



The challenge of lots of data: different ways to synthesise and visualise high frequency catchment data

Jennine Jonczyk (1), Nicholas Barber (2), Claire Benskin (3), Maria Snell (3), Clare Deasy (3,2), Sim Reaney (2), Paul Quinn (1), Gareth Owen (1), EdenDTC team (1,3,4)

(1) Newcastle University, Newcastle upon Tyne, United Kingdom (jennine.jonczyk@ncl.ac.uk), (2) Durham University, Durham, United Kingdom, (3) Lancaster University, Lancaster, United Kingdom, (4) British Geological Survey, United Kingdom

System understanding is vital for future catchment management and to inform mitigation of both flooding and DWPA. High resolution data sets collected at catchment outlets are becoming more common. They have the potential to provide new insights into how land units process water and how this influences nutrient and ecological dynamics. However, the monitoring equipment is costly to install and operate. Also, the volume of data, both temporally and spatially, presents new challenges to catchment scientists on how best to synthesise these data into a form where they can be visualised and utilised in decision making.

The Eden DTC project is part of a national project funded by the UK government to provide robust evidence on how diffuse pollution can be cost-effectively managed to improve and maintain water quality in rural river catchments. The impact of multiple water quality parameters on ecosystems and sustainable food production are being studied at the catchment scale. Three focus catchments (c. 10 km²) have been selected to represent the different farming practices and geophysical characteristics across the Eden catchment, Northern England. A field experimental programme has been designed to monitor the dynamics of agricultural diffuse pollution at multiple scales using state of the art in situ sensors, which provide continuous real-time data.

Data generated through this project will be used to explore these challenges and look at different ways to synthesise and visualise these data, ultimately providing a powerful communication mechanism that potentially can be used as a conduit for real holistic catchment management.