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### **1. Education:**

**McGill University**, Montreal, Quebec (Sept. 1996-Feb. 2001).

Ph.D. in Atmospheric Science, conferred June 2001.

Thesis Advisor: Dr. M. K. (Peter) Yau.

Thesis Title: *The role of blowing snow in the hydrometeorology of the Mackenzie River Basin.*

**York University**, Toronto, Ontario (Sept. 1991-Dec. 1993).

M. Sc. in Atmospheric Science, conferred June 1994.

Thesis Advisor: Dr. Ronald E. Stewart.

Thesis Title: *Surface effects within Avalon Peninsula winter storms.*

Honours B.Sc. in Earth and Atmospheric Science and Applied Mathematics (1987-1991).

### **2. Positions Held:**

2019-present Professor (tenured) and NSERC/Rio Tinto Industrial Research Chair in Climate Change and Water Security, Environmental Science & Engineering Program, UNBC

2017-2020 Adjunct Professor, Civil Engineering, University of Manitoba

2015-2019 Professor (tenured), Environmental Science and Engineering Program, UNBC

2010-2015 Associate Professor (tenured) and Tier II Canada Research Chair in Northern Hydrometeorology, Environmental Science and Engineering Program, UNBC

2005-2010 Assistant Professor and Tier II Canada Research Chair in Northern Hydrometeorology, Environmental Science and Engineering Program, UNBC

2004-2005 Visiting Research Scientist, Princeton University

2000-2003 Post-Doctoral Fellow, Lamont-Doherty Earth Observatory, Columbia University

1994-1996 Project Scientist, York University

1991-1993 Meteorological Technician, Ontario Hydro

### **3. Peer-Reviewed Publications:**

Bold (underlined> names indicate authorship by students (trainees) that I supervised or co-supervised.

1) Picketts, I. M., Matthews, C. A., Parkes, M. W., Déry, S. J. and **Sharma, A. R.**, 2020: Scenarios of climate change and natural resource development: complexity and uncertainty in the Nechako Watershed, *The Canadian Geographer*, **64**(3), 475-488.

- 2) **Thompson, H. D.**, Déry, S. J., Jackson, P. L., and Laval, B. E., 2020: A synoptic climatology of potential seiche-inducing winds in a large intermontane lake: Quesnel Lake, British Columbia, Canada, *International Journal of Climatology*, **40**, doi: 10.1002/joc.6560.
- 3) **Lilhare, R.**, Pokorny, S., Déry, S. J., Stadnyk, T. A., and Koenig, K. A., 2020: Sensitivity analysis and uncertainty assessment in water budgets simulated by the Variable Infiltration Capacity model in Canadian sub-arctic watersheds, *Hydrological Processes*, **34**(9), 2057-2075.
- 4) Li, Z., Shi, X., Tang, Q., Zhang, Y., Gao, H., Pan, X., Déry, S. J., Zhou, P., 2020: Partitioning the contributions of glacier melt and precipitation to the 1971-2010 runoff increases in a headwater basin of the Tarim River, *Journal of Hydrology*, **583**, 124579.
- 5) **Sharma, A. R.** and Déry, S. J., 2020: Variability and trends of landfalling atmospheric rivers along the Pacific Coast of northwestern North America, *International Journal of Climatology*, **40**(1), 544-558.
- 6) Pokorny, S., Stadnyk, T. A., **Lilhare, R.**, Ali, G., Déry, S. J., and Koenig, K. A., 2020: Towards assessing input data uncertainty in hydrologic models from ensemble-based gridded climate data, *Water*, in press.
- 7) **Allchin, M.** and Déry, S. J., 2020: The climatological context of trends in the onset of Northern Hemisphere seasonal snowcover, 1972-2017, *Journal of Geophysical Research: Atmospheres*, **125**(17), e2019JD032367.
- 8) **Sharma, A. R.**, and Déry, S. J., 2020: Linking atmospheric rivers to annual and extreme runoff in British Columbia and southeastern Alaska, *Journal of Hydrometeorology*, **21**, doi: 10.1175/JHM-D-19-0281.1.
- 9) **Sharma, A. R.**, and Déry, S. J., 2020: Contribution of atmospheric rivers to annual, seasonal, and extreme precipitation across British Columbia and southeastern Alaska, *Journal of Geophysical Research: Atmospheres*, **125**(9), e2019JD031823.
- 10) Vore, M. E., Déry, S. J., Hou, Y., and Wei, A., 2020: Climatic influences on forest fire and mountain pine beetle outbreaks and resulting runoff effects in large watersheds in British Columbia, Canada, *Hydrological Processes*, **34**, doi: <https://doi.org/10.1002/hyp.13908>.
- 11) Stadnyk, T. A., MacDonald, M. K., Tefs, A. A. G., Déry, S. J., Koenig, K., Gustafsson, D., Isberg, K., and Arheimer, B., 2020: Hydrological modeling of freshwater discharge into Hudson Bay using HYPE, *Elementa: Science of the Anthropocene*, **8**, 43. doi: 10.1525/elementa.439
- 12) Hamilton, A. K., Laval, B. E., Petticrew, E. L., Albers, S. J., Allchin, M., Baldwin, S. A., Carmack, E. C., Déry, S. J., French, T. D., Granger, B., Graves, K. E., Owens, P. N., Selbie, D. T., and Vagle, S., 2020: Seasonal turbidity linked to physical dynamics in a deep lake following the catastrophic 2014 Mount Polley mine tailings spill, *Water Resources Research*, **56**(8), e2019WR025790.

- 13) Brubacher, J., Allen, D. M., Déry, S. J., Parkes, M. W., Chhetri, B., Mak, S., Sobie, S., and Takaro, T. K., 2020: Associations of five food- and water-borne diseases and ecological zone, land use, and aquifer type in a changing climate, *Science of the Total Environment*, **728**, 138808, doi: 10.1016/j.scitotenv.2020.138808.
- 14) **Lilhare, R.**, Déry, S. J., Pokorny, S., Stadnyk, T. A., and Koenig, K. A., 2019: Inter-comparison of multiple hydro-climatic datasets across the Lower Nelson River Basin, Manitoba, Canada, *Atmosphere-Ocean*, **57**, 262-278.
- 15) Islam, S. U., Hay, R. W., Déry, S. J. and Booth, B. P., 2019: Modelling the impacts of climate change on riverine thermal regimes in western Canada's largest Pacific watershed, *Scientific Reports*, **9**, 11398.
- 16) **Allchin, M.** and Déry, S. J., 2019: Shifting spatial and temporal patterns in the onset of seasonally snow-dominated conditions in the Northern Hemisphere, 1972-2017, *Journal of Climate*, **32**(16), 4981-5001.
- 17) Gateuille, D., Owens, P. N., Peticrew, E. L., Booth, B. P., French, T. D., and Déry, S. J., 2019: Determining contemporary and historical sediment sources in a large drainage basin impacted by cumulative effects: the regulated Nechako River, British Columbia, Canada, *Journal of Soils and Sediments*, **19**(9), 3357-3373.
- 18) Islam, S. U., Curry, C. L., Déry, S. J. and Zwiers, F. W., 2019: Quantifying projected changes in runoff variability and flow regimes of the Fraser River Basin, British Columbia, *Hydrology and Earth System Sciences*, **23**, 811-828, doi: 10.5194/hess-23-1-2019.
- 19) Curry, C.L., Islam, S. U., Zwiers, F. W., and Déry, S. J., 2019: Atmospheric rivers increase future flood risk in western Canada's largest Pacific River, *Geophysical Research Letters*, **46**(3), 1651-1661, doi: 10.1029/2018GL080720.
- 20) Déry, S. J., Stadnyk, T. A., MacDonald, M. K., Koenig, K. A., and Guay, C., 2018: Flow alteration impacts on Hudson Bay river discharge, *Hydrological Processes*, **32**(24), 3576-3587.
- 21) MacDonald, M. K., Stadnyk, T. A., Déry, S. J., Braun, M., Gustafsson, D., Isberg, K., and Arheimer, B., 2018: Impacts of 1.5°C and 2.0°C warming on pan-Arctic river discharge into the Hudson Bay Complex through 2070, *Geophysical Research Letters*, **45**(15), 7561-7570.
- 22) Hernández-Henríquez, M. A., **Sharma, A. R.**, Taylor, M., **Thompson, H. D.**, and Déry, S. J., 2018: The Cariboo Alpine Mesonet: Sub-hourly hydrometeorological observations of British Columbia's Cariboo Mountains and surrounding area since 2006, *Earth System Science Data*, **10**, 1655-1672.
- 23) Kushner, P. J., Mudryk, L. R., Merryfield, W., Ambadan, J. T., Berg, A., Bichet, A., Brown, R., Derksen, C., Déry, S. J., Dirkson, A., Flato, G., Fletcher, C. G., Fyfe, J. C., Gillett, N., Haas, C., Howell, S., Laliberté, F., McCusker, K., Sigmond, M., Sospreda-Alfonso, R., Tandon, N. F., Thackeray, C., Tremblay, B., and Zwiers, F. W., 2018: Canadian snow and sea ice: assessment of

snow, sea ice, and related climate processes in Canada's Earth system Model and climate-prediction System, *The Cryosphere*, **12**, 1137-1156, <https://doi.org/10.5194/tc-12-1137-2018>.

24) Younas, W., **Hay, R. W.**, MacDonald, M. K., Islam, S. U. and Déry, S. J., 2017: A strategy to represent impacts of subgrid-scale topography on snow evolution in the Canadian Land Surface Scheme, *Annals of Glaciology*, **58**(75pt1), 1-10.

25) **Allchin, M.** and Déry, S. J., 2017: A spatio-temporal analysis of trends in Northern Hemisphere snow-dominated area and duration, 1971-2014, *Annals of Glaciology*, **58**(75pt1), 21-35.

26) Radić, V., Menounos, B., Shea, J., Fitzpatrick, N., Tessema, M., and Déry, S. J., 2017: Evaluation of different methods to model near-surface turbulent fluxes for a mountain glacier in the Cariboo Mountains, BC, Canada, *The Cryosphere*, **11**, 2897-2918.

27) Picketts, I. M., Parkes, M. W. and Déry, S. J., 2017: Climate change and resource development impacts in watersheds: Insights from the Nechako River Basin, Canada, *The Canadian Geographer*, **61**, 196-211.

28) Islam, S. U., Déry, S. J., and Werner, A. T., 2017: Future climate change impacts on snow and water resources of the Fraser River Basin, British Columbia, *Journal of Hydrometeorology*, **18**, 473-496.

29) Islam, S. U., and Déry, S. J., 2017: Quantification of uncertainties in modelling the snow hydrology of the Fraser River Basin, British Columbia, Canada, *Hydrology and Earth System Sciences*, **21**, 1827-1847.

30) Koster, R., Betts, A., Dirmeyer, P., Bierkens, M., Bennett, K., Déry, S. J., Evans, J., Fu, R., Hernandez, F., Leung, R., Liang, X., Masood, M., Savenije, H., Wang, G., and Yuan, X., 2017: Hydroclimatic variability and predictability: A survey of recent research, *Hydrology and Earth System Sciences*, **21**, 3777-3798.

31) Hernández-Henríquez, M. A., **Sharma, A. R.**, and Déry, S. J., 2017: Variability and trends in runoff in the rivers of British Columbia's Coast and Insular Mountains, *Hydrological Processes*, **31**, 3269-3282.

32) Li, Z., Hao, Z., Shi, X., Déry, S. J., Li, J., Chen, S., and Li, Y., 2016: An agricultural drought index to incorporate the irrigation process and reservoir operations: A case study in the Tarim River Basin in China, *Global and Planetary Change*, **143**, 10-20.

33) Albers, S. J., Déry, S. J. and Petticrew, E. L., 2016: Flooding in the Nechako River Basin of Canada: A random forest modeling approach to flood analysis in a highly regulated reservoir system, *Canadian Water Resources Journal*, **41**(1-2), 250-260.

34) **Sharma, A. R.** and Déry, S. J., 2016: Elevational dependence of air temperature variability and trends in British Columbia's Cariboo Mountains, 1950-2010, *Atmosphere-Ocean*, **54**(2), 153-170.

- 35) Kang, D. H., Gao, H., Shi, X., Islam, S. U. and Déry, S. J., 2016: Impacts of a rapidly declining mountain snowpack on streamflow timing in Canada's Fraser River Basin, *Scientific Reports*, **6**, 19299.
- 36) Picketts, I. M., Andrey, J., Matthews, L., Déry, S. J. and Tighe, S., 2016: Climate change adaptation strategies for local transportation infrastructure management in Prince George, Canada, *Regional Environmental Change*, **16**, 1109-1120.
- 37) Déry, S. J., Stadnyk, T. A., MacDonald, M. K., and **Gauli-Sharma, B.** 2016: Recent trends and variability in river discharge across northern Canada, *Hydrology and Earth System Sciences*, **20**, 4801-4818.
- 38) Hernández-Henríquez, M. A., Déry, S. J., and Derksen, C., 2015: Polar amplification and elevation-dependence in trends of Northern Hemisphere snow cover extent, 1971-2014, *Environmental Research Letters*, **10**, 044010.
- 39) Peticrew, E. L., Albers, S., Baldwin, S., Carmack, E.C., Déry, S. J., Gantner, N., Graves, K., Laval, B., Morrison, J., Owens, P. N., Selbie, D. T., and Vagle, S., 2015: Initial observations of the impact of a catastrophic mine tailings impoundment spill into a large oligotrophic lake: Quesnel Lake, British Columbia, Canada, *Geophysical Research Letters*, **42**, 3347-3355.
- 40) Sanderson, D., Picketts, I. M., Déry, S. J., Fell, B., Baker, S., Lee-Johnson, E., and Auger, M., 2015: Climate change and water at Stellat'en First Nation, British Columbia, Canada: Insights from western science and traditional knowledge, *The Canadian Geographer*, **59**(2), 136-150.
- 41) Leggat, M., Owens, P. N., Stott, T. A., Forrester, B. J., Déry, S. J., and Menounos, B., 2015: Hydro-meteorological drivers and sources of suspended sediment flux in the proglacial zone of the retreating Castle Creek Glacier, Cariboo Mountains, British Columbia, *Earth Surface Processes and Landforms*, **40**, 1542-1559.
- 42) Rasouli, K., Hernández-Henríquez, M. A., and Déry, S. J., 2015: Reply to D. L. Peters' comment on 'Streamflow input to Lake Athabasca, Canada', *Hydrology and Earth System Sciences*, **19**, 1287-1292.
- 43) Padilla, A., Rasouli, K., and Déry, S. J., 2015: Impacts of variability and trends in monthly runoff and water temperature on salmon migration in the Fraser River Basin, Canada, *Hydrological Sciences Journal*, **60**, 523-533.
- 44) Kang, D. H., Shi, X., Gao, H., and Déry, S. J., 2014: On the changing contribution of snow to the hydrology of the Fraser River Basin, *Journal of Hydrometeorology*, **15**, 1344-1365.
- 45) **Picketts, I. M.**, Déry, S. J., and Curry, J., 2014: Incorporating climate change adaptation into community plans, *Journal of Environmental Planning and Management*, **57**, 984-1002.

- 46) Déry, S. J., **Knudsvig, H. K.**, Hernández-Henríquez, M. A. and Coxson, D. S. 2014: Net snowpack accumulation and ablation characteristics in the Inland Temperate Rainforest of the Upper Fraser Basin of Canada, *Hydrology*, **1**, 1-19.
- 47) Kang, D. H., Barros, A., and Déry, S. J., 2014: Evaluating passive microwave radiometry for the dynamical transition from dry to wet snowpacks, *IEEE Transactions on Geoscience and Remote Sensing*, **52**, 3-15.
- 48) Rasouli, K., Hernández-Henríquez, M. A., and Déry, S. J., 2013: Streamflow input to Lake Athabasca, Canada, *Hydrology and Earth System Sciences*, **17**, 1681-1691.
- 49) **Picketts, I. M.**, Curry, J., Déry, S. J., and Cohen, S. J., 2013: Learning from and for local practitioners: Determining community climate change adaptation priorities, *Climatic Change*, **118**, 321-337.
- 50) Shi, X., Déry, S. J., Groisman, P. Ya, and Lettenmaier, D. P., 2013: Relationships between recent pan-Arctic snow cover and hydroclimate trends, *Journal of Climate*, **26**, 2048-2064.
- 51) Déry, S. J., Hernández-Henríquez, M. A., Owens, P. N., Parkes, M. W., and Petticrew, E. L., 2012: A century of hydrological variability and trends in the Fraser River Basin, *Environmental Research Letters*, **7**, 024019.
- 52) Lenaerts, J. T. M., van den Broeke, M., van Angelen, J. H., van Meijgaard, E., and Déry, S. J., 2012: Drifting snow climate of the Greenland ice sheet: A study with a regional climate model, *The Cryosphere*, **6**, 891-899.
- 53) Lenaerts, J. T. M., van den Broeke, M., Déry, S. J., van Meijgaard, E., van de Berg, W. J., Palm, S., and Rodrigo, J. S., 2012: Modeling snowdrift in Antarctica with a regional climate model, Part I: Methods and model evaluation, *Journal of Geophysical Research*, **117**, D05108.
- 54) **Picketts, I. M.**, Werner, A. T., Murdock, T. Q., Curry, J., Déry, S. J., and Dyer, D., 2012: Planning for climate change adaptation: Lessons learned from a community-based workshop, *Environmental Science & Policy*, **17**, 82-93.
- 55) Mlynowski, T. J., Hernández-Henríquez, M. A., and Déry, S. J., 2011: An evaluation of hydrometric monitoring across the Canadian pan-Arctic region, 1950-2008, *Hydrology Research*, **42**, 479-490.
- 56) Déry, S. J., Mlynowski, T. J., Hernández-Henríquez, M. A., and Straneo, F., 2011: Interannual variability and interdecadal trends in Hudson Bay streamflow, *Journal of Marine Systems*, **88**, 341-351.
- 57) Shi, X., Groisman, P. Ya., Déry, S. J., and Lettenmaier, D. P., 2011: The role of surface energy fluxes in pan-Arctic snow cover changes, *Environmental Research Letters*, **6**, 035204.
- 58) Hernández-Henríquez, M. A., Mlynowski, T. J., and Déry, S. J., 2010: Reconstructing the natural streamflow of a regulated river: A case study of La Grande Rivière, Québec, Canada, *Canadian Water Resources Journal*, **35**, 301-316.

- 59) **Tong, J.**, Déry, S. J., Jackson, P. L., and Derksen, C., 2010: Testing snow water equivalent retrieval algorithms for passive microwave remote sensing in an alpine watershed of western Canada, *Canadian Journal of Remote Sensing*, **36**, S74-S86.
- 60) **Tong, J.**, Déry, S. J., Jackson, P. L., and Derksen, C., 2010: Snow distribution from SSM/I and its relationship to the hydroclimatology of the Mackenzie River Basin, Canada, *Advances in Water Resources*, **33**, 667-677.
- 61) Déry, S. J., Clifton, A., MacLeod, S., and Beedle, M. J., 2010: Blowing snow fluxes in the Cariboo Mountains of British Columbia, Canada, *Arctic, Antarctic and Alpine Research*, **42(2)**, 188-197.
- 62) Lenaerts, J. T. M., van den Broeke, M. R., Déry, S. J., König-Langlo, G., Ettema, J., and Kuipers-Munneke, P., 2010: Modelling snowdrift sublimation on an Antarctic ice shelf, *The Cryosphere*, **4**, 179-190.
- 63) **Tong, J.**, Déry, S. J., Hu, B., Chen, Y., 2010: An alternative method for in-flight absolute radiometric calibration of thermal infrared channels of Chinese geostationary meteorological satellites, *International Journal of Remote Sensing*, **31**, 791-803.
- 64) **Tong, J.**, Déry, S. J., and Jackson, P. L., 2009: Interrelationships between MODIS/Terra remotely sensed snow cover and the hydrometeorology of the Quesnel River Basin, British Columbia, Canada, *Hydrology and Earth System Sciences*, **13**, 1439-1452.
- 65) Déry, S. J., Hernández-Henríquez, M., Burford, J. E., and Wood, E. F., 2009: Observational evidence of an intensifying hydrological cycle in northern Canada, *Geophysical Research Letters*, **36**, L13402, doi: 10.1029/2009GL038852.
- 66) Burford, J. E., Déry, S. J., and Holmes, R. D., 2009: Some aspects of the hydroclimatology of the Quesnel River Basin, British Columbia, Canada, *Hydrological Processes*, **23(10)**, 1529-1536, doi: 10.1002/hyp.7253.
- 67) Déry, S. J., Stahl, K., Moore, R. D., Whitfield, P. H., Menounos, B. and Burford, J. E., 2009: Detection of runoff timing changes in pluvial, nival and glacial rivers of western Canada, *Water Resources Research*, **45**, W04426, doi:10.1029/2008WR006975.
- 68) **Tong, J.**, Déry, S. J., and Jackson, P. L., 2009: Topographic control of snow distribution in an alpine watershed of western Canada inferred from spatially-filtered MODIS snow products, *Hydrology and Earth System Sciences*, **13**, 319-326.
- 69) **Tong, J.**, Déry, S. J., Hu, B., Chen, Y., Yang, C., and Rong, Z., 2009: On-board real time absolute radiometric calibration for thermal infrared channels of Chinese geostationary meteorological satellites, *Journal of Atmospheric and Oceanic Technology*, **26**, 281-289.
- 70) Cherry, J. E., Tremblay, L.-B., Stieglitz, M., Gong, G., and Déry, S. J., 2007: Development of the pan-Arctic Snowfall Reconstruction: New land-based solid precipitation estimates for 1940-1999, *Journal of Hydrometeorology*, **8**, 1243-1263.

- 71) Déry, S. J., and Brown, R. D., 2007: Recent Northern Hemisphere snow cover extent trends and implications for the snow-albedo feedback, *Geophysical Research Letters*, **34**, L22708, doi: 10.1029/2007GL031474.
- 72) Rennermalm, A., Wood, E. F., Weaver, A. J., Eby, M., and Déry, S. J., 2007: Relative sensitivity of the Atlantic Meridional Overturning Circulation to river discharge into Hudson Bay and the Arctic Ocean, *Journal of Geophysical Research*, **112**, G04S48, doi: 10.1029/2006JG000330.
- 73) Déry, S. J., and Wood, E. F., 2006: Analysis of snow in the 20th and 21st century Geophysical Fluid Dynamics Laboratory coupled climate model simulations, *Journal of Geophysical Research*, **111**, D19113, doi: 10.1029/2005JD006920.
- 74) Rennermalm, A., Wood, E. F., Déry, S. J., Weaver, A. J., and Eby, M., 2006: Sensitivity of the thermohaline circulation to Arctic Ocean runoff, *Geophysical Research Letters*, **33**, L12703, doi: 10.1029/2006GL026124.
- 75) McClelland, J. W., Déry, S. J., Peterson, B. J., Holmes, R. M., and Wood, E. F., 2006: A Pan-Arctic evaluation of changes in river discharge during the latter half of the 20th century, *Geophysical Research Letters*, **33**, L06715, doi: 10.1029/2006GL025753.
- 76) Déry, S. J. and Wood, E. F. 2005. Observed twentieth century land surface air temperature and precipitation covariability. *Geophysical Research Letters*, **32**, L21414, doi: 10.1029/2006GL025753.
- 77) Déry, S. J., Sheffield, J., and Wood, E. F. 2005. Connectivity between Eurasian snow cover extent and Canadian snow water equivalent and river discharge. *Journal of Geophysical Research*, **110**, D23106, doi: 10.1029/2005JD006173.
- 78) Déry, S. J., Stieglitz, M., Rennermalm, Å. K., and Wood, E. F. 2005. The water budget of the Kuparuk River Basin, Alaska. *Journal of Hydrometeorology*, **6**, 633-655.
- 79) Cherry, J. E., Tremblay, L.-B., Déry, S. J., and Stieglitz, M. 2005. Reconstructing solid precipitation from snow depth measurements and a land surface model. *Water Resources Research*, **41**, W09401, doi: 10.1029/2005WR003965.
- 80) Déry, S. J., Stieglitz, M., McKenna, E. C., and Wood, E. F. 2005. Characteristics and trends of river discharge into Hudson, James, and Ungava Bays, 1964-2000. *Journal of Climate*, **18**, 1540-1557.
- 81) Déry, S. J., Salomonson, V. V., Stieglitz, M., Hall, D. K., and Appel, I. 2005. An approach to using snow areal depletion curves inferred from MODIS and its application to land surface modelling in Alaska. *Hydrological Processes*, **19**, 2755-2774, doi:10.1002/hyp.5784.
- 82) Déry, S. J. and Wood, E. F. 2005. Decreasing river discharge in northern Canada. *Geophysical Research Letters*, **32**, L10401, doi: 10.1029/2005GL022845.
- 83) Déry, S. J. and Wood E. F. 2004. Teleconnection between the Arctic Oscillation and Hudson Bay river discharge. *Geophysical Research Letters*, **31**, L18205, doi: 10.1029/2004GL020729.



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- 85) Déry, S. J., Crow, W. T., Stieglitz, M., and Wood, E. F. 2004. Modeling snowcover heterogeneity over complex Arctic terrain for regional and global climate models. *Journal of Hydrometeorology*, **5**(1), 33-48.
- 86) Stieglitz, M., Déry, S. J., Romanovsky, V. E., Osterkamp, T. E. 2003: The role of snow cover in the warming of Arctic permafrost, *Geophysical Research Letters*, **30**(13), 1721, doi:10.1029/2003GL017337.
- 87) Déry, S. J. and Yau, M. K. 2002: Large-scale mass balance effects of blowing snow and surface sublimation, *Journal of Geophysical Research*, **107**(D23), 4679, doi:10.1029/2001JD001251.
- 88) Déry, S. J. and Stieglitz, M. 2002: A note on surface humidity measurements in the cold Canadian environment, *Boundary-Layer Meteorology*, **102**, 491-497.
- 89) Déry, S. J. and Yau, M. K. 2001: Simulation of blowing snow in the Canadian Arctic using a double-moment model, *Boundary-Layer Meteorology*, **99**(2), 297-316.
- 90) Déry, S. J. and Yau, M. K. 2001: Simulation of an Arctic ground blizzard using a coupled blowing snow-atmosphere model, *Journal of Hydrometeorology*, **2**, 579-598.
- 91) Xiao, J., Bintanja, R., Déry, S. J., Mann, G. W. and Taylor, P. A. 2000: An intercomparison among four models of blowing snow, *Boundary-Layer Meteorology*, **97**, 109-135.
- 92) Déry, S. J. and Yau, M. K. 1999: A climatology of adverse winter-type weather events, *Journal of Geophysical Research*, **104**(D14), 16,657-16,672.
- 93) Déry, S. J. and Yau, M. K. 1999: A bulk blowing snow model, *Boundary-Layer Meteorology*, **93**(2), 237-251.
- 94) Déry, S. J., Taylor, P. A and Xiao, J. 1998: The thermodynamic effects of sublimating, blowing snow in the atmospheric boundary layer, *Boundary-Layer Meteorology*, **89**(2), 251-283.
- 95) Déry, S. J. and Taylor, P. A. 1996: Some aspects of the interaction of blowing snow with the atmospheric boundary layer, *Hydrological Processes*, **10**, 1345-1358.

#### **4. Manuscripts submitted for publication**

- 96) Thériault, J. M., Déry, S. J., Pomeroy, J. W., Smith, H. M., Almonte, J., Bertoncini, A., Crawford, R., Desroches-Lapointe, A., Lachapelle, M., Mariani, Z., **Mitchell, S.**, **Morris, J. E.**, Hébert-Pinard, C., Rodriguez, P., **Thompson, H. D.**, 2020: Meteorological observations collected during the Storms and Precipitation Across the continental Divide Experiment (SPADE), April-June 2019, submitted to *Earth System Science Data*.
- 97) Pokorny, S., Stadnyk, T. A., Ali, G., **Lilhare, R.**, Déry, S. J., and Koenig, K. A., 2020: Cumulative effects of uncertainty on simulated streamflow in a hydrologic modeling environment, submitted to *Elementa: Science of the Anthropocene*.

98) Tefs, A. A. G., Stadnyk, T. A., Koenig, K. A., Déry, S. J., Guay, C., Chartier, I., Thiémonge, N., 2020: Comparing the effects of climate change and hydroelectric regulation on Hudson Bay freshwater, submitted to *Canadian Water Resources Journal*.

99) Tefs, A. A. G., MacDonald, M. K., Stadnyk, T. A., Koenig, K. A., Déry, S. J., Hamilton, M., Slota, P., Crawford, J., 2020: Simulating river regulation and reservoir performance in a continental-scale hydrologic model, submitted to *Environmental Modelling and Software*.

100) Stadnyk, T. A., Tefs, A., Broesky, M., Déry, S. J., Myers, P. G., Ridenour, N., Vonderbank, L., Gustafsson, D., and Salonga, R., 2020: Changing freshwater contributions to the Arctic: A 90-year trend analysis, submitted to *Elementa: Science of the Anthropocene*.

## 5. Peer reviewed book chapters

1) Brown, R., Marsh, P., Déry, S. J., and Yang, D., 2020: Chapter 3: Snow cover - observations, processes, changes and impacts on northern hydrology, *Arctic Hydrology, Permafrost and Ecosystem*, Springer, 61-99.

2) Shiklomanov, A. I., Déry, S. J., Tretiakov, M. V., Yang, D., Magritsky, D., Georgiadi, A., Tang, W., 2020: Chapter 24: River flux to the Arctic Ocean, *Arctic Hydrology, Permafrost and Ecosystem*, Springer, 703-738.

3) Stadnyk, T. A., Déry, S. J., MacDonald, M. K., and Koenig, K. A., 2019: Theme 1: Physical Environment. iv. The Freshwater System. In Kuzyk, Z.A. and Candlish, L. M. (eds.), *From Science to Policy in the Greater Hudson Bay: An Integrated Regional Impact Study (IRIS) of Climate Change and Modernization*, ArcticNet, 113-155.

4) Picketts, I. M., and Déry, S. J., 2016: Chapter 6, Vignette #1: Exploring cumulative impacts of climate change and resource development in the Nechako Watershed, in Gillingham, M., Halseth, G., Johnson, C. J., and Parkes, M. W. (eds.), *The Integration Imperative: Cumulative Environmental, Community and Health Effects of Multiple Natural Resource Developments*, Springer, 155-158.

5) Stott, T. A., Leggat, M. S., Owens, P. N., Forrester, B. J., Déry, S. J., and Menounos, B., 2016: Suspended sediment dynamics in the proglacial zone of the rapidly retreating Castle Creek Glacier, British Columbia, Canada, in Beylich, A. A., Dixon, J. C., and Zwolinski, Z. (eds.), *Sources-to-sink fluxes in undisturbed cold environments*, Cambridge University Press, 313-325.

6) Hall, D. K., Frei, A., and Déry, S. J., 2015: Chapter 3: Remote sensing of snow cover extent, in Tedesco, M. (ed.), *Remote Sensing of Snow and Ice*, Wiley-Blackwell, 31-47.

7) Cherry, J. E., Déry, S. J., Chen, Y., Stieglitz, M., Jacobs, A. S., and Pan, F.-F., 2014: Chapter 2: Climate and hydrometeorology of the Toolik Lake region and the Kuparuk River Basin, in Hobbie,

J. E. and Kling, G.W. (eds.), *Alaska's Changing Arctic: Ecological Consequences for Tundra, Streams and Lakes*, Oxford University Press, 21-60.

8) Déry, S. J., 2011: Global warming and its effect on snow/ice/glaciers, in Singh, V. P., Singh, P., and Haritashya, U. K. (eds.), *Encyclopedia of Snow, Ice, and Glaciers*, Springer, 468-470.

9) Déry, S. J., 2011: Focus Box: Measuring Snow Depth, in Ahrens, C. D., Jackson, P. L. and Jackson, C., *Meteorology Today: A Canadian Perspective*, Nelson Publishing, 218-219.

10) Déry, S. J., and Yau, M. K., 2007: Chapter 14: Recent studies on the climatology and modelling of blowing snow in the Mackenzie River Basin (MRB), *Atmospheric Dynamics of a Cold Region: The Mackenzie GEWEX Study Experience*, Springer, 241-257.

## **6. Non-peer reviewed publications:**

1) Trubilowicz, J. W., Chorlton, E., Déry, S. J., and Fleming, S. W., 2015: Satellite remote sensing for water resource applications in British Columbia, *Innovation*, **19(2)**, 18-20.

2) Déry, S. J., 2010: Book Review: Snow and Climate, *Polar Research*, **29**, 461-462.

3) Déry, S. J., 2010: Snow sublimation on the Ekström Ice Shelf, *Newsletter of the Canadian Antarctic Research Network*, **29**, 2.

4) Brown, R. and S. J. Déry, 2008: Characteristics of recent trends in Northern Hemisphere snow cover extent, IGARSS 2008, Boston, MA.

5) MacLeod, S. and Déry, S. J., 2007: The Cariboo Alpine Mesonet, *CMOS Bull. SCMO*, **35**, 45-51.

6) Déry, S. J. and Yau, M. K., 2006: Recent studies on the climatology and modeling of blowing snow in the Mackenzie River Basin, *Final Report of the Mackenzie GEWEX Study (MAGS): Proc. Of the Final (11<sup>th</sup>) Annual Scientific Meeting*, 22-25 Nov. 2005, Ottawa, Ont., Canada, 367-386.

7) Déry, S. J., Luo, L., Sheffield, J., and Wood, E. F. 2005. Do dynamical models pick up pan-Arctic teleconnections? *GEWEX News*, **15(4)**, 12-13.

8) Déry, S. J., Sheffield, J., and Wood, E. F. 2005. Connectivity between Eurasian snow extent and Canadian snow mass and river discharge. *Conference Proceedings of the 62<sup>nd</sup> Annual Eastern Snow Conference*, June 2005, Waterloo, ON.

9) Déry, S. J., and Wood, E. F. 2005. Characteristics, trends, and atmospheric drivers of Canadian river discharge to high latitude oceans. *Preprints 8th Conf. Polar Meteorology and Oceanography*, American Meteorological Society, January 2005, San Diego, CA.

- 10) Déry, S. J., Stieglitz, M., McKenna, E. and Wood, E. F. 2004. Recent trends and changes in freshwater discharge into Hudson, James, and Ungava Bays. *EOS Trans. AGU*, **85**(17), H34A-03, American Geophysical Union, May 2004, Montreal, QC.

## 7. Conference presentations and seminars:

- 1) ul Islam, S. and **Déry, S.**, 2016: Quantification of uncertainties in modelling the present and projected hydrology of the Fraser River Basin, British Columbia. Eric Wood Special Symposium, Princeton, United States, 2 June 2016.
- 2) Sharma, B. and **Déry, S.**, 2016: Changing contribution of snow to Hudson Bay river discharge. APECS International Online Conference: Polar Science Through New Eyes, Prince George, Canada.
- 3) Younas, W., ul Islam, S., and **Déry, S.**, 2016: Future Climate change may lead to greater variability in daily and seasonal streamflow over Fraser River Basin. Joint CMOS/CGU congress, Fredericton, Canada.
- 4) ul Islam, S. and **Déry, S.**, 2016: Quantification of uncertainties in modelling the present and projected hydrology of the Fraser River Basin, British Columbia. Joint CMOS/CGU congress, Fredericton, Canada.
- 5) Allchin, M., and **Déry, S.**, 2016: Spatio-Temporal Patterns in Trends of Northern Hemisphere Snow Extent and Duration, 1971-2014. Joint CMOS/CGU congress, Fredericton, Canada.
- 6) ul Islam, S., and **Déry, S.**, 2016: Uncertainties and Projected Changes in SWE over Fraser River Basin, British Columbia. CanSISE West Workshop, Victoria, Canada.
- 7) **Déry, S.**, Stadnyk, T., and MacDonald, M., 2016: Recent trends and variability in river discharge across northern Canada. Eric Wood Special Symposium, Princeton, United States.
- 8) **Déry, S.**, 2015: Cariboo Mountains, BC and related studies. INARCH Inaugural Workshop, Kananaskis, Canada.
- 9) Sharma, A. and **Déry, S. J.**, 2015: Climate change in the Nechako River Basin. Integrated Watershed Research Group Outreach Event, Vanderhoof, Canada.
- 10) Radic, V., Fitzpatrick, N., Tessema, M., Menounos, B., Shea, J., and **Déry, S.**, 2015: Measurements and modelling of turbulent fluxes at a glacier in the interior mountains, British Columbia, Canada. 2015 AGU Fall Meeting, San Francisco, United States.
- 11) Younas, W. and **Déry, S.**, 2015: Representing sub-grid scale snow processes in CLASS for the simulation of the hydrological cycle in western Canadian watersheds. CNRCWP annual workshop, Montreal, Canada.
- 12) ul Islam, S. and **Déry, S.**, 2015: Assessing climate change impacts on the snowpacks and water availability of the Fraser River Basin, British Columbia. 49th Annual CMOS Congress & 13th AMS Conference on Polar Meteorology and Oceanography, Whistler, Canada.
- 13) Sharma, A. and **Déry, S.**, 2015: Elevational dependence of climate variability & trends in British Columbia's Cariboo Mountains. 49th Annual CMOS Congress & 13th AMS Conference on Polar Meteorology and Oceanography, Whistler, Canada.
- 14) Abadzadesahraei, S., **Déry, S. J.** and Rex, J., 2015: Quantifying the water budget for Coles Lake, Northeastern BC. 49th Annual CMOS Congress & 13th AMS Conference on Polar Meteorology and Oceanography, Whistler, Canada.

- 15) Petticrew, E., Owens, P., Parkes, M. and **Déry, S.**, 2015: Research and Community Connections: The UNBC Integrated Watershed Research Group. Nechako Watershed Roundtable Launch, Prince George, Canada.
- 16) Younas, W. and **Déry, S.**, 2015: Representing sub-grid scale snow processes in CLASS for the simulation of the hydrological cycle in western Canadian watersheds. 49th Annual CMOS Congress & 13<sup>th</sup> AMS Conference on Polar Meteorology and Oceanography, Whistler, Canada.
- 17) Fitzpatrick, N., Tessema, M., Radic, V., Nesic, Z., Shea, J., Menounos, B. and **Déry, S.**, 2015: Measurements and modelling of surface energy balance at a glacier in the Interior Mountains, British Columbia. 49th Annual CMOS Congress & 13th AMS Conference on Polar Meteorology and Oceanography, Whistler, Canada.
- 18) Abadzadesahraei, S., **Déry, S. J.**, and Rex, J. 2015: Impacts of Climate Change and Natural Gas Operations on the Hydrology of Northeastern BC, Canada: Quantifying the Water Budget for Coles Lake, 17th International Conference on Water Resources and Wetlands, Dubai, United Arab Emirates.
- 19) Younas, W. and **Déry, S.**, 2015: Representing sub-grid scale snow processes in CLASS for the simulation of the hydrological cycle in western Canadian watersheds. AGU/CGU Joint Assembly, Montreal, Canada.
- 20) ul Islam, S. and **Déry, S.**, 2015: Future climate change impacts on snow and water resources of the Fraser River Basin, British Columbia. CanSISE West Workshop, Victoria, Canada.
- 21) Allchin, M. and **Déry, S.**, 2015: Biome-Level Analysis of Trends in Northern Hemisphere Snowcover Duration and Extent, 1971-2013. CanSISE West Workshop, Victoria, Canada.
- 22) Stadnyk, T., **Déry, S.**, Koenig, K., and MacDonald, M., 2015: Hudson Bay Integrated Regional Impact Study: The Freshwater System. 11th ArcticNet Annual Science Meeting, Vancouver, Canada.
- 23) Kang, D. H., Gao, H., Shi, X., ul Islam, S., Younas, W. and **Déry, S.**, 2015: Mountain snow and hydrological change modelling. INARCH Inaugural Workshop, Kananaskis, Canada.
- 24) **Déry, S.**, Hernández-Henríquez, M. A. and Derksen, C., 2015: Polar amplification and elevation-dependence in trends of Northern Hemisphere snow cover extent, 1971-2014. AGU/CGU Joint Assembly, Montreal, Canada.
- 25) Sharma, B. and **Déry, S.**, 2015: The changing contribution of Snow to Hudson Bay River Discharge. 2nd International Conference on Polar Climate and Environmental Change in the Last Millennium, Torun, Poland.
- 26) Abadzadesahraei, S., **Déry, S.**, and Rex, J., 2015: Quantifying the water budget for Coles Lake, Northeastern BC. Bulkley Valley Research Centre Seminar Series, Smithers, Canada.
- 27) Fitzpatrick, N., Tessema, M., Radic, V., Nesic, Z., Shea, J., Menounos, B., **Déry, S.**, 2015: Measurements and modelling of surface energy balance at a glacier in the Interior Mountains, British Columbia. 26th IUGG General Assembly 2015, Prague, Czech Republic.
- 28) Sharma, A. and **Déry, S.**, 2015: Climate change impacts on water resources in the Nechako River Basin, BC. 2015 AGU Fall Meeting, San Francisco, United States.
- 29) Abadzadesahraei, S., **Déry, S.** and Rex, J., 2015: Quantifying the water budget for Coles Lake, Northeastern BC. Meeting at the BC Ministry of Forests, Range and Natural Resource Operations, Prince George, Canada.
- 30) ul Islam, S. and **Déry, S.**, 2015: Assessing climate induced future changes in the hydrology of the Fraser River Basin. CanSISE Workshop, Toronto, Canada.

- 31) Hernández-Henríquez, M. A., **Déry, S. J.**, and Derksen, C., 2015: Polar amplification and elevation-dependence in trends of Northern Hemisphere snow cover extent, 1971-2014. 49th Annual CMOS Congress & 13th AMS Conference on Polar Meteorology and Oceanography, Whistler, Canada.
- 32) Brubacher, J., Allen, D., **Déry, S. J.**, Parkes, M., Chhetri, B., Galanis, E., Mak, S., and Takaro, T., Associations between biogeoclimatic zones, land use, aquifer geology and five acute gastrointestinal illnesses in British Columbia from 1993-2013 and potential implications given climate change, Semiahmoo Environmental and Occupational Health Symposium, Blaine, Washington, 8 January 2015.
- 33) Kang, D.-H., Gao, H., Shi, X., and **Déry, S. J.**, 2014: Canada's Fraser River Basin transitioning from a nival to a hybrid system in the late 20<sup>th</sup> century, AGU Fall Meeting, San Francisco, CA, 19 December 2014.
- 34) Sharma, A., **Déry, S. J.** and Cannon, A., 2014: Elevational dependence of climate variability and trends in British Columbia's Cariboo Mountains, 1950-2010, 5th Annual Pacific Northwest Climate Science Conference, Seattle, Washington, 9-10 September 2014.
- 35) Picketts, I. M., **Déry, S. J.** and Parkes, M., 2014: Climate change and resource development in the Nechako Watershed. Resource North Cooperative land management conference: Breaking down silos, Prince George, BC, 17 June 2014.
- 36) **Déry, S. J.**, Sanderson, D., Picketts, I., Fell, B., Baker, S., Lee-Johnson, E., and Auger, M., 2014: Climate change and water at Stellat'en First Nation, British Columbia, Canada: Insights from western science and traditional knowledge, 48th CMOS Annual Congress, Rimouski, QC, 4 June 2014.
- 37) Gurung, P., and **Déry, S. J.**, 2014: Improving snow modelling in the CRCM5: Strategies moving forward, Canadian Network for Regional Climate and Weather Prediction workshop, UQAM, Montreal, QC, 30 May 2014.
- 38) **Déry, S. J.**, 2014: Exploring causes for the global warming hiatus observed during the last 15 years, Climate Science Informal Discussion, UNBC, Prince George, BC, 26 March 2014.
- 39) Picketts, I.M. and **Déry, S.J.**, 2013: Evaluating climate change adaptation in a Canadian community. AGU Fall Meeting. San Francisco CA, 9 December 2013.
- 40) **Déry, S. J.**, Kang, D.-H., Shi, X., and Gao, H., 2013: On the changing contribution of snow to the hydrology of the Fraser River Basin, Canada, AGU Fall Meeting, San Francisco, CA, 12 December 2013.
- 41) **Déry, S. J.**, 2013: Tracking climate change in north-central BC. UNBC Board of Governors, Prince George, BC, 30 November 2013 (invited).
- 42) **Déry, S. J.**, Hernández-Henríquez, M., and Kang, D.-H., 2013: Research on snow/hydroclimate processes and trends, integration with CanSISE, CanSISE workshop, Victoria, BC, 30 October 2013.
- 43) Kang, D.-H., Shi, X., Gao, H., and **Déry, S. J.**, 2013: Changing contribution of snow to Fraser River discharge, Northern Provincial Government Water Stewardship Group, Prince George, BC, 9 October 2013 (invited).
- 44) **Déry, S. J.**, 2013: Keeping track of weather and climate in the Cariboo Mountains, QRRC Annual Open House, Likely, BC, 5 October 2013 (invited).
- 45) Hamilton, S., Andrishak, R., Boals, R., Bouchard, A., **Déry, S. J.**, Pilon, P., and Whitfield, P., 2013: North American Stream Hydrographers, AWRA, Portland, OR, 10 June 2013.

- 46) Picketts, I. M., **Déry, S. J.** and Curry, J., 2013: Moving from models, projections and assessments to implementation: addressing climate impacts in local plans. Joint 2013 CMOS/CGU/CWRA Congress, Saskatoon, SK, 27 May 2013.
- 47) Rasouli, K., Hernández-Henríquez, M., and **Déry, S. J.**, 2013: Recent hydrological changes of Lake Athabasca, Joint 2013 CMOS/CGU/CWRA Congress, Saskatoon, SK, 27 May 2013.
- 48) **Déry, S. J.**, Knudsvig, H., Hernández-Henríquez, M., and Coxson, D., 2013: Net snowpack accumulation and ablation characteristics for the Inland Temperate Rainforest of the Upper Fraser River Basin, Joint 2013 CMOS/CGU/CWRA Congress, Saskatoon, SK, 27 May 2013.
- 49) **Déry, S. J.**, Simon, A., and Brown, R., 2013: Contribution of snow to Hudson Bay river discharge, Joint 2013 CMOS/CGU/CWRA Congress, Saskatoon, SK, 27 May 2013.
- 50) Kang, D.-H., Shi, X., Gao, H., and **Déry, S. J.**, 2013: A modeling study of the changing contribution of snow to the hydrology of the Fraser River Basin, Joint 2013 CMOS/CGU/CWRA Congress, Saskatoon, SK, 27 May 2013.
- 51) **Déry, S. J.**, Simon, A., and Brown, R., 2013: Contribution of snow to Hudson Bay river discharge, Joint 2013 CMOS/CGU/CWRA Congress, Saskatoon, SK, 27 May 2013.
- 52) Stott, T., Leggat, M., Owens, P., Forrester, B., and **Déry, S.**, 2013: Suspended sediment dynamics in the forefield of the rapidly deglaciating Castle Creek Glacier, British Columbia, EGU Annual Assembly, Vienna, Austria, 4 April 2013.
- 53) Shi, X., Déry, S. J., Groisman, P. Y., and Lettenmaier, D. P., 2013: Recent pan-Arctic snow cover and permafrost changes, Third International Symposium on Arctic Research, Tokyo, Japan, 16 January 2013.
- 54) **Déry, S. J.**, 2012: Climate change and the water towers of western Canada, University of Toronto Centre for Global Change Science's Graduate Student Research Symposium, Toronto, Ontario (invited talk).
- 55) Kang, D.-H., Gao, H. and **Déry, S. J.**, 2012: Hydrological variability in the Fraser River Basin during the 20<sup>th</sup> century: A sensitivity study with the VIC model, AGU Fall Meeting, San Francisco, CA.
- 56) Knudsvig, H. K., **Déry, S. J.**, and Coxson, D. S., 2012: Impacts of a changing winter precipitation regime on the Great Snowforest of British Columbia, Canada, AGU Fall Meeting, San Francisco, CA.
- 57) Kang, D.-H., and **Déry, S. J.**, 2012: The changing contribution of snow to the hydrology of the Fraser River Basin, Canada, CGU Annual Meeting, Banff, Alberta.
- 58) Sanderson, D. and **Déry, S. J.**, 2012: Climate change and water at Stellat'en First Nation: Insights from western science and traditional knowledge, CALACS 2012, Kelowna, BC (invited joint talk).
- 59) **Déry, S. J.**, 2012: Climate, snow and water: An overview of change in the Upper Fraser River Basin, McGill University, Montreal, Québec (invited talk).
- 60) **Déry, S. J.**, 2012: Climate, snow and water: An overview of change in the Upper Fraser River Basin, University of Washington, Seattle, Washington (invited talk).
- 61) Straneo, F., Gratton, Y., Sutherland, D., St-Laurent, P., **Déry, S. J.**, and Ramsey, A., 2012: Fresh water transport into the North Atlantic: The contribution from Hudson Strait, IPY 2012 Knowledge to Action conference, Montreal, Quebec.

- 62) Shi, X., Groisman, P. Y., **Déry, S. J.**, and Lettenmaier, D. P., 2012: The role of surface energy fluxes in pan-Arctic snow cover changes, IPY 2012 Knowledge to Action conference, Montreal, Quebec.
- 63) **Déry, S. J.**, J. E. Burford, M. A. Hernández-Henríquez, T. J. Mlynowski, F. Straneo, and E. F. Wood, 2012: Recent fluctuations and trends in streamflow across northern Canada: Insights from the IPY, IPY 2012: From Knowledge to Action, Montreal, Quebec.
- 64) **Déry, S. J.**, 2011: Recent climate and environmental changes in the upper Fraser Basin, Climate Research Division, Environment Canada, Downsview, Ontario (invited talk).
- 65) **Déry, S. J.**, 2011: Blowing snow in BC's Cariboo Mountains, Department of Mathematics and Statistics, York University, Toronto, Ontario (invited talk).
- 66) **Déry, S. J.**, Hernández-Henríquez, M. A., Owens, P. N., Parkes, M. W., and Petticrew, E. L., 2011: Climate oscillations and the hydroclimatology of the Fraser River Basin, AGU Fall meeting, San Francisco, California (invited talk).
- 67) **Déry, S. J.**, 2011: Climate, water and snow: An overview of recent changes in the Upper Fraser Basin, International Centre for Climate Change (IC3), University of Waterloo, Waterloo, Ontario (invited talk).
- 68) Knudsvig, H., Mlynowski, T. J., **Déry, S. J.**, and Coxson, D., 2011: Climate change and the Great Snowforest of Canada, IUGG conference, Melbourne, Australia.
- 69) **Déry, S. J.**, 2011: The Quesnel River watershed, Ecohealth and watersheds in northern BC workshop, Prince George, BC (invited talk).
- 70) **Déry, S. J.**, 2011: Climate change in northern BC and its impacts on water resources, Climate, water, salmon workshop, Quesnel, BC (invited talk).
- 71) **Déry, S. J.**, Hernández-Henríquez, M. A., Owens, P. N., Parkes, M. W., and Petticrew, E. L., 2011: Hydrological extremes in the Fraser River Basin, CMOS congress, Victoria, BC.
- 72) Mlynowski, T. J., Knudsvig, H., and **Déry, S. J.**, 2011: Future climate of the Inland Temperate Rainforest: Demise of the Snowforest? FFESC workshop, Prince George, BC.
- 73) Mlynowski, T. J., Hernández-Henríquez, M. A., and **Déry, S. J.**, 2010: An evaluation of hydrometric monitoring across the Canadian pan-Arctic region, 1950-2008, NASH Symposium, Canadian Water Resources Association's annual meeting, Vancouver, BC.
- 74) **Déry, S. J.**, Mlynowski, T. J., Hernández-Henríquez, M. A., and Straneo, F., 2010: Variability and trends in streamflow input to Hudson Bay, NASH Symposium, Canadian Water Resources Association's annual meeting, Vancouver, BC.
- 75) Hernández-Henríquez, M. A., Mlynowski, T. J. and **Déry, S. J.**, 2010: Reconstructing the natural streamflow of a regulated river: A case study of La Grande Rivière, Québec, Canada, Canadian Water Resources Association's annual meeting, Vancouver, BC.
- 76) Lenaerts, J., van den Broeke, M., **Déry, S. J.**, van Meijgaard, E., and van de Berg, W. J., 2010: Including snowdrift in a regional climate model of Antarctica: Preliminary results, AGU Fall meeting, San Francisco, California.
- 77) **Déry, S. J.**, Ainslie, B., Jackson, P. L., 2010: Modeling intense blowing snow events in the Cariboo Mountains of British Columbia, Canada, AGU Fall meeting, San Francisco, California.
- 78) Shi, X., Groisman, P. Ya., **Déry, S. J.**, and Lettenmaier, D. P. 2010: The role of surface energy fluxes in pan-Arctic snow cover changes, AGU Fall meeting, San Francisco, California.
- 79) **Déry, S. J.** 2010: Climate change and water: A focus on Alexis Creek, Water Workshop, First Nation, BC.



- 80) **Déry, S. J.**, 2010: Climate change and water: A focus on Stellat'en and Nadleh Whut'en First Nations, Water Workshop, Stellat'en First Nation, BC.
- 81) Tong, J., **Déry, S. J.**, and Jackson, P. J., and Derksen, C., 2010: Remote sensing of snow in the Cariboo Mountains of British Columbia, Canada, EGU annual congress, Vienna, Austria (invited talk).
- 82) **Déry, S. J.**, Hernandez-Henriquez, M., Mlynowski, T. J., Hernandez-Henriquez, M. A., and Straneo, F., 2010: Variability and trends in streamflow input to Hudson Bay, Canada, EGU annual congress, Vienna, Austria.
- 83) **Déry, S. J.**, Hernandez-Henriquez, M., Mlynowski, T., Burford, J. E., and Wood, E. F., 2009: Observational evidence of an intensifying hydrological cycle in northern Canada, AGU Joint Meeting, Toronto, ON.
- 84) Tong, J., **Déry, S. J.**, and Jackson, P. L., 2009: Topographic and hydrometeorological controls of remotely sensed snow cover distribution in the Quesnel River Basin of British Columbia, AGU Joint Meeting, Toronto, ON (invited talk).
- 85) Yadghar, A., Ainslie, B., **Déry, S. J.**, and Jackson, P. L., 2009: Assessing the potential contribution of blowing snow to the mass balance of glaciers in the Cariboo Mountains of British Columbia, Canada, AGU Joint Meeting, Toronto, ON.
- 86) Straneo, F., Sutherland, D., St. Laurent, P., **Déry, S. J.**, Harvey, M., and Saucier, F., 2009: Freshwater and the MOC: The example of Hudson Strait, AMOC conference, Palisades, NY.
- 87) Lenaerts, J., van den Broeke, M., and **Déry, S.**, 2009: Modeling snowdrift sublimation on Antarctica using RACMO-SCM, MOCA, Montreal, QC.
- 88) **Déry, S. J.**, K. Stahl, R. D. Moore, P. Whitfield, B. Menounos, and J. E. Burford, 2008: Detection of runoff timing changes in pluvial, nival, and glacial rivers of western Canada, Canadian Meteorological and Oceanographic Society, Kelowna, BC.
- 89) **Déry, S. J.**, S. MacLeod and A. Clifton, 2008: Development of the Cariboo Alpine Mesonet (CAMnet) to detect ecohydrological change in British Columbia's great "snowforest", Canadian Geophysical Union, Banff, AB.
- 90) **Déry, S. J.**, 2008: Snow, soils and climate, Canadian Soil Science Society, Prince George, BC (invited plenary talk).
- 91) Upton, T., and **S. J. Déry**, 2008: Contribution of snowmelt to soil moisture replenishment and storage in the Cariboo Mountains of British Columbia, Canadian Soil Science Society, Prince George, BC.
- 92) **Déry, S. J.**, 2008: Recent Northern Hemisphere snow cover extent trends, University of Alberta, Edmonton, AB (invited talk).
- 93) Burford, J. E., and **S. J. Déry**, 2008: Recent trends in the timing and variability of river discharge in northern Canada, Canadian Meteorological and Oceanographic Society, Kelowna, BC.
- 94) Tong, J., and **S. J. Déry**, 2008: Relationships between remotely sensed snowcover, streamflow and hydrometeorology of the Quesnel River Basin, Canadian Meteorological and Oceanographic Society, Kelowna, BC.
- 95) **Déry, S. J.**, 2008: Development of the Cariboo Alpine Mesonet and Preliminary results, NRESi colloquium, Prince George, BC.
- 96) **Déry, S. J.**, M. Hernandez, J. E. Burford, and E. F. Wood, 2008: Recent trends and variability in river discharge in Northern Canada, Arctic Change 2008 conference, Quebec City, Quebec (invited talk).

- 97) **Déry, S. J.**, M. Hernandez, J. E. Burford, and E. F. Wood, 2008: Recent trends and variability in river discharge in Northern Canada, IP3/IPY workshop, Whitehorse, Yukon.
- 98) **Déry, S. J.**, 2008: Global climate change and some of its implications to northern BC, CUPE Climate Change Workshop, UNBC, Prince George, BC (invited talk).
- 99) **Déry, S. J.**, 2008: Recent activities at the QRRC by the Northern Hydrometeorology Group, QRRC Open House, Likely, BC.
- 100) Tong, J., **S. J. Déry**, B. Hu, Y. Chen, C. Yang, and Z. Rong, 2008: On-board real-time absolute calibration for thermal infrared channels of Feng Yun-2C (FY-2C), Ninth Biennial Pan Ocean Remote Sensing Conference, Guangzhou, China.
- 101) Brown, R. and **S. J. Déry**, 2008: Characteristics of recent trends in Northern Hemisphere snow cover extent, IGARSS 2008, Boston, MA (invited talk).
- 102) Sutherland, D., F. Straneo, K. Drinkwater, and **S. J. Déry**, 2008: How does a changing river input and sea ice cover affect the Hudson Strait Outflow?, Fall AGU, San Francisco, CA.
- 103) **Déry, S. J.**, 2008: Flooding in a changing climate, PIBC Annual conference, Prince George, BC (invited session talk).
- 104) **Déry, S. J.**, K. Stahl, R. D. Moore, P. Whitfield, B. Menounos, and J. E. Burford, 2008: Detection of runoff timing changes in pluvial, nival, and glacial rivers of western Canada, WC2N workshop, Prince George, BC.
- 105) **Déry, S. J.**, A. Clifton, S. MacLeod and A. Yadghar, 2008: On the potential contribution of blowing snow on the mass balance of glaciers in the Cariboo Mountains, WC2N workshop, Prince George, BC.
- 106) **Déry, S. J.** (on behalf of the WC2N network), 2007: The Western Canadian Cryospheric Network (WC2N): An update, Canadian Geophysical Union, St. John's, NF.
- 107) **Déry, S. J.**, and Brown, R. D., 2007: Poleward amplification of Northern Hemisphere weekly snowcover extent trends, Eastern Snow Conference, St. John's, NF.
- 108) **Déry, S. J.**, 2007: Changing Arctic Rivers, ARCUS workshop, Washington, DC (invited talk).
- 109) **Déry, S. J.**, 2007: Changing climate, Visions 2007 workshop, Prince George, BC (invited talk).
- 110) **Déry, S. J.**, 2007: Changing climates and our BC forests and fish habitats, Pine beetle workshop, Prince George, BC (invited talk).
- 111) **Déry, S. J.**, 2007: Detection of runoff timing changes in pluvial, nival and glacial rivers of western Canada, WC2N workshop, Banff, AB.
- 112) **Déry, S. J.**, 2007: Overview of Arctic Rivers, Eurasian hydroclimatology workshop, Fairbanks, AK (invited talk).
- 113) **Déry, S. J.**, Stahl, K., Moore, R. D., Whitfield, P. H. and Menounos, B., 2006: Twentieth century trends in observed river discharge in western Canada, Canadian Geophysical Union, Banff, AB.
- 114) Rennermalm, A. K., Wood, E. F., **Déry, S. J.**, and Weaver, A., 2006: Sensitivity of thermohaline circulation to freshwater export from Hudson Bay and Arctic Ocean rivers, 2006 Freshwater initiative meeting, Denver, CO.
- 115) **Déry, S. J.**, 2006: Large-scale interaction between the seasonal snow cover in Eurasia and hydroclimatic conditions in northern Canada, American Geophysical Union (invited talk), San Francisco, CA.

- 116) MacLeod, S., and **Déry, S. J.**, 2006: The Cariboo Alpine Mesonet, American Geophysical Union, San Francisco, CA.
- 117) **Déry, S. J.**, 2006: Snow conditions: Ecological impact and remote sensing, Prey-Predator workshop (invited talk), Vancouver, BC.
- 118) **Déry, S. J.**, Sheffield, J., and Wood, E. F., 2005: Connectivity between Eurasian snow extent and Canadian snow mass and river discharge, *62nd Annual Eastern Snow Conference*, June 2005, Waterloo, Ontario, Canada
- 119) **Déry, S. J.**, and Wood, E. F., 2005: Characteristics, trends, and atmospheric drivers of Canadian river discharge to high-latitude oceans, *American Meteorological Society*, Jan. 2005, San Diego, CA, USA
- 120) **Déry, S. J.**, Stieglitz, M., McKenna, E. and Wood, E. F. 2004: Recent changes and trends in freshwater discharge into Hudson, James, and Ungava Bays, *American Geophysical Union*, May 2004, Montreal, QC, Canada.
- 121) **Déry, S. J.**, Crow, W. T., Stieglitz, M., and Wood, E. F. 2003: Modeling snowcover heterogeneity in polar regions, *Preprints 7th Conf. Polar Meteorology and Oceanography*, AMS, May 2003, Hyannis, MA, USA.
- 122) **Déry, S. J.**, and Tremblay, L.-B., 2003: The Arctic Ocean snow mass budget, *Preprints 7th Conf. Polar Meteorology and Oceanography*, AMS, May 2003, Hyannis, MA, USA.
- 123) **Déry, S. J.** and Yau, M. K. 2001: Numerical simulation of an Arctic ground blizzard, *Preprints 6th Conf. Polar Meteorology and Oceanography*, AMS, May 2001, San Diego, CA, USA.
- 124) **Déry, S. J.** and Yau, M. K. 2001: A numerical study of a severe Arctic ground blizzard, CMOS, May/June 2001, Winnipeg, Manitoba, Canada.
- 125) **Déry, S. J.**, Bintanja, R., Mann, G., Taylor, P. A., Xiao, J. and Yau, M. K. 1999: The Blowing Snow Model Intercomparison Project: An update, CMOS, May/June 1999, Montreal, Quebec, Canada.
- 126) **Déry, S. J.** and Yau, M. K. 1999: A climatology of significant winter-type events for the Mackenzie River Basin inferred from the ECMWF Re-Analysis, *Preprints 5th Conf. Polar Meteorology and Oceanography*, AMS, January 1999, Dallas, Texas, USA, 69-70.
- 127) **Déry, S. J.** and Yau, M. K. 1999: Blowing snow modelling and parameterization, *Preprints 5th Conf. Polar Meteorology and Oceanography*, AMS, January 1999, Dallas, Texas, USA, 349-350.
- 128) **Déry, S. J.** and Yau, M. K. 1999: A preliminary assessment of the blowing snow transport and sublimation fluxes for the Mackenzie River Basin, CMOS, May/June 1999, Montreal, Quebec, Canada.
- 129) Xiao, J., Bintanja, R., **Déry, S. J.**, Mann, G. and Taylor, P. A., 1999: An intercomparison between three models of blowing snow in the atmospheric boundary layer, IUGG, July 1999, Birmingham, UK.
- 130) Xiao, J., Taylor, P. A. and **Déry, S. J.**, 1999: A model of blowing snow and its predictions for sensible and latent heat flux perturbation in blowing snow events, EGS, April 1999, The Hague, Netherlands.
- 131) Xiao, J., Taylor, P. A. and **Déry, S. J.**, 1999: Sensible and latent heat fluxes in blowing snow events, CMOS, May/June 1999, Montreal, Quebec, Canada.
- 132) **Déry, S. J.** and Taylor, P. A. 1997: Thermodynamic effects of blowing snow in the atmospheric boundary layer, *Proceedings of the Hydro-ecology Workshop on the Arctic*

*Environmental Strategy Action on Water*, CGU, May 1996, Banff, Alberta, Canada, 293-302.

- 133) **Déry, S. J.** and Taylor, P. A. 1996: On the impact of blowing snow sublimation in the Mackenzie River Basin, CMOS, May/June 1996, Toronto, Ontario, Canada.
- 134) **Déry, S. J.** and Taylor, P. A. 1995: Northern boundary-layer modelling; Some ideas on blowing snow, CGU, May 1995, Banff, Alberta, Canada.
- 135) **Déry, S. J.**, Stewart, R. E. and Taylor, P. A. 1995: A preliminary study of surface effects within Avalon Peninsula winter storms, CMOS, May/June 1995, Kelowna, British Columbia, Canada.

## **8. Professional Service:**

### **8.1 Memberships**

American Geophysical Union (AGU)  
American Meteorological Society (AMS)  
Canadian Geophysical Union (CGU)  
Canadian Meteorological and Oceanographic Society (CMOS)  
Canadian Water Resources Association (CWRA)  
European Geosciences Union (EGU)  
International Association of Cryospheric Sciences (IACS)  
International Association of Hydrological Sciences (IAHS)  
International Glaciological Society (IGS)

### **8.2 Affiliations**

Department of Civil Engineering, University of Manitoba (Adjunct Professor)  
Natural Resources and Environmental Studies Institute (NRESi), UNBC  
North American Stream Hydrographers (NASH) Association  
Pacific Institute for Climate Solutions (PICS)

### **8.3 Active Positions**

2017-present Associate Editor, *Atmosphere-Ocean*  
2014-present Associate Editor, *Journal of Hydrometeorology*  
2014-present Vice Chair/Treasurer, CMOS BC Interior and Yukon Chapter  
2013-present UNBC Representative, ARCUS  
2012-present Member, publications committee, CMOS

### **8.4 Former Positions**

2019 Member/Co-chair, NSERC Advancing Climate Change Science in Canada evaluation group  
2018 Member, NSERC Strategic Partnership Grants Projects (Environment and Agriculture) evaluation group  
2013-2018 Member, science steering committee, CanSISE

2014-2017 Co-chief Editor (Meteorology and Hydrology), *Atmosphere-Ocean*  
2016 Panel Member, Arctic Natural Sciences Program, National Science Foundation  
2016 Co-chair, Joint CMOS/CGU congress hydrology session  
2016 Co-chair, Special Eric Wood Symposium session  
2016 Member, Core Committee, Nechako Watershed Roundtable  
2012-2015 Member, Council of the International Glaciological Society  
2012-2014 Member, Climate change adaptation advisory group, T̓silhqot̓'in National Government  
2011-2014 Member, BC Water Science Strategy Phase II Advisory Committee  
2006-2014 Member, scientific committee, CMOS  
2006-2014 Member, review committee, Eastern Snow Conference student paper competition  
2006-2014 Member, editorial board, *Canadian Water Resources Journal*  
2012-2014 Member, editorial board, *Atmosphere-Ocean*  
2013 Co-chair, CMOS congress cryosphere session  
2012-2013 Co-Editor, Columbia River special issue of *Atmosphere-Ocean*  
2011-2014 Member, Geosciences Evaluation Group, NSERC  
2008-2011 Member, editorial board, *The Cryosphere*  
2008-2011 Member and Chair, Northern Research Supplement Committee, NSERC  
2007-2011 UNBC representative, ARCUS  
2008, 2011 Member, science planning committee, CMOS annual congress  
2010-2011 Reviewer, AGU student poster competition  
2011 Co-chair, CMOS congress plenary session  
2010 Co-chair, Fall AGU cryosphere session  
2008-2009 Member, program committee, PICS  
2008-2009 Member, director search committee, PICS  
2008 Member, graduate student fellowship adjudicating committee, PICS  
2008 Co-chair, CMOS congress session on climate change and water resources

## 8.5 Reviews

### 8.5.1 Journals

<b>Journal</b>	<b>Number (Year)</b>
<i>Advances in Water Resources</i>	1 (2005)
<i>Annals of Glaciology</i>	2 (2003), 1 (2006), 1 (2010)
<i>Arctic</i>	1 (2015), 1 (2018)
<i>Arctic, Antarctic and Alpine Research</i>	1 (2010), 1 (2011)
<i>Atmosphere-Ocean</i>	1 (2005), 1 (2009), 2 (2010), 2 (2011), 3 (2017)
<i>Atmospheric Research</i>	1 (2011), 1 (2012)
<i>Book Chapters (John Wiley/AGU Books)</i>	2 (2013)
<i>Boundary-Layer Meteorology</i>	1 (1995), 1 (2002), 1 (2004), 1 (2006), 1 (2008), 1 (2011)
<i>Bulletin of the AMS</i>	1 (2002)
<i>Canadian Water Resources Journal</i>	2 (2007), 2 (2009), 1 (2010), 1 (2011), 1 (2017)

<i>Climate Dynamics</i>	1 (2008), 1 (2009), 1 (2015)
<i>Climate Research</i>	1 (2010)
<i>Climatic Change</i>	1 (2015)
<i>Cold Regions Science and Technology</i>	2 (2003), 1 (2007)
<i>The Cryosphere</i>	1 (2008), 1 (2010), 1 (2011), 3 (2012), 3 (2013), 3 (2014), 2 (2016), 2 (2017)
<i>Earth's Future</i>	2 (2016)
<i>Earth System Science Data</i>	1 (2018)
<i>Environmental Impacts Assessment Review</i>	1 (2017)
<i>Environmental Research Letters</i>	2 (2009), 1 (2010), 3 (2011), 1 (2014), 2 (2015), 1 (2016)
<i>Forest Ecology and Management</i>	1 (2006)
<i>Geophysical Research Letters</i>	2 (2004), 2 (2005), 3 (2006), 3 (2007), 3 (2008), 3 (2009), 2 (2010), 1 (2011), 1 (2012), 1 (2014)
<i>Global and Planetary Change</i>	1 (2009), 1 (2016)
<i>Hydrological Processes</i>	3 (2006), 1 (2007), 1 (2009), 1 (2010), 2 (2012), 1 (2013), 1 (2015), 1 (2016), 1 (2018)
<i>Hydrological Sciences Journal</i>	2 (2009), 3 (2014), 1 (2015)
<i>Hydrology &amp; Earth System Sciences</i>	1 (2010), 1 (2012), 1 (2017), 1 (2018)
<i>Hydrology Research</i>	2 (2009), 1 (2014)
<i>International Journal of Climatology</i>	1 (2001), 1 (2006), 1 (2009), 1 (2010), 2 (2014)
<i>Journal of the American Water Resources Association (JAWRA)</i>	1 (2015)
<i>Journal of Applied Meteorology and Climatology</i>	1 (2006), 1 (2008)
<i>Journal of Climate</i>	3 (2008), 1 (2014)
<i>Journal of Cold Regions Engineering</i>	1 (2003)
<i>Journal of Geophysical Research</i>	1 (2000), 1 (2001), 1 (2002), 1 (2005), 1 (2007), 3 (2009), 2 (2010), 2 (2011), 1 (2012), 1 (2013), 2 (2014), 1 (2017), 1 (2018)
<i>Journal of Glaciology</i>	1 (2005), 1 (2013)
<i>Journal of Hydrologic Engineering</i>	1 (2014)
<i>Journal of Hydrology</i>	1 (2010), 1 (2011), 2 (2012), 1 (2013), 1 (2015)
<i>Journal of Hydrometeorology</i>	3 (2003), 1 (2004), 1 (2005), 1 (2006), 1 (2007), 2 (2010), 1 (2012), 4 (2013), 1 (2014), 5 (2015), 3 (2016), 3 (2017), 1 (2018)
<i>Journal of Marine Sciences</i>	1 (2018)
<i>Journal of Water Sciences (in French)</i>	1 (2006), 1 (2007), 1 (2016)

<i>PLOS One</i>	1 (2013)
<i>Proceedings of the National Academy of Sciences of the USA (PNAS)</i>	1 (2015 – Guest Editor)
<i>Remote Sensing</i>	1 (2011)
<i>Remote Sensing of Environment</i>	1 (2009), 1 (2014), 1 (2016)
<i>Scientific Reports</i>	1 (2017)
<i>Stochastic Environmental Research and Risk Assessment</i>	1 (2017)
<i>Water Resources Research</i>	1 (2007), 2 (2008), 2 (2016), 2 (2017), 2 (2018)
<i>Weather and Forecasting</i>	1 (2004)
<i>Western Geography</i>	1 (2008)
<b>Total</b>	<b>214</b>

### 8.5.2 Grants

I have reviewed 37 proposals for various funding agencies including the Swiss National Science Foundation (2003, 2004), the United Kingdom Natural Environment and Research Council (two reviews in 2004), the Canadian Foundation for Climate and Atmospheric Science (2005), a Natural Sciences and Engineering Research Council of Canada (NSERC) site visit in 2007, NSERC Discovery grants in 2006, 2007 (in French), 2008, 2009, 2010, 2014 and 2016, NSERC Strategic grants in 2010 and 2012, NSERC Collaborative Research and Development grants in 2013, 2015 and 2016 (all in French) and 2018, the Canada Foundation for Innovation (2010, 2011, 2018 (in French)), the United States National Science Foundation (2006, 2008, 2010, 2011, 2012, 2017, 2018), two Canada Research Chair applications (2007, 2016), a Chilean Fondecyt application (2010), four United States Strategic Environmental Research and Development Program applications (2013), a MITACS application (2017) and an Austrian FWF application (2012).

In addition to these grant and proposal reviews, I acted as a member and then chaired NSERC's Northern Research Supplement Committee for which I reviewed over 100 applications for funding over 2008-2011. I then became a member of NSERC's Geosciences Evaluation Group to review applications to their Discovery Grant program. To that end, I reviewed nearly a total of 200 applications for funding over 2011-2014 and was assigned to do so in a period of only six to eight weeks each year. The evaluation of the funding applications was conducted during a full week of conference-style meetings in Ottawa with NSERC staff and other members of the evaluation group. In 2016, I was a member of a National Science Foundation (NSF) review panel and evaluated 22 proposals submitted to their Arctic Natural Sciences Program. In March 2016, I participated in a week-long meeting at NSF headquarters in Washington, DC for adjudication of the proposals with the other members of the review panel. In 2018, I became a member (3-year position) of the selection committee for NSERC's Strategic Partnerships Grants Projects in Environment and Agriculture for which I reviewed and vetted 17 proposals. Thus through my membership in NSF and NSERC review panels, in addition to my reviews of individual funding grant applications, I have participated in the evaluation and adjudication of over 375 grant applications in the last 15 years.

### 8.5.3 Professional Reports

In 2008, I performed the peer review of a professional report entitled “Climate Change Impacts in Prince George - A Summary of Past Trends and Future Projections of climate in North-Central British Columbia” produced by the Pacific Climate Impacts Consortium. In 2008/2009, I also acted as a consultant for a project entitled “Microclimate analysis and unique weather patterns of Highway 401 Northumberland County” conducted by 4DM Inc. on behalf of the Ministry of Transportation of Ontario. In 2018, I provided a detailed evaluation on “Chapter 6 – Changes in Freshwater Availability across Canada”, a comprehensive report on climate change across Canada produced by Environment and Climate Change Canada.

#### 8.5.4 Theses

I have acted as the external examiner for 9 doctoral theses: Princeton University (2006), Université du Québec à Rimouski (2010), McGill University (2010), University of Washington (2012), University of Manitoba (2014), Université du Québec à Montréal (2015), University of Victoria (2018), University of Saskatchewan (2019) and University of Regina (2019). I have also acted as the external examiner for two MSc theses at UNBC.

#### 8.5.5 Awards, Fellowships and Scholarships

Several of my ongoing and past engagements with the scientific community involve the review of fellowship and/or scholarship applications. As a member of the Scientific Committee for CMOS from 2006 to 2014, I participated in the adjudication of both undergraduate and graduate scholarships offered annually by the Society. I also review internal applications for the Northern Scientific Training Program at UNBC annually and have assessed the best student paper for recent meetings of the Eastern Snow Conference. I also adjudicated nearly 100 applications for Pacific Institute for Climate Solutions graduate student fellowships in 2008. Finally, I have evaluated multiple applications for UNBC graduate student research project awards.

### 9. Recent Collaborators:

Ross Brown (ECCC/Ouranos), Jessica Cherry (UAF), Stewart Cohen (ECCC), Darwyn Coxson (UNBC), Chris Derksen (ECCC), Huilin Gao (Texas A&M), Dorothy Hall (NASA GSFC), Peter Jackson (UNBC), Richard Kelly (U. Waterloo), Paul Kushner (U. Toronto), Dennis Lettenmaier (UCLA), Eduardo Martins (UNBC), Jim McClelland (U. Texas), Brian Menounos (UNBC), Dan Moore (UBC), Phil Owens (UNBC), Margot Parkes (UNBC), Ellen Petticrew (UNBC), Valentina Radic (UBC), Xiaogang Shi (University of Glasgow), Tricia Stadnyk (U. Calgary), Laxmi Sushama (UQAM/McGill), Marc Stieglitz (Georgia Tech), Fiamma Straneo (WHOI), Peter Taylor (York U.), Julie Thériault (UQAM), Bruno Tremblay (McGill), Michiel van den Broeke (Utrecht U.), Roger Wheate (UNBC), Eric Wood (Princeton), Peter Yau (McGill), Francis Zwiers (PCIC).

### 10. Grants and Funding:

Name of Applicant, Role	Title of proposal, funding source and program	Total Amount	Years of Tenure
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Principal applicant	Senior Industrial Research Chair in climate change and water security – Rio Tinto Canada Fund + NSERC	\$750,000 × 2	2019-2024
Principal co-applicant with Phil Owens	Integrated watershed-based science in the Nechako River Basin, Phase 2 – Nechako Environmental Enhancement Fund	\$499,950 (20%)	2018-2022
John Gyakum, Co-applicant	Adaptable Earth-Observation System (EOS) – Canada Foundation for Innovation (Innovation Fund) with matching funds from Fonds de Recherche du Québec – Nature et Technologies (FRQNT)	\$13,953,246 (0%)	2017-2022
Principal applicant	Atmospheric and terrestrial rivers of western Canada in transition – NSERC Discovery Grant	\$200,000	2016-2021
Julie Thériault, Co-applicant	Storms and Precipitation across the continental Divide Experiment (SPADE) – Global Water Futures Pillars 1 & 2	\$280,000 (60%)	2017-2020
Sean Carey, Co-applicant	Mountain Water Futures – Global Water Futures Pillar 3	1,726,083 (17%)	2017-2020
Ellen Petticrew, Co-applicant	Evaluating the resiliency of aquatic ecosystems to a catastrophic mine tailings spill event: The 2014 Mount Polley incident in Quesnel River Watershed, British Columbia, Canada – Environment and Climate Change Canada, Environmental Damages Fund	\$986,580 (6%)	2016-2020
Darwyn Coxson, Co-applicant	Climate change resilience and sensitivity of key wetland ecosystems in the Ancient Forest/Chun T'oh Whudujut Park – BC Parks Living Lab	\$15,225 (50%)	2018-2019
Principal applicant	Improving year-round measurements of precipitation in BC's mountainous terrain – Real Estate Foundation of BC Partnering Fund	\$10,000	2018-2019
Principal applicant	Is abnormal a new normal: Synoptic evolution and return period of the June 2016 flooding event in the northern Canadian Rockies – Real Estate Foundation of BC Partnering Fund	\$9,900	2018-2019
Principal applicant	Improving meteorological monitoring in north-central British Columbia – MITACS Career Connect	\$10,000	2018
Principal applicant	Real-time access to CAMnet meteo-	\$10,000	2017-2018

	rological data – UNBC seed grant		
Principal applicant	Greening of the Great White North: Is climate change influencing heavy snowfall events in northern BC? – Real Estate Foundation of BC Partnering Fund	\$13,500	2017-2018
Principal applicant	Canada Summer Jobs	\$1,711	2017
Principal applicant	Canada Summer Jobs	\$3,296	2016
Principal applicant	Rivers in the sky: Potential natural hazards in northern BC associated with atmospheric rivers – Real Estate Foundation of BC Partnering Fund	\$13,500	2016
Co-applicant	BaySys - Contributions of climate change and hydro-electric regulation to the variability and change of freshwater-marine coupling in the Hudson Bay System – NSERC Collaborative Research and Development	\$10,650,000 (1%)	2015-2019
Principal applicant	Predicting the spring runoff in the Kiskatinaw watershed – City of Dawson Creek	\$32,000	2015-2017
Principal applicant	One Time Funding Request for Newly Admitted Student – Mr. Michael Allchin, UNBC Office of Research	\$10,000	2015-2016
Principal applicant	One Time Funding Request for Newly Admitted Student – Mr. Aseem Raj Sharma, UNBC/BC Oil and Gas Commission	\$10,000	2014
Principal applicant	Quantifying the water budget of Coles Lake, northeastern British Columbia, Environment Canada Science Horizons	\$12,000	2014
Principal applicant	Developing capabilities at UNBC in the application of a programmatically piloted aerial systems for environmental research, UNBC seed grant	\$5,871	2014
Principal applicant	Using scenarios to improve community sustainability, land use and resilience in a changing Nechako River Basin, Real Estate Foundation of BC	\$14,581 (50%)	2014
Ellen Petticrew, co-applicant	Integrated watershed-based science in the Nechako River Basin, Nechako Environmental Enhancement Fund	\$500,000 (25%)	2014-2018
Laxmi Sushama, co-applicant	Canadian Network for Regional Climate and Processes, NSERC CCAR	\$4,078,000 (3%)	2013-2017

Paul Kushner, co-applicant	The Canadian Sea Ice and Snow Evolution (CanSISE) network, NSERC CCAR	\$3,795,000 (11%)	2013-2017
Principal applicant	Snowpack characteristics and trends in northeastern British Columbia and impacts on regional surface water supply, BC Oil and Gas Commission	\$25,000	2013-2014
Principal applicant	Preparing proactively for the impacts of climate change on natural and human systems in the Nechako River Basin, Real Estate Foundation of BC	\$7000 (50%)	2013-2014
Principal applicant	Cariboo Alpine Mesonet, Env. Canada Science Horizons	\$12,000	2013-2014
Ellen Petticrew, co-applicant	Landscape ecology of large watersheds: linking hydrometric, geomorphic and biologic processes to evaluate material fluxes and their aquatic impacts, CFI + BCKDF	\$242,070 (33%)	2012-2013
Principal applicant	A century of hydrological variability in the Fraser River Basin, Env. Canada Science Horizons	\$12,000	2011-2012
Phil Owens, co-applicant	Climate, water and salmon, SSHRC	\$45,000 (25%)	2011-2012
Principal applicant	Floods in the Nechako River Basin, Real Estate Foundation of BC	\$12,000 (50%)	2011-2012
Principal applicant	Climate change and the water towers of western Canada, NSERC Discovery grant + Accelerator grant	\$166,500 \$120,000	2011-2015 2011-2013
Principal applicant	CAMnet field assistant, Service Canada	\$2,147	2011
Principal applicant	Infrastructure in support of CRC renewal, CFI	\$11,454	2010-2011
Principal applicant	Infrastructure in support of CRC renewal, BCKDF	\$11,454	2010-2011
Principal applicant	The Cariboo Alpine Transect Expansion, Env. Canada Science Horizons	\$12,000	2010-2011
Darwyn Coxson, co-applicant	Climate change vulnerability of old-growth forests in BC's Inland Temperate Forest, FFESC	\$43,000	2010-2011
Principal applicant	The water budget of a mountainous watershed, NSERC Discovery grant	\$111,500	2006-2010
Principal applicant	Canada Research Chair in Northern Hydrometeorology	\$500,000 (×2)	2005-2010 2011-2015
Principal applicant	Supplement to the CRC	\$200,000 (×2)	2005-2010 2011-2015

Eddison Johnson, co-applicant	Lee-co-	Reducing the carbon footprint of Stellat'en First Nation, Environment Canada, ecoAction	\$47,578 (0%)	2009-2010
Darlene Sanderson, co-applicant		Reducing the carbon imprint of Stellat'en First Nation, MITACS	\$15,000 (100%)	2009-2010
Fiamma Straneo, co-applicant		From rivers to the ocean..., National Science Foundation (USA) - Oceans	\$887,239 (0%)	2008-2010
Alain Pietroniro/Fred Wrona, co-applicant		Arctic Freshwater Systems, NSERC-IPY	\$100,000	2007-2010
Brian Menounos, co-applicant		Western Canadian Cryospheric Network, CFCAS	\$2,130,591 (4.6%)	2006-2010
Principal applicant		Monitoring the changing climate of BC's Interior Wetbelt, Environment Canada Science Horizons	\$12,000	2009
Eric Rapaport, co-applicant		PIBC climate change workshop, BC Hydro	\$5,000 (0%)	2008
Principal applicant		Development of the Cariboo Alpine Mesonet, HRSDC Career Focus	\$15,000	2008
Principal applicant		Arctic Change 2008, UNBC travel grant	\$1,000	2008
Principal applicant		A meteorological network to monitor environmental change..., NSERC RTI	\$32,300	2008
Principal applicant		An eddy covariance system..., NSERC RTI	\$24,975	2007
Principal applicant		Closing the water budget of the Quesnel River Basin, UNBC seed grant	\$4,990	2007
Principal applicant		Publication grant, UNBC	\$1,461	2006
Principal applicant		CGU 2006, UNBC travel grant	\$1,162	2006
Principal applicant		BCKDF supplement to CFI grant, BCKDF	\$60,416	2005
Principal applicant		Infrastructure grant, CFI	\$60,416	2005
Principal applicant		UNBC start-up funds	\$15,000	2005
Principal applicant		UNBC supplement to CFI, UNBC	\$20,200	2005
<b>Total (direct funds)</b>			<b>\$5,024,327</b>	

## 11. Supervision:

The supervision of students and research staff is another form of instruction I commonly practice at UNBC. Currently, I am supervising or co-supervising two undergraduate students, three Master's students and three Ph.D. students. Most graduate students have successfully attracted external or internal funding support such as Pacific Impacts for Climate Solutions (PICS) and Pacific Leaders fellowships, as well as UNBC research, travel and dissertation completion grants. Of note, a recent

Master's student (Tullia Upton) in my research group attracted a prestigious Fullbright scholarship to undertake her doctoral degree at Oregon State University. In addition, a recent Ph.D. student (Ian Picketts) in my group obtained the Governor General's Gold Medal award for the exceptional quality of his thesis and who is now a faculty member at Quest University since September 2014.

I currently am also (co-)supervising two research skills trainees, three research managers (one part-time), and two research associates. Those individuals who have completed their terms or studies under my supervision have all accepted positions in the private, public, and academic sectors in Canada and abroad or have sought higher academic degrees. For instance, a former post-doctoral fellow in my group, Dr. Darlene Sanderson, is now an Assistant Professor at Thompson Rivers University.

Several of my trainees have worked closely with industry, a community partner, or with provincial and local governments. This includes projects relevant to the oil and gas industry (Quicksilver Inc., BC Oil and Gas Commission and the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD)), hydropower generation (Manitoba Hydro and Hydro-Québec), mining and metals companies (Rio Tinto and Centerra Gold), Stelat'en First Nation, Cheslatta Carrier Nation, and the Cities of Dawson Creek and Prince George. We also frequently interact with community stakeholders through such organizations as the Fraser Basin Council, the Nechako Watershed Roundtable and Rio Tinto's Water Engagement Initiative. Furthermore, group members routinely engage in community outreach events such as the annual open house at the Quesnel River Research Centre in Likely, BC or workshops targeting the general public.

My approach in providing effective supervision varies considerably from one person to the next. Some individuals require assistance with their communication skills, whereas others lack certain computing or technical skills. In all cases, I spend as much time as required with each student and research staff member. At the same time, I encourage group interactions and mentorship to enhance the sharing of knowledge and skills. Our research group meets on a regular (monthly) basis to discuss progress and field activities. Meetings with other faculty members and their research groups provide further opportunities for learning from peers.

As a final note, I am also pleased to provide letters of support either for students or research staff applying for awards, fellowships and scholarships or applications for employment. In the past several years, I have typically provided a dozen letters of support each year to current or past students in my research group, that I have taught, or that I have interacted with at other institutions. I also provide about a dozen references by telephone each year for individuals seeking employment in Canada and abroad, or even permanent residency or citizenship in various countries. Furthermore, I pro-actively look for opportunities to nominate my research group members for awards such as the Governor General's Gold Medal and professional organizations' awards.

A complete list of current and past members of my research group is provided below:

#### Current Students and Research Staff

2013-present Michael Allchin (Ph.D. student)

2014-present Barry Booth (IWRG Research Manager, co-supervised with Drs Phil Owens, Margot Parkes and Ellen Petticrew)

2016-present Joseph Gothreau (MNRES student co-supervised with Dr Margot Parkes)  
 2014-present Siraj ul Islam (Post-doctoral fellow/Research Associate)  
 2020-present Natalya Klutz (Undergraduate Research Assistant)  
 2015-present Rajtantra Lihare (Ph.D. student, co-supervised with Dr. Tricia Stadnyk)  
 2019-present Selina Mitchell (M.Sc. student)  
 2018-present Jeremy Morris (M.Sc. student/Part-time NHG Research Manager)  
 2020-present Daniel Scurfield (Undergraduate Research Assistant)  
 2015-present Aseem Raj Sharma (Ph.D. student)  
 2019-present Hilary Smith (SPADE Research Manager)  
 2019-present Ivy Strother (Research Skills Trainee)  
 2018-present Andrew Tefs (Research Associate, co-supervised with Dr. Tricia Stadnyk)  
 2019-present Margot Vore (Research Skills Trainee)

#### Former Students and Research Staff

2018-2019 Juris Almonte (SPADE Research Manager)  
 2016-2019 Hadleigh Thompson (M.Sc. student/Research Assistant)  
 2017-2018 Sohom Mandal (Post-doctoral fellow co-supervised with Dr Trish Stadnyk)  
 2017-2018 Mark Taylor (Research/Field Assistant)  
 2016-2018 Rachel Hay (M.Sc. student)  
 2015-2018 Hunter Gleason (M.Sc. student)  
 2013-2018 Sina Abadzadesahraei (Ph.D. student)  
 2015-2017 Matt MacDonald (Post-doctoral fellow co-supervised with Dr Trish Stadnyk)  
 2017 Brayden Nilson (Research/Field Assistant)  
 2016 Marc Howard (Research/Field Assistant)  
 2016 Julia MacGillivray (Research Assistant)  
 2016 Gareth Wells (Research Assistant)  
 2014-2016 Bunu Sharma (Research Assistant and M.Sc. student)  
 2015-2016 Mark Taylor (Research/Field Assistant)  
 2015 Carling Matthews (Research Assistant co-supervised with Dr Margot Parkes)  
 2015 Manoj Kizhakkeniyil (Research Associate co-supervised with Dr Trish Stadnyk)  
 2014-2015 Waqar Younas (Post-doctoral fellow)  
 2014-2015 Graham Fonseca (Undergraduate student)  
 2015 David Hah (Undergraduate co-op student)  
 2009-2017 Marco Hernández-Henríquez (Research Associate)  
 2010-2015 Heidi Knudsvig (Master's student)  
 2014 Derrick van Tol (Undergraduate field assistant)  
 2014 Kyle Siemens (Field Assistant)  
 2013-2014 Geoff Kershaw (Research Assistant)  
 2013-2014 Pabitra Gurung (Ph.D. student)  
 2013-2014 James Fraser (Research Assistant)  
 2013-2014 Ian Picketts (PDF, co-supervised with Dr. Margot Parkes)  
 2013 Ben McGrath (Undergraduate field assistant)  
 2012-2014 Do-Hyuk Kang (Post-doctoral fellow)  
 2012-2014 Aseem Raj Sharma (Master's student)

2012	Sam Albers (Research Assistant, co-supervised with Dr. Ellen Petticrew)
2012	Andrew Duncan (Undergraduate field assistant)
2012	Abigail Lewis (Part-time undergraduate field assistant)
2012	Ewan Jones (Part-time undergraduate field assistant)
2012	Suin Lee (Undergraduate student)
2012	Kate Hrinkevich (Part-time Research Assistant)
2012-2014	Kabir Rasouli (Part-time Research Associate)
2011-2012	Allan Padilla (Research Associate)
2010-2011	Bryndel Fell (Research Associate)
2011	Jake McQueen (Undergraduate Field Assistant)
2009-2012	Ian Picketts (Ph.D., co-supervised with Dr. John Curry)
2007-2010	Kara Przewczek (Master's, co-supervised with Dr. Brian Menounos)
2007-2010	Tullia Upton (Master's student)
2009-2010	Darlene Sanderson (Post-doctoral Fellow)
2008-2010	Theo Mlynowski (Research Assistant)
2008-2010	Marco Hernández-Henríquez (Research Assistant)
2008-2009	Amir Yadghar (Research Associate)
2008-2010	Jinjun Tong (Ph.D. student)
2007-2008	Andy Clifton (Post-doctoral Fellow)
2007-2008	Sara Ormenyi (Undergraduate Student)
2006-2008	Shane MacLeod (Research Assistant)
2005-2008	Jason Burford (Research Associate)

## 12. Teaching:

Teaching forms an essential component of my responsibilities as a UNBC faculty member and it is an activity that I both enjoy and take most seriously. As a Tier 2 Canada Research Chair at UNBC from July 2005 to June 2015, my teaching responsibilities were 40% of the normal load at UNBC, implying limited opportunities for instruction over a wide range of courses. Since then, I have had the opportunity to expand my teaching to a wider range of courses including an introductory (second year) course on weather and climate, a third year geography course on hydrology, and a master's level seminar course in the natural resources and environmental studies graduate program.

Since 2005, I have taught three courses regularly (typically every second year): ENSC 312 ("Biometeorology"), ENSC 408/608 ("Storms"), and ENSC 454/654 ("Snow and Ice"), a course that I proposed and developed. These are either required or optional courses in the upper level environmental science and engineering undergraduate degrees, although many of our students come from other programs such as geography, chemistry, and biology. "Storms" and "Snow and Ice" are also offered as graduate courses in the natural resources and environmental studies master's program. Typically, the number of students in these classes ranges from 5 to 15, allowing for a personal and informal approach to teaching. I have also recently taught ENSC 201 ("Weather and Climate"), GEOG 310 ("Hydrology") and NRES 701 ("Graduate Colloquia"). Apart from these courses, I have led seven directed graduate independent studies (NRES 799), two directed undergraduate independent studies (ENSC 499), two undergraduate internships (ENSC 440), two seminar courses (NRES 798 and NRES 804), and one undergraduate thesis (GEOG 499). I have also provided over 20 guest lectures in various undergraduate and graduate courses since 2005.

Maintaining a high level of teaching excellence is one of my main goals as faculty. This includes ensuring course materials are presented in a clear and easily accessible manner. Thus all electronic course materials (lecture notes and labs, presentations, articles, etc.) are provided on the course website for the students' convenience. Notes and presentations are usually provided prior to the lectures to the students and they are thus encouraged to actively engage in the class discussions rather than focus on taking notes. Being accessible to students remains one of my highest priorities as UNBC faculty. I have an open-door policy and students are always encouraged to drop by my office with questions or comments on course materials, even outside my normal office hours. I also respond to voice mail and email messages as quickly as possible, even on evenings and weekends.

Experiential learning forms a central component of my teaching. Field trips to conduct snow surveys (such as to UNBC's Quesnel River Research Centre in Likely, BC or to the Ancient Forest, east of Prince George, BC) are advocated since these provide students with unique opportunities to learn in their natural environment. A notable example of this is a field trip undertaken by my "Snow and Ice" students to Blue River, BC during the winter 2011 semester. The students and I were able to participate in an avalanche training course with staff from the Mike Wiegele Helicopter Skiing Company. With the generous support of the heli-skiing company, UNBC, and my personal financial contributions, the class was able to fly by helicopter into the backcountry of BC's Rocky Mountains for a full day avalanche training course. All students thoroughly enjoyed this experience and learned much about snow properties that lead to avalanche initiation in mountainous terrain. In addition, three courses that I regularly teach (ENSC 312, GEOG 310, and ENSC 408/608) involve a laboratory component that allows students to apply the theoretical knowledge learned in their lectures. This includes the use of meteorological equipment and deployment of a full weather station for data collection over several weeks in ENSC 312.

A summary of my course evaluations since academic year 2008/2009 by students is provided in the following table:

Academic Year	Course	Overall Rating of Competence (/5)	Overall Course Rating (/5)
Fall 2008	ENSC 312 (Biometeorology) – Course evaluations lost	-	-
Winter 2009	ENSC 454/654 (Snow and Ice)	4.78	4.25
Fall 2009	ENSC 312 (Biometeorology)	4.00	3.63
Winter 2010	Compassionate leave	-	-
Fall 2010	ENSC 312 (Biometeorology)	4.85	4.48
Winter 2011	ENSC 454/654 (Snow and Ice)	4.49	4.25
2011/2012	Sabbatical leave	-	-
Fall 2012	Course cancellation (ENSC 312)	-	-
Winter 2013	ENSC 454/654 (Snow and Ice)	4.18	3.78
Fall 2013	ENSC 312 (Biometeorology)	4.91	4.88
Winter 2014	ENSC 408/608 (Storms)	4.56	4.43
Fall 2014	Teaching relief	-	-
Winter 2015	ENSC 201 (Weather & Climate)	4.68	4.25



	ENSC 454/654 (Snow & Ice)	4.70	4.40
Fall 2015	NRES 701 (Graduate Colloquia)	3.93	3.83
Winter 2016	GEOG 310 (Hydrology)	4.51	3.70
	ENSC 408/608 (Storms)	4.69	4.48
Fall 2016	NRES 701 (Graduate Colloquia)	4.63	4.05
	ENSC 312 (Biometeorology)	4.73	4.38
Winter 2017	ENSC 454/654 (Snow & Ice)	4.48	4.15
	NRES 701 (Graduate Colloquia)	4.77	4.20
Fall 2017	ENSC 408/608 (Storms)	4.52	4.05
	NRES 701 (Graduate Colloquia)	4.81	4.53
Winter 2018	GEOG 310 (Hydrology)	4.83	4.70
	ENSC 454 (Snow & Ice)	5.00	4.68
	<b>Mean</b>	<b>4.60</b>	<b>4.26</b>

The overall rating of my teaching competence has averaged 4.6 (out of a possible mark of 5.0) over the past ten academic years. I constantly take into consideration the comments provided by all students to improve the delivery of lectures and to enhance their classroom experience. Course evaluations are reviewed annually with my program chair and adjustments are made when required. A few co-teaching opportunities in ENSC 312 and ENSC 408/608 with Dr. Peter Jackson, a full professor of environmental science and engineering, has also allowed me to obtain constructive comments on engaging students and capturing their attention as well as learning innovative teaching techniques.

Developing and updating instructional materials ensures these courses remain relevant to UNBC students. This implies incorporating new and exciting findings (including my own research) in the lectures and labs. It also implies continued renewal of course homepages, including the need to provide updated links to websites with relevant data and materials. This provides the dynamic environment that better engages students in the classroom.

Complete descriptions for the courses I regularly teach are provided below:

### **ENSC 201-03: Weather and Climate**

This course explains the fundamental processes of weather and climate, and leads the student toward an understanding of how the atmosphere works and how to interpret the weather. Topics introduced include: atmospheric energy, solar and terrestrial radiation, the "Greenhouse Effect", and climate change, air quality and stratospheric ozone, humidity, clouds, precipitation, storms and weather systems, hurricanes and tornadoes, stability and thunderstorms, wind and atmospheric dynamics, and weather forecasting.

### **ENSC 312-03: Biometeorology**

This course develops an understanding of the principles of weather and climate at micro-, local and meso-scales. It discusses the processes associated with transfers of heat, mass, and momentum and

resulting climates near the surface. Other topics include fog, urban and forest climates, bioclimatology, local winds, as well as transport and dispersion of air pollution.

### **ENSC 408/608-03 Storms**

This course covers the analysis and dynamics of synoptic weather systems; cyclones and cyclogenesis; fronts, thunderstorms, jet streams and stability; thermodynamic charts, satellite imagery and weather forecasting.

### **ENSC 454/654-03 Snow and Ice**

This course will focus on the physical processes involving snow and ice that greatly influence the hydrometeorology of northern B.C. and the remainder of Canada. Some of the goals of this course are: 1) to gain a better understanding of snowpack, permafrost, lake ice, and glacier formation and ablation processes, 2) to learn about the characteristics of snow and ice and how they will evolve with climate change, 3) to conduct an extensive snow survey in the field that will form the basis of a research project and in-class presentation.

### **GEOG 310-03 Hydrology**

This course is an introduction to physical hydrology. It examines the components of the hydrological cycle, and investigates the processes of water movement and storage in the environment.

### **NRES 701-0.5: Graduate Colloquia**

Students attend weekly colloquia on a range of research conducted in natural resources and environmental studies. Students must register twice in this course. The course is offered during the September and January semesters. This is a PASS/FAIL course.