

Marguerite Mauritz

Email: marguerite.mauritz@nau.edu

Postdoctoral Researcher

Department of Biology, Center for Ecosystem Science and Society (ECOSS)
Northern Arizona University, Flagstaff, AZ 86004

Research Interests

Using field and lab CO₂ flux and CO₂ isotope methods to understand the impact of permafrost thaw on arctic carbon (C) cycle, C stabilisation mechanisms in soil, plant-microbe interactions, C priming interactions

Education

PhD Joint Doctoral Program in Ecology, 2013, San Diego State University and UC Davis

BSc Honours, Biology (Industrial Placement), 2006, Durham University, UK

Relevant Software skills

Programming and statistics in R, Excel; Database management

Relevant Field and Lab experience

Carbon flux partitioning, Stable Isotopes, Automated soil respiration systems, Meteorological towers, Soil analyses, Vegetation surveys

Scientific Publications

Celis, G., **M. Mauritz**, R. Bracho, V. G. Salmon, E. E. Webb, J. Hutchings, S. M. Natali, C. Schädel, K. G. Crummer, and E. A. G. Schuur. 2017. Tundra is a consistent source of CO₂ at a site with progressive permafrost thaw during 6 years of chamber and eddy covariance measurements. *Journal of Geophysical Research: Biogeosciences* 122

Mauritz, M., Bracho, R., Celis, G., Hutchings, J., Natali, S.M., Pegoraro, E., Salmon, V., Schädel, C., Webb, E., Schuur, E.A.G. 2017. Non-linear CO₂ flux response to seven years of experimentally induced permafrost thaw. *Global Change Biology*. DOI: 10.1111/gcb.13661. *In Press*

Prevéy, J., Vellend, M., Rüger, N., Hollister, R.D., Bjorkman, A.D., Myers-Smith, I.H., Elmendorf, S.C., Clark, K., Cooper, E.J., Elberling, B., Fosaa, A.M., Henry, G.H., Høye, T.T., Jónsdóttir, I.S., Klanderud, K., Lévesque, E., **Mauritz, M.**, Molau, U., Natali, S.M., Oberbauer, S.F., Panchen, Z.A., Post, E., Rumpf, S.B., Schmidy, N.M., Schuur, T., Semenchuk, P.R., Troxler, T., Welker, J.M., Rixen, C. 2017. Greater temperature sensitivity of plant phenology at colder sites: implications for convergence across northern latitudes. *Global Change Biology* 23 (7)

Salmon, V., Soucy, P., **Mauritz, M.**, Celis, G., Natali, S., Mack, M., Schuur, E.A.G.. Nitrogen availability increases in a tundra ecosystem during five years of experimental permafrost thaw. 2016. *Global Change Biology* 22 (5)

Burd, A., Frey, S., Cabre, A., Ito, T., Levine, N., Loenborg, C., Long, M., **Mauritz, M.**, Thomas, R., Stephens, B., Vanwalleghem, T., Zeng, N. 2016. Terrestrial and Marine Perspectives on Modeling Organic Matter Degradation Pathways. *Global Change Biology* 22 (1)

Natali, S., Crummer, G., Schuur, T., Johnston, C., **Mauritz, M.**, Webb, E., Salmon, V., Shade, J., Krapek, J., Pegoraro, E. 2015. Permafrost thaw and soil moisture drive CO₂ and CH₄ release from upland tundra. *Journal of Geophysical Research: Biogeosciences* 120 (3), 525-537

Mauritz, M., Cleland, E., Lipson, D. 2014. The influence of altered rainfall regimes early season N partitioning among early phenology annual plants, a late phenology shrub and microbes in a semi-arid ecosystem. *Ecosystems* 17 (8), 1354-1370

Mauritz M., Lipson D.A. 2013. Altered phenology and temperature sensitivity of invasive annual grasses and forbs changes autotrophic and heterotrophic respiration rates in a semi-arid shrub community. *Biogeosciences Discuss.*, 10, 6335-6375

Lipson D.A., Zona D., Raab T.K., Bozzolo F., **Mauritz M.**, Oechel W.C. 2012. Water table height and microtopography control biogeochemical cycling in an Arctic coastal tundra ecosystem. *Biogeosciences* 9:1-15

Scientific Talks (selected):

Mauritz, M., Schuur, E., Bracho, R., Celis, G., Ledman, J.. The carbon balance of Alaskan tundra in response to long-term permafrost degradation. **XI. International Conference on Permafrost, 2016**

Mauritz, M., Pegoraro, E., Natali, S.M., Salmon, V.G., Schuur, E.A.G.. Seasonal variation of ecosystem respiration delta ¹³C in response to experimental permafrost thaw and vegetation removal in moist acidic tundra. **American Geophysical Union, Fall Meeting 2015**, B43M-05

Mauritz, M., Cleland, E., Lipson, D. 2012. How does altered precipitation and annual grass invasion affect plant N uptake in a native semiarid shrub community? **American Geophysical Union, Fall Meeting 2012**, B32B-03

Mauritz, M. Lipson, D. 2012. Non-native annual grasses and forbs alter sensitivity of soil respiration to moisture and temperature and increase soil respiration rates in a semi-arid shrubland. **ESA Annual Meeting 2012**

Mauritz, M., Eviner, V. 2012. Assessing the impact of invasive annual grasses on seed production and seed viability of two native Californian grasses. **California Native Plant Society Meeting January 2012**; Awarded 1st place student oral presentations

Academic Posters (selected)

Mauritz, M., Bracho, R., Celis, G., Natali, SM, Hutchings, J, Salmon, VG, Webb, EW, Schuur, E.A.G.. Tundra Carbon Dynamics in response to experimental air warming and permafrost thaw. **XI. International Conference on Permafrost 2016.**

Mauritz, M., Schuur, E.A.G., Bracho, R., Celis, G., Natali, SM, Hutchings, J, Salmon, VG, Webb, EW,. Ecosystem carbon dynamics in response to five winters of experimental soil warming and permafrost degradation. **American Geophysical Union, Fall Meeting 2014, BG31G-0140**

Grants and Scholarships

USAPECS Polar Science Communication Workshop, Travel & Participation, 2017
XI. International Conference on Permafrost, Travel Grant, 2016
PolarTrec Funding for Arctic Scientist-Teacher Collaboration, 2016
USPA young researcher travel award to AGU Fall Meeting (December 2014)
NCAR ASP Summer Colloquium Carbon-Climate Connections in the Earth System (July/August 2013)
SDSU IRA Travel Grant 2011, 2012
SDSU Graduate Student Travel Fund 2010
Martin-McLaren US-UK Exchange Scholarship (August 2006 – August 2007)

Awards

1st place student oral presentations at California Native Plant Society Annual Conference, January 2012

Teaching and Mentoring experience

Lesson plan: <https://www.polartrec.com/resources/lesson/data-interpretation-carbon-balance-in-an-arctic-warming-manipulation>

Mentoring:

PolarTrec funding to work with a schoolteacher in scientific research (2016)
Training undergraduates and technicians in field and lab work (2011-2017)

Teaching:

Biostatistics, SDSU; Experimental Ecology, SDSU (2007 and 2011)

Society Memberships

American Geophysical Union (AGU), United States Permafrost Association (USPA)

Communications to General Audience

Sensitivity of Carbon Balance to Warming and Permafrost Thaw. **Mauritz, M.,** Schuur, E.A.G.. Witness the Arctic, 2015 (3)

Data Products

Celis, G.; **Mauritz, Marguerite;** Natali, S.; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Half-hourly growing season, chamber-based, CO₂ flux data, 2009-2015., Bonanza Creek

LTER - University of Alaska Fairbanks. BNZ:481, <http://www.lter.uaf.edu/data/data-detail/id/481>

Mauritz, M.; Schuur, E. A.G.; Natali, S.; Taylor, M.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Growing season, chamber-based, CO₂ flux data, 2011-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:495, <http://www.lter.uaf.edu/data/data-detail/id/495>

Mauritz, M.; Schuur, E. A.G.; Natali, S.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Half-hourly growing season, chamber-based, CO₂ flux data, with dark daytime measurements, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:613, <http://www.lter.uaf.edu/data/data-detail/id/613>.

Mauritz, M.; Schuur, E. A.G.; Natali, S.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): leaf C, N, delta-13-C, delta-N-15, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:628, <http://www.lter.uaf.edu/data/data-detail/id/628>.

Mauritz, M.; Schuur, E. A.G.; Natali, S.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Weekly dark CO₂ fluxes, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:614, <http://www.lter.uaf.edu/data/data-detail/id/614>.

Mauritz, M.; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Half-hourly growing season, chamber-based, CO₂ flux data, with dark daytime measurements, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:611, <http://www.lter.uaf.edu/data/data-detail/id/611>.

Mauritz, M.; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Weekly dark CO₂ fluxes, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:612, <http://www.lter.uaf.edu/data/data-detail/id/612>.

Mauritz, M.; Webb, E. E; Schuur, E. A.G. 2015. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Winter ecosystem respiration measurements using soda lime, 2010-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:568, <http://www.lter.uaf.edu/data/data-detail/id/568>.

Mauritz, M.; Schuur, E. A.G.; Greyson-Gaito, C. J. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Phenology of Dominant Plant Species I - Bud burst and Senescence 2013-2015, Bonanza Creek

LTER - University of Alaska Fairbanks. BNZ:570, <http://www.lter.uaf.edu/data/data-detail/id/570>

Mauritz, M.; Schuur, E. A.G.; Greyson-Gaito, C. J. 2016.Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Phenology of Dominant Plant Species II - Berry Production 2013-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:580, <http://www.lter.uaf.edu/data/data-detail/id/580>

Mauritz, M.; Schuur, E. A.G.; Greyson-Gaito, C. J. 2016.Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Phenology of Dominant Plant Species III - Flowering Date 2013-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:581, <http://www.lter.uaf.edu/data/data-detail/id/581>

Mauritz, M.; Schuur, Edward A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Phenology of Dominant Plant Species I - Bud burst and Senescence 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:571, <http://www.lter.uaf.edu/data/data-detail/id/571>

Mauritz, M.; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Phenology of Dominant Plant Species II - Berry Production 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:582, <http://www.lter.uaf.edu/data/data-detail/id/582>

Mauritz, M.; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Phenology of Dominant Plant Species III - Flowering Date 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:583, <http://www.lter.uaf.edu/data/data-detail/id/583>