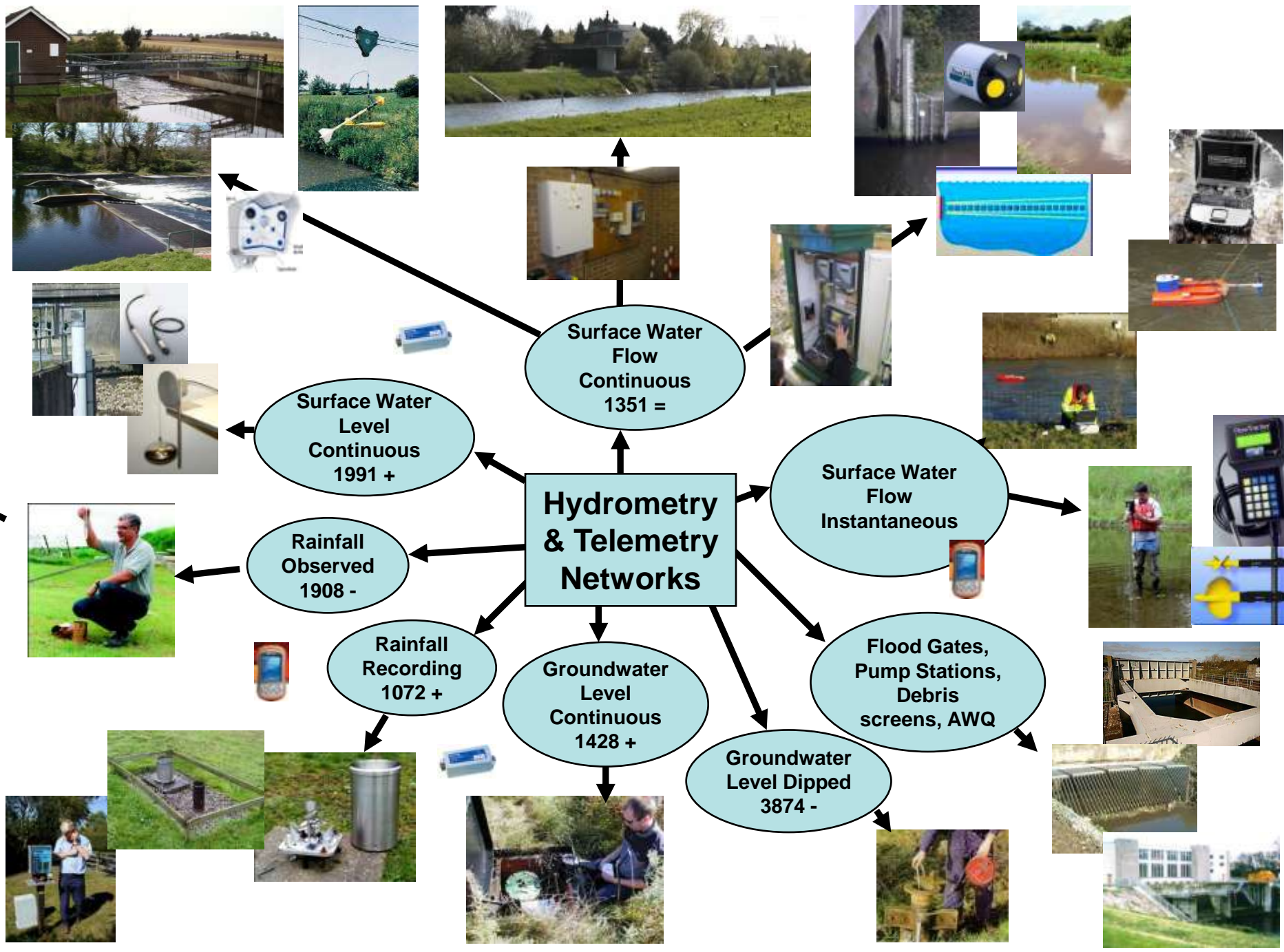


# Hydrometric Monitoring in the 21<sup>st</sup> Century

Robert Grew

Evidence Advisor

22nd October 2013





**Flood Warning**



**Water Resource  
Management**



**Drought Management**

**Operational activity**  
•Efficient  
•Safe



**Flood Defence**



**Hydro-ecological  
improvement**

**Water Quality improvement**  
•Water Bodies  
•Bathing Waters  
•Shellfisheries



**Low Flows Alleviation**

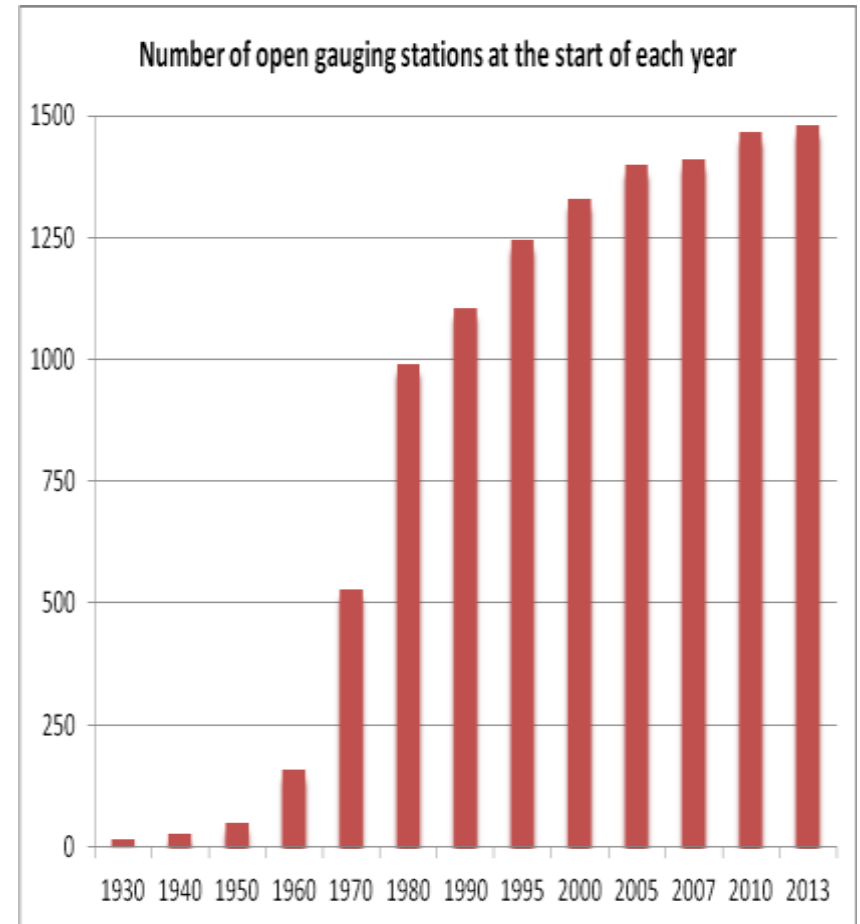
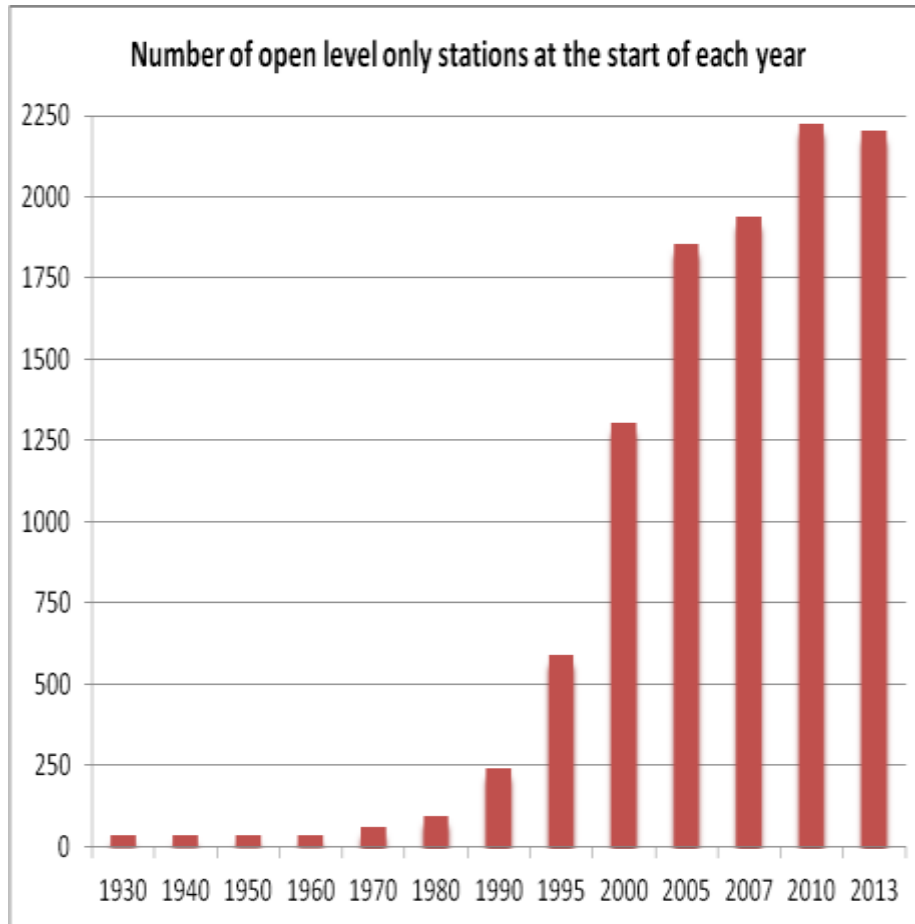
**Hydrometry  
&  
Telemetry**



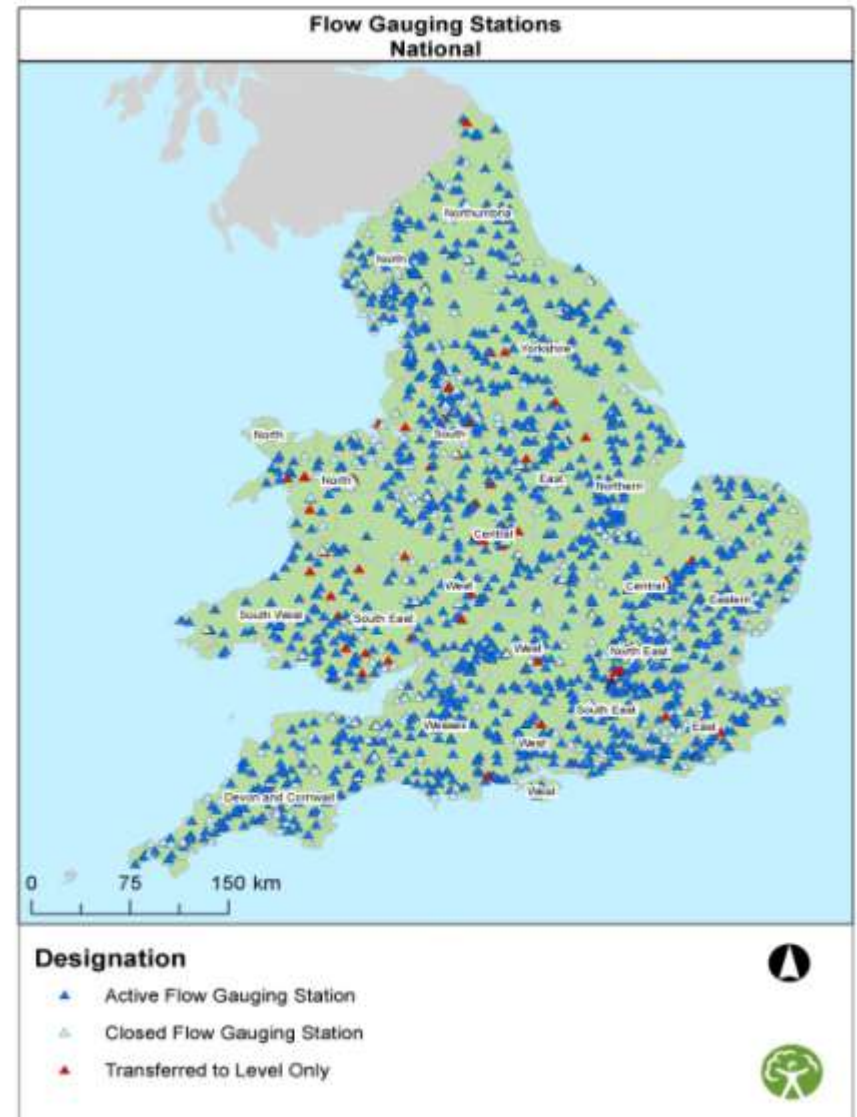
# Recent flood events



# Changes in surface water level and flow stations in England and Wales



# Surface water level and flow networks



# Hydrometric data quality

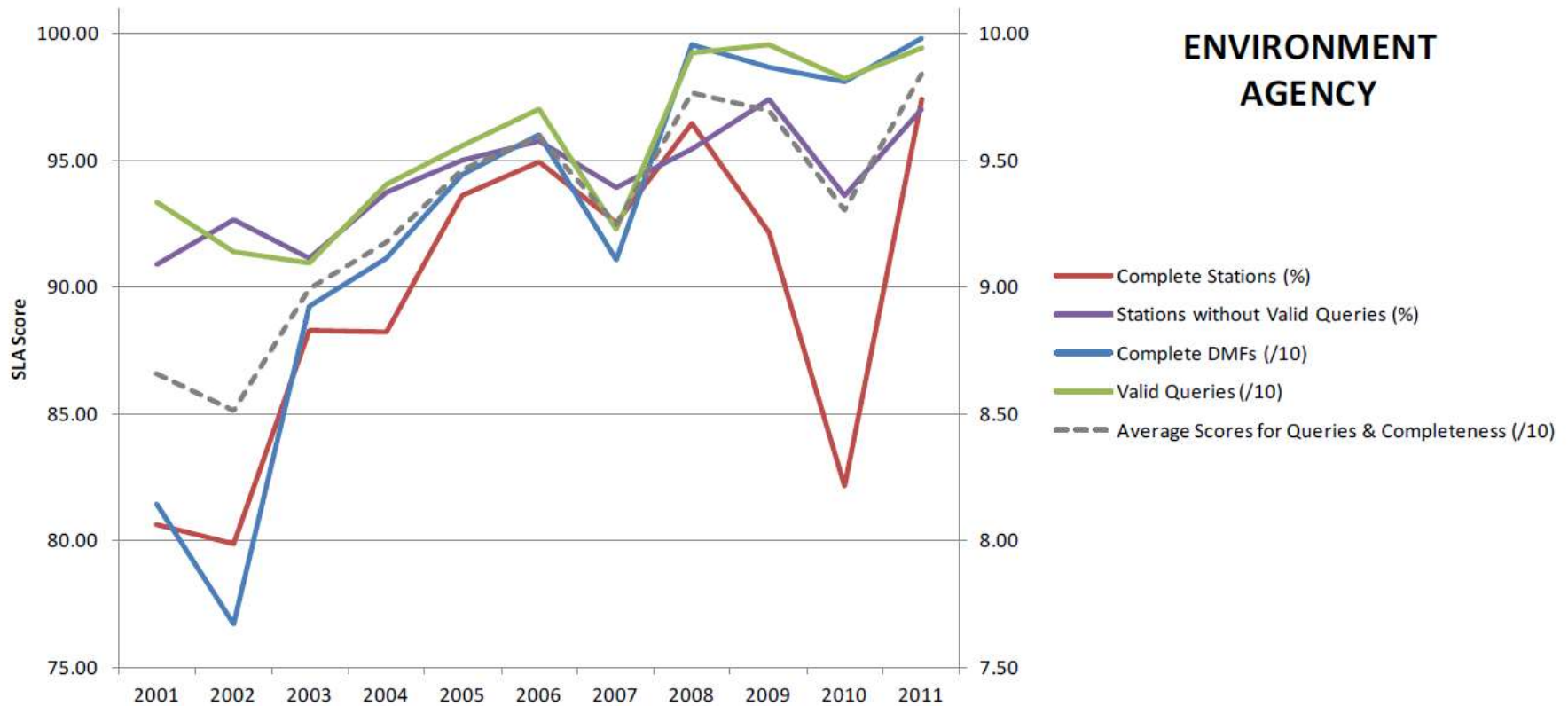


Figure 5: Environment Agency SLA indicators for 2011 data submission

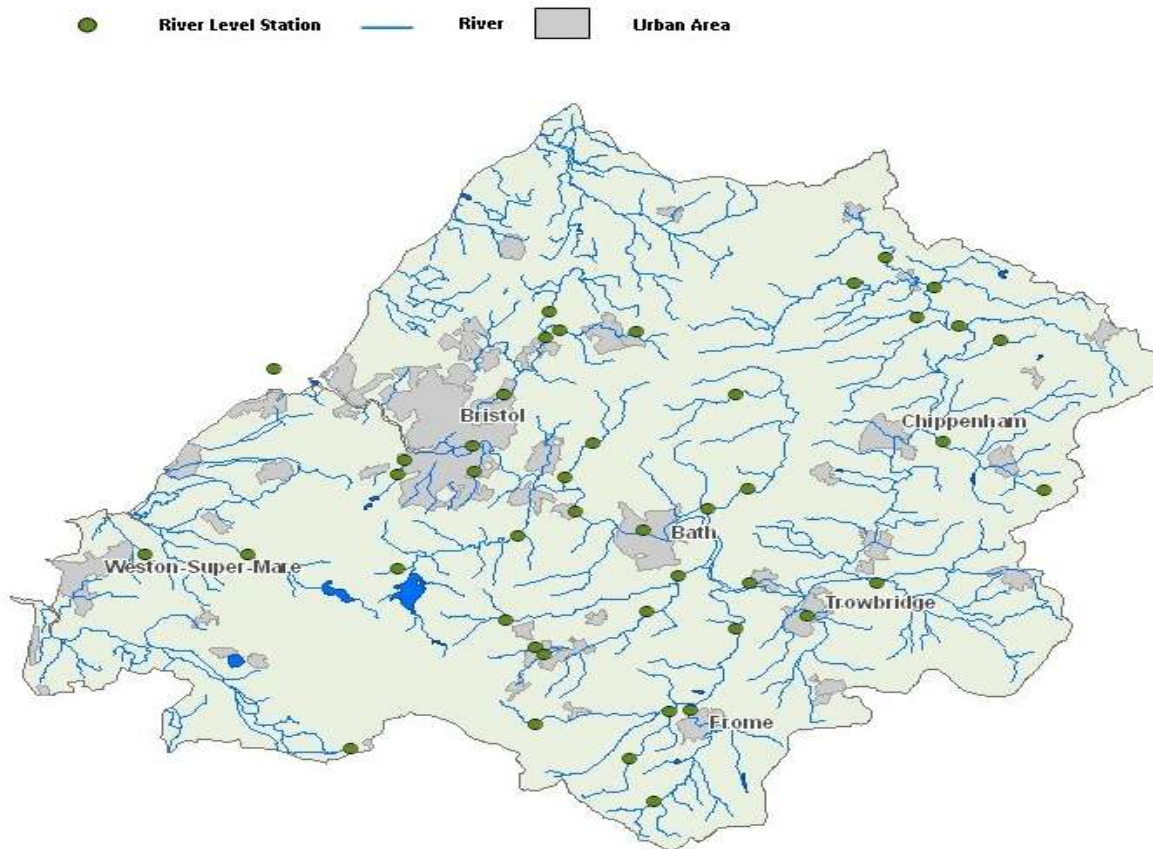


# Data accessibility

- Home
- At home & leisure
- Flood
- River Levels
- South West
- Wessex
- Bristol Avon Little Avon Axe and North Somerset St

## River Levels: Bristol Avon Little Avon Axe and North Somerset St

[Previous Page](#)

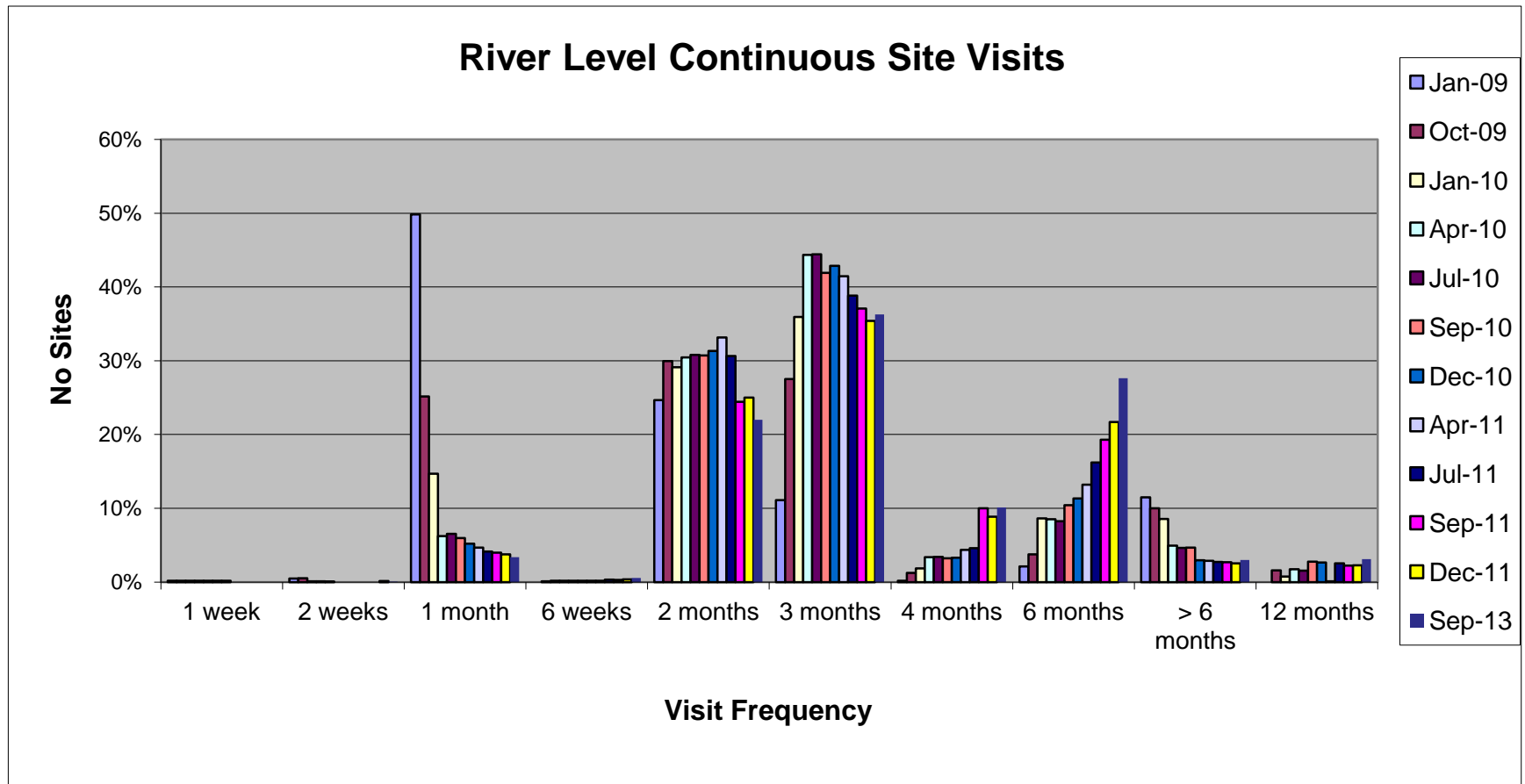




# How have these improvements been possible?

- ➔ Telemetry systems rationalised
- ➔ Hydrometry and Telemetry activities were combined
- ➔ Hydrometric data management systems rationalised
- ➔ National and Regional H&T Panels
- ➔ Low benefit sites challenged and closed.
- ➔ Implementation of a risk based approach
- ➔ Adoption of new flow measurement technology

# Changes in site visit frequencies



# New flow measurement technology





# Future challenges

- ➔ Meeting changing business needs
- ➔ Reducing the environmental impact of our activities
- ➔ Increasing efficiency i.e. doing more for less

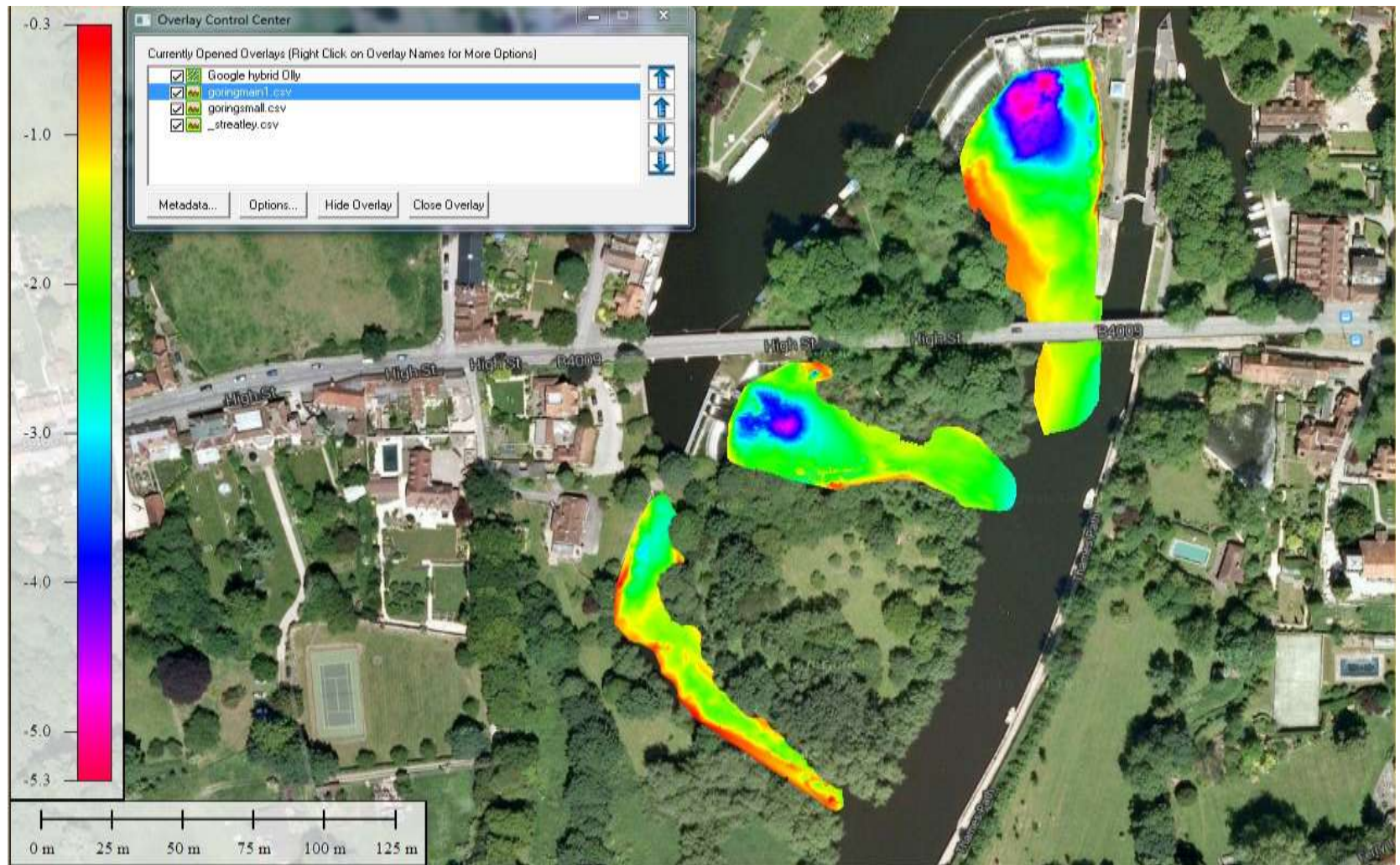
# Rapid response catchments



	Very High	High	Medium	Low	Total
Yorkshire and North East	13	60	41	3	117
Midlands	10	10	9	0	29
North West	19	34	53	14	183
South West	35	29	35	2	101
South East	1	1	2	0	4
Anglian	1	0	0	0	1
Wales	12	23	26	11	72
<b>TOTAL</b>	<b>91</b>	<b>157</b>	<b>166</b>	<b>30</b>	<b>507</b>

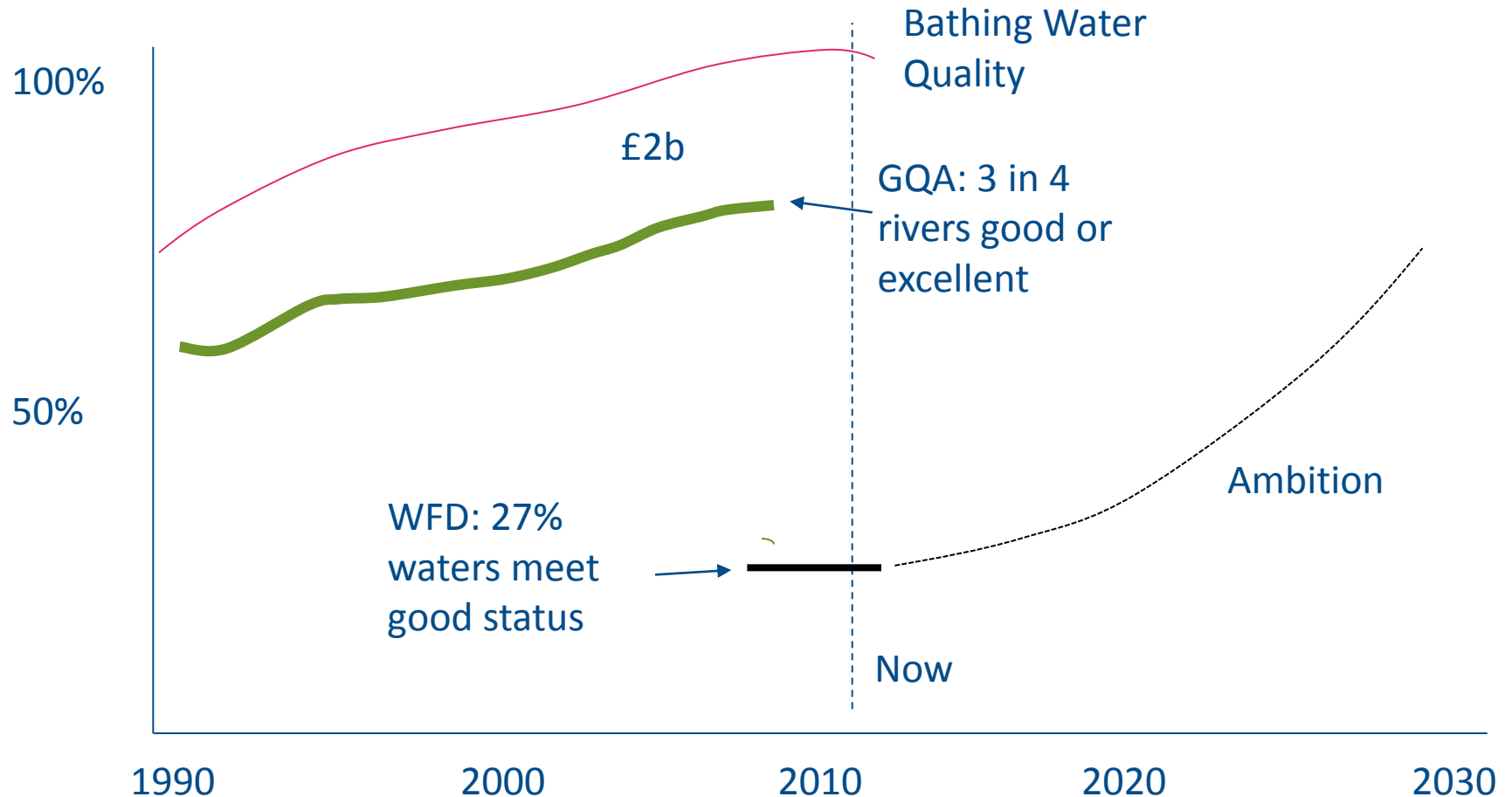
The number of very high, high, medium and low priority communities per region as of Feb 2011

# Goring Lock ADCP





# Measures of environmental quality





# River flow in the 2050s

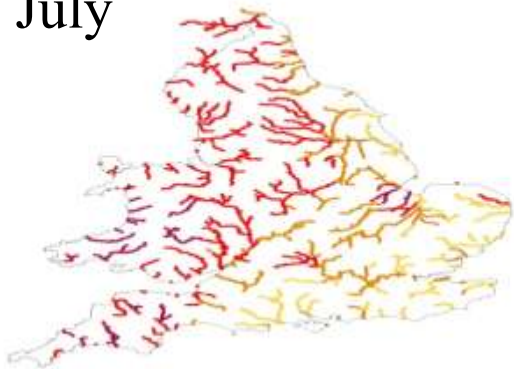
January



April



July



October





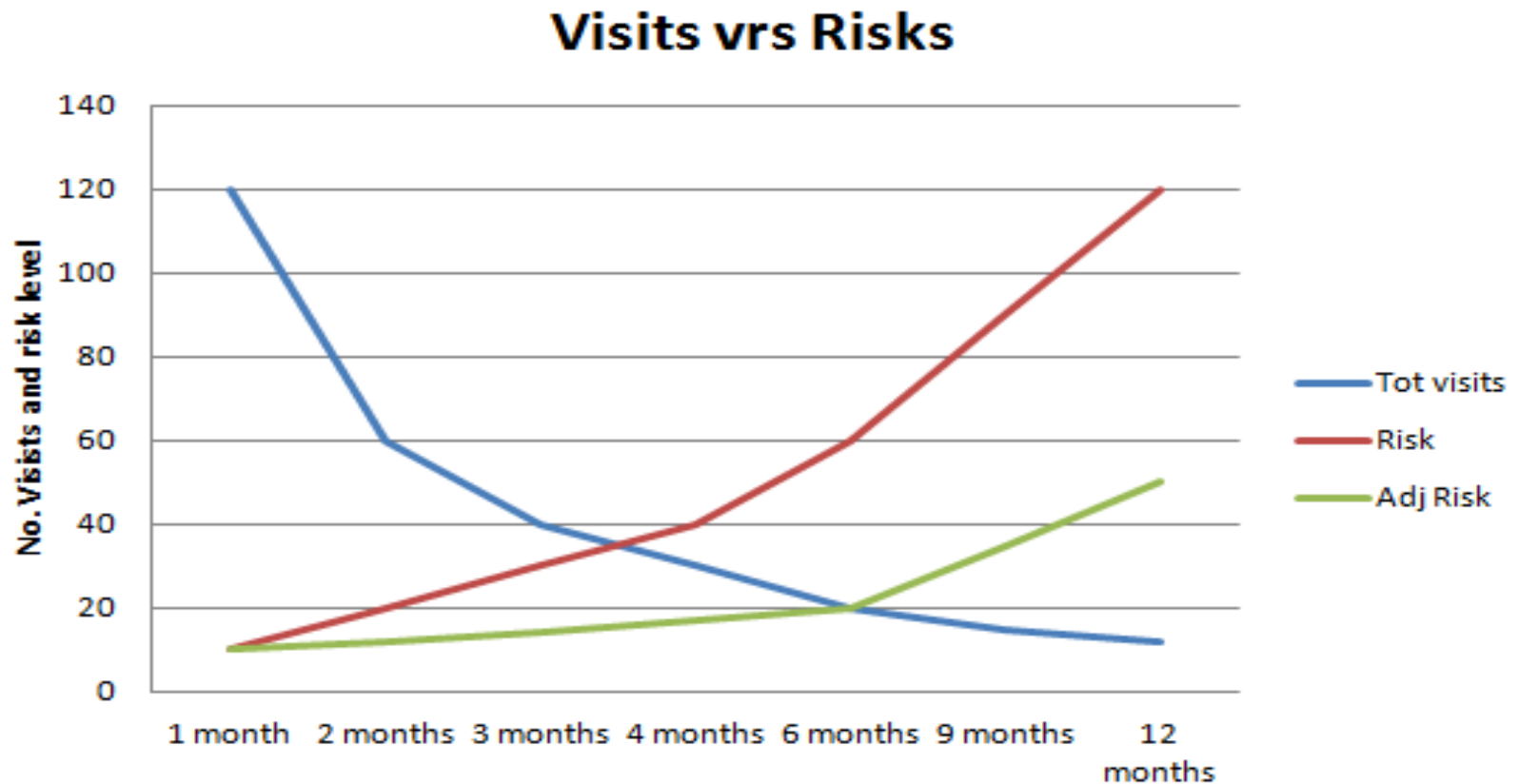
# Do more for less

- ➔ Overall our workforce will reduce from 11,400 FTEs today to somewhere in the region of 10,000 by October 2016.
- ➔ FCRM GiA is likely to reduce by around £12.5m from 2013/14 to 2015/16.
- ➔ Impact on H&T

(H&T DIAP)



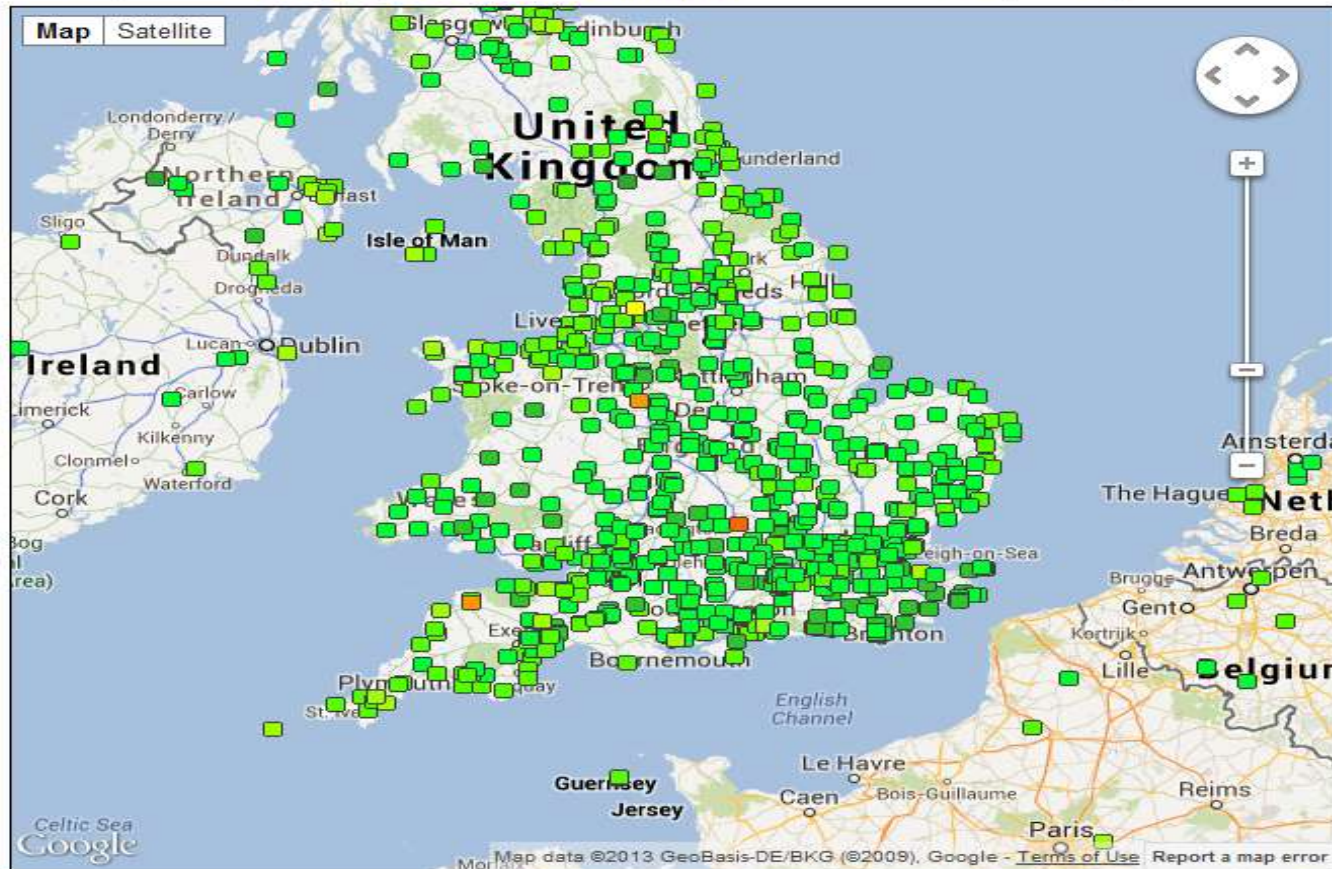
# Site visit frequency versus risk





# Working with others

Some example searches: "Exeter, UK", "50.737 -3.405" or "Exeter Airport". The time slider below changes the time period on view.



View the one hour period from: **14/10/2013 09:00** to: **14/10/2013 09:59**

To enter a specific time & date, drag the time slider fully to the left.

## Weather

- ☒ Temperature
- ☐ Rainfall Rate
- ☐ Present Weather
- ☐ Wind Speed / Direction
- ☐ Humidity
- ☐ Pressure (MSLP)
- ☐ Snowfall
- ☐ Soil Moisture
- ☐ Weather Impacts

## Other

- ☐ Photos

## Filters

## Map legend

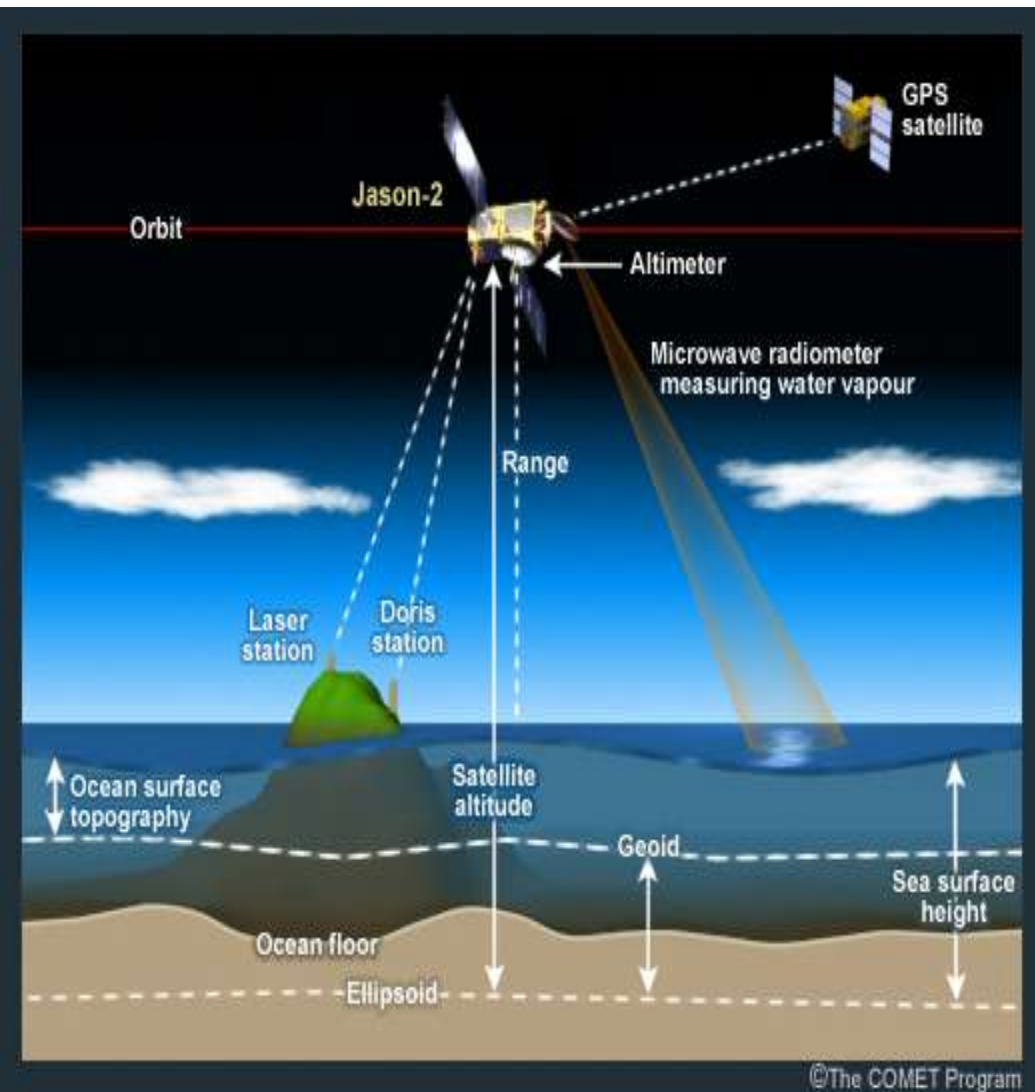
Temperature (°C)



## Useful links

[Surface pressure charts](#)  
[Other latest observations \(e.g. rainfall radar and satellite\)](#)

# Innovation





# Tiered Monitoring Networks

