CURRICULUM VITAE

Ian B. Strachan, Ph.D.

Current Position/Address: Professor, Department of Geography and Planning
Queen's University, Kingston, ON

Citizenship: Canadian

POSITIONS HELD

2017 – present	Adjunct Professor, Dept. Geography and Environmental Management, University of Waterloo
2012 – 2021	Associate Dean (Graduate Education), Faculty of Agricultural and Environmental Sciences
2015 (July-Aug)	Interim Dean, Faculty of Agricultural and Environmental Sciences and Interim Associate Vice-Principal (Macdonald Campus), McGill University
2009 – 2011	Graduate Program Director, Natural Resource Sciences, McGill University
2007 – 2021	Associate Professor, Dept. of Natural Resource Sciences, McGill University
2003 – 2021	Associate Member, McGill School of Environment
2001 – 2021	Cross-appointment to the Dept. of Geography, McGill University
2001 – 2006	Assistant Professor, Dept. of Natural Resource Sciences, McGill University
2000 – 2001	NSERC Post-Doctoral Visiting Fellow, Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa, Ontario

EDUCATION

Ph.D.	Queen's University – Department of Geography
M.Sc.	Queen's University – Department of Geography
B.Sc.	University of Toronto – Physical Geography

AWARDS

2019	Macdonald Campus Award for Teaching Excellence
2019	Nominee for the Principal's Prize for Excellence in Teaching
2020	Nominee for the Principal's Prize for Excellence in Teaching
2008	Graham K. Walker Award for excellence in agrometeorology / forest meteorology by the Canadian Society of Agricultural and Forest Meteorology.

PEER-REVIEWED PUBLICATIONS (current or former supervised student/postdoc underlined;
*as corresponding author)
Scopus: h-index=23; citations=2958; Google Scholar: h-index=27; citations=4392 as of Jan 1, 2022

63. Nugent, K.A., **Strachan, I.B.***, Strack, M., Roulet, N.T., Strom, L. and Chanton, J., 2021. Cutover peat limits methane production causing low emission at a post-extraction restored peatland. *Journal of Geophysical Research – Biogeosciences* 126(12), doi.org/10.1029/2020JG005909
62. Fournier, J., Thiboult, A., Nadeau, D.F., Vercauteren, N., Anctil, F., Parent, A-C., **Strachan, I.B.** and Tremblay, A., 2021. Evaporation from boreal reservoirs: A comparison between eddy covariance observations and estimations relying on limited data. *Hydrological Processes* 35(8):1-19 DOI: 10.1002/hyp.14335
61. Vidana Gamage, D.N., Vasava, H.B., **Strachan, I.B.**, Adamchuk, V.I., Biswas, A., 2021. Comparison of heating strategies on soil water measurement using actively heated fiber optics on contrasting textured soils. *Sensors* 21(3): 1-18
60. Helbig, M., … **Strachan, I.B.**, et al., 2020. The biophysical climate mitigation potential of boreal peatlands during the growing season. *Environmental Research Letters* 15: 104004 doi.org/10.1088/1748-9326/abab34
59. Helbig, M., … **Strachan, I.B.**, et al., 2020. Increasing contribution of peatlands to boreal evapotranspiration in a warming climate. *Nature Climate Change* 10: 555–560. doi.org/10.1038/s41558-020-0763-7
58. Vidana Gamage, D.N., Biswas, A., and **Strachan, I.B.**, 2020. Scale and location dependent time stability of soil water storage in a maize cropped field. *Catena* 188:104420 doi.org/10.1016/j.catena.2019.104420
57. Nugent, K.A., **Strachan, I.B.***, Strack, M., Roulet, N.T., Frolking, S. and Helbig, M., 2019. Prompt active restoration of peatlands substantially reduces radiative forcing. *Environmental Research Letters* 14: 124030 doi:10.1088/1748-9326/ab56e6
56. Vidana Gamage, D.N., Biswas, A., and **Strachan, I.B.**, 2019. Spatial variability of soil thermal properties and their relationships with physical properties at field scale. *Soil & Tillage Research* 193: 50-58. doi:10.1016/j.still.2019.05.0
55. Pelster, D.E., Watt, D., **Strachan, I.B.**, Rochette, P., Bertrand, N. and Chantigny, M., 2019. Effects of initial soil moisture, clod size and clay content on ammonia volatilization after sub-surface band application of urea. *Journal of Environmental Quality* 48(3): 549-558. doi:10.2134/jeq2018.09.0344
54. O'Brien, G.A., Ross, N.A., and **Strachan, I.B.***, 2019. The heat penalty of walkable neighbourhoods. *International Journal of Biometeorology* doi:10.1007/s00484-018-01663-0
53. Vidana Gamage, D.N., Biswas, A., and **Strachan, I.B.**, 2019. Field water balance closure with actively heated fiber optics and point-based sensors. *Water* 11, 135. doi:10.3390/w11010135
52. Nugent, K.A., **Strachan, I.B.***, Strack, M., Roulet, N.T. and Rochefort, L., 2018. Multi-year net ecosystem carbon balance of a restored peatland reveals a return to carbon sink. *Global Change Biol.* 24(12): 5751-5768. doi:10.1111/gcb.14449
51. Vidana Gamage, D.N., Biswas, A., and **Strachan, I.B.**, 2018. Actively heated fiber optic technique to monitor three-dimensional wetting patterns under drip irrigation. *Agricultural Water Management* 210: 243-251
50. Rankin, T., **Strachan, I.B.*** and Strack, M., 2018. Carbon dioxide and methane exchange at a post-extraction, unrestored peatland. *Ecological Engineering* 122: 241-251. doi:10.1016/j.ecoleng.2018.06.021
49. Vidana Gamage, D.N., Biswas, A., **Strachan, I.B.** and Adamchuk, V.I., 2018. Soil water measurement using actively heated fiber optics at field scale. *Sensors* 18(4) 1116. doi:10.3390/s18041116

48. Wang, W., Roulet, N.T., Kim, Y., **Strachan, I.B.**, del Georgio, P. Prairie, Y., and Tremblay, A., 2018. Modelling CO_2 emissions from water surface of a boreal hydroelectric reservoir. *Science of the Total Environment* 612: 392-404. doi:10.1016/j.scitotenv.2017.08.203
47. Irambona, C., Music, B., Nadeau, D.F., Mahdi, T.F., and **Strachan, I.B.**, 2018. Impacts of boreal hydroelectric reservoirs on seasonal climate and precipitation recycling as simulated by the CRCM5: a case study of the La Grande river watershed, Canada. *Theoretical and Applied Climatology* 131(3-4): 1529-1544. doi:10.1007/s00704-016-2010-8
46. Järvi, L., Grimmond, C.S.B., McFadden, J.P., Christen, A., **Strachan, I.B.**, Taka, M., Warsta, L., and Heimann, M., 2017. Warming effects on the urban hydrology in cold climate regions. *Nature Scientific Reports* 7: 5833. doi:10.1038/s41598-017-05733-y
45. **Strachan, I.B.***, Tremblay, A., Pelletier, L., Tardif, S., Turpin, C. and Nugent, K.A., 2016. Does the creation of a Boreal hydroelectric reservoir result in a net change in evaporation? *Journal of Hydrology* 540: 886-899.
44. **Strachan, I.B.***, Pelletier, L. and Bonneville, M-C., 2016. Interannual variability in water table level controls net ecosystem carbon dioxide exchange in a boreal bog. *Biogeochemistry* 127: 99-111.
43. Watt, D., Rochette, P., VanderZaag, A., **Strachan, I.B.***, Bertrand, N., 2016. Impact of the oasis effect on wind tunnel measurements of ammonia volatilization. *Canadian Journal of Soil Science* 96:1–11. doi:10.1139/cjss-2016-0025
42. Strack, M., Cagampan, J., Hassanpour Fard, G., Keith, A.M., Nugent, K.A., Rankin, T., Robinson, C., **Strachan, I.B.**, Waddington, J.M., and Xu, B., 2016. Controls on plot-scale growing season CO_2 and CH_4 fluxes in restored peatlands: Do they differ from unrestored and natural sites? *Mires and Peat* 17(5): 1-18. doi:10.19189/MaP.2015.OMB.216
41. Wang, W., Roulet, N.T., **Strachan, I.B.**, and Tremblay, A., 2016. Modelling surface energy fluxes and thermal dynamics of a seasonally ice-covered hydroelectric reservoir. *Science of the Total Environment* 550: 793-805.
40. Kim, Y., Roulet, N.T., Li, C., Frolking, S., **Strachan, I.B.**, Peng, C., Teodoru, C.R., Prairie, Y.T., and Tremblay, A., 2016. Simulating carbon dioxide exchange in boreal ecosystems flooded by reservoirs. *Ecological Modelling* 327: 1-17.
39. **Strachan, I.B.***, Nugent, K.A., Crombie, S., and Bonneville, M-C., 2015. Carbon dioxide and methane exchange at a cool-temperate freshwater marsh. *Environmental Research Letters* 10:065006
38. Pelletier, L., **Strachan, I.B.***, Roulet, N.T., Garneau, M., and Wischnewski, K., 2015. Effect of open water pools on ecosystem scale surface-atmosphere carbon dioxide exchange in a boreal peatland. *Biogeochemistry* 1–14. doi: 10.1007/s10533-015-0098-z
37. Pelletier, L., **Strachan, I.B.***, Roulet, N.T., and Garneau, M., 2015. Can boreal peatlands with pools be net sinks for CO_2? *Environmental Research Letters* 10:035002; Monthly Highlighted pub (Mar'15)
36. Kim, Y., Roulet, N.T., Peng, G., Li, C., Frolking, S., **Strachan, I.B.**, and Tremblay, A., 2014. Multi-year carbon dioxide flux simulations for mature Canadian black spruce forests and ombrotrophic bogs using Forest-DNDC. *Boreal Environment Research* 19(5-6): 417-440
35. Järvi, L., Grimmond, C.S.B., Taka, M., Nordbo, A., Setälä, H., and **Strachan, I.B.**, 2014. Development of the Surface Urban Energy and Water balance Scheme (SUEWS) for cold climate cities, *Geoscientific Model Development* 7: 1691-1711
34. Pelletier, L., **Strachan, I.B.***, Garneau, M., and Roulet, N.T., 2014. Carbon release from boreal peatland open water pools: implication for the contemporary C exchange. *Journal of Geophysical Research – Biogeosciences* 119(3): 207-222. doi:10.1002/2013JG002423
33. Hong, J., Mathieu, N., **Strachan, I.B.**, Pattey, E., and Leclerc, M.Y., 2012. Response of ecosystem carbon and water vapor exchanges in evolving nocturnal low-level jets. *Asian Journal of Atmospheric Environment* 6-3: 222-233.

32. Teodoru, C., Bastien, J., Bonneville, M-C., del Giorgio, P.A., Demarty, M., Garneau, M., Hélie, J-F., Pelletier, L., Prairie, Y.T., Roulet, N.T., **Strachan, I.B.**, and Tremblay, A., 2012. The first complete carbon budget for a newly-created boreal hydroelectric reservoir: net carbon footprint of the Eastmain-1 reservoir. *Global Biogeochemical Cycles* 26: GB2016. doi:10.1029/2011GB004187.
31. Bergeron, O. and **Strachan, I.B.***, 2012. Wintertime radiation and energy budget along an urbanization gradient in Montreal, Canada. *International Journal of Climatology* 32: 137-152.
30. Leroyer, S., Mailhot, J., Belaire, S., and **Strachan, I.B.**, 2011. Microscale numerical prediction over Montreal with the Canadian External Urban Modeling System. *Journal of Applied Meteorology and Climatology* 50:2410-2428.
29. Bergeron, O. and **Strachan, I.B.***, 2011. CO_2 sources and sinks in urban and suburban areas of a northern mid-latitude city. *Atmospheric Environment* 45(8): 1564-1573
28. Dasgupta, K., Joseph, L., Pilote, L., **Strachan I.B.**, Sigal, R., and Chan, C., 2010. Daily steps are low year-round and dip lower in fall/winter: findings from a longitudinal diabetes cohort. *Cardiovascular Diabetology* 9:81-90.
27. Dabros, A., Fyles, J., and **Strachan, I.B.**, 2010. Effects of open-top chambers on physical properties of air and soil at post-disturbance sites of transitional forest zone in northwestern Quebec. *Plant and Soil*, 333(1-2):203-218.
26. Leroyer, S., Mailhot, J., Belaire, S., Lemonsu, A., and **Strachan, I.B.**, 2010. Modeling the surface energy budget during the thawing period of the 2006 Montreal Urban Snow Experiment. *Journal of Applied Meteorology and Climatology* 49(1): 68-84.
25. Almaraz, J.J., Mabood, F., Zhou, X., **Strachan, I.B.**, Ma, B., and Smith, D.L., 2009. Performance of agricultural systems under contrasting growing season conditions in South-Western Quebec. *Journal of Agronomy and Crop Science*, 195: 319–327. DOI: 10.1111/j.1439-037X.2009.00369.x
24. **Strachan, I.B.***, Pattey, E., Salustro, C., and Miller, J.R., 2008. Use of hyperspectral remote sensing to estimate the gross photosynthesis of agricultural fields. *Canadian Journal of Remote Sensing* 34(3): 333-341.
23. Pattey, E., Blackburn, L.G., **Strachan, I.B.**, Desjardins, R., and Dow, D, 2008. Spring thaw and growing season N_2O emissions from a field planted with edible peas and a cover crop. *Canadian Journal of Soil Science* 88:241-249
22. Bonneville, M.-C., **Strachan, I.B.***, Humphreys, E., and Roulet, N.T., 2008. The net ecosystem exchange of a cattail marsh in Eastern Canada in relation to biophysical properties. *Agricultural and Forest Meteorology*, 148: 69-81.
21. Dasgupta, K. Chan, C., Da Costa, D., Pilote, L., De Civita, M., Ross, N.A., **Strachan, I.B.**, Sigal, R., Joseph, L., 2007. Walking behaviour and glycemic control in type 2 diabetes: seasonal and gender differences. Study design and methods. *Cardiovascular Diabetology* 6:1-11.
20. Pattey, E. **Strachan, I.B.**, Desjardins, R.L., Edwards, G.C., Dow, D., and MacPherson, I.J., 2006. Application of a tunable diode laser to the measurement of CH_4 and N_2O fluxes from field to landscape scale using several micrometeorological techniques. *Agricultural and Forest Meteorology* 136: 222-236.
19. Pattey, E., Edwards, G., **Strachan, I.B.**, Desjardins, R.L., Kaharabata, S., and Wagner Riddle, C., 2006. Towards standards for measuring greenhouse gas flux from agricultural fields using instrumented towers. *Canadian Journal of Soil Science* 86: 373-400.
18. Mathieu, N., **Strachan, I.B.***, Leclerc, M.Y., Karipot, A., and Pattey, E., 2005. Role of low-level jets and boundary-layer properties on the NBL budget technique. *Agricultural and Forest Meteorology* 135: 35-43.
17. **Strachan, I.B.***, Stewart, D.W. and Pattey, E., 2005. Determination of leaf area index in agricultural systems. In: J.L. Hatfield and J.M. Baker (eds.), *Micrometeorology in Agricultural Systems*, Agronomy Monograph No. 47 ASA-CSSA-SSSA. pp.179-198.

16. Uno, Y., Prasher, S.O., Patel, R.M., **Strachan, I.B.**, Pattey, E., and Karimi, Y., 2005. Development of field-scale soil organic matter content estimation models in Eastern Canada using airborne hyperspectral imagery. *Canadian Biosystems Engineering*, 47: 1.9-1.14.
15. Vigier, B., Pattey, E. and **Strachan, I.B.**, 2004. Narrow-band vegetation indices and detection of disease damage in soybeans. *IEEE Geoscience and Remote Sensing Letters*, 1(4): 255-259.
14. Haboudane, D., Miller, J.R., Pattey, E., Zarco-Tejada, P. and **Strachan, I.B.**, 2004. Hyperspectral vegetation indices and novel algorithms for predicting green LAI of crop canopies: Modeling and validation in the context of precision agriculture. *Remote Sensing of Environment*, 90: 337-352.
13. Sigurdsson, B.D., Bjarndóttir, B., **Strachan I.B.**, and Pálmason, F., 2004. The Gunnarsholt Experimental Forest II. Annual water balance and water quality (Tilraunaskógurinn í Gunnarsholti II. Vatnið í skóginum). *Journal of the Icelandic Forestry Association*, (Skógræktarritið. Icelandic with English summary), pp. 51-59.
12. **Strachan, I.B.***, Pattey, E., and Boisvert, J.B., 2002. Impact of nitrogen and environmental conditions on corn as detected by hyperspectral reflectance. *Remote Sensing of Environment*, 80(2): 213-224.
11. Pattey, E., **Strachan, I.B.**, Desjardins, R.L., and Massheder, J., 2002. Measuring nighttime CO_2 flux over terrestrial ecosystems using eddy covariance and nocturnal boundary layer methods. *Agricultural and Forest Meteorology*, 113(1-4): 145-153.
10. **Strachan, I.B.***, and McCaughey, J.H., 2002. Stomatal conductance of *P. trichocarpa* in Southern Iceland in relation to environmental variables. *Scandinavian Journal of Forest Research*, 17(1): 7-14.
9. Pattey, E., **Strachan, I.B.**, Boisvert, J.B., Desjardins, R.L. and McLaughlin, N.B., 2001. Detecting effects of nitrogen application rate and weather on corn using micrometeorological and hyperspectral reflectance measurements. *Agricultural and Forest Meteorology*, 108: 85-99.
8. **Strachan, I.B.***, Arnalds, Ó., Pálmason, F., Thorgeirsson, H., Sigurdsson, B.D., Sigurðardóttir, H., and Novoselac, G., 1998. Soils of the Gunnarsholt experimental plantation. *Icelandic Agricultural Sciences*, 12:15-26.
7. **Strachan, I.B.***, Sigurdsson, B.D., and McCaughey, J.H., 1998. Soil hydrology at the Gunnarsholt experimental plantation: measurement and results. *Icelandic Agricultural Sciences*, 12:27-34.
6. Sigurdsson, B.D., Aradóttir, Á.L., and **Strachan, I.B.**, 1998. Cover and canopy development of a newly established poplar plantation at Gunnarsholt, S. Iceland. *Icelandic Agricultural Sciences*, 12:35-46.
5. Lafleur, P.M., McCaughey, J.H., Bartlett, P.A., and **Strachan, I.B.**, 1998. Observations of the micrometeorology of two forests in eastern Ontario, Canada 1. Interannual variations in summer radiation and energy balance. *Canadian Journal of Forest Research*, 28:514-523.
4. Aradóttir, Á.L., Thorgeirsson, H., McCaughey, J.H., **Strachan. I.B.**, and Robertson, A., 1997. Establishment of a Black Cottonwood plantation on an exposed site in Iceland: Plant growth and site energy balance. *Agricultural and Forest Meteorology*, 84:1-9.
3. **Strachan, I.B.***, and McCaughey, J.H., 1996. Spatial and vertical leaf area index of a deciduous forest resolved using the LAI-2000 Plant Canopy Analyzer. *Forest Science*, 42:176-181.
2. **Strachan, I.B.***, and Harvey, L.E., 1996. Quantifying the effects of temporal autocorrelation on climatological regression models using geostatistical techniques. *Canadian Journal of Forest Research*, 26:864-871.
1. **Strachan, I.B.***, and Wilcox, S., 1996. Peer and self assessment of group work: Developing an effective response to increased enrolment in a third-year course in microclimatology. *Journal of Geography in Higher Education*, 20:343-353.

INDUSTRY-SPONSORED PUBLICATIONS

Tremblay, A., Tardif, S., **Strachan, I.B.**, and Turpin, C., 2014. Net water evaporation from the Eastmain-1 reservoir. *Hydro Review* 33(5): 52-60.

Tremblay, A., Bastien, J., **Strachan, I.B.**, and Bonneville, M-C., 2010. Three methods to study CO_2 and CH_4 fluxes at Eastmain 1 reservoir, Canada. *International Journal on Hydropower and Dams*, 17(4): 78-83.

Bonneville, M-C., and **Strachan, I.B.***, 2008. Measuring GHG emissions - the use of eddy covariance techniques. *International Water Power and Dam Construction* 60(9): 22-25.

OTHER PUBLICATIONS

Strachan, I.B., 2012. Measuring wind and transport in the planetary boundary layer. In: Ahrens, C.D., Jackson, P.L. and Jackson, C.E.J., *Meteorology Today. An Introduction to Weather, Climate, and the Environment. First Canadian Edition.* Nelson Education, pp.262-3. Invited Contribution

Dasgupta, K. Chan, C., **Strachan, I.B.**, Christopoulos, S., Sigal, R.J., and Joseph, L., 2009. Preliminary analysis demonstrates winter reduction in daily steps and winter increase in blood pressure in type 2 diabetes. *Canadian Journal of Diabetes*, 33(3): 236. Published Abstract

Liu, J., Miller, J.R., Pattey, E., Haboudane, D., **Strachan, I.B.**, and Hinther M., 2004. Monitoring crop biomass accumulation using multi-temporal hyperspectral remote sensing data. *Proceedings IEEE International Geoscience and Remote Sensing Symposium (IGARSS '04),* pp 1637-1640, held September 21 – 25, 2004 in Fairbanks, Alaska, USA.

Strachan, I.B., 2003. World Survey of Climatology, General Climatology 1C: Classification of Climates: O.M. Essenwanger. *Agricultural and Forest Meteorology*, 115(3-4): 231-232. Book Review

Champagne, C., Pattey, E., Bannari, A. and **Strachan, I.B.**, 2001. Mapping crop water stress: issues of scale in the detection of plant water status using hyperspectral indicies. *Proceedings of the 8th International Symposium On Physical Measurements and Signatures in Remote Sensing*, Aussois, France, pp. 79-84.

MEDIA CITATIONS/INVITED TALKS

1. Invited Speaker at the Chapman Colloquium. March 28, 2019, University of New Hampshire - Durham.
2. Keynote Speaker at "Addressing Environmental Issues via Cross Disciplinary Collaboration". Feb 28, 2018, Montreal, QC.
3. Invited Speaker at the Canadian Sphagnum Peat Moss Association Annual General Meeting. Nov 7-8, 2017, Marco Island, Florida.
4. Invited Speaker for "McGill All Star Profs – Last Chance Lectures". April 29, 2015, Montreal, QC.
5. Welcome Address for the Canadian Plant Biotechnology Conference, May 12, 2014, Montreal, QC
6. "Energy, yes, But please no Greenhouse Gases!" Featured expert in a video documentary prepared by Hydro Quebec. 2010.
7. "From the Field to the Laboratory: Research on Greenhouse Gases at the Eastmain-1 Reservoir" Featured expert in a video documentary prepared by Hydro Quebec. 2008.
8. Hydro power: How green is it? Interview in *McGill Reporter*, March 20, 2008.
9. CBC Radio Montreal live interview. Urban heat islands, weather and air quality. Montreal Matters series on the Environment. October 8, 2007. www.cbc.ca/media/montrealmatters/oct8.html
10. Réservoir et gaz à effet de serre Pour en avoir le Coeur net! *HydroPresse* 87(8), September 2007. Featured article on the Hydroelectric Project on GHG emissions.
11. "The Air We Breathe". Featured expert in this televised documentary prepared for CPAC. Television airing started August, 2007.

TRAINING OF HIGHLY QUALIFIED PERSONNEL

Post-Doctoral Researchers

Dr. Manuel Helbig 2017 "Ecosystem CO_2 and CH_4 exchange in restored peatlands"

Dr. Luc Pelletier 2015-2016 "Carbon exchange in restored peatlands"

Dr. Onil Bergeron 2007-2010 "Surface energy budgets of urban, suburban and rural sites"

Dr. Sylvie Leroyer 2007-2009 "Modelling of meso-scale and urban boundary-layer circulations within the Montreal urban area"

Ph.D.

Miranda Hunter 2019-current "Hydrological controls on carbon and water vapour fluxes from peatlands undergoing active harvest" (U. Waterloo; as co-supervisor w. M. Strack)

Silvie Harder 2019 (as co-supervisor w. N.T. Roulet) "Relationships between carbon, energy and water balance in a palsa permafrost peatland: Can we explain the ecosystem-scale fluxes by its component parts?"

Kelly Nugent 2019 "Carbon cycling at a post-extraction restored peatland: Small-scale processes to global climate impacts"

Duminda Vidana Gamage 2019 (as supervisor w. A. Biswas – U.Guelph) "New soil water sensing technique to quantify spatio-temporal dynamics of soil water at point to field scale"

Luc Pelletier 2014. "The net carbon exchange in coastal peatlands along Quebec's Cote Nord"

Laura Wittebol 2009. "Refinement and verification of the nocturnal boundary layer budget method for estimating greenhouse gas emissions from Eastern Canadian agricultural farms"

M.Sc.

Sophie Burgess 2021-current (as co-supervisor with C. Kallenbach) "C storage and mobility in a freshwater marsh"

Steffy Velosa 2021-current (as co-supervisor with N.T. Roulet) "Effects of management on C production and exchange in drained peatlands"

Laura Clark 2021 "Years of extraction determines CO_2 and CH_4 emissions from an actively extracted peatland in eastern Québec, Canada"

Haley Alcock 2020 "Methane emissions from a temperate freshwater marsh"

Sabrina Touchette 2017 (U. Waterloo; as co-supervisor w. M. Strack) "Hydrological controls on greenhouse gas exchange in a post-restoration peatland"

Scott MacDonald 2017 "Interannual variability and spatial heterogeneity in net carbon exchange at a restored peatland in Alberta" 102 pp.

Tracy Rankin 2016 "An analysis of carbon dioxide and methane exchange at a post-extraction, unrestored peatland in Eastern Québec" 84 pp.

Devon Watt 2016 "Impacts of soil physical properties and of the wind-tunnel measurement technique on ammonia volatilization from urea-fertilized soils" 103 pp.

Carlomagno Soto 2015 (as co-supervisor w. M. Kalacska). "Hyperspectral remote sensing investigations of vegetation in Northern Peatlands" 145 pp.

Julie de Gea 2015 (as co-supervisor w. M. Kalacska) "Phenology of vegetation light-use efficiency and reflectance: experiment over two boreal ecosystems" 92 pp.

Kelly Nugent 2013 "Carbon dioxide, water vapour and energy fluxes of a recently burned boreal jack pine stand in north-western Québec, Canada" 128 pp.

Stephanie Crombie 2012 "The carbon and energy budgets of a marsh ecosystem" 116 pp.

Cheryl Rogers 2011 "Remote sensing of light use efficiency in a boreal forest and peatland in James Bay, Quebec" 100 pp.

Marie-Eve Lemieux 2010 “From forest to lake: effect of hydroelectric reservoir impoundment on the net ecosystem exchange of carbon dioxide” 131 pp.

Eric Christensen 2010 “Measurement and modelling of snow properties in urban and suburban Montreal neighbourhoods.” 127 pp.

Jackie Dee Grom 2008 (as co-supervisor w. W. Pollard) “Environmental controls on retrogressive thaw slump development”.

Pierre-Luc Lizotte 2007 “A portable profiling system for determining horizontal and vertical CO_2 advection” 92 pp.

Marie-Claude Bonneville 2006 “Measurement and modeling of surface-atmosphere exchange of CO_2 and CH_4 in a cattail marsh in Eastern Ontario” 144 pp.

Lynda Blackburn 2006 “Quantification and estimation of N_2O emissions from dairy manure applications in a Western Quebec pea-forage and an Eastern Ontario alfalfa-forage cropping system” 139 pp.

Nathalie Mathieu 2004 “A study of atmospheric properties and their impact on the use of the nocturnal boundary layer budget technique for trace gas measurement” 106 pp.

Recent senior undergraduate (honours) project supervision:

Kaiyun Wang 2021-current “A further examination of peat stockpile emissions”

Amelia Weiss 2021-current “Towards an urban carbon budget”

Karina Volpato 2020 “Reducing production stage carbon emissions: A peat industry case study”

Maria Gheta 2020 “CO_2 and CH_4 emissions from stockpiles of an exploited peatland in eastern Quebec”

William Xing 2019-20 “Net effect of flooding a black spruce forest on CO2 emissions”

Laura Clark 2018-19 “Effects of age on CO_2 emissions from in-production drained peatlands”

Naomi Weinberg 2018 “Effects of extraction on CO_2 emissions from an in-production drained peatland”

Maude Durand 2017-18 “Using digital images to estimate net CO_2 uptake in a marsh”

Iona Sobral 2017-18 “Comparing urban rooftop- and suburban-garden microclimates”

Grace O’Brien 2016-17 “Measurements of urban heat in Montreal neighbourhoods”

Emma Webb, 2016 “GHG exchange from pools in restored peatlands”

Gwen Miller-Dannelongue, 2014 “Methane from reed plants in restored peatlands”

SELECTED STUDENT PRESENTATION AWARDS

Nugent, K.A., **Strachan, I.B.** and Strack, M., 2017. *Multi-year net ecosystem carbon balance at the restored Bois-des-Bel peatland*. 23rd symposium of the Peatland Ecology Research Group, Quebec City. This presentation won the Best Student Oral Presentation prize at PERG2017.

Nugent, K.A., **Strachan, I.B.**, Strack, M. and Pelletier, L., 2016. *Evaluating the carbon sequestration function of a horticulture-extracted restored peatland.* 3rd AMS Conference on Biogeosciences, Salt Lake City, UT. This oral presentation won the Canadian Society for Agricultural and Forest Meteorology (CSAFM) Award for outstanding student presentation.

Pelletier, L., **Strachan, I.B.**, Roulet, N.T. and Garneau, M., 2015. *The impact of open-water pools on the net ecosystem CO_2 exchange of a Boreal peatland*. Joint Assembly of the American Geophysical Union, Montreal. This oral presentation won the Campbell Scientific - Bert Tanner Student Prize from the CSAFM for best student paper based on quality of the research and the presentation.

Crombie, S. and **Strachan, I.B.**, 2012. *Carbon and water vapour exchange in a temperate freshwater marsh*. 30th AMS Conference on Agriculture and Forest Meteorology, Boston, MA. This poster and extended abstract won both the CSAFM Award for outstanding student poster presentation and an American Meteorology Society Student Presentation Award.

Rogers, C. 2011. “Remote sensing of light use efficiency in a boreal forest and peatland in James Bay, Quebec” 100 pp. Awarded *Best Master’s Thesis 2011* from the Canadian Remote Sensing Society.

PRIMARY UNDERGRADUATE TEACHING RESPONSIBILITIES

I have taught on both of McGill's campuses since my initial appointment. ENVB301 is offered annually at the Macdonald Campus; NRSC/GEOG221 is offered each academic year on alternating campuses; GEOG321 is offered in alternate years on the downtown campus. I also am part of the teaching team for WILD475 Desert Ecology – a two-week experiential ecology course in the southwestern US desert environments.

Teaching evaluations (mean +/- SD) out of 5.0 based on annual student evaluations.
The following questions are used for annual reporting:
Q1. "Overall, this is an excellent course" **Average = 4.40 (0.23)**
Q2. "Overall, I learned a great deal from this course" **Average = 4.48 (0.23)**
Q3. "Overall, this instructor is an excellent teacher" **Average = 4.73 (0.15)**
Q4. ""Overall, I learned a great deal from this instructor" **Average = 4.65 (0.18)**

ENVB301 Meteorology (Macdonald Campus – Fall term)
The physical processes underlying weather. Topics include: the atmosphere - its properties (structure and motion), and thermodynamics (stability, heat and moisture); clouds and precipitation; air masses and fronts; mid-latitude weather systems and severe weather.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Mean
Enrolment	35	50	65	83	89	82	66	95	53	84	66	96	72
Resp. (%)	54	48	62	38	51	35	58	51	51	36	28	44	46
Q1.	4.7	4.4	4.4	4.5	4.5	4.5	4.4	4.4	4.8	4.8	4.7	4.6	4.6
Q2.	4.8	4.6	4.7	4.6	4.8	4.6	4.5	4.4	4.9	4.9	4.8	4.6	4.7
Q3.	4.9	4.6	4.7	4.8	4.9	4.7	4.7	4.6	5.0	5.0	4.9	4.9	4.8
Q4.	4.9	4.6	4.6	4.7	4.9	4.7	4.6	4.5	5.0	4.9	4.8	4.8	4.8

NRSC221/GEOG221 Environment and Health (F: Macdonald & W: Downtown); Taught w. Prof. N. Ross
This course introduces physical and social environments as factors in human health, with emphasis on the physical properties of the atmospheric environment as they interact with diverse human populations in urban settings.

	W09	F09	W11	F11	W13	F13	W15	F15	W17	F17	W19	F19	W21	Mean
Enrolment	110	78	140	53	173	63	180	56	193	62	249	66	298	132
Resp. (%)	41	49	34	40	40	36	37	44	34	42	30	36	28	38
Q1.	4.2	4.3	4.4	4.2	4.2	4.6	4.5	4.2	4.1	4.5	4.5	4.8	4.5	4.4
Q2.	4.3	4.6	4.4	4.4	4.2	4.6	4.3	4.3	4.3	4.3	4.5	4.5	4.6	4.4
Q3.	4.7	4.7	4.7	4.8	4.5	5.0	4.8	4.5	4.5	4.6	4.7	4.8	4.7	4.7
Q4.	4.5	4.8	4.5	4.6	4.5	4.8	4.7	4.4	4.4	4.5	4.6	4.7	4.7	4.6

GEOG321 Climatic Environments (Downtown Campus – Winter term)
The earth-atmosphere system, radiation and energy balances. Surface-atmosphere exchange of energy, mass and momentum and related atmospheric processes on a local and regional scale. Introduction to measurement theory and practice in micrometeorology.

	2009	2010	2011	2013	2015	2017	2019	2021	Mean
Enrolment	45	38	30	77	71	39	48	51	50
Resp. (%)	51	55	50	47	48	49	50	20	46
Q1.	3.9	4.1	4.1	4.1	4.3	4.2	4.3	4.6	4.2
Q2.	4.1	4.1	4.3	4.2	4.3	4.2	4.3	4.7	4.3
Q3.	4.6	4.7	4.6	4.4	4.7	4.7	4.8	4.8	4.7
Q4.	4.3	4.7	4.7	4.3	4.6	4.6	4.5	4.9	4.6

ACADEMIC SERVICE

I was my Faculty's first single portfolio Associate Dean (Graduate Education). I restructured the way in which graduate services are delivered at McGill's Macdonald Campus and created the Macdonald Office of Graduate and Postdoctoral Studies which opened in 2013. I oversaw five talented and dedicated staff members including an Office Manager, an Academic Associate and three Graduate Program Coordinators who share responsibility for all programs in the Faculty. I controlled a budget of approx. $2 million in awards and other avenues of graduate funding. The office looks after all aspects of the graduate experience from pre-application inquiries through to graduation for ~600 MSc thesis, MSc non-thesis, and PhD students and postdoctoral researchers. During this period, I was asked to serve on several University-level working groups and committees. For example, I was the only academic on McGill's Milestones project steering committee and my Faculty was the pilot group for this new initiative designed to better track graduate student progress and aid times to completion.

McGill University Community

Associate Dean (Graduate Education), Faculty of Agricultural and Environmental Sciences (2012-21)
McGill Graduate Advisory Committee of the Dean of Graduate and Postdoctoral Studies (2012-21)
McGill uApply Task Prioritization Committee (2014-2019)
McGill Graduate Milestones Steering Committee (2014-2019)
McGill Graduate Admissions Transition Advisory Group (2014-9)
McGill Senate Committee on Enrolment and Student Affairs (2016-18)
AES Faculty Committee on Graduate Studies; Chair (2012-21); Member (2010-11)
AES Dean's Executive Committee (2012-21)
AES Faculty Scholarships Committee; Graduate Chair (2012-21)
AES Appointments Committee (2017-21)
Academic advisor for Land Surface Processes and Environmental Change Domain, Bieler School of Environment (2004-21)
AES Convocation Reader for Graduate Degree recipients (2014-21)

Past Senior Administrative and Graduate-related:
Interim Dean, FAES (July 1-Aug 31, 2015)
Interim Associate Vice-Principal, Macdonald Campus (July 1-Aug 31, 2015)

McGill Graduate Admissions Average Working Group (2015-16)
McGill uApply Academic View-Requirements Working Group (2014-15)
Graduate Program Director, Dept. Natural Resource Sciences (2009-11)

Other Past Committee work:
Host of 2013, 2017-19 McGill Tomlinson Talks events
Cyclical Review of the McGill Institute of Parasitology, Review Committee Member (2012)
McGill internal NSERC review committee (Earth Sciences and Ecology) (2010-12)
Co-organizer of Joint McGill-MAUT Open Forum on "Academic Career Advancement at McGill" (2007)
Environment Option Committee, McGill School of Environment (2007)
Elected Councillor for McGill Association of University Teachers (MAUT) (2006-08)
Faculty Advisor to Macdonald Campus Student Society (MCSS) Executive (2006-07)
Academic advisor for Environmental Biology Major (2003-09)
Curriculum review for Environmental Biology Program (2005-07)
Chair (2003-07) and member (2002-03) of Dept. Natural Resource Sciences (NRS) Computer committee
Macdonald Campus Committee on Information Technologies (MacIT) (2002-07)
Secretary of the Faculty of Agricultural and Environmental Sciences (2004-07)
AES Promotions Committee (2004-07)
NRS Recruitment committee (2002-06); NRS Space committee (2002-06)
Faculty of Science *Ad Hoc* Committee on Review of the Freshman Science Program (2002-03)
President (2003-05) of Tadja Hall, the Macdonald Faculty Club; Vice-President (2002-03); Past-President (2005-06); Acting Director (2006-07)
Executive for the McGill Centre for Climate and Global Change Research (C^2GCR) (2003-04)

Scientific Community

Member (two-term maximum) of the American Meteorological Society's (AMS) Scientific and Technical Advisory Committee on Agricultural and Forest Meteorology (2007-2012)
Canadian Society of Agricultural and Forest Meteorology (CSAFM): Past-President (2007-09); President (2006-07); President-elect (2005-06); Eastern Director (2003-05)
Chair of Conference Organizing Committee for the AMS 30th Conference on Agricultural and Forest Meteorology, June, 2012 in Boston, Mass.
Organized the 22nd Annual Meeting of the Peatland Ecology Research Group, Montreal, March, 2016.
Convener and Chair of sessions at the Joint Assembly of the AGU/CGU, May 2015, Montreal; the Annual Meeting of the Canadian Meteorological and Oceanographic Society (CMOS), May, 2007, St. John's; the Annual Meeting of CMOS, June, 2005, Vancouver; the Annual Meeting of CMOS, June, 2003, Ottawa; AMS Meetings, May 2008, Orlando
Grant reviewer for: NSERC Strategic & Discovery Grant Competitions; CFI; NAHARP Agro-environmental Indicators Development; Natural Environment Research Council (NERC, UK); Netherlands Organisation for Scientific Research Open; University of Guelph/Ontario Ministry of Agriculture and Forestry
Manuscript Reviewer for: *Agric. For. Meteorol.*; *Agron. J.*; *Aquatic Botany*; *Biogeosci.*; *Can. J. Remote Sens.; Can. J. Soil Sci.*; *Hydrol. Process.*; *JGR – Atmospheres; JGR – Biogeosci.; Photogram. Eng. Rem. Sens.*; *Rem. Sens. Environ.; Theor. Appl. Climatol.*
Reviewer of textbook proposals for Oxford Press and Thomson Nelson
Book reviewer for *Agricultural and Forest Meteorology*
Member of: Canadian Society of Agricultural and Forest Meteorology (CSAFM); American Meteorological Society (AMS); Canadian Geophysical Union (CGU); European Geosciences Union (EGU)