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# Added value of the SWOT satellite products for Canadian hydrological forecasting

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**SWOT Science Team meeting – 27-30 June 2022**

Lightning talk session

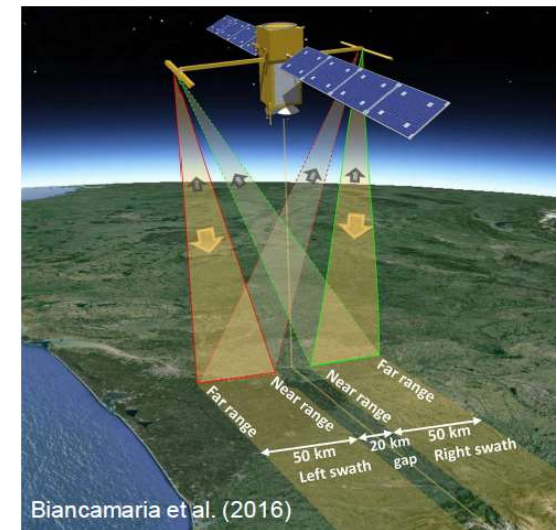
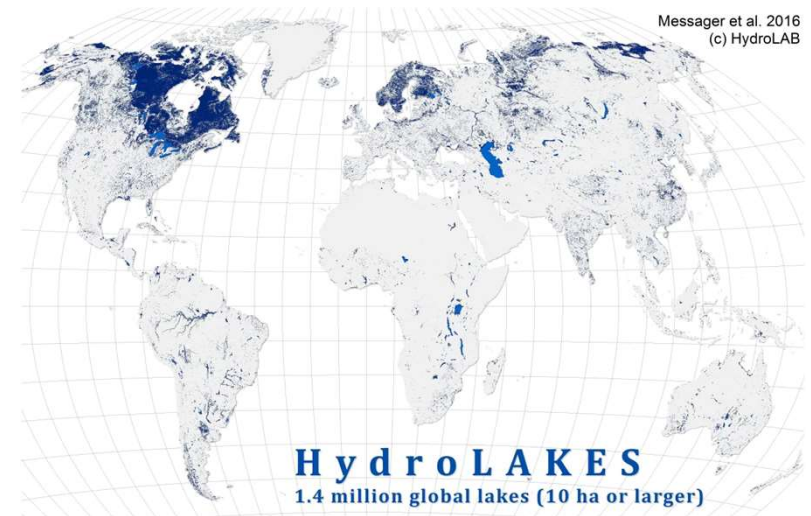
**M. Amine Bessar, Étienne Gaborit, François Anctil, Pascal Matte, Vincent Fortin, Mohammed Dabboor**

# Study objectives

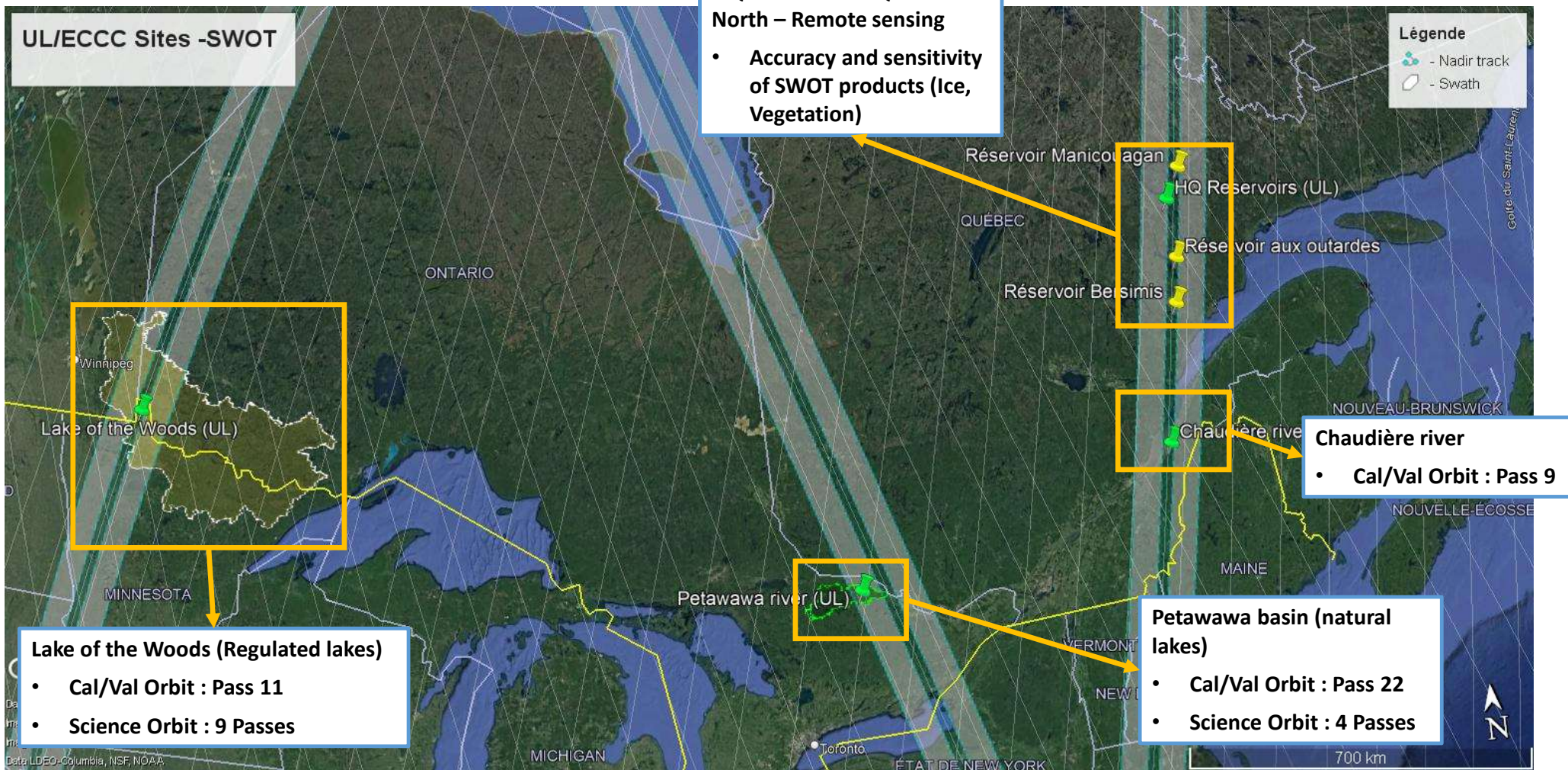
- 62% of the world's lakes are in Canada
- A large river network
- The SWOT mission will help advance the state of knowledge in hydrology



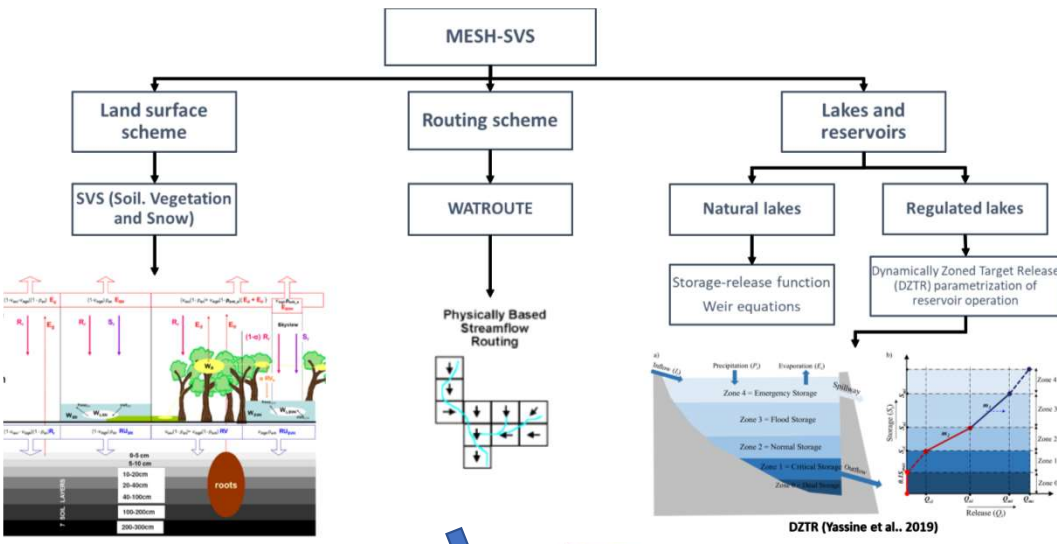
- 1. Explore feasibility of improving routing performance for Canadian hydrological forecasting systems using SWOT observed data**
  - Model calibration/validation
  - Data assimilation
- 2. Evaluate the accuracy of SWOT observations based on in-situ and satellite missions (RCM) in variable environmental conditions**



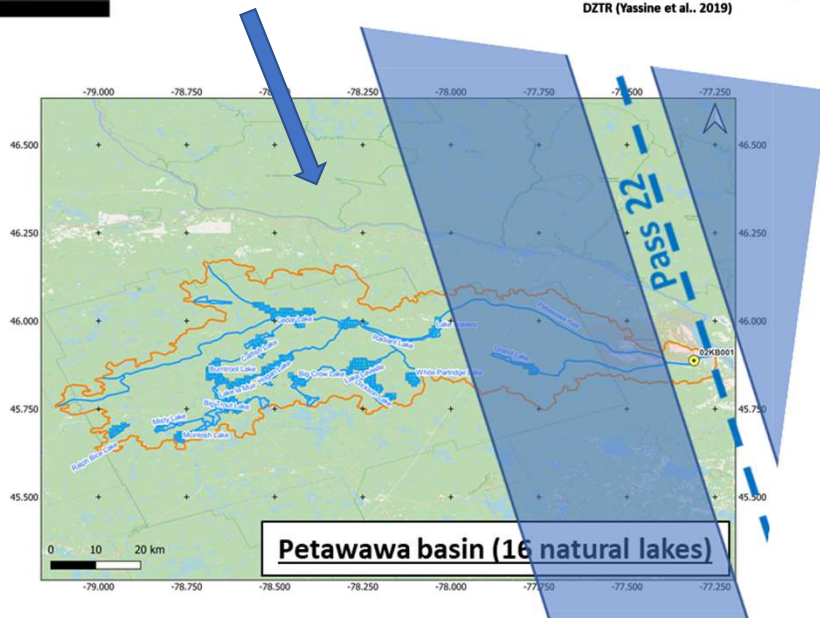
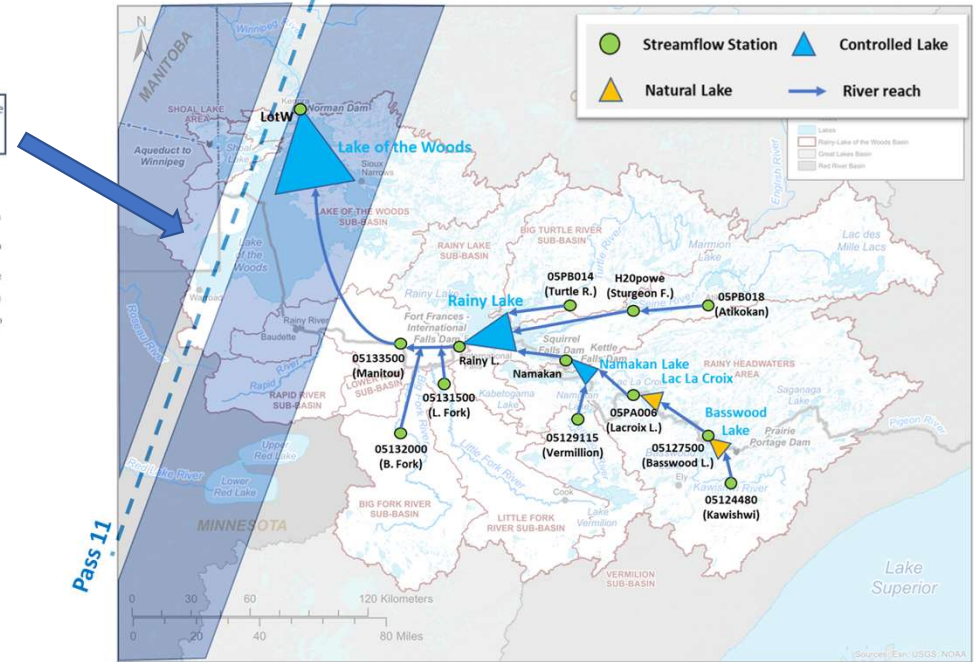
# Study area



# Hydrological modeling setup

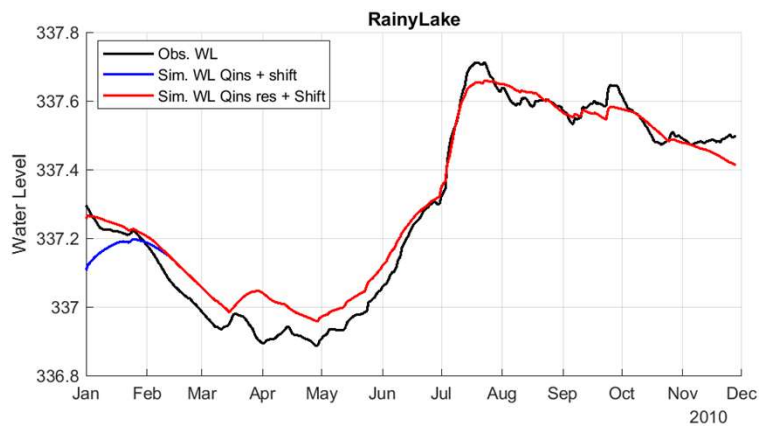
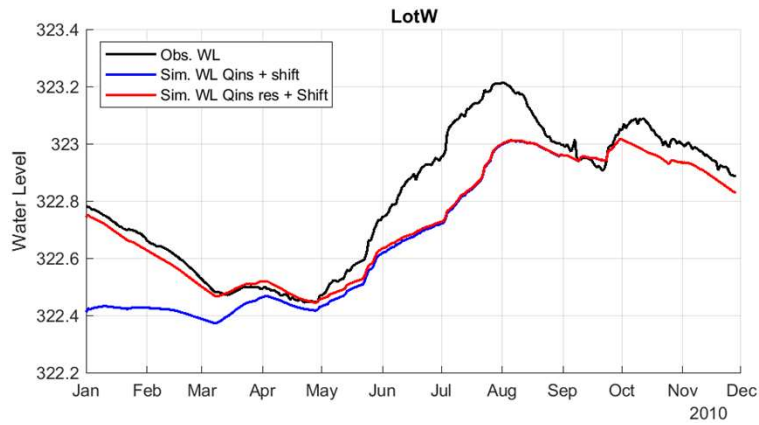


## Lake of the Woods (3 regulated lakes, 2 natural lakes)

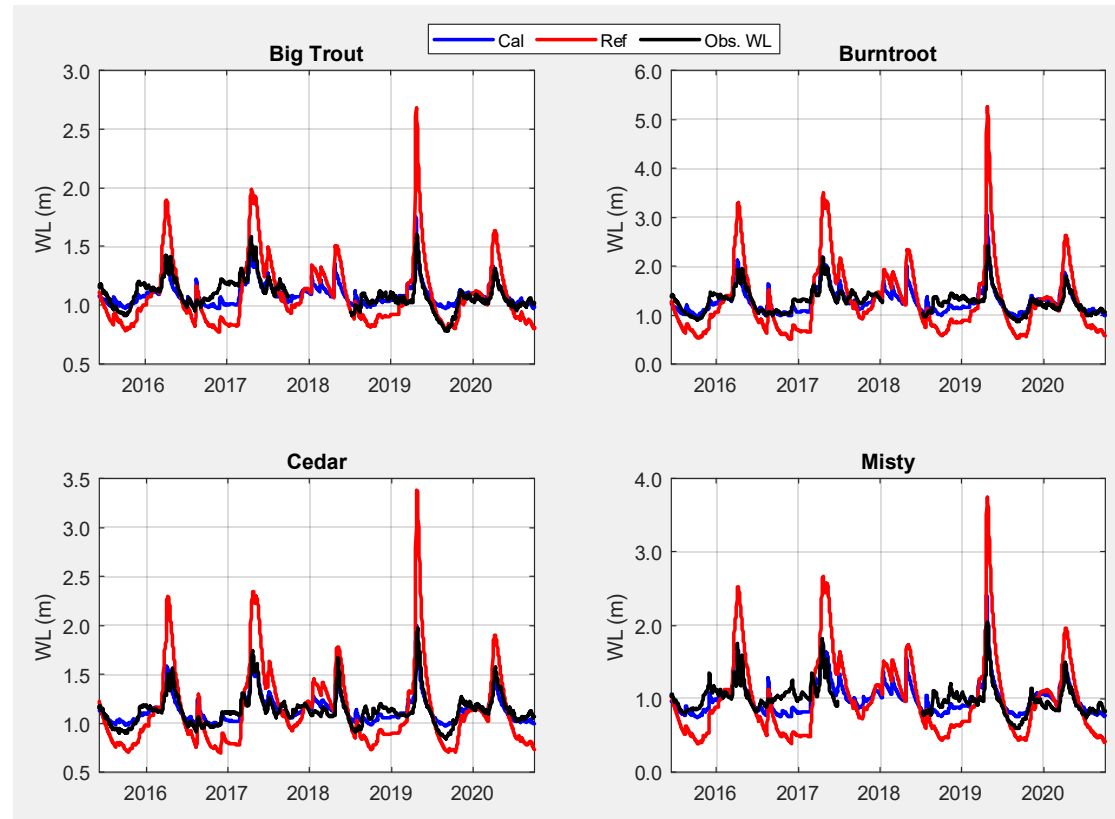


# Preliminary results

## Lake of the Woods



## Petawawa basin



# Expectations for the SWOT mission

- The SWOT data will be used to
  - Validation of SWOT data
  - Evaluation of simulated water levels
  - Refine model calibration
  - Data assimilation (lag time!)
- Future developments
  - Implementation of data assimilation
  - Real time simulations
- By-Products
  - L2\_HR\_LakeSP, L2\_HR\_RiverSP, discharge.
- Complimentary data
  - RCM data : impact of ice and vegetation on SWOT data accuracy

# Thank you for your attention



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