
CURRICULUM VITAE

Ian B. Strachan, Ph.D.

Current Position/Address: Professor, Department of Geography and Planning
Queen's University, Kingston, ON K7L 3N6

Citizenship: Canadian

POSITIONS HELD

2022 – present	Professor , Dept. Geography and Planning, Queen's University
2017 – present	Adjunct Professor, Dept. Geography and Environmental Management, University of Waterloo
2023 – present	Adjunct Professor, Dept. Natural Resource Sciences, McGill University
2023 – 2026	Associate Head (Undergraduate) , Geog. & Plan., Queen's University
2015	Acting Dean , Faculty of Agricultural and Environmental Sciences and Acting Associate Vice-Principal (Macdonald Campus) , McGill University
2012 – 2021	Associate Dean (Graduate Education) , Faculty of Agricultural and Environmental Sciences, 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

AWARDS and NOMINATIONS

Research:

2008 Winner of the Graham K. Walker Award for Excellence in Agrometeorology / Forest Meteorology from the Canadian Society of Agricultural and Forest Meteorology

Teaching:

2025 Winner of the Julian Szeicz Award for Excellence in Teaching, Queen's University
2019 Winner of the Macdonald Campus Award for Teaching Excellence, McGill University
2020 Nominee for the Principal's Prize for Excellence in Teaching, McGill University
2019 Nominee for the Principal's Prize for Excellence in Teaching, McGill University

Administration:

2022 Nominee for the Morty Yalovsky Lifetime Achievement Award for Excellence in Academic Leadership, McGill University

PEER-REVIEWED PUBLICATIONS

(current or former supervised student/postdoc underlined; * corresponding author)

Scopus: h-index=30; citations=4980; Google Scholar: h-index=35; citations=6985 as of July 03, 2026

72. Hunter, M.L., **Strachan, I.B.**, Moore, P.A., Knox, S.H., and Strack M., 2026. Water table depth and vapour pressure deficit interaction drives bare peat evaporation at actively extracted peatlands in Canada. *Hydrological Processes* 40(4), e70521
71. Brown, L., **Strachan, I.B.**, Pelster, D., Admiral, S., Grant, B., Smith, W., and Pattey, E., 2026. Agricultural nitrous oxide emissions across twenty years of micrometeorological observations show trends associated with soil freezing and fertilizer application. *Science of the Total Environment* 1019 181535 <https://doi.org/10.1016/j.scitotenv.2026.181535>
70. Hunter, M.L., **Strachan, I.B.**, Moore, P.A., Knox, S., and Strack, M., 2026. Ecosystem-scale greenhouse gas fluxes from actively extracted peatlands: water table depth drives interannual variability. *Biogeosciences* 23(2): 793–810 <https://doi.org/10.5194/bg-23-793-2026>
69. He, H., **Strachan, I.B.**, and Roulet, N.T., 2025. Simulating soil atmosphere exchanges and CO₂ fluxes for a restored peatland. *Biogeosciences*, 22(5): 1355-1368 doi.org/10.5194/bg-22-1355-2025.
68. Hunter, M.L., Frei, R., **Strachan, I.B.**, and Strack, M., 2024. Environmental and management drivers of carbon dioxide and methane emissions from actively-extracted peatlands in Alberta, Canada. *Journal of Geophysical Research – Biogeosciences* 129(3) doi.org/10.1029/e2023JG007738
67. He, H., Clark, L., Lai, O-Y., Kendall, R., **Strachan, I.B.** and Roulet, N.T., 2023. Simulating soil atmosphere exchanges and CO₂ fluxes for an ongoing peat extraction site. *Ecosystems*, 26(6): 1335-1348 doi.org/10.1007/s10021-023-00836-2
66. Golub, M., Koupaei-Abyazani, N., Vesala, T., Mammarella, I., Ojala, A., Bohrer, G., Weyhenmeyer, G.A., Blanken, P.D., Eugster, W., Koebisch, F., Chen, J., Czajkowski, K., Deshmukh, C., Guerin, F., Heiskanen, J., Humphreys, E., Jonsson, A., Karlsson, J., Kling, G., Lee, X., Liu, H., Lohila, A., Lundin, E., Morin, T., Podgrajsek, E., Provenzale, M., Rutgersson, A., Sachs, T., Sahlee, E., Serca, D., Shao, C., Spence, C., **Strachan, I.B.**, Xiao, W., and Desai, A.R., 2023. Diel, seasonal, and inter-annual variation in carbon dioxide effluxes from lakes and reservoirs. *Environmental Research Letters* 18 034046, doi.org/10.1088/1748-9326/acb834
65. Clark, L., **Strachan, I.B.***, Strack, M., Roulet, N.T., Knorr, K-H., and Teickner, H., 2023. Duration of extraction determines CO₂ and CH₄ emissions from an actively extracted peatland in eastern Québec, Canada. *Biogeosciences*, 20 :737-751, doi.org/10.5194/bg-20-737-2023
64. Goud, E.M., Touchette, S., **Strachan, I.B.**, Strack, M., 2022. Graminoids vary in functional traits, carbon dioxide and methane fluxes in a restored peatland: implications for modeling carbon storage. *J. Ecology*, doi.org/10.1111/1365-2745.13932
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., Thibault, 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.org/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., Waddington, J.M., Alekseychik, P., Amiro, B.D., Aurela, M., Barr, A., Black, T.A., Blanken, P.D., Carey, S.K., Chen, J., Chi, J., Desai, A.R., Dunn, A., Euskirchen, E.S., Flanagan, L.B., Forbrich, I., Friborg, T., Grelle, A., Harder, S., Heliasz, M., Humphreys, E.R., Ikawa, H., Isabelle, P-E., Iwata, H.,

- Jassal, R., Korkiakoski, M., Kurbatova, J., Kutzbach, L., Lindroth, A., Löfvenius, M.O., Lohila, A., Mammarella, I., Marsh, P., Maximov, T., Melton, J.R., Moore, P.A., Nadeau, D.F., Nicholls, E.M., Nilsson, M.B., Ohta, T., Peichl, M., Petrone, R.M., Petrov, R., Prokushkin, A., Quinton, W.L., Reed, D. E., Roulet, N.T., Runkle, B.R.K., Sonnentag, O., **Strachan, I.B.**, Taillardat, P., Tuittila, E-S., Tuovinen, J-P., Turner, J., Ueyama, M., Varlagin, A., Wilmking, M., Wofsy, S.C., Zyrianov, V., 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
59. Helbig, M., Waddington, J.M., Alekseychik, P., Amiro, B.D., Aurela, M., Barr, A., Black, T.A., Carey, S.K., Chen, J., Chi, J., Desai, A.R., Dunn, A., Euskirchen, E.S., Flanagan, L.B., Friborg, T., Garneau, M., Grelle, A., Harder, S., Heliasz, M., Humphreys, E.R., Ikawa, H., Isabelle, P-E., Iwata, H., Jassal, R., Korkiakoski, M., Kurbatova, J., Kutzbach, L., Lapshina, E., Lindroth, A., Löfvenius, M.O., Lohila, A., Mammarella, I., Marsh, P., Moore, P.A., Maximov, T., Nadeau, D.F., Nicholls, E.M., Nilsson, M.B., Ohta, T., Peichl, M., Petrone, R.M., Prokushkin, A., Quinton, W.L., Roulet, N.T., Runkle, B.R.K., Sonnentag, O., **Strachan, I.B.**, Taillardat, P., Tuittila, E-S., Tuovinen, J-P., Turner, J., Ueyama, M., Varlagin, A., Vesala, T., Wilmking, M., Zyrianov, V., Schulze, C., 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
 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.org/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.org/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.org/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.org/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 Biology* 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. *Agric. Water Manag.* 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 Giorgio, P. Prairie, Y., and Tremblay, A., 2018. Modelling CO₂ 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 CO₂ and CH₄ 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 Wischniewski, 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 CO₂? *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. CO₂ 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. *Can. J. 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 N₂O emissions from a field planted with edible peas and a cover crop. *Can. J. 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. *Agric. Forest Meteorol.*, 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 CH₄ and N₂O fluxes from field to landscape scale using several micrometeorological techniques. *Agric. Forest Meteorol.* 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. *Agric. 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). *J. Icelandic Forestry Assoc.*, (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 CO₂ flux over terrestrial ecosystems using eddy covariance and nocturnal boundary layer methods. *Agric. 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. *Agric. 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 Agric. Sci.*, 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 Agric. Sci.*, 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 Agric. Sci.*, 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. *Can. J. 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. *Agric. 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. *Can. J. 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. *J. Geography in Higher Education*, 20:343-353.

INDUSTRY-SPONSORED (Peer-Reviewed) 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 CO₂ and CH₄ 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 Hinthner M., 2004. Monitoring crop biomass accumulation using multi-temporal hyperspectral remote sensing data. *Proceedings IEEE International Geoscience and Remote Sensing Symposium (IGARSS '04)*, pp 1637-40, Fairbanks, Alaska.
- 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 indices. *Proceedings of the 8th International Symposium on Physical Measurements and Signatures in Remote Sensing*, Aussois, France, pp. 79-84.

MEDIA CITATIONS/INVITED TALKS

- Feature Article “The Science Shaping Canada’s Wetlands” Queen’s Gazette April, 2026
<https://www.queensu.ca/gazette/stories/science-shaping-canada-s-wetlands>
- Invited Speaker 25th Anniversary of Bog Restoration Workshop, Riviere-du-Loup, QC. June, 2025.
- Invited Speaker Department of Biology, Queen’s University. January 23, 2024.
- Invited Speaker Bader International Study Centre. June 16, 2022, Sussex, UK.
- Invited Speaker Chapman Colloquium. March 28, 2019, University of New Hampshire - Durham.
- Keynote Speaker at “Addressing Environmental Issues via Cross Disciplinary Collaboration”. Feb 28, 2018, Montreal, QC.
- Invited Speaker Canadian Sphagnum Peat Moss Association AGM. Nov 7, 2017, Marco Island, Florida.
- Invited Speaker “McGill All Star Profs – Last Chance Lectures”. April 29, 2015, Montreal, QC.
- Welcome Address for the Canadian Plant Biotechnology Conference, May 12, 2014, Montreal, QC
- “Energy, yes, But please no Greenhouse Gases!” Featured expert in a video documentary. 2010.
- “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.
- Hydro power: How green is it? Interview in *McGill Reporter*, March 20, 2008.
- 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
- 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.
- “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 CO₂ and CH₄ 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.

Noah Boss 2025-current (U. Waterloo; as co-supervisor with M. Strack) “Modelling fen recovery following peat harvesting”

Jean-Pierre Lebrun-Ramirez 2024-current “Can integrating plant functional types, microforms, and connectivity enhance the assessment of carbon flux dynamics during peatland recovery?”

James Zhao 2023-current (co-supervised w. N. Scott) “Quantifying annual CO₂ exchange with the atmosphere in a High Arctic mesic tundra environment at the Cape Bounty Arctic Watershed Observatory”

Miranda Hunter 2024 “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.

Samantha Kimball 2026-current “Rewilding former agricultural land; tracking the return of biodiversity”

Katherine Bot 2025-current “Ecosystem scale carbon fluxes following fen restoration”

Darby Hayward 2025-current “Hydrologic and dissolved organic carbon (DOC) dynamics in a restored Manitoba fen”

Madison Jumeau 2025-current “Modelling surface topography of restored and natural fens in Manitoba and Alberta”

Rose Simard 2025-current (Waterloo; as co-supervisor with M. Strack) “Peat physical and chemical properties in relation to vegetation type in restored fens”

Prateeksha Vadali 2025 “Quantifying hydrological and dissolved organic carbon (DOC) dynamics in an Eastern Quebec peatland managed with the ACrotelm harvesting Method (ACM)”

Sophie Burgess 2025 (McGill; as co-supervisor with C. Kallenbach) “Carbon cycling and storage in a temperate freshwater marsh in eastern Ontario”

Steffy Velosa 2025 (McGill; as co-supervisor with N.T. Roulet) “Towards accurate greenhouse gas accounting in Canada: The impact of peat extraction management practices on land use emissions”

Leah Brown 2024 “Two decades of micrometeorological measurements show annual trends in N₂O emissions from an agricultural field: the role of non-growing season soil freezing and fertilization in eastern Canada”

Laura Clark 2021 “Years of extraction determines CO₂ and CH₄ 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 GHG 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 CO₂ advection” 92 pp.

Marie-Claude Bonneville 2006 “Measurement and modeling of surface-atmosphere exchange of CO₂ and CH₄ in a cattail marsh in Eastern Ontario” 144 pp.

Lynda Blackburn 2006 “Quantification and estimation of N₂O 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.

Summer NSERC USRA / Queen’s USSRF / senior undergraduate (honours) project supervision:

Maiyan Ross 2026-27 “Setting the stage for re-wilding: carbon and nitrogen in a former agricultural site”

Angus Skinner 2026-27 “Moss recovery and productivity in post-harvest peatlands”

Emilie Hill 2026 “Quantifying methane ebullition from a wet, *Typha*-dominated fen and a natural reference fen at South Julius Manitoba”

Keily Loaiza Martinez 2026 “CO₂ and CH₄ fluxes from an ACM harvested peatland”

Paige Robertson 2026 “An investigation of the effects that climate change may have on commercial aviation”

Amelie Delesalle 2025 “Greenhouse gas emissions from a 20-year-old restored peatland”

Katherine Bot 2025 “Ecosystem greenhouse gas exchange following the Acrotelm Harvesting Method”

Declan Roche 2025 “Plant community greenhouse gas exchange three years after application of the peatland Acrotelm Harvest Method”

Gavin Cordon 2024 “Using Arduino microcomputers as a pedagogical tool to teach climate analysis”

Josie Messersmith 2022 “Partitioning carbon fluxes in a freshwater marsh”
 Kaiyuan Wang 2021 “A further examination of peat stockpile emissions”
 Amelia Weiss 2021 “Understanding the practical application of urban carbon budgets”
 Karina Volpato 2020 “Reducing production stage carbon emissions: A peat industry case study”
 Maria Gheta 2020 “CO₂ and CH₄ emissions from stockpiles of an exploited peatland in eastern Quebec”
 William Xing 2020 “Net effect of flooding a black spruce forest on CO₂ emissions”
 Laura Clark 2019 “Effects of age on CO₂ emissions from in-production drained peatlands”
 Naomi Weinberg 2018 “Effects of extraction on CO₂ emissions from an in-production drained peatland”
 Maude Durand 2018 “Using digital images to estimate net CO₂ uptake in a marsh”
 Iona Sobral 2018 “Comparing urban rooftop- and suburban-garden microclimates”
 Grace O’Brien 2017 “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

Velosa, S., Strachan, I.B., and Roulet, N.T. 2025. *Peat extraction and storage: How management practices modulate greenhouse gas outputs in extracted peatlands* Peatland Science Symposium and Can-Peat Annual Meeting, Kananaskis, AB. Second best student oral presentation.

Hunter, M., Strachan, I.B. and Strack, M., 2024. *Investigating evaporation dynamics from peatlands under active extraction in Alberta and Quebec, Canada.* Canadian Geophysical Union Annual Meeting, Ottawa. This oral presentation won the Campbell Scientific Canada – Bert Tanner Student Prize from the CSAFM for best student paper based on quality of the research and the presentation.

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 CO₂ 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* from the Canadian Remote Sensing Society.

UNDERGRADUATE TEACHING RESPONSIBILITIES

GPHY 102 Physical Geography and Natural Resources (Enrolment ~360)
 GPHY 209 Weather and Climate (Enrolment ~100)
 GPHY 215 Field Studies in Physical Geography (Enrolment ~30)

ACADEMIC SERVICE

Queen's University Community

University Timetable Committee 2025-26
Faculty Arts and Science *ad hoc* Committee on Grade Designations 2025-26
Associate Head (Undergraduate), Department of Geography and Planning 2023-26
Departmental Undergraduate Committee 2022-26; as Chair 2023-26
Departmental Executive Committee 2023-26
Departmental Graduate Committee 2022-23
Departmental Renewal, Tenure and Promotion Committee 2022-23

McGill University Community

Senior Administrative

Associate Dean (Graduate Education), Faculty of Agricultural and Environmental Sciences (2012-21)
AES Dean's Executive Committee (2012-21)
Acting Dean, FAES (July 1-Aug 31, 2015)
Acting Associate Vice-Principal, Macdonald Campus (July 1-Aug 31, 2015)
Graduate Program Director, Dept. Natural Resource Sciences (2009-11)

Graduate Portfolio:

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 Faculty Scholarships Committee; Graduate Chair (2012-21)
McGill Graduate Admissions Average Working Group (2015-16)

Other Portfolios:

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)
McGill uApply Academic View-Requirements Working Group (2014-15)
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 Tadjia 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 (C²GCR) (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.*; *Can. Geographer*
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)