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GIWS

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who am I

- Post-doctoral Research Associate, working with Helen Baulch (GIWS), Jane Elliott (ECCC) and David Lobb (UM-soil science).
- PhD from the Swedish University of Agricultural Sciences in 2013; postdocs in China (Chinese Academy of Agricultural Sciences) and USA (Penn State) before Dec. 2017.
- Soil scientist, focused on understanding nutrient cycling in agroecosystems and assessing agricultural management and climate impacts on water quality and crop productivity.

Nutrients

what tools/methods am I using

Lab soil/plant/water exp.

Field and watershed research

Meta-analysis

Climate

Soil mngt.

Crop mngt.

Nutrient m.

Water Quality

WEB OF SCIENCE

Tools/methods in my past research…

SWAT
Soil & Water
Assessment Tool

what have I done

- Assess how nutrient source, application rate, timing and placement affect soil fertility, crop yield and water quality
- Build relationships between phosphorus application history – soil test phosphorus – phosphorus runoff and leaching
- Assess agronomic and environmental trade-offs of cover crops in cold climates
- Improve field and watershed models and apply them for assessing management and climate impacts on water quality and crop production
- Collaborative efforts: e.g. special issue on "Agricultural water quality in cold environments"

what am I doing

Cross-region data synthesis: climate and management impacts on water quality

Crop impacts on rain interception, snow trapping, runoff and nutrient loss
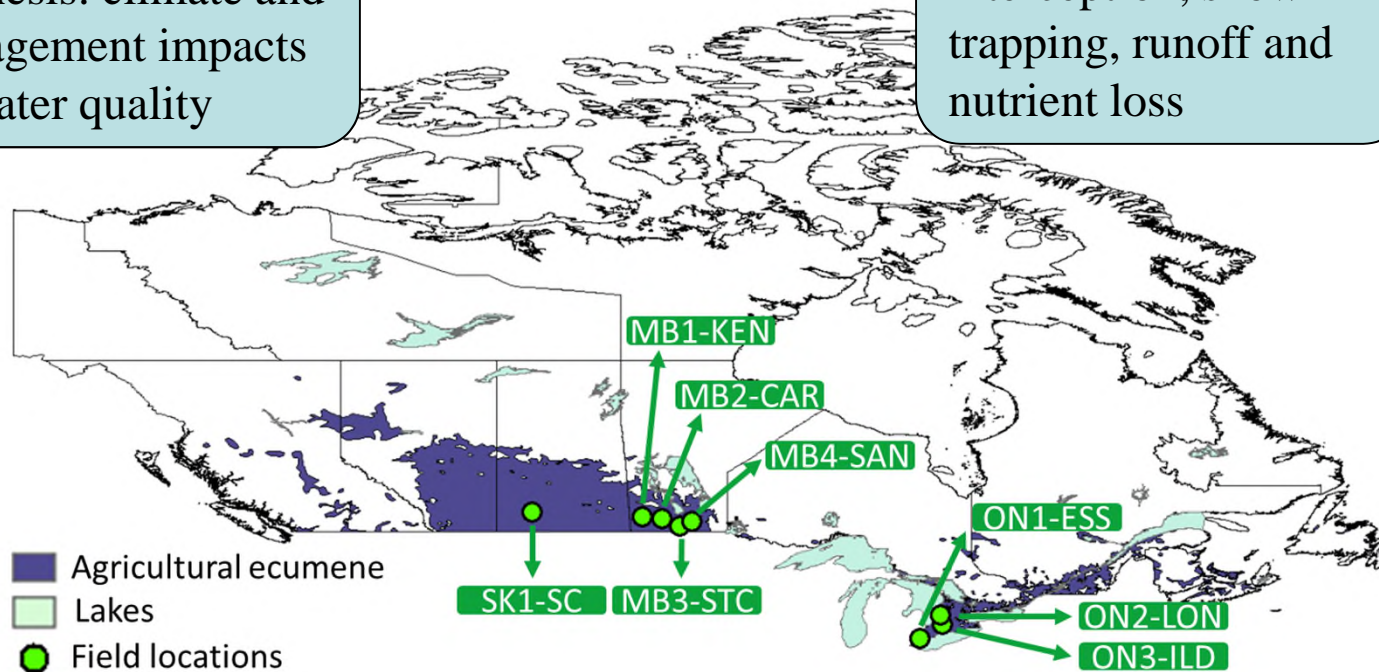
Agricultural drainage and ditch process impacts on water quality

Workshop: Agricultural and environmental phosphorus management

MB1-KEN
MB2-CAR
MB4-SAN
ON1-ESS
SK1-SC
MB3-STC
ON2-LON
ON3-ILD

Agricultural ecumene
Lakes
Field locations

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what would I like to do/see in food-water

- Collaborate with agronomists, crop scientists and hydrologists to better understand nutrient and water cycling in the plant-soil-water-air system and explore inter-disciplinary measures that can be used to improve water quality without impacting crop yield:

    a) "Lock" nutrients and water in the soil??

    b) Low-P demanding or high-P removing crops??

    c) Frost-resistant cover crops??

    d) …

One big question for the group to think

- Can we improve Canadian water quality while increasing or maintaining crop production?

Good water quality

High crop yield