



## UK Hydrometry

*WMO RA VI Hydrology Forum*

*Koblenz 8-10 May 2012*

**Ann Calver**

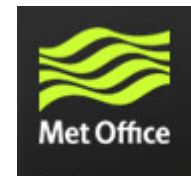
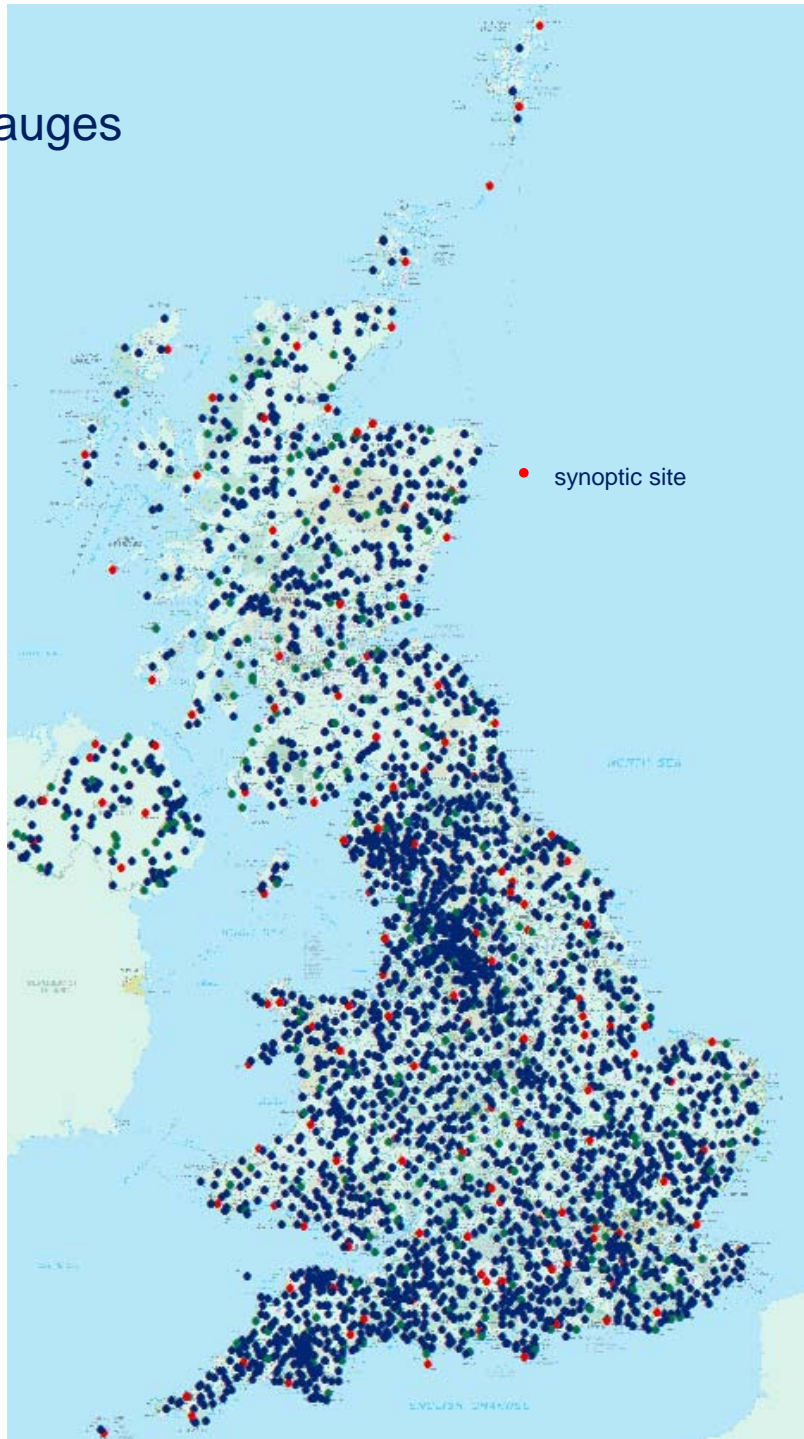
*(UK hydrological adviser & Commission  
for Hydrology advisory group member)*

**Harry Dixon**

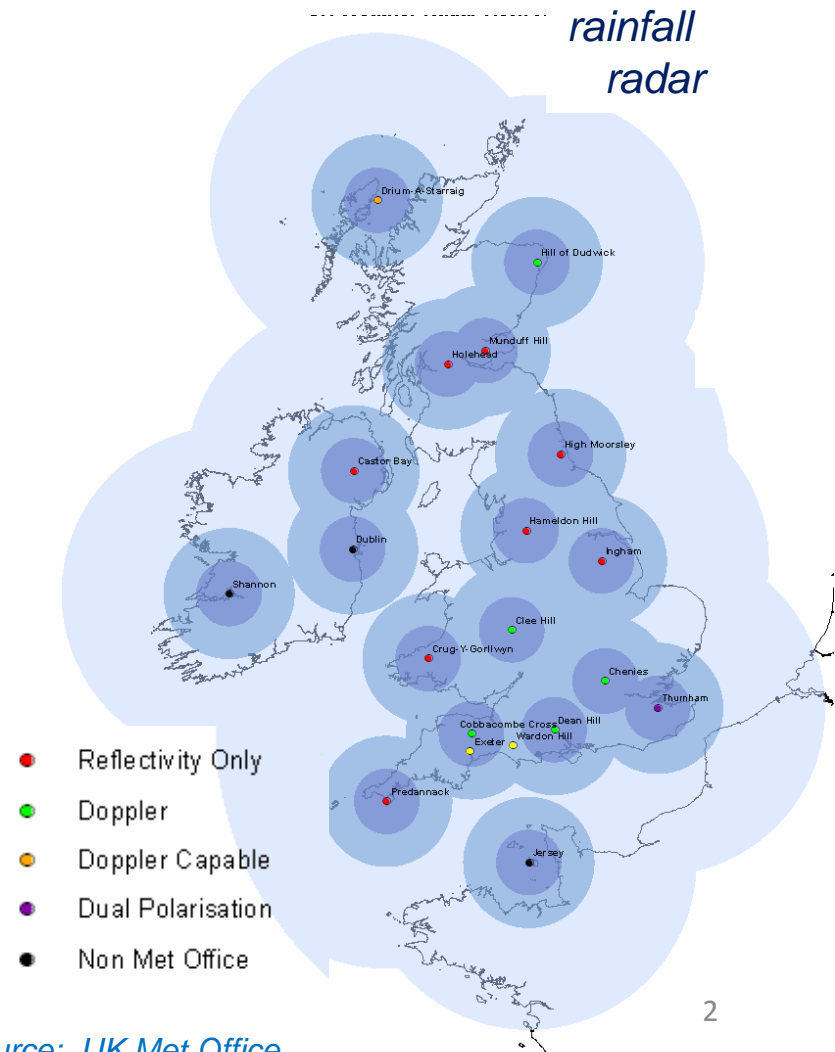
*(National Water Archive)*



# Raingauges



## rainfall radar



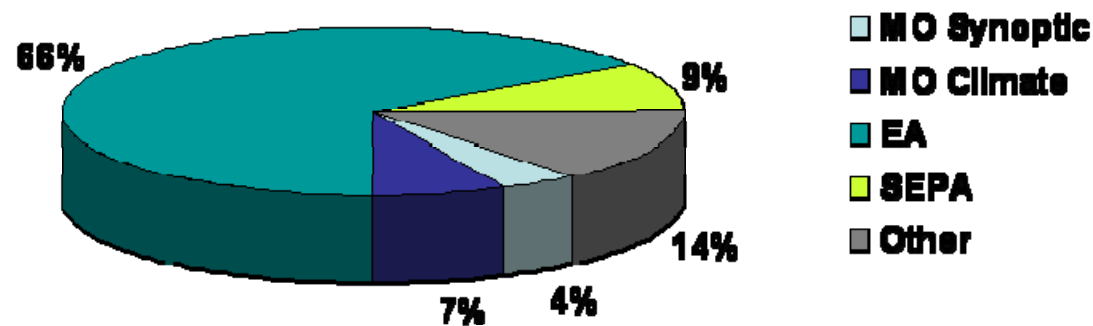
source: UK Met Office

## Raingauge densities

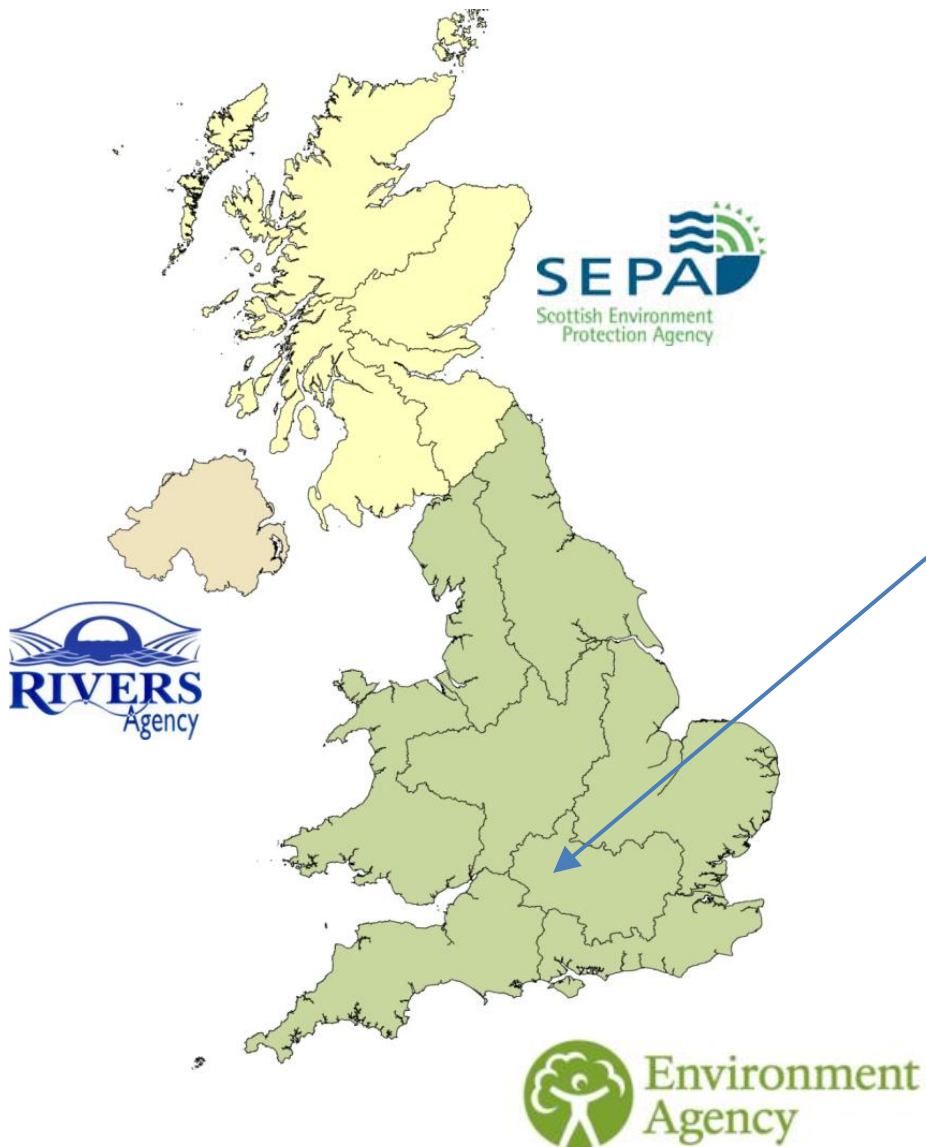
	unique locations	average area per gauge (km <sup>2</sup> )
UK	3214	76
England	2169	60
Scotland	601	130
Wales	277	75
Northern Ireland	142	96



## Partners with Met Office in raingauge network



## UK river flow gauging authorities



## Data archiving & guidance material

### National Water Archive Wallingford

#### National River Flow Archive



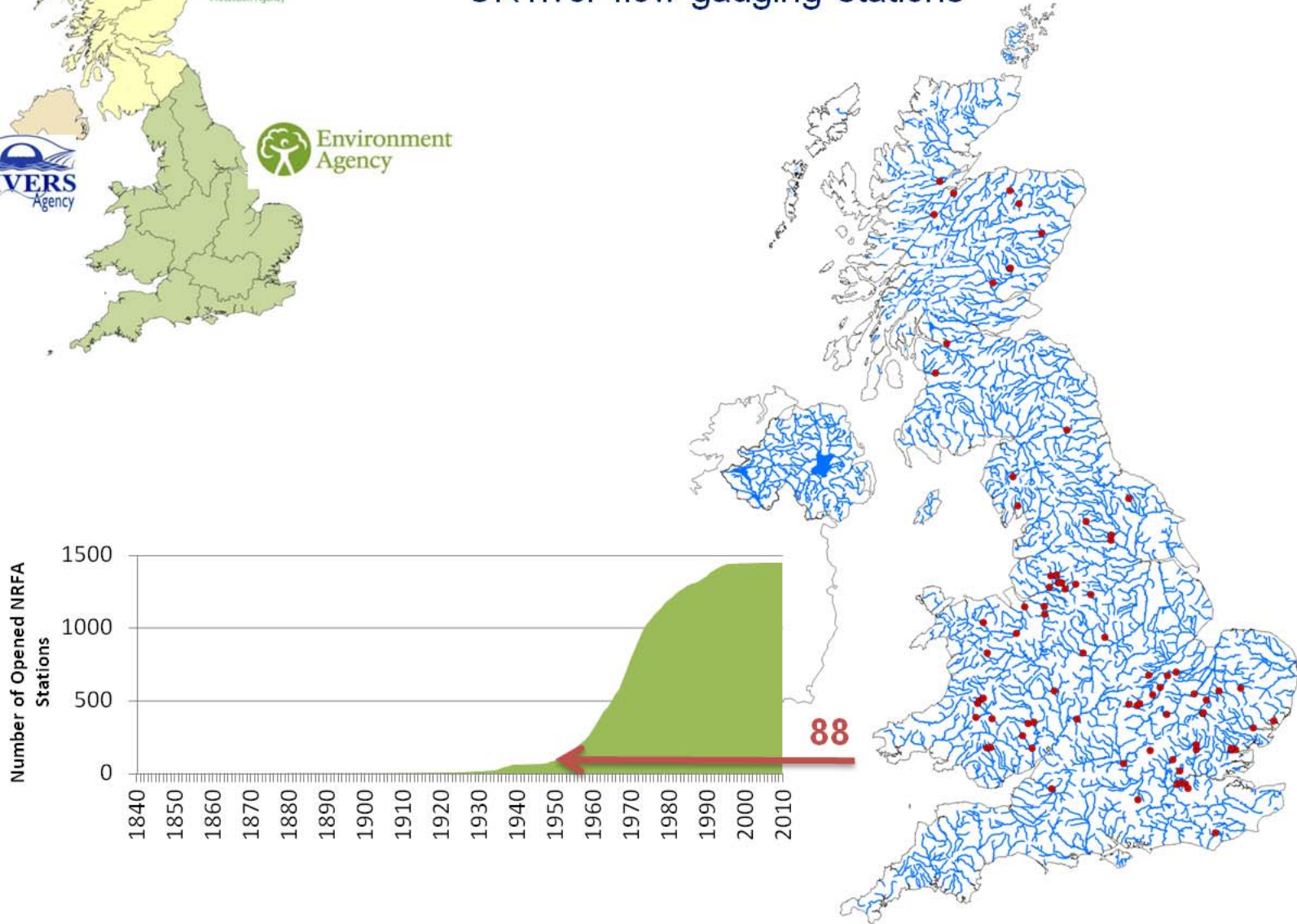
#### National Groundwater Level Archive







## UK river flow gauging stations

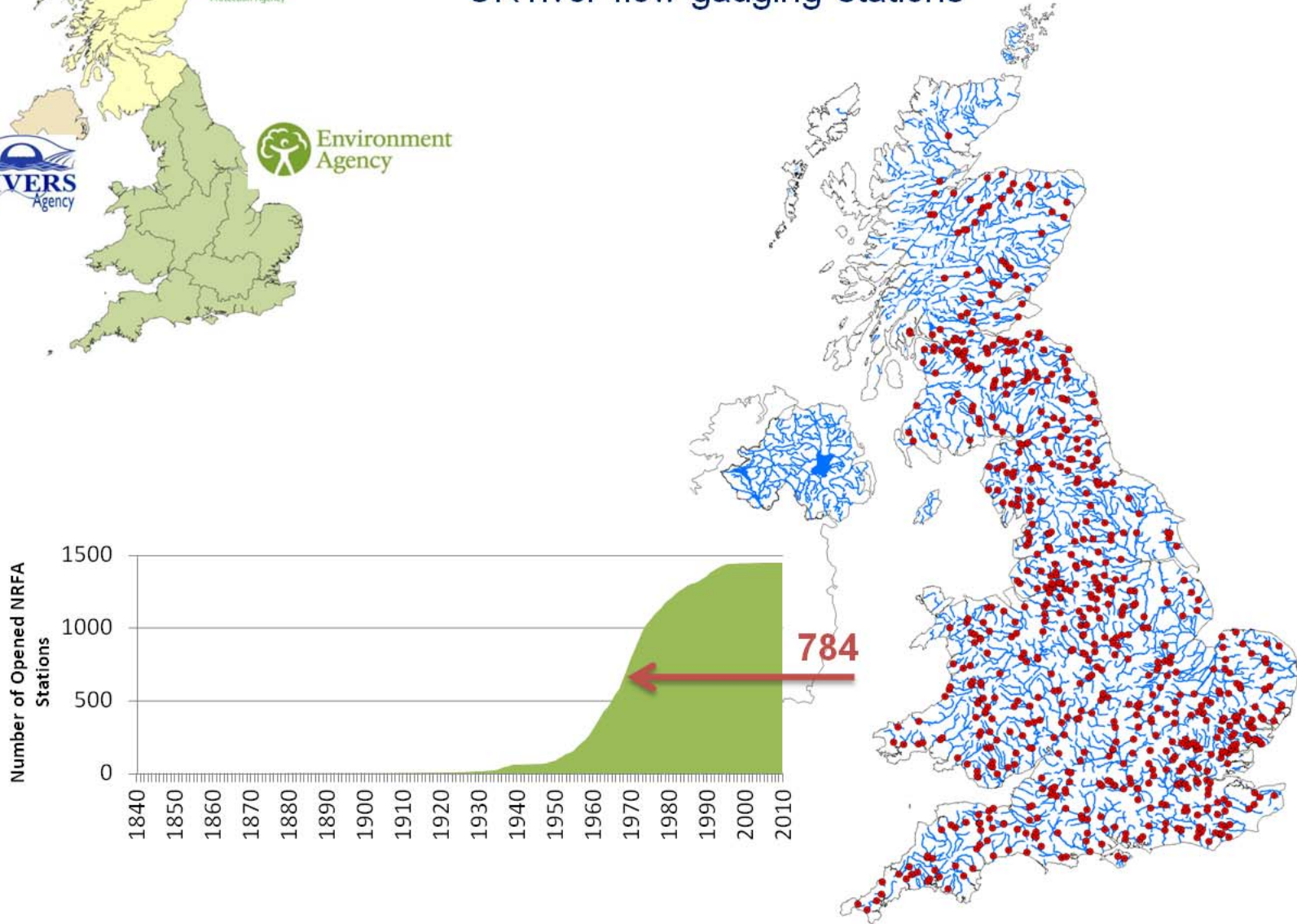


source: National Water Archive, Wallingford

1950



## UK river flow gauging stations

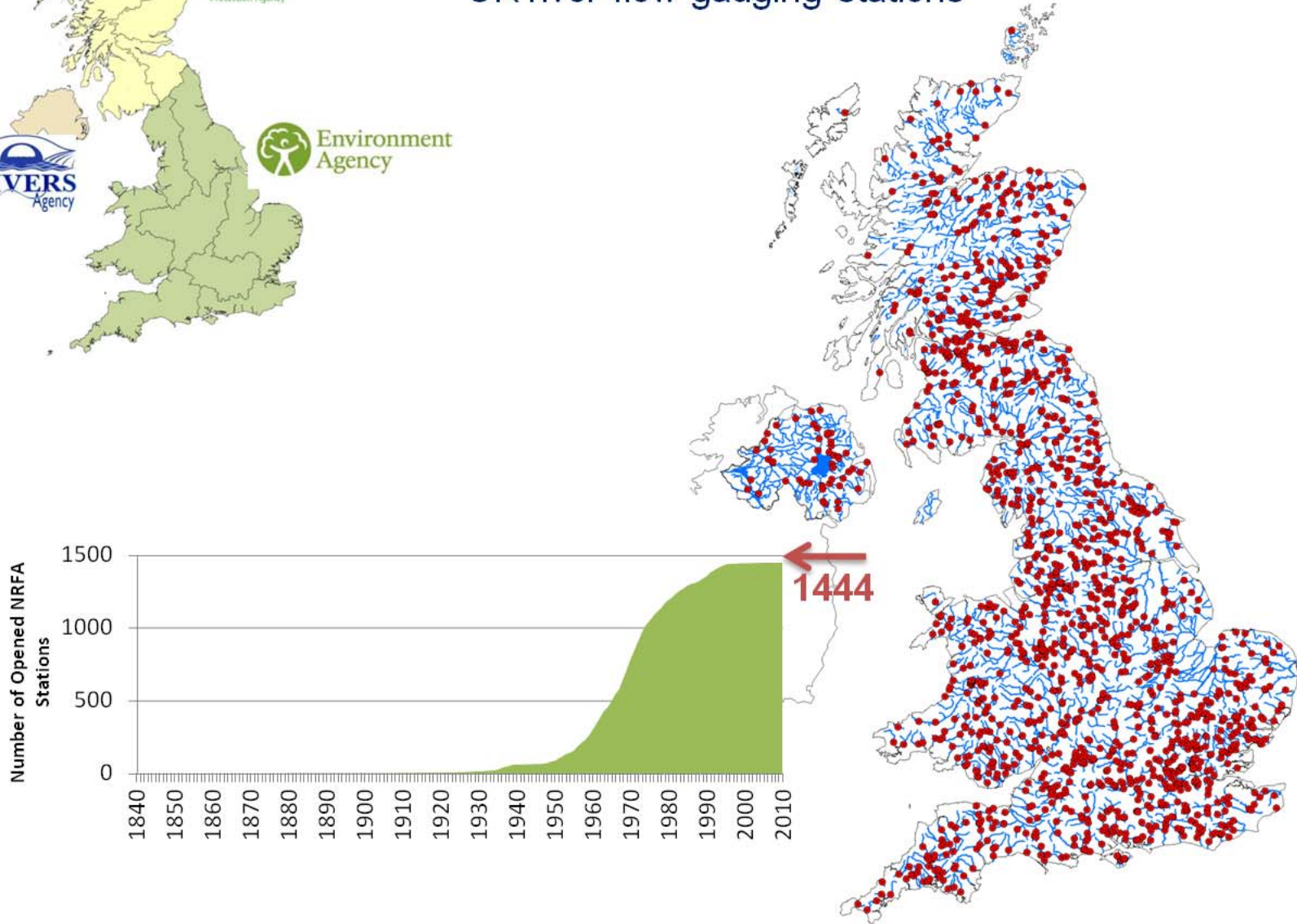


source: National Water Archive, Wallingford

1970



## UK river flow gauging stations



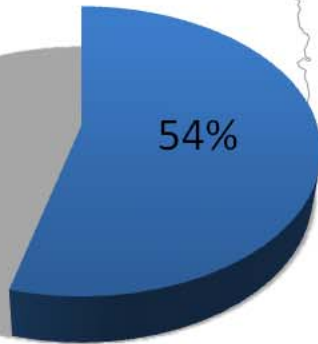
source: National Water Archive, Wallingford

2010

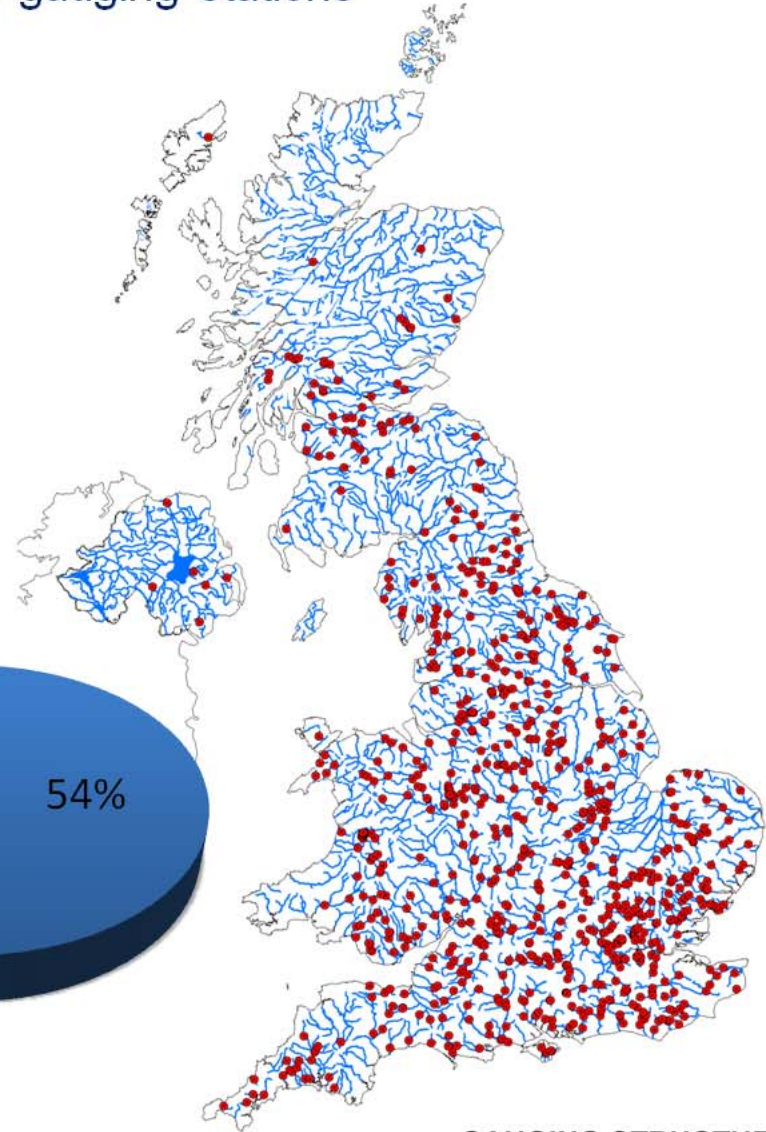




## UK river flow gauging stations



■ Gauging Structure



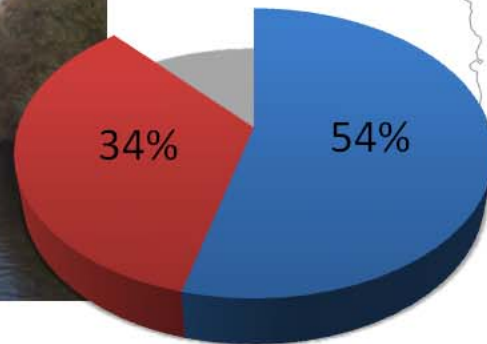
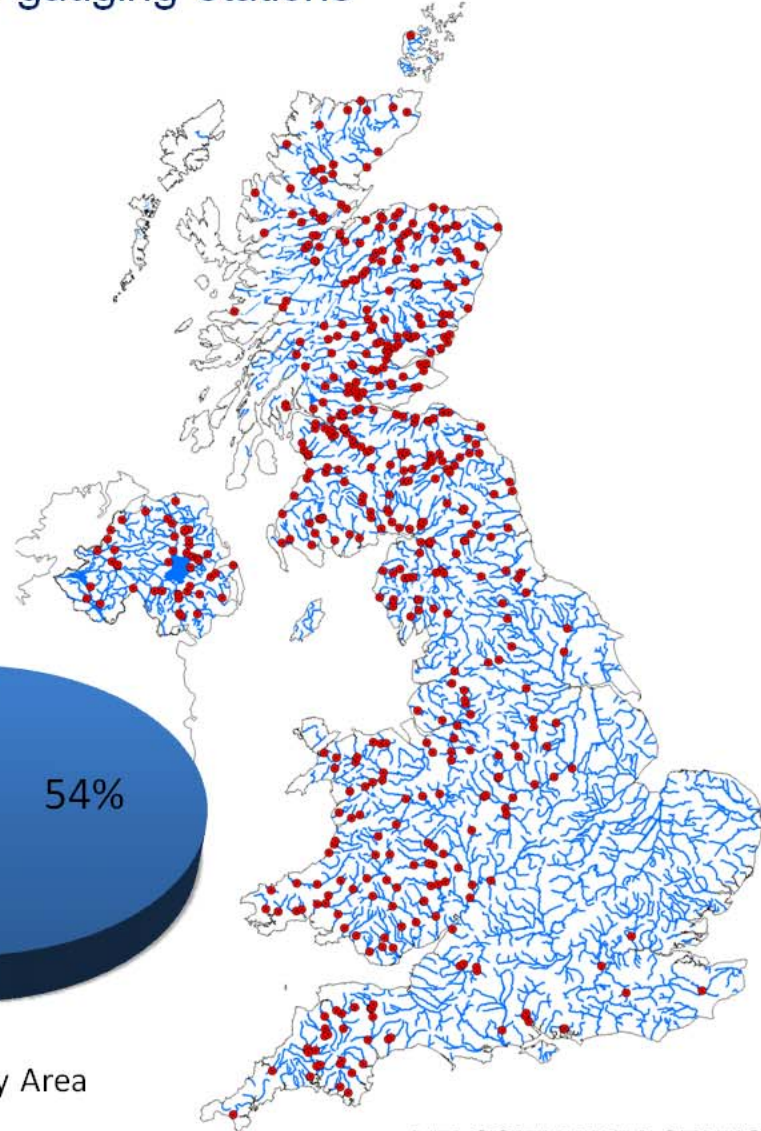
**GAUGING STRUCTURES**

source: National Water Archive, Wallingford





## UK river flow gauging stations



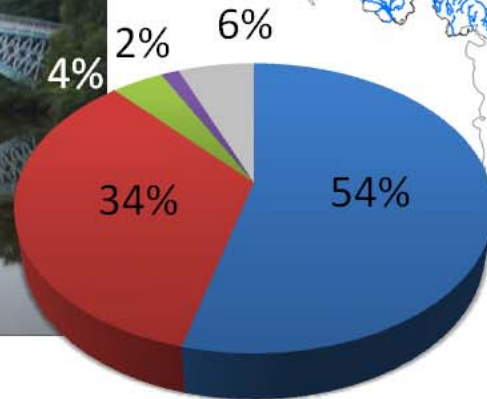
■ Gauging Structure ■ Velocity Area

**VELOCITY-AREA STATIONS**

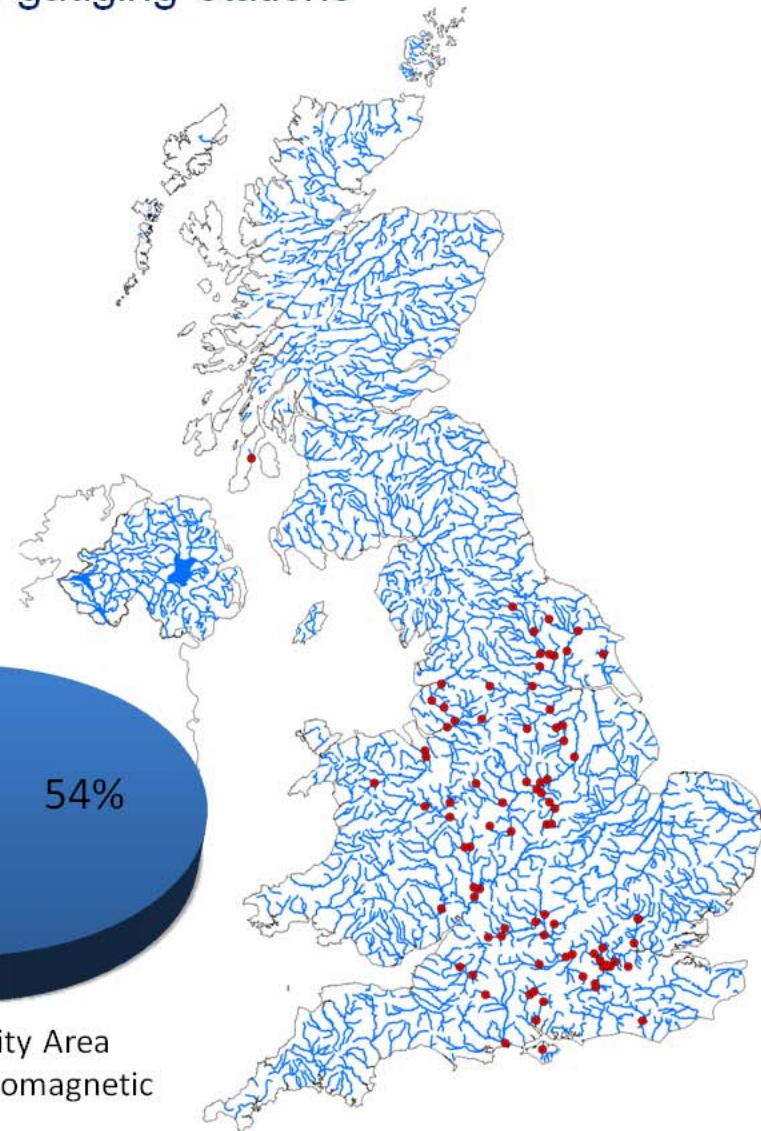
source: National Water Archive, Wallingford



## UK river flow gauging stations



- Gauging Structure
- Velocity Area
- Ultrasonic
- Electromagnetic
- Miscellaneous



**ULTRASONIC OR ELECTROMAGNETIC STATIONS**

source: National Water Archive, Wallingford



# River flow data retrieval

<http://www.ceh.ac.uk/data/nrfa/index.htm>

**National River Flow Archive Home Page**

Search for NRFA data

Search by regional maps

NRFA Data Holdings

NRFA Data Retrieval

National Hydrological Monitoring Programme

Hydrometry in the UK

NRFA Publications

Long records

Contacts

### National River Flow Archive: Search for gauging stations

Search by map / gazeteer

**Zoom in to find NRFA gauging stations**  
(Use the mouse wheel, or the control in the top-left corner of the map)

Or enter a UK place name in the text box below and click "Search..." to search the gazeteer.

Search for location:

18 stations found.

Red dots show indicative station location only.

Click on the station number to access station and catchment information and, where available, download river flow data.

**Stations displayed**

No.	River	Location	Area (km <sup>2</sup> )	Data period	Download
<a href="#">35001</a>	Gipping	Constantine Weir	310.8	1964-1996	N
<a href="#">35002</a>	Deben	Naunton Hall	163.1	1964-2010	N
<a href="#">35003</a>	Alde	Farnham	63.9	1961-2010	N
<a href="#">35004</a>	Ore	Beversham Bridge	54.9	1965-2010	N
<a href="#">35008</a>	Gipping	Stowmarket	128.9	1964-2010	Y
<a href="#">35010</a>	Gipping	Bramford	298.0	1969-2010	N
<a href="#">35014</a>	Mill River	Newbourn	27.1	1948-1969	N
<a href="#">36001</a>	Stour	Stratford St Mary	844.3	1928-1992	N
<a href="#">36003</a>	Box	Polstead	53.9	1960-2010	Y
<a href="#">36005</a>	Brett	Hadleigh	156.0	1962-2010	N
<a href="#">36006</a>	Stour	Langham	578.0	1962-2010	Y
<a href="#">36013</a>	Brett	Higham	195.0	1971-2009	N
<a href="#">37021</a>	Roman	Bounstead Bridge	52.6	1970-2005	N
<a href="#">37022</a>	Holland Brook	Thorpe le Soken	54.9	1970-2010	N
<a href="#">37026</a>	Tenpenny Brook	Tenpenny Bridge	29.0	1961-1976	N
<a href="#">37027</a>	Sixpenny Brook	Ship House Bridge	5.1	1960-1971	N
<a href="#">37028</a>	Bentley Brook	Saltwater Bridge	12.1	1960-1976	N
<a href="#">37029</a>	St Osyth Brook	Main Road Bridge	8.0	1960-1976	N

A map is provided to allow gauging stations to be located, and for contextual location information. click below to turn this map off if download speeds for your internet connection cause this page to run too slowly.

Show background map?

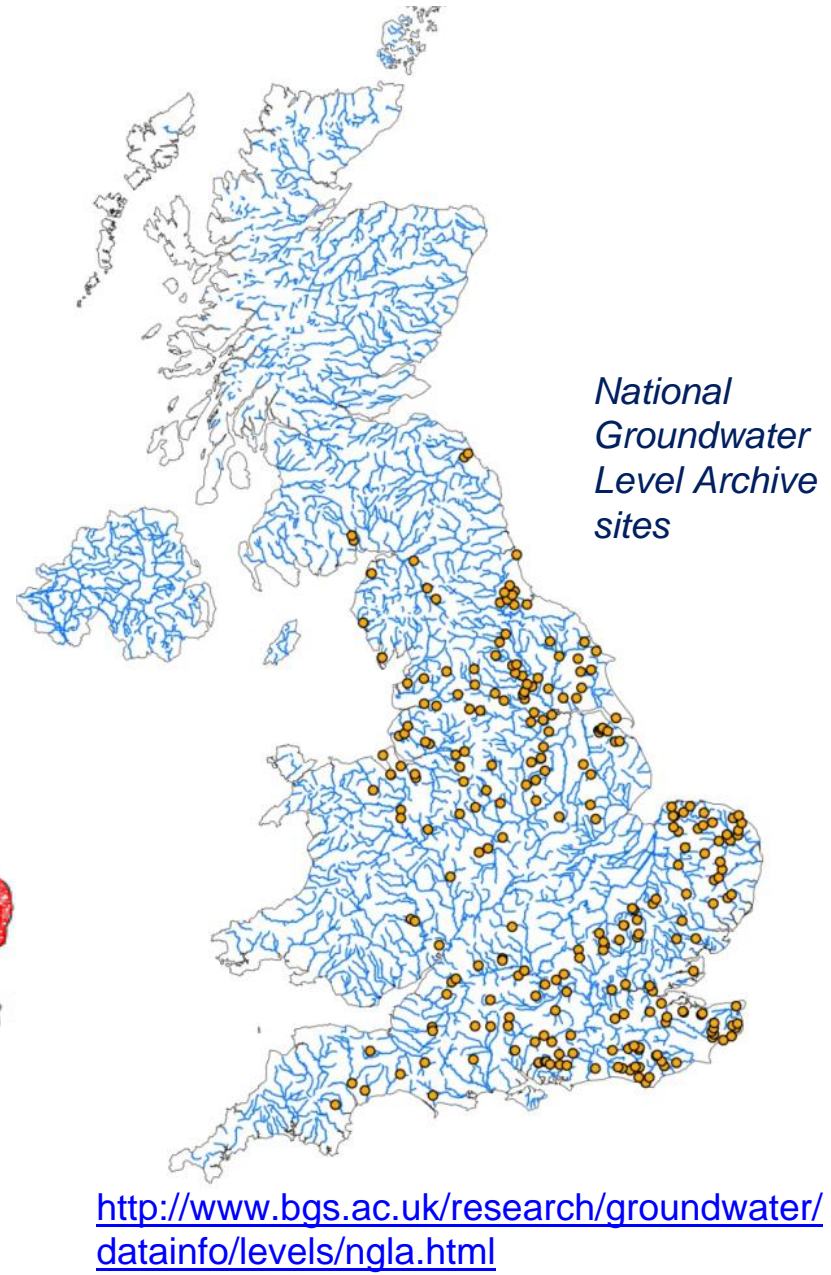
**Tips for using map component**

- Move the mouse whilst holding the right button down to navigate, or use the circle in the top-left corner
- Roll the mouse-wheel to zoom, or use the magnifying glass icons in the top-left corner

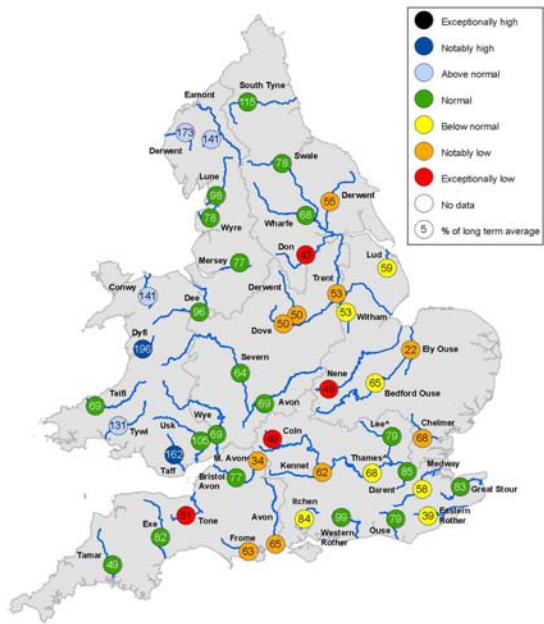
source: National River Flow Archive



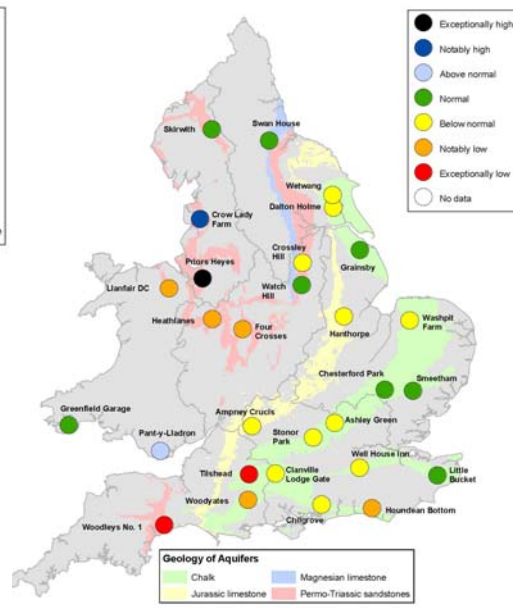
# Groundwater levels



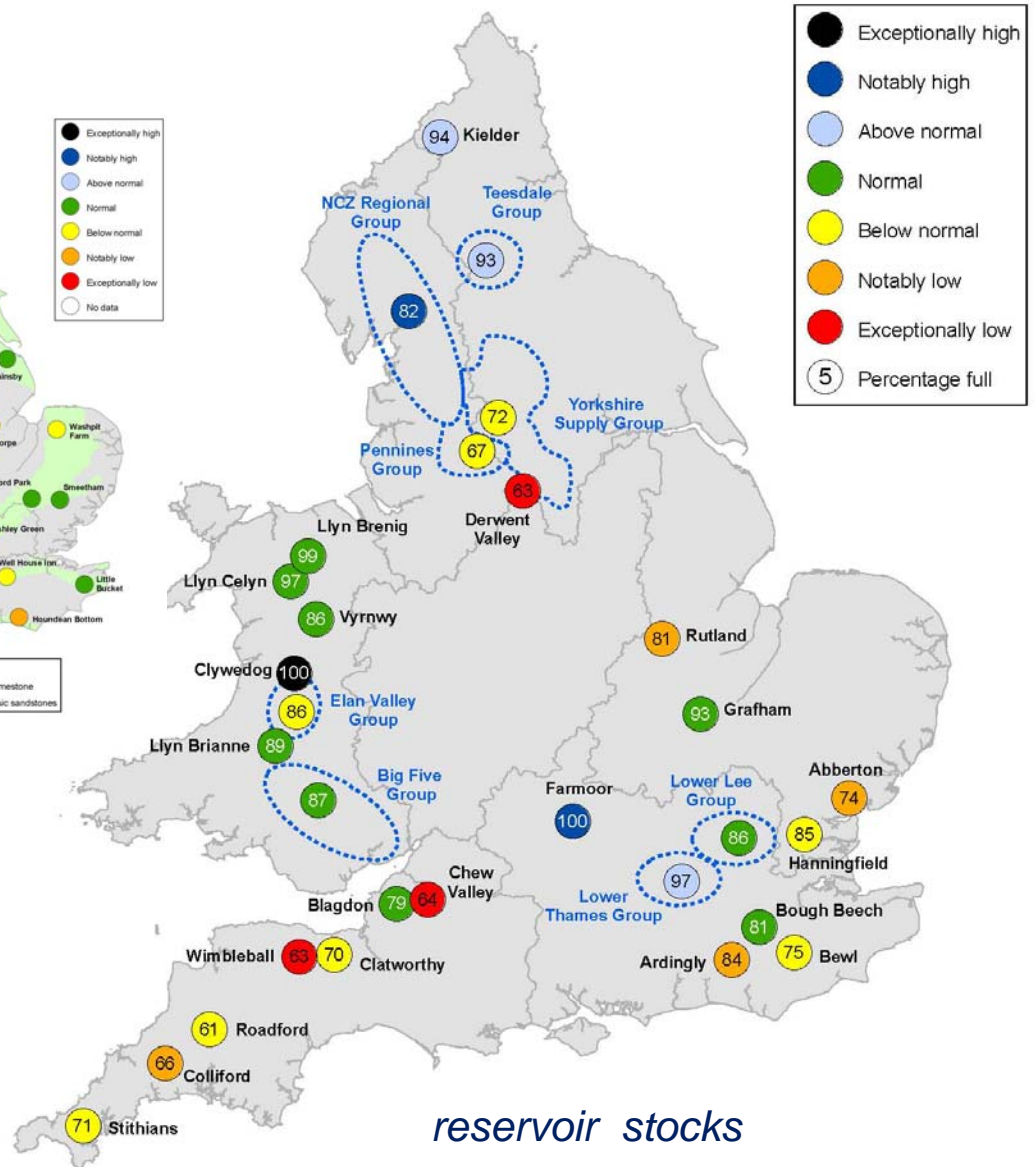
# Hydrometric summaries



surface water



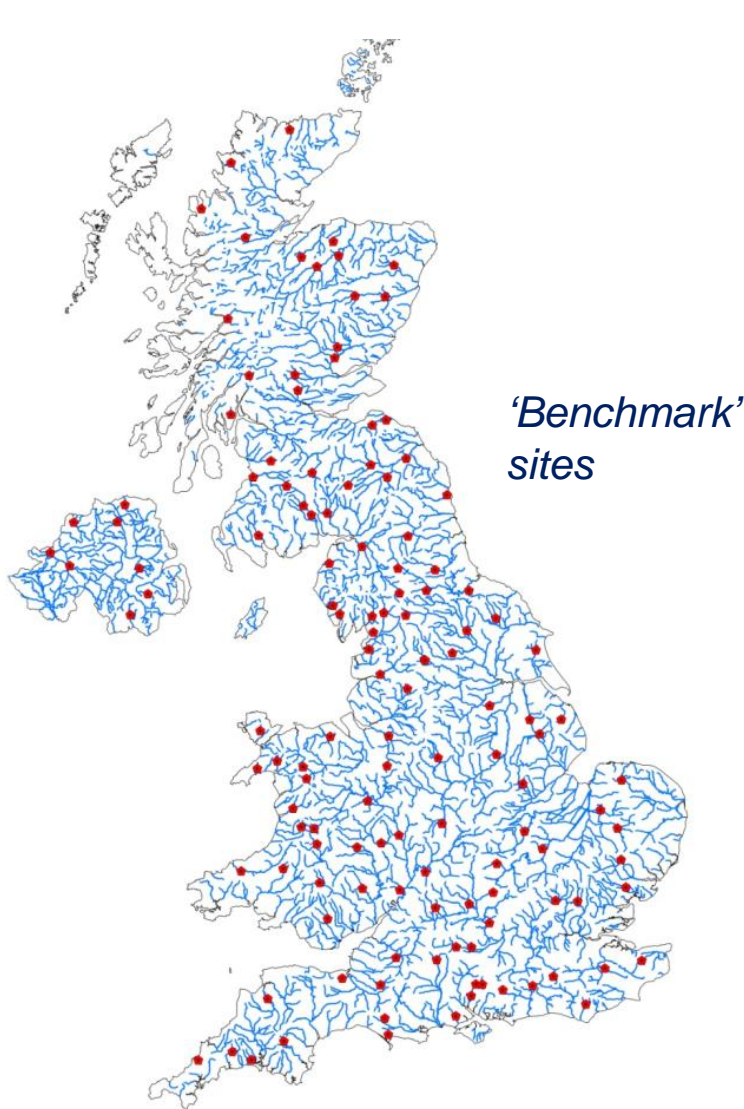
groundwater



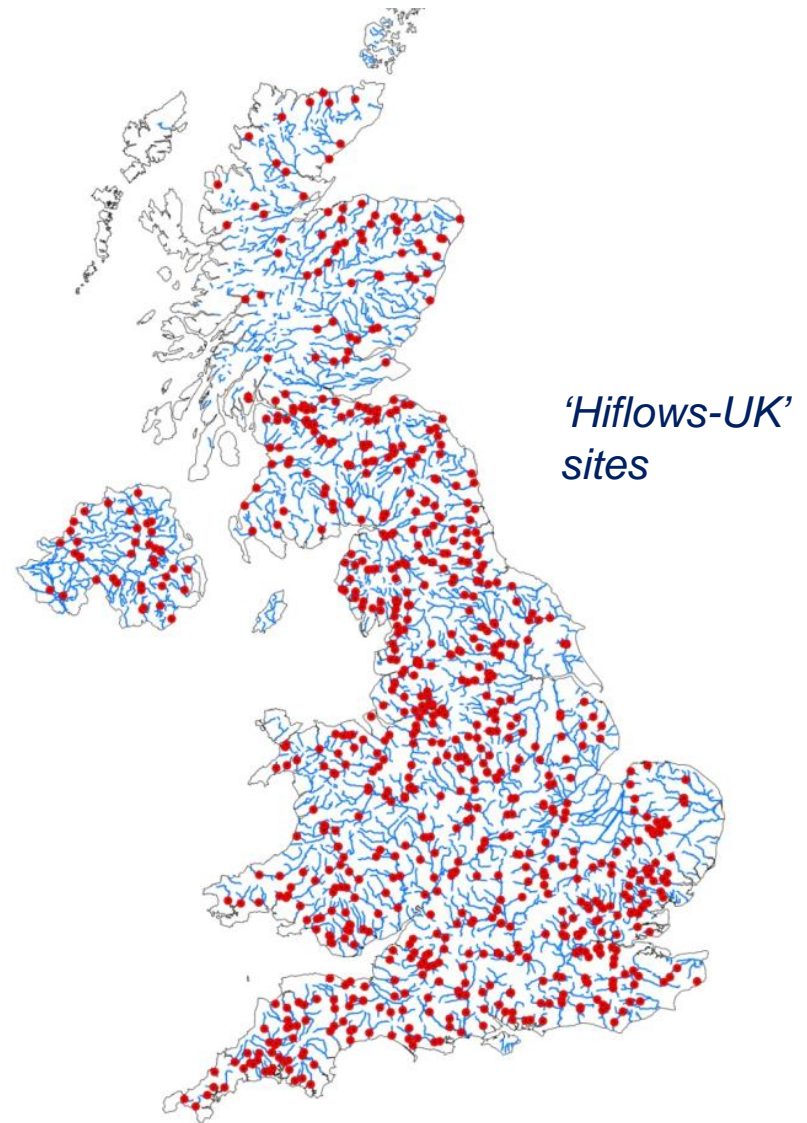
reservoir stocks



## Specific-purpose networks of river flow gauging sites



source: Bradford & Marsh (2003) Proc ICE 156



source: NRFA, EA





## Developments and challenges – wider comments (1)

- Network data generally fit for purpose; some enhancements always desirable
- Some networks rationally-designed, some evolutionary
- Investigation of implementation of new technologies
- General economic considerations
- Cost of wider availability of data



## Developments and challenges – wider comments (2)

- Involvement in standards development/enhancement
- Further potential sources of data – researchers, the public
- Planning for future water management scenarios
- Consideration of appropriate use of spatial transposition of data