

Nolan Barrette

Geologist | Geographic Information Systems

Phone: 608.574.4698

E-mail: nolanbarrette@gmail.com

EDUCATION

Master of Science in Geology

December 2020

Temple University, Philadelphia, PA

Thesis Title: “SEISMIC INVESTIGATION OF THE MORPHOLOGY OF A TUNNEL CHANNEL OF THE GREEN BAY LOBE, WISCONSIN, USA”

Thesis Advisor - Dr. Atsuhiko Muto

Relevant Coursework: Quantitative Structural Geology, Planetary Geology, Groundwater Modeling, Remote Sensing and GIS, Coastal Processes, Ecohydrology, Introduction to Geophysics

Bachelor of Science in Geology and Geophysics

December 2017

University of Wisconsin-Madison, Madison, WI

Certificate in Environmental Studies

Relevant Coursework: Glacial and Pleistocene Geology, Geomorphology, Intro to Applied Geophysics, Field Geology, Structural Geology, Hydrogeology, Principles of Mineralogy, Elementary Petrology

RELEVANT SKILLS

- ArcGIS/QGIS
- Passive-source seismology
- Active-source seismology
- GIS/Remote Sensing
- Photogrammetry
- MODFLOW (Groundwater Vistas)
- Geologic Map Schema (GeMS)
- Geological Field Mapping
- Presentations
- Differential GPS
- Adobe Illustrator
- Adobe Photoshop
- Construction Site Experience
- Field Safety
- MATLAB
- Python
- Heavy Mineral Field Sampling
- Globe Claritas
- Geospatial Analysis
- Field Work Experience
- Microsoft Office

WORK EXPERIENCE

Contract Geologist

June 2021 - Present

Wyoming State Geological Survey, Laramie, WY

- Performed field work and office duties including surficial field mapping, surficial GIS mapping, and cartography to complete the Jackson Lake 100k scale quadrangle near the Jackson Hole area of Wyoming. An emphasis was put on landslides and glacial geology in this area.

Adjunct Instructor

Jan 2021 – May 2021

Temple University, Philadelphia, PA

- Assist in teaching and grading duties for introductory level geology classes.

Research Assistant

Sep 2018 – Dec 2020

Temple University, Philadelphia, PA

- Performed lab research duties to assist Dr. Atsuhiko Muto. Duties included acquisition and processing of differential GPS data, field work preparation, and geophysical data management

Geospatial Analyst

Jan 2018 – Apr 2018

NASA DEVELOP National Program – Spring Participant, Wise, VA

- Analyzed and applied NASA Earth Observations data to assess water availability within the Fremont River Basin in Capitol Reef National Park, UT
- Performed data processing and adapted a model for use with our study region using a combination of ArcGIS, MATLAB, and Python
- Results showed an overall decrease in snow cover in the region for the 2016-2017 water year
- Presented results at the regional NASA DEVELOP meeting- “Assessment of Annual Snowpack and Its Effect on Water Availability in the Fremont River Basin”

Research Assistant

Apr 2016 – Jan 2018

University of Wisconsin - Madison, Madison, WI

- Assisted with research duties using ArcGIS, geophysical survey techniques, and core logging processes to study quaternary geology of Wisconsin, USA
- Used skills such as ArcGIS, AMS technique, and active source seismic surveying for various projects regarding glacial mapping of landforms preserved in Wisconsin, USA
- Co-author on a publication submitted to the Earth Surface Processes and Landforms journal

FIELD EXPERIENCE

2021 Teton County, Wyoming: Jackson Lake 100k USGS STATEMAP Project

- Performed surficial field mapping near Jackson Hole, Wyoming, much of which was in remote Bridger-Teton National Forest, which is landslide prone.

2018 – 2019 Waushara County, Wisconsin: Tunnel Channel Project

- Lead active source seismic data acquisition for use in master’s thesis
- Collected ~2.5 km of data

2017 Waushara County, Wisconsin: Tunnel Channel Project

- Assisted in passive and active source seismic data acquisition

2017 Wasatch and Uinta Mountains, Utah: Field Techniques

- Learned and utilized field mapping techniques

TEACHING ACTIVITIES

Temple University, Philadelphia, PA

- Physical Geology, Lab Sections (Fall 2019: 3, Spring 2020: 2)
- Geomorphology, Lab Sections (Fall 2019: 1, Fall 2020: 1)
- Remote Sensing and GIS, Grading/TA (Spring 2020)
- Disasters: Geology vs. Hollywood, Grading/TA (Summer 2020, Spring 2021)
- Geology of the National Parks, Lab Sections (Fall 2020: 2)

PROFESSIONAL ASSOCIATIONS

- Geological Society of America
- International Glaciological Society

RESEARCH INTERESTS

- Geologic Hazards
- Climate change solutions
- Glacial geomorphology
- Glaciology
- Geophysics (Passive Seismology, Active Seismology)
- GIS/Remote sensing and landform analysis
- Planetary Geology

PUBLICATIONS

2021. Zoet, L.K., Rawling, J.E., Woodard, J.B., **Barrette, N.** & Mickelson, D.M. (2021) Factors that contribute to the elongation of drumlins beneath the Green Bay Lobe, Laurentide Ice Sheet. *Earth Surface Processes and Landforms*, 1– 11. doi: <https://doi.org/10.1002/esp.5192>
2020. Barrette, N. (2020). Seismic Investigation of the Morphology of a Tunnel Channel of The Green Bay Lobe, Wisconsin, USA. doi: <http://dx.doi.org/10.34944/dspace/4722>

CONFERENCE ITEMS

2021. Krick, D., **Barrette, N.**, Bridge, T.A., White, M.E., and Buynevich, I.V., 2021. Image-based analysis of drumlin morphometry, western Erie County, Pennsylvania. *GSA Northeastern Section Abstracts with Programs*, Hartford, CT, v. 53, doi: 10.1130/abs/2021NE-361372.
2021. Martina, J.E., Kline, B., Szabo, C., Buynevich, I.V., and **Barrette, N.**, 2021. Zoogeomorphic impact of African elephants in Hwange National Park, Zimbabwe: insights from satellite-based analysis. *GSA Northeastern Section Abstracts with Programs*, Hartford, CT, v. 53, doi: 10.1130/abs/2021NE-361375.
2021. Silverman, A., Moyer, T.H., Policino, K.M., Yang, Y.J., Buynevich, I.V., and **Barrette, N.**, 2021. Zoogeomorphic impact of African elephants in Hwange National Park, Zimbabwe: insights from satellite-based analysis. *GSA Northeastern Section Abstracts with Programs*, Hartford, CT, v. 53, doi: 10.1130/abs/2021NE-361374.
2021. Smith, K., Anzalone, E.A., Stroia, C., Yang, Y.J., Buynevich, I.V., Bruce, J., Mugnani, M.P., and **Barrette, N.**, 2021. Spatial and temporal assessment of short-term beaver impact along Pennypack Creek, Montgomery County, Pennsylvania. *GSA Northeastern Section Abstracts with Programs*, Hartford, CT, v. 53, doi: 10.1130/abs/2021NE-361373.
2020. Boyle, C., Royzman, K., Barrett-Harvey, C., Long, L., **Barrette, N.**, and Buynevich, I.V., 2020. Quantitative analysis of groundhog bioturbation cluster in a stream-bank regolith, Bucks County, PA. *GSA Southeastern and Northeastern Sections Abstracts with Programs*, Reston, VA, v. 52, doi: 10.1130/abs/2020SE-343268.

2020. Feldman, H.ZKobol, C.T., Iskra, S.K., Gang, J.M., Ralff, S.A., **Barrette, N.**, and Buynevich, I.V., 2020. Zoogeomorphic impact of ungulates along a small bedrock-controlled creek, Bucks County, PA. *GSA Southeastern and Northeastern Sections Abstracts with Programs*, Reston, VA, v. 52, doi: 10.1130/abs/2020SE-343269.
2020. Gorcyca, J.M., Hiegl, M.E., Harrsen, A., Gallagher, P.T., Campbell, M., **Barrette, N.**, Roccaro, A., and Buynevich, I.V., 2020. Dendrogeomorphic analysis of recent beaver impact on a stream cutbank, Tyler State Park, Pennsylvania. *GSA Southeastern and Northeastern Sections Abstracts with Programs*, Reston, VA, v. 52, doi: 10.1130/abs/2020SE-343264.
2020. Gress, B.D., Casas, G., Fenning, M.K., Patel, S., Campbell, M., **Barrette, N.**, and Buynevich, I.V., 2020 riparian comeback: recent beaver colonization of a vernal wetland, Tyler State Park (Bucks County, Pennsylvania). *GSA Southeastern and Northeastern Sections Abstracts with Programs*, Reston, VA, v. 52, doi: 10.1130/abs/2020SE-343267.
2019. ***Barrette, N.**, A. Muto, L. Zoet, and J.E. Rawling III (2019). Seismic investigation of the morphology of a tunnel channel of the Green Bay Lobe, Wisconsin, USA. International Symposium on Glacial Erosion and Sedimentation, Madison, WI, 15th May.
2017. **Barrette N.**, Zoet, L.K, and Rawling, J.E. (2017). North Central - Geological Society of America Meeting. 3d Morphology of Drumlins Within The Green Bay Lobe Drumlin Field In Southeast Wisconsin.

* denotes oral presentation

LEADERSHIP & COMMUNITY INVOLVEMENT

- UW-Madison Alumni Networking Social – Speaker
- Eagle Scout
- Educational Outreach
 - Geoscience presentation, Our Lady of Charity school, Cicero, Illinois (Dec 2017)