



Natural Resources Wales

- The monthly rainfall total for Wales during March was 177% of the Long Term Average (LTA, 1961-90). South East, South West and North Wales received 176%, 160% and 194% of the LTA, respectively.
- At the end of March, the differences between soil moisture deficit (SMD) values and the LTA across Wales were from 7.5 to 12.5 mm. Soil moisture deficit values were more (drier) than the LTA values for all the squares in March.
- For river flows in Wales, 1 out of 28¹ indicator sites were classed as *Normal* and 8 sites were *Above normal*. For the remaining 19 sites, 11 were *Notably high* and 8 sites were *Exceptionally high*.
- The cumulative reservoir storage for 17 out of 18 indicator reservoirs was greater than 95% at the end of March. All reservoirs were within normal operating ranges for the time of year.

Rainfall*

The monthly rainfall total for Wales was 177% of the LTA for March. The percentage of rainfall recorded in catchments compared with their LTA across Wales was between 126% (Cleddau and Pembrokeshire) and 229% (Upper Dee). The rainfall total for Wales was 83.8mm more than the March LTA. For South East, South West and North Wales the rainfall totals were 176%, 160% and 194% of LTA, respectively. The storm Gareth happened on 12th and 13th March has increased the rainfall for March.

Rainfall Map

[Wales](#)

Rainfall Charts

[National & Areas](#)

[South East Wales](#)

[North Wales](#)

[South West Wales](#)

* using NCIC (National Climate Information Centre) data (*Source: Met Office © Crown Copyright*)

Soil Moisture Deficit/Recharge

The differences between the soil moisture deficits and the LTA for the 23 MORECS squares were from 7.5 to 12.5 mm and soil moisture deficit values were more (drier) than the LTA values for all the squares in March despite the high rainfall during March. This might be due to the dry weather in the last week of the month and results in a drier than average soil moisture deficits.

SMD Map

[Wales](#)

SMD Charts

[Compare to LTA](#)

¹ Note that Resolven and Clog y Fran gauging stations data are currently unavailable

River Flows

River flows were between *Normal* and *Exceptionally high* for all the indicator sites across Wales. 1 out of 28 indicator sites (which had flow data available) were classed as *Normal* and 8 sites were *Above normal*. For the remaining 19 sites, 11 were notably high and 8 sites were *Exceptionally high*.

South East: Flows in the area ranged from 110% (River Usk at Trostrey Weir) to 194% (River Taff at Pontypridd) of the March LTA values.

South West: The river flows within this area ranged from 121% (River Western Cleddau at Treffgarne) to 222% (River Cothi at Felin Mynachdy) of the March LTA values.

North: Flows in the area ranged from 124% (River Wheeler at Bodfari) to 257% (River Conwy at Cwmlanerch) of the March LTA values.

River Flow Map [Wales](#)
River Flow Table [% of LTA and compare to previous year](#)
River Flow Charts [South East Wales](#) [North Wales](#) [South West Wales](#)

Groundwater Levels

Groundwater levels for March at the indicator sites (9 data available sites) were classed between *Exceptionally low* (Eastwick) to *Above normal* (Greenfield Garage). 3 site were *Below normal* (Pont y Cambwll, Llanfair DC Obs and Handley) and the remaining 4 sties were *Normal* (Pant-y-Lladron, Fernbank, Dodleston and Broxton Obs).

Groundwater Map [Wales](#)
Groundwater Charts [South East Wales](#) [North Wales](#) [South West Wales](#)

Reservoir Storage

At the end of March the cumulative reservoir storage for 17 out of 18 indicator reservoirs were greater than 95% full. All reservoirs were within normal operating ranges for the time of year.

Reservoir Charts [South East Wales](#) [North Wales](#) [South West Wales](#)

All data on Water Situation Reports are provisional, based on spot readings, and are subject to revision.

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[Return to Summary](#)

Natural Resources Wales

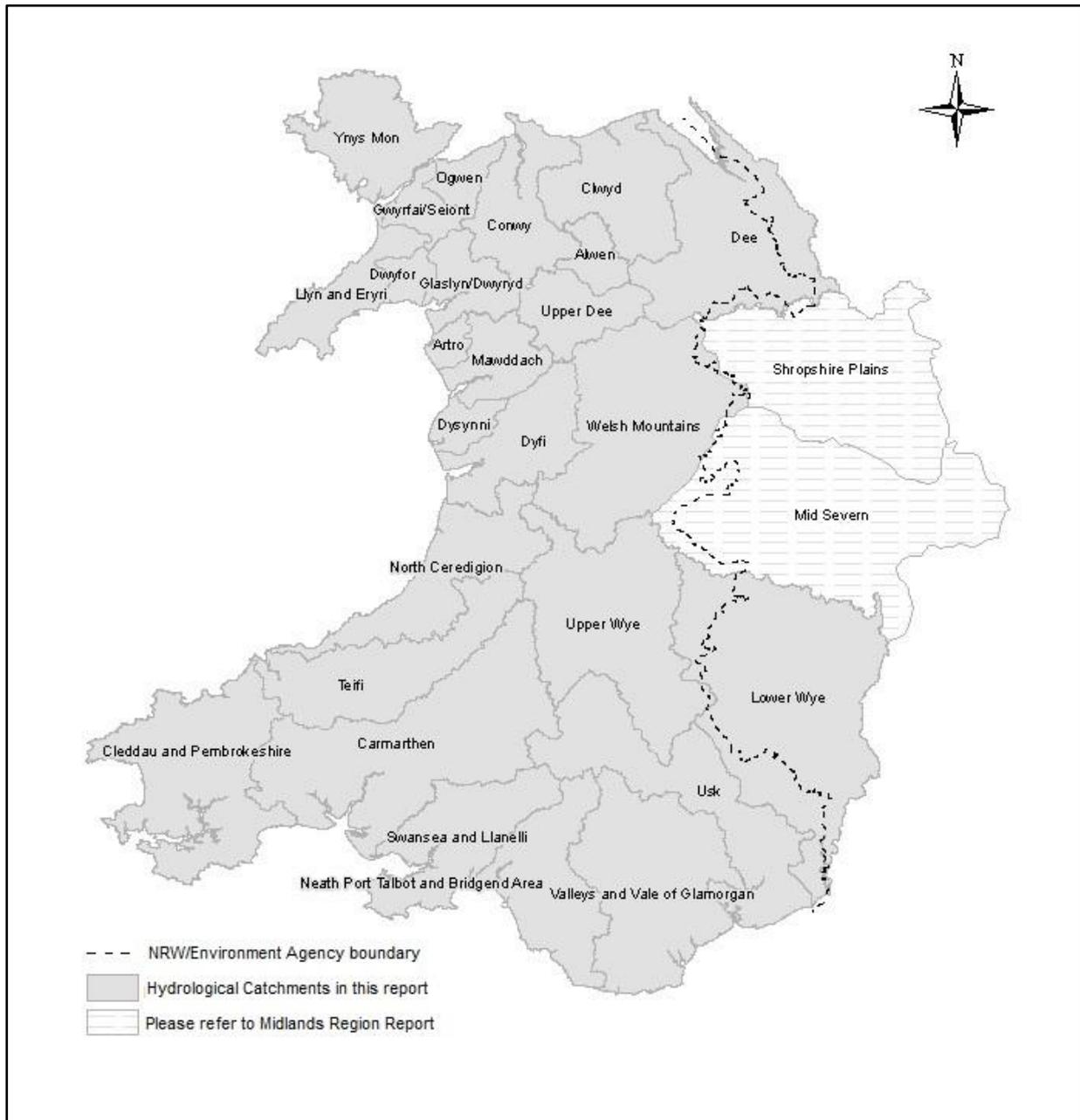


Figure 1: The Natural Resources Wales Water Situation Report features sites in the catchments shown. Parts of the Shropshire Plains and Mid Severn catchments are within Wales. For full information on these catchments, please see the Environment Agency Midlands Water Situation Report.

For areas adjoining Natural Resources Wales, please see the reports for Environment Agency Midlands and North West England:

[Environment Agency - Midlands, England Water Situation Report](#)
[Environment Agency - North West, England Water Situation Report](#)

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Rainfall

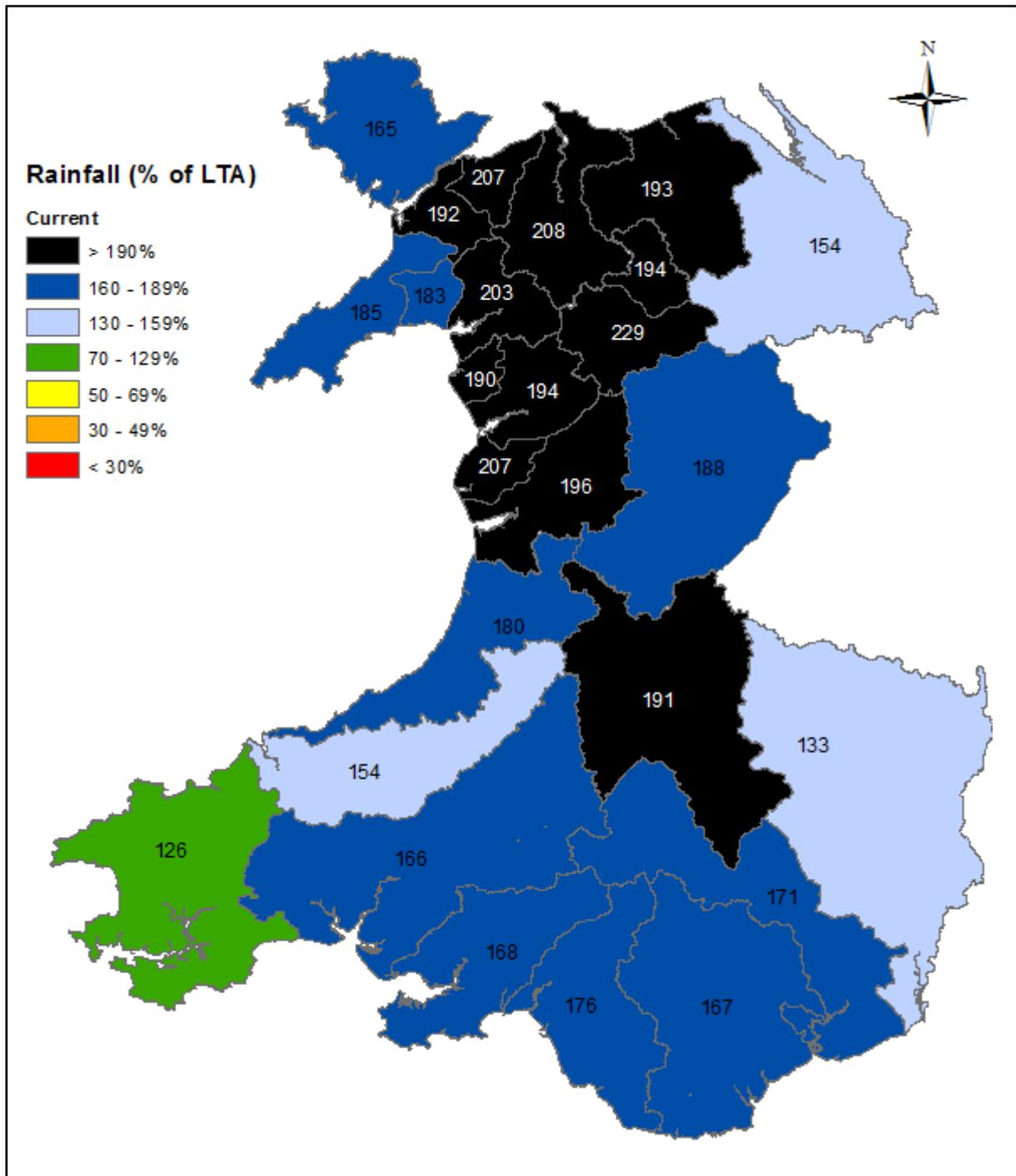


Figure 2: Calculated catchment average March rainfall totals as a percentage of the 1961- 90 March long term average for Natural Resources Wales catchments, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

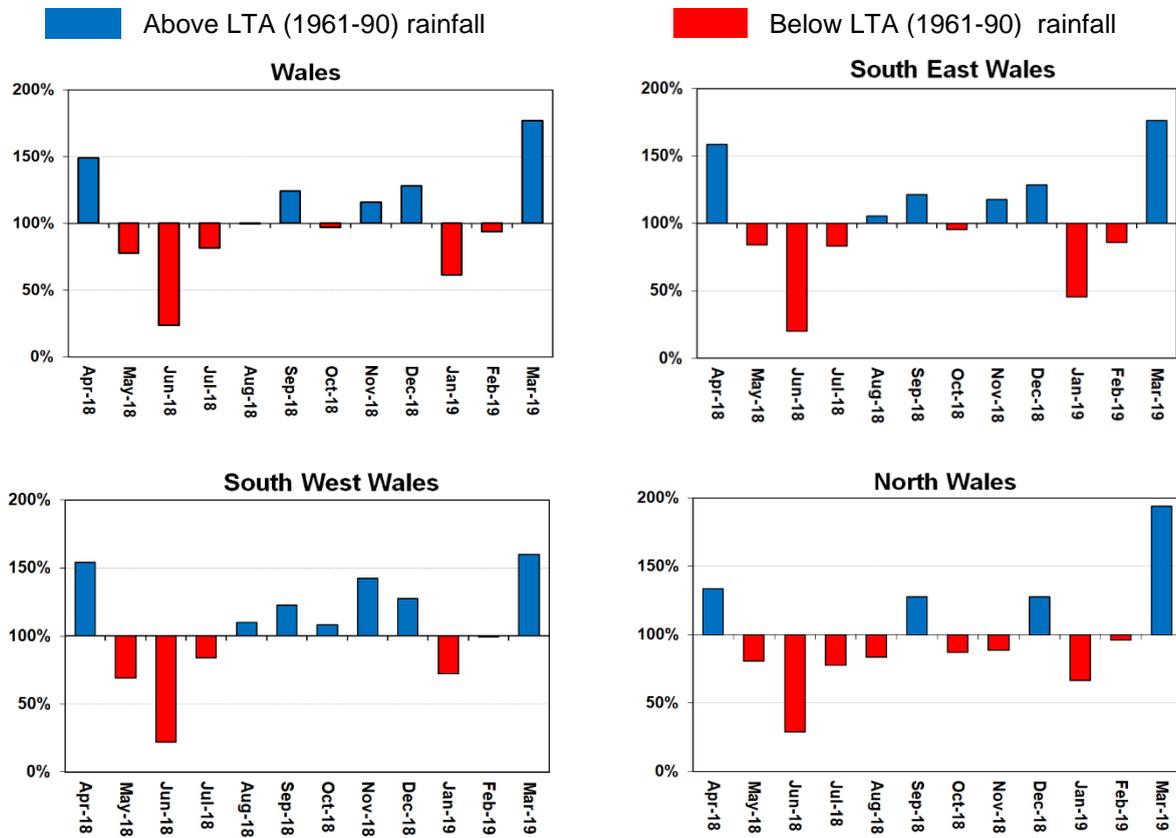
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[Return to Summary](#)

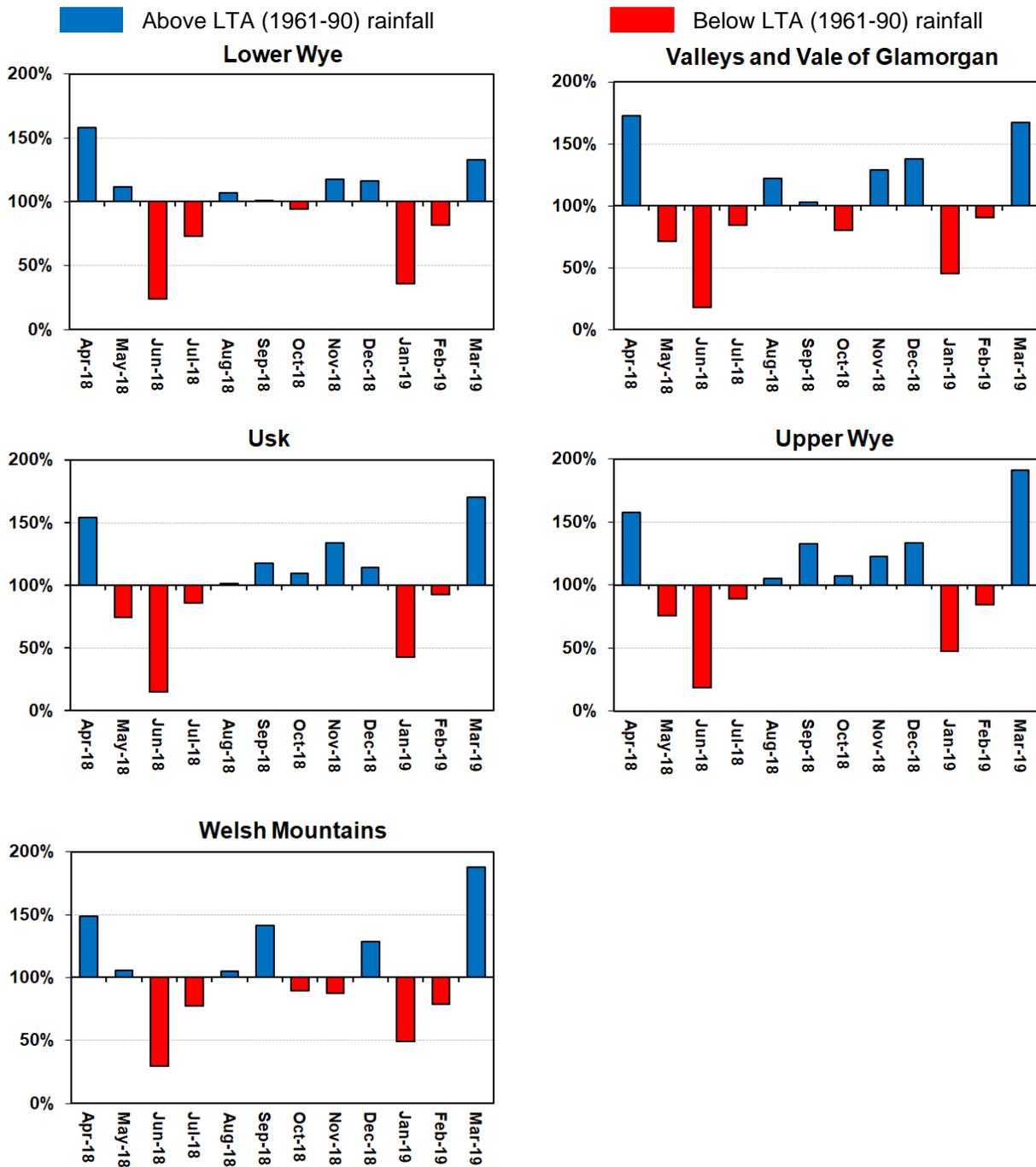
Rainfall Charts

Figure 3: Rainfall Charts: National and Areas



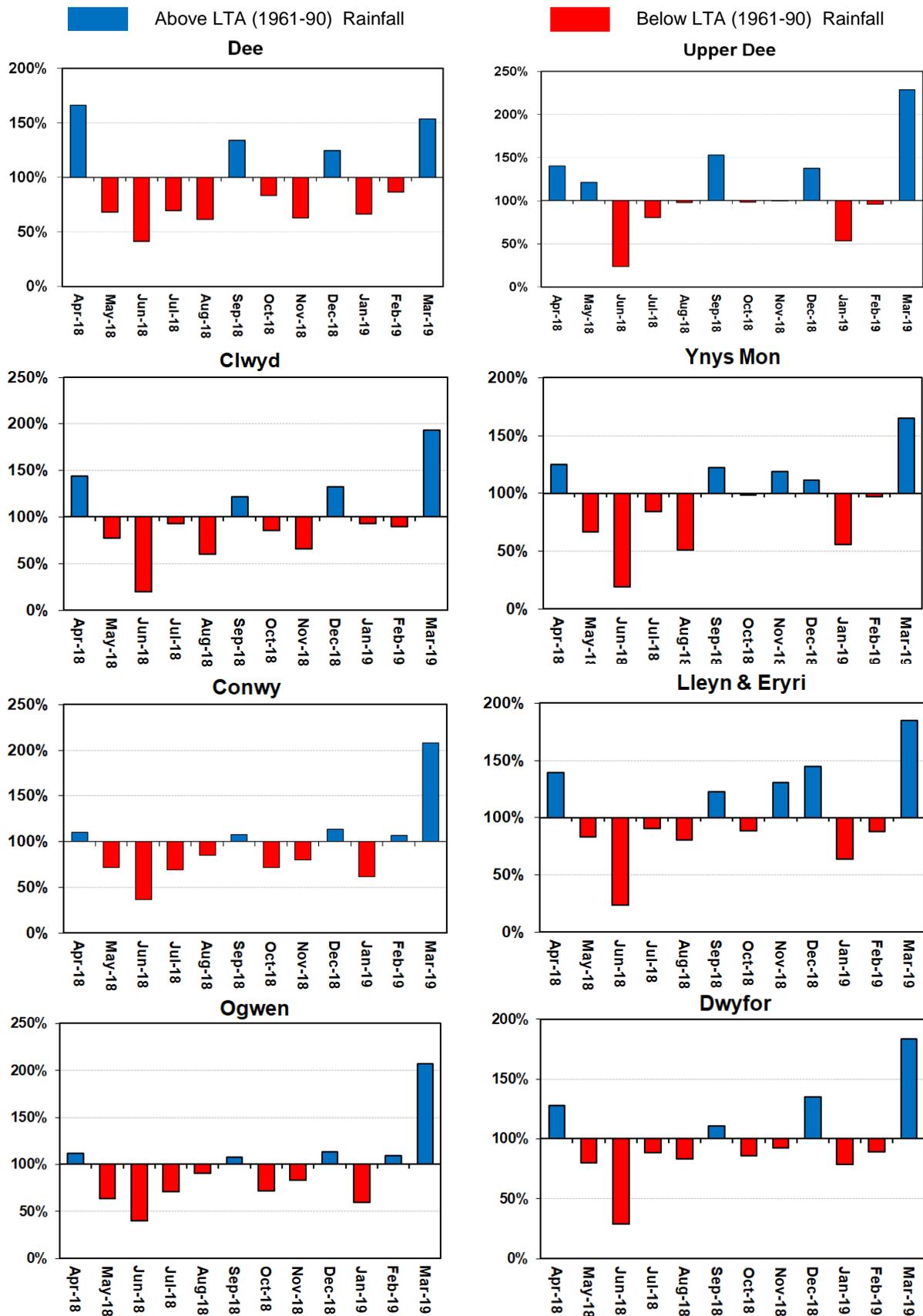
Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for Natural Resources Wales and Areas, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

Figure 4: Rainfall Charts: South East Wales



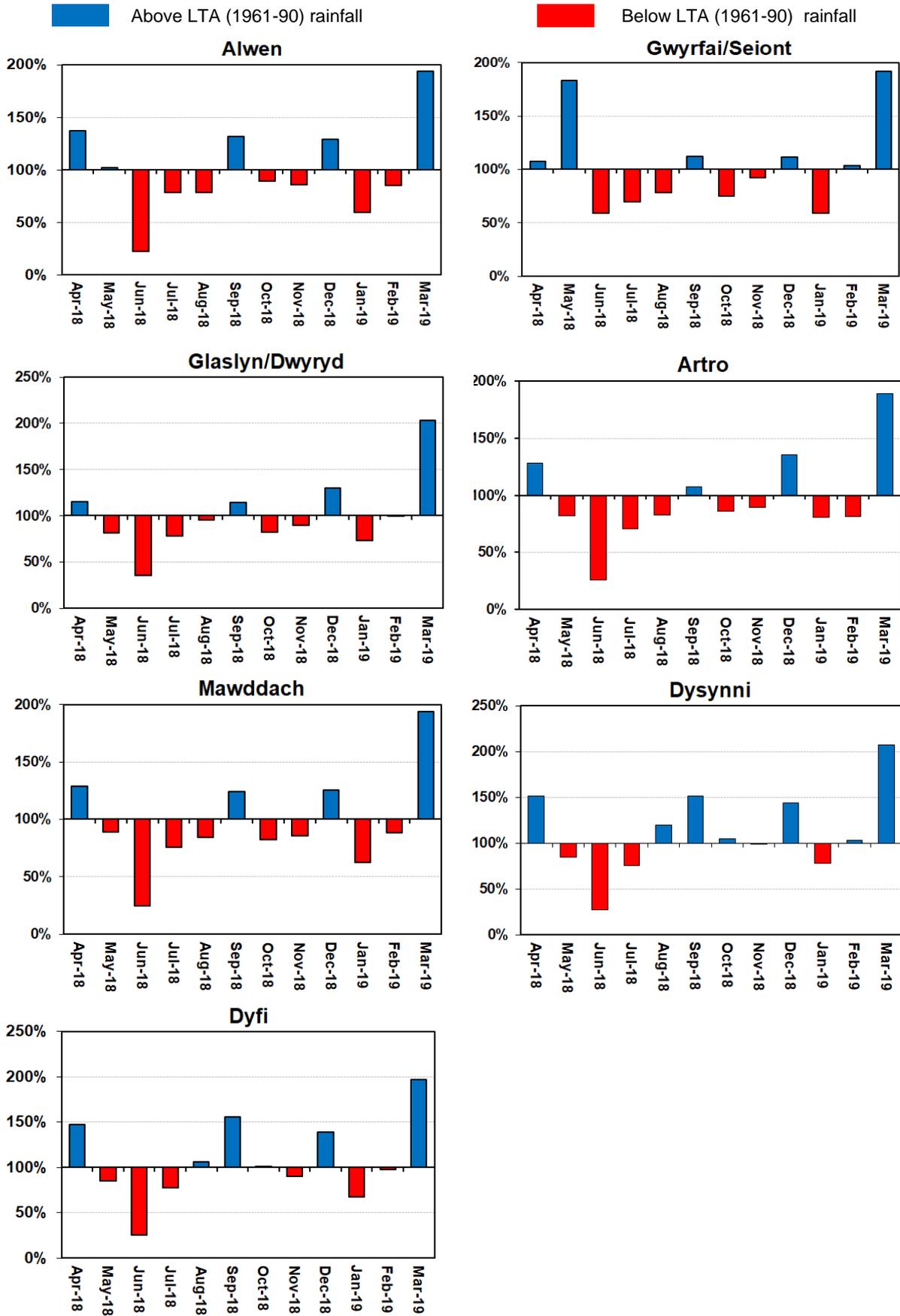
Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for South East Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

Figure 5: Rainfall Charts: North Wales



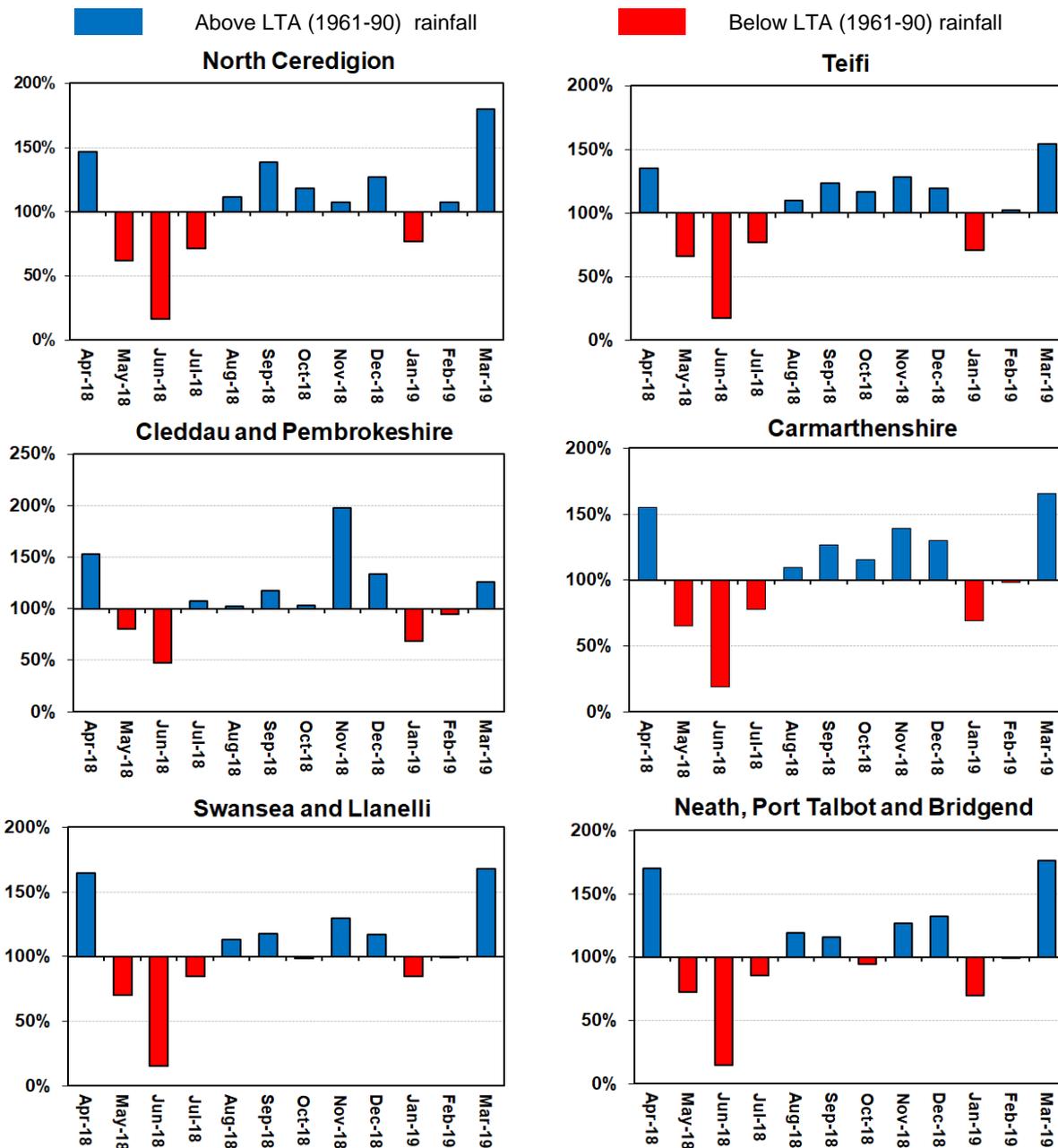
Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for North Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

[Return to Summary](#)



Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for North Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

Figure 6: Rainfall Charts: South West Wales



Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for South West Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

Soil Moisture Deficit (SMD)

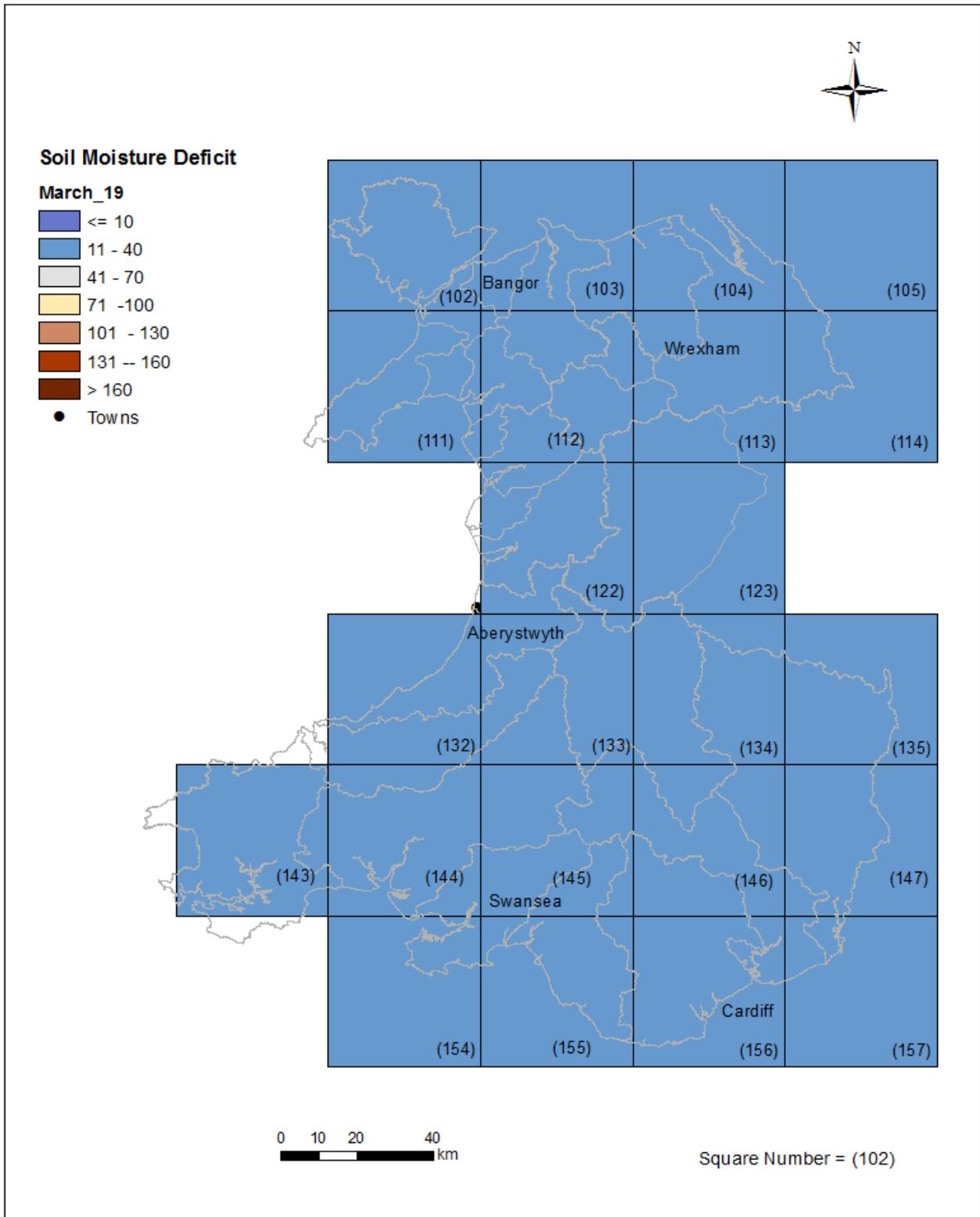


Figure 7: MORECS soil moisture deficits (mm) for March for real land use for Natural Resources Wales (Source: Met Office © Crown Copyright).

[Return to Summary](#)

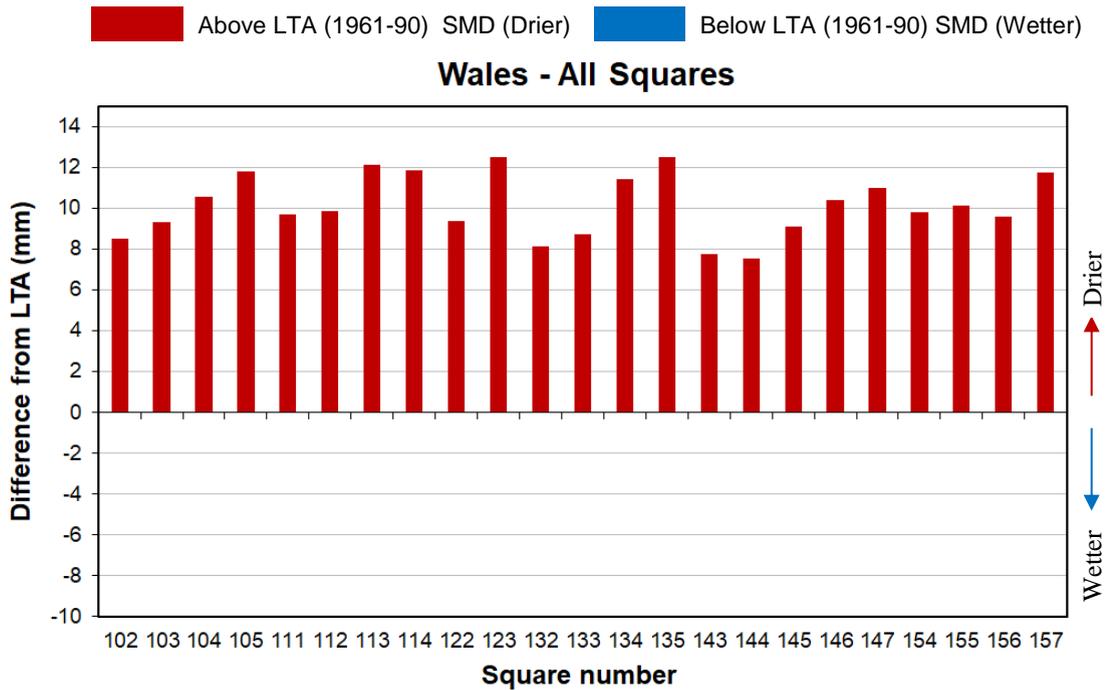


Figure 8: MORECS month end soil moisture deficits difference (mm) from the 1961-90 long term monthly average (LTA) for March for real land use for Natural Resources Wales squares (Source: Met Office © Crown Copyright).

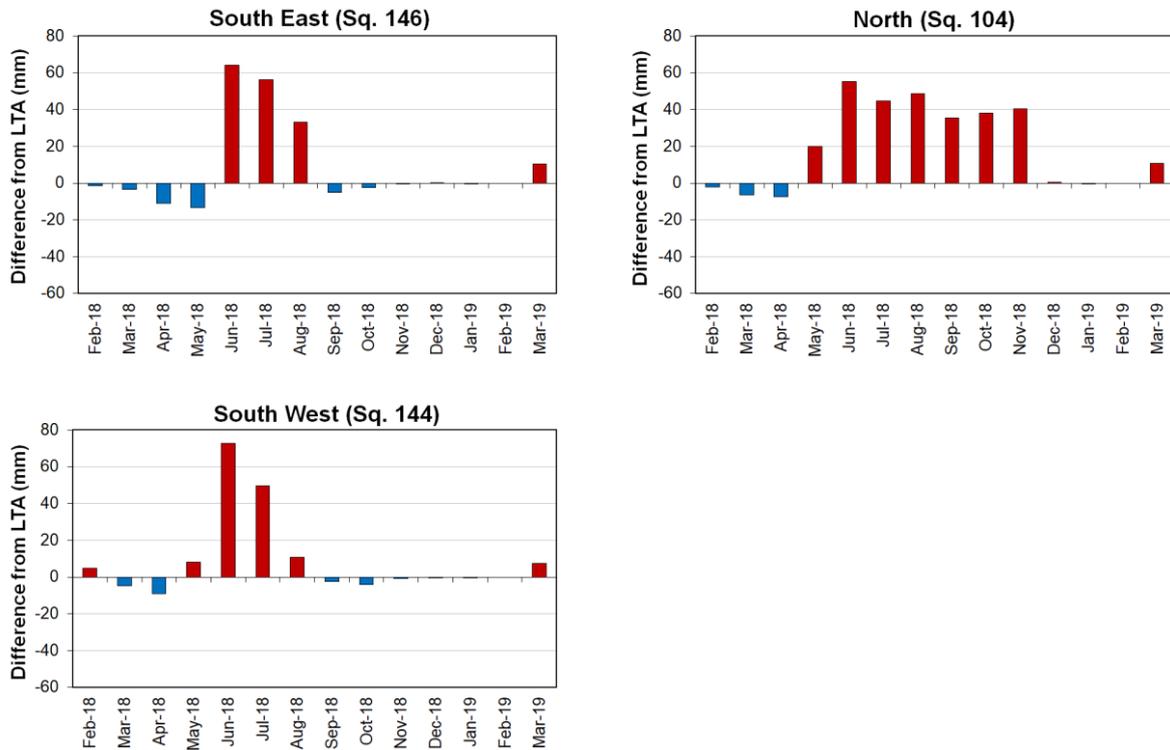


Figure 9: MORECS month end soil moisture deficit difference (mm) from the 1961-90 long term monthly average (LTA) for real land use for South East, North and South West (Source: Met Office © Crown Copyright). (Note: no LTA available for Natural Resources Wales.)

River Flow

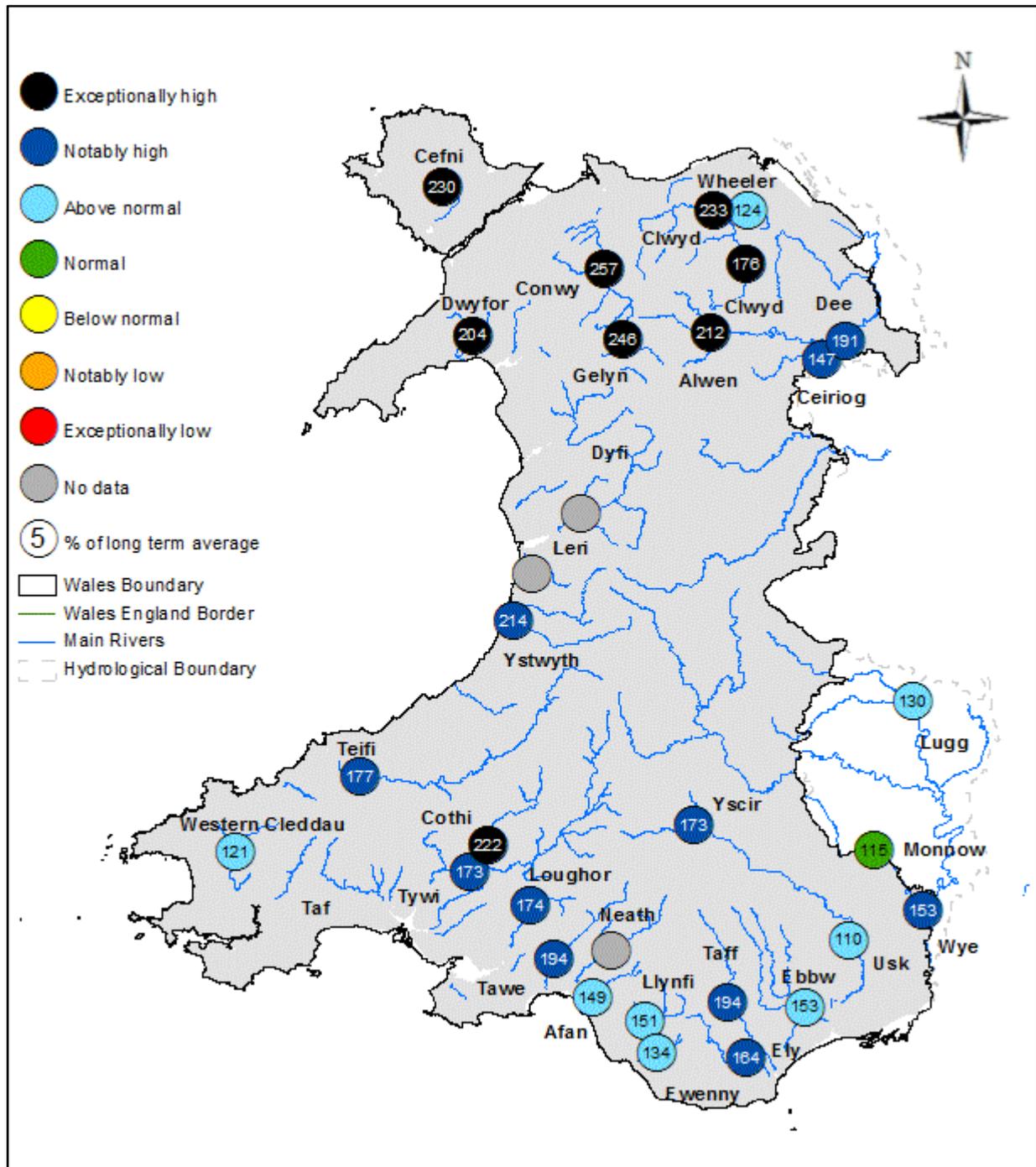


Figure 10: Monthly mean river flow for March, classed relative to analysis of historic March monthly means (Source: Natural Resources Wales).

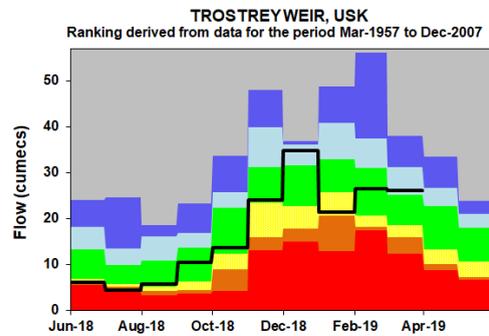
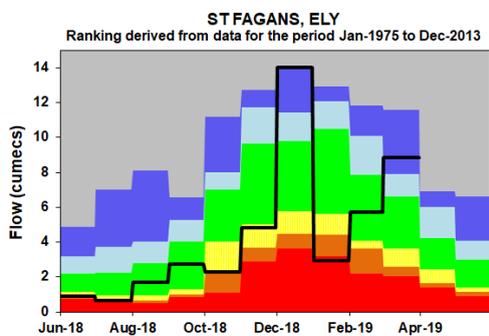
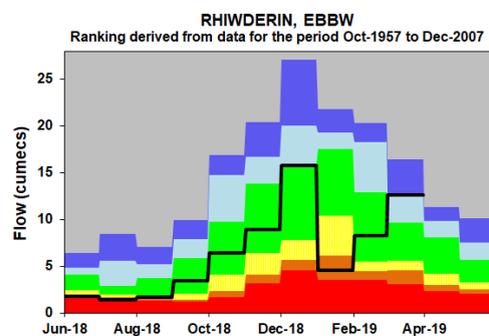
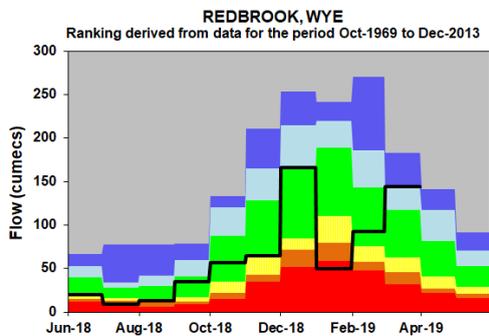
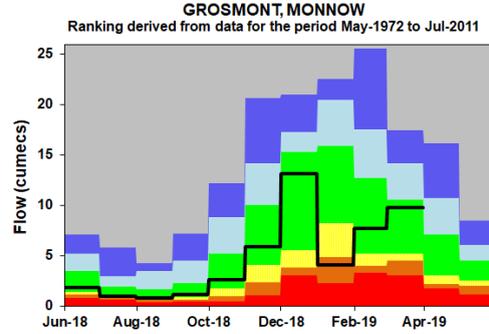
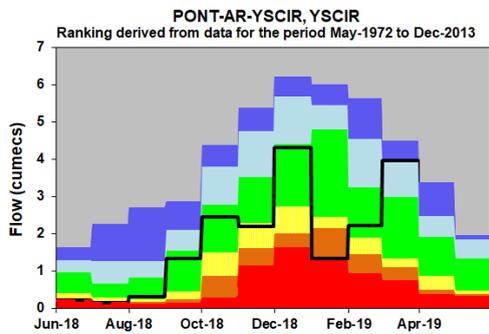
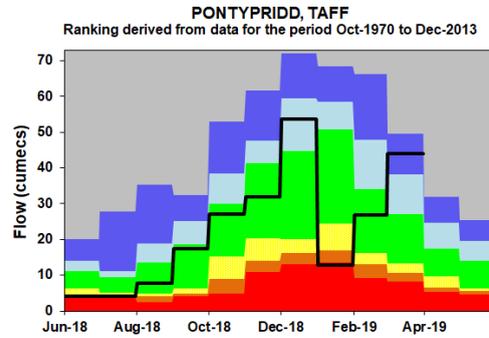
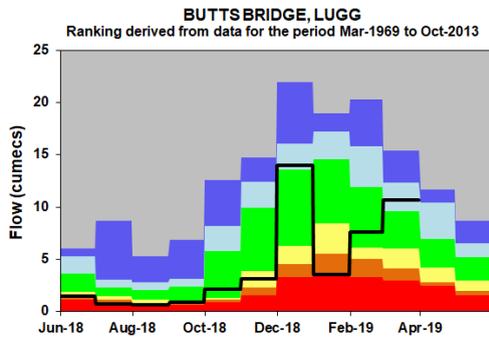
SITE NAME	RIVER	March 2019			March 2018		March LTA		
		Class	% of LTA	Flow (m3/s)	% of LTA	Flow (m3/s)	LTA	Min Monthly Mean (m3/s)	Max Monthly Mean (m3/s)
River Flow Sites : South East Area									
Butts Bridge	Lugg	Above normal	130%	10.70	197%	16.20	8.21	1.97	19.80
Grosmont	Monnow	Normal	115%	9.77	181%	15.40	8.49	1.66	22.50
Pont ar Yscir	Yscir	Notably high	173%	3.97	127%	2.91	2.30	0.38	6.30
Pontypridd	Taff	Notably high	194%	44.10	180%	41.00	22.74	4.87	72.70
Redbrook	Wye	Notably high	153%	144.00	153%	144.00	93.85	20.80	245.00
Rhiwderin	Ebbw	Above normal	153%	12.60	149%	12.30	8.26	2.29	25.00
St Fagans	Ely	Notably high	164%	8.87	141%	7.64	5.41	1.37	13.60
Trostrey Weir	Usk	Above normal	110%	26.10	145%	34.30	23.73	8.23	66.70
River Flow Sites : North Area									
Bodfari	Wheeler	Above normal	124%	1.18	131%	1.24	0.95	0.47	1.76
Bodffordd	Cefni	Exceptionally high	230%	0.99	126%	0.54	0.43	0.16	0.93
Brynkinalt Weir	Ceiriog	Notably high	147%	5.44	144%	5.32	3.70	0.73	9.04
Cwmlanerch	Conwy	Exceptionally high	257%	50.90	74%	14.70	19.84	5.08	56.00
Cynefail	Gelyn	Exceptionally high	246%	1.72	86%	0.60	0.70	0.20	1.63
Dol y Bont	Leri						1.69	0.48	3.90
Druid	Alwen	Exceptionally high	212%	11.70	95%	5.25	5.52	1.64	15.30
Dyfi bridge	Dyfi						27.25	5.65	75.80
Garndolbenmaen	Dwyfor	Exceptionally high	204%	5.68	84%	2.34	2.78	0.83	6.96
Manley Hall	Dee	Notably high	191%	65.80	99%	34.10	34.37	10.50	83.60
Pont y Cambwll	Clwyd	Exceptionally high	233%	17.00	156%	11.40	7.30	2.26	17.80
Ruthin Weir	Clwyd	Exceptionally high	176%	3.44	127%	2.48	1.96	0.41	4.00
River Flow Sites : South West Area									
Capel Dewi	Tywi	Notably high	173%	76.40	131%	57.80	44.18	11.00	138.00
Clog y Fran	Taf				148%	12.10	8.18	2.88	26.60
Coytrahen	Llynfi	Above normal	151%	3.73	111%	2.75	2.47	0.67	7.64
Felin Mynachdy	Cothi	Exceptionally high	222%	27.00	140%	17.00	12.15	2.82	40.70
Glanteifi	Teifi	Notably high	177%	53.90	142%	43.20	30.47	8.28	96.70
Keepers Lodge	Ewenny	Above normal	134%	2.90	113%	2.45	2.16	0.80	6.00
Marcroft	Afan	Above normal	149%	8.37	107%	6.03	5.61	1.31	16.50
Pont Llolwyn	Ystwyth	Notably high	214%	13.20	91%	5.63	6.17	1.72	18.50
Treffgarne *	Western Cleddau	Above normal	121%	5.24	114%	4.92	4.32	1.66	11.89
Resolven	Neath						10.91	1.89	33.00
Tir-y-Dail	Loughor	Notably high	174%	3.91	152%	3.42	2.25	0.74	5.23
Ynystanglws	Tawe	Notably high	194%	23.30	136%	16.30	12.01	3.18	41.60

Figure 11: Monthly mean river flow for March with comparison against previous year expressed as a percentage of the March long term average and classed relative to analysis of historic March monthly means. (Source: Natural Resources Wales). (* For Treffgarne station the LTAs were derived using scaled historical flows (1965-2003) from the downstream station at Prendergast Mill. There was no flow data for Resolven due to the maintenance work at the gauge station)

[Return to Summary](#)

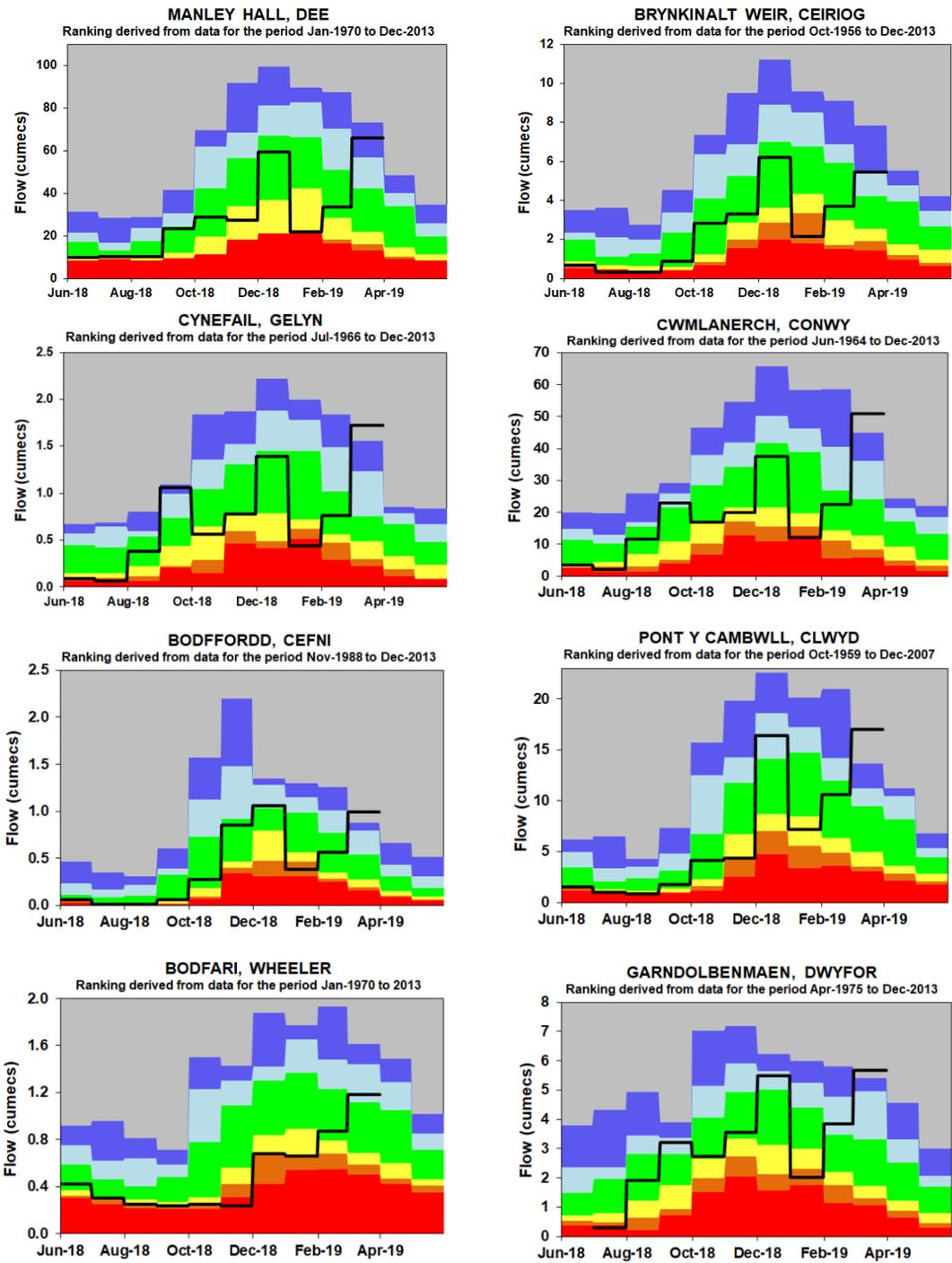
River Flow Charts

Figure 12: River Flow Charts: South East Wales



Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels (Source: Natural Resources Wales).

Figure 13: River Flow Charts: North Wales



Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels (Source: Natural Resources Wales).

(Please note that there was no data for Garndolbenmaen for May to June 2018 due to maintenance work)

[Return to Summary](#)

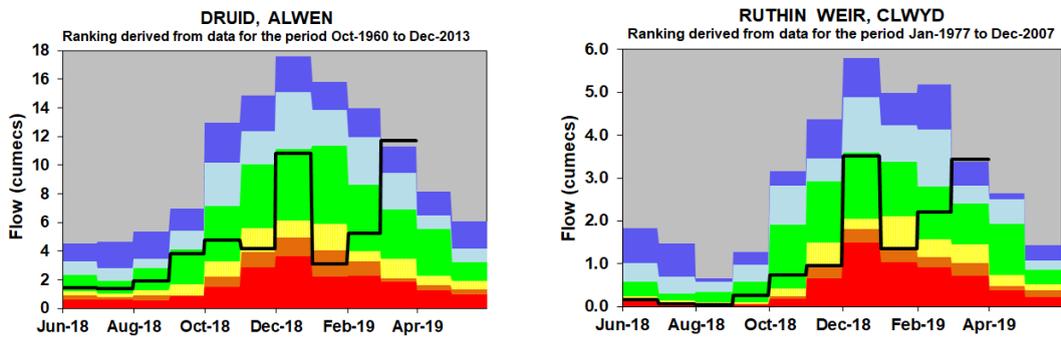
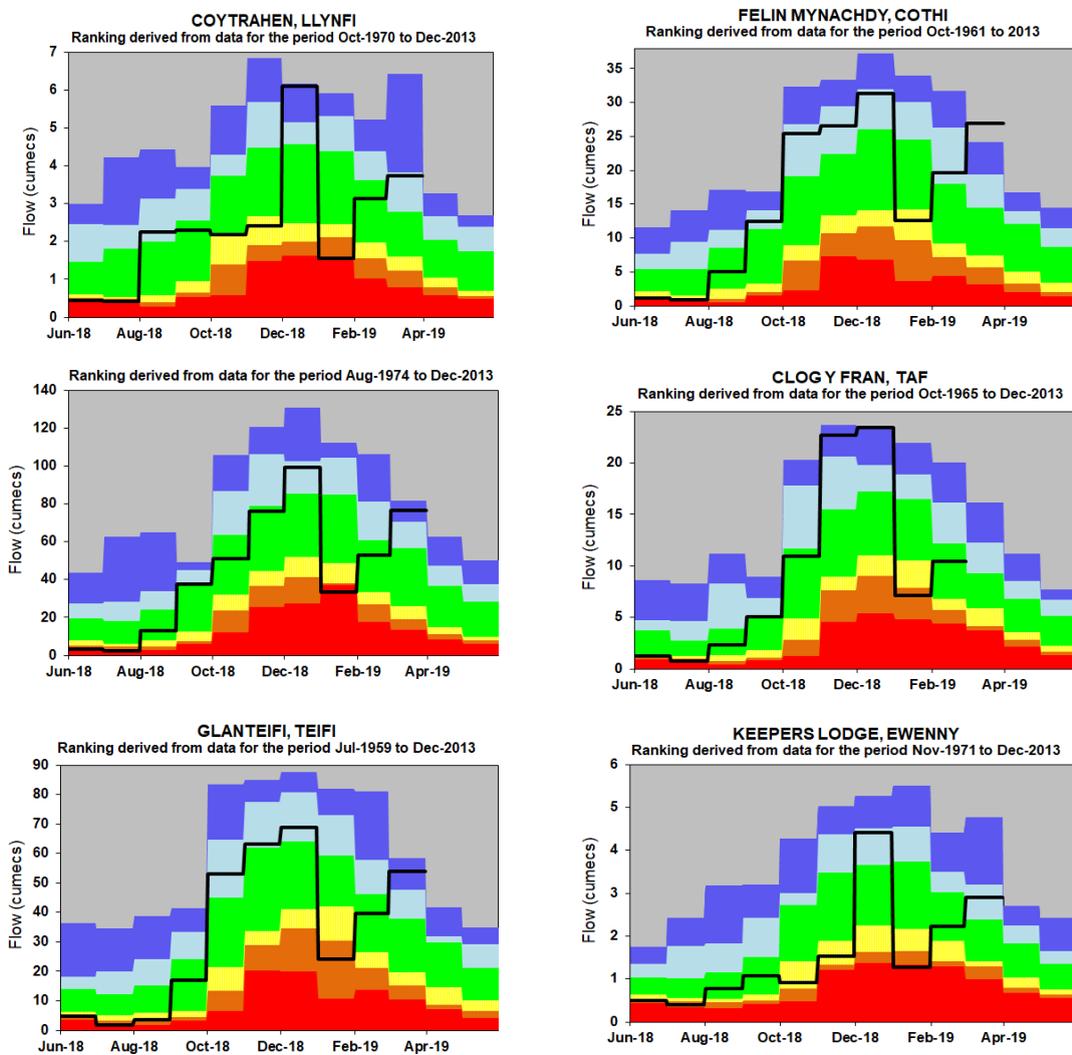
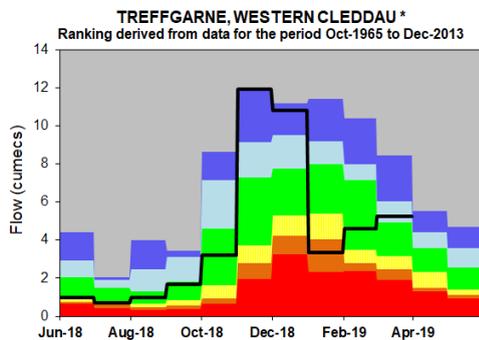
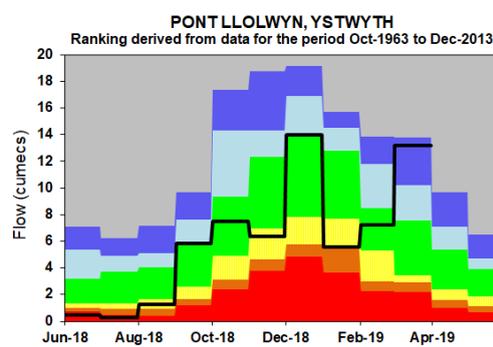
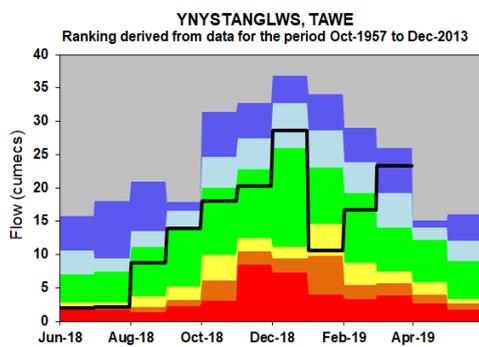
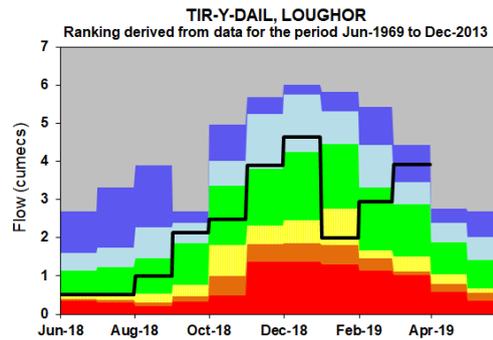
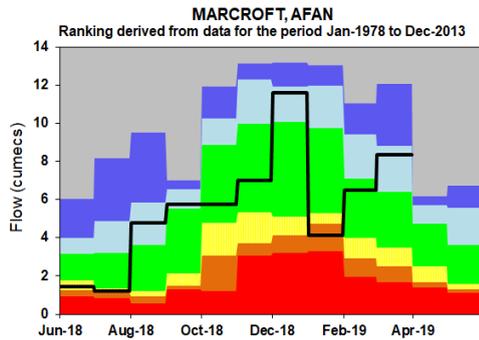


Figure 14: River Flow Charts: South West Wales



[Return to Summary](#)



Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels. (Source: Natural Resources Wales).

(* Please note that for Treffgarne station the ranking bands were derived using scaled historical flows (1965-2003) from the downstream station at Prendergast Mill. There were no flow data from June 2018 to March 2019 for Resolven, so the graph for this station is not shown here.)

Groundwater Levels

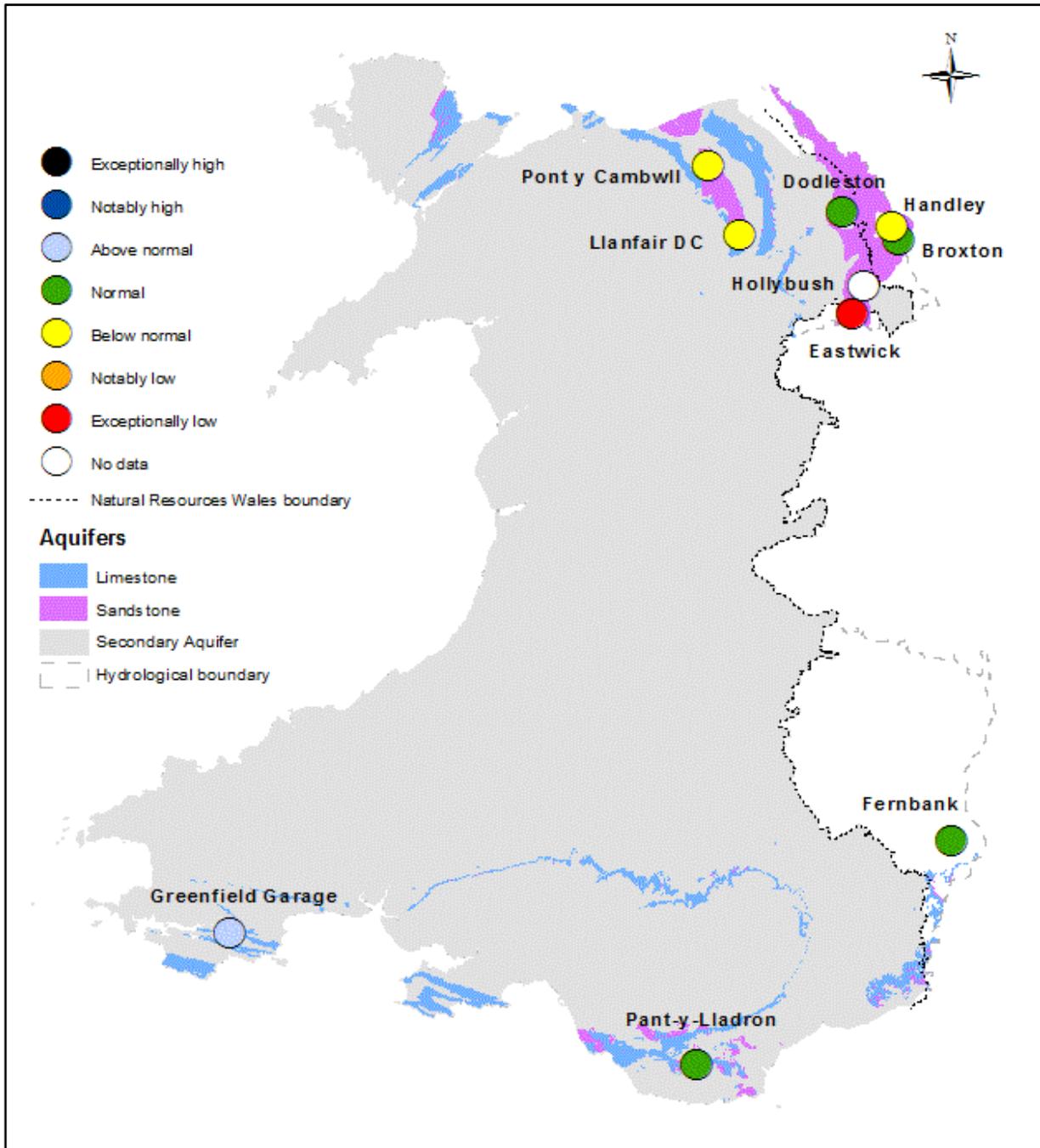
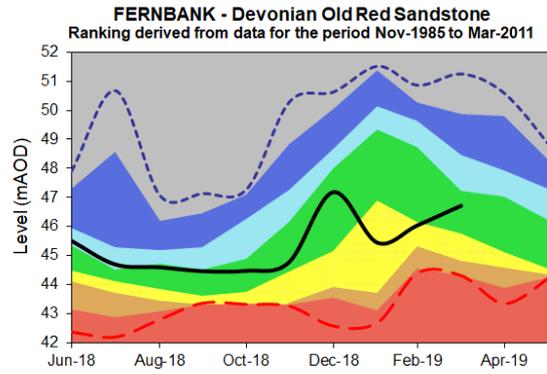
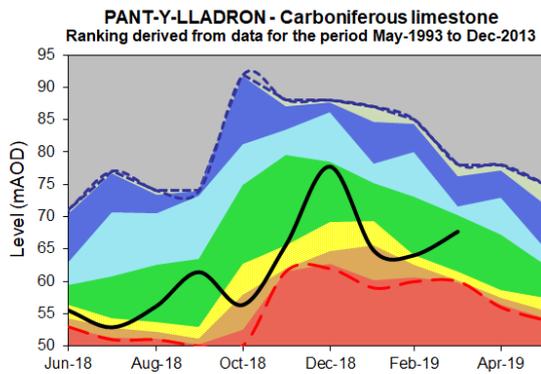
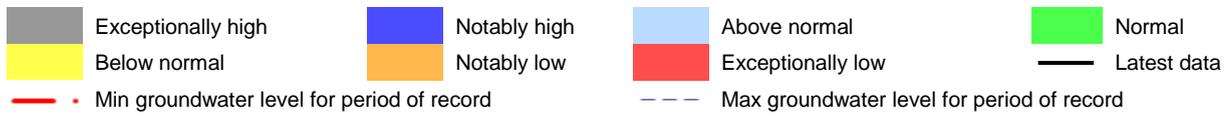


Figure 15: Groundwater levels at the end of month classed relative to an analysis of historic March groundwater levels (Source: Natural Resources Wales and Environment Agency).

[Return to Summary](#)

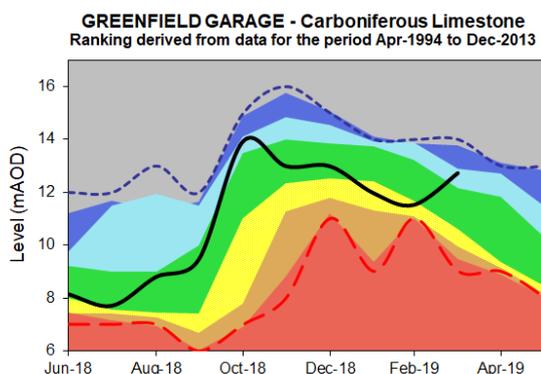
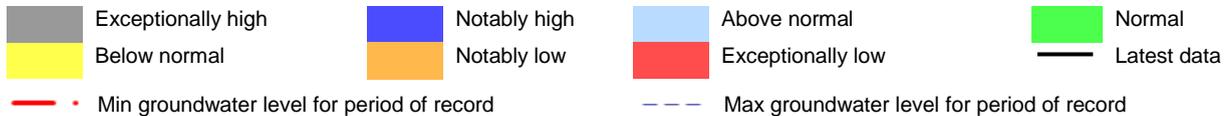
Groundwater charts

Figure 16: Groundwater level charts: South East Wales



End of month groundwater levels for the past 10 months for index sites (Source: Natural Resources Wales). (Please note that data is not available for May and July 2018 for Pant-y-Lladron)

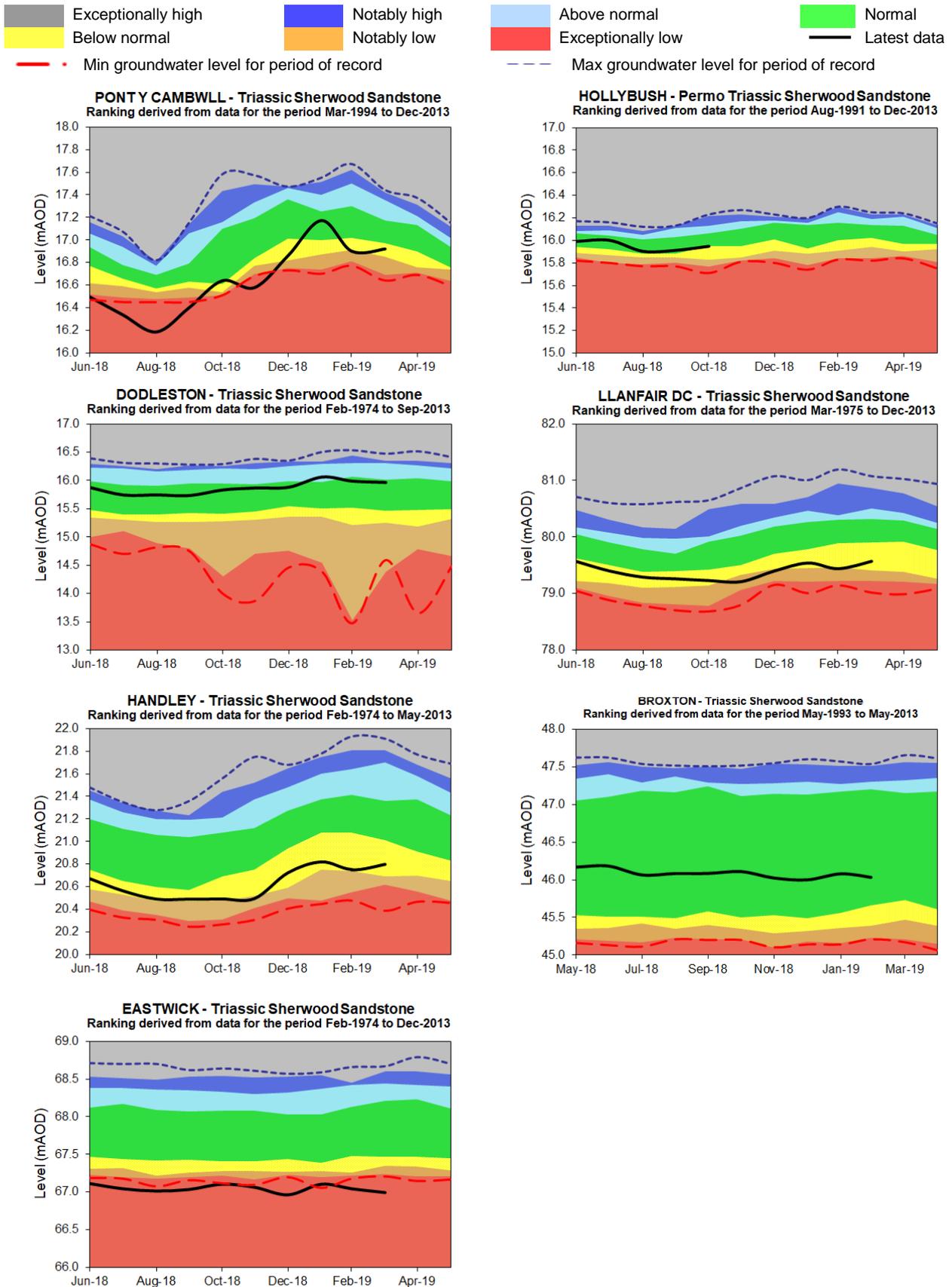
Figure 17: Groundwater level charts: South West Wales



End of month groundwater levels for the past 10 months for index sites (Source: Natural Resources Wales).

[Return to Summary](#)

Figure 18: Groundwater level charts: North Wales

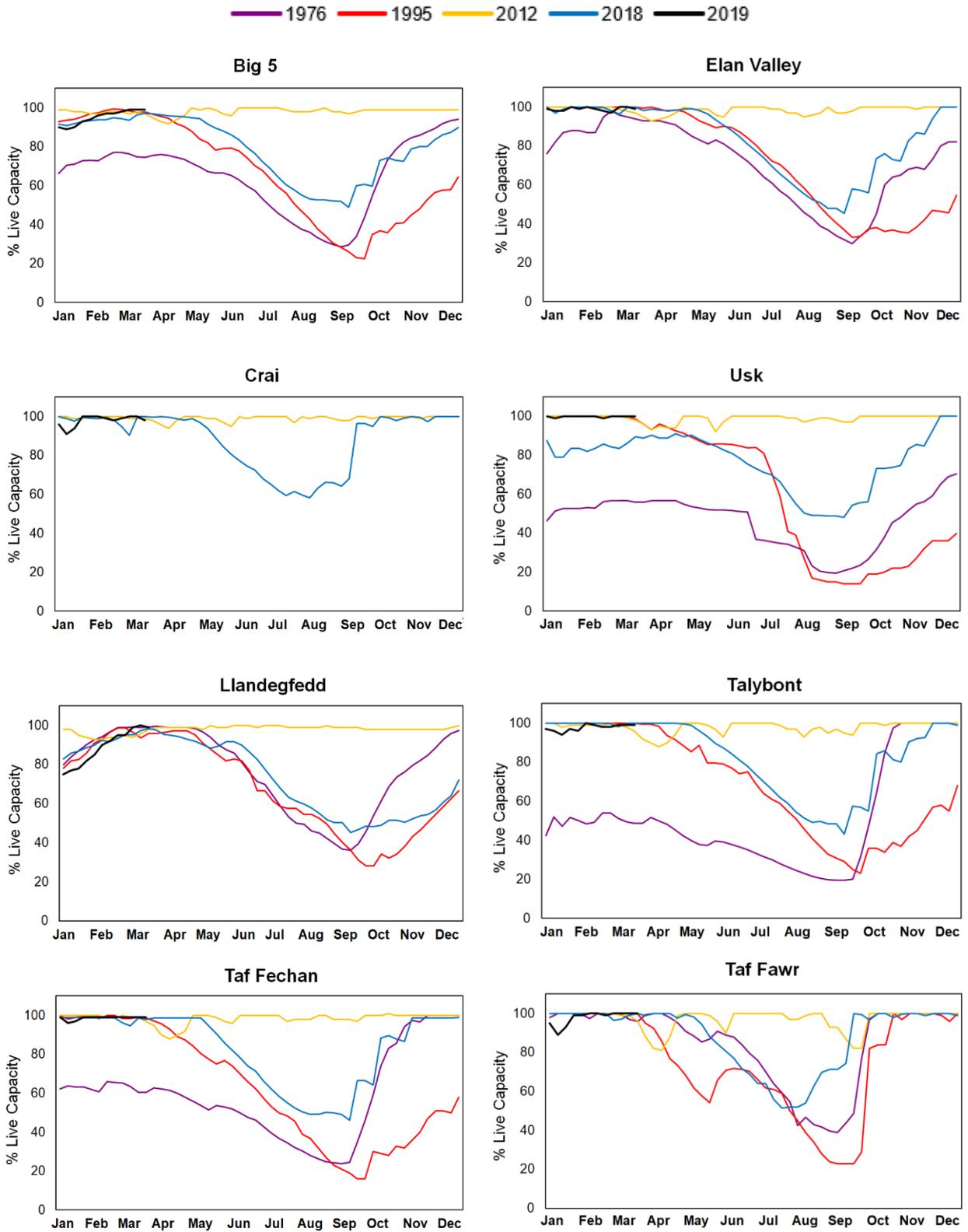


End of month groundwater levels for the past 10 months for index sites (Source: Natural Resources Wales and Environment Agency). (Please note that data is not available for May 2018 and November 2018 -March 2019 for Hollybush. The data for October 2018 for this station is taken on 9th October 2018)

[Return to Summary](#)

Reservoir Storage

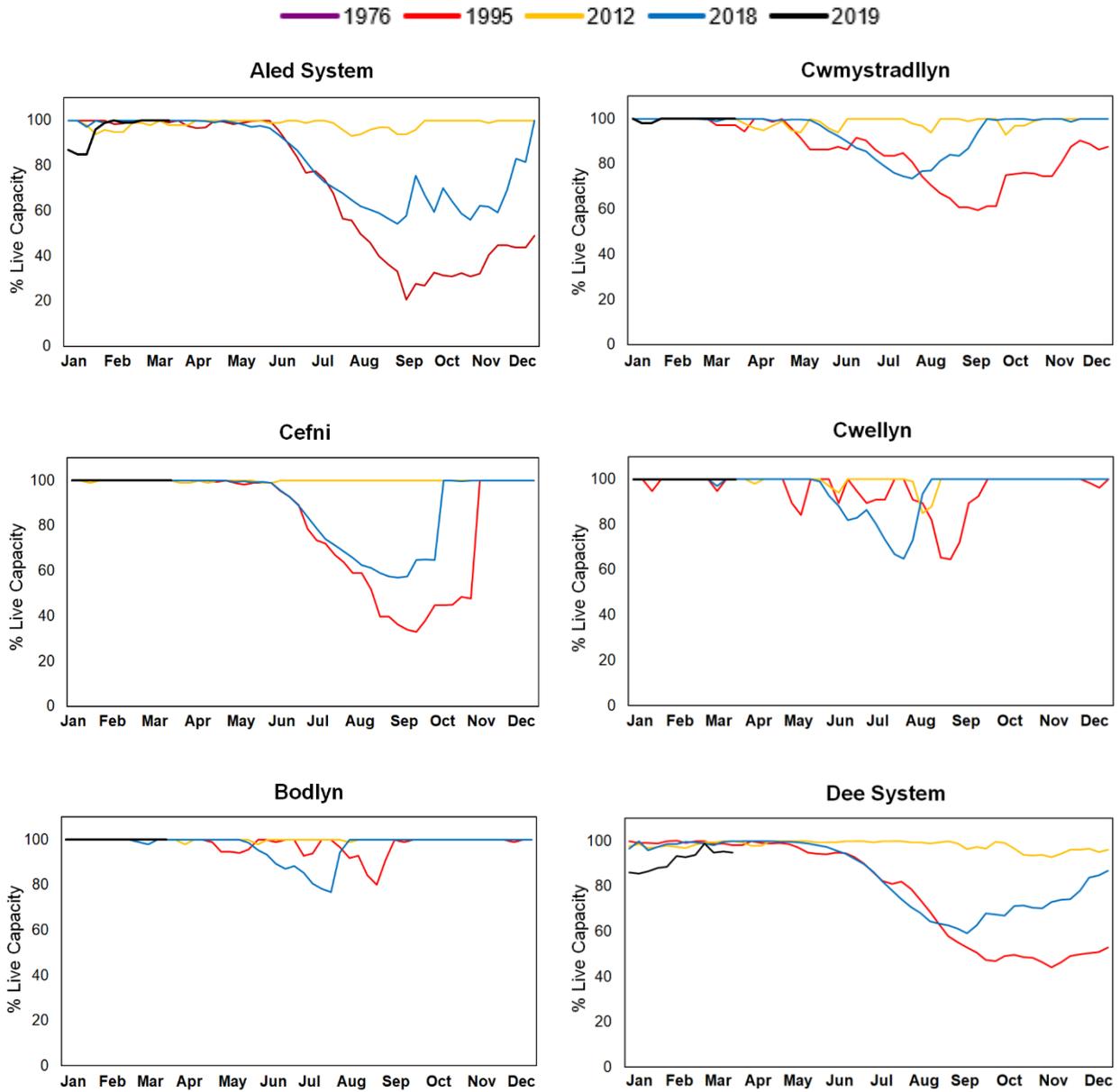
Figure 19: Reservoir charts: South East Wales



Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water)

[Return to Summary](#)

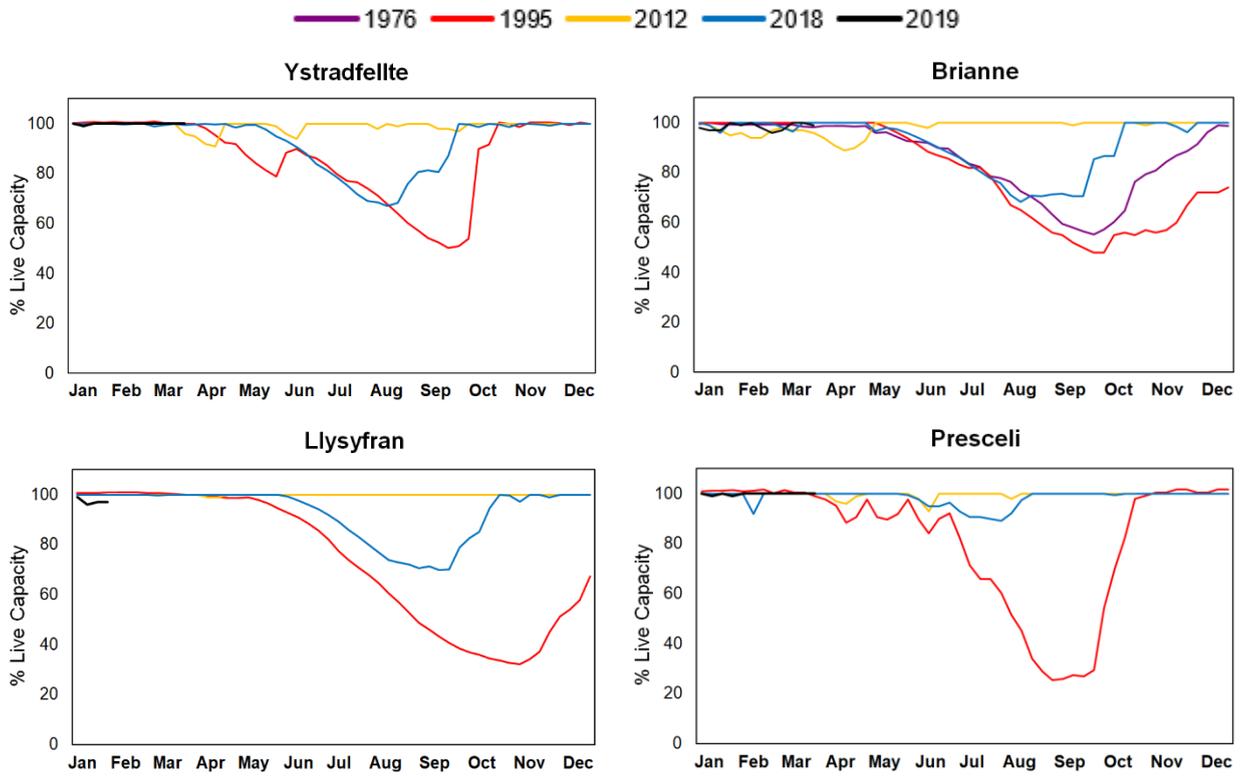
Figure 20: Reservoirs charts: North Wales



Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water).

[Return to Summary](#)

Figure 21: Reservoirs charts: South West Wales



Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water).

Glossary

Term	Definition
Aquifer	A geological formation able to store and transmit water.
Areal average rainfall	The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).
Effective rainfall	The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).
Groundwater	The water found in an aquifer
Meteorological Office Rainfall and Evaporation Calculating System (MORECS)	The Met Office provides climate data for grid squares measuring 40km by 40km across the UK using MORECS
Recharge	The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).
Reservoir live capacity	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.
Soil moisture deficit (SMD)	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	Value likely to fall within this band 5% of the time
Notably high	Value likely to fall within this band 8% of the time
Above normal	Value likely to fall within this band 15% of the time
Normal	Value likely to fall within this band 44% of the time
Below normal	Value likely to fall within this band 15% of the time
Notably low	Value likely to fall within this band 8% of the time
Exceptionally low	Value likely to fall within this band 5% of the time

Units

cumecs	Cubic metres per second ($\text{m}^3 \text{s}^{-1}$)
mAOD	Metres Above Ordnance Datum (mean sea level at Newlyn Cornwall).