

# A PhD research project focusing on data collection, data quality and use of 'citizen science' data in the Haltwhistle Burn catchment



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## Phase 1

- Engage with the Haltwhistle Burn community via TRT
- Design low-cost and relevant monitoring solutions
- Develop training material & monitoring tools
- Launch website & social media
- Harvest and map local catchment knowledge.

Monitoring method	Involvement of public?	Skills required	Mass data collection?	Software / resources?	Cost e.g. for monitoring rainfall	Cost e.g. for monitoring water level
Traditional	×	High	Unlikely	High	£600+	£1000+
Citizen science	✓	Low	High potential	Low	~£4.50 Or make your own (very cheap!)	£35+

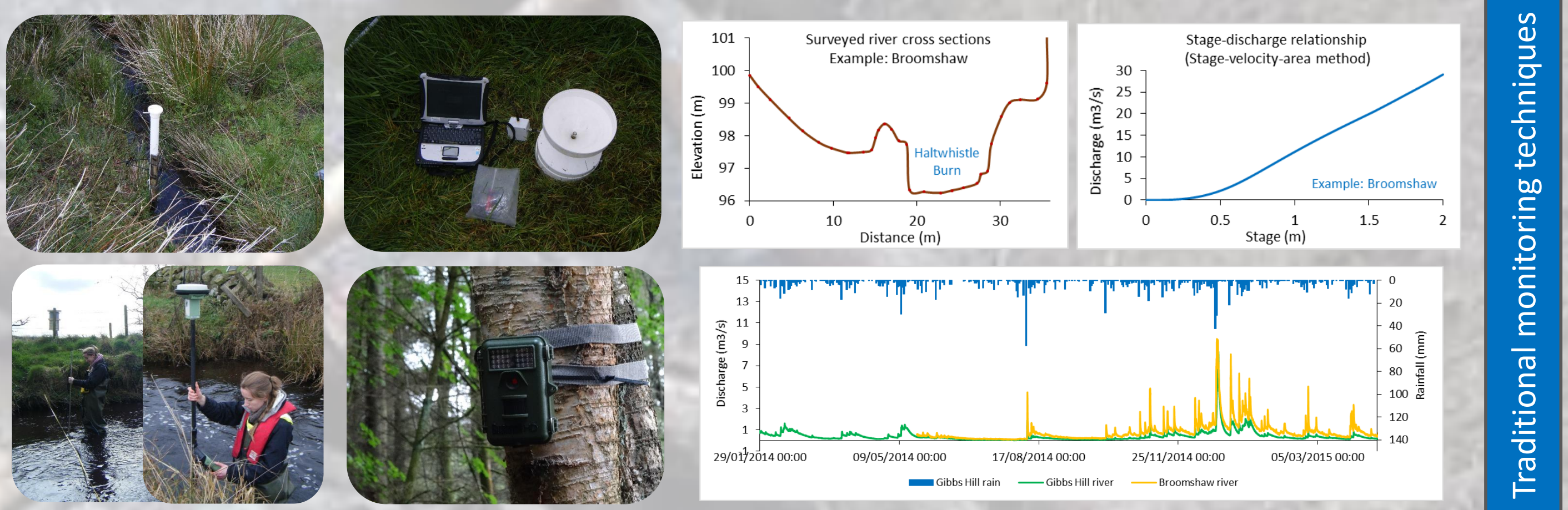
## Phase 2

- Community-based (citizen science) monitoring began
- 'Traditional' hydrometric network installed to fill the gaps and help assess the quality of the citizen science data

Community-based Monitoring activity	Data submission technique	Popularity
Rainfall	Spreadsheets & email	High ↓ Low
River levels	Twitter	
Flood events & weather	Webform (on the Haltwhistle Burn website)	
Erosion & deposition of sediment   Water quality   Catchment management measures	Paper / pass on to another volunteer Community river & weather app (Android)	

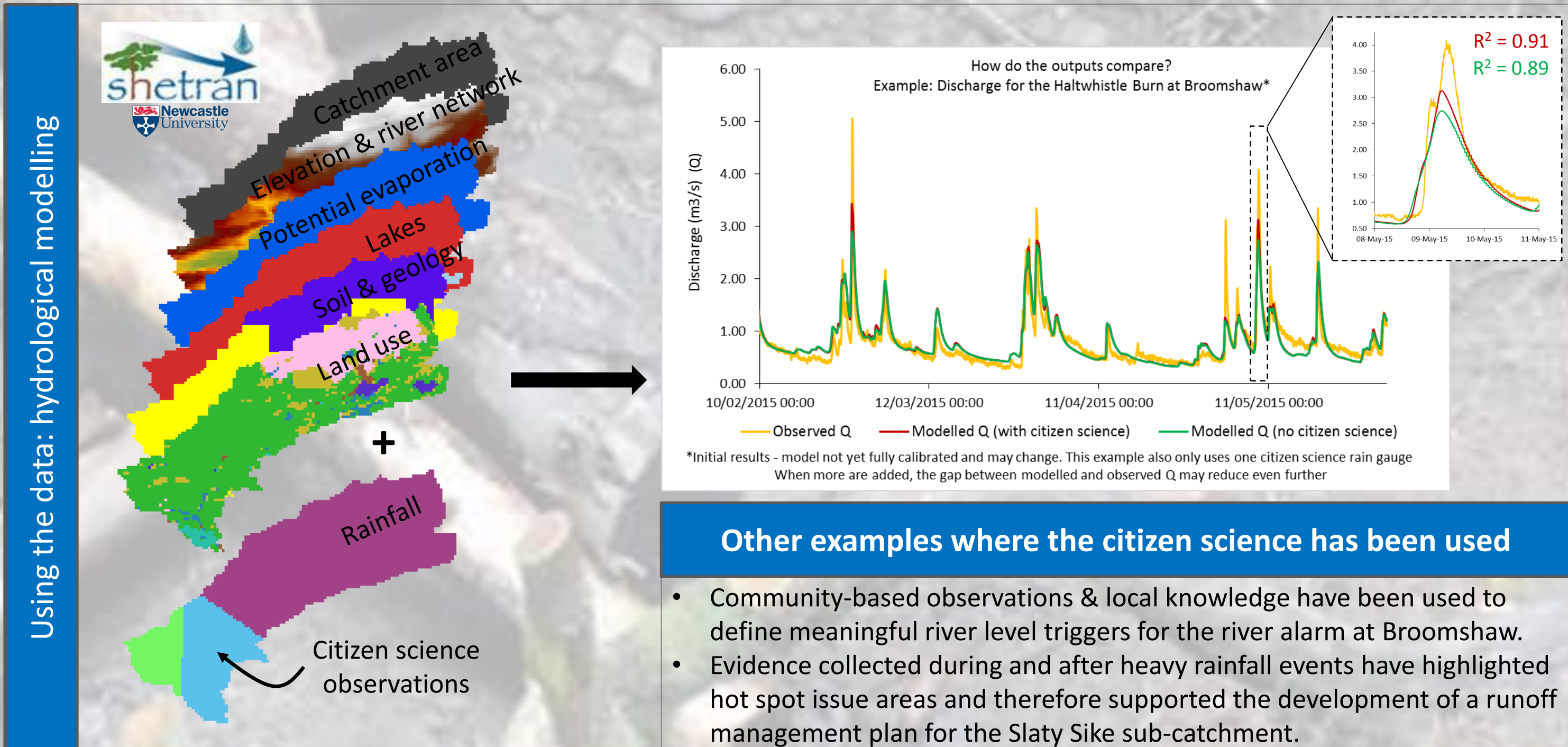
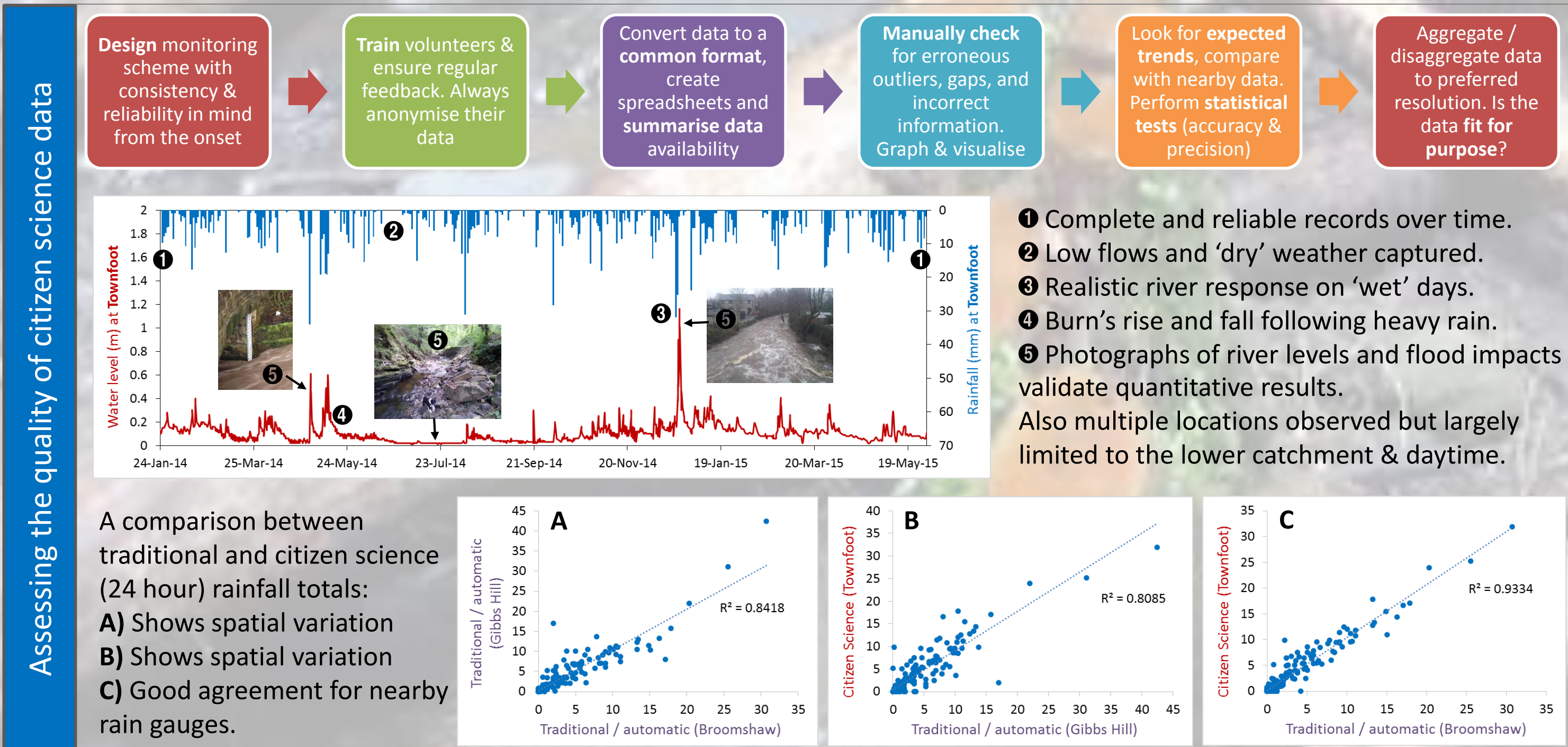
### Can the community monitor their local catchment using a low cost citizen science approach?

- Members of the community do want to monitor their local weather and water environment.
  - Volunteers have been trained to carry out low-cost monitoring techniques which can continue beyond the project.
  - Over 1.5 year's worth of has been now been collected by the community (largely rainfall, river levels and flood information).
  - All age groups have been involved in some form of monitoring activities.
  - Flooding (through the River Watch / Flood Action Groups) is the main reason why people choose to be involved.
  - Some volunteers prefer to monitor on a regular basis, others prefer to contribute more during 'extreme' events.
  - Data collected so far has captured spatial (across the catchment) and temporal (over time) trends.
  - Photos and videos are the most common type of observation.
  - The process of community-based monitoring has contributed to environmental education and catchment awareness.
- ✗ It has been difficult to successfully engage with the wider community and maintain participation – involvement has been largely restricted to those who are already part of a community (River Watch) group.
- ✗ The 'river watch photo post' has been vandalised (unfastened) twice at Broomshaw since it was erected in December 2014.



## Phase 3

- Store, process and perform quality assurance checks on all data collected
- Assess the quality of the citizen science data. Is it useful?
- Use the citizen science data for catchment management applications e.g. support the hydrological modelling process



## Impact along the way / wider success...

The citizen science aspect of the wider Catchment Restoration Fund project acts as a legacy framework – to help continue community-led activities, knowledge generation and ownership into the future.

Key findings relating to monitoring and data submission techniques have been shared with the Met Office to help revamp their 'Weather Observations Website (WOW)'

Citizen science aspect shared as 'best practice' nationally and internationally. Professionals e.g. river trusts are starting to adopt similar community-based techniques. Data collected has/is also supporting additional research projects

Media coverage including the Chronicle, BBC News & Breakfast channel, BBC Look North and Hexham Courant.

Publications containing the Haltwhistle Burn citizen science approach

Other communities in Northumberland are now monitoring e.g. Acomb, including the local primary school and Flood Group