

WesternWater Centre

RESEARCH THEME

- **Water Resources**
 - ~\$14M in funding
 - Current HQP: 5 PhDs, 5 MEdSc, 2 PDFs
 - 3 state-of-the-art laboratories and research groups

3. Water Resources

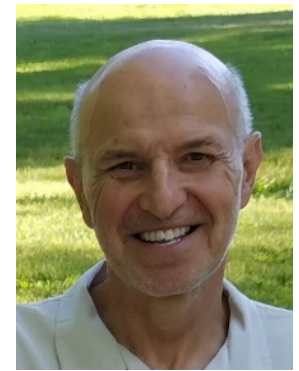
FOCUS

- Climate change and green infrastructure
- Natural hazards including floods and droughts
- Systems modeling
- Risk and resilience analysis
- Water resources and environmental systems analysis
- Computer-based decision support systems development
- Integrated water resources management

OVERVIEW

- Number of degrees conferred: 22 PhDs, 46 MSc, 19 PDFs
- Number of candidates currently supervised: 5 PhDs, 5 MSc, 2 PDFs
- Publications: 256 JP, 32 BM, 125 TR, ~ 300 C
- Funding: ~\$14.4 M
- Advanced programming and HPC capabilities
- Laboratories and research groups

Hydraulics lab, Facility for Intelligent Decision Support, Multi-hazard, risk and resilience



Slobodan Simonovic



Imtiaz Shah



Reza Najafi

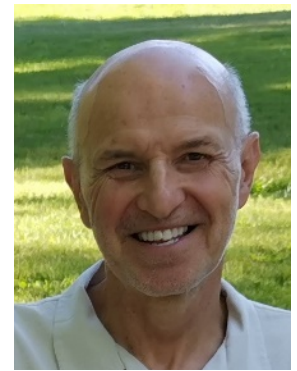
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COLLABORATION/TRAINING AND PROFESSIONAL DEVELOPMENT

- Environment and Climate Change Canada
- BC Hydro
- Ministry of Environment, Conservation and Parks
- Conservation Authorities
- Municipal Govt
- Chaucer Reinsurance
- China Institute for Water and Hydropower Research
- Wuhan University
- First Nations etc

Training:

- Erosion and Sediment Control
- Stormwater management
- Low Impact Development
- Hydrologic and hydraulic modelling
- BC Forestry
- CAPES School of Advanced Studies of Water & Societies under Change
- USP São Carlos, Brazil; and APEG BC



Slobodan Simonovic



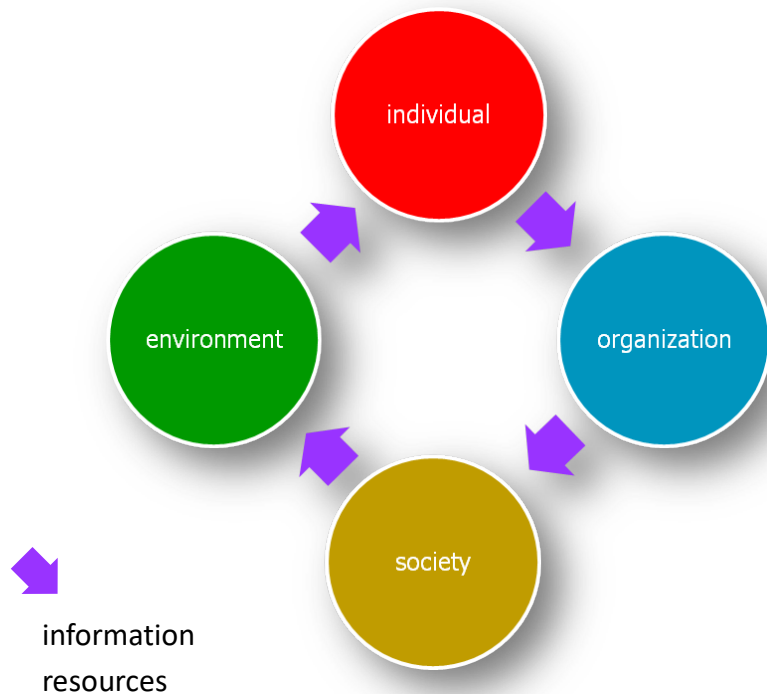
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SYSTEMS ANALYSIS

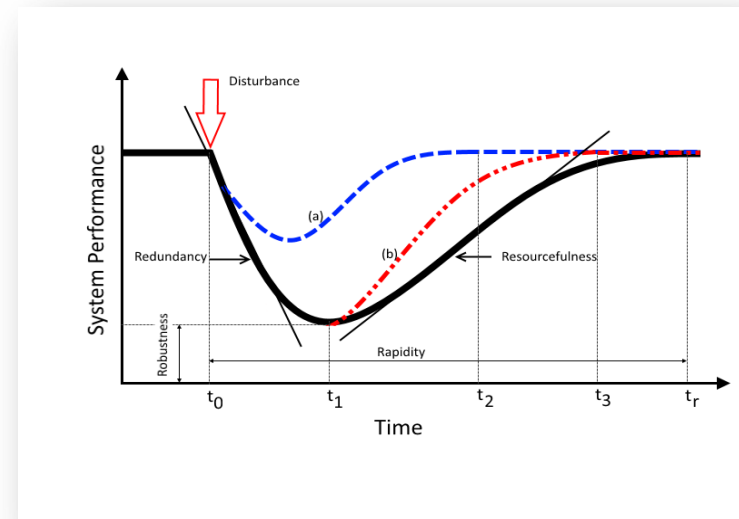
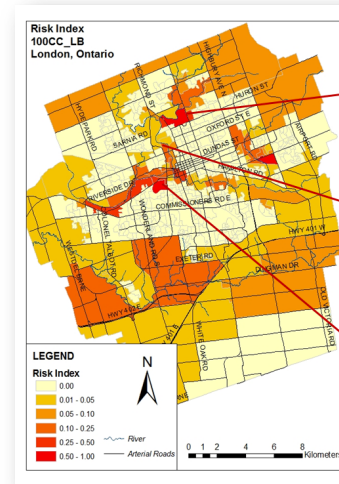


- Addressing **complexity**
- The systems of interest are social systems of:
 - Individuals
 - Organizations
 - Societies and
 - Environment.
- Flows connecting the subsystems:
 - Resource, and
 - Information.
- Information is used to determine resource use by subsystems.
- Values provide meaning to information flows.

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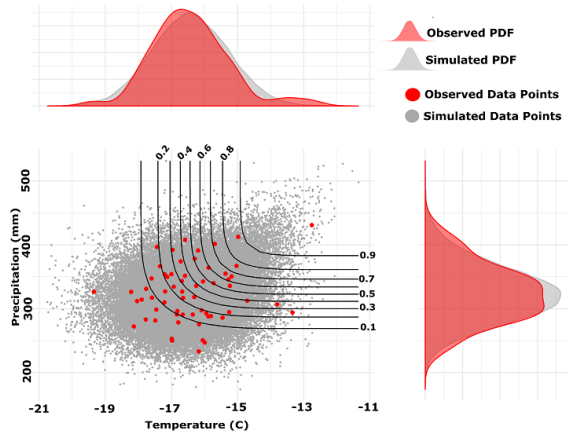
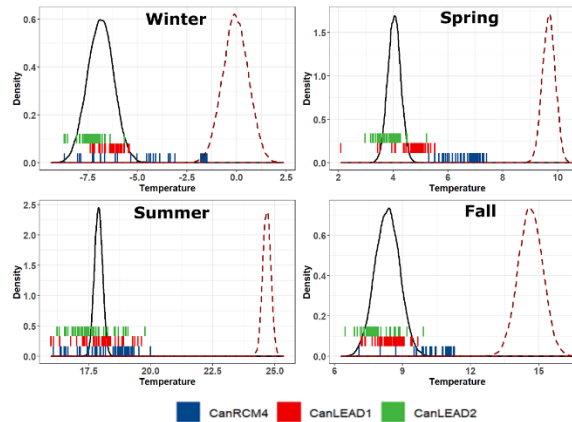
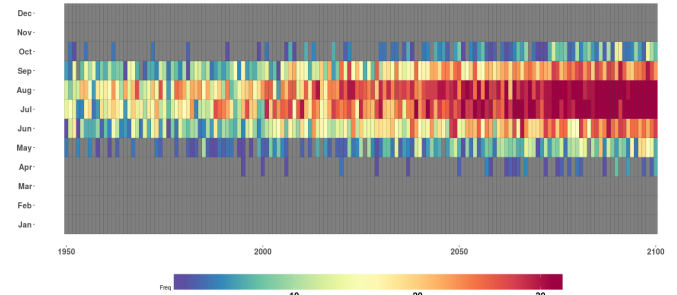
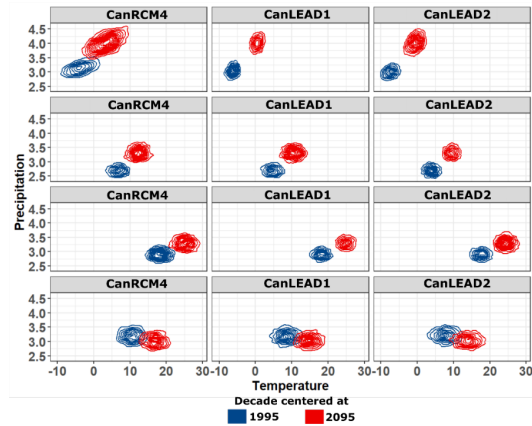
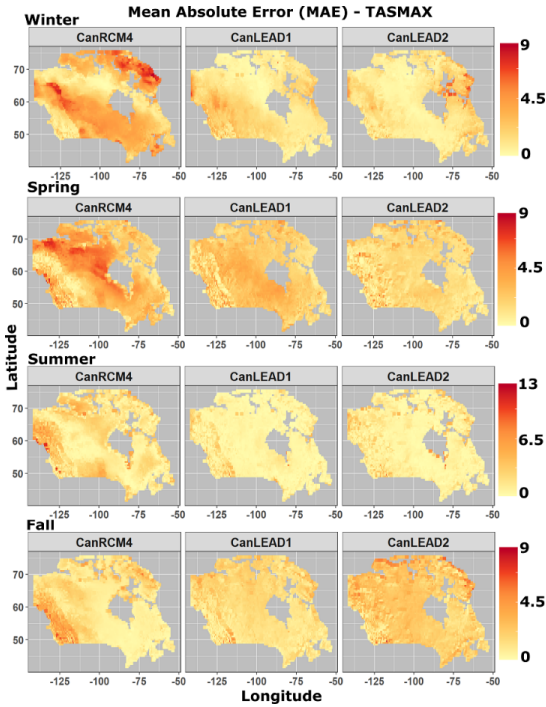
RISK AND RESILIENCE

- Addressing **uncertainty**
 - Risk (static)
 - Resilience (dynamic)
- Risk management as adaptation to global change
- Resilience as a criterion for decision making



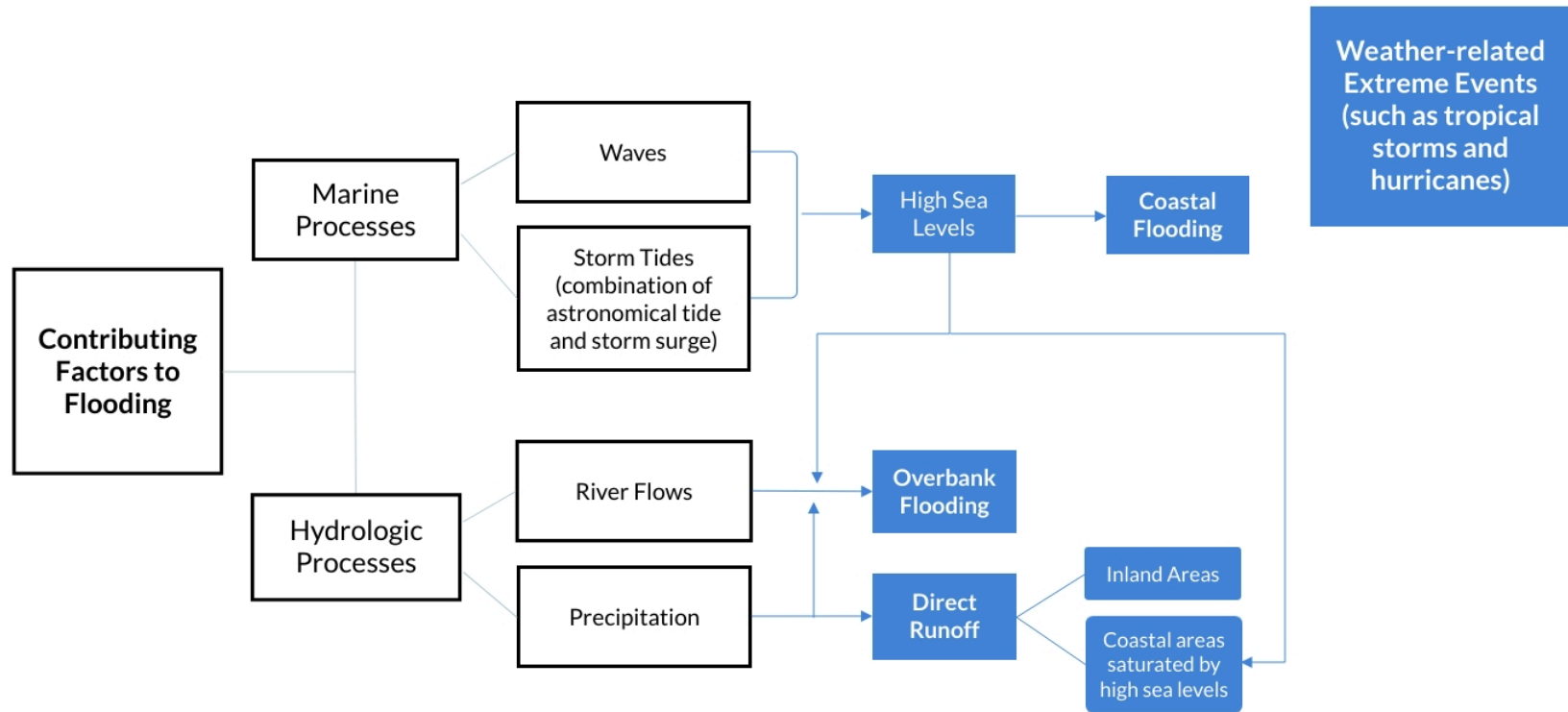
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PROJECTED IMPACTS OF CLIMATE CHANGE ON EXTREME EVENTS



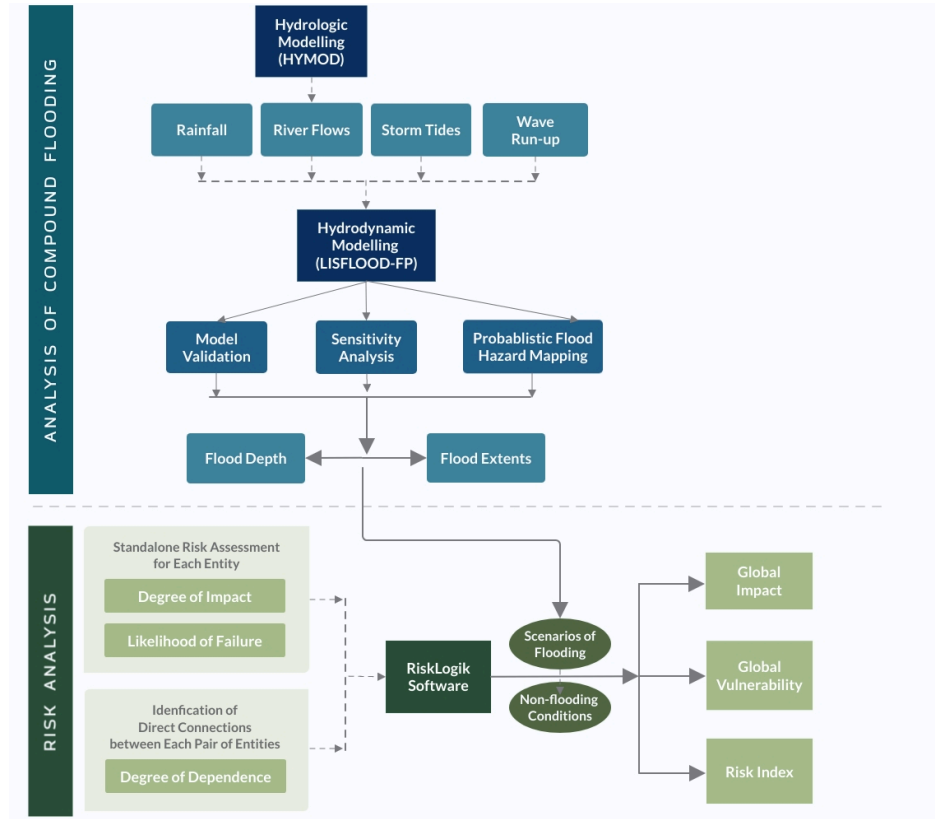
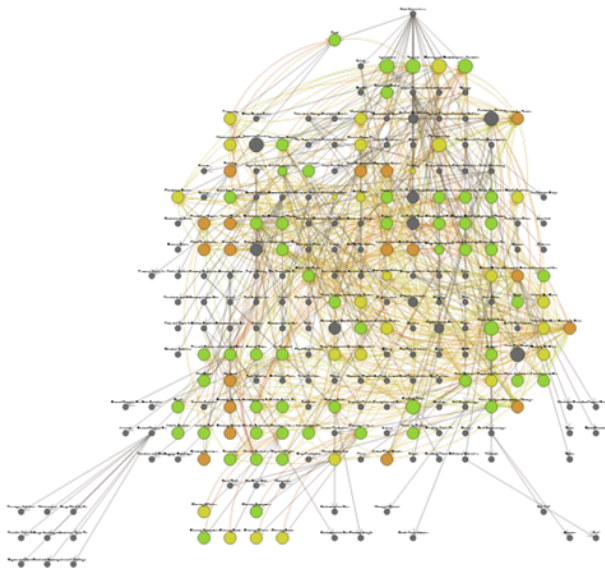
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COMPOUND FLOODING



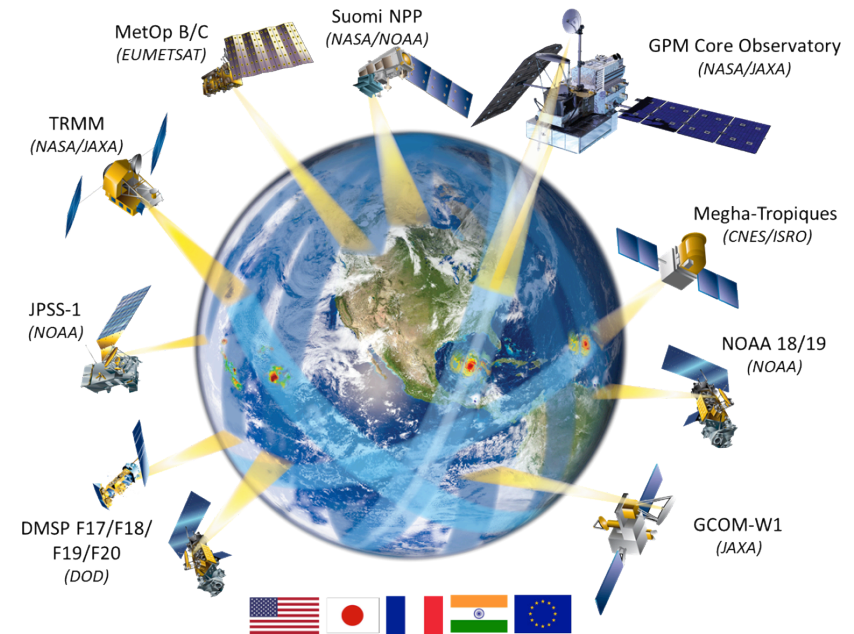
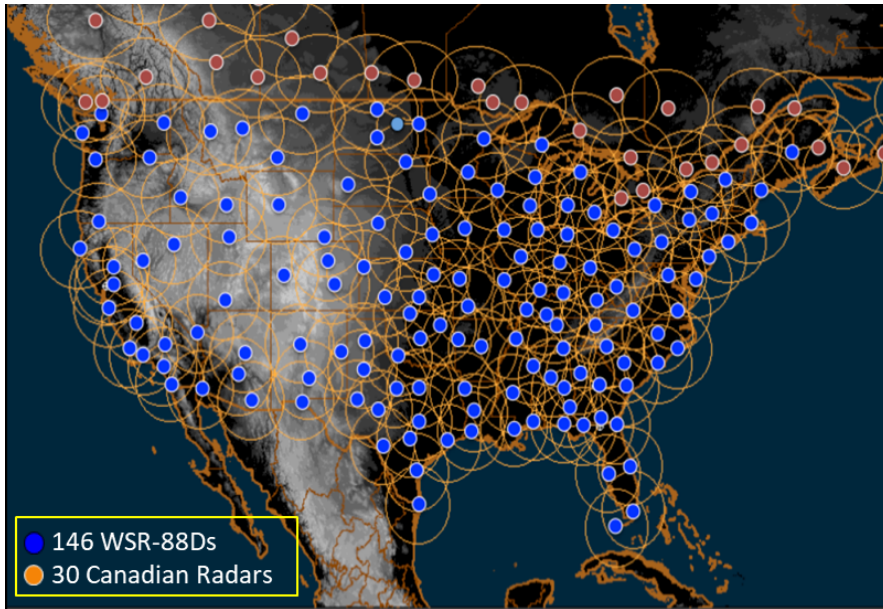
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REMOTELY-SENSED QUANTITATIVE PRECIPITATION ESTIMATIONS



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REMOTELY-SENSED QUANTITATIVE PRECIPITATION ESTIMATIONS

