

# ELIN M. JACOBS

Forestry and Natural Resources • Purdue University  
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## EDUCATION

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

## 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** 2019-Present  
Department of Forestry and Natural Resources  
Purdue University, West Lafayette, IN
- Postdoctoral Research Associate** 2017-Present  
Department of Forestry and Natural Resources  
Purdue University, West Lafayette, IN  
Advisor: Jeffrey S. Dukes
- Research Assistant** 2011-2015  
Department of Agronomy  
Lyles School of Civil Engineering  
Purdue University, West Lafayette, IN
- Research Assistant** 2010-2011  
Stockholm University, Stockholm, Sweden

## CAREER BREAKS

2013/14: Parental leave - 3 months  
2016: Break to accommodate spouse's sabbatical  
2020: Parental leave - 6 months

## GRANTS AND AWARDS

Department of Energy DE-SC0021980: Understanding spatial and temporal drivers of variation in tree hydraulic processes and their consequences for climate feedbacks. \$950 000 (co-PI)	2021-2024
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

Kyker-Snowman, E., Lombardozzi, D.L., Bonan, G.B., Cheng, S.J., Dukes, J.S., Frey, S.D., **Jacobs, E.M.**, McNellis, R., Rady, J.M., Smith, N.G., Thomas, R.Q., Wieder, W.W. and Grandy, A.S. (2021), Increasing the spatial and temporal impact of ecological research: A roadmap for integrating a novel terrestrial process into an Earth system model. *Global Change Biology*. Accepted Author Manuscript. <https://doi.org/10.1111/gcb.15894>

**Jacobs, E. M.**, L. E. Bertassello, & P. S. C. Rao, (2020). Drivers of regional soil water storage memory and persistence. *Vadose Zone Journal*, 19, 1–18. doi: <https://doi.org/10.1002/vzj2.20050>

Ploughe, L. W., **E. M. Jacobs**, G. S. Frank, S. M Greenler, M. D Smith, & J. S. Dukes, (2019). Community Response to Extreme Drought (CRED): a framework for drought-induced shifts in plant-plant interactions. *New Phytologist*, (invited Tansley Review), doi: <https://doi.org/10.1111/nph.15595>

Niyogi, D., **E.M. Jacobs**, X. Liu, A. Kumar, L.L. Biehl, P.S.C. Rao (2017). Long-term high resolution hydroclimatic dataset for the U.S. Midwest. *Earth Interactions*, 21, 1-31. doi: <https://doi.org/10.1175/EI-D-16-0022.1>

Liu, X., **E.M Jacobs**, LL Biehl, A Kumar, D Niyogi (2016). The Purdue Agro-climatic (PAC) dataset for the U.S. Corn Belt: Development and initial results. *Climate Risk Management*, 15, 61-72. doi: <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 (2014). Catchment-scale dissolved carbon concentrations and export estimates across six subarctic streams in northern Sweden. *Biogeosciences* 11, 525-537. doi: <https://doi.org/10.5194/bg-11-525-2014>

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 doi: <https://doi.org/10.1016/B978-0-12-384703-4.00238-0>

## MEDIA

Feature in CSA News: Korzekwa, K. (2021), What Drives Soil Water Memory and Persistence? CSA News, 66: 10-12.

## 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. 7<sup>th</sup> 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. 9<sup>th</sup> 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

Elin Jacobs – CV (updated 9/2021)

Ecological Society of America Annual Meeting, Portland, OR	2017
7 <sup>th</sup> 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

**Faculty Success Program** 2021  
National Center for Faculty Diversity and Development

**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