

# Nathan Mietkiewicz, Ph. D.

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Environmental Data Scientist

National Ecological Observation Network/ Battelle · Boulder · CO

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## Professional Summary

I am a geospatial scientist and ecologist seeking a research position in a dynamic and broad-thinking lab that allows me to pursue high-caliber science relevant to pressing human-environmental issues. My current research examines how global environmental change, including changed climate and fire cycles, alters ecosystem function and human vulnerability. Specifically, I lead cutting-edge research in wildfire ecology, with particular focus on quantifying, modeling, and predicting the consequences of human-started wildfires to the vulnerability of communities throughout the United States. I work at multiple scales, across disciplines, and with an international community of scientists.

## Language Competencies and Technical Skills

**Programming:** R (expert), Python (general understanding), R Markdown, Docker, GitHub, UNIX Shell Programming

**Applications:** RStudio, Jupyter Notebooks, Amazon Web Services (S3, EC2), ArcGIS Platform, QGIS, IDRISI/Terrset, Adobe CS6 Illustrator

## Recent Professional Background

### Environmental Data Scientist

Oct 2019 – Present

*National Ecological Observation Network, Battelle, Boulder, CO*

- Developed reproducible, automated workflows to generate monthly metric reports using both internal (i.e., HA Proxy logs) and external API (i.e., Google Analytics, auth0, Lime Survey) data tracking services.
- Developed R code to determine data availability for over 200 data products across 81 different sites in the observatory.
- Wrote enhancements to the [neonUtilities R package](#)
- Built a number of Shiny Applications for internal use
- A member of multiple internal working groups, such as Public Code Working Group, Science Code Working Group, and the Power Bi Working Group
- Co-chaired on the Data Standards Technical External Working Group

### Postdoctoral Research Associate

Aug 2016– Sept 2019

*Earth Lab and the Cooperative Institute for Research in Environmental Sciences, University of Colorado at Boulder*

- Deployed geospatial, reproducible workflows in a salable, cloud-compute environment via Amazon Web Services (AWS) leveraging Docker and GitHub to build stable, collaborative work environments across platforms.
- Wrote clean, efficient, reproducible R code to analyze big geospatial data.
- Built out and optimizing statistical models using a variety of techniques, with focus on machine learning algorithms.

- Mentored/managed undergraduate and graduate level interns and research assistants.
- Authored and co-authored 6 peer-review publications with 3 more in review and 10 in progress.
- Authored and Co-authored over \$15 million in research grant proposals.

## Research Assistant

2013-2016

*Graduate School of Geography, Clark University, Worcester, MA*

- Developed and led a successful field campaign located in the backcountry of the Colorado Rockies
- Managed a team of 8 undergraduate and graduate students in remote, mountainous areas for 18 weeks over the course of 2 summers
- Collected over 2,000 tree cores, 1,000 seedling/sampling samples, and data ranging over 3 projects, resulting in 4 peer-reviewed publications and my dissertation
- Synthesized field data that was fed into large wildfire behavior prediction models under current and 3 future climate scenarios across the Southern Rocky Mountains.
- Managed the Forest Ecology Lab, where duties included maintaining, ordering, inventorying, and supporting both computer and field equipment for the research and classroom laboratories

## Adjunct Faculty

2012-2016

*Graduate School of Geography, Clark University, Worcester, MA*

- Taught the undergraduate Forest Ecology seminar
- Developed all course materials, syllabi, laboratories, and testing materials
- Overall effectiveness based on student evaluations was 92%

## Teaching Assistant

2012-2016

*Graduate School of Geography, Clark University, Worcester, MA*

- Taught technical laboratories for graduate and undergraduate class, including Advanced Topics in GIS: Raster GIS (3 semesters), Introduction to Remote Sensing (1 semester), Forest Ecology (1 semester), and Earth System Science (1 semester)
- Overall effectiveness based on student evaluations ranging from 92%-99%, with an average evaluation of 96% over 6 semesters

## Academic Background

<i>Clark University, Worcester, MA, Ph.D. Geography</i>	2016
<i>Clark University, Worcester, MA, M.A., Geography,</i>	2015
<i>Clark University, Worcester, MA, M.S., GIS for Development and Environment,</i>	2013
<i>University of Maine, Orono, ME, B.S., Earth Science,</i>	2009

## Selected Peer-reviewed Publications

**Mietkiewicz, N., J. K. Balch, T. Schoennagel, S. Leyk, L. St. Denis, B. Bradley.** (Accepted) *In the line of fire: Consequences of human-ignited wildfires to homes in the U.S. (1992-2015).* Fire.

**Mietkiewicz, N., D. Kulakowski, and T. T. Veblen** 2018. *Pre-outbreak forest conditions mediate the effects of spruce beetle outbreaks on fuels in subalpine forests of Colorado.* Ecological Applications 28:457-472.

**Mietkiewicz, N.,** D. Kulakowski, D. Rogan, and P. Bebi. 2017. *Long-term change in sub-alpine forest cover, tree line and species composition in the Swiss Alps*. Journal of Vegetation Science. 28:951-964. DOI: 10.1111/jvs.12561.

Schoennagel, T., J. K. Balch, H. Brenkert-Smith, P. E. Dennison, B. J. Harvey, M. A. Krawchuk, **N. Mietkiewicz,** P. Morgan, M. A. Moritz, R. Rasker, M. G. Turner, and C. Whitlock. 2017. *Adapt to more wildfire in western North American forests as climate changes*. Proceedings of the National Academy of Sciences. 114:4582-4590.

**Mietkiewicz, N.** and D. Kulakowski. 2016. *Relative importance of climate and mountain pine beetle outbreaks on the occurrence of large wildfires in the western US*. Ecological Applications:10.1002/eap.1400.

### **Selected Recent Outreach, Synergistic Activities, and Professional Development**

2020 **Participant** at the Ecological Forecasting Initiative: Coordinating the NEON-enabled forecasting challenge workshop, virtual.

2019 **Invited Participant** at the USDA Forest Service Stakeholder Workshop: Urban and Wildland-Urban Interface Forests Under Changing Conditions, Denver, CO.

2019 **Invited Participant** at the USGS North Central Climate Adaptation Science Center Open House, Boulder, CO.

2019 **Invited Speaker** at a Global WUI Working Group at the International Association of Wildland Fire 6th Fire Behavior and Fuels Conference, Marseille, France.

2019 **Participant** at the NSF INCLUDES Diversity and Inclusion workshop, Boulder, CO.

2017 **Professional Presentation** at the Fire Prediction Across Scales Conference, Columbia University, New York City, NY, USA.