

ELIN M. JACOBS

Forestry and Natural Resources • Purdue University
Pfendler Hall • 715 West State Street • West Lafayette, IN 47907
ekarlsson@purdue.edu

EDUCATION

PhD	Purdue University , West Lafayette, Indiana, USA Ecological Sciences and Engineering Advisors: Dr. Suresh Rao, Dr. Dev Niyogi <i>Thesis</i> : Spatiotemporal patterns of hydroclimatic drivers and soil water storage: Observations and modeling across scales	2016
MSc	Stockholm University , Stockholm, Sweden Physical Geography Advisor: Dr. Steve W. Lyon <i>Thesis</i> : Connecting landscape characteristics and hydrologic responses across spatial scales in a sub-arctic environment	2011
BSc	Stockholm University , Stockholm, Sweden Environmental Science Advisor: Dr. Jerker Jarsjö <i>Thesis</i> : Impact of irrigation methods on water productivity in the Ferghana Valley, Aral Sea basin (in Swedish).	2009

RESEARCH INTERESTS

Ecohydrology, hydrologic cycle, effects of land use/land cover change on water resources, effects of climate variability and change on plant-water interactions, spatiotemporal scale dependency of ecohydrologic processes, Earth system modeling, carbon cycle, model-experiment integration

RESEARCH AND PROFESSIONAL APPOINTMENTS

Research Assistant Professor Purdue University, West Lafayette, IN	2019-present
Postdoctoral Research Associate Purdue University, West Lafayette, IN Advisor: Dr. Jeffrey S. Dukes	2017-2019
Research Assistant Purdue University, West Lafayette, IN	2011-2015
Research Assistant Stockholm University, Stockholm, Sweden	2010-2011
Educational Materials Developer Swedish Hydrologic Council (SHR), Stockholm, Sweden	2011

GRANTS AND AWARDS

Bilsland Dissertation Fellow	2015
Stiftelsen Jacob A. Letterstedt travel grant	2011
American Geophysical Union student travel grant	2010
Erasmus Fellow	2009-2010

- This fellowship provides financial support for exchange studies within the European Union. The fellowship was used towards one semester of study at the master's program in hydrology, Albert-Ludwig University, Freiburg, Germany.

PUBLICATIONS

- E.M. Jacobs**, L.E. Bertassello, P.S.C. Rao, "Drivers of regional soil-water storage memory and persistence." (*in review, Vadose Zone Journal*)
- L.W. Plouge, **E.M. Jacobs**, G.S. Frank, S.M. Greenler, M.D. Smith, J.S. Dukes, "Community Response to Extreme Drought (CRED): a framework for drought-induced shifts in plant-plant interaction." (2019) *New Phytologist* 222, 52-69, doi: [_____](#) (*invited Tansley Review*)
- Niyogi, D., **E.M. Jacobs**, X. Liu, A. Kumar, L.L. Biehl, P.S.C. Rao, "Long-term high resolution hydroclimatic dataset for the U.S. Midwest." (2017) *Earth Interactions*, 21, 1-31. doi: [10.1175/EI-D-16-0022.1](https://doi.org/10.1175/EI-D-16-0022.1) (*corresponding author*)
- Liu, X., **E.M. Jacobs**, LL Biehl, A Kumar, D Niyogi, "The Purdue Agro-climatic (PAC) dataset for the U.S. Corn Belt: Development and initial results." (2016) *Climate Risk Management*. doi: [10.1016/j.crm.2016.10.005](https://doi.org/10.1016/j.crm.2016.10.005)
- Giesler, R., S.W. Lyon, C.-M. Mörth, J. Karlsson, **E.M. Karlsson**, E.J. Jantze, G. Destouni, C. Humborg, "Catchment-scale dissolved carbon concentrations and export estimates across six subarctic streams in northern Sweden." (2014) *Biogeosciences*. doi:[10.5194/bg-11-1-2014](https://doi.org/10.5194/bg-11-1-2014)
- Logan, L. H., **E. M. Karlsson**, H. E. Gall, J. Park, N. Emery, P. Owens, D. Niyogi, and P.S.C. Rao, *Freshwater Wetlands: Balancing Food and Water Security with Resilience of Ecological and Social Systems*, (2013) Elsevier Inc., Academic Press, 105–116 pp. ISBN: 9780123847034

CONFERENCE PRESENTATIONS

- E.M. Jacobs**, L. Bertassello, D. Niyogi and P.S.C. Rao. Modeling landscape-scale spatiotemporal dynamics of water storage in the critical zone: U.S. Midwest as a case study. Ecological Society of America Annual Meeting, Portland, OR, August 6-11 2017. *Poster presentation.*
- E.M. Jacobs**, L. Bertassello, D. Niyogi and P.S.C. Rao. Modeling landscape-scale spatiotemporal dynamics of water storage in the critical zone: U.S. Midwest as a case study. 7th UZIG Workshop and Information Exchange, Gainesville, FL, April 4-6 2017. *Oral presentation.*
- Niyogi, D., X. Liu, **E.M. Jacobs**, O. Kellner and X. Zhang. Cross-scales agro-hydro-climatic assessment and crop modeling across the U.S. Corn Belt: What have we learnt? American Meteorological Society Annual Meeting, Seattle WA, January 22-26 2017. *Oral presentation.*
- Liu, X, **E.M. Jacobs**, L. Biehl, A. Kumar, J. Andresen, D Niyogi. An agro-hydro-climatic dataset for the U.S. Corn Belt: Development, validations and applications. American Meteorological Society Annual Meeting, Seattle WA, January 22-26 2017. *Poster presentation.*
- Liu, X, **E.M. Jacobs**, L. Biehl, D, Niyogi. A Land Data Assimilation System (LDAS) based Dataset for Agro-climatic Research and Applications. Annual Meeting of the ASA, CSA, & SSSA Minneapolis, MN, November 15-18 2015. *Invited presentation.*
- Liu, X., L.L. Biehl, **E.M. Karlsson**, A. Kumar, D. Niyogi. A land data assimilation system (LDAS) based dataset for regional agro-climatic assessments over the U.S. Corn Belt. American Meteorological Society's 21st Conference on Applied Climatology, Boulder, CO, June 9-13 2014. *Oral presentation.*

- Karlsson, E.M.** and X. Liu. A land data assimilation system (LDAS) based dataset for hydroclimatic assessments over the U.S. Corn Belt. Office of Interdisciplinary Graduate Programs Spring Reception, West Lafayette, IN, April 1 2014. *Poster presentation.*
- Karlsson, E.M.** and X. Liu. Introducing a new high-resolution agrohydroclimatic dataset. Purdue Big Data in Agriculture Symposium, West Lafayette, IN, Feb. 4 2014. *Poster presentation.*
- Destouni G., N. Basu, M.J. Cohen, H. Dahlke, F. Jaramillo, J. Jarsjö, J.W. Jawitz, J. Juston, **E.M. Karlsson**, A.D. Koussis, S. Lyon, K. Mazi, J. Mård-Karlsson, C. Prieto, S.C. Rao, Y. van der Velde, N. Vercauteren, Hydro-biogeochemical and environmental-management functions of wetland networks in landscapes. 9th INTECOL – International Wetlands Conference, Orlando, FL, June 3-8 2012. *Oral presentation.*
- Karlsson, E.M.** and S.W. Lyon. Connecting landscape characteristics and hydrologic responses across spatial scales in a sub-arctic environment, AGU Fall Meeting, San Francisco, CA, Dec. 13-17 2010. *Poster presentation*

TEACHING AND MENTORING

- Guest Lecturer** AGRY 350 – Global Awareness 2015
Purdue University, Department of Agronomy
- Teaching Assistant** AGRY 335 – Weather and Climate 2014
Purdue University, Department of Agronomy
- Peer-to-peer Mentor** 2014
Purdue University
- Served as peer mentor to the new cohort in the Ecological Sciences and Engineering Interdisciplinary Graduate Program
- SURF Mentor** 2012
Purdue University, Lyles School of Civil Engineering
- Acted as graduate mentor to two Summer Undergraduate Research Fellows (SURF) working on different research projects in my research group
- Peer Mentor** 2008
Stockholm University, College of Science
- Served as peer mentor for incoming, predominantly non-traditional, undergraduate students. Provided information on university student life and advice on study techniques.

CONFERENCES AND WORKSHOPS

Organized

- Ecological Sciences and Engineering Keystone Series**, Purdue University 2013
- Was part of the Leadership Team of a student led discussion-based series addressing relevant interdisciplinary topics (e.g. high volume shale gas extraction) with expert panelists from across the US.
- Ecological Sciences and Engineering Symposium**, Purdue University 2012
- Served on the Planning Committee for this annual student led symposium at Purdue University. Also served as chair of the undergraduate and graduate student poster

competition and showcase committee. Reviewed and compiled abstracts, and was in charge of the poster session.

Attended

Ameriflux PI meeting, Bloomington, IN	2018
New Advances in Land Carbon Cycle Modeling, Flagstaff, AZ	2018
Ecological Society of America Annual Meeting, Portland, OR	2017
7 th UZIG Workshop and Information Exchange, Gainesville, FL	2017
IUCN World Conservation Congress, Honolulu, HI	2016
Purdue Big Data in Agriculture Symposium, West Lafayette, IN	2014
Ohio River Basin Consortium for Research and Education Symposium, Athens, OH	2012
URISA GIS-Pro Annual Conference, Indianapolis, IN	2011
NEO workshop on Wetlands and Ecohydrology, Costa Navarino, Peloponnesos, Greece	2011
American Geophysical Union Fall Meeting, San Francisco, CA	2010

PROFESSIONAL ACTIVITIES AND DEVELOPMENT

Reviewer for Journal of Hydrometeorology, Nature Communications, Journal of Climate, Forests, Water

Organizing committee member 2017-2018
Purdue Climate Change Research Center Graduate Student and Postdoc group

Graduate Instructional Development Certificate 2015
Center for Instructional Excellence, Purdue University

Preparing Future Faculty 2013
Graduate School, Purdue University

- Explored faculty roles, responsibilities, and development opportunities at different types of higher education institutions.

PROFESSIONAL MEMBERSHIPS

Ecological Society of America (ESA)	2017-Present
American Association for the Advancement of Science (AAAS)	2012-Present
American Geophysical Union (AGU)	2010-Present