



Ensuring UK hydrometric data are fit-for-purpose through a national Service Level Agreement

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British Hydrological Society Symposium, University of Birmingham
2-4 September 2014

Outline

- NRFA Annual Validation Cycle
- Service Level Agreement (SLA)
 - Performance Indicators
 - Network
- Results from the first 10 years
 - Data Completeness
 - Data Quality

NRFA Annual Validation Cycle

- Data are **submitted** annually
- Data are **validated**
- Data are **queried** where necessary
- Data are **loaded**
- Data are then accessible to users
 - Website / retrievals service

Data
Submission

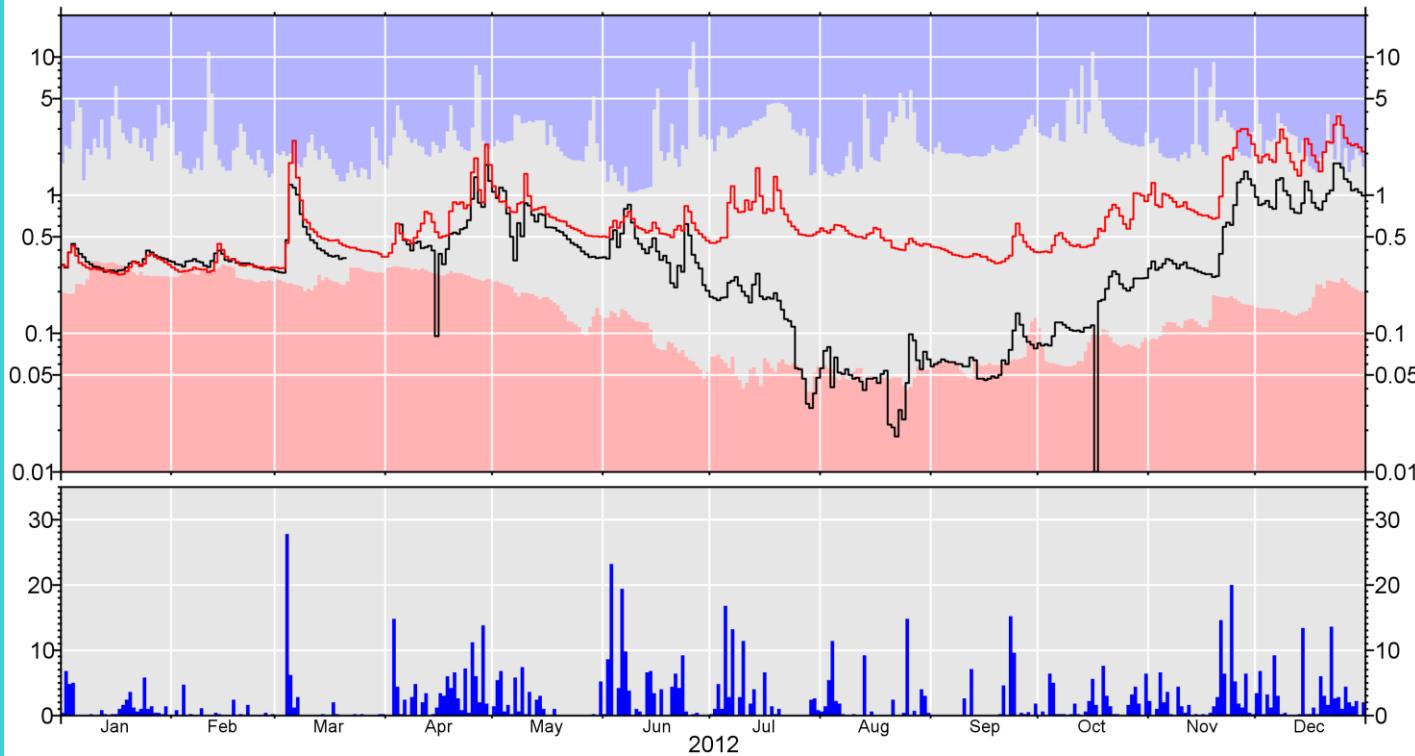
Service Level Agreement in place to control this process

Data Validation and Querying

- Validated against
 - Period of record data

Example Query:

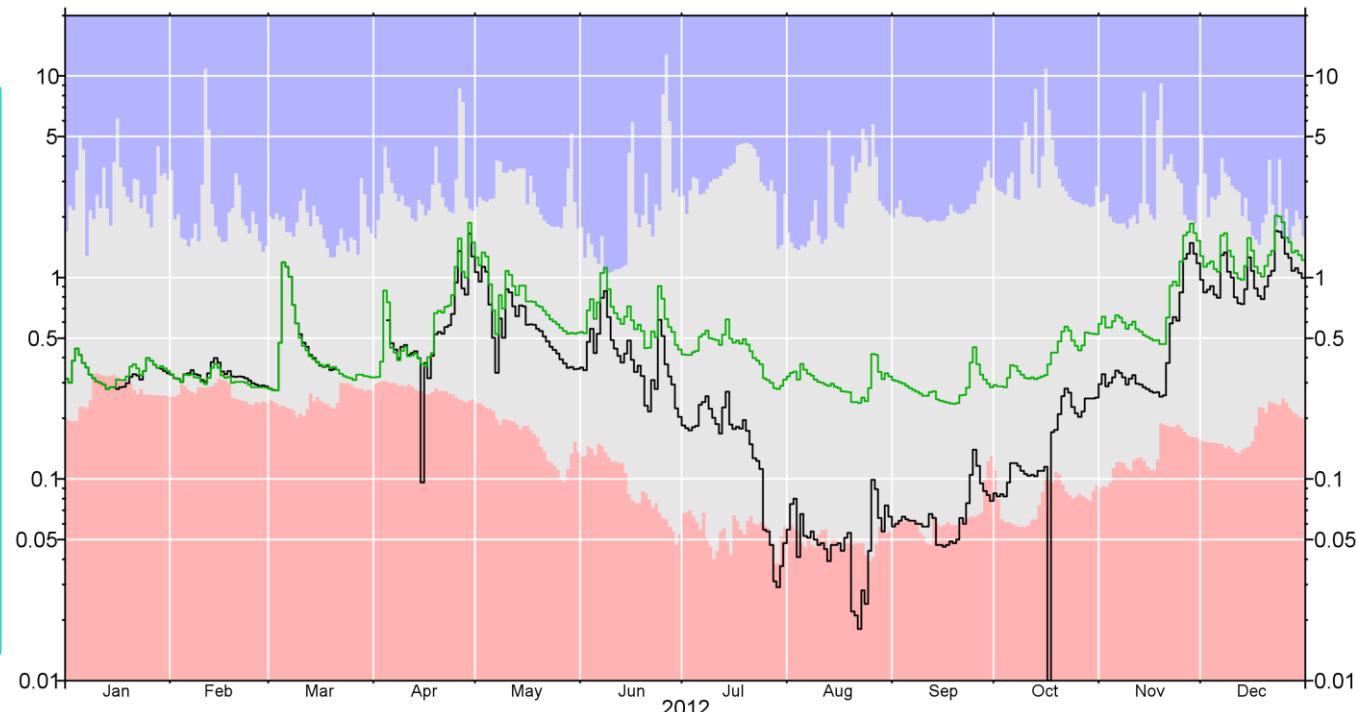
- 'Drop outs' in April & October
- Inconsistent relationship with the analogue station



Data Validation and Querying

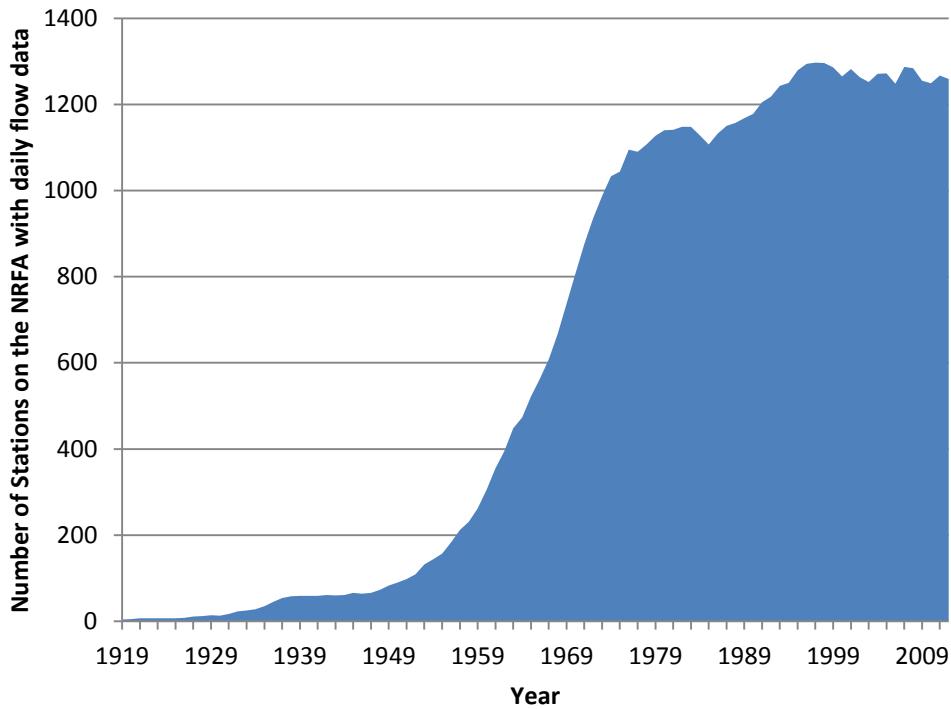
- Possible solutions:
 - Query is valid: errors in data identified and new data supplied
 - Query is invalid: flow pattern is explained and data are loaded (with user guidance)

Example outcome:
- Query is valid
- Improved record loaded to the NRFA



The Service Level Agreement

- Dense hydrometric network requiring considerable data management
- Concerns over data completeness and quality
- Set up in 2002, so now operational for > 10 years

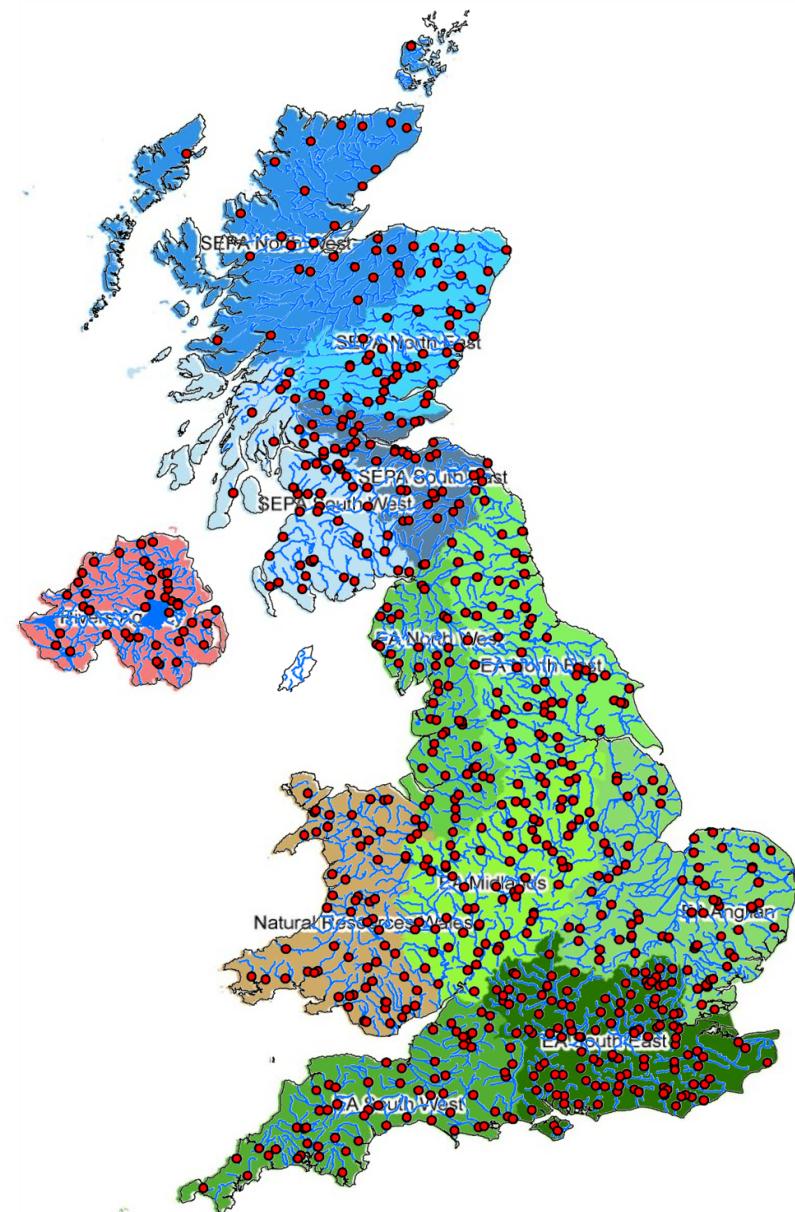


Dual aims:

1. Stabilise a core network of stations
2. Target improvements in data quality and completeness

SLA Network

- Network of strategically valuable stations
- Focus for quality control
- 711 stations
 - ~ 50% of the UK network



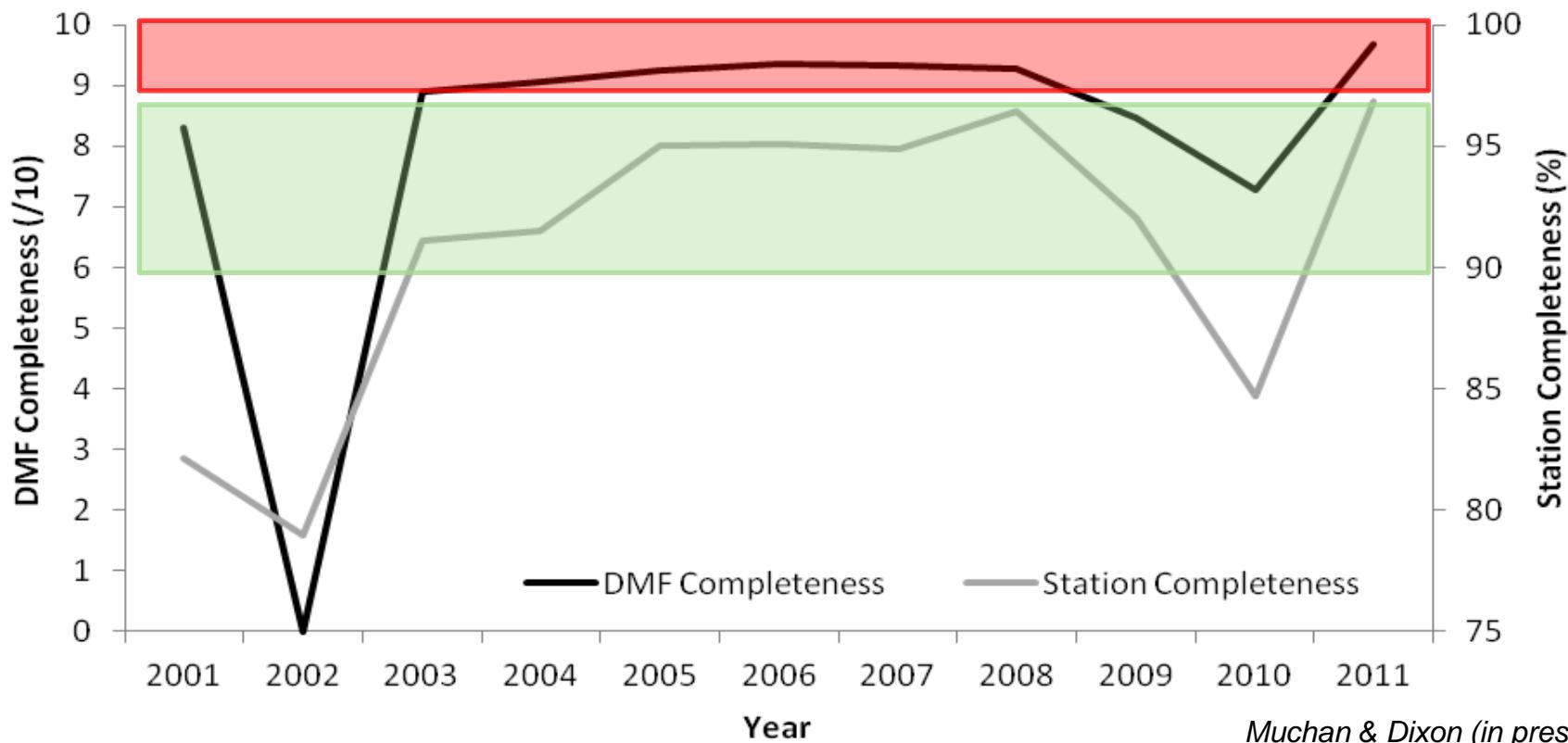
SLA Performance Indicators

- Performance metrics calculated at the end of the validation cycle for timeliness, completeness and quality
- Aggregated to regional/national Measuring Authorities

SLA Metric	Description
Data Timeliness	The timeliness of the annual submission of flow data
Daily Mean Flow Completeness	The number of missing daily mean flows relative to the number of expected daily mean flows
Station Completeness	The percentage of stations with a complete year of data relative to the total number of stations
Daily Mean Flow Queries	The number of daily mean flow values where queries are identified by the NRFA and the data is found to be incorrect (valid) relative to the number of days of flow provided
Station Queries	The percentage of stations where no valid queries are logged relative to the total number of stations
Query Timeliness	Score based on the timeliness of measuring authority response to queries logged by the NRFA

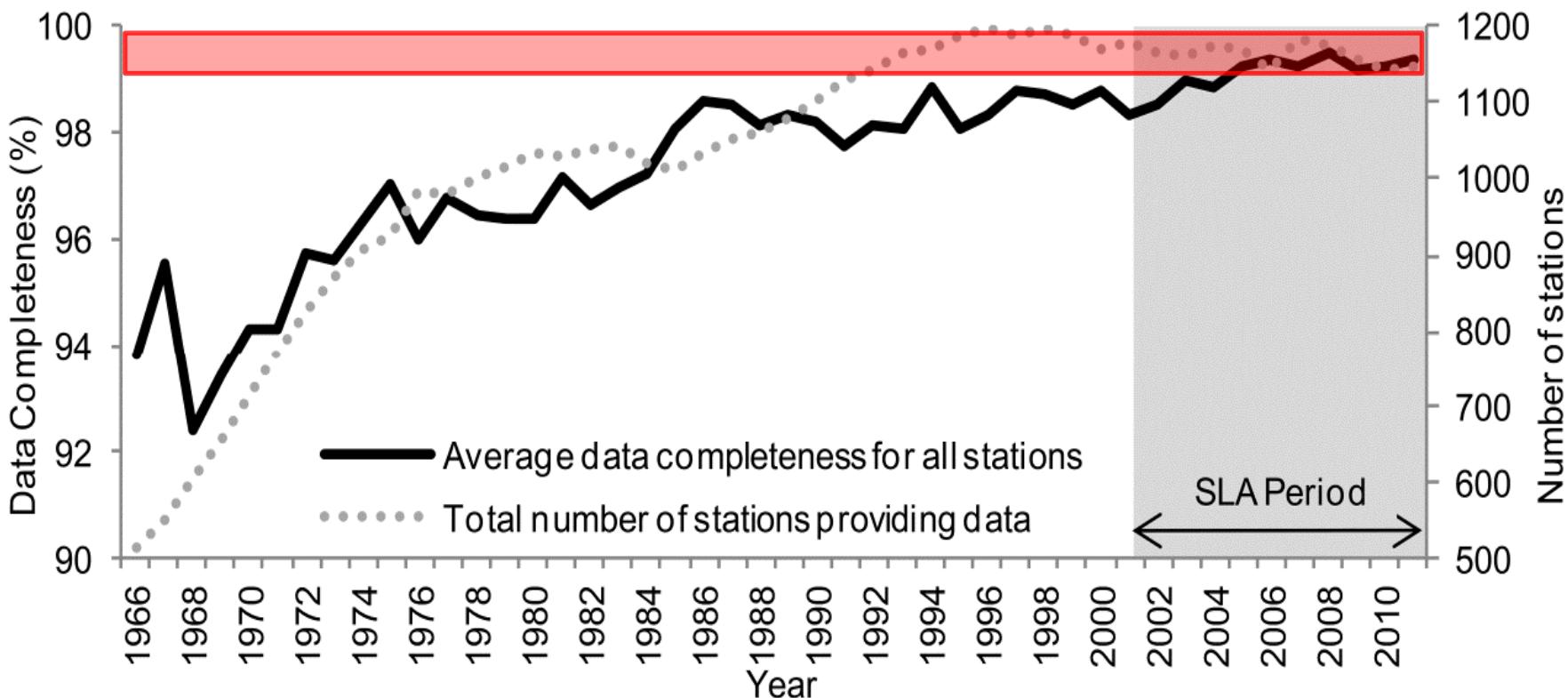
Results 1: Data Completeness

- Overall rise in both data and station completeness, with some exceptions
- Generally only 1% of data is missing, but across 4-10% of the network



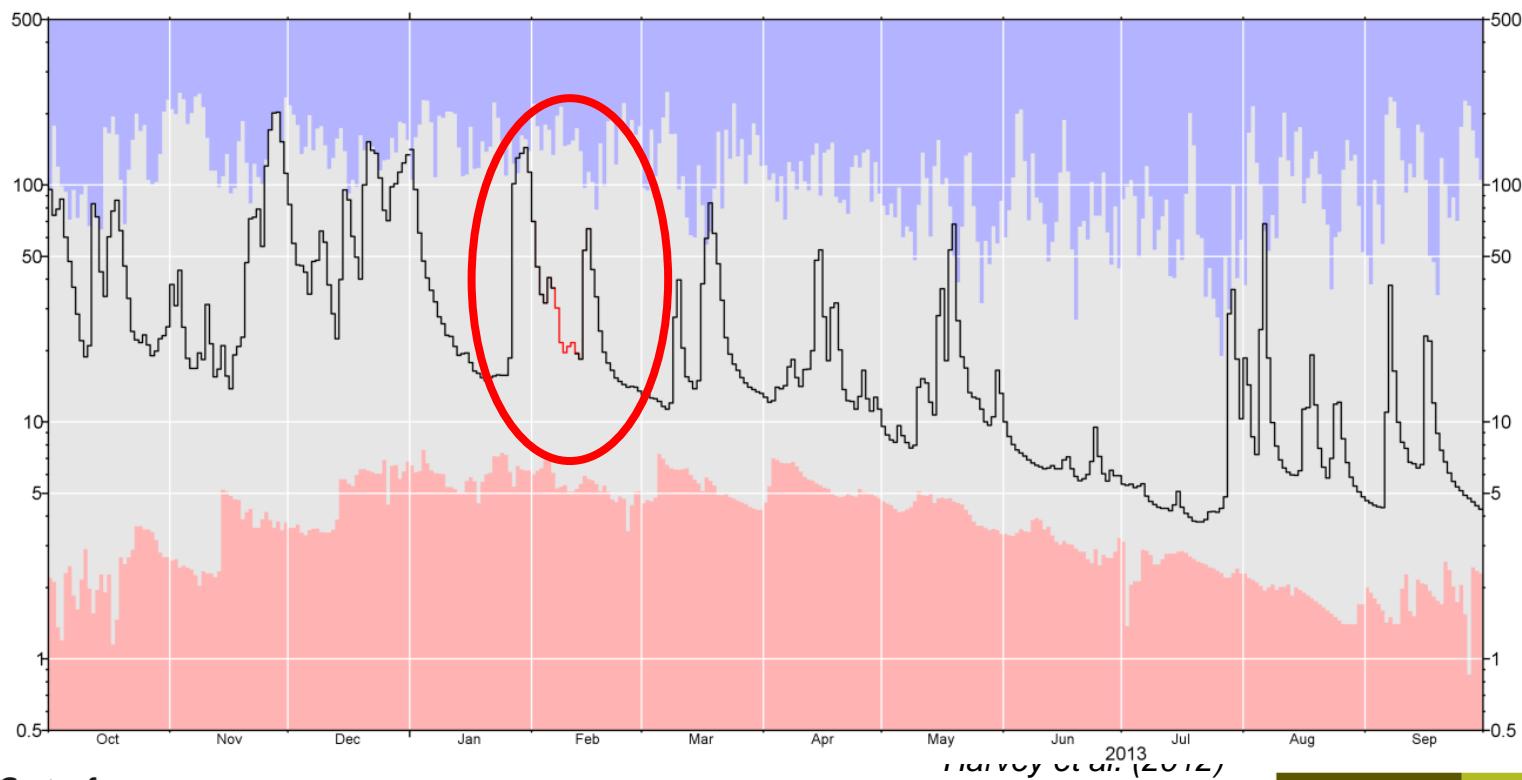
Results 1: Data Completeness

- SLA has improved and stabilised data completeness across the whole network
- Average data completeness of over 99% in the last 7 years



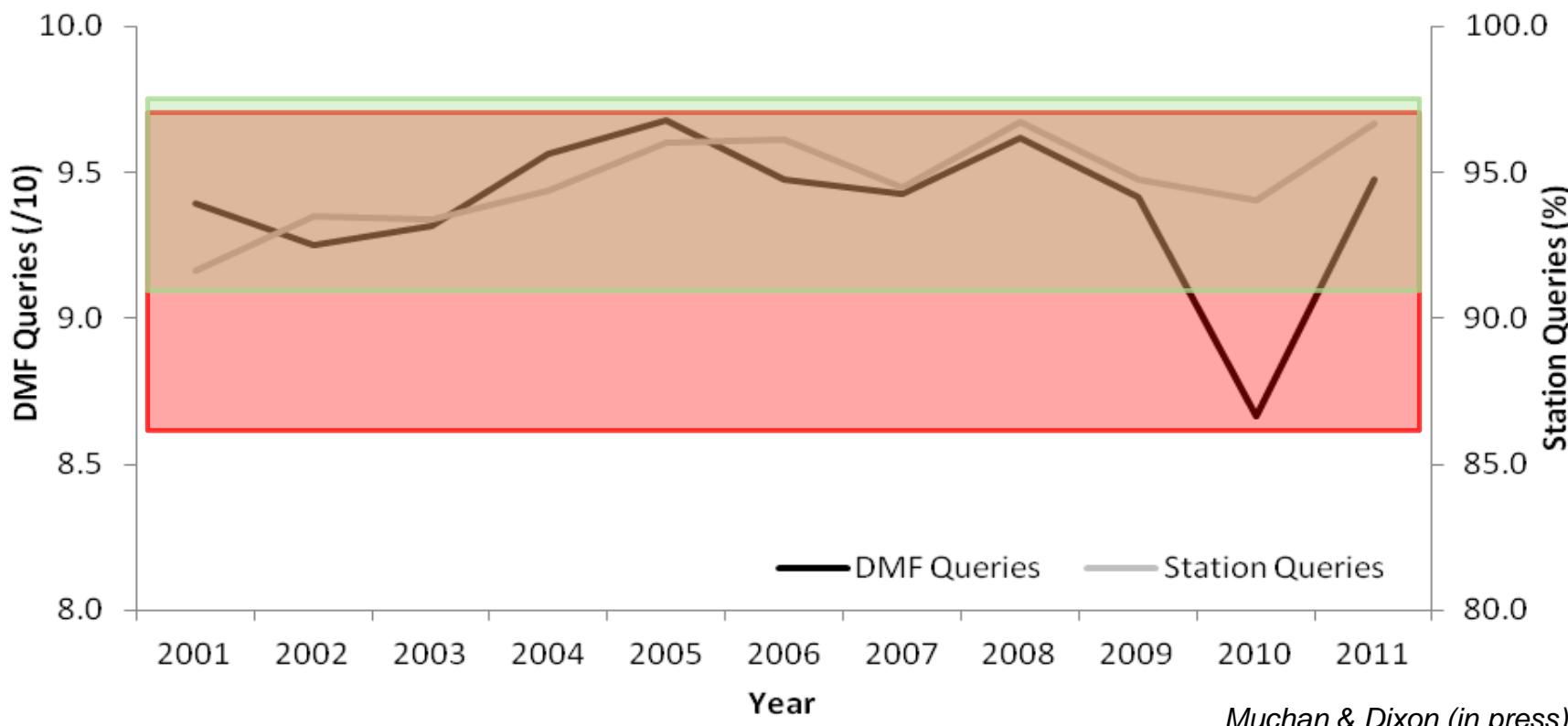
Results 1: Data Infilling

- Work undertaken on the methods for infilling gaps
- Now, small gaps are often infilled by the Measuring Authority during the data validation process



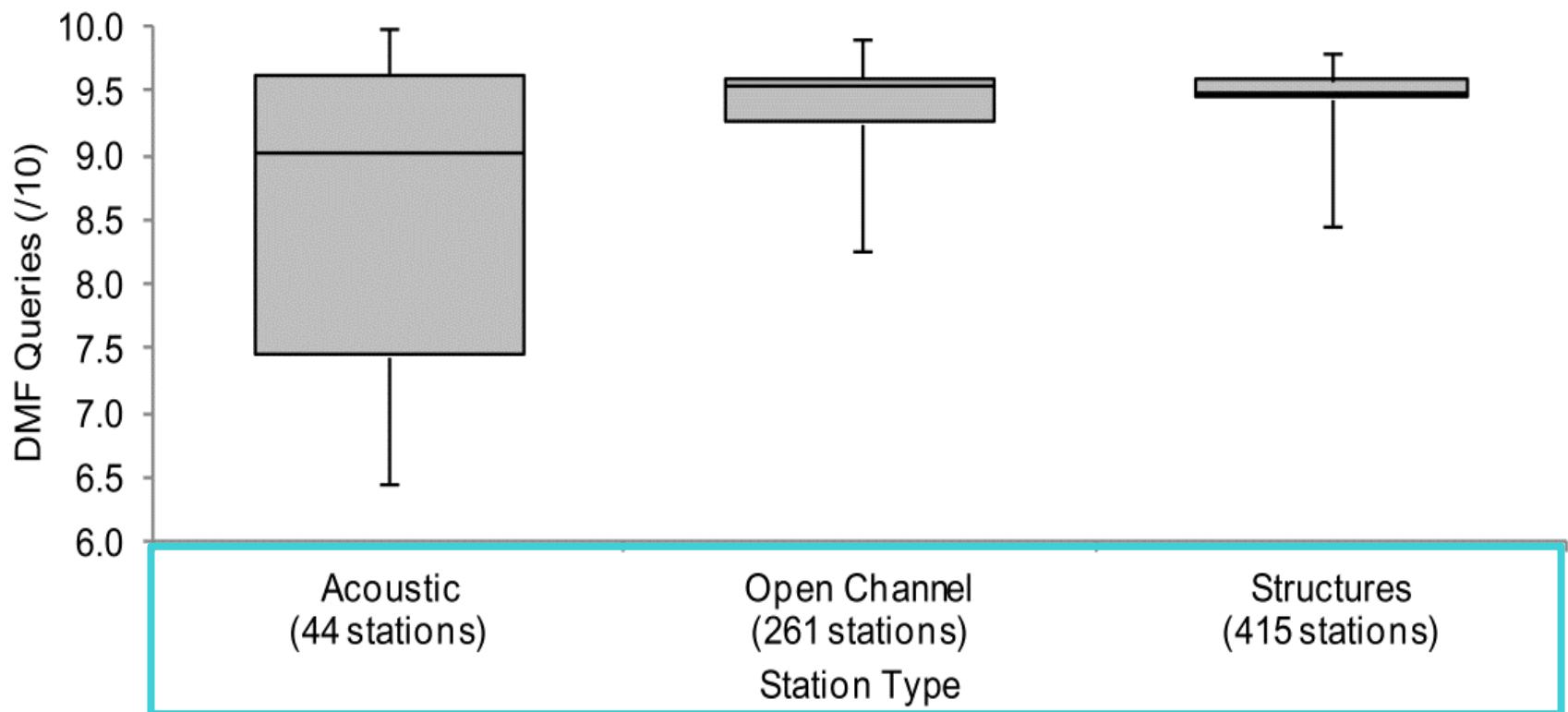
Results 2: Data Quality

- The hydrometric network generally performs well
 - 98.5% of SLA data submitted to the archive was found to have no valid queries
- Gradual increase in station queries score



Results 2: Data Quality

- Increased number of stations with ultrasonic or acoustic doppler technology
- Generally data quality decreases at these stations (more valid queries)



Conclusions

Have the aims of the SLA been met?

1. Stabilise a core network of stations
2. Target improvements in data quality and completeness

Looking Forward:

- Continue to implement the SLA for future submissions
- Possible expansion of the SLA to cover national peak flow data



Thank You

Come and see me at the CEH Stand!