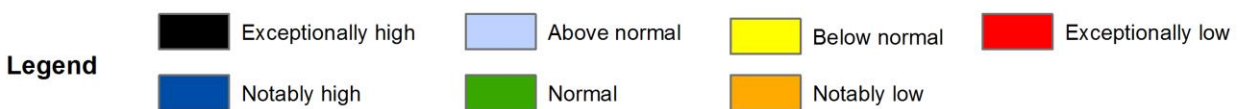
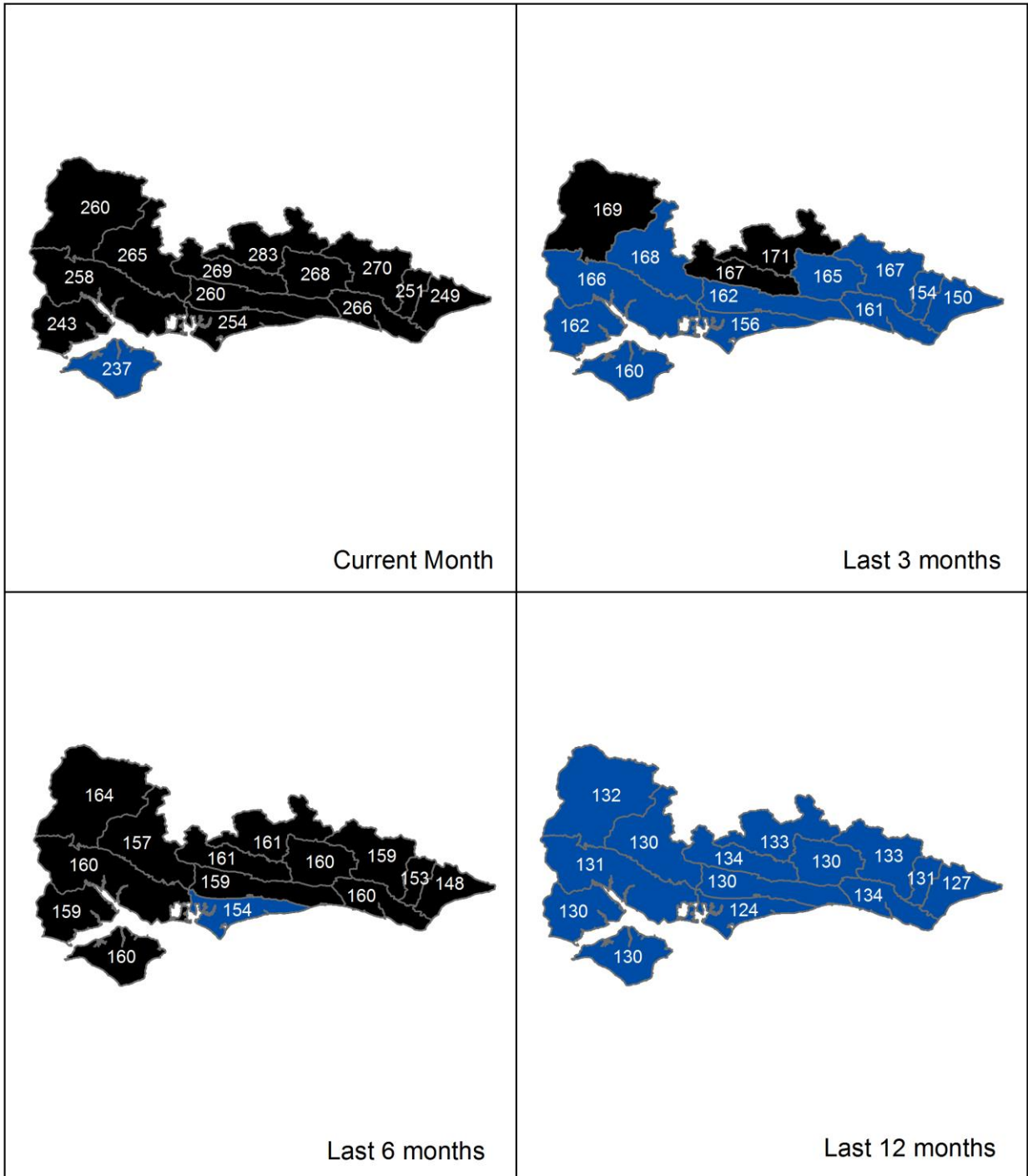
Author: [HydrologySSD](#)

Rainfall Map 1



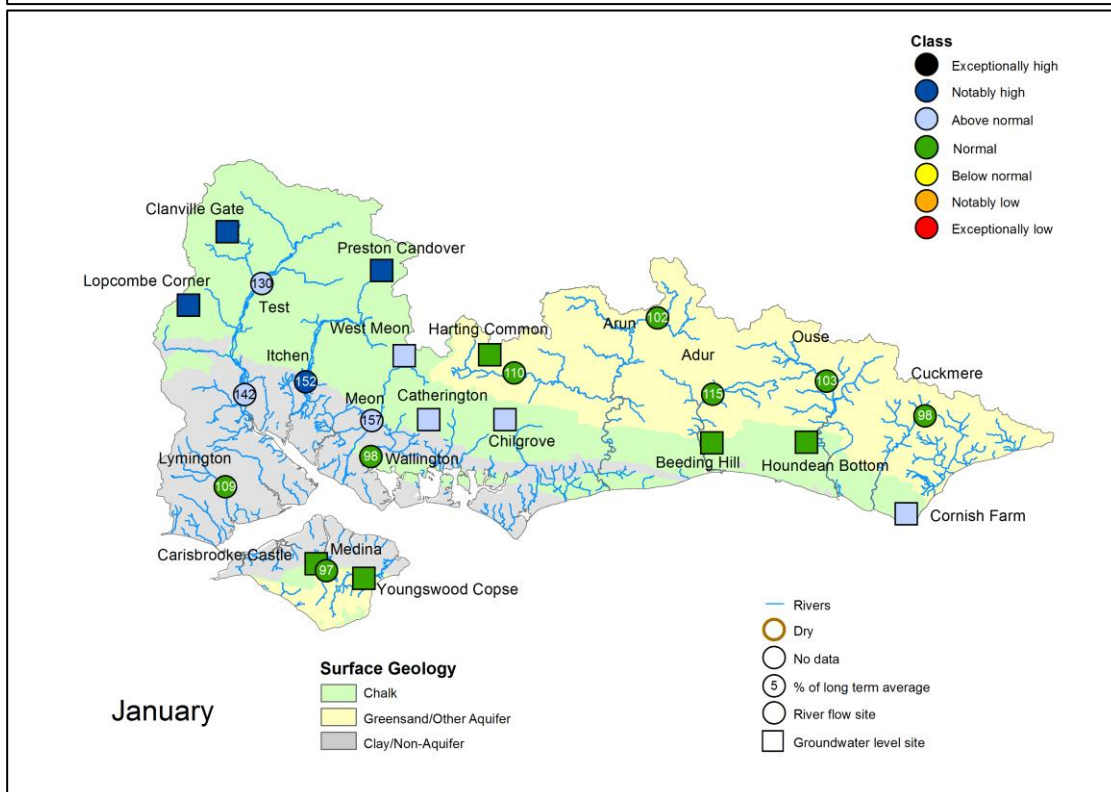
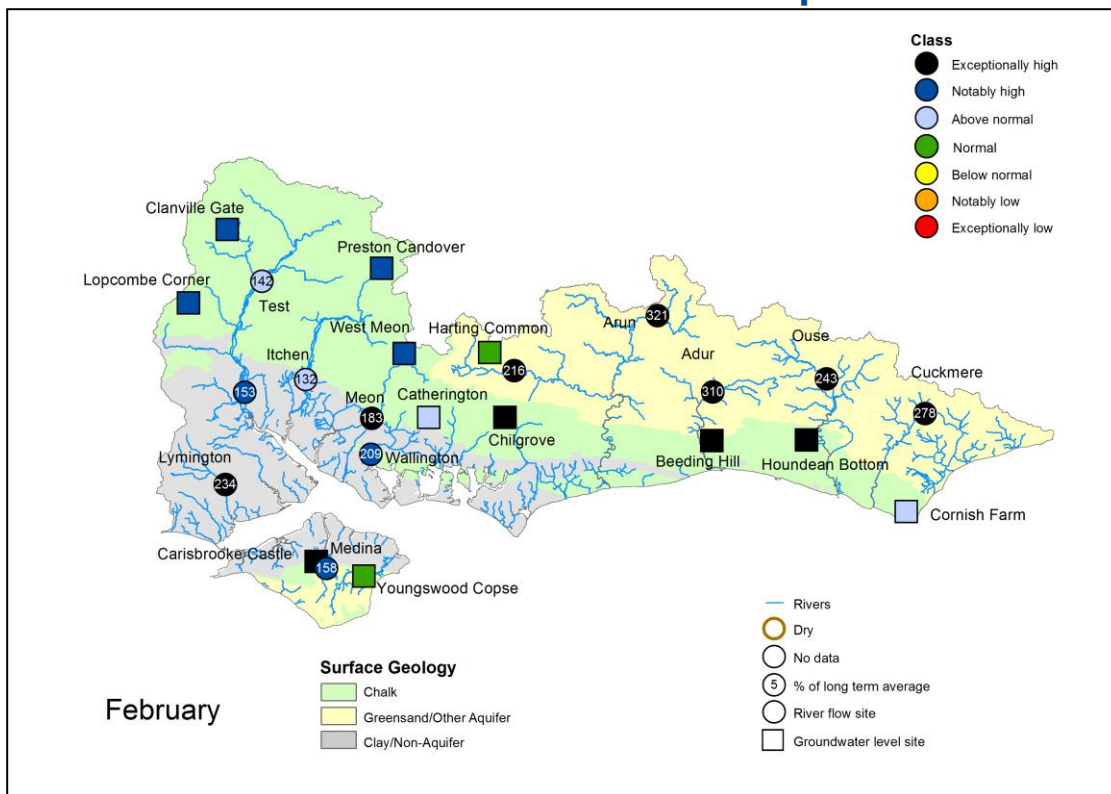
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, 100026380, 2020.

Rainfall Map 2



Total rainfall for hydrological areas across Solent and South Downs for the current month (up to 31 December), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Final NCIC (National Climate Information Centre) data based on the Met Office 5km gridded rainfall dataset derived from rain gauges (Source: Met Office © Crown Copyright, 2020). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100026380, 2020

River Flow and Groundwater Status Map



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

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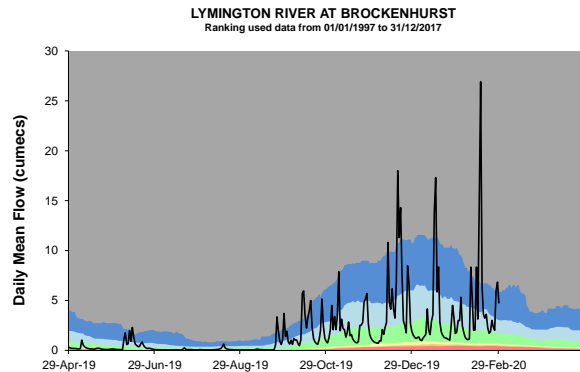
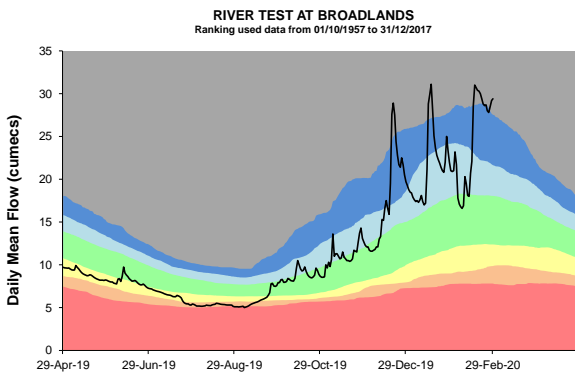
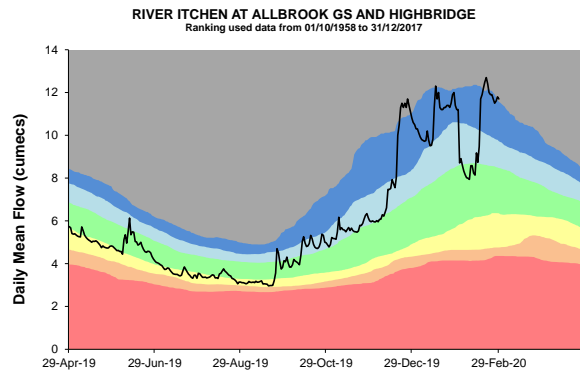
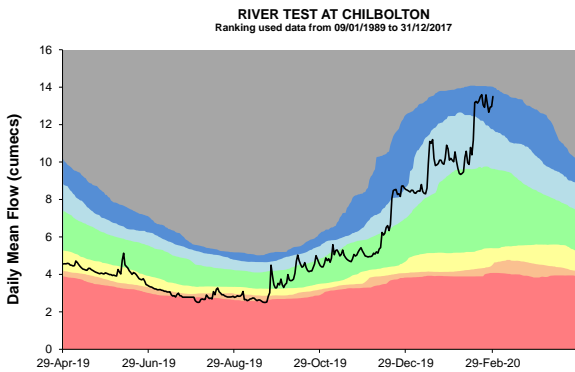
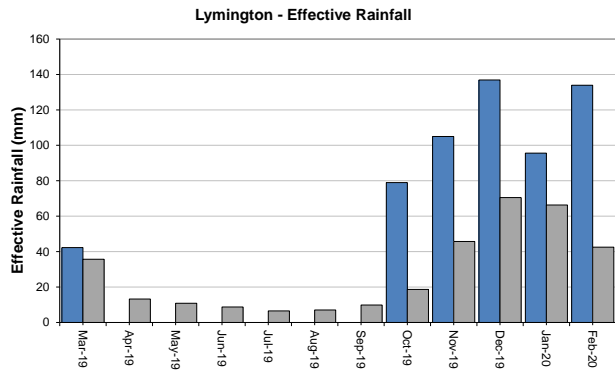
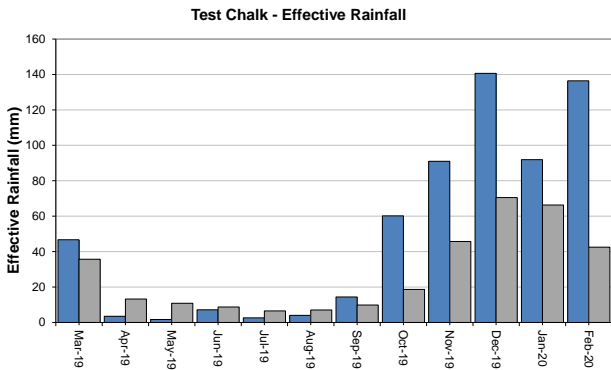
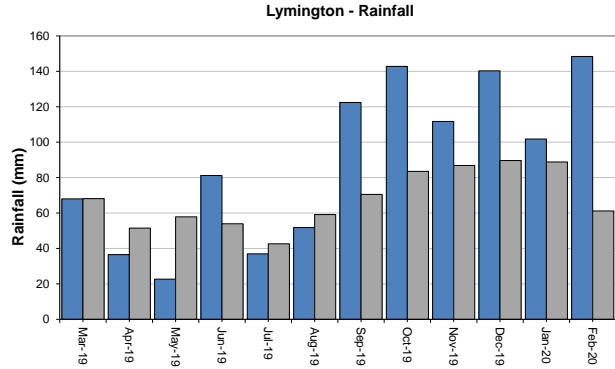
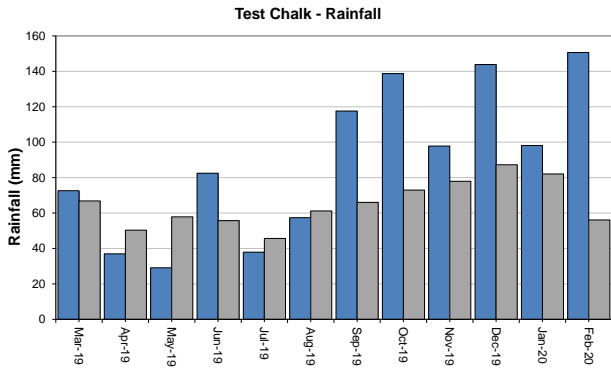
incident hotline
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West Hampshire – Page 1

Monthly total rainfall (mm)

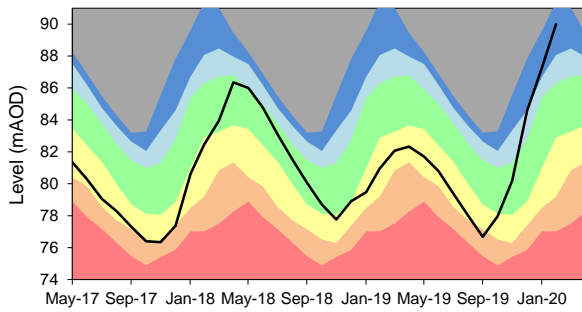
Long term average rainfall (mm)



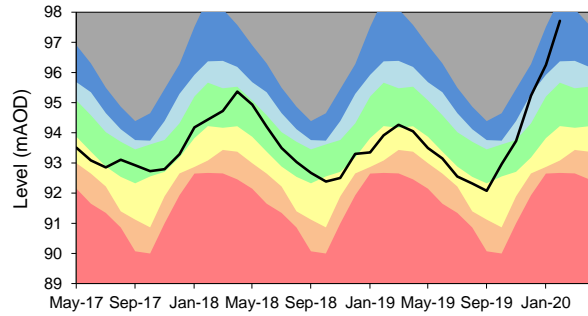
Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

West Hampshire – Page 2

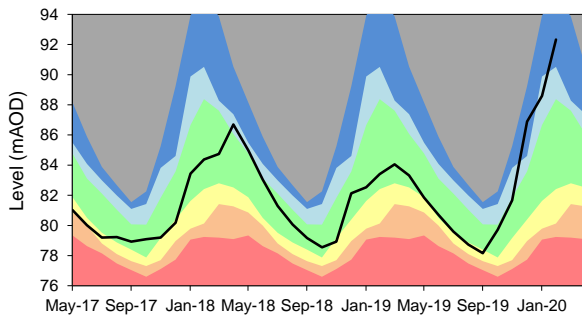
CLANVILLE GATE GWL - CHALK
 Ranking derived from data for the period Mar-1963 to Dec-2012



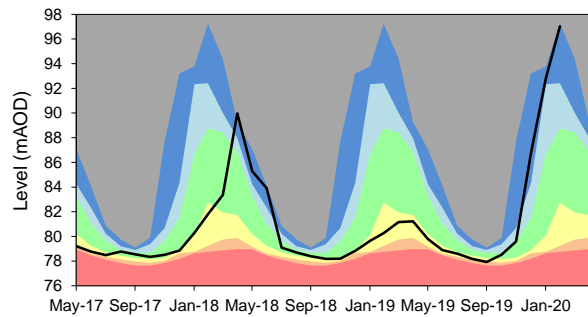
PRESTON CANDOVER GWL - CHALK
 Ranking derived from data for the period Jan-1975 to Dec-2012



WEST MEON GWL - CHALK
 Ranking derived from data for the period Sep-1986 to Dec-2012



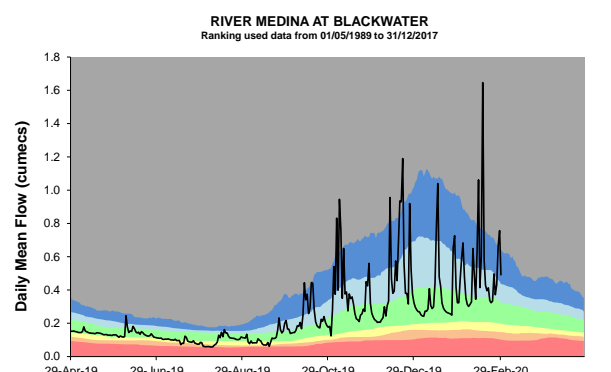
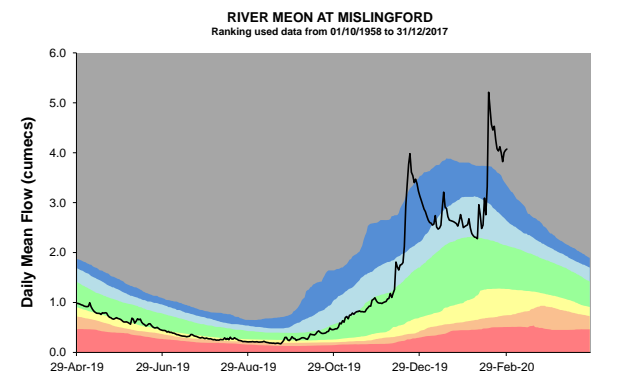
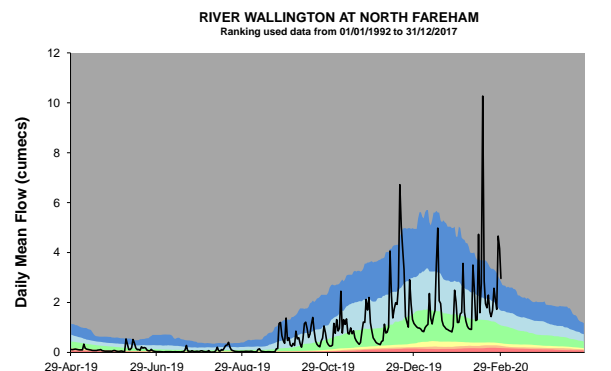
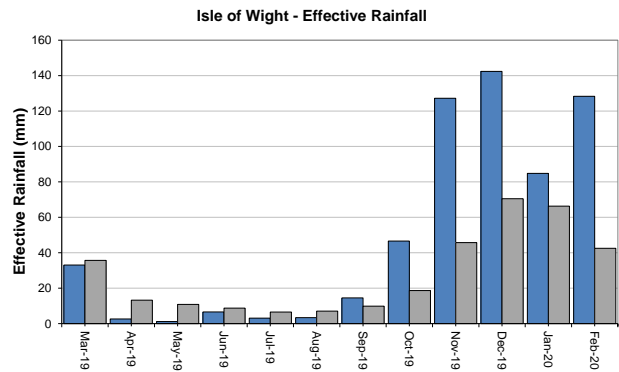
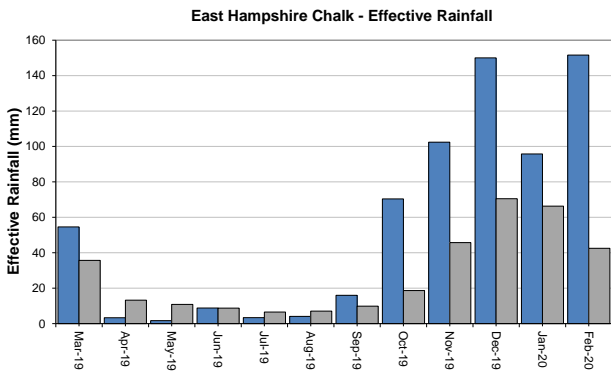
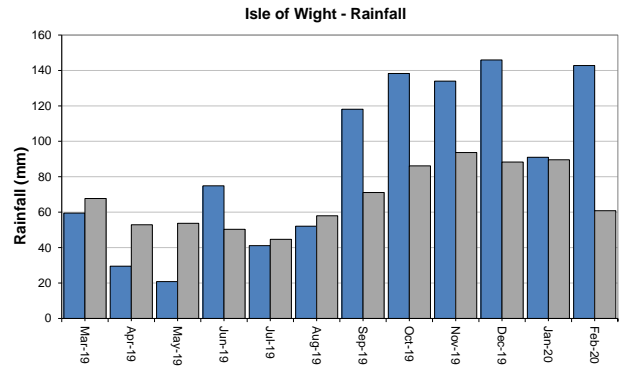
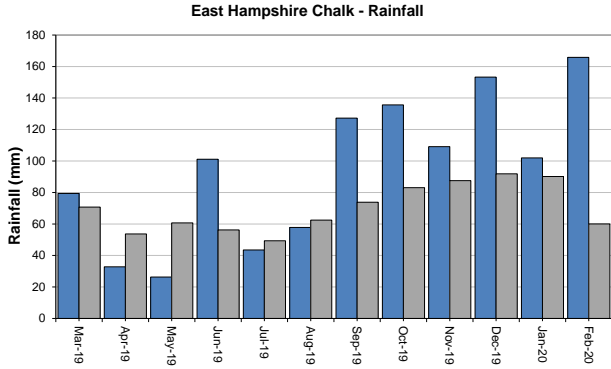
LOPCOMBE CORNER GWL - CHALK
 Ranking derived from data for the period Apr-1963 to Dec-2012



East Hampshire and Isle of Wight

Monthly total rainfall (mm)

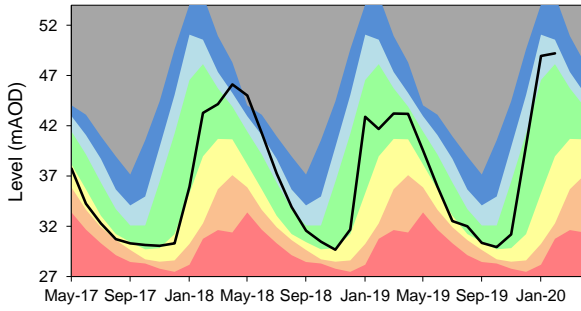
Long term average rainfall (mm)



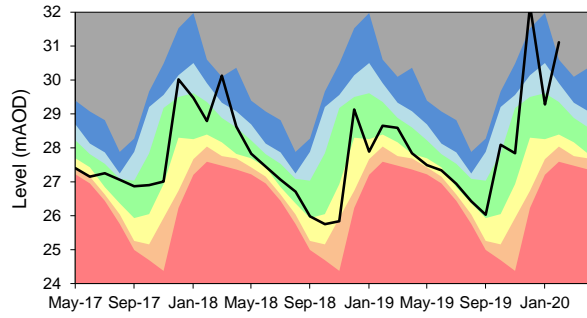
Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

East Hampshire and Isle of Wight – Page 2

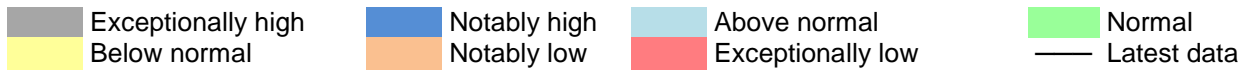
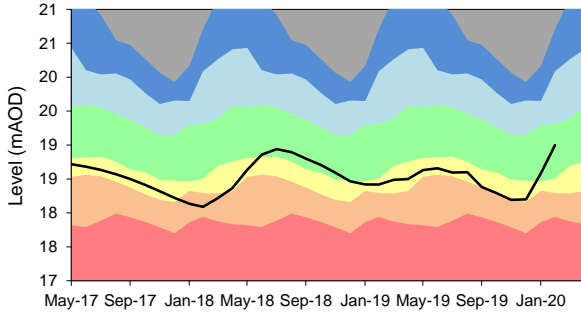
CATHERINGTON GWL - CHALK
 Ranking derived from data for the period Jan-1969 to Dec-2012



CARISBROOKE CASTLE GWL - CHALK
 Ranking derived from data for the period Aug-1977 to Dec-2012



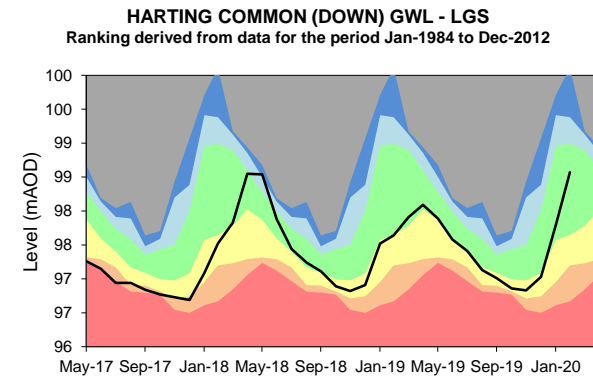
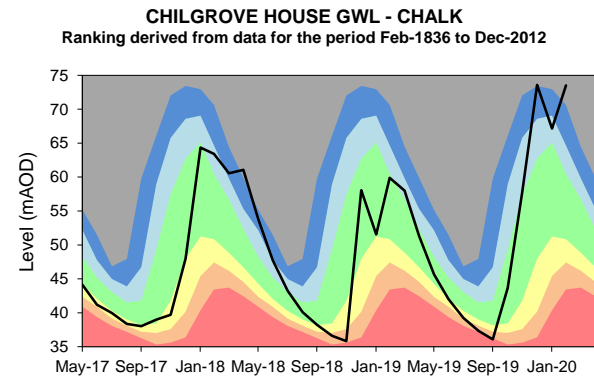
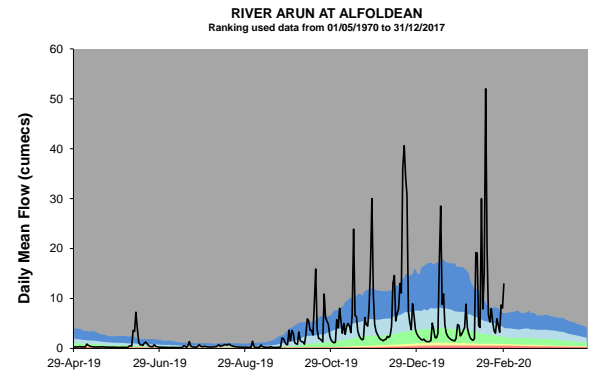
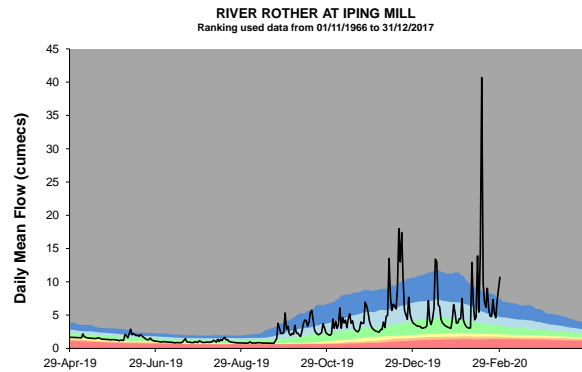
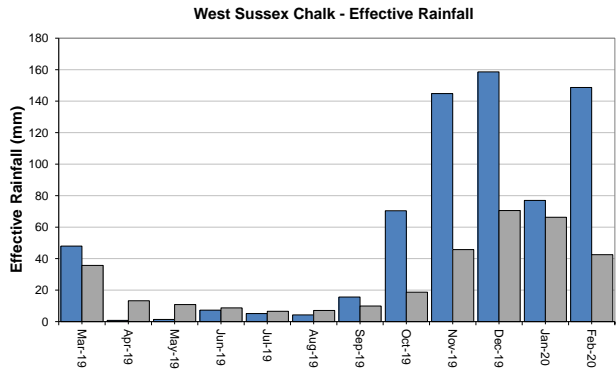
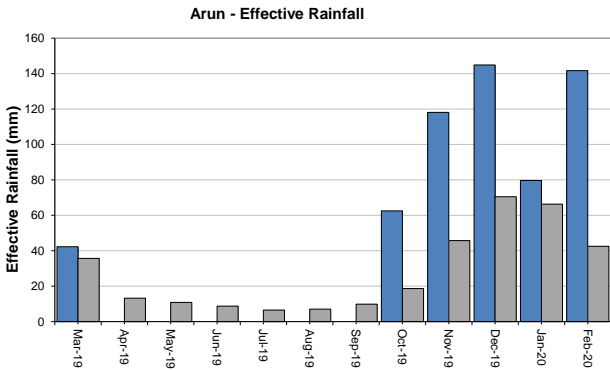
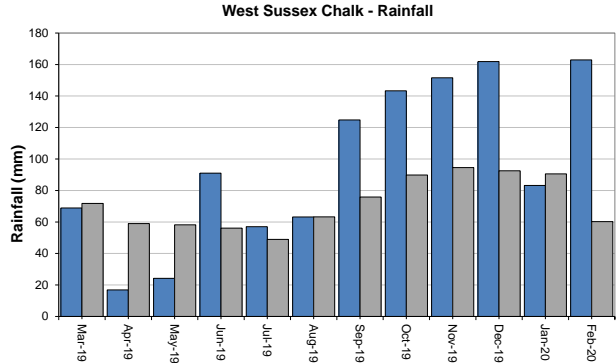
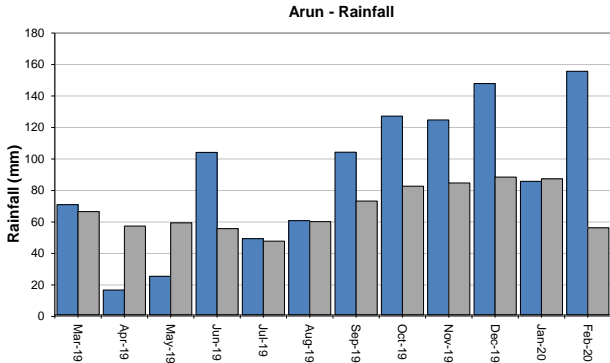
YOUNGWOOD COPSE GWL - LGS
 Ranking derived from data for the period Feb-1978 to Dec-2012



West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

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03708 506 506

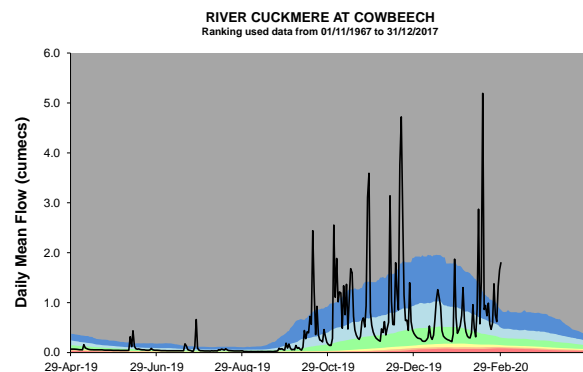
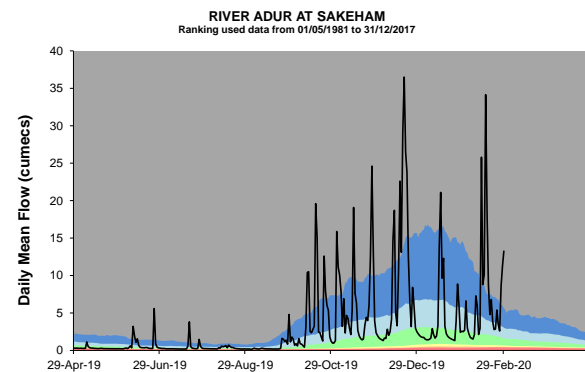
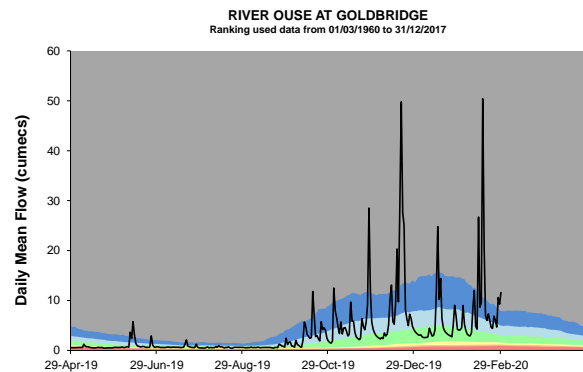
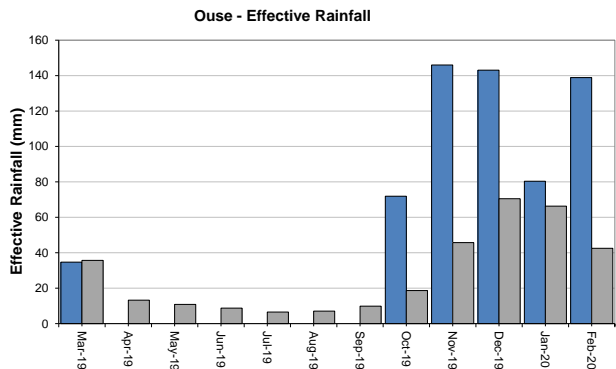
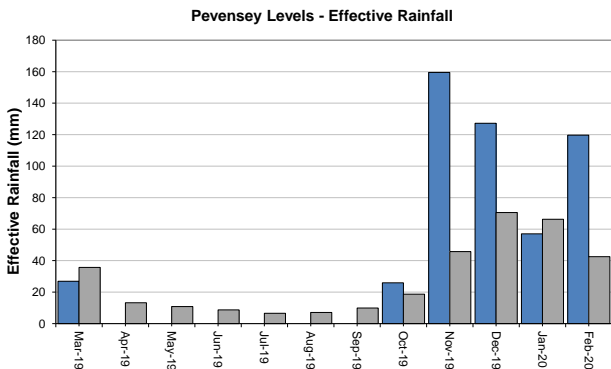
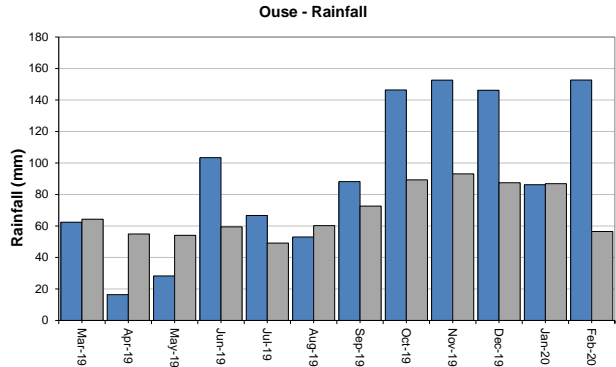
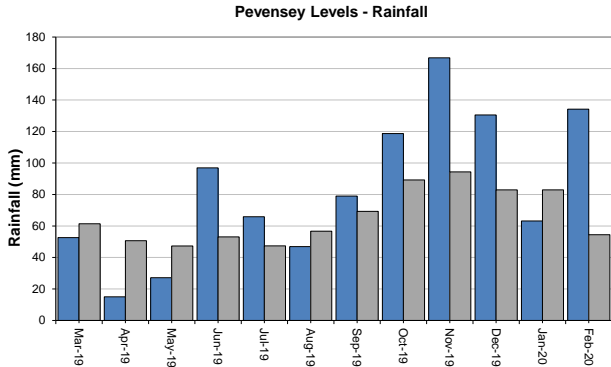
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East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

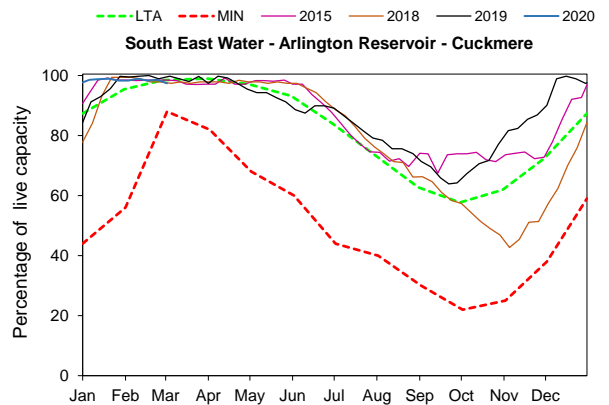
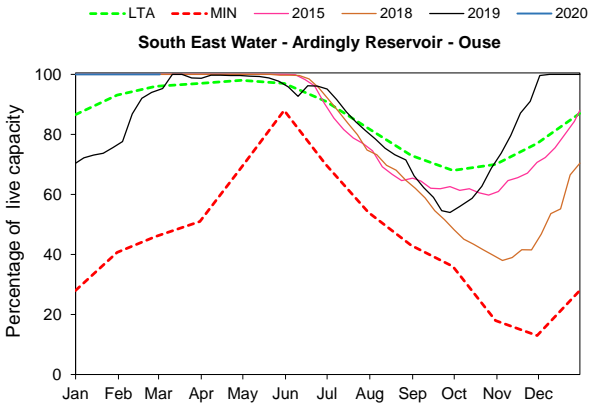
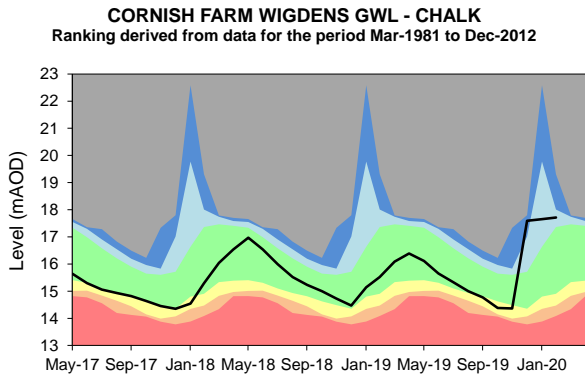
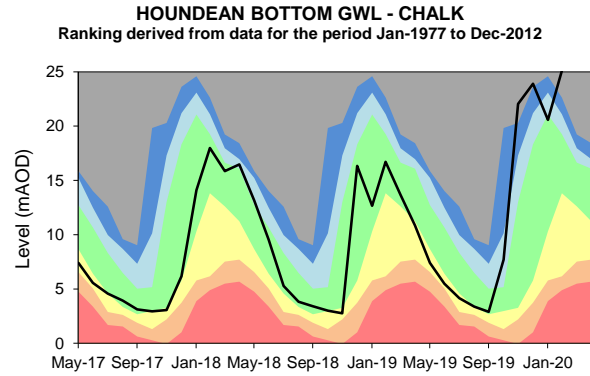
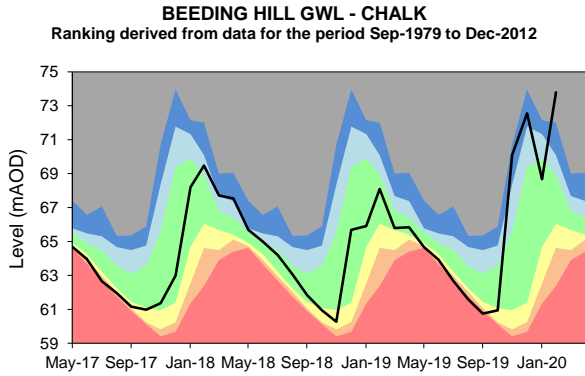


Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

East Sussex – Page 2

Monthly total rainfall (mm)

Long term average rainfall (mm)



Exceptionally high	Notably high	Above normal	Normal
Below normal	Notably low	Exceptionally low	Latest data

Summary of rainfall, effective rainfall and soil moisture deficits

Rainfall and effective rainfall

Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	151	58	260%	136	41	330%
East Hampshire Chalk	166	62	265%	152	46	330%
West Sussex Chalk	163	63	260%	149	47	315%
East Sussex Chalk	152	57	266%	138	41	338%
Isle of Wight	143	60	237%	128	45	282%
Western Rother Greensand	174	65	269%	160	50	320%
Hampshire Tertiaries	152	59	258%	138	44	316%
Lymington	148	61	243%	134	47	284%
Sussex Coast	130	51	254%	116	36	325%
Arun	156	55	283%	142	41	348%
Adur	148	55	268%	134	40	333%
Ouse	153	56	270%	139	42	329%
Cuckmere	139	55	251%	124	40	312%
Pevensey Levels	134	54	249%	120	38	313%
Solent and South Downs	151	58	260%	136	43	319%

Winter rainfall and effective rainfall

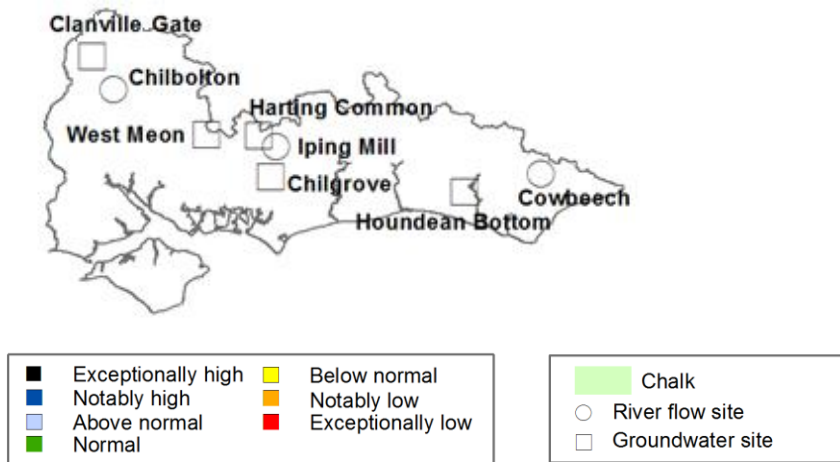
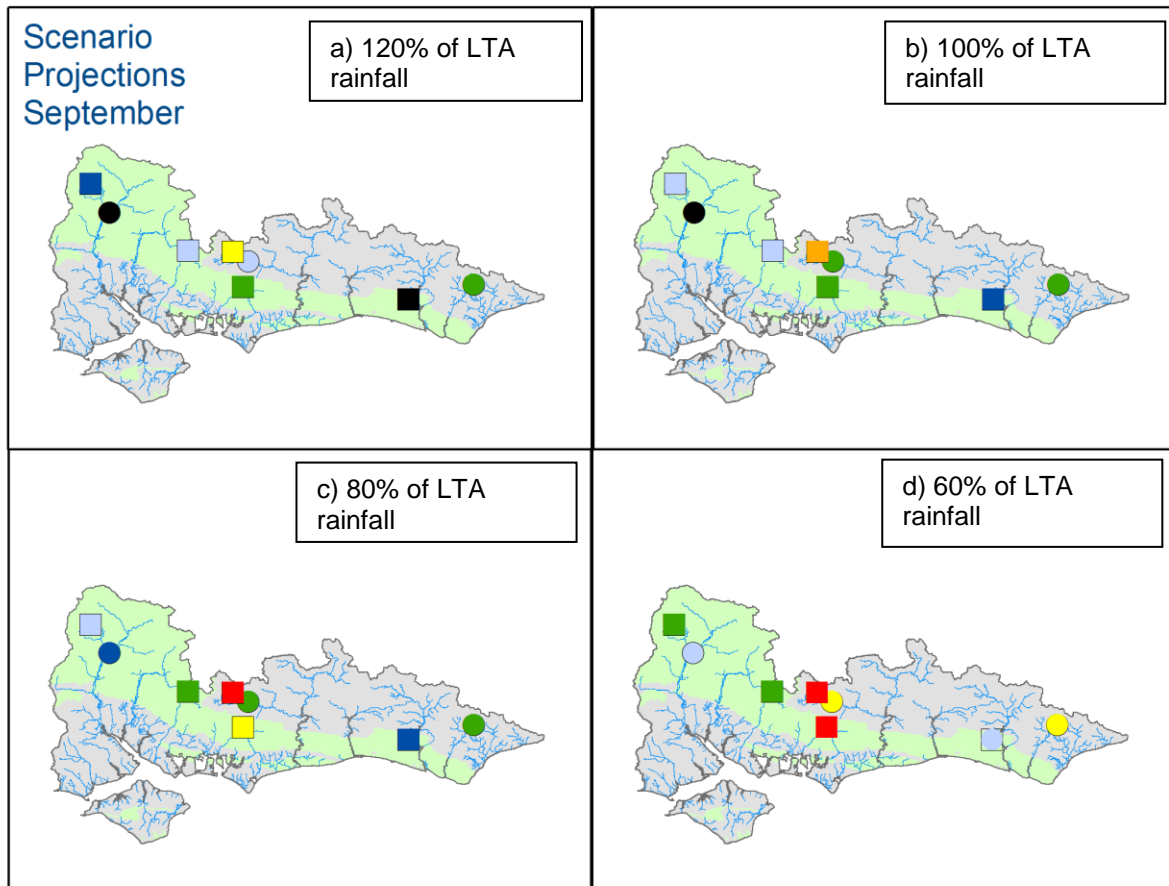
Winter totals for the period 1 October to the 29 February 2020

Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	629	387	163%	520	214	243%
East Hampshire Chalk	666	427	156%	570	256	223%
West Sussex Chalk	703	441	160%	600	290	207%
East Sussex Chalk	704	424	166%	576	257	224%
Isle of Wight	652	412	158%	529	247	215%
Western Rother Greensand	720	449	160%	633	284	223%
Hampshire Tertiaries	622	395	158%	527	242	218%
Lymington	645	411	157%	550	264	208%
Sussex Coast	561	365	154%	437	202	216%
Arun	641	392	164%	547	253	216%
Adur	659	401	164%	547	251	218%
Ouse	684	413	166%	580	272	214%
Cuckmere	651	410	159%	540	257	210%
Pevensey Levels	613	400	153%	489	238	206%
Solent and South Downs	654	409	160%	546	252	217%

Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	0	5
East Hampshire Chalk	0	5
West Sussex Chalk	0	4
East Sussex Chalk	0	5
Isle of Wight	0	5
Western Rother Greensand	0	4
Hampshire Tertiaries	0	5
Lymington	0	5
Sussex Coast	0	5
Arun	0	4
Adur	0	5
Ouse	0	4
Cuckmere	0	5
Pevensey Levels	0	5
Solent and South Downs	0	5

Forward look- river flow and groundwater September 2020



Projected river flows at key indicator sites up until the end of September 2020.
 Projected groundwater levels at key indicator sites at the end of September 2020.
 Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved. Environment Agency 100026380 2020.

Glossary

Term

Aquifer

Areal average rainfall

Artesian

Artesian borehole

Cumecs

Effective rainfall

Flood Alert/Flood Warning

Groundwater

Long term average (LTA)

mAOD

MORECS

Naturalised flow

NCIC

Recharge

Reservoir gross capacity

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 condition where the groundwater level is above ground surface but is prevented from rising to this level by an overlying continuous low permeability layer, such as clay.

Borehole where the level of groundwater is above the top of the borehole and groundwater flows out of the borehole when unsealed.

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

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

Three levels of warnings may be issued by the Environment Agency. Flood Alerts indicate flooding is possible. Flood Warnings indicate flooding is expected. Severe Flood Warnings indicate severe flooding.

The water found in an aquifer.

The arithmetic mean calculated from the historic record, usually based on the period 1961-1990. However, the period used may vary by parameter being reported on (see figure captions for details).

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

Met Office Rainfall and Evaporation Calculation System. Met Office service providing real time calculation of evapotranspiration, soil moisture deficit and effective rainfall on a 40 x 40 km grid.

River flow with the impacts of artificial influences removed. Artificial influences may include abstractions, discharges, transfers, augmentation and impoundments.

National Climate Information Centre. NCIC area monthly rainfall totals are derived using the Met Office 5 km gridded dataset, which uses rain gauge observations.

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

The total capacity of a reservoir.

The capacity of the reservoir that is normally usable for storage to meet established reservoir operating requirements. This excludes any capacity not available for use (e.g. storage held back for emergency services, operating agreements or physical restrictions). May also be referred to as 'net' or 'deployable' capacity.

The difference between the amount of water actually in the soil and the amount of water 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