

Appointment Status

Associate Professor and Canada Research Chair in Greenhouse Gas Dynamics and Ecosystem Management

Geography, Arts and Sciences, Queen's University at Kingston

Full-time, Term, Associate Professor

Tenure Status: Tenure

Academic Background

- 1996/9 Post-doctorate, Land-use change/Greenhouse gas emissions, Landcare Research New Zealand Ltd Supervisors: Dr. Kevin Tate, 1994/9 - 1996/6
- 1996/7 Doctorate, Forest Ecology, Colorado State University
Supervisors: Michael Ryan, 1991/4 - 1996/10; Dan Binkley, 1991/4 - 1996/10
- 1991/3 Master's Thesis, Soil Science/Ecological Studies, Colorado State University
Supervisors: Vernon Cole, 1988/9 - 1991/3
- 1982/5 Bachelor's, Biology/Environmental Studies, Williams College

Work Experience

- 2010/7 Associate Professor
Geography, Arts and Sciences, Queen's University at Kingston
Full-time, Term, Associate Professor
Tenure Status: Tenure
- 2005/7 Assistant Professor
Geography, Arts and Sciences, Queen's University at Kingston
Full-time, Term, Assistant Professor
Tenure Status: Tenure Track
- 2000/7 Assistant Scientist
Woods Hole Research Centre, Falmouth, MA, USA
Full-time, Term, Assistant Scientist
Tenure Status: Tenure Track
- 1996/4 Research Scientist and Program Leader
Biosphere Processes, Landcare Research New Zealand Ltd
Full-time, Term
Tenure Status: Permanent

Distinctions, Awards and Credentials

- 2010/7 Canada Research Chair II Renewal
Natural Sciences and Engineering Research Council of Canada (NSERC)
Prize / Award
- 2009/9 Julian Szeicz Excellence in Teaching Award

Queen's University at Kingston
Distinction
Student-selected award for Excellence in Teaching

2008/7 Canada Research Chair II
Natural Sciences and Engineering Research Council of Canada (NSERC)
Prize / Award

Professional Memberships

2000- American Geophysical Union
1995- New Zealand Soil Science Society
2005- Canadian Water Quality Network
1988-2012 Soil Science Society of America

Undergraduate Teaching and Course Development

2005- Instructor and Course Designer, Queen's University at Kingston
Course title: GPHY 207 Biogeography: Space, Time, and Life

2007- Instructor and Course Designer, Queen's University at Kingston
Course title: GPHY 417 Land-use Change and the Earth System

2007- Instructor and Course Designer, Queen's University at Kingston
Course title: GPHY 317 Soils, Environment, and Society

2012 Instructor and Course Designer, Queen's University at Kingston
Course title: GPHY 302 Environmental Modelling (15% lectures)

Undergraduate Supervisory Experience

2014/5-2015/4 Jackson, Sarah. Bachelors. June 2015. Queen's University.
Thesis/Project Title: Summer RA: Increased temperature and snowfall impacts on High Arctic ecosystems.

2014/5-2014/9 Mark, Jamie. Bachelors. June 2016. Queen's University.
Summer RA: GHG balance of perennial grass bioenergy systems

2013/5-2014/4 Mendelson, Andrew. Bachelors (completed). Queen's University.
Summer RA: Thesis/Project Title: Thesis: Net GHG production from perennial grass bioenergy systems for cement production.
Present Position: Masters Program at U. Toronto, Fall 2014

- 2013/5-2014/4 McTaggart, Emily, Bachelor's (Completed), Queen's University
Summer RA. Thesis/Project Title: Historic Land-use/Land-cover Change
Detection in the Frontenac Arch Biosphere Reserve
Present Position: Masters program in Env. Sustainability, Sept. 2014, U. Ottawa
- 2013/5-2014/4 Geissler, Kirstin, Bachelor's (Completed), Queen's University
Thesis/Project Title: Historic Land-use/Land-cover Change Detection in the
Frontenac Arch Biosphere Reserve.
Present Position: Masters program in Env. Sustainability, Sept. 2014, Western
- 2013/5-2014/4 Rosenblat, Sarah. Bachelor's (Completed), Queen's University
Thesis/Project Title: Historic Land-use/Land-cover Change Detection in the
Frontenac Arch Biosphere Reserve.
Present Position: Masters program in Resource and Env. Management, Dalhousie
- 2012/5-2012/9 Yue, Jayrin. Bachelor's (Completed), Queen's University
Summer RA: Disturbance alters trace gas fluxes in High Arctic ecosystems
Present Position: Thermal Environmental Advisor, Husky Energy.
- 2011/5-2012/4 Richardson, Heather. Bachelor's (Completed). Queen's University.
Thesis/Project Title: Summer RA: Net GHG production from perennial grass
bioenergy cropping systems.
Present Position: MSc student, Thompson Rivers, BC
- 2011/9-2012/4 Buchanan, Serra. Bachelor's (Completed). Queen's University
Thesis/Project Title: Fertilizing switchgrass alters methane and nitrous oxide
emissions.
Present Position: MSc student, University of Toronto
- 2011/9-2012/4 Eastwood, Sadie. Bachelor's (Completed). Co-supervisor, Queen's University
Thesis/Project Title: Monitoring canopy phenology at multiple spatial scales
Present Position: Travelling in S. America
- 2011/9-2012/4 Murphy, Sinead. Bachelor's (Completed). Co-supervisor. Queen's University
Thesis/Project Title: Effects of woody plant invasion on soil carbon storage in
alpine ecosystems, Yukon
Present Position: MSc student, Resource Planning, Simon Fraser University
- 2011/5-2011/8 Rutherford, Krysten. Bachelor's (Completed). Queen's University
Summer RA: Fertilizer effects on GHG production in switchgrass.
Present Position: MSc in Oceanography at Dalhousie, Sept. 2014
- 2010/5-2011/4 Beamish, Allison, Bachelor's (Completed), Queen's University.
Summer RA. Thesis/Project Title: Thesis: Disturbance effects on soil trace gas
emissions in High Arctic ecosystems.
Present Position: recently completed MSc in Geography, UBC

- 2010/5-2011/4 McParland, Daniel. Bachelor's (Completed), Queen's University
Summer RA: Thesis/Project Title: Nitrogen addition alters N₂O emissions in switchgrass
Present Position: Completed MSc at UBC, Consultant in Toronto area.
- 2010/5-2011/4 Tamminga, Aaron. Bachelor's (Completed), Queen's University
Summer RA: Thesis/Project Title: Variation in soil properties as a function of forest ecosite in Ontario.
Present Position: PhD student, Geography, UBC
- 2009/5-2010/4 Neil, Allison. Bachelor's (Completed), Queen's University
Summer RA: Thesis/Project Title: Disturbance effects on carbon fluxes in high-Arctic ecosystems.
Present Position: MA student, Geography, Carlton
- 2009/9-2010/4 Gagliardi, Stephanie. Bachelor's (Completed). Queen's University
Thesis/Project Title: Variation in leaf area index in forest ecosite types
Present Position: MSc student, U. of Toronto
- 2008/5-2009/4 Fisher, Evangeline. Bachelor's (Completed), Queen's University.
Summer RA: Thesis/Project Title: Temperature effects on soil trace gas production.
Present Position: Environmental consulting firm in California
- 2008/5-2008/8 Philpott, Timothy. Bachelor's (Completed), Queen's University.
Summer RA: Stabilization of atmospheric CO₂ in soybeans
Present Position: PhD student, Univ. British Columbia, Forest Soils
- 2008/5-2008/8 Bencharif, Sarah. Bachelor's (Completed), Queen's University.
Summer RA: Soybean effects on nitrous oxide production
Present Position: Masters program in Journalism at Ryerson
- 2007/9-2008/4 Hinke, Alexandra. Bachelor's (Completed), Queen's University.
Summer RA. Thesis/Project Title: Thesis: Cycling of carbon and nitrogen in Arctic vegetation communities.
Present Position: PhD student, Dept. Biology, University Utrecht

Graduate Teaching and Course Development

- 2006- Instructor and Course Designer, Queen's University at Kingston
Course title: Geography 819 Modelling the Earth System.
- 2009-10 Instructor and Co-Course Designer, Queen's University at Kingston.
Course title: Geography 857 Professional Development Seminar in Geography

Graduate and Postdoctoral Supervision

- 2014/9-2016/5 Arruda, Sean. Master's Thesis (In Progress), Queen's University.

Principal Supervisor. Student Degree Expected Date: 2016/5
Thesis/Project Title: Effects of temperature and snowfall changes on soil biogeochemical processes in a high Arctic ecosystem.
Present Position: MSc student

2013/9-2014/7 Blaser, Amy. Master's Thesis (In Progress), Queen's University
Co-Supervisor. Student degree expected 2015/06.
Thesis/Project Title: Factors Controlling the Net Carbon Balance of High Arctic Wet Sedge Ecosystems at Cape Bounty, Nunavut
Present Position: MSc student

2013/9-2015/9 Djomo, Adrien. Research Associate (In Progress), Queen's University.
Principal Supervisor. Thesis/Project Title: Quantifying the contribution of Africa's tropical forests to the global carbon budget.
Present Position: Research Associate

2012/9-2015/7 Buckley, Emma. Master's Thesis (In Progress), Queen's University
Co-supervisor. Student Degree Expected Date: 2015/9.
Thesis/Project Title: Controls on Net Carbon Balance of Polar Semi-desert Ecosystems in the High Arctic.
Present Position: MSc student

2011/9-2015/7 Peng, Bill. Master's Thesis (In Progress), Queen's University
Principal Supervisor. Expected date: 2015/09.
Thesis/Project Title: Effects of Wood Ash Addition on Soil Calcium and Nitrogen Cycling Processes in Boreal Forest Ecosystems.
Present Position: MSc student

2010/9-2012/12 Graham, Amanda. Master's Thesis (Completed), Queen's University.
Principal supervisor. Thesis/Project Title: Nitrogen Fixation and the Fate and Turnover of Carbon Fixed Through Hydrogen-Coupled Carbon Dioxide Fixation in Soybeans.
Present Position: Environmental Scientist, Ministry of Environment and Climate Change, Ontario

2009/5-2011/6 Wagner, Ioan. PDF Research Associate (Completed), Queen's University.
Principal supervisor. Thesis/Project Title: Factors controlling carbon exchange in high Arctic ecosystems.
Present Position: Canadian High Arctic Research Station

2009/9-2012/1 Jaggard, Erin. Master's Thesis (Completed), Queen's University.
Principal Supervisor. Thesis/Project Title: Soil Carbon Dynamics Following Switchgrass Establishment for Bioenergy Production in Southeastern Ontario
Present Position: Environmental Planner, Hydro One

2008/9-2010/5 Southee, Florence Margaret. Master's Thesis (Completed), Queen's University.
Co-Supervisor. Thesis/Project Title: Ecological Land Classification and Soil Moisture Modelling in the Boreal Forest using Lidar Remote Sensing.
Present Position: NRCAN in Ottawa

2008/1-2010/7 Cen, Yanping. PDF Research Associate (Completed), Queen's University.
Principal Supervisor. Thesis/Project Title: Nitrogen fixation in soybeans increases N₂O production.
Present Position: working part-time as lab technician

2007/9-2011/4 Gregory, Fiona. Master's Thesis (Completed), Queen's University.
Co-Supervisor. Thesis/Project Title: Biophysical Remote Sensing and Terrestrial Carbon Dioxide at Cape bounty, Melville Island.
Present Position: Image Analyst, Silvacom Group, Edmonton

2006/9-2015/7 van Ewijk, Karin. Doctorate (Completed), Queen's University
Co-Supervisor. Thesis/Project Title: Defining Ecological Units Based on Remotely Sensed Data. Included two maternity leaves.
Present Position: PhD student

Membership on Graduate Examining, Supervisory & Advisory Committees

<u>Name of Student</u>	<u>Department</u>	<u>University</u>	<u>Your Role</u>	<u>Years</u>
Neal Pilger PhD	Geography	Queen's	Int. committee member	2007-
Kasey Kathan PhD	Geography	Queen's	Int. committee member	2009-
Nathan Manion PhD	Geography	Queen's	Int. Committee member	2012-
Clare Wastenays PhD	Geography	Queen's	Addl. committee member	2009-
Daniel Lamonwah PhD	Geography	Queen's	Int. Committee member	2012-
Nanfeng Liu PhD	Geography	Queen's	Int. Committee member	2013-
Dasvinder Kambo PhD	Geography	Queen's	Int. Committee member	2012-
Jean Holloway MSc	Geography	Queen's	Chair Exam Committee	2014
Andrei Rosu MSc	Geography	Queen's	Chair Exam Committee	2014
Chen Shang PhD	Geography	Queen's	Chair Committee	2014-
Hong Yao PhD	Geography	Queen's	Head's Delegate	2014-
Lekhnath Ghimire PhD	Geography	Queen's	Int. Committee member	2014-
Graham Mushet MES	Env. Studies	Queen's	Ext. Committee member	2014-
Kristina Arsenau PhD	Biology	Queen's	Ext. Committee member	2011-14
Casper Christianson PhD	Biology	Queen's	Ext. Committee member	2012-
Gulaid Egeh MES	Env. Studies	Queen's	Ext. Committee member	2012-2014
Amr Ewais PhD	Civil Eng.	Queen's	Chair Exam Committee	2014
Adam Collingwood PhD	Geography	Queen's	Head's rep on committee	2009-13
Elena Favaro MSc	Geography	Queen's	Int. Examiner for Thesis	2013
Anneli Jokela PhD	Biology	Queen's	Ext. Committee member	2009-13
Kristina Skeries MSc	Geology	Queen's	External examiner	2013
Angelo Sorce MSc	Biology	Queen's	External member	2011-12
Dave Atkinson PhD	Geography	Queen's	Int. committee member	2005-12
Wenbao Liu PhD	Geography	Queen's	Int. committee member	2006-12

Kuo-Hsien Chang PhD	Env. Sciences	Guelph	External examiner	2011
Allison Cassidy MSc	Geography	Queen's	Internal examiner thesis	2011
Suzie Ellwood MES	Env. Studies	Queen's	Committee member	2009-10
Lynn Bosquet MSc	Geography	Queen's	Internal examiner	2010
Audrey Roy-Poirier MSc	Civil Eng.	Queen's	Int/Ext. examiner	2009
Stephanie Scott MSc	Biology	Queen's	Int/Ext. examiner	2009
Shari Hayne MSc	Geography	Carleton	Ext. examiner	2009
Jennifer Dagg MSc	Geography	Trent	Ext. examiner	2009
Peter Ralevic MSc	Env. Studies	Queen's	Int/Ext. member	2007-08
Udaya Vepakomma PhD	Geography	U. Q. Montreal	External Examiner	2008
Jie Tian MSc	Geography	Queen's	Chair of committee	2007
Robyn Foote MSc	Biology	Queen's	Int/Ext. member	2007
Mark Nelson	Geology	Queen's	Int/Ext examiner	2007

Publications

Flynn, B., N.A. Scott, Z. Dong. 2014. Nitrogen fixation, hydrogen production, and N₂O emissions. *Can. J. Plant Sci.* 94: 1037-1041.

van Ewijk, K., C. Randin, P. Treitz, N. A. Scott. 2014. Predicting Fine-Scale Species Abundance Patterns using Biotic Variables derived from LiDAR and High Spatial Resolution Imagery. *Remote Sensing Environ.* 150: 120-131.

Beamish, A., A. Neil, I. Wagner, N.A. Scott. 2014. Impacts of active layer detachments on carbon exchange in a high-Arctic ecosystem, Cape Bounty, Nunavut, Canada. *Polar Biology* 37: 1459-1468.

Tamminga, A., N. Scott, P. Treitz, M. Woods. 2014. A biogeochemical examination of Ontario's boreal forest ecosite classification system. *Forests* 5: 325-346; doi:10.3390/f5020325

Southee, F.M., P.M. Treitz, and N.A. Scott. 2012. Application of LiDAR Terrain Surfaces for Soil Moisture Modelling. *Photogrammetry and Remote Sensing* 78: 1241-1251

van Ewijk, K., P. Treitz, and N.A. Scott. 2011. Characterising Forest Succession in Central Ontario using LiDAR derived indices. *Photo. Eng. Remote Sensing* 77:261-269.

Richardson, A.D., M. Williams, D.Y. Hollinger, D.J.P. Moore, D.B. Dail, E.A. Davidson, N.A. Scott, R.S. Evans, H. Hughes, J.T. Lee, C. Rodrigues, and K. Savage. 2010. Estimating parameters of a forest ecosystem C model with measurements of stocks and fluxes as joint constraints. *Oecologia* 164: 25-40. doi: 10.1007/s00442-010-1628-y

Carlson, M., C. Alvaro, J. Chen, W. Kurz, N. Roulet, N. Scott, C. Tarnocai. 2010. Management actions to maintain the role of Canadian forests and peatlands in climate regulation. *Forestry Chronicle* 86: 434-443.

Hollinger, D.Y., S.V. Ollinger, A.D. Richardson, T.P. Meyers, M.E. Martin, K. T. Arkebauer, Clark, P. Curtis, D.B. Dail, E.A. Davidson, K. Davis, A. Desai, D. Dragoni, M. Goulden, L. Gu, G.G. Katul, S. Pallardy, K.T. Paw U, H. Schmid, N.A. Scott, A.E. Suyker, and S. Verma. 2010. Albedo estimates for land surface models and support for a new paradigm based on foliage nitrogen concentration. *Global Change Biology* 696-710. doi: 10.1111/j.1365-2486.2009.02028.x.

Ross, D.J., N.A. Scott, C.M. Trotter, S.M. Lambie, and J.A. Townsend. 2009. Nitrogen and carbon cycling in a New Zealand pumice soil under a manuka (*Leptospermum scoparium*) and kanuka (*Kunzea ericoides*) shrubland. *Australian Journal of Soil Research* 47: 725-736.

Dail, D.B., D.Y. Hollinger, E.A. Davidson, H.C. Sievering, N.A. Scott, J.T. Lee, E. Gaige. 2008. Distribution of ¹⁵N Tracers Applied to the Canopy of a Mature Spruce-Hemlock Stand, Howland, Maine, USA. *Oecologia* 160: 589-599.

Scott, N.A., and S. Brown. 2008. Measuring the Decomposition of Down Dead Wood. *In*: C.M. Hoover (ed) Field Measurements for Forest Carbon Monitoring: A Landscape-Scale Approach. Springer, New York. pp113-128.

Karberg, N., N.A. Scott, C. Giardina. 2008. Methods for estimating litter decomposition. *In*: C.M. Hoover (ed) Field Measurements for Forest Carbon Monitoring: A Landscape-Scale Approach. Springer, New York. pp103-112.

Applied Creative, Literary and Artistic Work

n/a

Presentations

Blaser, A. N. Scott, P. Treitz. Seasonal dynamics of ecosystem carbon exchange for a wet sedge vegetation community, Melville Island, NU. American Geophysical Union Fall meeting, Montreal, QC. May 2015.

Buckley, E.C., N.A. Scott, and P.M. Treitz. Spatial and temporal patterns of net carbon exchange in the polar semi-desert vegetation community on Melville Island, NU. American Geophysical Union Fall meeting, Montreal, QC. May 2014.

Jackson, S., and N.A. Scott. The effects of soil moisture and temperature increase on CO₂ exchange in a High Arctic ecosystem. Inquiry@Queen's Undergraduate Research Conference, Queen's University, Kingston, ON. March 2015.

Buckley, E., P. Treitz, N. Scott. 2014. Spatial and Temporal Patterns of Net Ecosystem Exchange of Carbon Dioxide on Melville Island, Nunavut. Joint Student Meeting of the

Canadian Geophysical Union Hydrology and Biogeosciences Sections, U of Toronto, Toronto, ON. January 2014.

Geissler, K., E. McTaggart, S. Rosenblat, N. Scott. Scale Implications in Studies of Land-use Change. Inquiry@Queen's Undergraduate Research Conference, Queen's University, Kingston, ON. March 2014.

Mendelson, A. and N. Scott. Substituting Biofuel for Coal: Determining the Optimal Perennial Grass Species and Nitrogen Fertilization Level for Bioenergy Production in Eastern Ontario. Inquiry@Queen's Undergraduate Research Conference, Queen's University, Kingston, ON. March 2014.

Watts, K. and N. Scott. Land use change effects on soil quality in Prince Edward County, ON. Inquiry@Queen's Undergraduate Research Conference, Queen's University, Kingston, ON. March 2014.

Buckley, E.C., J.R. Buckley, N.A Scott, P. Treitz. Estimating soil moisture in a polar semi-desert. International Geoscience and Remote Sensing Symposium (IGARRS)/CSRS meeting, July 29, 2014, Quebec City, QC.

Scott, N.A. Watching forests grow – changes in the future and legacies of the past. Invited public presentation, Queen's University Biological Station, August 2014.

Blaser, A., N. Scott, P. Treitz. Seasonal dynamics of ecosystem carbon exchange for a wet sedge vegetation community, Melville Island, NU. Arctic Change Conference, Ottawa, Dec. 8, 2014, Ottawa, ON.

Buckley, E., N. Scott, P. Treitz. Spatial and temporal patterns of net carbon exchange for a polar semi-desert vegetation community on Melville Island, NU. Arctic Change Conference, Ottawa, Dec. 8, 2014, Ottawa, ON.

Scott, N., I. Wagner, F. Gregory, E. Buckley, A. Beamish, and P. Treitz. 2013. Factors regulating net greenhouse gas exchange across high-Arctic landscapes at Cape Bounty, Melville Island, Nunavut: interaction of vegetation distribution and environmental controls. ArcticNet Annual General Meeting, Halifax, NS December 2013.

Buckley, E., N. Scott, P. Treitz. 2013. Spatial and temporal patterns of net ecosystem exchange of carbon dioxide on Melville Island, Nunavut. ArcticNet Annual General Meeting, Halifax, NS Dec. 2013.

van Ewijk, K., C. Randin, P. Treitz, and N. Scott. 2013. Predicting Tree Species Abundance in a Mixed Mature Forest using Lidar. International Biogeography Society, November 15, 2013, Montreal, Canada.

Peng, B., P. Hazlett, N. Scott. Impacts of wood ash amendments on the nitrogen balance of boreal forest soils near Chapleau, Ontario, Canada. North American Forest Soils meeting. Whitefish, MT. June 16.

Buckley, E., N.A. Scott, E. Humphreys. 2013. Spatial and temporal patterns of net ecosystem exchange of carbon dioxide and ecosystem respiration at the Cape Bounty Arctic Watershed Observatory, Melville Island, Nunavut. Queen's University Arctic Day Conference, April 2013.

Scott, N.A. 2013. Processes regulating the net carbon balance of high Arctic watersheds at the Cape Bounty Arctic Watershed Observatory, Melville Island, Nunavut. Lund University, Sweden. April 2013.

Scott, N.A. 2013. Processes regulating the net carbon balance of high Arctic watersheds at the Cape Bounty Arctic Watershed Observatory, Melville Island, Nunavut. Center for Permafrost (CENPERM), Copenhagen. April 2013.

Scott, N. A., E. Buckley, J. Yue, E.R. Humphreys, P.M. Lafleur. 2012. Spatial and temporal patterns of net ecosystem exchange of carbon dioxide and ecosystem respiration at the Cape Bounty Arctic Watershed Observatory, Melville Island, Nunavut. ArcticNet AGM, Vancouver, BC, Dec. 2012.

Wagner, I., F. Gregory, E. Fisher, A. Neil, N.A. Scott. 2012. Net greenhouse gas exchange from three high-Arctic vegetation types along a soil moisture gradient at Cape Bounty, Melville Island, Nunavut. ArcticNet AGM, Vancouver, BC, Dec. 2012.

Gregory, F., P.M. Treitz, N.A. Scott. 2012. Using IKONOS-derived NDVI to study vegetation dynamics in the Canadian High Arctic. 35th Canadian Symposium in Remote Sensing, Ottawa, ON. June 11-14.

van Ewijk, K.Y., P.M. Treitz, N.A. Scott. 2012. Exploring Species Distribution Models for Object-based Forest Ecosite Mapping in Central Ontario. 35th Canadian Symposium in Remote Sensing, Ottawa, ON. June 11-14.

Gregory, F.M., P.M. Treitz, and N.A. Scott, 2012. Scaling up CO₂ flux measurements using IKONOS-2 data. Poster presented at the 2012 International Polar Year Conference, Montreal, Quebec. April 22-27.

Scott, N.A., I. Wagner, F. Gregory, E. Humphreys, P. Lafleur, M. Lafreniere, S. Lamoureux, P. Treitz. 2012. Contribution of terrestrial and fluvial processes to the net carbon balance of intact and disturbed small high Arctic watersheds at Cape Bounty, Melville Island, Nunavut. IPY Conference Knowledge to Action, Montreal, Canada. April 2012.

Wagner, I., F. Gregory, E. Fisher, A. Neil, N.A. Scott. 2012. Net greenhouse gas exchange from three high-Arctic vegetation types along a soil moisture gradient at Cape Bounty, Melville Island, Nunavut. IPY Conference Knowledge to Action, Montreal, Canada. April 2012.

Beamish, A., A. Neil, I. Wagner, N.A. Scott. 2012. Impact of active layer detachments on carbon exchange in a high-Arctic ecosystem, Cape Bounty, Nunavut, Canada. IPY Conference Knowledge to Action, Montreal, Canada. April 2012.

Lamoureux, S., M. Lafrenière, P. Treitz, N. Scott. 2012. The Cape Bounty Arctic Watershed Observatory (CBAWO): integrated Arctic System Science in the Canadian High Arctic.

Queen's University Arctic Day Oral presentation. Queen's University, Kingston, ON. April 2012.

Treitz, P., Gregory, F., and Scott, N. 2012. Fine scale remote sensing of vegetation in the Canadian High Arctic. Queen's University Arctic Day Oral presentation. Queen's University, Kingston, ON. April 2012.

Scott, N.A., A. Beamish, A. Neil, I. Wagner. 2012. Impacts of active layer detachments on carbon exchange in a high-Arctic ecosystem, Cape Bounty, Nunavut, Canada. Queen's University Arctic Day poster presentation. Queen's University, Kingston, ON. April 2012.

Scott, N.A., F. Gregory, P. Treitz. 2012. Scaling up CO₂ flux measurements using high resolution Remote Sensing at Cape Bounty, Melville Island, Nunavut. Queen's University Arctic Day poster presentation. Queen's University, Kingston, ON. April 2012.

Scott, N.A., I. Wagner, F. Gregory, E. Humphreys, P. Lafleur, M. Lafreniere, S. Lamoureux, P. Treitz. 2012. Contribution of terrestrial and fluvial processes to the net carbon balance of intact and disturbed small high Arctic watersheds at Cape Bounty, Melville Island, Nunavut. Queen's University Arctic Day Oral presentation. Queen's University, Kingston, ON. April 2012.

Wagner, I., A. Beamish, A. Cassidy, P. Treitz, and N. Scott. 2012. Relationships among phenology, NDVI, and CO₂ exchange in three high-Arctic plant communities. Queen's University Arctic Day poster presentation. Queen's University, Kingston, ON. April 2012

Wagner, I., E. Fisher, A. Neil, and N. Scott. 2012. Trace gas fluxes from three high-Arctic plant communities along a soil moisture gradient. Queen's University Arctic Day poster presentation. Queen's University, Kingston, ON. April 2012

Eastwood, S., P.M. Treitz, and N.A. Scott. 2012. High temporal resolution near remote sensing of canopy phenology at the Queen's Biological Station. Inquiry @Queen's Undergraduate Research Conference, March 2012.

Kjikjerkovska, E., and N.A. Scott. 2012. Land- use change effects on soil quality in Prince Edward County, ON. Inquiry @Queen's Undergraduate Research Conference, March 2012.

Beamish, A. A. Neil, I. Wagner, N.A. Scott. 2011. Impacts of active layer detachments on carbon exchange in a high-Arctic ecosystem, Cape Bounty, Nunavut, Canada. Annual Meeting of the American Geophysical Union, San Francisco, CA. Dec. 2011.

Graham, A., N.A. Scott, Y-P. Cen, K. Kyser, D. Layzell. 2011. Hydrogen Coupled CO₂ Fixation in Soybean Crop Soils. Annual Meeting of the American Geophysical Union, San Francisco, CA. Dec. 2011.

Jaggard, E., D. McParland, K. Kyser, W. Mabee, N.A. Scott. 2011. Piecing together the environmental sustainability of switchgrass for energy in southeastern Ontario. Soil and Water Conservation Society of Ontario Conf., November 2011.

Wagner, I., A. Beamish, A. Cassidy, P. Treitz, and N.A. Scott. 2011. Relationships among phenology, NDVI, and CO₂ exchange in three high-Arctic plant community types. Canadian Remote Sensing Society, Sherbrooke, QC. June 2011.

Van Ewijk, K., P.M. Treitz, and N.A. Scott. 2011. Contrasting Conifer Plantations and Natural Forest Stands in Central Ontario using Spectral, LiDAR and Textural Information. Canadian Remote Sensing Society, Sherbrooke, QC. June 2011.

Jaggard, E., K. Kyser, N.A. Scott. 2011. Soil organic carbon cycling in southeastern Ontario switchgrass fields as indicated by $\delta^{13}\text{C}$ natural abundance. Advanced Stable Isotope Technologies and Applications Conference, Queen's University, June 2011.

Graham, A., N.A. Scott, Y-P. Cen, K. Kyser, D. Layzell. 2011. Hydrogen Coupled CO₂ Fixation in Soybean Crop Soils. Advanced Stable Isotope Technologies and Applications Conference, Queen's University, June 2011.

Dong, Z., N.A. Scott, et al. N₂ Fixation, H₂ production & N₂O emissions. 2011. Annual General Meeting of the Green Crop Network. Montreal, QC. May 2011.

Graham, A., N.A. Scott, Y-P. Cen, K. Kyser, D. Layzell. 2011. Hydrogen Coupled CO₂ Fixation in Soybean Crop Soils. Annual General Meeting of the Green Crop Network. Montreal, QC. May 2011.

Jaggard, E., K. Kyser, and N.A. Scott. 2011. Carbon Sequestration under switchgrass production in southeastern Ontario. ECO Canada Conference, Montreal, QC. March 2011.

McParland, D., and N.A. Scott. 2011. Nitrous Oxide Emissions From a Switchgrass Field Across a Fertilizer Gradient. Inquiry @ Queen's Undergraduate Research Conference. March 2011.

Beamish, A., and N.A. Scott. 2011. Effects of Permafrost Disturbance on Trace Gas Flux in a High Arctic Ecosystem. Inquiry @ Queen's Undergraduate Research Conference. March 2011.

Beamish, A., N.A. Scott. 2011. Disturbance-induced carbon fluxes in High Arctic Ecosystems. High Arctic Workshop, sponsored by GEOTOP (UQAM) and INSTAAR. Montreal, QC. March 2011.

Graham, A.G., N.A. Scott. 2011. Hydrogen Coupled CO₂ Fixation in Soybean Crop Soils. Gananoque Environmental Sciences and Engineering Conference, Cornwall, Ontario. Feb. 2011.

Van Ewijk, K.Y., P.M. Treitz, and N.A. Scott. 2011. LiDAR derived Indices for Characterizing Forest Succession and Ecosite Prediction in Central Ontario. FRP/CIF Workshop: Taking Stock: Inventory Options for Today and Tomorrow. Kapuskasing, ON, January 26.

Beamish, A., I. Wagner, N. A. Scott. 2010. Disturbance-induced carbon fluxes in High Arctic Ecosystems. ArcticNet AGM Meeting, Ottawa, ON. Dec. 2010.

Scott, N.A., I. Wagner, S. Lamoureux, M. Lafreniere, P. Treitz, T. Lewis, E. Humphreys, P. Lafleur, M. Simpson, A. Simpson. 2010. Quantifying the watershed-scale carbon balance of

intact and disturbed high-Arctic ecosystems at Cape Bounty, Melville Island, Nunavut. ArcticNet AGM Meeting, Ottawa, ON. Dec. 2010.

Wagner, I., A. Beamish, A. Cassidy, P. Treitz, and N.A. Scott. 2010. Relationships among phenology, NDVI, and CO₂ exchange in three high-Arctic plant community types. ArcticNet AGM Meeting, Ottawa, ON. Dec. 2010.

Scott, N.A. 2010. Impacts of Land-use Change and Landscape Disturbance on the Carbon Cycle. "Thinking Ahead for a Strong Future" conference to mark the 10th anniversary of the Canada Research Chair program, Toronto, ON. Nov. 2010.

Wagner, I., E. Fisher, A. Neil, N. A. Scott. 2010. Trace gas fluxes from three high-Arctic plant communities along a soil moisture gradient. IPY Scientists Meeting, Edmonton, Alberta. Nov. 2010.

Scott, N.A., J. Wagner, F. Gregory, E. Humphreys, P. Lafleur, M. Lafreniere, S. Lamoureux, T. Lewis, and P. Treitz. 2010. Quantifying the watershed-scale carbon balance of high-Arctic ecosystems at Cape bounty, Melville Island, Nunavut. IPY Scientists Meeting, Edmonton, Alberta. Nov. 2010.

Van Ewijk, K.Y., P.M. Treitz, and N.A. Scott. 2010. Characterizing Central Ontario's forest Ecosystems by Fusing Airborne LiDAR and High Resolution Digital Imagery. The Prairie Summit, Regina, June 1 - 5.

Southee, M., P. M. Treitz, N. A. Scott. 2010. Using LiDAR-derived Terrain Attributes for Forest Ecosite Prediction in the Romeo Mallette Forest, Ontario. OCE Discovery 2010, Toronto, ON, May 17-18.

Van Ewijk, K.Y., P.M. Treitz, and N.A. Scott. 2010. Characterizing Forest Succession in Central Ontario using LiDAR derived Indices. OCE Discovery 2010, Toronto, ON, May 17-18.

Treitz, P., N. A. Scott, et al. 2010. Optimizing Ontario-based Wood Pellet Production for Co-firing and Market Development and Penetration. Final project presentation, OCE meeting, Atikokan, Ontario.

Scott, N.A. 2010. Permafrost disruption and species distribution alter the carbon budget of High Arctic ecosystems? Invited Presentation, Ecology and Evolutionary Biology Seminar Series, Dept. of Biology, Queen's University. March 2010.

Scott, N.A. 2010. Does permafrost disruption and landscape disturbance alter the carbon budget of High Arctic ecosystems? GeoEngineering seminar series, Dept. of Civil Engineering, Queen's University. March 2010.

Van Ewijk, K.Y., P.M. Treitz, and N.A. Scott. 2010. Characterizing Forest Succession in Central Ontario using LiDAR derived Indices. OCE Multi-cohort Forest Classification using LiDAR Workshop, University of Toronto, Toronto, ON. March 26.

Stephens, T., N.A. Scott, GPHY 317 Class. 2010. The effects of long-term land-use change on soil properties in Perth, Ontario. Inquiry @Queen's Undergraduate Research Conference, March 2010.

Neil, A., and N. A. Scott. 2010. Effects of Active Layer Detachments on Soil Gas Exchange Rates in the High Arctic. Inquiry @Queen's Undergraduate Research Conference, March 2010.

Fisher, E., and N.A. Scott. 2010. Temperature sensitivity of soil greenhouse gas production in three high-Arctic plant community types at Cape Bounty, Nunavut. Inquiry @Queen's Undergraduate Research Conference, Kingston, ON. March 2010.

Scott, N.A., D.Y. Hollinger, E.A. Davidson, C.A. Rodrigues, H. Hughes, J.T. Lee, A.D. Richardson, D.B. Dail. 2010. Changes in the net carbon balance following a shelterwood harvest at Howland Forest in central Maine seven years after harvest. Annual meeting of the Canadian Carbon Program. Montreal, Quebec. Feb. 2010.

Dong, Z., N.A. Scott, D.B. Layzell. 2009. N₂ Fixation, H₂ production & N₂O emissions. Annual General Meeting of the Green Crop Network, Halifax, NS. Dec. 2009.

Cen, Y.-P., N.A. Scott, M.J. Morrison, E.G. Gregorich, D.B. Layzell. 2009. Promotion of N₂O Emissions by H₂ Released from Legume Symbiosis. Annual General Meeting of the Green Crop Network, Halifax, NS. Dec. 2009.

Scott, N.A., D.Y. Hollinger, E.A. Davidson, C.A. Rodrigues, H. Hughes, J.T. Lee, A.D. Richardson, D.B. Dail. 2009. Changes in the net carbon balance following a shelterwood harvest at Howland Forest in central Maine seven years after harvest. Annual Fall meeting of the American Geophysical Union, San Francisco, CA., USA. Dec. 2009.

Richardson, A.D., M. Williams, D.J.P. Moore, D.Y. Hollinger, E.A. Davidson, B. Dail, N.A. Scott. 2009. Estimating Parameters of a Forest Ecosystem C Model Using Multiple Stock and Flux Measurements as Joint Constraints. Annual Fall meeting of the American Geophysical Union, San Francisco, CA., USA. Dec. 2009.

Gregory, F.M., P.M. Treitz, J. Wagner, N.A. Scott. 2009. Carbon Exchange and NDVI by Vegetation Community in the Canadian High Arctic. Annual Fall meeting of the American Geophysical Union, San Francisco, CA., USA. Dec. 2009.

Wagner, J., N. Scott, F. Gregory, E. Humphreys, P. Lafleur, M. Lafreniere, S. Lamoureux, T. Lewis, P. Treitz. 2009. Quantifying the watershed-scale carbon balance of high-Arctic ecosystems at Cape bounty, Melville Island, Nunavut. Annual General Meeting of the ArcticNet Research Network. Vancouver, B.C. Dec. 2009.

Gregory, F.M., P.M. Treitz, N.A. Scott. 2009. Source or Sink? Monitoring Growing Season Carbon Exchange and NDVI at Cape Bounty, Nunavut. Annual General Meeting of ArcticNet. Vancouver, BC. Dec. 2009.

Fisher, E.D.B., Y.-P. Cen, J. Wagner, N.A. Scott. 2009. Temperature sensitivity of soil greenhouse gas production in three high-Arctic plant community types at Cape Bounty, Melville

Island. Annual General Meeting of the ArcticNet Research Network. Vancouver, BC. Dec. 2009.

Mabee W.E., J. Mirck, A. Pollard, P. Treitz, N. Scott. 2009. Energy...and heat...from biomass in Ontario: Getting beyond the promise. Harnessing Biomass: From the forest to the marketplace, Nipissing University, North Bay ON. October 22.

van Ewijk, K., P. Treitz, N. A. Scott. 2009. Characterizing forest structure using a lidar-derived complexity index. Silvilaser 2009 conference, Austin, TX. Oct. 15-16, 2009.

Hollinger, D.Y., E.A. Davidson, D.B. Dail, A.D. Richardson, N.A. Scott. 2009. Carbon exchange in sub-boreal coniferous forest. Annual meeting of the Ameriflux network, Washington, DC. Sept. 21-23.

Kim, S., N.A. Scott, P.M. Treitz, N.C. Coops. 2009. Quantifying forest biomass and productivity for bioenergy in Northwestern Ontario. OCE Discovery Conference, Toronto, CA. May 2009.

van Ewijk, K., P. Treitz, N. A. Scott. 2009. Characterizing Vertical Forest Structure using Lidar Derived Complexity Indices. OCE Discovery Conference, Toronto, CA. May 2009.

Cen, Y-P., W. Chan, N.A. Scott, D.B. Layzell. 2009. The soil H₂ uptake in a future hydrogen economy. Joint meeting of the American Geophysical Union and Canadian Geophysical Union, Toronto, CA. May 2009

Philpott, T., Y-P. Cen, D.B. Layzell, K. Kyser, N.A. Scott. 2009. Hydrogen coupled CO₂ fixation in legume cropping systems. Joint meeting of the American Geophysical Union and Canadian Geophysical Union, Toronto, CA. May 2009.

Fisher, Evangeline, Y.-P. Cen, N.A. Scott. 2009. Temperature Dependence of Carbon Dioxide, Nitrous Oxide and Methane Exchange in High Arctic Mineral Soils: Implications for Feedbacks to a Warming Climate. Inquiry at Queen's Undergraduate Research Conference, Kingston, ON. March 2009.

Neil, A., GPHY 317 class, N.A. Scott. Land use change: Effects on soil properties in a Montegale sandy loam series. Inquiry at Queen's Undergraduate Research Conference, Kingston, ON. March 2009.

Scott, N.A. Expanding our concept of forest inventory – opportunities for the future. Forest Biomass Discovery Workshop, Queen's University, Kingston, ON. March 7.

Kim, S., N.A. Scott, P.M. Treitz, N.C. Coops. 2009. Quantifying forest biomass and productivity for bioenergy in Northwestern Ontario. Canadian Carbon Program Annual Gen. Meeting, Vancouver, BC. Feb.27. 2009.

Scott, N.A., M. MacDaniel, C.A. Rodrigues, D.Y. Hollinger, J. H. McCaughey, A.D. Richardson. 2009. Contribution of dead-wood respiration to ecosystem respiration in two mixed broadleaf/conifer forests. Canadian Carbon Program Annual Gen. Meeting, Vancouver, BC. Feb. 27.

Gregory, F., N.A. Scott, P.M. Treitz. 2008. Seasonal variation in net carbon exchange in three high-arctic vegetation communities. Arctic Net AGM, Quebec City, Dec. 2008.

Hincke, A.J.C., D.M. Atkinson, P.M. Treitz, N.A. Scott. 2008. The influence of vegetation communities on soil carbon and nitrogen storage in mid- and high-Arctic ecosystems. Arctic Net AGM, Quebec City, Dec. 2008.

Cen, Y.-P, M. Morrison, E. Gregorich, N.A. Scott, D.B. Layzell. 2008. Soil N₂O Emissions Associated with Soybean Symbiosis. Green Crop Network Annual General Meeting, Vancouver, Dec. 2008.

Philpott, T., Y.-P. Cen, D.B. Layzell, K. Kyser, N.A. Scott. 2008. Soil carbon sequestration in H₂-saturated soybean soil. Green Crop Network Annual General Meeting, Vancouver, Dec. 2008.

van Ewijk, K., P. Treitz, N. A. Scott. 2008. The characterization of vertical forest structure, using lidar derived complexity indices, to enhance forest vegetation classification in Central Ontario. Canadian Association of Geography, May 2008.

Lamoureux, S.F., M.J. Lafrenière, T. Lewis, N. Scott, P. Treitz, M. Simpson, A. Simpson, P. Francus, S. Finkelstein, G.H.R. Henry and V. St. Louis. 2008. Integrated research at the Cape Bounty Arctic Watershed Observatory: a Canadian International Polar Year program to identify hydrological, biogeochemical, geomorphic and vegetative sensitivity and responses to climate change. Canadian Geophysical Union, Banff, AB. April 2008

Consulting Activities

n/a

Research Funds – External/Internal

Period of Funding	Role	Principal Applicant	Funding Organization	Title	Amount (CAN\$)
2015/4-2018/3	Collaborator	Lamoureux, Scott; Lafreniere, Melissa	Natural Sciences and Engineering Research Council (NSERC) - NCE	Water security and quality in a changing Arctic	\$428,122
2015/4-2016/4	Prin. Appl.	Scott, Neal	Queen's University	Quantifying the Impact of Central Africa's Forests on the Global Carbon Budget	\$8,660
2013/4 - 2019/3	Collaborator	Green, Mark	(NSERC-CREATE)	Sustainable Engineering in Remote Areas	\$1.65 M

DR. NEAL SCOTT

Associate Professor

2014/9- 2015/12	Prin. Appl.	Scott, Neal	International Research and Development Centre	Quantifying the impact of forest management practices on carbon storage in forest ecosystems in Africa: Implications for the development of REDD+ initiatives in the Congo Basin, Grant	\$40,000
2011/4- 2015/3	Co- applicant	Lamoureux, Scott; Lafreniere, Melissa	NSERC	Renewal: High Arctic hydrological, landscape and ecosystem responses to climate change: integrated watershed research and modeling at the Cape Bounty Arctic,	\$707,950
2011/1- 2014/12	Co- applicant	Hollinger, David	US Dept. of Energy	Supporting carbon cycle and earth systems modeling with measurements and analysis from the Howland AmeriFlux Site	\$1.05 M
2008/12- 2014/9	Prin. Appl.	Scott, Neal	Aboriginal Affairs and Northern Development	Summer Travel for Arctic Research	\$12,000
2006/7- 2014/7	Prin. Appl.	Scott, Neal	Queen's Univ. Start up funds	Greenhouse Gas Dynamics and Ecosystem Management	\$84,000
2006/7 - 2014/7	Prin. Appl.	Scott, Neal	Summer Undergraduate Work Program	Greenhouse Gas Dynamics and Ecosystem Management	\$50,000
2011/4 - 2014/3	Prin. Appl.	Scott, Neal	Canadian Foundation for Innovation (CFI)	Field analyzers for measurement of ecosystem carbon exchange processes	\$50,100
2011/4 - 2014/3	Prin. Appl.	Scott, Neal	Ontario Research Fund (ORF)	Field analyzers for measurement of ecosystem carbon	\$50,100

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Associate Professor

2010/9 - 2012/4	Prin. Appl.	Scott, Neal	Queen's University, Centre Teaching and Learning	exchange processes Community Service Learning and Engagement Grant	\$2,454
2009/4- 2012/3	Co- applicant	Mabee, Warren	Lafarge Cement	Assessing the life cycle impacts and environmental sustainability of energy crop Systems	\$40,800
2009/4 – 2012/3	Co- applicant	Treitz, Paul	Ontario Centre of Excellence (OCE)	Precision Planning Inventory Tools for Forest Value Enhancement	\$385,200
2006/7 - 2011/6	Prin. Appl.	Scott, Neal	CFI	Greenhouse Gas Dynamics and Ecosystem Management	\$168,000
2006/7 - 2011/6	Prin. Appl.	Scott, Neal	Ontario Innovation Trust	Greenhouse Gas Dynamics and Ecosystem Management	\$168,000
2008/4 - 2011/3	Co- applicant	Dong, Zhongmin	NSERC	Nitrogen fixation, hydrogen production, and N2O emissions	\$90,000
2006/4 - 2011/3	Prin. Appl.	Scott, Neal	NSERC	Land-use change impacts on carbon and nitrogen cycling and greenhouse gas Emissions	\$121,000
2008/4 - 2011/3	Co- applicant	Lamoureux, Scott	NSERC	High Arctic hydrological, landscape and ecosystem responses to climate change: integrated watershed research and modeling at the Cape Bounty Arctic Watershed Observatory, Melville Island	\$333,480
2007/4 - 2011/3	Co- applicant	Lamoureux, Scott	NSERC-IPY	Climate change and permafrost impacts	\$670,000

2007/4 - 2010/3	Co- applicant	McCaughey, Harry	NSERC	on High Arctic watershed fluxes: Cape Bounty, Melville Island experimental watershed observatory Canadian Carbon Program: Ontario Flux Station: Carbon and Water Cycling in Boreal Mixedwood Forests	\$612,000
2006/1 - 2009/12	Co- applicant	Davidson, Eric	US Dept. of Energy	Renewal of Collaborative Research: Economically Viable Forest Harvesting Practices	\$456,000
2007/4 - 2009/3	Co- applicant	Pollard, Andrew	OCE	Optimizing Ontario-based Wood Pellet Production for Co- firing and Market Development and Penetration	\$540,000
2006/1 - 2008/12	Co- applicant	Hollinger, David	US Dept. of Energy	Using model analyses and surface-atmosphere exchange measurements from the Howland AmeriFlux Supersite in Maine, USA, to improve understanding of forest ecosystem C cycling	\$1.17 M

Patents and Intellectual Property Rights**Service and Administration – External/Internal**

2015/7-	Advisory Research Council, Natural Sciences Representative, Queen's University
2014/7-	Committee Member, Undergraduate Committee, Geography, Queen's University

DR. NEAL SCOTT

Associate Professor

2012/7- 2009/7-	Committee Member, Safety Committee, Geography, Queen's University Chair, Library Committee, Queen's University
2014/9-2015/6	Chair of Committee working with Computing Students to Develop Bicycle Registration, Queen's University,
2013/7 – 2015/6	Chair, Faculty Board of Studies, Queen's University
2013/7 - 2014/6	Committee Member, Renewal, Tenure, and Promotions Committee, Queen's University
2012/7 - 2014/6	Chair, Graduate Council Fellowship Committee, Queen's University
2010/7-2014/6	Committee Member, Graduate Committee - Geography, Queen's University
2011/7 - 2014/6	Committee Member, Graduate Council - Sciences, Queen's University
2011/7-2013/6	Committee Member, Faculty Board of Studies, Queen's University
2008/7 - 2011/6	Committee Member, Guest Speakers Committee, Queen's University
2009/7 - 2010/6	Committee Member, Appointments Committee, Geography, Queen's University
2008/7 - 2010/6	Committee Member, Healthy U Team, Queen's University
2009/9-2009/12	Committee Member, Head's Search Committee, Queen's University
2008/1 - 2009/7	Committee Member, Future Actions Committee for CHEMRAWN Conference, Queen's University
2008/1-2009/6	Committee Member, Advisory Research Council Division IV Representative, Queen's University
2008/7 - 2009/6	Committee Member, Appointments Committee, Geography, Queen's University
2007/7 - 2009/6	Chair, High School Liaison and External Affairs, Geography, Queen's University
2002/1-2007/12	Scientific Advisory Committee, Howland Forest, Howland, Maine, USA.

Other Professional Work

n/a