

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

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

2011 – present	Assistant Professor, Department of Earth and Environmental Sciences, University of Michigan
2006 – 2011	Assistant Professor, Department of Geological 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 a highly successful instructor who teaches a diversity of courses that build on his expertise in field geology and tectonics. His courses range from introductory offerings on volcanoes and earthquakes to core courses in structural geology and sedimentology, and upper level courses on tectonophysics and research methods. He has also taken a lead role in the upper level field geology course at the Camp Davis Field Station near Jackson, Wyoming. Student evaluations place him near the top in his department. Professor Niemi is an excellent mentor and his first two Ph.D. students were placed in high-caliber post-doctoral positions. He consistently engages undergraduates in his research and has supervised three senior theses.

Research – Professor Niemi and his students use detailed field mapping, thermochronology, stable and clumped isotopes, and continuous Global Positioning System (GPS) geodesy to evaluate how crustal deformation is accommodated through folding and faulting over a wide range of timescales, from decades to tens of millions of years. Professor Niemi is highly respected for the quality of his data and the remarkable breadth of his expertise with a wide array of techniques. Professor Niemi has published 28 papers including one in press and the majority of these have appeared in a variety of high impact journals. His research has been well-funded primarily through the National Science Foundation (NSF) and he recently received a prestigious NSF-CAREER award.

Recent and Significant Publications:

“Detrital zircon age distributions as a discriminator of tectonic versus fluvial transport; an example from the Death Valley extended terrane,” *Geosphere*, in press.

- “Rapid Pliocene exhumation of the central Greater Caucasus constrained by low-temperature thermochronometry,” with B. Avdeev, *Tectonics*, 30, 2011, doi:10.1029/2010TC002808.
- “Sedimentologic and isotopic constraints on the Paleogene paleogeography and paleotopography of the southern Sierra Nevada, California,” with A. R. Lechler, *Geology*, 39, 2011, pp. 379-382.
- “Controls on the spatial variability of modern meteoric 8180: empirical constraints from the western US and east Asia and implications for stable isotope studies,” with A. R. Lechler, *American Journal of Science*, 311, 2011, pp. 664-700.

Service – Professor Niemi has made substantial contributions to his department and to the Earth community more broadly. He helped revise the core curriculum and he created and edited the annual newsletter, turning it into a highly professional document. Nationally, he has served on NSF panels and as an associate editor for a high-impact journal in his field.

External Reviewers:

Reviewer (A)

“His research is creative, thoughtful and of the highest quality. ... The papers by Lechler and Niemi in the *American Journal of Science* and *Geological Society of America* both published in 2011 push stable isotope paleoaltimetry to new levels. Their statistical analysis of the isotopes of modern waters in the western U.S. and eastern Asia (*AJS*) is absolutely superb and will no doubt figure deeply into future studies of these and other mountain ranges. ... this technique development by Prof. Niemi is indicative of a mature and thoughtful scientist...”

Reviewer (B)

“The recent work with PhD student Lechler is very impressive in its critical evaluations of the tools and approaches currently in use for such studies (*GSA Bulletin*, 2011; *Geology*, 2011). As is the case for most all of Niemi’s papers, these contributions stand out with their comprehensive data collection, thorough and rigorous analysis and careful discussion and interpretation.”

Reviewer (C)

“Niemi is one of that all-too-rare breed, the general complete geologist with first-rate field observational and mapping skills, a solid knowledge of structural geology and tectonics, which he has combined, developed, and integrated with quantitative skills in geodesy, geochronology, geomorphology, and stable isotopes. ... I place Niemi in a group of the very best geologists of his generation.”

Reviewer (D)

“Nathan has made important contributions to the field of active tectonics... ..he has shown breadth and vision in seeking to address other fundamental problems in active tectonics using novel methods, and expanded his research activities to the Tibetan Plateau and other parts of the world.”

Reviewer (E)

“...I constantly found innovative ideas and/or ground-breaking observations. ... I know very few people in his [generation], and perhaps in all [generations], in the Continental Tectonics community who can switch from a field to field with an ease and at the same make fundamental

contributions to each subject that was touched. This fact alone indicates that Dr. Niemi is an intellectually highly capable scholar: flexible with approaches but always on interesting and cutting-edge problems. ... I fully support the proposed promotion of Dr. Nathan Niemi..."

Reviewer (F)

"I would rate Dr. Niemi as one of best among a large and talented group of junior-level researchers working on Neotectonic problems, and perhaps unique in his ability to quantitatively use information from a wide variety of fields."

Reviewer (G)

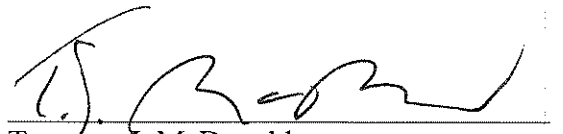
"...I have found him to be very bright, thoughtful, and engaging. ...this paper [Lechler and Niemi (20 11-AJS)] is thoughtful and an important contribution towards understanding the systematic behavior of isotopes in precipitation in the modern world. ... Nathan has clearly demonstrated considerable growth since his arrival at Michigan."

Reviewer (H)

"The quality of his work is excellent, and what is even more impressive is the scope of his research... Nathan's papers demonstrate a very good understanding of the fundamentals, a clever sense for interesting problems, and the skill to solve the problems, commonly with the use of new tools or methods."

Summary of Recommendation:

Professor Niemi is considered to be one of the best field geologists of his generation. He is an effective and popular teacher at all levels, both in the classroom and in the field. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Nathan A. Niemi be promoted to the rank of associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.



Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History and Dean
College of Literature, Science, and the Arts

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