

# Monthly mean river flows simulated by the Grid-to-Grid hydrological model

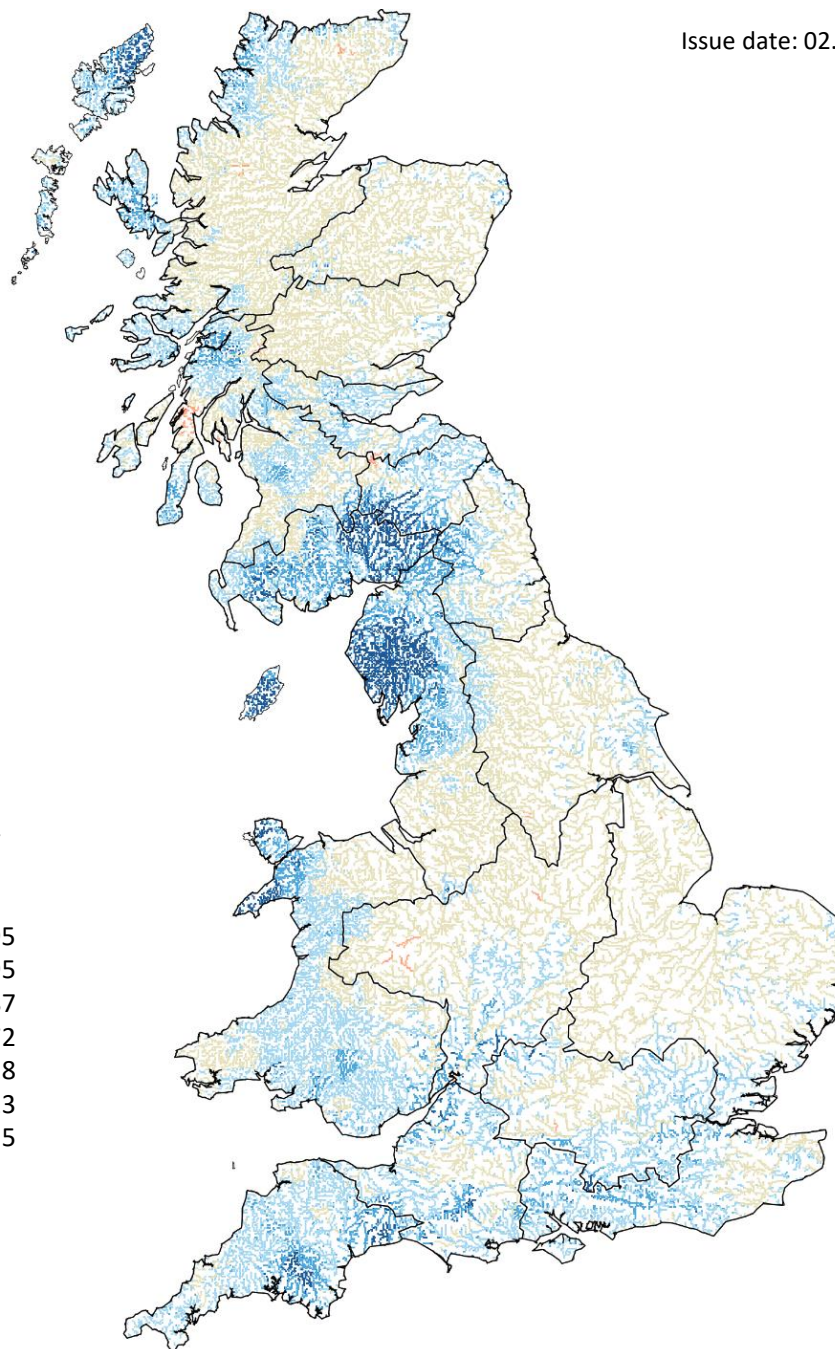
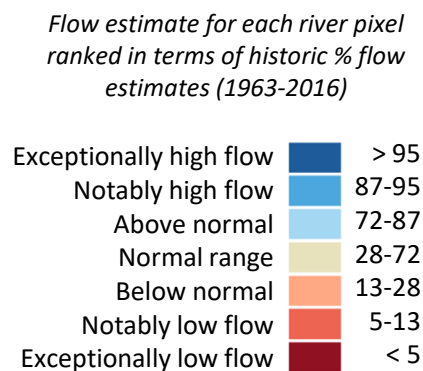
Period: October 2021

Issue date: 02.11.2021

This map shows the simulated monthly mean flow across Great Britain for last month, ranked in terms of 54 years of historical flow estimates (1963 – 2016).

These flows are produced by the 1km resolution Grid-to-Grid (G2G) hydrological model, which is run up to the end of each calendar month using observed rainfall and MORECS potential evaporation as input.

Note that the G2G model provides estimates of natural flows.



# Current Daily Simulated Subsurface Water Storage Conditions

Based on subsurface water storage estimated for 31<sup>st</sup> October 2021

Issue date: 02.11.2021

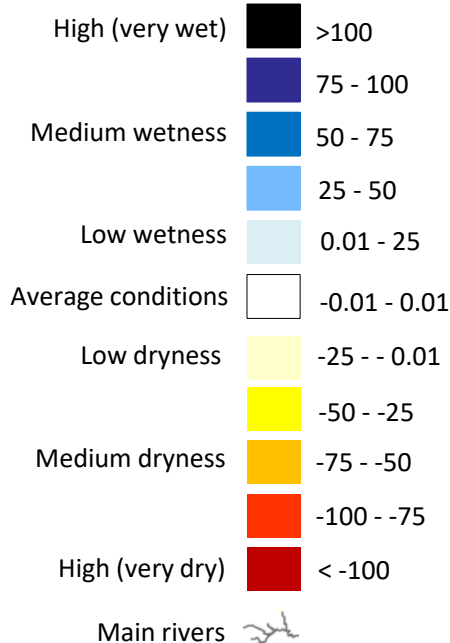
These maps are based on Grid-to-Grid (G2G) hydrological model simulated subsurface water storage, expressed as an anomaly from the historical monthly mean. To highlight areas that are particularly wet or dry, the storage anomaly is presented here using a colour scale highlighting water storage relative to historical extremes. The maps below show the “relative wetness” which combines maps previously shown separately as the “relative wetness” and “relative dryness”.

These maps do not provide a forecast and are not maps of soil moisture. Instead they indicate areas which are particularly wet or dry. Rainfall in areas with high positive relative wetness could result in flooding in the coming days/weeks. Areas of negative relative wetness provide an indication of locations which are particularly dry, and little or no rain in these areas could potentially lead to (or prolong) a drought.

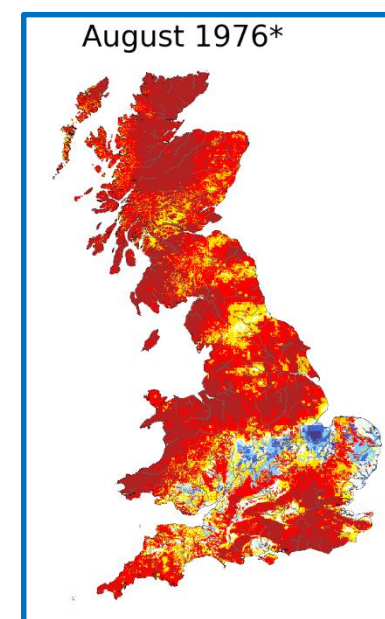
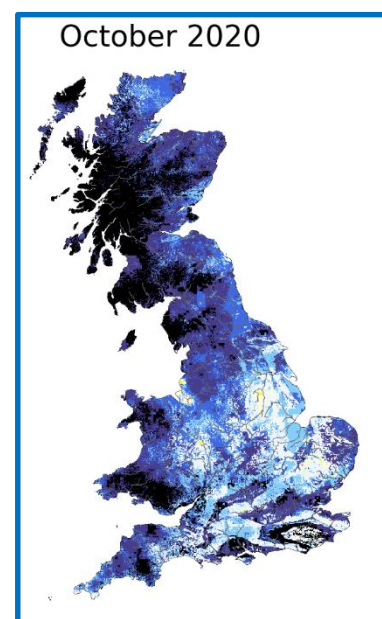
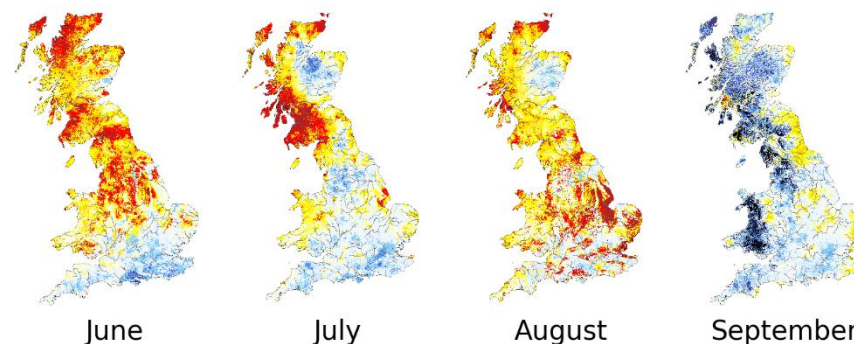
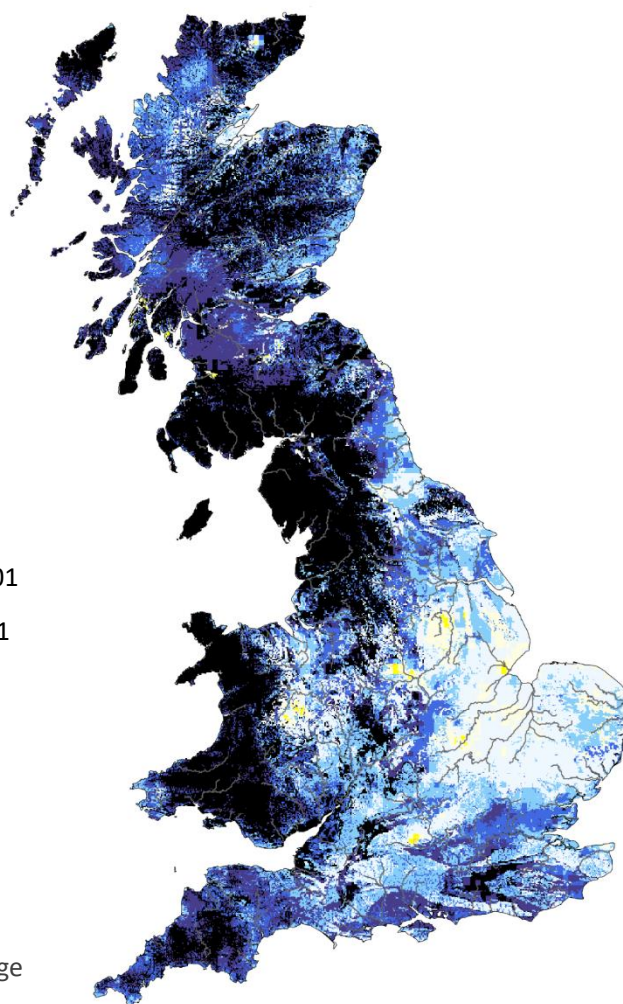
**SUMMARY:** At the end of October, subsurface water levels were normal (average) in much of Anglian Region. Elsewhere, subsurface water levels were higher (wetter) than normal.

## Relative wetness

Water storage anomaly as a % of maximum (positive wetness) or minimum (negative wetness) storage anomaly (zero indicates average value)



Labels refer to estimated storage on *final day* of named month



\*Example month displaying extreme negative wetness

November 2021



# Return Period of Rainfall Required to Overcome Dry Conditions

Period: November 2021 – April 2022

Issue date: 02.11.2021

These maps show the **return period** of the rainfall required to overcome dry conditions simulated using the Grid-to-Grid (G2G) hydrological model. The maps are coloured according to the return period of accumulated rainfall required to overcome the estimated current subsurface water storage deficit over the next few months.

These maps do not provide a drought forecast. Instead they indicate the return period of rainfall required to overcome the dry conditions for the following 6 months based on current conditions.

**SUMMARY:** During November to April, Great Britain will not require particularly unusual rainfall (<5 year return periods) to return to average conditions for the time of year.



## SCOTLAND

HR Highlands Region  
NER North East Region  
TR Tay Region  
FR Forth Region  
CR Clyde Region  
TWR Tweed Region  
SR Solway Region

## ENGLAND

N Northumbria  
NW North West  
Y Yorkshire  
ST Severn Trent  
A Anglian  
T Thames  
S Southern  
W Wessex  
SW South West








## WALES

WEL Welsh



## NORTHERN IRELAND

This method cannot currently be used in Northern Ireland

Rainfall amount / Probability		Return period (years)	
Low (this rain is likely to occur)	> 20%		< 5
	< 20%		5 - 10
	< 10%		10 - 25
	< 4%		25 - 50
High (less likely)	< 2%		50 - 100
	< 1%		100 - 200
Extreme (unlikely but still possible)	< 0.5%		> 200

# Estimate of Additional Rainfall Required to Overcome Dry Conditions

Based on subsurface water storage estimated for 31<sup>st</sup> October 2021

Issue date: 02.11.2021

These maps show the Grid-to-Grid (G2G) hydrological model simulated subsurface water storage, expressed as an anomaly from the historical monthly mean (1981-2010), presented on a 1km grid and as regional means.

**Subsurface storage deficits**, i.e. where the subsurface water storage anomaly is less than zero, are highlighted by the red/pink colours.

The **subsurface storage deficit (mm)** can be interpreted as an estimate of additional rainfall that would be required in future months to overcome dry conditions (i.e. rainfall in addition to what is expected on average). Regional mean values of additional rainfall required are provided in the table below.

Regional estimate of additional  
rainfall required (mm)

## SCOTLAND

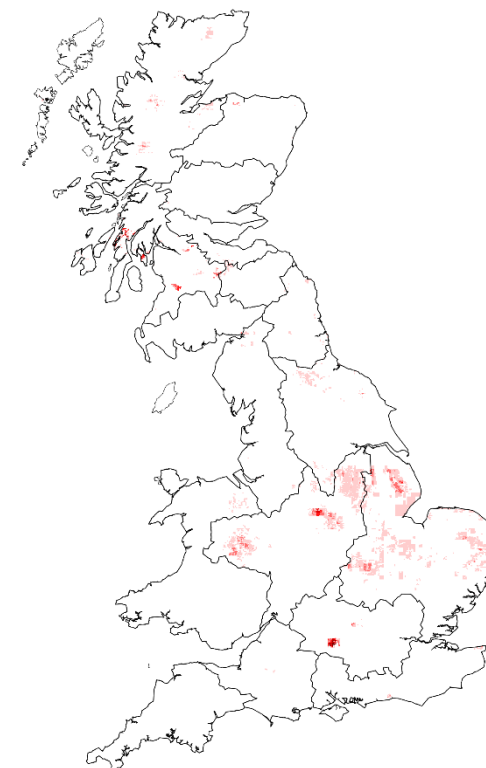
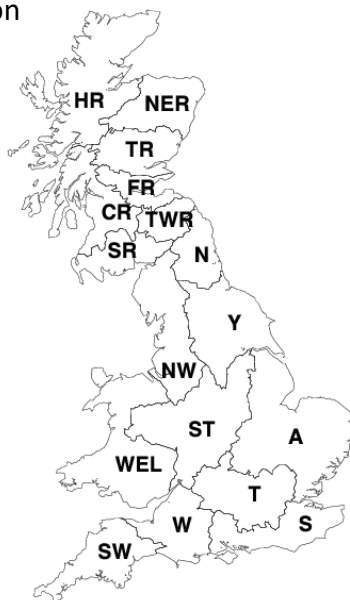
0	HR	Highlands Region
0	NER	North East Region
0	TR	Tay Region
0	FR	Forth Region
0	CR	Clyde Region
0	TWR	Tweed Region
0	SR	Solway Region

## ENGLAND

0	N	Northumbria
0	NW	North West
0	Y	Yorkshire
0	ST	Severn Trent
0	A	Anglian
0	T	Thames
0	W	Wessex
0	S	Southern
0	SW	South West

## WALES

0	WEL	Welsh
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Water storage deficit  
(anomaly, mm)

