Monthly Water Situation Report
July 2015

Natural Resources Wales

- **The monthly rainfall total received for Natural Resources Wales was 144% of the Long Term Average (LTA, 1961-90) during July. North, South West and South East Wales received 143%, 149% and 140% of the LTA, respectively.**
- **At the end of July, soil moisture deficit (SMD) across Wales was between 0.0mm and 129.3mm for all MORECS squares. The difference when compared to the long term average July (1961-90), ranged from -52mm (sq. 143) to 41mm (sq. 135).**
- **For river flows in Wales, 20 out of 29 indicator sites were classed as *Normal*, three sites were classed as *Notably low,* three sites were *Below normal* and the remaining three sites were *Above normal*.**
- **The overall reservoir storage across all indicator sites was above 73% at the end of July and are within normal operating conditions.**

Rainfall*

The monthly rainfall total received for Wales was 144% of the LTA for July.

The percentage of rainfall recorded in catchments compared with the long term average (1961-90) across Wales were between 96.3% (Dee) and 178.9% (Cleddau and Pembrokeshire). The Rainfall totals for Wales was 35mm more than the July LTA.

Rainfall Map	National			
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

For the SMD values, out of 23 MORECS squares, 14 had a SMD value greater than the LTA while 9 sites had a value less than the LTA.

SMD Map	National
SMD Charts	Compare to LTA

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River Flows

River flows at 23 sites (out of 29) are classed as *Normal* or A*bove normal,* with the exception of Lugg at Butts Bridge, Ceiriog at Brynkinalt Weir and Clwyd at Ruthin Weir which were classd as *Notably Low*.

***North*:** Flows in the area had a range from 25% (River Clwyd at Ruthin Weir) to 128% (River Dwyfor at Garndolbenmaen) of the July LTA Values.

***South East*:** Flows in the area ranged from 34% (River Lugg at Butts Bridge) to 111% (River Ely at St Fagans) of the July LTA values.

South West: The river flows within this area ranged from 44% (River Cothi at Felin Mynachdy) to 120% (River Ystwyth at Pont Llolwyn) of the LTA.

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 July at all indicator sites are classed between *Notably low* to *Notably high* with only 2 sites (Handley borehole and Eastwick) out of 10 classified as *Notably low.*

Groundwater Map	National		
Groundwater Charts	South East Wales	North Wales	South West Wales

Reservoir Storage

At the end of July all of the indicator reservoirs exceeded 73% full. The overall reservoir storage for Dwr Cymru Welsh Water was above 88%.

All reporting reservoirs are within the normal operation levels for this time of the 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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Natural Resources Wales

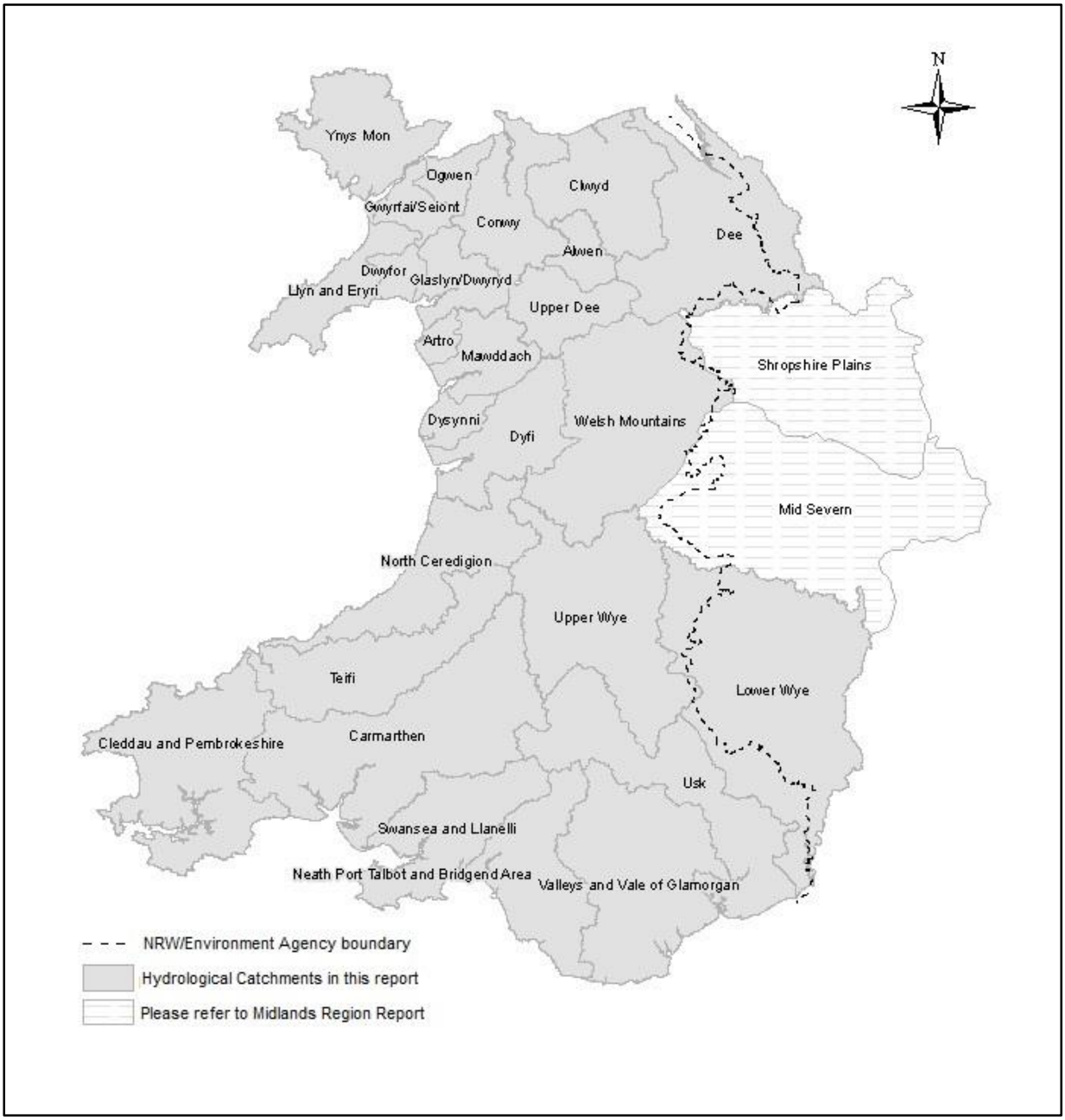

Figure 1: The Natural Resources Wales Water Situation Report features sites in the catchments shown. Parts of the Shropshire Plains and Mid Severn catchments are within Wales. For full information on these catchments, please see the Environment Agency Midlands Water Situation Report.

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

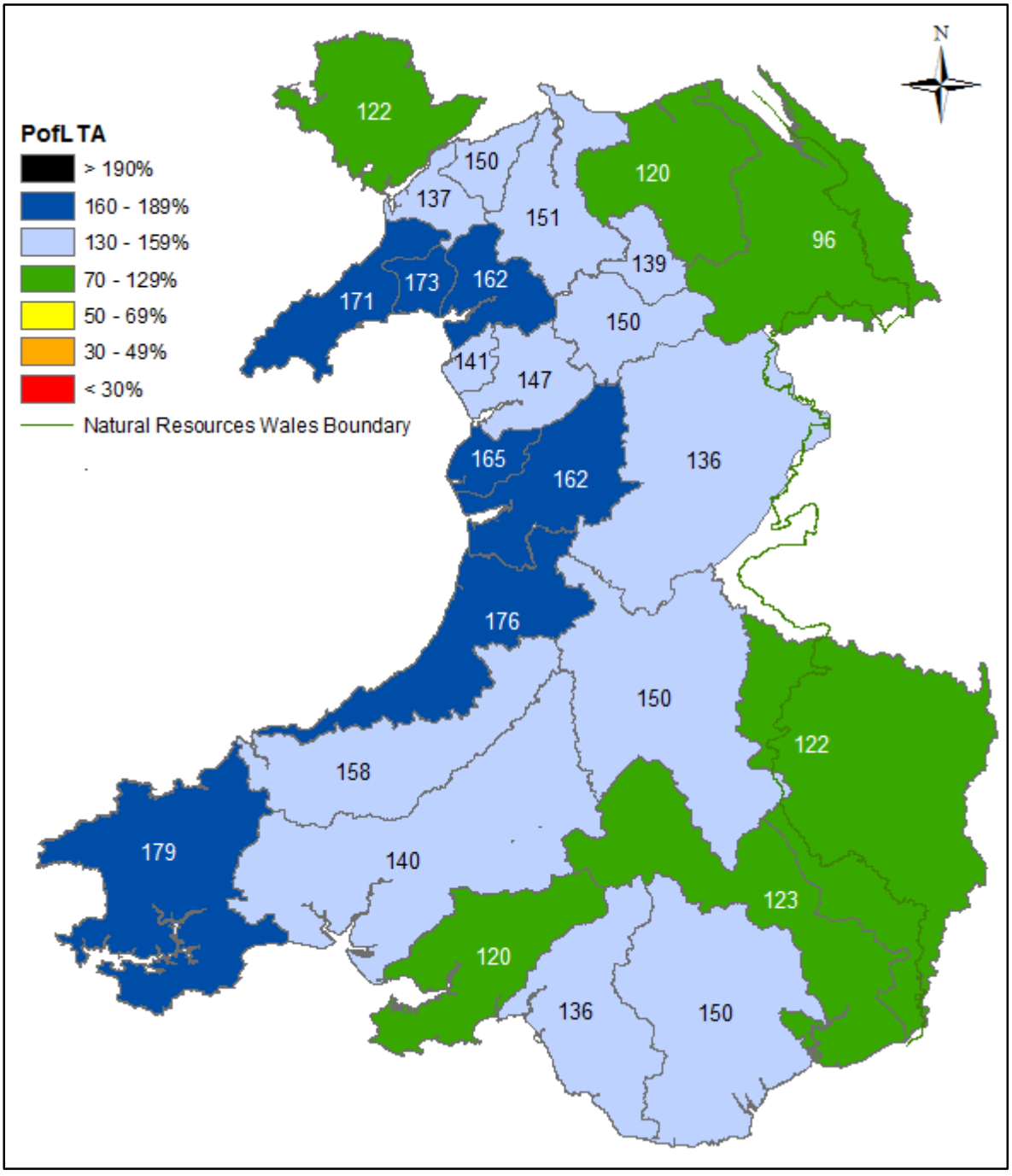

Figure 2: Calculated catchment average July rainfall totals as a percentage of the 1961-90 July long term average for Natural Resources Wales catchments, using NCIC (National Climate Information Centre) data (*Source: Met Office © Crown Copyright).*

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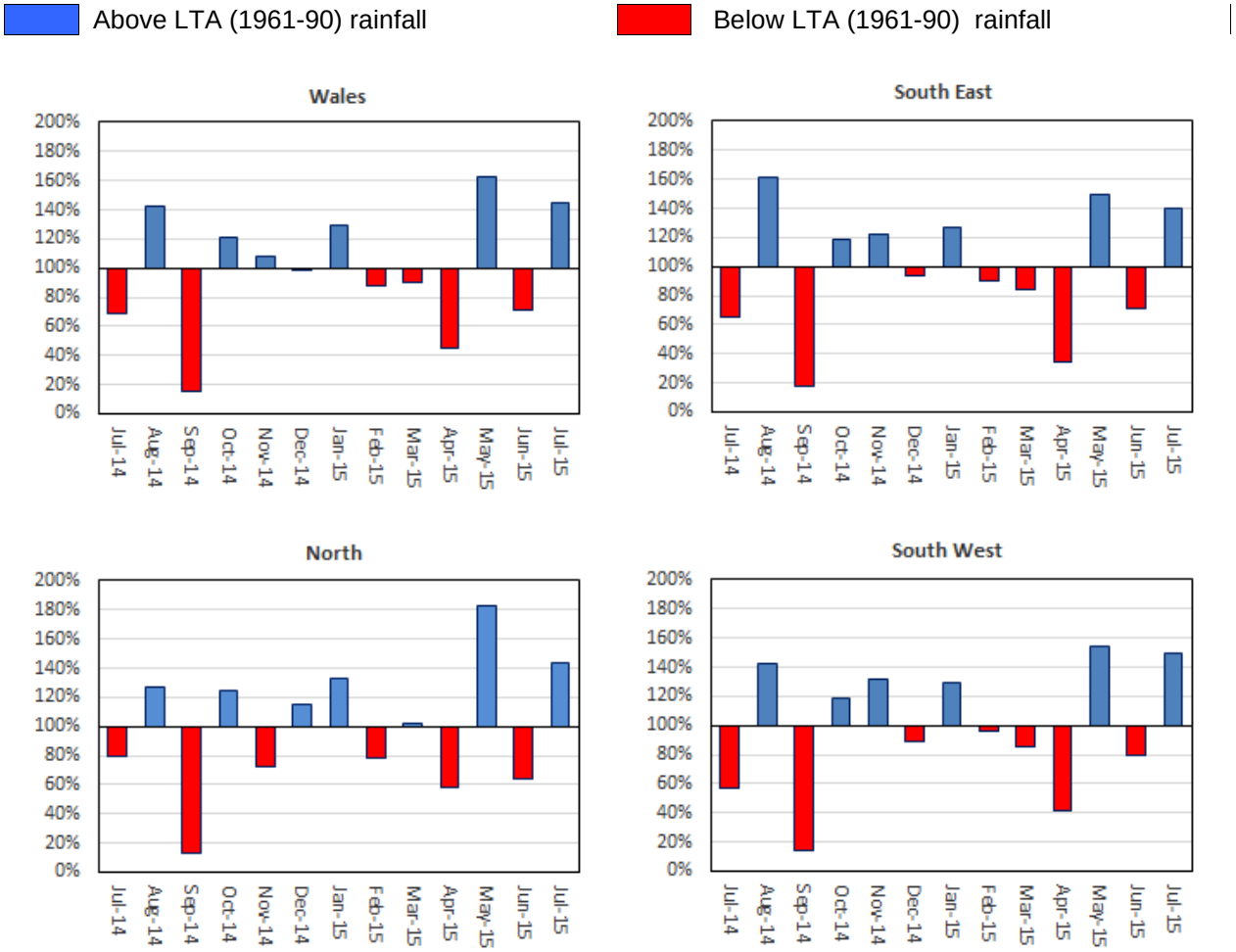
Rainfall Charts

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).*

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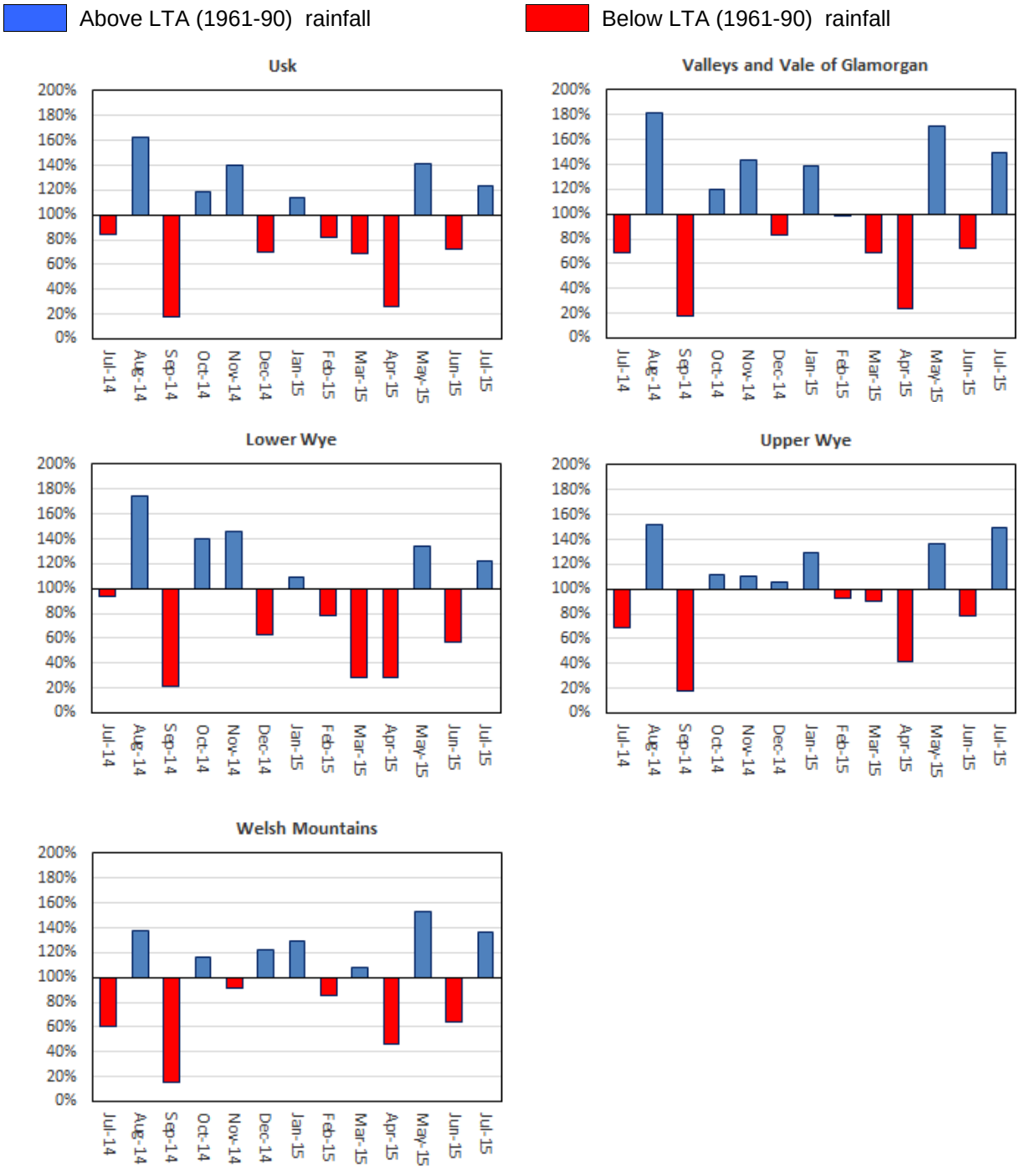
Figure 4: Rainfall Charts: South East Wales



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).*

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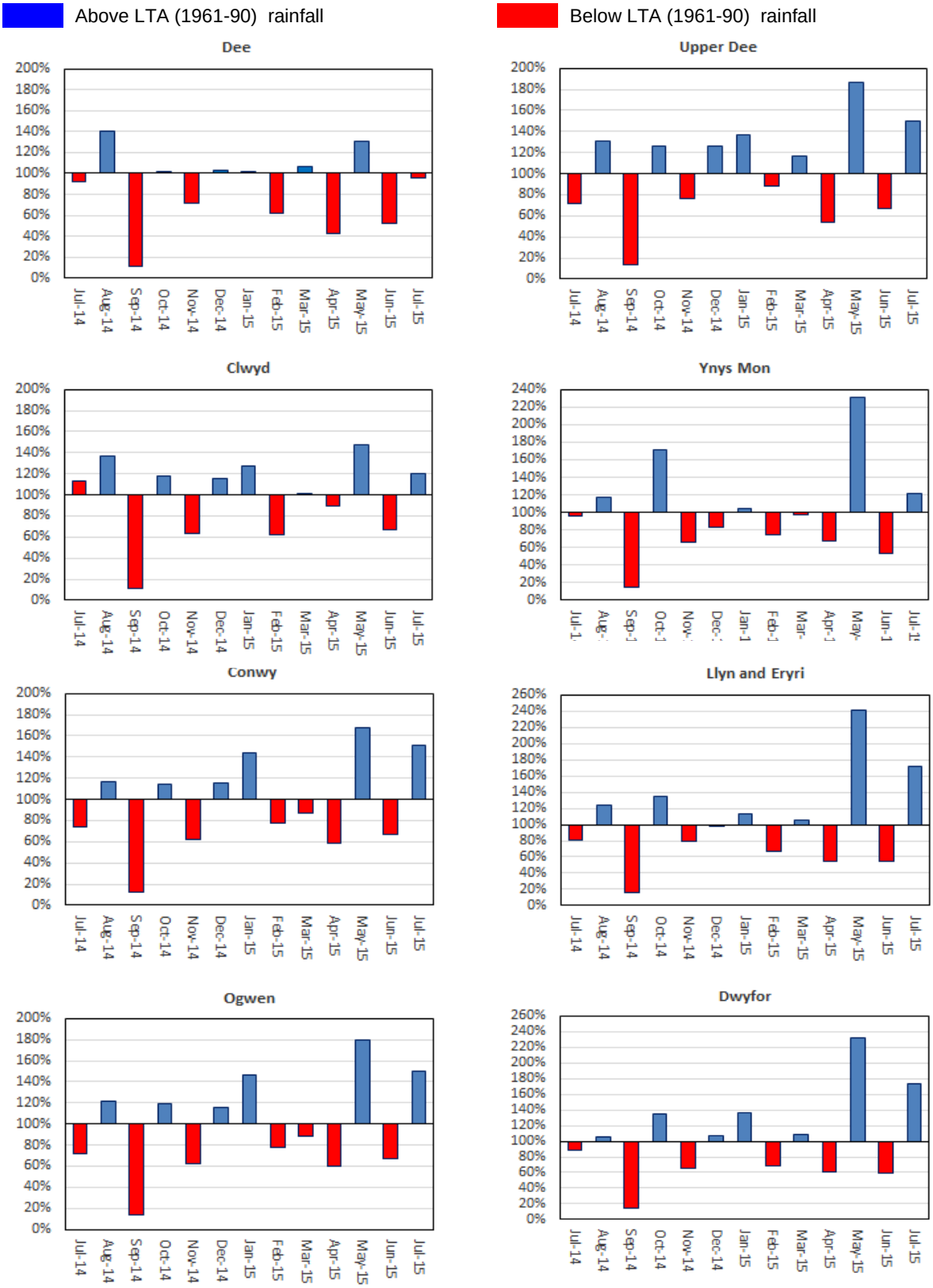
Figure 5: Rainfall Charts: North Wales



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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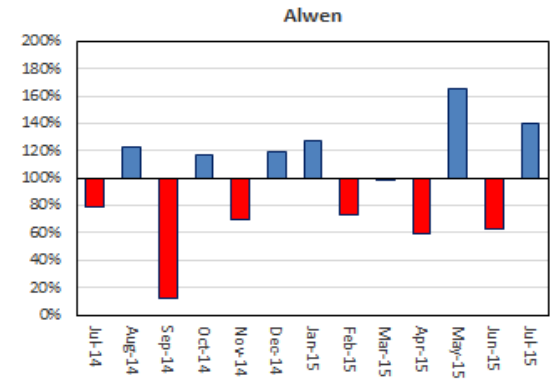
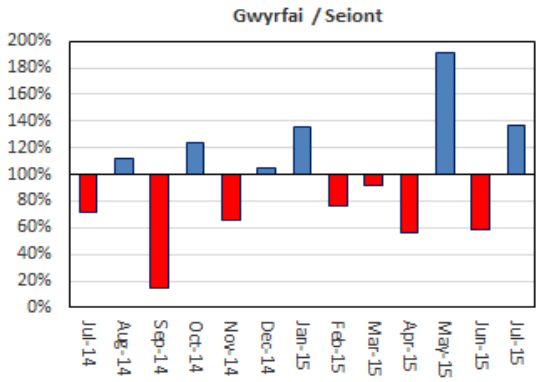
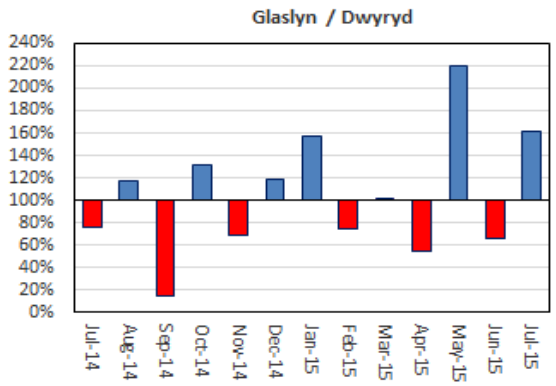
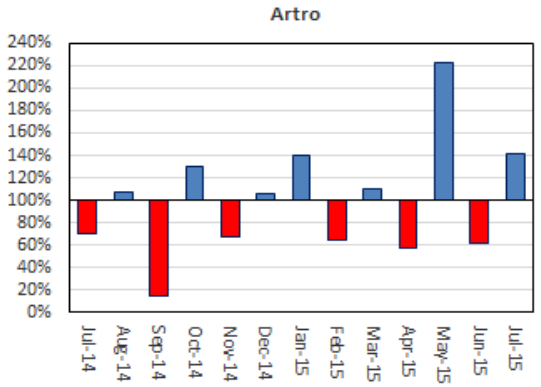
Above LTA (1961-90) rainfall

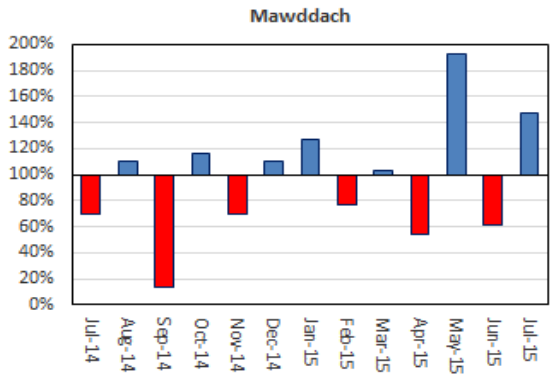
Below LTA (1961-90) rainfall

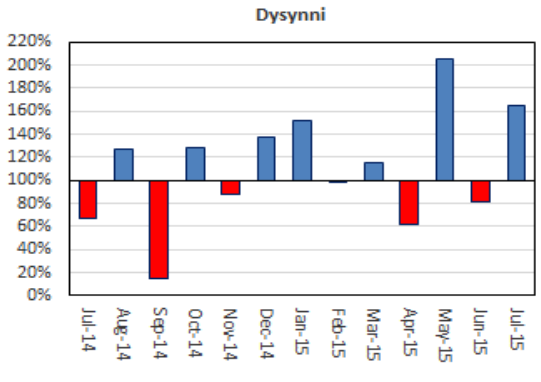


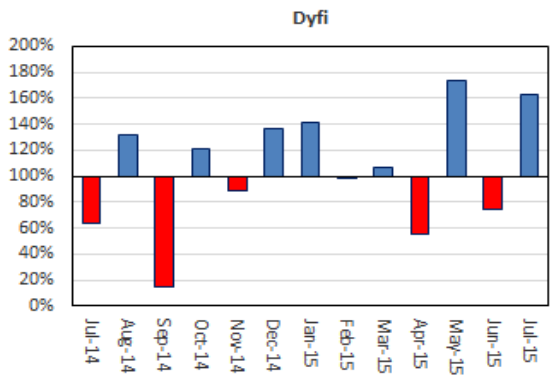












Comparison of monthly rainfall totals to the 1961-90 long term average expressed as percentage for North Wales, using NCIC (National Climate Information Centre) data *(Source: Met Office © Crown Copyright).*

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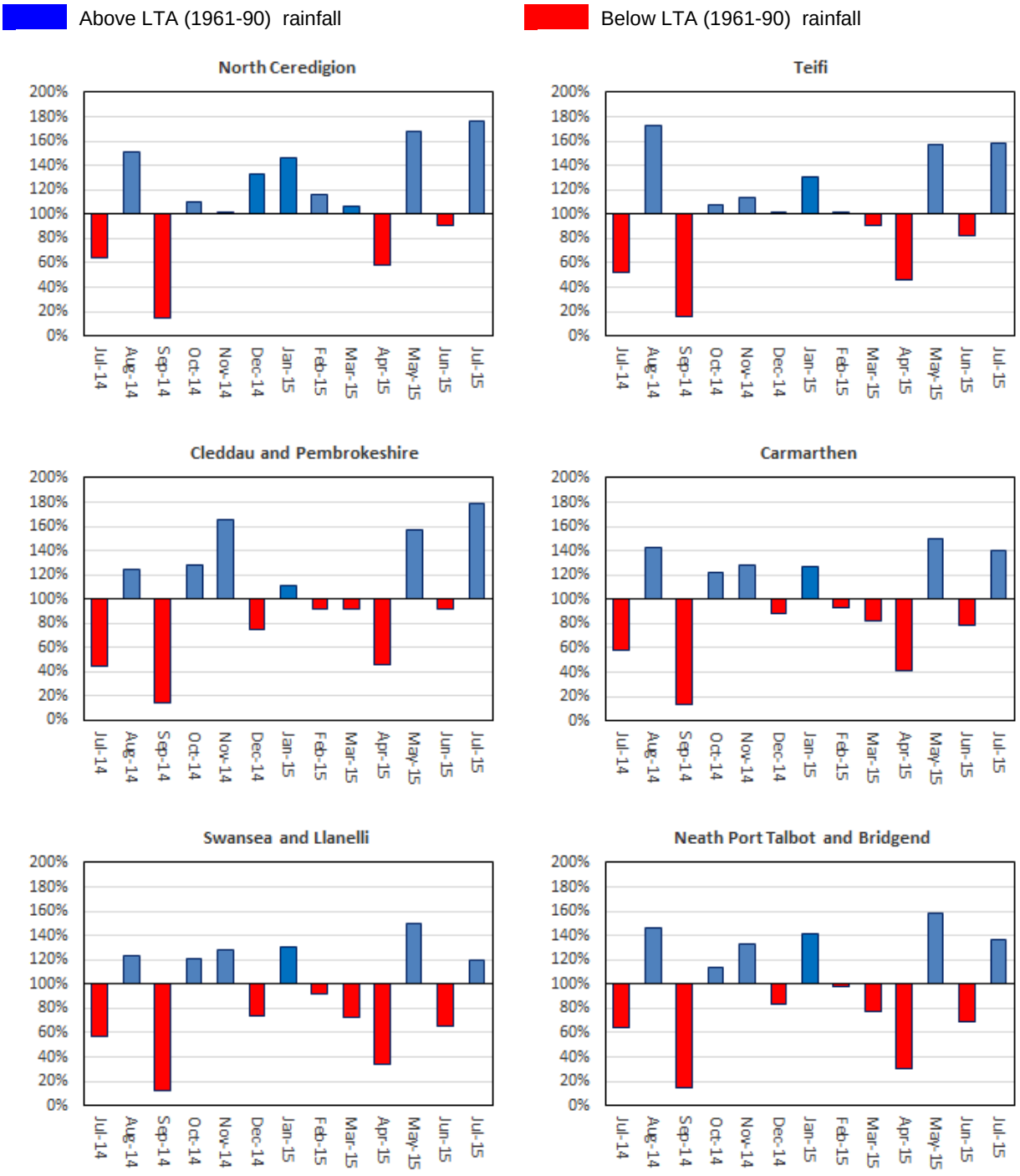
Figure 6: Rainfall Charts: South West Wales



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).*

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Soil Moisture Deficit (SMD)

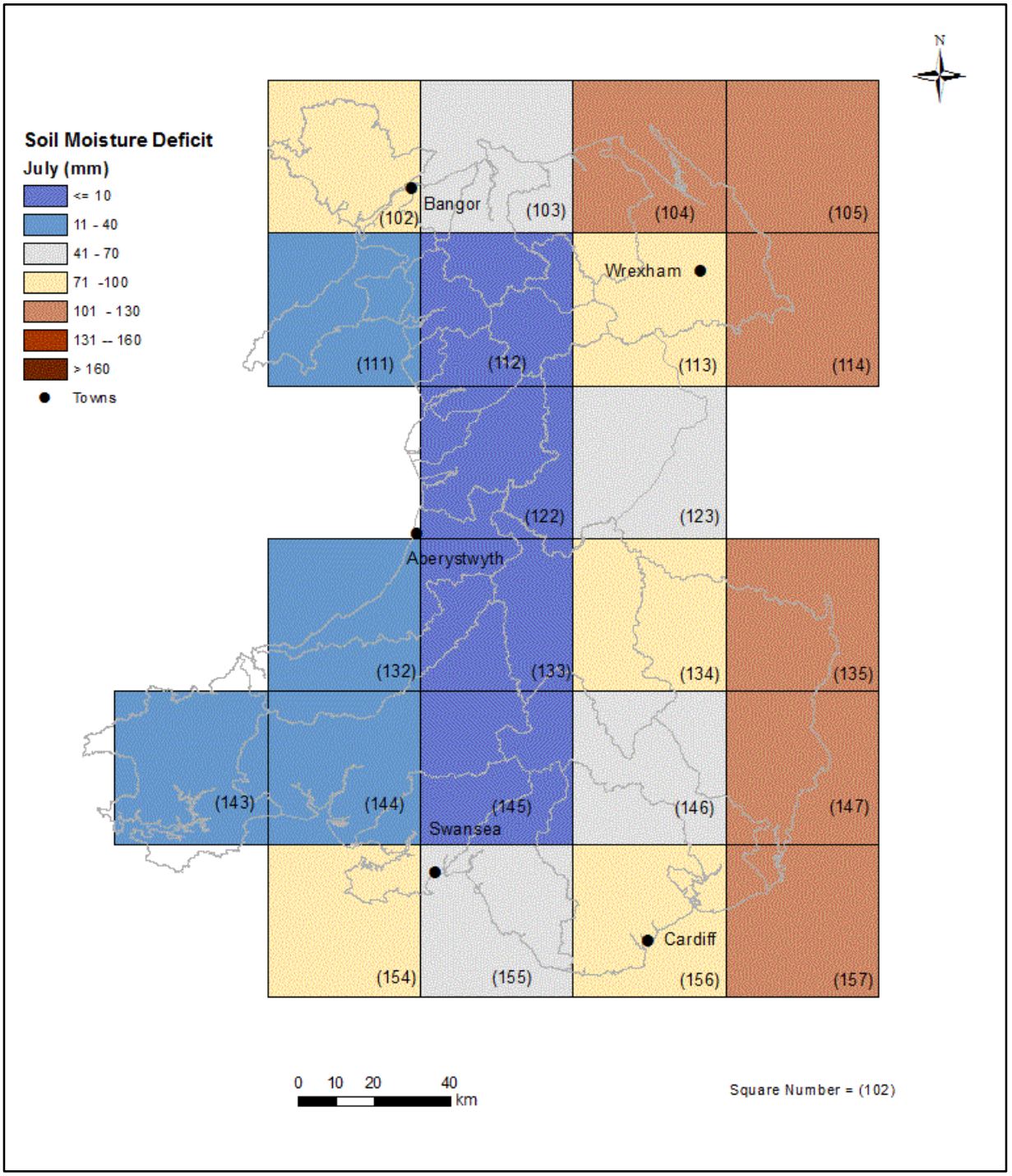

Figure 7: MORECS soil moisture deficits (mm) for July for real land use for Natural Resources Wales *(Source: Met Office © Crown Copyright).*

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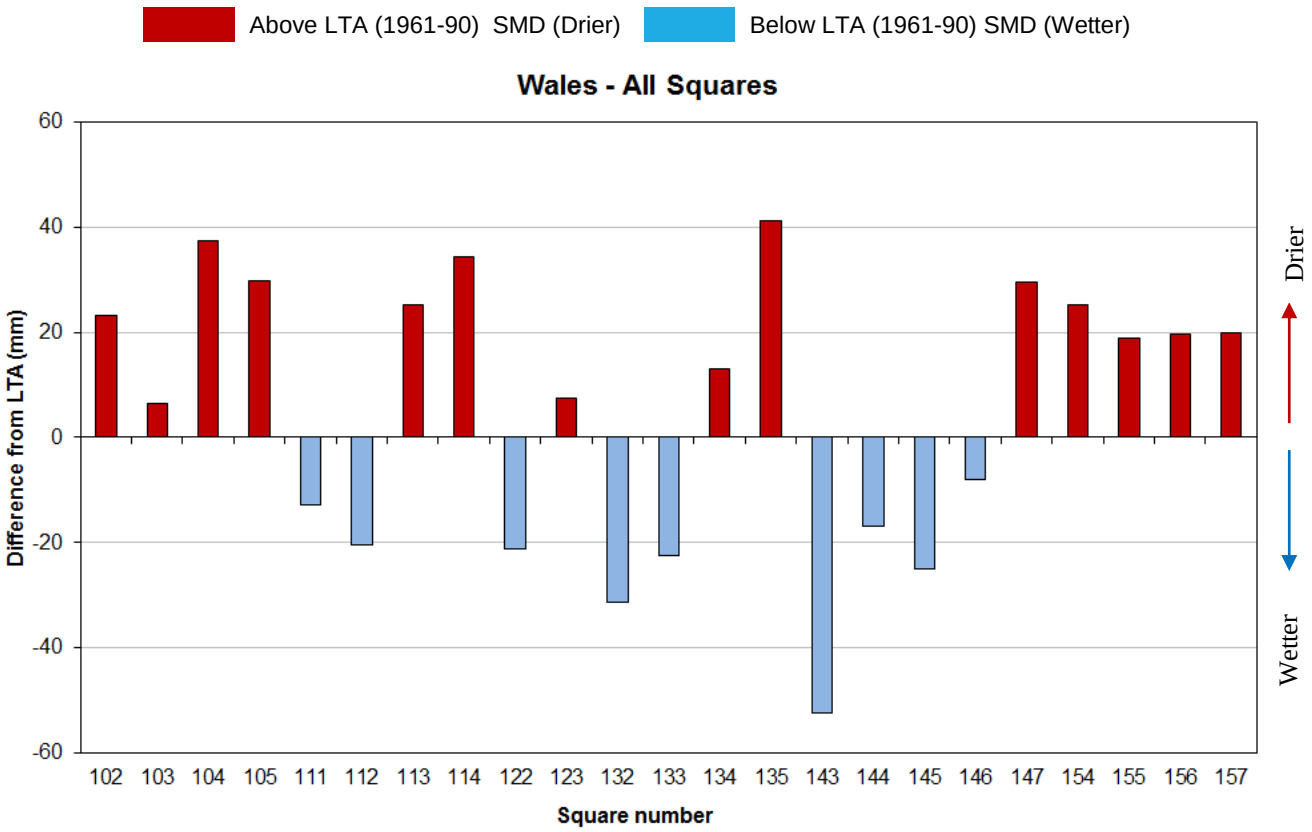

Figure 8: MORECS month end soil moisture deficits difference (mm) from the 1961-90 long term monthly average (LTA) for July for real land use for Natural Resources Wales squares (*Source: Met Office © Crown Copyright*).

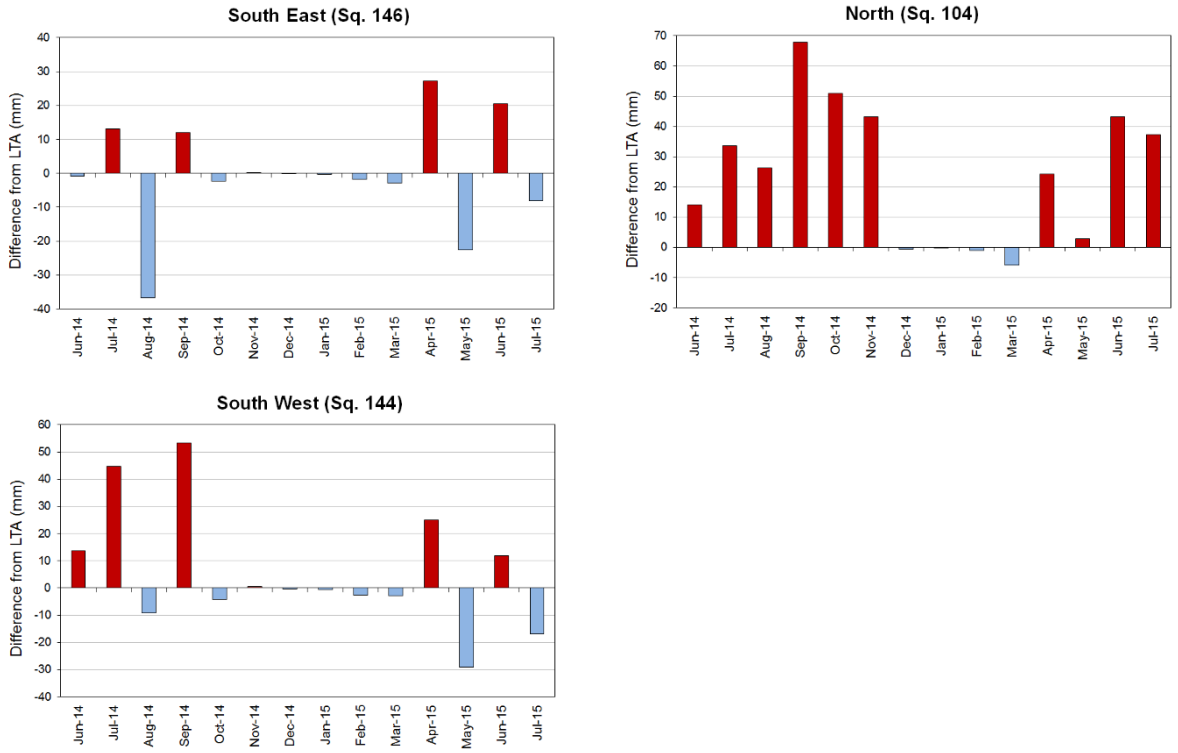

Figure 9: MORECS month end soil moisture deficit difference (mm) from the 1961-90 long term monthly average (LTA) for real land use for South East, North and South West (*Source: Met Office © Crown Copyright*). (Note: no LTA available for Natural Resources Wales)

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River Flow

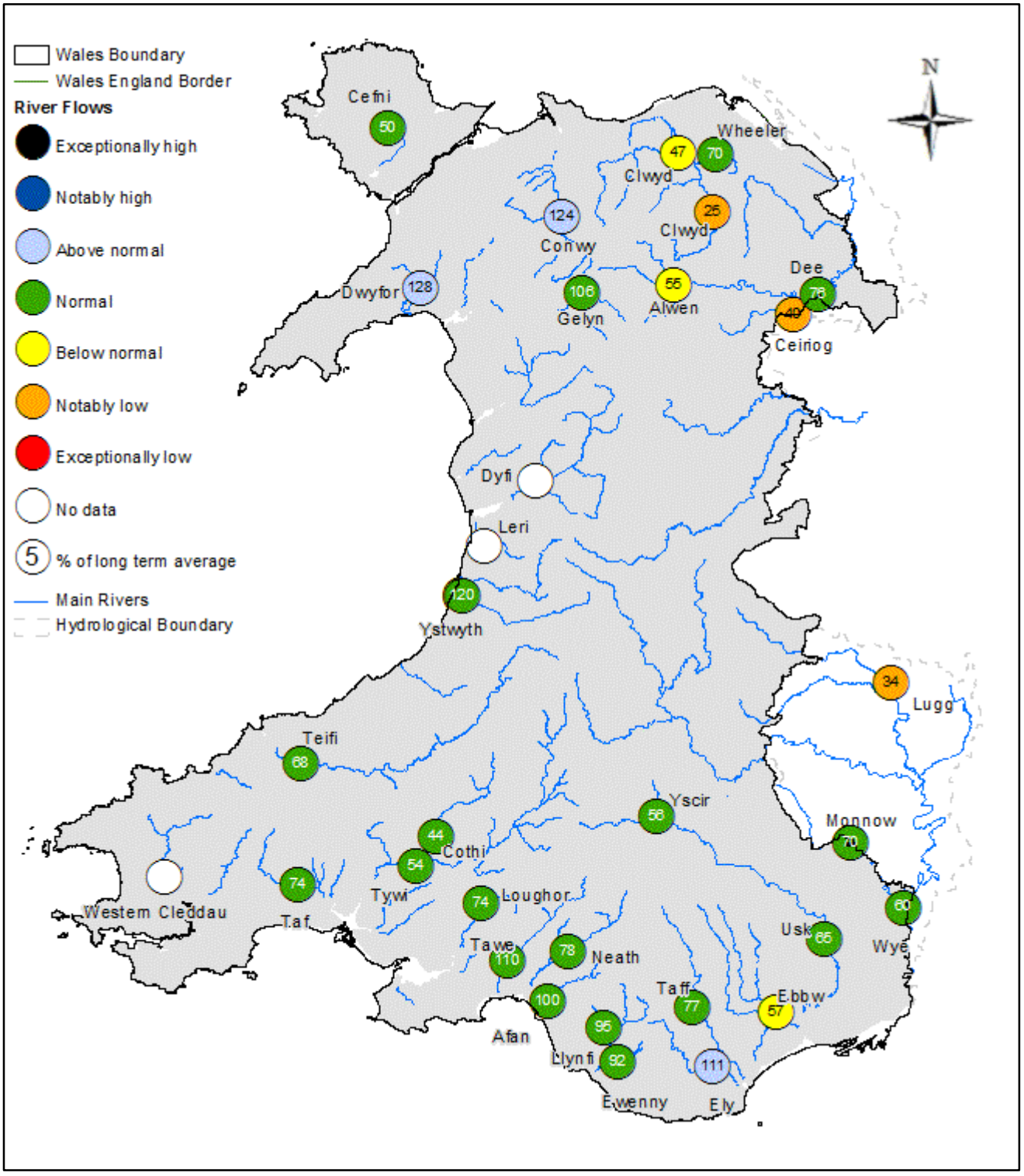

Figure 10: Monthly mean river flow for July, classed relative to analysis of historic July monthly means *(Source: Natural Resources Wales).*

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SITE NAME	RIVER	July 2015			July 2014		July 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	34%	0.90	59	1.45	2.64	0.64	23.20
Grosmont	Monnow	Normal	70%	1.38	135	2.16	1.98	0.44	13.20
Pont ar Yscir	Yscir	Normal	56%	0.37	649	3.89	0.67	0.15	3.13
Pontypridd	Taff	Normal	77%	6.96	58	4.42	9.03	2.59	36.60
Redbrook	Wye	Normal	60%	16.37	58	15.37	27.27	7.43	174.00
Rhiwderin	Ebbw	Below normal	57%	1.79	68	1.96	3.11	1.26	10.90
St Fagans	Ely	Above normal	111%	2.23	68	1.13	2.02	0.47	7.69
Trostrey Weir	Usk	Normal	65%	6.14	75	6.54	9.37	3.39	32.10
River Flow Sites : North Area									
Bodfari	Wheeler	Normal	70%	0.31	79	0.33	0.44	0.23	1.34
Bodffordd	Cefni	Normal	50%	0.04	70	0.04	0.08	0.01	0.44
Brynkinalt Weir	Ceiriog	Notably low	40%	0.46	43	0.48	1.16	0.28	6.37
Cwmlanerch	Conwy	Above normal	124%	10.22	36	2.67	8.22	0.65	30.80
Cynefail	Gelyn	Normal	106%	0.34	23	0.07	0.32	0.04	1.05
Dol y Bont	Leri						0.96	0.13	3.50
Druid	Alwen	Below normal	55%	1.01	124	2.15	1.85	0.53	10.30
Dyfi bridge	Dyfi						9.48	0.82	42.50
Garndolbenmaen	Dwyfor	Above normal	128%	1.99	50	0.65	1.55	0.10	5.88
Manley Hall	Dee	Normal	76%	10.45	75	9.78	13.79	8.52	58.40
Pont y Cambwll	Clwyd	Below normal	47%	1.05	68	1.43	2.23	0.69	13.00
Ruthin Weir	Clwyd	Notably low	25%	0.10			0.40	0.05	3.47
River Flow Sites : South West Area									
Capel Dewi	Tywi	Normal	54%	8.58	49	6.38	15.90	2.75	70.40
Clog y Fran	Taf	Normal	74%	1.89	58	1.25	2.57	0.38	12.40
Coytrahen	Llynfi	Normal	95%	1.31	63	0.75	1.38	0.24	4.53
Felin Mynachdy	Cothi	Normal	44%	1.99	32	1.17	4.54	0.38	20.80
Glanteifi	Teifi	Normal	68%	7.19	53	4.93	10.50	1.82	50.90
Keepers Lodge	Ewenny	Normal	92%	0.87	76	0.64	0.95	0.30	2.90
Marcroft	Afan	Normal	100%	3.23			3.22	0.56	9.99
Pont Llolwyn	Ystwyth	Normal	120%	3.41	21	0.55	2.85	0.38	12.60
Prendergast Mill	Western Cleddau						2.24	0.50	9.82
Resolven	Neath	Normal	78%	3.73	35	1.36	4.81	0.41	19.00
Tir-y-Dail	Loughor	Normal	74%	0.76	63	1.54	1.03	0.20	4.49
Ynystanglws	Tawe	Normal	110%	6.97	42	2.46	6.34	1.03	27.80

Figure 11: Monthly mean river flow for July with comparison against previous year expressed as a percentage of the July long term average and classed relative to analysis of historic July monthly means. *(Source: Natural Resources Wales).*

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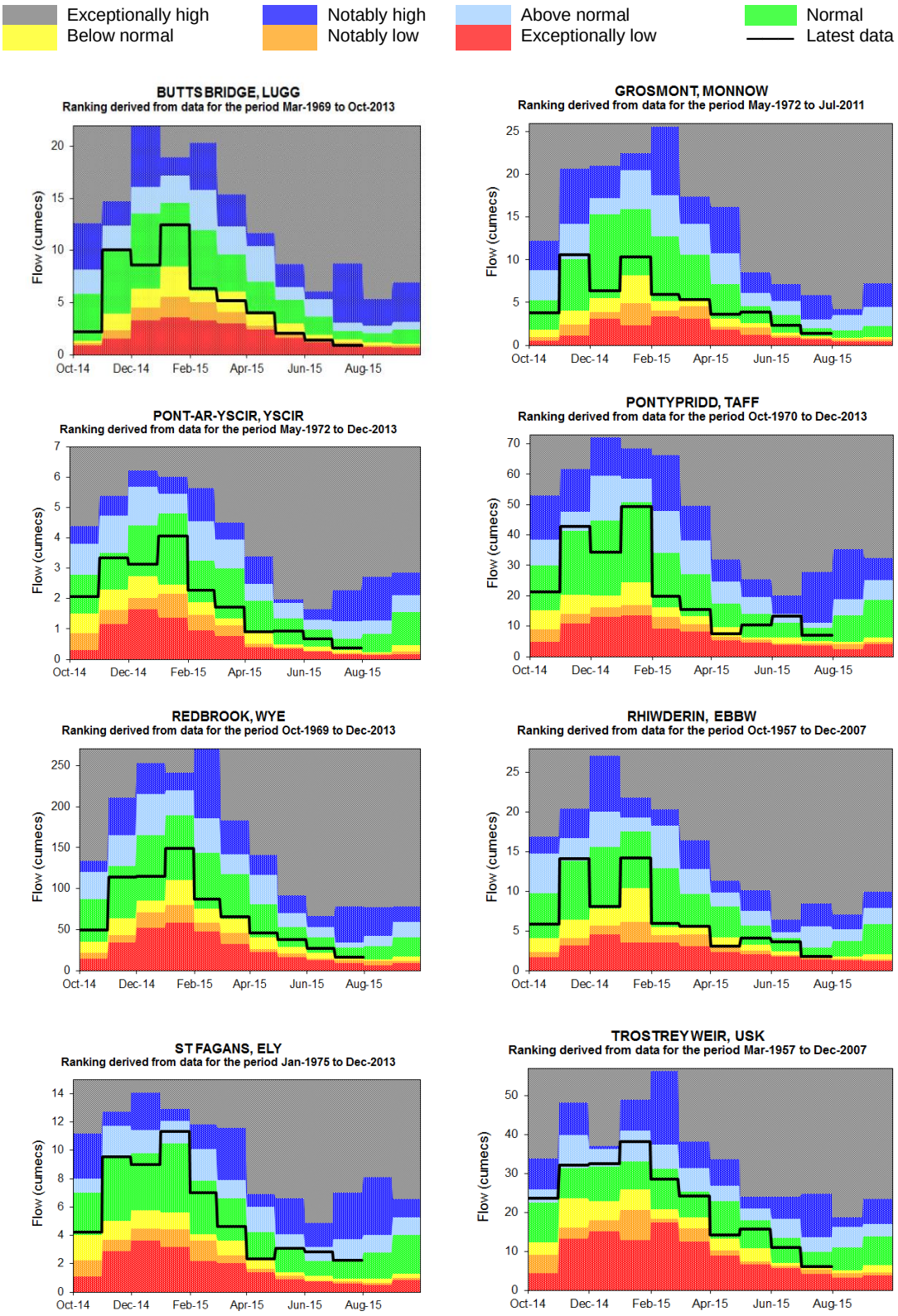
River Flow Charts

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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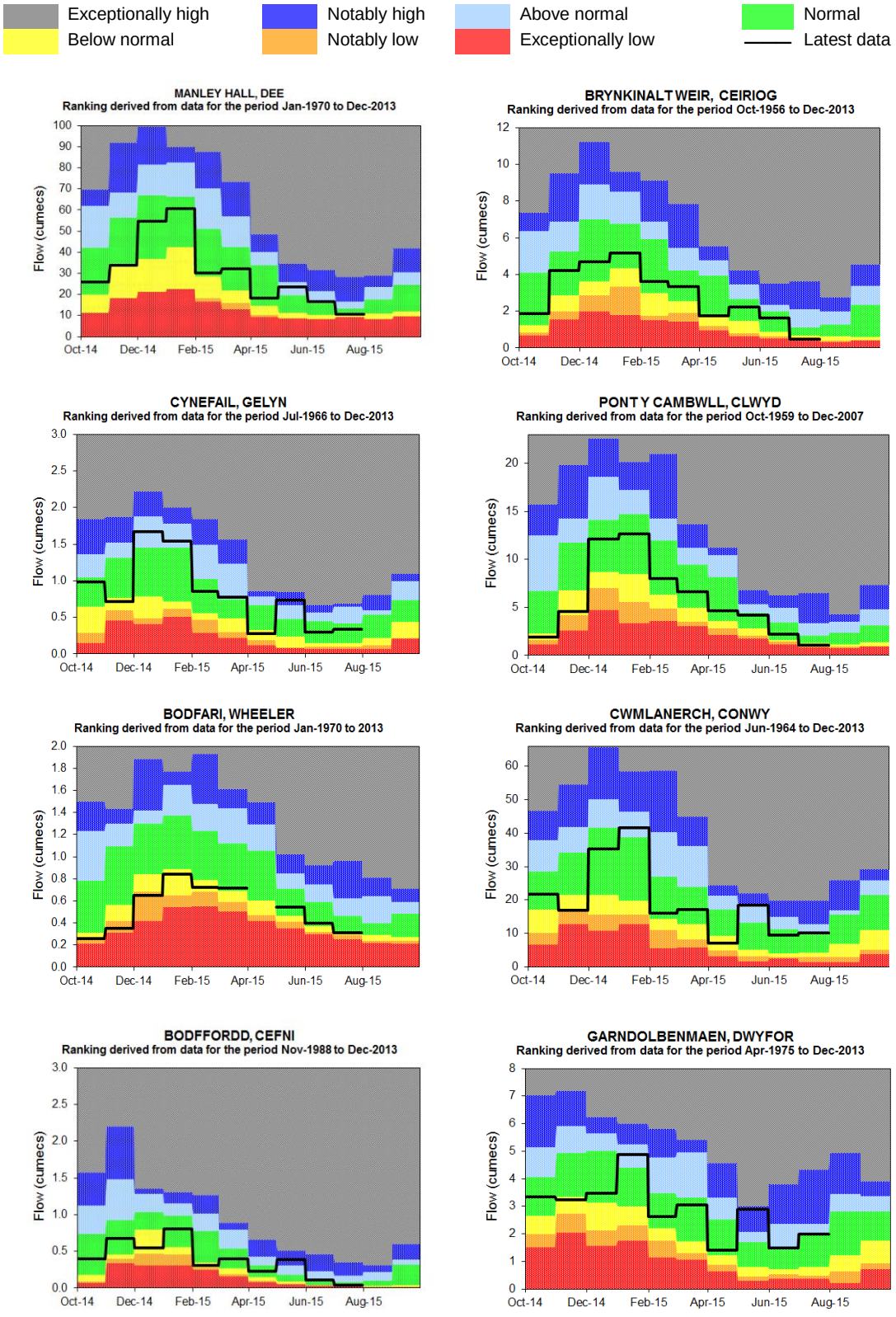
Figure 13: River Flow Charts: North Wales



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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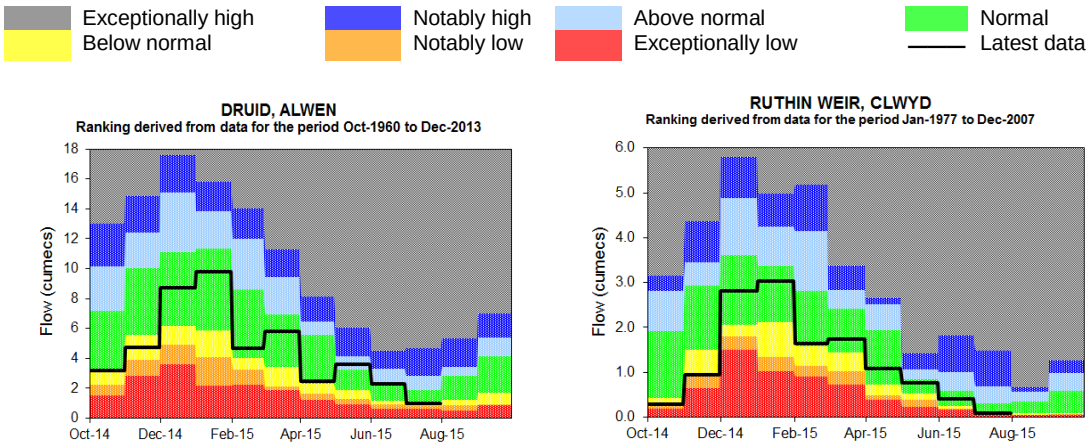
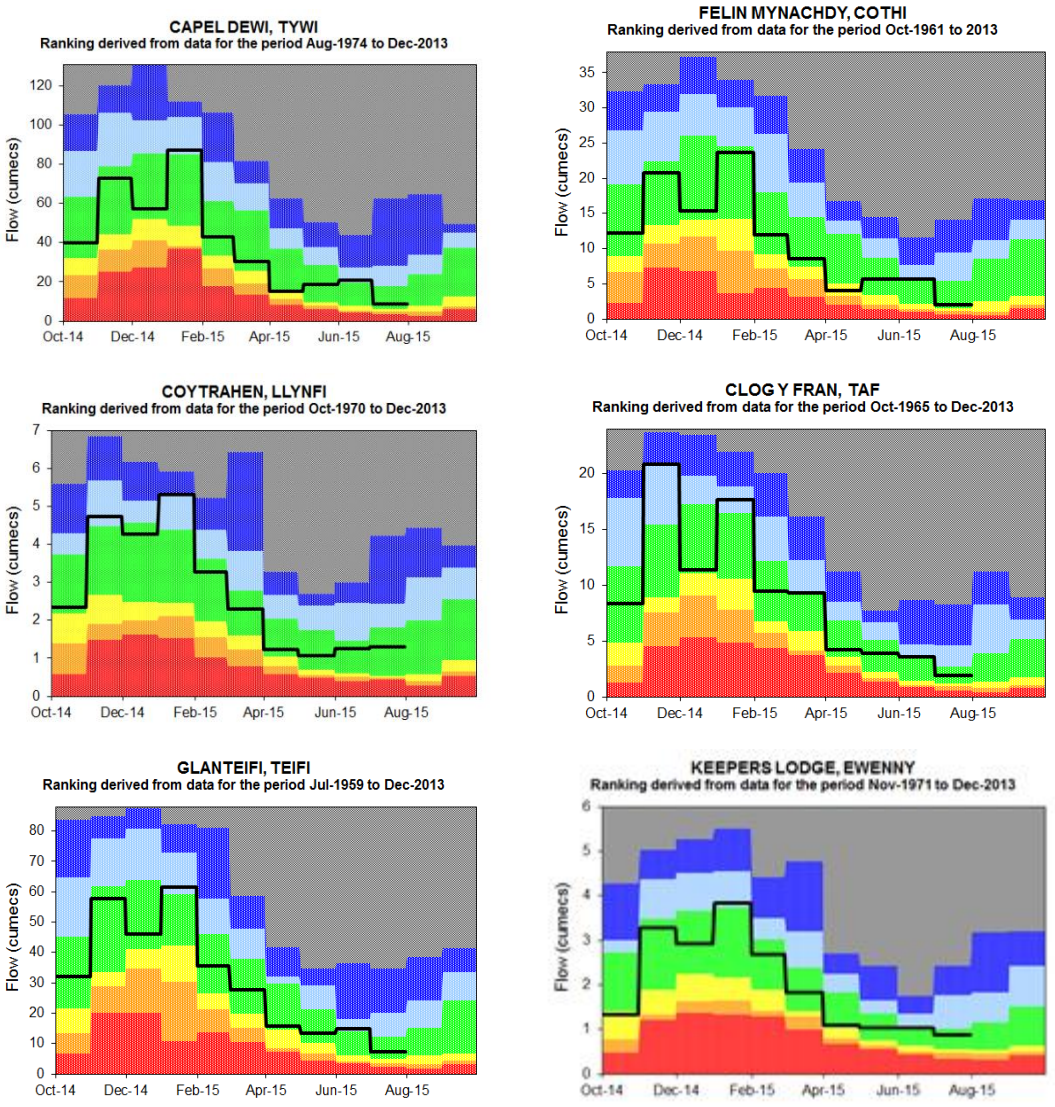


Figure 14: River Flow Charts: South West Wales



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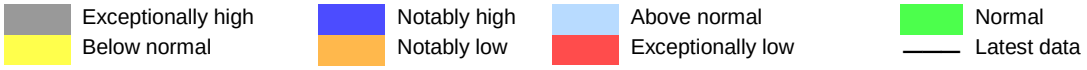

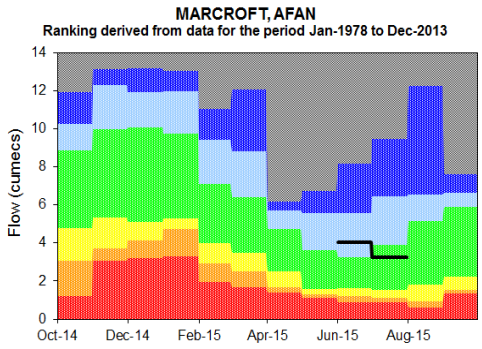

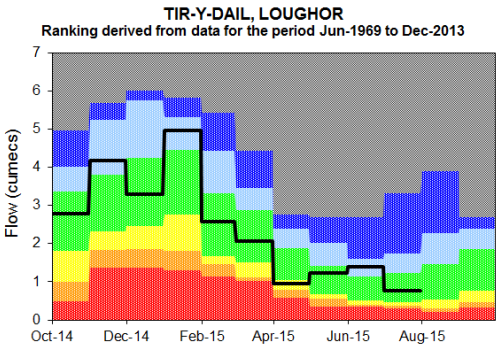

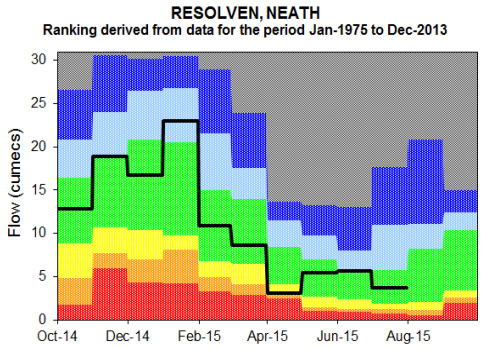

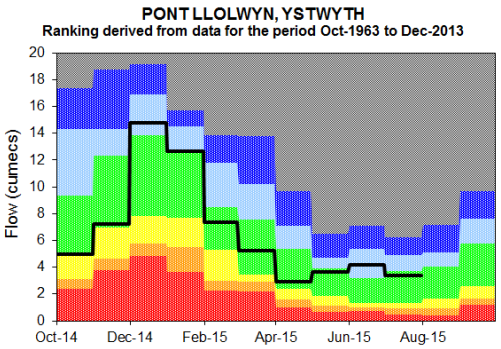

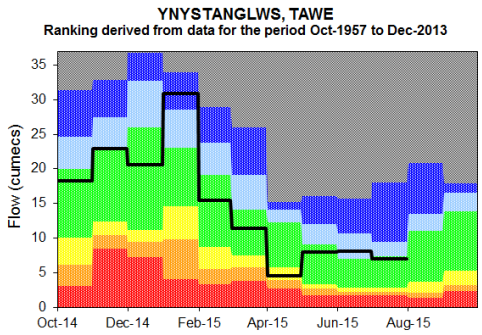

Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels. *(Source: Natural Resources Wales).* (please note that there was no data available pre-July 2015 for the site of Marcroft in the river Afan.)

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Groundwater Levels

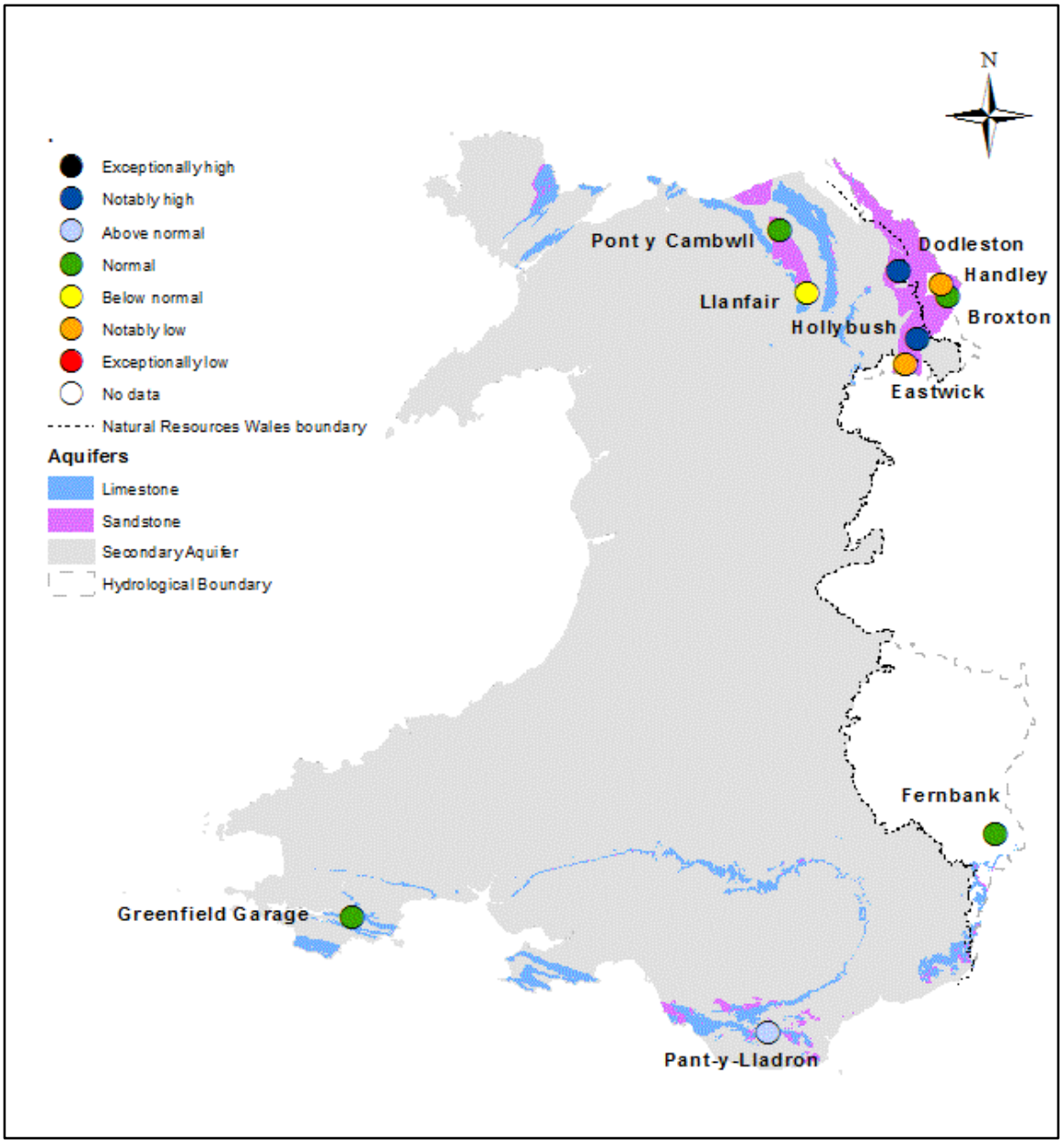

Figure 15: Groundwater levels at the end of month classed relative to an analysis of historic July groundwater levels *(Source: Natural Resources Wales and Environment Agency).*

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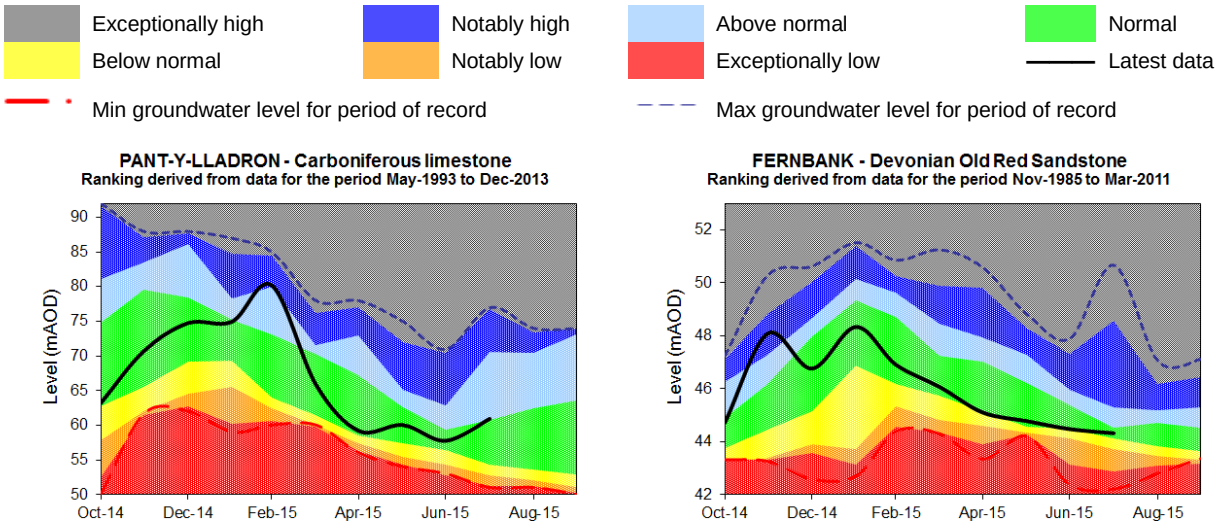
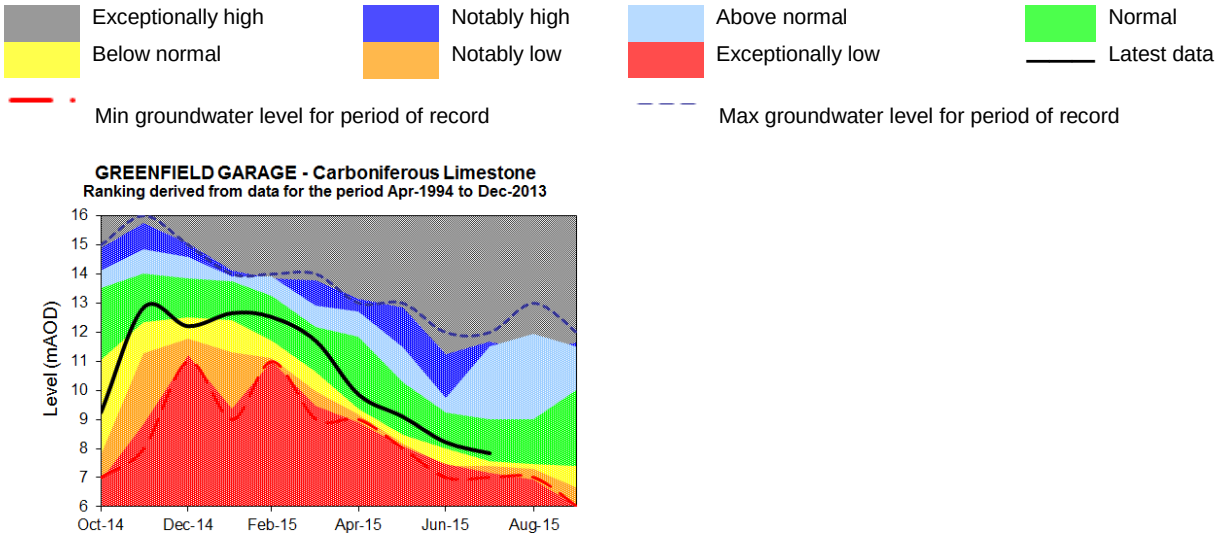
Groundwater charts

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).*

All data are provisional and may be subject to revision.
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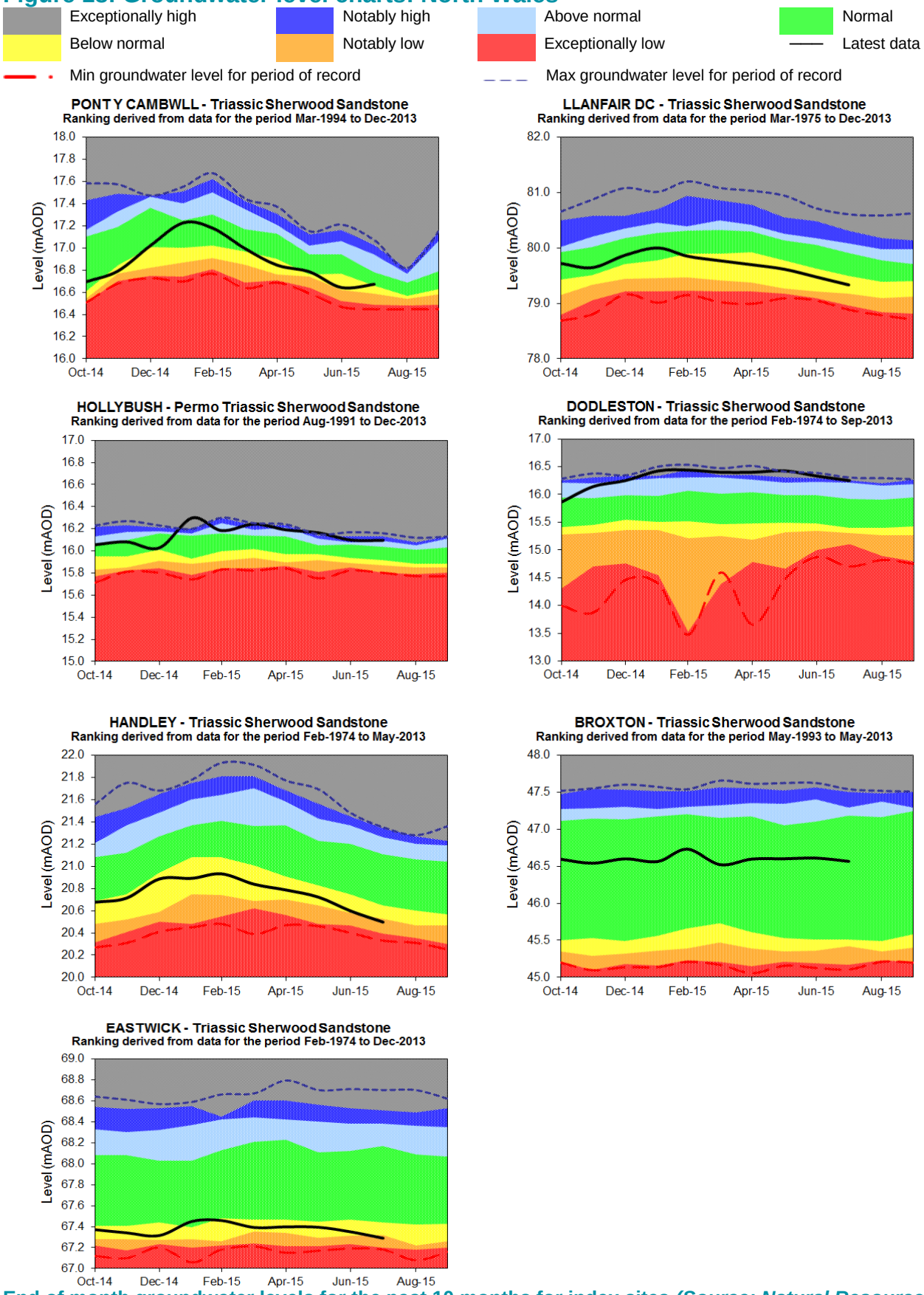
Figure 18: Groundwater level charts: North Wales



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

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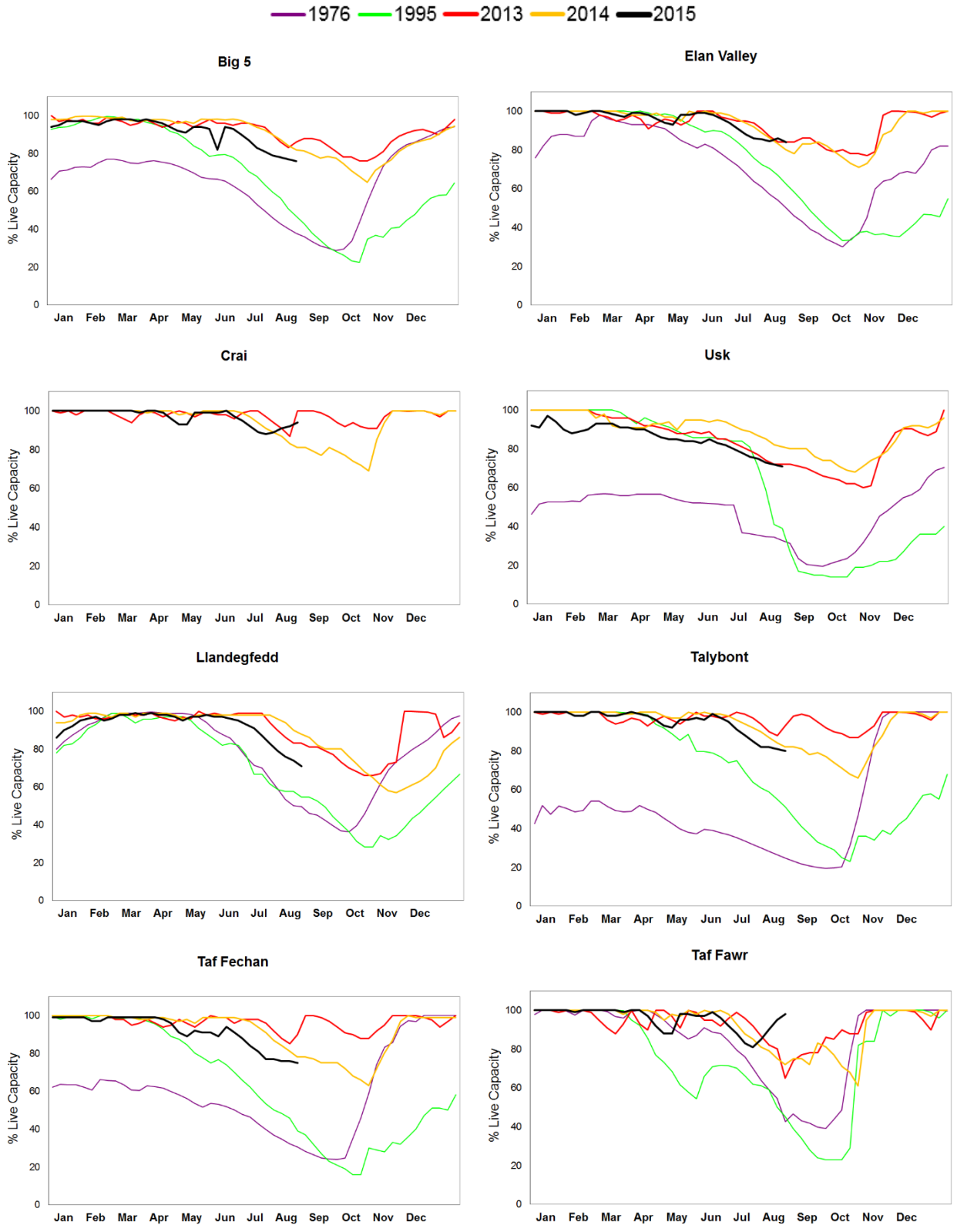
Reservoir Storage

Figure 19: Reservoir charts: South East Wales



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

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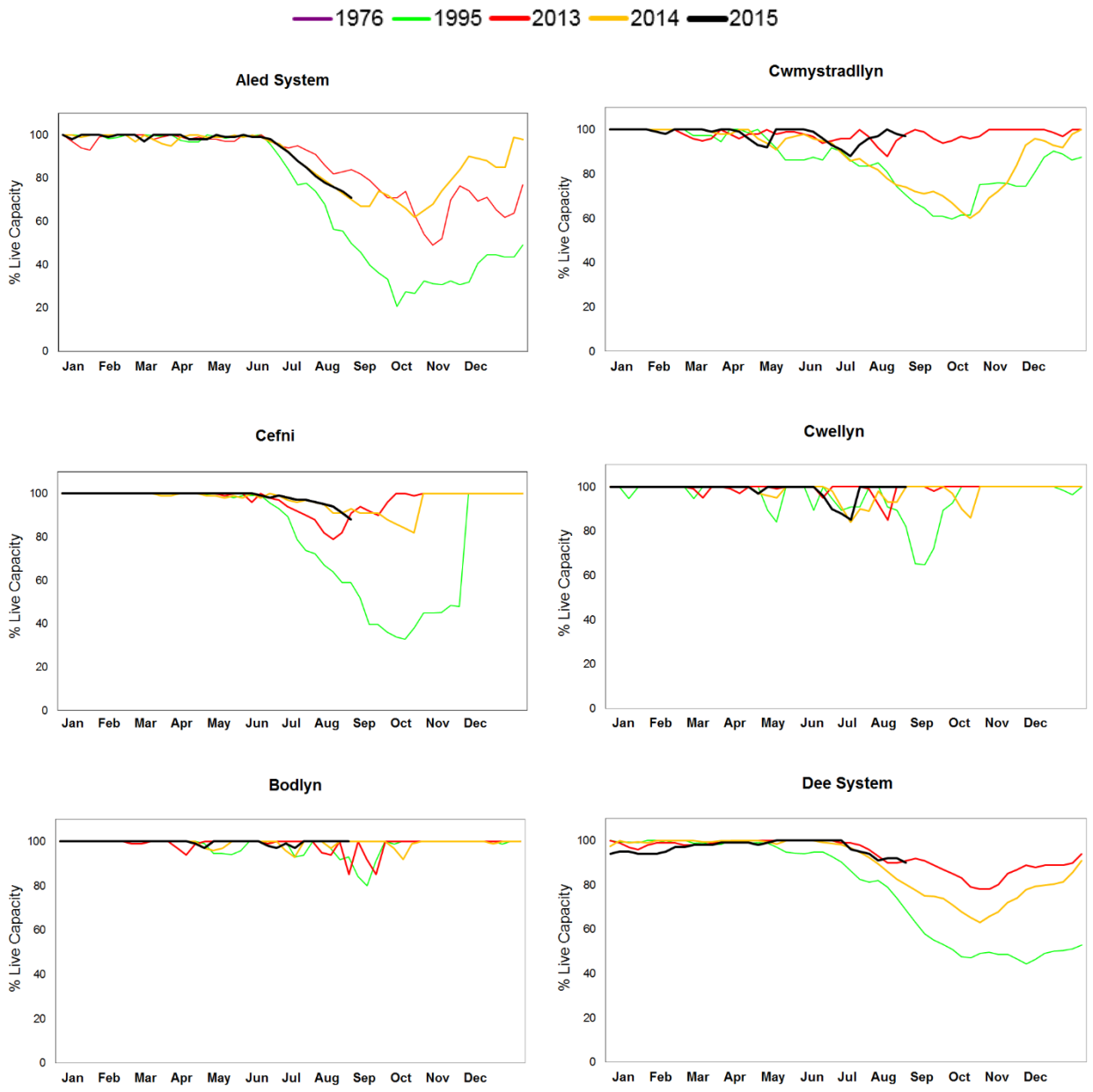
Figure 20: Reservoirs charts: North Wales



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

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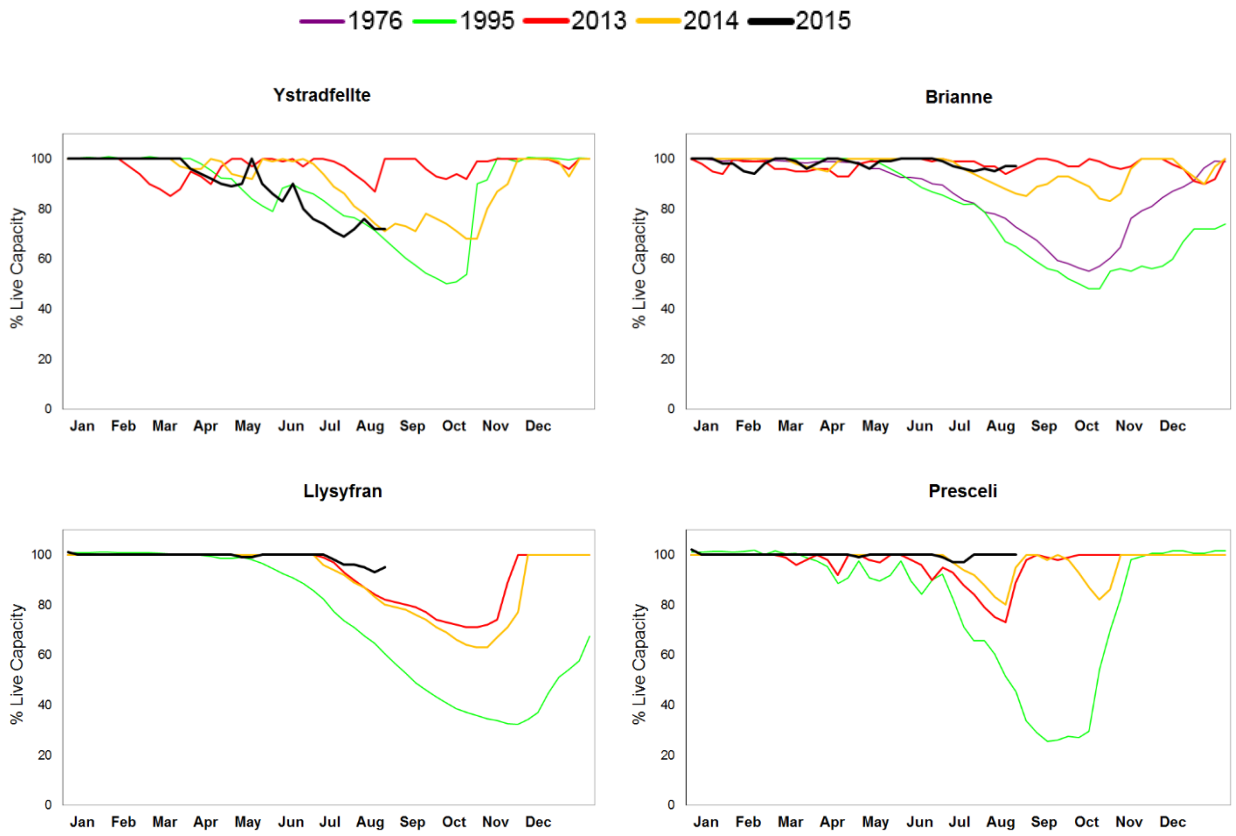
Figure 21: Reservoirs charts: South West Wales



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

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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 ($m^3 s^{-1}$)
mAOD	Metres Above Ordnance Datum (mean sea level at Newlyn Cornwall).

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