







11 March, 2022

NSF-OPP-080878

7. Billings, W. D., K. M. Peterson, G. R. Shaver and A. W. Trent. 1977. Root growth, respiration, and carbon dioxide evolution in an arctic tundra soil. *Arctic and Alpine Research* 9:129-137.



44. Chapin, F. S., III and G. R. Shaver. 1988. Differences in carbon and nutrient fractions among arctic growth forms. *Oecologia* 77:506-514.
45. Chapin, F. S., III and G. R. Shaver. 1989. Differences in growth and nutrient use among arctic plant growth forms. *Functional Ecology* 3:73-80.
46. Chapin, F. S., III and G. R. Shaver. 1989. Lack of latitudinal variations in graminoid storage reserves. *Ecology* 70:269-272.
47. Chapin, F. S., III., J. B. McGraw and G. R. Shaver. 1989. Competition causes regular spacing of alder in Alaskan shrub tundra. *Oecologia* 79:412-416.
48. Shaver, G. R., K. J. Nadelhoffer and A. E. Giblin. 1990. Climatic change, nutrient cycling, and primary production in the Arctic landscape. pp. 134-135 In: *Arctic Research: Advances and Prospects (Part 2)*. Proceedings of the Conference of Arctic and Nordic Countries on Coordination of Research in the Arctic, Leningrad, USSR. Nauka, Moscow. 446 pages.
49. Fetcher, N. and G. R. Shaver. 1990. Environmental sensitivity of ecotypes as a potential influence on primary productivity. *American Naturalist* 136:126-131.
50. Shaver, G. R., K. J. Nadelhoffer and A. E. Giblin. 1991. Biogeochemical diversity and element transport in a heterogeneous landscape, the North Slope of Alaska. pp. 105-126 In: M. G. Turner and R. H. Gardner (eds.), *Quantitative Methods in Landscape Ecology*. Springer-Verlag, New York.
51. Nadelhoffer, K. J., A. E. Giblin, G. R. Shaver and J. A. Laundre. 1991. Effects of temperature and organic matter quality on C, N, and P mineralization in soils from six arctic ecosystems. *Ecology* 72:242-253
52. Shaver, G. R. and F. S. Chapin, III. 1991. Production/biomass relationships and element cycling in contrasting arctic vegetation types. *Ecological Monographs* 61:1-31.
53. Rastetter, E. B., M. G. Ryan, G. R. Shaver, J. M. Melillo, K. J. Nadelhoffer, J. E. Hobbie and J. D. Aber. 1991. A general biogeochemical model describing the responses of the C and N cycles in terrestrial ecosystems to changes in CO<sub>2</sub>, climate, and N deposition. *Tree Physiology* 9:101-126.
54. Giblin, A. E., K. J. Nadelhoffer, G. R. Shaver, J. A. Laundre and A. J. McKerrow. 1991. Biogeochemical diversity along a riverside toposequence in arctic Alaska. *Ecological Monographs* 61:415-436.
55. Chapin, F.S., III, R. Jefferies, J. Reynolds, G. Shaver and J. Svoboda (eds.). 1992. *Arctic Ecosystems in a Changing Climate: An Ecophysiological Perspective*. 469 pp. Academic Press, New York.
56. Nadelhoffer, K. J., A. E. Linkins, A. E. Giblin and G. R. Shaver. 1992. Microbial processes and plant nutrient availability in arctic soils. pp. 281-300 In: F. S. Chapin, III, R. Jefferies, J. Reynolds, G. Shaver, and J. Svoboda (eds.), *Arctic Ecosystems in a Changing Climate: An Ecophysiological Perspective*. Academic Press, New York.
57. Shaver, G. R. and J. Kummerow. 1992. Phenology, resource allocation, and growth of arctic vascular plants. pp. 193-212 In: F. S. Chapin, III, R. Jefferies, J. Reynolds, G. Shaver, and J. Svoboda (eds.), *Arctic Ecosystems in a Changing Climate: An Ecophysiological Perspective*. Academic Press, New York.
58. Chapin, F. S., III, R. Jefferies, J. Reynolds, G. Shaver and J. Svoboda. 1992. Arctic plant physiological Ecology: A challenge N 90.024 189.74 Tm0 G[(physi)4(ol)-4(og)11(i)-4(c)9(al)-5( Ec)12(ol)-4(og)1 0 C

60.



77. Chapin, F.S., III., S.A. Zimov, G.R. Shaver, and S.E. Hobbie. 1996. CO<sub>2</sub> fluctuation at high latitudes. *Nature* 383: 585-586.
- 78.



109. McKane, R.B., L.C. Johnson, G.R. Shaver, K.J. Nadelhoffer, E.B. Rastetter, B. Fry, A. E. Giblin, K. Kielland, B.L. Kwiatkowski, J. A. Laundre, and G. Murray. 2002. Resource-based niches provide a basis for plant species diversity & dominance in arctic tundra. *Nature* 415:68-71
110. Bret-Harte, M. S., G. R. Shaver, and F. S. Chapin, III. 2002. Primary and secondary stem growth in arctic shrubs: implications for community response to environmental change. *Journal of Ecology* 90: 251-267.
111. Gough, L., P.A. Wookey, and G.R. Shaver. 2002. Dry heath arctic tundra responses to long-term nutrient and light manipulation. *Arctic, Antarctic, and Alpine Research* 34: 211-218.
112. Schmidt, I.K., S. Jonasson, G. Shaver, A. Michelsen, and A. Nordin. 2002. Mineralization and allocation of nutrit19duETQq

125. Callaghan, Terry V., Lars Olof Björn, Yuri Chernov, Terry Chapin, Torben R. Christensen, Brian Huntley, Rolf A. Ims, Margareta Johansson, Dyanna Jolly, Sven Jonasson, Nadya Matveyeva, Nicolai Panikov, Walter Oechel and Gus Shaver. 2004. Past Changes in Arctic Terrestrial Ecosystems, Climate and UV Radiation. *Ambio* 33: 398-403
126. Callaghan, T. V., Björn, L. O., Chernov, Y., Chapin, III. F. S., Christensen, T. R., Huntley, B., Ims, R. A., Jolly, D., Johansson, M., Jonasson, S., Matveyeva, N., Panikov, N., Oechel, W. C., Shaver, G. R., Elster, J., Henttonen, H., Laine, K., Taulavuori, K., Taulavuori, E. and Zöckler, C. 2004. Biodiversity, distributions and adaptations of Arctic species in the context of environmental change. *Ambio* 33, 404-417.
127. Callaghan, T. V., Björn, L. O., Chernov, Y., Chapin, III. F. S., Christensen, T. R., Huntley, B., Ims, R. A., Jolly, D., Johansson, M., Jonasson, S., Matveyeva, N., Panikov, N., Oechel, W. C., Shaver, G. R., Elster, J., Jonsdottir, I. S., Laine, K., Taulavuori, K., Taulavuori, E. and Zöckler, C. 2004. Responses to projected changes in climate and UV-B at the species level. *Ambio* 33, 418-435.
128. Callaghan, T. V., Björn, L. O., Chernov, Y., Chapin, III. F. S., Christensen, T. R., Huntley, B., Ims, R. A., Johansson, M., Jolly, D., Jonasson, S., Matveyeva, N., Panikov, N., Oechel, W. C., Shaver, G. R. and Henttonen, H. 2004. Effects on the structure of Arctic ecosystems in the short- and long-term. *Ambio* 33, 436-447.
129. Callaghan, Terry V., Lars Olof Björn, Yuri Chernov, Terry Chapin, Torben R. Christensen, Brian Huntley, Rolf A. Ims, Margareta Johansson, Dyanna Jolly, Sven Jonasson, Nadya Matveyeva, Nicolai Panikov, Walter Oechel and Gus Shaver. 2004. Effects on the Function of Arctic Ecosystems in the Short- and Long-term Perspectives. *Ambio* 33: 448-458.
130. Callaghan, T. V., Björn, L. O., Chernov, Y., Chapin, III. F. S., Christensen, T. R., Huntley, B., Ims, R. A., Jolly, D., Johansson, M., Jonasson, S., Matveyeva, N., Panikov, N., Oechel, W. C., Shaver, G. R., Schaphoff, S. and Sitch, S. 2004. Effects on landscape and regional processes and feedbacks to the climate system. *Ambio* 33, 459-468.
131. Callaghan, T. V., Björn, L. O., Chernov, Y., Chapin, III. F. S., Christensen, T. R., Huntley, B., Ims, R. A., Johansson, M., Jolly, D., Jonasson, S., Matveyeva, N., Panikov, N., Oechel, W. C., Shaver, G. R., Schaphoff, S., Sitch, S., and Zöckler, C. 2004. Synthesis of effects in four Arctic subregions. *Ambio* 33, 469-473.
132. Callaghan, Terry V., Lars Olof Björn, Yuri Chernov, Terry Chapin, Torben R. Christensen, Brian Huntley, Rolf A. Ims, Margareta Johansson, Dyanna Jolly, Sven Jonasson, Nadya Matveyeva, Nicolai Panikov, Walter Oechel and Gus Shaver. 2004. Uncertainties and Recommendations. *Ambio* 33: 474-479.
133. Van Wijk, M., M. Williams, and G.R. Shaver. 2005. Tight coupling between leaf area index and foliage N content in arctic plant communities. *Oecologia* 142:421-427.
134. Rastetter, E.B., S.S. Perakis, G.R. Shaver, and G. Ågren. 2005. Terrestrial C sequestration at elevated CO<sub>2</sub> and temperature: The role of dissolved organic N loss. *Ecological Applications* 15: 71-86.
135. Boelman N.T., M. Stieglitz, K.L. Griffin and G.R. Shaver. 2005. Inter-annual variability of NDVI in response to long-term warming and fertilization in wet sedge and tussock tundra. *Oecologia*, 143: 588-597.
136. Hob1.99 2( ) TJE4 179.9 Tm0 g0 G[(1g439 612 792 reW\*nBT/F1 11.04 Tf1 0 0 1 166.82 322.85 Tm0 g0 G[(I71.

138. Shaver, G.R. 2005. Spatial Heterogeneity Past, Present, and Future. In: G.M. Lovett, C.G. Jones, M.G. Turner, and K.C. Weathers, eds. *Ecosystem Function in Heterogeneous Landscapes*. Springer-Verlag, New York. Pp. 443-449
139. Van Wijk, M. Williams, G. Shaver. 2005. Tight coupling between leaf area index and foliage N content in arctic plant communities. *Oecologia* 142:421-427.
140. Willia

152. Nowinski, N., S. Trumbore, E. Schuur, M. Mack, and G. Shaver 2008. Nutrient Addition Prompts Rapid Destabilization Of Organic Matter In An Arctic Tundra Ecosystem. *Ecosystems* 11:16-25
153. Bret-Harte, M.S., M.C. Mack, G.R. Goldsmith, D.B. Sloan, J. DeMarco, G.R. Shaver, P. M. Ray, Z. Biesinger, and F. S. Chapin, III. 2008. Plant functional types do not predict biomass responses to removal and fertilization in Alaskan tussock tundra. *Journal of Ecology* 96:713-726. DOI: 10.1111/j.1365-2745.2008.01378
154. Wookey, P.A., R. Aerts, R.D. Bardgett, F. Baptist, K.A. Bråthen, J.H.C. Cornelissen, L. Gough, I.P. Hartley, D.W. Hopkins, S. Lavorel, and G.R. Shaver. 2009. Ecosystem Feedbacks and cascade processes: understanding their role in the responses of arctic and alpine ecosystems to environmental change. *Global Change Biology* 15:1153-1172.
155. Campioli, M., Street, Lorna E., Michelsen, Anders, Shaver, Gaius R., Maere, Thomas, Samson, Roeland, Lemeur, Raoul. 2009. Determination of leaf area index, foliar N, and normalized difference vegetation index for arctic ecosystems dominated by *Cassiope tetragona*. *Arctic, Antarctic, and Alpine Research* 41:426-433
156. Rocha, A.V., and G.R. Shaver. 2009. Advantages of a two band EVI calculated from solar and photosynthetically active radiation fluxes. *Agricultural and Forest Meteorology* 149: 1560-1563.
157. Rastetter, E.B., Williams, M, Griffin, K.L., Kwiatkowski, B.L., Tomasky, G., Potosnak, M.J., Stoy, P.C., Shaver, G.R., Stieglitz M., Kling G.W., Hobbie, J.E. 2010. Application of the Ensemble Kalman Filter to Assimilate Eddy Covariance Flux data into a Model of Arctic Carbon Exchange. *Ecological Applications* 20:1285-1301 doi: 10.1890/09-0876
158. Yano, Y., G. R. Shaver, A. E. Giblin and E. B. Rastetter. 2009. Depleted  $^{15}\text{N}$  in hydrolysable-N of arctic soils and its implication for mycorrhizal fungi-plant interaction. *Biogeochemistry*. 97 (2-3):183-194.
159. Yano, Y., G.R. Shaver, A.E. Giblin, E.B. Rastetter, and K.J. Nadelhoffer. 2010. Nitrogen dynamics in a small arctic watershed: Retention and downhill movement of  $^{15}\text{N}$ . *Ecological*

Heterogeneity over space and time. *Ecology Letters*, 15:164-165 doi: 10.1111/j.1461-0248.2011.01716.x

166. Johnson, DR, MJ Lara, GR Shaver, GO Batzli, JD Shaw and CE Tweedie. 2011. Exclusion of brown lemmings reduces vascular plant cover and biomass in arctic coastal tundra: resampling of a 50+ year herbivore exclosure experiment near Barrow, Alaska. *Environmental Research Letters*. **6**: 045507 doi:10.1088/1748-9326/6/4/045507
167. Euskirchen, E.S., M.S Bret-Harte, G.J. Scott, C. Edgar, and G.R. Shaver. 2012. Seasonal patterns of carbon and water fluxes in three representative ecosystems in the northern foothills of the Brooks Range, Alaska. *Ecosphere* 3(1):4. <http://dx.doi.org/10.1890/ES11-00202.1>
- 168.

178. van de Weg, Martine J., Ned Fetcher and Gus Shaver. 2012. Response of dark respiration to temperature in *Eriophorum vaginatum* from a 30-year-old transplant experiment in Alaska. *Plant Ecology and Diversity* DOI:10.1080/17550874.2012.72961
179. Heskell, M., H. Greaves, A. Kornfeld, L. Gough, O.K. Atkin, M.H. Turnbull, G. Shaver, and K.L. Griffin. 2013. Differential physiological responses to environmental change promote woody shrub expansion. *Ecology and Evolution*. DOI: 10.1002/ece3.525
180. Sistla, S.A





204. Jiang, Y., E. B. Rastetter, R. Shaver, A.V. Rocha, Q. Zhuang, B. L. Kwiatkowski. 2017. Long-term changes in tundra C balance following wildfire and climate change. *Ecological Applications* 27:105-117, DOI: 10.1002/eap.1413
205. Hobbie, J.E., G.R. Shaver, E.B. Rastetter, J.E. Cherry, S.J. Goetz, K.C. Guay, W.A. Gould, G.W. Kling. 2017. Multiple ecosystem responses to climate change at a long-term research site in Arctic Alaska. *Ambio* 46 (Suppl. 1): S160-S173.
206. Qiu, Chunjing, Dan Zhu, Philippe Ciais, Bertrand Guenet, Gerhard Krinner, Shushi Peng, Mika Aurela, Christian Bernhofer, Christian Brümmer, Sydonia Bret-Harte,



V. Frost, G. R. Shaver, M. S. Bret-Harte, M. C. Mack, A. V. Rocha. 2013: Vegetation [in Arctic Report Card 2013], <http://www.arctic.noaa.gov/reportcard>.

### Abstracts

- Shaver, G. R. and W. D. Billings. 1976. Carbohydrate and inorganic nutrient accumulation in tundra graminoid plants as functions of season and tissue age. *Bulletin of the Ecological Society of America* 57:5.
- Shaver, G. R. and F. S. Chapin. 1978. Nutrient limitations to plant growth in Alaskan tussock tundra vegetation. *Bulletin of the Ecological Society of America* 59:55.
- Shaver, G. R. 1980. Community structure, plant nutrition, and turnover in microhabitats of polygonal wet tundra. *Bulletin of the Ecological Society of America* 61:132-133.
- Woodwell, G. M., J. E. Hobbie, R. A. Houghton, J. M. Melillo, B. Moore, B. J. Peterson and G. R. Shaver. 1981. The role of terrestrial biota and soils in the global carbon budget. *Bulletin of the Ecological Society of America* 62:63.
- Lachenbruch, B. E., F. S. Chapin, III and G. R. Shaver. 1981. The role of natural disturbance in seedling establishment of *Eriophorum vaginatum* in arctic tussock tundra. *Bulletin of the Ecological Society of America* 62:79.
- Chapin, F. S., III and G. R. Shaver. 1981. Changes in soil properties and vegetation following disturbance of an Alaskan arctic tundra. *Proc. 1981 Alaska Science Conference*, pp. 56-57.
- Melillo, J. M., J. D. Aber, J. R. Gosz, G. R. Shaver, K. Van Cleve and P. M. Vitousek. 1982. Decomposition of red pine needle litter at six sites in North America. *Bulletin of the Ecological Society of America* 63:95.
- Shaver, G. R. 1982. Mineral nutrition in relation to carbon and biomass turnover processes in plants. *Bulletin of the Ecological Society of America* 63:183.
- Chapin, F. S. and G. R. Shaver. 1983. Experimental test of factors limiting plant growth in Alaskan tussock and wet meadow tundras. *Bulletin of the Ecological Society of America* 64:177.
- Shaver, G. R., B. L. Gartner, F. S. Chapin and A. E. Linkins. 1983. Revegetation of arctic disturbed sites by native tundra plants. *Permafrost: Fourth International Conference, Fairbanks, Alaska*. 219 p.
- Chapin, F. S., III and G. R. Shaver. 1984. Controls over growth rate by carbon, nitrogen, and phosphorus chemical fractions in Alaskan tundra plants. *Bulletin of the Ecological Society of America*

N

ESA 2009 (4)

AGU 2009 (2)

ESA 2010 (2)

AGU 2010 (4)

### Seminars and Meetings

March, 1979	MBL/Boston University Marine Program. Seminar on "Plant growth form and response to disturbance in Alaskan arctic tundra."
October 1979	Virginia Polytechnic Institute. Seminar on "Plant growth forms and response to disturbance in Alaskan arctic tundra."
December, 1979	University of Connecticut. Seminar on "Ecotypic variation in <u>Carex aquatilis</u> among microhabitats of wet tundra."
March, 1980	San Diego State University. DOE-sponsored workshop on "Carbon in boreal and tundra ecosystems." Brief presentation of the MBL/TCM model. Washington, DC. Review of DOE-sponsored arctic research programs. Brief presentation on plant responses to disturbance in the Arctic.
April, 1980	MBL/Ecosystems Center. Seminar on "Carbon-nutrient interactions and primary production in tundras."
May, 1980	University of Alaska, Fairbanks. Workshop on "Environmental protection of permafrost terrain." Brief presentation of the MBL/TCM model.
August, 1980	University of Arizona. Annual Meeting of the Ecological Society of America. Paper presented on "Community structure, plant nutrition, and turnover in microhabitats of polygonal wet tundra."
October, 1980	University of North Carolina. Seminar on "Plant nutrition and leaf turnover in <u>Ledum palustre</u> ." Duke University. Seminar on "The biota and the world carbon budget" (with J. M. Melillo).
December, 1980	The New England Center. NSF/MBL/UNH Workshop on "The role of tropical forests in the world carbon budget."
January, 1981	National Research Institute of the Amazon, Manaus, Brazil. Discussions on the role of tropical forests in the world carbon budget.
February, 1981	Johnson State College, Vermont. Seminar on "The biosphere, the atmosphere, and the world carbon budget."
March, 1981	MBL/Ecosystems Center. Seminar on "Mineral nutrition and leaf turnover in Alaskan moist tundra."

11 March, 2022





August, 1988 University of California, Davis. Presented 1 paper and co-author of 3 others at annual meeting of ESA.

November, 1988 Kellogg Biological Station, Michigan. LTER CC Meetings.

December, 1988 Leningrad, USSR. Conference of Arctic and Nordic Countries on coordination of research in the Arctic.

February, 1989. San Diego State University. Consulting on research planning for DOE Arctic Research.

March, 1989 Woods Hole, Massachusetts. Arctic LTER Workshop. Co-organizer. Colorado State University. Landscape Ecology Symposium. Presented paper. University of Minnesota, Duluth. Meeting on effects of global climate change on northern ecosystems.

April, 1989 Woods Hole, Massachusetts. SCOPE workshop on effects of climate change on production and decomposition in coniferous forests and grasslands. Woods Hole, Massachusetts. IGBP CP4 workshop on modeling.

May, 1989 Woods Hole, Massachusetts. LTER workshop on decomposition. San Diego State University. Consulting on research planning for DOE Arctic research.

August, 1989 University of Toronto. Annual meeting of ESA. Toronto, Canada. Workshop on Arctic physiological processes in a changing climate.

September, 1989 Woods Hole, Massachusetts. LTER Stable Isotopes workshop.

October, 1989 University of New Mexico, Albuquerque. International workshop on long-term ecological research. Harvard Forest, Massachusetts. LTER coordinating committee meeting. Woods Hole, Massachusetts. Intergovernmental Panel on Climate Change.

January 1990 Woods Hole, Massachusetts. SCOPE modeling workshop.

February 1990 University of Colorado, Boulder. ARCUS workshop on planning of terrestrial research for Arctic Systems Science (ARCSS). Woods Hole, Massachusetts. Annual workshop of the Arctic LTER research group.

April 1990 San Diego State University, San Diego. DOE-R4D arctic research planning meeting.

June 1990 University of Alaska, Fairbanks. Meeting of the steering committee for Land/Atm Tm00 ggrLand/A

- February 1991 Pacific Northwest Laboratories, Richland, Washington. Planning workshop for development of a US consortium for wetlands and climate change research.
- March 1991 Woods Hole, Massachusetts. Annual workshop of the Arctic LTER research group.  
University of Massachusetts, Amherst. Annual meeting of the Arctic Research Consortium of the United States, and meeting of steering committee for Arctic Systems Science Program.
- April 1991 University of Colorado, Boulder. Seminar on "Alaskan moist tundra: A model ecosystem."
- July 1991



11 March, 2022

- April 1997 London, England. 8<sup>th</sup> Annual ITEX meeting (presented paper)  
 Andrews Experimental Forest, Oregon. Spring meeting of the LTER Coordinating Committee
- June 1997 Puerto Rico. Site review of Luquillo LTER program
- July 1997 Cedar Creek, Minnesota. Site review of Cedar Creek LTER program  
 Palo Alto, CA. GCTE NETFLUX workshop.
- September 1997 Sevilleta NWR, New Mexico. Site review of Sevilleta LTER Program
- October 1997 Jasper National Park, Canada. Workshop on Ecosystem Experiments; presented paper  
 Santa Barbara, CA. LTER Coordinating Committee, fall meeting
- November 1997 Taipei, Taiwan. International LTER Program, annual meeting and workshop
- February 1998 Woods Hole, Massachusetts. Annual workshop of the Arctic LTER research group.
- March 1998 Stony Brook, NY. Invited seminar at SUNY-Stony Brook  
 Fairfax, Virginia. Invited seminar at George Mason University
- April 1998 Kansas State University, Manhattan, KS Invited Seminar  
 Colorado State Univ., Ft. Collins, CO. LTER Coordinating Committee, Spring meeting
- May 1998 Las Vegas and Reno, Nevada. NSF-EPSCOR site visits and talks with faculty, University of Nevada campuses  
 Desert Research Institute, Reno, NV. Fritz Went Laboratory advisory committee
- June 1998 Portland, Maine. Organizing meeting for Workshop on Ecosystem Warming
- August 1998 Baltimore, Maryland. Annual meeting of the Ecological Society of America  
 Tromsø, Norway. IASC workshop on Role of the Polar Regions in Global Change (presented paper)
- September 1998 Abisko, Sweden. Workshop on Plant Ecology at High Altitudes and Latitudes (presented paper)
- October 1998 Estes Park, Colorado. Workshop on “The contribution of long-term ecological research and monitoring to broad-scale management needs: Integrating up from research intensive sites to develop regional perspectives”  
 Madison, Wisconsin. LTER Coordinating Committee, Fall meeting

November 1998 Woods Hole, MA. Ecosystems Center Seminar.

December 1998 Fairbanks, Alaska, Institute of Arctic Biology. Meeting of Toolik Field Station Steering Committee

January 1999 East Lansing, Michigan. 9<sup>th</sup>

December 2000 Fairbanks, AK. Annual meeting of Toolik Field Station Steering Committee

January 2001 Sevilleta NWR, NM. LTER Executive Committee/Principal Investigators

February 2001 Seattle, WA . ARCSS-LAII Steering Committee  
Washington, DC. LTER EXEC/National Advisory Board  
Boulder, CO. ITEX Community Change Synthesis workshop

March 2001 Copenhagen, Denmark. Visiting Fellow at University of Copenhagen Global Change Program. Three seminars presented.

April 2001 Tempe, AZ. LTER EXEC/Coordinating Committee

October 2001 Ithaca, NY. Seminar on "Species composition interacts with N supply to control long-term change in an Alaskan tundra ecosystem". Biogeochemistry group, Cornell University

October 2001 LTER 20 Year Review, University of New Mexico, Albuquerque

November 2001 ARCSS-LAII All-Scientists' Meeting, Salt Lake City

January 2002 Umea, Sweden. Opponent for thesis defense of Joachim Strengbom

January 2002 ITE Banchory, Scotland. Invited seminar on "Species composition interacts with N supply to control long-term change in Alaska tundra"

February 2002 Seattle, WA. ARCSS All-Hands meeting (LAII Steering Committee member)

February 2002 Arlington, VA. LTER minisymposium at NSF; talk on "LTER in the next Decade"

March 2002 Woods Hole, Massachusetts. Annual workshop of the Arctic LTER research group.

April 2002 Sevilleta NWR, New Mexico. LTER Exec/Coordinating Committee

May 2002 Durham, NH. GCTE-Terrestrial Ecosystem Responses to Atmospheric and Climate Change (TERACC). Organizing committee, session chair.

May 2002 Woods Hole,, MA. Invited talk on "The LTER Network" to Watson Scholars of the Environment, Brown University

August 2002 Tucson, AZ. Annual meeting of the Ecological Society of America

September 2002 Niwot Ridge, CO. LTER Exec/Coordinating Committee Presented paper on "Causes and Consequences of Species Change in Ecosystems: A Perspective from the Arctic LTER Site"

October 2002 Study of Environmental Arctic Change (SEARCH) planning meeting, University of Washington, Seattle





- August 2004                   Portland, Oregon. Annual meeting of Ecological Society of America (2 posters)
- September 2004 Washington, DC. Steering Committee, Study of Environmental Arctic Change  
(SEARCH)
- October 2004                Lund University, Sweden. Seminar on “Long-Term Experiments in Arctic  
Tundra at Toolik Lake, Alaska”
- October 2004                Lund University, Sweden. Oppon

July 2005 Longyearbyen, Svalbard, Norway. Field work and gave 2 lectures in an international summer field course in Arctic Plant Ecology, organized by UNIS, the University Center in Svalbard

August 2005 Montreal, Quebec. Annual meeting of the ESA (2 talks presented, session organizer) and ESA Governing Board

August 2005 Sydney, Australia. Workshop on Plant N-P strategies (talk presented)

September 2005 Virginia Coast Reserve, Virginia. LTER Coordinating Committee and Symposium (talk presented)

September 2005 Amsterdam, Netherlands. Opponent at thesis defense of Ellen Dorrepaal, Vrije Universitet Amsterdam

October 2005 Washington DC. ESA Governing Board

November 2005 Copenhagen, Denmark. International Conference on Arctic Research Planning (ICARP II).

December 2005 Fairbanks, Alaska. SEARCH Steering Committee

January 2006 Merida, Yucatan, Mexico Joint meeting of Ecological Society of America and Mexican Ecological Society

January 2006 Miami, Florida. 13<sup>th</sup> ITEX meeting (talk presented)

February 2006 Durham, England. Seminar on / q & & f

August 2006	ESA Annual meeting and Governing Board, Memphis, TN
September 2006	Estes Park, CO US LTER All Scientists meeting. Workshop organizer and speaker in two workshops
October 2006	Woods Hole Oceanographic Institute. US Arctic Research Commission, invited speaker on upscaling of plot-scale research results
November 2006	Washington DC. Search Steering Committee Meeting
November 2006	Washington DC. ESA Governing Board
December 2006	Hartford, CT NEON RFI organizational meeting
February 2007	Washington DC. Invited briefing to NSF-OPP on interactions of LTER, IPY, and NEON at Toolik Lake
March 2007	Brown University, Providence RI. Meeting on “Ecological Foundations of Sustainability in a Constantly Changing World” (Meeting host & organizer)
March 2007	Boulder, CO IPY-AON Principal Investigators meeting
April 2007	University of Georgia, Athens, GA. LTER planning meeting, Integrated Science for Society and the Environment
May 2007	Washington, DC ESA Governing Board
May 2007	Portland, OR LTER Science Council
August 2007	San Jose, CA. ESA Annual meeting and Governing Board
August 2007	Boulder, CO. NEON GCE (Global Change Experiment) planning meeting
September 2007	Abisko, Sweden. International Workshop on High Latitude Terrestrial and Freshwater Ecosystems (Organizing Committee, Plenary Speaker)
October 2007	Duke University. Invited seminar on “Changing views of a changing Arctic”
October 2007	Stirling University, Scotland. Workshop/ writing session on Circumpolar Arctic Biodiversity
November 2007	Washington, DC. Annual meeting of SEARCH Scientific Steering Committee
December 2007	Woods Hole, MA. Ecosystems Center seminar on “Changing Views of a Changing Arctic Tundra”
February 2008	Boston, MA Symposium organizer and speaker at AAAS meeting, “Ecology for Sustainability”
February 2008	NSF, Arlington, VA. Invited workshop attendee, “Cyberinfrastructure for Environmental Observing Networks”



August 2010

Pittsburg

April 2013	AOS & ISAC SSC, Vancouver
May 2013	LTER SC, Jornada LTER site, Las Cruces, NM
June 2013	Toolik, ARC Site Visit
October 2013	Arctic Logistics, Washington BERAC, Washington DC

April 2017            NSF DEB preproposal panelist

May 2017            NAS-PRB; virtual meeting (on line)

April 2018           Sterling University, Scotland. ITEX meeting and speaker

September 2019    University of Parma, Italy ITEX meeting and speaker

### Reviews

#### Proposals:

1979 -            NSF Ecology Program (2 proposals)

1980 -            NSF Ecology Program  
NSF Ecosystems Analysis  
NSF Population Biology and Physiological Ecology

1981 -            NSF Ecology Program (2 proposals)  
NSF Ecosystems Analysis  
NSF Population Biology and Physiological Ecology (2)

1982 -            NSF Ecosystems Analysis  
NSF Ecology  
NSF Population Biology and Physiological Ecology (2)

1983 -            NSF Ecosystems Analysis (3)  
NSF Population Biology and Physiological Ecology (3)  
NSF Polar Programs (4)  
NSF Ecology

1984 -            NSF Ecosystems  
NSF Ecology  
NSF Population Biology and Physiological Ecology (5)  
DOE CO<sub>2</sub> Program

1985 -            NSF Ecology  
NSF Population Biology and Physiological Ecology (2)  
NSF Polar Programs (2)

1986 -            NSF Ecosystems (4)  
NSF Polar Programs (3)

1987 -            NSF Population Biology and Physiological Ecology (2)  
NSF Ecosystems (7)  
NSF Polar Programs

1991 - British Natural Environment Research Council (2)  
USDA/NRICGP Forest/Rangeland/Crop Ecosystems Program  
NASA.18 YEMCx0 1 ngelan





	DOE-NGEE competition
2012-	
2013-	
2013-	NSF-OPP
2014-	
2015-	NSF-DEB Proproposal panel
	NSF-PLR Arctic Natural Sciences
2016-	NSF-

1988 - Science  
Canadian Journal of Botany (2)  
Journal of Eco



Plant and Soil (Editorial Board)  
Functional Ecology  
Nature (2)  
Arctic, Antarctic, and Alpine Research (2)  
Ecology (2)  
JGR-Atmospheres  
Plant and Soil  
Advances in Ecological Research  
American Naturalist  
2003- Ecosystems (Editorial Board)  
Island Press  
Functional Ecology  
Permafrost and Periglacial Processes  
BioScience  
Biogeochemistry (2)  
Global Change Biology  
Cary Conference (Proceedings)  
Frontiers in Ecology and the Environment  
2004- Global Change Biology  
Nature  
Ecology  
Biogeochemistry  
Millennium Ecosystem Assessment  
Oikos  
IGBP-GCTE Synthesis Volume

2010-	Proceedings of the Royal Society B New Phytologist Science Journal of Geophysical Research Global Change Biology PNAS
2011-	Global Change Biology Journal of Geophysical Research Oecologia (2)
2012-	Journal of Geophysical Research
2013-	Ecology Global Change Biology New Phytologist
2014	Ecology Letters New Phytologist Journal of Ecology PLOS One
2015	Ecosystems Global Change Biology (3) Ecology
2016	PNAS Oecologia Biology Letters
2017	PNAS (3x2) Journal of Ecology Global Change Biology Science New Phytologist Ecological Monographs
2018	PNAS (ad hoc Editor) Ecological Monographs (2)
2019	Ecosystems
2020	Environmental Research Letters PNAS
2021	Nature <b>R</b> eviews

Reviews for Hiring, Promotion, Tenure, or Faculty Honors  
1987

2003	Mount Holyoke College University of Minnesota Twin Cities Carlsberg Foundation (Denmark)
2004	Boston University
2005	Binghamton University (SUNY)





1998

Site reviews of NSF-LTER sites at Cedar Creek, Minnesota 2792 reW\*BT/F1 11.04 Tf1 0 0 1 312.31 709