

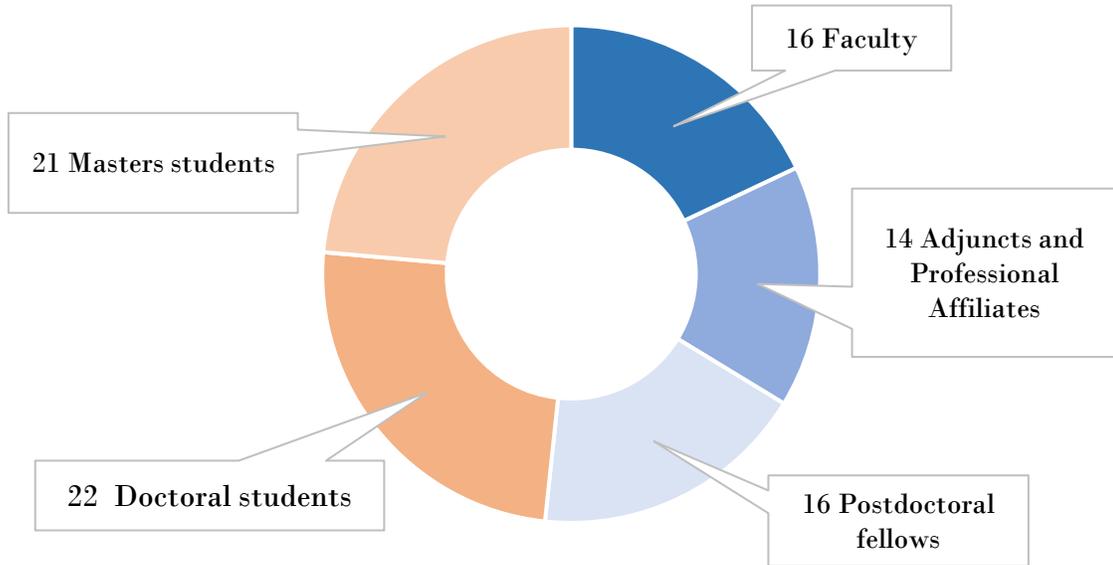


Department of
GEOGRAPHY & PLANNING
RESEARCH PROFILE

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2020-2021 ACTIVITY REPORT

THE DEPARTMENT



RESEARCH BY THE NUMBERS, 2020-21



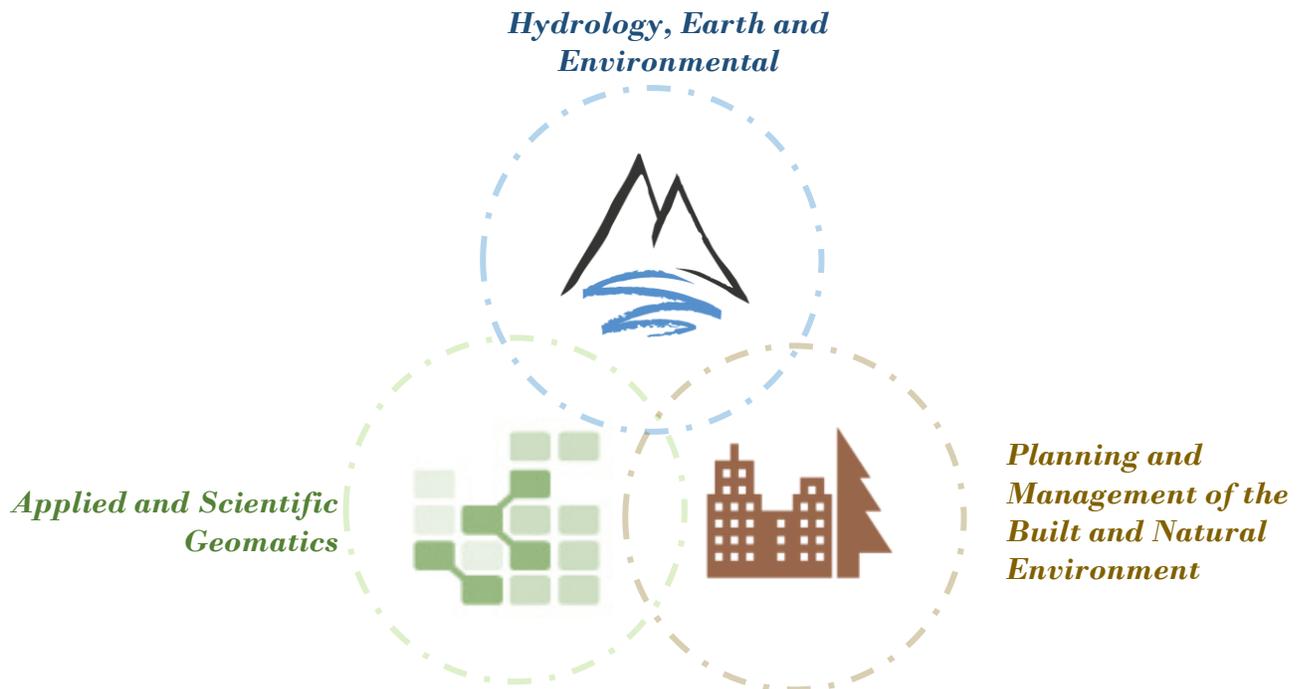
RESEARCH MISSION AND VALUES

The Department of Geography and Planning shares the University's mission to achieve excellence in the scholarly activities of teaching, discovering, preserving, and applying knowledge. Included amongst the values we hold as important in guiding our research are: excellence in scholarship and graduate student mentoring; academic freedom and independence; interdisciplinarity, integration and collaboration.

We are committed to research with impact both within and beyond the scholarly community – research that tackles today's societal and environmental challenges, stimulates public debate on pressing environmental and community issues, and addresses challenges framed by our sense of place stretching from the local through to international scales.

RESEARCH FOCUS

Research activity in our department exemplifies the spirit of the disciplines of geography and planning and is concentrated in three overlapping domains: *Hydrology, earth and environmental systems; Applied and scientific geomatics; Planning and management of the built and natural environment*. Much of our research occurs at the boundaries of these domains, is crosscutting, and is focused on integrative approaches to addressing scholarly and societal challenges and mobilizing knowledge.





HYDROLOGY, EARTH AND ENVIRONMENTAL SYSTEMS

Modeling and understanding hydrological, ecological, and geophysical systems and interactions with the human environment. Our research is focused on understanding, assessing, and modeling physical environmental systems and processes and the landscapes they create, including how environmental systems are changing under natural and human-induced stress. This includes research on water supply resilience and vulnerability, marine environments, responses of river flow and glacier cover to climate change, fluvial geomorphology, erosion modeling, wetland science, and ecohydrology.

Research also occurs at topical boundaries, using applied geomatics and other tools and exploring the implications of physical environmental change for policy, planning, and management of the human environment. This includes research focused on flood risk management, environmental impact assessment, and decision support tools for wetland assessment and watershed management.

Our Department is home to the Centre for Hydrology, a Tier I Canada Research Chair in Water Resources and Climate Change and the Director and Associate Director of the CFREF-funded Global Water Futures program – the largest university-led freshwater research program in the world. The Centre for Hydrology currently manages much of its research relating to mountain hydrology and earth system prediction at the Coldwater Laboratory in Canmore, Alberta, its sensor development and drone laboratory at the Smart Water Systems Laboratory at the National Hydrology Research Centre of Environment and Climate Change Canada and its research on prairies, boreal forest and northern Canada from the Canadian Centre for Water Forecasting and Prediction at 121 Research Drive in Innovation Place.

Some of our current research projects include:

- Rocky Mountain water supply resilience and vulnerability evaluation
- Expanded testing and development of the Prairie Hydrological Model in Prairie pothole watersheds
- Long-term ecology and seabed habitat mapping, Frobisher Bay, Nunavut

- Assessing community structure of marine benthos, Canadian Arctic Archipelago
- Understanding the alterations of hydrogeomorphic processes by beavers
- Assessment of PAH distributions in sediments in the oil sands monitoring area and western Lake Athabasca
- Assessing beaver influence on mountain peatland form and ecohydrological function



APPLIED AND SCIENTIFIC GEOMATICS

Advancing GIS, spatial statistics, and remote sensing, with applications to problems in the social, physical and environmental sciences.

Our research is focused on the development of remote sensing techniques for assessing forests and grasslands productivity, using GIS and spatial statistics in health research and urban geography, and developing tools to examine human mobility, navigation, and interaction in urban environments.

Research also occurs at topical boundaries, contributing the development and application of geomatics for understanding physical systems and supporting policy and planning decisions. This includes collaborative research with computer science, plant science, and other scholars, practitioners and decision makers from the social, health and natural sciences. Our work in this area includes the development of new tools and the integration of emerging technologies, such as the development of smartphone applications for indoor positioning and mobility tracking, the use of field-based sensor systems, and the integration of drones for environmental modeling.

Key research projects include:

- Integrating measures of grassland function using Remote Sensing
- Development of monitoring methods for dead materials in Alpine pastures using Remote Sensing data in Qinghai-Tibet plateau
- Strategic Environmental Assessment application for landscape-based, temporal analysis of wetland change in urban environments

- Detecting spatial and temporal changes in land cover on Aboriginal reserves
- Visualizing and communicating urban and transposition spatial-temporal data
- Measuring the impacts of long-term public transport service disruptions and the effectiveness of mitigation strategies.
- Establishing functional relationship between public transit ridership and local and regional accessibility measures.



PLANNING AND MANAGEMENT OF THE BUILT AND NATURAL ENVIRONMENT

Planning and design of urban and rural spaces, and assessing and managing human interactions with the natural environment. Our research is focused on the built and natural environment, including human well-being and the planning and design of urban and rural spaces. This includes research on the origins of city form, urban quality, transportation system performance, sustainable cities, municipal governance, Indigenous health, indigenous urbanism, and human behavior and navigation.

Research also occurs at topical boundaries, including natural resources planning and management, and exploring human interactions with the natural environment using applied geomatics and other analytical tools. This includes research focused on watershed planning and management, flood risk management, environmental policy and planning, land use and transportation systems interactions, sustaining northern communities, energy policy, and environmental and social impact assessment.

Our research is supported by collaborations with a variety of external government, industry and community partnerships and on-campus partnerships, including the School of Environment and Sustainability, Johnson-Shoyama Graduate School of Public Policy, and the Saskatchewan Population Health and Evaluation Research Unit.

Some of our current research projects include:

- Baseline analysis for marine shipping impact assessment in Nunavut
- Source water protection planning with First Nations in Saskatchewan

- Integration of food security considerations in regional strategic environmental assessment
- Creating demand for a downtown lifestyle in Saskatoon
- Indigenous health policy network analysis of northern Saskatchewan: linking climate change, youth suicide, decision making and policy gaps
- The emergence of Type 2 diabetes in First Nations and Métis communities
- Exploring current and future potential health risks associated with private drinking water well use
- Establishing First Nation indicators of water-related health and wellbeing
- Developing coupled system approaches to water-related health
- Women and water fetching in rural Uganda and Ghana
- Watershed and habitat protection planning with First Nations
- Climate change adaptation planning with First Nations
- Exploring the concept of complete neighborhoods (15-minute city) and its application in small and medium-sized cities in Canada

RESEARCH FUNDING ENVIRONMENT

Our research funding provides opportunities for graduate student training at both the Master's (MA, MSc) and PhD level. Our faculty and graduate students have been successful in obtaining Tri-Agency funding from NSERC, SSHRC, and CIHR, with some faculty having received funding from more than one Tri-Agency. Our research is also funded by a variety of other sources, including CFI, SSHRF, Mitacs, ArcticNet; federal, provincial, territorial and municipal government departments and agencies (e.g. Environment and Climate Change Canada, Water Security Agency, Parks Canada, Canadian Environmental Assessment Agency, Government of the Northwest Territories, Nunavut Research Institute, Northern Scientific Training Program, City of Saskatoon); foundations (e.g. Weston Foundation); and centres (e.g., Sylvia Fedoruk Canadian Centre for Nuclear Innovation). Our funding sources reflect the breadth and interdisciplinary nature of research in the Department of Geography and Planning.

KEY FUNDING ANNOUNCEMENTS, 2020-21

THE FILE HILLS QU'APPELLE TRIBAL COUNCIL INITIATIVE ON CUMULATIVE EFFECTS (\$304,000) BLAKLEY, J. (CO-PI) & NOBLE, B. (CO-PI)	NEXT-GENERATION LARGE-DOMAIN HYDROLOGICAL MODELLING CAPABILITIES (\$80,000) CLARK, M. (PI)	COMMUNITY ENERGY PROFILES AND THE CASES TOOLKIT (\$105,000) NOBLE, B. (PI)
HYDROLOGY-ECOLOGY FEEDBACKS IN THE ARCTIC: NARROWING THE GAP BETWEEN THEORY AND MODELS (\$271,000) CLARK, M. (PI)	THE IMPACTS OF TRANSIT SYSTEM LONG TERM DISRUPTIONS AND TRANSITIONAL PERIODS ON RIDERSHIP AND TRANSIT USERS PERCEPTION (\$30,000) DIAB, E. (PI)	IMPROVING THE REPRESENTATION OF SUB-GRID SNOW PROCESSES ON LAND-SURFACE MODELS (\$129,000) POMEROY, J. (PI)
TOWARDS SASKATCHEWAN WELL WATER SECURITY: KNOWLEDGE AND TOOLS FOR PEOPLE AND LIVESTOCK HEALTH (\$140,000) SCHUSTER-WALLACE, C. (PI)	PARADIGM SHIFT IN DOWNSCALING CLIMATE MODEL PROJECTIONS: BUILDING MODELS AND TOOLS TO ADVANCE CLIMATE CHANGE RESEARCH IN COLD REGIONS (\$170,000) POMEROY, J. (CO-PI) & CLARK, M. (CO-PI)	WE NEED MORE THAN JUST WATER: ASSESSING SEDIMENT LIMITATION IN A LARGE FRESHWATER DELTA (\$200,000) PATRICK, R. (CO-PI)
HEALTHY LAND-HEALTHY PEOPLE, FIRST NATION OF NA-CHO NYAK DUN, YUKON TERRITORY. (\$7,000) PATRICK, R. (PI)	PROBABILISTIC PREDICTIONS OF HYDROLOGICAL PROCESSES ACROSS CANADA ON TIME SCALES FROM SECONDS TO SEASONS (\$180,000) CLARK, M. (PI)	WATER SECURITY TO PROMOTE GENDER EQUITY AND CLIMATE-CHANGE RESILIENCE IN WEST AFRICA (\$289,315) SCHUSTER-WALLACE, C. (CO-PI)

CELEBRATING OUR CURRENT POSTDOCTORAL FELLOWS



Dr. Marysa Laguë

Dr. Laguë is a James S. McDonnell Foundation Postdoctoral Fellow in Dynamic and Multi-scale Systems, working with Prof. Martyn Clark at the Coldwater Laboratory in Canmore, AB. In her research, Dr. Laguë aims to understand how and where changes in the land surface drive changes in the atmosphere. By altering fluxes of water and energy between the surface and the overlying atmosphere, changes in the land – such as changes in vegetation – alter atmospheric temperatures, moisture content, cloud cover, precipitation, energy and water transport, and large-scale atmospheric circulation. These land-driven atmospheric changes alter both terrestrial and global climate. She has shown that atmospheric feedbacks to terrestrial change can double the local impact of vegetation change on surface temperatures than what would be expected from land surface processes alone, and generate global-scale climate changes by modifying the atmospheric water vapour greenhouse effect.

Dr. Marysa received the 2021 Holton Award from the American Geophysical Union. She grew up in rural British Columbia, completing a BSc in Honours Mathematics at the University of British Columbia before moving to the University of Washington, where she completed a PhD in Atmospheric Sciences and MSc in Atmospheric Sciences and Applied Mathematics. Before moving to the Coldwater Laboratory, she was a postdoctoral fellow at the University of California, Berkeley.



Dr. Aygun Okan

Dr. Okan is a Postdoctoral Fellow with Global Water Futures at the University of Saskatchewan in Canmore, AB. He is working with Prof. Martyn Clark and Prof. John Pomeroy. His current research focuses on understanding and modelling the hydrological system of the Aral Sea basin in central Asia.

Dr. Okan completed his PhD in the Department of Environmental Sciences at the University of Quebec at Trois-Rivieres & Montreal in 2020. He has an MSc degree in Water Science and Engineering/Flood Risk Management from IHE Delft Institute for Water Education, the Netherlands. He obtained his BSc degree in Civil Engineering from the Middle East Technical University in Turkey. He has a few years of working experience as a water resources engineer.



Dr. Vikas Menghwani

Dr. Menghwani is a postdoctoral fellow in the Department of Geography and Planning, University of Saskatchewan. He is currently working with Prof. Bram Noble. Dr. Menghwani is part of the CASES Partnership Project and is currently working on energy security issues of remote off-grid communities in Northern Canada.

Dr. Menghwani has a PhD from the Institute for Resources, Environment & Sustainability at University of British Columbia. He has worked on energy poverty in developing countries. His doctoral work includes addressing challenging energy access problems through modelling-based methods, and conceptualizing (energy) justice concerns in the context of (lack of) electricity provision. Dr. Menghwani completed his Mechanical Engineering (with a master's degree in Energy Technology) education in 2009 from Indian Institute of Technology Madras. He worked in climate change consulting for 3 years, covering renewable energy and energy efficiency projects across India and Southeast Asia, followed by 2 years in business research.



Dr. Tariq Munir

Dr. Tariq Munir is completing his postdoctoral fellowship in ecohydrology with Prof. Cherie Westbrook the Director of NSERC CREATE for Water Security at University of Saskatchewan. He actively worked on beaver-dam-analogues in Rocky Mountain wetlands, in order to restore stream functions and adapt to climate change.

Dr. Tariq Munir has 20+ years of research and teaching experience. He likes the Canadian Boreal Forest and Rockies for climate change studies in:

- Wetland Environment,
- Mountain Streams,
- Beaver-Ponds, and
- Greenhouse gas flux measurement, monitoring and empirical modelling.

Once he is back to town, he loves enjoying himself with family and friends and participating in community services.



Dr. Inonge Milupi

Dr. Milupi is a lecturer and researcher of Environmental Education at the University of Zambia and a Post-Doctoral fellow at the University of Waterloo in Canada in the faculty of public health. She is currently co-supervised by Prof. Corinne Schuster-Wallace. Her research interest includes climate change, water and sanitation, natural resource management and Local ecological knowledge.

Dr. Milupi's Postdoc research is entitled "Developing a rural-based WASH framework for addressing water supply, sanitation and health problems of rural communities in the Barotse floodplain in Western Zambia." It aims at developing an effective adaptation tool and strategies that would help in addressing water supply, sanitation and health problems in the Barotse floodplain in Western Zambia.



Dr. Kang Liang

Dr. Liang is a postdoctoral researcher at the Department of Animal Science, University of Manitoba. He is co-supervised by Prof. John Pomeroy. Dr. Liang joining UoM in 2020 obtained his PhD in Environmental Science from the University of New Brunswick. Dr. Liang primary focus of his research is on the environmental impacts of agricultural & animal production on terrestrial and aquatic ecosystems under changing climate.

He is currently working on a project that studies the water and nutrient dynamics in pastures utilized by beef cattle in the Canadian prairies. He also has several years of experience in studying how agricultural beneficial management practices and land use/land cover affect water quantity and quality from field to watershed scale through field experiments and hydrologic modelling.

IMPORTANT NEWS 2020-21

Where the river flows: How a proud history of water research led USask to be ranked No.1 in Canada



With a stellar reputation that attracts top talent and partners from around the world, the University of Saskatchewan (USask) has been ranked number one in Canada for water resources research and one of the top 20 in the world for three years in a row, according to the Academic Ranking of World Universities (ARWU).

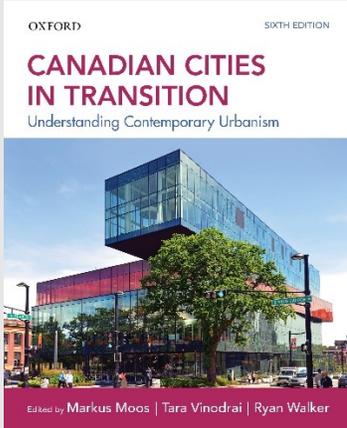
Complete article is found [online here](#)

Most Advanced Snow Modelling in the World Developed in Saskatchewan



A collaboration of international minds, including experts in Saskatchewan, have created the most advanced snow modelling in the world.

Complete article is found [online here](#)



Award for Planning Excellence Merit 2021

The Canadian Institute of Planners 2021 Awards for Planning Excellence jury has given the Award of Merit to Canadian Cities in Transition: Understanding Contemporary Urbanism, edited by Ryan Walker, Tara Vinodrai and Markus Moos, in the category of planning publications and media.

Complete article is found [online here](#)



'It's been a pretty wild ride': USask course attracts students from around the world, demonstrates innovation in teaching and learning

More than 90 students from more than a dozen countries enrolled in GEOG 825, taught by Dr. Martyn Clark (PhD)

Complete article is found [online here](#)

TWO NEW UNDERGRADUATE CERTIFICATES

Certificate in Urban Design

The certificate provides students with an expanded perception of the relationships between design-thinking, visual arts, and the built environment.

Complete article is found [online here](#)

Certificate in Water Science

It offers students theoretical and practical training in hydrologic science. Emphasis will be placed on a quantitative understanding and analysis of the hydrologic cycle.

Complete article is found [online here](#)

FACULTY



ALEC AITKEN, PROFESSOR, DEPARTMENT HEAD

ARCTIC MARINE BIOLOGY; QUATERNARY GEOLOGY AND GEOMORPHOLOGY;
GEOARCHAEOLOGY OF PALEO-INDIAN SETTLEMENTS ON THE CANADIAN PRAIRIES



ABRAHAM AKKERMAN, PROFESSOR

POPULATION AND DEMOGRAPHY; URBAN DESIGN; ORIGINS OF CITY FORM;
PLANNING AND DEVELOPMENT; PHENOMENOLOGY OF THE BUILT ENVIRONMENT



SCOTT BELL, PROFESSOR

GEOGRAPHIC INFORMATION SCIENCE; NAVIGATION AND WAYFINDING;
CARTOGRAPHY; HUMAN SPATIAL COGNITION; HEALTH GEOGRAPHY



JILL BLAKLEY, ASSOCIATE PROFESSOR

REGIONAL PLANNING; NATURAL RESOURCE MANAGEMENT; STRATEGIC
ENVIRONMENTAL ASSESSMENT; CUMULATIVE EFFECTS ASSESSMENT; PUBLIC SPACE
DESIGN AND MEASUREMENT; URBAN QUALITY



KRYSTOPHER CHUTKO, ASSISTANT PROFESSOR

CURRENT AND PAST VARIABILITY IN TERRESTRIAL AND AQUATIC PROCESSES; LAKE
SEDIMENTS AND CHANGES IN LAKE PRODUCTIVITY; DEVELOPMENT OF PREDICTIVE
MODELS OF LAKE PRODUCTIVITY; WATER SOURCING AND ROUTING THROUGH THE
USE OF STABLE WATER ISOTOPES



MARTYN CLARK, PROFESSOR

DEVELOPMENT OF SPATIALLY DISTRIBUTED HYDROLOGIC MODELS; DEVELOPMENT
OF METHODS FOR HYDROLOGIC DATA ASSIMILATION; DEVELOPMENT OF METHODS
TO QUANTIFY HYDROLOGIC MODEL UNCERTAINTY



EHAB DIAB, ASSISTANT PROFESSOR

LAND USE AND TRANSPORTATION PLANNING; PUBLIC TRANSIT PLANNING AND
OPERATIONS; GIS APPLICATION IN PLANNING; TRAVEL BEHAVIOUR, SOCIAL EQUITY
IN PLANNING.



DIRK DEBOER, PROFESSOR

EROSION MODELS; METAL-SEDIMENT INTERACTIONS IN RIVERS; SEDIMENT AND WATER QUALITY



XULIN GUO, PROFESSOR

REMOTE SENSING; INTEGRATING MEASURES OF GRASSLAND FUNCTIONING USING REMOTE SENSING; REMOTE SENSING APPLICATIONS FOR LANDSCAPE CHANGE, PHYSICAL SYSTEMS AND IN URBAN ENVIRONMENTS



PAUL HACKETT, ASSOCIATE PROFESSOR

HISTORY OF ABORIGINAL HEALTH; DIFFUSION OF DIRECTLY TRANSMITTED, ACUTE INFECTIOUS DISEASES; IMPACT OF CULTURAL CHANGE ON COMMUNITY HEALTH; HISTORY OF TUBERCULOSIS AMONG FIRST NATIONS OF WESTERN CANADA



LAWRENCE MARTZ, PROFESSOR EMERITUS

DIGITAL TERRAIN ANALYSIS FOR HYDROLOGICAL MODELING APPLICATIONS; CARTOGRAPHY; HYDROLOGY; GEOMORPHOLOGY; DIGITAL ELEVATION MODELS



BRAM NOBLE, PROFESSOR

ENVIRONMENTAL IMPACT ASSESSMENT; RESOURCE POLICY; RESOURCE DEVELOPMENT; WATER RESOURCES MANAGEMENT ENERGY POLICY; ENVIRONMENTAL DECISION MAKING; ABORIGINAL ENGAGEMENT IN RESOURCE DEVELOPMENT



ROBERT PATRICK, ASSOCIATE PROFESSOR

LAND USE AND WATERSHED PLANNING; SOURCE WATER PROTECTION; WATER SECURITY; INTEGRATED WATER RESOURCES MANAGEMENT AND INDIGENOUS COMMUNITIES; LOW IMPACT DEVELOPMENT IN URBAN AREAS



JOHN POMEROY, PROFESSOR, TIER 1 CRC

PHYSICAL HYDROLOGY; COLD REGIONS PROCESSES; WATERSHED MODELING; HYDROMETEOROLOGY; IMPACT OF LAND USE AND CLIMATE CHANGE ON HYDROLOGY; SNOW PROCESSES; IMPROVED PREDICTION OF FLOODS AND DROUGHTS



CORINNE SCHUSTER-WALLACE, ASSOCIATE PROFESSOR

COUPLED SYSTEMS APPROACHES TO HUMAN HEALTH; CLIMATE CHANGE AND WATER-RELATED DISEASES; GENDER; EQUITY; LOCAL WATER SECURITY IN RURAL COMMUNITIES; WATER AND SUSTAINABLE DEVELOPMENT



RYAN WALKER, PROFESSOR, ASSOCIATE DEAN, COLLEGE OF GRADUATE AND POSTDOCTORAL STUDIES

URBAN PLANNING AND GEOGRAPHY; INDIGENOUS URBANISM; PUBLIC SPACE DESIGN AND MEASUREMENT; AGE-FRIENDLY COMMUNITIES; MULTI-LEVEL GOVERNANCE



CHERIE WESTBROOK, PROFESSOR

WETLAND SCIENCE; RESPONSE OF WETLAND FORM AND FUNCTION TO NATURAL AND HUMAN STRESSORS; GROUNDWATER-SURFACE WATER INTERACTIONS IN ALPINE WETLANDS; INFLUENCE OF BEAVER ON WETLAND FORM AND FUNCTION

PUBLICATIONS

2020-2021

BOOKS IN ALPHABETICAL ORDER

1. **Noble, B.** (2021). Introduction to environmental assessment: Guide to principles and practice, 4th edition. Toronto, ON: Oxford University Press. pp. 312.
2. **Patrick, R.** (2020). Sustainable cities and regions. Kendall Hunt Publishing Company, Dubuque, IA, USA. ISBN 978-1-7924-2457-1. pp. 140.
3. **Akkerman, A.** (2020). The Urban Archetypes of Jane Jacobs and Ebenezer Howard: Contradiction and Meaning in City Form. Toronto, ON: University of Toronto Press. pp. 280.

BOOK CHAPTERS IN ALPHABETICAL ORDER

1. **Blakey, J. & Craft, A.** (in press). Conclusion: Pathways to a better legacy of development in northern Manitoba. In *Our Backyard: Keeyask and the Legacy of Hydroelectric Development*. Craft, A. and Blakley, J. (eds.). University of Manitoba Press: Winnipeg, Canada.
2. **Blakley, J. & Noble, B.** (in press). The Keeyask hydroelectric development project: No significant cumulative effects? In: *In Our Backyard: Keeyask and the Legacy of Hydroelectric Development*. Craft, A. & Blakley, J. (eds.). University of Manitoba Press: Winnipeg, Canada.
3. **Blakley, J. & Noble, N.** (2021). Assessing cumulative effects in strategic and regional-scale assessment. Blakley, J. & Franks, D. (eds.). *Handbook of Cumulative Impact Assessment*. Edward Elgar Publishing Ltd.: United Kingdom.
4. **Blakley, J.** (2021). Introduction: Foundations, issues and contemporary challenges in cumulative impact assessment. Blakley, J. & Franks, D. (eds.). *Handbook of Cumulative Impact Assessment*. Edward Elgar Publishing Ltd.: United Kingdom.
5. **Blakley, J.** (in press). Making the connections: Regional cumulative effects assessment in northern Manitoba. In *Our Backyard: Keeyask and the Legacy of Hydroelectric Development*. Craft, A. & Blakley, A., (eds.). University of Manitoba Press: Winnipeg, Canada. In press.
6. **Blakley, J., Noble, B. & McLean, J.** (in press) The scope and focus of cumulative effects and regional assessment. Doelle, M. & Sinclair, J. (eds.) *The New Canadian Federal IAA*. Irwin Law: Toronto, ON.
7. **Craft, A. & Blakley, J.** (in press). Introduction: Built on the back of the turtle: Reflections on how hydro-electric dams have changed landscapes. In: *Craft, A. & Blakley, J. (eds.). In Our Backyard: Keeyask and the Legacy of Hydroelectric Development*. A. Craft and J. Blakley, eds. University of Manitoba Press: Winnipeg, Canada.

8. Herman, L., **Walker, R.**, Rosenberg, M. (2021). An age-friendly city? LGBTQ and frail older adults. In: Hartt, M., Biglieri, S., Rosenberg, M. & Nelson, S. (eds.). *Aging People, Aging Places: Experiences, Opportunities and Challenges of Growing Older in Canada*. Bristol: Policy Press.
9. Kinar, N. & **Pomeroy, J.** (2021). Measurement of Terrestrial Snow. Warf, B. (Ed.), Oxford Bibliographies in Geography. Oxford, UK: Oxford University Press.
10. McLean, J., **Noble, B.** & **Blakley, J.** (in press). Strategic and regional environmental assessment. Doelle, M., and Sinclair, J. (eds.). The New Canadian Federal IAA. Irwin Law: Toronto, ON. In press.
11. Therivel, R., **Blakley, J.** & and Treweek, J. (2021). Mitigating cumulative biodiversity impacts. Blakley, J. and Franks, D. (eds.). Handbook of Cumulative Impact Assessment. Edward Elgar Publishing Ltd.: United Kingdom.
12. Xu, L., Mao, F., Famiglietti, J., **Pomeroy, J.** & Pahl-Wostl, C. (2021). Conceptualizing cascading effects of resilience in human–water systems. Ungar, M. (Ed.), *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change*. (744-767). Oxford, UK: Oxford University Press.

EDITED BOOKS IN ALPHABETICAL ORDER

1. **Blakley, J.** & and Franks, D. (eds.) (2021). Handbook of Cumulative Impact Assessment. Edward Elgar Publishing Ltd.: United Kingdom.
2. Craft, A. & **Blakley, J.** (eds.) (in press) In Our Backyard: The Legacy of Hydroelectric Development in Manitoba: The Keeyask Experience. University of Manitoba Press: Winnipeg, Manitoba.

JOURNAL PUBLICATIONS IN ALPHABETICAL ORDER

1. Aboudina, A., **Diab, E.** & Shalaby, A. (2021). Predictive analytics of streetcar bunching occurrence time for real-time applications. *Transportation Research Record: Journal of the Transportation Research Board*.
2. Aksamit, N. & **Pomeroy, J.** (2020). Warm-air entrainment and advection during alpine blowing snow events. *The Cryosphere*, 14: 2795–2807.
3. **Blakley, J.** & Russell, J. (2021) International progress in cumulative effects assessment: A review of academic literature 2008-2018. *Journal of Environmental Planning and Management*, 1-26.
4. Bree, S., Fuller, D. & **Diab, E.** (2020). Access to transit? Validating local transit accessibility measures using transit ridership. *Transportation Research Part A: Policy and Practice*. 141, 430-442.
5. Brunner, M., Melsen, L., Wood, A., Rakovec, O., Mizukami, N., Knoblen, W. & **Clark, M.** (2021). Flood spatial coherence, triggers, and performance in hydrological simulations:

- large-sample evaluation of four streamflow-calibrated models. *Hydrology and Earth System Sciences*, 25(1): 105-119.
6. Brunner, M., Slater, L., Tallaksen, L. & **Clark, M.** (2021). Challenges in modeling and predicting floods and droughts: A review. *WIREs Water*, 8(3).
 7. Chilima, J., **Blakely, J.**, Diaz, H. & Bharadwaj, L. (2021) Understanding community concerns for collaborative planning: Lesson learned from Lake Diefenbaker, Canada. *Water: Special Issue: Sustainable Development of Lakes and Reservoirs*, 13: 1756.
 8. Choi, Y., Goodall, J., Sadler, J., Castronova, A., Bennett, A., Li, Z., Nijssen, B., Wang, S., **Clark, M.**, Ames, D., Horsburgh, J., Yi, H., Bandaragoda, C., Seul, M., Hooper, R. & Tarboton, D. (2020). Toward open and reproducible environmental modeling by integrating online data repositories, computational environments, and model application programming interfaces. *Environmental Modelling and Software*, 135: 104888.
 9. **Clark, M.**, Luce, C., AghaKouchak, A., Berghuijs, W., David, C., Duan, Q., Ge, S., van, Meerveld I., Zheng, C., Parlange, M. & Tyler, S. (2021). Open science: Open data, open models, ...and open Publications?. *Water Resources Research*, 57(4).
 10. **Clark, M.**, Zolfaghari, R., Green, K., Trim, S., Knoben, W, Bennett, A., Nijssen, B., Ireson, A. & Spiteri, R. (2021). The numerical implementation of land models: Problem formulation and laugh tests. *Journal of Hydrometeorology*.
 11. Conway, J., Helgason, W., **Pomeroy, J.** & Sicart, J. (2021). Icefield breezes: Mesoscale diurnal circulation in the atmospheric boundary layer over an outlet of the Columbia Icefield, Canadian Rockies. *JGR Atmospheres*. 126(6): 1-17.
 12. Costa, D., **Pomeroy, J.**, Aziz, U., Elliott, J., Baulch, H., Roy, B. & Schneider, K. (2020) The Nutrient App: Developing a smartphone application for on-site instantaneous community-based NO₃ and PO₄ monitoring. *Environmental Modelling and Software*: 133.
 13. Costa, D., Shook, K., Spence C., Elliott, J., Baulch, H., Wilson, H. & **Pomeroy, J.** (2020). Predicting variable contributing areas, hydrological connectivity, and solute transport pathways for a Canadian Prairie Basin. *Water Resources Research*. 56(12).
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OTHER SCHOLARLY PUBLICATIONS (TECHNICAL REPORTS, CONFERENCE PROCEEDINGS, REVIEWS) IN ALPHABETICAL ORDER

1. Aboudina, A., **Diab, E.** & Shalaby, A. (2021). *When will they bunch next? Predictive analytics of streetcar bunching occurrence time for real-time applications*. Paper presented at the 100th Annual Meeting of the Transportation Research Board, Washington, D.C., USA.
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