

Release of Carbon from Peatland Ecosystems

HPC-Competence Center

High Performance Computing (HPC) Wales is Wales' national super-computing service provider. Host to the UK's largest national distributed supercomputing network, HPCWales provides businesses and researchers with local access to world-class technology and the support to fully exploit it.



Enterprise

Dwr Cymru is the sixth largest of the ten regulated water and sewerage companies in England and Wales, responsible for providing over three million people with a continuous, high quality supply of drinking water and for taking away, treating and properly disposing of the wastewater that is produced.

How HPC makes the difference

Over the past 30 years dissolved organic carbon concentrations have doubled in the water derived from peatland catchment areas which is recognised as posing a serious threat to the quality of drinking water.

A collaborative project was developed between Dwr Cymru, Bangor University, Fujitsu and HPC Wales to investigate the release of carbon from peatland ecosystems in times of drought using a computationally-intensive technique called metagenomics – the study of genetic material recovered directly from environmental samples.

The analysis of the resulting metagenomic dataset has enabled the linking of genes and species abundance to the emission of greenhouse gases from peat. It is anticipated that the research findings will help deliver improved understanding on the more effective management and mitigation of risks to the future drinking water supply.

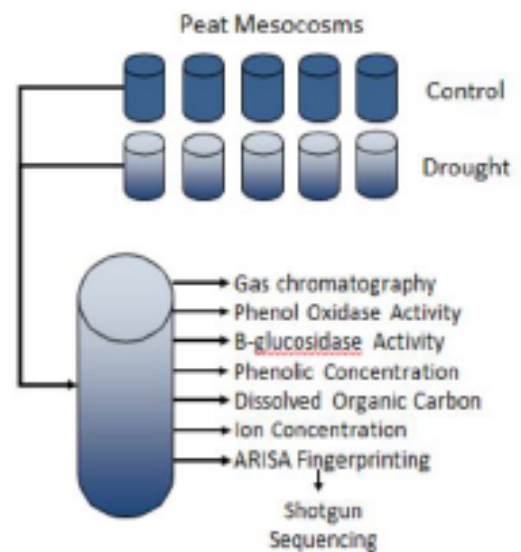


Fig: Experimental Techniques being used in the project

