

Thomas Howson

Research objectives

To separate total stream flow in the Blackwater sub-catchment into its individual flow components: surface runoff of rainfall, field drain flow and groundwater (baseflow).

Analysis based on two separate storm events as well as weekly sampling in mini-catchments A-F in the Blackwater.

Key messages

- Baseflow (2 April sample) has similar isotopic composition to borehole samples confirming the groundwater dependence in the Wensum catchment
- Storm event (ISCO) samples are isotopically less negative relative to groundwater (borehole) samples, but similar in composition to field drain samples indicative of rainfall runoff.

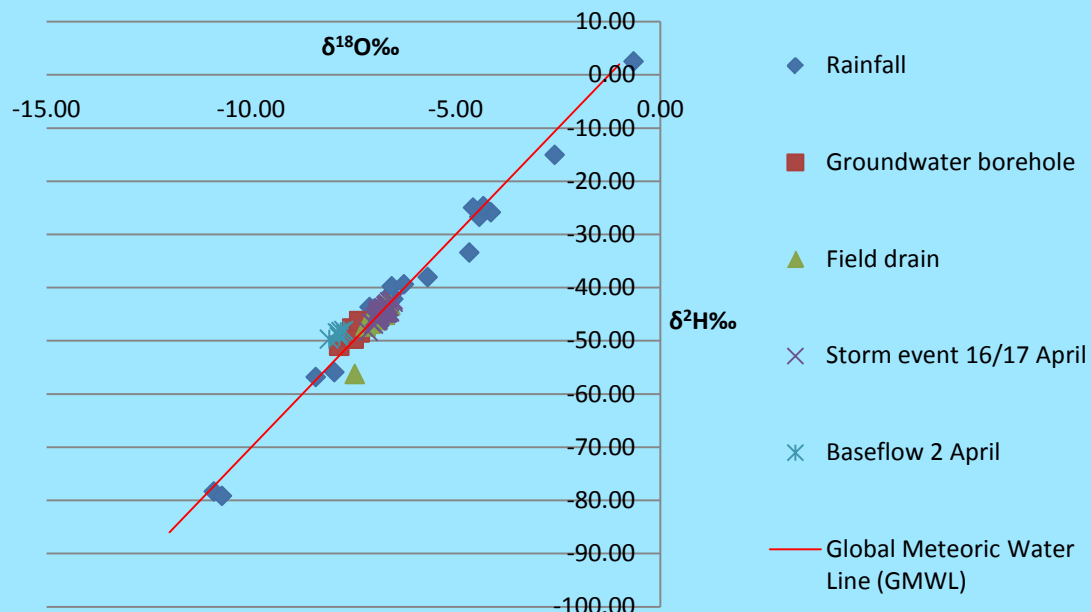
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Description of research/methods

Sampling and analysis programme:

- Rainfall samples collected between 3 April – 16 June.
- Two storm events sampled over 24-hour periods using ISCO automatic water samplers on 16/17 April and 15/16 June.
- Weekly grab sampling of stream waters from mini-catchments A-F in the Blackwater since 15 March.
- Field drains sampled in mini-catchments A and B on 30 April and 1 May.
- Grab samples collected on 2 April represent baseflow conditions in the Blackwater sub-catchment.
- Groundwater sampled from Merrison's Lane and Park Farm boreholes in June
- Samples analysed for oxygen and hydrogen stable isotopic composition (see cross-plot below) and further parameters including chloride.

Cross-plot of oxygen-18 vs. deuterium



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