

# Stanford

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## Avni Malhotra

Postdoctoral Research Fellow, Earth System Science

### Bio

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#### BIO

My research focuses on multi-scale effects of global change on ecosystem structure and function. In the past, I have investigated the influence of drought, permafrost thaw or warming on above and belowground plant dynamics, greenhouse gas fluxes and litter decomposition. I am also interested in regional to global-scale drivers of carbon sequestration. My toolkit draws from ecosystem ecology, biogeochemistry, plant ecology and systems thinking and I specialize in carbon-rich systems such as northern peatlands and permafrost features.

My postdoctoral research in the Jackson lab focuses on 1) greenhouse gas fluxes of peatlands and northern ecosystems and 2) the fate of root-derived carbon in soils.

#### PROFESSIONAL EDUCATION

- Doctor of Philosophy, McGill University (2016)
- Master of Science, Villanova University (2010)
- Bachelor of Science, York University (2007)

#### LINKS

- Publications (Google Scholar): <https://scholar.google.com/citations?user=eNEyiW0AAAAJ&hl=en>

### Publications

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#### PUBLICATIONS

- **Thaw Transitions and Redox Conditions Drive Methane Oxidation in a Permafrost Peatland** *JOURNAL OF GEOPHYSICAL RESEARCH-BIOGEOSCIENCES*  
Perryman, C. R., Mccalley, C. K., Malhotra, A., Fahnestock, M., Kashi, N. N., Bryce, J. G., Giesler, R., Varner, R. K.  
2020; 125 (3)
- **Fast plants in deep water: introducing the whole-soil column perspective.** *The New phytologist*  
Tumber-Davila, S. J., Malhotra, A.  
2020; 225 (1): 7-9
- **Peatland warming strongly increases fine-root growth** *PNAS*  
Malhotra, A., Brice, D., Childs, J., Grahams, J., Hobbie, E., Vander Stel, H., Feron, S., Hanson, P., Iversen, C.  
2020
- **Rapid Net Carbon Loss From A Whole-Ecosystem Warmed Peatland** *AGU Advances*  
Hanson, P. J., Griffiths, N. A., Norby, R. J., Sebestyén, S. D., Phillips, J. R., Chanton, J. P., Kolka, R. K., Malhotra, A., Oleheiser, K. C., Warren, J. M., Shi, X., Yang, X., Mao, et al  
2020

- **Large loss of CO<sub>2</sub> in winter observed across the northern permafrost region.** *Nature Climate Change*  
Natali, S., et al  
2019; 9: 852-857
- **The landscape of soil carbon data: emerging questions, synergies and databases** *Progress in Physical Geography*  
Malhotra, A., Todd-Brown, K., Nave, L. E., Batjes, N. H., Holmquist, J. R., Hoyt, A. M., Iversen, C. M., Jackson, R. B., Lajtha, K., Lawrence, C., Vindušková, O., Wieder, W., Williams, et al  
2019
- **Reviews and syntheses: Changing ecosystem influences on soil thermal regimes in northern high-latitude permafrost regions** *BIOGEOSCIENCES*  
Lorant, M. M., Abbott, B. W., Blok, D., Douglas, T. A., Epstein, H. E., Forbes, B. C., Jones, B. M., Kholodov, A. L., Kropp, H., Malhotra, A., Mamet, S. D., Myers-Smith, I. H., Natali, et al  
2018; 15 (17): 5287–5313
- **Post-thaw variability in litter decomposition best explained by microtopography at an ice-rich permafrost peatland** *ARCTIC ANTARCTIC AND ALPINE RESEARCH*  
Malhotra, A., Moore, T. R., Limpens, J., Roulet, N. T.  
2018; 50 (1)
- **The Fate of Root Carbon in Soil: Data and Model** *EOS*  
Malhotra, A., Sihi, D., Iversen, C.  
2018
- **Networking our science to characterize the state, vulnerabilities, and management opportunities of soil organic matter.** *Global change biology*  
Harden, J. W., Hugelius, G., Ahlström, A., Blankinship, J. C., Bond-Lamberty, B., Lawrence, C. R., Loisel, J., Malhotra, A., Jackson, R. B., Ogle, S., Phillips, C., Ryals, R., Todd-Brown, et al  
2018; 24 (2): e705–e718
- **Temporal and Spatial Variation in Peatland Carbon Cycling and Implications for Interpreting Responses of an Ecosystem-Scale Warming Experiment** *SOIL SCIENCE SOCIETY OF AMERICA JOURNAL*  
Griffiths, N. A., Hanson, P. J., Ricciuto, D. M., Iversen, C. M., Jensen, A. M., Malhotra, A., McFarlane, K. J., Norby, R. J., Sargsyan, K., Sebestyen, S. D., Shi, X., Walker, A. P., Ward, et al  
2017; 81 (6): 1668–88
- **Biophysical drivers of seasonal variability in Sphagnum gross primary production in a northern temperate bog** *JOURNAL OF GEOPHYSICAL RESEARCH-BIOGEOSCIENCES*  
Walker, A. P., Carter, K. R., Gu, L., Hanson, P. J., Malhotra, A., Norby, R. J., Sebestyen, S. D., Wulfschleger, S. D., Weston, D. J.  
2017; 122 (5): 1078–97
- **A New Platform for Managing Soil Carbon and Soil Health** *EOS*  
Loisel, J., Malhotra, A., Phillips, C.  
2017
- **Ecohydrological feedbacks in peatlands: an empirical test of the relationship among vegetation, microtopography and water table** *ECOHYDROLOGY*  
Malhotra, A., Roulet, N. T., Wilson, P., Giroux-Bougard, X., Harris, L. I.  
2016; 9 (7): 1346–57
- **Environmental correlates of peatland carbon fluxes in a thawing landscape: do transitional thaw stages matter?** *BIOGEOSCIENCES*  
Malhotra, A., Roulet, N. T.  
2015; 12 (10): 3119–30