Monthly Water Situation Report June 2015

Natural Resources Wales

- **The monthly rainfall total received for Natural Resources Wales was 72% of the Long Term Average (LTA, 1961-90) during June. North Wales received 64% of rainfall and the South West and South East Wales received 79% and 71% of the Long Term Average (LTA, 1961-90), respectively.**
- **At the end of June, soil moisture deficit (SMD) across Wales was between 42.9mm (sq. 133) and 119.1mm (sq. 157) for all MORECS squares.**
- **River flows across all the indicator sites were classed as *Normal to Above normal*, compared to the June LTA flows, with the exception of one site classed as Notably low.**
- **The overall reservoir storage across all indicator sites was above 74% at the end of June and are within normal operating conditions.**

Rainfall*

The monthly rainfall total received for Wales was 56.9mm which was 72% of the LTA for June.

The rainfall totals recorded in catchments across Wales were between 31.3mm (Ynys Mon, 53% of LTA) to 86.8mm (Glaslyn/Dwyryd, 66% of the LTA) and the percentages of LTA were between 52.8% in the Dee and 92.3% in the catchment of Cleddau and Pembrokeshire.

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

All the SMD values are greater than the LTA values during June except one square (sq. 143). Out of 23 MORECS squares, 18 have a SMD value beween 100% and 200% of the LTA for June. Four sites (sq. 112, 122, 133 and 155) had a SMD values more than twice the LTA (200 - 335% of LTA).

SMD Map	National	
SMD Charts	Compare to LTA	Compare to previous years

River Flows

River flows at almost all the sites are classed as *Normal* or A*bove normal,* with the exception of Lugg at Butts Bridge which was *Notably Low*. Out of 29 sites with river flow data, 12 sites were *Above normal,* and the rest of 16 sites were classed as *normal*.

All sites represent between 44% (River Lugg at Butts Bridge) and 156% (River Ystwyth at Pont Llolwyn) of the June LTA Values.

***North*:** Flows in the area had a range from 76% (River Clwyd at Ruthin Weir) to 116% (River Alwen at Druid) of the June LTA values.

***South East*:** Flows in the area ranged from 44% (River Lugg at Butts Bridge) to 145% (River Ely at St Fagans) of the June LTA values.

South West: The river flows within this area ranged from 100% (River Llynfi at Coytrahen) to 156% (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 June at all indicator sites are classed between *Below normal* to *Exceptionally high (*Dodleston Obs borehole) while 5 out of 10 sites are classified as *Below normal.*

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

Reservoir Storage

At the end of June all of the indicator reservoirs exceeded 74% full. 5 out of 18 reservoirs storage are between 80% and 90% full and 12 are greater than 90% of the full storage capacity. The overall reservoir storage for Dwr Cymru Welsh Water was above 91%.

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

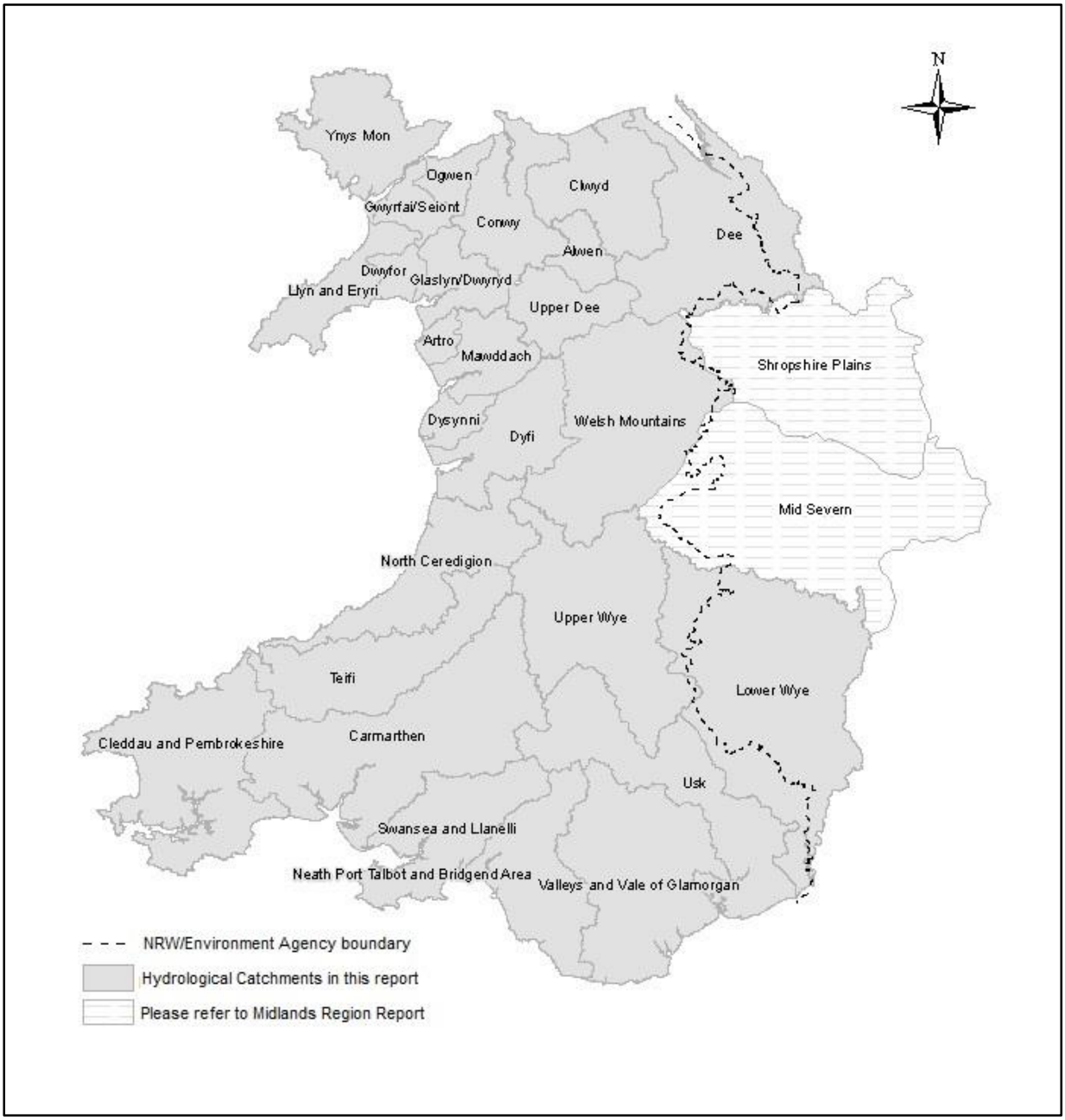

Figure 1: The Natural Resources Wales Water Situation Report features sites in the catchments shown. Parts of the Shropshire Plains and Mid Severn catchments are within Wales. For full information on these catchments, please see the Environment Agency Midlands Water Situation Report.

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

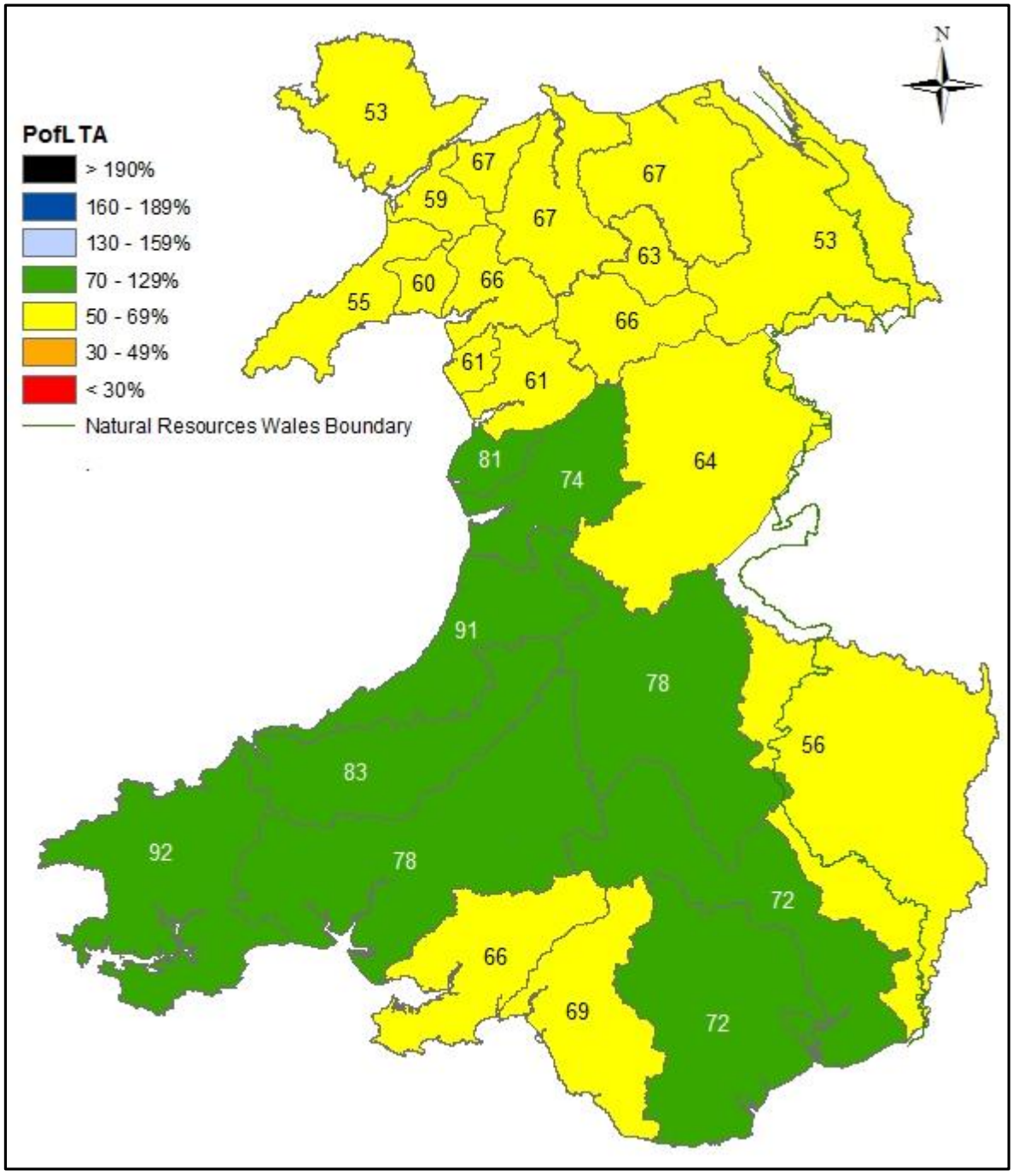

Figure 2: Calculated catchment average June rainfall totals as a percentage of the 1961-90 June long term average for Natural Resources Wales catchments, using NCIC (National Climate Information Centre) data (*Source: Met Office © Crown Copyright).*

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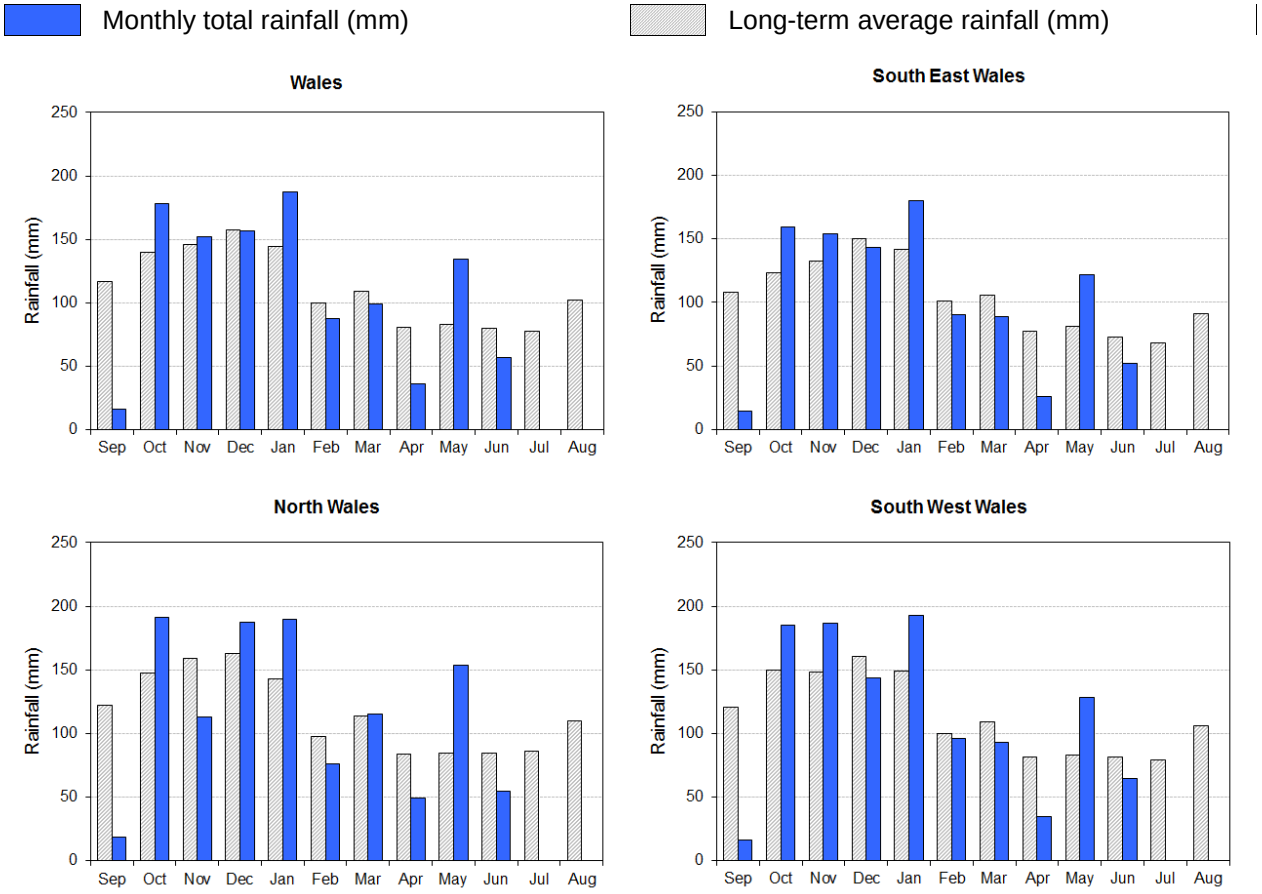
Rainfall Charts

Figure 3: Rainfall Charts: National and Areas



Monthly rainfall totals compared to the 1961-90 long term average for Natural Resources Wales and Areas, using NCIC (National Climate Information Centre) data *(Source: Met Office © Crown Copyright).*

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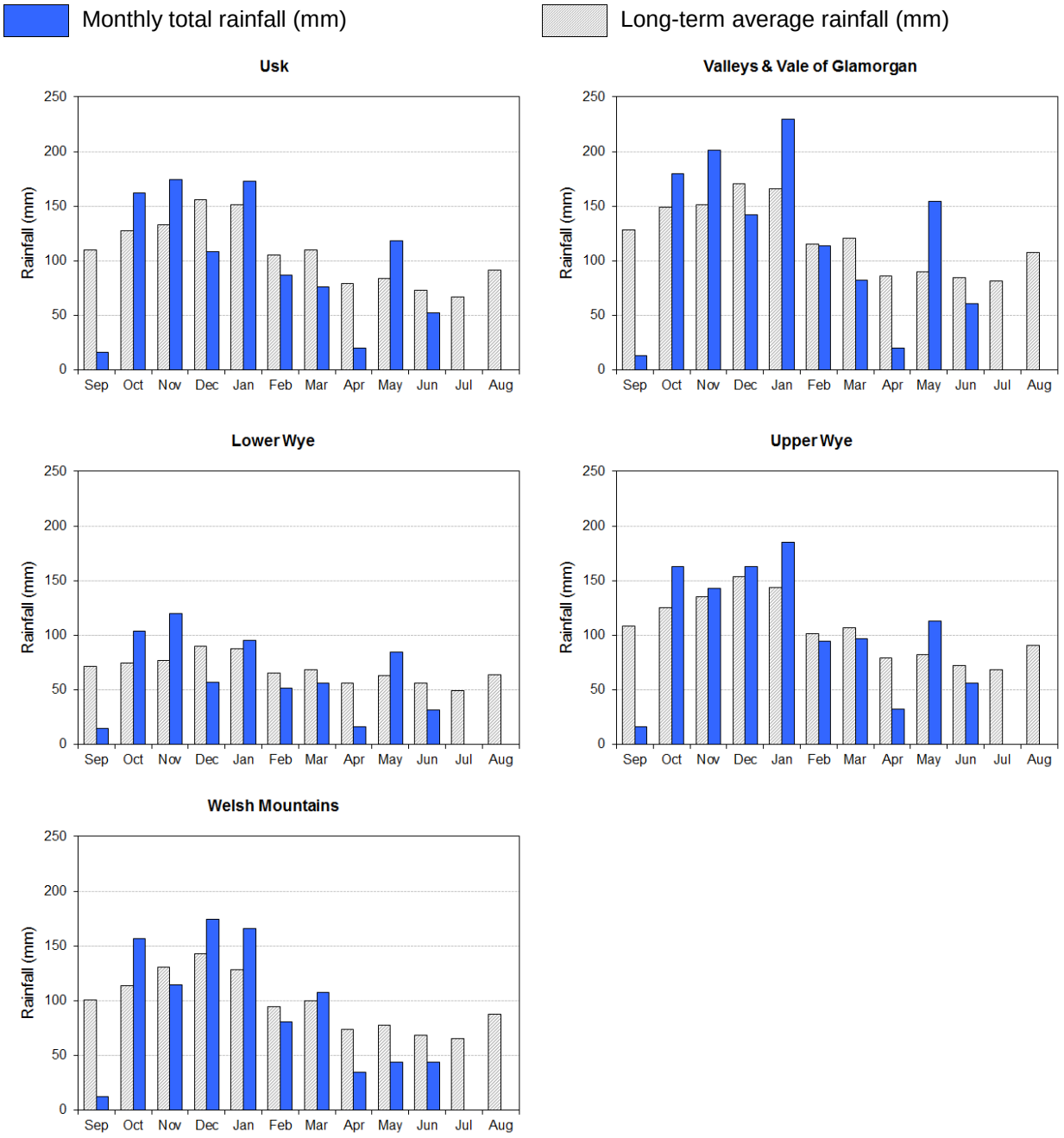
Figure 4: Rainfall Charts: South East Wales



Monthly rainfall totals compared to the 1961-90 long term average for South East Wales, using NCIC (National Climate Information Centre) data *(Source: Met Office © Crown Copyright).*

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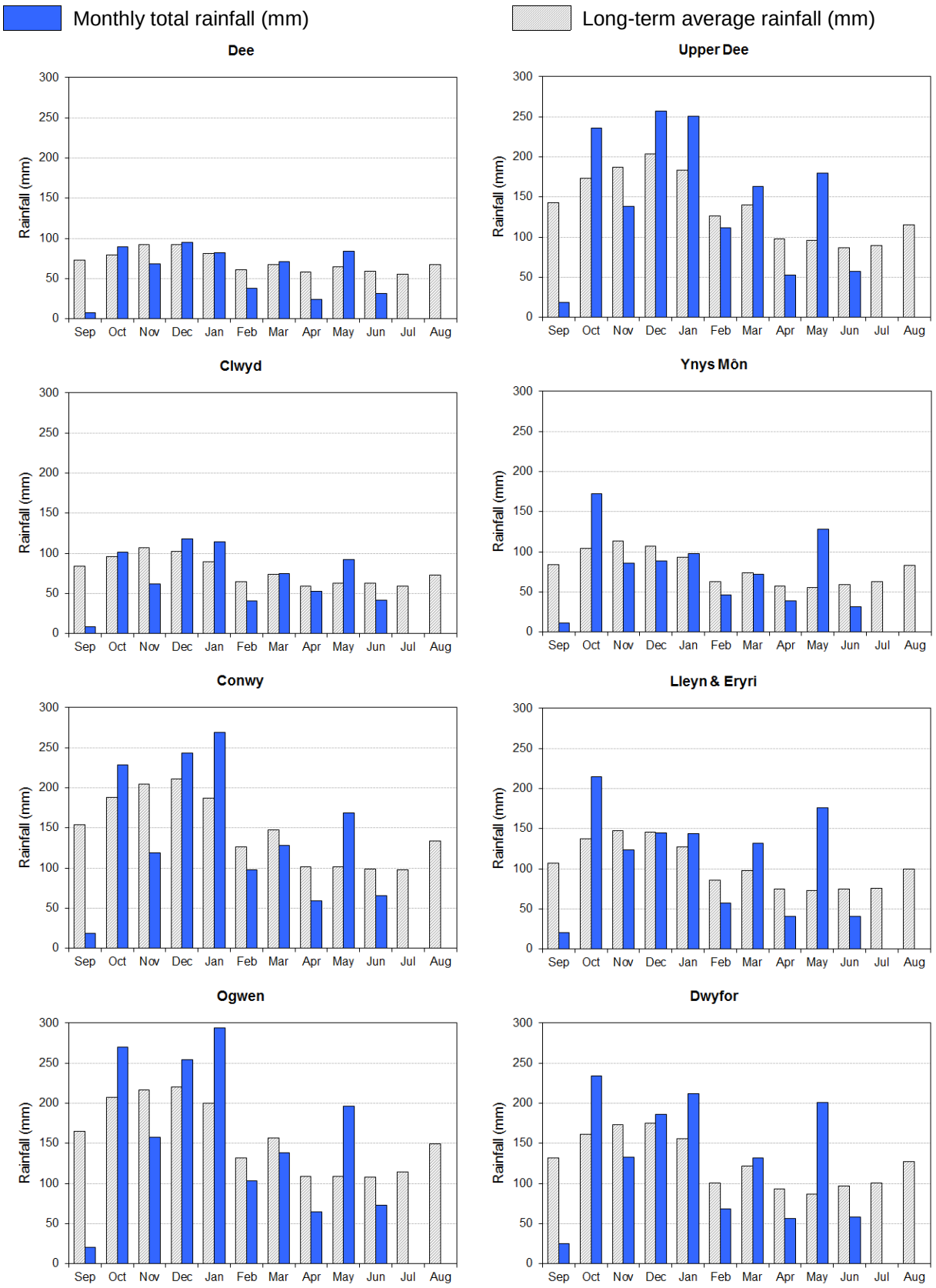
Figure 5: Rainfall Charts: North Wales



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

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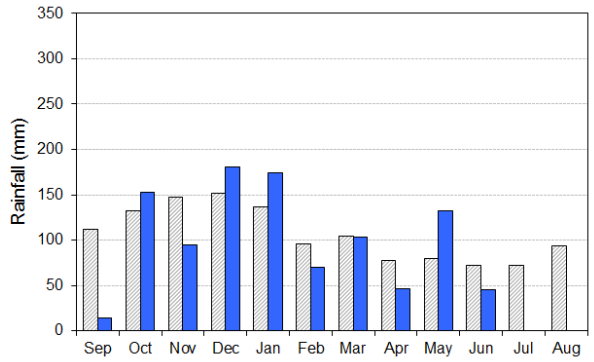
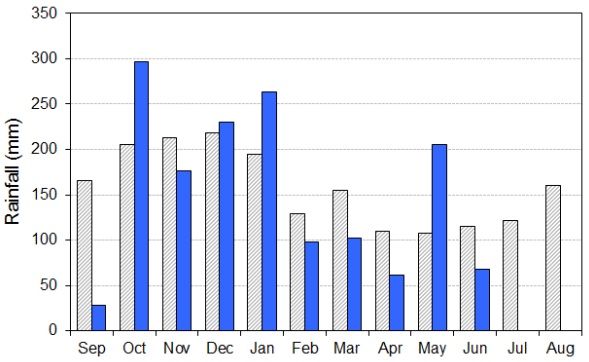
Monthly total rainfall (mm) Long-term average rainfall (mm)

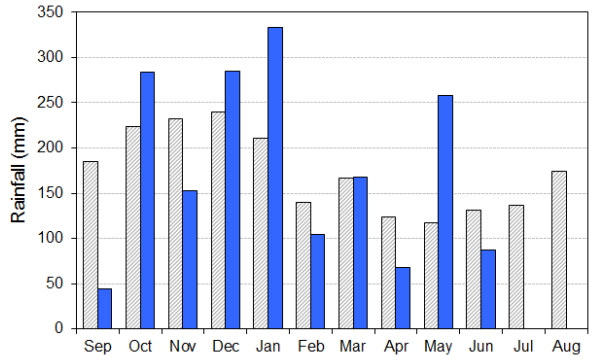
Alwen



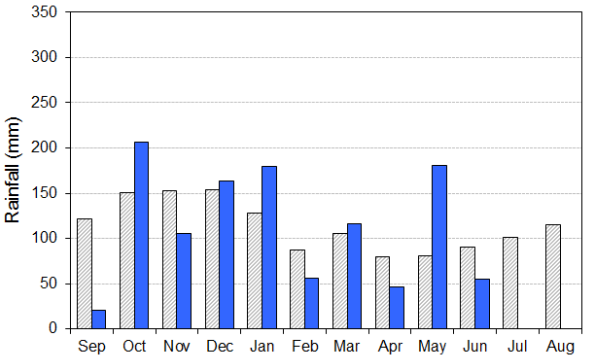
Gwyrfai/Seiont



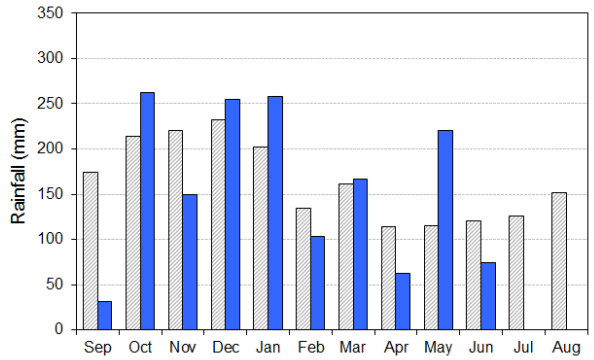
Glaslyn/Dwyryd



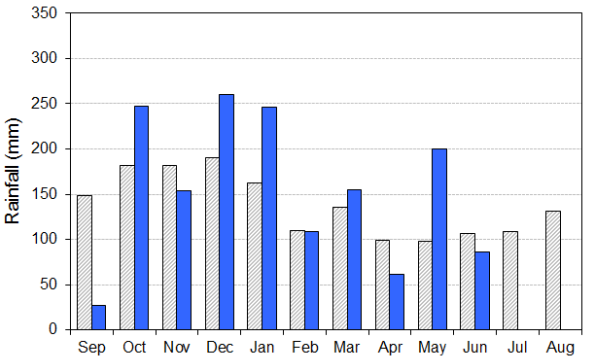
Artro



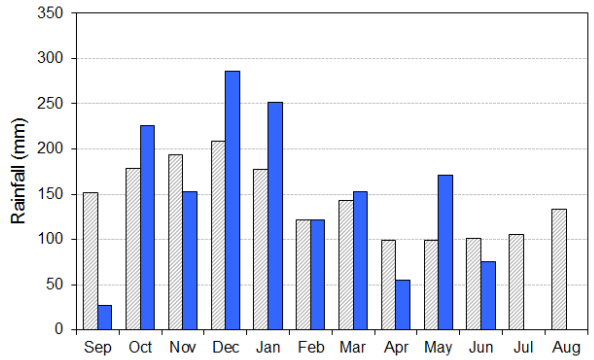
Mawddach



Dysynni



Dyfi



Monthly rainfall totals compared to the 1961-90 long term average North Wales, using NCIC (National Climate Information Centre) data *(Source: Met Office © Crown Copyright).*

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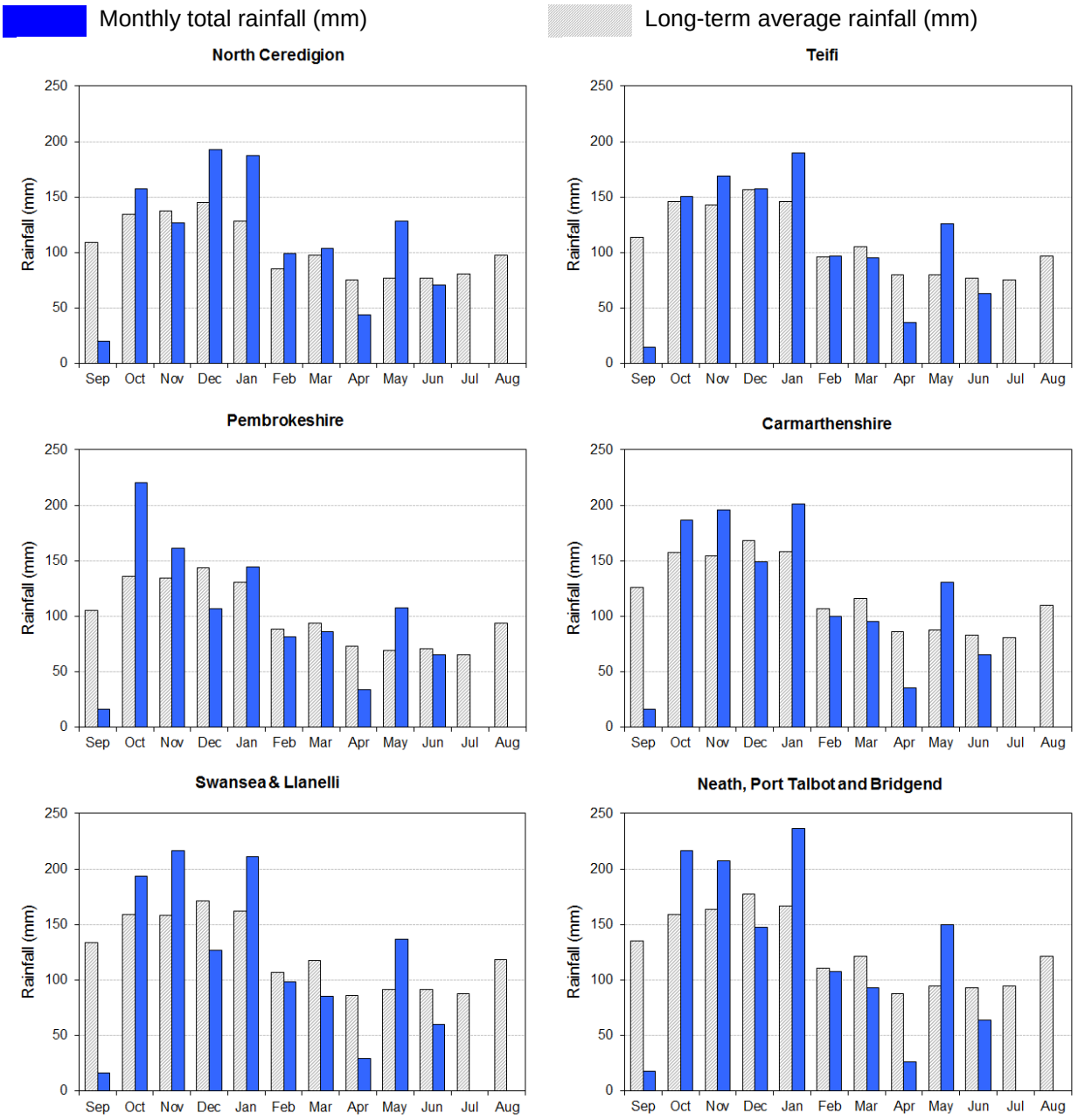
Figure 6: Rainfall Charts: South West Wales



Monthly rainfall totals compared to the 1961-90 long term average for South West Wales, using NCIC (National Climate Information Centre) data *(Source: Met Office © Crown Copyright).*

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Soil Moisture Deficit (SMD)

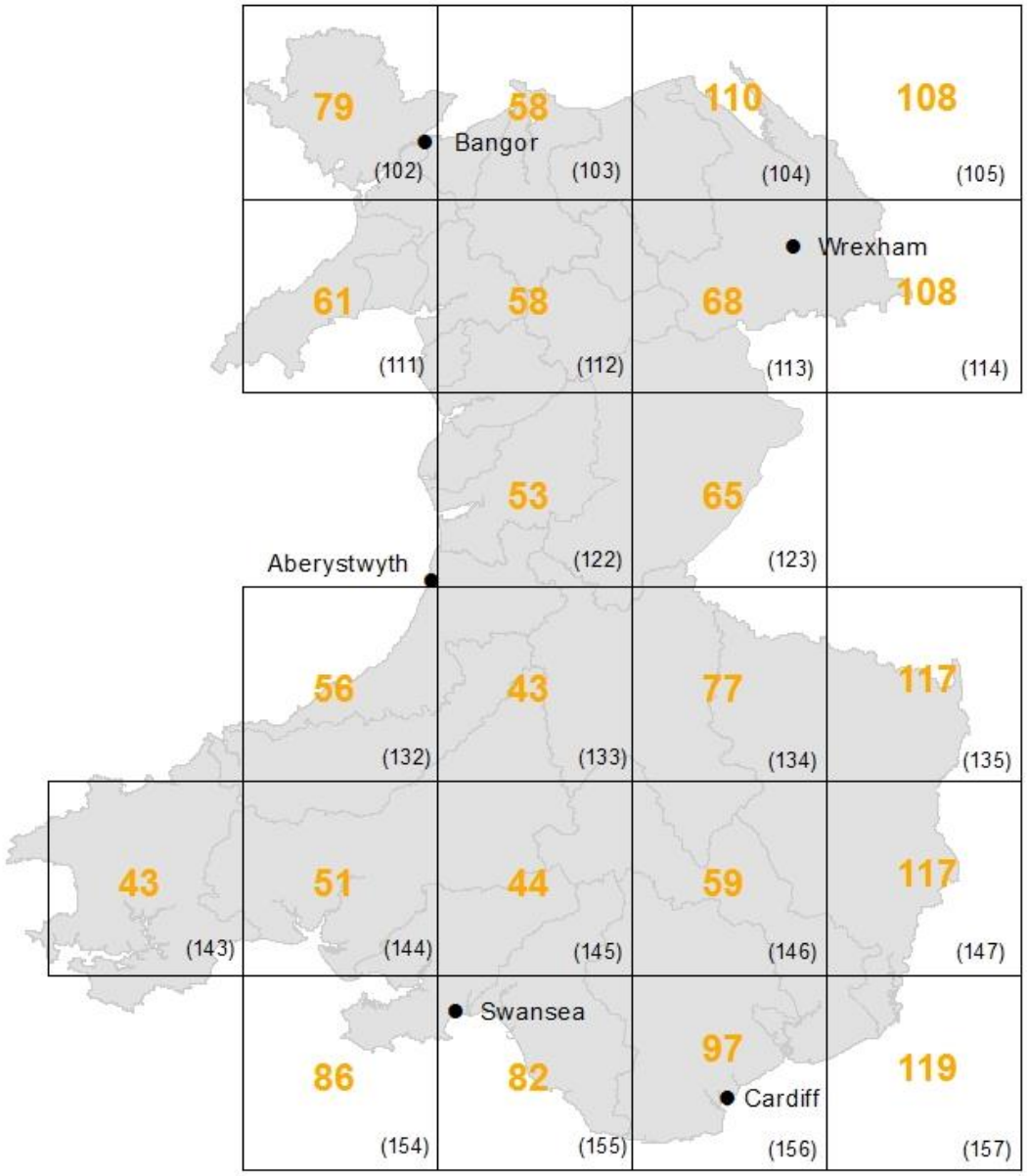

Figure 7: MORECS soil moisture deficits (mm) for real land use for Natural Resources Wales *(Source: Met Office © Crown Copyright).*

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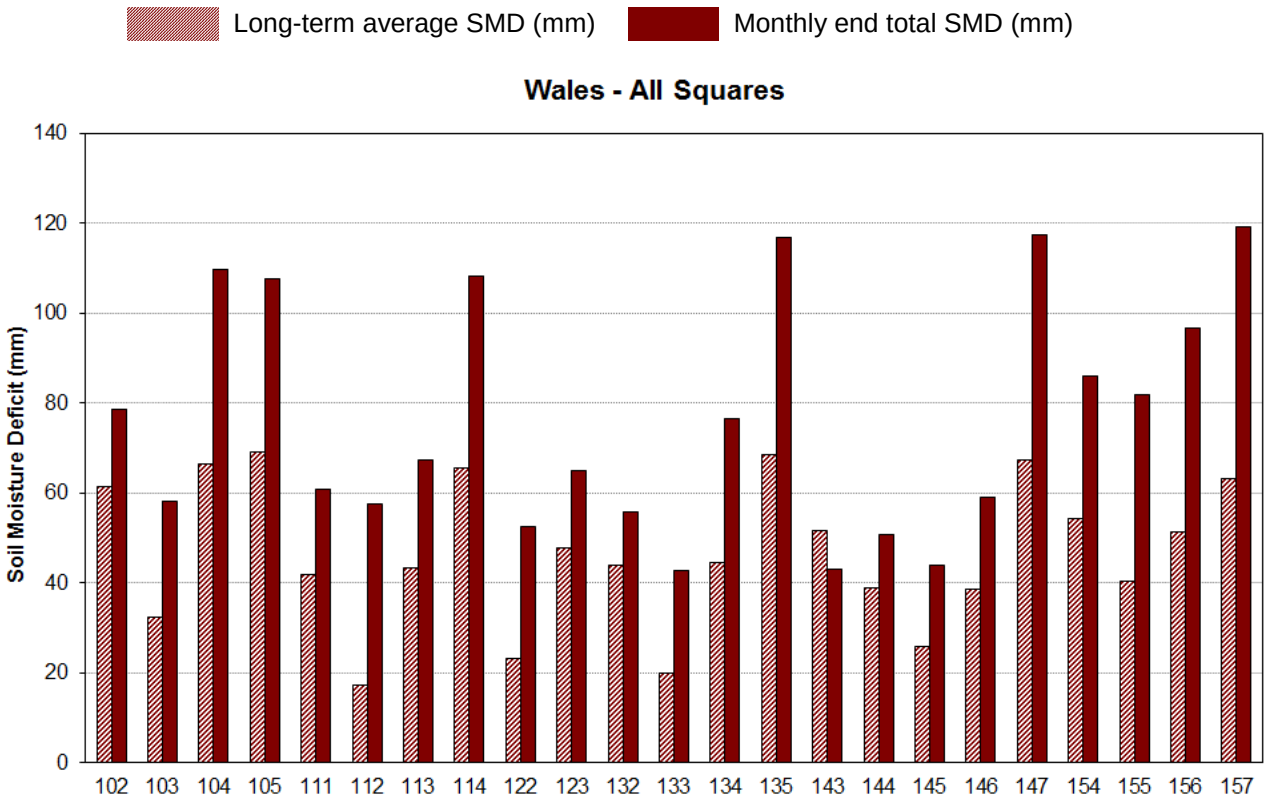

Figure 8: MORECS month end soil moisture deficits (mm) for real land use for Natural Resources Wales squares compared to the June 1961-90 long term monthly average (*Source: Met Office © Crown Copyright*).

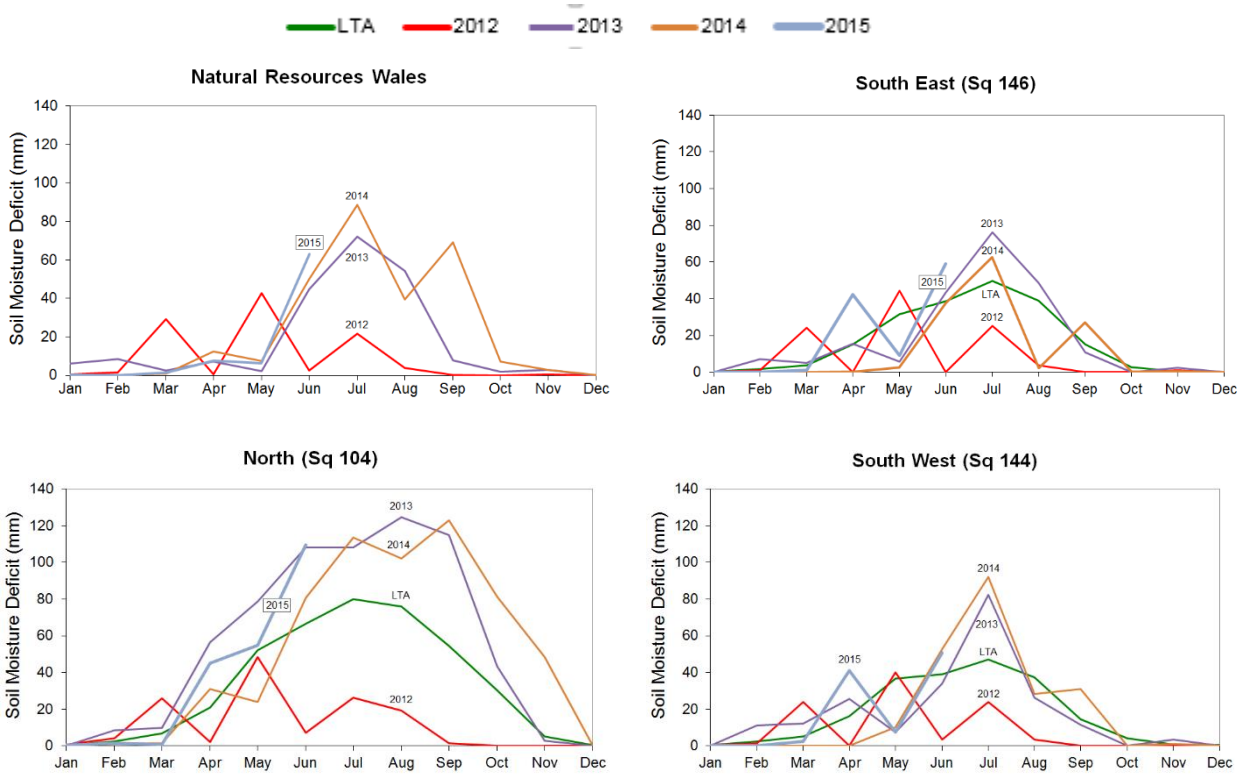

Figure 9: MORECS month end soil moisture deficits (mm) for real land use for Wales over the last four years and compared to the 1961-90 long term monthly average (*Source: Met Office © Crown Copyright*). *no LTA available for Natural Resources Wales

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River Flow

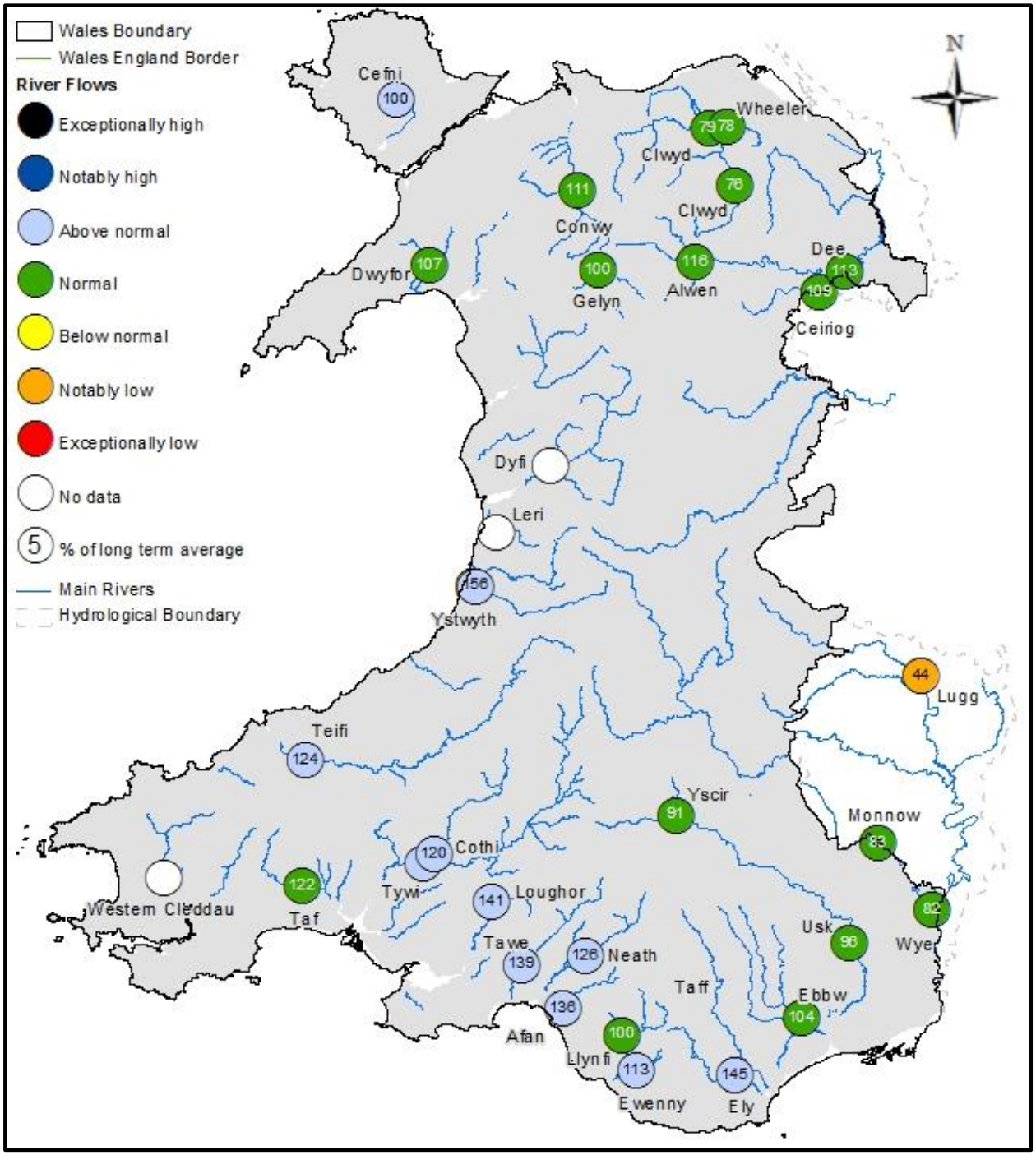

Figure 10: Monthly mean river flow for June, classed relative to analysis of historic June monthly means *(Source: Natural Resources Wales).*

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SITE NAME	RIVER	June 2015			June 2014		June 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	44	1.36	132	4.06	3.09	0.80	8.66
Grosmont	Monnow	Normal	83	2.31	209	5.30	2.78	0.67	8.75
Pont ar Yscir	Yscir	Normal	91	0.68	108	0.79	0.75	0.21	2.75
Pontypridd	Taff	Above normal	140	13.30	103	9.10	9.52	3.52	34.50
Redbrook	Wye	Normal	82	27.37	122	44.53	33.22	11.00	112.00
Rhiwderin	Ebbw	Normal	104	3.66	142	4.96	3.53	1.33	11.10
St Fagans	Ely	Above normal	145	2.83	176	3.24	1.95	0.66	5.92
Trostrey Weir	Usk	Normal	96	11.00	151	16.92	11.49	4.48	27.90
River Flow Sites : North Area									
Bodfari	Wheeler	Normal	78	0.40	87	0.45	0.51	0.26	1.04
Bodffordd	Cefni	Above normal	100	0.11	62	0.07	0.11	0.02	0.54
Brynkinalt Weir	Ceiriog	Normal	109	1.62	78	1.13	1.48	0.44	5.22
Cwmlanerch	Conwy	Normal	111	9.44	40	3.33	8.50	1.63	24.90
Cynefail	Gelyn	Normal	100	0.30	50	0.15	0.30	0.06	0.89
Dol y Bont	Leri						0.82	0.17	4.55
Druid	Alwen	Normal	116	2.28	136	2.67	1.97	0.52	4.89
Dyfi bridge	Dyfi						9.64	1.62	25.40
Garndolbenmaen	Dwyfor	Normal	107	1.48	50	0.67	1.38	0.31	5.01
Manley Hall	Dee	Normal	113	16.64	88	12.61	14.69	7.71	41.50
Pont y Cambwll	Clwyd	Normal	79	2.19	95	2.70	2.78	1.06	9.42
Ruthin Weir	Clwyd	Normal	76	0.41			0.54	0.13	2.19
River Flow Sites : South West Area									
Capel Dewi	Tywi	Above normal	131	20.76	92	14.16	15.87	3.74	61.20
Clog y Fran	Taf	Normal	122	3.57	97	2.73	2.93	0.78	9.41
Coytrahen	Llynfi	Normal	100	1.24	76	0.93	1.24	0.37	4.33
Felin Mynachdy	Cothi	Above normal	120	5.63	78	3.54	4.70	0.80	18.70
Glanteifi	Teifi	Above normal	124	14.99	113	13.05	12.06	2.97	52.00
Keepers Lodge	Ewenny	Above normal	113	1.03	122	1.09	0.91	0.41	2.00
Marcroft	Afan	Above normal	136	4.05			2.97	0.75	8.79
Pont Llolwyn	Ystwyth	Above normal	156	4.17	59	1.47	2.68	0.62	14.90
Prendergast Mill	Western Cleddau						2.85	0.95	10.20
Resolven	Neath	Above normal	126	5.61	88	3.75	4.47	0.57	14.30
Tir-y-Dail	Loughor	Above normal	141	1.38	98	0.96	0.98	0.30	2.98
Ynystanglws	Tawe	Above normal	139	8.10	87	5.12	5.81	1.35	19.60

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

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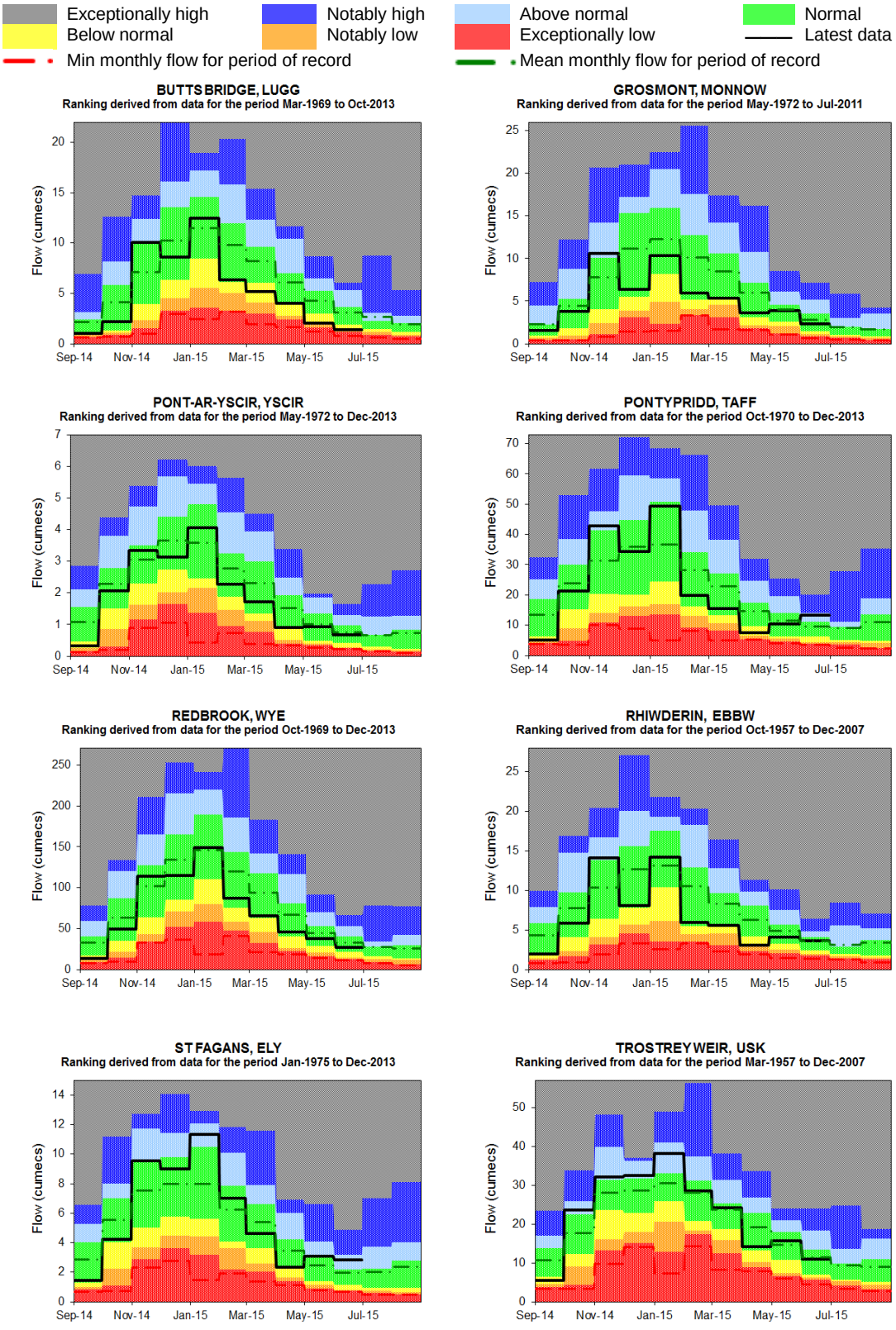
River Flow Charts

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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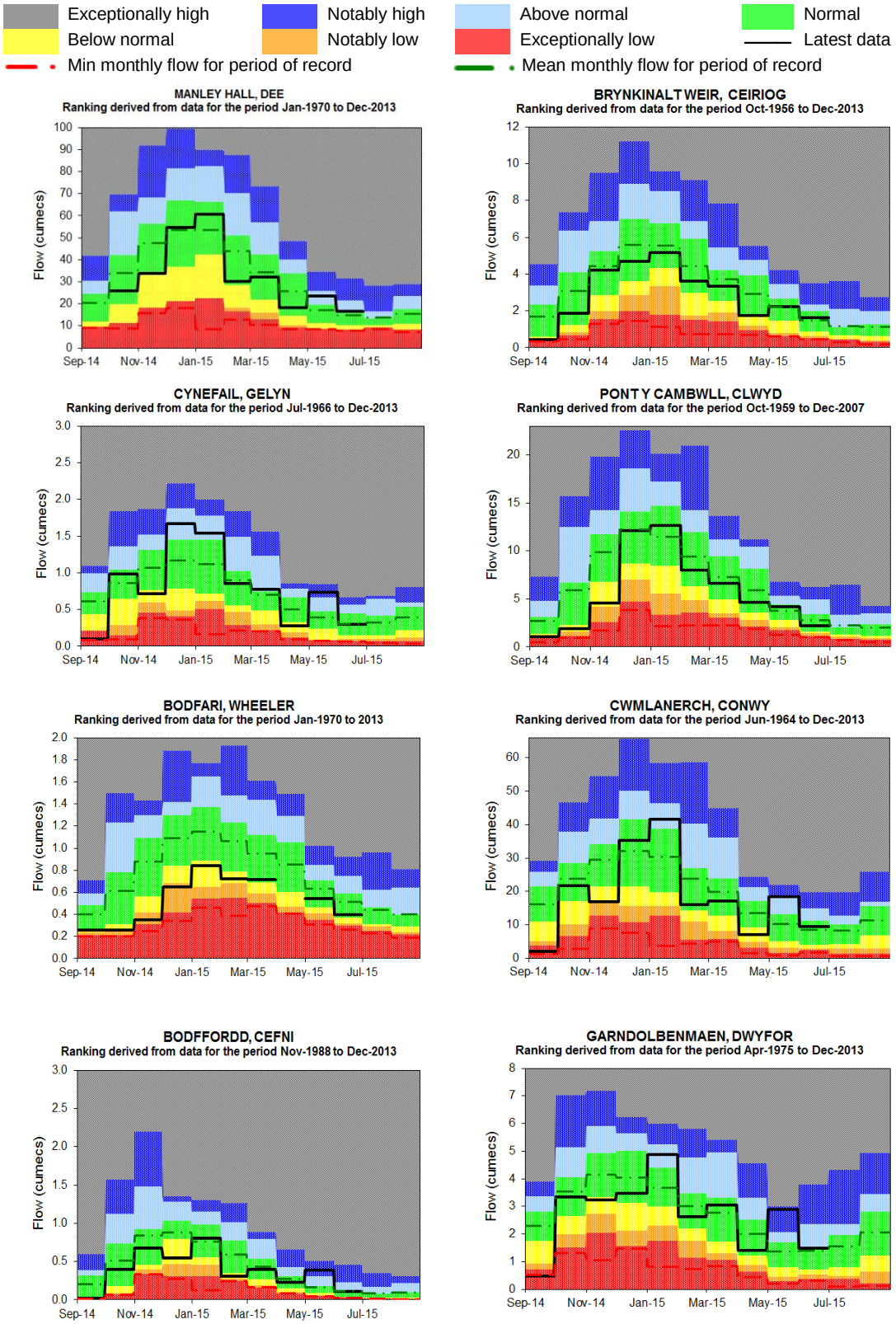
Figure 13: River Flow Charts: North Wales



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

(Pleae note that there were no data for Dolybont in the river Leri and Dyfi Bridge in the river Dyfi.)

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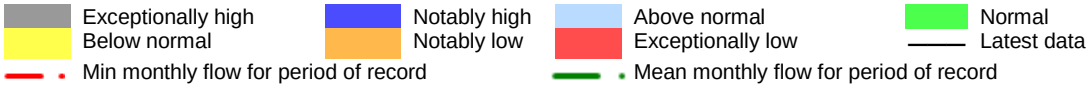
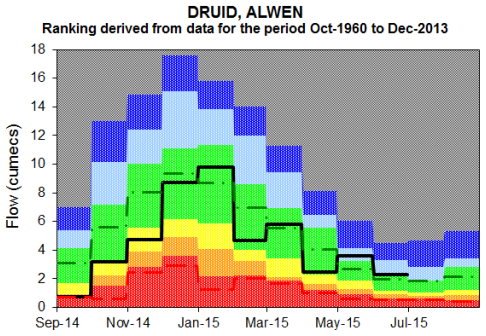




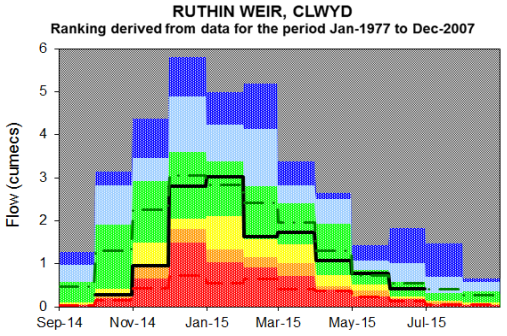
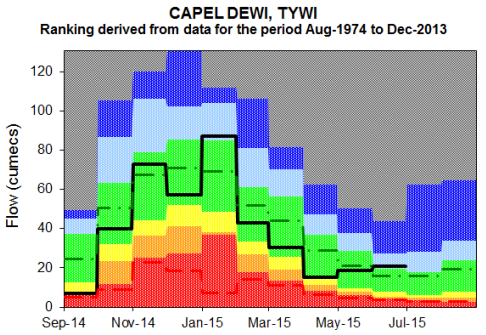
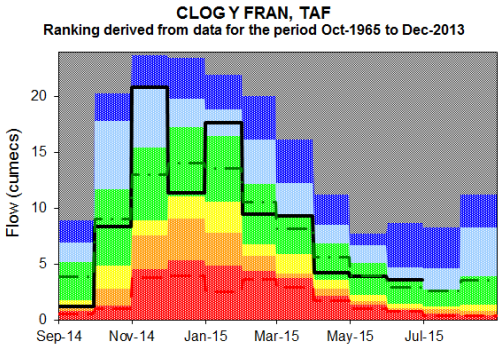
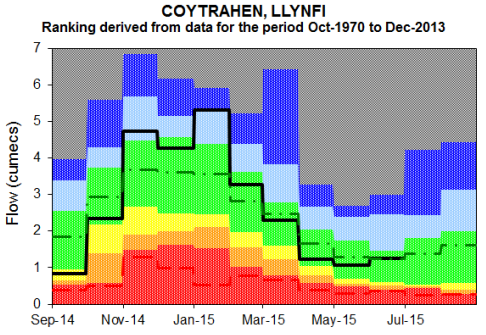
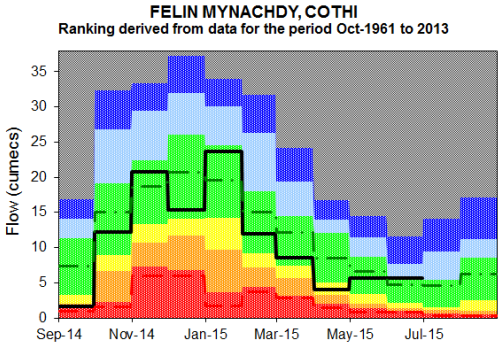


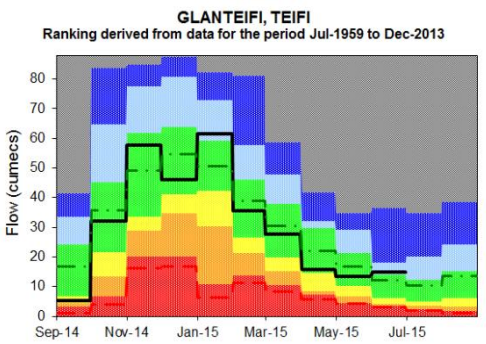
Figure 14: River Flow Charts: South West Wales

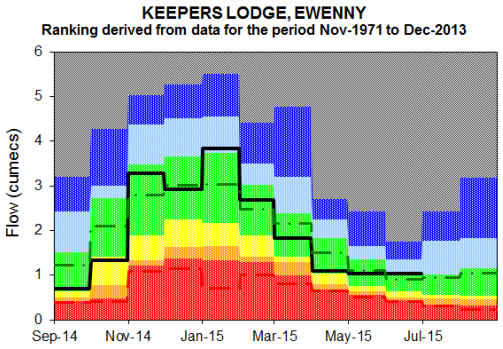












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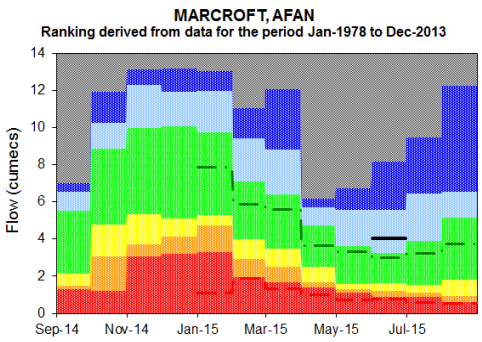

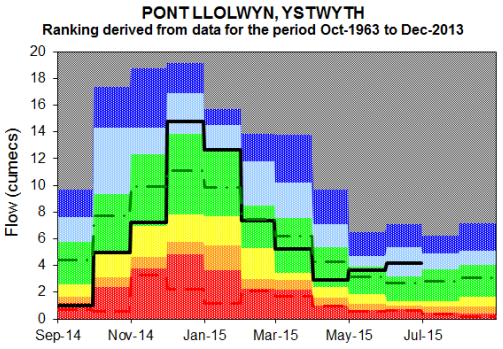

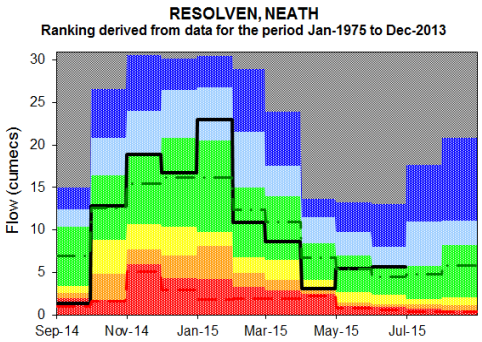

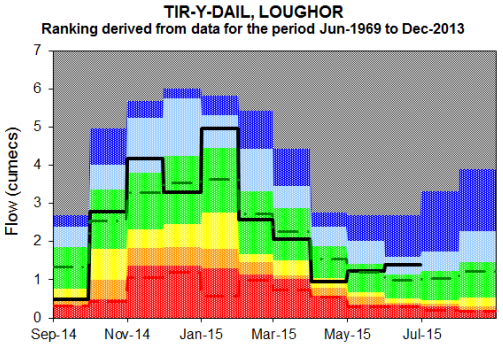

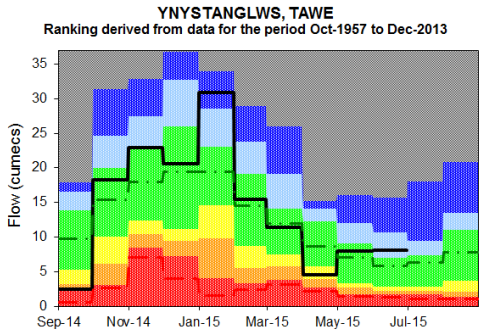

Monthly mean river flows for the last 10 months classed relative to the analysis of historic river levels. *(Source: Natural Resources Wales).* (please note that there was no data available pre-June 2015 for the site of Marcroft in the river Afan.)

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Groundwater Levels

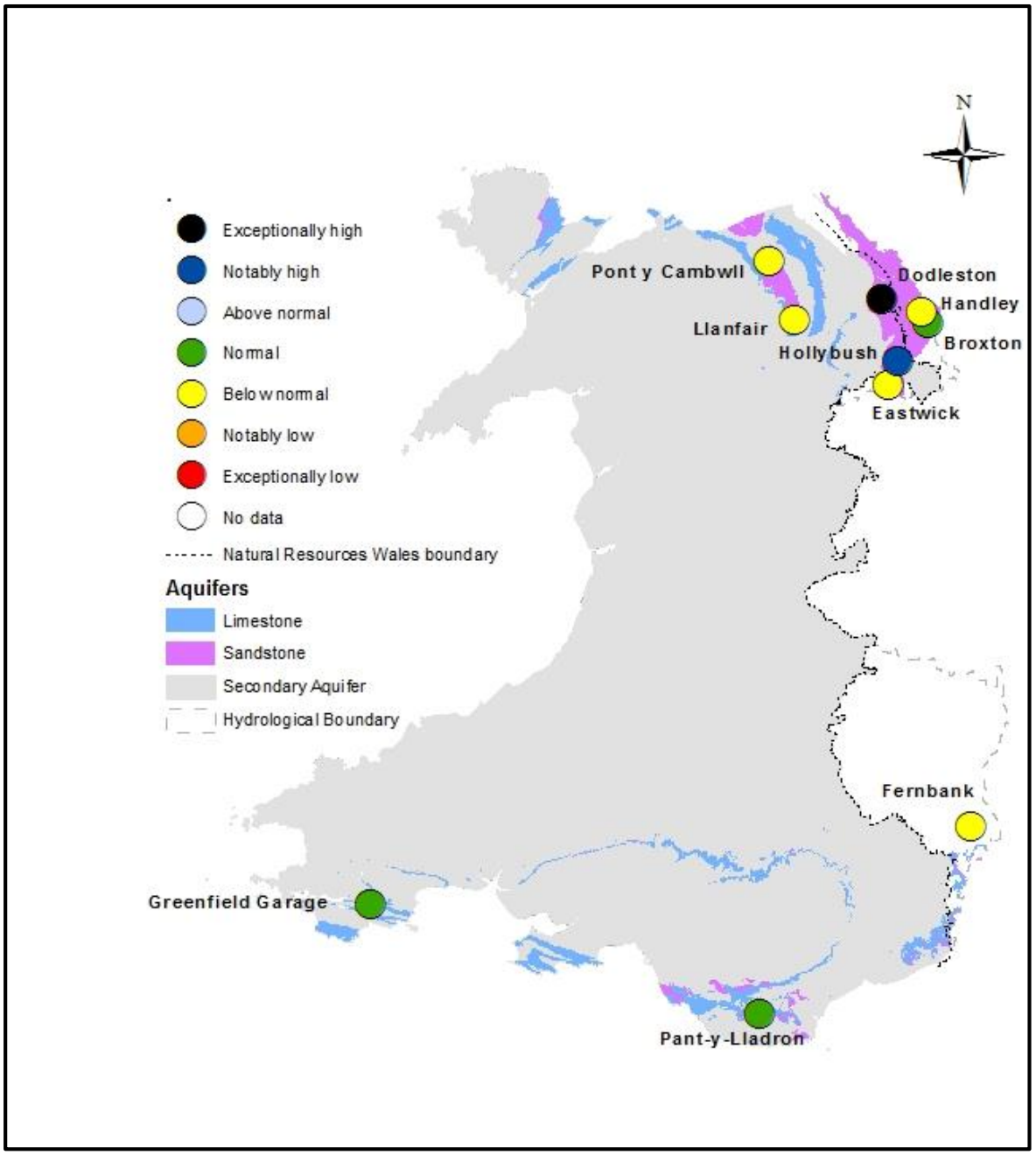

Figure 15: Groundwater levels at the end of month classed relative to an analysis of historic June groundwater levels *(Source: Natural Resources Wales and Environment Agency).*

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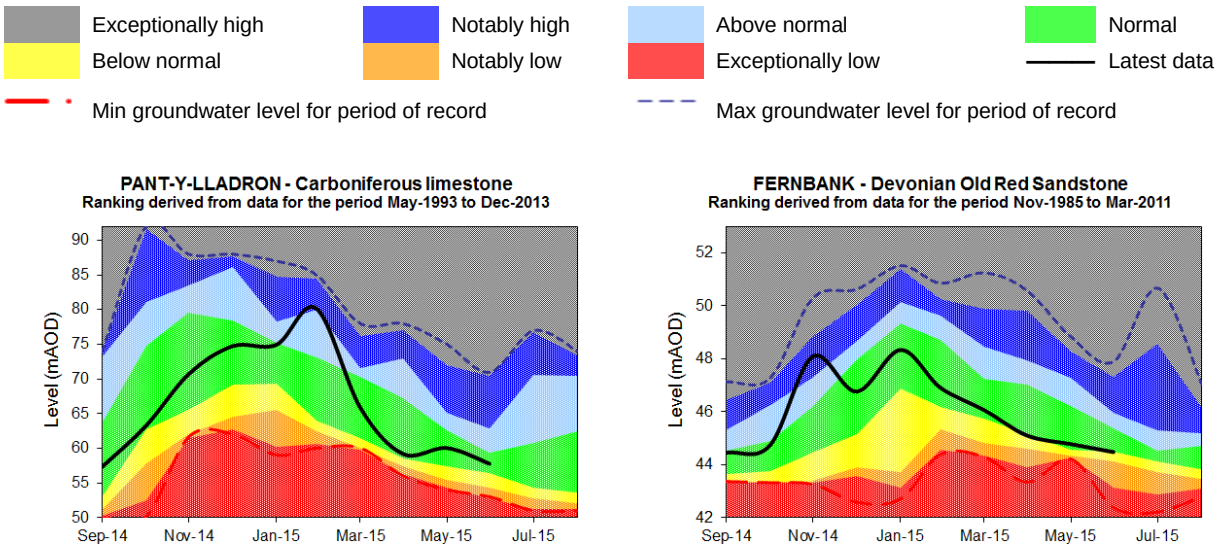
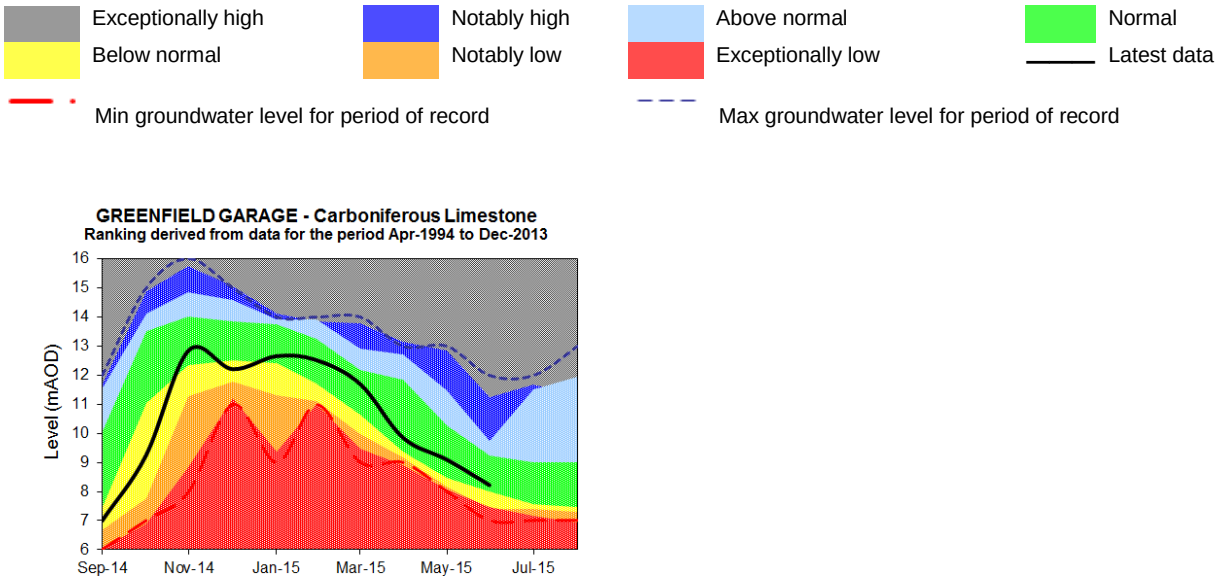
Groundwater charts

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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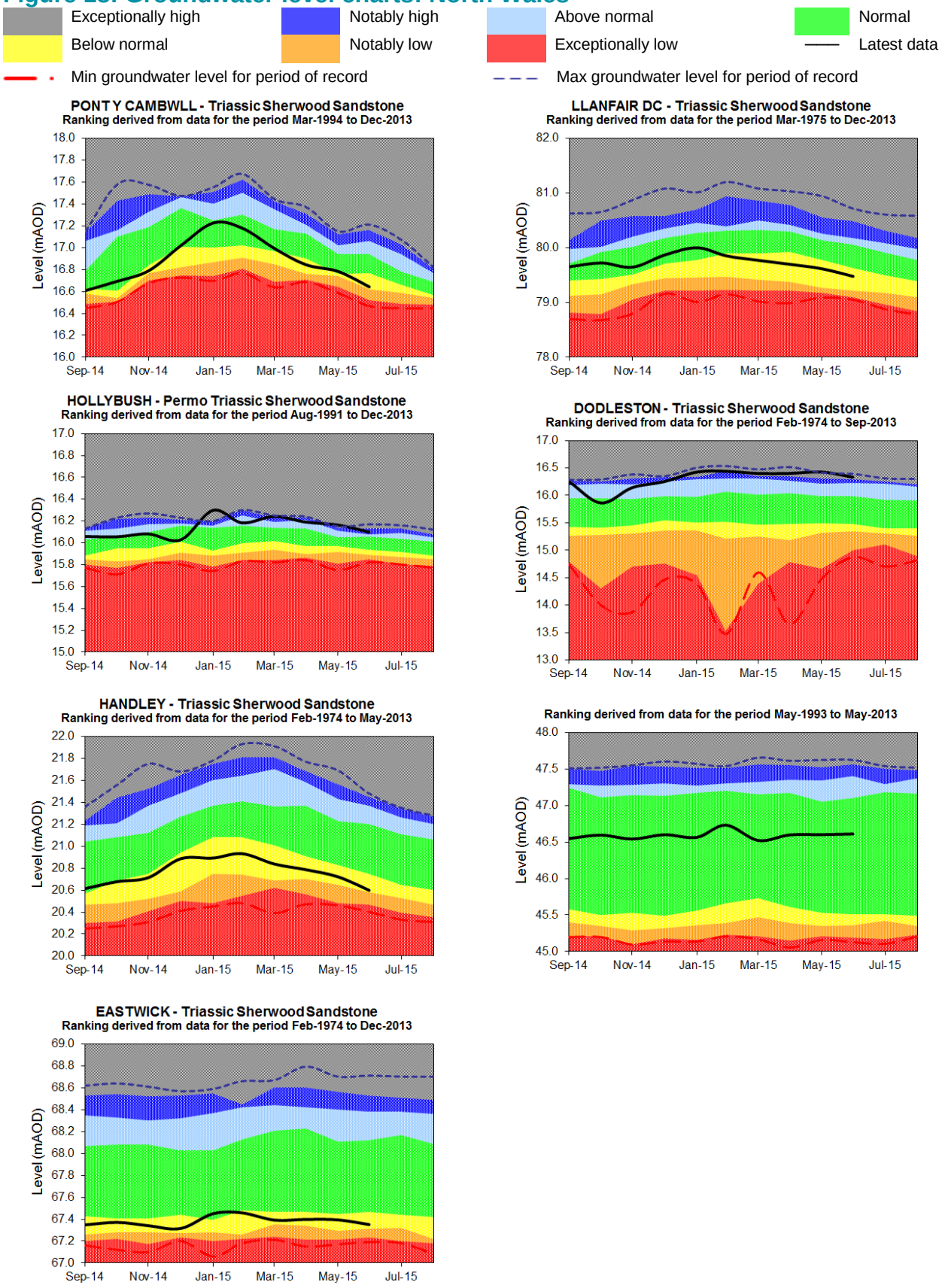
Figure 18: Groundwater level charts: North Wales



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

All data are provisional and may be subject to revision.

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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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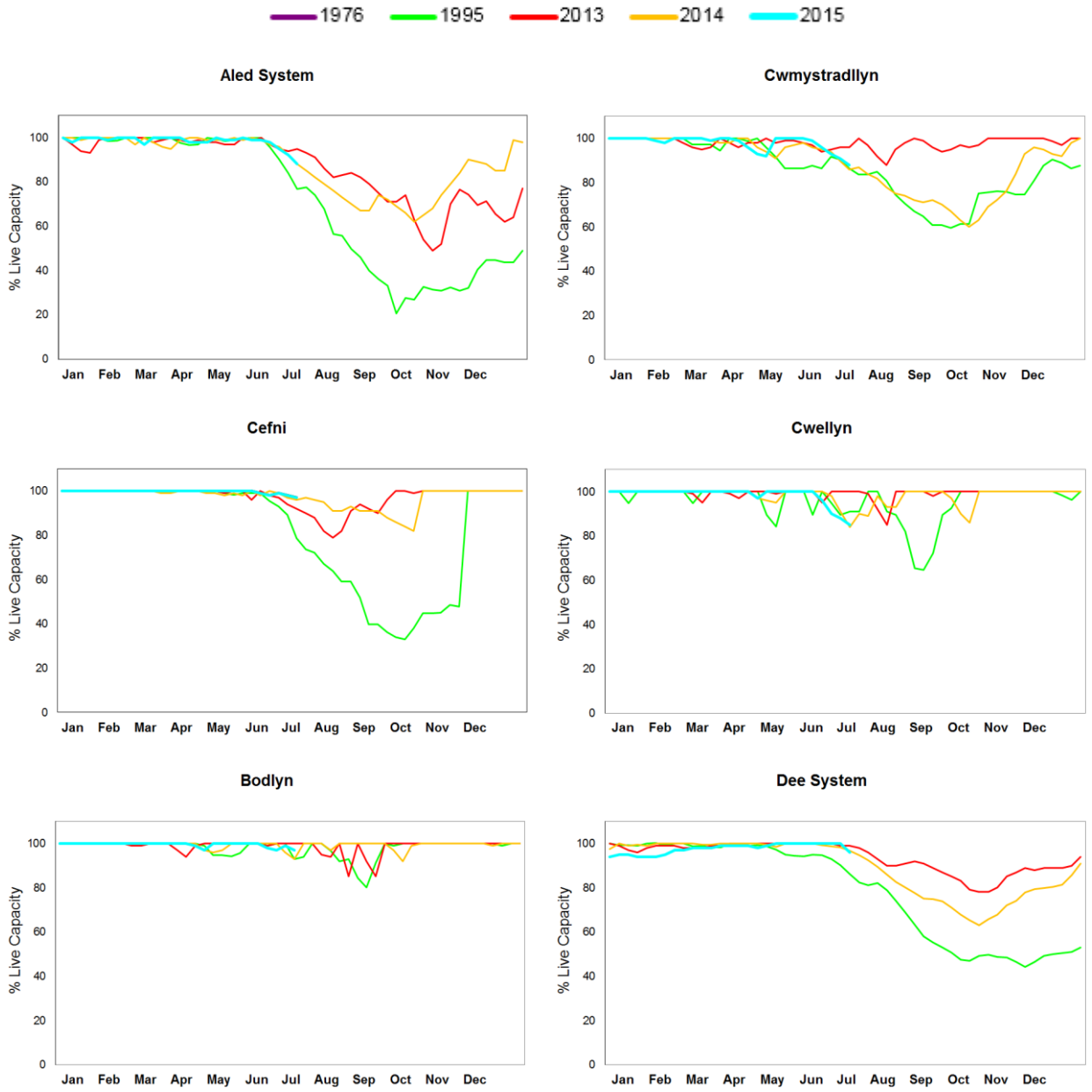
Figure 20: Reservoirs charts: North Wales



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

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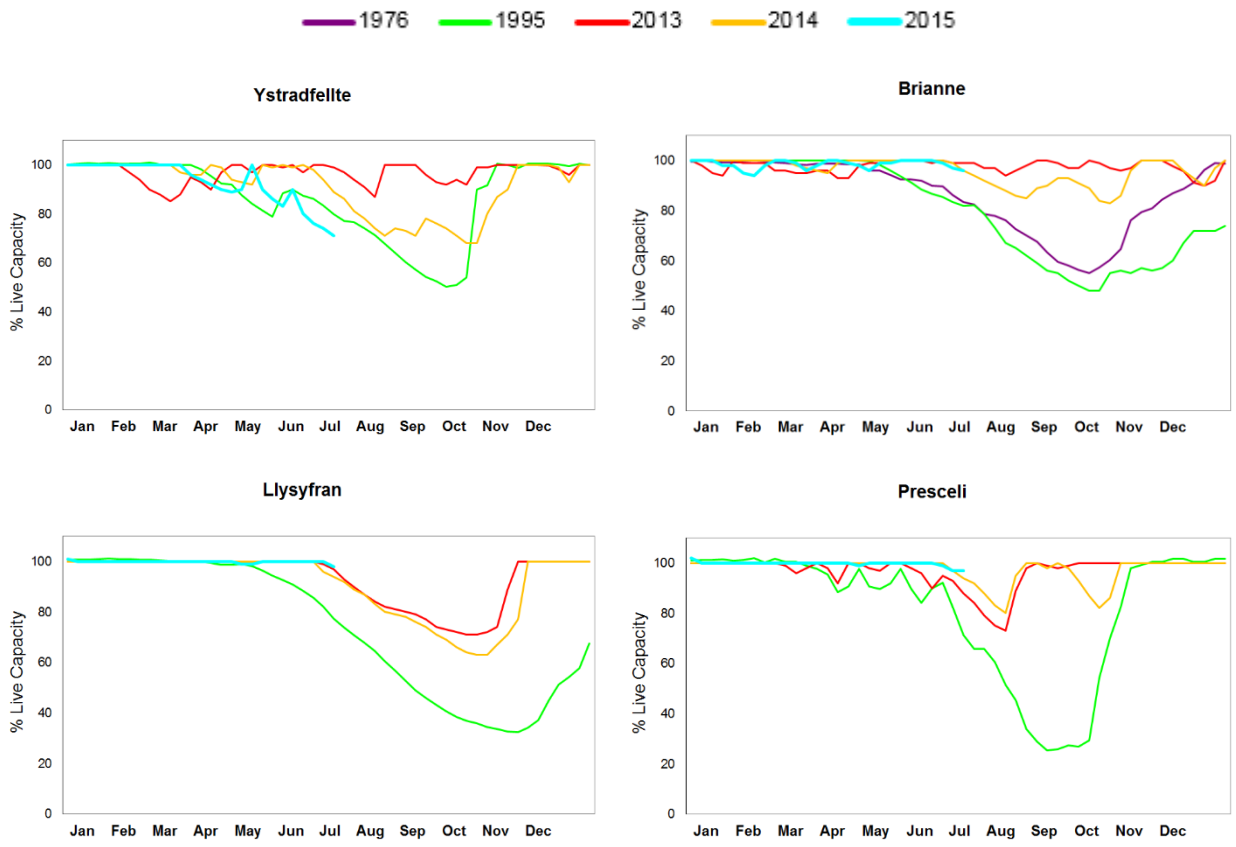
Figure 21: Reservoirs charts: South West Wales



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).