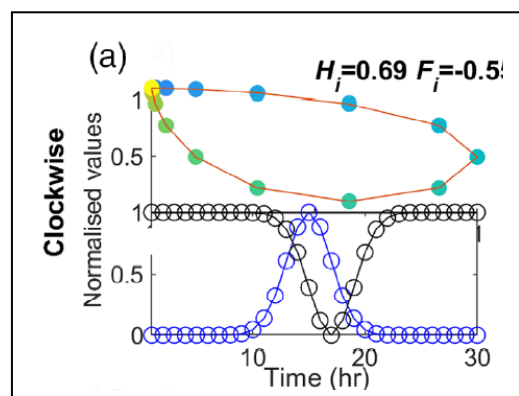


Mining high-frequency water quality data to detect concentration-discharge patterns

Credits: 30 credits
Level: Master
Subject: Environmental Science
Start: Anytime

Background

Concentrations of nutrients, carbon and sediments vary in a stream in response to changing flow discharge. Now thanks to high-frequency automated instruments, we can continuously measure concentrations of several water quality parameters and match them with the flow data. When concentration data (C) are plotted against flow discharge (Q), we often observe complex C-Q patterns including clockwise or anticlockwise hysteresis loops, which can provide information on hydrological and biogeochemical processes occurring in a stream.



Objectives

To mine 5 year high-frequency (every 15 mins) water quality dataset from agricultural catchment. To detect dominant C-Q patterns and how they change over years and seasons. To conduct a literature search on different C-Q patterns and their hydrological and biogeochemical origin. Background info <https://doi.org/10.1002/hyp.13973>.

Performance

The work involves:

- Field and laboratory measurements,
- Statistical analysis of a large C-Q dataset,
- Literature review and report writing.

Contact: Magdalena Bieroza, Soil and Environment, SLU

Email: magdalena.bieroza@slu.se

Website: <https://www.slu.se/en/ew-cv/magdalena-bieroza/>