

MICHAEL M. LORANTY

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PROFESSIONAL PREPARATION

Postdoctoral Fellow, 2009-2012 – Woods Hole Research Center – Advisor Dr. Scott J. Goetz
Ph.D., 2009 - University at Buffalo SUNY – Geography – Advisor: Dr. D. Scott Mackay
Dissertation: *Towards a mechanistic understanding of spatial patterns of forest transpiration, and its implications for scaling.*
B.S., 2003 - West Virginia Wesleyan College - Environmental Science - Magna cum Laude with Honors

PROFESSIONAL APPOINTMENTS

2018-Present	Associate Professor, Department of Geography, Colgate University
2012-2018	Assistant Professor, Department of Geography, Colgate University
2009-2012	Postdoctoral Fellow, Woods Hole Research Center
2003-2004	Research Assistant, West Virginia Wesleyan College

PEER REVIEWED PUBLICATIONS

*Colgate Undergraduate or ‡Colgate Postdoctoral advisee

Published & In Press

- [58] Schuur, E. A. G., Abbott, B. W., Commane, R., Ernakovich, J., Euskirchen, E., Hugelius, G., Grosse, G., Jones, M., Koven, C., Leshyk, V., Lawrence, D., **Loranty, M. M.**, Mauritz, M., Olefeldt, D., Natali, S., Rodenhizer, H., Salmon, V., Schädel, C., Strauss, J., ... Turetsky, M. (2022). Permafrost and Climate Change: Carbon Cycle Feedbacks From the Warming Arctic. *Annual Review of Environment and Resources*, 47(1), 343–371. <https://doi.org/10.1146/annurev-environ-012220-011847>
- [57] Kropp, H., **Loranty, M. M.**, Rutter, N., Fletcher, C. G., Derksen, C., Mudryk, L., & Todt, M. 2022. Are vegetation influences on Arctic–boreal snow melt rates detectable across the Northern Hemisphere? *Environmental Research Letters*, 17(10), 104010. <https://doi.org/10.1088/1748-9326/ac8fa7>
- [56] Webb, E. E., Liljedahl, A. K., Cordeiro, J. A., **Loranty, M. M.**, Witharana, C., & Lichstein, J. W. 2022. Permafrost thaw drives surface water decline across lake-rich regions of the Arctic. *Nature Climate Change*, 12(9), 841-846. <https://doi.org/10.1038/s41558-022-01455-w>
- [55] **Loranty, M. M.** 2022. Thermal bridging by Arctic shrubs. *Nature Geoscience*. 15, 515-516 <https://doi.org/10.1038/s41561-022-00977-4> (Invited News & Views)
- [54] Abbott, B. W., Brown, M., Carey, J. C., Ernakovich, J., Frederick, J. M., Guo, L., Hugelius, G., Lee, R. M., Loranty, M. M., Macdonald, R., Mann, P. J., Natali, S. M., Olefeldt, D., Pearson, P., Rec, A., Robards, M., Salmon, V. G., Sayedi, S. S., Schädel, C., ... Zolkos, S. 2022. We Must Stop Fossil Fuel Emissions to Protect Permafrost Ecosystems. *Frontiers in Environmental Science*, 10. <https://www.frontiersin.org/article/10.3389/fenvs.2022.889428> (Invited Special Issue Contribution)
- [53] ‡*Talucci, A.C.*, **Loranty, M.M.**, and Alexander, H.D., 2022. Spatial patterns of unburned refugia in Siberian larch forests during the exceptional 2020 fire season. *Global Ecology and Biogeography*. <https://doi.org/10.1111/geb.13529> (Invited Special Issue Contribution)

- [52] Hewitt, R., Izbicki, B., Natali, S.M., **Loranty, M.M.**, Alexander, H.D., Walker, X., and Mack, M.C. 2022. Increasing tree density accelerates stand-level nitrogen cycling at the taiga-tundra ecotone in northeastern Siberia. *Ecosphere*. 13(7), e4175. <https://doi.org/10.1002/ecs2.4175>
- [51] Curasi, S.R., Fetcher, N., Hewitt, R., Lafleur, P., **Loranty, M.M.**, Mack, M.C., May, J., Myers-Smith, I., Natali, S.M., Oberbauer, S., Parker, T., Sonnentag, O., Vargas, S.Z., Wullschlegel, S.D., and Rocha A.V. 2022. Range shifts in a foundational sedge induce large Arctic ecosystem carbon losses and gains. *Environmental Research Letters*. 17(4) 045024 <https://doi.org/10.1088/1748-9326/ac6005>
- [50] Curasi, S. R., Klupar, I., **Loranty, M. M.**, & Rocha, A. V. 2022. An Open-Source, Durable, and Low-Cost Alternative to Commercially Available Soil Temperature Data Loggers. *Sensors*, 22(1), 148. <https://doi.org/10.3390/s22010148>
- [49] †*Talucci, A.C., Loranty, M.M., & Alexander, H.D., 2022. Siberian taiga and tundra fire regimes from 2001-2020. Environmental Research Letters. 17(2) 025001 https://doi.org/10.1088/1748-9326/ac3f07 (Invited Special Issue Contribution)*
- [48] **Loranty, M.M.**, Alexander, H.D., Kropp, H., Talucci, A.C., and Webb, E.E., 2021. Siberian ecosystems as drivers of cryospheric climate feedbacks in the terrestrial Arctic. 3(141) *Frontiers in Climate*. <https://doi.org/10.3389/fclim.2021.730943> (Invited Special Issue Contribution)
- [47] Muzalevskiy, K., Ruzicka, R., Roy, A., **Loranty, M.M.**, Vasiliev, A. 2021. The classification of frozen/thawed surface state of Arctic soil based on SMAP and GCOM-W1 brightness temperature observations at 1.4 GHz and 6.9 GHz. *Remote Sensing Letters* 12(11), 1073-1081. <https://doi.org/10.1080/2150704X.2021.1963497>
- [46] Webb, E.E., **Loranty, M.M.**, and Lichstein, J.W., 2021. Surface water, vegetation and fire as drivers of the Arctic-Boreal albedo feedback *Environmental Research Letters* 16(8), 084046. <https://doi.org/10.1088/1748-9326/ac14ea>
- [45] Walker, X., Alexander, H.D., Berner, L. Boyd, M., **Loranty, M.M.**, Natali, S.M., and Mack, M.C. 2021. Positive response of tree productivity to warming is reversed by increased tree density at Arctic treeline. 2021. *Canadian Journal of Forest Research*, 51(9), 1323-1338 <https://doi.org/10.1139/cjfr-2020-0466>
- [44] Poyatos, R., and 100+ others including **M.M. Loranty**. 2021. Global transpiration from sap flow measurements: the SAPFLUXNET database. *Earth System Science Data*, 13(6), 2607–2649. <https://doi.org/10.5194/essd-13-2607-2021>
- [43] Paulson, A.K., Peña, H., Alexander, H.D., Davydov, S.P., **Loranty, M.M.**, Mack, M.C., and Natali, S.M. 2021. Understory plant diversity and composition across a post-fire tree density gradient in a Siberian Arctic boreal forest 2021. *Canadian Journal of Forest Research*. 51(5): 720-731. <https://doi.org/10.1139/cjfr-2020-0483>
- [42] †*Kropp, H. Loranty, M.M. and 50+ others. 2020. Shallow soils are warmer under trees and small shrubs across Arctic and Boreal ecosystems. Environmental Research Letters 16(1), 015001. https://doi.org/10.1088/1748-9326/abc994*
- [41] **McCulloch, L.A., +Kropp, H., Kholodov, A.K., Cardelus, C.L., Natali, S.M, and Loranty, M.M. 2020. Variation in fine root characteristics and nutrient dynamics across Alaskan ecosystems. Ecosystems. https://doi.org/10.1007/s10021-020-00583-8*
- [40] †*Talucci, A.C., *Forbath, E., Kropp, H., Alexander, H.D., DeMarco, J., Paulson, A.K., Zimov, N.S., Zimov, S. and Loranty, M.M., 2020. Evaluating Post-Fire Vegetation Recovery in Cajander Larch Forests in Northeastern Siberia Using UAV Derived Vegetation Indices. Remote Sensing, 12(18), p.2970. https://doi.org/10.3390/rs12182970*
- [39] McLaughlan, 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. 2020, Fire as a fundamental ecological process: research advances and frontiers. *Journal of Ecology*, 108(5), pp.2047-2069
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- [37] 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
- [36] 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. Commane, 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, <https://doi.10.1038/s41558-019-0592-8>
- [35] **Contributing Author in:** Meredith, M., M. Sommerkorn, S. Cassotta, C. Derksen, A. Ekaykin, A. Hollowed, G. Kofinas, A. Mackintosh, J. Melbourne-Thomas, M.M.C. Muelbert, G. Ottersen, H. Pritchard, and E.A.G. Schuur, 2019: *Polar Regions. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)].
- [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. <https://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. <https://doi:10.1029/2018JD028719>
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- [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. Reviews and syntheses: Changing ecosystem influences on soil thermal regimes in northern high-latitude permafrost regions *Biogeosciences* 15(17), 5287–5313. <https://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. <https://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. <https://doi:10.1371/journal.pone.0194014>
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- [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.

In Review

- Schuur, E.A.G, et al including Loranty, M.M. *In Revision* Permafrost and Climate Change: Carbon Cycle Feedbacks from the Warming Arctic. *Annual Review of Environment and Resources*
- Kropp, H., **Loranty, M.M.**, Rutter, N., Fletcher, C., Derksen, C., Mudryk, L., and Todt, M., *In Revision*, Differences in snowmelt rates between vegetation types across the Arctic-Boreal region. *Environmental Research Letters*
- Muzalevskiy, K., Ruzicka, Z., Roy, A., **Loranty, M.M.**, Vasiliev, A. *In Review* The classification of frozen/thawed topsoil state by spectral gradient methods based on SMAP and GCOM-W1 radiometric data. *The Cryosphere*
- *Bendavid, N.S., **Loranty, M.M.**, Alexander, H.D., Davydov, S.P., Kropp, H., Mack, M.C., Natali, S.M., Spawn-Lee, S.A., & Zimov, N.S., *In Review*, Shrubs compensate for tree leaf area index variation and influence vegetation indices in post-fire Siberian larch forests. *Journal of Geophysical Research - Biogeosciences*

In Prep

Several manuscripts

GRANTS & FELLOWSHIPS – Pending

None

GRANTS & FELLOWSHIPS – Funded (~\$1.1 million total)

Alexander, H. D., **Loranty, M. M.**, Mack, M. C., DeMarco, J., Lichstein, J., McEwan, R., Spektor, V, Davydov, S. 2017 – 2021. Collaborative Research: Fire Influences on Forest Recovery and Associated Climate Feedbacks in the Siberian Arctic. National Science Foundation Arctic System Sciences. (\$1.6 million; ML portion, \$392,179).

Loranty, M.M., Rutter, N., Fletcher, C., Kropp, H. 2016-2018. Impacts of boreal climate feedbacks on climate change. Colgate University Picker Interdisciplinary Science Institute (\$136,545)

Loranty, M.M., Davydov, S.P. 2016 – 2017. Disentangling tree and shrub phenology in Siberian taiga ecosystems. National Geographic Committee on Research and Exploration (\$20,395)

Natali, S.M., **Loranty, M. M.**, Kholodov, A.L. 2014 – 2018. Collaborative Research: Vegetation and ecosystem impacts on permafrost vulnerability. National Science Foundation Arctic System Sciences. (\$1.2 million; ML portion, \$443,250).

Alexander, H. D., Natali, S., **Loranty, M. M.**, Mack, M. C., Goetz, S. 2013 – 2017. Collaborative Research: Fire regime influences on carbon dynamics of Siberian boreal forests. National Science Foundation, Office of Polar Programs. (\$900,592; ML portion: \$96,039).

Loranty, M.M. 2012 – Present. Colgate University Research Council Student Wage Grants (~\$4000)

Loranty, M.M. 2008, College of Arts and Sciences Dissertation Fellowship, University at Buffalo SUNY

Loranty, M.M. 2004–2008, NSF IGERT Fellow, Geographic Information Science University at Buffalo SUNY

Loranty, M.M. 2003. Award for Excellence in Research, 2003, West Virginia Wesleyan College

Loranty, M.M. 1999–2003. Presidential Scholarship, West Virginia Wesleyan College

GRANTS & FELLOWSHIPS – Unfunded

Loranty, M. M. MCA: Soil temperature consequences of vegetation impacts on snowpack heterogeneity in Siberian larch forests. National Science Foundation Arctic Natural Sciences. (\$223,041)

Kropp, H., **Loranty, M.M.**, Tape, K.D. 2021. Collaborative Research: Thermal consequences of evapotranspiration-soil moisture interactions in Arctic ecosystems. National Science Foundation Office of Polar Programs (\$~654,000 ; ML portion \$179,771).

Loranty, M.M., Talucci, A.C., Kerby, J.T., 2020. Resolving heterogeneity in tundra ecosystems properties and associated impacts on spectral indices across scales using drones and smallsat data. NASA (\$132,819)

Kropp, H., **Loranty, M.M.**, Tape, K.D. 2019. Collaborative Research: Thermal consequences of evapotranspiration-soil moisture interactions in Arctic ecosystems. National Science Foundation Office of Polar Programs (\$~900,000 ; ML portion \$662,353).

Loranty, M.M., Tape, K.D., Young, J. 2015. Ecosystem responses and feedbacks to changing hydrologic and permafrost conditions in arctic and boreal Alaska. NASA Terrestrial Ecology Program. (\$578,223; ML portion \$427,986)

Schade, J., Natali, S.M., Savage, K., **Loranty, M.M.**, Barnes, R.T., Hernandez, D.L., Evans, M.J., Fischer, D.G., Biswas, A., LeRoy, C.J., Martin, E. 2015. Collaborative Research: Infusing Climate Change Research into College Science curriculum through the Undergraduate Carbon Observatory Network (UCON) National Science Foundation Division of Undergraduate Education (\$712,280; ML portion \$136,891)

Goetz, S.J., Kanevskiy, M., Romanovsky, V., Blair, J., Jorgenson, M.T., Kimball, J., Mack, M.C., Dubayah, R., Kim, E., **Loranty, M.M.**, Moghaddam, M., Schuur, E.A.G., Simard, M., Natali, S.M., Miller, C. 2014. Mapping, Monitoring, Modeling and Scaling Changes in Alaskan Permafrost Ecosystems (M3SCAPE). NASA Earth Ventures (\$29.2 million; ML portion \$397,806)

Rocha, A.V., Rastetter, E., **Loranty, M.M.** 2013. COFLUX: COupled H₂O and C FLUXes eXperiment in arctic tundra under warming. NASA Carbon Cycle Science (\$~500,000; ML portion \$51,345)

Loranty, M.M., Goetz, S.J., Mack, M.C., Natali, S.M. 2013. Collaborative Research: Quantifying the History and Carbon Consequences of Fire in the Siberian Arctic Tundra. National Science Foundation Office of Polar Programs (\$~800,000; ML portion \$198,105)

Media Coverage of Research

- [Study Finds Permafrost Deteriorating Faster Than Anticipated](#), Colgate News 2022
- [Colgate Researchers Use UAVs for Wildfire Research in Russia](#), Colgate News, 2020
- [Vegetation Impacts on Permafrost](#), PolarTrec Journal, 2016
- [Team VIPER in the Arctic](#), Colgate Scene, 2016
- [Vegetation May Speed Arctic Warming](#), Scientific American, 2013
- Taking the Pulse of the Forest, [Live Science](#) & [NSF](#), 2009

Professional Development & Synergistic Activities

- Arctic Boreal Carbon Flux Upscaling Workshop (Oct 2020)
- High Latitude Drone Ecology Network working group meeting (Mar 2019)
- Arctic Data Center Training (Jan 2019)
- Permafrost Carbon Network Annual Meeting (2015 – 2017, 2019)
- 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 (Feb 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 (Aug 2006)
- Vespucci Initiative Summer Institute on Geographic Information Science (Jul 2006)

TEACHING

Colgate University (5 undergraduate courses per Academic Year)

FSEM – First Year Seminar (2014, 2017, 2019, 2021)
 CORE 103 – Remote Sensing of Environment (2015, 2017)
 ENST 309 - Australian Environmental Issues (2018)
 GEOG 131 – Environmental Geography (2012, 2013, 2014, 2017, 2018)
 GEOG 205 – Climate and Society (2014, 2019)
 GEOG 245 – Introduction to GIS Lecture (2016, 2017, 2020, 2021, 2022)
 GEOG 245L – GIS Laboratory (2014, 2016, 2017, 2019, 2020, 2021, 2022)
 GEOG 250 – Research Methods in Geography (2019, 2020)
 GEOG 331 – Environmental Data Science (2020, 2022)
 GEOG 336 – Biogeography (2012, 2014, 2016, 2022)
 GEOG 338 – Earth System Ecology (2013, 2014, 2016, 2017, 2019)
 GEOG 346 – Advanced GIS (2015, 2016)
 GEOG 347 – Satellite Image Analysis (2017)
 GEOG 401 – Senior Research Seminar (2013, 2018, 2019)

University at Buffalo SUNY

Teaching Assistant; GEO 106 - Earth Systems Science – Undergraduate Level (2004-2006)
 Course Instructor – GEO 481/506 - Introduction to GIS – Undergraduate/Graduate Level (2008)
 Course Instructor - GEO 597 - Applied Geostatistics – Graduate Level – (2007)

MENTORING

Postdoctoral Advisees

Anna Talucci 2019 - 2021
Heather Kropp 2016 – 2018

Undergraduate Thesis Advisees

Ana Tobio, 2018 Geography Honors Thesis
Damis Yancopoulos, 2018 Geography Honors Thesis
Sal Curasi, 2015 Geography Honors Thesis
Jock Fullmer, 2014 Geography Honors Thesis
Wil Lieberman-Cribbin, 2014 Geography Honors Thesis

Undergraduate Summer Research Advisees

Emily Balog, 2022, Topic: Science Communication
Davi Bendavid, 2022, Topic: Leaf area dynamics in postfire Siberian larch forests
Aryaman Chobey, 2022, Topic: Using machine learning to map Arctic vegetation
Davi Bendavid, 2021, Topic: Leaf area dynamics in postfire Siberian larch forests
Elena Forbath, 2020, Topic: Mapping post-fire vegetation with UAVs in Siberian boreal forests
Elena Forbath, 2019, Topic: Mapping post-fire vegetation with UAVs in Siberian boreal forests
Sabrina Farmer, 2017, Topic: Understory plant traits in Siberian boreal forests
Claudia Buszta, 2016, Topic: NDVI and permafrost dynamics in Alaskan tundra
Ana Tobio, 2016, Topic: Water fluxes of understory vegetation in Siberian boreal forests
Alaina Norzagaray, 2015, Topic: Active layer dynamics in Alaskan ecosystems
Karly Uy, 2015, Topic: Active layer dynamics in Alaskan ecosystems
Lindsay McCulloch, 2015, Topic: Fine root dynamics in Alaskan ecosystems
Sal Curasi, 2014, Topic: Carbon fluxes of water track vegetation in Siberian tundra
Kira Yasuda, 2013, Topic: Active layer dynamics in Alaskan tundra ecosystems
Eric Taber, 2012, Topic: Carbon fluxes of understory vegetation in Siberian boreal forests

Graduate Student Committee Member

Elizabeth Webb	University of Florida	PhD	2018 - 2022
Anne-Katrin Selbmann	University of Bayreuth, Germany	MS	2018 - 2019
Homero Peña	Mississippi State University	MS	2015 - 2017
Aaron White	University of Texas at Brownsville	MS	2014 - 2015

External Thesis Reviewer

Cory Wallace	Wilfried Laurier University, Canada	PhD	2021
Manuel Helbig	University de Montreal, Canada	PhD	2017

SERVICE

Professional Affiliations

American Geophysical Union (2004 – present)

Disciplinary Service

- **Panel Reviewer** for National Science Foundation Office of Polar Programs (2019, 2020, 2021), and Division of Environmental Biology (2022)

- **Proposal Reviewer** for National Science Foundation: Division of Earth Sciences, Division of Environmental Biology, Geography and Spatial Science Program, and Office of Polar Programs (2015-2022)
- **Session Organizer** American Geophysical Union Fall Meeting (2020)
- **Steering Committee Member** Permafrost Carbon Network (2019 – present)
- **Proposal Reviewer** for Ludwig Maximilian University postdoctoral program (2019)
- **Committee Chair**, American Geophysical Union Biogeosciences Section Fall Meeting Planning Committee (2018)
- **Committee Member**, American Geophysical Union Biogeosciences Section Fall Meeting Planning Committee (2016-2017)
- **Program Judge** American Geophysical Union Fall Meeting Outstanding Student Presentation Awards (2013-2015)
- **Session Organizer** American Geophysical Union Fall Meeting (2012)
- **Session Organizer** Association of American Geographers Annual Meeting (2009)

Colgate University Service

- South Africa Study Group Director (Fall 2022)
- Associate Director of High-Performance Computing and Research search committee (2022)
- DEI in STEM working group member (2021 – present)
 - STARS – accelerated research scholar working group (2021-present)
- Brown Commons Faculty Affiliate (2017-present)
- Research Computing Committee (appointed member, 2016-present)
- Faculty Liaison, Men’s Lacrosse (2015-present)
- CORE SP Mentoring Program (mentee Rob Davis, Dept. of Mathematics, 2021-22)
- Committee on Athletics (elected Chair, 2019-2022)
- Siberia Extended Study co-Director (Aug, 2019)
- CIO search committee (appointed member, 2019)
- University Property Committee (elected member, 2018 – 2021)
- Geography and Environmental Studies Australia Study Group Director (Fall, 2018)
- Assistant Controller search committee (2018)
- Assessment Committee (elected member, 2016-2018)
- Watson Fellowship Committee (appointed member, 2016)
- Faculty Nominating Committee (elected member, 2013-2016)
- Search Committee, Assistant Director of Outdoor Education (2014)

Departmental Service

- Co-chair Geography Visiting Assistant Professor search committee (2 positions; 2022)
- Unlearning Racism in Geoscience (URGE) working group member (with Geology Dept, 2021)
- Assisted drafting Dept Self-Study (2021)
- Geography Department representative to the Environmental Studies Program Steering Committee (2019 – present)
 - ENST DEI sub-committee (2021-22)
 - ENST Methods Curriculum sub-committee (2021-22)
 - ENST Natural Science sub-committee (2021-22)
- Gamma Theta Upsilon Geography Honor Society, Faculty Advisor (2016-2018)

Peer Review Activity (~15 reviews/year)

Agricultural and Forest Meteorology, Arctic Science, Biogeosciences, Climatic Change, Earth Interactions, Ecohydrology, Ecological Applications, Ecological Modeling, Ecology, Ecosystems, Environmental Research Letters, Geophysical Research Letters, Global Change Biology, Hydrological Processes, Journal of Biogeography, Journal of Geophysical Research –Biogeosciences, Journal of Hydrometeorology, Nature Climate Change, Nature Communications, Nature Geoscience, Oecologia, Permafrost and Periglacial Processes, PLoS ONE, Polar Geography, Polar Science, Remote Sensing, Remote Sensing of Environment, Science, Science of the Total Environment

INVITED LECTURES

Loranty, M.M. Fire and Ice: Climate Change, Wildfire, and Permafrost Dynamics in Northeastern Siberia. Sept 2021. ENST Brownbag, Colgate University, Hamilton, NY, USA

Interactions between climate, wildfire, and permafrost in Siberian boreal forests. October 2020. Department of Geography, University at Buffalo SUNY. Virtual Seminar Series.

Addressing climate change at Colgate: from carbon neutrality to Arctic research. May 2019. Bicentennial All-Class Reunion, Colgate University. Hamilton, NY USA.

Fire severity influences on ecosystems and climate in Siberian boreal forests. October 2018. Hawkesbury Institute for the Environment, University of Western Sydney. Penrith, NSW AUS

Wildfire impacts on ecosystem structure and associated climate feedbacks in Siberian boreal forests. August 2018. Center for Sustainable Ecosystem Solutions, University of Wollongong. Wollongong, NSW AUS.

Wildfire impacts on ecosystem structure and associated climate feedbacks in Siberian boreal forests. June 2018. Western New York Youth Climate Action Summit. Buffalo, NY USA

Wildfire impacts on ecosystem structure and associated climate feedbacks in Siberian boreal forests. April 2018. Social Science Division Colloquium Series, Colgate University. Hamilton, NY USA

Wildfire impacts on ecosystem structure and associated climate feedbacks in Siberian boreal forests. January 2018. Geoscience Department Seminar Series, University of Massachusetts, Amherst. Amherst, MA USA

Permafrost ecosystems in a warming world: functional consequences and climate feedbacks. January 2015. Department of Geography, Northumbria University. New Castle, UK

Land surface biophysics and climate feedbacks in high northern latitude ecosystems. January 2013. Department of Physics, Colgate University. Hamilton, NY USA

Terrestrial ecosystem controls on atmospheric water and carbon dynamics. November 2011. Department of Geography, Colgate University. Hamilton, NY USA

Quantifying tundra carbon cycle and albedo dynamics. May 2011. Department of Geography, James Madison University. Harrisonburg, VA USA

Quantifying tundra carbon cycle and albedo dynamics. February 2011. Department of Geography, Ohio State University. Columbus, OH USA

Towards a mechanistic understanding of spatial patterns of transpiration and its implications for scaling. July 2008. Woods Hole Research Center. Falmouth, MA USA

Towards a mechanistic understanding of spatial patterns of transpiration and its implications for scaling. March 2008. National Institute of Water and Atmospheric Research. Christchurch, NZ

Towards a mechanistic understanding of spatial patterns of transpiration and its implications for scaling. January 2008. Moorcroft Laboratory, Harvard University. Cambridge, MA USA

Towards a mechanistic understanding of spatial patterns of transpiration and its implications for scaling. January 2008. Department of Geography, Ohio University. Athens, OH USA

Spatial observations of forest canopy transpiration. February 2005. Department of Geography, University at Buffalo SUNY. Buffalo, NY USA

CONTRIBUTED CONFERENCE ABSTRACTS (* indicates Colgate student author)

2022

*Bendavid, N., Loranty, M. M., Alexander, H. D., Davydov, S. P., Kropp, H., Mack, M. C., Natali, S., Spawn, S., & Zimov, N. (2022, May 14). *Post-fire tree and shrub cover influences on vegetation indices in Siberian larch forests*. 16th International Circumpolar Remote Sensing Symposium
<https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/907905>

2021

*Bendavid, N., Loranty, M. M., Alexander, H. D., Davydov, S. P., Kropp, H., Mack, M. C., Natali, S., Spawn, S., & Zimov, N. (2021, December 14). *Shrubs compensate for tree leaf area index (LAI) variation and influence vegetation indices in post-fire Siberian larch forests*. AGU Fall Meeting 2021.
<https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/907905>

Loranty, M. M., Talucci, A., Berner, L. T., Breen, A. L., Buma, B., Delcourt, C., Dieleman, C. M., Douglas, T. A., Frost, G. V., Gaglioti, B., Gibson, C., Hewitt, R. E., Hollingsworth, T., Lara, M. J., Mack, M. C., Manies, K., Natali, S., O'Donnell, J. A., Olefeldt, D., ... Walvoord, M. A. (2021, December 14). *A Synthesis of Wildfire Impacts on Permafrost Thaw Depth Across Arctic and Boreal Ecosystems*. AGU Fall Meeting 2021. <https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/818424>

Talucci, A., Loranty, M. M., & Alexander, H. D. (2021, December 14). *Fire Regimes across Eastern Siberian Taiga and Tundra from 2001-2020*. AGU Fall Meeting 2021.
<https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/818963>

2020

*Forbath, E., Loranty, M. M., Talucci, A., DeMarco, J., Alexander, H. D., Paulson, A., & Zimov, N. (2020, December 14). *Assessing relationships between vegetation indices and plant community composition following wildfire in Siberian larch forests via UAV remote sensing*. AGU Fall Meeting 2020. <https://agu.confex.com/agu/fm20/meetingapp.cgi/Paper/697156>

- Loranty, M. M., Forbath, E., Talucci, A., Alexander, H. D., DeMarco, J., Paulson, A., & Zimov, N. (2020, December 14). *Comparing the ability of UAVs and high-resolution satellite data to resolve post-fire patterns of permafrost thaw and vegetation in Siberian larch forests*. AGU Fall Meeting 2020. <https://agu.confex.com/agu/fm20/meetingapp.cgi/Paper/673067>
- Talucci, A., Loranty, M. M., & Alexander, H. D. (2020, December 14). *Characterizing wildfire activity across northeastern Siberia 2001-2020*. AGU Fall Meeting 2020. <https://agu.confex.com/agu/fm20/meetingapp.cgi/Paper/727608>

2019

- J. DeMarco, S. Frankenberg, A. Paulson, H.D. Alexander, J.W. Lichstein, E. Borth, R.E. Hewitt, M.M. Loranty, M.C. Mack, R.W. McEwan. Post-fire seedling recruitment in high-latitude Siberian larch forests associated with lower graminoid composition. B23H-2350 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- A.L. Kholodov, V.E. Romanovsky, V. Spektor, D. Federov-Davydov, V. Andreeva, S.M. Natali, and M.M. Loranty. Response of permafrost temperature regime in North-Eastern Yakutia to recent climate changes. GC21E-1280. American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- A. Paulson, H.D. Alexander, J. DeMarco, R.E. Hewitt, B. Izbicki, J.W. Lichstein, M.M. Loranty, M.C. Mack, R.W. McEwan, and V. Spektor. Post-fire larch recruitment in central Siberia is highest in areas with increased fire severity. B23H-2528. American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- S.R. Curasi, N. Fetcher, R.E. Hewitt, P. Lafleur, M.M. Loranty, M.C. Mack, J.L. May, I.H. Myers-Smith, S.M. Natali, S.F. Oberbauer, T.C. Parker, O. Sonnentag, S. Wullschleger, A.V. Rocha. Biogeographical constraints on a tussock forming sedge and its impact on near-surface Arctic carbon stocks. B13D-02. American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- E. Webb, J.W. Lichstein, M.M. Loranty. Vegetation dynamics as drivers of albedo change in Arctic and Subarctic ecosystems. B23G-2498. American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- H.D. Alexander, A. Paulson, J. DeMarco, J.W. Lichstein, M.M. Loranty, M.C. Mack, R.E. Hewitt, R. W. McEwan, E. Borth, S. Frankenberg, N.S. Zimov, S.P. Davydov, and V. Spektor. Post-fire larch recruitment patterns in the Siberian Arctic indicate forest loss in many areas. B23H-2529 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- Kropp, H., M.M. Loranty, S.M. Natali, A.L. Kholodov, H.D. Alexander, M. Geockede, N.S. Zimov. Differences in transpiration between high latitude upland and floodplain shrubs: implications for ecosystem energy balance. B23G-2488. American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- Loranty, M.M., H. Kropp, A.L. Kholodov, S.M. Natali, H.D. Alexander, N.S. Zimov. Forest density influences on surface energy and soil thermal dynamics in Siberian larch forests underlain by permafrost. B23G-2489. American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 Dec, 2019
- Loranty, M.M., H. Kropp, A.L. Kholodov, S.M. Natali, H.D. Alexander, N.S. Zimov. Forest density influences on surface energy and soil thermal dynamics in Siberian larch forests underlain by permafrost. EGU2019-1851. European Geophysical Union General Assembly, Vienna, Austria, 7-12, Apr, 2019

2018

- H. Kropp, M.M. Loranty and 40+others. The influence of vegetation on shallow soil and air temperature coupling: a Pan-Arctic synthesis. B31F-2570 AGU Fall Meeting, Washington D.C. 10-14 Dec

- A.K. Selbmann, M.M. Loranty, S.M. Natali, and M. Wegmann. Assessment of wildfire severity and vegetation recovery in tundra ecosystems using time series of satellite derived vegetation indices from the Yukon-Kuskokwim Delta, Alaska. B31E-2491 AGU Fall Meeting, Washington D.C. 10-14 Dec
- S.M. Natali and 50+ others including M.M. Loranty. A pan-Arctic synthesis of nongrowing season respiration: Key drivers and responses to changing climate. B23-A01. AGU Fall Meeting, Washington D.C. 10-14 Dec
- 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, SP. 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, SA.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, SA.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
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- 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.

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- 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.

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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.

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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.

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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.

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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.

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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

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