Nathan Mietkiewicz, Ph. D.

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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, autho, Lime Survey) data tracking services.
- -Developed R code to determine data availability for 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

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

Leyk, S., Uhl, J.H., Connor, D.S., Braswell, A.E., **Mietkiewicz, N.**, Balch, J.K., Gutmann, M. (2020). *Two centuries of settlement and urban development in the United States.* Science Advances. 6(23), doi:10.1126/sciadv.aba2937.

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.