K. Arthur Endsley

Curriculum Vitae

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Education

- **Ph.D.** Natural Resources and Environment and Scientific Computing, May 2019
  University of Michigan (Ann Arbor, MI)

- **B.S.** Applied Geophysics, December 2009
  Michigan Technological University (Houghton, MI)
  Department Scholar, Geological and Mining Engineering and Sciences, 2008

Awards and Funding

Grants

- **Rackham Predoctoral Fellowship** (2018-19): **\$44,394**
  Awarded by Rackham Graduate School, Univ. of Michigan, to "outstanding doctoral students"

- **Environmental Sustainability Doctoral Fellowship** (2016-17): **\$50,000**
  Awarded by Graham Sustainability Institute, Univ. of Michigan

- **Sloan & Moore Foundation and the University of Michigan** (2014-16): **\$67,500**
  MCubed Diamond Big Data Challenge 3: "Measuring the Pace of Neighborhood Change from

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Satellites"
Co-authored proposal with Dr. Dan Brown

- **British Columbia Centre for Disease Control** (2015): **$26,000**
  "Data Mining Tools for Assessing Public Health Targets in British Columbia"
  Co-authored proposal; Michigan Tech Research Institute (MTRI), Ann Arbor, MI

- **NASA** (Grant no. NNX12AB90G), **Carnegie Inst. for Science** (2010): **$149,000**
  "Assessing the Impact of a Combined In-situ and Satellite CO2 Monitoring Network on Constraining Biospheric and Anthropogenic Fluxes for North America"
  PI (Sub-award); Michigan Tech Research Institute (MTRI), Ann Arbor, MI

Honors and Awards

- **2018 MIDAS Symposium "Best Overall" Poster**
  Poster: *Comparing and timing business cycles and land development trends across U.S. metropolitan housing markets*
  2018 Michigan Institute for Data Science (MIDAS) Annual Symposium

- **Courtney Wilson First-Year PhD Student Award** (2015)
  School of Natural Resources and Environment, University of Michigan

- **Social Impact Challenge 2015 Winning Team** ($2,500; February 2015)
  Center for Social Impact, Ross School of Business, University of Michigan (Link)

- **2008 Department Scholar**
  Dept. of Geological and Mining Eng. and Sciences, Michigan Technological University

Appointments and Experience

Research & Professional Experience

- **Numerical Terradynamic Simulation Group (NTSG), University of Montana**
  Postdoctoral Researcher   (2019 - Present)
  Working on science applications for the SMAP Level 4 Carbon product.

- **Aspen Global Change Institute,** Carbondale, CO
  Consultant (2017 - Present)
  Currently developing a data collection and management system for remote monitoring of snowpack and meteorological conditions in the Roaring Forks Valley.

- **University of Michigan,** Ann Arbor, MI
  Graduate Student Research Assistant (2014 - 2019)

- **Michigan Tech Research Institute,** Ann Arbor, MI
  Research Scientist I (2012 - 2014)
  Assistant Research Scientist (2010 - 2012)
  Research Intern (2008 - 2009)

Teaching & Mentoring Experience

- **University of Michigan,** Ann Arbor, MI (2015 - 2018)
  Graduate Student Instructor, "Natural Resource Statistics"
  Graduate Student Instructor, "Urban Sustainability"

- **The Carpentries** (2015 - Present)
  Certified Instructor, Data Carpentry and Software Carpentry
  Trained to teach Python, R, Git, Mercurial, and SQL to beginners, particularly scientists and students of science. Have taught workshops at Boston College, the Federal Reserve Board in Washington D.C., the Aspen Global Change Institute, West Virginia University, Lawrence Berkeley National Laboratory, the Woods Hole Oceanographic Institution, and NASA Langley.

- **University of Michigan,** Ann Arbor, MI (2017-2018)
  Instructor, Wolverine Pathways Program, "Prove It!"
  Over 2 summers, taught critical media and data analysis to under-represented High School Seniors from Southeast Michigan aspiring to enter college.

- **Michigan Tech Research Institute,** Ann Arbor, MI (2012 - 2014)
  Research Scientist I (Mentor and supervisor for interns)

- **Ontonagon Area Elementary School,** Ontonagon, MI (2007)
  After-School Science Educator

Western Upper Peninsula Center for Science, Mathematics, and Environ. Education

Courses Taught

- **"Natural Resource Statistics"** (2018)
  University of Michigan, Ann Arbor, MI
  Course content: Elementary statistics, Linear models, R and statistical computing

- **"Urban Sustainability"** (2016)
  University of Michigan, Ann Arbor, MI
  Course content: Urban sustainability, Urban metabolism, Industrial ecology, Political ecology, Critical reading and discussion of the literature.

- **"Understanding the Earth"** (2008 - 2009)
  Michigan Technological University (MTU), Houghton, MI
  Course content: GPS wayfinding and field mapping, Rock and mineral identification, Subsurface plumes, Erosional and depositional systems, Natural hazards, and Bedrock lithology and structural geology.

Field Experience

- **Bering Glacier, Alaska U.S.A.** (2007 - 2012)
  Experience in boreal and karst landscpaes: August 2007 (geophysical surveys); August 2008 (field equipment maintenance); May 2010 (ablation monitoring installation); August 2010 (field equipment maintenance); May 2011 (installation); May 2012 (Eddie Bauer-funded surge research).

- **Fairbanks, Alaska, U.S.A.** (2012)
  Remote sensing field validation at Bonanza Creek LTER; soil moisture measurement.

- **Ngöbe-Bugle Comarca, Panama** (2009)
  Elevation surveying by transit and field interviews in preparation for designing a catchment for clean water provision.

Publications

Refereed Publications

2019   Bruch E., L. Wileden, **K.A. Endsley.** *In Preparation.* "How perceptual biases shape neighborhood dynamics." *Proceedings of the Population Association of America.*

Seymour, E., **K.A. Endsley.** *In Preparation.* "The myth of the one-dollar house: Differential drivers of cost burden in growing and shrinking U.S. places."

Endsley, K.A. *In Review.* "A comparison of the factors driving change in neighborhood green vegetation across U.S. metropolitan areas."

Osenga, E.C., J.C. Arnott, **K.A. Endsley**, J. Katzenberger. 2019. "Bioclimatic and soil moisture monitoring across elevation in a mountain watershed: Opportunities for research and resource management." *Water Resources Research* **55**(3): 2493-2503.

2018   **Endsley, K.A.**, D.G. Brown, E. Bruch. 2018. "Housing market activity is associated with disparities in urban and metropolitan vegetation." *Ecosystems* **21**(8): 1593-1607.

Endsley, K.A. 2018. "Remote Sensing of Socio-Ecological Dynamics in Urban Neighborhoods," in Reference Module in Earth Systems and Environmental Sciences, **9**: 90-105. Elsevier.

2016   Miller, M.E., W.J. Elliot, M. Billmire, P.R. Robichaud, **K.A. Endsley**. 2016. "Rapid-response tools and datasets for post-fire remediation: linking remote sensing and process-based hydrological models." *International Journal of Wildland Fire* **25**, 1061-1073.

Gonzalez, A., B.J. Cardinale, G.R.H. Allington, J. Byrnes, **K.A. Endsley**, D.G. Brown, D.U. Hooper, F. Isbell, M. Loreaue, M.I. O'Connor. 2016. "Estimating local biodiversity change: A critique of papers claiming no net loss of local diversity." *Ecology* **97**(8): 1949–1960.

Endsley, K.A., M.G. Billmire. 2016. "Distributed visualization of gridded geophysical data: the Carbon Data Explorer, version 0.2.3" *Geoscientific Model Development* **9**:383-392.

2014   French N.H.F., D. McKenzie, T. Erickson, B. Koziol, M. Billmire, **K.A. Endsley**, N.K.Y.

Scheinerman, L. Jenkins, M.E. Miller, R. Ottmar, S. Prichard. 2014. "Modeling regional-scale fire emissions with the Wildland Fire Emissions Information System." *Earth Interactions* **18**(16).

Josberger, E.G., R.A. Shuchman, L.K. Jenkins, and **K.A. Endsley.** 2014. "Melt water input from the Bering Glacier Watershed into the Gulf of Alaska." *Geophysical Research Letters.* **41**(3): 886-890.

2013   **Endsley, K.A.** and J.L. McCarty. 2013. "Mapping prescribed burns and wildfires from Twitter with natural language processing and information retrieval techniques." In Proceedings of the International Smoke Symposium. Hyattsville, Maryland, U.S.A.: International Association of Wildland Fire.

2012   Vaghefi, K., R.C. Oats, D.K. Harris, T.M. Ahlborn, C.N. Brooks, **K.A. Endsley**, C. Roussi, J.W. Burns, and R. Dobson. 2012. "Evaluation of commercially available remote sensors for highway bridge condition assessment." *Journal of Bridge Engineering* **17**(6):886-895.

Brooks, C.N., H. Kourous-Harrigan, M.G. Billmire, P. Metz, D.E. Keefauver, R.A. Shuchman, R. Dobson, **K.A. Endsley**, M. Taylor. 2012. "Expanding Alaska-Canada rail: Jointly visualizing revenue freight, development, mineral commodity value, and impact of carbon dioxide." *Transportation Research Record: Journal of the Transportation Research Board*, No. 2261, pp.95-105.

2010   Andrus, A.B., **K.A. Endsley**, S. Espino, J.S. Gierke. 2010. Mapping the Freshwater-Saltwater Interface in the Terminal Moraine of the Bering Glacier. Ch. 19. Bering Glacier: Interdisciplinary Studies of Earth's Largest Temperate Surging Glacier. Special Paper 462. Geological Society of America.

Invited Talks

Geography Week, Miami University Department of Geography, Oxford, Ohio. **"What are the social and economic drivers of uneven vegetation growth across U.S. metropolitan areas?"** November 15, 2018.

Conference Presentations and Talks

"Understanding the processes of neighborhood change in Detroit through a satellite-based land-cover change proxy." April 8, 2017. American Association of Geographers Annual Meeting. Boston, MA.

"Assessment of urban socio-economic change in southeast Michigan neighborhoods through a land-cover change proxy." April 1, 2016. American Association of Geographers Annual Meeting. San Francisco, CA.

"Visualization of XCO2 and flux data with applications for the web." January 30, 2014. OCO-2 Algorithm and Science Team Meeting. Caltech, Pasadena, CA.

"Mapping Prescribed Burns and Wildfires on Twitter with Data Mining and Information Retrieval Techniques." International Association of Wildland Fire (IAWF)'s 2013 International Smoke Symposium. October 23, 2013. University of Maryland, MD.

"Prescribed Burn and Wildfire Communication on Twitter: Identifying and Mapping with Data Mining Techniques." Association for Fire Ecology (AFE) Fire Congress. December 5, 2012. Portland, OR.

"Utilization of Remote Sensing Data for Bridge Condition in Operational Decision Support" at the ASNT Nondestructive Evaluation/Nondestructive Testing (NDE/NDT) for Highways and Bridges: Structural Materials Technology (SMT) 2012 Conference. American Society for Nondestructive Testing (ASNT). August 23, 2012. New York, NY.

"Measurements of Velocity and Ablation from Bering Glacier During the Recent Surge" (Session C41G, Talk 7, Glacier Surging and Ice Streaming: Fast Flow and Instabilities II) at American Geophysical Union 2011 in San Francisco, CA, December 8, 2011. (Presentation.)

"Real-Time Web-Based Satellite Tracking" at Free and Open Source Software for Geospatial (FOSS4G) 2011 in Denver, CO, September 15, 2011. (Abstract.)

"Clarus Road-Weather Routing for Crash Risk Aversion" at the Road Weather Management Stakeholder Meeting in Albuquerque, NM, September 7, 2011. (Presentation.)

Other Publications

McCarty, J.L., E. Levin, **K.A. Endsley**, S.T. Aden, J. Bialas. 2015. "Relating big data to local natural hazards: Lessons learned from data mining the Twitter API for volunteered geographic information on earthquakes, wildfires, and prescribed fires in the contiguous United States." in Proceedings of ISPRS WG IV/2 Workshop, "Global Geospatial Information and High Resolution Global Land Cover/Land Use Mapping." April 21, 2015, Novosibirsk, Russian Federation.

Miller, M.E., M.G. Billmire, W.J. Elliot, **K.A. Endsley**, P.R. Robichaud. 2015. "Rapid response tools and datasets for post-fire modeling: Linking Earth Observations and process-based hydrological models to support post-fire remediation." The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-7/W3, 2015. 36th International Symposium on Remote Sensing of Environment, 11-15 May 2015, Berlin, Germany.

Endsley, K.A., C.N. Brooks, T.M. Ahlborn, K. Vaghefi. "Decision support system for integrating remote sensing in bridge condition assessment and preservation." *SPIE Proceedings, NDE/NDT for Highways and Bridges: Structural Materials Technology (SMT)* 2012. March 11-15, 2012, San Diego, CA, U.S.A.

Ahlborn, T.M., D.K. Harris, C.N. Brooks, **K.A. Endsley**, D.C. Evans, R.C. Oats. 2010. "Evaluation of remote sensing technologies for detecting bridge deterioration and condition assessment." p.498-505. *NDE/NDT for Highways and Bridges.* Structural Materials Technology. 16-20 August 2010. New York City, New York, U.S.A.

Service and Outreach

- **Reviewer:** *Landscape and Urban Planning* (2016-2019); *Journal of Environmental Planning and Management* (2016); *Journal of Environmental Management* (2018); *Environment and Planning B: Urban Analytics and City Science* (2018)

- **Editorial Board:** *Michigan Journal of Sustainbility* (2016-18)

- **Chair, Doctoral Organizing Committee, School of Natural Resources and Environment** (Univ. Michigan, 2017)

Students Advised

- **Zijun Yang,** M.S. Natural Resources, University of Michigan   (2016-18)

Other Service

- **Esri GeoMentor** (2016 - Present)

- **Web Administrator,** Jim Toy Community Center (JimToyCenter.org)

- **Educator, Web Designer** for U.P. Seismology (www.geo.mtu.edu/UPSeis/)

- **MichiganView** (2010-14, www.MichiganView.org) Design, develop, and maintain web-based educational resources on remote sensing for K-12 and post-secondary students.

Professional Memberships

- **American Society for Photogrammetry and Remote Sensing** (ASPRS)

- **American Association of Geographers** (AAG)

- **American Geophysical Union** (AGU)