

Natural Resources Wales

- The monthly rainfall total received for Wales during October was 34% of the Long Term Average (LTA, 1961-90). South East, South West and North Wales received 37%, 34% and 31% of the LTA, respectively. All the catchments received rainfall less than half of the LTA. For whole Wales the rainfall was the 6th lowest record for October since the rainfall record started in 1910 and the lowest value since 1978. For South East, South West and North Wales the rainfall was also the 8th, 6th and 5th lowest value received in these areas for October, respectively, since 1910.
- At the end of October, soil moisture deficit (SMD) values across Wales were between 2.1 (Square 112) and 118.3mm (Square 104) for all MORECS squares. Most of the squares (20 out of 23) were drier compared with the long term average (LTA) October (1961-90). South East and North East of Wales were relatively drier than other parts of Wales.
- For river flows in Wales, 18 out of 30 indicator sites which had flow data available were classed as *Below normal* for October. 8 sites were classed as *Notably low* and 2 sites were classed as *Exceptionally low*. The remaining 2 sites were classed as *Normal*.
- The overall reservoir storage across all indicator sites was greater than 82% full at the end of October and all reservoirs were within normal operating ranges.

Rainfall*

The monthly rainfall total received for Wales was 34% of the LTA for October. The percentage of rainfall recorded in catchments compared with the LTA across Wales was between 26% (Gwyrfai/Seiont and Ogwen) and 40% (Upper Wye and Usk). The rainfall total for Wales was 93mm less than the October LTA. For South East, South West and North Wales the rainfall totals were 37%, 34% and 31% of the LTA, respectively. All the catchments received rainfall in October less than half of the LTA..

Rainfall Map [National](#)

Rainfall Charts [National & Areas](#) [South East Wales](#) [North Wales](#)

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

Soil Moisture Deficit/Recharge

The 23 MORECS squares had SMD values between 2.1 and 118.3 mm. 20 out of 23 squares had SMD values which were greater than the long-term average (drier) and only 3 squares (squares 134, 154 and 156) had SMD values which were less than the long-term average (wetter). The difference

All data are provisional and may be subject to revision.

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when compared to the long term average October (1961-90), ranged from -3.8mm (square 156 in the area of valley and vale of Glamorgan, wetter) to 87.9mm (square 104 in the Dee, drier).

SMD Map [National](#)
SMD Charts [Compare to LTA](#)

River Flows

River flows at 18 sites (out of 30 sites which had flow data) were classed as *Below normal*. 8 sites were classed as *Notably low* and 2 sites (Ruthin Weir, Clwyd and Garndolbenmaen, Dwyfor) were Exceptionally low. The remaining 2 sites were classed as *Normal*.

South East: Flows in the area ranged from 23% (River Lugg at Butts Bridge) to 64% (River Usk at Trostrey Weir) of the October LTA values.

South West: The river flows within this area ranged from 31% (River Neath at Resolven) to 70% (Western Cleddau at Treffgarne) of the October LTA values.

North: Flows in the area ranged from 9% (River Clwyd at Ruthin Weir) to 45% (River Dee at Manley Hall) of the October LTA Values.

River Flow Map [National](#)
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 October at all indicator sites (10 sites) were classed between *Below normal* (Pant-y-Lladron, Greenfield Garage, Pont y Cambwll, Handley and Eastwick) and *Normal* (Dodleston, Fernbank, Llanfair, Hollybush and Broxton Obs).

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

Reservoir Storage

At the end of October most of the indicator reservoirs (13 out of 18) were greater than 82% full and were in normal range for the time of year. However, 3 reservoirs (Aled & Alex Isaf, Llandegfedd and Usk) were relatively low (49-63% full) than expected for the time of year due to maintenance work carried out on these reservoirs.

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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Natural Resources Wales

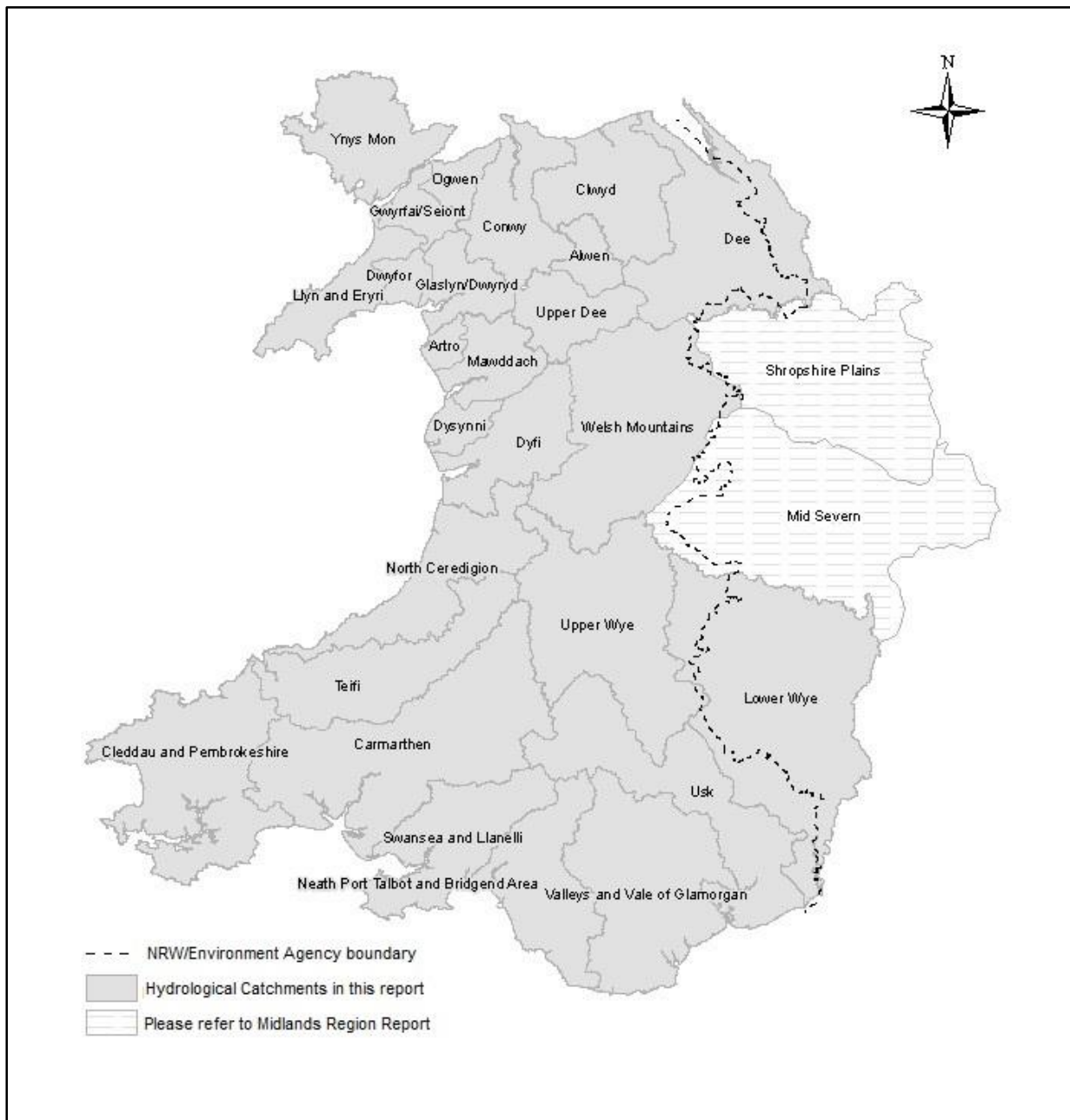


Figure 1: The Natural Resources Wales Water Situation Report features sites in the catchments shown. Parts of the Shropshire Plains and Mid Severn catchments are within Wales. For full information on these catchments, please see the Environment Agency Midlands Water Situation Report.

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

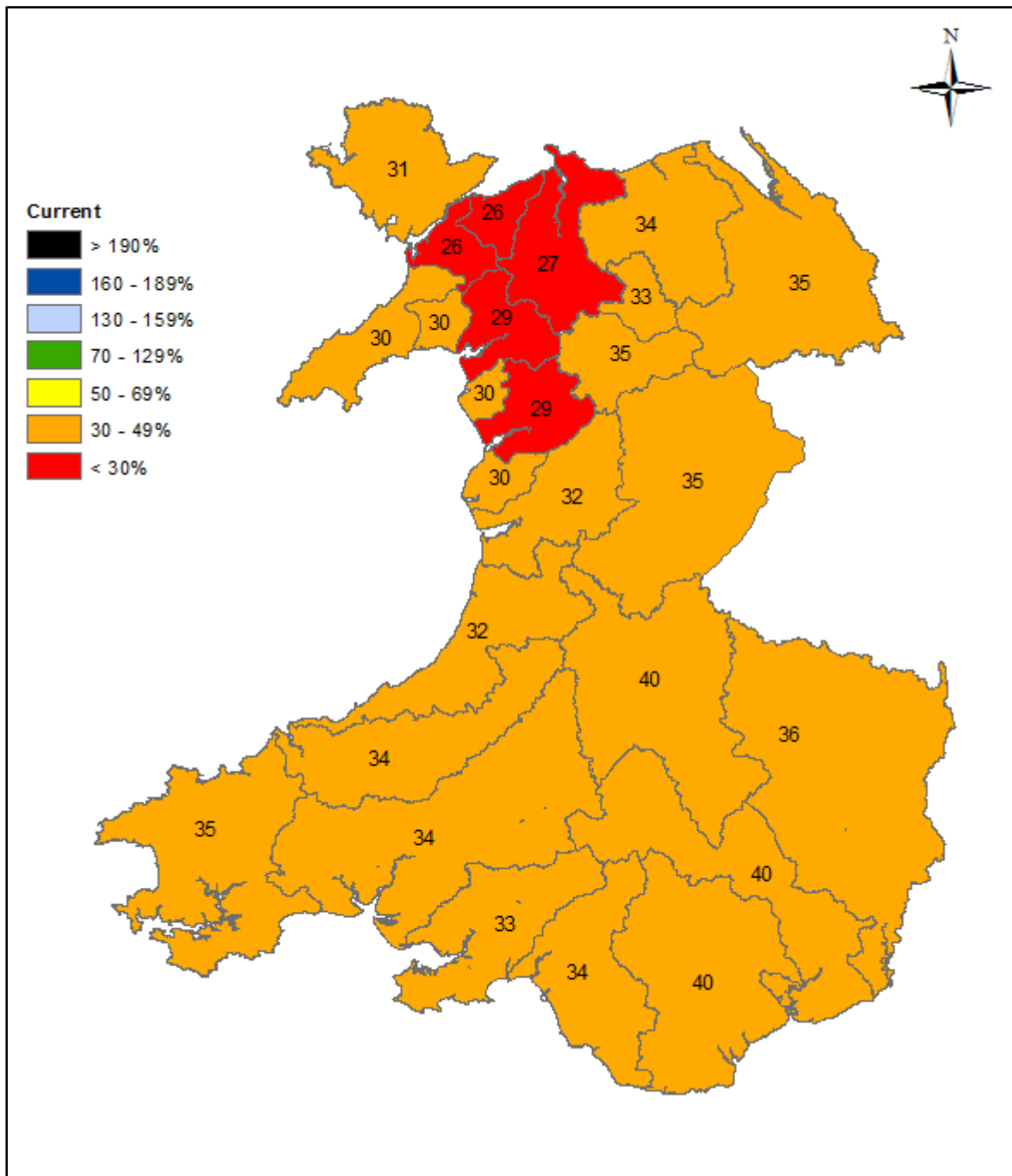


Figure 2: Calculated catchment average October rainfall totals as a percentage of the 1961-90 October long term average for Natural Resources Wales catchments, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

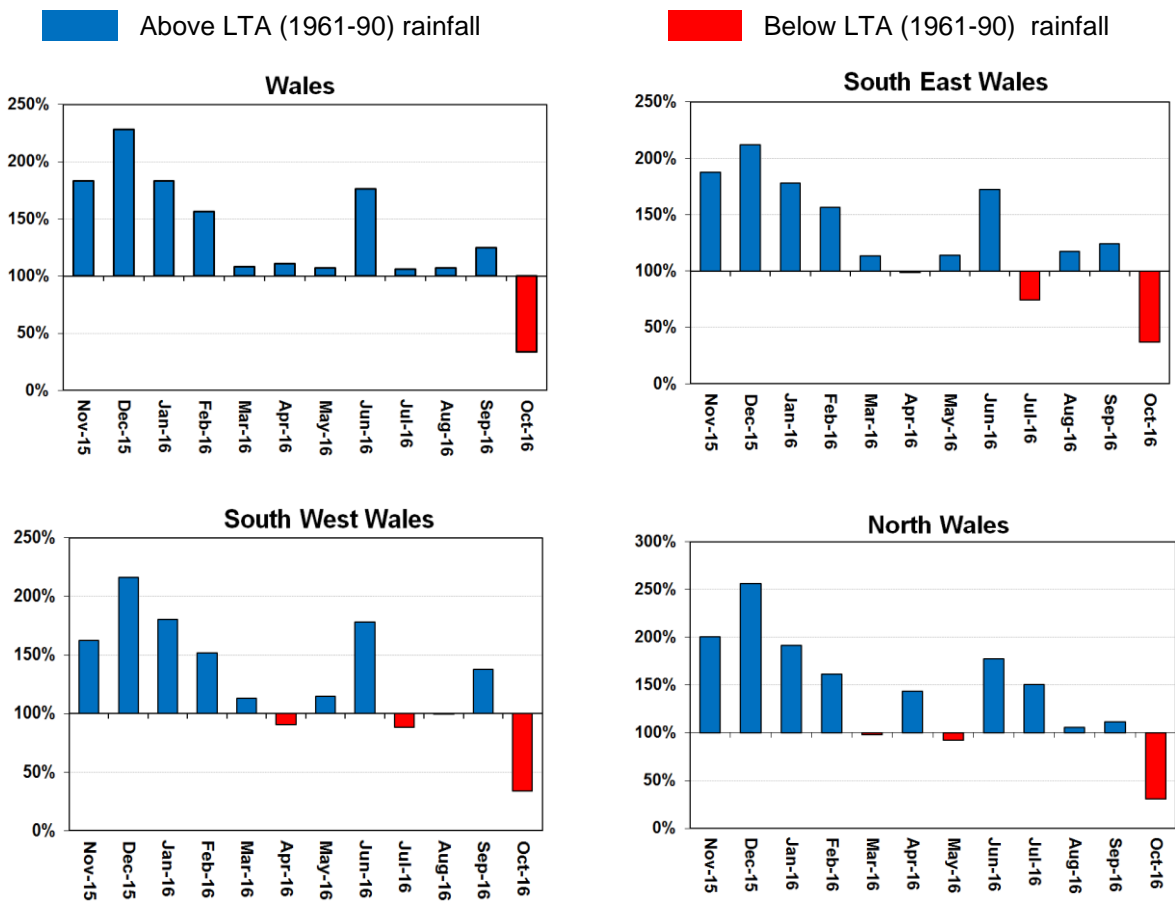
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Rainfall Charts

Figure 3: Rainfall Charts: National and Areas

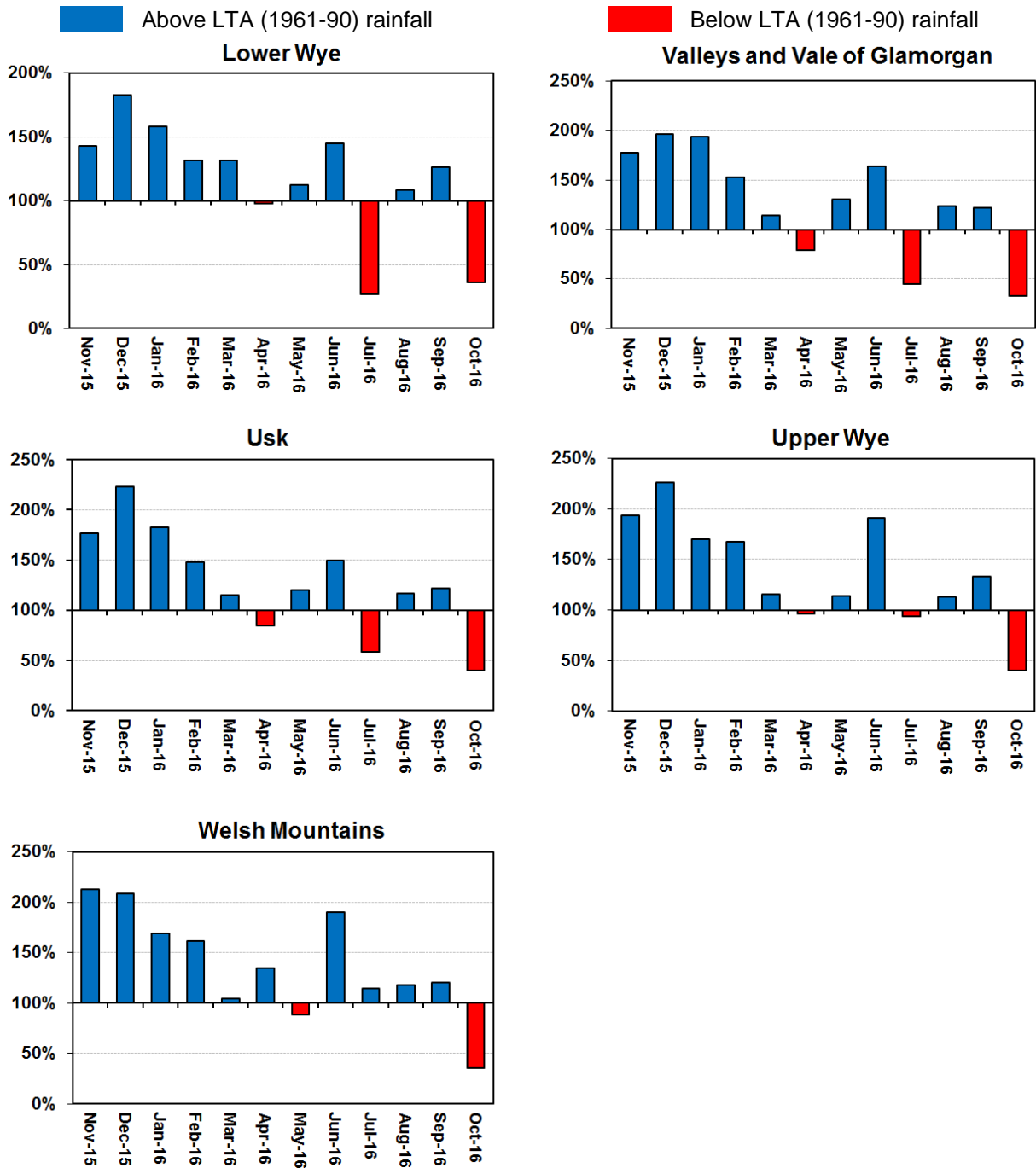


Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for Natural Resources Wales and Areas, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

All data are provisional and Jul be subject to revision.

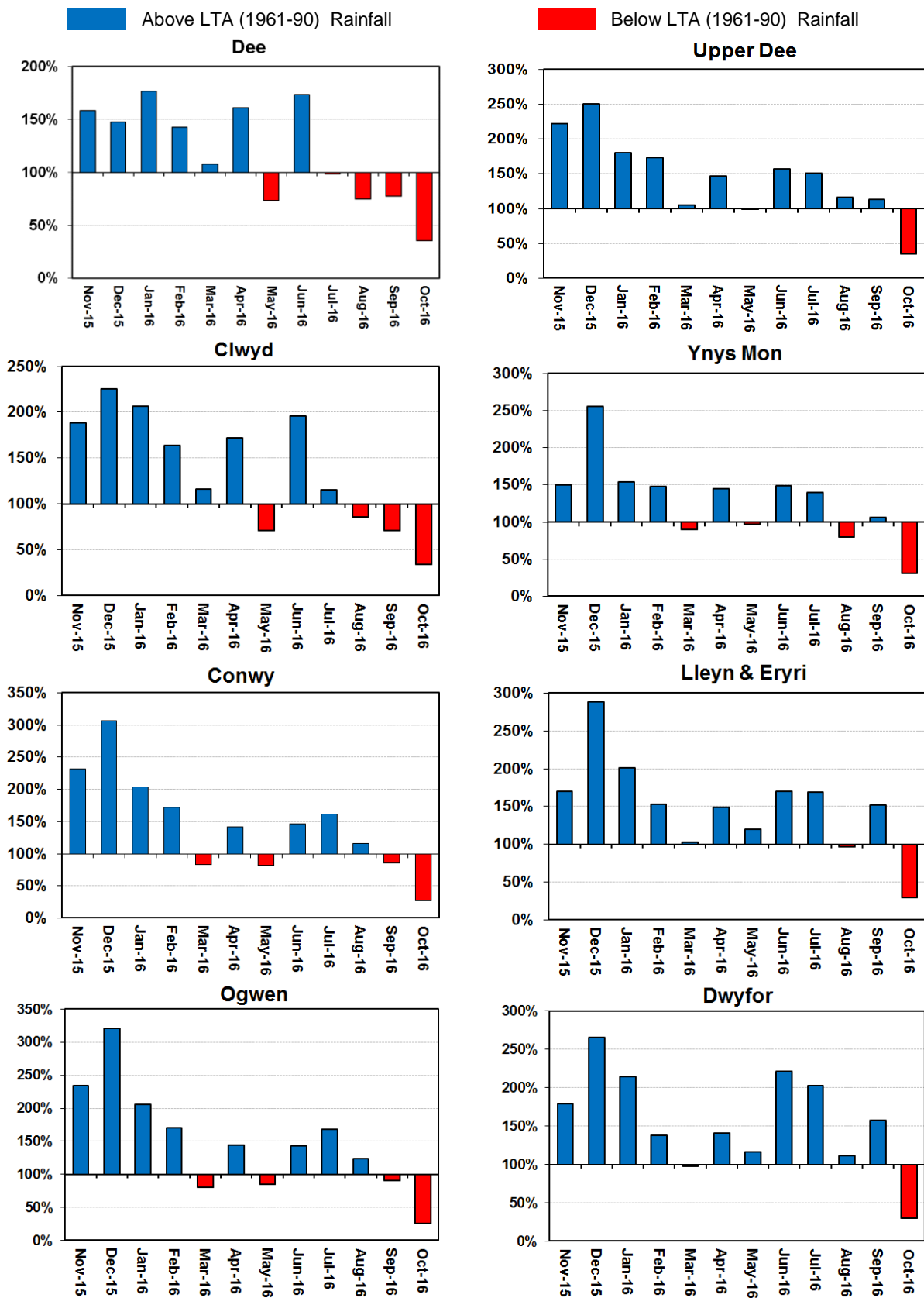
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Figure 4: Rainfall Charts: South East Wales



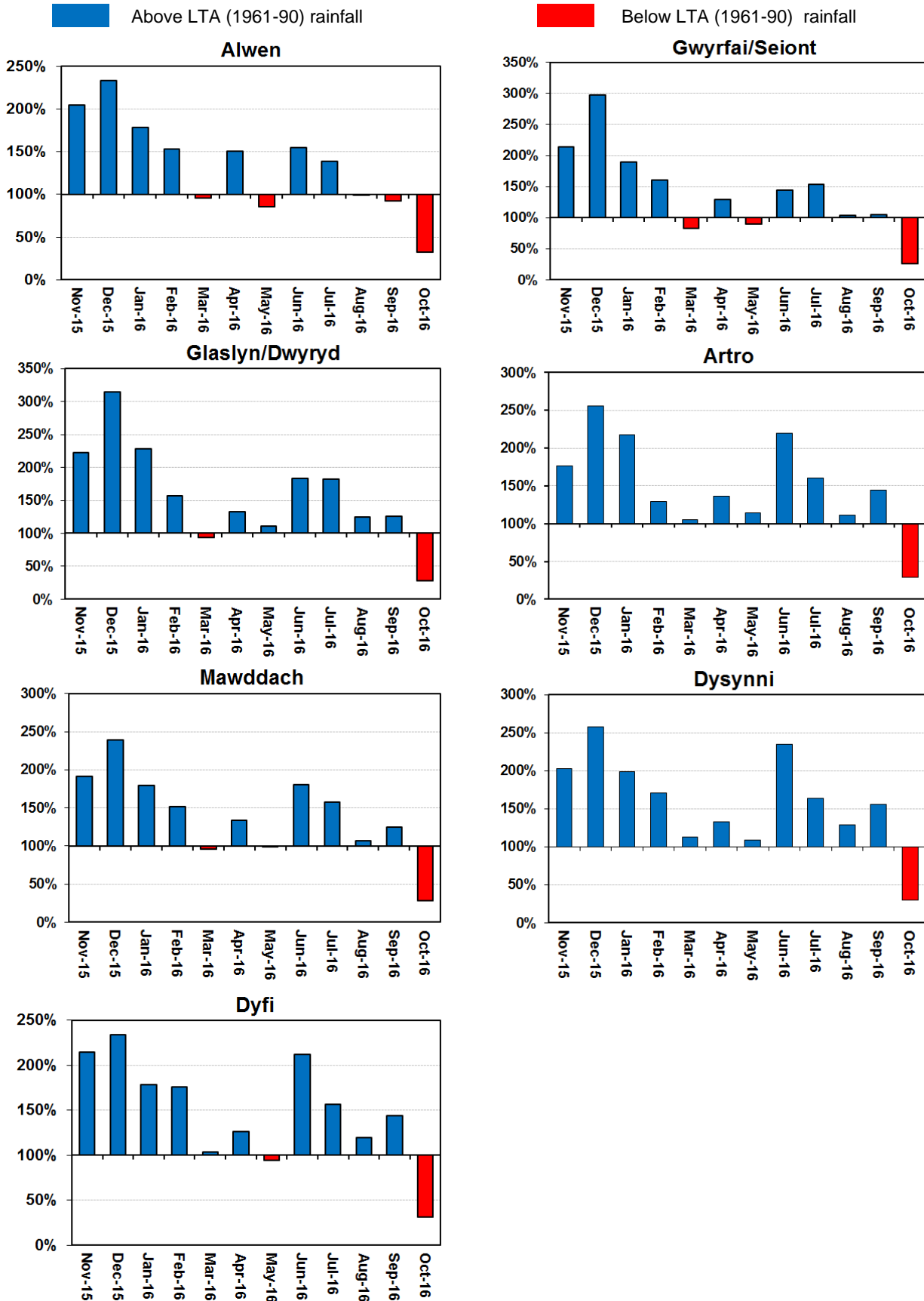
Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for South East Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

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).

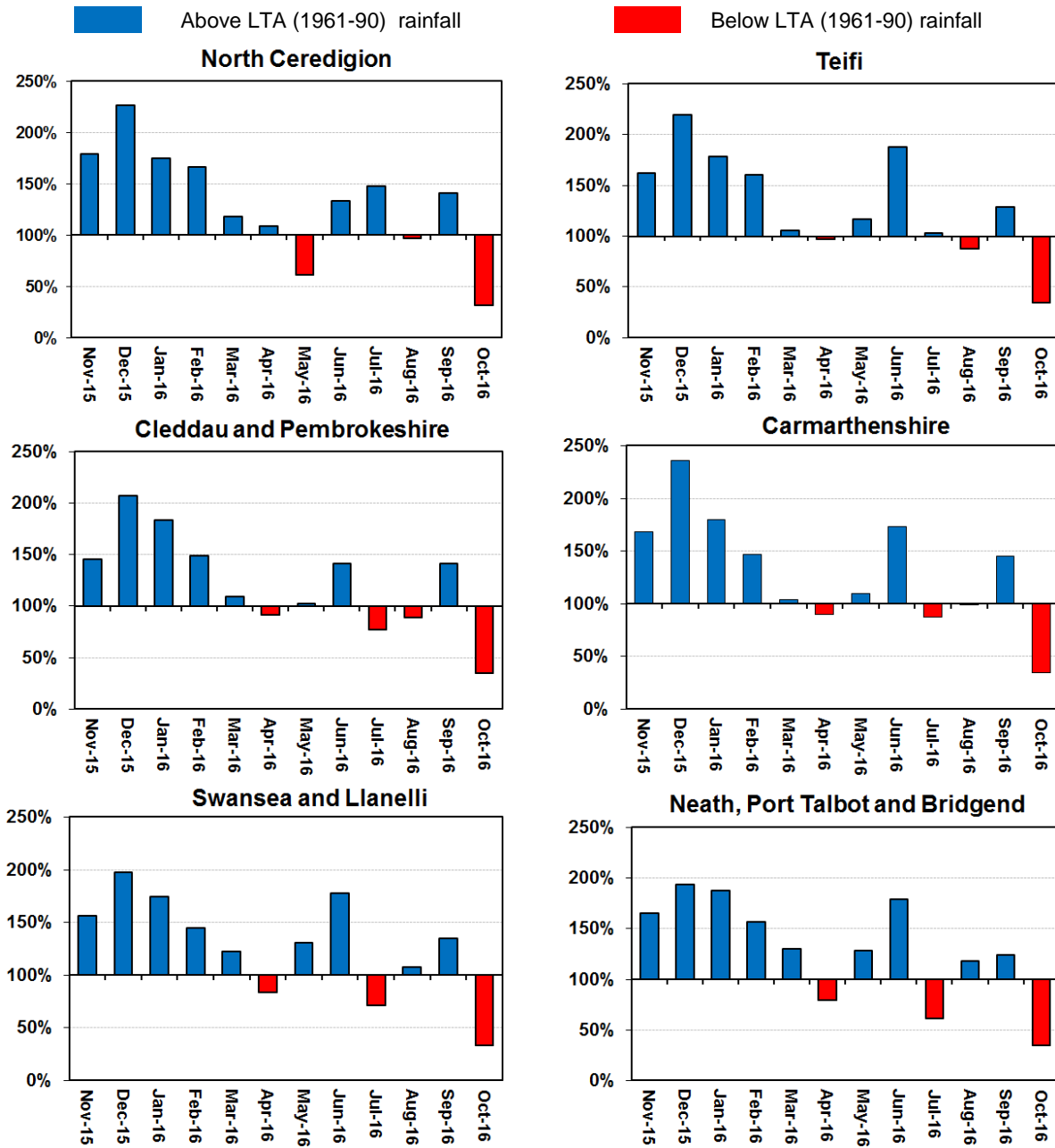
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Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for North Wales, using NCIC (National Climate Information Centre) data (Source: Met Office © Crown Copyright).

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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)

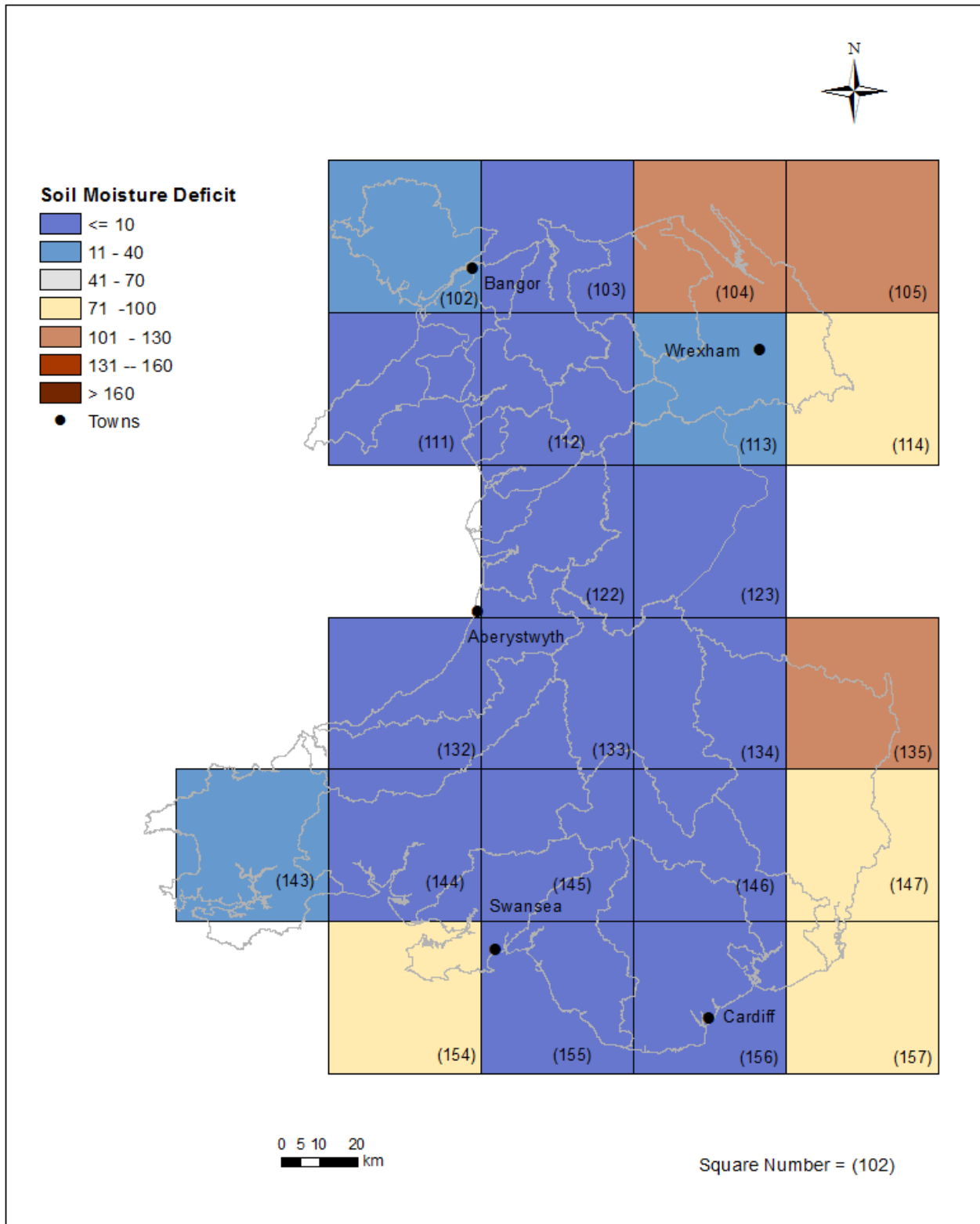


Figure 7: MORECS soil moisture deficits (mm) for October for real land use for Natural Resources Wales (Source: Met Office © Crown Copyright).

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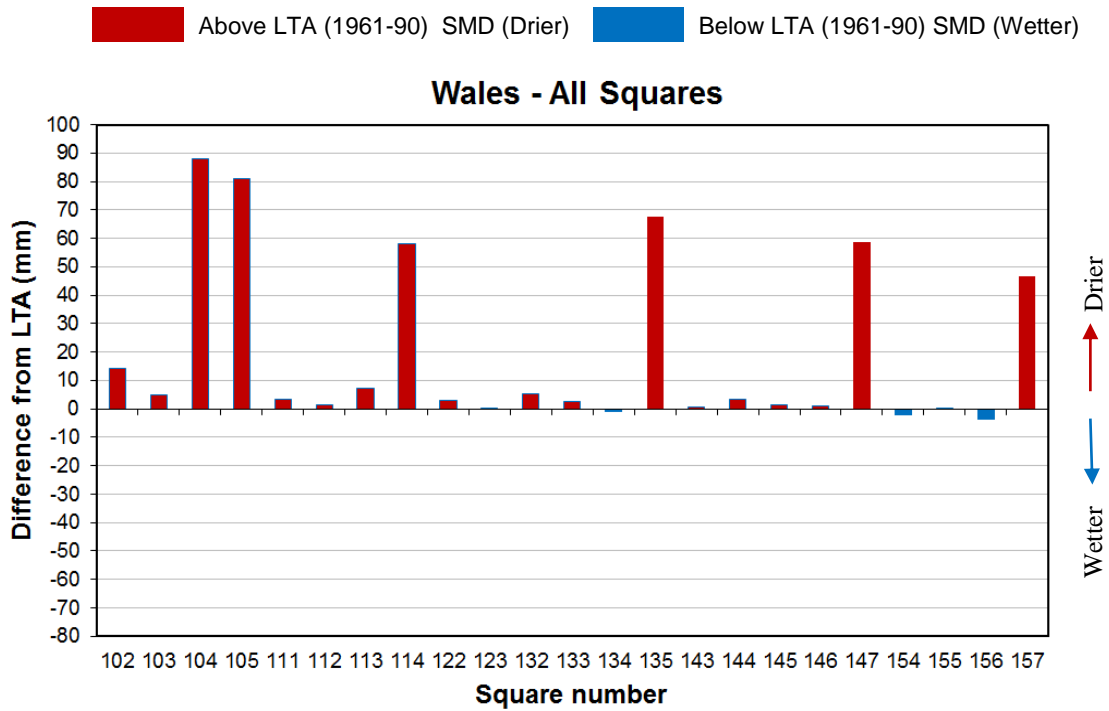


Figure 8: MORECS month end soil moisture deficits difference (mm) from the 1961-90 long term monthly average (LTA) for July for real land use for Natural Resources Wales squares (Source: Met Office © Crown Copyright).

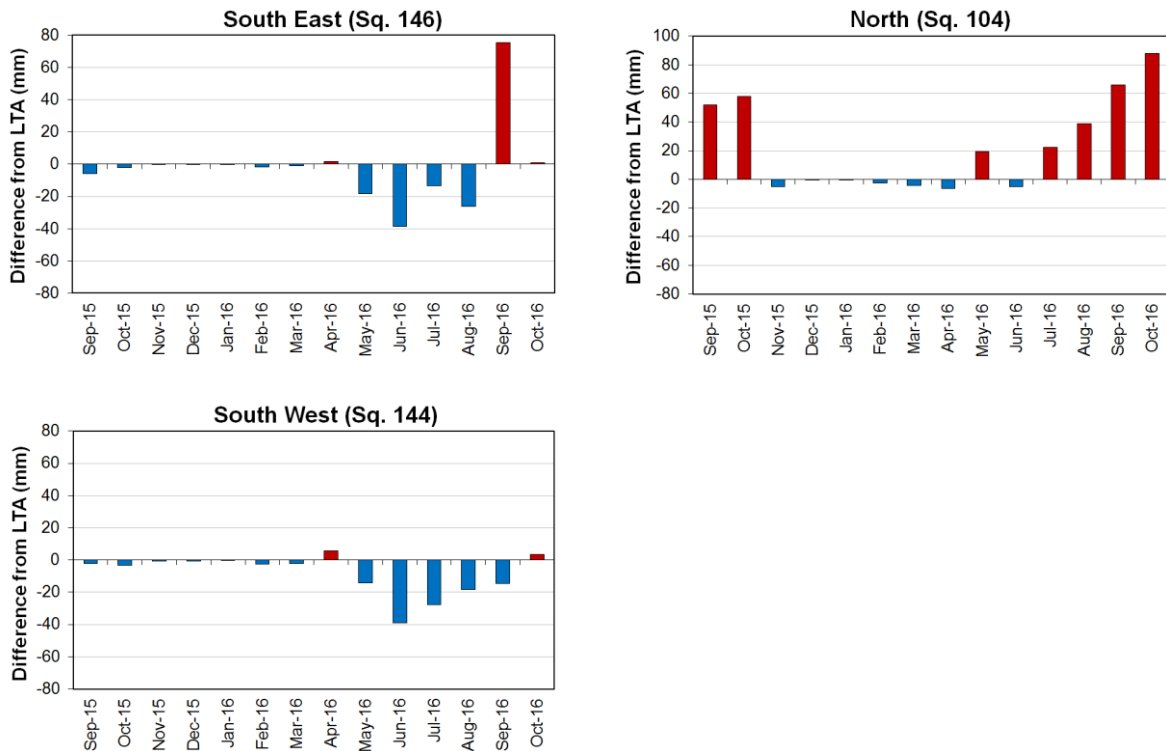


Figure 9: MORECS month end soil moisture deficit difference (mm) from the 1961-90 long term monthly average (LTA) for real land use for South East, North and South West (Source: Met Office © Crown Copyright). (Note: no LTA available for Natural Resources Wales)

River Flow

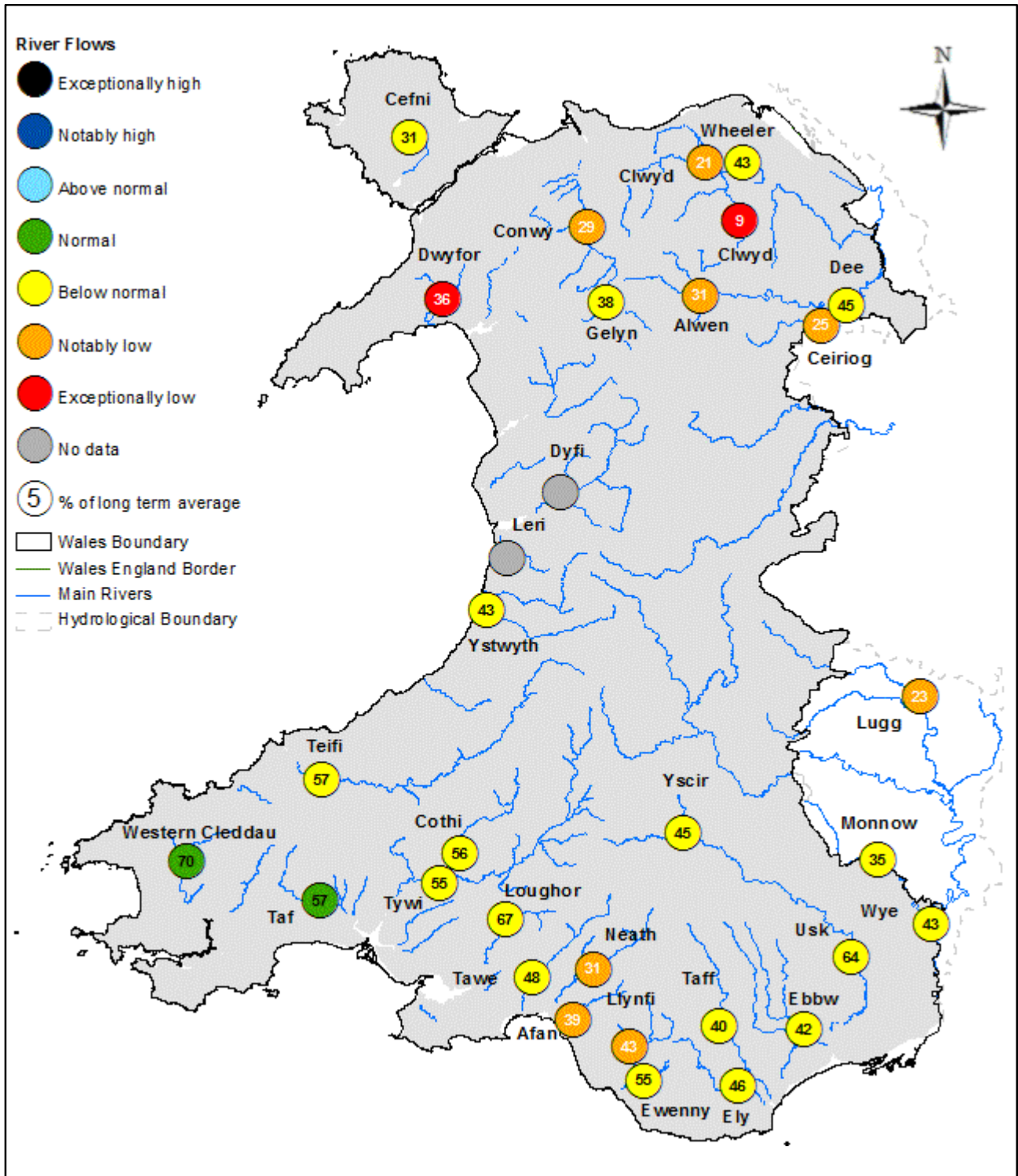


Figure 10: Monthly mean river flow for October, classed relative to analysis of historic October monthly means (Source: Natural Resources Wales).

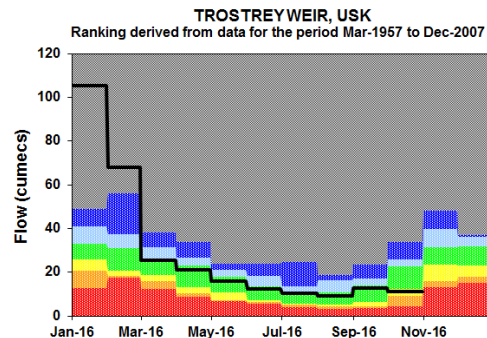
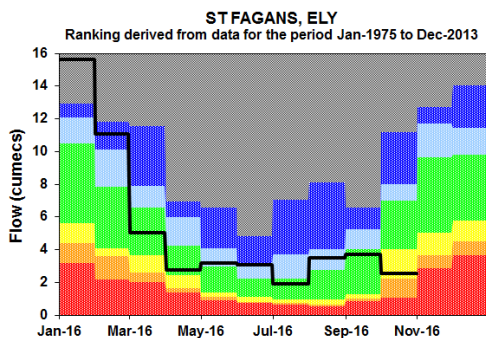
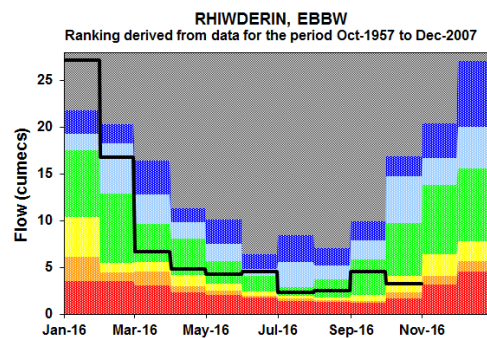
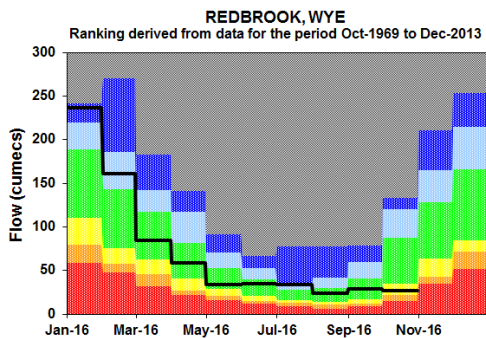
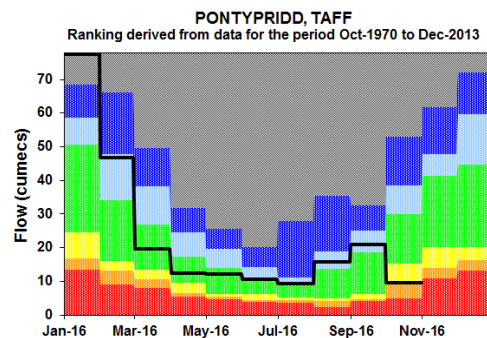
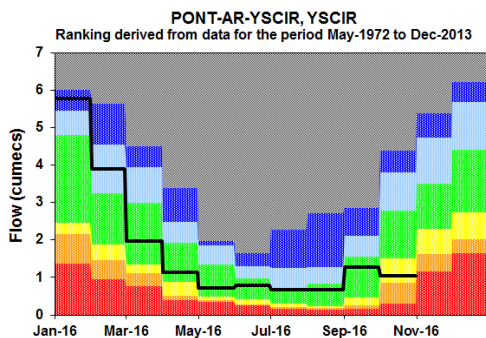
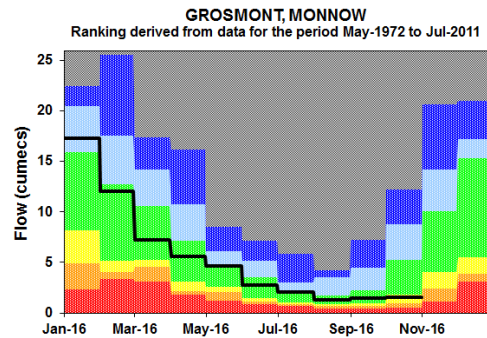
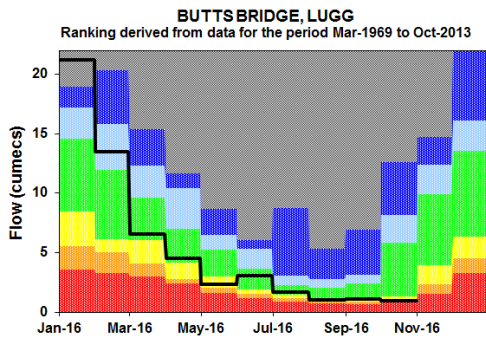
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SITE NAME	RIVER	October 2016			October 2015		October LTA		
		Class	% of LTA	Flow (m3/s)	% of LTA	Flow (m3/s)	LTA	Monthly Min (m3/s)	Monthly Max (m3/s)
River Flow Sites : South East Area									
Butts Bridge	Lugg	Notably low	23%	0.960	23%	0.96	4.15	0.68	14.50
Grosmont	Monnow	Below normal	35%	1.570	42%	1.87	4.46	0.35	19.50
Pont ar Yscir	Yscir	Below normal	45%	1.040	31%	0.71	2.29	0.19	7.19
Pontypridd	Taff	Below normal	40%	9.590	32%	7.66	23.85	3.54	66.30
Redbrook	Wye	Below normal	43%	27.200	29%	18.00	63.01	9.53	174.00
Rhiwderin	Ebbw	Below normal	42%	3.210	35%	2.69	7.71	0.91	23.20
St Fagans	Ely	Below normal	46%	2.550	31%	1.72	5.54	0.71	13.80
Trostrey Weir	Usk	Below normal	64%	11.300	58%	10.20	17.71	3.39	59.50
River Flow Sites : North Area									
Bodfari	Wheeler	Below normal	43%	0.26	41%	0.25	0.61	0.20	1.77
Bodffordd	Cefni	Below normal	31%	0.16	8%	0.04	0.51	0.06	1.60
Brynkinalt Weir	Ceiriog	Notably low	25%	0.76	22%	0.69	3.08	0.47	8.13
Cwmlanerch	Conwy	Notably low	29%	6.87	19%	4.59	23.82	2.86	60.10
Cynefail	Gelyn	Below normal	38%	0.33	26%	0.22	0.86	0.09	2.00
Dol y Bont	Leri						2.10	0.14	5.15
Druid	Alwen	Notably low	31%	1.75	19%	1.09	5.61	0.60	15.00
Dyfi bridge	Dyfi						30.07	9.73	77.00
Garndolbenmaen	Dwyfor	Exceptionally low	36%	1.29	35%	1.23	3.54	1.32	9.05
Manley Hall	Dee	Below normal	45%	15.30	28%	9.52	33.87	8.73	75.70
Pont y Cambwll	Clwyd	Notably low	21%	1.23	17%	1.01	5.89	0.94	19.40
Ruthin Weir	Clwyd	Exceptionally low	9%	0.12	6%	0.08	1.31	0.14	3.34
River Flow Sites : South West Area									
Capel Dewi	Tywi	Below normal	55%	28.10	36%	18.18	50.74	8.81	113.00
Clog y Fran	Taf	Normal	57%	5.14	44%	3.98	9.01	1.02	22.30
Coytrahen	Llynfi	Notably low	43%	1.27	31%	0.91	2.94	0.50	6.33
Felin Mynachdy	Cothi	Below normal	56%	8.42	36%	5.41	15.04	1.61	37.90
Glanteifi	Teifi	Below normal	57%	20.20	52%	18.60	35.70	3.89	98.70
Keepers Lodge	Ewenny	Below normal	55%	1.14	38%	0.79	2.09	0.41	4.49
Marcroft	Afan	Notably low	39%	2.62	36%	2.46	6.74	0.93	13.60
Pont Llolwyn	Ystwyth	Below normal	43%	3.30	38%	2.93	7.74	0.56	19.80
Treffgarne *	Western Cleddau	Normal	70%	2.47			0.48	10.95	3.53
Resolven	Neath	Notably low	31%	3.91	26%	3.32	12.63	1.57	29.30
Tir-y-Dail	Loughor	Below normal	67%	1.70	47%	1.20	2.53	0.43	5.38
Ynystanglws	Tawe	Below normal	48%	7.32	39%	5.95	15.37	2.66	43.40

Figure 11: Monthly mean river flow for October with comparison against previous year expressed as a percentage of the October long term average and classed relative to analysis of historic October 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.)

River Flow Charts

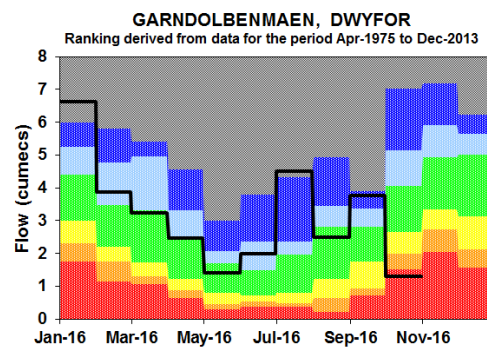
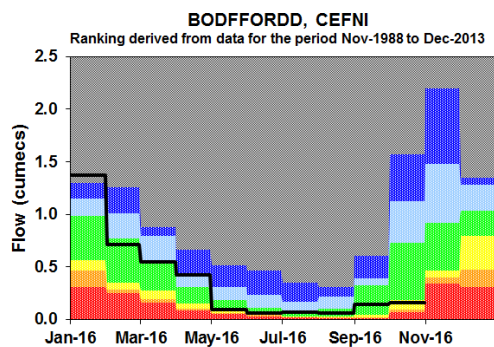
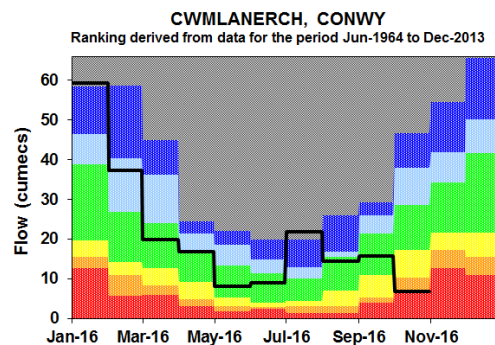
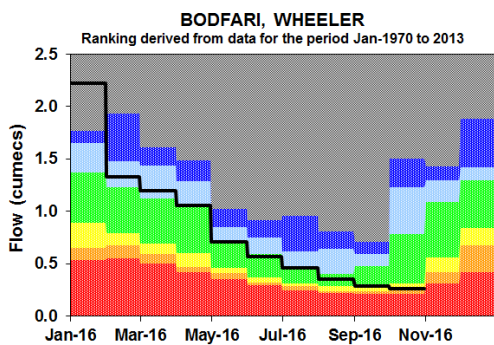
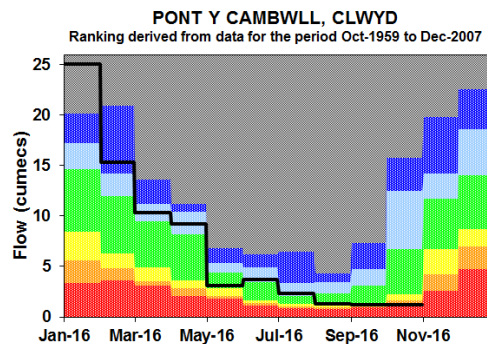
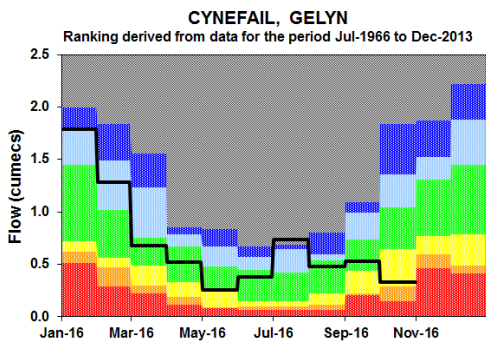
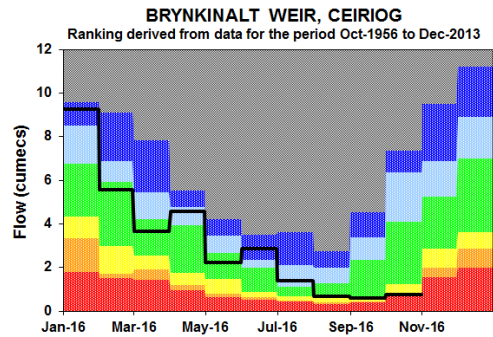
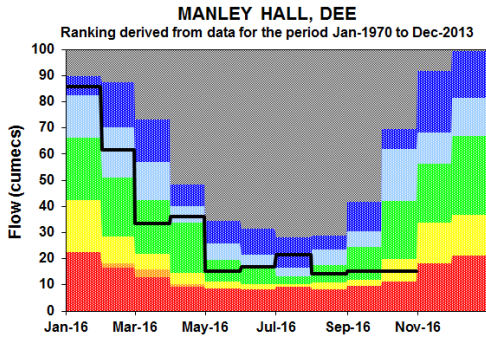
Figure 12: River Flow Charts: South East Wales



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

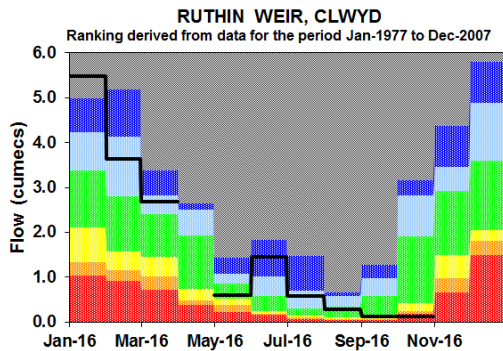
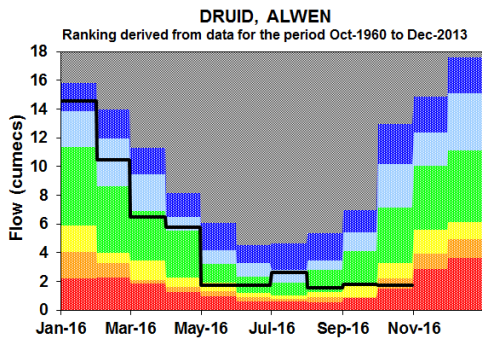
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Figure 13: River Flow Charts: North Wales



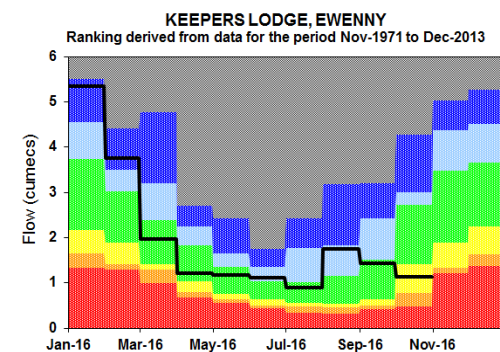
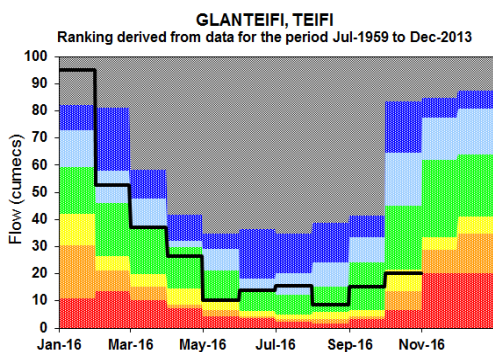
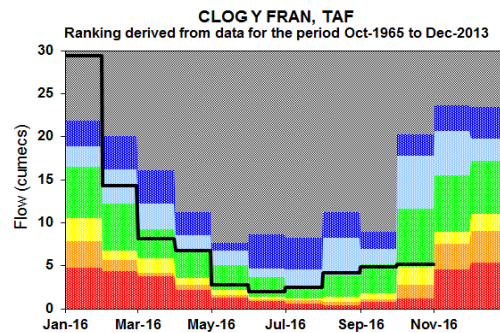
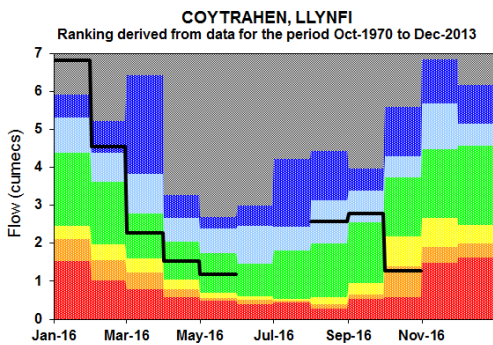
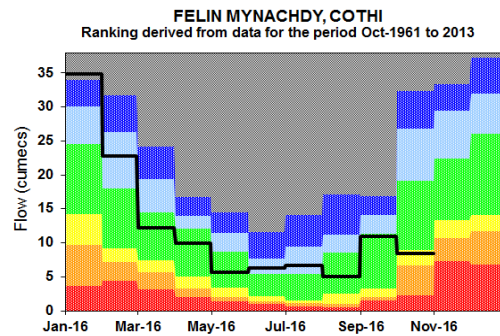
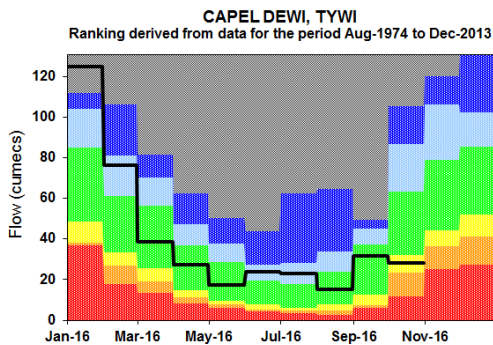
Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels (Source: Natural Resources Wales).

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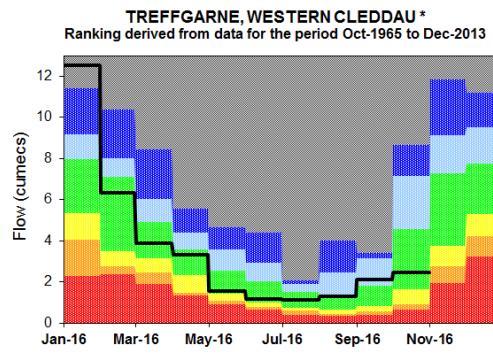
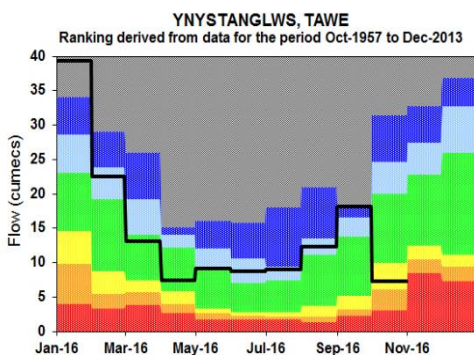
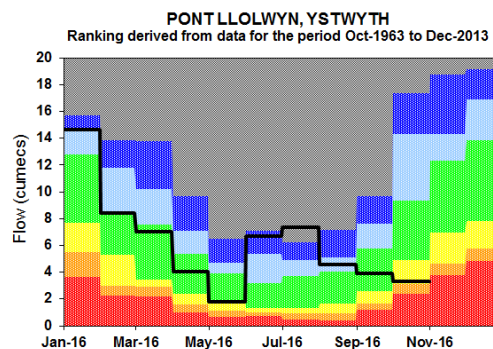
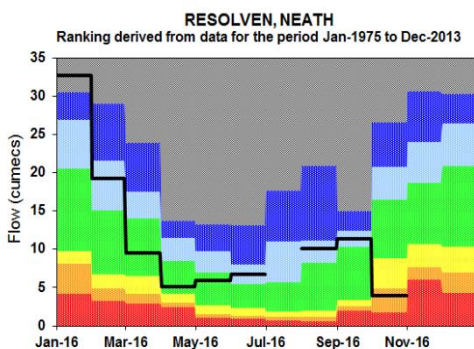
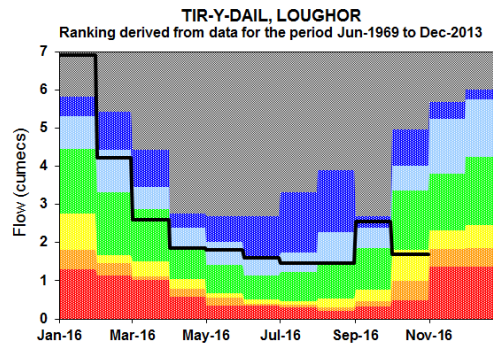
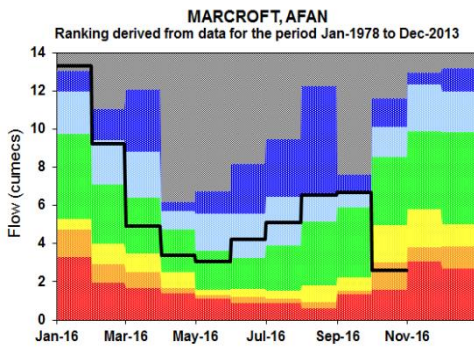
(Please note there was no data available at Ruthin Weir for April 2016)

Figure 14: River Flow Charts: South West Wales



(Please note that there was no data for Coytrahen for June and July 2016 due to the river works)

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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 data for Resolven for July 2016 due to river works)

Groundwater Levels

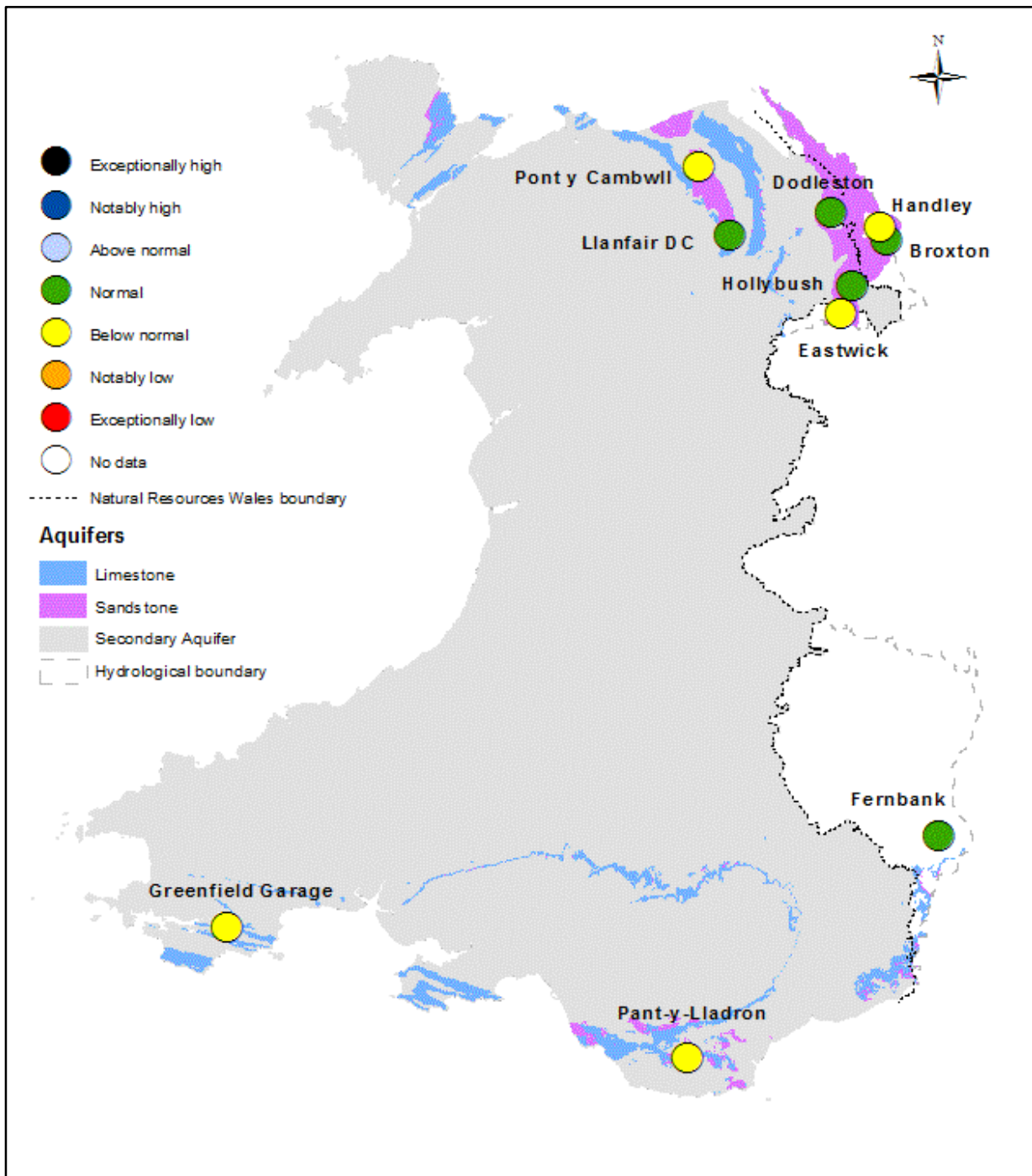
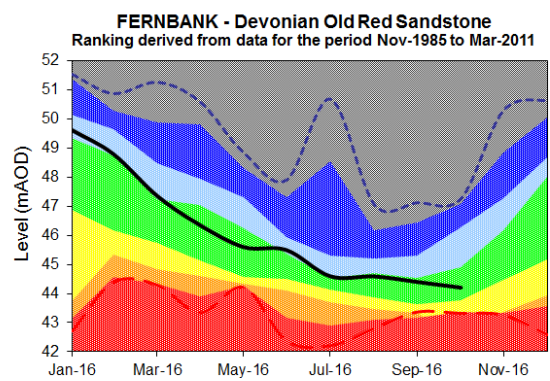
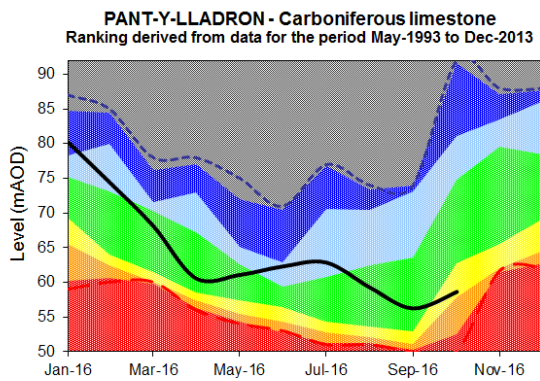
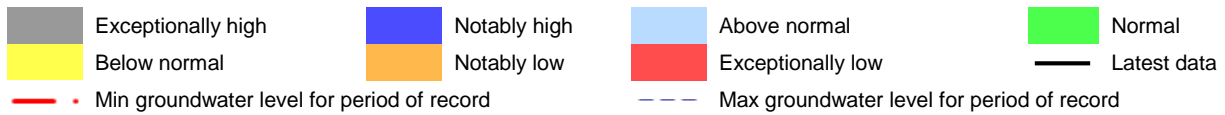


Figure 15: Groundwater levels at the end of month classed relative to an analysis of historic October groundwater levels (Source: Natural Resources Wales and Environment Agency).

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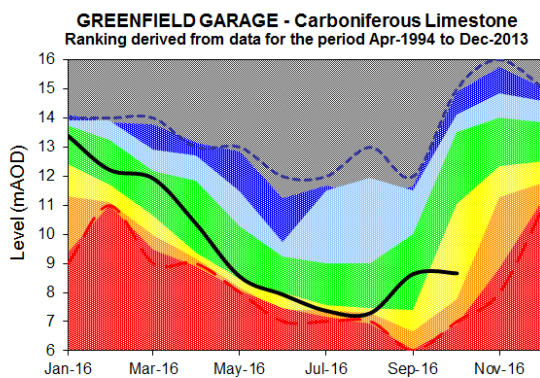
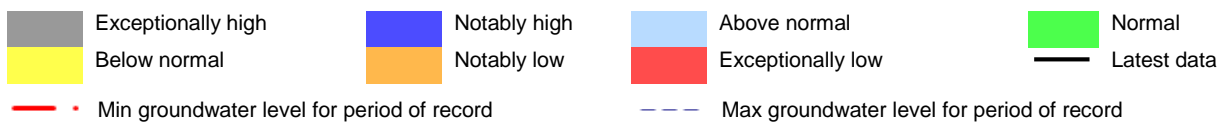
Groundwater charts

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).

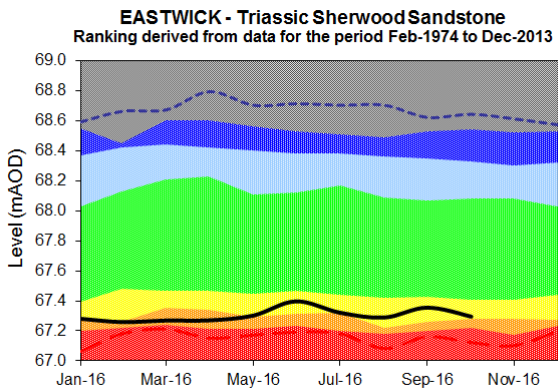
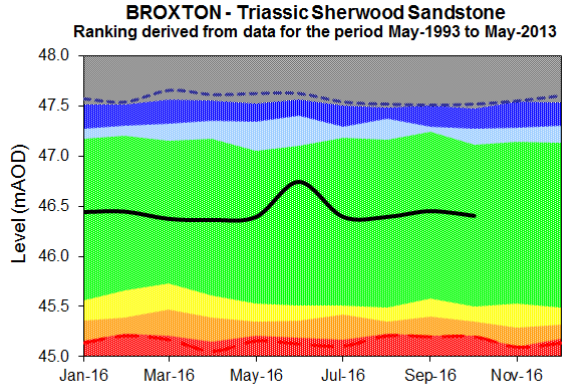
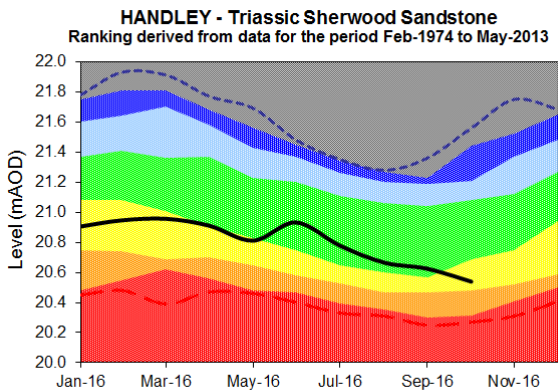
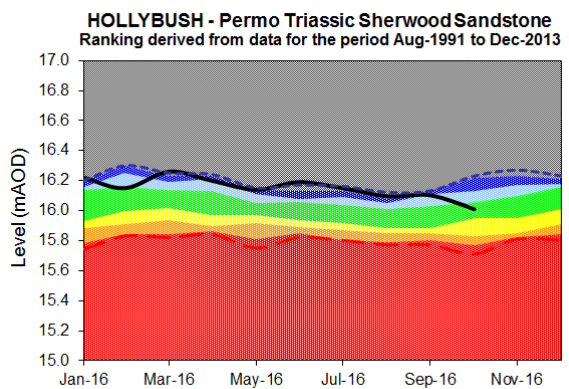
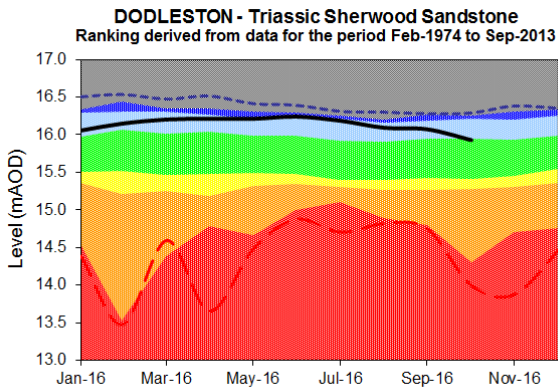
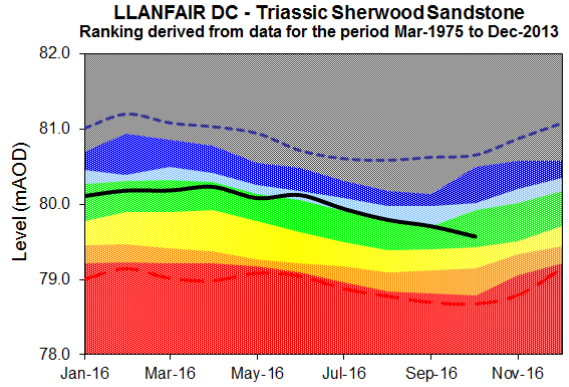
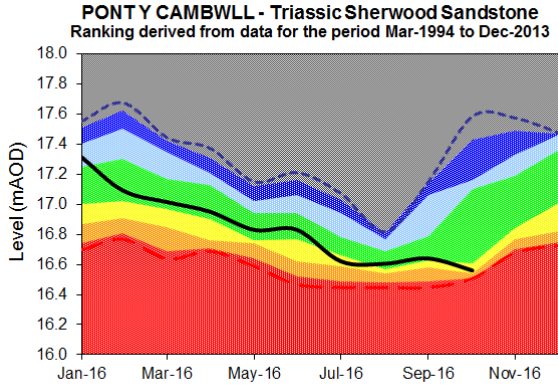
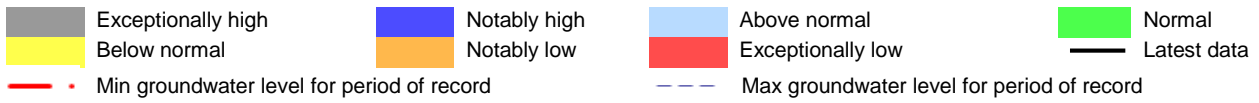
Figure 17: Groundwater level charts: South West Wales



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

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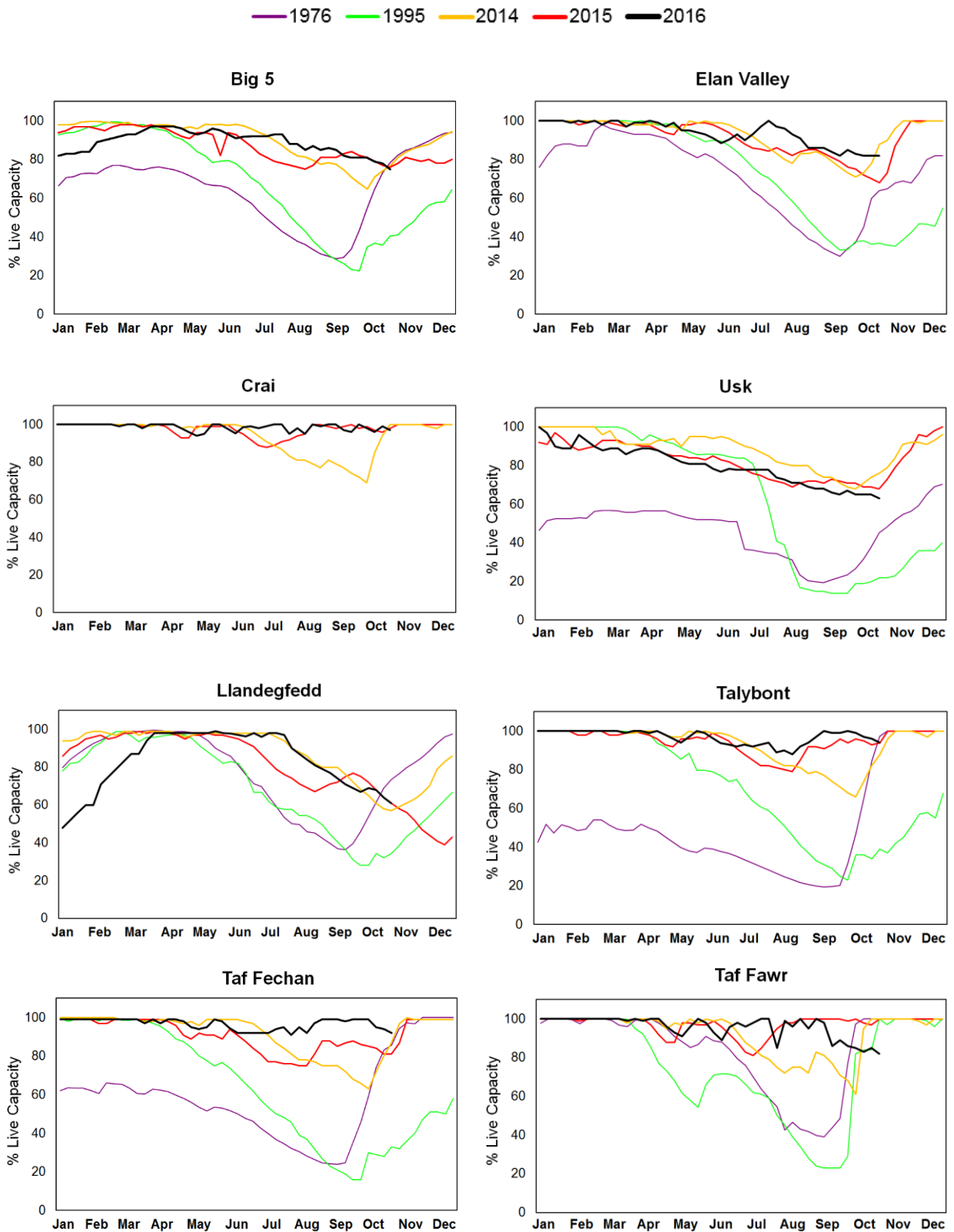
Figure 18: Groundwater level charts: North Wales



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

Reservoir Storage

Figure 19: Reservoir charts: South East Wales

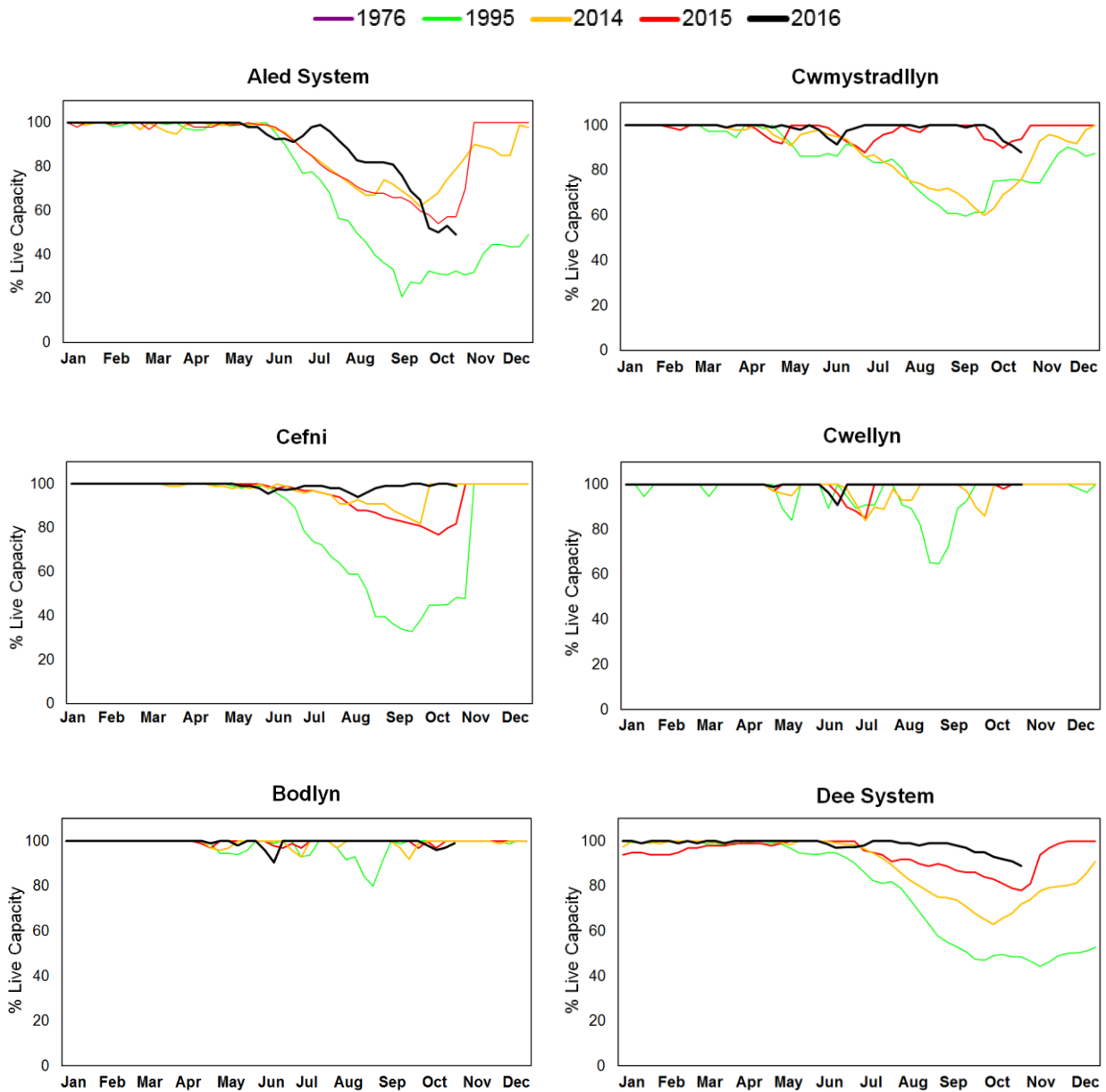


Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water)

(Please note that the reservoir Llandegfedd stock was low (69%) at the end of October due to maintenance work carried out on this reservoir)

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Figure 20: Reservoirs charts: North Wales

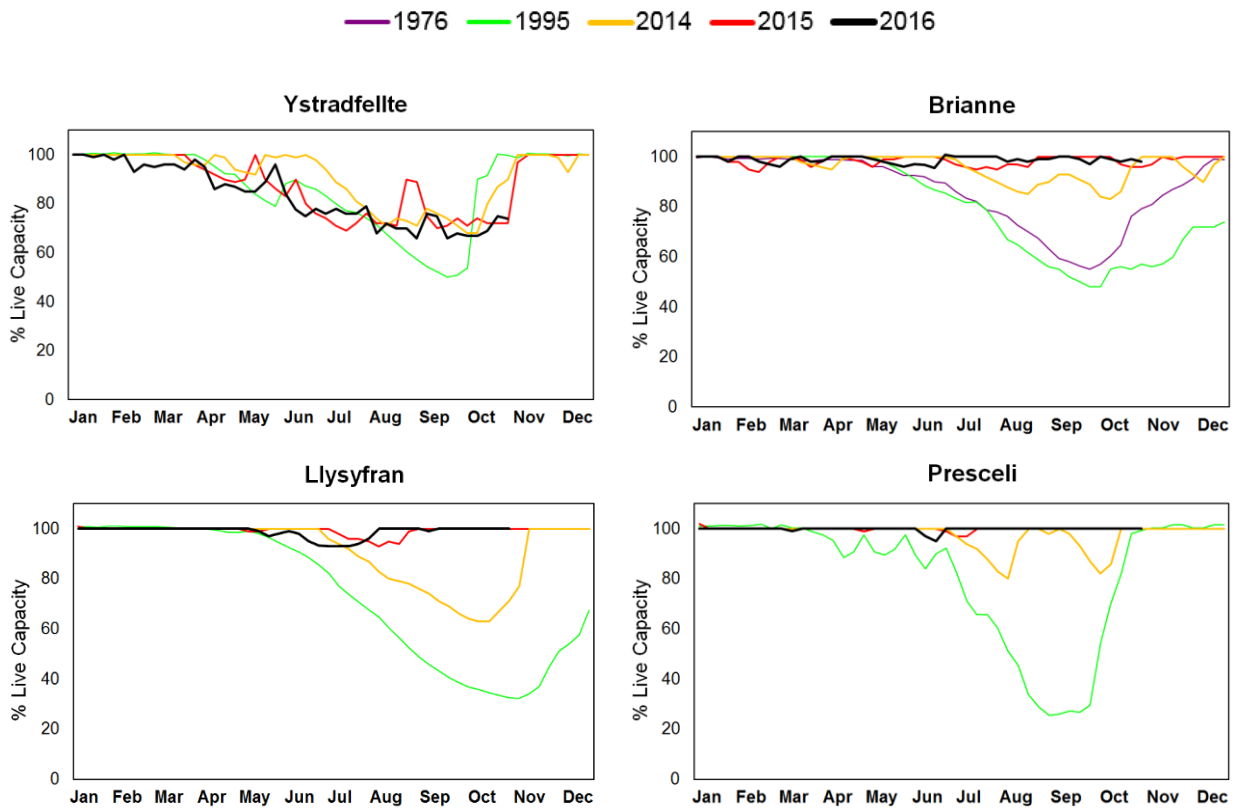


Weekly reservoir stocks for Natural Resources Wales index sites (Source: Welsh Water).

(Please note that the reservoir Aled system stock was low (69%) at the end of October due to maintenance work carried out on this reservoir)

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Figure 21: Reservoirs charts: South West Wales



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

(Please note that the reservoir Ystradfelite stock was low (68%) at the end of October due to maintainance work carried out on this reservoir)

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).