

Michael M. Loranty

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Professional Experience

Associate Professor of Geography – Colgate University, 2018 - present

Assistant Professor of Geography – Colgate University, 2012 - 2018

Postdoctoral Fellow – Woods Hole Research Center, 2009 - 2012

Research Assistant – West Virginia Wesleyan College, 2003 – 2004

Education

Ph.D., 2009, State University of New York at Buffalo, Department of Geography

Dissertation Title: Towards a mechanistic understanding of spatial patterns of forest transpiration, and its implications for scaling.

B.S., 2003, West Virginia Wesleyan College, Magna cum Laude with Honors

Major: Environmental Science

Peer Reviewed Publications

Researcher ID: <http://www.researcherid.com/rid/A-1518-2009>

Colgate undergraduate advisee; Colgate Postdoctoral advisee

- [38] McLauchlan, K. K., P. E. Higuera, J. Miesel, B. M. Rogers, J. Schweitzer, J. K. Shuman, A. Tepley, J. M. Varner, T. T. Veblen, S. A. Adalsteinsson, J. K. Balch, P. Baker, E. Batllori, E. Bigio, P. Brando, M. Cattau, M. L. Chipman, J. Coen, R. Crandall, L. Daniels, N. Enright, W. S. Gross, B. J. Harvey, J. A. Hatten, S. Hermann, R. E. Hewitt, L. N. Kobziar, J. B. Landesmann, **M. M. Loranty**, S. Y. Maezumi, L. Mearns, M. Moritz, J. A. Myers, J. G. Pausas, A. F. A. Pellegrini, W. J. Platt, J. Roozeboom, H. Safford, F. Santos, R. M. Scheller, R. L. Sherriff, K. G. Smith, M. D. Smith, and A. C. Watts. *In Press*, Fire as a fundamental ecological process: research advances and frontiers. *Journal of Ecology*.
- [37] Myers-Smith, I., Kerby, J. T., Phoenix, G. K., Bjerke, J. W., Epstein, H. E., Assmann, J. J., John, C., Andreu-Hayles, L., Angers-Blodin, S., Beck, P.S.A., Berner, L.T., Bhatt, U.S., Bjorkman, A., Blok, D., Bryn, A., Christiansen, C.T., Cornelissen, J.H.C., Cunliffe, A.M., Elmendorf, S.C., Forbes, B.C., Goetz, S.J., Hollister, R.D., de Jong, R., **Loranty, M.M.**, Macias-Fauria, M., Maseyk, K., Normand, S., Olofsson, J., Parker, T.C., Parmentier, F.W., Post, E.S., Schaepman-Strub, G., Stordal, F., Sullivan, P., Thomas, H.J.D., Tommervik, H., Treharne, T., Tweedie, C.E., Walker, D.A., Wilmking, M., and Wipf, S. 2020. Complexity revealed in the greening of the Arctic. *Nature Climate Change*, 10(2), pp.106-117. doi:10.1038/s41558-019-0688-1
- [36] Davydov, S.P., Davydova, A., Schelchkova, M., Makarevich, R., Fyodorov-Dayvdov, D., **Loranty, M.M.**, Boeskorov, G. 2020. Essential mineral nutrients of the high-latitude steppe vegetation and the herbivores of mammoth fauna. *Quaternary Science Reviews*, 228, p.106073. doi:10.1016/j.quascirev.2019.106073
- [35] Natali, S., J.D. Watts, S. Potter, B.M. Rogers, S. Ludwig, A. Selbmann, P. Sullivan, B. Abbott, K. Arndt, A.A. Bloom, G. Celis, T. Christensen, C. Christiansen, R. Commene, E. Cooper, P.M. Crill, C.I. Czimczik, S. Davydov, J. Du, J. Egan, B. Elberling, S.E. Euskirchen, T. Friborg, H. Genet, J. Goodrich, P. Grogan, M. Helbig, E. Jafarov, J.

- Jastrow, A. Kalhori, Y. Kim, J.S. Kimball, L. Kutzbach, M. Lara, K. Larsen, B. Lee, Z. Liu, **M.M. Loranty**, M. Lund, M. Lupascu, N. Madani, A. Malhotra, R. Matamala, J. McFarland, A. McGuire, A. Michelsen, C. Minions, W. Oechel, D. Olefeldt, F. Parmentier, N. Pirk, B. Poulter, W. Quinton, F. Rezanezhad, D. Risk, T. Sachs, K. Schaefer, N. Schmidt, E. Schuur, P. Semenchuk, G. Shaver, O. Sonnentag, G. Starr, C. Treat, M. Waldrop, Y. Wang, J. Welker, C. Wille, X. Xu, Z. Zhang, Q. Zhuang, and D. Zona. 2019. Large loss of CO₂ in winter observed across the northern permafrost region. *Nature Climate Change*, 9(11), 852-857, doi: 10.1038/s41558-019-0592-8
- [34] Kropp, H., **Loranty, M.M.**, Natali, S.M., Kholodov, A.L., Alexander, H.D., Zimov, N.S., Mack, M.C. and Spawn, S.A., 2019. Tree density influences ecohydrological drivers of plant–water relations in a larch boreal forest in Siberia. *Ecohydrology*, 12(7), p.e2132. doi:10.1002/eco.2132
- [33] Todt, M., Rutter, N., Fletcher, C.G., Wake, L.M., Bartlett, C.G., Essery, R., Jonas, T., Kropp, H., **Loranty, M.M.**, Ohta, T., Webster, C., 2018. Simulation of longwave enhancement in boreal and montane forests. *Journal of Geophysical Research-Atmospheres* 123(24), 13-731. doi:10.1029/2018JD028719
- [32] **Loranty, M.M.**, Davydov, S.P., Kropp, H., Alexander, H.D., Mack, M.C., Natali, S.M., and Zimov, N.S., 2018. Vegetation indices do not capture forest cover dynamics in upland Siberian larch forests. *Remote Sensing*, 10(11), 1686. doi:10.3390/rs10111686
- [31] **Loranty, M.M.**, Abbott, B., Blok, D., Douglas, T.A., Epstein, H.E., Forbes, B., Jones, B., Kholodov, A.K., Kropp, H., Malhotra, A., Mamet, S., Myers-Smith, I., Natali, S.M., O'Donnell, J., Phoenix, G., Rocha, A.V., Sonnentag, O., Tape, K., Walker, D.A. 2018. Changing ecosystem influences on soil thermal regimes in northern high-latitude permafrost regions *Biogeosciences* 15(17), 5287–5313. doi:10.5194/bg-15-5287-2018
- [30] Alexander, H.D., Natali, S.M., **Loranty, M.M.**, Ludwig, S., Spektor, V., Davydov, S.P., Zimov, N.S., and Mack, M.C. 2018. Impacts of increased soil burn severity on larch forest regeneration on permafrost soils in far northeastern Siberia. *Forest Ecology and Management*. 417, 144–153. doi:10.1016/j.foreco.2018.03.008
- [29] **Loranty, M.M.**, Berner, L.T., Taber, E.C., Kropp, H., Natali, S.M., Alexander, H.D., Davydov, S.P., and Zimov, N.S., 2018 Understory vegetation controls on active layer dynamics and carbon dioxide fluxes in open-canopy Siberian larch forests. *PLoS ONE*, 13(3), e0194014–17. doi:10.1371/journal.pone.0194014
- [28] Liu, H., McColl, K.A., Li, X., Derksen, C., Berg, A., Black, A., Euskirchen, E., **Loranty, M.M.**, Pulliainen, J., Rautianen, K., Rowlandson, T., Roy, A., Royer, A., Langlois, A., Stephens, J., and Entekhabi, D., 2018. Validation of the SMAP Freeze/Thaw product using Categorical Triple Collocation. *Remote Sensing of Environment* 205, 329–337. doi:10.1016/j.rse.2017.12.007
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- [26] Mamet, S.D., Chun, K.P., Kershaw, G.G.L., **Loranty, M.M.**, and Kershaw, G.P., 2017. Linear thaw and non-linear areal loss of permafrost: reconciling climatic and non-climatic effects on palsa dynamics in the western Northwest Territories. 2017. *Permafrost and Periglacial Processes*. doi:10.1002/ppp.1951
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- [24] Kropp, H., **Loranty, M.M.**, Alexander, H.D., Berner, L.T., Natali, S.M., and Spawn, S.A., 2017. Environmental constraints on transpiration and stomatal conductance in a Siberian Arctic boreal forest. *Journal of Geophysical Research - Biogeosciences*. 122(3), 487-497. doi:10.1002/2016JG003709
- [23] Epstein, H.E., Bhatt, U.S., Raynolds, M.K., Walker, D.A., Forbes, B.C., Macias-Fauria, M., **Loranty, M.M.**, Phoenix, G., and Bjerke, J. 2016: Tundra Greenness [in Arctic Report Card 2016], <http://www.arctic.noaa.gov/Report-Card>.
- [22] **Loranty, M.M.**, Liberman-Cribbin, W., Berner, L.T., Natali, S.M., Goetz, S.J., Alexander, H.D. and Kholodov, A.L., 2016. Spatial variation in vegetation productivity trends, fire disturbance, and soil carbon across arctic-boreal permafrost ecosystems. *Environmental Research Letters*, 11(9), 095008. doi:10.1088/1748-9326/11/9/095008
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- [20] Berner, L.T., Alexander, H.D., **Loranty, M.M.**, Ganzlin, P., Mack, M.C., Davydov, S.P. and Goetz, S.J., 2015. Biomass allometry for alder, dwarf birch, and willow in boreal forest and tundra ecosystems of far northeastern Siberia and north-central Alaska. *Forest Ecology and Management*, 337, pp.110-118.
doi:10.1016/j.foreco.2014.10.027.
- [19] **Loranty, M.M.**, Natali, S.M., Berner, L.T., Goetz, S.J., Holmes, R.M., Davydov, S.P., Zimov, N.S. and Zimov, S.A., 2014. Siberian tundra ecosystem vegetation and carbon stocks four decades after wildfire. *Journal of Geophysical Research: Biogeosciences*, 119(11), pp.2144-2154.
doi:10.1002/2014jg002730.
- [18] **Loranty, M.M.**, Berner, L.T., Goetz, S.J., Jin, Y. and Randerson, J.T., 2014. Vegetation controls on northern high latitude snow-albedo feedback: observations and CMIP 5 model simulations. *Global change biology*, 20(2), pp.594-606. doi:10.1111/gcb.12391
- [17] Pearson, R.G., Phillips, S.J., **Loranty, M.M.**, Beck, P.S., Damoulas, T., Knight, S.J. and Goetz, S.J., 2013. Shifts in Arctic vegetation and associated feedbacks under climate change. *Nature climate change*, 3(7), pp.673-677. doi:10.1038/nclimate1858.
- [16] Epstein, H.E., D.A. Walker et al and 21 others including **M.M. Loranty**, 2012, Vegetation [in Arctic Report Card 2012], <http://www.arctic.noaa.gov/reportcard>
- [15] Rocha, A.V., **Loranty, M.M.**, Higuera, P.E., Mack, M.C., Hu, F.S., Jones, B.M., Breen, A.L., Rastetter, E.B., Goetz, S.J. and Shaver, G.R., 2012. The footprint of Alaskan tundra fires during the past half-century: implications for surface properties and radiative forcing. *Environmental Research Letters*, 7(4), p.044039. doi:10.1088/1748-9326/7/4/044039
- [14] Berner, L.T., Beck, P.S.A., **Loranty, M.M.**, Alexander, H.D., Mack, M.C. and Goetz, S.J., 2012. Cajander larch (*Larix cajanderi*) biomass distribution, fire regime and post-fire recovery in northeastern Siberia. *Biogeosciences*, 9(10), 3943-3959, doi:10.5194/bg-9-3943-2012.
- [13] Alexander, H.D., Mack, M.C., Goetz, S., **Loranty, M.M.**, Beck, P.S., Earl, K., Zimov, S., Davydov, S. and Thompson, C.C., 2012. Carbon accumulation patterns during post-fire succession in cajander larch (*Larix cajanderi*) forests of Siberia. *Ecosystems*, 15(7), pp.1065-1082. doi:10.1007/s10021-012-9567-6.
- [12] Jin, Y., Randerson, J.T., Goetz, S.J., Beck, P.S., **Loranty, M.M.** and Goulden, M.L., 2012. The influence of burn severity on postfire vegetation recovery and albedo change during early succession in North American boreal forests. *Journal of Geophysical Research: Biogeosciences*, 117(G1). doi:10.1029/2011JG001886

- [11] Mackay, D.S., Ewers, B.E., **Loranty, M.M.**, Kruger, E.L. and Samanta, S., 2012. Bayesian analysis of canopy transpiration models: a test of posterior parameter means against measurements. *Journal of Hydrology*, 432, pp.75-83. doi:10.1016/j.jhydrol.2012.02.019
- [10] **Loranty, M.M.**, and Goetz, S.J. 2012 Shrub expansion and climate feedbacks in Arctic tundra. *Environmental Research Letters* 7 011005 doi:10.1088/1748-9326/7/1/011005
- [9] Beck, P.S., Horning, N., Goetz, S.J., **Loranty, M.M.** and Tape, K.D., 2011. Shrub cover on the North Slope of Alaska: a circa 2000 baseline map. *Arctic, Antarctic, and Alpine Research*, 43(3), pp.355-363. doi: 10.1657/1938-4246-43.3.355
- [8] Beck, P.S., Goetz, S.J., Mack, M.C., Alexander, H.D., Jin, Y., Randerson, J.T. and **Loranty, M.M.**, 2011. The impacts and implications of an intensifying fire regime on Alaskan boreal forest composition and albedo. *Global Change Biology*, 17(9), pp.2853-2866. doi:10.1111/j.1365-2486.2011.02412.x
- [7] **Loranty, M.M.**, Goetz, S.J. and Beck, P.S., 2011. Tundra vegetation effects on pan-Arctic albedo. *Environmental Research Letters*, 6(2), p.024014. doi:10.1088/1748-9326/6/2/024014
- [6] **Loranty, M.M.**, Goetz, S.J., Rastetter, E.B., Rocha, A.V., Shaver, G.R., Humphreys, E.R. and Lafleur, P.M., 2011. Scaling an instantaneous model of tundra NEE to the Arctic landscape. *Ecosystems*, 14(1), pp.76-93. doi:10.1007/s10021-010-9396-4
- [5] **Loranty, M.M.**, Mackay, D.S., Ewers, B.E., Traver, E. and Kruger, E.L., 2010. Competition for light between individual trees lowers reference canopy stomatal conductance: Results from a model. *Journal of Geophysical Research: Biogeosciences*, 115(G4). doi:10.1029/2010JG001377
- [4] Mackay, D.S., Ewers, B.E., **Loranty, M.M.** and Kruger, E.L., 2010. On the representativeness of plot size and location for scaling transpiration from trees to a stand. *Journal of Geophysical Research: Biogeosciences*, 115(G2). doi:10.1029/2009JG001092
- [3] **Loranty, M.M.**, Mackay, D.S., Ewers, B.E., Traver, E. and Kruger, E.L., 2010. Contribution of competition for light to within-species variability in stomatal conductance. *Water Resources Research*, 46(5). doi:10.1029/2009WR008125.
- [2] Traver, E., Ewers, B.E., Mackay, D.S., **Loranty, M.M.**, 2010. Tree transpiration varies spatially in response to atmospheric but not edaphic conditions. *Functional Ecology*, 24, 273-282. doi: 10.1111/j.1365-2435.2009.01657.x
- [1] **Loranty, M.M.**, Mackay, D.S., Ewers, B.E., Adelman, J.D. and Kruger, E.L., 2008. Environmental drivers of spatial variation in whole-tree transpiration in an aspen-dominated upland-to-wetland forest gradient. *Water Resources Research*, 44(2). doi:10.1029/2007WR006272.

Popular Press Publications

<http://www.scientificamerican.com/article.cfm?id=vegetation-may-speed-warming-of-arctic>

<http://www.livescience.com/culture/090307-bts-forest-pulse.html>

http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=114365&org=NSF

Teaching Experience

Colgate University

GEOG 131 – Environmental Geography

GEOG 205 – Climate and Society

GEOG 336 – Biogeography

GEOG 338 – Earth System Ecology

GEOG 401 – Senior Seminar

SUNY at Buffalo

Course Instructor - Introduction to Geographical Information Systems
Course Instructor - Applied Geostatistics
Teaching Assistant - Earth Systems Science

<u>Grants & Awards</u>	(Total Award/Amount to Colgate)
NSF, Arctic System Science Program (2017 – 2021) million/\$392,179 “Fire influences on forest recovery and associated climate feedbacks in the Siberian arctic” PI: H. Alexander, Co-PIs: M Loranty, M. Mack, J. Lichstein, J. Demarco	\$1.6
National Geographic, CRE (2016 – 2017) “Disentangling tree and shrub phenology in Siberian taiga ecosystems” PI: M Loranty, Co-PI: S. Davydov	\$20,395/\$20,395
Picker Interdisciplinary Science Institute (2016 – 2018) “Impacts of boreal climate feedbacks on climate change” PI: M Loranty, Co-PIs: N. Rutter, C. Fletcher, H Kropp	\$136,545/\$136,545
NSF, Arctic System Science Program (2014 – 2018) million/\$450,000 “Vegetation and ecosystem impacts on permafrost vulnerability” PI: S. Natali, Co-PIs: A. Kholodov, M. Loranty	\$1.2
NSF, Arctic System Science Program (2013 – 2017) \$900,000/\$96,000 “Effects of changing arctic disturbance regimes on carbon and albedo climate feedbacks” PI: H. Alexander, Co-PIs: S. Goetz, M Loranty, M. Mack, S. Natali	
Colgate University Research Council Student Wage Grants (2012-15) College of Arts and Sciences Dissertation Fellowship, 2008-09, SUNY at Buffalo NSF IGERT Fellow, 2004-08, Geographic Information Science, SUNY at Buffalo Award for Excellence in Research, 2003, West Virginia Wesleyan College Presidential Scholarship, 1999 -2003, West Virginia Wesleyan College	~\$2,500

Synergistic Activities

Future of Fire Workshop – NSF, Nov 2017
Arctic Browning Workshop – NERC, Sheffield UK, May 2016
Heterotrophic Respiration Workshop – NSF RCN, Oct 2012
National Institute for Mathematical and Biological Synthesis workshop on Disturbance Regimes and Climate-Carbon Feedback, February 2012
Fluxnet and Remote Sensing Open Workshop on Upscaling Carbon Fluxes, June 2011
Integrated Network for Terrestrial Ecosystem Research on Feedbacks to the Atmosphere and Climate NSF RCN Meeting, Feb 2011
Visiting Research Assistant, National Institute of Water and Atmospheric Research Limited (NIWA), Christchurch, New Zealand, Spring 2008
Snowbird Charrette in Environmental Research Design, August, 2006
Vespucci Initiative Summer Institute on Geographic Information Science, July 2006

Peer Review Activity

Agricultural and Forest Meteorology, Arctic Science, Biogeosciences, Ecohydrology, Ecological Applications, Ecological Modeling, Ecosystems, Environmental Research Letters, Geophysical

Research Letters, Global Change Biology, Hydrological Processes, Journal of Geophysical Research –Biogeosciences, Journal of Hydrometeorology, Nature Geoscience, Oecologia, PLoS ONE, Polar Science, Remote Sensing, Remote Sensing of Environment

Professional Affiliations

Association of American Geographers, American Geophysical Union, Ecological Society of America

Contributed Conference Presentations (* indicates Colgate student author)

2018

M. Todt, N. Rutter, C. Fletcher, L. Wake, M. Loranty. Improvements to simulations of canopy longwave radiation in boreal forests and their impact on seasonal snow. EGU2018-18288. European Geophysical Union General Assembly. 8-13 April 2018. Vienna, Austria.

2017

H.D. Alexander, M.M. Loranty, S.M. Natali, H. Pena, S. Ludwig, V. Spektor, S.P. Davydov, N. Zimov, M.C. Mack. 2017. Linking tree demography to climate change feedbacks: fire, larch forests, and carbon pools of the Siberian Arctic. B21F-2003. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

N. Zimov, M.M. Loranty, C. Edgar, H. Kropp, S.A. Zimov. 2017. Pleistocene Park: the restoration of steppes as a tool to mitigate climate change through albedo effect. B41A-1933. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

M. Todt, N. Rutter, C.G. Fletcher, L.M. Wake, M.M. Loranty. 2017. Simulation of longwave enhancement beneath montane and boreal forests in CLM4.5. C43B-05. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

M.M. Loranty, H.D. Alexander, S.M. Natali, H. Kropp, M.C. Mack, A.G. Bunn, S.P. Davydov, A.E. Erb, A.L. Kholodov, C.B. Schaaf, Z. Wang, N. Zimov, S.A. Zimov. 2017. Opposing effects of fire severity on climate feedbacks in Siberian larch forests. B13J-10. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

H. Kropp, M.M. Loranty, S.M. Natali, A.L. Kholodov, H.D. Alexander, N. Zimov. 2017. Tree density and permafrost thaw depth influence water limitations on stomatal conductance in Siberian Arctic boreal forests. B14A-05. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

H. Pena, H.D. Alexander, S.M. Natali, M.M. Loranty, R.M. Holmes, M.C. Mack, J.D. Schade, P.J. Mann, S.P. Davydov, B. Frey, N. Zimov, L.E. Jardine. 2017. Effects of Fire on Understory Vegetation Communities in Siberian Boreal Forests and Alaskan Tundra. B41I-2091. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

A. Tobio*, M.M. Loranty, H. Kropp, H. Pena, H.D. Alexander, S.M. Natali, A.L. Kholodov, S. Spawn, S. Farmer*. 2017. Driving factors of Understory Evapotranspiration within a Siberian Larch Forest. B33B-2086. AGU Fall Meeting, New Orleans, LA, 11-15 Dec.

M. Todt, N. Rutter, C. Fletcher, L. Wake, M. Loranty. Simulation of longwave enhancement beneath coniferous forests. EGU2017-1907. European Geophysical Union General Assembly. 24-28 April 2017. Vienna, Austria.

2016

L.A. McCulloch*, M.M. Loranty, C.L. Cardelus, S.M. Natali, A.L. Kholodov. 2016. Carbon and Nitrogen Pools of Soil and Fine Roots across Alaskan Tundra and Boreal Forest Ecosystems. GC43B-1164, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

C. Buszta*, M.M. Loranty, A.V. Rocha, S.R. Curasi. 2016. Variability in Surface Energy Dynamics and Soil Climate Through Differing Vegetation Types in an Alaskan Tundra Ecosystem. GC43B-1148, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

M.M. Loranty, N. Rutter, C.G. Fletcher, H. Kropp, C. Derksen, L. Mudryk, C.W. Thackeray, M. Todt, L. Wang. 2016. Does Sub-canopy Longwave Radiation Enhancement Affect Boreal Snowmelt Dynamics? GC24A-08, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

S. Skotnicki, and M.M. Loranty. 2016. Arctic Collaboration: Developing a Successful Researcher/Teacher Expedition. ED11C-0906, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

A. Tobio*, M.M. Loranty, H. Kropp, H. Pena, H.D. Alexander, S.M. Natali, and A.L. Kholodov. 2016. Variability in understory evapotranspiration with overstory density in Siberian larch forests. B53G-0591, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

A.L. Kholodov, M.M. Loranty, S.M. Natali, and V.E. Romanovsky. 2016. Mechanisms of vegetation protective effect on thermal state of permafrost in Alaska. B43C-0619, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

H. Kropp, M.M. Loranty, and 39 others. 2016. Impacts of Vegetation on the Decoupling between Air and Soil Temperatures across the Arctic. B42D-03, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

S.M. Natali, and 39 others including M.M. Loranty. 2016. A Pan-Arctic Synthesis of Cold Season Carbon Emissions . B41J-01, AGU Fall Meeting 12-16 Dec 2016. San Francisco, CA

H. Pena, H.D. Alexander, M.M. Loranty, S.M. Natali, M.C. Mack, S.P. Davydov, and N.S. Zimov. 2016. Impacts of post-fire changes in larch forest stand density on understory vegetation cover and associated carbon pools in far Northeastern Siberia. PS18-43, ESA Annual Meeting 7-12 Aug 2016, Fort Lauderdale, FL

H.D. Alexander, M.M. Loranty, S.M. Natali, M.C. Mack, S.P. Davydov, and N.S. Zimov. 2016. Increasing fire severity: Impacts on forest succession and permafrost soils in Siberian larch forests. OS 39-6, ESA Annual Meeting, 7-12 Aug 2016. Fort Lauderdale, FL

C. Schadel, H. Epstein, M. Loranty, S. Natali, and V. Salmon. Identifying circumpolar trends of greening versus browning in the Arctic. 11th International Conference on Permafrost, 20-24 June 2016, Potsdam, Germany

A. Kholodov, V. Romanovsky, S. Natali, M. Loranty, and K. Heard. Effect of vegetation and soil characteristics on thermal state of permafrost in Alaska. 11th International Conference on Permafrost, 20-24 June 2016, Potsdam, Germany

M. Loranty, H. Alexander, S. Natali, A. Kholodov, and S. Davydov. Variability in active layer dynamics associated with stand density in an arctic Siberian larch forest. 11th International Conference on Permafrost, 20-24 June 2016, Potsdam, Germany

2015

K Heard, S.M. Natali, A.G. Bunn, M.M. Loranty, A.L. Kholodov, J.D. Schade, L.T. Berner, V. Spektor, N.S. Zimov, H.D. Alexander. 2015. Analysis of Terrestrial Carbon Stocks in a Small Catchment of Northeastern Siberia. B31D-0592, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

L.M. Graham, S.M. Natali, E. Rastetter, G.R. Shaver, D.A. Risk, M.M. Loranty, J.D. Jastrow. 2015. Long-term Nutrient Fertilization Increases CO₂ Loss in Arctic Tundra. B31C-0573, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

H.D. Alexander, S.M. Natali, M.M. Loranty, M.C. Mack, S.P. Davydov, N.S. Zimov. 2015. Post-fire stand structure impacts carbon storage within Siberian larch forests. B31C-0570, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

J.E. Egan, S.M. Natali, H.D. Alexander, M.M. Loranty, S.A. Spawn, D.A. Risk. 2015. Long-term Impacts of Fire on Permafrost Vulnerability and C loss in Siberian Larch Forests. B42C-03, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

L.A. McCulloch*, M.M. Loranty, S.M. Natali, A.L. Kholodov. 2015. Live and Dead Root Biomass in Alaskan Tundra and Boreal Forest Ecosystems. B43I-0660, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

M.M. Loranty, J. Fullmer*, C.L. Nguyen*, H.D. Alexander, S.M. Natali, A.G. Bunn, S.P. Davydov, S.J. Goetz, M.C. Mack. 2015. Variability in Albedo Associated with Fire-Mediated Controls on Stand Density in Siberian Larch Forests. B51G-0513, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

S.R. Curasi, A.V. Rocha, O. Sonnentag, S.D. Wulschleger, I.H. Meyers-Smith, N. Fetcher, M.C. Mack, S.M. Natali, M. M. Loranty, T. Parker. 2015. Influence of the Tussock Growth Form on Arctic Ecosystem Carbon Stocks. B53D-0600, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

K. Uy*, L. S.M. Natali, A.L. Kholodov, M. M. Loranty. 2015. Correlations between the Heterogeneity of Permafrost Thaw Depth and Vegetation in Boreal Forests and Arctic Tundra in Alaska. GC23J-1224, AGU Fall Meeting 14-18 Dec 2015. San Francisco, CA

2014

Z. Lazow*, L. Roemke*, M. M. Loranty. 2014. Using image segmentation to identify tundra vegetation variability in high resolution satellite images. B41I-0172, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Natali, S., H. D. Alexander, S. Davydov, M. M. Loranty, M. C. Mack, N. Zimov. 2014. Effects of fire on ecosystem carbon exchange in Siberian larch forest. B13G-0132, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Davydov, S., A. Davydov, R. Makarevich, M. M. Loranty, G. Boeskorov. 2014. High-latitude steppe vegetation and the mineral nutrition of Pleistocene herbivores. GC31B-0467, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Alexander, H.D., M. C. Mack, S. Natali, M. M. Loranty, S. Davydov, N. Zimov. 2014. Changing boreal fire regimes: impacts on permafrost soils and forest succession in Siberian larch forests. GC11G-0558, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Loranty, M. M., L. T. Berner, H. D. Alexander, S. P. Davydov. 2014. Variability in canopy transpiration with atmospheric drivers and permafrost thaw depth in an Arctic Siberian Larch forest. B41E-0112, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Weber, L. R., H. Pena, S. R. Curasi*, E. Ramos, M. M. Loranty, H. D. Alexander, S. Natali. 2014. Above and below ground carbon stocks in Northeast Siberia tundra ecosystems: a comparison between disturbed and undisturbed areas. B13G-0143, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Theberge, J., J. D. Schade, G. J. Fiske, M. M. Loranty, N. Zimov. 2014. Changes in dissolved carbon and nitrogen along a hill slope flow path in Siberian Arctic tundra. B13G-0124, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Curasi, S. R.*, L. R. Weber, M. M. Loranty. 2014. Effects of landscape position on carbon cycling in Siberian Arctic tundra. B13G-0135, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA.

Alexander, H.D., Mack, M.C., Davydov, S., Zimov, N., Loranty, M.M., and Natali, S. 2014. Fire severity effects on larch forest regrowth and permafrost thaw in northeastern Siberia. Ecological Society of America Annual Meeting, Sacramento, CA.

White, A., Alexander, H.D., Pruitt, K., Loranty, M.M. 2014. Cascading effects of animal disturbances to moss communities on soil characteristics in northeastern Siberia. Ecological Society of America Annual Meeting, Sacramento, CA.

2013

Robinson, S.L. J.D. Schade, S.M. Natali, M.M.Loranty, C:N:P Stoichiometry as an indicator of nutrient limitation on an Alaskan hillslope. B13C-0494, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Yasuda, K.P*, M.M. Loranty, S.M Natali, J.D. Schade, Investigating variability in carbon and water dynamics along a hill slope in a tundra ecosystem underlain by permafrost. B21D-0517, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Lieberman-Cribbin, W*, M.M. Loranty, H.D. Alexander, L. T. Berner, S.M. Natali, On the distribution of permafrost carbon, plant functional type, and wildfire occurrence in northern high latitudes. B21D-0507, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Natali, S.M., A.L. Kholodov, V. Spektor, A.G. Bunn, J.D. Schade, M.M. Loranty, P. J. Mann, N.S. Zimov, S.P. Davydov, L.T. Berner, E. Webb, K. Heard, S. Shin*, S. Spawn, P. Han, Permafrost carbon pools in a larch-dominated watershed in northeast Siberia, GC22D-03, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Loranty, M.M., L.T. Berner, Vegetation controls on carbon, water, and energy dynamics with implications for permafrost thaw, GC22D-05, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Lebedev, V., M.M. Loranty, A.L. Kholodov, V. Spektor, Applicability of resistivity surveys for examination of heterogeneity in continuous permafrost, C43A-0663, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

Goetz, S.J., M.M. Loranty, P.S.A. Beck, S. Phillips, T. Damoulas, R.G. Pearson, Arctic Vegetation Change and Feedbacks under Future Climate, B32D-08, AGU Fall Meeting 9-13 Dec 2013. San Francisco, CA

2012

Alexander, H.D., S.P. Davydov, N. Zimov, M.M. Loranty, B. Petronio, P. Ganzlin, L.T. Berner, and M.C. Mack. High severity experimental burns in Siberian larch forests lead to rapid permafrost thaw. AGU Fall Meeting 3-7 Dec 2012. San Francisco, CA.

Loranty, M.M., L.T. Berner, S.J. Goetz, Y. Jin, and J.T. Randerson. Representing northern high latitude vegetation and albedo in earth system models. AGU Fall Meeting 3-7 Dec 2012. San Francisco, CA.

Goetz, S.J., M.M. Loranty, L.T. Berner, P.S.A. Beck, and R.G. Pearson High latitude vegetation impacts on snow albedo feedback to climate (Invited). AGU Fall Meeting 3-7 Dec 2012. San Francisco, CA.

*Taber, E, M.M. Loranty, and S.M. Natali Understory vegetation controls on terrestrial carbon flux in an Arctic boreal forest underlain by continuous permafrost. AGU Fall Meeting 3-7 Dec 2012. San Francisco, CA.

Loranty M.M., L.T. Berner, S.J. Goetz, Y. Jin, and J.T. Randerson. A biophysical analysis of latitudinal treeline. AMS First Conference on Atmospheric Biogeosciences 1 June 2012. Boston, MA.

2011

Berner, L., P.S.A. Beck, M.M. Loranty, H.D. Alexander, M.C. Mack, and S.J. Goetz. Quantifying post-fire biomass recovery in northeastern Siberia using hierarchical multi-sensor satellite imagery and field measurements. AGU Fall Meeting 5-9 Dec 2011. San Francisco, CA.

Pearson, R.G., S.J. Phillips, P.S.A. Beck, M.M. Loranty, T. Damoulas, and S.J. Goetz. Arctic greening under future climate change predicted using machine learning. AGU Fall Meeting 5-9 Dec 2011. San Francisco, CA. Poster Presentation

Jin, Y., J.T. Randerson, S.J. Goetz, P.S.A. Beck, M.M. Loranty, and M. Goulden. The influence of burn severity on post-fire vegetation recovery and albedo change during early succession in North American boreal forests. AGU Fall Meeting 5-9 Dec 2011. San Francisco, CA. Poster Presentation

Loranty, M.M., S.J. Goetz, M.C. Mack, H.D. Alexander, P.S.A. Beck. Measuring and modeling the effects of alternate post-fire successional trajectories on boreal forest carbon dynamics. AGU Fall Meeting 5-9 Dec 2011. San Francisco, CA. Poster Presentation

Goetz, S.J., M.M. Loranty*, L. Berner, Y. Jin, and J.T. Randerson. A biophysical analysis of latitudinal treeline. AGU Fall Meeting 5-9 Dec 2011. San Francisco, CA. *Presenting Author
Loranty, M.M., P.S.A. Beck, S.J. Goetz, L. Berner, Y. Jin, J.T. Randerson, H.D. Alexander, and M.C. Mack. Changes in albedo and surface energy budgets associated with high-latitude vegetation dynamics. NASA Carbon Cycle and Ecosystems Joint Science Workshop 3-7 October 2011. Alexandria, VA. Poster Presentation

H.D. Alexander, M.C. Mack, S.J. Goetz, M.M. Loranty, P.S.A. Beck, K. Earl. Stand age and tree density effects on carbon accumulation patterns in post-fire Cajander larch (*Larix cajanderi*) forests of Far Northeastern Siberia. ESA Annual Meeting. 7-12, August 2011, Austin, TX.
2010

Loranty, M.M., S. J. Goetz, E.R. Humphreys, P. Lafleur, A.V. Rocha, P.S. Beck, E. Rastetter, G.R. Shaver 2010 Satellite derived estimates of NEE for North American tundra ecosystems from 2003 - 2005 (Invited). AGU Fall Meeting 13-17 December 2010. San Francisco, CA.

Loranty, M.M., Y. Jin, P.S. Beck, S. J. Goetz 2010 Pan-Arctic albedo variability among tundra vegetation types: implications for ecosystem carbon cycling (Invited). AGU Fall Meeting 13-17 December 2010. San Francisco, CA.

Loranty, M.M., S.J. Goetz, M.C. Mack, H.D. Alexander, P.S.A. Beck, J.T. Randerson. Modeling the effects of post-fire successional trajectories on boreal forest carbon dynamics. ESA Annual Meeting. 1-6, August 2010, Pittsburgh, PA.

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Loranty, M.M., S. J. Goetz, E. B. Rastetter, A. V. Rocha, G. R. Shaver, E. R. Humphreys, P. Lafleur 2009 Satellite Driven Predictions of Tundra NEE Based on a Plot Scale Model. AGU Fall Meeting 14-18 December 2009. San Francisco, CA.

Mackay, D.S., A.R. Desai, S. Samanta, M.M. Loranty, B.E. Ewers. 2009 Quantifying Complexity and Data Needs for Coupled Models of Hydrological and Carbon Flux Processes. AGU Fall Meeting 14-18 December 2009. San Francisco, CA.

Beck, P.S.A., S.J. Goetz, M.M. Mack, H.D. Alexander, J. Randerson, M.M. Loranty, Y. Jin. 2009 The influence, implications and feedbacks of an intensifying fire regime in Alaska's boreal forest. AGU Fall Meeting 14-18 December 2009. San Francisco, CA.

Goetz, S.J., P. S. A. Beck, M.M. Loranty, M.C. Mack, H.D. Alexander, J.T. Randerson, Y. Jin. 2009 Responses of northern high latitude forests to recent climate change and fire disturbance. Forest Day 3 at COP15 United Nations Climate Change Conference Copenhagen 2009, 7-18 December 2009, Copenhagen, Denmark. poster & oral presentation.

Mackay, D.S., M.M. Loranty, B.E. Ewers, E. Traver, E.L. Kruger, and D.E. Roberts. Representativeness of plots for scaling hydrological and ecological processes in forests, Association of American Geographers Annual Meeting, Las Vegas, NV, March 22-27, 2009.

Loranty, M.M., D.S. Mackay, B.E. Ewers, E.L. Kruger, P.V. Bolstad, B. Cook, and R. Anderson. 2009. Linking form and function: using LiDAR to detect variable stomatal conductance, Association of American Geographers Annual Meeting, Las Vegas, NV, March 22-27, 2009.

2008

Mackay, D.S., M.M. Loranty, B.E. Ewers, E.L. Kruger, E. Traver, and D.E. Roberts. 2008. On the representativeness of plots for scaling ecohydrologic processes in forests, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H14A-07.

Loranty, M.M., D.S. Mackay, R.E. Anderson, B.E. Ewers, E.L. Kruger, P.V. Bolstad, B. Cook, E. Traver, and D.E. Roberts. 2008. Linking form and function: Using LiDAR to detect variable stomatal conductance, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract B43C-0445. Poster Presentation

Ewers, B.E., D.S. Mackay, J.L. Angstmann, M.M. Loranty. 2008. Connecting temporal and spatial scaling of transpiration from trees to stands: the use of sap flux measurements and environmental drivers, 7th International Workshop on Sap Flow, Seville, Spain, October 21-24, 2008.

Ewers, B.E., D.S. Mackay, M.M. Loranty, S. Samanta, K. Naithani, and B. Mitra. 2008. Improving models of plant transpiration in time and space by incorporating hydraulic controls over canopy stomatal conductance, Ecological Society of America Annual Meeting, 2008.

Loranty, M.M., D.S. Mackay, R. Anderson, P.V. Bolstad, B.D. Cook, B.E. Ewers, E.L. Kruger, D.E. Roberts, E. Traver. 2008. Using LiDAR to detect factors controlling variations in forest transpiration, Association of American Geographers Annual Meeting, April 15-19, 2008.

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Loranty, M.M., D.S. Mackay, D.E. Roberts, B.E. Ewers, E.L. Kruger, E. Traver. 2007. Reference Canopy Stomatal Conductance Explains Spatiotemporal Patterns of Tree Transpiration, Abstract H33C-1456. American Geophysical Union Fall Meeting, San Francisco, CA, December 10-14, 2007. Poster Presentation

Loranty, M.M., D.S. Mackay, B.E. Ewers, E. Traver, and E.L. Kruger. 2007. Using geostatistics to compare spatial patterns of transpiration across forest transitions. Association of American Geographers 2007 Annual Meeting, San Francisco, CA.

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Traver, E., B.E. Ewers, M.M. Loranty, and D.S. Mackay. 2006. Does spatial variation in soil characteristics affect tree transpiration responses to vapor pressure deficit?, Eos Trans. AGU, 87(52), Abstract B41E-0233. American Geophysical Union Fall Meeting, San Francisco, CA, December 11-15, 2006. Poster Presentation

Roberts, D.E., D. Mackay, M.M. Loranty, B. Ewers, E. Kruger. 2006. Examining variability of methods for determining within plot soil moisture content, Eos Trans. AGU, 87(52), Abstract H11F-1320. American Geophysical Union Fall Meeting, San Francisco, CA, December 11-15, 2006. Poster Presentation

Loranty, M.M., D.S. Mackay, D.E. Roberts, B.E. Ewers, E.L. Kruger, E. Traver. 2006. Incorporating spatially explicit crown light competition into a model of canopy transpiration, *Eos Trans. AGU*, 87(52), Abstract H13A-1369. American Geophysical Union Fall Meeting, San Francisco, CA, December 11-15, 2006. Poster Presentation

Ewers, B.E., E. Traver, J. Angstmann, J. Adelman, M.M. Loranty, D.S. Mackay. 2006. Quantifying and Explaining Spatial Patterns of Transpiration Across Environmental Gradients Using Plant Hydraulics and Geostatistics. IUFRO-Canopy Processes Meeting Oct. 7th-12th, 2006 Northeastern US.

2005

Mackay, D.S., E.L. Kruger, B.E. Ewers, M.M. Loranty, and J.D. Adelman. 2005. Leaf-level light responses and canopy light distribution corroborate hydraulic controls on spatially variable canopy transpiration. American Geophysical Union Fall Meeting, San Francisco, CA, December 5-9.

Loranty, M.M., D.S. Mackay, B.E. Ewers, J.D. Adelman, and E.L. Kruger. 2005. Inferences of competitive effects on transpiration from spatial patterns in stomatal conductance. American Geophysical Union Fall Meeting, San Francisco, CA, December 5-9.

Ewers, B.E., J.D. Adelman, D.S. Mackay, M.M. Loranty, E. Traver, and E.L. Kruger. 2005. Use of Geostatistics and plant hydraulics to explain patterns of transpiration across environmental gradients. American Geophysical Union Fall Meeting, San Francisco, CA, December 5-9.

Mackay, D.S., M.M. Loranty, J. Adelman, B.E. Ewers, and E.L. Kruger. 2005. Spatially explicit observations and modeling of forest canopy transpiration along moisture gradients in semi-arid and humid climates. Association of American Geographers Annual Meeting, Denver CO, April 7. 2004

Loranty, M.M., B.E. Ewers, D.S. Mackay, J. Adelman, and E.L. Kruger. 2004. Spatially explicit observations of forest canopy transpiration elucidate simple transpiration scalars across environmental gradients. American Geophysical Union Fall Meeting, San Francisco, CA, December 12-17. Poster Presentation

Mackay, D.S., M.M. Loranty, J. Adelman, B.E. Ewers, and E.L. Kruger. 2004. Spatially explicit observations elucidate simple scalars of forest canopy transpiration along moisture gradients in semi-arid and humid climates. American Geophysical Union Fall Meeting, San Francisco, CA, December 12-17. Poster Presentation