Nathan Mietkiewicz, Ph. D.

Postdoctoral Research Fellow, Earth Lab and CIRES
University of Colorado · Boulder · 4001 Discovery Dr.
Nathan.Mietkiewicz@Colorado.edu 508 797 2940 NateMietk nathanmietkiewicz.com

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

Postdoctoral Research Fellow 2016–present

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 code to analyze big, geospatial data
-Built-out and optimized 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 7 peer-review publications
-Authored and Co-authored over $10 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. (under evaluation) *In the line of fire: Consequences of human-ignited wildfires to homes in the U.S. (1992-2015)*. Science Advances.

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 Outreach, Synergistic Activities, and Professional Development

2018 **Invite Participant** in the Environmental Extremes CodeFest, Univeristy of Colorado, Boulder, CO.

2017 **Professional Presentation** at the Fire Prediction Across Scales Conference, Columbia University, New York City, NY, USA. entitled: *Drivers of historic and future wildfire occurrence across the United States: the relative contribution of human ignitions vs climate to fire size and probability*.

2017 **Invited Speaker** at the Wildfire Information Development Workshop, Boulder, CO, USA. Entitled: Human-ignited fires at the wildland-urban interface: case study for using ICS-209s.

2017 **Participant** at the NASA Wildland Fire Applications 2017 Team Meeting, University of Colorado, Boulder, CO.

2017 **Invited Speaker** at the Earth Science & Observation Center Colloquium, University of Colorado, Boulder, CO. Entitled: Earth Lab: Accelerating discovery with advanced earth analytics.