

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Nathan A. Niemi, associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2002	California Institute of Technology
M.S.	1996	California Institute of Technology
A.B.	1994	Cornell University

Professional Record:

2013 – present	Associate Professor, Department of Earth and Environmental Sciences and Faculty Associate, Program in the Environment, University of Michigan
2006 – 2013	Assistant Professor, Department of Earth and Environmental Sciences, University of Michigan
2004 – 2006	Member of the Professional Staff, California Institute of Technology
2003 – 2004	Assistant Research Scientist, University of California, Santa Barbara
2001 – 2003	Post-doctoral Fellow, Massachusetts Institute of Technology

Summary of Evaluation:

Teaching – Professor Niemi is an effective instructor who has contributed significantly to the educational mission of the Department of Earth and Environmental Sciences. He has designed and taught a broad range of courses at the undergraduate and graduate levels in Ann Arbor and at the Camp Davis Rocky Mountain Field Station in Wyoming. During the last six years, he has served as the director of Camp Davis and has consistently been one of the primary instructors for the capstone geology field course, “Field Geology of the Rocky Mountains.” He has effectively contributed to the professional development of his graduate students and he has mentored students in research outside of traditional courses. Since his last promotion, Professor Niemi has mentored four post-doctoral scholars, advised eleven undergraduate students, graduated five Ph.D. students, and currently has two active Ph.D. students and one M.S. student.

Research – Professor Niemi studies the development of large-scale crustal deformation along the boundaries of plates as they collide or separate, with a focus on the processes that create topography. Among his most important recent contributions are his studies on the tectonic origins of the Tibetan Plateau and the Basin and Range Province of western North America. Since 2013, Professor Niemi has set-up a U/Th-He geochronology laboratory at Michigan. He has applied this radiogenic isotope method to a wide range of tectonic questions with many notable results. He has been able to surpass the work of other similar laboratories by analyzing large numbers of zircon mineral grains and by applying some new statistical approaches to obtain information on uplift rates and sediment transport distances. Professor Niemi’s work on fault systems and landscape evolution facilitates the mitigation of natural hazards, including earthquakes and landslides, and is foundational to the larger questions that drive his research;

namely, how changes in the deformation patterns recorded in rocks can be used to unravel the tectonic evolution of the continental plates throughout Earth's history.

Recent and Significant Publications:

“Low-temperature thermochronometric constraints on fault initiation and growth in the northern Rio Grande rift, upper Arkansas River valley, Colorado,” with A. L. Abbey, *Geology*, in press, doi: 10.1130/G40232.1.

“Late quaternary faulting in the Sevier Desert driven by magmatism,” with T. Stahl, *Scientific Reports*, 7, 2017, p. 44372, doi:10.1038/srep44372.

“Long-term exhumation rates exceed paleoseismic slip rates in the central Santa Monica Mountains, Los Angeles, California,” with M. K. Clark, *Geology*, 46, 2017, pp. 63-66, doi: 10.1130/G39388.1.

“A Cretaceous-Eocene depositional age for the Fenghuoshan group, Hoh Xil Basin: Implications for the tectonic evolution of the northern Tibet Plateau,” with L. M. Staisch, et al., *Tectonics*, 33, 2014, pp. 281-301, doi: 10.1002/2013TC003367.

Service – Professor Niemi has made valuable service contributions to the department. In his role as the director, he was a driving force in the current renovation of the facilities at Camp Davis. Professor Niemi has served on two faculty search committees and was elected by his peers to serve on the department Executive Committee. In addition, he has served his professional community in a variety of ways, including extensive involvement with the Geological Society of America, and substantial editorial service on two journals: associate editor of *Tectonics* (2010-2013), and editor of *Tectonics* (2014-present).

External Reviews:

Reviewer (A)

“Nathan is difficult to categorize as a geologist because he wears so many hats! His formal training is that of a field structural geologist but [he] has continuously added to his toolbox with everything from GPS geodesy to paleoseismology to low temperature thermochronology, to clumped isotope paleoaltimetry. In pursuing all of these disciplines, he has brought modern quantitative skills such as simple elastic modeling, statistical analysis, and GIS and field-based computation.”

Reviewer (B)

“He has a strong reputation in the field, thanks to his intellect, thoughtful argumentation and strongly interdisciplinary work.”

Reviewer (C)

“I am highly impressed by the broad range of techniques that Dr. Niemi and his students use in their research, the diversity of geologic settings around the world in which this research is conducted, and the breadth of tectonic processes that they investigate. ... Dr. Niemi is quite unusual in his ability to contribute to both the development and application of the techniques used for tectonic analysis – most researchers focus on only one aspect.”

Reviewer (D)

“In his research, Nathan’s strengths include a sense for good problems, an eagerness to continually expand his tool box, and an ability to take new methods beyond what others have done with them. His papers illustrate these qualities well.”

Reviewer (E)


“Dr. Niemi’s scholarly visibility at the national and international level is very high as are his contributions to his discipline. ...[he] appears to be an excellent and productive scientist, and great teacher and mentor, and significant contributor to the profession. He is clearly on an upward trajectory.”

Reviewer (F)

“Nathan’s funding record is quite successful, starting in 2007. His CAREER grant really jumps out and clearly says something about his high standing in the community. Honestly, I can see why it was probably awarded to him. Nathan is obviously extremely smart and creative.”

Summary of Recommendation:

Professor Niemi has established a productive and impactful research program, has made substantial contributions to the undergraduate and graduate programs in EES, and is a valued colleague within the university and his professional community. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Nathan A. Niemi be promoted to the rank of professor of Earth and environmental sciences, with tenure, in the College of Literature, Science, and the Arts.



Elizabeth R. Cole, Interim Dean,
Professor of Women’s Studies, Psychology,
and Afroamerican and African Studies
College of Literature, Science, and the Arts

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